TOWN OF GLASTONBURY

INVITATION TO BID

BID #	ITEM	DATE & TIME REQUIRED
GL-2016-17	Minnechaug Golf Course Hole 9 Pond Maintenance Project	June 3, 2016 at 11:00 A.M.

The Town of Glastonbury will receive Sealed Bids, in duplicate, for pond maintenance at Minnechaug Golf Course including the removal and transport or approximately 2,300 cubic yards of sediment, site restoration, landscaping, bituminous concrete cart path installation and connecting two bedrock wells. Bids will be received only at the Office of the Purchasing Agent, Town Hall (second level), 2155 Main Street, Glastonbury, CT 06033, Attention: Mary F. Visone, Purchasing Agent, until June 3, 2016 at 11:00 A.M. (local time), at which time they will be publicly opened and read aloud. No late bids will be accepted.

An optional pre-bid meeting will be held at Minnechaug Golf Course, 16 Fairway Crossing, Glastonbury, CT on Wednesday, May 18th @ 9:00 A.M. Interested Bidders are encouraged to attend.

The Town reserves the right to waive informalities or reject any or all bids when said action is deemed to be in the best interests of the Town.

Bid Forms, Plans, and Specifications may be obtained at no cost from the Town's website at www.glastonbury-ct.gov or they may be purchased at The Print House LLC, 22 Krieger Lane, Unit 6, Glastonbury, CT 06033, tel. (860) 652-0803.

Prevailing Wages: The contractor must comply with Section 31-53 of the Connecticut General Statutes as amended, including annual adjustments in prevailing wages.

The Town of Glastonbury is an Affirmative Action/Equal Opportunity Employer. Minority / Women / Disadvantaged Business Enterprises are encouraged to bid.

Mary F. Visone
Purchasing Agent

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1. Sealed bids (**one original and one copy**) on the attached Bid Forms will be received at the Office of the Purchasing Agent, Town Hall, 2155 Main Street, Glastonbury, Connecticut 06033 (second level). At the designated time of opening, they will be publicly opened, read, recorded and placed on file.

2. Whenever it is deemed to be in the best interest of the Town, the Town Manager, Purchasing Agent or designated representative shall waive informalities in any and all bids. The right is reserved to reject any bid when such action is deemed to be in the best interest of the Town of Glastonbury.

3. The award will be on the basis of Total Base Bid Price unless otherwise specified. The Total Base Bid Price shall be arrived at by the mathematical calculation of the unit price multiplied times the number of units specified for each line item, and the total sum of all line items in the base bid. In the event that the Town finds computational errors in a respondent's bid proposal, the Total Base Bid Price shall be recalculated by the Town based on the unit prices contained in the bid proposal.

4. Bids will be carefully evaluated as to conformance with stated specifications.

5. The envelope enclosing your bid should be clearly marked by bid number, time of bid opening, and date.

6. If a bid involves any exception from stated specifications, they must be clearly noted as exceptions, underlined, and attached to the bid.

7. The Bid Documents contain the provisions required for the requested item. Information obtained from an officer, agent, or employee of the Town or any other person shall not affect the risks or obligations assumed by the Bidder or relieve him/her from fulfilling any of the conditions of the bid.

8. Each Bidder is held responsible for the examination and/or to have acquainted themselves with any conditions at the job site which would affect their work before submitting a bid. Failure to meet this criteria shall not relieve the Bidder of the responsibility of completing the bid without extra cost to the Town of Glastonbury.

9. Any bid may be withdrawn prior to the above-scheduled time for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No Bidder may withdraw a bid within sixty (60) days after the actual date of the opening thereof. Should there be reasons why a bid cannot be awarded within the specified period, the time may be extended by mutual agreement between the Town and the Bidder.

10. Each bid must be accompanied by a bid bond payable to the Town for ten percent (10%) of the total amount of the bid. The bid bond of the successful Bidder will be retained until the payment bond and performance bond have been executed and approved, after which it will be returned. A certified check may be used in lieu of a bid bond. The Town of Glastonbury will not be liable for the accrual of any interest on any certified check submitted. Cashier's checks will not be accepted.

11. A 100% Performance and Payment bond are required of the successful bidder. This bond shall cover all aspects of the specification and shall be delivered to the Purchasing Agent prior to the issuance of a purchase order. The Performance and Payment Bond will be returned upon the delivery and acceptance of the bid items.

12. The Bidder agrees and warrants that in the submission of this sealed Bid, they will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, national origin, sex, or physical disability including, but not limited to blindness, unless it is shown by such Bidder that such disability prevents performance of that which must be done to successfully fulfill the terms of this sealed Bid or in any manner which is prohibited by the laws of the United States or the State of Connecticut: and further agrees to provide the Human Relations Commission with such information requested by the Commission concerning the employment practices and procedures of the Bidder. An Affirmative Action Statement will be required by the successful Bidder.

13. Bidder agrees to comply with all of the latest Federal and State Safety Standards and Regulations and certifies that all work required in this bid will conform to and comply with said standards and regulations. Bidder further agrees to indemnify and hold harmless the Town for all damages assessed against the Town as a result of Bidder's failure to comply with said standards and/or regulations.

14. All correspondence regarding any purchase made by the Town of Glastonbury shall reference the Town's purchase order number. Each shipping container shall clearly indicate both Town purchase order number and item number.

15. Bidder is required to review the Town of Glastonbury Code of Ethics adopted July 8, 2003 and effective August 1, 2003 and revised October 29, 2013 and effective November 28, 2013. Bidder shall acknowledge that they have reviewed the document in the area provided on the bid/proposal response page (BP). The selected Bidder will also be required to complete and sign an Acknowledgement Form prior to award. The Code of Ethics and the Consultant Acknowledgement Form can be accessed at the Town of Glastonbury website at **www.glastonbury-ct.gov**. Upon entering the website scroll down to click on **Bids & Proposals Icon** which will bring you to the links for the **Code of Ethics** and the **Acknowledgement Form**. If the Bidder does not have access to the internet, a copy of these documents can be obtained through the Purchasing Department at the address listed within this bid/proposal.

16. **Non-Resident Contractors:** (if applicable)
Upon award the Town is required to report names of nonresident (out of state) Contractors to the State of Connecticut, Department of Revenue Services (DRS) to ensure that Employment Taxes and other applicable taxes are being paid by Contractors. **A single surety bond for 5% of the entire contract price is required to be filed with DRS by any unverified nonresident prime or general contractor (if awarded) where the contract price for the project is $250,000 or more.** The contractor will be required to promptly furnish to the Town a copy of the **Form AU-968 - Certificate of Compliance** issued by the State of Connecticut, DRS. See State of Connecticut **Notice SN 2012 (2).**

17. Bidder shall include on a sheet(s) attached to its proposal a complete disclosure of all past and pending mediation, arbitration and litigation cases that the bidder or its principals (regardless of their place of employment) have been involved in for the most recent five years. Please include a statement of the issues in dispute and their resolution. Acceptability of Bidder based upon this disclosure shall lie solely with the Town.

18. Bidder or its principals, regardless of their place of employment, shall not have been convicted of, nor entered any plea of guilty, or nolo contendere, or otherwise have been found civilly liable or criminally responsible for any criminal offense or civil action. Bidder shall not be in violation of any State or local ethics standards or other offenses arising out of the submission of bids or proposals, or performance of work on public works projects or contracts.

19. It is the responsibility of the bidder to check the Town's website before submitting bid for addendums posted prior to bid opening.

20. **State Prevailing Wage Rates:**

Respondents shall comply with State Statutes concerning Employment and Labor Practices, if applicable, and Section 31-53 of the Connecticut General Statutes, as amended (Prevailing Wages). Wage Rate Determination for this project from the State of Connecticut is included in the Bid Documents. Certified payrolls for site labor shall be submitted weekly to the Town's Representative or his designee on the correct State of Connecticut form. The Town reserves the right to, without prior notice, audit payroll checks given to workers on site in order to ascertain that wages and fringe benefits are being paid as required by the State of Connecticut. Please make special note of the State requirement to adjust wage and fringe benefit rates on each July 1st following the original published rates.

NOTE that respondent is to include in its proposal all costs required by such annual increases in the PREVAILING RATES. NO escalation clauses are to be included in the respondent's proposal and NO escalation clauses will be in the Contract Agreement. Respondent is to anticipate any future increases and include these costs in the proposal response.

Contractor's invoices will not be paid if certified payrolls are incomplete, incorrect or not received in a timely manner.

All Apprentices must be registered with the State of Connecticut and their number shall not exceed the number allowed by law. Otherwise, all workers must be paid at least the Journeyman rate listed including benefits.

OSHA SAFETY AND HEALTH CERTIFICATION

Effective July 1, 2009: Any Mechanic, Laborer, or Worker, who performs work in a classification listed on the prevailing wage rate schedule on any public works project covered under C.G.S. Section 31-53, both on site and on or in the public building, must have completed a federal OSHA Safety and Health course within the last 5 years.

21. Each bid shall also include a description of three (3) projects completed by the bidder with references to demonstrate successful experience with similar projects.

IMPORTANT: Failure to comply with general rules may result in disqualification of the Bidder.

NOTE: Any technical questions regarding this bid shall be made in writing (email acceptable) and directed to Raymond E. Purtell, Director of Parks and Recreation, 2155 Main Street, PO Box 6523, Glastonbury, CT 06033; ray.purtell@glastonbury-ct.gov. Telephone (860) 652-7687 between the hours of 8:00 a.m. – 4:30 p.m. For administrative questions concerning this bid/proposal, please contact Mary F. Visone, Purchasing Agent, at (860) 652-7588 or email the Purchasing Department at purchasing@glastonbury-ct.gov. All questions, answers, and/or addenda, as applicable, will be posted on the Town's website at www.glastonbury-ct.gov (Upon entering the website scroll down to click on Bids & Proposals Icon, then scroll down page to see the active bid table. You must click the Bid Title to view all bid details and document links). The request must be received at least seven (7) business days prior to the advertised response deadline**. It is the respondent's responsibility to check the website for addenda prior to submission of any bid/proposal.**

01.00 WORKMANSHIP, MATERIALS AND EMPLOYEES

01.01 Wherever in this contract the word "Engineer" is used, it shall be understood as referring to the Milone & MacBroom, Inc., 99 Realty Drive, Cheshire, CT, acting through any assistants duly authorized.

01.02 The entire work described herein shall be completed in accordance with the plans and specifications to the full intent and meaning of the same. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and material shall be of good quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

01.03 The wording "furnish", "install", "construct", "furnish and install", or any similar terms, unless specifically noted to the contrary, shall include all labor, materials, water, tools, equipment, light, power, transportation, and any other services required for the completion of the work.

01.04 The Contractor shall at all times enforce strict discipline and good order among his employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned to him.

02.00 SUPERINTENDENT

02.01 The Contractor shall keep on the work during its progress, in the absence of the Contractor, a competent Superintendent. The Superintendent shall be acceptable to the Engineer and shall fully represent the Contractor. All directions given to the Superintendent shall be binding as if given to the Contractor.

03.00 PRECONSTRUCTION MEETING

03.01 A Preconstruction Meeting will be held with the Engineer, Contractor, and any private utility company prior to commencing any work. The Engineer shall arrange the meeting based on a mutually convenient time.

04.00 PERMITS

04.01 Other than local permits, all permits, licenses, and fees required for the performance of the Contract work shall be secured and paid for by the Contractor.

05.00 PROPERTY ACCESS

05.01 The Contractor shall take all proper precautions to protect from injury or unnecessary interference, and provide proper means of access to abutting property where the existing access is cut off by the Contractor.

05.02 The Contractor shall take all proper precautions to protect persons from injury or unnecessary inconvenience and leave an unobstructed way along the public and private places for travelers, vehicles, and access to hydrants.

05.03 The Contractor shall make arrangements with the adjacent property owners for such trespass as he may reasonably anticipate in the performance of the work. All such arrangements shall be reported, in writing, to the Engineer.

06.00 PROTECTION OF THE PUBLIC AND OF WORK AND PROPERTY

06.01 The Contractor shall continuously maintain adequate protection of all work from damage, and shall take all reasonable precautions to protect the Town from injury or loss arising in connection with the Contract.

06.02 The Contractor shall adequately protect adjacent private and public property as provided by law and the Contract Documents.

06.03 The Contractor shall make good any damage, injury, or loss of his work and to the property of the Town resulting from lack of reasonable protective precautions.

07.00 EXISTING IMPROVEMENTS

07.01 The Contractor shall conduct his work so as to minimize damage to existing improvements. Except where specifically stated otherwise in the specifications, drawings, or as directed by the Engineer, it will be the responsibility of the Contractor to restore to their original condition, as near as practical, all improvements on public or private property. This shall include:

a. Property within and adjacent to the side of installation such as shrubs, walks, driveways, fences, etc.

b. Utility mains, ducts, poles, and services. The Contractor is hereby notified that utilities, if/where shown on the plans, are at approximate locations. These locations are subject to possible errors in the source of information and errors in transcription. The Contractor shall make certain of the exact location of all mains, ducts, poles, and services prior to excavation.

08.00 SEPARATE CONTRACTS

08.01 The Engineer reserves the right to let other contracts in connection with this work. The Contractor shall afford other contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work, and shall properly connect and coordinate his work with theirs. Wherever work being done by the Town of Glastonbury forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Engineer to secure the completion of the various portions of the work.

09.00 INSPECTION OF WORK

09.01 The Town shall provide sufficient personnel for the inspection of the work.

09.02 The Engineer shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for such access and for inspection.

09.03 If the specifications or the Engineer's instructions require any work to be specially tested or approved, the Contractor shall give the Engineer timely notice of its readiness for inspection and, if the inspection is by another authority other than the Engineer, of the date fixed for such inspection. Inspections by the Engineer shall be made promptly. If any work should be covered up without approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination and properly restored at the Contractor's expense.

09.04 Reinspection of any work may be ordered by the Engineer. If such work is found to be in accordance with the Contract Documents, the Town shall pay the cost of reinspection and replacement. If such work is not in accordance with the Contract Documents, the Contractor shall pay such cost.

10.00 RIGHT TO INCREASE OR DECREASE WORK

10.01 The Town shall have the right to increase or decrease the amount of work herein specified as may be required.

11.00 RIGHT OF ENGINEER TO STOP WORK FOR WEATHER CONDITIONS

11.01 Should the work, in the opinion of the Engineer, be in danger by reason of inclemency of weather, or could not be finished in time to prevent such danger, the Contractor shall cease operations upon order of the Engineer, and shall not resume them until ordered to do so by the Engineer when the weather conditions are favorable. The Contractor shall, upon such orders, discontinue work, remove all materials or appliances for or in use upon the work, and place the streets in proper condition for use by the public during the time the work is suspended as herein provided, without cost to the Town.

12.00 CONTRACTOR TO BE RESPONSIBLE FOR IMPERFECT WORK OR MATERIALS

12.01 Any faithful work or imperfect material that may be discovered before the acceptance and the payment of the work shall be corrected upon the order of the Engineer. The acceptance and payment of the work does not in any manner relieve the Contractor of his obligation to construct work in the proper manner and the use of materials herein specified.

13.00 TOWN MAY NOTIFY CONTRACTOR IF WORK IS NOT CARRIED ON SATISFACTORILY

13.01 If, in the opinion of the Engineer, the Contractor is not proceeding with the work at a sufficient rate of progress so as to finish in the time specified, or has abandoned said work, or is not complying with the terms and stipulations or the Contract and specifications, the Engineer may serve notice on the Contractor to adopt such methods as will ensure the completion of the work in the time specified.

13.02 If, within five days after the Engineer has notified the Contractor that his work is not being carried on satisfactorily as before mentioned, the Engineer shall have the right to annul the Contract and manage the work under the direction of the Engineer, or re-let, for the very best interest of the Town as a new contract, the work under said new Contract shall be considered the responsibility of the defaulting Contractor.

13.03 Additional costs incurred over and above the original Contract shall be borne by the Performance Bond.

14.00 DEDUCTIONS FOR UNCORRECTED WORK

14.01 If the Engineer deems it inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price shall be made therefor.

14.02 The Contractor shall promptly remove from the premises all materials condemned by the Engineer as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute his own work in accordance with the Contract and without expense to the Town, and shall bear the expense of making good all work by other contractors destroyed or damaged by such removal or replacement.

14.03 If the Contractor does not remove such condemned work and materials as promptly as possible after written notice, the Engineer may remove them and store the materials at the expense of the Contractor.

15.00 CLEANING UP

15.01 The Contractor must remove all debris of every description as the work progresses and leave the surroundings in a neat and orderly condition to the satisfaction of the Engineer.

15.02 Upon completion, and before acceptance and final payment, the Contractor shall remove from the site all equipment, forms, surplus material, rubbish and miscellaneous debris and leave the site in a neat and presentable condition.

16.00 ROYALTIES AND PATENTS

16.01 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Town of Glastonbury harmless from loss on account thereof, except that the Town of Glastonbury shall be responsible for all such loss when a particular manufacturer, product, or process is specified by the Town of Glastonbury.

01.00 NOTICE TO CONTRACTOR

01.01 Intent of Contract: The intent of the Contract is to prescribe a complete work or improvement that the Contractor undertakes to do, in full compliance with the specifications, plans, special provisions, proposal, and Contract. The Contractor shall perform all work in close conformity with the lines, grades, typical cross-sections, dimensions, and other data shown on the plans or as modified by written orders, including the furnishing of all materials, implements, machinery, equipment, tools, supplies, transportation, labor, and all other things necessary to the satisfactory prosecution and completion of the project.

01.02 Much time and effort has gone into this project in an effort to minimize impact on trees and adjacent properties. Extreme care shall be taken by the Contractor to honor commitments made by the Town. Prior to doing any work, the Contractor should meet with the Engineer to become familiar with the conditions encountered and commitments made.

02.00 COMMUNICATIONS

02.01 All notices, demands, requests, instructions, approvals, proposals, and claims must be in writing.

02.02 Any notice to, or demand upon, the Contractor shall be sufficiently given if delivered at the office of the Contractor stated on the signature page of the Agreement (or at such other office as the Contractor may, from time to time, designate) in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office.

02.03 All papers required to be delivered to the Town shall, unless otherwise specified in writing to the Contractor, be delivered to the Director of Parks and Recreation, 2155 Main Street, Glastonbury, CT 06033, and any notice to, or demand upon, the Town shall be delivered at the above address in a sealed, postage-prepaid envelope or delivered with charges prepaid to any telegraph company for transmission, in each case addressed to such office or to such other representatives of the Town, or to such other address as the Town may subsequently specify in writing to the Contractor for such purpose.

02.04 Any such notice shall be deemed to have been given as of the time of actual delivery or, in case of mailing, when the same should have been received in due course of post or, in the case of telegrams, at the time of actual receipt, as the case may be.

03.00 INSURANCE

03.01 The Bidder shall, at its own expense and cost, obtain and keep in force during the entire duration of the Project or Work the following insurance coverage covering the Bidder and all of its agents, employees and sub-contractors and other providers of services and shall name the **Town of Glastonbury and its employees and agents as an Additional Insured** on a primary and non-contributory basis to the Bidders Commercial General Liability and Automobile Liability policies. **These requirements shall be clearly stated in the remarks section on the Bidders Certificate of Insurance.** Insurance shall be written with insurance carriers approved in the State of Connecticut and with a minimum Best's Rating of A-VIII. In addition, all carriers are subject to approval by the Town. Minimum Limits and requirements are stated below:

a. Worker's Compensation Insurance:

- Statutory Coverage
- Employer's Liability
- $500,000 each accident/$500,000 disease-policy limit/$500,000 disease each employee
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

b. Commercial General Liability:

- Including Premises and Operations, Products and Completed Operations, Personal and Advertising Injury, Contractual Liability and Independent Contractors
- Limits of Liability for Bodily Injury and Property Damage
  Each Occurrence: $1,000,000
  Aggregate: $2,000,000
  (The Aggregate Limit shall apply separately to each job.)
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

c. Automobile Insurance:

- Including all owned, hired, borrowed, and non-owned vehicle
- Limit of Liability for Bodily Injury and Property Damage
  Per Accident: $1,000,000
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

d. Umbrella of Excess Liability:

- State in the Remarks Section that coverage is follow form.
- Limit of Liability Each Occurrence $1,000,000
  Aggregate $1,000,000

e. Owner's and Contractor's Protective Liability Insurance:

With respect to the Contractor's Project operations and also those of its subcontractors, the Contractor shall carry, for and on behalf of the State and the Town of Glastonbury, insurance which shall provide coverage of at least $1,000,000 for each accident or occurrence resulting in damages from (1) bodily injury to or death of persons and/or (2) injury to or destruction of property. Subject to that limit per accident or occurrence, the policy shall provide an aggregate coverage of at least $2,000,000 for all pertinent damages arising during the policy period

03.02 The Bidder shall direct its Insurer to provide a Certificate of Insurance to the Town before any work is performed. The Contractor shall be responsible to notify the Town **60 days** in advance with written notice of cancellation or non-renewal. The Certificate shall evidence all required coverage. The Bidder shall provide the Town copies of any such insurance policies upon request.

03.03 INDEMNIFICATION: To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Town and the State of Connecticut and its consultants, agents, and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) to the extent arising out of or resulting from the performance of the Contractor's work, provided that such claim, damage, loss or expense is caused in whole or in part by any negligent act or omission by the Contractor, or breach of its obligations herein or by any person or organization directly or indirectly employed or engaged by the Contractor to perform or furnish either of the services, or anyone for whose acts the Contractor may be liable.

04.00 WORK BY OTHERS

05.01 Private utilities, contractors, developers or other parties may be expected to be working within the Contract area during this Contract. It shall be the responsibility of the Contractor to coordinate his work with the work being done by others in order that the construction shall proceed in an efficient and logical manner. The Contractor shall have no claim or claims whatever against the Town, the Engineer, or other parties due to delays or other reasons caused by the work by others or his failure to coordinate such work.

05.00 CONTRACTOR'S WORK AND STORAGE AREA

05.01 The Contractor shall contact the Town to determine if any specific locations will be designated, or gain its approval prior to using any area for storage of equipment, materials and trailers during the period of this Contract. The Contractor shall confine his work/storage area to the limits as designated or approved and shall be responsible for the security of the work/storage area. Upon completion of the Contract, the Contractor shall remove all equipment and materials, except as otherwise specified, and restore the site to its original condition as approved by the Engineer and at no cost to the Town.

06.00 DISPOSAL AREA

06.01 The Tryon Street Bulky Waste Facility will be available to the Contractor, at no charge, for disposal of materials that are accepted at that facility. Waste disposal guidelines for the Bulky Waste facility are published on the Town web site at the address shown below. Each bidder shall have reviewed and understand these guidelines prior to submitting a bid for the project.

http://www.glastonbury-ct.gov/Modules/ShowDocument.aspx?documentid=699

Acceptable materials generally include such materials as brush, stumps, demolition materials, and excess excavated earth materials. Unacceptable materials generally include such items as carpet, appliances, upholstered furniture; hazardous wastes such as pesticides, oil based paints and thinners; or other wastes as designated by the State Department of Environmental Protection. Demolition material cannot contain asbestos or other hazardous materials.

The Contractor shall obtain a disposal area for all other unsuitable or surplus materials at no cost to the Town.

07.00 DUST CONTROL

07.01 During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities so as to minimize the creation and dispersion of dust. If the Engineer decides that it is necessary to use water or calcium chloride for more effective dust control, the Contractor shall furnish and spread the material, as directed, without additional compensation.

08.00 MAINTENANCE / GUARANTEE PERIOD

08.01 The Contractor shall be held responsible to the Town for maintenance for a minimum of one-year following completion of all work under this Contract with respect to defects, settlements, etc.

09.00 PROTECTION OF EXISTING UTILITIES

09.01 Prior to opening an excavation, effort shall be made to determine whether underground installations, (i.e., sewer, water, fuel, electric lines, etc.) will be encountered and, if so, where such underground installations are located. Before starting any excavation, the Contractor shall submit to the Engineer plans or details showing the proposed method the Contractor will use to support and protect all existing utilities during construction. The furnishing of such plans and details shall not serve to relieve the Contractor of any responsibility for the proper conduct of the work.

09.02 When the excavation approaches the estimated location of such an installation, the exact location shall be determined by careful probing or hand digging, and when it is uncovered, proper supports shall be provided for the existing installation. Utility companies shall be contacted and advised of proposed work prior to the start of actual excavation.

09.03 There will be no extra payment for submitting plans or details for supporting and protecting all existing utilities during construction.

10.00 TIME FOR COMPLETION/NOTICE TO PROCEED

10.01 **It the Town's intent that substantial completion of the work included in this contract be achieved on or before November 30, 2016.** As such, the Town will schedule a pre-construction meeting immediately upon award of this contract and will issue a Notice to Proceed at this meeting. Contractors who submit a bid for this project shall be prepared to respond to this schedule, and include all costs related to this schedule in their bid.

Within ten (10) business days after the date of the Notice of Award, the Contractor must provide the appropriate bond and insurance certificates to the Town Purchasing Agent and must be issued a Notice to Proceed / Purchase Order for the Project prior to initiating any work.

10.02 The Contractor shall be granted access to the site effective October 11, 2016. The Contractor shall use the time between receipt of Contract Award and Notice to Proceed and October 11, 2016 to order materials, schedule delivery of equipment, coordinate work of subcontractors, initial Call Before You Dig requirements, etc., so that the work

can begin in earnest on October 11, 2016. Minnechaug Golf Course will be closed to the public effective October 11, 2016, so that the Contractor's operations are not adversely affected by continued operation of the course.

10.03 Because it is the intention of the Town to ensure full operation of Minnechaug Golf Course effective April 1, 2017, it is imperative that substantial completion of the work be achieved on or before November 30, 2016.

If, due to circumstances beyond the Contractor's control, portions of the work need to be carried forward to Spring 2017, every reasonable and prudent effort shall be made by the Contractor to complete the work no later than April 1, 2017, at no additional cost to the Town.

11.00 LIQUIDATED DAMAGES

11.01 As actual damages for any delay in completion of the work that the Contractor is required to perform under this Contract are impossible to determine, the Contractor and the Sureties shall be liable for and shall pay to the Town the sum of $1,000.00 as fixed, agreed and liquidated damages for each calendar day of delay from the above-stipulated completion, or completion as modified in writing by both parties, until such work is satisfactorily completed and accepted.

12.00 SCHEDULE OF DRAWINGS

12.01 The Contractor is hereby alerted that the plan set entitled "Minnechaug Golf Course Hole 9 Pond Maintenance Project", including eleven (11) sheets prepared by Milone & MacBroom is to be considered part of these specifications.

13.00 CHANGES IN THE WORK

13.01 The Town reserves the right to perform portions of the work in connection with these plans and specifications. The reduction in the work to be performed by the Contractor shall be made without invalidating the Contract. Whenever work is done by the Town contiguous to other work covered by this Contract, the Contractor shall provide reasonable opportunity for the execution of the work and shall properly coordinate his work with that of the Town.

TOWN OF GLASTONBURY * 2155 MAIN STREET * GLASTONURY * CT

BID / PROPOSAL NO: GL-2016-17 **DATE DUE:** 06-03-16

DATE ADVERTISED: 05-11-16 **TIME DUE:** 11:00 AM

NAME OF PROJECT: Minnechaug Golf Course Hole 9 Pond Maintenance Project

In compliance with this Invitation to Bid, the Bidder hereby proposes to provide goods and/or services as per this solicitation in strict accordance with the Bid Documents, within the time set forth therein, and at the prices submitted with their bid response.

It is the responsibility of the Bidder to clearly mark the outside of the bid envelope with the Bid Number, Date and Time of Bid Opening, and it also **THE RESPONSIBILITY OF THE BIDDER TO CHECK THE TOWN'S WEBSITE BEFORE SUBMITTING BID FOR ADDENDA POSTED PRIOR TO BID OPENING.**

THE BIDDER ACKNOWLEDGES RECEIPT OF THE FOLLOWING ADDENDA AS REQUIRED:

Addendum #1 _____(Initial/Date) Addendum #2 _____ (Initial/Date) Addendum #3 _____(Initial/Date)

OTHER ITEMS REQUIRED WITH SUBMISSION OF BID PROPOSAL:

The following bid checklist describes items required for inclusion with the above-referenced bid proposal package. It is provided for the convenience of the bidders and, therefore, should not be assumed to be a complete list.

_____ 1. Included Bid Bond as per Section 10 of the Information for Bidders.

_____ 2. Included Disclosure of Past and Pending Mediation, Arbitration, and Litigation cases against the Bidder or its Principals as per Section 17 of the Information for Bidders.

_____ 3. Included Qualifications Statement as per Section 21 of the Information for Bidders.

_____ 4. Checked Town web site for Addenda and acknowledged Addenda on page BP-1.

_____ 5. Acknowledged Non-Collusion Affidavit on page BP-3.

_____ 6. Acknowledged Code of Ethics on page BP-3.

_____ 7. Clearly marked envelope with Bid Number, Date, Time of opening, Bidder's Company Name and address.

MINNECHAUG GOLF COURSE **BID #GL-2016-17**
HOLE 9 POND MAINTENANCE PROJECT
BID PROPOSAL

Item No.	Item Description	Unit	Qty.	Unit Price	Extension
1	Site Preparation	LS	1	$	$
2	Dust, Sediment and Erosion Control.	LS	1	$	$
3	Maintenance and Protection of Traffic.	LS	1	$	$
4	Water Control	LS	1	$	$
5A	Earthwork	LS	1	$	$
5B	Earthwork–Export to Hole 1	CY	2,300	$	$
6	Electrical	LS	1	$	$
7	Pond Features	LS	1	$	$
8A	Bituminous Concrete Cart Path	LF	575	$	$
8B	Bituminous Concrete Lip Curbing ½"	LF	130	$	$
8C	Bituminous Concrete Lip Curbing 6"	LF	65	$	$
9	Site Restoration	LS	1	$	$
9A	Planting – Bank/Shoreline	EA	250	$	$
9B	Planting – Low Shoreline	EA	75	$	$
9C	Planting – Littoral Zone	EA	1,100	$	$

TOTAL BASE BID PRICE (Items 1 through 9c) **$ _____**
Numeric Base Bid Amount

_____
Written Base Bid Amount

<u>DEDUCT ALTERNATE 1:</u> Credit for Work not Preformed Water Control – Lump Sum (LS)
This item includes the credit for installation of temporary cofferdam. Impervious lining, sandbags, etc. as necessary to divert the flow of the unnamed brook around the construction site. This credit will be applied if construction occurs during a dry period of the summer and/or fall and a temporary bypass of the stream flow is deemed not necessary. There will be not measurement for this work. This work will be credited by the contractor as lump sum bid price. The Town anticipates making the decision regarding this item after bid award; Deduct Alternate 1 will not be included in the basis for award.

Lump Sum Credit for Work Not Preformed Water Control **$_____**
(NUMERIC AMOUNT)

_____
Deduct Alternate 1 Written Amount

In addition, the Bidder proposes the following unit price for services added to the Total Bid Price by appropriate modification, if required by the Contract.

<u>UNIT PRICE:</u>
Uniformed Flaggers per hour **$_____**
(NUMERIC AMOUNT)

Bidder Name: _____

NON-COLLUSION AFFIDAVIT:

By submission of this bid, the Bidder certifies, and in the case of a joint bid each party thereto certifies as to their own organization that this bid has been arrived at independently without consultation, communication, or agreement as to any matter relating to this bid with any other Bidder or with any competitor.

CODE OF ETHICS:

I/We have reviewed a copy of the Town of Glastonbury's Code of Ethics and agree to submit a Consultant Acknowledgement Form if I/We are selected. Yes_____ No_____**

***Bidder is advised that effective August 1, 2003, the Town of Glastonbury cannot consider any bid or proposal where the Bidder has not agreed to the above statement.**

Respectfully submitted:

Type or Print Name of Individual	**Doing Business as (Trade Name)**
Signature of Individual	**Street Address**
Title	**City, State, Zip Code**
Date	**Telephone Number/Fax Number**
E-Mail Address	**SS# or TIN#**

(Seal – If bid is by a Corporation)

Attest

ATTACHMENT A:
STATE WAGE RATES

Project: Minnechaug Golf Course Hole Nine Pond Maintenance

Minimum Rates and Classifications for Heavy/Highway Construction

ID#: **H** 22087

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: 2016-17

Project Town: Glastonbury

FAP Number:

State Number:

Project: Minnechaug Golf Course Hole Nine Pond Maintenance

CLASSIFICATION	Hourly Rate	Benefits
01) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 5 and 7**		
1) Boilermaker	33.79	34% + 8.96
1a) Bricklayer, Cement Masons, Cement Finishers, Plasterers, Stone Masons	33.48	28.76
2) Carpenters, Piledrivermen	31.45	23.54

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2a) Diver Tenders	31.45	23.54
3) Divers	39.91	23.54
03a) Millwrights	31.84	23.99
4) Painters: (Bridge Construction) Brush, Roller, Blasting (Sand, Water, etc.), Spray	45.95	19.35
4a) Painters: Brush and Roller	31.52	19.35
4b) Painters: Spray Only	34.52	19.35
4c) Painters: Steel Only	33.02	18.55

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4d) Painters: Blast and Spray	34.52	19.35
4e) Painters: Tanks, Tower and Swing	33.52	19.35
5) Electrician (Trade License required: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	38.20	23.72 + 3% of gross wage
6) Ironworkers: Ornamental, Reinforcing, Structural, and Precast Concrete Erection	34.47	31.09 + a
7) Plumbers (Trade License required: (P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2) and Pipefitters (Including HVAC Work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4 G-1, G-2, G-8, G-9)	40.62	28.91
----LABORERS---- -		
8) Group 1: Laborer (Unskilled), Common or General, acetylene burner, concrete specialist	28.55	18.90 + a

Project: Minnechaug Golf Course Hole Nine Pond Maintenance

9) Group 2: Chain saw operators, fence and guard rail erectors, pneumatic tool operators, powdermen	28.80	18.90 + a
10) Group 3: Pipelayers	29.05	18.90 + a
11) Group 4: Jackhammer/Pavement breaker (handheld); mason tenders (cement/concrete), catch basin builders, asphalt rakers, air track operators, block paver, curb setter and forklift operators	29.05	18.90 + a
12) Group 5: Toxic waste removal (non-mechanical systems)	30.55	18.90 + a
13) Group 6: Blasters	30.30	18.90 + a
Group 7: Asbestos/lead removal, non-mechanical systems (does not include leaded joint pipe)	29.55	18.90 + a
Group 8: Traffic control signalmen	16.00	18.90 + a

As of: Thursday, May 05, 2016

Project: Minnechaug Golf Course Hole Nine Pond Maintenance

Group 9: Hydraulic Drills	29.30	18.90 + a
----LABORERS (TUNNEL CONSTRUCTION, FREE AIR). Shield Drive and Liner Plate Tunnels in Free Air.----		
13a) Miners, Motormen, Mucking Machine Operators, Nozzle Men, Grout Men, Shaft & Tunnel Steel & Rodmen, Shield & Erector, Arm Operator, Cable Tenders	32.22	18.90 + a
13b) Brakemen, Trackmen	31.28	18.90 + a
----CLEANING, CONCRETE AND CAULKING TUNNEL----		
14) Concrete Workers, Form Movers, and Strippers	31.28	18.90 + a
15) Form Erectors	31.60	18.90 + a

Project: Minnechaug Golf Course Hole Nine Pond Maintenance

----ROCK SHAFT LINING, CONCRETE, LINING OF SAME AND TUNNEL IN FREE AIR:----		
16) Brakemen, Trackmen, Tunnel Laborers, Shaft Laborers	31.28	18.90 + a
17) Laborers Topside, Cage Tenders, Bellman	31.17	18.90 + a
18) Miners	32.22	18.90 + a
----TUNNELS, CAISSON AND CYLINDER WORK IN COMPRESSED AIR: ----		
18a) Blaster	38.53	18.90 + a
19) Brakemen, Trackmen, Groutman, Laborers, Outside Lock Tender, Gauge Tenders	38.34	18.90 + a

Project: Minnechaug Golf Course Hole Nine Pond Maintenance

20) Change House Attendants, Powder Watchmen, Top on Iron Bolts	36.41	18.90 + a
21) Mucking Machine Operator	39.11	18.90 + a
----TRUCK DRIVERS----(*see note below)		
Two axle trucks	28.83	21.39 + a
Three axle trucks; two axle ready mix	28.93	21.39 + a
Three axle ready mix	28.98	21.39 + a
Four axle trucks, heavy duty trailer (up to 40 tons)	29.03	21.39 + a

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Four axle ready-mix	29.08	21.39 + a
Heavy duty trailer (40 tons and over)	29.28	21.39 + a
Specialized earth moving equipment other than conventional type on-the road trucks and semi-trailer (including Euclids)	29.08	21.39 + a
----POWER EQUIPMENT OPERATORS----		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer (2 drums or over), front end loader (7 cubic yards or over), Work Boat 26 ft. & Over, Tunnel Boring Machines. (Trade License Required)	38.55	23.55 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver ($3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	38.23	23.55 + a
Group 3: Excavator/Backhoe under 2 cubic yards; Cranes (under 100 ton rated capacity), Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Fine Grade (slopes, shaping, laser or GPS, etc.). (Trade License Required)	37.49	23.55 + a

Project: Minnechaug Golf Course Hole Nine Pond Maintenance

Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper)	37.10	23.55 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; Asphalt Spreader; Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24" Mandrell)	36.51	23.55 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	36.51	23.55 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	36.20	23.55 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and Under Mandrel).	35.86	23.55 + a
Group 8: Mechanic, Grease Truck Operator, Hydroblaster, Barrier Mover, Power Stone Spreader; Welder; Work Boat under 26 ft.; Transfer Machine.	35.46	23.55 + a
Group 9: Front End Loader (under 3 cubic yards), Skid Steer Loader regardless of attachments (Bobcat or Similar); Fork Lift, Power Chipper; Landscape Equipment (including hydroseeder).	35.03	23.55 + a

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Group 10: Vibratory Hammer, Ice Machine, Diesel and Air Hammer, etc.	32.99	23.55 + a
Group 11: Conveyor, Earth Roller; Power Pavement Breaker (whiphammer), Robot Demolition Equipment.	32.99	23.55 + a
Group 12: Wellpoint Operator.	32.93	23.55 + a
Group 13: Compressor Battery Operator.	32.35	23.55 + a
Group 14: Elevator Operator; Tow Motor Operator (Solid Tire No Rough Terrain).	31.21	23.55 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	30.80	23.55 + a
Group 16: Maintenance Engineer/Oiler	30.15	23.55 + a

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Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	34.46	23.55 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (minimum for any job requiring CDL license).	32.04	23.55 + a

**NOTE: SEE BELOW

----LINE CONSTRUCTION----(Railroad Construction and Maintenance)----

20) Lineman, Cable Splicer, Technician	45.43	6.25%+19.20
21) Heavy Equipment Operator	40.89	6.25%+17.18
22) Equipment Operator, Tractor Trailer Driver, Material Men	38.62	6.25%+16.68

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23) Driver Groundmen	24.99	6.25%+10.87
23a) Truck Driver	34.07	6.25%+15.41
----LINE CONSTRUCTION----		
24) Driver Groundmen	30.92	6.5% + 9.70
25) Groundmen	22.67	6.5% + 6.20
26) Heavy Equipment Operators	37.10	6.5% + 10.70
27) Linemen, Cable Splicers, Dynamite Men	41.22	6.5% + 12.20

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28) Material Men, Tractor Trailer Drivers, Equipment Operators	35.04	6.5% + 10.45

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Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.*

***Note: Hazardous waste premium $3.00 per hour over classified rate*

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra $3.00 premium in addition to the hourly wage rate and benefit contributions:

1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)

2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson

3) Cranes (under 100 ton rated capacity)

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

~~Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work ~~

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

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Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: Thursday, May 05, 2016

ATTACHMENT B:
CONSTRUCTION DOCUMENTS

- TECHNICAL SPECIFCATIONS
- PLANS

TECHNICAL SPECIFICATIONS

INTRODUCTION AND INDEX

The State of Connecticut, Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, Division II and III, as amended, will be the basis of Technical Specifications for this project and any exceptions, additions or deletions as indicated below. Where Division I of Form 816 is referenced, it is so noted in the applicable item in these specifications.

SECTION 01000

INTRODUCTION TO THE TECHNICAL SPECIFICATIONS

PART 1 – GENERAL

1.1 STANDARD SPECIFICATIONS

A. The Standard Specifications as defined below shall apply to the various items of work which constitute the construction contemplated under this Contract except as amended, supplemented or replaced by the Technical Specifications of this Contract and as described herein.

B. Within the Standard and Technical Specifications of this Contract, the definitions provided under item 1.2 Definitions shall apply.

1.2 DEFINITIONS

Standard Specifications
Shall mean the State of Connecticut Department of Transportation, Bureau of Highways, "Standard Specifications for Roads, Bridges and Incidental Construction," Form 816, January 2015, and supplements. Only Division II "Construction Details" and Division III "Materials Section" or those Sections of Division I "General Requirements and Covenants" that are specifically mentioned herein, of the Standard Specifications shall apply. Additionally Articles .04 and .05 – "Method of Measurement" and "Basis of Payment" of the Form 816 Section shall not apply. Instead, the Contractor shall refer to the "Unit Prices" section contained herein for descriptions on all pay items. Within the referred to portions of the Standard Specifications, Form 816, wherein the following terms are used, they shall mean respectively:

Contract Drawings
Design plans produced by the Milone & MacBroom, Inc. of Cheshire, Connecticut, dated April 29, 2016.

Bid Form
Official bid submitted by the Contractor to the Owner.

Total Base Bid Price
Price bid as indicated in the Bid Proposal. See Section 01110 Unit Prices, Section 1.4D Procedures.

Work/Project
Activities related to the completion of the construction activities as described in these Technical Specifications and on the Contract Drawings.

Owner's Representative
The public body or authority, corporation, association, firm or person with whom the Contractor has entered into the Agreement and for whom the work is to be performed.

Property Owner
Town of Glastonbury, 2155 Main Street, Glastonbury, CT 06033.

Inspector/Engineer/Wetland Scientist
Engineer, Construction Manager, Inspector, or other authorized representative or agent of the Owner to supervise and approve submittals and completed construction of items as indicated on the Contract Drawings and described in these technical specifications.

Contractor
Entity awarded the contract to perform the work described herein.

Laboratory
Laboratory designated by Engineer.

Applicable Safety Code
Shall mean the latest edition including any and all amendments, revisions, and additions thereto of the Federal Department of Labor, Occupational Safety and Health Administration's "Occupational Safety and Health Standards" and "Safety and Health Regulations for Construction," the State of Connecticut Labor Department's "Construction Safety Code," State of Connecticut "Building Code," or applicable Town of Glastonbury codes, whichever is the more stringent for the applicable requirement.

Items
Referenced within the text of these Specifications to Items are Technical Specifications within this Contract. Sections or Articles referred to within the Technical Specification refer to the Standard Specifications defined above.

Local Regulatory Agency(ies)
Defined as the governing body or authority having jurisdiction over or responsibility for a particular activity within the scope of this Contract. They may be as specifically defined within the Special Conditions or Technical Specifications; otherwise, the Contractor shall be responsible to determine same in the local area of the Contract and should be cognizant of limits of jurisdiction within the project area.

These Specifications
Where used in the text of the Technical Specifications Items shall mean the Technical Specifications of this Contract.

A. Payment will only be made for items in the Bid Form. Other items may be included in the Standard or Technical Specifications but payment for those items not listed in the Bid Form will be included in the cost of other items of work.

B. In the case of any conflicts between the Technical Specifications, Plans, and Standard Specifications, the order of governance in order of descending authority shall be as follows: 1. Technical Specifications; 2. Plans; 3. Standard Specifications.

1.3 REFERENCES

A. ASTM D1557 - Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3)

B. Occupational Safety and Health Administration, U.S. Department of Labor

C. Connecticut State Department of Transportation (ConnDOT)

D. Connecticut State Department of Energy and Environmental Protection (CTDEEP)

E. U.S. Department of Transportation, Federal Highway Administration

F. U.S. Environmental Protection Agency

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – METHOD OF PAYMENT (Not Used)

END OF SECTION 01000

SECTION 01100

SUMMARY

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions, Supplementary Conditions and the Standard Specifications, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

i. Work covered by the Contract Drawings
ii. Type of the Contract
iii. Use of Premises
iv. Work Restrictions
v. Specification Formats and Conventions

1.3 WORK COVERED BY CONTRACT DRAWINGS

A. Project Identification:

Project: Minnechaug Golf Course Hole 9, Pond Maintenance Project, 16 Fairway Crossing, Glastonbury, Connecticut 06033.

B. Owner's Representative:

Raymond Purtell - Director
Parks and Recreation
Town of Glastonbury
2155 Main Street
PO Box 6523
Glastobury, CT 06033
ray.purtell@glastonbury-ct.gov
(860) 652-7687 / (860) 652-7691
Raymond Purtell

C. Property Owner:

Town of Glastonbury
2155 Main Street
PO Box 6523
Glastobury, CT 06033

D. Engineer: Milone & MacBroom, Inc., 99 Realty Drive, Cheshire, CT
(203) 271-1773

E. Contractor: To be determined.

F. The Work consists of the following:

1. Mobilization/demobilization
2. Installation, maintenance and removal of sediment and erosion controls
3. Excavation of Hole 9 Pond
4. Clearing and grubbing
5. Earthwork
6. Pond Features
7. Water Control
8. Dust, Sediment, and Erosion Control
9. Maintenance and Protection of Traffic
10. Site Restoration
11. Well Connections at pumps for supplementary filling of Hole 9 Pond

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract.

1.5 WORK PHASES

A. The Work shall be conducted in a single phase.

1.6 USE OF PREMISES

A. General: The Contractor shall have limited use of site for construction operations as indicated on Drawings by the Contract limits.

B. Use of Site: Limit use of site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1.7 WORK RESTRICTIONS

A. On-Site Work Hours: Work shall be generally performed during the hours of 7:00 a.m. to 7:00 p.m., Monday through Friday, except as otherwise negotiated with Owner. Work on Saturdays is permissible as long as approval is obtained from the Owner prior to the schedule change.

1.8 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.

1. Division 1: Sections in Division 1 govern the execution of the Work of all Sections in the Specifications.

2. Division 2: Sections in Division 2 govern the execution of the site construction and technical specifications of proposed work items.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

C. Form 816 – State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition, and Supplemental Specifications thereto dated January 2015 unless otherwise specified.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 01100

SECTION 01110

UNIT PRICES & BID ITEMS

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for unit prices.

1.3 DEFINITIONS

A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

A. Payment for work within these Contract Documents will only be made under the Bid Items listed on the Bid Form. The cost for other items of work included in the Contract Documents and/or on the Contract Drawings and not listed below in Part 3 shall be included in the cost of the various Items bid.

B. Unit prices include all necessary materials, plus cost for delivery, installation, insurance, applicable taxes, overhead, and profit.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, by Owner's representative.

D. All work for this project shall be performed under the various Bid Items listed on the Bid Form. It is the intent of this provision that the value of all the Bid Items when added together shall equal the Total Base Bid Price.

E. All Unit Prices shall include the cost for all utility coordination, permits, materials, equipment, tools, labor and work incidental hereto.

F. The Owner reserves the right to increase or decrease the bid item quantities, and/or omit any work that he deems necessary to complete the work with two weeks written notice.

G. Should the Contractor have any question(s) regarding the scope of the work to be included within each Bid Item, said question(s) shall be directed to the Engineer and the

Owner in writing no later than 7 days prior to bid due date in order to allow adequate time for a proper response in an addendum.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 LIST OF UNIT PRICES – BASE BID

A. Unit Price No. 1 – Site Preparation – Lump Sum (L.S.)

This item includes but is not limited to mobilization, demobilization, construction staking, clearing, grubbing, stripping and stockpiling topsoil, installation and maintenance of stabilized construction entrances, installation and maintenance of temporary erosion control measures, installation and removal of temporary construction entrance pads, installation and maintenance of turbidity curtain, providing/ maintaining emergency operations plan during construction, and removing all temporary facilities & controls.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

B. Unit Price No. 2 – Dust, Sediment, and Erosion Control – Lump Sum (LS)

This item includes, but is not limited to, all labor, materials, tools, equipment, and incidentals required to assure adequate environmental protection including implementation of all erosion and sediment control measures and maintenance of storage areas as directed by the Engineer.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

C. Unit Price No. 3 – Maintenance and Protection of Traffic – Lump Sum (LS)

This item includes, but is not limited to, all labor, materials, tools and equipment, as and when required to install temporary traffic control signs in both directions from the work site to warn motorists of the construction site. Uniformed flaggers shall be paid for as necessary under Unit Price No. 9 – Uniformed Flaggers and the cost associated with uniformed flaggers shall not be included as part of Unit Price No. 3.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

D. Unit Price No. 4 – Water Control – Lump Sum (LS)

This item includes, but is not limited to the installation of temporary cofferdams and dewatering pumping, as necessary. It is to include all control of water through the site

during construction until the final project closeout is complete, inclusive of damages to the site that occur as a result of high waters, floods, or any types of failure of the water control plan.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

E. Unit Price No. 5A – Earthwork – Lump Sum (LS)

This item consists of pond excavation as necessary to the limits shown on the Contract drawings. It shall include the stripping, stockpiling, and re-use of the existing on-site rock material (if any) in construction of the Pond Features. This item also includes removal of all debris within the project limits, separating and stockpiling appropriate materials for re-use in improvements as indicated on the contract drawings and off-site disposal of all materials not suitable or in excess amounts for re-use.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

Unit Price No. 5B – Earthwork – Export to Hole 1 – Unit Price (C.Y.)

This item consists of the unit price (c.y.) bid price for excavation, removal, and lawful disposal of fill material from the Hole 9 Pond placed at the Hole 1 stockpile area. Payment for this work will be made by the cubic yard of export as determined by comparison of pre-construction and post-construction survey. The Contractor will be required to prepare digital mapping of the proposed sediment disposal area. The Contractor shall provide an independent Connecticut registered land surveyor to measure cross sections at 25-foot intervals through the proposed sediment disposal area prior to the start of construction, and another set of cross sections at the completion of construction. Pre- and post-construction cross sections must be taken at the same location. The sections will be used to quantify the change in grade and compute the volume of material excavated and disposed of, and will be used as a basis for payment for "Item 5B – Earthwork, Export to Hole 1". Interim cross sections can be completed at the contractor's discretion to support progress payment requests. The Owner may complete independent pre and post construction survey to substantiate the volume of off-site export.

The Contractor will be required to submit the pre-construction survey in digital AutoCAD format to the Engineer for approval prior to the transport and disposal of any off-site export material. For the purpose of the basis of bid award the unit price will assume that a quantity of 2,300 c.y. of material will be generated from excavation.

F. Unit Price No. 6 – Electrical – Lump Sum (LS)

This item consists of installing all items as specified in Section 02515 – Electrical, This work shall consist of furnishing and installing a 1HP pump capable of pumping at 10GPM (set at a depth of 200'), 575' of 1.5" PVC electrical conduit and wiring, and 75' of

discharge pipe (1.25" dia.) needed to run from the well to the pond; and a 1HP pump capable of pumping at 10GPM (set at a depth of 200'), 65' of 1.5" PVC electrical conduit and wiring, and 100' of discharge pipe (1.25" dia.) needed to run from the well to the pond; in conformance to these Specifications, the Drawings and as directed by the Engineer. Remove and replace existing electric unit heater with new heater equal to qmark model muh0541, 5kw, 480v, 3-phase. Provide remote 24v thermostat wired to control transformer furnished with heater. Provide new wiring (4 #12 awg) in existing conduit from existing 20a, 3-pole breaker in mdp to new heater. Verify compatibility with existing wall bracket or furnish & install new bracket.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

G. Unit Price No. 7 – Pond Features – Lump Sum (LS)

This item consists of installing features as specified in Section 02675 Pond Features, This work shall consist of furnishing and installing the Outlet Structure Grate and Grout Repair, Fish Habitat Structures, and the Riprap Sediment Filter Berm in conformance to these Specifications, the Drawings and as directed by the Engineer.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

H. Unit Price No. 8A – Bituminous Concrete Cart Path – Unit Price (LF)

Bituminous Concrete Cart Path – This item consists of the unit price (l.f.) bid price for the excavation, removal of subgrade material, placement of subbase, base, and asphalt layers required to meet the dimensions and thicknesses called out on the plans. For the purpose of the basis of bid award the unit price will assume that a quantity of 575 l.f. of paving will be installed.

Unit Price No. 8B & 8C – Bituminous Concrete Lip Curbing – Unit Price (LF)

Bituminous Concrete Lip Curbing – This item consists of the unit price (l.f.) bid price for the excavation, removal of existing curbing, placement of asphalt curbing required to meet the dimensions and thicknesses called out on the plans. For the purpose of the basis of bid award the unit price will assume that a quantity of 130 l.f. of ½" curbing and 65 l.f. of 6" curbing will be installed.

I. Unit Price No. 9 - Site Restoration – Lump Sum (LS)

This item consists of all materials, labor, equipment, and services necessary to perform the work of this section as shown on the Drawings, as specified, and as required by job conditions, including, but not limited to, the following:

- Furnishing, grading, fertilizing, liming, soil amendments, and treatment of topsoil to finish grade elevations, including mulching and seeding.

- Providing an established stand of vegetation from native seed mixtures on all areas shown on the plans or where directed by the Engineer.

- Restoration of access road areas, staging and stockpile areas, including topsoiling and seeding as necessary to restore to original condition. Any damage or rutting lawns area shall be restored to its original condition. This item shall also include furnishing and importing to the site sufficient topsoil to provide 6 inches of depth over all disturbed areas as shown on the contract drawings.

- Invasive vegetation removal around Hole 9 Pond

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

Unit Price No. 9A – Plantings – Bank/Shoreline – Unit Price (EA)

This item consists of furnishing and installing trees as shown on the drawings.

Unit Price No. 9B – Plantings – Low Shoreline – Unit Price (EA)

This item consists of furnishing and installing shrubs as shown on the drawings.

Unit Price No. 9C – Plantings – Littoral Zone – Unit Price (EA)

This item consists of furnishing and installing plugs as shown on the drawings.

J. Unit Price – Uniformed Flaggers– Hourly (HR)

Should uniformed flaggers be required, this item includes the cost of labor to provide the required flaggers needed for the Maintenance and Protection of traffic as identified in Section 02150. The measurement for payment of this work shall be as time and materials basis. Hourly rates given shall be applied to the quantity of hours used. This unit price will not be part of the total base bid price used as the basis of award of the contract.

K. Deduct Alternate 1 – Credit for Work not Preformed Water Control – Lump Sum (LS)

This item includes the credit for installation of temporary cofferdam, impervious lining, sandbags, etc. as necessary to divert the flow of the unnamed brook around the construction site.

This item includes any additional work associated with the control of water through the site during construction until the project is complete. This credit will be applied if construction occurs during a dry period of the summer and/or fall and a temporary bypass of the stream flow is deemed not necessary.

There will be no measurement for this work. This work will be credited by the contractor as lump sum bid price. Deduct Alternate 1 will not be included in the basis of award.

END OF SECTION 01110

SECTION 01200

BEST MANAGEMENT PRACTICES FOR PROTECTION OF THE ENVIRONMENT

1. No construction shall proceed until proper sedimentation and erosion control methods have been installed as the sequence of construction necessitates.

2. No equipment, materials, or machinery shall be stored, cleaned, refueled, maintained, or repaired within twenty-five (25) feet of any wetland or watercourse.

3. No construction shall proceed until a method to prevent construction debris or other materials from entering the wetland or watercourse has been implemented as the sequence of construction necessitates. These materials shall be collected and disposed of in an environmentally safe manner as determined by federal, state, and local laws at no additional cost to the Owner. The applicant shall monitor wind velocities and storm events during the conduct of such work and shall cause such activity to cease if storm or wind conditions threaten to cause deposits of materials in the waterway.

4. No objectionable materials resulting from any clearing activity shall be disposed of in any wetland or watercourse. This includes but is not limited to stumps, tree roots, matted roots, wood chips, and other debris.

5. No fill or material shall be deposited in surrounding wetlands or watercourses unless specified on the Contract Drawings.

6. A water control plan, including a contingency plan for flood events, shall be implemented as sequence of construction and/or weather necessitates. See section 01410 for more information.

7. Where dewatering is necessary, the pump shall not discharge directly into the wetland or watercourse. Proper methods and devices shall be utilized such as pumping the water into a temporary sedimentation bowl, providing surge protection at the inlet and the outlet of pumps, or floating the intake of the pump, or other methods to minimize and retain the suspended solids. If the pumping operation is causing turbidity problems, said operation shall cease until such time as feasible means of controlling turbidity are determined and implemented.

8. Cofferdams and other measures such as bank stabilization shall be of minimal size. In all cases, such installations shall not cause flooding or increase scouring potential.

9. Whenever possible, work within and adjacent to watercourses shall be conducted during periods of low flow. The applicant shall remain aware of flow conditions during the conduct of such work and shall cause such activity to cease should flow conditions threaten to cause excessive erosion, siltation, or turbidity. During storms, every effort shall be taken to secure the work site.

10. All temporary fill, such as that used for permitted construction entrance pads and/or cofferdams, shall be properly stabilized during use to prevent erosion, and, when no longer needed, must be disposed of at an upland site and suitably contained to prevent turbid runoff from reentering a

wetland or watercourse. All areas affected by temporary fills must be restored to their original contours and revegetated with suitable vegetation. The areal extent of temporary fill or excavation shall be minimized to that area necessary to perform the required work.

11. Dumping of oil or other deleterious materials on the ground is forbidden. The applicant shall provide a means of catching, retaining, and properly disposing of drained oil, removed oil filters, or other deleterious material. All oil spills shall be reported immediately to the DEEP/Hazardous Materials office at (860) 424-3338 or (860) 424-3023. Failure to do so may result in the imposition of a fine under Section 22a-450 of the Connecticut General Statutes.

12. Every precaution shall be used while working in the vicinity of a waterway to prevent and minimize degradations of the existing water quality. All activities shall conform and be at all times consistent with applicable water quality standards, and management practices of the Federal Clean Water Act (1972), Connecticut's Water Quality Standards, and other applicable state laws, and as defined in Form 816, Section 1.10, entitled "Environmental Compliance."

13. All equipment being used in or around the water shall be free of leaks including but not limited to oil, hydraulic fluids, radiator fluids, grease, and fuel. All equipment to be used in the water shall be approved by the Owner's Representative. The Owner's Representative has the authority to order the contractor to remove any equipment from the water that the Owner's representative feels is detrimental to the environment.

14. Should any equipment break down in the water, the Contractor shall have a plan to immediately remove the equipment.

15. Work in general shall conform to the guidelines of Section 1.07.16, Unauthorized Use of Area(s) within the Project Site of Form 816.

16. The Engineer will review all equipment for leaks and damage prior to use. Use of questionable equipment as determined by the Engineer will not be permitted.

17. The Contractor shall provide a spill containment kit containing 3 - 5" x 10' containment booms, 50 - 18"x18" absorbent pads, 8 - 4" x 4' containment socks, 6 - 11" x 20" absorbent pillows, 4 disposal bags, 4 nitrile gloves and 1 - 55 gallon yellow polyethylene drum as manufactured by A.H. Harris or an approved equal, on site throughout the duration of the project.

END OF SECTION 01200

SECTION 01410

EMERGENCY OPERATION PLAN DURING CONSTRUCTION

PART 1 – GENERAL

1.1 WORK INCLUDES

The items listed under Proposed Emergency Operation Plan are provided for general information only. The Emergency Operation Plan is to be created by the Contractor and approved by the Engineer. The Emergency Operation Plan provides the Contractor with guidelines for action during a flood or a threatening flood period in order to protect the surrounding community.

1.2 DESCRIPTION

A. The Contractor shall monitor the weather forecasts and plan construction accordingly.

B. If the weather forecasts should indicate the possibility of a major storm system within 24 to 48 hours, the Contractor should plan for the possibility of high water levels at the site. Also, the Contractor shall notify the Owner and Engineer.

C. If a significant rainfall occurs, in excess of three (3) inches of rainfall, the Contractor should maintain surveillance of the site and record water level readings every two (2) hours.

D. If the water level within the pond rises to a potentially unsafe level, the Contractor shall remove all equipment, construction materials (i.e., fuels, solvents, hydraulic fluids, explosives, etc.) and stockpiles from the floodplain and alert the following personnel of a potential emergency:

DEEP Inland Fisheries	Brian Murphy	(860) 424-4142 brian.murphy@ct.gov
Owner's Representative	Raymond Purtell	(860) 652-7687 ray.purtell@glastonbury-ct.gov
Town Engineer	Daniel Pennington	(860) 652-7744 daniel.pennington@glastonbury-ct.gov
Engineer	Andie Greene	(203) 271-1773 agreene@mminc.com
Police Chief:	David A. Caron	(860) 652-4202 david.caron@glastonbury-ct.gov
Fire Marshal:	Christopher N. Siwy	(860) 652-7526 chris.siwy@glastonbury-ct.gov
Emergency:		911

E. The Contractor shall maintain sufficient equipment and manpower at the site in order to react to a flooding emergency.

F. Compensation: No additional compensation shall be made to the Contractor for damages resulting from high water or from time lost due to inclement conditions or river flows such that work within the project site is not feasible.

1.3 SUBMITTALS

The Contractor shall submit a detailed Emergency Operations and Flood Contingency Plan before any work commences. Said plan shall include a detailed narrative describing the various types of emergencies and corresponding actions to be taken in response. Identified on the plans shall be the location where all construction equipment, oils, fuels, lubricants, and other supplies will be stored. The Contractor shall certify that personnel are familiar with all provisions of his plan and are able to execute same. The Contractor shall submit a plan of action before any work commences, detailing actions to be taken during a flood emergency. The Contractor may use the above plan or prepare a plan of his own. In either case, **the Contractor shall submit to the Engineer an emergency operation plan for approval within 15 days of the contract signing**.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

PART 4 – METHOD OF PAYMENT

4.1 There is no separate method of payment for this item. This work is included under Section 02100 Site Preparation.

END OF SECTION 01410

SECTION 02100

SITE PREPARATION

PART 1 - GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 WORK INCLUDED

All materials, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:

1. Installation and removal of all construction entrance pads and construction entrance pads, including grading, filter fabric, crushed stone, removal of crushed stone, and returning to original grade. Restoration shall be covered under Site Restoration, Section 02900.

2. Construction staking.

3. Protection of existing trees, vegetation, landscaping materials, stone walls, fences, utility poles, and site improvements not scheduled for clearing, which might be damaged by construction activities.

4. Clearing and grubbing of stumps, hedges, vegetation, debris, rubbish, designated trees, and site improvements.

5. Topsoil stripping and stockpiling.

6. Installation and maintenance of temporary erosion and sedimentation control measures and dust control.

7. Temporary protection of adjacent property, structures, benchmarks, and monuments.

8. Removal and legal disposal of cleared materials.

9. Removal and legal disposal of existing bituminous cart path and subbase materials.

10. Temporary protection of existing utilities to remain.

11. Installation of temporary chain link fence as necessary.

12. Test pits, as necessary.

13. Providing/Maintaining Emergency Operations Plan During Construction.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

Emergency Operations Plan During Construction:	Section 01410
Earthwork:	Section 02300
Dust, Sediment, and Erosion Control:	Section 02371
Water Control:	Section 02245
Maintenance and Protection of Traffic:	Section 02150
Site Restoration:	Section 02900

1.4 MATERIAL OWNERSHIP

A. Except for stripped topsoil or other materials indicated to remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 QUALITY ASSURANCE

A. Codes and Standards: All materials and construction methods shall conform to Form 816 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition, and Supplemental Specifications thereto dated January 2015 unless otherwise specified herein.

B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

C. Protection of Existing Improvements: Provide protections necessary to prevent damage to existing improvements indicated to remain in place. Protect improvements on adjoining properties and on Owner's property. Restore damaged improvements to their original condition, as acceptable to property owner's satisfaction.

D. Permits and Regulations: The Contractor shall handle all material in compliance with applicable requirements of OSHA and other governing authorities having jurisdiction.

1.6 PROJECT CONDITIONS

A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.

B. Salvageable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises where indicated.

C. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.

D. Do not commence site clearing operations until temporary erosion and sedimentation control measures are in place.

E. Coordinate with property owner's representative noted in Section 01100 for access to the site, staging areas, and sediment disposal site.

F. Protection of Existing Improvements:

1. Provide protections necessary to prevent damage to existing improvements indicated to remain in place.
2. Protect improvements on adjoining properties and on Owner's property. Restore damaged improvements to their original improved condition, as acceptable to property owners.

G. Dust Control: The Contractor shall be responsible for controlling visible dust caused by Work operations and the moving of vehicles and equipment. Dust control shall be implemented when soils are exposed, before, during and after Work activity ceases. Dust control will also be required on the weekends.

H. Existing bituminous cart path may be used for the duration of construction as necessary for access site. Upon completion of dredging and hauling of material and all other site work the existing bituminous cart path and subbase to the depth required for the bituminous concrete and subbase must be removed.

PART 2 – PRODUCTS

A. Geotextile silt fence shall conform to Article M.08.01-19 of the Standard Specifications.

B. Temporary Vegetative Cover

1. Perennial Ryegrass 3 lbs/1,000 sq. ft. (*Ioluium Perenne*)

2. Temporary Mulching Straw or Salt Hay 70-90 lbs/1,000 sq. ft.

C. Geotextile fabric for construction Entrance will be from an acceptable manufacturer that meets the requirements of Section M9.50.0 Type II Stabilization/Reinforcement Geotextile.

D. Crushed stone for construction entrance pad and access road caps shall conform to Section M.01.01 for No. 3 Stone.

E. Haybales and wood stakes shall conform to Article 2.18.02 of the Standard Specifications.

F. Modified riprap shall conform to Section M.12.02 of the Standard Specifications.

G. Orange Construction Safety Fence: shall be Cordova Orange Safety Fence made of polypropylene and a minimum height of 4, (or approved equal by the Engineer).

H. Temporary Chain Link Fence shall conform to Article 9.13.02 of the Standard Specifications.

I. Where laser grade control is used for construction staking, a reference stake for verifying height of laser shall be required from the Contractor.

J. Tree Protection shall conform to the Drawings and Standard Specifications.

K. SOIL MATERIALS

1. Satisfactory Soil Materials: Requirements for satisfactory soil materials are specified in Section 02300 "Earthwork."

2. Obtain approved borrow soil materials off-site when satisfactory soil materials are not available on-site.

PART 3 – EXECUTION

3.1 PREPARATION

A. Protect and maintain benchmarks and survey control points from disturbance during construction.

B. Locate and clearly flag trees and vegetation to remain or to be relocated.

C. Protect existing site improvements to remain from damage during construction. Restore damaged improvements to their original condition, as acceptable to Owner.

D. Maintenance: The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition at all times.

3.2 CONSTRUCTION STAKING

A. The Owner will furnish the Contractor such control points, bench marks, and other data as may be necessary for the construction staking and layout by qualified engineering or surveying personnel as noted elsewhere herein.

B. The Contractor shall be responsible for the placement and preservation of adequate ties to all control points, whether established by him or found on the project, necessary for the accurate re-establishment of all base lines or center lines shown on the plans.

C. All stakes, references, and batter boards including original, additional or replacement, which may be required for the construction operations, signing and traffic control shall

be furnished set and properly referenced by the Contractor. He shall be solely and completely responsible for the accuracy of the line and grade of all features of the work. Any errors or apparent discrepancies found in previous surveys, plans, specifications or special provisions shall be called to the Engineer's attention by the Contractor for correction or interpretation prior to proceeding with the work.

D. Upon request of the Engineer, the Contractor shall furnish copies of all data used in setting and referencing all stakes and other layout markings used by the Contractor.

E. When requested by the Engineer, the Contractor shall provide safe facilities for convenient access to control points, batter boards, and references.

F. All staking shall be performed by qualified engineering or surveying personnel who are trained, experienced and skilled in construction layout and staking of the type required under the contract and who are acceptable to the Engineer. The personnel shall perform this staking under the direct supervision of a person, or persons, of engineering background experienced in the direction of such work and acceptable to the Engineer.

G. The Engineer may check the control of the work, as established by the Contractor, at any time as the work progresses. The Engineer will inform the Contractor of any deficiencies identified; however, said notification does not relieve the Contractor of any responsibility for the accuracy of the layout work. Further, the Contractor shall, at his expense, correct or replace as required any deficient layout and construction work which may be the result of inaccuracies in his staking operations or of his failure to report inaccuracies in his staking operations or of his failure to report inaccuracies found in work done by the Engineer or by others. If, as a result of these inaccuracies, the Engineer is required to make further studies, redesign, or both, all expenses incurred by the Owner due to such inaccuracies will be deducted from any monies due the Contractor.

H. The Contractor shall furnish all necessary personnel, engineering equipment and supplies, materials, transportation, and work incidental to the accurate and satisfactory completion of this work.

3.3 TEMPORARY PERVIOUS BARRIERS

A. Construct using bales of hay or sediment filter fabric, as detailed on the Construction Drawings.

B. Haybales shall be installed in accordance with Article 2.18.03 of the Standard Specifications.

1. Bales should be placed in a row with ends tightly abutting the adjacent bales.

2. Each bale shall be embedded into the soil a minimum of four (4") inches.

3. Bales shall be securely anchored in place by wood stakes or reinforcement bars driven through the bales and into the ground. The first stake in each bale shall be angled toward the previously laid bale to force bales together.

C. Sediment filter fence shall be installed in accordance with Article 2.19.03 of the Standard Specifications

1. Filter fabric shall be securely anchored at the top of a three (3') foot high fence and buried a minimum of six (6") inches to the soil. Seams between sections of filter fabric shall overlap a minimum of two (2') feet.

D. Riprap shall be installed in accordance with Article 7.03.03 of the Standard Specifications.

3.4 INSTALLATION AND MAINTENANCE

A. Baled hay erosion barriers, sediment filter fence, construction entrances, pumping settling basin and temporary seeding shall be installed at locations shown on the plans and as ordered by the Engineer.

B. All erosion checks shall be maintained until adjacent areas are stabilized.

C. Inspection shall be frequent (at minimum monthly and before and after heavy rain) and repair or replacement shall be made promptly as needed.

D. Erosion checks shall be removed when they have served their usefulness so as not to block or impede storm water flow or drainage.

E. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removals.

3.5 TREE PROTECTION

A. Erect and maintain temporary fencing around tree protection zones before starting site clearing. Remove fence when construction is complete.

B. Do not excavate within tree protection zones, unless otherwise indicated.

C. Repair or replace trees and vegetation indicated to remain that are damaged by construction operations, in a manner approved by Engineer.

3.6 UTILITIES

A. Existing Utilities: Do no interrupt utilities serving facilities occupied by owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:

1. Notify Owner/Engineer and Utility not less than two days (exclusive of Saturdays, Sundays and legal holidays) in advance of proposed utility interruptions.

2. Do not proceed with utility interruptions without Owner/Engineer/Utility's written permission.

3. When necessary, the Contractor shall cooperate with representatives of public service companies in order to avoid damage to their structures by furnishing and erecting suitable supports, props, shoring or other means of protection. Fire hydrants adjacent to the work at all times shall be readily accessible to fire apparatus and no material or other obstructions shall be placed within a radius of 10 feet of a fire hydrant.

4. If the Contractor wishes to have any utilities temporarily relocated for his/her convenience other than contemplated by the Owner, the Contractor shall make the necessary arrangement with the Owner and make reimbursement for the cost thereof at his/her own expense.

3.7 CLEARING AND GRUBBING

A. Clearing: The Contractor shall clear all items specified to the Contract limit lines shown on the Contract Drawings and shall remove cleared and grubbed materials from the site to an authorized disposal site. Cleared and grubbed materials may be disposed of at no cost at the Town's Bulky Waste Site, Tryon Street, South Glastonbury, during normal hours of facility operation. The contractor shall coordinate disposal at the site with the Town's Sanitation Superintendent in advance. All materials disposed of at the Town's Bulky Waste Site shall comply with the town's disposal regulations.

1. Do not start earthwork operations in areas where clearing and grubbing is not complete, except that stumps and large roots may be removed concurrent with excavation.

2. Comply with erosion, sediment control and storm management measures as specified on the contract drawings.

B. Grubbing: The Contractor shall clear and grub areas to be excavated, areas receiving less than 3 feet of fill and areas upon which structures are to be constructed.

1. Stumps and root mats in these areas shall be removed to a depth of not less than 1 foot below the subgrade of sloped surfaces.

2. All depressions made by the removal of stumps or roots shall be filled with material suitable for backfill as specified in General Specification 02300 - Earthwork.

C. Tree and Shrub Removal: Remove trees, shrubs and stumps within the work area as necessary to perform the proposed site improvements.

1. Only those trees designated on the Contract Drawings for removal shall be removed.

2. Tree and shrub removal shall be conducted in a manner so as to avoid damage to those trees and shrubs which will remain.

3. Do not cut or damage trees or shrubs outside of the Contract limit lines. Damage outside the Contract limit lines caused by the Contractor's operations shall be corrected at the Contractor's expense.

4. All trees shall be calipered at four and one-half feet above existing grade prior to removal. All trees shall be "topped" and "limbed" previous to felling unless otherwise directed by the Engineer.

5. In areas of major construction, the stumps and roots of all trees designated for removal shall be grubbed and excavated to a depth of three (3) feet below the ground surface except in areas of fill greater than three (3) feet, where such trees may be cut flush with the ground surface.

D. Remove and dispose of all debris and trash in a legal manner off site. Burning of cleared and grubbed materials is not allowed within the property limits.

E. Cleared and grubbed items shall be removed from the site and satisfactorily disposed of in accordance with local regulations.

F. Air pollution caused by dust and dirt shall be controlled, complying with governing regulations.

G. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density equal to adjacent original ground.

3.8 TOPSOIL STRIPPING

A. Topsoil is defined as a friable clay loam surface soil found in a depth of not less than four (4) inches. Satisfactory topsoil is reasonably free of subsoil, clay lumps, stones, and other objects over two (2) inches in diameter, without weeds, roots, and other objectionable manner.

B. Remove sod and grass before stripping topsoil.

C. Strip topsoil to whatever depths are encountered in a manner to prevent intermingling with underlying subsoil or other objectionable materials.

D. Stockpile topsoil materials away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust.

E. Stockpile topsoil in storage piles in areas indicated or directed for reuse as part of Site Restoration (Section 02900). Construct storage piles to provide free drainage of surface water. Cover piles to prevent erosion and wind windblown dust, if required.

F. Where existing trees are indicated to remain, leave existing topsoil in place within drip lines to prevent damage to root system.

3.9 SITE PREPARATION OF TEMPORARY VEGETATIVE COVER

A. Install required surface water control measures.

B. Remove loose rock, stone, and construction debris from area.

C. Tillage should achieve a reasonably uniform loose seedbed, work on contour if site is sloping.

3.10 ESTABLISHMENT

A. Select appropriate species for the situation, note rates and seeding dates (see vegetative cover selection and mulching specifications).

B. Apply seed uniformly according to the rate indicated by broadcasting, drilling or hydraulic application (see vegetative cover selection and mulching specifications).

C. Unless hydroseeded, cover ryegrass seeds with not more than ¼ inch of soil with suitable equipment.

D. Mulch immediately after seeding if required. (See vegetative cover selection and mulching spec.). Apply straw or salt hay mulch and anchor to slopes greater than 3% or where concentrated flow will occur.

3.11 DISPOSAL

A. Disposal: Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

B. Separate recyclable materials produced during site clearing from other non-recyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities.

C. Disposal of bituminous concrete cart path and subbase material: Remove and bituminous concrete and subbase material generated in the excavation for the cart path replacement and legally dispose of them off the Owner's property.

3.12 CLEANING

A. Keep grounds clean of rubbish caused by work and of unused materials at all times.

B. Dispose of cleared materials and rubbish off-site in a legal manner.

C. Remove unused materials and equipment. Leave area clean.

D. Do not store hazardous or flammable materials or liquids on site, unless stored in approved containers, properly labeled and approved by the owner.

E. Trash receptacles and recycling containers shall be maintained on site at all times to prevent the accumulation of litter on the project site.

3.13 TEST PITS

A. Test Pits: Locate existing underground utilities in areas of excavation work. If utilities are indicated to remain in place, provide adequate means of support and protection during test pit excavation. Test shall be performed, as needed. The Contractor may conduct other test pits to verify the location of subsurface utilities.

Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Do not interrupt existing utilities serving facilities except when permitted in writing by the Engineer and then only after acceptable temporary utility services have been provided.

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01110 – Unit Prices.

END OF SECTION 02100

SECTION 02150

MAINTENANCE AND PROTECTION OF TRAFFIC

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications

1.2 Provide all labor, materials, tools and equipment, as and when required to perform the work specified herein or as shown on the plan, including but not limited to the following:

A. The work to be done under this Item shall conform to Form 816 Maintenance and Protection of Traffic and with any requirement specified by the local authority.

B. Contractor to install temporary traffic control signs in both directions from the work site to warn motorists of the construction site.

C. The Contractor shall restore any damage done during construction, upon completion of the work.

D. The Contractor will be responsible for removing all temporary traffic controls at the completion of the project.

1.3 QUALITY ASSURANCE

A. Codes and Standards: All materials and construction methods shall conform to Form 816 – State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition, and Supplemental Specifications thereto dated January 2015 unless otherwise specified herein.

B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

PART 2 – PRODUCTS

A. All construction signing shall conform to the standards in the Manual on Uniform Traffic Control Devices (MUTCD), the Standard Specifications and as detailed on the Contract Drawings.

B. The Contractor shall use uniformed flaggers as necessary to manage access and egress from the construction site and sediment disposal area. See Section 9.70 in the CT DOT 816 Standard Specs. for description/qualifications of Uniformed Flagger.

C. The Contractor shall use police officers during any lane closure.

D. Traffic Cones shall be 42-inch retroflective traffic cones conforming to Article 9.81.02 of the Standard Specifications.

E. Traffic Drums shall conform to Article 9.78.02 of the Standard Specifications.

F. Construction Barricades shall conform to Article 9.79.02 of the Standard Specifications.

G. Temporary precast concrete barrier curb shall conform to Article 8.22.02 of the Standard Specifications.

PART 3 – EXECUTION

3.1 Maintain all lanes of traffic on all public and private streets throughout the area.

3.2 Provide uniformed flaggers as required when construction equipment and trucks enter and exit the site or sediment disposal area.

3.3 Temporary signs and other temporary traffic protective devices shall remain in place throughout the full duration of the project.

3.4 Traffic signs shall be mounted on posts when feasible.

3.5 The Contractor shall notify the Owner at least 14 days in advance of proposed implementation of the Traffic Control Plan.

3.6 The Contractor shall implement the Maintenance and Protection of Traffic Plan before the start of construction.

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01110 – Unit Prices.

END SECTION 02150

SECTION 02245

WATER CONTROL

PART 1 -GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 Provide all labor, materials, tools and equipment, as and when required to perform the work specified herein or as shown on the plan, including but not limited to the following:

A. Temporary cofferdams, control of water, flow diversions, impervious lined berm, temporary bypass or diversion channel, and construction dewatering.

B. The Contractor shall furnish, install, operate and maintain dewatering equipment, pumps, sumps, floating intakes, and systems as specified, shown on the Contract Drawings, or required during the construction of the project.

C. The Contractor shall provide standby equipment and power supply for maintaining uninterrupted construction dewatering.

D. The Contractor shall comply with all necessary permits from State and local agencies required for operation of the dewatering system, monitoring groundwater, and disposal of dewatering effluent.

E. The Contractor shall be responsible for removing the existing pump intake hose and pump prior to dewatering the pond. Both the pump intake hose and pump shall be reinstalled at the completion of construction, any damage caused to the equipment by the contractor shall be replaced/repaired at the contractor's expense.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

Site Preparation: Section 02100

1.4 PERFORMANCE REQUIREMENTS

A. All water control provisions shall conform to Contract Drawings and approved water control plan.

B. Proposed revisions to water control plan for any reason must be submitted in writing, and approved by the Engineer.

C. Dewatering Performance: Design, furnish, install, test, operate, monitor and maintain dewatering system of sufficient scope, size, and capacity.

1. To control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.

2. To control existing flow of water in the unnamed tributary in order to complete the pond dredging, pond feature installation, and site improvements work in a reasonably dry condition and to minimize movement of sediment downstream. The channel will need to be diverted around the active construction areas through the use of temporary diversion channel, impervious lined berm, temporary cofferdams, and depending upon flow and elevation, bypass pumps may be required.

3. Work includes removing dewatering system when no longer needed and restoration of disturbed areas as a result of dewatering operations.

4. Diversion of surface water shall be continuous during the period that damage to the construction work could occur. Unless otherwise specified, diverted surface water shall be diverted to the same drainageway that the water would have reached before being diverted.

5. Contractors must plan their de-watering activities such that they account for increases in water flow due to storms or other events. No separate payment will be made for de-watering measures that are damaged or overwhelmed by significant and sudden increases in the water flow. Contractors must plan for such events. In some instances, water flows may exceed those reasonably expected to be de-watered and the Contractor may be required to suspend work until such time that the water flows return to a manageable level. In the event the work is suspended due to high water, the Contractor will not be compensated for repairs to de-watering measures, but additional days will be added to the schedule, at no additional cost, to offset the days lost to high water.

D. Construction Pump Discharges: If pumps are used, all pump discharges shall be routed to a designated discharge settling area to sufficiently settle out suspended sediments prior to water re-entering the watercourse, while also mitigating erosion or scour prior to encountering wetlands or watercourses.

E. Water diversion provisions shall be designed to safely divert a minimum base flow of 1.5 cfs entirely around all active work areas, without the release turbidity downstream, 24 hours a day, 7 days a week.

1.5 SUBMITTALS

A. Temporary Cofferdam Plan: Shall be prepared and submitted a minimum of two weeks prior to construction. Plan shall include drawings and design calculations signed and sealed by a licensed Professional Engineer responsible for their preparation.

B. Water control plan: Shall be submitted a minimum of two weeks prior to construction. Show arrangement, locations, and details of wells and well points; pumps, discharge lines, and means of discharge, control of sediment, and disposal of water, if applicable.

If the submitted water control plan differs from the plan already provided by the Project Engineer, include Shop Drawings signed and sealed by the qualified professional engineer responsible for their preparation.

C. Emergency operation and flood contingency plan: Shall be submitted a minimum of two weeks prior to construction. This emergency operation plan is designed to provide the Contractor with guidelines during a flood or a threatening flood period in order to protect the surrounding community.

1. The Contractor shall monitor the weather forecasts and plan construction accordingly.

2. If the weather forecasts should indicate the possibility of a major storm system within 24 to 48 hours, the Contractor shall plan for the possibility of high water levels at the site and shall remove all equipment, construction materials (i.e., fuels, solvents, hydraulic fluids, etc.) and stockpiles from the floodplain, and alert the Owner and Engineer of a potential emergency.

3. If a significant rainfall in excess of one inch within a 24 hour period occurs or is predicted to occur by the National Weather Service, the Contractor shall maintain surveillance of the site and be prepared to provide emergency corrective stabilization measures, if necessary, until water levels recede and the construction site is stabilized.

4. If the water level within the channel rises to a potentially unsafe level, the Contractor shall remove all equipment, construction materials (i.e., fuels, solvents, hydraulic fluids, etc.) and stockpiles from the floodplain, and alert the Owner of a potential emergency.

5. The Contractor shall maintain sufficient equipment and manpower at the site in order to react to a flooding emergency.

C. Compensation: No additional compensation shall be made to the Contractor for damages resulting from high water or from time lost due to inclement conditions or river flows such that Work within the project site is not feasible.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with governing CT DEEP notification regulations before beginning dewatering. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Pre-installation Conference: Conduct conference at Project site with Engineer, Owner's Representatives and/or DEEP Representative.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION

3.1 CONSTRUCTION METHODS

A. Description: The Contractor shall investigate and verify existing stream/pond conditions, and evaluate the need for, and the type of protection and facilities required. Before commencing construction, the Contractor shall furnish the Engineer with details of the plan and methods he proposes to use for handling water and accomplishing the work. The Contractor may use sandbags, inflatable dams, cofferdams, or other types of protective facilities as approved by the Engineer. The furnishing of such plans and methods shall not relieve the Contractor of any of his responsibility for the safety of the work and for the successful completion of the project.

B. The height of any flow diversions and or barriers shall be erected by the Contractor to provide reasonable protection from flooding. At a minimum, any barriers shall be constructed to the height as indicated on the Contract Drawings at the locations shown on the plans. All such temporary structures or facilities shall be safely designed, extended to sufficient depth and be of such dimensions and water-tightness so as to assure construction of the permanent work to the limits shown on the plans. Movements or failures of the temporary protection facilities, or any portions thereof, which prevent proper completion of the permanent work, shall be corrected at the sole expense of the Contractor. Additionally, any cleanup associated with such movements or failures shall be completed at the sole expense of the Contractor.

C. Any pumping from within the areas of construction shall be done in such a manner as to prevent the possibility of movement of sediment from within these areas. Any pumped water must be discharged to a temporary sediment basin and/or in accordance with the requirements of the Standard Specifications.

D. Unless otherwise provided or directed, all such temporary protective work shall be removed and disposed of in an approved manner when no longer required.

E. The Contractor shall be responsible for the scheduling of work described herein so as not to interfere with any sequence of operations developed for this project. Delays as a result of work required under this specification shall not constitute a claim for an extension of contract time.

F. The Contractor shall be responsible for removing the pump intake hose and pump within the hole 9 pond prior to the dewatering of the pond. Both the pump intake hose and pump shall be reinstalled following the completion of construction.

3.2 INSTALLATION

A. Conform to Contract Drawings.

B. Provide temporary grading to facilitate pumping settling basin dewatering and control of surface water.

C. Monitor dewatering systems continuously.

D. Protect and maintain temporary erosion and sedimentation controls as shown on the plans and detailed in these specifications.

E. Before excavating below ground-water level, place system into operation to lower water to specified levels. Operate system continuously until foundations and excavations below ground water are complete or until dewatering is no longer required.

F. Provide an adequate system to lower and control water to permit excavation, construction of structures, and placement of fill materials on dry subgrades.

G. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.

3.3 COFFERDAMS AND DIVERSIONS

A. Cofferdams will be constructed of clean, inert materials that will have a minimal impact on the stream system. Cofferdams constructed of soil or material from the stream will not be used unless specifically directed by the Owner.

B. Acceptable materials shall include water structures, concrete jersey barriers, supersac sand bags, plastic barriers, and other comparable items.

C. The Contractor is responsible to install all cofferdams/diversion structures in a safe and correct manner. Cofferdams must be installed so as to withstand the pressures exerted by the stream flow or ponded water against the cofferdam.

D. Commercial products used as cofferdams (i.e. water structures, temporary dams) shall be installed in accordance with the manufactures instructions.

E. The Contractor is permitted to make minor disturbances to the streambed or banks as may be required to properly install the cofferdam. All disturbances will be limited to only that disturbance necessary to install the cofferdam. Cofferdam installation must be done in the presence of the Owner.

F. If the Contract conditions call for the use of sand bags, or if the Contractor shall use sand bags to assist with de-watering, the Contractor shall fill the sand bags with clean, washed sand. Soils with fine particles are prohibited. When placed in the flowing water, the sand bags shall not produce visible turbidity.

G. The Contractor is responsible to install lined diversion channel to the line and grade shown on the drawings in order to naturally convey the flow of water by gravity. Cofferdams or inlet controls may also be required to direct the flow of water into the lined diversion channel.

H. The stream channel shall be diverted around the active construction area in a temporary diversion channel.

3.4 DISCHARGE OUTFALL PROTECTION

A. The discharge of water from the pumping operations or bypass piping shall be done so as to prevent erosion of soils and the downstream introduction of sediment.

B. When discharges from the de-watering operation involve large volumes of water, the discharge area will require a concrete and/or stone structure to provide for dispersion of the discharge energy. The Contractor shall use geo-textiles as appropriate to provide erosion protection. Discharge structures must be capable of dispersing the energy of the expected discharge from the pumps.

C. All materials placed for the protection of discharge outfalls are temporary in nature, and shall be removed from the project area upon completion of the dewatering process.

3.5 MAINTENANCE, REMOVAL AND RESTORATION

A. The Contractor shall maintain all de-watering measures in good operating form until such time that the measures are no longer needed.

B. In the event that high flows damage or remove de-watering measures, the Contractor shall repair or replace the measures as soon as the water flows allow and prior to commencing work.

C. Upon completion of the work, and approval of the Contracting Officer, the Contractor shall remove all de-watering measures. The Contractor shall remove pumps and hoses from the site, as well as cofferdams from the stream channel.

D. Any fill placed in the active channel during the de-watering process, shall be removed from the channel upon completion of the work. In the event sandbags are used in the de-watering process, the sand bags will be removed and emptied outside of the active channel area.

E. Upon removal of the de-watering measures, the Contractor shall regrade any disturbed surfaces, remove any contaminated soils, and restore all areas consistent with the stabilization of the project site as set forth in the Contract Documents.

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01110 – Unit Prices.

END OF SECTION 02245

SECTION 02300

EARTHWORK

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 WORK INCLUDES

All materials, labor, equipment, and services necessary to perform the work of this section as shown on the Drawings, as specified, and as required by job conditions, including, but not limited to, the following:

A. General excavation for site improvements, transportation and placement of excavated material at the sediment disposal area.

B. Excavation of pond material.

C. Preparing of subgrade for construction entrance pads.

D. Soil compaction control.

E. Site grading.

F. Fill from off-site sources, if required.

G. Trench excavation and backfill for utilities, conduits, and structures.

H. Removal of excess materials off-site, if required.

I. Removal and legal disposal of unsuitable materials off site, if required.

J. Topsoil from off-site sources, if required.

K. Topsoil spreading and fine grading.

1.3 DEFINITIONS

A. Excavation: Removal of material encountered to subgrade elevations indicated and subsequent disposal of materials removed.

B. Authorized Excavation: Excavation below sub-grade elevations or beyond indicated lines and dimensions as directed by Engineer. Authorized additional excavation and replacement material will be paid for according to Contract provisions changes in the Work.

C. Unauthorized Excavation: Removal of materials beyond indicated subgrade elevations or dimensions without specific direction of the Engineer. Unauthorized excavation shall be at the Contractor's expense.

D. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below topsoil materials.

E. Unsuitable Material: On-site materials which are of improper gradation to allow adequate compaction, are organically contaminated or have been identified as improper for the intended use by the Engineer.

F. Topsoil: Topsoil shall consist of natural loam, free from subsoil, obtained from an area which has never been stripped. Topsoil is friable clay loam surface soil found in a depth of not less than 4 inches, and is substantially free of subsoil, clay lumps, stones, and other objects over 2 inches in diameter, and without weeds, roots, and other objectionable material. Topsoil shall be as further defined under General Specification 02900 – Site Restoration. Topsoil meeting this definition and General Specification 02900 shall be considered suitable for use on-site.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Perform earthwork in compliance with applicable requirements of authorities having jurisdiction.
Form 816 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition, as amended, shall be used for materials compliance and execution of the work in this section.

B. Compaction: Under structures, pavements, and walkways, 95 percent maximum density, ASTM D 1557. Under lawns or unpaved areas, 90 percent maximum density, ASTM D 1557.

1.5 PROJECT CONDITIONS

A. Notify Owner if unexpected subsurface conditions are encountered and discontinue work in area until Owner provides notification to resume work.

B. Examine the substrata of the areas and ascertain the conditions under which earthwork is to be performed/installed. Do not proceed until all unsatisfactory conditions, if any, have been corrected to the satisfaction of the owner.

C. Inform Call Before You Dig, Connecticut (1-800-922-4455 or 811) before beginning excavations. Do not proceed until clearance is received.

D. Existing Utilities: Locate existing utilities in areas of excavation work. Provide adequate means of support and protection during earthwork operations.

E. Should uncharted or incorrectly charted piping or other utilities be encountered, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

F. Do not interrupt existing utilities serving facilities occupied by Owner or others during occupied hours except when permitted and then only after acceptable temporary utility services have been provided.

G. Provide adequate notice to the Owner, and receive written notice to proceed before interrupting utility.

H. Protection of Persons and Property: Barricade open excavations occurring as part of this work.

I. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

J Protect benchmarks and existing structures, roads, sidewalks, paving, and curbs against damage from equipment and vehicular or foot traffic.

K. Provide necessary safeguards to prevent accidents, to avoid all necessary hazards, and to protect the public, the work, and the property at all times, including Saturdays, Sundays, and holidays.

L. Contractor shall be responsible for any and all damages, which may arise or occur to any party whatsoever by reason of the neglect in providing proper lights, guards, barriers, or any other safeguards to prevent damage to property, life, and limb.

1.6 SUBMITTALS

A. Test Reports: Submit the following reports directly to the Owner, with copy to Engineer:

1. Gradation test reports on borrowed material.

2. Field reports; in-place soil density tests.

3. One optimum moisture-maximum density curve for each type of soil compacted.

B. The Contractor shall submit samples of all materials from off-site sources to the testing laboratory at least ten (10) calendar days prior to use in the work. The Contractor shall not deliver or use any materials for off-site sources until written approval is received from the Engineer based upon test results showing compliance with these specifications. On-site excavated material, including fill and topsoil, if available, may be submitted for testing.

PART 2 – PRODUCTS

A. Pervious Structural Backfill (M.02.05.2): Select excavated gravel or stone materials free of organic material, loam, trash, snow, ice, frozen soil, and other objectionable material, conforming to the gradation requirements as follows (from CT DOT 816, page 617, M.02.06 Gradation - B):

Sieve Size	% Passing (by weight)
5"	100%
3½"	90-100%
1½"	55-95%
¼"	25-60%
No. 10	15-45%
No. 40	5-25%
No. 100	0-10%
No. 200	0-5%

B. Crushed Gravel: Broken stone or gravel conforming to the requirements of Section M.02.01 for Coarse Aggregate as described in the State of Connecticut DOT Form 816, with gradation as follows:

Sieve Size	% Passing (by weight)
5"	
3½"	90-100%
1½"	55-95%
1/4"	25-60%
10"	15-45%
40"	5-25%
100"	0-10%
200"	0-5%

C. Processed Aggregate Base and Pavement: Coarse and fine aggregates shall be combined and mixed by approved methods so that the resulting material shall conform to the following gradation requirement's (Section M05.01.1 as described in the State of Connecticut DOT 816):

Sieve Size	% Passing (by weight)
2½"	100%
2"	95-100%
3/4"	50-75%
1/4"	25-45%
40"	5-20%
100"	2-12%

D. Filter Fabric: Conform to State of Connecticut Form, 816, 2004, Section M.08.01, Paragraph 26.MIRAFI 140 Filter Fabric.

E. Borrow: In conformance with the requirements of Form 816 Section 2.07 for Borrow.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of subgrade for earthwork operations including removal of vegetation, topsoil, debris, obstruction, and deleterious materials from ground surface as specified in Section 02100.

C. Protect and maintain erosion and sedimentation controls, which are specified in Section 02100.

3.2 EXCAVATION - GENERAL:

A. Earth Excavation: Excavation of all materials of any kind, except as classified as rock excavation, trench rock excavation, and trench earth excavation.

B. Trench Earth Excavation: Excavation of individual piers, footings, catch basins, pits, manholes, and including the excavation of all trench materials of any kind except as classified as trench rock excavation. No tunneling will be allowed.

D. Pond/ Sediment Excavation: Excavation of all materials of any kind to proposed grade or subgrade as indicated on the Contract Drawings. Material excavated from the pond limits is to be re-used within the project limits to achieve proposed grade as indicated on the Project Plans in the sediment disposal area near Hole 1. This item includes the excavation of the pond sediment and stockpiling, dewatering, loading, transporting, placement, and compaction of the excavated material in those areas where fill is proposed to meet the finished grades shown on the design plans and to blend with the surrounding topography of the sediment disposal area.

E. Unsuitable Material: If unsuitable materials as defined by the Engineer are encountered at required subgrade elevations, carry excavations deeper and replace excavated material with other material as directed by the Engineer. Remove unsuitable materials from the site and legally dispose of them. Removal of unsuitable material and its replacement as directed, provided it is not due to fault or neglect of the Contractor, will be paid on a cubic yard basis of measured volumes. Where the removal of unsuitable soil material is due to the fault or negligence of the Contractor in his performance of earthwork and site grading operations, excavate the resulting unsuitable material and

replace with compacted satisfactory material as required, at no additional cost to the Contract Sum.

F. Stability of Excavations: General - Comply with local codes, ordinances, and requirements of agencies having jurisdiction.

1. Slope sides of excavations to comply with local codes, ordinances, and requirements of agencies having jurisdiction. Shore and brace where sloping is not possible because of space restrictions or stability of material excavated. Maintain sides and slopes of excavations in safe condition until completion of backfilling.

2. Slope the sides of excavations over 5' deep to the angle of repose of the material excavated, but not steeper than 1½ horizontal to 1 vertical. Where sloping is not possible, either because of space restrictions or stability of material excavated, shore or brace in accordance with requirements of authorities having jurisdiction. In addition, provide 5' high snow fence around these areas as protection. Temporary slopes should be covered with plastic sheeting or other suitable cover where necessary to prevent the surface from drying or eroding.

3. Maintain sides and slopes of excavation in a safe condition until completion of backfilling, by scaling, benching, shelving, or bracing.

4. Take precautions to prevent slides or cave-ins when excavations are made in locations adjacent to backfilled excavations, and when sides or excavations are subject to vibrations from vehicular traffic or the operation of machinery, or from any other source.

5. Provide minimum requirements for trench shoring and bracing to comply with ANSI A10.1 "Safety for Building Construction", and with local codes and authorities having jurisdiction.

G. Dewatering: Prevent surface water and subsurface or ground water from flowing into excavations and from flooding project site and surrounding area.

1. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of subgrades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other dewatering system components necessary to convey water away from excavations.

2. Establish and maintain temporary drainage ditches and other diversions outside excavation limits to convey rain water and water removed from excavation limits to collecting or runoff areas. Do not use trench excavations as temporary drainage ditches.

H. Placing and Compaction: Ground surface preparation - remove vegetation, debris, unsatisfactory soil materials, obstructions, and deleterious materials from ground surface prior to placement of fills. Plow, strip, or break up sloped surfaces steeper than one vertical to four horizontal so that fill material will bond with existing surface.

Place backfill and fill materials in layers not more than twelve inches in loose depth for material compacted by heavy compaction equipment.

In landscaped areas: Compact top six inches of subgrade and each layer of backfill or fill material to 90% of maximum density.

I. Stockpile and Reuse of On-Site Stone: All suitable size stone material excavated from the pond shall be reused on site, when suitable. The material shall be segregated and stockpiled on site in accordance with the Plan. Any stones larger than eighteen inches (18") shall be reused in the construction of Fish Habitat Structure in accordance with Section 02675 "Pond Features." The remaining excavated pond sediment shall be transported and disposed of in the sediment disposal area.

3.3 SEDIMENT REMOVAL AND DISPOSAL

A. Follow all applicable regulations and provide all labor, tools and equipment as and when required to perform the work specified herein or as shown on the plans, including but not limited to the following:

1. All erosion control measures and water control/dewatering systems shall be in place before any sediment excavation begins.

2. This work shall consist of the handling, storage and transport of sediment accumulated during dewatering to permit construction activities. This includes the sediment excavated from the areas designated on the plans to the dewatering basin and transport vehicles. The dewatered sediment shall be stored only in those areas as noted on the Plans. Any alteration to this location shall require approval from the Engineer (Refer to Section 02371 – Dust, Sediment, and Erosion Control for further information).

3. Install construction entrance pads as indicated on the contract plans and details, and proceed with sediment excavation to the limit shown on the contract plans and sections.

4. The excavated sediment shall remain in the dewatering basin until such time that the Engineer determines that the sediment has been sufficiently dewatered. Refer to the Plans for further details regarding the dewatering basin.

5. Excavated sediment shall be tested by the Owner/Owner's Representative prior to the transportation of sediment from the temporary sediment stockpile area at hole 9 to the permanent sediment stockpile area at hole 1. Sediment shall be

sampled at an interval of 1 sample per 200 cy of material excavated. See section 3.4 Notice to Contractor for detailed information regarding sediment sampling.

6. All sediment and subsequent water from the dewatering operations shall be handled, transported (in dump trucks without leakage) and disposed of in compliance with all federal, state, local, and other applicable regulations, laws and permits.

7. All sediment shall be disposed of only after the sediment has been dewatered. The Contractor shall cease his excavation operation and modify his water control plan to the satisfaction of the Owner if for any reason he cannot transport the sediment without leaking, spilling, tracking, etc. mud/ dirt onto the any public or private roads/property.

8. Sediment to be removed from the site shall be transported to the designated sediment disposal site as shown on the Project Plans. The Contractor shall stockpile the sediment in the designated location and the stockpile shall not extend beyond the limits shown on the plans.

9. Upon completion of the work, all access road improvements will be removed, and the site restored to pre-construction conditions, unless otherwise directed by the Engineer.

3.4 NOTICE TO CONTRACTOR – ENVIRONMENTAL INVESTIGATIONS

A. Description: Environmental site investigations have been conducted that involved the sampling and laboratory analysis of sediment collected from various locations and depths within the proposed project limits. The results of these investigations indicated the presence of detectable concentrations of polynuclear aromatic hydrocarbons (PAH) within the proposed construction area. The sediment sampling results are available upon request. Concentrations are typical of urban runoff and will require the reuse of the dredged sediments as described in the project plans.

Material dredged from the project limits shall be stockpiled and dewatered of free-draining fluids by the contractor prior to environmental sampling to be conducted by the owner. No sediment will be transported to the reuse area prior to environmental sampling or consent from the owner.

B. Environmental Sampling: The owner will sample the dewatered sediment stockpile at a rate of 1 sampler per 200 cubic yards (estimated 11 samples for proposed 2,300 cubic yards of dredged material). Each sediment sample will be collected as a composite of three (3) sub-samples collected directly from the dewatered sediment stockpile. Samples will be submitted by the owner to an approved State of Connecticut laboratory for analysis of PAHs. To facilitate sampling, the contractor will be requested to create individual stockpiles of approximately 200 cubic yards.

The contractor shall allow sufficient time (approximately two weeks) for laboratory

analysis of the material. The presence of these compounds below the laboratory reporting limits will not require material-handling measures beyond those required for normal construction operations. The presence of PAHs above laboratory reporting limits may require the contractor, at the direction of the owner, to mix or blend the dredged sediment stockpiles. The owner will conduct additional environmental sampling completed to verify reduction of PAH concentrations. Reuse of the material is not allowed without consent of the owner.

C. Transportation for Final Reuse: The contractor shall provide all necessary material, equipment, tools and labor for anticipated dewatering activities. The contractor shall manage all materials within the project limits in a way to minimize tracking of potential contaminated materials across the site and off-site. All equipment shall be provided to the work site free of contamination.

PART 4 – MEASUREMENT AND PAYMENT

4.1 Earthwork – This item consists of the lump sum (L.S.) bid price of all excavation, soil compaction, site grading, pond excavation, fill from on-site and off-site sources, and legal disposal of unsuitable materials. The contractor is responsible to remove excess soil materials from the site as part of this lump sum pay item.

4.2 Earthwork – Export to Sediment Disposal Area Hole 1 – This item consists of the unit price (c.y.) bid price for excavation, removal, and lawful disposal of fill material from the Hole 9 Pond placed at the Hole 1 stockpile area. Measurement of this item shall be determined by comparison of pre-construction and post-construction survey. The Contractor will be required to prepare digital mapping of the proposed sediment disposal area. The Contractor shall provide an independent Connecticut registered land surveyor to measure cross sections at 25-foot intervals through the proposed sediment disposal area prior to the start of construction, and another set of cross sections at the completion of construction. Pre- and post-construction cross sections must be taken at the same location. The sections will be used to quantify the change in grade and compute the volume of material excavated and disposed of, and will be used as a basis for payment for "Item 5A – Earthwork, off-site export". Interim cross sections can be completed at the contractor's discretion to support progress payment requests. The Owner may complete independent pre and post construction survey to substantiate that the volume of off-site export.

The Contractor will be required to submit the pre-construction survey in digital AutoCAD format to the Engineer for approval prior to the transport and disposal of any off-site export material.

4.3 See Section 01110 – Unit Prices

END OF SECTION 02300

SECTION 02371

DUST, SEDIMENT, AND EROSION CONTROL

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. The Contractor shall provide all labor, materials, tools, equipment, and incidentals required to assure adequate environmental protection including implementation of all erosion and sediment control measures and maintenance of storage areas as directed by the Engineer.

B. The Contractor shall provide an Erosion and Sedimentation Control Plan (E&SCP) that addresses measures to prevent migration of contaminated stormwater and sediment and to prevent erosion of features of the Work.

C. The Contractor shall minimize erosion and prevent discharge of sediment to surface water features, watercourses, drainage systems, public streets or private property from construction activities. The Contractor shall provide methods to prevent construction activities from generating contaminated stormwater runoff. Methods of constructing berms and dikes to direct clean stormwater runoff around the work area to the local drainage system shall be included.

D. The Contractor shall comply with all Federal, State, or local laws, codes, ordinances and regulations which govern the control of sediment, erosion and stormwater during construction activities.

E. The Contractor shall provide Best Management Practices (BMPs) including, but not limited to silt fences, straw bales, diversion dikes, swales, sedimentation basins/traps, truck wash areas/decontamination stations, stabilized construction entrances and/or other means as a temporary structural practice to minimize erosion and sediment runoff.

F. The Contractor shall control dust caused by operation and movement of vehicles and equipment in accordance with the latest DEEP and OSHA standards, and all other applicable Federal, State and local regulations.

G. The Contractor shall minimize the length of time that unprotected soil is left unfinished and exposed to runoff events. Seed and mulch shall be applied to all finished surfaces within 48 hours of application of topsoil.

1.2 RELATED SPECIFICATIONS

A. Section 02100 - Site Preparation

B. Section 02245 - Water Control

C. Section 02300 - Earthwork

1.4 DEFINITIONS / EXPLANATION OF TERMS

A. Best Management Practices: Physical, structural, and/or managerial practices that, when used singly or in combination, prevent or reduce pollution of water, and have been approved by the Connecticut Department of Energy and Environmental Protection (DEEP) or other accepted certified agency.

B. Commencement of Construction: The initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices.

C. Erosion: The wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as geological creep, detachment, movement of soil or rock fragments by water, wind, ice, or gravity.

D. Erosion/Sediment Control: Any temporary or permanent measures taken to reduce erosion, control siltation and sedimentation, and ensure that sediment-laden water does not leave the site.

E. Final Stabilization: All soil-disturbing activities at the site have been completed and uniform, perennial vegetative cover with the density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geo-textiles) have been employed on all unpaved areas and areas not covered by permanent structures, concrete or pavement.

F. Receiving Waters: Bodies of water or surface water systems receiving water from upstream manmade (or natural) streams

G. Sediment: Fragmented material that originates from weathering and erosion of rocks and unsolicited deposits, and is transported by, suspended in, or deposited in water.

1.5 SUBMITTALS

A. Working Drawings: The Contractor shall submit to the Engineer for approval Working Drawings and other documentation required to show conformance with the requirements specified and shown on the Contract Drawings.

1. Working Drawings shall show details of the Sediment and Stormwater Control System. The Working drawings shall include, at a minimum, the following:

Plan locations for each component of the Sediment/Stormwater Control System.

Details of all applicable BMPs (e.g., silt fence, diversion dike, straw bale berm, decontamination stations, etc.).

2. The Contractor shall submit manufacturer's descriptive literature and installation instructions for stockpile liner and cover material.

B. Sediment and Erosion Control Plan (S&ECP): The Contractor shall implement the S&ECP provided in the Plans. The S&ECP shall address schedules and measures that will be taken to prevent migration of contaminated stormwater/sediment, and to prevent erosion of features of the Work. The S&ECP shall include the following at a minimum:

1. Measures to capture and mitigate stormwater runoff from active, disturbed areas.

2. Provisions for silt fences and other measures to limit migration of sediments.

3. Provisions for straw bale berms and silt fences or other measures to prevent contaminant and sediment migration.

4. Diversion of stormwater: The Contractor shall include provisions for controlling stormwater runoff in and around excavation areas.

5. Soil Storage Area: All details of temporary soil storage to be implemented as specified in this section.

6. Soil Stabilization practices: All details of soil stabilization practices to be implemented, as specified in this section.

7. Provisions for all other applicable Best Management Practices.

1.6 QUALITY ASSURANCE

A. Permits and Regulations:

1. The Contractor shall obtain all necessary permits and be responsible for implementing the terms and requirements of these permits as needed and for payment of all fees.

2. The Contractor shall handle all material in compliance with applicable requirements of OSHA and other governing authorities having jurisdiction.

B. Inspections. The Contractor must have a Qualified Inspector conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the contract drawings have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

C. Stabilization. The contractor shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased.

1.7 ENVIRONMENTAL REQUIREMENTS

A. Soil Stabilization: The stabilization practices to be implemented shall include one or a combination of the following: temporary seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, erosion control mats, protection of trees and shrubs, preservation of mature vegetation. Protection of trees shall be in accordance with General Specification 02100 – Site Preparation. Stabilization practices shall be implemented as approved by the Engineer. The Contractor shall record the dates when the major grading activities occur (i.e. clearing and grubbing, excavation, embankment and grading); when construction activities temporarily or permanently cease on a portion of the site; and when stabilization practices are initiated. Except as provided in paragraphs 1.7A.1 and 1.7A.2 below, stabilization practices shall be initiated as soon as practicable, but no more than fourteen (14) days after construction activities have temporarily or permanently ceased.

1. Unsuitable Conditions: Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by unsuitable conditions caused by the weather. Stabilization practices shall be initiated as soon as practicable after conditions become suitable.

2. Temporary Inactivity Less than 14 Days: Where construction activity will resume on a portion of the site within 14 days after it temporarily ceases, no stabilization practices will be required.

B. Erosion and Sediment Control: Erosion and Sediment control BMPs shall be operational at all times during the Work, specifically during excavation, backfilling and restoration, and decontamination operations. The sediment and erosion control system shall be capable of handling stormwater during construction. Damage to excavation slopes and the migration of contaminated soil to downstream areas resulting from storm events shall be repaired or remediated by the Contractor, at the Contractor's expense.

Stormwater: At no time shall the Contractor allow stormwater runoff from soil excavation/stockpiling operations, or effluent from decontamination operations to migrate off to contaminate soils in other areas or percolate into the groundwater. The Engineer will monitor any overflow or leakage that occurs, and may at his discretion require the Contractor to perform soil sampling within all areas affected by such overflow. Any soils that have been contaminated by such overflow shall be removed, treated and disposed of by the Contractor at no additional cost to the Owner.

C. Disposal of Water: Water collected from decontamination areas and dewatering operations shall be handled in accordance with General Specification 02245 – Water Control

1.8 PROJECT CONDITIONS

A. Existing Work: All BMPS (e.g., silt fences, straw bales, swales, sumps, pumps, piping) and other sediment/stormwater controls shall be installed such that other aspects of the Work are not adversely impacted or endangered. All installations shall be subject to the approval of the Engineer.

B. Dust Control: The Contractor shall be responsible for controlling visible dust caused by Work operations and the moving of vehicles and equipment. Dust control shall be implemented when soils are exposed, before, during and after Work activity ceases. Dust control will also be required on the weekends. The Contractor shall utilize the application of water or other methods, subject to the Engineer's approval, when visible dust is present on-site, in accordance with the Health and Safety Plan. The use of chemicals for dust control, including calcium chloride, will not be permitted.

1. All excavation, loading and transport of materials shall minimize the formation of dust and shall conform to General Specification 02300 - Earthwork. To prevent dust generation, application of water to roadways and active work areas shall be utilized as required. The Contractor's operations shall include air monitoring and dust minimization measures, consistent with the Detailed Health and Safety Plan (HASP) Specifications.

C. Silt and Sediment Disposal: All silt and sediment that accumulates behind any BMPs used on the site (i.e., straw bale berms or silt fences) shall be removed and disposed of off-site in accordance with all applicable Federal, State and local regulations.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Geotextile silt fence shall conform to Article M.08.01-19 of the Standard Specifications.

B. Temporary Vegetative Cover

1. Perennial Ryegrass 3 lbs/1,000 sq. ft. (*Ioluium Perenne*)

2. Temporary Mulching Straw or Salt Hay 70-90 lbs/1,000 sq. ft.

C. Geotextile fabric for construction Entrance will be from an acceptable manufacturer that meets the requirements of Section M9.50.0 Type II Stabilization/Reinforcement Geotextile.

D. Crushed stone for construction entrance pad and access road caps shall conform to Section M.01.01 for No. 3 Stone.

E. Haybales and wood stakes shall conform to Article 2.18.02 of the Standard Specifications.

F. Modified riprap shall conform to Section M.12.02 of the Standard Specifications.

G. Orange Construction Safety Fence: shall be Cordova Orange Safety Fence made of polypropylene and a minimum height of 4, (or approved equal by the Engineer).

H. Temporary Chain Link Fence shall conform to Article 9.13.02 of the Standard Specifications.

I. Where laser grade control is used for construction staking, a reference stake for verifying height of laser shall be required from the Contractor.

J. Tree Protection shall conform to the Drawings and Standard Specifications.

PART 3 – EXECUTION

3.1 INSTALLATION

A. All installation of erosion and sediment control BMPs must be consistent with the most current version of the technical standard, Connecticut State Standards and Specifications for Erosion and Sediment Control. Where erosion and sediment control practices are not designed in conformance with these technical standards, the Contractor must demonstrate equivalence to the technical standard.

B. Maintenance: The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition at all times consistent with the most current version of the technical standard, Connecticut State Standards and Specifications for Erosion and Sediment Control.

3.2 FIELD QUALITY CONTROL

A. Inspections: The Contractor is required to conform to additions and modifications recommended resulting from Site Inspections. The Qualified Inspector shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, areas where vehicles exit the site daily and all other requirements.

3.3 CLEANING

A. The Contractor shall clean the site and equipment consistent with requirements of the current Connecticut State Standards and Specifications for Erosion and Sediment Control. Where appropriate, truck washes/decontamination stations should be installed to minimize the migration of sediment off-site as specified in the Detailed Specifications.

PART 4 – MEASUREMENT AND PAYMENT

4.1 For items of work related to Dust, Soil Erosion and Sedimentation Control, no separate payment will be made. The costs associated with Dust, Soil Erosion and Sedimentation Control shall be considered subsidiary to Section 02100 – Site Preparation and shall be included in that bid cost.

END SECTION 02371

SECTION 02515

ELECTRICAL

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 SUMMARY

This work shall consist of furnishing and installing a 1HP submersible well pump (240V) capable of pumping at 10GPM (set at a depth of 200'), 575' of 1.5" PVC electrical conduit and wiring, and 75' of discharge pipe (1.25" dia.) needed to run from the well to the pond; and another 1HP submersible well pump (240V) capable of pumping at 10GPM (set at a depth of 200'), 65' of 1.5" PVC electrical conduit and wiring, and 100' of discharge pipe (1.25" dia.) needed to run from the well to the pond; in conformance to these Specifications, the Drawings, and as directed by the Engineer.

Install panelboard, transformer, and 7-day time clock control within pump house. Remove and replace existing electric unit heater within pump house with new heater equal to qmark model muh0541, 5kw, 480v, 3-phase. Provide remote 24v thermostat wired to control transformer furnished with heater. Provide new wiring (4 #12 awg) in existing conduit from existing 20a, 3-pole breaker in mdp to new heater. Verify compatibility with existing wall bracket or furnish and install new bracket.

There will be no measurement for this work. This work will be paid for at the contract lump sum bid price.

1.3 A. Related work specified elsewhere includes:

Site Preparation: Section 02100
Water Control: Section 02245

1.4 DEFINITIONS

A. Pumps: The pumps to be installed in the Hole 9 well shall be rated at 1HP and for 10GPM each. The pumps are to be set at a depth of 200'.

1.5 QUALITY ASSURANCE

A. Codes and Standards: All materials and construction methods shall conform to Form 816 – State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition, and Supplemental Specifications thereto dated January 2015 unless otherwise specified herein.

B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

1.6 All work shall comply with Connecticut State Building Code and Connecticut State Fire Safety Code and shall be accomplished in a neat and workmanlike manner.

1.7 Material and equipment shall be new unless specifically noted otherwise and shall be listed by Underwriters Laboratories.

1.8 Submittals: (1) Submit product data, shop drawings, record drawings, and O&M manuals where required by individual specifications; (2) Submit three copies to owner.

PART 2 – PRODUCTS

2.1 MATERIALS (Easternmost well pump)

A. 1.5" PVC electrical conduit of 575' will be needed to pull power from the pond outlet to where the well head is located. See Contract Drawings for the location of conduit.

B. 75' of discharge pipe (1.25" dia.) is needed from the well head to the outlet in the Hole 9 pond.

C. The submersible pump to be installed in the Hole 9 well shall be rated at 1HP (240V) and for 10GPM. The pump is to be set at a depth of 200' (with associated electrical wiring).

2.2 MATERIALS (Southernmost well pump)

A. 1.5" PVC electrical conduit of 65' will be needed to pull power from the pond outlet to where the well head is located. See Contract Drawings for the location of conduit.

B. 100' of discharge pipe (1.25" dia.) is needed from the well head to the outlet in the Hole 9 pond.

C. The submersible pump to be installed in the Hole 9 well shall be rated at 1HP (240V) and for 10GPM. The pump is to be set at a depth of 200' (with associated electrical wiring).

2.3 Electrical Controls, Panels, and Transformers for Pump House

A. Provide new 30A, 2-pole breaker in existing MDP to serve new transformer.

B. Remove existing 3KVA transformer and provide new 7.5KVA, 1ø, 480V to 240V dry-type transformer. Provide required grounding per NEC.

C. Replace existing load center with new 12-circuit load center. Swap four existing 120V, 20A circuits into new panel. Provide six 20A/1-pole breakers and two 20A/2-pole breakers.

D. Provide 120V, 7-day time clock with two independently controlled circuits. Each circuit shall serve the coil of one pump contactor.

E. Provide two 240V, 20A, electrically held controllers to serve new pumps. Controllers shall have hand/off/auto switch with autosetting connected to time clock output.

F. Provide 240V, 20A, 1ø branch circuit to each of two new pumps. Use 4 #6 AWG for each combined in one 1-1/2" PVC. Coordinate locations with site plan.

2.4 Heater in Pump House

A. Remove and replace existing electric unit heater with new heater equal to qmark model muh0541, 5kw, 480v, 3-phase. Provide remote 24v thermostat wired to control transformer furnished with heater. Provide new wiring (4 #12 awg) in existing conduit from existing 20a, 3-pole breaker in mdp to new heater. Verify compatibility with existing wall bracket or furnish and install new bracket.

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

Installation of the electrical conduit, discharge pipe, and well pump shall conform to the Contract Drawings and detail sheets.

3.2 Coordinate electrical systems, equipment, and materials installation with other building components. Refer all conflicts to engineer before continuing with work.

3.3 Install systems to provide maximum headroom possible unless indicated otherwise.

3.4 Install systems level, plumb, parallel, and perpendicular to other building systems and components.

3.5 Install equipment to facilitate repair, maintenance, or replacement.

3.6 Perform cutting and patching required to remove and replace defective work or work not conforming to requirement of contract documents.

3.7 Contractor shall leave the entire electrical system in proper working order and shall, without additional charge, replace any work, materials, or equipment furnished and installed by him under this specification that develops defects, except for normal wear and tear, within 1 year from date of final acceptance by owner.

Raceways, Boxes, and Fittings:

3.8 Components and installation shall comply with NFPA 70 and NEMA and shall be UL listed.

3.9 Interior raceways shall be electrical metallic tubing.

3.10 Exterior raceways above ground shall be rigid metal conduit or liquid-tight flexible metal conduit (max length 5').

3.11 Exterior raceways below ground shall be rigid metal conduit or schedule 40 PVC.

3.12 Use raceway fittings compatible with associated raceway and application.

3.13 Boxes shall be steel conforming to UL 514A and NEMA OS1. Fittings shall conform to UL 514B.

Building Wire:

3.14 Wire shall comply with UL 83 and NEMA WC-5. Connectors shall comply with UL 486A.

3.15 Conductors shall be copper, and insulation shall be THHN/THWN.

3.16 Interior wiring shall be building wire in conduit where exposed.

Supporting Devices

3.17 Supports, hardware, and fasteners shall be protected with zinc coating unless stainless is specified.

3.18 Sleeves shall be schedule 40 galvanized steel pipe.

3.19 Conform to manufacturer's recommendations for selections and installation for supports and conform to the following: (1) Support individual horizontal raceways by separate pipe hangers; (2) Support raceway within 1 foot of any unsupported box.

3.20 Install sleeves on concrete slabs and walls, and fire-rated walls and floors. Apply UL listed fire stopping material where required.

Electrical Identification

3.21 Provide equipment identification labels of engraved plastic laminate for control panels, panelboards, and disconnects.

3.22 Conductors shall be color coded in accordance with NFPA 70 and ANSI A13.1.

3.23 Provide typed panelboard circuit directory for each panelboard.

3.24 Provide underground warning tape for all buried electrical services.

Panelboards

3.25 Panelboard shall be 240/120 volt, 1 phase. Use Cutler-Hammer Pow-R-Line 1a or equal by Siemens, Square D or GE.

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01110 – Unit Prices.

END OF SECTION 02515

SECTION 02675

POND FEATURES

PART 1 – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 SUMMARY

This work shall consist of furnishing and installing Fish Habitat Structures, Riprap Sediment Filter Berm, Removal and Replacement of Outlet Structure Grate and Grout Repair of in conformance to these Specifications, the Drawings and as directed by the Engineer.

1.3 Related work specified elsewhere includes:

Site Preparation: Section 02100
Water Control: Section 02245
Earthwork: Section 02300
Site Restoration: Section 02900

1.4 DEFINITIONS

A. Fish Habitat Structures: Shall consist of boulders placed within the pond to create an irregular pond bottom with locations for fish to inhabit and promote a sustainable fish population within the pond.

B. Riprap Filter Berm: Shall consist placing of stone within the pond to create a sediment forebay at the inlet. The intent of the Filter Berm is to trap sediment entering the pond letting the material settle out in the forebay.

C. Remove and Replace Outlet Structure Grate: Shall consist of the removal and replacement of the hole 9 pond outlet structure grate as called out on the plans. Along with the removal and replacement, the outlet structure is to have all joints and gaps sealed off. The grate to be used in the replacement shall be a "Galvanized steel top grating to be 1-1/2" x 3-1/16" swage locked flush top bar grating. Outside dimensions of the grate: 60" x 56". Suspend grating over structure."

1.5 QUALITY ASSURANCE

A. Codes and Standards: All materials and construction methods shall conform to Form 816 – State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition, and Supplemental Specifications thereto dated January 2015 unless otherwise specified herein.

B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary

crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

PART 2 – PRODUCTS

2.1 MATERIALS

B. Instream feature materials shall be as specified on the plan and detail sheets. Blasted rock or concrete excavated from site is not approved for use under this specification. Rock larger than 18 inches in diameter excavated from the site is approved for use under this specification for use in the Fish Habitat Structures.

B. The Contractor shall provide to the Engineer, for approval prior to installation, the source of all materials. The Engineer must approve the material before structure construction.

C. Rock that does not meet the specified size requirements shall not be accepted by the Owner and shall be removed from the site. No payment will be made on rock that does not meet the size requirements.

D. All rock shall be quarry or alluvial stone from an approved source. Prior to execution of a contract, the Contractor shall identify all potential sources of rock. The Contractor shall be responsible for obtaining from the rock provider and submitting appropriate samples to the Engineer and Owner for approval. All rock provided from off-site sources must be from a properly permitted quarry operation operating in good standing under all applicable local, state, and federal regulations.

E. Consideration should be given to obtaining rock that is similar in color and texture to the native stone in the project area.

F. Individual stones shall be of sufficient hardness to resist weathering, dense, sound, and free from cracks, seams, and other defects which contribute to accelerated weathering. Limestone, sandstone, shales, and other porous or soft rocks will not be permitted for use.

2.2 FISH HABITAT STRUCTURES

A. Fish Habitat Structures shall consist of header and footer boulders placed within the pond to create voids and pockets within the structure that would support fish habitat. Header and footer boulders shall be according to the size given on the Contract Drawings, both naturally occurring stone from an approved source. Riprap is not permitted.

B. The header boulder should be 18-inches to 24-inches in diameter, and the footer boulders shall be 18-inches to 24-inches in diameter.

C. Naturally occurring blocky boulders should be used in place of round rock.

2.3 RIPRAP FILTER BERM

A. The core material of the filter berm "1/2 Crushed Stone" shall meeting the requirements of Grading "B," Article M.02.06 of the Standard Specifications. The top 12" layer of "Modified Riprap" of the filter berm shall meet the requirements of Article M.12.02 of the Standard Specifications.

C. The Contractor shall re-use any onsite stone 18" or greater in size as per Section 02300 - Earthwork.

2.4 REMOVE AND REPLACE OUTLET STRUCTURE GRATE

A. The removal and replacement, the outlet structure is to have all joints and gaps sealed off. The grate to be used in the replacement shall be a "Galvanized steel top grating to be 1-1/2" x 3-1/16" swage locked flush top bar grating. Outside dimensions of the grate: 60" x 56". Suspend grating over structure."

PART 3 - EXECUTION

3.1 CONSTRUCTION METHODS

Shall conform to the plan and detail sheets.

3.2 FISH HABITAT STRUCTURES

A. Complete the work during the period of pond drawdown to ensure proper location within the pond and to facilitate the movement of heavy equipment. Structures shall be placed into a stable position on the pond bottom as approved by the engineer.

B. Boulders shall be placed on top of footer rocks so that the boulder is offset in the pond ensuring voids are created.

C. Finished elevation and location of the boulders will be determined in the field by the design engineer. The footer boulders should be buried a depth of 1/3 their diameter within the stream bed.

D. Boulders shall be placed as shown on the Contract Drawings.

E. The header boulder should be 18 inches to 24 inches in diameter, and the footer boulders shall be 18 inches to 24 inches in diameter.

3.3 RIPRAP FILTER BERM

A. Complete the work during the period of pond drawdown to ensure proper location within the pond and to facilitate the movement of heavy equipment. Structures shall be placed into a stable position on the pond bottom as approved by the engineer.

B. The core Crushed Stone shall be placed to limits shown on the Contract Drawings and at a 1:1 side slope. Stone shall be approved by the engineer prior to placement within the pond. Crushed Stone shall be compacted in place to the on-site engineer's approval prior to the placement of Modified Riprap.

C. Modified Riprap shall be placed in a 12" thick layer over the core crushed stone also at 1:1 side slope to a total Filter Berm height of 6' as shown on the Contract Drawings. Modified Riprap shall be compacted in place to the on-site engineer's approval prior to removal of water control.

D. All rock should be placed with suitable equipment to produce a reasonably graded mass of stones. Rock should not be dropped from a height that causes damages to the footer rocks or causes impact segregation and sorting of rock sizes. Rock should be reasonably tamped in placed with suitable equipment.

3.4 REMOVE AND REPLACE OUTLET STRUCTURE GRATE

A. Upon removal of the existing outlet structure grating, the structure is to be repaired. All joints within the structure and any gaps in the structure are to be grouted prior to the installation of the new grate. After the structure has been repaired the new grate is to be installed. The grate to be used in the replacement shall be a "Galvanized steel top grating to be 1-1/2" x 3-1/16" swage locked flush top bar grating. Outside dimensions of the grate: 60" x 56". Suspend grating over structure."

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01110 – Unit Prices

END OF SECTION 02675

SECTION 02741

BITUMINOUS CONCRETE PAVING

PART 1 – GENERAL

1.1 WORK INCLUDED:

A. Provide all materials, equipment, and services necessary to furnish and deliver work of this Section as shown on the Drawings, as specified, and as required by job conditions including, but not limited to the following:

1. Bituminous concrete paving

2. Permanent pavement repair

3. Lip Curbing

4. Saw Cutting

1.2 RELATED SECTIONS:

A. Section 02100 – Site Preparation

B. Section 02300 – Earthwork

1.3 QUALITY ASSURANCE:

A. Codes and Standards: All materials and construction methods shall conform to the Town standards and Form 816 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition and supplements, unless otherwise specified herein.

B. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

C. Testing and Inspection: Contractor shall employ and pay for a qualified independent laboratory to perform testing and inspection service required to confirm compliance with these specifications.

1.4 SUBMITTALS:

A. In accordance with the General Requirements, submit samples, materials certifications, manufacturer's product data and test reports as hereinafter required.

B. Bituminous concrete design mix. Source of material, and percentage of recycled material.

1.5 JOB CONDITIONS:

A. Weather Limitations: Apply prime and tack coats when ambient temperature is above 50°F (10°C) and when temperature has not been below 35°F (1°C) for 12 hours immediately prior to application. Do not apply when base is wet or contains an excess of moisture.

B. Construct class 2 surface course when atmospheric temperature is above 40°F (4°C) and when base is dry.

C. Grade Control: Establish and maintain required lines and elevations.

PART 2 – PRODUCTS

2.1 MATERIALS:

A. General: Use locally available materials and graduations that exhibit a satisfactory record or previous installations.

B. Bituminous Pavement and Curbing: Shall contain a minimum of 25% (combined) pre-consumer/post-consumer recycled content (the percentage of recycled content is based on the weight of the component materials). Certification and submittal of recycled content shall be in accordance with Form 816 - State of Connecticut Department of Transportation "Standards for Roads, Bridges, and Incidental Construction", 1995 edition including supplements, Section M.04 Bituminous Class 3.

C. Subbase Material: Processed Aggregate Base (CT DOT Section 3.04 & 0M.05.01).

D. Hot Mixed Asphalt Paving: Bituminous concrete material conforming to Form 816 - State of Connecticut Department of Transportation "Standards for Roads, Bridges, and Incidental Construction", 1995 edition including supplements, Section M.04.

1. Wearing surface shall be Class 2.

PART 3 – EXECUTION

3.1 SURFACE PREPARATION:

A. Saw cut existing pavement to limits shown on the Contract Drawings.

B. General: Remove loose material from compacted subbase surface immediately before applying herbicide treatment or prime coat.

C. Proof-roll prepared subbase surface to check for unstable areas and areas requiring additional compaction.

D. Contractor to notify Owner or Owner's Representative of unsatisfactory conditions. Do not begin paving work until deficient subbase areas have been corrected and are ready to receive paving.

E. Exercise care in applying bituminous materials to avoid smearing of adjoining concrete surfaces. Remove and clean damaged surfaces.

3.2 PLACING MIX:

A. General: Place class 2 asphalt mixture on prepared surface, spread, and strike off. Spread mixture at minimum temperature of 225°F (107°C). Place areas inaccessible to equipment by hand. Place each course to required grade, cross-section, and compacted thickness.

B. Paver Placing: Place in strips not less than 10 feet wide, unless otherwise acceptable to Engineer. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete base course for a section before placing surface course.

C. Immediately correct surface irregularities in finish course behind paver. Remove excess material forming high spots with shovel or lute.

D. Joints: Make joints between old and new pavements, or between successive days' work, to ensure continuous bond between adjoining work. Construct joints to have same texture, density, and smoothness as other sections of hot-mixed asphalt course. Clean contact surfaces and apply tack coat.

3.3 ROLLING:

A. General: Begin rolling when mixture will bear roller weight without excessive displacement.

B. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

C. Breakdown Rolling: Accomplish breakdown or initial rolling immediately following rolling of joints and outside edge. Check surface after breakdown rolling and repair displaced areas by loosening and filling, if required, with hot material.

D. Second Rolling: Follow breakdown rolling as soon as possible, while mixture is hot. Continue second rolling until mixture has been evenly compacted.

E. Finish Rolling: Perform finish rolling while mixture is still warm enough for removal of roller marks. Continue rolling until roller marks are eliminated and course has attained 95 percent laboratory density.

F. Patching: Remove and replace paving areas mixed with foreign materials and defective areas. Cut out such areas and fill with fresh, hot hot-mixed asphalt. Compact by rolling to specified surface density and smoothness.

G. Protection: After final rolling, do not permit vehicular traffic on pavement until it has cooled and hardened.

H. Erect barricades to protect paving from traffic until mixture has cooled enough not to become marked.

3.4 FIELD QUALITY CONTROL:

A. General: Testing in-place 2" thick class 2 asphalt course for compliance with requirements for thickness and surface smoothness will be done by an independent testing laboratory. Contractor shall be responsible for testing and payment of tests performed on asphalt. Repair or remove and replace unacceptable paving as directed by Engineer.

B. Thickness: In-place compacted thickness tested in accordance with ASTM D 3549 will not be acceptable if exceeding following allowable variations:

1. Wearing Course Surface: Plus or minus 1/4 inch.

C. Surface Smoothness: Test finished surface of each hot-mixed asphalt course for smoothness, using 10-foot straightedge applied parallel with and at right angles to centerline of paved area. Surfaces will not be acceptable if exceeding the following tolerances for smoothness:

1. Wearing Course Surface: 3/16 inch.

D. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

E. Check surface areas at intervals as directed by Engineer.

PART 4 – MEASUREMENT AND PAYMENT

4.1 Bituminous Concrete Cart Path – This item consists of the unit price (l.f.) bid price for the excavation, legal removal and disposal of existing pavement and subgrade material, placement of new subbase, base, and asphalt layers required to meet the dimensions and thicknesses called out on the plans.

4.2 Bituminous Concrete Lip Curbing – This item consists of the unit price (l.f.) bid price for the excavation, removal of existing curbing, placement of new asphalt curbing required to meet the dimensions and thicknesses called out on the plans.

4.3 See Section 01110 – Unit Prices.

END OF SECTION 02741

SECTION 02900

SITE RESTORATION

PART I – GENERAL

1.1 The General Conditions and Supplementary General Conditions apply to this section of the Specifications.

1.2 WORK INCLUDED

All materials, labor, equipment, and services necessary to perform the work of this section as shown on the Drawings, as specified, and as required by job conditions, including, but not limited to, the following:

A. Furnishing, grading, and treatment of topsoil to finish grade elevations, including mulching and seeding.

B. Providing an established stand of vegetation from native seed mixtures on all areas shown on the plans or where directed by the Engineer.

C. Restoration of access road areas, staging and stockpile areas, including topsoiling and seeding as necessary to restore to original condition. Any damage or rutting lawns area shall be restored to its original condition. This item shall also include furnishing and importing to the site sufficient topsoil to provide 6 inches of depth over all disturbed areas shown on the contract drawings.

D. Invasive vegetation removal around Hole 9 Pond.

1.3 RELATED WORK SPECIFIED IN OTHER SECTIONS

Site Preparation:	Section 02100
Earthwork:	Section 02300

1.4 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.

C. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

E. Subsoil: All soil beneath the topsoil layer of the soil profile, and typified by the lack of organic matter and soil organisms.

F. Backfill: The earth used to replace or the act of replacing earth in an excavation.

1.5 SUBMITTALS

A. Product data sheets, specifications, performance data, physical properties for the following:

1. Seed mixture.

B. Manufacturer's Certificates or labels from containers certifying that the product meets the specified requirements for the following:

1. Seed mixture, if pre-mixed, also show compliance with State and federal seed laws.

2. Trees, planting materials, and shrubs.

C. Samples (and test report), in the following quantities:

1. Topsoil, five-gallon pail – provide representative testing to indicate percent organic content for both on-site and off-site source material. Only topsoil meeting organic content specification (6% min. – 20% max.) is acceptable.

2. Submit sample and product literature and guarantees in accordance with requirements of the General Conditions for the following:

a. Seed: - Submit native seed mixtures for approval prior to application of the seed and all empty seed bag labels after application of seed to the Engineer. Species types within Native Seed Mixtures listed below may vary dependent upon season and/ or availability of species' seed.

D. Planting Schedule: Indicating anticipated planting dates for each type of planting.

E. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of exterior plants during a calendar year.

1.6 QUALITY ASSURANCE

A. Codes and Standards: All materials and construction methods shall conform to Form 816 - State of Connecticut Department of Transportation "Standard Specification for Road, Bridges, and Incidental Construction" 2004 edition, and Supplemental Specifications thereto dated January 2015 unless otherwise specified herein.

B. The Owner reserves the right to test and reject for cause any material not meeting material specifications by tests in accordance with methods adopted by the Association of Official Agricultural Chemists. Costs for these tests shall be borne by the Contractor [subcontractor].

C. Acceptance of the restoration areas shall be established by the Engineer in writing, following the completion of all maintenance work requirements as specified herein, and following the correction of all punch list deficiencies by the Contractor.

D. Analysis and standards: Package standard products with manufacturers certified analysis. For other materials, provide analysis by recognized laboratory made in accordance with methods established by the Association of Official Agricultural Chemists, wherever applicable.

E. Workmen: All workmen shall be thoroughly trained and experienced in the necessary crafts, and completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

F. Do not make substitutions. If specified landscape material is not obtainable, submit proof of no availability to Owner, together with proposal for use of equivalent material.

G. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory.

1. Report suitability of topsoil for lawn growth. State-recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce satisfactory topsoil.

H Pre-installation Conference: Conduct conference with Owner/Engineer/Contractor/Local Authorities at Project site.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver grass seed mixture in new, sealed, containers showing percentage of seed mix, year of production, net weight, date of packaging, and location of packaging. Seed in damaged packaging is not acceptable.

B. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of exterior plants during delivery. Do not drop exterior plants during delivery and handling.

C. Handle planting stock by root ball.

D. Deliver exterior plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set exterior plants

and trees in shade, protect from weather and mechanical damage, and keep roots moist.

1.8 JOB CONDITIONS

A. Seeding shall be performed when weather and soil conditions are suitable in accordance with locally accepted practice, as specified herein.

B. Seeding dates are as follows:
March 15 – June 15
September 15 - November 15

C. Do not install grass seed when wind velocity exceeds five (5) mph.

D. Acceptance of the restoration areas shall be established by the Engineer in writing, following the completion of all maintenance work requirements as specified herein, and following the correction of all punch list deficiencies by the Contractor.

1.9 SPECIAL PRODUCT WARRANTY

A. The Contractor shall supply the Engineer with all warranties or certificates, or both, furnished with the seed mixture prior to use of the material, if so requested.

B. Installer's standard form in which Installer agrees to repair or replace plantings that fail in materials, workmanship, or growth within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Death and unsatisfactory growth, except for defects resulting from lack of adequate maintenance, neglect, abuse by Owner, or incidents that are beyond Contractor's control.

b. Structural failures including plantings falling or blowing over.

2. Warranty Periods from Date of Substantial Completion:

a. Trees, Shrubs, and Plugs: One year.

b. Ground Cover: Six months.

PART 2 – PRODUCTS

2.1 SEEDING MATERIALS

A. Peat Moss: Shredded, loose, sphagnum moss; free of lumps, roots, inorganic material or acidic materials. According to the methods of AOAC methods of testing, the acidity range shall be approximately 3.5 to 5.5 pH and a maximum moisture content of 30

percent. Organic matter content shall be not less than 90 percent, and ash content shall not be more than 10 percent, by weight on an oven-dry basis.

B. Accessories: Water - Clean, fresh and free of substances or matter which could inhibit vigorous growth of vegetation.

2.2 SEED

A. Seed may be mixed on-site by an approved method or pre-mixed by a dealer. If the seed is to be mixed on-site, seed shall be delivered to the site in separate containers for each variety of seed.

B. Seed mixes shall be supplied by Seedland Inc., 9895 Adams Road, Wellborn, Florida 32094 - (386) 963-2079 or approved equal and to the requirements below. Seed mix shall be free of invasive species.

Seedland Elite Bluegrass Seed Mixture
http://www.seedland.com/mm5/merchant.mvc?Screen=CTGY&Store_Code=Seedland&Category_Code=SL-ELITE

SPECIES	PERCENT
Ronde Kentucky Bluegrass	40
Perennial Ryegrass (Integra, Shining Star, 1G Squared, Soprano, APR 1472, Sonata, Peak, Wind Dance, and/or Morning Star	40
Creeping Red Fescue (Lustrous or Boreal)	20
Inert Contents	<1
TOTAL	100

Application Rate: 135 LBS/ ACRE

Pennington Perennial Ryegrass Seed Blend
http://www.seedland.com/mm5/merchant.mvc?Screen=PROD&Store_Code=Seedland&Product_Code=RG-PER-05&Category_Code=RG

SPECIES
Integra Perennial Ryegrass
Shining Star Perennial Ryegrass
Wind Dance 2 Perennial Ryegrass
Shining Starr II Perennial Ryegrass
Jet Perennial Ryegrass

Application Rate: 215 LBS/ ACRE

C. Type of seed mix to be applied will be dictated by the Engineer.

2.3 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 6 percent organic material content; free of stones 1 inch or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Reuse surface soil stockpiled on-site. Verify suitability of stockpiled surface soil to produce topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient.

b. Additional loam, if required, shall be fertile, friable, agricultural soil, typical for locality, pH value compatible, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay lumps, stones, and other objects over two (2) inches in diameter, and free from other impurities, plants, weeds and roots.

2.4 ORGANIC SOIL AMENDMENTS

A. Compost: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 5 to 10 decisiemens/m.

B. Peat: Sphagnum peat moss, partially decomposed, finely divided or granular texture, with a pH range of 3.4 to 4.8.

C. Peat: Finely divided or granular texture, with a pH range of 6 to 7.5, containing partially decomposed moss peat, native peat, or reed-sedge peat and having a water-absorbing capacity of 1100 to 2000 percent.

D. Wood Derivatives: Decomposed, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture, free of chips, stones, sticks, soil, or toxic materials.

E. Manure: Well-rotted, unleached, stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

F. Water: Clean, fresh and free of substances or matter which could inhibit vigorous growth of vegetation.

2.6 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley, free from weeds, foreign matter detrimental to plant life, and dry. Hay or chopped cornstalks are not acceptable.

2.7 TREE AND SHRUB MATERIAL

A. General: Furnish nursery-grown trees and shrubs complying with ANSI Z60.1, with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock free of disease, insects, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.

B. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which shall begin at root flare according to ANSI Z60.1. Root flare shall be visible before planting.

C. Provide containerized or balled and burlapped trees as specified on Contract Drawings.

D. Shrub sizes indicated on Drawings are sizes after pruning.

E. All plant material will be subject to the inspection approval of the Engineer at the nursery source or place of growth after the award of this Contract. No plant material shall be dug at the source unit inspected, tagged and approved by the Engineer. Any rejected material shall be substituted with acceptable material.

F. All plant pits for the proposed shrubs and herbaceous plant material as shown in the Landscaping Plan is to be hand dug. All plant pits shall be excavated in accordance with the details provided on sheet D-3 in the Contract Drawings. All plant pits shall be free draining. The Engineer shall be notified in writing of all soil or drainage conditions, which may be detrimental to plant growth.

G. All plants shall be set in the center of the pits, perpendicular to proposed finish grade.

H. All plants shall be thoroughly watered to a maximum root depth immediately after planting. Thereafter, water shall be applied as necessary and as many times as seasonal conditions require.

I. All plants shall have a saucer, which shall be mulched with four (4) inch deep layer of mulch of the entire saucer area.

2.8 PLANT MATERIALS

A. Deciduous Trees: Provide trees of height and caliper scheduled or shown and with branching configuration recommend by ANSI Z60.1 for type and species required. Provide single stem trees except where special form are shown or listed.

1. Provide balled and burlapped (B&B) deciduous trees.
2. Container grown deciduous trees will be acceptable in lieu of balled and burlapped deciduous trees subject to specified limitations for ANSI Z60.1 for container stock.

B. Deciduous Shrubs: Provide shrubs of height shown or listed and with not less than minimum number of canes required by ANSI Z60.1 for type and height of shrub required.

1. Provide balled and burlapped (B&B) deciduous shrubs.

2. Container grown deciduous shrubs will be acceptable in lieu of balled and burlapped deciduous shrubs subject to specified limitations for container grown stock.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify prepared soil base is properly rough graded and ready to receive the work of this Section.

B. Verify backfilling has been inspected.

C. Verify substrate base has been contoured and compacted.

D. Beginning of landscaping work means acceptance of existing soil base, and site conditions.

3.2 PREPARATION

A. Prepare sub-soil to eliminate uneven areas and low spots. Maintain lines, levels, profiles and contours. Make changes in grade gradual. Blend slopes in level areas.

B. Remove foreign materials and non-organic debris.

C. Scarify subgrade to depth of four (4) inches where topsoil is scheduled. Scarify in areas where equipment is used for hauling and spreading topsoil and has compacted subsoil. The contractor should plan to use track machines to minimize the use of rubber tire machines to reduce over compaction of the subsoil.

D. Saturate soil with water to test drainage.

E. Lay out individual tree, shrub, plant material locations and areas for multiple plantings with owner. Stake locations and outline areas and secure Owner's acceptance before start of planting work. Make minor adjustments as may be required.

3.3 PLACING AND TREATING TOPSOIL

A. Place both stockpiled topsoil and additional loam during dry weather; place to a minimum compacted depth of six (6) inches on dry unfrozen subgrade. Treat additional loam with ground limestone, as needed.

B. Fine grade topsoil, making changes in grade gradual, eliminating rough or low areas. Blend slopes into level areas. Manually spread topsoil close to trees, plants, and building to prevent damage. Roll, fill depressions to ensure positive drainage.

C. Remove roots, weeds, rocks and foreign material while spreading.

D. Remove surplus subsoil and topsoil from site. Leave stockpile areas and site clean and raked ready to receive grass.

E. Apply fertilizer in accordance with manufacturer's instructions, or testing agency recommendations.

F. Do not apply fertilizer at same time or with same machine as will be used to apply seed.

G. Mix fertilizer and lime thoroughly into upper four (4) inches of topsoil.

H. Lightly water to aid the dissipation of fertilizer.

I. After incorporation of fertilizer and limestone into the soil, fine grade the seed bed to remove all ridges and depressions, and the surface cleared of all stones one inch or more in diameter and all other debris.

J. Smooth rake again and clear surface of all stones one inch or more in diameter and all other debris.

3.4 SEEDING

A. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

B. Apply seed evenly by mechanical spreader at a rate specified by the manufacturer (see above). Rake seed lightly into top 1/8 inch of soil and water with fine spray.

C. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre to form a continuous blanket 1-1/2 inches in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

1. Anchor straw mulch by crimping into soil with suitable mechanical equipment.

D. Seeding Season: In accordance with the supplier's recommendations.

These periods may be extended or reduced according to prevailing weather conditions at the time, upon approval by the Engineer.

If the Contractor seeds outside the seasonal periods, any additional material furnished and placed to establish growth shall be done at the Contractor's expense. The

Contractor must also reseed, mulch and repair any areas seeded, whether out-of-season or not, that are damaged by fire, erosion, or any other cause, as directed by the Engineer at no expense to the Owner.

E. No seeding shall be permitted after a rain unless the surface of the ground is loosened or when the velocity of the wind exceeds a gentle breeze or about five (5) miles per hour. Extreme care shall be taken during seeding and raking so that no change in grading is made and so that the seed is not raked from one spot to another.

F. Maintenance: The Contractor shall be held responsible for the maintenance of all work and parts thereof prior to final acceptance.

Maintenance shall include watering of seeded areas, weeding, clean-up, edging, repairs of washouts and gullies, repairs to protecting fences and all other necessary work of maintenance.

The Contractor shall provide an adequate and acceptable growth of vegetation, defined as 90% coverage on any 10 s.f. and bare spots not to exceed 5" x 5", of the type specified. Adequately protect all seeded areas until the areas are acceptable to the Engineer.

After final acceptance by the Owner, the Contractor will not thereafter be required to do any of the above work, except that nothing contained herein shall release the Contractor from his obligations under the Contract.

H. Seed Schedule All specified seed mixes shall be installed per the manufacturer's specific recommendations for seeding rates, seed bed preparation and seeding season/date requirements.

If feasibility of this seed schedule cannot be met, contact the engineer immediately for review.

I. Hydroseeding: The application of a combination of seed, fertilizer, and mulch in a slurry mixture. Seed mix applied by hydroseeding:

1. If fertilizer is applied at time of seeding, the application rate will not exceed 100 lbs/Ac Nitrogen, 200 lbs/Ac P and 200 lbs/Ac K.

2. When lime is to be applied by the hydro-seeder, the rate shall not exceed 3 tons/Ac. Burnt or hydrated lime shall not be used.

3. Hydro-seeding mixtures shall be prepared on site, and applied immediately. No seed/mulch mix that has been left in the seeder for more than eight (8) hours shall be used.

3.5 SATISFACTORY SEEDING

A. Satisfactory Seeding: After leaf-out in spring following construction 90% coverage on any 10 s.f. and bare spots not to exceed 5" x 5".

B. The Contractor shall be responsible for ensuring that seed mixture has successfully developed in to plant cover. The Contractor shall check seeded areas after leaf-out in the spring following construction.

3.6 PLANTING BED ESTABLISHMENT

A. Loosen subgrade of planting beds to a minimum depth of 8 inches. Remove stones larger than 1 inch in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.

B. Finish Grading: Grade planting beds to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.7 TREES AND SHRUBS

A. Excavation of Pits and Trenches: Excavate in accordance with the details provided on sheet D-3 of the Contract Drawings. Scarify sides of plant pit smeared or smoothed during excavation.

1. Excavate approximately three times as wide as container diameter.

B. Before planting, verify that root flare is visible at top of root ball according to ANSI Z60.1.

C. Stock with Root Balls: Set trees and shrubs plumb and in center of pit or trench with top of root ball flush with adjacent finish grades.

1. Balled and Potted and Container Grown: Carefully remove root ball from container without damaging root ball or plant.

2. Place planting soil mix around root ball in layers, tamping to settle mix and eliminate voids and air pockets. When pit is approximately one-half backfilled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed. Water again after placing and tamping final layer of planting soil mix.

D. Bare-Root Stock: Set and support bare-root trees and shrubs in center of pit or trench with trunk flare flush with adjacent finish grade. Spread roots without tangling or turning toward surface, and carefully work backfill around roots by hand. Puddle with water until backfill layers are completely saturated. Plumb before backfilling, and maintain plumb while working backfill around roots and placing layers above roots. Tamp final layer of backfill. Remove injured roots by cutting cleanly; do not break.

E. Organic Mulching: Apply 3-inch average thickness of organic mulch extending 12 inches beyond edge of planting pit or trench. Do not place mulch within 3 inches of trunks or stems.

3.8 TREE AND SHRUB PRUNING

A. Remove only dead, dying, or broken branches. Do not prune for shape.

B. Prune, thin, and shape trees and shrubs according to standard horticultural practice. Prune trees to retain required height and spread. Do not cut tree leaders; remove only injured or dead branches from flowering trees. Prune shrubs to retain natural character.

3.9 SITE CLEANING AND REPAIR

A. Absolutely no debris may be left on the site. Excavated material shall be removed as directed. Repair any damage to site or structures to restore them to their original condition.

3.10 INVASIVE VEGETATION REMOVAL

A. All invasive species within the indicated areas on the Contract Drawings are to be removed with the supervision of a Wetland Scientist.

3.11 CLEANUP AND PROTECTION

A. During restoration work, keep pavements clean and work area in an orderly condition.

B. Protect restoration work and materials from damage due to operations by other contractors and trades, and trespassers. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged restoration work as directed.

C. Compaction: The Contractor shall keep all equipment, vehicular and pedestrian traffic off areas that have been seeded to prevent excessive compaction and damage to young plants. Where such compaction has occurred, the Contractor shall rework the soil to make a suitable seedbed; then re-seed and mulch such areas with the full amount of the specified materials, at no extra charge to the Owner.

D. This work will not be considered complete until all cleanup operations are complete. This shall include the removal of all debris resulting from the seeding operation. The Contractor shall be required to shape, grade, and establish vegetative cover in accordance with the specifications on all areas disturbed outside the normal limits of the construction.

3.12 INSPECTION AND ACCEPTANCE

A. When restoration work is completed, including maintenance, the Owner will, upon

request, make an inspection to determine acceptability.

B When inspected restoration work does not comply with requirements, replace rejected work and continue specified maintenance until re-inspected by the Owner and found to be acceptable.

PART 4 – MEASUREMENT AND PAYMENT

4.1 See Section 01110 – Unit Prices.

4.2 Site Improvements – This item consists of the lump sum (L.S.) bid price for all equipment, labor, materials, and tools, to import/install topsoil on all lawns and on all disturbed areas of the project, but not limited to necessary grading to meet subgrade elevation, spreading new topsoil, and fine grading to the exact elevations detailed on the Contract Drawings. The work will also include the furnishing and placing of fertilizer, seed, straw mulch, mulch, watering as needed, and any incidentals thereto as shown in the Contract Drawing and described in the Technical Specifications. This item includes the restoration of the temporary stockpile areas, and construction entrance pads.

The Contractor shall be responsible for all repairs and/or replacement of the existing roadway, guiderail, sidewalks, curbing, fencing, and structures resulting from damage during site operations with no additional compensation or change in Contract Time.

4.4 Plantings – Trees – This item consists of the unit price (EA) bid price for furnishing and installing shade trees as shown on the Contract Drawings.

4.5 Plantings – Shrubs – This item consists of the unit price (EA) bid price for furnishing and installing shrubs as shown on the Contract Drawings.

4.6 Plantings – Plugs – This item consists of the unit price (EA) bid price for furnishing and installing Littoral Zone Plugs as shown on the Contract Drawings.

END OF SECTION 02900

2600-05-14-a2216-spec

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

October 21, 2015

Regulatory Division
CENAE-R-PEB
Permit Number: NAE-2015-1321
CT DEEP File No.: PGP-201504338

Town of Glastonbury
c/o Richard Johnson
2155 Main Street
Glastonbury, Connecticut

Dear Mr. Johnson:

We have reviewed your application to perform pond restoration work at Minnechaug Pond ("Hole 9 irrigation pond") of the Minnechaug Golf Course, 16 Fairway Crossing, Glastonbury, Connecticut. Work is described on the enclosed plans entitled "MINNECHAUG GOLF COURSE HOLE 9 POND MAINTENANCE PROJECT 16 FAIRWAY CROSSING GLASTONBURY, CONNECTICUT," on 8 sheets dated "June, 2015" and revised through "9/28/2015." This letter authorizes the excavation of 2,300 CY of sediment from the 48,350 sf basin, establishment of a stream bypass channel and associated check dam for water handling purposes, and the installation of a sediment forebay for future pond maintenance. Work also includes the placement of two boulder piles to improve fish habitat and the establishment of a littoral fringe by the removal of invasive vegetation and subsequent planting with native species.

Based on the information you have provided, we have determined that the proposed activities, which includes a discharge of dredged or fill material into waters or wetlands, will have only minimal individual and cumulative impacts on waters of the United States, including wetlands. Therefore, this work is authorized as a Category 2 activity under the enclosed Federal permit known as the Connecticut General Permit (GP). This work must be performed in accordance with the terms and conditions of the GP, and also in compliance with the following special conditions:

1. All excavated materials are to be disposed of in the upland, and not in any waters or wetlands.

2. All water handling procedures as described on sheet 4 "SEDIMENT STOCKPILE PLAN – HOLE 9 POND" of the aforementioned plans shall be followed, including the installation of a bypass channel for the continuation of downstream flow and the creation of a 13,000 sf temporary aquatic fauna containment area during pond excavation.

3. All temporary sediment and erosion control devices, as depicted, shall be installed and maintained throughout the duration of authorized work activities and removed upon completion of this work or once slopes have stabilized. Erosion control devices should not contain plastic netting or mesh. Products that have plastic mesh embedded in them have been documented to entangle wildlife subsequently leading to mortality. A better alternative is erosion control products composed of 100% biodegradable plant-based netting material, such as jute (vegetable fibers), sisal (stiff Agave fibers) or coir fiber (coconut husk fibers).

You are responsible for complying with all of the GP's requirements. Please review the enclosed GP carefully; in particular the GP conditions, to be sure you understand its requirements. You should ensure that whoever does the work also fully understands the requirements and that a copy of the permit document and this authorization letter are at the project site throughout the time the work is being performed.

The Connecticut Department of Energy & Environmental Protection (DEEP) has issued a Water Quality Certification (WQC) for this project, as required under Section 401 of the Clean Water Act, based on their review of the project.

This authorization expires on July 15, 2016, unless the GP is modified, suspended, or revoked before then. You must commence or be under contract to commence the work authorized herein by that expiration date and complete the work by July 15, 2017. If not, you must contact this office to determine the need for further authorization *before* beginning or continuing the activity. We recommend you contact us before this permit expires to discuss a permit reissuance.

If you change the plans or construction methods for work within our jurisdiction, please contact us immediately to discuss modification of this authorization. This office must approve any changes before you undertake them.

This authorization requires you to complete and return the enclosed Work Start Notification Form to this office at least two weeks before the anticipated starting date. You must also complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law, as listed on Page 2 of the GP. Performing work not specifically authorized by this determination or failing to comply with any special condition(s) or the terms and conditions of the GP may subject you to the enforcement provisions of our regulations.

This authorization presumes that the work as described above and as shown on your plans noted above is in waters of the U.S. Should you desire to appeal our jurisdiction, please submit a request for an approved jurisdictional determination in writing to this office.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

Please contact Michael Narcisi, of my staff, at (978) 318-8454 if you have any questions.

Sincerely,

Robert J. DeSista
Chief, Permits & Enforcement Branch
Regulatory Division

Enclosures:
Copy furnished:
Bob Gilmore, CT DEEP – IWRD, via e-mail
Danielle Missell, CT DEEP – IWRD, via e-mail
Matt Sanford, Milone & MacBroom, via e-mail

US Army Corps
of Engineers ®
New England District

GENERAL PERMIT
WORK-START NOTIFICATION FORM
(Minimum Notice: Two weeks before work begins)

****
* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
****

Corps of Engineers Permit No. NAE-2015-1321was issued to the Town of Glastonbury, c/o Richard Johnson, on October 21, 2015. This work is located in Minnechaug Pond ("Hole 9 irrigation pond") at the Minnechaug Golf Course, 16 Fairway Crossing, Glastonbury, Connecticut. The permit authorized the permittee to perform pond restoration work involving the excavation of 2,300 CY of sediment from the 48,350 sf basin, establishment of a stream bypass channel and associated check dam for water handling purposes, and the installation of a sediment forebay for future pond maintenance. Work also includes the placement of two boulder piles to improve fish habitat and the establishment of a littoral fringe by the removal of invasive vegetation and subsequent planting with native species.

The people (e.g., contractor) listed below will do the work, and they understand the permit's conditions and limitations.

PLEASE PRINT OR TYPE

Name of Person/Firm: _____

Business Address: _____

_____

_____

_____

Telephone Numbers: (___) _____ (___) _____

Proposed Work Dates: **Start:** _____ **Finish:** _____

Permittee/Agent Signature: _____ **Date:** _____

Printed Name: _____ **Title:** _____

Date Permit Issued: October 21, 2015 **Date Permit Expires:** July 15, 2016

****

FOR USE BY THE CORPS OF ENGINEERS

PM: Michael Narcisi **Submittals Required:** _____

Inspection Recommendation: _____

US Army Corps
of Engineers ®
New England District

(Minimum Notice: Permittee must sign and return notification within one month of the completion of work.)

COMPLIANCE CERTIFICATION FORM

Permit Number: NAE-2015-1321

Project Manager: Michael Narcisi

Name of Permittee: Town of Glastonbury, c/o Richard Johnson

Permit Issuance Date: October 21, 2015

Please sign this certification and return it to the following address upon completion of the activity and any mitigation required by the permit. You must submit this after the mitigation is complete, but not the mitigation monitoring, which requires separate submittals.

****
* MAIL TO: U.S. Army Corps of Engineers, New England District *
* Permits and Enforcement Branch B *
* Regulatory Division *
* 696 Virginia Road *
* Concord, Massachusetts 01742-2751 *
****

Please note that your permitted activity is subject to a compliance inspection by an U.S. Army Corps of Engineers representative. If you fail to comply with this permit you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above referenced permit was completed in accordance with the terms and conditions of the above referenced permit, and any required mitigation was completed in accordance with the permit conditions.

_____ _____
Signature of Permittee Date

_____ _____
Printed Name Date of Work Completion

(____) _____ (____) _____
Telephone Number Telephone Number

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

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Robert J. DeSista, Chief
Permits and Enforcement Branch
U.S. Army Corps of Engineers
New England District
696 Virginia Road
Concord, MA 01742-2751

Town of Glastonbury
Raymond E. Purtell
Glastonbury Parks and Recreation Department
2155 Main Street
Glastonbury CT 06033

Re: Application for Department of the Army General Permit - State of Connecticut
Category 2 Screening for Section 401 Water Quality Certification

Dear Mr. DeSista & Mr. Purtell:

The following application submitted for screening under the above referenced General Permit has been reviewed by staff of the Connecticut Department of Energy and Environmental Protection (DEEP), Inland Water Resources Division (the "Division").

Category 2 Eligible

The Division has determined that the project/activities are eligible for section 401 water quality certification under Category 2.E of the General Permit subject to any conditions specified herein, and that an individual application to the DEEP is not required, provided that the project receives approval from the U.S. Army Corps of Engineers under Category 2 of the General Permit and that the authorized activities proceed as described in the application documentation.

PGP-201504338 (NAE-2015-1321): Town of Glastonbury– Glastonbury (1.6 acres (ac) of inland waterway/wetland fill and secondary impacts consisting of the following).

PROJECT DESCRIPTION – The Town of Glastonbury is authorized to conduct the dredging of the Hole 9 Pond at the Minnechaug Golf Course in Glastonbury. The Town of Glastonbury is authorized to dredge approximately 2,300 cubic yards of sediments throughout the entire 1.6 acre pond, install fish habitat structures, install a sediment filter berm, install a temporary bypass channel and access road, and drawdown the reservoir to elevation 332 feet providing a ponded area for fish and other aquatic life.

Conditions:

1. All activities shall be conducted in accordance with the application documentation and plans entitled, "Minnechaug Golf Course Hole 9 Pond Maintenance Project" dated June 18, 2015 and revised through September 28, 2015 and prepared by Milone & MacBroom.

If you have any questions or need additional information, please call Danielle Missell at the Inland Water Resources Division at (860) 424-3698. Any correspondence submitted regarding this project should be directed to Danielle Missell at the Inland Water Resources Division and should reference the application number.

10/9/2015

Date

Cheryl A. Chase, Director
Inland Water Resources Division
Bureau of Water Protection and Land Reuse

CAC:DM

cc: Michael Marsh, US Environmental Protection Agency, marsh.mike@epamail.epa.gov
Nathan Margason, US Environmental Protection Agency, Margason.Nathan@epa.gov
Michael Narcisi, USACE Regulatory Division Michael.J.Narcisi@usace.army.mil
Matt Sanford, Milone & MacBroom matts@miloneandmacbroom.com
Steve Gephard, DEEP Inland Fisheries (Marine HQ- Old Lyme)
Robert Gilmore, DEEP IWRD
Jeff Caiola, DEEP IWRD

Town of Glastonbury

2155 MAIN STREET • P.O. BOX 6523 • GLASTONBURY, CONNECTICUT 06033-6523

September 29, 2015

CONSERVATION COMMISSION AND INLAND
WETLANDS & WATERCOURSES AGENCY

Raymond E. Purtell, Director of Parks & Recreation
Town of Glastonbury
2143 Main Street
Post Office Box 6523
Glastonbury, Connecticut 06033-6523

Re: Application of the Town of Glastonbury for an inland wetlands and watercourses permit to dredge and otherwise maintain their Hole 9 pond at the Town's Minnechaug Golf Course located north of Manchester Road and east and south of Fairway Crossing

Dear Ray:

At its Regular Meeting of September 24, 2015, the Conservation Commission/Inland Wetlands & Watercourses Agency approved an Inland Wetlands and Watercourses Permit, in accordance with the plans and conditions cited in the **attached** motion.

Please read the conditions of approval carefully and comply with them. Some of the conditions may require interacting with the Environmental Planner (e.g. inspection of soil erosion and sediment control); it will be your responsibility to schedule such interactions. Any questions you may have about the stated conditions can be directed to the Office of Community Development at (860) 652-7511.

This Permit:

- requires that the approved regulated activities be completed within one (1) year from commencement of said activities;
- is valid for five (5) years and thus expires on September 24, 2020; and
- may not be transferred unless authorized by the Inland Wetlands & Watercourses Agency

Once again should you have any questions, please do not hesitate to contact this office.

Sincerely,

Tom Mocko

Thomas Mocko
Environmental Planner

TM:gfm
Attachment

cc: Milone & MacBroom, C.E.

APPROVED WETLANDS PERMIT MOTION

MOVED, that the Inland Wetlands and Watercourses Agency grants an inland wetlands and watercourses permit to the Town of Glastonbury for the proposed dredging and maintenance operations, including future dredging of the proposed forebay component of the pond, at the Town's Minnechaug Golf Course Hole 9 Pond, in accordance with plans on file in the Office of Community Development, and in compliance with the following conditions:

1. A preconstruction meeting shall be held prior to starting this project with the Permittee, the contractor(s), construction inspectors and supervising consultants all in attendance with the applicable Town staff.

2. The protocols identified within the memorandum dated September 10, 2015 from Matthew Sanford (Milone & MacBroom) and the memorandum dated September 8, 2015 from Raymond E. Purtell, Director of Parks & Recreation related to this project shall be conditions of approval and followed.

3. The stockpile(s) of sediment form the dredging operation shall be sampled, at approximately one sample per every 200 cubic yards and each such sample be a composite from 3 to 4 locations, and undergo laboratory analysis under the supervision of a Licensed Environmental Professional (LEP). Such sampling and testing shall be limited to the PAH compounds previously identified as a concern; the results of this shall be reviewed by the LEP in order to determine the dredged sediments' ultimate reuse or disposal location and methods.

4. Healthy mature trees shall be preserved and saved when possible. Said trees shall be protected with the use of high visibility construction fence during construction or otherwise protected as required by staff.

5. Metal waste containers shall be provided at the site to facilitate the collection of refuse material generated from construction activities. Such material shall not be buried or burned at the site.

6. Installation of soil erosion and sedimentation control and stabilization measures shall be the Permittee's responsibility. Once installed these measures shall then be inspected by the Environmental Planner prior to land disturbance activities. Afterwards it then shall be the Permittee's responsibility to inspect these control measures during, and immediately following, substantial storm events and maintain and/or replace the control measures, when needed, on a regular basis until the site is vegetatively stabilized. Hay bales shall be replaced every 60 days. The Environmental Planner is hereby authorized to require additional soil erosion and sediment controls and stabilization measures to address situations that arise on the site.

7. Any proposed temporary fuel storage at the project site shall be reviewed and approved by the Town's Fire Marshal and Environmental Planner.

****

ORIGINAL

TOWN	ROUTE NO.	PMT 2B-REV 8/00 (302-06-0386) DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY OPERATIONS STATE OF CONNECTICUT ENCROACHMENT PERMIT	DATE OF ISSUE	PERMIT NO.
GLASTONBURY	83		2/18/2016	**1014061**
NAME OF HIGHWAY: opposite 1688 Manchester Road			DATE EFFECTIVE	Page 1 of 2

LOCATION OF WORK OR BEGINNING AND ENDING POINTS	DATE OF EXPIRATION	AMT. OF SURETY BOND CERTIFY CHECK
Rt. 83, opposite #1688 Manchester Road east .08 mi. n/o Howe St.	2/18/2017	
	SURETY COMPANY/BANK	

TO:	BOND NUMBER:
TOWN OF GLASTONBURY 2155 MAIN STREET GLASTONBURY, CT 06033	PERMIT IS NOT VALID UNTIL SIGNATURE COPY IS SIGNED AND RETURNED TO THE OFFICE. PLEASE RETURN AT ONCE.
	FEE: n/c DATE REC'D: PO/WO NO:

Permission is hereby granted to do the following work under the control and direction of the Department of Transportation, Bureau of Engineering and Highway Operations at the location designated hereon, subject to the statements made on the application for permit, and to the pertinent provisions of the current Highway Encroachment Permit Regulations manual, including amendments thereto.

This permit does not become effective until all necessary local and State licenses and permits are obtained by the Permittee or designated agent, and further the Permittee shall be subject to all Federal, State and local regulations.

This permit is issued in strict compliance with, but not limited by, the following specific requirements, referenced attachments, and the current edition of Department of Transportation's Standard Specifications for Roads, Bridges and Incidental Construction as applicable.

The Department of Transportation Permit Inspector, Jeffrey Rizzo 860-258-4503, MUST BE NOTIFIED AND THE CALL BEFORE YOU DIG REQUEST NUMBER RECORDED 48 HOURS IN ADVANCE OF STARTING WORK ON THE PROJECT. REQUEST NO._____

Permission is granted for the purpose of temporary access to remove pond sediment within the highway right of way as delineated on the permit application received on 2/1/16. Any other use, such as residential, commercial, etc. will require plans to be submitted to this office for review and approval. All work shall be in accordance with the current publication of the Department of Transportation "Standard Specifications for Roads, Bridges, and Incidental Construction", the latest Department Standard Details, and the following stipulations:

- A copy of this permit must be available on site at all times.

- Vehicular and pedestrian traffic must be adequately protected through the use of appropriate traffic control patterns. Uniformed police officers or personnel who are certified for traffic control to a level equivalent to the National Safety Council shall be utilized to direct traffic through the work area. All traffic control signing and appurtenances shall be in accordance with the latest edition of the "Manual on Uniform Traffic Control Devices" and must meet NCHRP 350 requirements.

- No work that will interfere with the flow of traffic will be permitted before 8:30 a.m. and after 4:00 p.m., Monday through Friday.

- Holiday Restrictions- No permit work within the highway right of way will be permitted the day before a legal holiday and no work shall be resumed until 12:00 noon the day following the holiday, unless otherwise approved or indicated. Weekends shall be considered as part of the holiday when the legal holiday falls on either Friday or Monday.

- A State standard anti-tracking pad shall be installed and maintained throughout the construction project.

The Permit Inspector must be notified upon completion of work for final inspection and approval.

CALL Before you DIG! TOLL FREE, STATEWIDE 1-800-922-4455

Any and all liability for injury, damage or loss resulting from such work as may be undertaken under the terms of this permit is assumed by the Permittee. The Permittee is hereby designated responsible for all future maintenance of all installations or encroachments constructed under this Permit, which in the sole judgement of the State are not part of the highway appurtenances normally maintained by the State.

The Permittee hereby agrees to indemnify and hold harmless the State of Connecticut for any and all such injury, damage, or loss that may be incurred, either directly, or as a result of said work, and to reimburse the Department of Transportation for any expenses incurred due to the performance of any such work undertaken under the terms of this permit.

This permit is revocable at the discretion of the Department of Transportation Commissioner or designated representative.

PERMITTEE'S SIGNATURE	DATE	DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY OPERATIONS
	2/26/16	BY Alan R. White
Raymond E. Purtell Director of Parks & Recreation		DISTRICT MAINTENANCE DIRECTOR

ORIGINAL

TOWN	ROUTE NO.	PMT 2B-REV 8/00 (302-06-0386) DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY OPERATIONS STATE OF CONNECTICUT ENCROACHMENT PERMIT	DATE OF ISSUE	PERMIT NO.
GLASTONBURY	83		2/18/2016	**1014061**
NAME OF HIGHWAY: opposite 1688 Manchester Road			DATE EFFECTIVE	Page 2 of 2
LOCATION OF WORK OR BEGINNING AND ENDING POINTS: Rt. 83, opposite #1688 Manchester Road east .08 mi. n/o Howe St.			DATE OF EXPIRATION: 2/18/2017	AMT. OF SURETY BOND CERTIFY CHECK
			SURETY COMPANY/BANK	
TO: TOWN OF GLASTONBURY 2155 MAIN STREET GLASTONBURY, CT 06033			BOND NUMBER:	
			PERMIT IS NOT VALID UNTIL SIGNATURE COPY IS SIGNED AND RETURNED TO THE OFFICE. PLEASE RETURN AT ONCE.	
			FEE: n/c DATE REC'D: PO/WO NO:	

Permission is hereby granted to do the following work under the control and direction of the Department of Transportation, Bureau of Engineering and Highway Operations at the location designated hereon, subject to the statements made on the application for permit, and to the pertinent provisions of the current Highway Encroachment Permit Regulations manual, including amendments thereto.

This permit does not become effective until all necessary local and State licenses and permits are obtained by the Permittee or designated agent, and further the Permittee shall be subject to all Federal, State and local regulations.

This permit is issued in strict compliance with, but not limited by, the following specific requirements, referenced attachments, and the current edition of Department of Transportation's Standard Specifications for Roads, Bridges and Incidental Construction as applicable.

The Department of Transportation Permit Inspector, Jeffrey Rizzo 860-258-4503, MUST BE NOTIFIED AND THE CALL BEFORE YOU DIG REQUEST NUMBER RECORDED 48 HOURS IN ADVANCE OF STARTING WORK ON THE PROJECT. REQUEST NO._____

- Upon completion of the job, the anti-tracking pad shall be removed and the excavated area must be restored with loam/seed/curbing and stabilized with mulch hay.

- The storing of excavated materials or other construction materials within the highway right of way will not be allowed. Equipment shall be removed from the right of way when not in use.

- Permittee shall keep the state highway free of mud, stones, debris, etc.

- All liability is assumed by the permittee. All areas disturbed as a result of this operation will be restored to the equivalency of their original condition or better at permittee's expense. The permittee will be billed in full by the Department for engineering and replacement costs of any area disturbed or destroyed by the permitted operations.

- Requirements of the permit are subject to change as field condition warrant. Any change will require a review and prior approval by the District Office.

The Permit Inspector must be notified upon completion of work for final inspection and approval.

CALL Before you DIG! TOLL FREE, STATEWIDE 1-800-922-4455

Any and all liability for injury, damage or loss resulting from such work as may be undertaken under the terms of this permit is assumed by the Permittee. The Permittee is hereby designated responsible for all future maintenance of all installations or encroachments constructed under this Permit, which in the sole judgement of the State are not part of the highway appurtenances normally maintained by the State.

The Permittee hereby agrees to indemnify and hold harmless the State of Connecticut for any and all such injury, damage, or loss that may be incurred, either directly, or as a result of said work, and to reimburse the Department of Transportation for any expenses incurred due to the performance of any such work undertaken under the terms of this permit.

This permit is revocable at the discretion of the Department of Transportation Commissioner or designated representative.

PERMITTEE'S SIGNATURE	DATE	DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY OPERATIONS BY Alan R. White
R Porter	2/26/16	
RAYMOND E. PORTER		DISTRICT MAINTENANCE DIRECTOR
Director of Parks & Recreation		

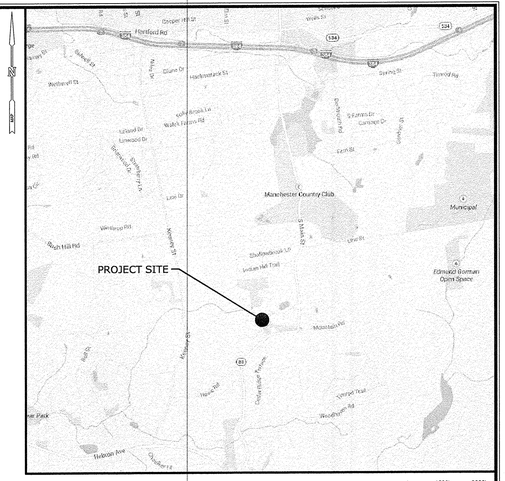
MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

BID SET (100%)
BID NUMBER: GL-2016-17
2600-05-11
APRIL 29, 2016

PROJECT SITE VICINITY MAP:

0' 30' 400'
0 1/2" 1"
SCALE 1" = 400'



LOCATION MAP:

PREPARED FOR:

TOWN OF GLASTONBURY
TOWN HALL
2155 MAIN STREET
GLASTONBURY, CT 06033

LIST OF DRAWINGS

NO.	NAME	TITLE
01	--	TITLE SHEET
02	EX-1	EXISTING CONDITIONS - INDEX PLAN
03	EX-2	EXISTING CONDITIONS - HOLE 9 MAIN POND
04	PR-1	PROPOSED CONDITIONS - DREDGING HOLE 9 POND
05	SP-1	WATER CONTROL, SEDIMENT, AND EROSION CONTROL PLAN
06	SP-2	SEDIMENT DISPOSAL AREA PLAN
07	VP-1	VEGETATION RESTORATION PLAN - HOLE 9 POND
08	MPT-1	MAINTENANCE AND PROTECTION OF TRAFFIC PLAN
09	D-1	DETAILS
10	D-2	DETAILS
11	D-3	DETAILS

PREPARED BY:

MILONE & MACBROOM®

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W. ANDREW GREEN
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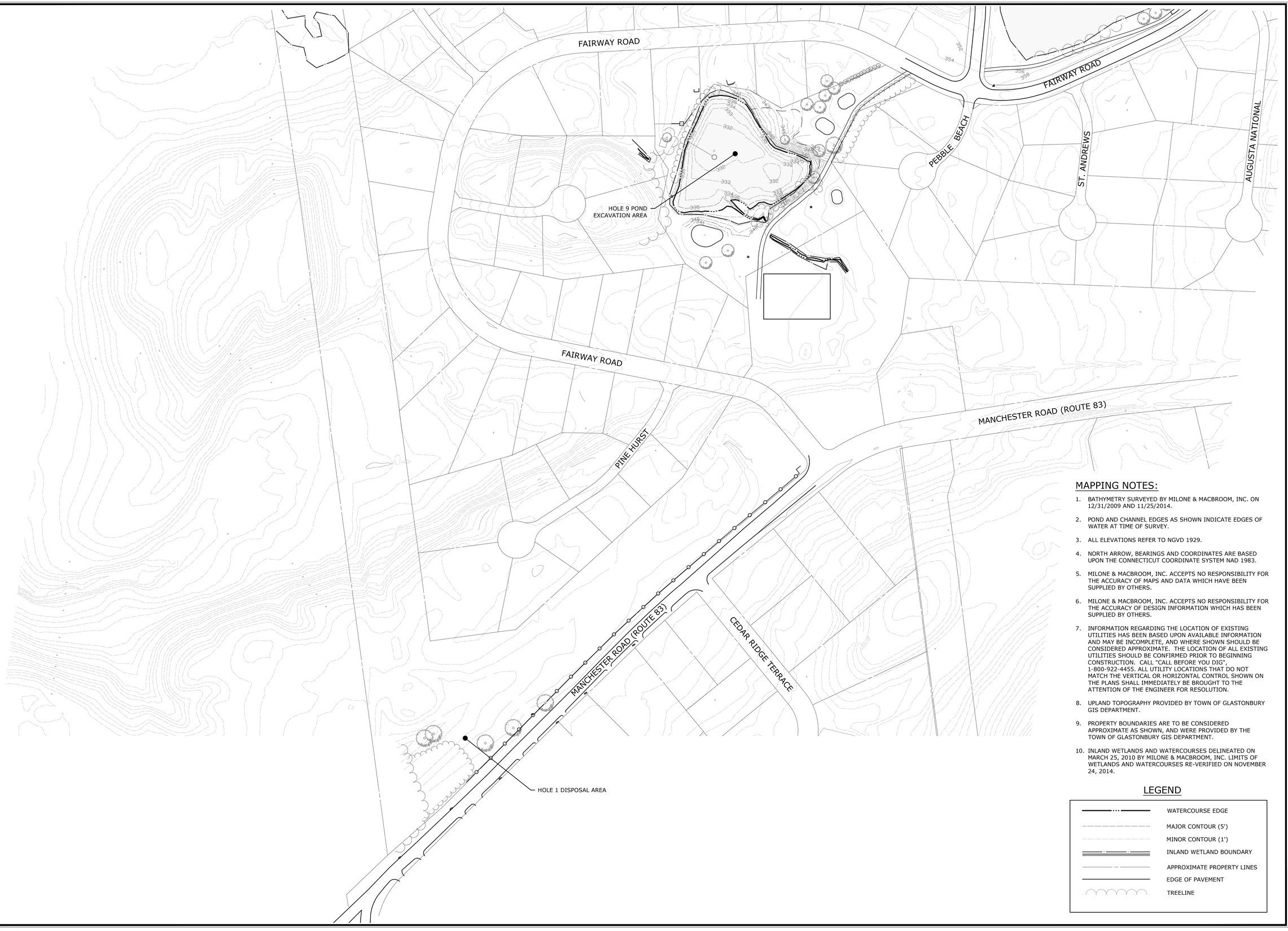

MAPPING NOTES:

1. BATHYMETRY SURVEYED BY MILONE & MACBROOM, INC. ON 12/31/2009 AND 11/25/2014.
2. POND AND CHANNEL EDGES AS SHOWN INDICATE EDGES OF WATER AT TIME OF SURVEY.
3. ALL ELEVATIONS REFER TO NGVD 1929.
4. NORTH ARROW, BEARINGS AND COORDINATES ARE BASED UPON THE CONNECTICUT COORDINATE SYSTEM NAD 1983.
5. MILONE & MACBROOM, INC. ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF MAPS AND DATA WHICH HAVE BEEN SUPPLIED BY OTHERS.
6. MILONE & MACBROOM, INC. ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF DESIGN INFORMATION WHICH HAS BEEN SUPPLIED BY OTHERS.
7. INFORMATION REGARDING THE LOCATION OF EXISTING UTILITIES HAS BEEN BASED UPON AVAILABLE INFORMATION AND MAY BE INCOMPLETE, AND WHERE SHOWN SHOULD BE CONSIDERED APPROXIMATE. THE LOCATION OF ALL EXISTING UTILITIES SHOULD BE CONFIRMED PRIOR TO BEGINNING CONSTRUCTION. CALL "CALL BEFORE YOU DIG", 1-800-922-4455. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION.
8. UPLAND TOPOGRAPHY PROVIDED BY TOWN OF GLASTONBURY GIS DEPARTMENT.
9. PROPERTY BOUNDARIES ARE TO BE CONSIDERED APPROXIMATE AS SHOWN, AND WERE PROVIDED BY THE TOWN OF GLASTONBURY GIS DEPARTMENT.
10. INLAND WETLANDS AND WATERCOURSES DELINEATED ON MARCH 25, 2010 BY MILONE & MACBROOM, INC. LIMITS OF WETLANDS AND WATERCOURSES RE-VERIFIED ON NOVEMBER 24, 2014.

LEGEND

- WATERCOURSE EDGE
- MAJOR CONTOUR (5')
- MINOR CONTOUR (1')
- INLAND WETLAND BOUNDARY
- APPROXIMATE PROPERTY LINES
- EDGE OF PAVEMENT
- TREELINE

N
W E
S
0' 50' 100'
0 50' 1"

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(203) 271-1773 Fax (203) 272-9733
www.miloneandmacbroom.com

DESCRIPTION	DATE	BY
PERMITTING REVISIONS	8/31/2015	DRM

EXISTING CONDITIONS - INDEX PLAN

MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
DRM	DRM	DM

SCALE: 1"=100'
DATE: APRIL 29, 2016
PROJECT NO.: 2600-05-11
SHEET NO.: 2 OF 11
SHEET NAME: EX-1

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Cheshire, Connecticut 06410
(203) 271-1773 Fax (203) 272-9733
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DESCRIPTION	DATE	BY
PERMITTING REVISIONS	8/31/2015	DRM

EXISTING CONDITIONS - HOLE 9 MAIN POND

MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
DRM	DRM	DM

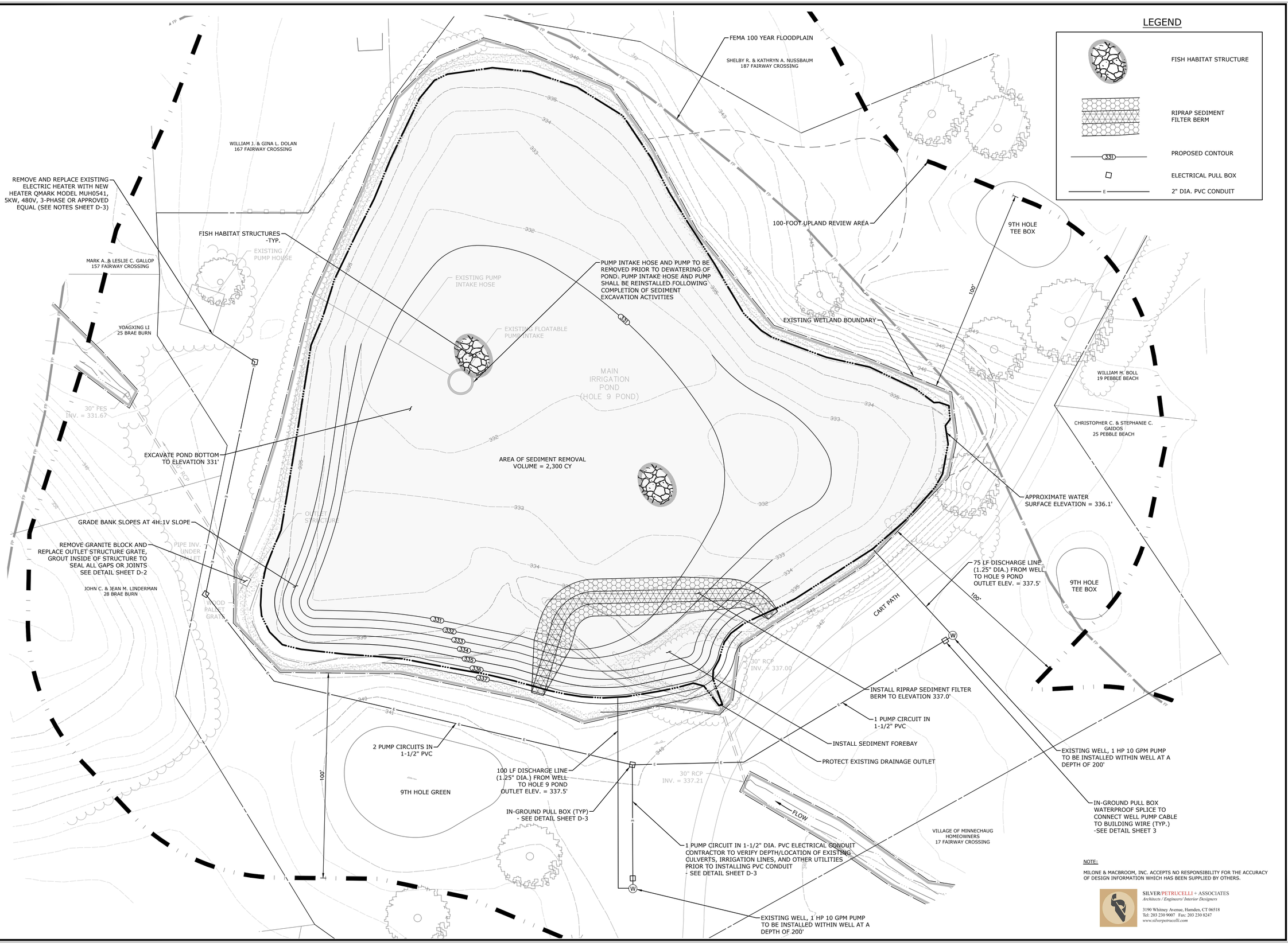
SCALE: 1"=20'

DATE: APRIL 29, 2016

PROJECT NO.: 2600-05-11

SHEET NO.: 3 OF 11

SHEET NAME: EX-2



NOTE:

MILONE & MACBROOM, INC. ACCEPTS NO RESPONSIBILITY FOR THE ACCURACY OF DESIGN INFORMATION WHICH HAS BEEN SUPPLIED BY OTHERS.

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www.silverpetrucelli.com

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Cheshire, Connecticut 06410
(203) 271-1773 Fax (203) 272-9733
www.miloneandmacbroom.com

DESCRIPTION	DATE	BY
PERMITTING REVISIONS	8/31/2015	DRM

PROPOSED CONDITIONS - DREDGING HOLE 9 POND

MINNECHAUG GOLF COURSE HOLE 9 POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
DRM	DRM	DM

SCALE: 1"=20'

DATE: APRIL 29, 2016

PROJECT NO.: 2600-05-11

SHEET NO.: 4 OF 11

SHEET NAME: PR-1

DOT ENCROACHMENT PERMIT

THE FOLLOWING ARE STIPULATIONS ARE REQUIREMENTS BY THE CT DOT FOR CONSTRUCTION ACCESS WITHIN THE HIGHWAY RIGHT OF WAY. ALL WORK SHALL BE IN ACCORDANCE WITH THE CURRENT PUBLICATION OF THE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION", THE LATEST DEPARTMENT STANDARD DETAILS, AND THE FOLLOWING STIPULATIONS.

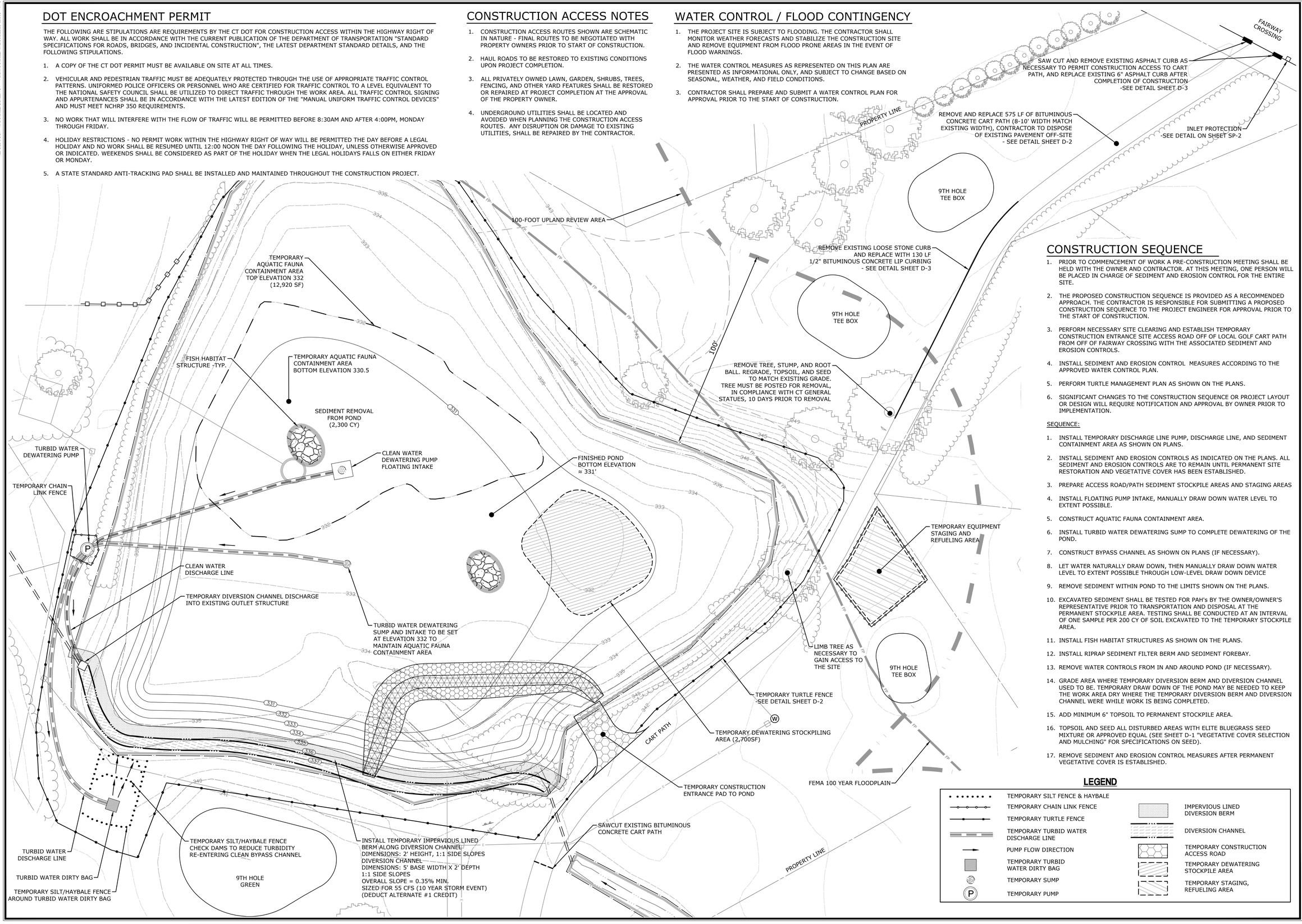
1. A COPY OF THE CT DOT PERMIT MUST BE AVAILABLE ON SITE AT ALL TIMES.
2. VEHICULAR AND PEDESTRIAN TRAFFIC MUST BE ADEQUATELY PROTECTED THROUGH THE USE OF APPROPRIATE TRAFFIC CONTROL PATTERNS. UNIFORMED POLICE OFFICERS OR PERSONNEL WHO ARE CERTIFIED FOR TRAFFIC CONTROL TO A LEVEL EQUIVALENT TO THE NATIONAL SAFETY COUNCIL SHALL BE UTILIZED TO DIRECT TRAFFIC THROUGH THE WORK AREA. ALL TRAFFIC CONTROL SIGNING AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL UNIFORM TRAFFIC CONTROL DEVICES" AND MUST MEET NCHRP 350 REQUIREMENTS.
3. NO WORK THAT WILL INTERFERE WITH THE FLOW OF TRAFFIC WILL BE PERMITTED BEFORE 8:30AM AND AFTER 4:00PM, MONDAY THROUGH FRIDAY.
4. HOLIDAY RESTRICTIONS - NO PERMIT WORK WITHIN THE HIGHWAY RIGHT OF WAY WILL BE PERMITTED THE DAY BEFORE A LEGAL HOLIDAY AND NO WORK SHALL BE RESUMED UNTIL 12:00 NOON THE DAY FOLLOWING THE HOLIDAY, UNLESS OTHERWISE APPROVED OR INDICATED. WEEKENDS SHALL BE CONSIDERED AS PART OF THE HOLIDAY WHEN THE LEGAL HOLIDAYS FALLS ON EITHER FRIDAY OR MONDAY.
5. A STATE STANDARD ANTI-TRACKING PAD SHALL BE INSTALLED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PROJECT.

CONSTRUCTION ACCESS NOTES

1. CONSTRUCTION ACCESS ROUTES SHOWN ARE SCHEMATIC IN NATURE - FINAL ROUTES TO BE NEGOTIATED WITH PROPERTY OWNERS PRIOR TO START OF CONSTRUCTION.
2. HAUL ROADS TO BE RESTORED TO EXISTING CONDITIONS UPON PROJECT COMPLETION.
3. ALL PRIVATELY OWNED LAWN, GARDEN, SHRUBS, TREES, FENCING, AND OTHER YARD FEATURES SHALL BE RESTORED OR REPAIRED AT PROJECT COMPLETION AT THE APPROVAL OF THE PROPERTY OWNER.
4. UNDERGROUND UTILITIES SHALL BE LOCATED AND AVOIDED WHEN PLANNING THE CONSTRUCTION ACCESS ROUTES. ANY DISRUPTION OR DAMAGE TO EXISTING UTILITIES, SHALL BE REPAIRED BY THE CONTRACTOR.

WATER CONTROL / FLOOD CONTINGENCY

1. THE PROJECT SITE IS SUBJECT TO FLOODING. THE CONTRACTOR SHALL MONITOR WEATHER FORECASTS AND STABILIZE THE CONSTRUCTION SITE AND REMOVE EQUIPMENT FROM FLOOD PRONE AREAS IN THE EVENT OF FLOOD WARNINGS.
2. THE WATER CONTROL MEASURES AS REPRESENTED ON THIS PLAN ARE PRESENTED AS INFORMATIONAL ONLY, AND SUBJECT TO CHANGE BASED ON SEASONAL, WEATHER, AND FIELD CONDITIONS.
3. CONTRACTOR SHALL PREPARE AND SUBMIT A WATER CONTROL PLAN FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION.



CONSTRUCTION SEQUENCE

1. PRIOR TO COMMENCEMENT OF WORK A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH THE OWNER AND CONTRACTOR. AT THIS MEETING, ONE PERSON WILL BE PLACED IN CHARGE OF SEDIMENT AND EROSION CONTROL FOR THE ENTIRE SITE.
2. THE PROPOSED CONSTRUCTION SEQUENCE IS PROVIDED AS A RECOMMENDED APPROACH. THE CONTRACTOR IS RESPONSIBLE FOR SUBMITTING A PROPOSED CONSTRUCTION SEQUENCE TO THE PROJECT ENGINEER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION.
3. PERFORM NECESSARY SITE CLEARING AND ESTABLISH TEMPORARY CONSTRUCTION ENTRANCE SITE ACCESS ROAD OFF OF LOCAL GOLF CART PATH FROM OFF OF FAIRWAY CROSSING WITH THE ASSOCIATED SEDIMENT AND EROSION CONTROLS.
4. INSTALL SEDIMENT AND EROSION CONTROL MEASURES ACCORDING TO THE APPROVED WATER CONTROL PLAN.
5. PERFORM TURTLE MANAGEMENT PLAN AS SHOWN ON THE PLANS.
6. SIGNIFICANT CHANGES TO THE CONSTRUCTION SEQUENCE OR PROJECT LAYOUT OR DESIGN WILL REQUIRE NOTIFICATION AND APPROVAL BY OWNER PRIOR TO IMPLEMENTATION.

SEQUENCE:

1. INSTALL TEMPORARY DISCHARGE LINE PUMP, DISCHARGE LINE, AND SEDIMENT CONTAINMENT AREA AS SHOWN ON PLANS.
2. INSTALL SEDIMENT AND EROSION CONTROLS AS INDICATED ON THE PLANS. ALL SEDIMENT AND EROSION CONTROLS ARE TO REMAIN UNTIL PERMANENT SITE RESTORATION AND VEGETATIVE COVER HAS BEEN ESTABLISHED.
3. PREPARE ACCESS ROAD/PATH SEDIMENT STOCKPILE AREAS AND STAGING AREAS
4. INSTALL FLOATING PUMP INTAKE, MANUALLY DRAW DOWN WATER LEVEL TO EXTENT POSSIBLE.
5. CONSTRUCT AQUATIC FAUNA CONTAINMENT AREA.
6. INSTALL TURBID WATER DEWATERING SUMP TO COMPLETE DEWATERING OF THE POND.
7. CONSTRUCT BYPASS CHANNEL AS SHOWN ON PLANS (IF NECESSARY).
8. LET WATER NATURALLY DRAW DOWN, THEN MANUALLY DRAW DOWN WATER LEVEL TO EXTENT POSSIBLE THROUGH LOW-LEVEL DRAW DOWN DEVICE
9. REMOVE SEDIMENT WITHIN POND TO THE LIMITS SHOWN ON THE PLANS.
10. EXCAVATED SEDIMENT SHALL BE TESTED FOR PAH's BY THE OWNER/OWNER'S REPRESENTATIVE PRIOR TO TRANSPORTATION AND DISPOSAL AT THE PERMANENT STOCKPILE AREA. TESTING SHALL BE CONDUCTED AT AN INTERVAL OF ONE SAMPLE PER 200 CY OF SOIL EXCAVATED TO THE TEMPORARY STOCKPILE AREA.
11. INSTALL FISH HABITAT STRUCTURES AS SHOWN ON THE PLANS.
12. INSTALL RIPRAP SEDIMENT FILTER BERM AND SEDIMENT FOREBAY.
13. REMOVE WATER CONTROLS FROM IN AND AROUND POND (IF NECESSARY).
14. GRADE AREA WHERE TEMPORARY DIVERSION BERM AND DIVERSION CHANNEL USED TO BE. TEMPORARY DRAW DOWN OF THE POND MAY BE NEEDED TO KEEP THE WORK AREA DRY WHERE THE TEMPORARY DIVERSION BERM AND DIVERSION CHANNEL WERE WHILE WORK IS BEING COMPLETED.
15. ADD MINIMUM 6" TOPSOIL TO PERMANENT STOCKPILE AREA.
16. TOPSOIL AND SEED ALL DISTURBED AREAS WITH ELITE BLUEGRASS SEED MIXTURE OR APPROVED EQUAL (SEE SHEET D-1 "VEGETATIVE COVER SELECTION AND MULCHING" FOR SPECIFICATIONS ON SEED).
17. REMOVE SEDIMENT AND EROSION CONTROL MEASURES AFTER PERMANENT VEGETATIVE COVER IS ESTABLISHED.

LEGEND

- TEMPORARY SILT FENCE & HAYBALE
- TEMPORARY CHAIN LINK FENCE
- TEMPORARY TURTLE FENCE
- TEMPORARY TURBID WATER DISCHARGE LINE
- PUMP FLOW DIRECTION
- TEMPORARY TURBID WATER DIRTY BAG
- TEMPORARY SUMP
- TEMPORARY PUMP
- IMPERVIOUS LINED DIVERSION BERM
- DIVERSION CHANNEL
- TEMPORARY CONSTRUCTION ACCESS ROAD
- TEMPORARY DEWATERING STOCKPILE AREA
- TEMPORARY STAGING, REFUELING AREA

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DESCRIPTION	DATE	BY
PERMITTING REVISIONS	8/31/2015	DRM
PERMITTING REVISIONS	9/28/2015	JCS

WATER CONTROL, SEDIMENT, AND EROSION CONTROL PLAN

MINNECHAUG GOLF COURSE HOLE 9 POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
DRM	DRM	PS

SCALE: 1"=20'

DATE: APRIL 29, 2016

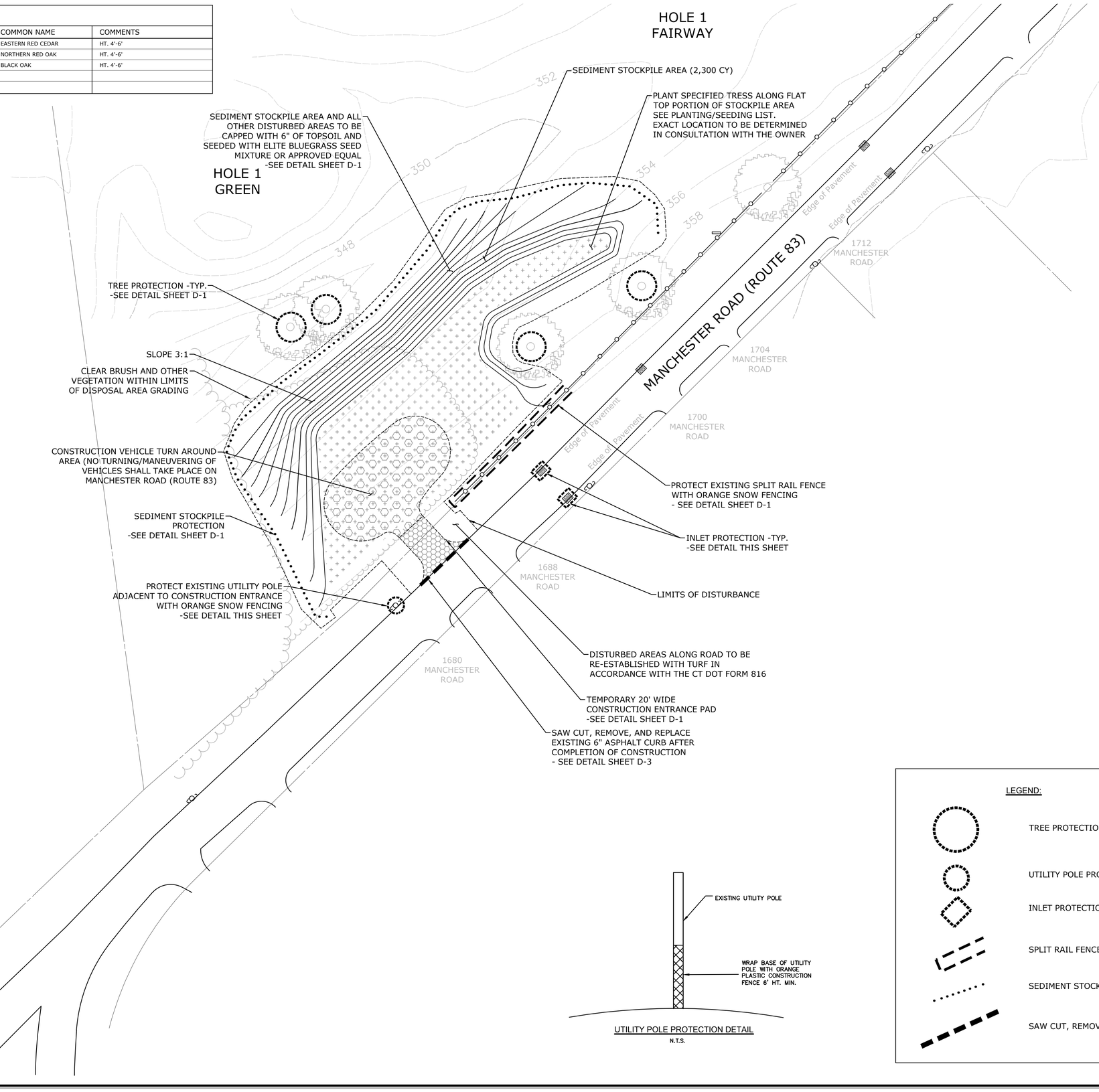
PROJECT NO.: 2600-05-11

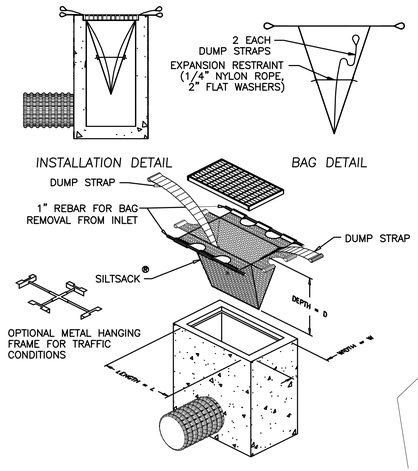
SHEET NO.: 5 OF 11

SHEET NAME: **SP-1**

PLANTING/SEEDING LIST

BANK/SHORELINE	QTY	KEY	BOTANICAL NAME	COMMON NAME	COMMENTS
	20	–	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	HT. 4'-6'
	6	–	QUERCUS RUBRA	NORTHERN RED OAK	HT. 4'-6'
	6	–	QUERCUS VELUTINA	BLACK OAK	HT. 4'-6'





INLET PROTECTION (SILT SACK) DETAIL
N.T.S.

UTILITY POLE PROTECTION DETAIL
N.T.S.

LEGEND:

- TREE PROTECTION
- UTILITY POLE PROTECTION
- INLET PROTECTION
- SPLIT RAIL FENCE PROTECTION
- SEDIMENT STOCKPILE PROTECTION
- SAW CUT, REMOVE, AND REPLACE CURB

N
W E
S
0' 15' 30'
0 1/2" 1"

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DESCRIPTION	DATE	BY

SEDIMENT DISPOSAL AREA PLAN

MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT
16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DRM	DRM	DM
DESIGNED	DRAWN	CHECKED

1"=30'
SCALE

APRIL 29, 2016
DATE

2600-05-11
PROJECT NO.

5 OF 8
SHEET NO.

SP-2
SHEET NAME

PLANTING/SEEDING LIST

BANK/SHORELINE	QTY	KEY	BOTANICAL NAME	COMMON NAME	COMMENTS
	50	–	CORNUS SERICEA	RED OSIER DOGWOOD	FULL & DENSE
	75	–	SPIRAEA LATIFOLIA	BROADLEAF MEADOWSWEET	FULL & DENSE
	50	–	CORNUS RACEMOSA	GRAY STEMMED DOGWOOD	FULL & DENSE
	50	–	SPIRAEA TOMENTOSA	STEEPLE BUSH	FULL & DENSE
	25	–	VIBURNUM DENTATUM	NORTHERN ARROWWOOD	FULL & DENSE
LOW SHORELINE	**QTY**	**KEY**	**BOTANICAL NAME**	**COMMON NAME**	**COMMENTS**
	75	–	SPIRAEA TOMENTOSA	STEEPLE BUSH	FULL & DENSE
LITTORAL ZONE	**QTY**	**KEY**	**BOTANICAL NAME**	**COMMON NAME**	**COMMENTS**
	150	–	PONTEDERIA CORDATA	PICKERELWEED	2" PLUGS
	100	–	SAGITTARIA LATIFOLIA	DUCK POTATO	2" PLUGS
	300	–	IRIS VERISCOLOR	BLUE FLAG IRIS	2" PLUGS
	200	–	CAREX LURIDA	LURID SEDGE	2" PLUGS
	100	–	SCRIPUS VALIDUS	SOFT STEM BULRUSH	2" PLUGS
	250	–	JUNCUS EFFUSUS	SOFT RUSH	2" PLUGS
					REMOVE INVASIVE VEGETATION AND REPLACE WITH NATIVE SHRUBS

PLANT WITH SHRUBS, APPROXIMATELY 3' ON CENTER, A MINIMUM OF TWO STAGGERED ROWS. USE SPECIES FROM THE SHORE/BANK SPECIES LIST AS DESIGNATED IN THE PLANTING LIST (SEE THIS SHEET)

CREATE LITTORAL FRINGE ZONE, USE SPECIES FROM THE LITTORAL ZONE SPECIES LIST AS DESIGNATED IN THE PLANTING LIST (SEE THIS SHEET)

REMOVE INVASIVE VEGETATION SUCH AS MULTIFLORA ROSE AND ORNAMENTAL BITTERSWEET. REPLACE WITH NATIVE SHRUBS AS NECESSARY

CREATE LITTORAL FRINGE ZONE, USE SPECIES FROM THE LITTORAL ZONE SPECIES LIST AS DESIGNATED IN THE PLANTING LIST (SEE THIS SHEET)

PLANT WITH SHRUBS, APPROXIMATELY 3' ON CENTER, A MINIMUM OF TWO STAGGERED ROWS. USE SPECIES FROM THE SHORE/BANK SPECIES LIST AS DESIGNATED IN THE PLANTING LIST (SEE THIS SHEET)

CREATE LITTORAL FRINGE ZONE, USE SPECIES FROM THE LITTORAL ZONE SPECIES LIST AS DESIGNATED IN THE PLANTING LIST (SEE THIS SHEET)

REMOVE INVASIVE VEGETATION SUCH AS MULTIFLORA ROSE AND ORNAMENTAL BITTERSWEET. REPLACE WITH NATIVE SHRUBS FROM THE BANK/SHORELINE LIST AS NECESSARY

PLANT WITH SHRUBS, APPROXIMATELY 3' ON CENTER, A MINIMUM OF TWO STAGGERED ROWS. USE SPECIES FROM THE LOW SHORELINE SPECIES LIST AS DESIGNATED IN THE PLANTING LIST (SEE THIS SHEET)

DISTURBED AREAS TO BE SEEDED WITH ELITE BLUEGRASS SEED MIXTURE -SEE DETAILS SHEET D-1

DISTURBED AREAS TO BE SEEDED WITH ELITE BLUEGRASS SEE MIXTURE -SEE DETAILS SHEET D-1

EXISTING PUMP HOUSE

EXISTING PUMP INTAKE HOSE

EXISTING FLOATABLE PUMP INTAKE

30" FES INV. = 331.67

30" RCP

OUTLET STRUCTURE

PIPE INV. UNDER PALLET

CONCRETE PALLET GRATE

9TH HOLE GREEN

9TH HOLE TEE BOX

100'

CART PATH

30" RCP INV. = 337.00

30" RCP 337.21

FLOW

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DESCRIPTION	DATE	BY
REVISED	8/31/2015	DRM

VEGETATION RESTORATION PLAN - HOLE 9 POND

MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
DRM	DRM	DM

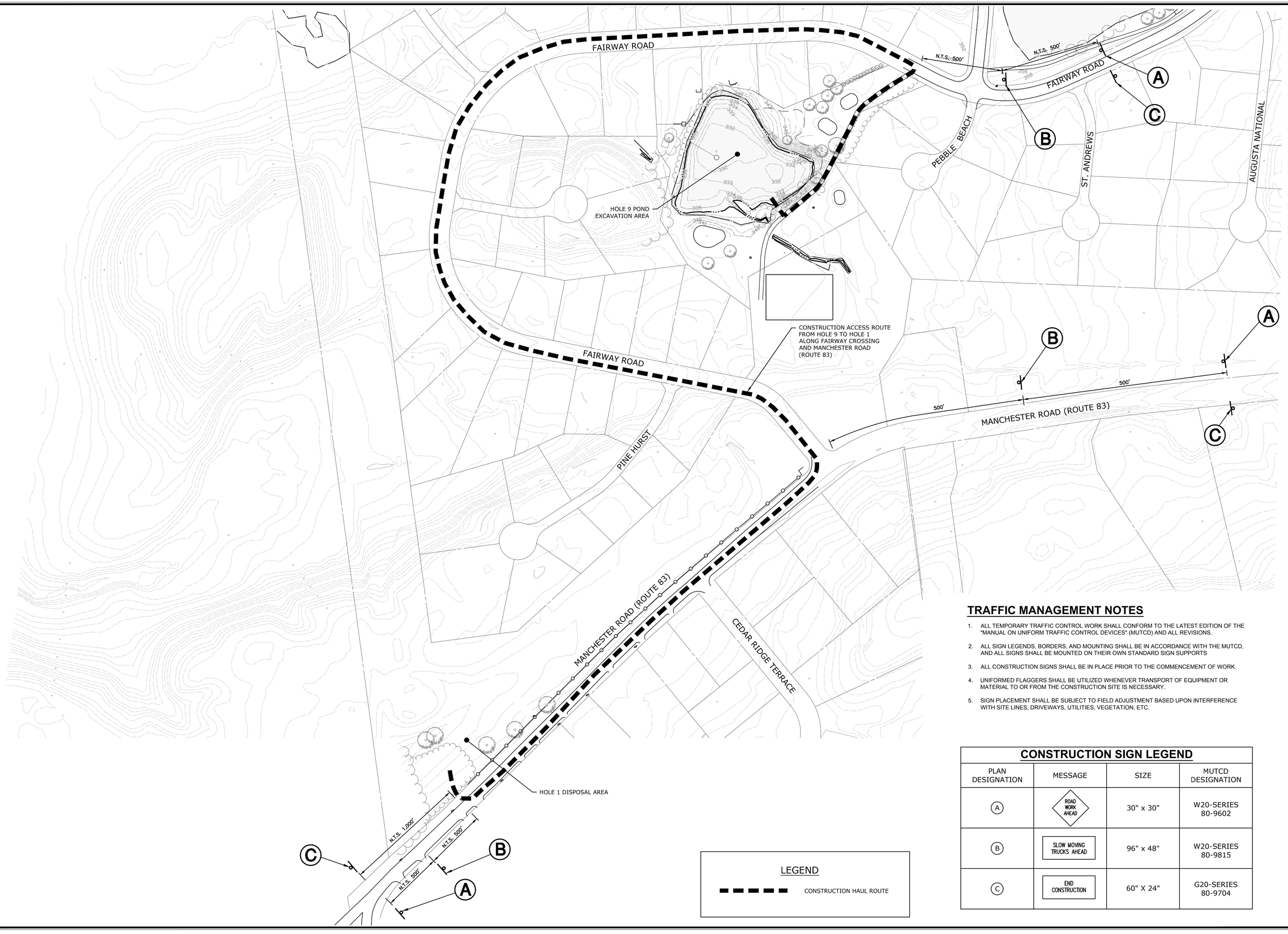
SCALE: 1"=20'

DATE: APRIL 29, 2016

PROJECT NO.: 2600-05-11

SHEET NO.: 7 OF 11

SHEET NAME: VP-1



TRAFFIC MANAGEMENT NOTES

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD, AND ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS
3. ALL CONSTRUCTION SIGNS SHALL BE IN PLACE PRIOR TO THE COMMENCEMENT OF WORK.
4. UNIFORMED FLAGGERS SHALL BE UTILIZED WHENEVER TRANSPORT OF EQUIPMENT OR MATERIAL TO OR FROM THE CONSTRUCTION SITE IS NECESSARY.
5. SIGN PLACEMENT SHALL BE SUBJECT TO FIELD ADJUSTMENT BASED UPON INTERFERENCE WITH SITE LINES, DRIVEWAYS, UTILITIES, VEGETATION, ETC.

CONSTRUCTION SIGN LEGEND

PLAN DESIGNATION	MESSAGE	SIZE	MUTCD DESIGNATION
A	ROAD WORK AHEAD	30" x 30"	W20-SERIES 80-9602
B	SLOW MOVING TRUCKS AHEAD	96" x 48"	W20-SERIES 80-9815
C	END CONSTRUCTION	60" X 24"	G20-SERIES 80-9704

LEGEND

CONSTRUCTION HAUL ROUTE

DESCRIPTION	DATE	BY
PERMITTING REVISIONS	8/31/2015	DRM

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MAINTENANCE AND PROTECTION OF TRAFFIC PLAN

MINNECHAUG GOLF COURSE HOLE 9 POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DRM	DRM	DM
DESIGNED	DRAWN	CHECKED

SCALE: 1"=100'

DATE: APRIL 29, 2016

PROJECT NO.: 2600-05-11

SHEET NO.: 8 OF 11

SHEET NAME: MPT-1

SEDIMENT & EROSION CONTROL SPECIFICATIONS

GENERAL:

THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT. IN GENERAL, ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, INSOFAR AS POSSIBLE, EROSION ON THE SITE.

LAND GRADING

GENERAL:

1. THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
   a. THE CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
   b. THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL (2:1).
   c. THE CUT FACE OF ROCK EXCAVATION SHALL NOT BE STEEPER THAN ONE HORIZONTAL TO FOUR VERTICAL (1:4).
   d. PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO STORM DRAINS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
   e. EXCAVATIONS SHOULD NOT BE MADE SO CLOSE TO PROPERTY LINES AS TO ENDANGER ADJOINING PROPERTY WITHOUT PROTECTING SUCH PROPERTY FROM EROSION, SLIDING, SETTLING, OR CRACKING.
   f. NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON THE PREMISES OF ANOTHER OWNER OR UPON ADJACENT WETLANDS, WATERCOURSES, OR WATERBODIES.
   g. PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA IN ORDER TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.

TOPSOILING

GENERAL:

1. TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED AREAS IN ORDER TO PROVIDE A SOIL MEDIUM HAVING FAVORABLE CHARACTERISTICS FOR THE ESTABLISHMENT, GROWTH, AND MAINTENANCE OF VEGETATION.

2. UPON ATTAINING FINAL SUBGRADES, SCARIFY SURFACE TO PROVIDE A GOOD BOND WITH TOPSOIL.

3. REMOVE ALL LARGE STONES, TREE LIMBS, ROOTS AND CONSTRUCTION DEBRIS.

4. APPLY LIME ACCORDING TO SOIL TEST OR AT THE RATE OF ONE (1) TON PER ACRE.

MATERIAL:

1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS FAVORABLE TO THE GROWTH OF PLANTS.

2. TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE.

3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF STONES (OVER 1" IN DIAMETER), LUMPS OF SOIL, ROOTS, TREE LIMBS, TRASH, OR CONSTRUCTION DEBRIS. IT SHOULD BE FREE OF ROOTS OR RHIZOMES SUCH AS THISTLE, NUTGRASS, AND QUACKGRASS.

4. AN ORGANIC MATTER CONTENT OF SIX PERCENT (6%) IS REQUIRED. AVOID LIGHT COLORED SUBSOIL MATERIAL.

5. SOLUBLE SALT CONTENT OF OVER 500 PARTS PER MILLION (PPM) IS LESS SUITABLE. AVOID TIDAL MARSH SOILS BECAUSE OF HIGH SALT CONTENT AND SULFUR ACIDITY.

6. THE pH SHOULD BE MORE THAN 5.5. IF LESS, ADD LIME TO INCREASE pH TO AN ACCEPTABLE LEVEL.

APPLICATION

1. AVOID SPREADING WHEN TOPSOIL IS WET OR FROZEN.

2. SPREAD TOPSOIL UNIFORMLY TO A DEPTH OF AT LEAST SIX INCHES (6"), OR TO THE DEPTH SHOWN ON THE LANDSCAPING PLANS.

TEMPORARY VEGETATIVE COVER

GENERAL:

1. TEMPORARY VEGETATIVE COVER SHALL BE ESTABLISHED ON ALL UNPROTECTED AREAS THAT PRODUCE SEDIMENT, AREAS WHERE FINAL GRADING HAS BEEN COMPLETED, AND AREAS WHERE THE ESTIMATED PERIOD OF BARE SOIL EXPOSURE IS LESS THAN 12 MONTHS. TEMPORARY VEGETATIVE COVER SHALL BE APPLIED IF AREAS WILL NOT BE PERMANENTLY SEEDED BY SEPTEMBER 1.

SITE PREPARATION:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.

2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.

3. APPLY LIME ACCORDING TO SOIL TEST OR AT A RATE OF ONE (1) TON OF GROUND DOLOMITIC LIMESTONE PER ACRE (5 LBS. PER 100 SQ. FT.).

4. APPLY FERTILIZER ACCORDING TO SOIL TEST OR AT THE RATE OF 300 LBS. OF 10-10-10 PER ACRE (7 LBS. PER 1,000 SQ. FT.) AND SECOND APPLICATION OF 200 LBS. OF 10-10-10- (5 LBS. PER 1,000 SQ. FT.) WHEN GRASS IS FOUR INCHES (4") TO SIX INCHES (6") HIGH. APPLY ONLY WHEN GRASS IS DRY.

5. UNLESS HYDROSEEDED, WORK IN LIME AND FERTILIZER TO A DEPTH OF FOUR (4") INCHES USING A DISK OR ANY SUITABLE EQUIPMENT.

6. TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDBED. WORK ON CONTOUR IF SITE IS SLOPING.

ESTABLISHMENT:

1. SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).

2. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.

3. UNLESS HYDROSEEDED, COVER RYEGRASS SEEDS WITH NOT MORE THAN 1/4 INCH OF SOIL USING SUITABLE EQUIPMENT.

4. MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW.) APPLY STRAW OR SALT HAY MULCH AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE CONCENTRATED FLOW WILL OCCUR.

PERMANENT VEGETATIVE COVER

GENERAL:

1. PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED AS VARIOUS SECTIONS OF THE PROJECT ARE COMPLETED IN ORDER TO STABILIZE THE SOIL, REDUCE DOWNSTREAM DAMAGE FROM SEDIMENT AND RUNOFF, AND TO ENHANCE THE AESTHETIC NATURE OF THE SITE. IT WILL BE APPLIED TO ALL CONSTRUCTION AREAS SUBJECT TO EROSION WHERE FINAL GRADING HAS BEEN COMPLETED AND A PERMANENT COVER IS NEEDED.

SITE PREPARATION:

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.

2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.

3. PERFORM ALL PLANTING OPERATIONS PARALLEL TO THE CONTOURS OF THE SLOPE.

4. APPLY 6" LAYER OF TOPSOIL AS INDICATED ELSEWHERE HEREIN.

5. APPLY FERTILIZER ACCORDING TO SOIL TEST OR:
   SPREAD SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING, 300 LBS.
   - FALL SEEDING: WORK DEEPLY IN SOIL, BEFORE SEEDING, 600 LBS. OF 10-10-10 FERTILIZER PER
   - ACRE (14 LBS. PER 1,000 SQ. FT.).

VEGETATIVE COVER SELECTION & MULCHING

TEMPORARY VEGETATIVE COVER:

SEEDLAND - "PENNINGTON PERENNIAL RYEGRASS SEED BLEND" (OR APPROVED EQUAL)
PERENNIAL RYEGRASS 10 LBS./1,000 SQ.FT.

PERMANENT VEGETATIVE COVER:

GENERAL SEEDING:

SEEDLAND - "ELITE BLUEGRASS SEED MIXTURE" (OR APPROVED EQUAL)

RONDE KENTUCKY BLUEGRASS	40%
PERENNIAL RYEGRASSES:	
iNTEGRA, SHINING STAR, 1G SQUARED, SOPRANO	
APR 1472, SONATA, PEAK, WIND DANCE,	
AND/OR MORNING STAR	40%
CREEPING RED FESCUE (LUSTROUS OR BOREAL)	20%

SEEDING RATE: 3-5 LBS./1000 S.F.
OVER SEEDING: APPLY AT ABOUT ½ RATE - 1-2 LBS PER 2000 SF

TEMPORARY MULCHING:

STRAw OR SALT HAY 70-90 LBS./1,000 SQ.FT.
(TEMPORARY VEGETATIVE AREAS) WOOD FIBER IN HYDROMULCH SLURRY 25-50 LBS./1,000 SQ. FT.

ESTABLISHMENT:

1. SMOOTH AND FIRM SEEDBED WITH CULTIPACKER OR OTHER SIMILAR EQUIPMENT PRIOR TO SEEDING (EXCEPT WHEN HYDROSEEDING).

2. SELECT ADAPTED SEED MIXTURE FOR THE SPECIFIC SITUATION. NOTE RATES AND THE SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC. BELOW).

3. APPLY SEED UNIFORMLY ACCORDING TO RATE INDICATED, BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.

4. COVER GRASS AND LEGUME SEED WITH NOT MORE THAN 1/4 INCH OF SOIL WITH SUITABLE EQUIPMENT (EXCEPT WHEN HYDROSEEDING).

5. MULCH IMMEDIATELY AFTER SEEDING, IF REQUIRED, ACCORDING TO TEMPORARY MULCHING SPECIFICATIONS. (SEE VEGETATIVE COVER SELECTION & MULCHING SPECIFICATION BELOW).

6. USE PROPER INOCULANT ON ALL LEGUME SEEDINGS, USE FOUR (4) TIMES NORMAL RATES WHEN HYDROSEEDING.

7. USE SOD WHERE THERE IS A HEAVY CONCENTRATION OF WATER AND IN CRITICAL AREAS WHERE IT IS IMPORTANT TO GET A QUICK VEGETATIVE COVER TO PREVENT EROSION.

MAINTENANCE:

1. TEST FOR SOIL ACIDITY EVERY THREE (3) YEARS AND LIME AS REQUIRED.

2. ON SITES WHERE GRASSES PREDOMINATE, BROADCAST ANNUALLY 500 POUNDS OF 10-10-10 FERTILIZER PER ACRE (12 LBS. PER 1,000 SQ. FT.) OR AS NEEDED ACCORDING TO ANNUAL SOIL TESTS.

3. ON SITES WHERE LEGUMES PREDOMINATE, BROADCAST EVERY THREE (3) YEARS OR AS INDICATED BY SOIL TEST 300 POUNDS OF 0-20-20 OR EQUIVALENT PER ACRE (8 LBS PER 1,000 SQ. FT.).

EROSION CHECKS

GENERAL:

1. TEMPORARY PERVIOUS BARRIERS USING BALES OF HAY OR STRAW, HELD IN PLACE WITH STAKES DRIVEN THROUGH THE BALES AND INTO THE GROUND OR GEOTEXTILE FABRIC FASTENED TO A FENCE POST AND BURIED INTO THE GROUND, SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.

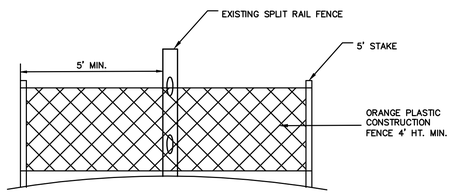
CONSTRUCTION:

1. BALES SHOULD BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.

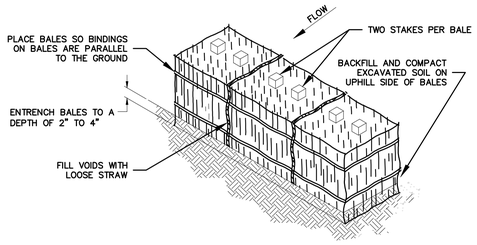
2. EACH BALE SHALL BE EMBEDDED INTO THE SOIL A MINIMUM OF FOUR (4") INCHES.

3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY WOOD STAKES OR REINFORCEMENT BARS DRIVEN THROUGH THE BALES AND INTO THE GROUND. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARD THE PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.

4. GEOTEXTILE FABRIC SHALL BE SECURELY ANCHORED AT THE TOP OF A THREE FOOT (3') HIGH FENCE AND BURIED A MINIMUM OF FOUR INCHES (4") TO THE SOIL. SEAMS BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF TWO FEET (2').

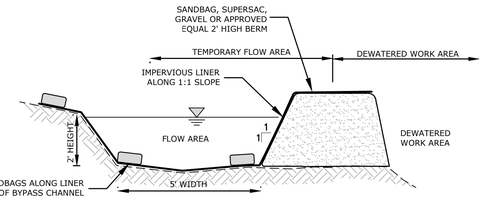


SPLIT RAIL FENCE PROTECTION DETAIL
N.T.S.



1. IDEALLY, BALES SHOULD BE ENTRENCHED 2 TO 4 INCHES AND TIGHTLY BUTTED TOGETHER. BALES CAN BE SUCCESSFULLY PLACED WITHOUT A TRENCH IF GOOD GROUND CONTACT IS MADE. REMOVE HEAVY BRUSH AND FILL ALL VOIDS WITH LOOSE STRAW.
2. BALES SHALL BE ONLY USED AS A TEMPORARY BARRIER AND FOR NO LONGER THAN 60 DAYS.
3. WHEN SEDIMENTATION DEPOSITS REACH WITHIN 3" OF THE TOP OF BALES, REMOVE SEDIMENTATION OR ADD ADDITIONAL BALES ON SEDIMENTATION DIRECTLY BEHIND FIRST ROW OF BALES AS DIRECTED BY THE ENGINEER.
4. UPON ESTABLISHMENT OF GROUND COVER ON DISTURBED AREAS AND WHEN DIRECTED BY THE ENGINEER, HAY BALES WILL BE REMOVED AND USED AS MULCH. ANY SEDIMENTATION WILL BE THINLY SPREAD UPON ESTABLISHED GROUND COVER.

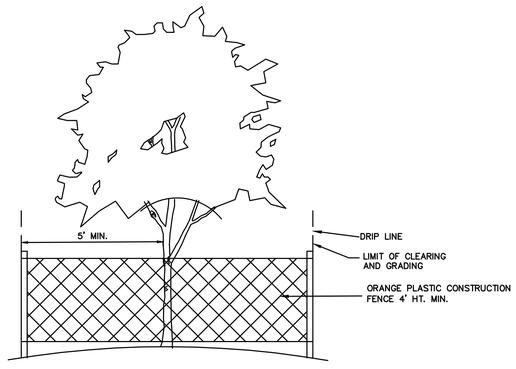
STAKED HAY BALES
N.T.S.



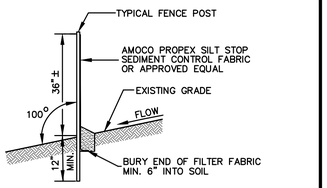
NOTES:

1. BERM AND TO BE SIZED FOR NORMAL FLOW CONDITIONS. TOP ELEVATION OF BERM TO ISOLATE POND WORK AREA FROM STREAM FLOWS.
2. INSTALL SANDBAGS THROUGHOUT THE CHANNEL TO ANCHOR LINER.
3. CHANNEL IS SIZED TO HANDLE APPROXIMATELY 55 CFS (10 YEAR STORM).

TEMPORARY IMPERVIOUS LINED BERM (DEDUCT ALTERNATE #1 CREDIT)
N.T.S.

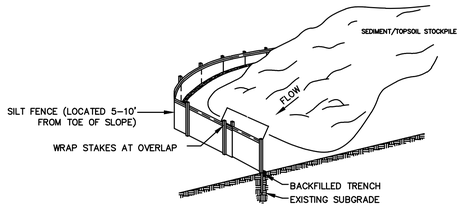


TREE PROTECTION DETAIL
N.T.S.



NOTE: IN LOCATIONS APPROVED BY ENGINEER OR SOIL SCIENTIST WOOD CHIP BERMS MAY BE USED IN PLACE OF SEDIMENT FILTER FENCE OR HAYBALES

SEDIMENT FILTER FENCE
N.T.S.



NOTE:
1. DETAIL FOR SEDIMENT AND EROSION CONTROLS NOT FOR TEMP. STOCKPILING AND DEWATERING CONTAINMENT AREA.
2. THE SEDIMENT/TOPSOIL STOCKPILE PROTECTION DETAIL ALSO APPLIES TO THE PERMANENT STOCKPILE AREA WHILE CONSTRUCTION IS TAKING PLACE. ONCE CONSTRUCTION HAS BEEN COMPLETED AND THE PERMANENT STOCKPILE AREA HAS BEEN SEEDED AND STABILIZED THE SEDIMENT/TOPSOIL STOCKPILE PROTECTION IS NO LONGER NEEDED.

SEDIMENT/TOPSOIL STOCKPILE PROTECTION
N.T.S.

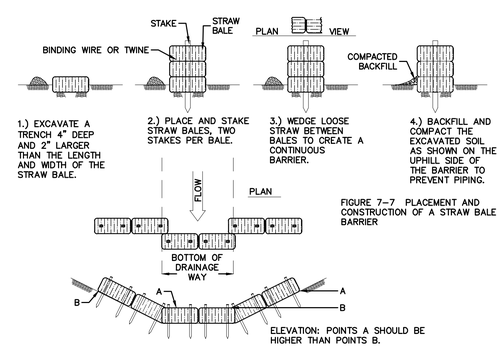
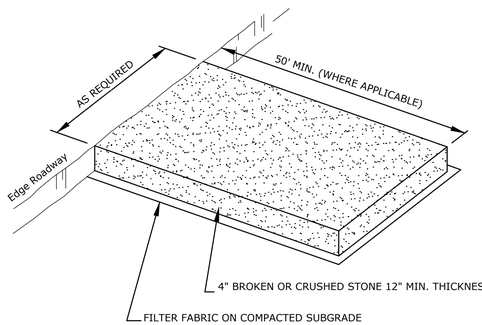


FIGURE 7–7 PLACEMENT AND CONSTRUCTION OF A STRAW BALE BARRIER

HAY BALE CHECK DAM
N.T.S.



NOTE: CONSTRUCTION ENTRANCE PAD SHALL BE INSTALLED AND MAINTAINED DURING OPERATIONS WHICH PROMOTE VEHICULAR TRACKING OF MUD

TEMPORARY CONSTRUCTION ENTRANCE PAD
NOT TO SCALE

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DESCRIPTION	DATE	BY

DETAILS

MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT
16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

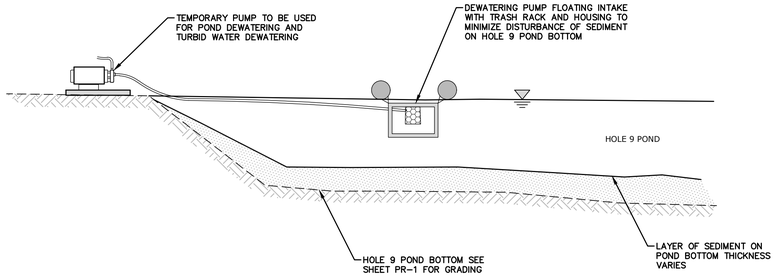
DESIGNED	DRAWN	CHECKED
DRM	DRM	DM

SCALE: N.T.S.
DATE: APRIL 29, 2016
PROJECT NO.: 2600-05-11
SHEET NO.: 9 OF 11

D-1
SHEET NAME

EROSION CONTROL MAINTENANCE INTERVALS

EROSION CONTROL MEASURE	CONTROL OBJECTIVE	INSPECTION/MAINTENANCE	FAILURE INDICATORS	REMOVAL
SILT FENCE (GSF) (RELATED: IF, STK)	– INTERCEPT, AND REDIRECT/DETAIN SMALL AMOUNTS OF SEDIMENT FROM SMALL DISTURBED AREAS. – DECREASE VELOCITY OF SHEET FLOW. – PROTECT SENSITIVE SLOPES OR SOILS FROM EXCESSIVE WATER FLOW.	INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL OF 0.5 INCHES OR MORE. ACCUMULATED SEDIMENT MUST BE REMOVED ONCE ITS DEPTH IS EQUAL TO ½ THE TRENCH HEIGHT. INSPECT FREQUENTLY DURING PUMPING OPERATIONS IF USED FOR DEWATERING OPERATIONS.	– PHYSICAL DAMAGE OR DECOMPOSITION – EVIDENCE OF OVERTOPPED OR UNDERCUT FENCE – EVIDENCE OF SIGNIFICANT FLOWS EVADING CAPTURE – REPETITIVE FAILURE	SILT FENCE MAY BE REMOVED AFTER UPHILL AND SENSITIVE AREAS HAVE BEEN PERMANENTLY STABILIZED.
HAY BALES (HB), HAY BALE CHECK DAM (HBD)	– INTERCEPT, AND REDIRECT/DETAIN SMALL AMOUNTS OF SEDIMENT FROM SMALL DISTURBED AREAS. – DECREASE VELOCITY OF SHEET FLOW. – PROTECT SENSITIVE SLOPES OR SOILS FROM EXCESSIVE WATER FLOW.	INSPECT AT LEAST ONCE A WEEK AND WITHIN 24 HOURS OF THE END OF A STORM WITH A RAINFALL OF 0.5 INCHES OR MORE. ACCUMULATED SEDIMENT MUST BE REMOVED ONCE THE DEPTH OF SEDIMENT IS EQUAL TO ½ THE HEIGHT OF THE BARRIER. INSPECT FREQUENTLY DURING PUMPING OPERATIONS IF USED FOR DEWATERING OPERATIONS.	– PHYSICAL DAMAGE OR DECOMPOSITION – EVIDENCE OF OVERTOPPED OR UNDERCUT FENCE – EVIDENCE OF SIGNIFICANT FLOWS EVADING CAPTURE – REPETITIVE FAILURE	HAY BALES MAY BE REMOVED AFTER UPHILL AREAS HAVE BEEN PERMANENTLY STABILIZED.

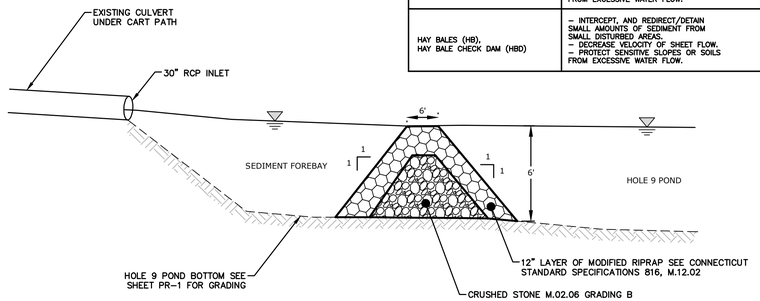


NOTES:

1. DEWATERING PUMP FLOATING INTAKE TO BE USED TO DEWATER CLEAN POND WATER AS LOW AS POSSIBLE.
2. ONCE WATER ELEVATION HAS BEEN LOWERED TURBID WATER PUMP AND DIRTY BAG SHALL BE USED TO DEWATER POND FURTHER. NO TURBID WATER IS TO BE RELEASED FOR THE CONSTRUCTION SITE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DEWATERING PUMP FLOATING INTAKE THAT IS APPROVED BY THE ENGINEER.
4. THE PUMP INTAKE LINE SHALL HAVE A TRASH RACK CAPABLE OF PREVENTING DEBRIS, FISH, TRASH, ETC. FROM ENTERING A BEING DISCHARGED DOWNSTREAM. THE HOUSING STRUCTURE SHALL BE CAPABLE OF ELEVATING THE INTAKE OFF OF THE BOTTOM OF THE POND AS TO ELIMINATE SEDIMENT FROM BEING DRAWN THROUGH THE PUMP AND DISCHARGED DOWNSTREAM.

DEWATERING PUMP FLOATING INTAKE

N.T.S.



RIPRAP FILTER BERM AND SEDIMENT FOREBAY

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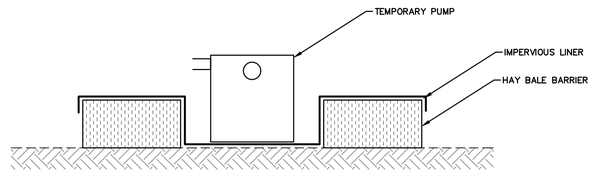

TEMPORARY DEWATERING PUMP CONTAINMENT

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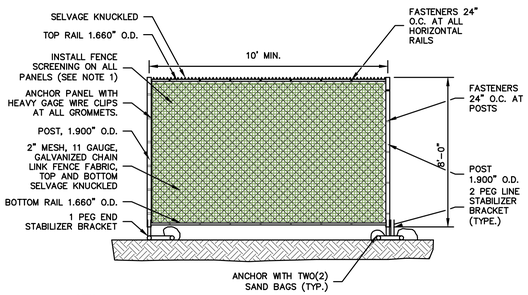
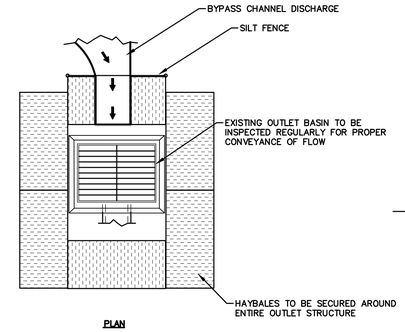


NOTES:

1. FENCE SCREENING PER ARTICLE 9.13.02 IN THE CT STATE STANDARD SPECIFICATIONS.
2. EACH STABILIZER BRACKET SHALL BE SECURED WITH TWO (2) SANDBAGS, MIN. 50 POUNDS EACH.
3. PANELIZED CONSTRUCTION FENCE SHALL ONLY BE USED AT CONSTRUCTION SITE ENTRANCE AREAS, AREAS REQUIRING FREQUENT RELOCATION OF FENCING, OR WHERE PAVED AREAS PROHIBIT INSTALLATION OF EMBEDDED FENCE POSTS.

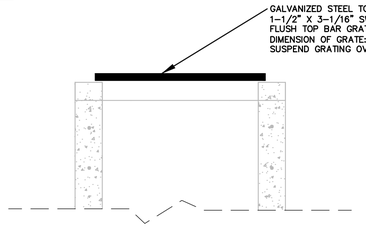
TEMPORARY CONSTRUCTION FENCE

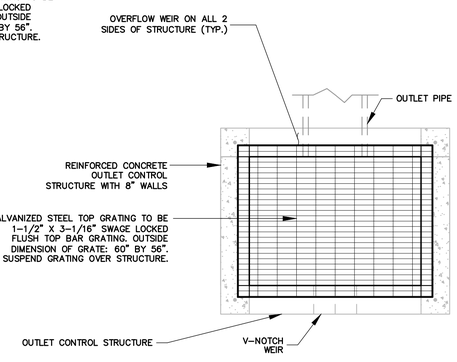
N.T.S.

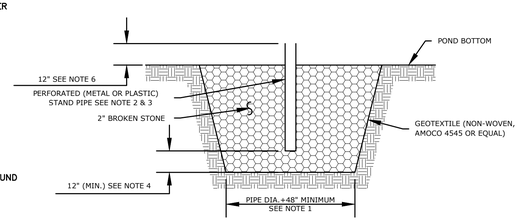


OUTLET STRUCTURE WITH HAYBALE PROTECTION

N.T.S.



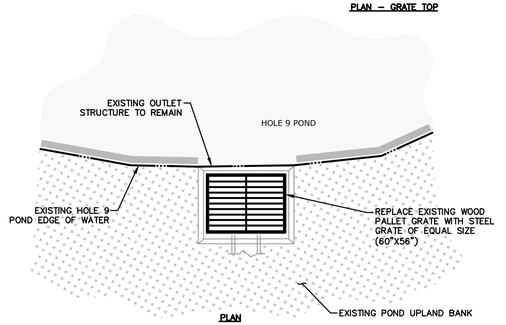




NOTES:
1. OVERALL SUMP PIT DIMENSIONS TO BE COMPATIBLE WITH ANTICIPATED SEEPAGE RATES AND PUMP TO BE USED.
2. THE STAND PIPE DIAMETER AND NUMBER OF PERFORATIONS TO BE COMPATIBLE WITH THE PUMP SIZE BEING USED.
3. PERFORATIONS IN THE STANDPIPE TO BE EITHER CIRCULAR OR SLOTS, PERFORATION SIZE SHALL NOT EXCEED 1/2" DIAMETER.
4. 2" BROKEN STONE SHALL EXTEND A MINIMUM OF 12" BELOW THE BOTTOM OF THE STANDPIPE.
5. A PROPERLY DESIGNED GEOTEXTILE TO BE PLACED BETWEEN THE EXISTING SOILS AND THE CRUSHED STONE BACKFILL.
6. THE STANDPIPE SHALL EXTEND A MINIMUM OF 12" ABOVE THE SURROUNDING GROUND.

TEMPORARY DEWATERING SUMP

N.T.S.



REMOVE AND REPLACE OUTLET STRUCTURE GRATE

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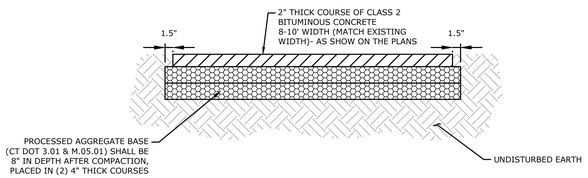
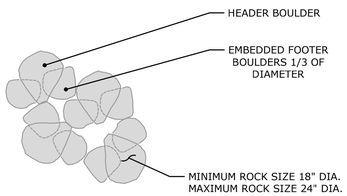


NOTES:

1. REMOVE ALL EXISTING PAVEMENT AND SUBBASE MATERIAL PRIOR TO THE INSTALLATION OF NEW PROCESSED AGGREGATE AND PAVEMENT.
2. ALL SUBBASE MATERIAL AND PAVEMENT SHALL BE REMOVED AND DISPOSED OF OFF-SITE BY THE CONTRACTOR AT HIS OWN EXPENSE TO AN APPROVED LOCATION.

REPLACE BITUMINOUS CONCRETE CART PATH

N.T.S.



PLAN VIEW

NOTES:

1. USE 12-15 BOULDERS PER FISH HABITAT STRUCTURE.
2. INDIVIDUAL BOULDERS PLACED IN THE POND SHOULD BE 18" TO 24" IN DIAMETER.
3. FINISHED ELEVATION OF THE BOULDERS WILL BE DETERMINED IN THE FIELD.
4. FOOTER BOULDERS SHALL BE BURIED TO 1/3 OF THEIR DIAMETER.

FISH HABITAT STRUCTURE

NOT TO SCALE

TEMPORARY TURTLE FENCE

NOTES:

CONDUCT A SURVEY FOR EXISTING TURTLES PRESENT IN THE PROJECT AREA (TO BE COMPLETED BY A QUALIFIED WILDLIFE BIOLOGIST) PRIOR TO INSTALLATION OF SILT FENCE AND TURTLE PROTECTIVE FENCE.

INSTALL TURTLE PROTECTIVE FENCE AROUND THE WORK AREA PRIOR TO THE START OF ANY CONSTRUCTION.

CONDUCT A SECOND SWEEP OF THE PROJECT AREA BY A QUALIFIED WILDLIFE BIOLOGIST PRIOR TO CONSTRUCTION.

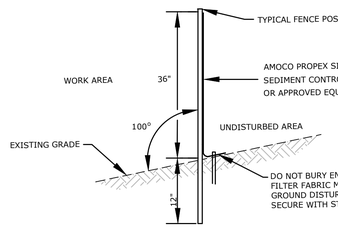
THE TOWN WILL BE RESPONSIBLE FOR INFORMING THE CONTRACTOR OF THE POTENTIAL PRESENCE OF TURTLES WITHIN THE PROJECT SITE AND FURNISHING A DESCRIPTION OF THE TURTLE FOR PROPER IDENTIFICATION PURPOSES. THIS WILL BE ACCOMPLISHED BY INCLUSION OF THE NECESSARY INFORMATION IN THE CONTRACT DOCUMENTS, INCLUDING NOTATIONS ON THE PLANS AND A NOTICE TO CONTRACTOR AND/OR SPECIAL PROVISIONS AS APPROPRIATE.

REMOVE ANY TURTLES DISCOVERED INSIDE THE PROJECT AREA CAREFULLY AND RELOCATE UNHARMED TO AN AREA IMMEDIATELY OUTSIDE OF THE SILT FENCE AND IN THE SAME DIRECTION THE TURTLE WAS WALKING.

RESTRICT MACHINERY AND HEAVY VEHICLES FROM BEING PARKED OR OPERATED IN TURTLE HABITAT. CONFINE PARKING FOR CONSTRUCTION EQUIPMENT WITHIN THE TEMPORARY STAGING AREA DURING NON-WORKING HOURS.

WORK CONDUCTED DURING THE EARLY MORNING AND EVENING HOURS SHOULD OCCUR WITH SPECIAL CARE NOT TO HARM BASKING OR FORAGING INDIVIDUALS.

SILT FENCE (TURTLE PROTECTIVE FENCE) SHOULD BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND SOILS HAVE BEEN STABILIZED TO AVOID RESTRICTING WILDLIFE MOVEMENT.



TEMPORARY TURTLE FENCE
(MODIFIED SILT FENCE)

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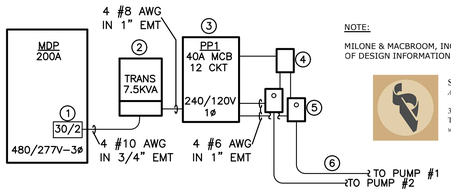
DESCRIPTION	DATE	BY

DETAILS

MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT
16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
DRM	DRM	DM

SCALE: N.T.S.
DATE: APRIL 29, 2016
PROJECT NO.: 2600-05-11
SHEET NO.: 10 OF 11
SHEET NAME: D-2



ONE-LINE RISER DIAGRAM

SCALE: none

*NOTE:
1) ONE-LINE RISER DIAGRAM DETAILS WIRING FOR PUMP HOUSE CONNECTION TO PUMPS.

NOTE:

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ONE-LINE RISER DIAGRAM NOTES

1. PROVIDE NEW 30A, 2-POLE BREAKER IN EXISTING MDP TO SERVE NEW TRANSFORMER.
2. REMOVE EXISTING 3KVA TRANSFORMER AND PROVIDE NEW 7.5KVA, 1ø, 480V TO 240V DRY-TYPE TRANSFORMER. PROVIDE REQUIRED GROUNDING PER NEC.
3. REPLACE EXISTING LOAD CENTER WITH NEW 12 CIRCUIT LOAD CENTER. SWAP FOUR EXISTING 120V, 20A CIRCUITS INTO NEW PANEL. PROVIDE SIX 20A/1-POLE BREAKERS AND TWO 20A/2-POLE BREAKERS.
4. PROVIDE 120V, 7-DAY TIME CLOCK WITH TWO INDEPENDENTLY CONTROLLED CIRCUITS. EACH CIRCUIT SHALL SERVE THE COIL OF ONE PUMP CONTACTOR.
5. PROVIDE TWO 240V, 20A, ELECTRICALLY HELD CONTROLLERS TO SERVE NEW PUMPS. CONTROLLERS SHALL HAVE HAND/OFF/AUTO SWITCH WITH AUTO SETTING CONNECTED TO TIME CLOCK OUTPUT.
6. PROVIDE 240V, 20A, 1ø BRANCH CIRCUIT TO EACH OF TWO NEW PUMPS. USE 4 #6 AWG FOR EACH COMBINED IN ONE 1-1/2" PVC. COORDINATE LOCATIONS WITH SITE PLAN.

ELECTRICAL SPECIFICATIONS

I. ELECTRICAL GENERAL REQUIREMENTS

A. ALL WORK SHALL COMPLY WITH CONNECTICUT STATE BUILDING CODE AND CONNECTICUT STATE FIRE SAFETY CODE AND SHALL BE ACCOMPLISHED IN A NEAT AND WORKMAN LIKE MANNER.

B. MATERIAL & EQUIPMENT SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES.

C. SUBMITTALS:
1. SUBMIT PRODUCT DATA, SHOP DRAWINGS, RECORD DRAWINGS AND O&M MANUALS WHERE REQUIRED BY INDIVIDUAL SPECIFICATION SECTIONS.
2. SUBMIT THREE COPIES TO OWNER.

D. ELECTRICAL INSTALLATION:
1. COORDINATE ELECTRICAL SYSTEMS, EQUIPMENT AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS. REFER ALL CONFLICTS TO ENGINEER BEFORE CONTINUING WITH WORK.
2. INSTALL SYSTEMS TO PROVIDE MAXIMUM HEADROOM POSSIBLE UNLESS INDICATED OTHERWISE.
3. INSTALL SYSTEMS LEVEL, PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS.
4. INSTALL EQUIPMENT TO FACILITATE REPAIR, MAINTENANCE OR REPLACEMENT.
5. PERFORM CUTTING AND PATCHING REQUIRED TO REMOVE AND REPLACE DEFECTIVE WORK OR WORK NOT CONFORMING TO REQUIREMENTS OF CONTRACT DOCUMENTS.
6. CONTRACTOR SHALL LEAVE THE ENTIRE ELECTRICAL SYSTEM IN PROPER WORKING ORDER AND SHALL, WITHOUT ADDITIONAL CHARGE, REPLACE ANY WORK, MATERIALS, OR EQUIPMENT FURNISHED & INSTALLED BY HIM UNDER THIS WHICH DEVELOP DEFECTS, EXCEPT FROM NORMAL WEAR & TEAR, WITHIN ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER.

II. RACEWAYS, BOXES AND FITTINGS

A. COMPONENTS AND INSTALLATION SHALL COMPLY WITH NFPA 70 & NEMA AND SHALL BE UL LISTED.

B. INTERIOR RACEWAYS SHALL BE ELECTRICAL METALLIC TUBING.

C. EXTERIOR RACEWAYS ABOVE GROUND SHALL BE RIGID METAL CONDUIT OR LIQUID-TIGHT FLEXIBLE METAL CONDUIT (MAX. LENGTH 5').

D. EXTERIOR RACEWAYS BELOW GROUND SHALL BE RIGID METAL CONDUIT OR SCHEDULE 40 PVC.

E. USE RACEWAY FITTINGS COMPATIBLE WITH ASSOCIATED RACEWAY AND APPLICATION.

F. BOXES SHALL BE STEEL CONFORMING TO UL 514A AND NEMA OS1. FITTINGS SHALL CONFORM TO UL 514B.

III. BUILDING WIRE

A. WIRE SHALL COMPLY WITH UL 83 AND NEMA WC-5. CONNECTORS SHALL COMPLY WITH UL 486A.

B. CONDUCTORS SHALL BE COPPER AND INSULATION SHALL BE THHN/THWN.

C. INTERIOR WIRING SHALL BE BUILDING WIRE IN CONDUIT WHERE EXPOSED.

IV. SUPPORTING DEVICES

A. SUPPORTS, HARDWARE AND FASTENERS SHALL BE PROTECTED WITH ZINC COATING UNLESS STAINLESS IS SPECIFIED.

B. SLEEVES SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE.

C. CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR SELECTION AND INSTALLATION OF SUPPORTS AND CONFORM TO THE FOLLOWING:
1. SUPPORT INDIVIDUAL HORIZONTAL RACEWAYS BY SEPARATE PIPE HANGERS.
2. SUPPORT RACEWAY WITHIN ONE FOOT OF ANY UNSUPPORTED BOX.

D. INSTALL SLEEVES IN CONCRETE SLABS AND WALLS, AND FIRE RATED WALLS AND FLOORS. APPLY UL LISTED FIRE STOPPING MATERIAL WHERE REQUIRED.

V. ELECTRICAL IDENTIFICATION

A. PROVIDE EQUIPMENT IDENTIFICATION LABELS OF ENGRAVED PLASTIC LAMINATE FOR CONTROL PANELS, PANELBOARDS & DISCONNECTS.

B. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NFPA 70 AND ANSI A13.1.

C. PROVIDE TYPED PANELBOARD CIRCUIT DIRECTORY FOR EACH PANELBOARD.

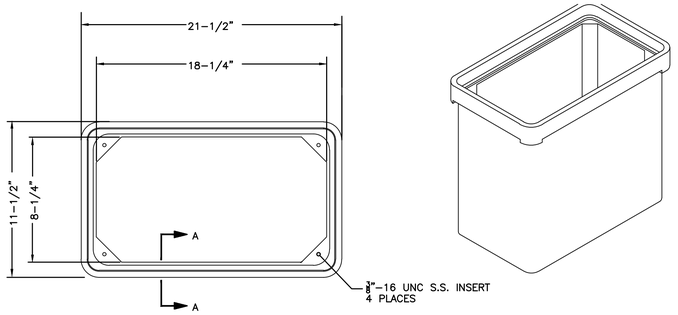
D. PROVIDE UNDERGROUND WARNING TAPE FOR ALL BURIED ELECTRICAL SERVICES.

VI. PANELBOARDS

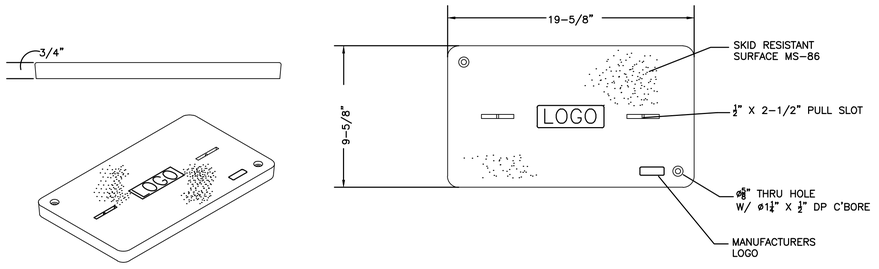
A. PANELBOARD SHALL BE 240/120 VOLT, 1 PHASE. USE CUTLER-HAMMER POW-R-LINE 1a OR EQUAL BY SIEMENS, SQUARE D OR GE.

ELECTRIC HEATER

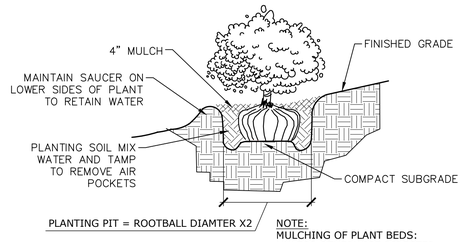
REMOVE AND REPLACE EXISTING ELECTRIC UNIT HEATER WITH NEW HEATER EQUAL TO QMARK MODEL MUH0541, 5KW, 480V, 3-PHASE. PROVIDE REMOTE 24V THERMOSTAT WIRED TO CONTROL TRANSFORMER FURNISHED WITH HEATER. PROVIDE NEW WIRING (4 #12 AWG) IN IN EXISTING CONDUIT FROM EXISTING 20A, 3-POLE BREAKER IN MDP TO NEW HEATER. VERIFY COMPATIBILITY WITH EXISTING WALL BRACKET OR FURNISH & INSTALL NEW BRACKET.



IN-GROUND PULL BOX DETAIL
N.T.S.

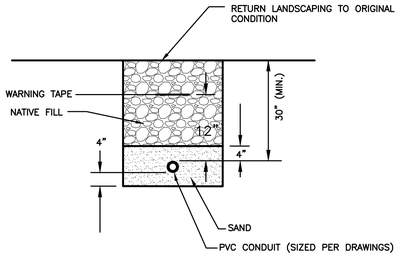


PULL BOX COVER DETAIL
N.T.S.



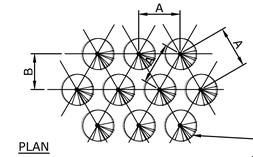
NOTE:
MULCHING OF PLANT BEDS:
UNLESS OTHERWISE DIRECTED SHREDDED MULCH SHALL BE PLACED TO A LIMIT OF TWO FEET BEYOND THE CENTER OF THE OUTERMOST SHRUBS IN SHRUB BED.

SHRUB PLANTING
N.T.S.



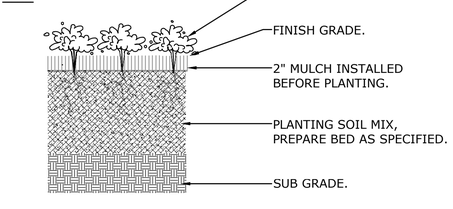
TYPICAL TRENCHING AND BACKFILLING DETAIL
N.T.S.

NOTES:
1. TRENCHING DETAIL IS A TYPICAL DETAIL ALL CONSTRUCTION WORK SHOULD FOLLOW STATE OF CONNECTICUT BUILDING CODE OR APPLICABLE TOWN OF GLASTONBURY CODES.



GROUND COVER SPACING TABLE

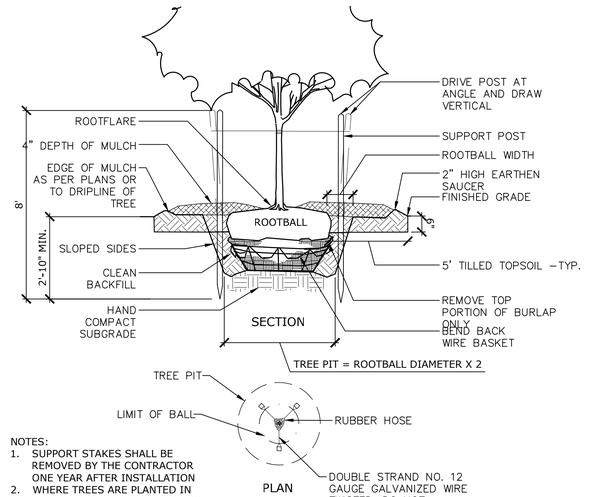
PLANT SPACING "A"	ROW SPACING "B"	NO. OF PLANTS	AREA UNIT
10" O.C.	8.66"	1.66	1 SQ. FT.



SECTION

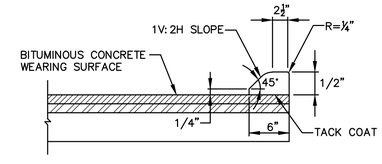
NOTES:
1. ALL GROUND COVER TO BE PLANTED IN TRIANGULAR PATTERN. SEE DETAIL PLAN AND GROUND COVER SPACING TABLE.

GROUNDCOVER / PERENNIAL PLANTING
N.T.S.



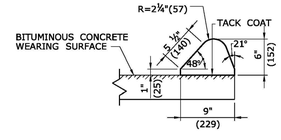
NOTES:
1. SUPPORT STAKES SHALL BE REMOVED BY THE CONTRACTOR ONE YEAR AFTER INSTALLATION
2. WHERE TREES ARE PLANTED IN COMPACTED SOILS CONTRACTOR TO ENSURE PLANT PIT DRAINS 1.5"/ HOUR

TREE PLANTING
N.T.S.



1/2" BITUMINOUS CONCRETE LIP CURBING
N.T.S.

*NOTE:
1) ALL CURBING TO BE BITUMINOUS CONCRETE UNLESS NOTED ON THE PLANS.
2) BITUMINOUS CONCRETE CURB MATERIAL SHALL CONFORM TO SECTION M.04 BITUMINOUS CLASS 3.
3) THE ½" BITUMINOUS CONCRETE LIP CURBING MAY BE POURED OR PLACED BY HAND DURING AND/OR PRIOR TO INSTALLATION OF BITUMINOUS CONCRETE WEARING SURFACE.



6" BITUMINOUS CONCRETE LIP CURBING
N.T.S.

*NOTE:
1) ALL CURBING TO BE BITUMINOUS CONCRETE UNLESS NOTED ON THE PLANS.
2) BITUMINOUS CONCRETE CURB MATERIAL SHALL CONFORM TO SECTION M.04 BITUMINOUS CLASS 3.

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www.miloneandmacbroom.com

DESCRIPTION	DATE	BY

DETAILS

MINNECHAUG GOLF COURSE HOLE 9
POND MAINTENANCE PROJECT

16 FAIRWAY CROSSING
GLASTONBURY, CONNECTICUT

DESIGNED	DRAWN	CHECKED
DRM	DRM	DM

SCALE: N.T.S.
DATE: APRIL 29, 2016
PROJECT NO.: 2600-05-11
SHEET NO.: 11 OF 11

D-3
SHEET NAME