TOWN OF CONCORD
DEPARTMENT OF PLANNING AND LAND MANAGEMENT
DIVISION OF NATURAL RESOURCES

WARNER'S POND RESTORATION PROJECT

PROJECT #2243

ADDENDUM #1

To: All Prospective Bidders

From: Delia Kaye, Natural Resources Director

Date: August 29, 2022

Re: **Contract No. 2243 – Warner's Pond Restoration Project**
Addendum #1

==========

Please be advised that the information provided below comprises Addendum #1.

The pre-bid conference was held on Monday, August 15, 2022. Following the pre-bid conference, written questions were received regarding the project. Potential bidders should note the following.

Representatives Present:
Delia Kaye, Town of Concord
Alex Patterson, EA Engineering, Science, and Technology, Inc., PBC
Amy Hunt, EA Engineering, Science, and Technology, Inc., PBC
Mike Bissonnette, Charter Contracting
Bill Peach, T Ford
Bill Simons, JF Brennan
Andrew Timmis, JF Brennan
Mike Rose, LEI
Travis Sumner, SumCo Eco-Contracting
Brian Scholten, SumCo Eco-Contracting
Jim Murray, E.T. & L Corp

Prospective Bidders and all concerned are hereby notified of the following changes in the Contract Documents of the WARNER'S POND RESTORATION PROJECT in CONCORD, MA. These changes shall be incorporated in and shall become an integral part of the Contract Documents. The number (No. 1) and date (August 29, 2022) of this addendum shall be entered into the space provided on the Bid Form.

TOWN OF CONCORD, MASSACHUSETTS
WARNER'S POND RESTORATION PROJECT
BID NO. 2243
ADDENDUM NO. 1
August 29, 2022

The following information is provided as part of the Contract Documents as Addendum No. 1.

GENERAL INFORMATION

1. Sealed Bids for construction of **CONTRACT 2243, "WARNER'S POND RESTORATION PROJECT"** shall be received by the Town of Concord at the Assessor's Conference Building, 24 Court Lane, Concord, Massachusetts 01742, until **2:00 PM on TUESDAY, SEPTEMBER 6, 2022** and at that time shall be publicly opened and read aloud. Bids submitted after this time will not be accepted. Bids will be opened at the Assessor's Conference Building, 24 Court Lane, Concord, Massachusetts 01742.

INSTRUCTIONS TO BIDDERS

Delete Section 1.25 B in its entirety.

BID FORM

1. A revised Bid Form has been included as part of this addendum. This Bid Form replaces the previous Bid Form.
    - Wetland Shelf Creation has been combined with Dredging North Dredge Area
    - Gravel Access Road has been removed from Commonwealth Avenue Access Improvements and added as a unit price bid item.
    - Asphalt Disposal has been removed from Commonwealth Avenue Access Improvements and added as a unit price bid item.
    - Transportation and Disposal of dredged non-contaminated materials has been removed from Bid Item No. 10. New Bid Item Nos. 11 and 12 include transportation and disposal of non-contaminated materials to a licensed disposal facility and to the Sediment Disposal Area, respectively.

PRICE AND PAYMENT PROCEDURES

1. Specification 012000 - Price and Payment Procedures Specification has been revised and included as part of this addendum. This revised specification replaces the previous specification.
    - Revisions to the Mobilization/Demobilization & Site Preparation bid item.
    - Wetland Shelf Creation has been combined with Dredging North Dredge Area
    - Gravel Access Road has been removed from Commonwealth Avenue Access Improvements and added as a unit price bid item.

- Asphalt Disposal has been removed from Commonwealth Avenue Access Improvements and added as a unit price bid item.
- Transportation and Disposal of dredged non-contaminated materials has been removed from Bid Item No. 10. New Bid Item Nos. 11 and 12 include transportation and disposal of non-contaminated materials to a licensed disposal facility and to the Sediment Disposal Area, respectively.

TRANSPORTATION AND DISPOSAL

1. Specification 02 61 00 – Transportation and Disposal Specification has been revised and included as part of this addendum. This revised specification replaces the previous specification.
    - The Shipping Documentation and Certificate of Disposal sections have been revised.
    - Alternate disposal locations have been added.

SOLIDS PROCESSING

1. Specification 02 73 00 – Solids Processing Specification has been revised and included as part of this addendum. This revised specification replaces the previous specification.
    - Information has been added to the specification regarding soil reagents and amendments.
    - Summary section has been updated.
    - Performance Requirements section has been updated.
    - Additional requirements have been added to the Solids Processing Plan.
    - Definitions have been updated.
    - Dewatering Area and Geotextile Tube Dewatering sections have been updated.

DREDGING

1. Specification 35 20 23 - Dredging Specification has been revised and included as part of this addendum. This revised specification replaces the previous specification.
    - The over dredge allowance has been removed from the specification.
    - Information for the wetland shelf has been added.
    - Information on decontamination of the hydraulic pipeline has been added.

CONTRACT DRAWINGS

1. The following sheets have been revised and shall replace the corresponding sheets from the original contract documents:
    a. Sheet C-301
    b. Sheet C-501

The following question were submitted by Bidders via email during the Question Period.

1. Question: Can you provide the XYZ files for the dredge survey and the Auto CAD drawings?
   Response: AutoCAD files for the project will be provided to the selected contractor.

2. Question: Is it anticipated that the dewatering area will require any major site work?
   Response: See response to Question 6.

3. Question: Under site restoration 3.12 Restoration of Dewatering Area it references that any disturbed areas that remain idle for more than 14 days need to be stabilized. Is it the intent this needs to be done in areas that have been restored even though other areas are still under the restoration process?
   Response: Yes.

4. Question: Seed establishment requires a very detailed watering plan and for the first entire first growing season. Is this required even if the growth is established?
   Response: Section 32 90 00 – SITE RESTORATION, Part 3.11 A. outlines the watering plan to be completed by the contractor for seeded areas over the course of a 42-day period following seeding. As outlined in Section 32 90 00 – SITE RESTORATION, Part 3.11 H., the vegetation establishment period for seeded areas shall continue until all conditions listed in 1 through 6 are met.

5. Question: Does the project have to start this year? Based on current delivery time for geotextile tubes and chemicals the earliest it could start would be end of Oct or early November with a contract in place by the 3rd week in September.
   Response: The project schedule is provided in the contract documents. Bidders seeking to deviate from this schedule should provide an alternative schedule with their bid along with a written explanation documenting the rationale for the alternative schedule.

6. Question: Is it anticipated that the dewatering pad will need to be developed to produce a flat area with a .5% slope to the sediment basin? The pad will also need a minimal liner for the pad and the basin. Preliminary evaluation will require the top 6' of topsoil to be removed and a 3' cut and fill to meet the minimum standard for the use of geotextile bags.
   Response: Contractor shall regrade dewatering area to create slopes that will prevent geotubes from rolling or install precast concrete median barriers that are at least 1/2 of the geotube manufacturers recommended fill height. See amended notes on Sheet C-501.

7. Question: As part of the modifications to the launch area (Boat Launch) will the access road be able to be widened to allow a large crane and tractor trailers? There is one tree in particular that is likely obstructing access. Also, can the entrance off

Commonwealth Ave be modified to remove the sidewalk and drain swale to allow grade of the Commonwealth Ave to match the access road? Based on the current configuration trailers will not be able to clear the road, they will bottom out.
Response: Some clearing to facilitate construction access is acceptable. Bidders should include a plan showing clearing limits with the bid response. Any trees removed shall be replaced. Yes, the entrance can be modified, and the speed bumps removed to provide a more uniform travel surface. Any cost anticipated for this should be carried in Bid Item 1.

8. Question: Can the area adjacent to the water where the boat launch is located be cleared to allow the crane to be closer to the water to place the dredge into the water. Based on the current space and the distance to a water depth to place the dredge (20") it will require a very large crane which is expensive and may have trouble maneuvering at the launch site.
Response: It is not the Town's desire to clear native vegetation near the boat launch. If clearing is proposed, Bidders should include a plan showing the clearing limits with the bid response. Any cleared vegetation will need to be replanted. Any cost anticipated for this should be carried in Bid Item 1.

9. Question: Will trimming of the tree branches be allowed on the northern side of the launch area to provide access for the crane to remove the dredge sections from the trucks.
Response: Yes. The Contractor will be required to coordinate trimming with the Town of Concord prior to undertaking this work. Any cost anticipated for this should be carried in Bid Item 1.

10. Question: The placement of the dredge material at the disposal site calls for a fairly steep slope. Is there any information available regarding what the strength of the material once it has been dewatered? If the material is not capable of holding its shape will the contractor be required to add pozzolans to the sediment to add strength? If so, how should that be priced? If not will allowances be made to adjust the finished slopes?
Response: Geotechnical samples indicate that on average 80% of the dredge material on a dry mass basis is sand and gravel and would be stable at the 18.4 degree slopes proposed for the disposal site. To improve workability of the dredge material the contractor shall amend the dredge material with Type I Portland cement prior transporting to the disposal area. To achieve a uniform consistency, the contractor shall assume that the in-situ bulk density of sediment is 1.5 tons/CY (111 pcf) and add Type I Portland cement at 1% of the mass of sediment by converting the surveyed dredge volume to a mass using the assumed unit weight above. The Solids Processing Specification has been revised accordingly to reflect this change.

11. Question: Bid Items:
    a. Where should we include the dewatering area site improvements and

restoration
Response: Dewatering area site improvements should be included under Bid Item No. 1 – Mobilization/Demobilization & Site Preparation. Restoration of the dewatering area should be included under Bid Item No. 4 – Site Restoration.

b. Is Item 10 to include the dewatering and all the items associated with that and the loading and transportation to the prison?
Response: Yes.

c. Where should we include disposal of the geotextile tubes
Response: Disposal of geotextile tubes should be included in Bid Item No. 1 – Mobilization/Demobilization & Site Preparation.

d. Bid item 12 has a quantity of only 6 tons. Is this correct?
Response: (Bid Item 12 has been changed to Bid Item 13). The quantity for Bid Item No. 13 is 630 tons. The Bid Form has been revised accordingly.

e. How should wait time and delays be accounted for when bring the material into the prison. Based on Section 01 80 00. 1.09 E trucks are only allowed to enter the facility 3 times each day and they may not all be during standard working hours, and there is nothing to say how many trucks can enter at a time. Can we get this clarified?
Response: The prison will open the facility for three one-hour time windows each day between the hours of 8:00 am and 3:00 pm during which trucks may enter/leave the prison facility grounds. Up to three trucks may be on the prison facility grounds at any one time. The Contractor may elect to dispose of the material at a licensed disposal facility. The Transportation and Disposal, Solids Processing and Price and Payment Procedures Specifications have been edited to reflect this change.

12. Question: At the site walk it was discussed that the arsenic contaminated sediment would need to be pumped into a separate bag to be tested. Can you confirm that if the material in that tube is tested and is below the threshold the bag can continued to be filled with clean material?
Response: This has been confirmed.

13. Question: Wetland Shelf
    a. Based on drawing Section D-D it looks like the core log is to be installed underwater. Is this correct?
    Response: Yes. Please see updated coir log detail on Sheet C-301.

    b. What is the condition of the existing sediment in the placement area? Will

there be any consideration for settling or consolidating for final approval?
Response: Existing sediment in the placement area is expected to be similar to the dredge areas, consisting of approximately 12 inches of organic muck underlain by fine to coarse sandy material. A tolerance of +/- 6 inches (0.5 feet) from the wetland shelf surface design elevation is acceptable.

c. Is it anticipated that the finish surface of the shelf will be smooth and level or with there be tolerances plus or minus across the shelf be acceptable. If so, what would that be?
Response: A tolerance of +/- 6 inches (0.5 feet) across the wetland shelf surface is acceptable.

d. Based on Section D-D the finished slope for the edge of the shelf is 3:1. Is that a requirement?
Response: The wetland shelf must be constructed within the footprint indicated in the project plans and the surface area of the wetland shelf surface must be substantially as indicated on the project plans. Therefore, the side slopes of the wetland shelf will be required to be substantially as indicated on the project plans. Refer to the updated Section D-D' detail on Sheet C-301.

e. It is required to install turbidity curtain around the dredge shelf to contain turbidity. It is hard to determine what samples were collected in the Northern Dredge area but based on the material information in Material testing reports but on average there is 20% passing the #200 Sieve. Based on this there will be a lot of turbidity expected during the installation of the dredge material. Are there limits to the turbidity outside of the turbidity curtain? Based on the flow rate of the dredge material into the shelf construction area is the contractor expected to install pipes or structures to keep the turbidity curtain in place.
Response: Please review the project permits (Appendix A to the contract documents) with regard to requirements for turbidity during construction activities. If pipes or other structures are required to keep the turbidity curtain in place, the Contractor will be expected to furnish and install said structures.

14. Question: Will a Nationally Certified Hydrographer be acceptable for all bathymetric survey work.
Response: Yes.

15. Question: Please reference Special Provisions regarding Provisions for Travel and Prosecution of the Work and confirm that the Town will waive all fees pertaining to Right-Of-Way/Trench Permit and Building Permit.

Response: This has been confirmed.

16. Question: Please confirm that the Access Ramp to the pond can be closed to the public during construction.
    Response: This has been confirmed.

17. Question: Please reference Drawing G-002 Sedimentation and Erosion Control Note #3 stating that existing vegetation shall be protected. Access to the Pond is proposed along the Canoe Launch off Commonwealth Ave shown on C-109. Can trees and branches along the existing access road to the pond be removed to the limit of disturbance as needed to facilitate over-width trailers?
    Response: Some clearing to facilitate construction access is acceptable. Bidders should include a plan showing clearing limits with the bid response.

18. Question: To launch a dredge from the proposed location, it will be necessary to dredge out a channel to access the deeper water of the pond. Can the dredge spoil be temporarily located on the Access Road for replacement after dredging operations are complete?
    Response: This is acceptable provided that (1) temporary dredging for pond access removes no more than 100 cubic yards of material, (2) dredged material temporarily stockpiled at the access location is surrounded by appropriate erosion and sedimentation control measures, and (3) a turbidity barrier is installed and maintained around active dredging operations. The Contractor shall provide a plan for dredging and temporary stockpiling of dredged material at the access location in their work plan.

19. Question: Please reference Drawing G-002 Maintenance Notes and confirm that the Town will be responsible for Note #1 concerning Grasses Channel Maintenance.
    Response: This has been confirmed.

20. Question: Please reference Drawing C-104 and C-301 showing Coir Logs to be installed at the perimeter of the Wetland Shelf. Please confirm that the Town desires these to be placed under water.
    Response: This has been confirmed.

21. Question: Please reference Drawing C-109 and advise of the thickness of ¾" crushed stone to be placed on the existing access road.
    Response: Assume a thickness of 3 inches. The asphalt removal and disposal and gravel installation have been revised to a unit bid price in the Bid Form.

22. Question: Please reference Specification Section 01 45 25 Par 1.3 and confirm that the Contractor is to pay for Arsenic Sampling laboratory costs. If so, what turnaround time is desired by the Town?
    Response: Confirmed. Standard turnaround time is acceptable.

23. Question: Please confirm that Arsenic Sampling will only be needed for the material dredged around Sediment Cores SC4-A, SC4-B, and SCA4-C (approximately 646 CY).
Response: This has been confirmed.

24. Question: The water depth of 116.5' is from a survey performed 5 years ago. What is the expected water depth during construction?
Response: The water depth in the pond does not vary significantly due to the presence of the dam. It is anticipated that the water depth during construction will be approximately 116.5'.

25. Question: What is the projected start date?
Response: See the response to Question 5.

26. Question: What is the engineer's estimate?
Response: The Town declines to provide a response to this question.

27. Question: The plans reference on G-002 that the material being dredged is medium-fine sand. However, the geotechnical data states that the material is mainly silt soil. Please clarify what we should assume.
Response: The geotechnical analysis reports generally describe the material as "fine silty soil" however the grain size analysis results provided in the reports indicates, on average, 20% of sampled material passing the #200 sieve and 2% of material passing the ¼" sieve. Thus, the material is, on average, approximately 20% fines, 2% gravel, and 78% fine to coarse sand.

28. Question: For the potentially contaminated sediment dredging area, please clarify the engineer's expectations of how the Contractor is expected to dewater the material in a "manner that prevents contamination from spreading."
Response: Sediment from within the potentially contaminated sediment dredging area must be pumped directly to a separate geotube, dewatered, and tested at the temporary sediment dewatering area. Based on the results of material testing, the material will be disposed in the same manner as the remainder of the dredged material from the project (if below the S-1/GW-1 standard for arsenic) or at an approved disposal facility (if above the S-1/GW-1 standard for arsenic). The water produced during the dewatering process will not require special handling.

29. Question: The construction access from Commonwealth Avenue is very narrow and has trees that prevent any suitable dredge for this project from passing through. If more room is not made, a smaller dredge will be required, resulting in higher prices per cubic yard due to lower production. Can the Contractor remove trees along the road from Commonwealth Avenue to the boat launch area? This will allow a sufficient 12' wide load to pass through and allow the Town to have a suitable size dredge that will reduce project costs.
Response: See response to Question 17.

30. Question: The Work Schedule in the specifications states that work can only occur between 7-5 M-F. Given the wintertime frame of this project and that this is a water dredging project, it is in the Town's best interest to allow more work hours per week for the project to be completed on time. In addition, more hours per week will also result in the lowest cost to the Town. Could the Town allow work 12- hrs per day, 7 days per week, at the dredging site (not including the prison)?
    Response: Work is within a residential area and will not be permitted outside normal working hours of 7-5 M-F.

31. Question: The dredge spoils will be pumped immediately onto the wetland shelf in one operation. Can the bid item No. 7 Dredging North Dredge Area and Bid Item No. 11 Wetland Shelf Creation be combined into one pay item to avoid pricing complexity and overcharging?
    Response: Yes. The Price and Payment Procedures Section has been revised to combine these two Bid Items.

32. Question: Why is there CY different for Bid Items No. 8 and No. 10 when the same amount of yards will be processed that are dredged?
    Response: The total volume of material to be dredged is not equal to the total volume of material to be processed due to the placement of much of the material to be dredged from the North Dredge Area directly at the wetland shelf.

33. Question: Is the 1' of over dredge paid for?
    Response: There is no over dredge allowance for the project. Sheet C-301 has been revised to remove over dredge surface. The Dredging section has been revised to remove references to over dredge allowance.

34. Question: Can the engineer/town provide more information on the expected type and quantity of debris that will be dredged?
    Response: There is no specific information available related to whether, what type, or what quantity of debris may be encountered in the pond during dredging.

Should you have any questions, please contact Delia Kaye, Natural Resources Director at (978) 318-3285 or dkaye@concordma.gov.

Thank you for your interest in this project.

Attachments
Revised Bid Form
Revised Price and Payment Procedures
Revised Transportation and Disposal Section
Revised Solids Processing Section
Revised Dredging Section
Revised Contract Drawing Sheets

SECTION 00300

BID FORM

PART 1 GENERAL

1.01 SCHEDULE OF BID ITEMS

A. The following Schedule of Bid Items shall be completed in ink or typewritten. All item prices must be entered in both words and figures and extended by the Bidder. In case there is a discrepancy between the item prices shown in words and figures, the amount shown in words shall govern. In case there is a discrepancy between the total bid price and the correct extension and the sum of the amounts for each bid item, the latter will govern.

B. Where the Schedule of Items consists of more than one (1) item, the total bid price for the Contract, calculated as above and entered at the end of the schedule, is not a part of the Bid, but is to be used solely for the comparison of bids to determine the apparent low bidder.

C. Failure to submit a formal Bid in accordance with the requirements of the Section 00100 INSTRUCTIONS FOR BIDDERS will be considered sufficient grounds for rejection of the entire Bid Proposal.

D. Bidders must fill in a price for all items in the bid.

E. ALL QUANTITIES IN THE BID FORM ARE ESTIMATED FOR COMPARISON OF BIDS.

1.02 DEFINITIONS OF TERMS AND ABBREVIATIONS USED IN THE BID

A. Where any of the following abbreviations are used in the Bid, they shall have the meaning set forth opposite each.

Alt.	Alternate	Min.	Minimum
AC	Asbestos-Cement	M.H.	Manhour
CIP	Cast Iron Pipe	N/A	Not Applicable
CMP	Corrugated Metal Pipe	PE	Polyethylene
C.F.	Cubic Foot	psi	Pounds per Square inch
C.Y.	Cubic Yard	PVC	Polyvinylchloride
D.I.	Ductile Iron	R.C.	Reinforced Concrete
DIP	Ductile Iron Pipe	RCP	Reinforced Concrete Pipe
Dia.	Diameter	R.O.W.	Right of Way
EA	Each	SDR	Standard Dimensional Ratio
F.A.	Fees Allowance	S.F.	Square Foot
HDPE	High Density Polyethylene	S.Y.	Square Yard
lbs.	Pounds	T.N	Ton
L.F.	Linear Feet	V.C.	Vitrified Clay
L.S.	Lump Sum	V.F.	Vertical Feet
		w/	with

CONTRACT # 2243
"WARNER'S POND RESTORATION PROJECT"

The undersigned declares that the only persons or parties interested in this Bid as principals are as stated; that the Bid is made without any collusion with other persons, firms, or corporations; that all the Contract #2243 documents have been carefully examined; that the undersigned is fully informed in regard to all conditions pertaining to the Work and the place where it is to be done, and from them the undersigned makes this Bid. These prices shall cover all expenses incurred in performing the Work required under the Contract Documents, of which this Bid Form is a part.

Bids for this Contract are subject to the provisions of M.G.L. Chapter 30, Section 39M.

If a **Notice of Award** accompanied by at least three unsigned copies of the Agreement and all other applicable Contract Documents is delivered to the undersigned within forty-five days, excluding Saturdays, Sundays, and legal holidays after the actual date of the opening of the Bids, the undersigned will within five days, excluding Saturdays, Sundays, and legal holidays, after the date of receipt of such notification, execute and return all copies of the Agreement and all other applicable Contract Documents to OWNER. The premiums for all Bonds required shall be paid by CONTRACTOR and shall be included in the Contract Price. The undersigned Bidder further agrees that the Bid Security accompanying this Bid shall become the property of OWNER if the Bidder fails to execute the Agreement as stated above.

Accompanying this Bid in a separate attached envelope is a certified bid bond or check, for 5% of the bid, payable to the Town of Concord to secure said Town against the failure of the undersigned to execute the Contract and furnished satisfactory bonds under the Conditions and within the time specified in this Bid.

The undersigned hereby agrees that the Contract Time shall commence ten days following the Effective Date of the Notice to Proceed and to advance the Work to substantial completion within **two hundred twenty-nine (229)** Calendar Days following the Effective Date of Notice to Proceed, in accordance with the terms as stated in the Agreement.

The undersigned acknowledges receipt of addenda numbered:

_____

Within five (5) days from the date of the "Notice of Award" (excluding Saturdays, Sundays and legal holidays), the Contractor has to execute the Contract and to furnish the Town a satisfactory Performance Bond and Labor and Material Payment Bond as set forth in Specification Section 00100 "INSTRUCTIONS FOR BIDDERS".

Contract #2243 Bid Form Town of Concord Warner's Pond Restoration Project					
			BASE BID		
ITEM NO.	**QUANTITY**	**UNIT**	**ITEM DESCRIPTION WITH UNIT BID PRICE WRITTEN IN WORDS**	**UNIT PRICE**	**AMOUNT**
1		LS	Mobilization/Demobilization AT _____ Per Lump Sum		
2		LS	Temporary Erosion and Sedimentation Controls AT _____ Per Lump Sum		
3		LS	Commonwealth Avenue Access Improvements AT _____ Per Lump Sum		
4		LS	Site Restoration AT _____ Per Lump Sum		
5		LS	Wetland Shelf Planting AT _____ Per Lump Sum		
6		LS	Invasive Species Removal AT _____ Per Lump Sum		
7	5,000	CY	Dredging North Dredge Area & Wetland Shelf Creation AT _____ Per Cubic Yard		
8	30,800	CY	Dredging South Dredge Area AT _____ Per Cubic Yard		
9	100	TN	Dredged Debris Removal AT _____ Per Ton		
10	32,000	CY	Processing Dredge Material AT _____ Per Cubic Yard		
11	43,200	TN	Transport and Disposal of Non-Contaminated Materials at Licensed Disposal Location AT _____ Per Cubic Yard		
12	3,200	CY	Transport and Disposal of Non-Contaminated Materials at Sediment Disposal Area AT _____ Per Cubic Yard		
13	630	TN	Transportation and Disposal of Contaminated Material AT _____		

			Per Ton		
14	400	TN	Loam AT _____ Per Ton		
15	400	TN	Sand AT _____ Per Ton		
16	90	CY	Gravel Access Road AT _____ Per CY		
17	46	TN	Asphalt Disposal AT _____ Per Ton		
TOTAL BASE BID					

Amounts shall be shown in both words and figures, where indicated. In case of discrepancy, the amount shown in words will govern.

The undersigned agrees that extra work, if any, will be performed in accordance with Article 10 of the General Conditions and Supplementary Conditions and will be paid for in accordance with Article 11 of the General Conditions and Supplementary Conditions.

A Payment Bond in the amount of 50% of the total contract price shall be provided by the Contractor.

The above prices shall include all labor, materials, bailing, shoring, removal, overhead, profit, insurance and incidentals required to complete the Work.

The names and residences of all persons and parties interested in the foregoing Bid as principals are as follows:

(Give first and last names in full. In the case of a corporation and/or partnership - see Paragraph 1.03 C of Section 00100 Instructions to Bidders.)

_____

_____

_____

Pursuant to M.G.L. Ch. 62C, sec. 49A, I certify under the penalties of perjury that the undersigned contractor, to my best knowledge and belief, has filed all state tax returns; has complied with all Massachusetts laws relating to taxes, reporting of employees and contractors, withholding and remitting child support, and paid all state taxes required under law.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work.

The undersigned hereby certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the word "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of Section Twenty-nine F of Chapter Twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or requisition promulgated thereunder.

If a Corporation:

Name of Contractor:_____

Signature of Bidder:_____

Name of Person Signing Bid:_____
(Name) (Title)

Business Address:_____

Telephone Number:_____

Incorporated under the Laws of the State of:_____

President:_____
(Name) (Title)

Officers:

Secretary:_____
(Name) (Title)

Treasurer:_____
(Name) (Title)

Dated:_____

(Affix Corporation Seal Here)

If a Partnership, Individual, or Non - Incorporated Organization:

Name of Company:_____

Signature of Bidder:_____
(Name) (Title)

Name and Address of
Member of Company:_____

_____

_____

_____

Telephone Number: _____

FAIR BID CERTIFICATE

The undersigned swears under penalties of perjury that this Bid is in all respects bonafide, fair and made without collusion or fraud with any other person. As used in this section the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity.

_____

(Signature) (date)

_____

(Name of Person Signing Bid)

_____

(Company)

STATEMENT OF TAX COMPLIANCE

Pursuant to Massachusetts General Laws Chapter 62C, Section 49A, as inserted by the Acts of 1983, Section 36,

I, _____, authorized signatory
(name and title)
for _____, whose principal
(contractor)

place of business is at _____

_____, has complied with all laws of the

Commonwealth of Massachusetts relating to taxes.

_____
(authorized signature)

_____
(date)

COMMONWEALTH OF MASSACHUSETTS

Middlesex,

Then appeared before me the above-named _____

and having been duly sworn stated that the foregoing statements were true and

correct.

_____
(Notary Public)

My commission expires:

_____
(date)

FEDERAL IDENTIFICATION NUMBER:

_____

OSHA REQUIREMENTS

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than $ 10,000.00 have successfully completed a course in construction safety and health approved by the **United States Occupational Safety and Health Administration** that is at least **10 hours** in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first payroll report for each employee and will comply will all laws and regulations applicable to awards of subcontracts subject to section 44F.

Signature: _____

Name: _____

Title: _____

Company: _____

Date: _____

WARNER'S POND RESTORATION PROJECT TOWN OF CONCORD, MASSACHUSETTS

CONTRACTOR QUALIFICATION STATEMENT

COMPANY NAME: _____

COMPANY ADDRESS: _____

_____

TELEPHONE NO.: _____

CONTACT PERSON: _____

AVERAGE NUMBER OF EMPLOYEES: _____

AVERAGE ANNUAL AMOUNT OF DREDGING WORK PERFORMED DURING THE PAST TEN (10) YEARS: $_____

TOTAL VALUE OF WORK IN PROGRESS AND UNDER CONTRACT: $ _____

VALUE OF LARGEST DREDGING PROJECT COMPLETED:
$ _____

TYPE OF DREDGING EXPERIENCE: _____

_____

_____

_____

EVIDENCE OF LOCAL PAST DREDGING EXPERIENCE IN ENVIRONMENTALLY SENSITIVE AREAS OF EQUAL OR GREATER COMPLEXITY (PROVIDE PLANS, PHOTOS, AND SPECIFIC PROJECT INFORMATION) _____

_____

_____

_____

_____

The information provided herein is true and sufficiently complete so as not to be misleading.

_____ _____

Authorized Signature Date

END OF SECTION

SECTION 01 20 00 – PRICE AND PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 SCOPE

A. This Section describes the measurement and payment for the Work to be completed under each item in the Bid Form. The descriptions may not reference all of the associated Work. Work specified but not designated as a separate Bid item is considered incidental to all Bid items. The Contractor shall review all work associated with each Work item and shall have no claim for being unfamiliar with the requirements of these specifications.

1.2 DEFINITIONS

A. Payment Items: the Owner's distribution of the Contract Sum through listed work items, as outlined in this Section, reviewed, and accepted by the Engineer.

1. Each item is specified to include a defined scope of services. The payment items have been established for the Owner's convenience only, and not all materials, labor, equipment, or services of a payment item are guaranteed to be listed or specified herein.

2. Include costs associated with items of work required to complete the defined scope of services within the appropriately specified payment item.

3. Payment items include all necessary products, materials, equipment, plus costs for delivery, handling, storage, installation, all applicable fees and taxes (where applicable), administrative over-site, tools, labor, incidentals, research and testing, overhead, and profit.

4. All work and associated costs described in the Contract Documents shall be included in the payment items described herein.

5. The Contractor shall include, in the Total Lump Sum Base Bid, the cost associated with securing a performance bond and a labor and material payment bond in the amount of 100 percent of the Total Lump Sum Base Bid Price.

6. The price so-stated on the bid form for the payment items below, constitutes full and complete compensation for all products, materials, equipment, tools labor, overhead and profit, and incidentals required to finish the Work and accepted by the Engineer.

1.3 DESCRIPTION OF BASE BID LUMP SUM PRICE PAY ITEMS

A. The payment items listed below include references to Specification Sections of work to be completed under the payment item; however, not all Sections of related work are guaranteed to be listed.

B. Bid Price Item No. 1 – Mobilization/Demobilization & Site Preparation:

1. Work associated with this item will be paid for at the stated price including, but not limited to:

    a. Mobilization and Demobilization of personnel, equipment and project facilities.
    b. Establish all temporary utilities and services including electric, phone, internet, sanitary facilities, and potable water.
    c. Furnish and install staging areas.
    d. Project Plans, including but not limited to, Health and Safety Plan (HASP), Work Plan, etc.
    e. Obtain all required work and environmental permits not obtained by the Town.
    f. Schedules, submittals, shop drawings, and record drawings.
    g. Bonds and insurance
    h. Clearing, grubbing, and disposal of vegetation necessary for site access.
    i. Disposal of construction debris.
    j. Perform initial survey.
    k. Site Control, Layout and As-Built Surveys.
    l. Furnish and install temporary fencing and barricades.
    m. Provide and post project signs.
    n. Construct and deconstruct necessary access roads.
    o. Furnish labor, equipment, and materials to provide necessary traffic and pedestrian controls.
    p. Other work not specifically included in other items including construction stakeout, compliance with applicable regulatory requirements; preconstruction and construction period planning; scheduling, submittals, reporting, administration and documentation; quality control; environmental protection and spill control.
2. Mobilization shall be considered complete when the Contractor has commenced the work onsite. Demobilization shall be considered to be complete when the Contractor has achieved final completion of the Work and removed all equipment and materials from the site.

3. Payment: Lump Sum.

4. Measurement and payment for Bid Item no. 1 MOBILIZATION/DEMOBILIZATION & SITE PREPARATION shall be paid the lump sum price for the above items completed, installed, and properly functioning as documented and approved by the Engineer. The Contractor may invoice for up to 60% of this item upon successful installation of the work, 20% at substantial completion of work, and 20% upon demobilization. Payment shall be Lump Sum Bid for each individual item described above, including mobilization, demobilization, and miscellaneous as submitted in the Contractor's bid breakdown.

C. Bid Price Item No. 2 – Temporary Erosion and Sedimentation Controls:

1. Work associated with this item will be paid for at the stated price including, but not limited to, installing, maintaining, and removing all temporary erosion and sedimentation control measures, and practices for completion of all Work associated with the project. Includes construction access, staging areas, and

installing/maintaining controls or establishing temporary vegetation in areas to remain dormant for extended periods as indicated on the Contract Drawings.

a. Includes, but is not limited to, construction of the dewatering area, installing, maintaining and removing turbidity controls within Warner's Pond near the dewatering area discharge.

2. Payment: Lump Sum.

3. Measurement and payment for Bid Item no. 2 TEMPORARY EROSION AND SEDIMENTATION CONTROLS shall be paid the lump sum price for the above items completed, installed, and properly functioning as documented and approved by the Engineer. The Contractor may invoice for up to 60% of this item upon successful installation of the work, 20% at substantial completion of work, and 20% upon demobilization. Proper maintenance of controls is expected throughout the Project. Billing for this Work will be permitted upon the completion, inspection and acceptance (by the Engineer) for this Work. Progress billing will not be allowed.

D. Bid Price Item No. 3 – Commonwealth Avenue Access Improvements

1. Work associated with this item will be paid for at the stated price including, but not limited to installing signage and structures associated with the handicap accessible parking spot, replacing and reinforcing the canoe/boat launch. and installing the grassed channel along the parking lot as indicated on Contract Drawings. Includes offsite disposal of excavated material from canoe/boat launch, and excavated soil from grassed channel excavation.

7. Payment: Lump Sum.

8. Measurement for Payment for bid item no. 3 COMMONWEALTH AVENUE ACCESS IMPROVEMENTS shall be the bid lump sum price for site restoration as documented and approved by the Engineer.

E. Bid Price Item No. 4 – Site Restoration

1. Work associated with this item will be paid for under the allowance stated including, but not limited to, all labor, materials, equipment and incidentals necessary to completely and properly restore the pond, dewatering area, and Commonwealth Avenue access, including the repair and/or replacement of the access corridors, staging, stockpiling, and processing areas, plantings, fences, curbs, paved areas, that were damaged during restoration of Warner's Pond.

2. Payment – Lump Sum.

3. Measurement for Payment for bid item no. 4 SITE RESTORATION shall be the bid lump sum price for restoration of Warner's Pond and Commonwealth Avenue Access as documented by a Massachusetts licensed surveyor and approved by the Engineer.

F. Bid Price Item No. 5 – Wetland Shelf Planting

1. Work associated with this item will be paid for under the allowance stated including, but not limited to, all labor, materials, equipment and incidentals necessary to completely and properly plant and restore the wetland shelf, during restoration of Warner's Pond.

2. Payment – Lump Sum.

3. Measurement for Payment for bid item no. 5 WETLAND SHELF PLANTING shall be the bid lump sum price for restoration of Warner's Pond and Commonwealth Avenue Access as documented by a Massachusetts licensed surveyor and approved by the Engineer.

G. Bid Price Item No. 6 – Invasive Species Removal

1. Provide all labor, materials, equipment and incidentals necessary to remove all invasives from the Commonwealth Ave Access area by manual, mechanical, and chemical methods.

2. Contractor shall not be reimbursed for invasive species removal outside of the approved species and areas.

3. Payment – Lump Sum.

4. Measurement for Payment for bid item no. 6 INVASIVE SPEICES REMOVAL shall be the bid lump sum price for invasive species removal at the Commonwealth Avenue Access as indicated in the Invasive Species Management Plan (Exhibit C) and approved by the Engineer.

1.4 DESCRIPTION OF UNIT PRICE BID PRICE PAY ITEMS

A. Bid Price Item No. 7 – Dredging North Dredge Area and Wetland Shelf Creation

1. Bid Item no. 7 shall be bid unit cost price per cubic yard (CY) per in-situ cubic yard (CY) of sediment removed from North Dredging Area and placed in the wetland shelf area that is placed and stabilized to conform to all Federal, State, and Local requirements and the Contract Documents per the Contract Documents.

2. Provide all labor, materials, equipment and incidentals necessary to completely dredge sediment from North Dredge Area by hydraulic methods and place dredged North Dredging Area sediment within the wetland shelf in accordance with Specification **SECTION 02 73 00 SOLIDS PROCESSING**. Material from the North Dredge Area not used in the wetland shelf shall be transported to the processing area.

3. The Contractor shall not be reimbursed for dredging of materials resulting from unapproved dredging. Materials from unapproved dredging outside the vertical and

lateral limits presented on the Construction Drawings shall be properly handled, characterized, and disposed offsite at the Contractor's expense.

4. The Contractor shall not be reimbursed for placement of materials outside of the elevations specified in the Contract Drawings. Materials from unapproved placement outside the vertical and lateral limits presented on the Construction Drawings shall be removed at the Contractor's expense.

5. Measurement for Payment for bid item no. 7 shall be paid the bid unit price for each in-situ cubic yard of Warner's Pond North Dredge Area sediment and debris dredging that has been completed to the proposed dredge elevations provided in the Construction Drawings and that is placed in the wetland shelf area as approved by the Engineer. Volume will be determined by comparing the pre-dredge and post-dredge bathymetric and topographic surfaces as measured, calculated, and certified by a Massachusetts licensed surveyor and approved by the Engineer. Costs associated with surveying are to be fully compensated under bid item no. 7.

B. Bid Price Item No. 8 – Dredging South Dredge Area

1. Bid Item no. 8 shall be bid unit cost price per in-situ cubic yard (CY) of sediment removed from South Dredging Area per the Contract Documents.

2. Provide all labor, materials, equipment and incidentals necessary to completely dredge sediment and potentially contaminated sediment from South Dredge Area by hydraulic methods to the target dredge elevations presented on the Construction Drawings.

3. The Contractor shall not be reimbursed for dredging of materials resulting from unapproved dredging. Materials from unapproved dredging outside the vertical and lateral limits presented on the Construction Drawings shall be properly handled, characterized, and disposed offsite at the Contractor's expense.

4. Measurement for Payment for bid item no. 8 shall be paid the bid unit price for each in-situ cubic yard of Warner's Pond South Dredge Area sediment and debris dredging that has been completed to the proposed dredge elevations provided in the Construction Drawings. Volume will be determined by comparing the pre-dredge and post-dredge bathymetric and topographic surfaces as measured, calculated, and certified by a Massachusetts licensed surveyor and approved by the Engineer. Costs associated with surveying are to be fully compensated under bid item no. 8.

C. Bid Price Item No. 9 – Dredged Debris Removal and Disposal

1. Bid Item No. 9 shall be bid unit cost price per ton of DREDGED DEBRIS REMOVAL AND DISPOSAL per the Contract Documents.

2. Provide all labor, materials, equipment and incidentals necessary to completely remove debris from the North and South Dredge Areas in order reach the target

dredge elevations presented on the Construction Drawings and to transport debris to the appropriate disposal area in accordance with local, state, and federal regulations.

3. Debris is manufactured items larger than 60 mm (2.5 inches) removed during dredging operations such as tires, trash (shopping carts, sports balls, white goods, concrete, etc.) which are too large to be removed with the sediment. Debris may be removed from the sediment prior to dredging or screened out of sediment prior to dewatering.

4. The Contractor shall not be reimbursed for removal of debris resulting from unapproved debris removal. Materials from unapproved debris removal outside the vertical and lateral limits presented on the Construction Drawings shall be properly handled, characterized, and disposed offsite at the Contractor's expense.

5. Measurement for Payment for bid item no. 9 shall be paid the bid unit price for each ton of Warner's Pond North and South Dredge Area debris removal and disposal that has been completed to within 1 foot of the proposed dredge elevations provided in the Construction Drawings. Volume will be determined certified weight slips from the disposal facility.

D. Bid Price Item No. 10 – Processing Dredge Sediment

1. Bid Item No. 10 shall be bid unit cost price per in-situ cubic yard (CY) of dredged sediment that is handled, processed, and dewatered to conform to all Federal, State, and Local requirements and the Contract Documents.

2. Provide all labor, materials, equipment and incidentals necessary to prepare dredged North and South Dredging Area sediment for transportation and disposal in accordance with Specification **SECTION 02 73 00 SOLIDS PROCESSING**.

3. The Contractor shall not be reimbursed for processing of materials resulting from unapproved dredging. Materials from unapproved dredging outside the vertical and lateral limits presented on the Construction Drawings shall be processed at the Contractor's expense.

4. Measurement for Payment for bid item No. 10 shall be paid the bid unit price for EACH cubic yard (CY) of sediment dredged from North and South Dredge Areas that is processed using methods proposed by the Contractor and approved by the Engineer. Volume will be determined by comparing the pre-dredge and post-dredge as measured, calculated, and certified by a Massachusetts State licensed surveyor and approved by the Engineer. Costs associated with surveying and dredging are to be fully compensated under bid items No. 7 and 8.

E. Bid Price Item No. 11 – Transport and Disposal of Non-Contaminated Materials at Licensed Disposal Location

1. Bid Item No. 11 shall be bid unit cost price per ton (TN) of dredged sediment that is transported and disposed at a licensed disposal facility to conform to all Federal, State, and Local requirements and the Contract Documents.

2. Provide all labor, materials, equipment and incidentals necessary to transport and dispose sediments dredged from the North and South Dredging Areas in accordance with Specification **SECTION 02 73 00 SOLIDS PROCESSING**.

3. The Contractor shall not be reimbursed for transportation or disposal of materials resulting from unapproved dredging. Materials from unapproved dredging outside the vertical and lateral limits presented on the Construction Drawings shall be properly disposed offsite at the Contractor's expense.

4. Measurement for Payment for bid item No. 11 shall be paid the bid unit price for EACH ton (TN) of sediment dredged from North and South Dredge Areas that is transported and disposed at a licensed disposal facility using methods proposed by the Contractor and approved by the Engineer. Weight will be determined by certified scale weight provided by the licensed disposal facility.

F. Bid Price Item No. 12 – Transport and Disposal of Non-Contaminated Materials at Disposal Area

1. Bid Item No. 12 shall be bid unit cost price per cubic yard (CY) of dredged sediment that is transported and disposed at the Dredged Sediment Disposal Area to conform to all Federal, State, and Local requirements and the Contract Documents.

2. Provide all labor, materials, equipment and incidentals necessary to transport and dispose sediments dredged from the North and South Dredging Areas in accordance with Specification **SECTION 02 73 00 SOLIDS PROCESSING**.

3. The Contractor shall not be reimbursed for transportation or disposal of materials resulting from unapproved dredging. Materials from unapproved dredging outside the vertical and lateral limits presented on the Construction Drawings shall be properly disposed offsite at the Contractor's expense.

4. Measurement for Payment for bid item No. 11 shall be paid the bid unit price for EACH cubic yard (CY) of sediment dredged from North and South Dredge Areas that is transported and disposed at a licensed disposal facility using methods proposed by the Contractor and approved by the Engineer. Volume of material properly placed, graded, and compacted at the Dredged Sediment Disposal Area will be determined by comparing the pre-disposal and post-disposal ground surface elevations as measured, calculated, and certified by a Massachusetts State licensed surveyor and approved by the Engineer. Costs associated with surveying and dredging are to be fully compensated under bid items No. 7 and 8.

G. Bid Price Item No. 13 – Transportation & Disposal of Contaminated Materials

1. Bid Item No. 13 shall be bid unit cost price per ton of Contaminated Material (sediment materials contaminated with arsenic) properly disposed offsite as non-hazardous waste per the Contract Documents.

2. Provide all labor, materials, equipment and incidentals necessary to transport and dispose of contaminated materials in a permitted facility in accordance with all applicable laws, rules and regulations for proper execution of the Contract. The bid price shall also include the sampling, characterization, transportation and disposal of contaminated material generated during the excavation activities and classified as non-hazardous waste.

3. The Contractor shall not be reimbursed for the supply or disposal of sediment beyond 10% of the wet weight of sediment as calculated by the Engineer unless approved in writing by the Engineer.

4. Measurement for payment for Bid Item No. 13 shall be paid the bid unit price for each ton of Contaminated Material, as measured by certified weight tickets, which is properly sampled, transported and disposed as documented and approved by the Engineer.

H. Bid Price Item No. 14 – Loam for Wetland Restoration Area

1. Bid Item No. 14 shall be bid unit cost price per ton of loam mixed with placed dredge material, placed to the grades and lines as field directed by the engineer.

2. Provide all labor, materials, equipment and incidentals necessary to import loam material to the wetland creation site.

3. Measurement for payment for Bid Item No. 14 shall be paid the bid unit price for each ton of Loam installed as directed by the engineer, as measured by certified weight tickets.

I. Bid Price Item No. 15 – Sand for Wetland Restoration Area

1. Bid Item No. 15 shall be bid unit cost price per ton of sand mixed with placed dredge material, placed to the grades and lines as field directed by the engineer.

2. Provide all labor, materials, equipment and incidentals necessary to import sand to the wetland creation site.

3. Measurement for payment for Bid Item No. 15 shall be paid the bid unit price for each ton of sand installed as directed by the engineer, as measured by certified weight tickets.

J. Bid Price Item No. 16 – Gravel Access Road

1. Bid Item No. 16 shall be bid unit cost constructing a passing pull-off on the access road and installing gravel in the parking lot and access road to the dimensions and details as indicated on the drawings and in accordance with these specifications.

2. Provide all labor, materials, equipment and incidentals necessary to import gravel and create the parking lot access road.

3. Measurement for payment for Bid Item No. 16 shall be paid the bid unit price for each cubic yard of gravel actually placed in accordance with the plans and specifications.

K. Bid Price Item No. 17 – Asphalt Removal and Disposal

1. Bid Item No. 17 shall be bid unit cost per ton for removing and disposing existing asphalt pavement from the access road.

2. Provide all labor, materials, equipment and incidentals necessary to remove and dispose asphalt from the access road.

3. Measurement for payment for Bid Item No. 17 shall be paid the bid unit price for each ton of disposed material, as measured by certified weight tickets.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION 01 20 00

SECTION 02 61 00 - TRANSPORTATION AND DISPOSAL

PART 1 – GENERAL

1.1 SUMMARY

A. Section includes but is not limited to offsite transportation, and disposal of all waste materials generated during the Work.

1. Proper transportation and disposal of sediment and all site waste.

1.2 DEFINITIONS

A. Construction Debris: waste materials from construction activities, debris such as scrap liner, geotextiles, silt fence, boards, posts, generated as a result preparing the site to support dredging and restoring the pond.

B. Contaminated waste: Contaminated sediment or other material containing more than 20 ppm (µg/g) Arsenic dredged from the Potentially Contaminated Sediment Dredging Area. Contractor is not relieved of performing waste characterization as required for disposal to meet Massachusetts Department of Environmental Protection 401, RCRA, and landfill requirements.

C. Dredging: Removal of material encountered below subgrade elevations and to lines and dimensions indicated.

D. Potentially Contaminated Dredged Material:

1. Potentially Contaminated Dredged material includes all sediment and debris removed by hydraulic dredging methods from within the lateral extent of contaminated sediments in the vicinity of sediment cores SC4-A, SC4-B, and SC4-C, as established by the Engineer. This includes sediment overdredge, solids collected from dredging equipment decontamination, debris, and any additional materials resulting from dredging work.

E. Sediment: Sediment excavated during work.

F. Waste Characterization – The process of collecting representative sample(s) from Potentially Contaminated Dredged Material to determine if the material exhibits hazardous characteristic identified in 40 CFR 261 Subpart C.

1.3 SUBMITTALS

A. Disposal facility qualifications

B. Transporter certifications
C. Certificates of disposal and disposal weigh tickets
D. Waste manifests.

1.4 QUALITY ASSURANCE

A. Provide the Engineer with disposal facility qualifications and transporter certifications prior to the transportation and disposal of any contaminated waste.

B. Provide the Engineer with certificates of disposal and disposal weigh tickets with Application for Payment and within 30 days from shipment date.

C. Provide the Engineer with waste manifests with Application for Payment and within 30 days from shipment date.

1.5 HANDLING REQUIREMENTS

A. The Contractor shall be responsible for proper onsite management of sediment and wastes generated in compliance with all federal, state and local regulations and the Contract Documents. Management shall include handling, segregating, processing (as required), and storing all sediment and wastes generated during the Contractor's Work.

1.6 OTHER WASTES

A. Construction debris from the Site shall be taken to landfill for proper disposal.

PART 2 – PRODUCTS

2.1 STORAGE AND TRANSPORTATION EQUIPMENT

A. All materials and equipment used to store and transport contaminated materials shall be water-tight.

2.2 SOLIDIFICATION AMENDMENTS (NON-HAZARDOUS MATERIALS)

A. Contractor may add the Allowable Dosage of Portland Cement, as defined in 02 73 00 Solids Processing to dredged materials transported to the Dredged Material Disposal Area.
B. No alternative amendments shall be used without prior written approval from the Engineer.

PART 3 – EXECUTION

3.1 TRANSPORTATION OF CONTAMINATED WASTE AND CONSTRUCTION DEBRIS TO LANDFILL

A. Inspect transportation equipment for leaks and forward copies of inspection reports to the Engineer.

B. Contractor shall collect laboratory samples of excavated media from material stockpiles in accordance with Massachusetts Department of Environmental Protection 401 Water Quality Certification requirements including analysis and frequency.

C. Contractor shall be responsible for the transportation of all waste specified in the Contract Drawings or generated as a result of the Work.

D. Contractor shall be responsible for loading waste containers, trucks, etc. with removed waste generated.

E. Furnish labor, materials, and equipment necessary to store, transport, and dispose of waste in accordance with federal, state, and local requirements. Prepare and maintain waste shipment records and manifests required by the Resource Conservation Recovery Act, U.S. Federal Department of Transportation, Massachusetts Department of Transportation, and Massachusetts Department of Environmental Protection.

F. Transportation:

1. Transport contaminated waste in water-tight (e.g., lined and covered) vehicles in accordance with all federal, state, and local requirements.

   a. Inspect and document vehicles/containers for proper operation and covering. Repair or replace damaged containers.

   b. All trucks should be covered prior to departure.

   c. Inspect vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.

G. Shipping and Disposal Documentation:

1. The identity of the disposal facility, by name, address, and EPA identification number.
2. Manifests and certified weight slips for all transported waste loads must be obtained and provided as documentation for payment.

3. Submit certificate of disposal to the Engineer within 30 calendar days of the date that the disposal of the contaminated sediment and debris waste identified on the manifest was completed.

H. Dispose of all waste at the facilities approved by the Engineer.

3.2 TRANSPORTATION OF UN-CONTAMINATED SEDIMENT TO DISPOSAL AREA

A. Processed solids shall be characterized and disposed of at the Dredge Material Disposal Site as shown in the Contract Drawings and/or other licensed disposal location.

B. Inspect transportation equipment for leaks and forward copies of inspection reports to the Engineer.

C. Contractor shall be responsible for loading waste containers, trucks, etc. with dewatered sediments.

D. Furnish labor, materials, and equipment necessary to amend dewatered sediment with the allowable dosage of Portland cement, stockpile, and load into transport vehicles for transportation to the licensed disposal facility and/or Dredged Sediment Disposal Area.

E. Transportation:

1. Transport un-contaminated sediment in covered vehicles in accordance with all federal, state, and local requirements.

    a. Inspect and document vehicles/containers for proper operation and covering. Repair or replace damaged containers.

    b. All trucks shall be covered prior to departure.

    c. Inspect vehicles and containers for proper markings, manifest documents, and other requirements for waste shipment.

F. Shipping and Disposal Documentation:

1. On a monthly basis, as a prerequisite for payment, the Contractor shall provide a survey of the disposal area, performed and sealed by a land surveyor licensed in Massachusetts, to document that the un-contaminated sediment has been transported, off loaded, graded, and compacted in accordance with the contract documents.

END OF SECTION 02 61 00

SECTION 02 73 00 - SOLIDS PROCESSING

PART 1 – GENERAL

1.1 SUMMARY

A. Prior to mobilizing to the site, the contractor shall coordinate with the Town and Engineer to gain access to Warner's Pond for the purpose of collecting sediment samples to perform geotextile tube dewatering tests to determine water treatment chemical type and dosage. The geotextile tube dewatering test shall be used to estimate dewatering times, residual moisture content (geotechnical) of dewatered sediments, and verify that effluent water chemistry will comply with project water quality requirement.

B. Contractor is responsible for segregating debris from dredged material, offsite disposal of debris, dewatering dredged sediment, amending dredged sediment with the Allowable Dosage of Portland Cement, and verification that dewatered sediment passes the EPA's paint filter test and has suitable geotechnical properties (e.g., moisture content) prior to being transported to the Dredged Materials Disposal Area.

C. Contractor shall furnish labor, equipment, materials, and appurtenances necessary to prepare the dewatering area for geotextile tube dewatering, water treatment, and solids processing. Preparations shall include but not be limited to Temporary Perimeter Dewatering Trench Drain, Dewatering Area Perimeter Control, geotextiles, geomembranes, dewatering sumps, geotextile tubes, polymers, polymer dosing systems, etc.

D. During the performance of hydraulic dredging the Contractor must continuously monitor and record flowrate and density of slurry from the dredge to the Dewatering Pad. Contractor must provide all labor, equipment, and materials necessary to operating the Dewatering Pad including operation and adjustments to the Polymer Dosing System to prevent excessive use of water treatment chemicals.

E. For dewatering solids, means other than geotextile tubes, may be proposed in the Contractor's Dredge Work Plan, but not executed until work plan approval.

F. Contractor shall be responsible for the construction, operation, maintenance, and performance specifications as noted in Drawings and Technical Specifications.

1.2 PERFORMANCE REQUIREMENTS

A. Contractor shall be responsible for the selection, design, furnishing, construction, installation, commissioning, testing, operation, maintenance, and performance of the solids processing system and all equipment, materials, containment and staging areas, access ways, and other supporting features necessary to complete the Work specified herein.

B. Contractor shall screen debris that is larger than 2.5 inches from the dredge slurry prior to conveyance to the Polymer Dosing System, geotextile tubes, and Dewatering Pad. Debris shall be separated, characterized, and disposed

C. During the performance of hydraulic dredging the Contractor must continuously monitor and record flowrate and density of slurry from the dredge to the Dewatering Pad. Contractor

must provide all labor, equipment, and materials necessary to operating the Dewatering Pad including operation and adjustments to the Polymer Dosing System to prevent excessive use of water treatment chemicals.

D. Contractor may elect to complete the solids dewatering Work by methods including, but not limited to, the following:
   1. Geotextile tubes

E. Other means of dewatering solids may be proposed in the Contractor's Dredge Work Plan, but not executed until work plan approval. If other means of dredging in the Contractor's Dredge Work Plan are approved by the Engineer, the requirements of this specification will apply.

F. Contractor is responsible for providing solids processing activities that dewater the solids to a state of passing EPA's paint filter method. The dewatering process shall eliminate all free liquids from solids prior to loading for disposal and shall provide any additional solids processing using a combination of additional dewatering time and the application of the Allowable Dosage of Portland Cement. Failure to meet Engineer approved dewatering criteria shall result in a modification to the Contractor's means and methods to achieve acceptable conditions at no additional cost to the Town.

G. Contactor may select to complete the dewatering liquid outflow filtration by methods including, but not limited to, the following:
   1. Sediment filter bags
   2. Haybale corrals

H. Other means of dewatering liquid filtration may be proposed in the Contractor's Dredge Work Plan; but not executed until work plan approval. If other means of filtration are approved by the Engineer, the requirements of this specification will apply.

I. Geotechnical information about the existing soils and sediment is provided with these Contract Documents.

J. During the performance of hydraulic dredging the Contractor must continuously monitor and record flowrate and density of slurry from the dredge to the Dewatering Pad. Contractor must provide all labor, equipment, and materials necessary to operating the Dewatering Pad including operation and adjustments to the Polymer Dosing System to prevent excessive use of water treatment chemicals.

K. Contractor shall perform the work without creating fugitive emissions of dust, odor, noise, and light.

L. Processed solids shall be characterized and disposed of at the Dredge Material Disposal Site as shown in the Contract Drawings or other licensed disposal location. Any contaminated processed solids (as defined by Section 01 45 25 TESTING) shall be disposed of at an approved offsite landfill in accordance with Section 02 61 00 TRANSPORTATION AND DISPOSAL.

M. Debris shall bypass solids processing and be stockpiled and disposed in accordance with Section 35 20 23 DREDGING.

1.3 DEFINITIONS

A. Allowable Dosage of Portland Cement:
   1. The quantity of Type I Portland Cement that is to be added to dredged material following geotextile tube dewatering and prior to transportation to the disposal area. The contractor shall assume that the in-situ bulk density of sediment is 1.5 tons/CY (111 pcf) and add Type I Portland cement at 1% of the mass of sediment by converting the surveyed dredge volume to a mass using the assumed unit weight above. The Allowable Dosage of Portland Cement shall not be applied to sediments used to construct the Wetland Shelf.

B. Debris:
   1. A general term referring to items larger than 60 mm (2.5 inches) removed during dredging operations such as logs, large rocks, tires, trash (shopping carts, sports balls, white goods, concrete) which are too large to be removed with the sediment. Debris may be removed from the sediment prior to dredging or screened out of sediment prior to hydraulic transport. The Contractor shall dispose of all debris offsite in accordance with regulations.

C. Dredged material:
   1. Dredged material includes all sediment and debris removed from within the edge of water by hydraulic dredging methods. This includes sediment dredged within project boundaries, sediment overdredge, debris, and any additional material resulting from dredging work in accordance with Section 35 20 23 DREDGING.

D. Geotextile Tube
   1. A woven synthetic textile with a circumference greater than 8 ft. and length greater than 20 ft. that are used for the containment of high moisture content fine grained material.

E. Polymers
   1. Polyacrylamide polymers can be non-ionic, anionic, or cationic. Polymers are used to promote the separation of fine grained material and water (sediment dewatering).

F. Polymer Dosing System
   1. The combination of measurement devises, storage tanks, and metering pumps that are used to quantify and record dredge production and add dry or emulsified polymer to dredge slurry to enhance/optimize sediment dewatering and water treatment. The Polymer Dosing System must continuously measure and record dredge slurry flowrate (ultrasonic) and slurry density (nuclear), automatically proportion polymer dosing to dry mass of solids, and monitor pressures of dredge line and dosing pumps.

G. Potentially Contaminated Dredged Material:
   1. Potentially Contaminated Dredged material includes all sediment and debris removed by hydraulic dredging methods from within the lateral extent of contaminated sediments in the vicinity of sediment cores SC4-A, SC4-B, and SC4-C, as established by the Engineer. This includes sediment overdredge, solids collected from dredging equipment decontamination, debris, and any additional materials resulting from dredging work.

H. Solids

1. Excavated material and dredged material including sediment (not including debris) removed in accordance with Section 35 20 23 DREDGING.

I. Solids and Water Processing Area

1. Shall include the Dewatering area and staging/stockpiling area as shown on the Contract Drawings. All stockpiling, solids dewatering, and water treatment shall be completed in the solids and water processing area.

1.4 SUBMITTALS

A. Contractor shall prepare a Solids Processing Plan including a written description of the major elements of work including but not limited to sequence of construction, Dewatering Pad construction details, operation, water management, and supporting calculations; Polymer Dosing System design, process flow, quality controls, operation, and data management; Geotextile Tube fill progression, stacking arrangement, stacking height, amending dewatered dredge material, load out of dredge material, and safety controls to minimize the emission of fugitive dust, odor, noise, and light. As a minimum, The Solids Processing Plan shall include (items listed shall apply to geotextile tubes, or approved equal, unless otherwise noted):

1. A written description of the major elements of Work involved and the operation and maintenance procedures at the solids processing area.
2. Design drawings and supporting calculations of the Contractors proposed Dewatering Pad, Polymer Dosing System, and Wastewater Treatment. Drawings must include, planimetric and details of the Dewatering Pad clearly identify, grades (elevations), materials of construction (impermeable membrane, aggregates, geotextiles, etc.), dimensions, arrangement of geotextile tubes, provisions for office space, truck routes, decontamination pads, and engineering controls to minimize fugitive emissions. Cross sectional design drawings of the Dewatering Pad with elevation view of stacked geotextile tubes with maximum fill height of individual geotextile tubes and stacked geotextile tubes clearly identified. The plan is to include a process flow diagram along with a detailed piping and instrumentation diagram (P&ID) depicting all essential electrical and mechanical components, including but not limited to electrical power, sensors, pumps, communication wiring, pipe dimensions, pipe material, valves, tanks, screens, filters, etc
3. A detailed description of the means and methods, including all equipment and personnel, for solids processing, dewatering, and preparation for disposal.
4. Details regarding the types, sizes, and quantities of equipment Contractor proposes to use for solids processing and preparation for disposal. Include detailed specifications on the proposed equipment. Include processing capacities, performance ratings, and guarantees.
5. A flow chart depicting the processing steps and illustrating the various process streams, including all inputs and outputs and an overall material balance.
6. Proposed solids processing area utilization, with emphasis on maintaining compact use of space for all Work.
7. Equipment arrangement, scaled diagrams and elevations as applicable, which illustrate component location, connections, and utilities.
8. Power system location and capacity. Mechanical and electrical design drawings stamped by a Professional Engineer, licensed in Massachusetts.
9. Manufacturer’s operation and maintenance recommendations.

10. Temporary enclosure structure footprint and relative position of equipment, if required.
11. Include a Winterization Plan to cover Contractor operations when temperatures will be below freezing (0° Celsius). The solids processing system and all supporting areas shall be winterized to protect from freezing to allow for continuous operation. Winterization shall include protecting the solids processing pipelines, pumps, valves, tanks, generators, geotextile tubes, and all other necessary equipment from freezing and ice accumulation with enclosures, insulation, conductive heating, or other approved equivalent
12. Product data, mixing methodology, dosage rate, weight receipts and safety data sheets for all proposed dewatering and stabilization agents.
13. Provide qualifications for a technician with a minimum of 5 years of experience operating the chosen process for sediment remediation or similar projects.

B. The Contractor shall submit an Operation and Maintenance Plan for the system and submit the following operation and maintenance information to verify continuing efficient operation and limit break-downs and other work stoppages:
1. Daily operation and maintenance records and reports.
2. Monthly operation and maintenance records and reports.
3. Spare parts lists for major pieces of equipment.
4. Preventative maintenance schedule for major pieces of equipment.

C. Winterization Plan for protection from freezing to allow for continuous operation

1.5 QUALITY ASSURANCE

A. Contractor shall provide real-time monitoring of geotextile tube filtrate and modify filling sequence and or perform "jar tests" in the field to assess the need for changes in polymer dose to maintain compliance with discharge requirements.

B. The Contractor shall provide the engineer with a weekly mass balance summary report showing mass of water, dry mass of solids dredged, mass of polymer used, and dry mass of solidification and amending agent (Portland Cement) added to dredged material: the Contractor will only be reimbursed for the allowable Portland Cement Dosage, that is 1% of mass of dredged material contained in geotextile. The Contractor may use a higher percentage of amendment at their own expense.

C. Contractor shall maintain at or near the Site, equipment and personnel for performing moisture content analysis of dredge slurries, stockpiles, geotextile tubes at different points in the system. Contractor shall perform moisture content analysis on a daily basis as required to assess performance of the solids processing system and as directed by the Engineer.

D. Contractor shall monitor and maintain efficiency of the liquids used in the solids processing system.

E. Contractor shall complete paint filter tests on all dewatered soils and sediment prior to offsite transportation and disposal. Paint filter tests shall be performed at 3 sample locations per 100 cubic yards. The sample locations shall be jointly selected with the Engineer. The frequency of sampling may be revised by the Engineer.

PART 2 – PRODUCTS

2.1 GENERAL MATERIALS

A. Contractor shall be responsible for the selection of all types, sizes, and quantities of equipment and vessels to perform the Work. Equipment shall meet the minimum specified requirements and meet the production requirements of the Work.

B. Materials and equipment chosen for this work shall be adequate in capacity for required usage, shall not create unsafe conditions, and shall meet requirements of applicable codes and standards and approval of the Engineer.

C. Materials shall be new and unused unless otherwise approved by the Engineer. Approval for such items may be withheld due to excess wear, inappropriate size, or other factors which may compromise efficient use of the item.

D. Transfer equipment shall be of a design to resist clogging, prevent equipment damage in the event of clogging, and allow orderly and prompt removal of obstructions.

2.2 DEWATERING AREA

A. The Dewatering Area shall be constructed at the solids and water processing area to process dredged material in accordance with details provided in Contract Drawings or approved equal. Within the Dewatering Area, a segregated area shall be constructed to isolate process potentially contaminated material from the remaining dredged material. Contractor shall construct the segregated area in accordance with details provided in the Drawings or approved equal.

B. The Dewatering Area as shown in the Drawings shall include:
   1. Liner covering ground surface of dewatering area will be 30 mil impermeable linear low density polyethylene (LLDPE) fabric, which for this contract, the term geomembrane fabric shall be considered a synonym for 30 mil LLDPE.
   2. The Contractor is responsible for using sandbags or other suitable ballast material to prevent the geomembrane from moving or being damaged.
   3. When concrete barriers are used to prevent geotextile tubes from rolling the geomembrane fabric will be keyed into jersey barriers as shown in Contract Drawings.
   4. For the construction of the Temporary Perimeter Dewatering Trench Drain, the geomembrane fabric shall be ballasted to prevent damage to the geomembrane.
   5. Jersey barriers surrounding the stockpile, a minimum of 32 inches in height.
   6. Perimeter erosion control barrier surrounding the jersey barriers which are composed of haybale/silt fence in accordance with Section 015700 EROSION AND SEDIMENTATION CONTROLS.
   7. A segregated dewatering area shall be constructed within the larger Dewatering area to process potentially contaminated materials and shall include:
      a. Jersey barriers surrounding the stockpile to separate the potentially contaminated dredged material, as defined in Section 35 20 23 DREDGING from the remaining dredged material.

2.3 GEOTEXTILE TUBE DEWATERING

A. Geotextile tubes shall be constructed with a Tencate Geotube® GT500 fabric, or approved equivalent. The geotextile tube shall be fabricated from a high tenacity permeable fabric to allow water passage through the filter tube. The Geotube material shall be inert to biological degradation and resistant to naturally encountered chemicals, alkalis, and acids

B. Contractor shall furnish all labor, materials, equipment, polymer, polymer feed system, and incidentals, specified, and required in connection with deployment, testing, and filling of the geotextile tube, in accordance with the lines, grades, design, and dimensions shown on the Drawings as Technical Specifications.

C. Geotextile tube shall be constructed atop the Dewatering Area to provide sufficient voided area for filtrate drainage at no additional expense to Town.

D. Contractor shall furnish the geotextile tube by positioning it on a prepared surface that is level across the width of the geotextile tube with a maximum slope of 0.5% in the overall length direction of the geotextile tube. The geotextile tube shall be filled with material to a height not to exceed the manufacturer's specifications.

E. Contractor shall provide sediment processing products and dosage rates, including approaches to track, verify, or adjust polymer feed rate and other amendments for optimal dosage.

F. Contractor shall provide a site plan, geotextile tube container layout, mass balance system showing density, percent solids, and flow measurements, filling method, and methods for collecting all filtered water shall be described in the Contractor's Solids Processing Plan.

G. Contractor shall provide means and methods for reducing nuisance odor, dust and noise.

PART 3 – EXECUTION

3.1 GENERAL

A. These execution specifications shall apply to all solids processing methods specified herein.

B. The Contractor shall provide all supervision, labor, tools, materials, utilities, equipment, services, and appurtenances necessary for, or incidental to, solids processing and related Work shown on the Drawings and described herein.

C. Contractor shall make all arrangements and pay all service, connection, and other fees associated with obtaining utilities for the work.

D. Contractor shall conduct dewatering and as required to meet disposal requirements. Contractor shall coordinate with the approved disposal facility regarding requirements for disposal, i.e. paint filter test and/or any other requirements.

E. Contractor shall construct dewatering sump and perimeter trench in accordance with Section 31 00 00 EARTHWORK.

F. Contractor shall at all times maintain sufficient personnel, materials, and equipment to maintain effective operation of the solids processing systems.

G. Contractor shall perform all preventative maintenance, repairs, and replacement of system components as required.

H. At all times, the Contractor shall maintain the process systems and working area in a clean and orderly condition, free of debris, unused materials, and hazards of any kind.

I. Safety guards and placards shall not at any time be removed from equipment unless equipment is locked and tagged out of operation.

J. Fugitive dust, odors, chemical emissions, and noise shall be controlled during construction.
   1. Contractor shall locate equipment to minimize noise and odor impacts due to prevailing wind direction.
   2. Contractor is responsible for planning, implementing, and maintaining effective control measures as may be required. Control measures shall include installation of a tensioned fabric structure over the processing area if this method is selected by the Contractor. If Contractor fails to control their methods of operation or the noise levels of his equipment, then Contractor shall, at their expense, construct other noise minimizing structures and/or take other measures to prevent noise disturbances. This may include re-locating equipment.

3.2 SYSTEM TESTING AND START-UP

A. Prior to start of full-scale processing, Contractor shall demonstrate for the Engineer's approval the operation of all system components.

B. Contractor shall correct any problems as directed by the Engineer.

C. Processing shall not commence until all components are approved.

3.3 SYSTEM OPERATION AND MAINTENANCE

A. At all times, Contractor shall comply with the approved Operations and Maintenance Plan for the Work.

B. Contractor is responsible for the containment and cleanup of all spills and contamination resulting from their operations.

C. The Contractor shall maintain management, operation, and maintenance records; and prepare management, operation, and maintenance reports. All records and copies of reports shall be turned over to the Engineer within 5 days after contract completion.

D. Conduct daily observation of solids processing system and monitoring system. Make required repairs and perform scheduled maintenance.

E. Contractor shall submit Daily Logs each morning, which cover the prior 24-hours' work and Monthly Logs on the first Monday of each month for the preceding month's work. Daily and Monthly Logs shall note any significant performance or compliance problems during the

preceding period, the measures undertaken to correct those problems, and a running summary or such prior problems until their resolution.

F. Operate solid processing system continuously until work within dewatered areas is complete in accordance with Contract Documents.

3.4 CONTRACTOR ADJUSTMENTS

A. Operational adjustments:
   1. Daily operational adjustments shall be noted on the Daily Log sheets.
   2. Operational adjustments shall be reported to the Engineer as required by the Engineer.

B. Process adjustments:
   1. Significant adjustments include removal or addition of unit process components or significant elements governing unit process performance, and any adjustment that reduces the sustained operation of equipment below the rate proposed in the initial Solids Processing Plan.
   2. If the Contractor decides that an adjustment is required to improve performance or reduce costs of processing, the Contractor may present a proposal describing the changes requested for review by the Engineer. This proposal shall be accompanied by data, calculations, and manufacturer guarantees as needed to support the application.
   3. The Engineer may request additional information prior to approval.
   4. Adjustments shall not be made without the prior approval of the Engineer.

3.5 WINTERIZATION

A. If Contractor elects to work in winter months, the solids processing system and all supporting areas shall be winterized to protect from freezing to allow for continuous operation. Submit a Winterization Plan for Engineer approval prior to winterization. Winterization shall include protecting the solids processing pipelines, pumps, valves, tanks, generators, geotextile tubes, and all other necessary equipment from freezing and ice accumulation with enclosures, insulation, conductive heating, or other approved equivalent.

3.6 EQUIPMENT REMOVAL AND SITE RESTORATION

A. Remove solids processing system after operations are discontinued and Work within the processing area is completed. Do not remove solids processing systems until Engineer has approved.

B. At the conclusion of work, Contractor shall decontaminate and remove all equipment and restore the site to original conditions.

C. Prior to removing equipment from the site, the Contractor shall decontaminate all equipment used to handle contaminated waste and dispose of project waste.

D. All disturbed areas shall be restored according to the Drawings and Section 01 74 24 SITE RESTORATION.

E. Repair damage caused by solids processing system or resulting from failure of systems to protect property.

END OF SECTION 02 73 00

SECTION 35 20 23 – DREDGING

PART 1 – GENERAL

1.1 SUMMARY

A. This section includes the Contractor requirements for dredging sediment and debris, through hydraulic dredging from Warner's Pond. The Contractor's Dredge Work Plan shall describe the selected means and methods for removal of sediment and debris and subaqueous placement of dredged sediments for the construction of a wetland shelf.

1.2 PERFORMANCE REQUIREMENTS

A. Contractor shall be responsible for the selection, design, furnishing, testing, operation, and maintenance of dredging equipment required for the Work specified herein.

B. The Contractor shall use hydraulic dredging.

C. Contractor shall provide a Dredge Work Plan, which details a sequence of dredge activities that provide for optimal removal, handling, and disposal operations.

D. Contractor's selected approach and sequence for sediment dredging shall be developed to meet federal, state, and local requirements, address project space constraints and presence of nearby residential areas, provide protection of public health and the environment, and proactively control effects impacting the public such as nuisance odors, dust, and noise levels.

E. Dredged material removed from Warner's Pond shall be transported via hydraulic pipeline. Dredged material transportation via hydraulic pipeline is specified in **Section 35 20 26 HYDRAULIC PIPELINE**.

F. Contractor is responsible for separate removal, management, and disposal of debris that will interfere with dredging operations and is responsible for separation of debris from dredged material that will interfere with dewatering for disposal in accordance with **Section 02 73 00 SOLIDS PROCESSING**.

1.3 DEFINITIONS

A. Debris:
   1. Manufactured items larger than 60 mm (2.5 inches) removed during dredging operations such as tires, trash (shopping carts, sports balls, white goods, concrete) which are too large to be removed with the sediment. Debris may be removed from the sediment prior to dredging or screened out of sediment prior to dewatering. The Contractor shall dispose of all debris offsite in accordance with regulations.

B. Dredged material:
   1. Dredged material includes all sediment and debris removed from within the edge of water by hydraulic dredging methods. This includes sediment dredged within project boundaries, sediment overdredge, debris, and any additional material resulting from dredging work.

C. Overdredge Allowance:
   1. The Contractor shall avoid overdredging since this material will not be paid for under this Contract.

D. Potentially Contaminated Dredged Material:
   1. Potentially Contaminated Dredged material includes all sediment and debris removed by hydraulic dredging methods from within the lateral extent of contaminated sediments in the vicinity of sediment cores SC4-A, SC4-B, and SC4-C, as established by the Engineer. This includes sediment overdredge, solids collected from dredging equipment decontamination, debris, and any additional materials resulting from dredging work.

E. Wetland Shelf:
   1. A partially submerged extension of Scout Island that is to be constructed using uncontaminated sediments hydraulically dredged from the north area of the project site. Dredged sediments used for the construction of the wetland shelf shall be placed hydraulically and be free of debris or other deleterious materials that in the Engineer's opinion will impede the establishment and/or sustenance of vegetation.

1.4 SUBMITTALS

A. Submit the following in accordance with Standard Specification **Section 01 33 00 SUBMITTALS.**

B. Dredge Work Plan: The Contractor shall prepare and submit a Dredge Work Plan. The Dredge Work Plan must be approved prior to initiation of dredging activities and shall include, but not be limited to, the following (items listed shall apply to work in Warner's Pond, unless otherwise noted):
   1. Contractor's (and any subcontractor's) business name, address, telephone number, dredging site representatives, and emergency contact phone numbers. If subcontractors are employed, describe role(s) of each subcontractor. Subcontractors must be approved by the Engineer prior to performing project related work onsite.
   2. Contractor's experience working with same or similar equipment as presented in the Contractor's Dredge Work Plan. The Contractor shall have a minimum of 5 years of experience using presented equipment for contaminated sediment remediation projects.
   3. Means and methods to achieve the dredging design (including slope dredging and dredging near structures) providing sufficient detail to demonstrate procedures have incorporated environmental protection, debris removal operations, containment of turbidity plumes and sheens, protection of existing structures, spill prevention and containment, and all other requirements of the Drawings and Technical Specifications. Work plan shall describe in detail, Contractor's approach to manage shallow water depth, irregular shoreline, protection of existing structures, and debris. Process flow for removal through disposal, describing each activity is required.
   4. Contractor shall provide details of proposed turbidity controls. It is anticipated that the hydraulic dredging of Warner's Pond would be performed in manageable sub-sections where areas are isolated from the rest of the pond with turbidity

curtains. The contractor is expected to contain dredging within the protected subsection.

5. Description of logistics of the operation and schedule such as downtimes assumptions, sequence of the Work, schedule for dredging related submittals during construction, and assumed work days and hours of operation.
6. Identification of local ordinances that may limit work hours, noise, and truck traffic.
7. Delineation and demarcation of the work areas within the limits of disturbance to be used by the Contractor.
8. Description of anticipated dredging equipment to be utilized, including manufacturer, number, type, and size of dredge(s); excavator, pumps, barges, tow/tug boats, support vessels, containers, and other support equipment. If hydraulic transport or dredging is to be used, provide the anticipated percent solids of the slurry and dewatered dredged material solids from Contractor's dewatering methods. Anticipated dredge production rates and work sequence must be included.
9. Description, dimensions, capacity, and drawings or photographs of the hydraulic dredging system to be used for dredging.
10. Means and methods for maintenance of equipment used for activities associated with dredging for the duration of the Work, and proposed solutions if equipment used to complete the Work malfunctions or has operational problems that could result in project delays.
11. Demonstration of the ability to achieve, monitor, and report the accuracies specified herein.
12. Unloaded and loaded draft requirement for all barges and vessels supporting dredging activities in Warner's Pond.
13. Proposed approach for deployment and inspection of equipment, including mobilization of dredges, barges, scows, and other ancillary equipment to Warner's Pond, and verification of soundness, water tightness, and whether it is fit for duty. U.S. Coast Guard inspection reports shall be submitted for all proposed barges, scows, or vessels.
14. Proposed approach for deployment of personnel and personnel requirements for each vessel and/or operation.
15. Transportation Plan identifying haul roads, access routes, and plans for safe transport on public roads.
16. Proposed methods for constructing the Wetland Shelf, including but not limited to worker safety, hydraulic pipeline routing, flowrate, turbidity controls, schedule, and bathymetric surveys
17. The Dredge Work Plan shall include the following additional information which is not specified in the Section, but is included other sections of the Technical Specifications:
    a. Proposed procedure for dredging to the dredge limits and within dredge tolerances in Warner's Pond in accordance with **Section 02 21 19 BATHYMETRIC SURVEYS**.
    b. Proposed methods for dredging adjacent to shorelines and structures that may be disturbed by dredging activities and avoiding or protecting utilities identified during utility-locating procedures. This should include completing a pre-construction conditions survey for all structures in and adjacent to the project area, with assessment and documentation of each structure and periodical monitoring during dredging activities.

c. Pipeline Construction Work Plan including drawings of pipeline routes for hydraulic material transport of dredged material from Warner's Pond to the solids and water processing area and materials to be used for installation in accordance with **Section 35 20 26 HYDRAULIC PIPELINE**.

d. Solids Processing Plan detailing proposed processing area utilization, with emphasis on maintaining compact use of space for all solids processing, debris management, and wastewater treatment operations as specified in **Section 02 73 00 SOLIDS PROCESSING**. This should include a description of the solids processing operation and maintenance to manage space constraints.

e. Proposed methods for addressing odors generated during dredging activities.

C. Daily Construction Quality Control (CQC) Report

1. The Daily CQC Report shall include, but not be limited to, the following information related to dredging activities (items listed shall apply to work in Warner's Pond, unless otherwise noted):
   a. Weather conditions.
   b. Description of general work activities.
   c. Location of dredging operations, hours of dredge time, total area dredged, actual daily production rate, and name of dredge operator(s).
   d. Equipment performance, maintenance, hours of downtime, and cause(s) of downtime.
   e. Description and details of the daily QC checks of all dredging equipment and positioning system sensors.
   f. Daily output from dredging software to show the progress of dredging activities in Warner's Pond including cumulative area, volume, and weight dredged to date. Daily output shall be used to track daily activities and production but are not an acceptable substitute for post-dredge survey verification. Daily output shall include the following:
      1) Daily export of dredge interim survey XYZ files from the Hypack System (or equivalent) and processed drawings in AutoCAD Civil 3D (2017) format or compatible Digital Terrain Model (DTM) of the survey to show the dredge progress for the day.
      2) Calculations of the day's dredging volume calculated to the nearest cubic yard.
      3) Documentation that the system is operating within allowable tolerances.
   g. The Hydraulic Pipeline Daily Operations Report in accordance with **Section 35 20 26 HYDRAULIC PIPELINE**.
   h. Delays encountered and relevant details of the delay, such as the cause, resolution, and measures implemented to avoid similar delays in the future and to make up lost time if necessary. The Engineer reserves the right to require a recovery schedule from the Contractor.
   i. Representative photos of construction activities for the day.

D. Dredge Material Tracking Form

1. Provide a fully executed Dredge Material Tracking Form or Material Shipping Record within 30 days of final shipment to the reuse location or facility.
2. The Dredge Material Tracking Form or Material Shipping Record is used to track the transport of dredged material to a licensed upland facility to ensure that dredged materials are properly and safely handled during transportation on public roadways and provides the ability for MassDEP to verify that potentially contaminated sediments have arrived at the appropriate and approved end location and to protect the water quality of surrounding wetlands and waters during transportation.

E. Surveys
1. Provide bathymetric and topographic surveys to document dredge progress in Warner's Pond in accordance with **Section 02 21 19 BATHYMETRIC SURVEYS.**
2. Surveys shall be submitted with applications for payment for dredging and excavation bid items

F. Winterization Plan for protection from freezing to allow for continuous operation.

1.5 PERMITS

A. The Contractor shall comply with all state, federal, and local permits obtained by or applied for by the Government. The Contractor shall also comply with all permits obtained directly by the Contractor as required during construction and as necessary to complete the work.

B. The Contractor shall comply with work restrictions as outlined in the permits. If discrepancies exist between these Technical Specifications and applicable permits, the conditions of the permit shall apply.

1.6 JOB SITE AND SUBSURFACE CONDITIONS

A. Available data from previously conducted site sampling events, including representative sediment core logs and associated information, are included in the specification exhibit.

B. The Contractor shall field verify the locations of utilities within the work areas including, but not limited to, those shown on the Drawings. The Contractor shall coordinate a utility locate service and coordinate utility identification and location with the Government to check all dredge areas in accordance with the Technical Specifications.

PART 2 – PRODUCTS

2.1 HYDRAULIC DREDGING EQUIPMENT

A. In-water dredging work at Warner's Pond shall be completed by the Contractor with hydraulic dredging equipment of suitable size and power to complete the work detailed in the Drawings and Technical Specifications, and as approved in the Contractor's Dredge Work Plan.

B. A hydraulic submersible dredge pump equipped with cutterhead and attached to position control equipment, or a conventional hydraulic dredge with cutterhead, shall be used for hydraulic dredging.

2.2 DREDGE POSITIONING EQUIPMENT

A. Hydraulic dredging equipment for Warner's Pond shall be equipped with RTK DGPS and the necessary sensors, to enable accurate positioning of the dredge bucket or cutterhead and for the Contractor to continuously monitor the location of the dredge bucket or cutterhead. The dredge bucket or cutterhead shall have a vertical positioning accuracy of plus or minus 0.1 foot and a horizontal accuracy of plus or minus 0.2 feet.

B. The dredge positioning software shall be capable of:
1. Inputting a dredge prism template (an x, y, z file on a gridded interval of 1 foot by 1 foot).
2. Producing plots showing the location of each dredge bucket or cutterhead cut in the dredge area as part of the Daily CQC Reports.
3. Providing a view of the barge and clamshell bucket or cutterhead, in real time.
4. Providing the current depth, final project depth, target depth, and current bucket or cutterhead depth, in real time.
5. Recording sensor information so that playback/review of past dredge activities is possible.
6. XYZ file export.

C. The Contractor will have qualified positioning equipment technical support personnel at the Site whenever dredging activities take place.

D. The Contractor shall show that the error budget of the dredge positioning system allows it to work within the stated overdredge tolerances specified in **Section 35 20 23 DREDGING**. The error budget shall include all errors associated with measuring the positioning of the bucket or cutterhead.

E. The Contractor must verify that the system is operating within allowable tolerances (i.e., quality control check of positioning sensors to verify that individually and together they operate within a range that satisfies the tolerance requirement) at least once per day against site benchmarks and included in the Daily CQC Report. If, during any verification activities, the Contractor determines that the RTK-DGPS system is out of the stated positioning tolerance, dredging will be halted until the system is brought back into tolerance and is verified.

F. If, at any time during the Work, the Contractor determines that the RTK-DGPS system is malfunctioning or has failed, dredging will be halted until the system has been restored to proper operating condition.

2.3 SPILL RESPONSE MATERIALS

A. Provide appropriate spill response materials including, but not limited to; containers, adsorbents, adsorbent booms and pads, shovels, and personal protective equipment. The Contractor will be responsible for deploying an oil containment boom upon Engineer request to supplement adsorbent booms depending on circumstances of a spill. Spill response materials shall be available at all times when contaminated materials/wastes are

being handled or transported. Spill response materials shall be compatible with the type of materials and contaminants being handled.

PART 3 – EXECUTION

3.1 PREPARATION

A. Verify work hours are acceptable to the Massachusetts Correctional Institution at Concord and the Town of Concord and comply with Town bylaws.

B. Call Dig Safe 811 at least 48 hours but no more than 10 working days before performing work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.
   2. Contractor is responsible to locate and mark all utilities.

C. Protect utilities from damage that are indicated to remain. Contractor is responsible for all repairs to damaged utilities and all associated reparations at no cost to the Town. Contractor is responsible for removal and disposal of abandoned utilities encountered during dredging, and protection of encountered utilities that are not to be abandoned.

D. The Contractor is responsible for utility locates and markings on bridges and surrounding Warner's Pond. The Contractor shall use a third-party locate service and not rely on one-call services for these structures.

E. Utilities encountered that were not previously shown or otherwise located shall not be disturbed without approval from the Engineer.

F. Protect plant life, and other features remaining as portion of final landscaping along Warner's Pond and around staging areas.

G. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic except as proposed by Contractor and approved by Engineer.

H. Identify required lines, levels, contours, and datum.

I. The Contractor will provide the Engineer with details regarding the location and times the Engineer will be able to access the dredging equipment prior to mobilization. In general, the Contractor will facilitate access for Engineer representatives to the Work vessels upon request.

3.2 REMOVAL LIMITS

A. Sediments shall be removed to the depth and extent as determined by Contract Documents.

B. Embedded debris shall be removed to the elevations specified in the Contract Drawings. If the debris requires specialized equipment for removal, notify the Engineer before proceeding.

C. Overdredge allowance within the dredge area is 12 inches below (i.e., deeper than) the required dredge design elevations shown on the Drawings for Warner's Pond. The Contractor shall minimize overdredge. Overdredge performed by the Contractor outside of the overdredge tolerances shall be at the Contractor's expense.

3.3 GENERAL

A. The Contractor shall provide all supervision, labor, tools, materials, equipment, services, and appurtenances necessary for, or incidental to, dredging and related Work shown on the Drawings and described herein.

B. The Contractor shall excavate the dredge area to the lines, grades, slopes, and elevations as described in these Technical Specifications and shown on the Drawings. Significant changes, as determined by Engineer, to operating procedures or equipment presented in the Contractor's Dredge Work Plan, such as proposed dredge production rates or changes to the duration of work, must be approved in advance by the Engineer.

C. Notify Engineer of unexpected subsurface conditions.

D. Dredge in an upstream to downstream fashion.

E. The Contractor shall be responsible for constructing stable internal and external side slopes and meet all internal and external side slope grades per the Drawings and Technical Specifications.

F. The Contractor shall repair damage resulting from dredging operations or other Contractor construction activities in support of the Work to the original condition prior to damage, and repair to a condition approved by the Engineer. The pre-dredge activities structure surveys shall be used as a baseline. The Town shall bear no costs associated with damage to shoreline areas or structures.

3.4 DEBRIS AND CONSTRUCTION WASTE

A. Debris will be encountered during dredging activities. The Contractor shall remove all debris that interferes with dredging and solids processing operations. Debris screened out of sediment shall bypass the solids processing system and shall not be washed. Debris shall be stockpiled in the same manner as the dewatered contaminated sediment. Debris shall be loaded onto trucks and transported and disposed offsite in accordance with **Section 00015 OFFSITE TRANSPORTATION AND DISPOSAL**.

B. Access road surfacing, Dewatering waste, and other construction waste shall be disposed at the approved solid waste disposal facility.

C. Temporary materials used during construction may be reused onsite by the Contractor if they are decontaminated and Engineer approves of the reuse in writing.

3.5 RESUSPENSION CONTROLS

A. The contractor shall provide, maintain, and deploy re-suspension control systems to minimize sediment transport downstream in accordance with **Section 35 80 00 TURBIDITY BARRIERS**.

B. Place resuspension controls and turbidity monitoring as shown on the Contractor's approved Work Plan.

C. Contractor's dredging shall minimize disturbance of sediment to reduce, to the extent practical, sediment resuspension or mud-waving that would create movement of contaminated sediment outside the dredge area or exceed water quality requirements specified in the permits. Contractor shall implement operational controls and best management practices (BMPs) to minimize sediment resuspension and maintain compliance with the water quality requirements.

D. Contractor shall clean and decontaminate any and all equipment that has become exposed to contaminated materials or oily fluids prior to using this equipment to conduct any other construction activities. Cleaning shall be conducted in a designated location approved by the Engineer and all decontamination water shall be collected and treated offsite.

3.6 HYDRAULIC DREDGING

A. Maintain the plant, scows, coamings, barges, pipelines, and associated equipment to meet the requirements of the work.

B. The Contractor is permitted to dredge ahead of the plant to access shallow areas but is not permitted to ground the plant or support barges against the pond bed.

C. The Contractor shall maintain floating platforms, material scows, and associated equipment to meet the requirements of the Work and all applicable marine regulations, including the prompt repair of equipment failures.

D. Furnish, set, and maintain ranges, buoys, and markers needed to define work areas. Establish and maintain gages in location observable from each part of the work so that the depth may be determined. Suspend dredging when the gages or ranges cannot be seen or followed. The Contractor shall determine the survey lines, points, and elevations for the setting of ranges, gages, and buoys.

E. Provide agitation to loosen and dislodge materials for removal at the intake. Water jetting to dislodge materials for removal is not permitted, unless pre-approved by Engineer in writing.

F. Remove and separately manage debris as needed for maintaining a pumpable slurry compatible with the selected hydraulic dredging method. Debris that can readily be incorporated into the hydraulic dredge intake and not clog the cutterhead does not need to be removed. Debris that would clog the cutterhead or is too large to be removed should be removed separately using a bucket, or if large enough, a grapple.

G. If percent solids in the dredge slurry is less than anticipated, corrective actions shall be discussed with the Engineer.

H. Potentially contaminated material dredged from the established lateral extent of contaminated sediment shall be piped directly to the segregated area within the dewatering area for testing and processing, as shown in the Contract Drawings. Once the Contractor has received written confirmation from the Engineer that dredging of potentially contaminated material is complete, the Contractor shall purge the Hydraulic

Pipeline with pond water to remove residual contamination. The volume of water to purge the Hydraulic Pipeline shall be a minimum of two times the volume of the pipeline.

I. Material used in the Wetland Shelf shall be sourced solely from the North Dredge Area.

3.7 DREDGE VERIFICATION SURVEY

A. Dredge verification completed in Warner's Pond shall be completed using bathymetric survey and topographic survey methods, where appropriate for the current water depth, as described in **Section 02 21 19 BATHYMETRIC SURVEYS**.

B. If post-dredge surveying indicates that dredging operations failed to achieve the required dredge design elevation, the Contractor will re-dredge the area to the required dredge design elevation. Any re-dredging and/or re-surveying required to obtain the required dredge design elevation will be at no additional cost to the Town.

3.8 HIGH SUBGRADE

A. When a shoreline or other area is encountered with high subgrade or undredgeable bank (stiff clay, dense sand/gravel, or rock) that prevents the Contractor from achieving the design elevations required by the Drawings, the Contractor shall notify the Engineer to determine if dredging should continue to the design elevations or be stopped at this location.

B. The Contractor shall perform poling and coring surveys, and bathymetric survey, as necessary to determine the extent of this high subgrade area. After the high subgrade area is delineated, a summary figure shall be created for review and approval by the Engineer.

3.9 SEDIMENT HANDLING

A. All sediment handling and processing shall be completed in the designated areas shown on the Drawings unless expressly permitted by the Engineer.

B. Contaminated material shall be segregated from remaining dredged material and transported offsite to an approved disposal facility.

C. All material transfer activities must utilize berms and liners, spill plates, or other lined systems to prevent drips and spills outside of contained management areas. Construction of the Wetland Shelf is the sole exception to this requirement.

D. At no time shall the dredged material be handled by methods other than those in accordance with the Drawings and Technical Specifications and as described in the approved Dredge Work Plan.

3.10 SPILLS

A. In the event of a spill or release of a hazardous substance (as designated in 40 CFR 302), pollutant, contaminant, or oil (as governed by the Oil Pollution Act, 33 U.S.C. 2701 et seq.), notify the Engineer immediately. If the spill exceeds the reporting threshold, follow the pre-established procedures as described in the Dredge Work Plan for

immediate reporting and containment. Immediate containment actions shall be taken to minimize the effect of any spill or leak. Cleanup shall be in accordance with but not limited to applicable federal, state, and local regulations. As directed by the Engineer, additional sampling and testing shall be performed to verify spills have been cleaned up. Spill cleanup and testing shall be done at no additional cost to the Town. The Contractor shall be prepared to undertake measures to control and contain spills to minimize affected areas, and expediently undertake actions to address spills and provide necessary site restoration, in coordination with the Engineer.

B. Contractor shall comply with the Engineer immediately if the discharge that is not exempted. The Spill Hotline telephone number is 1-800-304-1133.

C. Should the Contractor, during the execution of the Work, lose, dump, throw overboard, sink, or misplace any material, dredge, scow, machinery, equipment, or appliance, the Contractor shall promptly recover and remove same to the satisfaction of the Town at no additional cost to the Town.

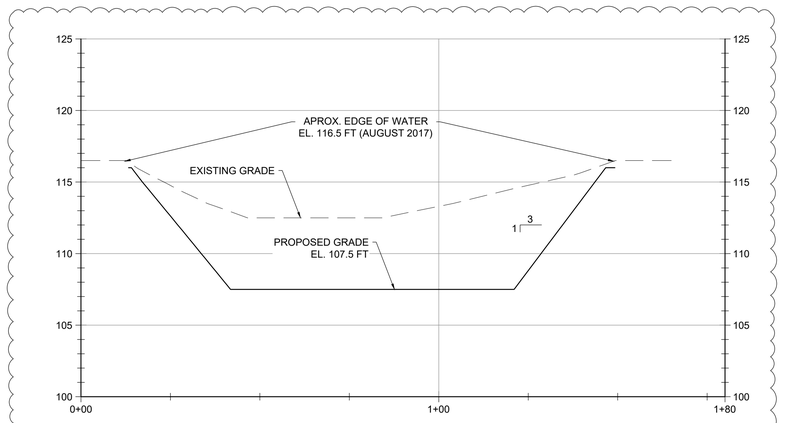
3.11 WINTERIZATION

A. If Contractor selects to work in winter months, dredging operations, hydraulic pipelines, all associated equipment, and all supporting areas shall be winterized to protect from freezing to allow for continuous operation. Submit a Winterization Plan for Engineer approval prior to winterization. Winterization shall include but is not limited to protecting the dredging operation dredge(s); excavator, pumps, barges, tow/tug boats, support vessels, containers, hydraulic pipelines, feed pumps, valves, tanks generators, meters, gauges, and all other supporting equipment from freezing and ice accumulation with enclosures, insulation, conductive heating, or other approved equivalent. Include a description for how ice will be managed within the excavation area and hydraulic pipeline anchorages.

3.12 CONDITIONS

A. The Contractor should anticipate adverse dredging conditions. Saturated soils with low shear strength, woody vegetation and roots, dredge areas contaminated with metals, soils with, and potential for sheen generation, contact with groundwater and surface water, woody debris, manmade debris, organic muck, and ice are anticipated. No additional payment shall be made for adverse conditions of dredging or delay or work associated with those conditions. Ice shall not be transported to the staging area but shall be managed within the dredge area.

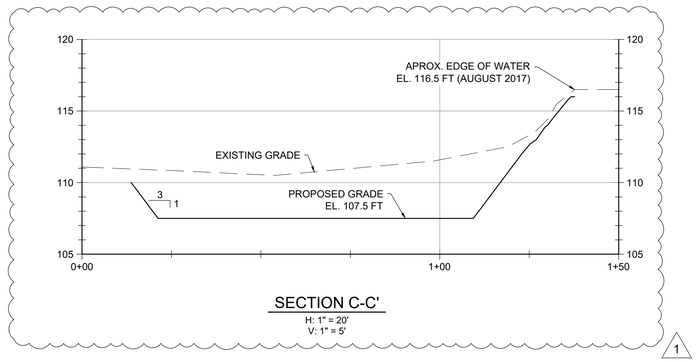
END OF SECTION 35 20 23



SECTION A-A'

H: 1" = 20'
V: 1" = 5'

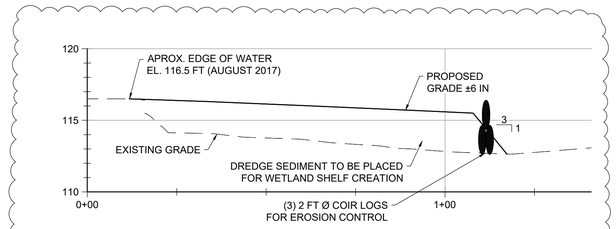
1



SECTION C-C'

H: 1" = 20'
V: 1" = 5'

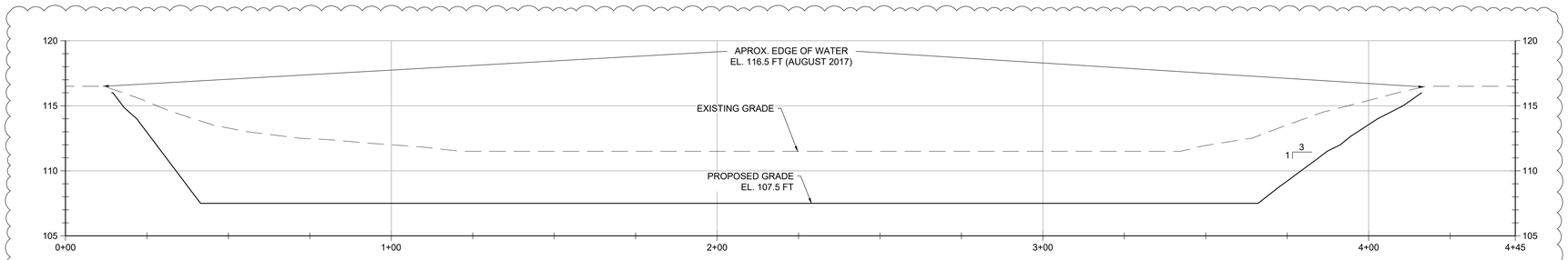
1



SECTION D-D'

H: 1" = 20'
V: 1" = 5'

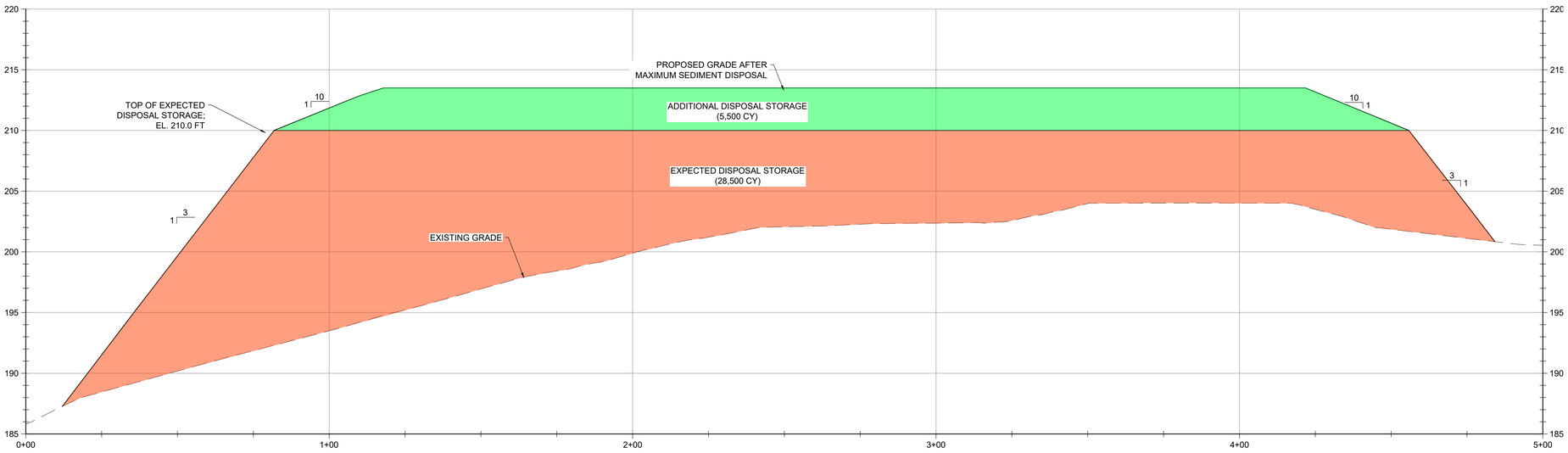
1



SECTION B-B'

H: 1" = 20'
V: 1" = 5'

1



SECTION E-E'

H: 1" = 20'
V: 1" = 5'

REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	8/29/22	AEH	ADDENDUM 1

DESIGN INFORMATION				
DESIGNED BY:	DRAWN BY:	CHECKED BY:	PROJECT MANAGER:
AP	DPA	AEH	AP

SEAL

COMMONWEALTH OF MASSACHUSETTS
AMY E. HUNT
No. 24144
REGISTERED PROFESSIONAL ENGINEER
8/29/22

TOWN OF CONCORD
WARNER'S POND RESTORATION PROJECT

CONCORD, MASSACHUSETTS

CROSS SECTIONS

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440
www.eaest.com

SCALE AS SHOWN

FULL SIZE PLOT: 24" x 36"

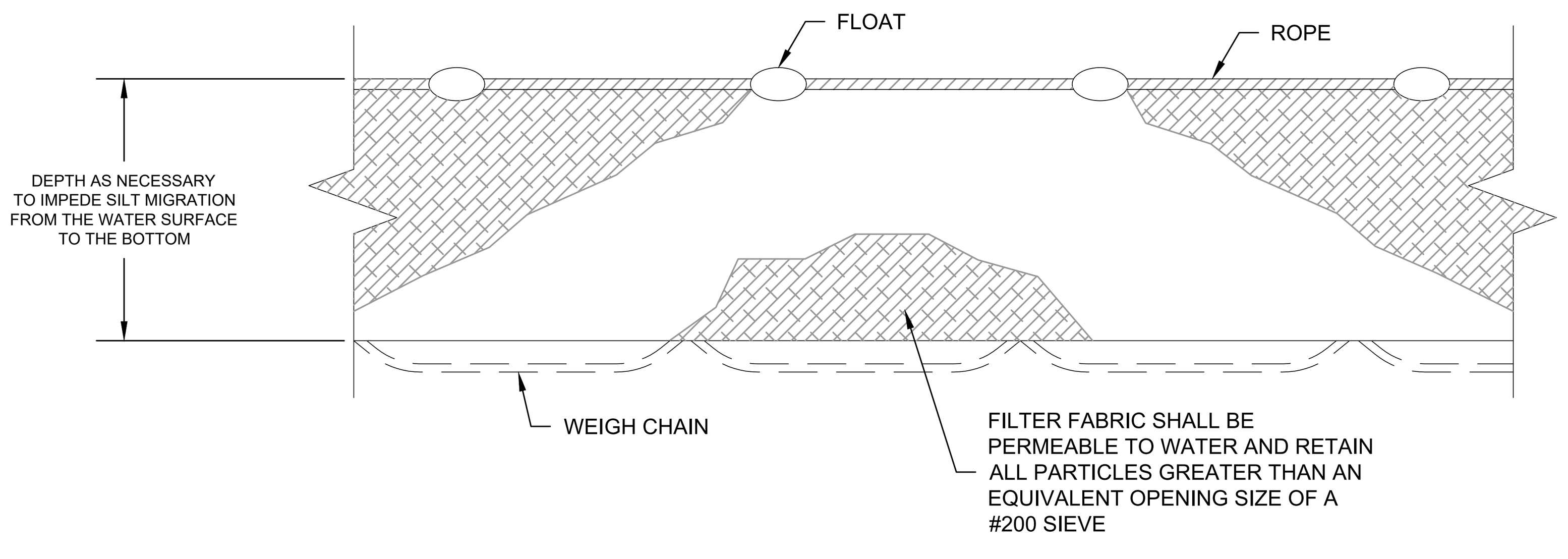
DATE: AUGUST 2022

PROJECT NUMBER: 6373001

C-301

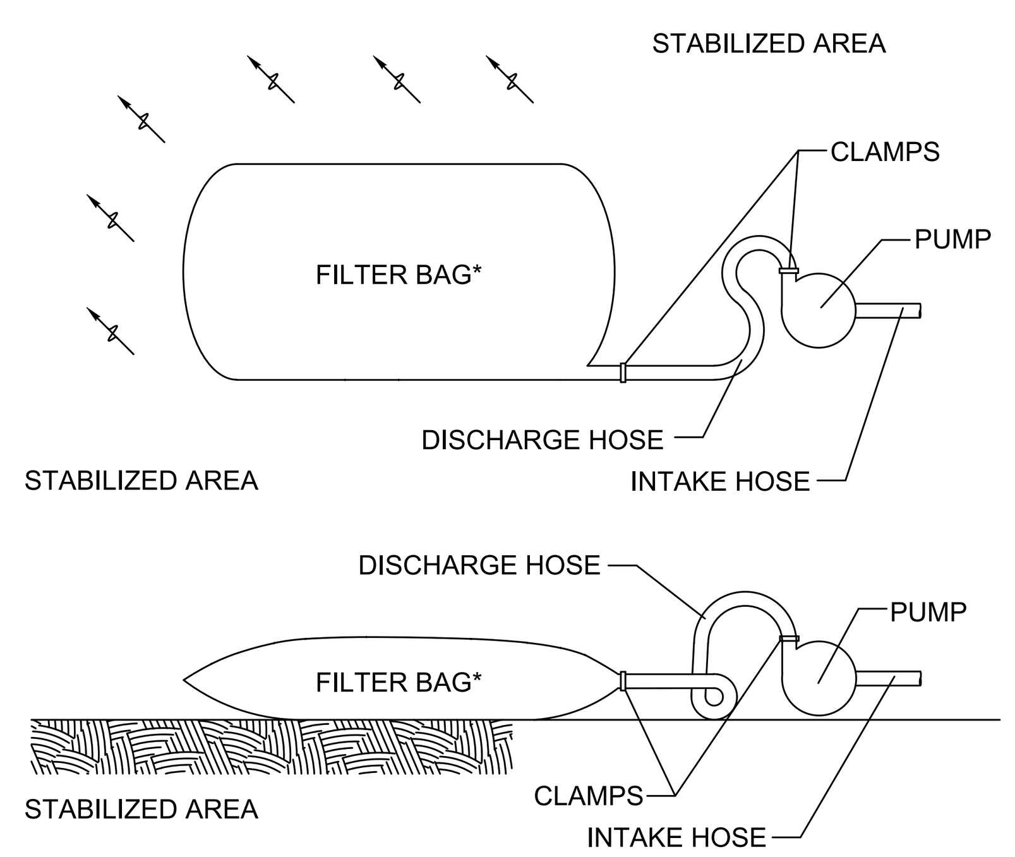
SHEET: 12 OF 13

100% PLANS - FOR CONSTRUCTION



TURBIDITY BARRIER DETAIL
NOT TO SCALE

NOTE: THE TOP SHALL BE AT THE WATER SURFACE AND THE BOTTOM OF TURBIDITY BARRIER SHALL BE ADJUSTED AND MAINTAINED TO PREVENT CONTACT WITH SEDIMENT AND CAUSE RE-SUSPENSION.

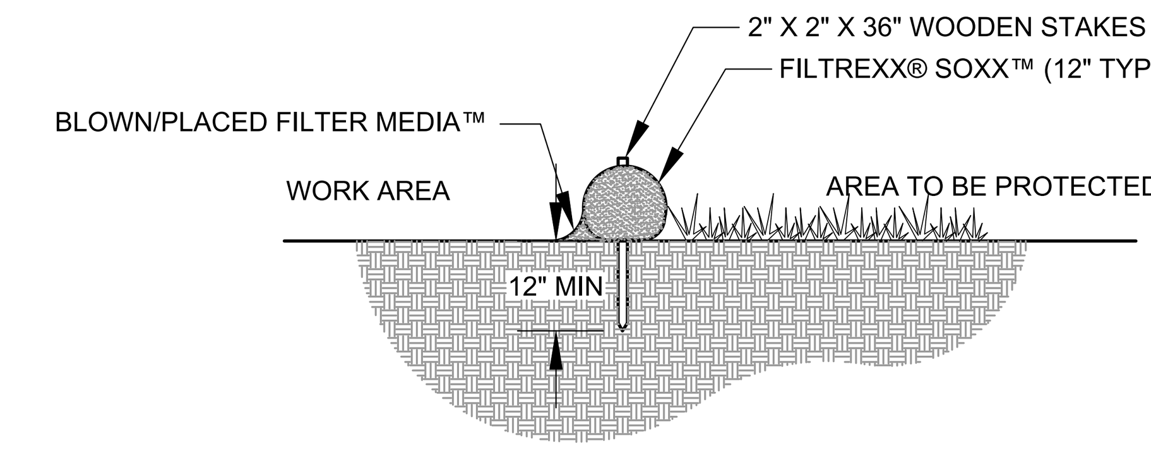


* NON-WOVEN GEOTEXTILE FILTER BAG WHICH RETAINS ALL SEDIMENT PARTICLES LARGER THAN 15O MICRONS.

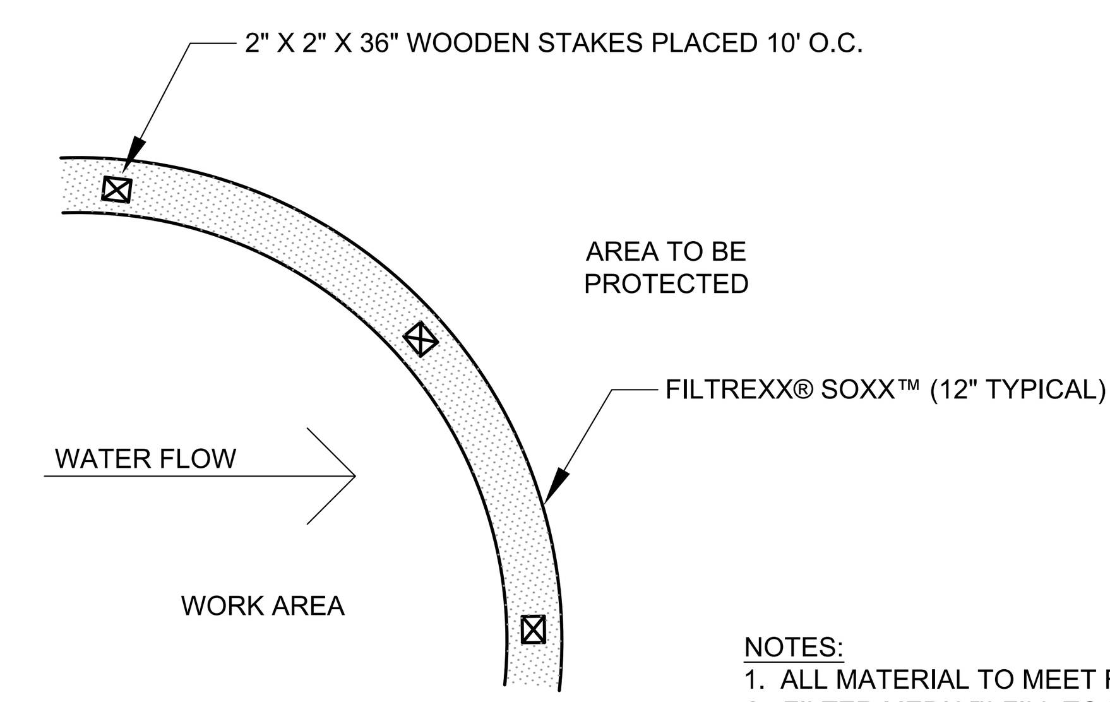
FILTER BAG
NOT TO SCALE

NOTES:

1. PLACE FILTER BAGS ON STABLE OR WELL VEGETATED AREAS WHICH ARE FLATTER THAN 5% AND WILL NOT ERODE WHEN SUBJECTED TO BAG DISCHARGES.
2. CLAMP PUMP DISCHARGE HOSES SECURELY INTO FILTER BAGS.
3. LIMIT PUMPING RATE TO ½ THE MANUFACTURER'S MAXIMUM PUMPING RATE.
4. WHEN SEDIMENTS FILL ⅓ THE VOLUME OF A FILTER BAG, IMMEDIATELY REMOVE THAT BAG FROM SERVICE. PROPERLY DISPOSE OF SPENT BAGS WITH THEIR SEDIMENTS.
5. ALL WATER COLLECTED WITHIN THE LIMIT OF DISTURBANCE (WITH THE EXCEPTION OF WATER DIVERTED AROUND THE WORK AREA) SHALL BE PUMPED THROUGH THE FILTER BAG.



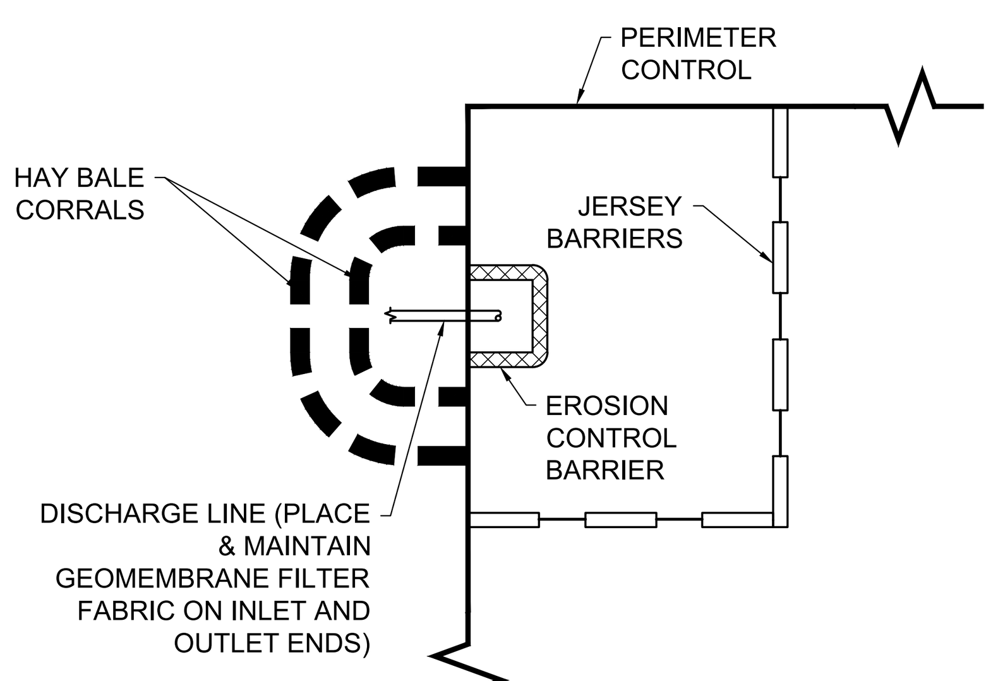
SECTION NTS



PLAN NTS

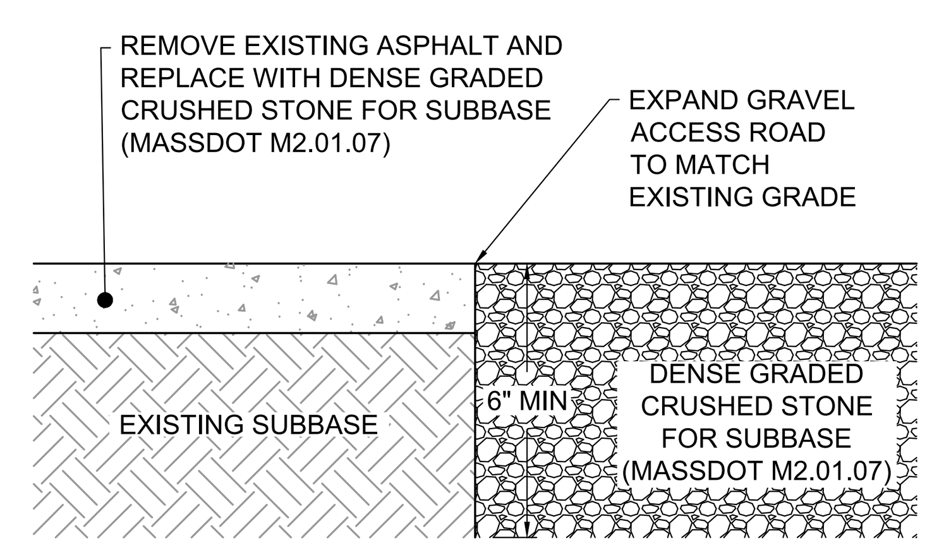
NOTES:
1. ALL MATERIAL TO MEET FILTREXX® SPECIFICATIONS.
2. FILTER MEDIA™ FILL TO MEET APPLICATION REQUIREMENTS.
3. COMPOST MATERIAL TO BE DISPERSED ON SITE, AS DETERMINED BY ENGINEER.

COIR LOG EROSION CONTROL
NOT TO SCALE

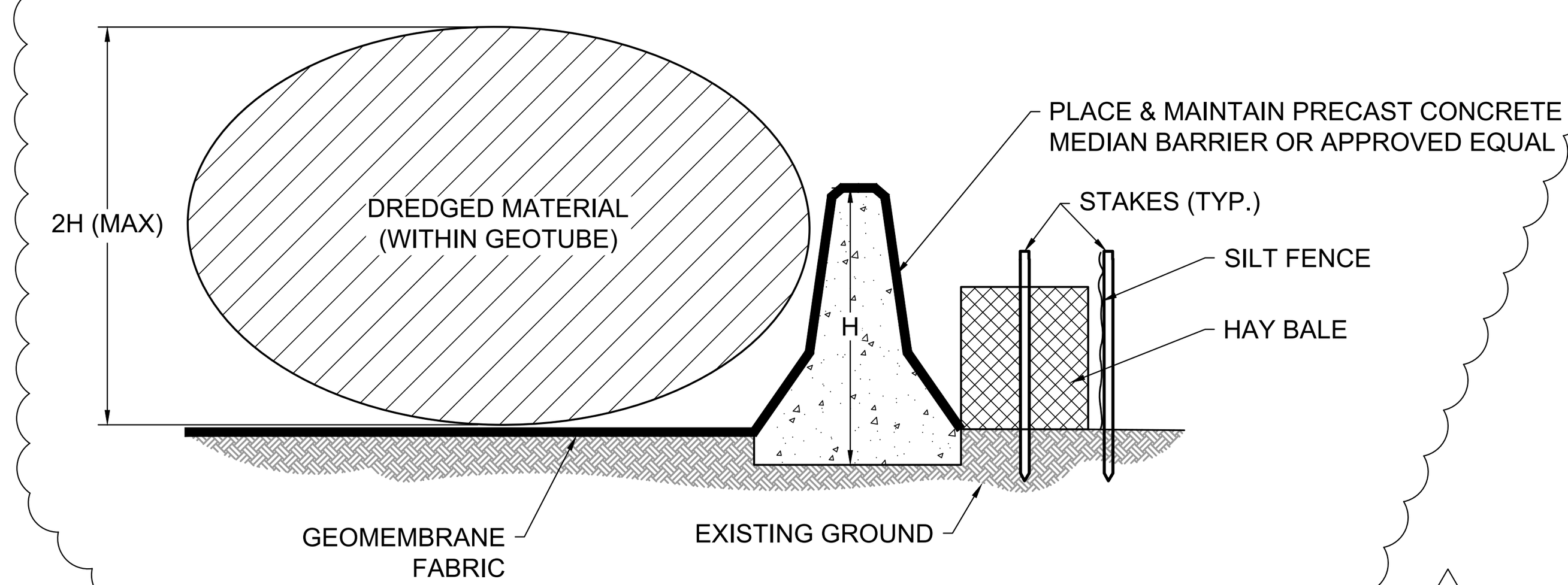


DEWATERING SUMP STRUCTURE
NOT TO SCALE

NOTES:
1. PROVIDE MINIMUM WEIR EFFECTIVE LENGTH OF 30 FT.
2. EXCAVATE DEWATERING SUMP TO SUFFICIENTLY HOLD WATER COMING FROM GEOTUBES.
3. FILL WITH PEA STONE AND INSTALL FILTER BAGS ON TOP.



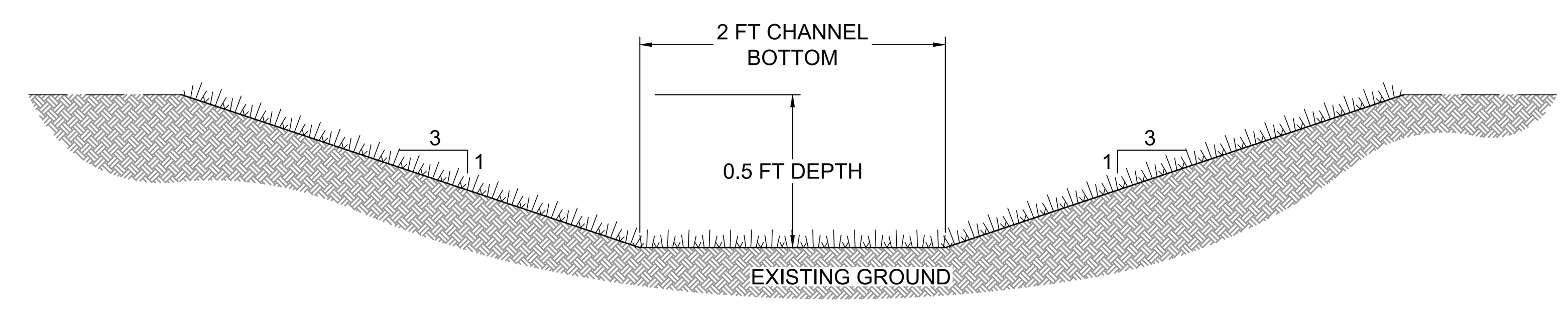
GRAVEL ACCESS ROAD
NOT TO SCALE



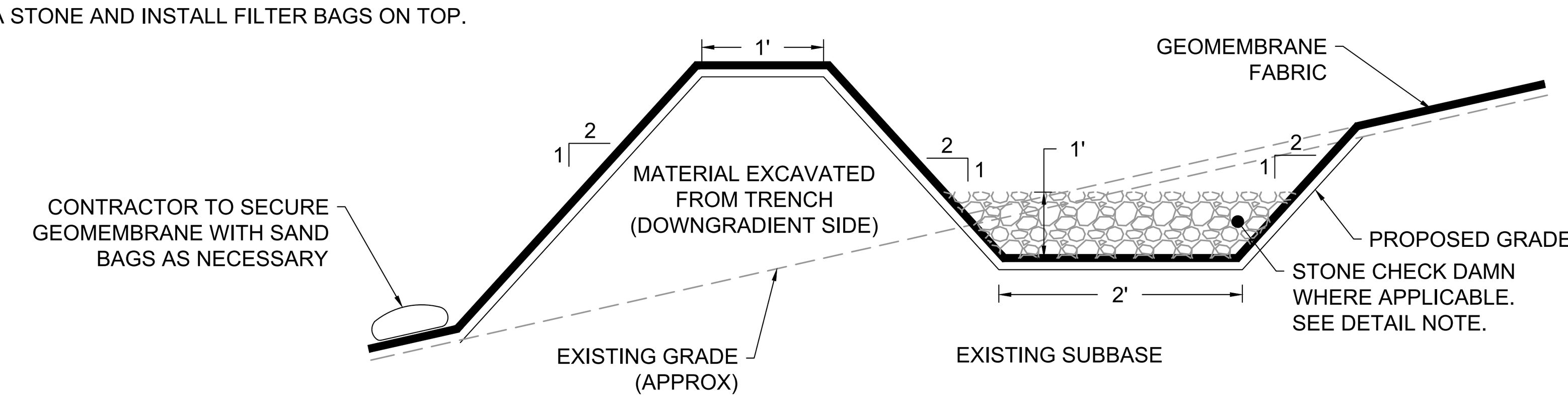
DEWATERING AREA PERIMETER CONTROL
NOT TO SCALE

NOTE:
1. TO PREVENT THE GEOTUBES FROM ROLLING THE CONTRACTOR SHALL REGRADE DEWATERING AREA OR INSTALL PRECAST CONCRETE MEDIAN BARRIERS ON THE DOWNHILL SIDE OF THE GEOTUBE THAT ARE AT LEAST HALF OF THE GEOTUBE MANUFACTURER'S RECOMMENDED FILL HEIGHT.
2. IF THE CONTRACTOR ELECTS TO REGRADE THE DEWATERING AREA THE REGRADING SHALL BE PERFORMED SO THE MAXIMUM EXCAVATION DEPTH DOES NOT EXCEED 18 INCHES.
3. THE CONTRACTOR IS NOT REQUIRED TO SEGREGATE TOPSOIL EXCAVATED TO REGRADE THE DEWATERING AREA.

1



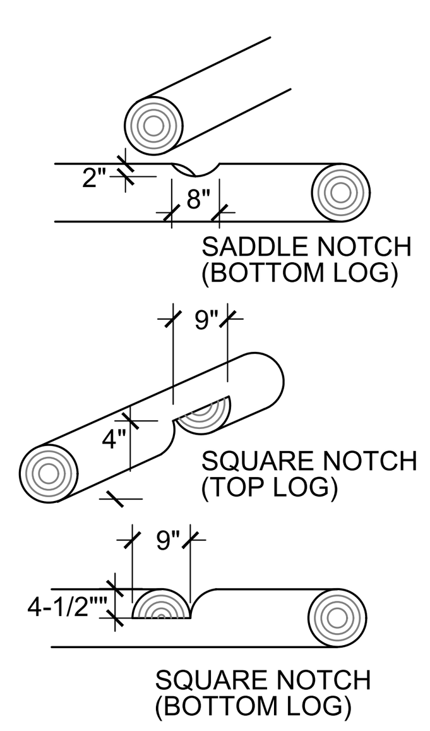
GRASSED CHANNEL
NOT TO SCALE

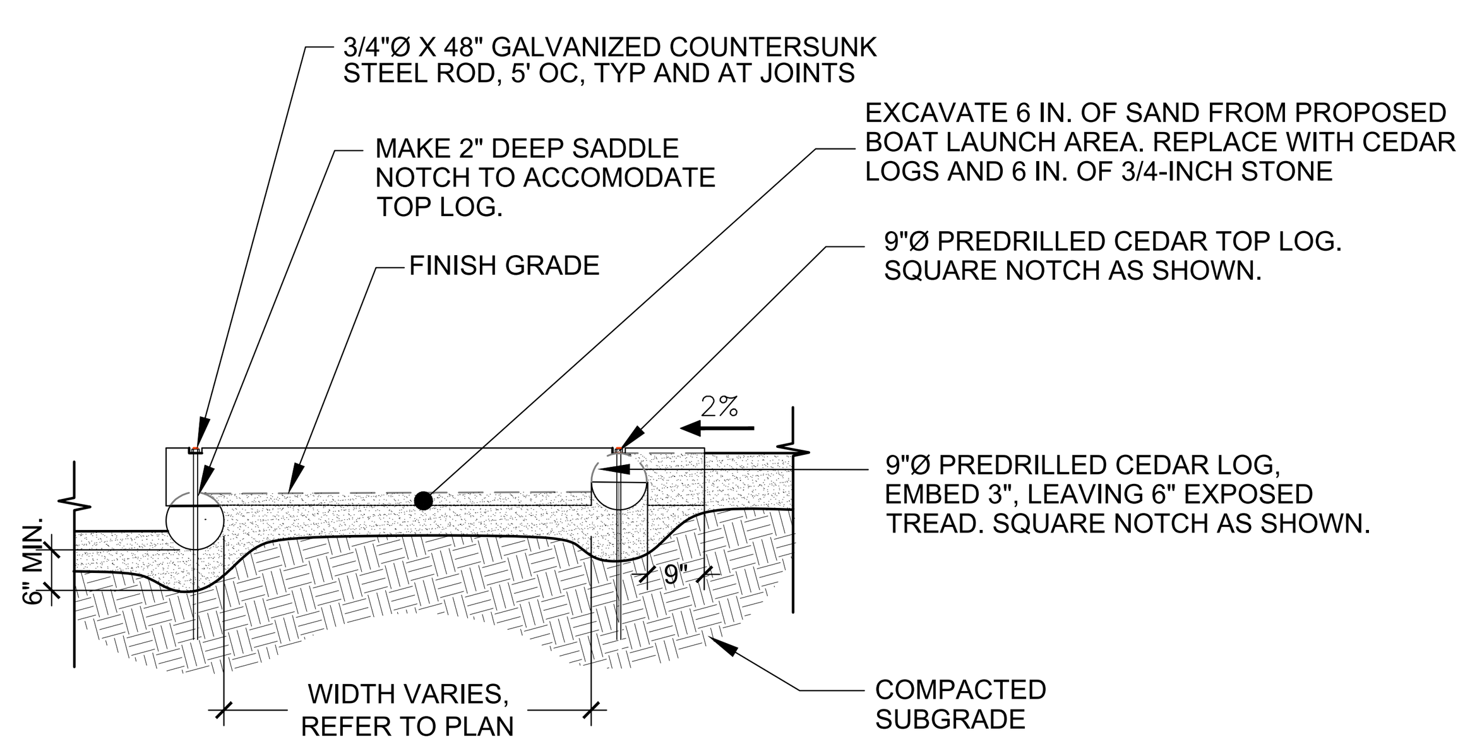


TEMPORARY PERIMETER DEWATERING TRENCH DRAIN
NOT TO SCALE

NOTE:
PROVIDE 1 FT HIGH, 1-FT WIDE STONE CHECK DAM CONSISTING OF 1-INCH STONE PERPENDICULAR TO TRENCH DRAIN EVERY 1 FOOT OF VERTICAL FALL OF TRENCH SLOPE OR 200 LINEAR FEET, WHICHEVER IS MORE FREQUENT.

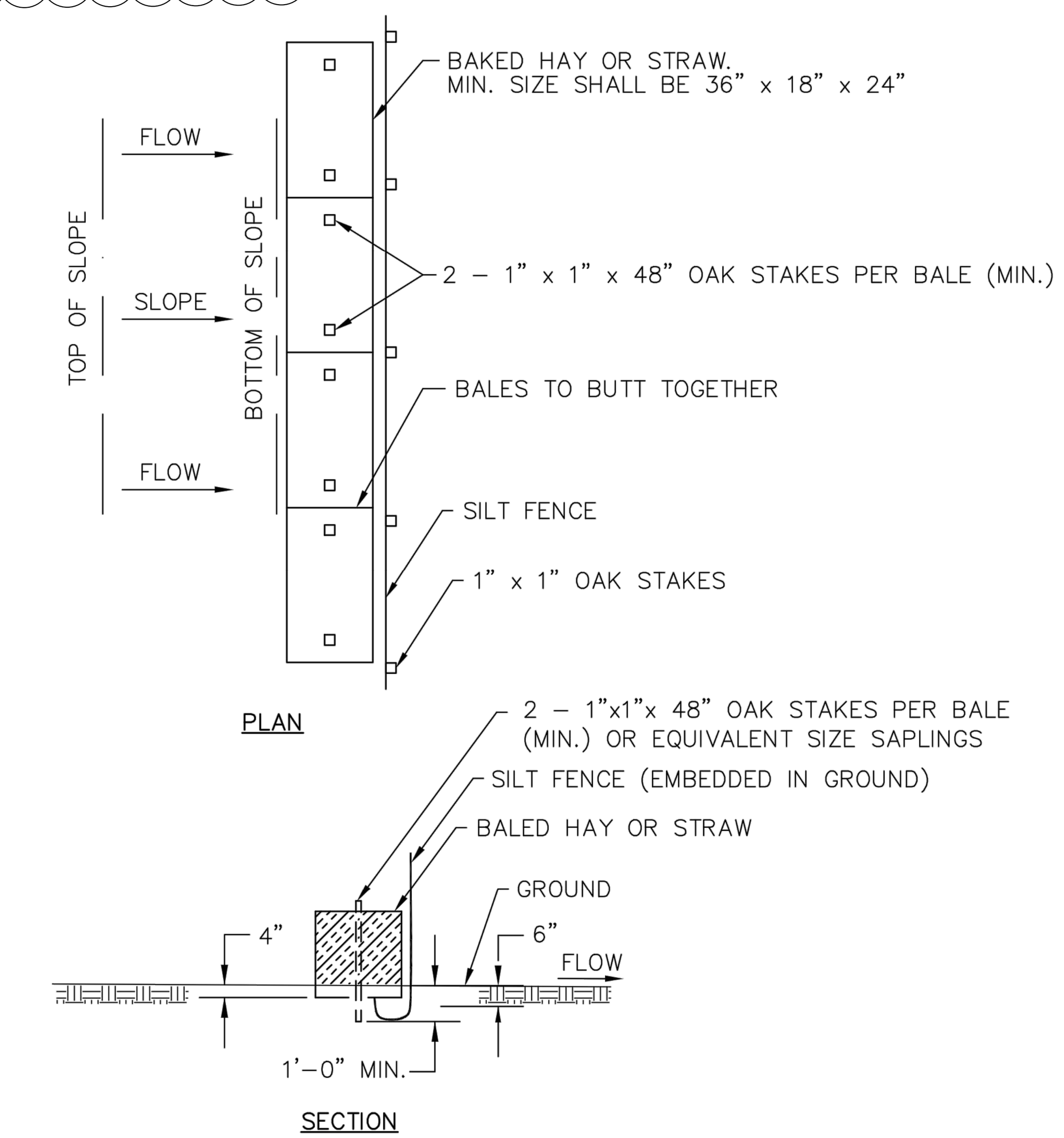
1



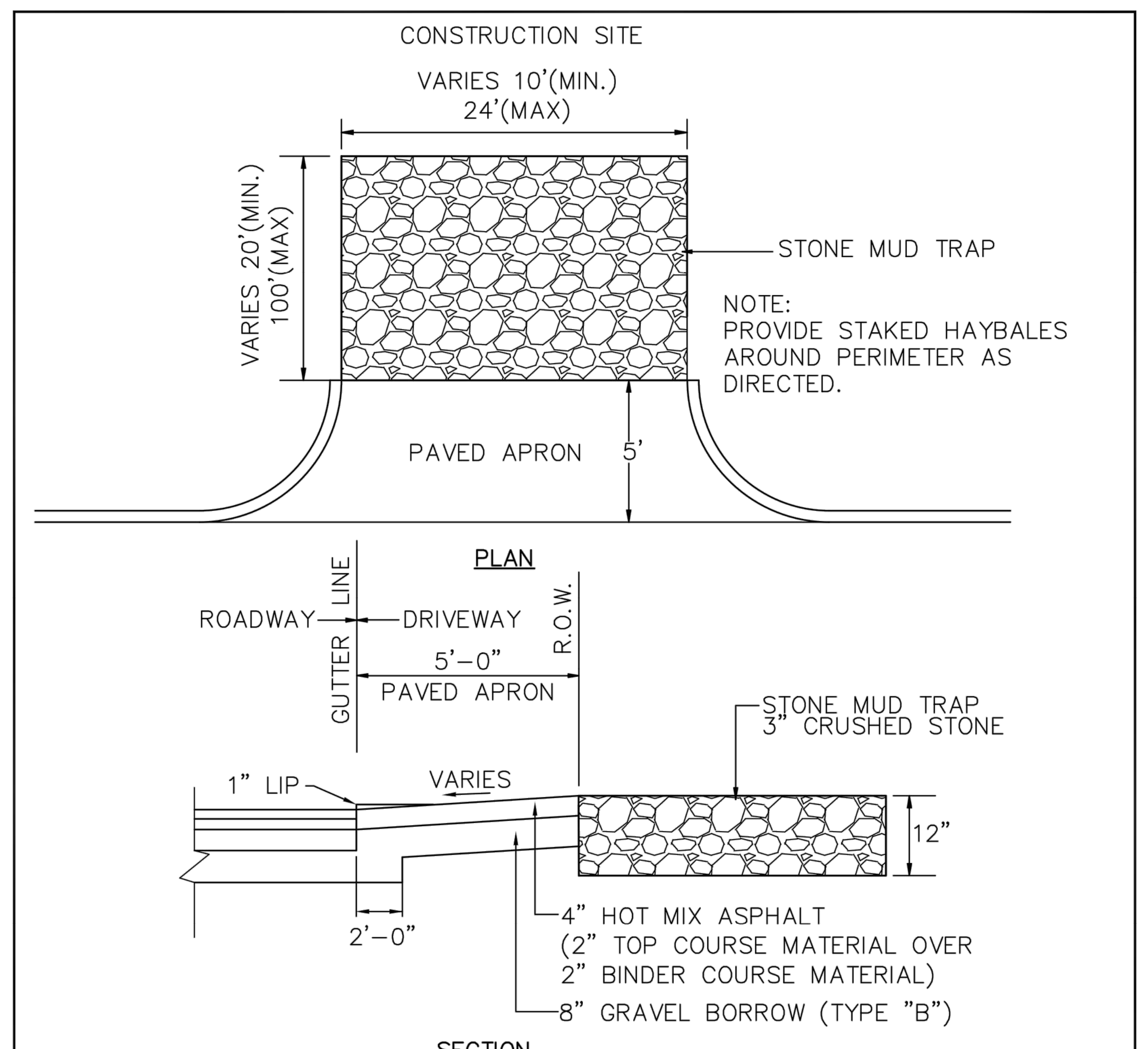


CANOE/BOAT LAUNCH IMPROVEMENTS
NOT TO SCALE

NOTE: EXCAVATE 6 IN. OF SAND FROM PROPOSED BOAT LAUNCH AREA. REPLACE WITH CEDAR LOGS AND 6 IN. OF 3/4-INCH STONE.



TOWN OF CONCORD–PUBLIC WORKS DESIGN AND CONSTRUCTION STANDARDS		
HAYBALES AND SILT FENCE		
SCALE:N.T.S.	DATE:01/08/2015	
JOB NO.\FILE NAME: FILE.DWG	DESIGNED BY: JCZ DRAWN BY: JCZ CHECKED BY: W.J.R.	PLAN NO. EC-4



NOTE:
STONE MUD TRAP SHALL BE REMOVED AND REPLACED WHEN FILLED WITH SEDIMENT OR AS REQUIRED BY THE TOWN ENGINEER OR HIS DESIGNEE.

TOWN OF CONCORD–PUBLIC WORKS DESIGN AND CONSTRUCTION STANDARDS		
TEMPORARY CONSTRUCTION ENTRANCE		
SCALE:N.T.S.	DATE:01/08/2015	
JOB NO.\FILE NAME: FILE.DWG	DESIGNED BY: JCZ DRAWN BY: JCZ CHECKED BY: W.J.R.	PLAN NO. EC-7

REVISIONS			
NO.	DATE	BY	DESCRIPTION
1	8/29/22	AEH	ADDENDUM 1

DESIGN INFORMATION
DESIGNED BY: AP
DRAWN BY: DPA
CHECKED BY: AEH
PROJECT MANAGER: AP

SEAL

TOWN OF CONCORD
WARNER'S POND RESTORATION PROJECT
CONCORD, MASSACHUSETTS

DETAILS

EA Engineering, Science, and Technology, Inc., PBC
301 Metro Center Blvd, Suite 102
Warwick, Rhode Island 02886
(401) 736-3440
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SCALE AS SHOWN
FULL SIZE PLOT: 24" x 36"
DATE: AUGUST 2022
PROJECT NUMBER: 6373001

C-501

SHEET: 13 OF 13

100% PLANS - FOR CONSTRUCTION