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Springfield, MA 01103
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March 6, 2025
File No. 15.0167291.00

Paul Nowak, Chairman
Nashawannuck Pond Steering Committee
City of Easthampton
50 Payson Avenue
Easthampton, MA 01027

Re: Nashawannuck Pond Shoreline Stabilization Study
Nonotuck Park
Easthampton, Massachusetts

Dear Mr. Nowak,

In accordance with our December 22, 2023 Proposal for Professional Services, GZA GeoEnvironmental, Inc. (GZA) is pleased to provide the City of Easthampton's Nashawannuck Pond Steering Committee ("City; Committee; Client") the attached Conceptual Design Drawings and associated Conceptual-Level Estimate of Potential Project Costs ("Cost Estimate"), hereinafter referred to collectively as the Design, for the above referenced project. This letter provides a narrative description of the Design, including a summary of permits anticipated to be required for construction of the Design.

This letter is subject to the limitations included in **Attachment A**. Copies of the Conceptual Design Drawings and Cost Estimate are included as **Attachments B** and **C** to this letter, respectively.

PROJECT BACKGROUND

Nashawannuck Pond is a 22-acre pond whose north end is located in the center of Easthampton, extending south into the protected open space of Nonotuck Park. Nonotuck Park and Brookside Cemetery comprise over half of the pond's shoreline, including the entire western shoreline. These open spaces contribute to the pond's recreational appeal and receive significant visitor foot traffic. Several areas along the pond's shoreline have experienced degradation due to ongoing soil compaction and erosion caused by stormwater runoff.

In 1999, a series of shoreline stabilization structures was designed and installed along the western shoreline of the pond. In the 1999 design drawings, the locations of these structures were identified as "Area 1", "Area 2", "Area 3", and "Area 4". While these structures addressed the issues facing the shoreline in 1999, today these structures are at, or nearing the end of, their useful lifespans and are showing visible signs of deterioration, and the landscapes in their immediate vicinity have experienced new patterns of compaction and erosion.

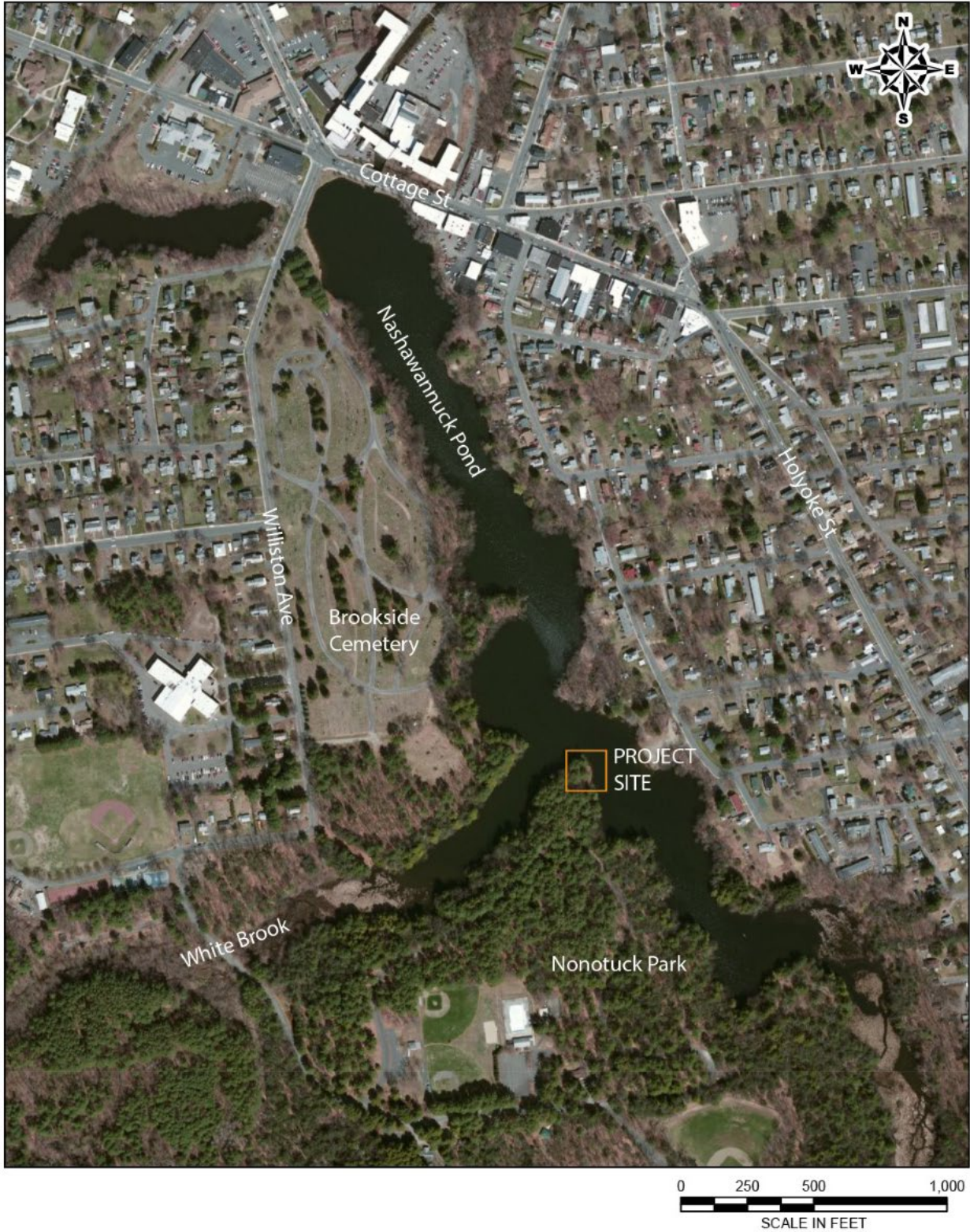


Figure 1: Project Site, indicated in orange. (image source: ESRI, Maxar, Earthstar Geographics, IGN, and GIS User Community)



The eastern portion of the area referred to as Area 3 in the 1999 design drawings is a wooded peninsula at the north end of Nonotuck Park. Slope stabilization measures at this location included: timber slope checks built with pressure treated lumber; unvegetated stone walls comprised of dry-laid fieldstone with a minimum wall thickness of 2 feet; and vegetated stone walls comprised of dry-laid fieldstone with a minimum wall thickness of 2 feet and live stake cuttings of red-osier dogwood, American elderberry, and shining willow planted in the spaces between stones. Area 3 includes a timber slope check structure along the eastern end of the peninsula, and a lower tier of vegetated and unvegetated stone wall shoreline stabilization and access structures closer to the water. These features and their immediate surrounding area comprise the study area of this Project. The Project Site is indicated on the aerial image on the preceding page.

GZA understands that the normal water surface elevation in the pond is currently being maintained by the City at elevation 153.2 feet (elevation provided to GZA by Easthampton Department of Public Works, referenced to the NGVD 1929 vertical datum), which appears to be somewhat higher than at the time the existing 1999 stabilization measures were designed and installed. As a result, portions of the previously constructed shoreline stabilization and access structures are now under water, including the unvegetated stone wall along the northeast edge of Area 3, and the toe of the timber slope check is currently at or very close to the water surface of the pond.

While these structures appear to have addressed the issues facing the Site in 1999, the timber slope check is now showing signs of significant wear, and is damaged, deteriorating, and leaning.

SITE ASSESSMENT

GZA observed the Site on June 17, 2024. During our visit, GZA observed that the timber slope check is deteriorating and leaning towards the pond, while the vegetated and unvegetated stone walls appear to be still functioning as intended (although the northeast unvegetated stone wall is now under water due to the higher pond surface elevation). Much of the soil within the area appears to be overly-compacted due to pedestrian foot traffic. There is visual evidence that erosion caused by visitor foot traffic, and exacerbated by stormwater runoff, has been occurring around the edges of these structures and other nearby areas of the Site.

A steep slope along the east edge of the Project area is over-compacted and de-vegetated, and extends about six feet downhill to the edge of water (down an approximately 2 horizontal to 1 vertical, or 2H:1V, slope), where a narrow section of the vegetated stone wall is accessible and appears to be regularly used for fishing access. The clear area of this “Eastern Slope” is about 14 feet wide at the top (non-vegetated compacted and eroded space), narrowing to about 4 feet wide at the shoreline.

PROPOSED DESIGN

The Design proposes to replace the deteriorating timber slope check with a stone wall system similar to the unvegetated stone walls constructed in 1999, and to add similar stone walls to the Eastern Slope area. A two-tiered stone wall system is proposed to replace the timber slope check, and a three-tiered stone wall system is proposed at the Eastern Slope. These various tiers of stone walls total 98 linear feet of stone wall. The vertical faces of the proposed stone walls are 18 inches or less, and the horizontal space between tiers ranges from about



42" to 48" from wall face to wall face; approximately half of this proposed area is the top of the lower stone wall tier, and half is topsoil fill. The walls are proposed to be backfilled with $\frac{3}{4}$ " crushed stone backfill, with gaps between wall stones closed with coarse angular stone, and geotextile fabric wrapped on the bottom, sides, and top of the stone backfill. The spaces between walls are proposed to be surfaced with a 6" layer of topsoil and seeded with a "New England Semi-Shade Grass and Forbs Mix" by New England Wetland Plants, Inc (or similar seed mix).

Construction of the proposed stone walls would be facilitated by installation of a temporary coffer dam and dewatering of an approximately 300 square foot area within the pond immediately adjacent to the work area, since the existing timber slope check to be removed and the proposed stone walls are immediately adjacent to the edge of water. Temporary dewatering would occur within a temporary sandbag cofferdam, with water pumped out of the area to a dewatering filter bag. Runoff would be further filtered through straw wattles surrounding the dewatering bag, and would return back into the pond along an adjacent existing un-vegetated slope to the west of the work area. This slope would be protected from erosion by placing tarps on the path of dewatering runoff.

An existing unpaved access path extends from the paved Nonotuck Park access loop drive north to the Project area. This unpaved access path is 275 feet in length and is wide enough between existing trees to allow small construction equipment (small scale loaders, smaller trucks) to access the Project site. There is an open, level area roughly 50 feet by 50 feet in size at the base of this path, just at the uphill edge of the Project area, which would allow space for construction equipment and staging.

SUMMARY OF ANTICIPATED PERMITS

On February 8, 2025, Paul Davis, a Professional Wetland Scientist and a member of the Nashawannuck Pond Steering Committee, performed a wetland delineation of the Project area per 310 CMR 10.00. The delineation identified a Bank resource as defined by 310 CMR 10.54(2).

Based on our understanding of the project (as described herein) and the delineation performed by Mr. Davis, GZA anticipates the following permitting requirements will apply:

- Work within a 100-foot Buffer Zone of the Bank resource, as well as temporary dewatering within the pond, will require a Notice of Intent application to be submitted to the Easthampton Conservation Commission.
- Additionally, temporary dewatering within the pond will require submission of a Self-Verification Notification (SVN) to the U.S. Army Corps of Engineers (USACOE).
- The Project area appears to be within the 100-year FEMA floodplain. The final design will review the proposed cut and fill volumes within the floodplain for compliance with applicable resource area performance standards.



CLOSING

We appreciate the opportunity to assist the Nashawannuck Pond Steering Committee on this project and look forward to discussing this with you. Please contact us at (413) 726-2100 if you have any questions concerning this summary letter.

Very truly yours,
GZA GEOENVIRONMENTAL, INC.

A handwritten signature in blue ink, appearing to read "Daniel Shaw".

Daniel Shaw, PLA
Landscape Architect

A handwritten signature in blue ink, appearing to read "Nat Arai".

Nat Arai, P.E.
Consultant / Reviewer

A handwritten signature in blue ink, appearing to read "Nathaniel L. Russell".

Nathaniel L. Russell, P.E.
Principal-in-Charge

Attachments:

- Attachment A – Limitations
- Attachment B – Conceptual Design Drawings
- Attachment C – Conceptual-Level Estimate of Potential Project Costs



USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the contract documents, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in Proposal for Services and/or Report, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. If conditions other than those described in this report are found at the subject location(s), or the design has been altered in any way, GZA shall be so notified and afforded the opportunity to revise the report, as appropriate, to reflect the unanticipated changed conditions .
3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.
4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

SUBSURFACE CONDITIONS

5. In preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein which were made available to GZA at the time of our evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
6. Site-specific evaluation of groundwater levels have not been made. Fluctuations in the level of the groundwater should be anticipated to occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The water table encountered in the course of the work may differ from that indicated in the Report.
7. GZA's services did not include an assessment of the presence of oil or hazardous materials at the project location. Consequently, we did not consider the potential impacts (if any) that contaminants in soil or groundwater may have on construction activities, or the use of structures on the property.

COMPLIANCE WITH CODES AND REGULATIONS

8. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.



COST ESTIMATES

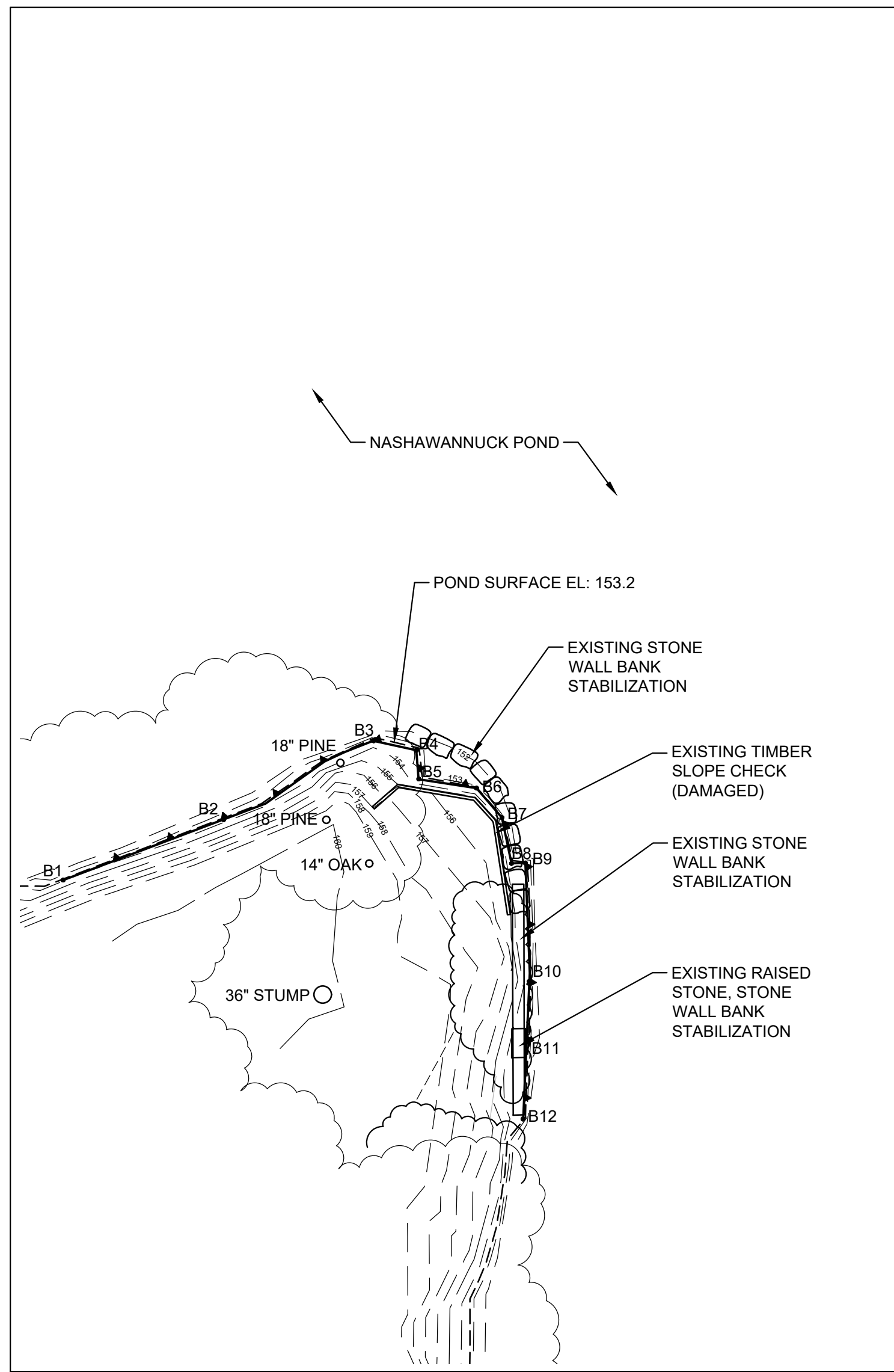
9. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over either when the work will take place or the labor and material costs required to plan and execute the anticipated work, our cost estimates were made by relying on our experience, the experience of others, and other sources of readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.
10. Cost opinions presented in the Report are based on a combination of sources and may include published RS Means Cost Data; past bid documents; cost data from federal, state or local transportation agency web sites; discussions with local experienced contractors; and GZA's experience with costs for similar projects at similar locations. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation. Actual costs will likely vary depending on the quality of materials and installation; manufacturer of the materials or equipment; field conditions; geographic location; access restrictions; phasing of the work; subcontractors mark-ups; quality of the contractor(s); project management exercised; and the availability of time to thoroughly solicit competitive pricing. In view of these limitations, the costs presented in the Report should be considered "order of magnitude" and used for budgeting and comparison purposes only. Detailed quantity and cost estimating should be performed by experienced professional cost estimators to evaluate actual costs. The opinions of cost in the Report should not be interpreted as a bid or offer to perform the work. Unless stated otherwise, all costs are based on present value.
11. The opinion of costs are based only on the quantity and/or cost items identified in the Report, and should not be assumed to include other costs such as legal, administrative, permitting or others. The estimate also does not include any costs with respect to third-party claims, fines, penalties, or other charges which may be assessed against any responsible party because of either the existence of present conditions or the future existence or discovery of any such conditions.

ADDITIONAL SERVICES

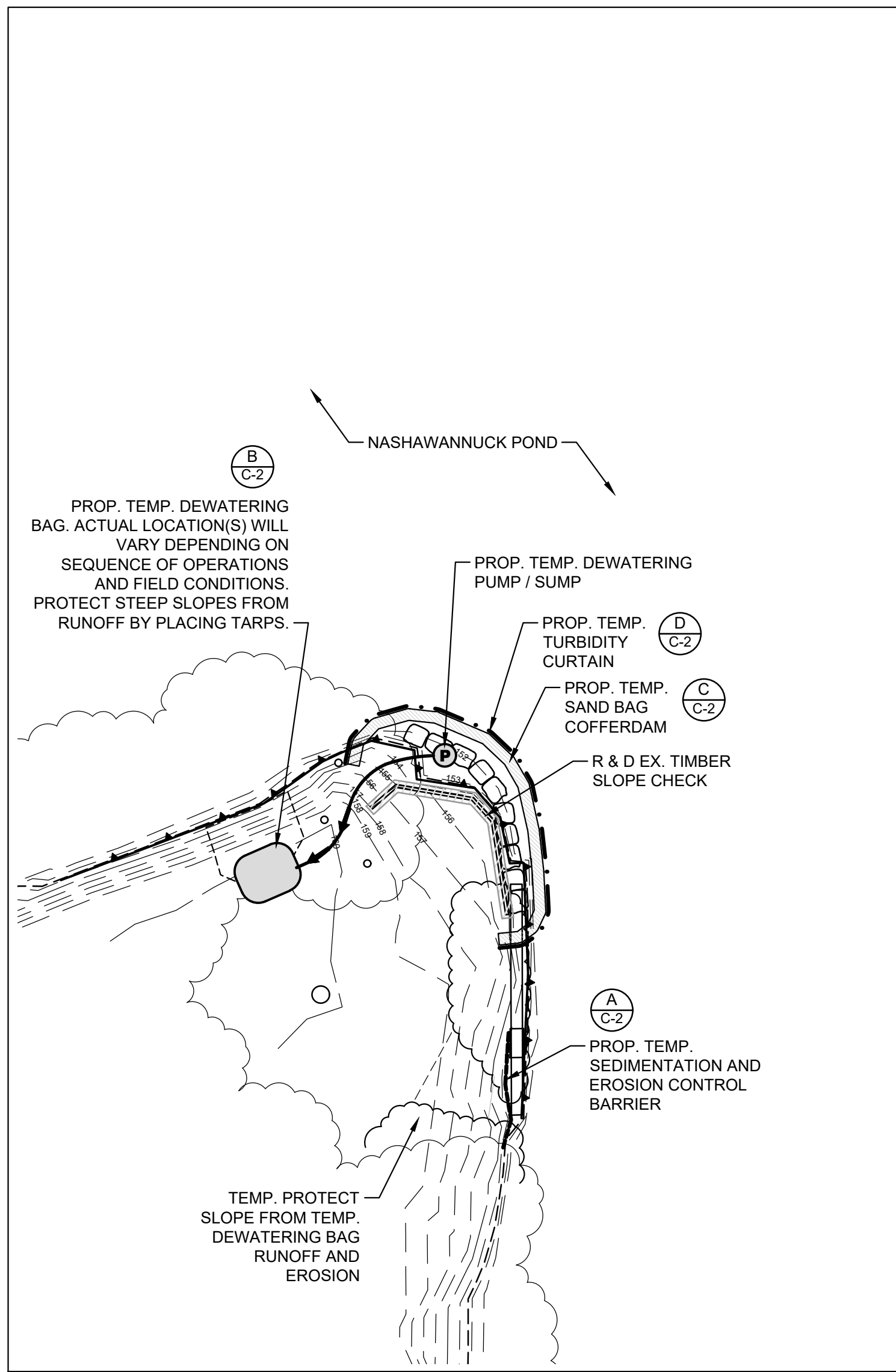
12. GZA recommends that we be retained to provide services during any future: site observations, design, implementation activities, construction and/or property development/redevelopment. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

© 2025 - GZA GeoEnvironmental, Inc. 15.0167291-00 NASHAWANNUCK POND SHORELINE STABILIZATION 15.0167291-00 NASHAWANNUCK POND SURFACE EL: 153.2 - PLAN Month: 5, 2025 DANIEL SHAW

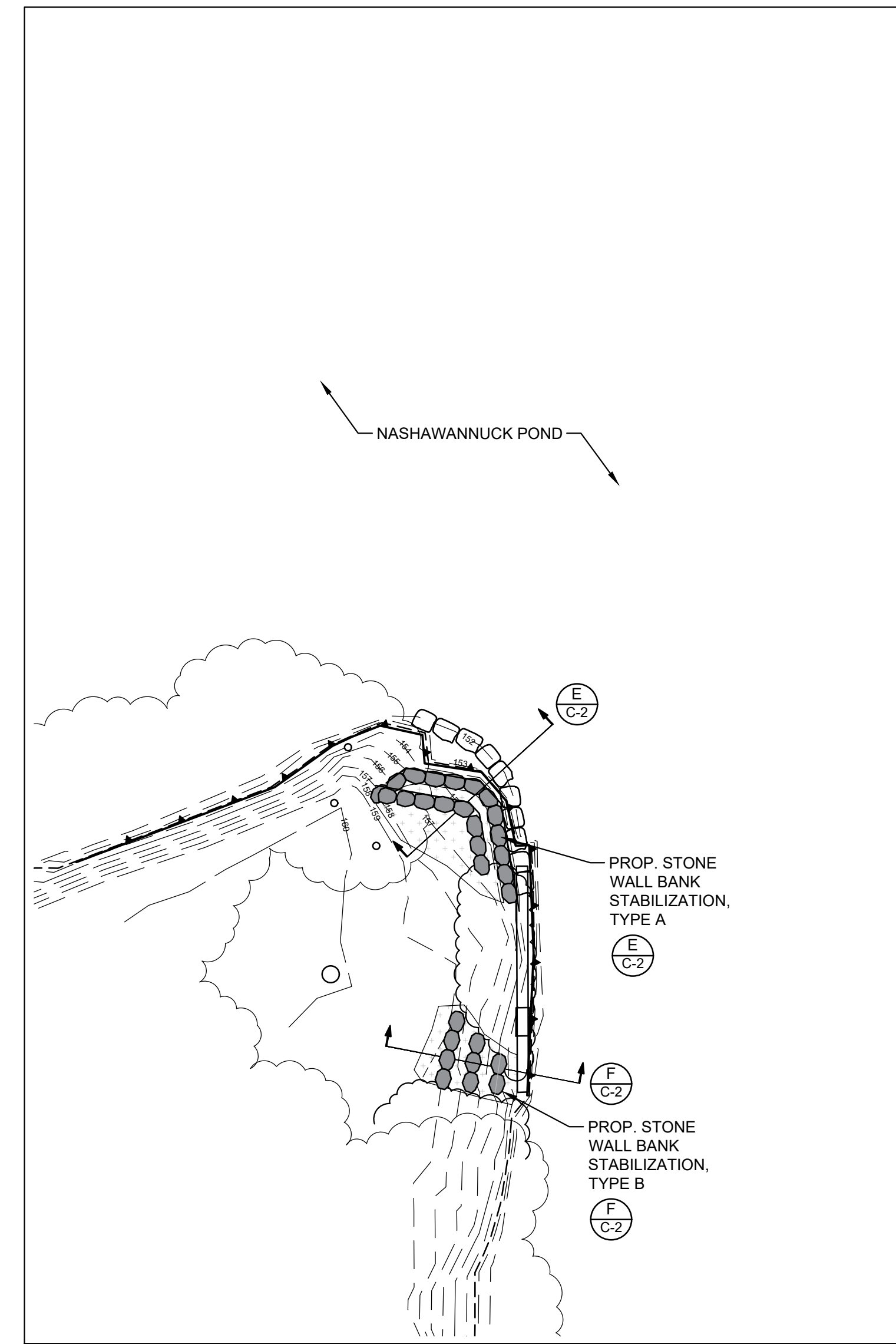
LEGEND	
	WETLAND DELINEATION FLAG
	WETLAND BOUNDARY
	EDGE OF WATER
	EXISTING 1-FOOT CONTOUR
	EXISTING 5-FOOT CONTOUR
	EXISTING GRADE BREAK
	EXISTING TREELINE
	EXISTING VEGETATION
	EXISTING 5-FT CONTOUR
	EXISTING TREE
	PROP. TEMP. TURBIDITY CURTAIN
	PROP. TEMP. PUMP DISCHARGE HOSE
	PROP. TEMP. SAND BAG COFFERDAM
	REMOVE AND DISPOSE OF
	PROP. TEMP. SEDIMENTATION AND EROSION CONTROL BARRIER
	REMOVE AND DISPOSE, EX. TIMBER WALL
	PROP. BOULDER RETAINING WALL
	PROP. SEED MIX: "NEW ENGLAND SEMI-SHADE GRASS AND FORBS MIX", BY NEW ENGLAND WETLAND PLANTS, INC. AMHERST, MA, OR APPROVED EQUAL



EXISTING CONDITIONS
1" = 20'



SITE PREPARATION, DEMOLITION, AND DEWATERING PLAN
1" = 20'



LAYOUT PLAN
1" = 20'

EXISTING CONDITIONS NOTES:

EXISTING CONDITIONS ARE BASED ON THE FOLLOWING:

- LIMITED SITE OBSERVATIONS AND MEASUREMENTS TAKEN BY GZA GEOENVIRONMENTAL ON JUNE 17, 2024
- LIMITED ON THE GROUND SURVEY PERFORMED BY BAYSTATE ENVIRONMENTAL IN MAY 1999
- POOL ELEVATION OF NASHAWANNUCK POND PROVIDED BY EASTHAMPTON DPW

TOPOGRAPHY FROM SURVEY BY BAYSTATE ENVIRONMENTAL CONSULTANTS, INC., A GZA COMPANY, 1999, UPDATED BY GZA IN 2024 TO REFLECT EXISTING CONDITIONS AS OBSERVED JUNE 2024. CONTOUR ELEVATIONS WERE ADJUSTED TO VERTICAL DATUM NAVD88 BY GZA, BASED ON NASHAWANNUCK POND POOL ELEVATION OF 153.2 (POOL ELEVATION PROVIDED TO GZA BY CITY OF EASTHAMPTON DPW).



WETLAND DELINEATION WAS COMPLETED BY PAUL DAVIS, PROFESSIONAL WETLAND SCIENTIST, ON FEBRUARY 8, 2025, AND WAS PROVIDED TO GZA.



DRAFT
NOT FOR CONSTRUCTION

NO.	ISSUE/DESCRIPTION	BY	DATE

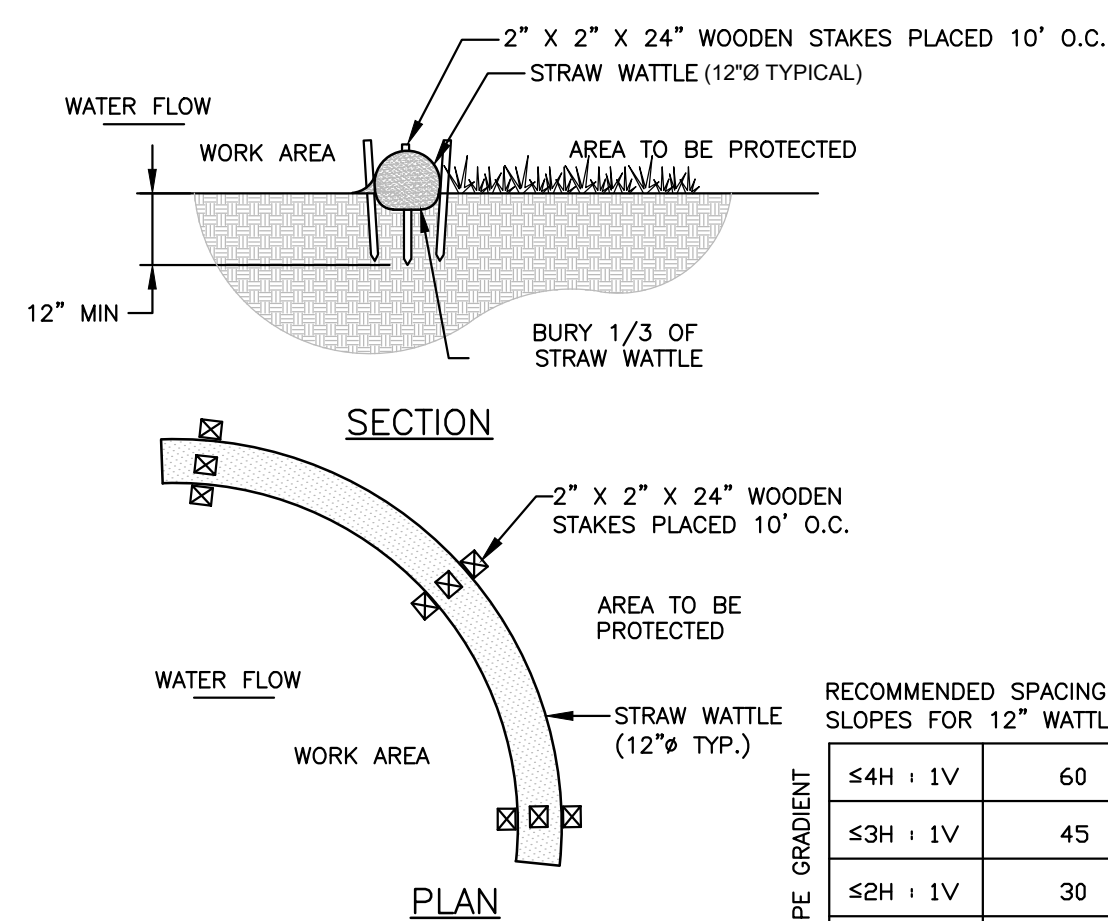
UNLESS SPECIFICALLY STATED BY WRITTEN AGREEMENT, THIS DRAWING IS THE SOLE PROPERTY OF GZA GEOENVIRONMENTAL, INC. (GZA). THE INFORMATION SHOWN ON THE DRAWING IS SOLELY FOR USE BY GZA'S CLIENT OR THE CLIENT'S DESIGNATED REPRESENTATIVE FOR THE SPECIFIC PROJECT AND LOCATION IDENTIFIED ON THE DRAWING. THE DRAWING SHALL NOT BE TRANSFERRED, REUSED, COPIED, OR ALTERED IN ANY MANNER FOR USE AT ANY OTHER LOCATION OR FOR ANY OTHER PURPOSE WITHOUT THE PRIOR WRITTEN CONSENT OF GZA. ANY TRANSFER, REUSE, OR MODIFICATION TO THE DRAWING BY THE CLIENT OR OTHERS, WITHOUT THE PRIOR WRITTEN EXPRESS CONSENT OF GZA, WILL BE AT THE USER'S SOLE RISK AND WITHOUT ANY RISK OR LIABILITY TO GZA.

NASHAWANNUCK POND SHORELINE STABILIZATION STUDY EASTHAMPTON, MA

CONCEPT PLAN

PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com	PREPARED FOR: NASHAWANNUCK POND STEERING COMMITTEE
PROJ MGR: DCS DESIGNED BY: DCS DATE: MARCH 5, 2025	REVIEWED BY: NYA DRAWN BY: DCS PROJECT NO.: 15.0167291.00
CHECKED BY: NLR SCALE: AS SHOWN REVISION NO.:	FIGURE C-1

© 2025 - GZA GeoEnvironmental, Inc. 15.0167291.00 NASHAWANNUCK POND SHORELINE STABILIZATION 15.0167291.00 GAO/WW/15.0167291.00 NASHAWANNUCK POND - DETAILS - WORK 5, 2025 DANIEL SHAW



RECOMMENDED SPACING ON SLOPES FOR 12" WATTLE		
SLOPE GRADIENT	SPACING (12" TYP.)	STAKE SPACING (10' O.C.)
≤4H : 1V	60	
≤3H : 1V	45	
≤2H : 1V	30	
≤1H : 1V	15	

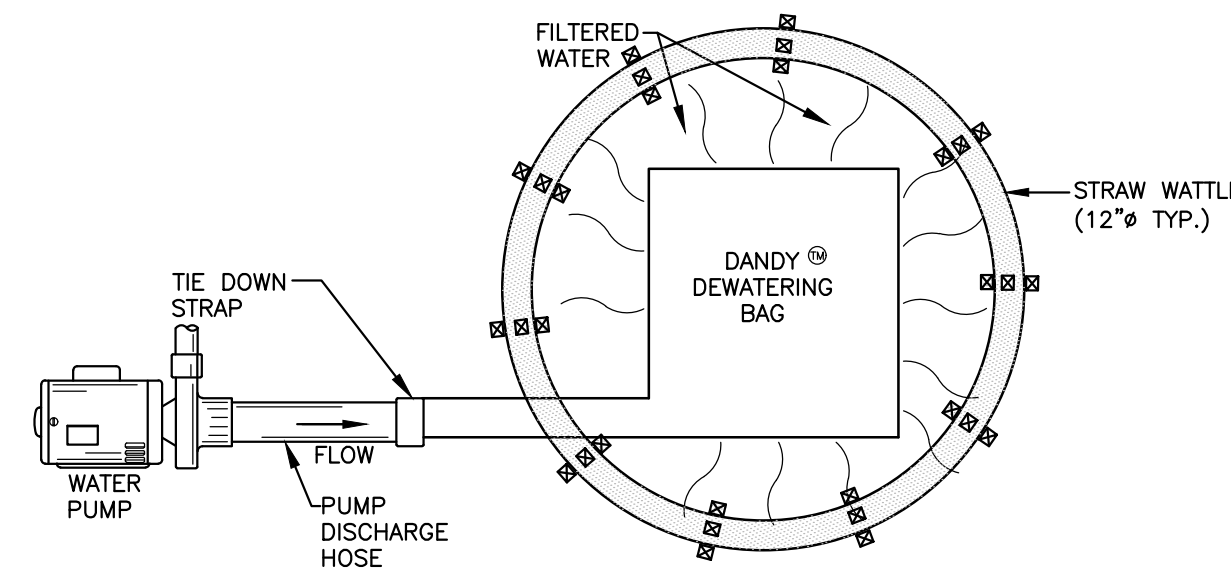
A SEDIMENTATION & EROSION CONTROL BARRIER (STRAW WATTLE)
C-2 NTS

DANDY DEWATERING BAG™

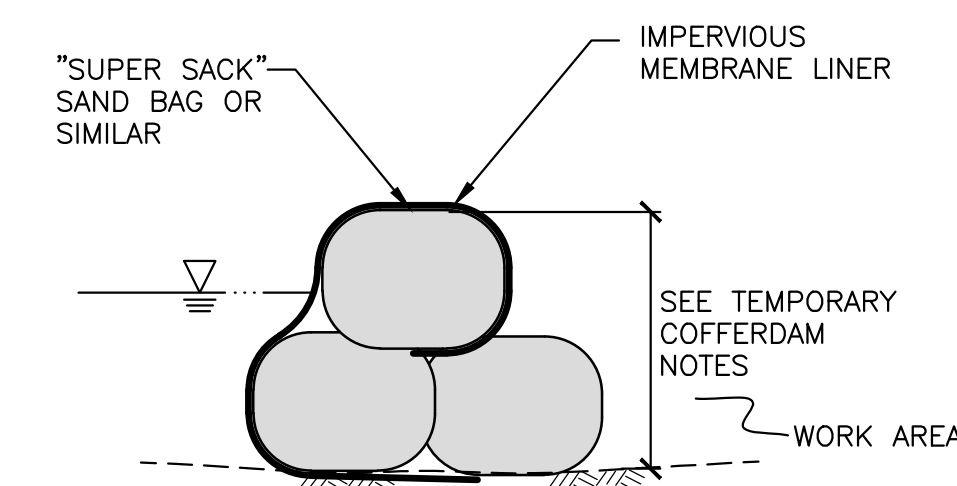
Installation and Maintenance Guidelines

Installation: Place lifting straps (not included) under the unit to facilitate removal after use. Unfold Dandy Dewatering Bag on a stabilized area over dense vegetation, straw, or gravel (if an increased drainage surface is needed). Insert discharge hose from pump into Dandy Dewatering Bag® a minimum of six inches (6") and tightly secure with the attached strap to prevent water from flowing out of the unit without being filtered. If using optional absorbents, place absorbent boom into the Dandy Dewatering Bag. Clip absorbent boom to tether provided inside the unit.

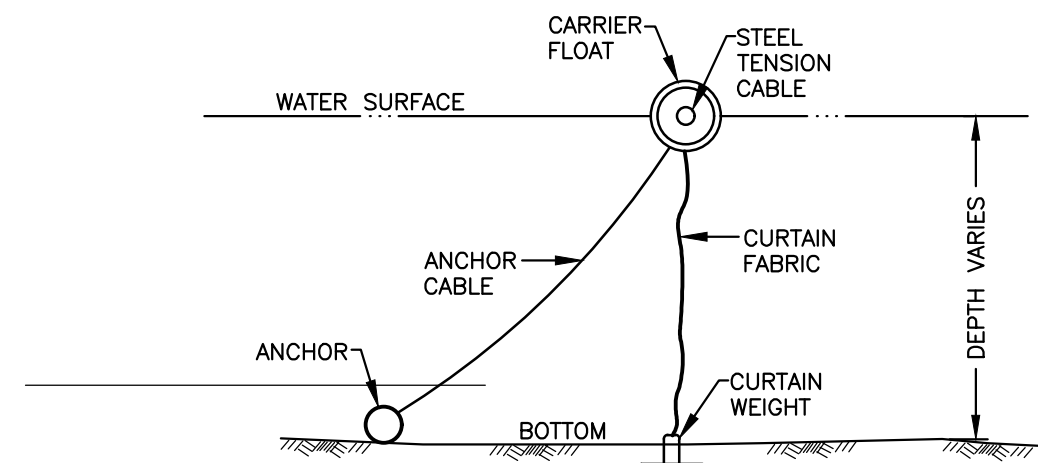
Maintenance: Replace the unit when 1/2 full of sediment or when sediment has reduced the flow rate of the pump discharge to an impractical rate. If using optional oil absorbents, remove and replace absorbent when near saturation.



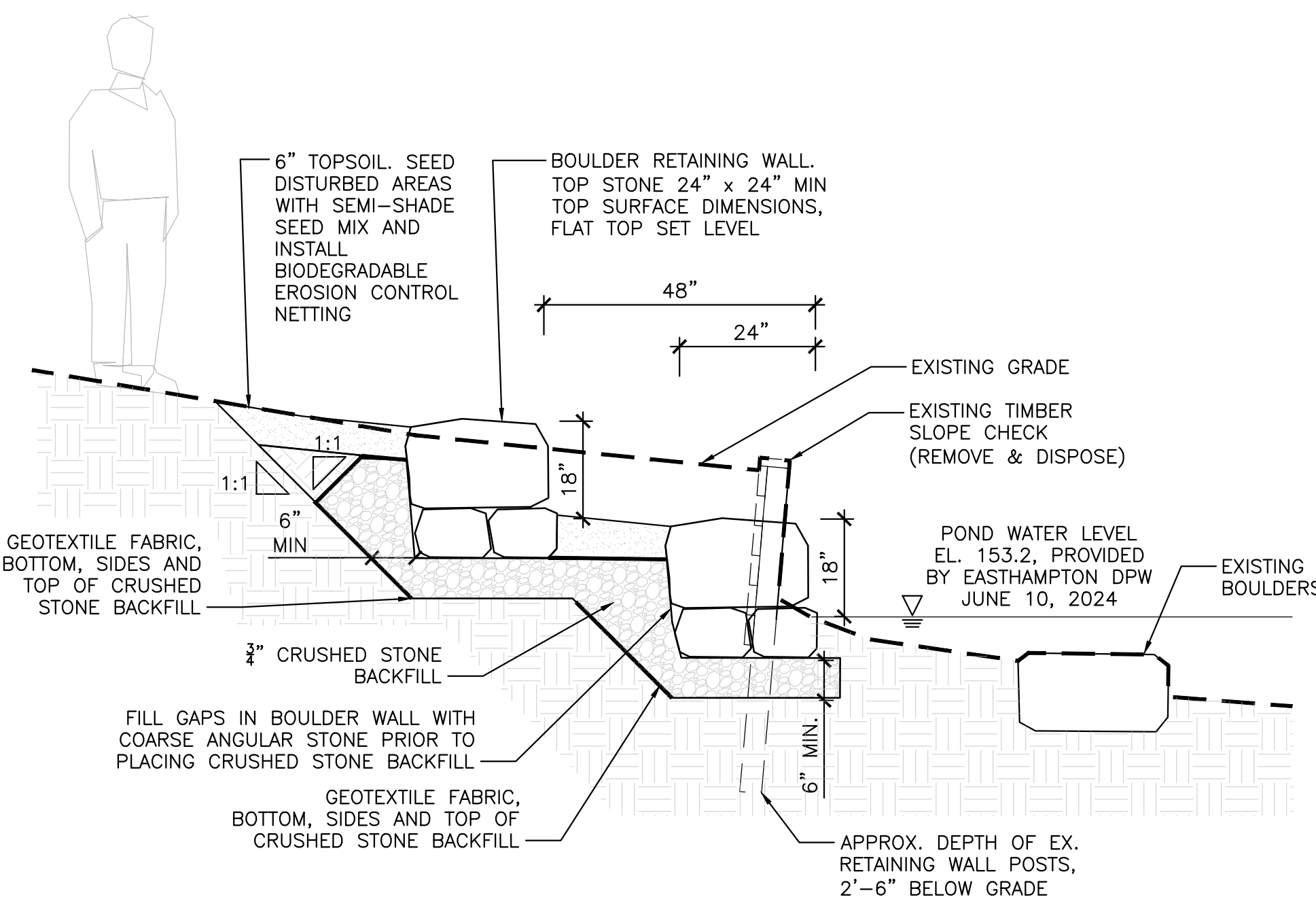
B DANDY DEWATERING BAG OR EQUAL
C-2 NTS



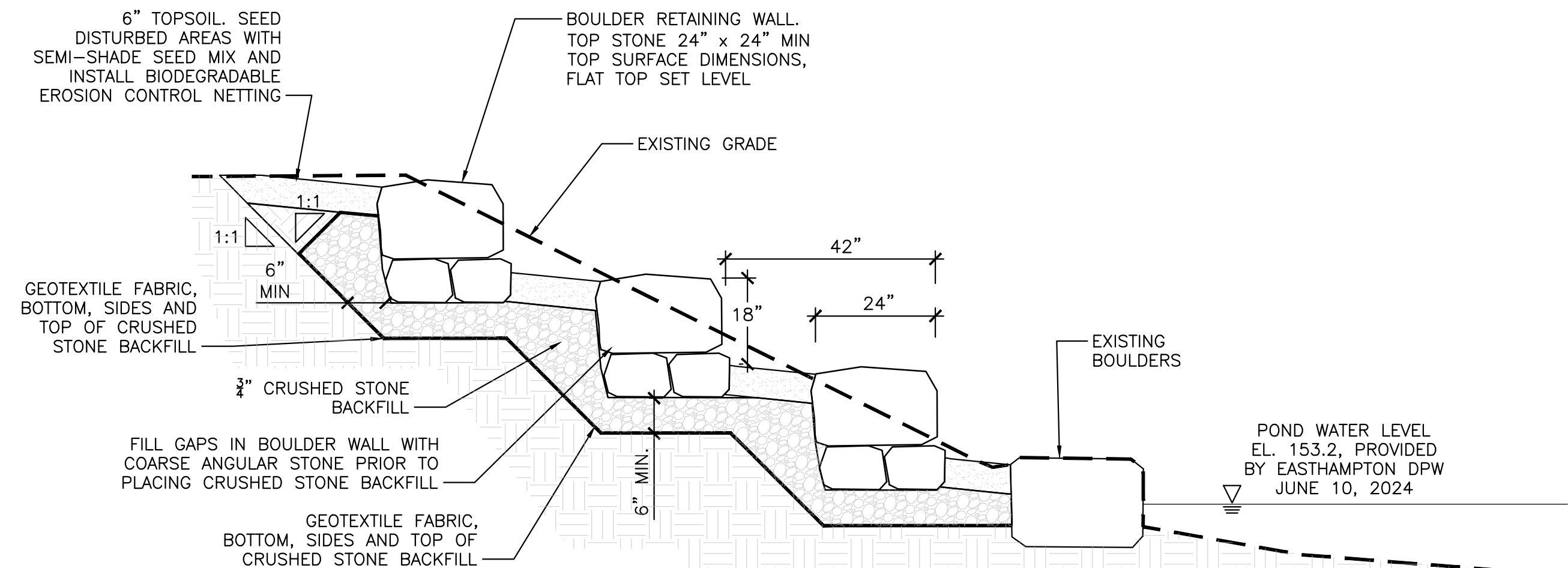
C SCHEMATIC COFFERDAM DETAIL
C-2 NTS



D TURBIDITY CURTAIN
C-2 NTS



E DRY LAID STONE RETAINING WALL: PROP. STONE WALL BANK STABILIZATION TYPE A
C-2 NTS



F DRY LAID STONE RETAINING WALL: PROP. STONE WALL BANK STABILIZATION TYPE B
C-2 NTS

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NOT FOR CONSTRUCTION

NO.	ISSUE/DESCRIPTION	BY	DATE

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NASHAWANNUCK POND SHORELINE STABILIZATION STUDY EASTHAMPTON, MA

DETAILS

PREPARED BY: GZA GeoEnvironmental, Inc. www.gza.com	PREPARED FOR: NASHAWANNUCK POND STEERING COMMITTEE			
PROJ MGR: DCS	DESIGNED BY: DCS	REVIEWED BY: NYA	CHECKED BY: NLR	FIGURE
DATE: MARCH 5, 2025	PROJECT NO: 15.0167291.00	DRAWN BY: DCS	SCALE: AS SHOWN	REVISION NO.

C-2

CONCEPTUAL-LEVEL ESTIMATE OF POTENTIAL PROJECT COSTS
 BASED ON
 "NASHAWANNUCK POND SHORELINE STABILIZATION STUDY"
 PREPARED BY GZA GEOENVIRONMENTAL, MARCH 2025

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	EXTENSION	TASK TOTAL
MOBILIZATION / DEMOBILIZATION / ENG. LAYOUT					\$6,500
MOBILIZATION / DEMOBILIZATION / ENG. LAYOUT / BOND	1	LS	\$6,500	\$6,500	
SITE PREPARATION & SITE DEMOLITION					\$23,000
SEDIMENTATION & EROSION CONTROL	1	LS	\$5,000	\$5,000	
TREE PROTECTION	1	LS	\$2,000	\$2,000	
TREE REMOVAL/HAZARD PRUNING	1	LS	\$2,000	\$2,000	
DEWATERING (ALLOWANCE)	1	LS	\$10,000	\$10,000	
REMOVE TIMBER SLOPE STABILIZATION STRUCTURES	1	LS	\$4,000	\$4,000	
EARTHWORK					\$3,400
EXPORT EXCESS SOIL OFF SITE	30	CY	\$50	\$1,500	
IMPORT TOPSOIL, 6" DEPTH	10	CY	\$50	\$500	
IMPORT CRUSHED STONE BEDDING/ BACKFILL	12	CY	\$75	\$900	
ROUGH AND FINE GRADE (NON-PAVED AREAS WITHIN PROJECT AREA)	1,000	SF	\$0.50	\$500	
STONE WALL BANK STABILIZATION					\$40,000
STONE WALL, 2' THICK, ROUGH CUT GRANITE / RECYCLED BLOCK	100	LF	\$400	\$40,000	
LANDSCAPE WORK					\$2,500
ESTABLISH LAWN AREAS	5,000	SF	\$0.50	\$2,500	
			SUB-TOTAL =	\$75,400	
			CONSTRUCTION CONTINGENCY (20%±)	\$15,080	
			FINAL DESIGN, CONSTRUCTION PHASE SERVICES	\$7,540	
			TOTAL =	\$98,020	(2025 Dollars)

Notes:

- Quantities were based on "Draft Design Plans for Nashawannuck Pond Shoreline Stabilization Study", March 2025
- Construction costs include labor at prevailing wage rates, overhead, & profit.
- GZA's Opinion of Potential Project Costs is subject to the assumptions and limitations stated in our correspondence accompanying this cost opinion.