

# CHERRY FARM SITE SHORELINE STABILIZATION EVALUATION REPORT

**Cherry Farm/River Road Site**  
4290 River Road  
Tonawanda, NY 14150

CHA Project Number: 093558.000

**April 2025**

**Prepared for:**  
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## 1.0 INTRODUCTION AND BACKGROUND

The Cherry Farm/River Road site is an approximately 56-acre site, located off of River Road in the Town of Tonawanda, Erie County. The site is bordered by the Niagara River to the west and the River Road Site (Site No. 915031) to the south. The location of the site is illustrated on Figure 1. The site is an inactive landfill on a grassy, irregularly shaped parcel with variable elevations. The site was used as a disposal area from the 1950s to the 1970s, with waste primarily consisting of foundry sand and slag and liquid boiler cleaning wastes. Based on the final Record of Decision (ROD), dated March 24, 1994, a comprehensive common remedial design was developed for this site as well as the adjacent River Road Site due to common site history, former common ownership, presence of similar waste and enrollment in a similar remedial program. The remediation work was completed in August 1999 and included the following elements:

- Consolidation of wastes;
- Removal of contaminated sediments from the Niagara River adjacent to the site;
- Installation of permeable and impermeable barriers over the consolidated wastes;
- Installation of a soil cover to support vegetation;
- Installation of shoreline protection to minimize damage to the cover system;
- Installation of groundwater/leachate collection and treatment system; and,
- Implementation of appropriate deed restrictions considering future use of the property.

Following completion of the remedy construction in August 1999, Operations and Monitoring (O&M) activities have been performed at the site since that time. Based on recent inspections of the landfill and the shoreline stabilization system, deterioration/minor failure of the gabion basket wall, which comprises the shoreline stabilization system, was observed. As a result, repair of the shoreline stabilization system is recommended.

### 1.1 Purpose and Goal

The purpose of this shoreline stabilization evaluation report is to provide an evaluation of potential repair alternatives to address deterioration of the existing gabion basket wall.

The primary goal of this project is to protect the critical infrastructure at the site by repairing the

existing shoreline. The critical infrastructure to be protected is the landfill cap and leachate collection system, which are engineering controls acting to contain waste material (liquid and solid) from entering the river and prevent other human contact. At this time, there is no evidence of adverse impacts to the critical infrastructure, nor do we believe any failure is imminent.

The intent of the shoreline stabilization is to minimize any changes to existing habitat included in the original design.

## **1.2 Report Format**

This report contains the following sections:

Section 1 – Introduction: describes the background, identifies the problem, and presents the goals of the project.

Section 2 – Existing Conditions: describes recent observations

Section 3 – Data Gaps: describes the additional information that is needed to fully understand the extent of repair and determine the feasibility of various repair alternatives.

Section 4 – Alternative Analysis: describes three alternatives evaluated at a conceptual level

Section 5 – Permitting Evaluation: describes the potential permitting that may be required to complete the repairs.

Section 6 – Summary and Recommendations: identifies the recommended alternative and next steps in the project.



## 2.0 EXISTING CONDITIONS

### 2.1 Existing Gabion Wall Conditions

The gabion basket wall, according to the original design, consists of four (4) individual segments that alternate with barrier islands. The gabion basket wall is present on the Cherry Farm portion of the Site and rip-rap was implemented as a shoreline stabilization measure along the River Road portion of the site; the latter portion of the shoreline is in good condition and no repairs are needed. The As-Built drawing included in Appendix A illustrates the shoreline protection for the entire site.

The original design drawing for the gabion basket wall section is shown on Figure 2. The original gabion basket wall consists of three (3) levels of baskets stacked on top of each other. The lowermost level includes two baskets embedded in the subsurface soils and the final (the third) basket level extends above the mean high-water level. A light rip-rap toe, approximately 2 ft high and extending 3 feet out into the river, was used as a buttress against the middle level (second tier) of gabion baskets.

In 2024, the existing gabion basket wall was observed to show signs of deterioration. Specifically, during regular landfill inspections performed by Groundwater & Environmental Consultants, Inc. (GES), it was noted that corrosion of the metal gabion basket mesh was deteriorating and failing at one or more locations along the shoreline.

To further evaluate the observed failures and determine the potential factors that were causing the failures, GES completed an inspection of the gabion baskets from the Niagara River by boat on September 16, 2024. The inspection identified the following conditions:

- In some locations, the metal mesh is deteriorating at and below the water line and rocks from the bottom of the uppermost gabion basket appear to be falling out into the river and undermining the top of the basket, which has only recently started to be visible from the top during ground-based inspections.
- Based on visual inspection of sections of deteriorating gabion basket metal mesh, it appears that the galvanized coating on the metal mesh has corroded over time due to sediment scouring followed oxidation of the exposed steel.
- No large dents or depressions in the visible gabion baskets were noted during the inspection; therefore, it does not appear that ice flowing in the river has been a major contributor to the gabion basket deterioration.
- The existing barrier islands that parallel the site shoreline over a portion of the site appear to be in good condition and do not have any visual damage from ice flow in the river, and are vegetated.

The photo log included in Appendix B illustrates several examples of GES' observations of the deterioration of the baskets. At this time, there is no concern of a significant near-term failure;

however, the observed conditions suggest that planning for the shoreline repair is prudent. Based on CHA's review of the photographic documentation provided by GES, CHA agrees that the failure appears to be limited to the waterline area and possibly below.

## **2.2 Existing Conditions of the Niagara River**

In addition to the gabion basket wall potential failure mode, it is also important to understand the existing velocities of the Niagara River when evaluating potential repair solutions. Based on information collected by GES, the USACE reported in 1995 that the river velocities near the site range from 5 to 7 feet per second (ft/sec). The river velocities were also measured on June 27, 1996 by Parsons Engineering Science, Inc. (Parsons). Parsons collected velocity data along three transects perpendicular to the shoreline. The velocities ranged from 0.3 to 2.6 ft/sec and increased with distance from shore.

The International Niagara Working Committee (INWC) reported in 2021 (INWC, May 2021) that the Tonawanda Channel velocity ranges from 2 to 3 ft/sec. In addition, CHA received average velocity data from a NYS Thruway Authority Bridge Scour Evaluation Report prepared for the South Grand Island Bridges, located approximately 1800 feet to the north and downstream of the project site. This information is in general agreement with the USACE Report and indicates average velocities ranging from 3-5 ft/sec for the 100-year (1% Annual Exceedance Probability) flood event.

Given the variation in velocity data available for the Tonawanda Channel of the Niagara River and accounting for the potential impacts of climate change, CHA recommends utilizing 7 ft/sec as the design velocity for the shoreline stabilization design.

### 3.0 DATA GAPS

The evaluation of alternatives presented in Section 4.0 of this report have been prepared based on existing information, including the original design drawings and the photographic documentation provided by GES. In addition, CHA has identified the following data gaps that should be understood before the project can be fully designed and permitted.

- Detailed inspection and identification of percentage of gabion baskets damaged;
- Existing substrate of river bottom;
- Existing sub aquatic vegetation presence;
- Existing topography/slope of river bottom; and
- Identification of Potential Time of Year Construction Restrictions (e.g. weather, wildlife impacts, etc.)

These items will be assessed as soon as is possible when the river is ice free; currently anticipated to be late April/early May.

To fully determine the percentage of gabion baskets that are damaged, CHA will conduct a more detailed inspection to confirm the observations noted by GES and the potential failure mode mechanism. CHA will also document the full extent of the gabion basket wall damage(s) so that the appropriate repair design can be further developed from the concept alternatives.

During the site inspection, CHA will also observe the nature of the river bottom substrate. This information will help identify potential constructability issues that may need to be addressed. CHA will also identify what sub-aquatic vegetation may or may not be present as that may bear on potential permitting requirements.

As part of the pre-design investigation activities, CHA will retain a licensed surveyor to create a bathymetric profile of the river bottom adjacent to the gabion basket wall. The survey will evaluate the river bottom elevations and transect the existing gabion wall and onto the upland portions of the site. A representative number of transects within each of the four segments of the gabion basket wall will be surveyed by the surveyor. This information is important in understanding how any repair solution can be constructed.

Finally, as part of the permitting process, CHA will identify any potential time of year restrictions associated with the bank stabilization construction. The time of year that the construction work can be implemented may be restricted by various animal species, including fish, birds, bats, mussels, etc.

## 4.0 ALTERNATIVES ANALYSIS

Based on our review of the available data (original design drawings and photo documentation), CHA has identified three (3) potential alternatives to provide the necessary shoreline stabilization repair/maintenance along the site's +/-1,100 feet of shoreline where the gabion basket wall is present. These alternatives include the following:

- Alternative #1- No Action Alternative - Allow the existing gabion wall to naturally degrade which will allow the stone within the gabion baskets to stabilize at a natural slope (approximately equivalent to the natural angle of repose)
- Alternative #2 - Provide hard armoring/buttrussing of the existing gabion basket wall along the alignment of the wall, or sections in need of maintenance/repair
- Alternative #3 – Replace the upper two sections of gabion baskets

In the following paragraphs are presented the viability of each of the alternatives and their effectiveness at achieving the goal of protecting the critical infrastructure.

### 4.1 Option 1 – No Action Alternative

Option 1 consists of no action and allowing the existing gabion baskets to slowly degrade and the stone to stabilize at a natural angle of repose. Although possible, there are inherent risks associated with this option.

- Although not imminent, the gabion baskets will likely continue to degrade (slowly) and the stone within the baskets will disperse/settle and will stabilize as the material reach their angle of repose.
- Option 1 will require routine maintenance by filling in voids (as the existing baskets fail) and adding riprap to backfill the sloughing riprap.
- Routine maintenance of supplementing upland riprap will be required and may also require placement of riprap below the water line.
- As the gabion baskets fail, the size of the existing riprap may not be sufficient to withstand the velocities of the Niagara River flows and accelerated erosion may occur.

#### Constructability & Environmental Impact of Installation:

- There are no short-term construction activities for this option.
  - Regular on-going maintenance will be required to backfill/supplement the gabion basket stone settlement.
  - There are no short-term environmental impacts. However, there is a risk of accelerated erosion if the Niagara River velocities could erode/scour the size of the riprap within the gabion baskets.

#### 4.2 Option 2 – Hard Armoring/Buttressing on River Side of Gabion Baskets

This option consists of adding riprap/heavy stone armoring immediately riverside to the existing gabion baskets. The intent would be to stabilize the existing gabion baskets with armoring/buttressing to the top of the baskets. To armor/buttress the entire length of the gabion basket walls (+/- 1,100 linear feet), approximately 440 cubic yards of bedding stone (if needed), and 2,200 cubic yards of heavy stone fill/armoring will be required to be placed within the river.

Under this alternative, future degradation of the gabion baskets would not result in wall failure and therefore, there would be no future impact to the integrity of the critical infrastructure. A schematic illustration of this option is shown on Figure 3. Some of the key elements/considerations of this options include:

- This option may require replacing some upland plantings on the land side of the baskets that will be disturbed to access the river during construction. No significant excavation in the upland area is anticipated to be required.
- This option would include the payment of compensatory fees for wetland/stream mitigation offsets since minor encroachment into the river will be required.
- The schematic design as shown on Figure 3 illustrates the major features of the riprap addition/hard armoring activities described in Option 2.
- Permitting as described in Section 5.0 may be required.

#### Constructability & Environmental Impact of Installation:

- Addition of riprap/hard armoring material on the river side of the gabions to armor the existing shoreline would be the least intrusive construction option. While the installation would require cutting down brush and shrubs along the river to gain access to the river, no soil excavation would be required and most of the mature trees could remain in place during construction.
- This option appears to be the least environmentally impactful (LEI) option evaluated because mature trees will remain in place, no soils would be excavated on the land or riverside of the existing gabion walls, the general vegetation that currently provides soil stability on the land side of the existing gabion baskets will remain largely intact, and no shoring or dewatering on the river will be required.
- The barrier islands that are currently part of the shoreline protection at the site were initially constructed of riprap and cobbles only. However, as evidenced from regular inspections, these islands are structurally intact since installation and have self-vegetated. Therefore, it is likely that installation of riprap to armor the existing gabion basket sections will likely hold up to the river conditions and are presumed to similarly self-vegetate over time. Further evaluation will be

performed as part of the pre-design studies and final design.

- The total area of impact for construction would be approximately 12 linear feet into the river from the edge of the existing gabion baskets which would be a permanent encroachment into the river equal to approximately 13,200 square feet (+/-0.303 acres).

#### 4.3 Option 3 – Replacement of the Upper Two Sections of Gabion Baskets

This option consists of removing and replacing only the top two gabion baskets, in general accordance with original remedial design. A schematic illustration of this option is shown on Figure 4.

- Vegetation clearing and excavation of soils on the land side of the baskets will be required to complete the repair.
- Care by the contractor is needed to not create additional issues with the landfill cap, existing vegetation, and the lower gabion basket section.
- Appropriate soil management, air monitoring (e.g. Community Air Monitoring Program (CAMP)), backfill sampling/analysis, and soil/sediment controls will be required.
- This option will necessitate the replacement of upland plantings on the landfill side of the baskets that will be disturbed during construction. Note that the plantings must be selected for a variety of purposes: root depth, soil stability and erosion control, aesthetics/screening, etc. to provide the correct plant species to accomplish the goals of the project.
- Figure 4 depicts the key elements of the gabion basket shoreline restoration activities described in Option 3.
- Permitting as described in Section 5.0 may be required.

#### Constructability & Environmental Impact of Installation:

- Replacement of the upper two levels of gabion baskets is less intrusive than replacing all the baskets; however, disturbance of the landfill cover system will be required.
- This option will require excavation of soils on the land side of the baskets to a depth of approximately five (5) feet below the mean river elevation which will either have to be completed only during dry season or will require shoring and dewatering in the river to allow for a dry excavation. Significant cost for the shoring system is expected and a minimum of approximately 850 cubic yards of soils would need to be excavated to replace the upper gabion baskets only. A determination will need to be made regarding the suitability of re-use of the excavated soils (e.g. off-site disposal or re-use as backfill).

- This option will require shoring to be installed in the river prior to beginning work and dewatering to be completed while digging. Shoring sections and replacement of the gabion baskets may be completed in sections to minimize overall disturbance at one time. The water extracted during dewatering activities will be treated and presumably discharged back to the river under a SPDES permit.
- In order to access all upper gabions for replacement, all of the vegetation and mature trees on the landfill within approximately eight (8) to 12 feet of the gabions will need to be removed for construction access. This will eliminate existing soil stabilization of the landfill bank adjacent to the shoreline.
- The total area of impact for construction would be approximately 8-12 linear feet from the edge of the existing gabion basket back towards the landfill. This option does not encroach into the river more than the existing shoreline.

#### 4.4 Summary of Option Comparison:

- Longevity:
  - Option 1 (No Action) has a limited longevity as regular maintenance and supplemental riprap placement will be required.
  - Option 2 (riprap/hard armor adjacent to the existing gabions) is likely to have the longest effective lifecycle (estimated 35+ years or longer). Even after its effective lifecycle, repairs may only include limited topping up of existing armoring.
  - Option 3 (replacement of the top two baskets in the existing gabion system): Replacement of the top two baskets will provide 25 or more years of protection where structural failure is currently visible. However, it is recognized that the gabion baskets have a limited life expectancy based on the performance of the original gabion wall. Replacement would again be expected in +/-25 years. Considering global warming and sea level rise, replacement could be necessary at an accelerated rate than previously observed with the existing system.
- Protectiveness:
  - Option 1: No additional long-term protectiveness is added with Option 1. Regular ongoing maintenance will be required under this option.
  - Option 2 will provide the greatest protection for the critical infrastructure. The existing gabion wall infrastructure will not be modified or removed, and additional hard armor will protect the existing gabions and the landfill. Any minor deterioration or erosion of the hard armor would not affect the integrity of the landfill cover, and maintenance may only require topping up of the armoring over time.
  - Option 3: A renewed gabion system consisting of the replacement of the top two sections of baskets will adequately protect the landfill cover system for a period of +/- 25 years.



- Cost:

Cost Estimates have not yet been developed so costs are compared to one another.

- Option 1 will cost the least. The only short-term cost will be for an increased inspection frequency and regular maintenance.
- Option 2 is estimated to have a moderate cost.
- Options 3 is estimated to be the most expensive and may be a factor of 2 to 4 times option 2.

- Constructability:

- Option 1: There is no construction related to Option 1.
- Option 2: This is the least intrusive and relatively easily constructed option. Mature trees are expected to remain on the land side adjacent to the gabion baskets. Brush and shrubs will need to be cut down for access, but no soil excavation is required; therefore, the remaining root structures will provide structural stability to the soils on the land side of the gabion walls until new vegetation is established. No shoring or dewatering is required, limiting impact to the river.
- Option 3 This option is the most difficult to construct. Excavation will be required on the land side of the baskets to a depth below the mean river elevation. Therefore, shoring and dewatering will be required during construction. Water treatment and a SPDES permitted discharge will likely be required. Soil management and transportation and off-site disposal of excavated soils may be required as well as importation of backfill. From a constructability perspective, this is the least green remediation/repair alternative considering the earthwork and transportation requirements.

## 5.0 PERMITTING

Given the scope of the repair alternatives within the Niagara River, various permits will be required. At a minimum, applicability of the following permits will be evaluated:

- Town/County:
  - Town of Tonawanda Waterfront Assessment Form; required if seeking a permit, license, waiver, certification, or similar approval from the Town of Tonawanda that is subject to the New York State Coastal Management Program (CMP) and/or that affects lands within the Towns designated Local Waterfront Revitalization Program (LWRP) area. Whether or not any approvals will be required from the Town will be further investigated as the design is progressed. At present we don't believe the Town will require permits or approvals.
- State Environmental Quality Review Act (SEQR)
  - The landfill is subject to a Consent Order and the proposed work involves maintenance to repair of the failing portions of the gabion wall. As a result, the project is likely to be determined to be a Type 2 Action pursuant to 6 NYCRR 617.5(C)(1) or (46). Each State or local agency that may need to issue a permit or approval will have to make their own SEQR Class determination.
- State
  - The Niagara River is a State regulated navigable water. The river also has a water quality classification of Class A-Special (A-S). The river is therefore regulated by the NYS Department of Environmental Conservation (NYSDEC) under Article 15 Protection of Waters. The river is also regulated under the Coastal Erosion Management Permit Program and may be permitted under the Great Lakes Erosion Control General Permit. This permit is currently being reviewed for reissuance.
  - The project will be subject to permitting by NYSDEC under Article 24 and/or the Coastal Erosion Management Permit program. The applicability of either permit will be dependent on the extent of impacts to the river.
  - Section 401 Water Quality Certification (WQC) is the responsibility of the State and is associated with the federal Section 404 permit. Individual WQC may be required depending on the extent of impact.
  - The project site is located within the Federal Coastal Zone. As a result, permits issued by USACE within the Coastal Zone are subject to review by NYS Department of State (NYSDOS). Some Nationwide Permits have been determined by NYSDOS to be consistent with the Coast Zone Management Policies, with conditions, and therefore do not require review by NYSDOS. This will be determined once the applicable federal permits are identified and the impacts are quantified. If required, a Federal Consistency Assessment Form (FCAF) will be prepared and submitted to NYSDOS for review. The FCAF will also be shared with the Town of Tonawanda as an approved Local Waterfront Revitalization Plan community.
  - Based on review of the NYSDEC Environmental Resources Mapper, there may be State regulated wetlands within proximity of the proposed work. If these wetlands or their associated 100-foot Adjacent Area are impacted by the project, an Article 24 Freshwater Wetlands Act permit will be required.
  - The portion of the Niagara River within the project area is also identified as potentially

containing rare mussels. A mussel survey may need to be conducted to determine if any impact warrants further review/permitting by NYSDEC under 6 NYCRR Part 182 (threatened and endangered species).

- Both NYSDEC and USACE must consult with the State Historic Preservation Office (SHPO) to determine if the project will impact any State or National Register or Register Eligible sites. Given the developed nature of the site and the fact that much of the work will occur within the river, no impacts to Cultural Resources are anticipated.
- Federal
  - The Niagara River is a Traditional Navigable Water and is therefore regulated under Section 10 of the 1899 Rivers and Harbors Act as well as Section 404 of the Clean Water Act.
  - The extent of impact to the Niagara River will determine the appropriate permit. There are several potential Nationwide Permits (NWP) that could be applicable to this project but will depend on the extent of the fill placement below the Ordinary High Water Mark and whether or not any special aquatic sites will be impacted.
  - Based on preliminary review of the U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation website, the project area may contain two species proposed for listing (salamander mussel (*Simpsonaias ambigua*) and monarch butterfly (*Danaus plexippus*)). Prior to issuing permits, USACE must consult with USFWS if there is a potential for impacting listed species.
- Note the following:
  - The listed State and Federal permits can be applied for under a single Joint Application for Permit. Other submittals may be required, including the FCAF and separate submittals to address review by SHPO and USFWS.

## 6.0 RECOMMENDATIONS

Based on review of the available data and the importance of protecting the critical infrastructure, CHA recommends pursuing Alternative #2, which consists of hard armoring/buttreassing the existing gabion basket wall with rip-rap. This alternative is preferred for the following reasons:

- Allows the existing gabion wall to remain in place.
- Is consistent with the original design which included a stone toe buttress.
- Allows a majority of the existing vegetation to remain in place on the bank and only limited disturbance to the upland vegetation.
- Provides the solution with the longest duration.
- Provides for climate adaptation and resiliency due to increasing flows and velocities in the river.

The next steps in the project include:

1. Obtaining concurrence from NYSDEC and other involved agencies on the recommended approach.
2. Filling existing data gaps.
3. Completing the permitting with development of 60% design documents.
4. Preparing a Work Plan for the repair.
5. Completing final design documents and specifications.
6. Bidding the Project.
7. Constructing the Project.

We anticipate that Steps 1 -5 will be completed between April and November 2025. Bidding of the project can be completed to qualified contractors in late 2025 into early 2026. The project would then be ready for construction in the spring of 2026.

Under Option 2, we would expect the entire construction period to be completed in approximately 4-6 weeks beginning with site mobilization and ending with site restoration. The actual shoreline repair work may only take 15-20 days.

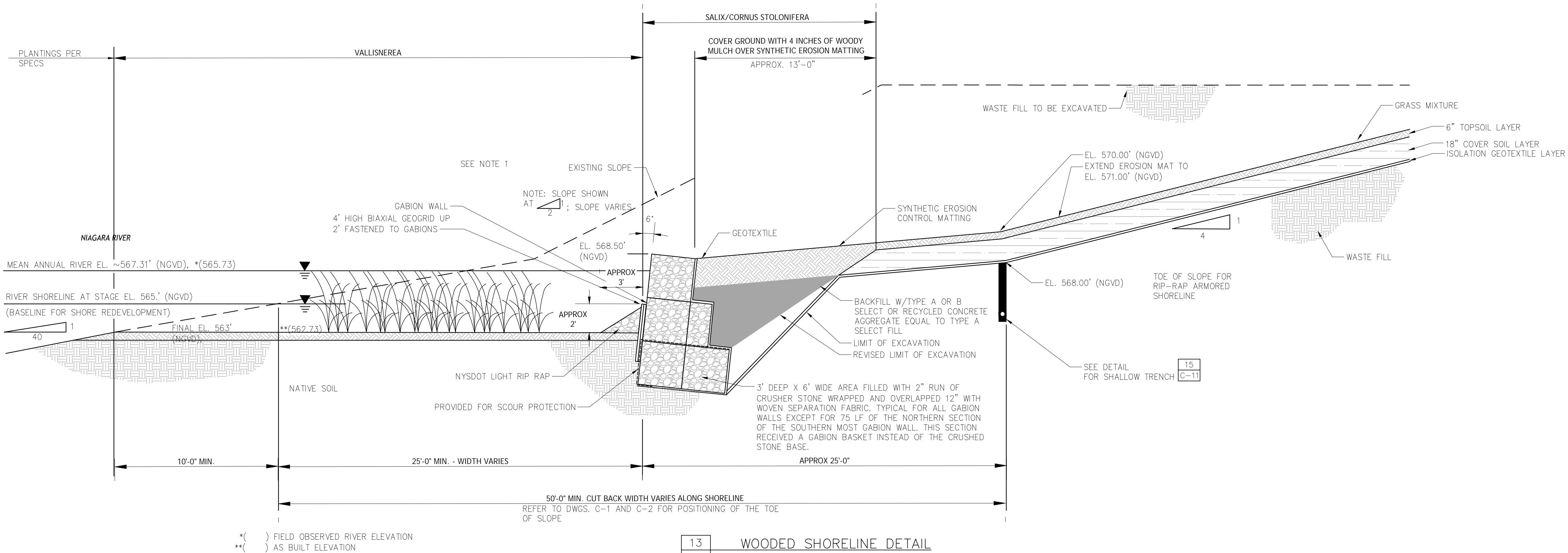
# Figures







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CHERRY FARM/RIVER ROAD  
TONAWANDA, NEW YORK  
NYSDEC SITE NO. 915063

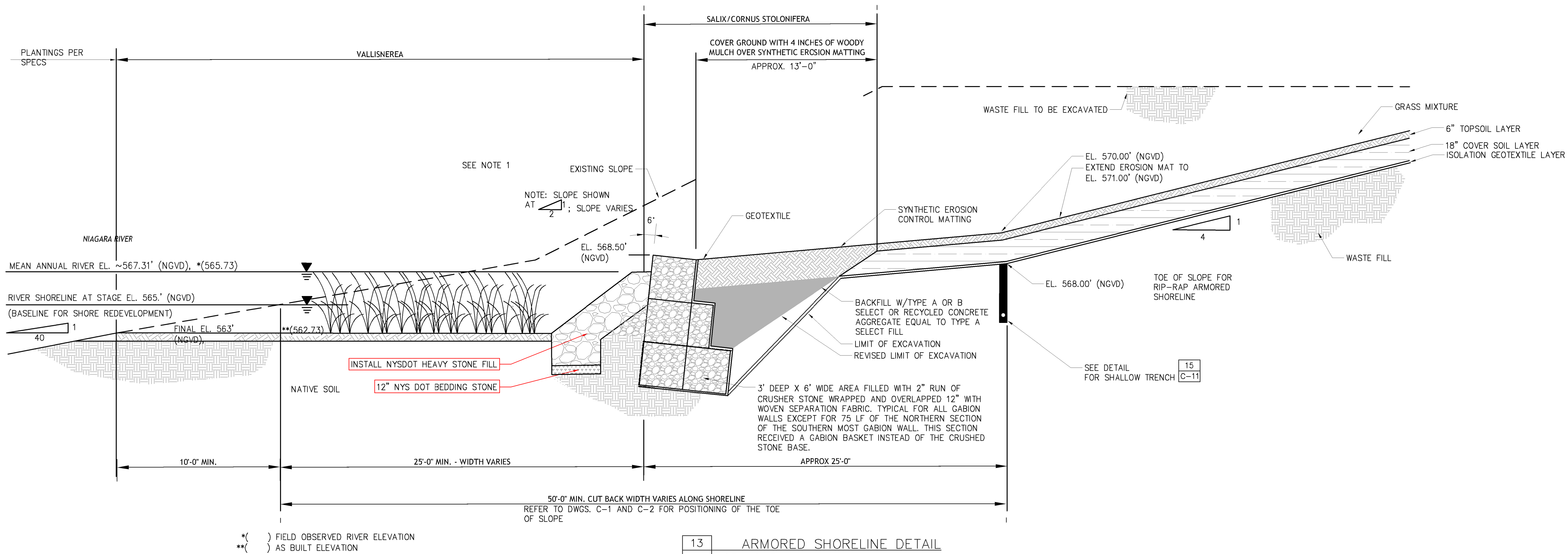
No.	Submission / Revision	Appr	By	Date

EXISTING AS-BUILT  
FOR THE SHORELINE  
STABILIZATION

Designed By: OTHERS	Drawn By: OTHERS	Checked By: KME
Issue Date: 3/28/2025	Project No.: 093558	Scale: AS SHOWN

FIGURE 2

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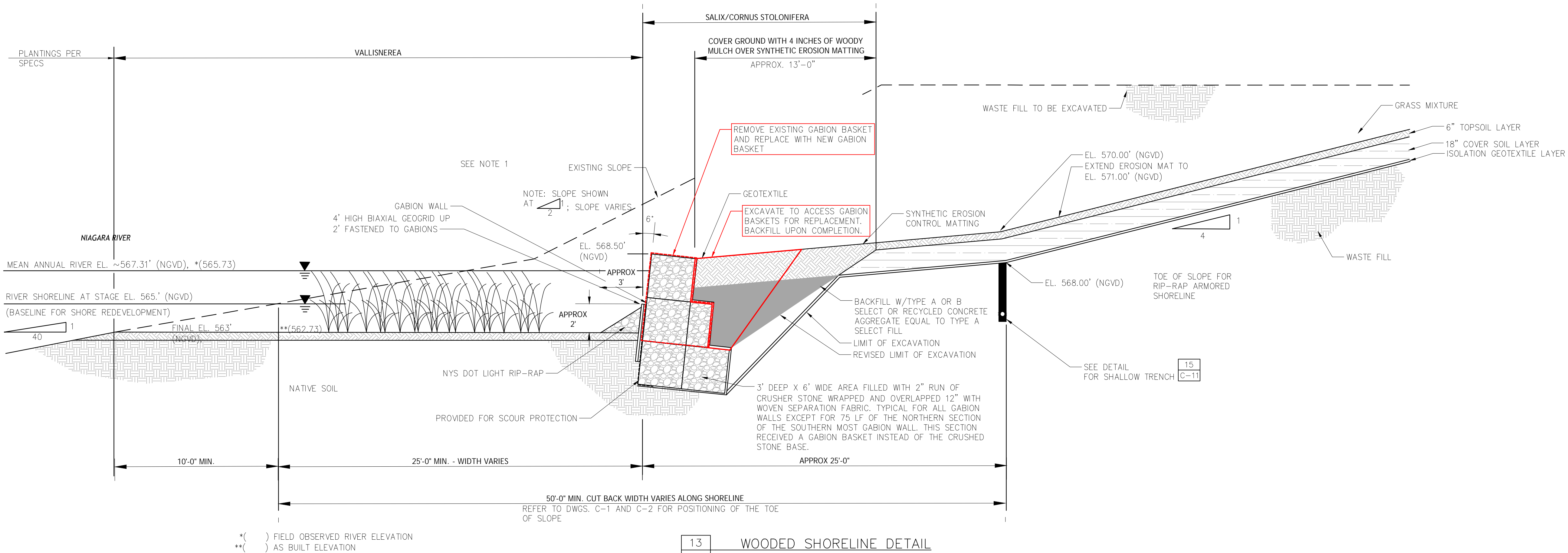
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SUPPLEMENTAL ARMORING AND BUTTRESSING		
Designed By: OTHERS	Drawn By: OTHERS	Checked By: KME
Issue Date: 03/28/2025	Project No.: 093558	Scale: AS SHOWN

Figure 3



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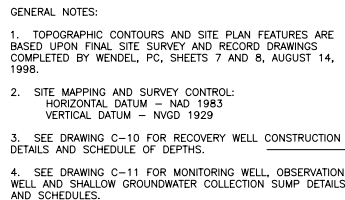
No.	Submission / Revision	Appr.	By	Date

REMOVAL AND  
REPLACEMENT OF  
TOP TWO GABION  
BASKETS

Designed By: OTHERS	Drawn By: OTHERS	Checked By: KME
Issue Date: 3/28/2025	Project No.: 093558	Scale: AS SHOWN

# Appendix A

## Shoreline Stabilization Record Drawing



# LEGEND

LANDFILL LIMITS  
PROPERTY LINES

UTILITY TRENCH  
& BUILDING PADS

▽ HYD.

HYDRANT

EWB □

ELECTRIC JUNCTION BOX

MANHOLE

MANHOLE

GRAVEL AND STONE ROAD

⊕ OW-1

WELL & DESIGNATION

○ S-1

SUMP & DESIGNATION

○ CO

CLEAN-OUT

RIP-RAP

□ RW-1

RECOVERY WELL

FENCE

~ P.P.

UTILITY POLE

~ GUY WIRE

GUY WIRE

BUILDINGS/TANKS/SILOES

WETLAND BOUNDARY

PAVED ROAD

PATH/UNPAVED ROAD

WALLS

WATER

CONCRETE

GUIDE RAILS

CULVERT

SANITARY SEWER

STORM SEWER

WATER PIPE

ELECTRIC LINE

INDEX CONTOUR

INTERMEDIATE CONTOUR

HORIZONTAL DATUM REFERENCED TO NAD 1983  
(NEW YORK WEST ZONE)  
VERTICAL DATUM REFERENCED TO NGVD'29

## RECORD DRAWING

THESE DRAWINGS HAVE BEEN REVISED TO REFLECT MAJOR CHANGES, IF ANY, WHICH OCCURRED DURING CONSTRUCTION. REVISIONS ARE BASED UPON INFORMATION FURNISHED BY CONTRACTOR.

PER: \_\_\_\_\_ DATE: \_\_\_\_\_

DATE: 09/07/99 FCW)  
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IT IS A VIOLATION OF NEW YORK STATE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER AN ITEM ON THIS DRAWING IN ANY WAY IF AN ITEM IS ALTERED. THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC

DRAWING NO.	C-1
REV	2
CHERRY FARM/RIVER ROAD REMEDIAL DESIGN	
RECORD TOPSOIL LAYER AND FINAL SITE CONDITIONS PLAN - NORTH	
CHERRY FARM/RIVER ROAD PRP GROUP	
PARSONS ENGINEERING SCIENCE, INC.	
Issue Certification	
Job No. 776671	
Designed EMI	
Drawn JFS	
Checked EMI	
Reviewed	2
Approved	1/28/98
Date	FINAL ISSUE FOR CONSTRUCTION
Prep. No.	0 1772/95
Scale	PAGE 1 OF 1 FOR CONSTRUCTION
Rev.	Date
	Rev.



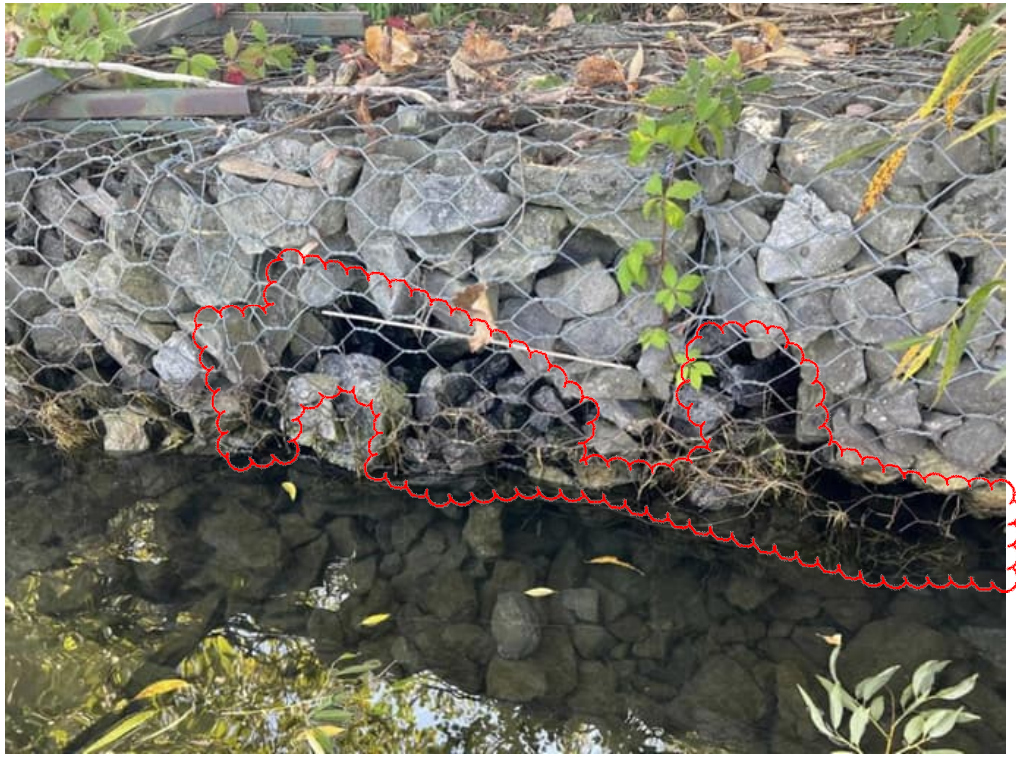


DRAWING NO.	C-2	REV.	2
CHERRY FARM/RIVER ROAD REMEDIAL DESIGN		CHERRY FARM/RIVER ROAD PRP GROUP	
RECORD TOPSOIL LAYER AND FINAL SITE CONDITIONS PLAN - SOUTH		<b>PARSONS ENGINEERING, INC.</b>  <b>CHERRY FARM/RIVER ROAD PRP GROUP</b>  <b>BUFFALO, NEW YORK (716) 633-7074</b>	
Issue Certification		Job No. 2266271 Designed E.M.A. Drawn J.T.S. Checked E.M.A. Reviewed 2 1 2/26/96 Approved FINAL ISSUE FOR CONSTRUCTION Reg. No. 0 11/22/95 Date FINAL ISSUE FOR CONSTRUCTION Rev. Date Description	
		By	

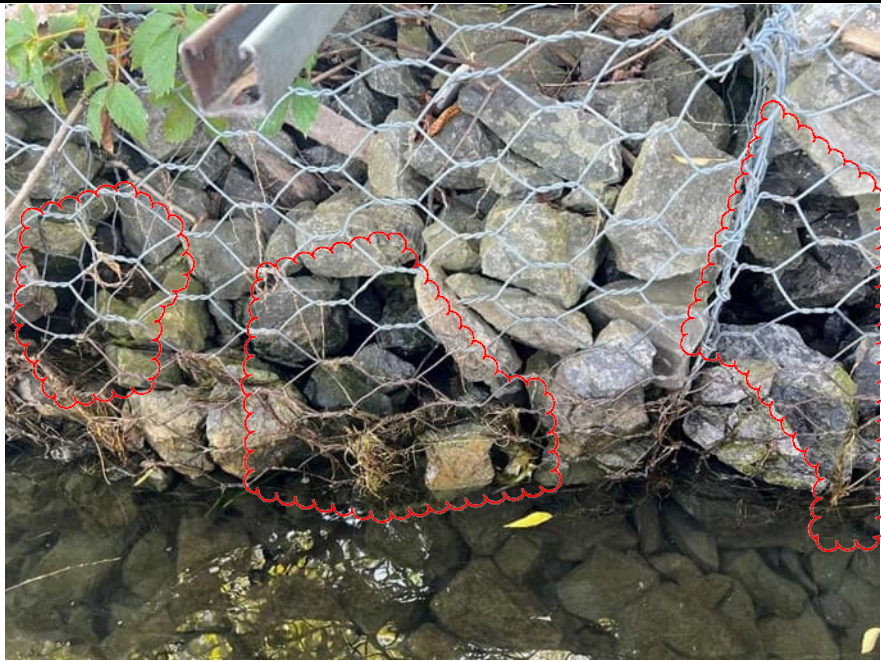
# Appendix B Photographic Log

\*Photos provided by GES





**Photograph 1.** Gabion wall voids at the location of stream gauge. View is from the Niagara River.



**Photograph 2.** Closer view of the gabion wall voids at the stream gauge. View is from the Niagara River.



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 Tonawanda, New York

PROJECT NO.  
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**Photograph 3.** Gabion wall deterioration just north of the stream gauge.



**Photograph 4.** Gabion wall deterioration/voids just north of the stream gauge.



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**Photograph 5.** Closer view of the gabion wall deterioration just north of the stream gauge. View is from the Niagara River.



**Photograph 6.** Closer view of the wire mesh failure on the gabion wall. View is from the Niagara River at the spot just north of the stream gauge.



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**Photograph 7.** View of the gabion wall just north of the stream gauge. View is from the Niagara River.



**Photograph 8.** Between OW-1 and MW-3, shows area of the northern-most gabion wall.



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**Photograph 9.** Closer view of the Gabion Basket voids.



**Photograph 10.** Additional locations along the gabion wall that show additional rock material falling out of the upper baskets. View is from the Niagara River as the boat travels north along the western side of the Niagara Mohawk-Cherry Farm Site. Location appears to be near Sump 2.



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## Cherry Farms Site – Gabion Basket Wall

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