HILLARY ISLAND LIVING SHORELINE

2025

CMPA Permit Application

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Applicant Information

The applicants for the proposed project are Mark and Kim C. Hanly. The applicant is represented by Sam LaBarba of LaBarba Environmental Services for this project.

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Project Summary

The proposed project involves the construction of a hybrid living shoreline system along the southern and western banks of Hillary Island in Glynn County, Georgia. The property is bordered by a dynamic tidal creek and surrounded by expansive salt marsh habitat that is experiencing accelerated erosion due to tidal forces, lack of protective vegetation, and historical shoreline modifications. The area includes residential development, a private dock, and an access causeway, all of which are at risk of damage if erosion continues unmitigated.

The primary goal of the project is to stabilize the degrading shoreline using a nature-based approach that prioritizes ecological enhancement alongside structural protection. The living shoreline design integrates multiple complementary techniques including Flexamat mats with native vegetation and rip rap toe, biodegradable DredgeSox filled with soil and seeded with salt-tolerant species, Type 3 granite rip rap for toe protection, and targeted grading and replanting. These features are carefully placed along the shoreline in accordance with observed erosion severity and hydrodynamic conditions.

This approach represents a forward-thinking solution consistent with current state and federal policy favoring green infrastructure and resilience planning. The proposed work will not only reduce sediment loss and enhance storm resilience, but also expand and protect critical marsh habitat, improve water quality through filtration, and support biodiversity in the estuarine system. All work will be performed in compliance with the Coastal Marshlands Protection Act (CMPA), with the majority of impacts occurring landward of jurisdiction or within previously degraded zones.

Existing Conditions:

The shoreline of Hillary Island borders a tidal creek with expansive marshes and tidal creeks surrounding it. Much of the existing shoreline is actively eroding, particularly at the northwest and southern ends of the island, where the marsh grass is either absent or not sufficiently protection the upland where the higher tides reach. A pronounced scour line near the high tide line characterized by steep, undercut banks, active soil sloughing, and progressive loss of shoreline vegetation. The undercutting is threatening the root systems of existing upland vegetation,

including mature trees and shrubs that are actively falling into the marsh, leading to slope instability and upland habitat degradation. In addition, eroded material is contributing to increased sedimentation in the adjacent waterway, impacting water clarity and potentially degrading marsh and aquatic habitat downstream.

Approximately 1,972 linear feet of shoreline is experiencing varying degrees of erosion, categorized into high-risk and moderate-risk segments. High-risk areas lack a vegetated buffer and exhibit direct exposure to tidal flow, while moderate-risk areas have marsh grass present where the slope below the high tide line is suitable, but display signs of bank cutting immediately adjacent to the high tide line where the lower marsh elevation is contrasted sharply by the higher island elevation. Conversely, the northwest and east sides of the island benefit from an expansive marsh buffer and softer slopes that provides a natural transition between the upland and creek channel, and these areas are not currently experiencing erosion.

Existing rip rap is present near the residential dock and bridge but is insufficient and actively failing in some locations. A vertical bulkhead exists at the mainland end of the bridge, but the history of its installation is unknown. The structure is currently in good condition and provides some shoreline stability in that section. and has not led to adjacent erosion. The existing causeway is not experiencing erosion from the tidal flow, but is showing signs of subsidence. The marsh edge is dominated by Spartina alterniflora, with no upland armoring extending into the jurisdictional area.

Existing Impacts
Rip Rap: 200 LF (1,038 SF) (Existing Volume Indeterminable)
Bulkhead: 172 SF
Bridge: 2,804 SF

Total Existing Impacts: 4,014 SF

Proposed Conditions (Living Shoreline):

The project proposes the construction of living shoreline treatments at two distinct segments of Hillary Island, one located along the southern bank and the other along the northwestern bank of the island. These two zones were selected based on comprehensive site observations that identified critical erosion and habitat loss in areas lacking a marsh buffer. Each segment has been designed to meet the specific challenges of its respective shoreline, using an integrated approach that combines bioengineering practices with durable, ecologically compatible materials. The proposed treatments aim not only to arrest current erosion but to restore the shoreline's natural resilience, ecological productivity, and capacity to support native marsh vegetation and aquatic life.

Each section will receive tailored stabilization based on local erosion severity, tidal influence, and buffer conditions.

Southern Shoreline Segment
This section extends from the area adjacent to the existing bridge toward the southwest corner of the island. It includes area of high and moderate risk based on the amount of marsh vegetation present. The eastern part of this section will only require stabilization through DredgeSox immediately seaward of the jurisdiction line with minor sloping, to minimize impacts to any of the

vegetation present. Approximately 695 SF of marsh vegetation will be harvested from the project area and stored for replanting after the living shoreline is installed. The western part of this section does not have any marsh vegetation as a buffer and will require more extensive grading for installing Flexamat with a rip rap toe and native planting. All impacts will be immediately adjacent to the CMPA/HTL where the upland is being eroded and will not extend beyond mean low water.

- Flexamat with native vegetation: 680 LF (13,530 SF) (10,116 SF in jurisdiction)
- DredgeSox with native vegetation seeding: 420 LF (3,904 SF)(2,989.36 SF in jurisdiction)
- Rip rap toe: 680 LF (1,387 SF, all impact in jurisdiction)
- Existing + Additional Rip Rap: 100 LF (1,395 SF all impacts in jurisdiction)(90 CY)

Western Shoreline Segment
This section spans the length of the western shoreline, extending from the southwest edge of the property to the northwest side of the island along the eroding area. This shoreline is categorized as high risk due to the lack of a marsh vegetation buffer and the creek flowing immediately adjacent to the upland. The existing rip rap surrounding the dock would be difficult to remove and replace with living shoreline without causing more damage to the shoreline. For this reason, the area currently armored with rip rap will be supplemented with rip rap, while the other areas extending to the north and south will consists of Flexamat with an rip rap toe. The existing shoreline has sporadic rip rap seaward of the eroding bluff. An approximately 2-3' strip of marsh vegetation, totaling 1,595 SF will be temporarily harvested and replanted into the Flexamat.

- Flexamat with native vegetation: 693 LF (8,721 SF)(5,617.47 SF in jurisdiction)
- Rip rap toe: 693 LF (1,425 SF, all impacts in jurisdiction)
- Existing + Additional Rip Rap: 100 LF (725 SF, all impacts in jurisdiction)(55 CY)

Combined Totals
The combined total impacts from both shoreline stabilization segments are:

- Flexamat with native vegetation: 1,373 LF (22,251 SF)(15,733.47 SF in jurisdiction)
- DredgeSox with native vegetation seeding: 420 LF (3,904 SF)(2,989.36 SF in jurisdiction)
- Rip rap toe: 1,373 LF (2,812 SF all impacts in jurisdiction)
- Rip rap: 200 LF (2,120 SF all impacts in jurisdiction) (145 CY)
- **Total Project Footprint in Jurisdiction: 23,654.83sq.ft. (0.54 acre)**

These components will be carefully installed along newly graded 2:1 - 3:1 slopes to provide structural stability while allowing for vegetation regrowth and habitat enhancement. Material selection, placement, and planting will comply with CMPA guidelines and be adapted to existing site elevations and hydrology. Material manufacturer specialists will be consulted throughout construction to provide the most effective installation techniques.

Grading and Backfill
The upland vegetation along the upland shoreline that is undercut will be removed and the existing slope will be reshaped to a stable 2:1 - 3:1 profile using on-site materials, no fill will be brought in from off site. The plan is designed to minimize impacts to live marsh vegetation, but if any is impacted it will be harvested and replanted into the Flexamat sections of living shoreline. The impacts from grading and subsequently placed materials will be split between the marshlands and the upland in order to reduce total impacts to marshlands and prevent the need for bringing foreign fill material to the site.

Flexamat + Native Vegetation
Flexamat will be installed along high-erosion areas. The mat will be laid on a 3:1 graded slope, allowing native vegetation to be planted and grow through its open-cell design. At the toe, rip rap will be placed as scour protection. Rip rap has also shown the ability to recruit oysters.

DredgeSox with Native Vegetation Seeding
DredgeSox will be used in less exposed areas or where marsh vegetation is present beyond the toe of the eroding slope. These geotextile tubes will be installed along regraded slopes and filled with native soil. The tubes will be seeded with salt-tolerant vegetation such as Spartina alterniflora and Borrichia frutescens. This soft armoring solution offers erosion control while maintaining a natural shoreline appearance.

Supplemental and New Rip Rap
Additional rip rap will be installed to reinforce existing rock segments. Rip rap will be placed in the same footprint of the shoreline that has existing rip rap. This includes areas beneath the bridge and underneath the existing dock. The rock will be placed on filter fabric and keyed into the slope to prevent undermining.

Vegetation
All areas will be planted with native species adapted to tidal conditions. CMPA-approved species include Spartina alterniflora, Spartina patens, and Juncus roemerianus. Upland areas may be vegetated with native buffer species including Muhlenbergia capillaris, Panicum virgatum, and Itea virginica. The vegetation will enhance soil stability, improve water quality, and support wildlife habitat.

Needs Assessment
Hillary Island's shoreline is undergoing continued erosion due to direct tidal exposure, lack of vegetative buffers, and past land modifications. The absence of natural marsh fringe in key locations along the CMPA/High Tide Line allows wave and storm surge energy to directly impact the upland banks, undermining vegetation and causing soil loss. This erosion threatens upland property, reduces marsh functionality, and leads to sedimentation in the tidal creek, impacting water quality. The hybrid living shoreline approach will address these issues with minimal environmental impact while restoring the natural resilience of the island.

Alternative Analyses
No-Action Alternative: Allowing the shoreline to continue eroding would result in loss of upland, marsh degradation, and increased sediment loading downstream. This is not a sustainable or responsible option.

Bulkhead: Installing a new bulkhead would stop erosion but at the cost of eliminating the natural shoreline gradient, increasing wave reflection, and negatively impacting habitat. This method offers little ecological benefit and does not support marsh migration.

Rip Rap Only: Rip rap alone provides effective armoring but lacks habitat value or ecological uplift. This method would miss an opportunity to restore natural shoreline processes.

Preferred Alternative—Hybrid Living Shoreline: Combining vegetated elements with structural materials such as Flexamat and DredgeSox offers erosion control, habitat value, and improved water quality. This approach aligns with state and federal guidance and represents the least environmentally damaging practicable alternative (LEDPA).

The Hillary Island Shoreline Stabilization Project embodies a sustainable and science-based response to the challenges of coastal erosion in a dynamic estuarine environment. By applying a strategic combination of living shoreline elements, such as Flexamat, DredgeSox, rip rap, and native vegetation, this project not only addresses structural instability but also restores ecological functions and improves habitat quality.

Through this initiative, the applicants aim to enhance the long-term resilience of their property and surrounding natural resources while aligning with state and federal environmental priorities. The phased design, minimal footprint, and naturalistic materials are indicative of an approach that prioritizes both environmental stewardship and regulatory compliance. The project offers a replicable model of hybrid shoreline restoration for similar properties throughout coast

Adjoining Landowners

The project area is located entirely on private property owned by Mark and Kim Hanly. No adjacent private properties will be affected. The surrounding tidal marsh is owned by the State of Georgia.

Landfill/Hazardous Waste Statement

The Georgia Environmental Protection Division Hazardous Site Inventory indicates that the project location does not contain any landfills or hazardous waste sites.

Historic/Cultural Resources

The National Register of Historic Places and the GNAHRGIS do no list any known cultural or historic resources are located within the project area. Should any artifacts or features be discovered during construction, work will immediately cease, and the Georgia Historic Preservation Division will be notified.

Water Quality Certification

This application will be processed by the U.S. Army Corps of Engineers as a Nationwide Permit which has been granted blanket authorization for a 401 Water Quality Certification.

Other State Permitting

The Georgia EPD has determined this site to be exempt from the 25’ state marsh buffer due to the buffer encompassing more than 18% of the developable upland. A copy of their determination is included in the appendices.

Federal Permitting

This project will be submitted to the U.S. Army Corps of Engineers, Savannah District, for verification under the Nationwide Permit (NWP) program. The proposed work is anticipated to qualify for a NWP 54 for construction of the living shoreline.

Due to the total shoreline length and extent of proposed impacts, the applicant will request a waiver from the District Engineer. This waiver is warranted based on the project's clearly minimal adverse environmental effects and its anticipated net benefit to wetland function and extent. Rather than resulting in wetland loss, the project is designed to expand vegetated marsh and improve ecological conditions through restoration and enhancement.

All disturbed areas suitable for vegetative growth will be replanted with native species sourced locally to ensure the highest likelihood of successful establishment. The comprehensive design is consistent with the goals of the Nationwide Permit program and represents a model of low-impact, environmentally beneficial shoreline management.

Soil and Erosion Control Statement

The proposed project will adhere to the soil and erosion control responsibilities, if required, for the proposed project.

Turbidity Statement

The proposed project will be performed in a manner to minimize turbidity in the stream.

Public Interest Statement

A. Whether or not unreasonably harmful obstruction to or alteration of the natural flow of navigational water within the affected area will arise as a result of the proposal.

The proposed living shoreline is specifically designed to reduce erosion, prevent sediment runoff, and avoid the formation of shoals or stagnant zones. By stabilizing shoreline soils and promoting vegetation growth, the project will significantly improve the sediment balance and hydrodynamic function of the creek channel. In doing so, it will enhance both water movement and quality in this section of the tidal marsh system.

B. Whether or not unreasonably harmful or increased erosion, shoaling of channels, or stagnant areas of water will be created.

The proposed living shoreline is specifically designed to reduce erosion, prevent sediment runoff, and avoid the formation of shoals or stagnant zones. By stabilizing shoreline soils and promoting vegetation growth, the project will significantly improve the sediment balance and hydrodynamic function of the creek channel. In doing so, it will enhance both water movement and quality in this section of the tidal marsh system.

C. Whether or not the granting of a permit and the completion of the applicant's proposal will unreasonably interfere with the conservation of fish, shrimp, oysters, crabs, clams, or other marine life, wildlife, or other resources, including but not limited to water and oxygen supply.

The project is expected to improve habitat for marine and estuarine species through the addition vegetated marsh edge and other ecological features. These enhancements will increase

biodiversity, improve water quality through filtration, and stabilize the shoreline without diminishing the natural character of the area.

Conclusion

The Hillary Island Shoreline Stabilization Project embodies a sustainable and science-based response to the challenges of coastal erosion in a dynamic estuarine environment. By applying a strategic combination of living shoreline elements, such as Flexamat, DredgeSox, rip rap, and native vegetation, this project not only addresses structural instability but also restores ecological functions and improves habitat quality.

Through this initiative, the applicants aim to enhance the long-term resilience of their property and surrounding natural resources while aligning with state and federal environmental priorities. The phased design, minimal footprint, and naturalistic materials are indicative of an approach that prioritizes both environmental stewardship and regulatory compliance. The project offers a replicable model of hybrid shoreline restoration for similar properties throughout coastal Georgia.

Accordingly, the applicant respectfully seeks authorization under the Coastal Marshlands Protection Act to implement this essential shoreline stabilization and habitat enhancement effort on Hillary Island.

Sam LaBarba
LaBarba Environmental Services
September 22, 2025

Appendix H: Living Shoreline Materials

Flexamat Plus Specification

1. DESCRIPTION

A Tied Concrete Block Mat with Triple Layered Underlayment. This work shall consist of furnishing and placing the system in accordance with this specification and conforming with the lines, grades, design, and dimensions shown on the plans.

2. MATERIALS

Flexamat Plus is manufactured from individual concrete blocks tied together with high strength knitted polypropylene bi-axial geogrid. Each block is tapered, beveled and interlocked and includes connections that prevent lateral displacement of the blocks within the mats when they are lifted for placement.

Tied Concrete Block Mats with Triple Underlayment shall be Flexamat Plus, manufactured by Motz Enterprises, Inc.

2.1. Blocks. Furnish blocks manufactured with concrete conforming to the cement requirements of ASTM C150 and to the aggregate requirements of ASTM C33. Blocks shall have a minimum weight of 3 lb. per block and placed no further than 2 in. apart. Material weight per square foot shall not exceed 10 lbs. Blocks shall have a 2.25" profile, a flat-top pyramid shape, and a coarse finish without protrusions. Concrete shall have a minimum compressive strength requirement of Table1 and certified by a third party.

Table 1
Concrete Compressive Strength Requirements

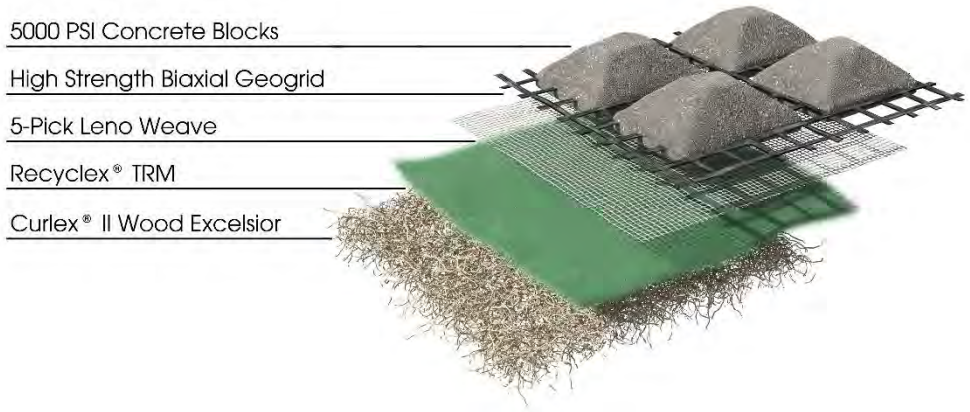
Age	Required Compressive Strength psi
7 - Day	5000 psi
14 – Day	6000 psi
28 - Day	6900 psi

2.2. Polypropylene Bi-Axial Geogrid. The interlocking geogrid shall be an open knitted fabric composed of high tenacity, multifilament polypropylene yarns knitted and coated in tension with an acrylic based coating which is designed to resist degradation in environments with exposure to water and low pH (,4 pH) and high pH (>9 pH). When combined with the revetment mat, this will yield a high tenacity, low elongating, and continuous filament polypropylene geogrid that is embedded within the base of the concrete blocks. Ensure the geogrid meets the requirements of Table 2.

Table 2
Polypropylene Bi-Axial Geogrid

Property	Unit	Test	Requirement
Mass/Unit Area	oz/yd^2	ASTM D5261	6.5 oz/yd^2
Aperture Size	English units	Measured	1.4x 1.4 inch
Ultimate Wide Width Tensile Strength (MD x CMD)	lb/ft	ASTM D6637	2,055 lb/ft
Elongation at Ultimate Tensile Strength (MD x CMD)	%	ASTM D6637	6%
Wide Width Tensile Strength @ 2% (MD x CMD)	lb/ft	ASTM D6637	822 lb/ft
Wide Width Tensile Strength @ 5% (MD x CMD)	lb/ft	ASTM D6637	1,640 lb/ft
Tensile Modulus @ 2% (MD x CMD)	lb/ft	ASTM D6637	41,100 lb/ft
Tensile Modulus @ 5% (MD x CMD)	lb/ft	ASTM D6637	32,800 lb/ft

2.3. Underlayment Materials. A four-layered system includes, in order from top to bottom, 1) Concrete block mat 2) 5-Pick Leno Weave 3) Recyclex TRM-V and 4) Curlex® II. The underlayment materials shall be packaged within the roll of the Flexamat Plus.



Five-Pick Leno Weave:
This Five-Pick Weave provides added strength and support to the underlayments.

Index Property	Units	Value
GSM	g/m^2	118 (-3~ +3)
Density	Picks/10cm	62 x 24 (+/- 2)
Warp Strength	N/5cm	≥ 350
Warp Elongation	%	20 - 50
Weft Strength	N/5cm	≥ 280
Weft Elongation	%	20 - 50
Warp Shrinkage	%	≤ 7
Weft Shrinkage	%	≤ 9

Recyclex® TRM:
Recyclex TRM – V is a permanent non-degradable Turf Reinforcement Mat (TRM), consists of 100% post-consumer recycled polyester (green or brown bottles) with 80% five-inch fibers or greater fiber length. It is of consistent thickness with fibers evenly distributed throughout the entire area of the TRM. The top and bottom of each TRM is covered with heavy duty polypropylene net. Fibers are tightly crimped and curled to allow fiber interlock, and to

retain 95% memory of the original shape after loading by hydraulic events. Fibers have a specific gravity greater than 1.0; therefore, the blanket will not float during hydraulic events. Recyclex TRM – V meets Federal Government Executive Order initiatives for use of products made from, or incorporating, recycled materials. Recyclex TRM – V shall be manufactured in the U.S.A. and the fibers shall be made from 100% recycled post-consumer goods.

Index Property	Test Method	Value
Thickness	ASTM D 6525	0.294 in (7.47 mm)
Light Penetration	ASTM D 6567	57%
Resiliency	ASTM D 6524	86%
Mass per Unit Area	ASTM D 6566	0.50 lb/yd^2 (271 g/m^2)
MD-Tensile Strength Max.	ASTM D 6818	295.2 lb/ft (4.32 kN/m)
TD-Tensile Strength Max.	ASTM D 6818	194.4 lb/ft (2.85 kN/m)
MD-Elongation	ASTM D 6818	32.2%
TD-Elongation	ASTM D 6818	40.8%
Swell	ECTC Procedure	8%
Water Absorption	ASTM D 1117/ECTC	33.8%
Specific Gravity	ASTM D 792	1.21
UV Stability	ASTM D 4355 (1,000 hr)	80% minimum
Porosity	Calculated	97.5%
Bench-Scale Rain Splash	ECTC Method 2	SLR = 5.86 @ 2 in/hr [1,2]
Bench-Scale Rain Splash	ECTC Method 2	SLR = 5.00 @ 4 in/hr [1,2]
Bench-Scale Rain Splash	ECTC Method 2	SLR = 6.33 @ 6 in/hr [1,2]
Bench-Scale Shear	ECTC Method 3	2.41 lb/ft^2 @ 0.5 in soil loss [2]
Germination Improvement	ECTC Method 4	432%

[1] SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. [2] Bench-scale index values should not be used for design purposes

Curlex® II:

Curlex II erosion control blanket (ECB) consists of a specific cut of naturally seed free Great Lakes Aspen curled wood excelsior with 80% six-inch fibers or greater fiber length. It is of consistent thickness with fibers evenly distributed throughout the entire area of the blanket. The top and bottom of each blanket is covered with degradable polypropylene netting.

Index Property	Test Method	Value
Thickness	ASTM D 6525	0.418 in (10.62 mm)
Light Penetration	ASTM D 6567	34.6%
Resiliency	ASTM D 6524	64%
Mass per Unit Area	ASTM D 6475	0.57 lb/yd^2 (309 g/m^2)
MD-Tensile Strength Max.	ASTM D 6818	127.0 lb/ft (1.9 kN/m)
TD-Tensile Strength Max.	ASTM D 6818	50.9 lb/ft (0.7 kN/m)
MD-Elongation	ASTM D 6818	28.64%
TD-Elongation	ASTM D 6818	29.84%
Swell	ECTC Procedure	89%
Water Absorption	ASTM D 1117/ECTC	199%
Bench-Scale Rain Splash	ECTC Method 2	SLR = 6.84 @ 2 in/hr [2,3]
Bench-Scale Rain Splash	ECTC Method 2	SLR = 7.19 @ 4 in/hr [2,3]
Bench-Scale Rain Splash	ECTC Method 2	SLR = 7.56 @ 6 in/hr [2,3]
Bench-Scale Shear	ECTC Method 3	2.6 lb/ft^2 @ 0.5 in soil loss [3]
Germination Improvement	ECTC Method 4	645%

[1] Weight is based on a dry fiber weight basis at time of manufacture. Baseline moisture content of Great Lakes Aspen excelsior is 22%.

[2] SLR is the Soil Loss Ratio, as reported by NTPEP/AASHTO. [3] Bench-scale index values should not be used for design purposes.

2.4. Mats will be rolled for shipment. Upon delivery, rolls may be left exposed for up to 30 days. If exposure will exceed 30 days, cover or tarp the rolls to minimize UV exposure.

Chipping or missing concrete resulting in a weight loss exceeding 15% of the average weight of a concrete unit is grounds for rejection by the engineer. Replace, repair or patch the damaged areas per the manufacturer's recommendations.

3. PERFORMANCE

Full-Scale laboratory testing performed by an independent 3rd party testing facility with associated engineered calculations certifying the hydraulic capacity of the proposed Tied-Concrete Block Erosion Control Mat meets the following requirements:

Test	Tested Value	Bed Slope	Soil Classification	Limiting Value
ASTM 6460	Shear Stress	30%	Sandy Loam (USDA)	24lb./ft^2
ASTM 6460	Velocity	20%	Loam (USDA)	30 ft./sec

4. ALTERNATIVE PRODUCTS

Such products must be pre-approved in writing by the Engineer prior to bid date. Alternative product packages must be submitted to the Engineer a minimum of fifteen (45) days prior to bid date. Submittal packages for alternate products must include, as a minimum, the following:

4.1. Alternative Product Properties – Product must be comprised of materials as detailed in Section 2, including both in composition, underlayment layers and performance requirements.

4.2. Full-Scale laboratory testing performed by an independent 3rd party testing facility with associated engineered calculations certifying the hydraulic capacity of the proposed Tied-Concrete Block Erosion Control Mat meets the performance requirements listed in Section 3 of this specification.

4.3. A list of 15 comparable projects in terms of project size, application and material dimensions in the United States, where the results of the specific alternative material's use can be verified and reviewed for system integrity and sustained after a minimum of 10 years of service life.

5. EQUIPMENT

Provide the proper equipment to place the mat that will not damage the mat material or disturb the topsoil subgrade and seed bed.

6. CONSTRUCTION

Prior to installing Flexamat Plus, prepare the subgrade as detailed in the plans. All subgrade surfaces to be smooth and free of all rocks, stones, sticks, roots, and other protrusions or debris of any kind that would result in an individual block being raised more than 3/4 in. above the adjoining blocks. When seeding is shown on the plans, provide subgrade material that can sustain growth.

Ensure the prepared subgrade provides a smooth, firm, and unyielding foundation for the mats. The subgrade shall be graded into a parabolic or trapezoidal shape to concentrate flow to middle of mat or mats.

When vegetation is required, distribute seed on the prepared topsoil subgrade before installation of the concrete mats in accordance with the specifications.

Install mats to the line and grade shown on the plans and per the manufacturer's guidelines. The manufacturer or authorized representative will provide technical assistance during preparation and installation of the concrete block mats as needed.

Provide a minimum 18 in. deep concrete mat embedment toe trench at all edges exposed to concentrated flows. Recess exterior edges subject to sheet flow a minimum of 6 in.

Provide fastening or anchoring as recommended by the manufacturer or engineer for the site conditions.

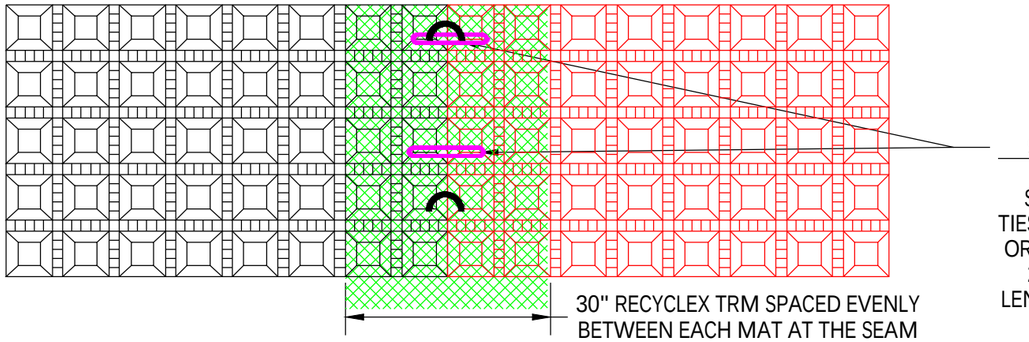
7. MEASUREMENT

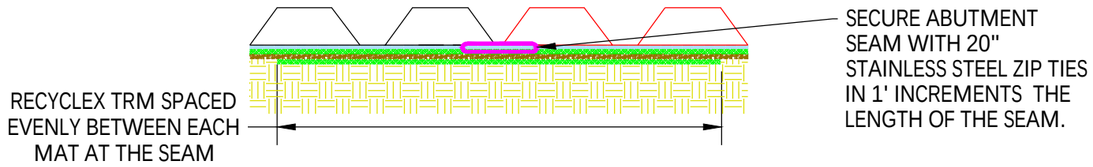
This Item will be measured by the square foot as shown on the plans, complete in place.

8. PAYMENT

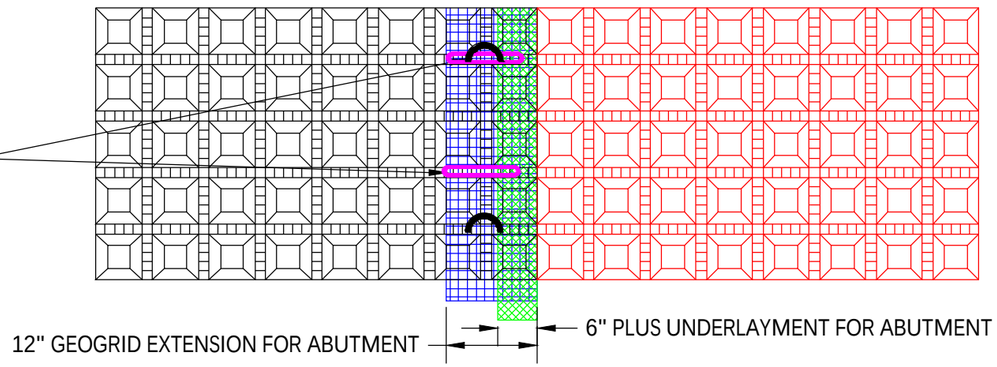
The work performed, and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Flexamat Plus". This price is full compensation for loading and transporting, placing concrete block mats; excavation and disposal; furnishing topsoil and bedding; and equipment, labor, materials, tools, and incidentals.

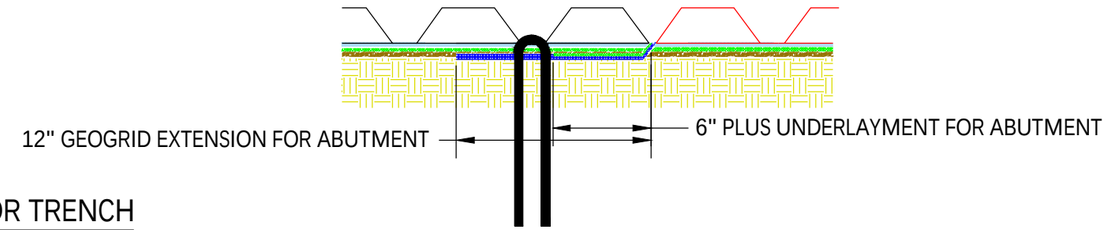
ABUTMENT METHOD FOR SHORELINE WIDTH LESS THAN 16'



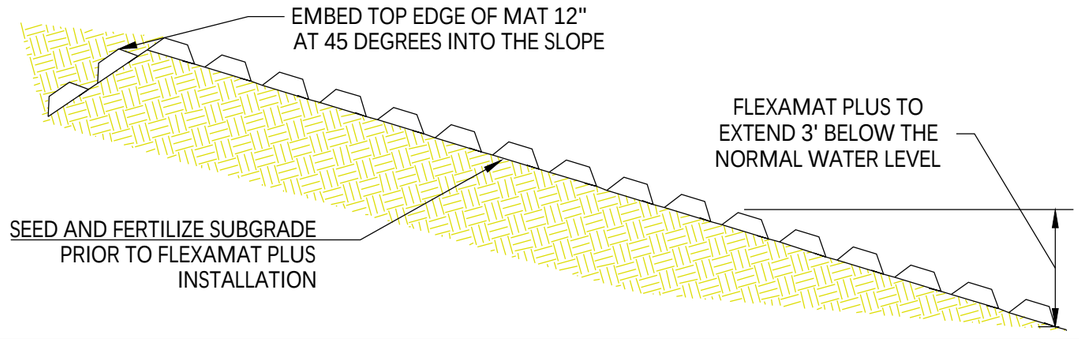


ABUTMENT METHOD FOR SHORELINE WIDTH GREATER THAN 16'

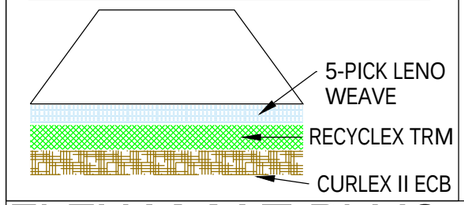




PROFILE VIEW OF SLOPE AND ANCHOR TRENCH



FLEXAMAT PLUS UNDERLAYMENT



FLEXAMAT PLUS - SHORELINE ARMORING

CONSTRUCTION NOTES:

1. AN ENGINEER OR MANUFACTURES REPRESENTATIVE SHALL BE ONSITE FOR THE START OF THE INSTALLATION.
2. ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND.
3. PRIOR TO FLEXAMAT PLUS INSTALLATION, SEED AND FERTILIZE SUBGRADE WITH SITE SPECIFIC SEED MIX IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. .
4. INSTALL FLEXAMAT PLUS ROLLS, MATS SHALL BE CONTINUOUS FOR ENTIRE LENGTH OF SLOPE.
   4.1. MATTING SHALL EXTEND 3' BELOW ORDINARY WATER LEVEL.
5. AT MAT ABUTMENT SEAMS, INSTALL RECYCLEX TRM SEAMS EVENLY UNDER EACH MAT.
6. SECURE ABUTMENT SEAMS IN 2' INCREMENTS USING STAINLESS STEEL ZIP TIES OR #3 REBAR - 18" U-ANCHORS. ZIP TIES SHALL ENCOMPASS 3 CORDS OF GRID OF EACH ABUTTING MAT OR GEOGRID EXTENSION. U-ANCHORS SHALL ENCOMPASS 2 CORDS OF GEOGRID OF EACH ABUTTING MAT OR GEOGRID EXTENSIONS.
7. AT THE BEGINNING AND END OF THE SHORELINE PROTECTION, EMBED THE MAT 18" PAST THE ANTICIPATED SCOUR POINT. FILL AND COMPACT TERMINATION TRENCH WITH COHESIVE SOIL.
8. RECESS TOP TWO BLOCKS OF MAT INTO THE SLOPE.

MOTZ ENTERPRISES, INC.
Flexamat
(513)772-6689
Info@Flexamat.com
Flexamat.com

Flexamat® PERMANENT EROSION CONTROL

REV - 1

Natrx
ADAPTIVE INFRASTRUCTURE

Natrx Living Shorelines

Our technology-enabled approach to coastal resilience harnesses the unmatched adaptive power of nature to combat erosion issues.

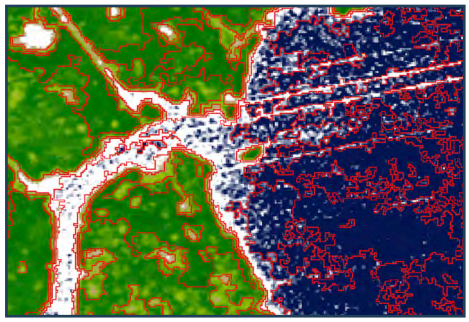
Using our proprietary Natrx Assess remote sensing tools, we analyze your site's specific erosion and habitat challenges. Then, because no two coastal ecosystems are the same, we address your challenges with a site-specific solution.

AT A GLANCE

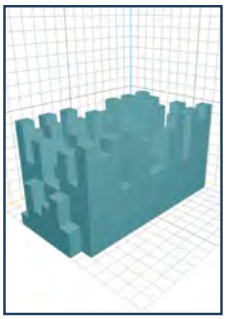
- **Project Specific Design**
- **Reduced Carbon Footprint**
- **Resilient to Storms**
- **Safe & Fast Installation**
- **Habitat Positive**

Our storm-tested living shorelines are high-performance, cost-effective to implement and customizable for a wide range of wave activity.

Unlike traditional infrastructure, Natrx Living Shorelines are designed with natural aesthetics that fit in beautifully with their surroundings.



Natrx Assess Analysis



Digital Design and Manufacturing

Fast, Safe, Clean Installation

Our Patented Approach to Living Shorelines

Our Living Shorelines approach is a practical implementation of our patented Dry Forming process to create project-specific ExoForms.

Natrx ExoForms are highly flexible coastal resilience modules that are custom designed and fabricated to meet the specifc demands of each project site.

Natrx ExoForms are designed to be safer and faster to install than traditional methods.

Our ExoForms promote a wide range of positive, ecological co-benefits and, because they harness the adaptive power of the local habitat, the protection they create gets stronger over time.

A Straightforward Process Makes it Easy to Get Started

1. Free Project Information Session
2. Natrx SatTech Site Analysis
3. Customized Natrx ExoForm Production
4. Safe, Quick, and Clean Installation
5. Site Performance Report

Benefits Overview:
Performance, Resilience, Beauty

- Durable and storm tested
- Customizable designs for individual site conditions
- Meets living shoreline criteria for expedited permitting
- Aesthetically pleasing and consistent with natural setting
- Increased habitat value and biodiversity

Get in touch to see how a Natrx Living Shoreline can benefit your site.

Natrx Corporate Headquarters

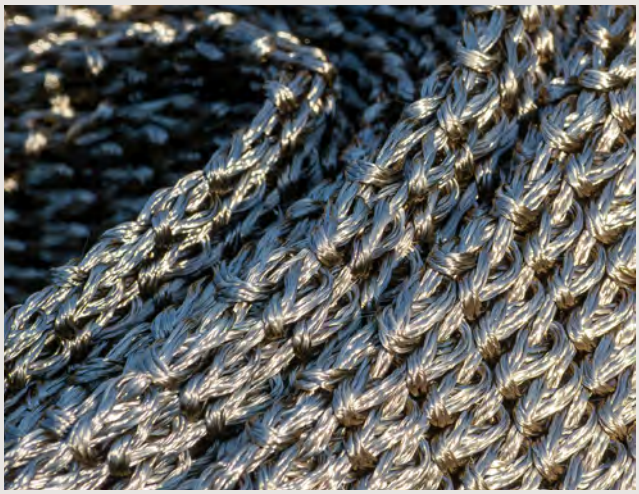
6220 Angus Drive
Suite 101
Raleigh, NC 27617

Phone: (919) 263-0667
Email: info@natrx.io

NATRX
ADAPTIVE INFRASTRUCTURE

ExoFlex Oyster Bags

Durable and Plastic-Alternative Habitat Restoration and Protection



APPLICATIONS

ExoFlex Oyster Bags can be utilized in the same way as traditional oyster bags and are designed for application in living shorelines, oyster restoration projects, and small-scale retaining walls.

INSTALLATION

The installation of ExoFlex Oyster Bags is as simple as filling the bags with oyster shells or rocks, tying them off with stainless steel zip ties (provided), and positioning them into a mound structure at the project site.

Often, a group of volunteers can complete the oyster bag filling in a streamlined installation process.

KEY BENEFITS

Exceptional Strength and Durability
Natrx uses basalt fibers to create durable oyster bags for harsh environments with high tidal fluctuations, temperatures, and salinities.

Plastic Alternative
ExoFlex Oyster Bags replace the use of plastic mesh bags for oyster restoration and shoreline protection.

UV and Flame Resistant
ExoFlex Oyster Bags are UV stable and flame resistant due to the basalt fibers, allowing them to withstand sunlight and time without degrading.

Marine Friendly Material
Basalt is the predominant mineral in the oceanic crust. It provides a natural, non-toxic substrate for the attachment of marine life and sessile organisms such as oysters.

Reducing Field Labor and End-User Costs
Natrx ExoFlex Oyster Bags simplify installation and don't require special equipment. ExoFlex Oyster Bags are durable, long-lasting, and lead to lower maintenance costs.

ExoFlex Oyster Bags

SPECIFICATIONS

Material
Uncoated Basalt Fibers, Stainless Steel Zip-Ties

Strength
Basalt fibers have a 2-3 times higher tensile strength than steel, meaning they provide greater strength per unit of weight.

Density
Basalt fibers have a lower density (~2.7g/cm3) compared to steel (~7.85 g/cm3), making basalt fibers significantly lighter than steel.

Mesh Size
Knots spaced approximately 1" apart (~25mm) which allows the bags to expand around fill material.

Fill Capacity
ExoFlex Oyster Bags can support 70lbs for at least 10 minutes. For a typical project, bags would be filled to 20—30 lbs.

Bag Dimensions
Empty/Flat: Length: 23" x Width: 4.5"
Filled: 5 gallons oyster shells, Length: 20" x Width: 12" x Height: 6"

BACKGROUND

Abundancy
Basalt, the most common type of volcanic rock found in Earth's crust, makes up the majority of the ocean floor, resulting in an abundant supply of this rock material.

Processing
Basalt is blown out into filament, converted to roving (untwisted strands of fibers), converted into yarn, and knitted to basalt bags.

Impact
Basalt fibers are environmentally neutral, being made from natural rock and not disrupting the ecosystem in which they are placed.

Safety
Basalt fibers are a safer alternative to plastic and other rock fibers, such as asbestos, which can have environmentally hazardous and carcinogenic effects.

GET STARTED

To schedule an information session and learn more about ExoFlex Oyster Bags, please email Drew Keeley (drew@natrx.io).

ORDERING PROCESS

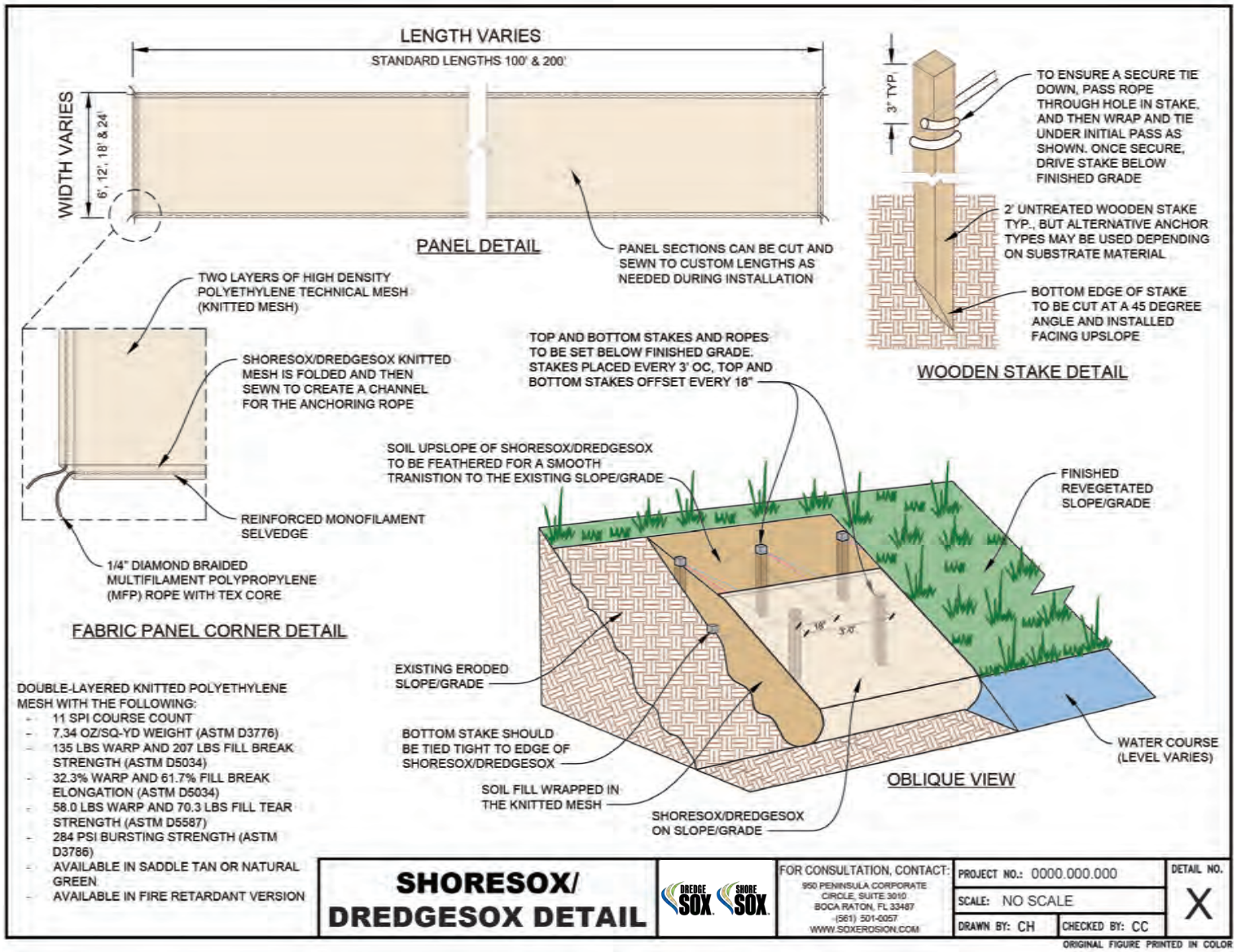
After your information session, Natrx will send you a quote with project-specific pricing information.

To place an order with Natrx, please call or email ExoFlex Specialist, Drew Keeley (919-239-0747, drew@natrx.io)

Be prepared to provide the name of your organization, your organization's shipping and billing address, and the number of ExoFlex Oyster Bags needed for your project.

SOX EROSION SOLUTIONS.

DREDGESOX/SHORESOX



Inc. 5000 | made in USA | BUILD AMERICA BUY AMERICA | ESG | PATENTED | MADE IN THE USA

BIOENGINEERED LIVING SHORELINES & HILLSIDES

DOWNLOAD SPEC SHEET AND CAD FILES

SECTION 31 32 19 - BIOENGINEERED LIVING SHORELINE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Section Includes:
1. Modular HDPE knitted technical mesh.

1.2 SUMMARY

A. A modular open containment system made up of 2 layers of virgin pre-recycled (food grade) High Density Polyethylene (HDPE), that is constructed with a knitted pattern. The technical mesh incorporates a built-in, free flowing, structural anchoring system on all sides of the system, which is designed to be tethered into and anchored back to stable ground through a network of anchors set into a stable substrate. The living shoreline system is designed to be filled with earthen materials equal or greater than 150 microns (sand, topsoil, aeration plugs/cores, dredge spoils, and organic compost type mixtures). The light weight flexibility of the technical mesh allows the system to take any desired shape or size while the Rip Stop technology supports and promotes root vegetation. The finished surface or slope is to be shaped per the Architect/Engineers specification, prior to vegetation.

1.2 SUBMITTALS

A. Submit the following:
1. Manufacturer shop drawings, and installation instructions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Specification is based on products manufactured by Sox Erosion Solutions; Boca Raton, FL.; (561) 501-0057 or Architect approved equal.

2.2 MATERIALS

A. Modular HDPE knitted technical mesh:
1. Basis of Design: Shore Sox as manufactured by Sox Erosion Solutions.
2. Features:
   a. Layers of HDPE.
   b. Rip-Stop technology.
   c. Inert- meaning it does not and cannot maintain a magnetic charge so it will not negatively impact the surrounding environments.
   d. Built-in Structural Anchoring System.
      1) Anchoring Material is made of ¼" Diamond Braided Multifilament polypropylene (MFP) rope with tex core at a minimum per manufacturer's guidance but, can be of higher gauge and strength if suggested by specifying engineer.
   e. Open in nature- so it can take any desired finished shape/size.
   f. Waterproof (Not Biodegradable).

g. Will hold earthen material equal or greater than 150 Microns.
h. Will Support Root Vegetation (Sod, Seed, Plantings).
i. Break Strength Grab Method ASTM-D5034:
    1) Warp = 135lbs
    2) Fill = 207lbs
j. Break Elongation Grab Method ASTM-5034
    1) Warp = 32.33%
    2) Fill = 61.7%
k. Tear Strength Trapezoid ASTM- D5587 #1
    1) Warp = 58.0 lbs
    2) Fill = 70.3 lbs
l. Bursting Strength ASTM- D3786
    1) 284 PSI
j. Size: Refer to Drawings.
k. Color: Architect to select from Manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Proceed with application after correcting unsatisfactory conditions.

3.2 INSTALLATION

A. Anchoring: The existing substrate in the stable upland zone behind the deployment area will determine the most appropriate anchors.
    1. Two rows of anchors.
    2. Anchors are set every 3 ft on both the top and bottom rows.
    3. Bottom row of anchors are used to set the intended shoreline
    4. Top row of anchors are for stability prevention of undermining
    5. Top & bottom rows should be staggered.
    6. An estimated 75 anchors per every 100 linear ft of technical mesh.
    7. Anchors are pounded subgrade during the fill process.
    8. Untreated Wooden stakes:
        a) Wood Stake:
            1) 2" x 2" x 24" untreated Southern White pine.
            2) 2 feet in length (may need to be longer depending on soil substrate and site)
            3) 45-degree bevel cut on the bottom of the stake (bevel should be facing away from the water and up the slope)
            4) 1/2" diameter hole drilled into the top of stake - 3" from top of the stake
        b) Wood Stakes are not appropriate for: Shale, Granite, Some clay substrates, Gravel, Lateral anchoring.

B. Tethering & Connecting: The systems' built in structural roping channels are designed to be tethered into, cut into, and sewn at any given point.
    1. Bottom structural roping channel- is to be tethered back to every bottom anchor and every other top anchor

2. Top structural roping channel- is to be tethered back to every top anchor
3. Side structural roping channels- can be used in these different ways
   a. Connecting sections (modular)
   b. Sewing Ends Closed using a **Lock Stitch** method
   c. Tethered back to anchors laterally to enhance stability
4. Tethering material: ¼" Diamond Braided Multifilament polypropylene (MFP) rope with tex core.

C. Fill Material:
   1. Site conditions will determine the appropriate fill material needed for the projects newly protected or recaptured land.
   2. The earthen materials (sand, topsoil, aeration plugs/cores, dredging spoils and/or organic compost type mixture) must be greater than 150 microns.
   3. It is recommended that all fill materials be tested for particle size and filtration properties prior to install)
   4. It is recommended that all fill material is compacted and it is strongly recommended that water is introduced during the fill process to eliminate any voids
   5. Topography of the embankment: i.e., elevations, escarpment, undermining issues, and final slope calculations = The Erosion Factor and determine the size of the system needed. i.e., 6', 12', 18', and 24'.
      a. 6ft system- holds an estimate of ¼ cubic yard of fill material per linear ft
      b. 12ft system- holds an estimate of 1/2 cubic yard of fill material per linear ft
      c. 18ft system- holds an estimate of 3/4 cubic yard of fill material per linear ft

3.3 CLEAN UP

A. Clear areas required for access to site and execution of Work.
B. Remove all rubbish and debris existing and resulting from work operations of this Section as soon as possible, do not allow to pile up.

END OF SECTION

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION
ONE CONSERVATION WAY · BRUNSWICK, GA 31520 · 912-264-7218

WALTER RABON
COMMISSIONER

DOUG HAYMANS
DIRECTOR

May 21, 2025

Mark and Kim Hanly
249 Saint James Avenue
St. Simons Island, GA 31522

Re: Coastal Marshlands Protection Act (CMPA), Jurisdictional Determination Verification, 1800 Blythe Island Drive, Camp Glynn, Hillary Island, Hillery Creek, Glynn County, Georgia

Dear Mr. and Ms. Hanly:

Our office has received the survey and plat, dated March 3, 2025, prepared by Shupe Surveying Company, P.C., No. 3081 entitled *"A CMPA Jurisdiction Line Survey of: Camp Glynn, Hillary Island 27th G.M.D., Glynn County, Georgia"* prepared for Mark Hanly and Kim Hanly. Based on my site inspection, January 8, 2025, this plat and survey generally depict the delineation of the coastal marshlands boundary as required by the State of Georgia for jurisdiction under the authority of the Coastal Marshlands Protection Act O.C.G.A. § 12-5-280 et seq.

The Coastal Marshlands Protection Act O.C.G.A. § 12-5-280 et seq. delineation of this parcel is subject to change due to environmental conditions and legislative enactments. This jurisdiction line is valid for one year from date of the delineation. It will normally expire on January 8, 2026 but may be voided should legal and/or environmental conditions change.

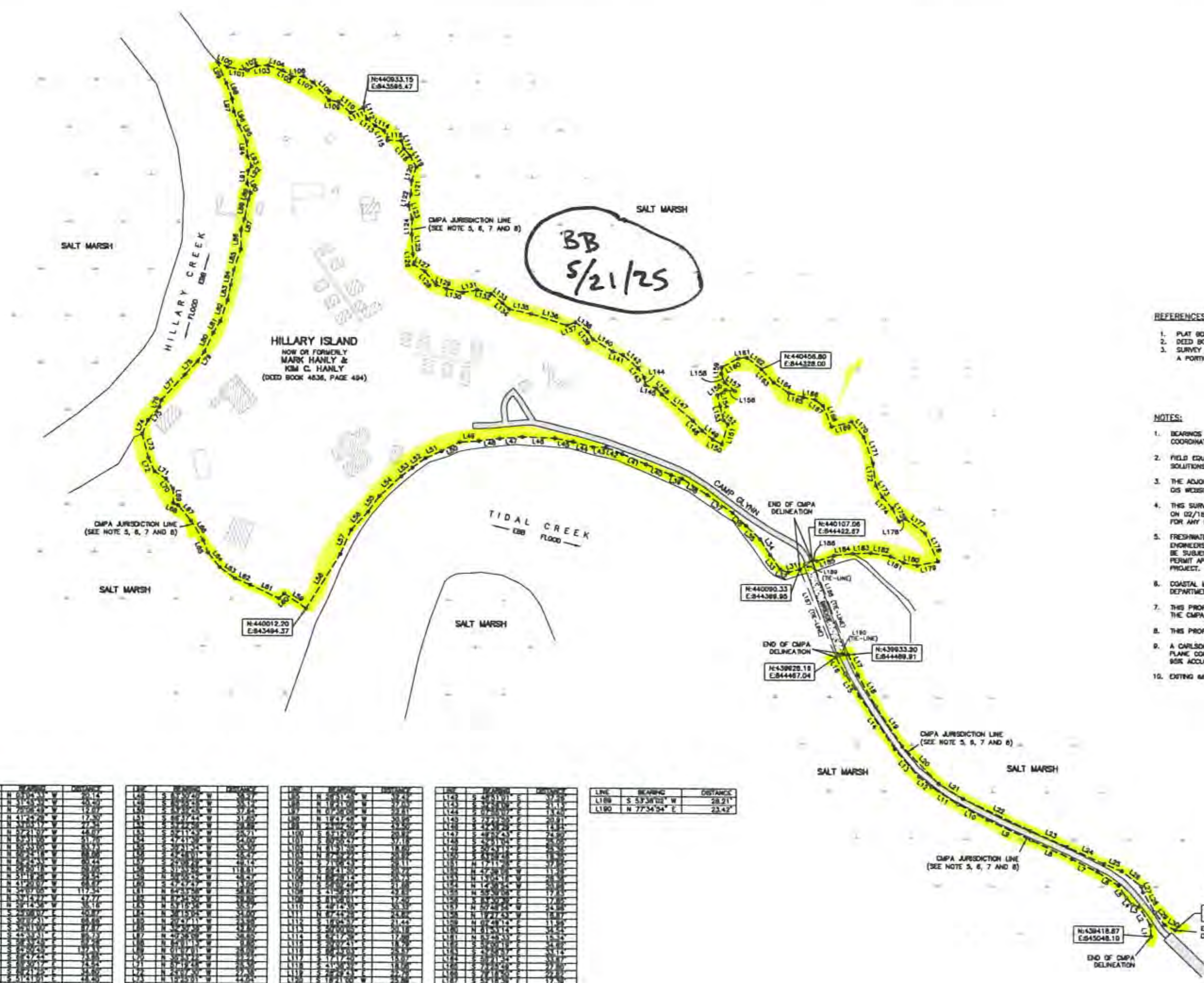
This letter does not relieve you of the responsibility of obtaining other state, local, or federal permission relative to the site. Authorization by the Coastal Marshlands Protection Committee or this Department is required prior to any construction or alteration in the marsh jurisdictional area. We appreciate you providing us with this information for our records. If you have any questions, please contact me at (912) 264-7218.

Sincerely,

Beth Byrnes
Coastal Permit Coordinator
Marsh and Shore Management Program

Enclosure: *A CMPA Jurisdiction Line Survey of: Camp Glynn, Hillary Island 27th G.M.D., Glynn County, Georgia*

File: JDS20240261



LINE	BEARING	DISTANCE
[illegible]	[illegible]	[illegible]

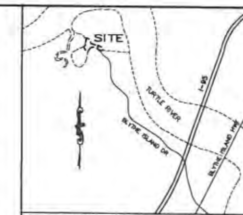
LINE	BEARING	DISTANCE
L189	S 53°39'02" W	28.21'
L190	N 77°34'54" E	23.47'

REFERENCES:

1. PLAT BOOK 19, PAGE 1138
2. DEED BOOK 4636, PAGE 494
3. SURVEY BY SHUPE SURVEYING COMPANY, P.C., TITLED "LIMITED DEVELOPMENT SURVEY OF: A PORTION OF HILLARY ISLAND", DATED 04/12/2022, LAST REVISED 09/28/2022.

NOTES:

1. BEARINGS AND COORDINATES SHOWN ON THIS SURVEY ARE BASED ON THE GEORGIA STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD83 AND WERE ESTABLISHED USING RTK GPS WITH A VRS NETWORK.
2. FIELD EQUIPMENT USED FOR THIS SURVEY: CARLSON BRX7 RTK GPS WITH VRS NETWORK (eGPS SOLUTIONS)
3. THE ADJOINING PROPERTY INFORMATION SHOWN ON THIS SURVEY WAS TAKEN FROM THE GLYNN COUNTY GIS WEBSITE (WWW.QPUBLIC.COM/GA/GLYNN) AND COURTHOUSE RESEARCH.
4. THIS SURVEY AND ALL SUBSEQUENT REVISIONS ARE BASED SOLELY ON FIELD WORK THAT WAS COMPLETED ON 02/18/2025 (UNLESS OTHERWISE NOTED). SHUPE SURVEYING COMPANY, P.C. IS NOT RESPONSIBLE FOR ANY CHANGES TO SITE CONDITIONS AFTER THIS DATE.
5. FRESHWATER WETLANDS AND SALT MARSHES MAY BE UNDER THE JURISDICTION OF THE CORPS OF ENGINEERS AND/OR THE DEPARTMENT OF NATURAL RESOURCES. LOT OWNERS AND THE DEVELOPER MAY BE SUBJECT TO PENALTY BY LAW FOR DISTURBANCE TO THESE PROTECTED AREAS WITHOUT PROPER PERMIT APPLICATIONS AND APPROVAL. FRESHWATER WETLANDS WERE NOT SURVEYED AS PART OF THIS PROJECT.
6. COASTAL MARSHLANDS PROTECTION ACT (CMPA) JURISDICTION LINE WAS DELINEATED BY THE GEORGIA DEPARTMENT OF NATURAL RESOURCES. THE CMPA LINE IS MARKED WITH PVC PIPE.
7. THIS PROPERTY MAY BE SUBJECT TO THE 15' GLYNN COUNTY DEVELOPMENT SETBACK MEASURED FROM THE CMPA LINE.
8. THIS PROPERTY MAY BE SUBJECT TO THE 25' CMPA BUFFER.
9. A CARLSON BRX7 DUAL FREQUENCY RTK GPS WITH A VRS NETWORK WAS USED TO ESTABLISH STATE PLANE COORDINATES AND LOCATE CMPA LINE. THE RELATIVE POSITIONAL TOLERANCE IS 0.06 FEET AT THE 95% ACCURACY CONFIDENCE LEVEL.
10. EXITING IMPROVEMENTS SHOWN AS TAKEN FROM REFERENCE 3.



VICINITY MAP (NOT TO SCALE)

LEGEND:

- ASPHALT
- BUILDING
- CONCRETE
- SALT MARSH

GEORGIA PROFESSIONAL LAND SURVEYOR No. 3081 C. TEEPLE HILL

C. TEEPLE HILL, GA PLS #3081

NO.	REVISION	BY	DATE

A CMPA JURISDICTION LINE SURVEY OF:

CAMP GLYNN, HILLARY ISLAND

27TH G.M.D., GLYNN COUNTY, GEORGIA

PREPARED FOR:
MARK HANLY AND KIM HANLY

SHUPE SURVEYING COMPANY, P.C.
3837 DARIEN HIGHWAY
BRUNSWICK, GA 31525
912-286-0662
CERTIFICATE OF AUTHORIZATION: LSF317

100' 0 50' 100' 200'

SCALE	1" = 100'	DRAWING DATE	03/03/2025
FILE	22228	DRAWN BY	KP
DRAWING	22228-CMPA-2	CREW CHIEF	RD

SHEET 1 OF 1

A Golden Past.
A Shining Future.

PLANNING & ZONING DEPARTMENT
1725 Reynolds Street, Suite 200, Brunswick, GA 31520
Phone: 912-554-7428/E-mail: planningzoning@glynncounty-ga.gov

May 19, 2025

Josh Noble
Marsh and Shore Management Program Manager
Georgia DNR, Coastal Resources Division
One Conservation Way
Brunswick, GA 31520

RE: 1800 Blythe Island Dr, Brunswick, GA 31523
Parcel 03-07467
Living Shoreline Application

Dear Mr. Noble:

Pursuant to the request for a zoning certification letter (ZCL-25-29) by LaBarba Environmental Services regarding 1800 Blythe Island Dr, please find the following:

- 1800 Blythe Island Dr is located in the Forest Agricultural (FA) and Conservation Preservation (CP) zoning districts.
- The proposed shoreline stabilization project, as depicted in the attached plans, does not conflict with current Glynn County zoning laws.

Should you have any additional questions, please feel free to contact me at mpostal@glynncounty-ga.gov.

Sincerely,

Maurice Postal

Maurice Postal, AICP
Development Review Manager

The Glynn County Planning & Zoning Department makes every effort to provide the most accurate interpretation possible based on the information available. No warranties, expressed or implied, are provided for the information herein, its use or interpretation. This letter addresses the zoning designation of the property only; other codes and ordinances which may affect the ability to develop this property may apply.

LEGEND

These standard symbols will be found in the drawing.

- EDGE OF MARSH VEGETATION
- MEAN LOW WATER
- MEAN HIGH WATER/CMPA LINE
- FLEXAMAT
- EROSIONAL SHORELINE
- STABLE SHORELINE
- EXISTING RIP RAP
- PROPOSED RIP RAP

NOT RELEASED FOR CONSTRUCTION

NOTES

HANLY ISLAND
COASTAL MARSHLANDS PROTECTION ACT
SHORELINE AND DOCK ASSESSMENT

VICINITY MAP
NTS

PREPARED FOR:
MARK & KIM HANLY
1800 BLYTHE ISLAND ROAD
BRUNSWICK, GA 31523

LABARBA ENVIRONMENTAL SERVICES
139 ALTAMA CONN. #161
BRUNSWICK, GA 31525

Preliminary review of the proposed plans does not constitute approval of the project itself. All necessary permits and approvals for a ctivities associated with the construction will need to be obtained prior to construction.

Reviewed by Maurice Postal,
Maurice Postal
Development Review Manager

5-19-2025

ORIGINAL ISSUE DATE: 5/4/2025

CONTENTS

COVER

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA
PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025
SCALE: NTS

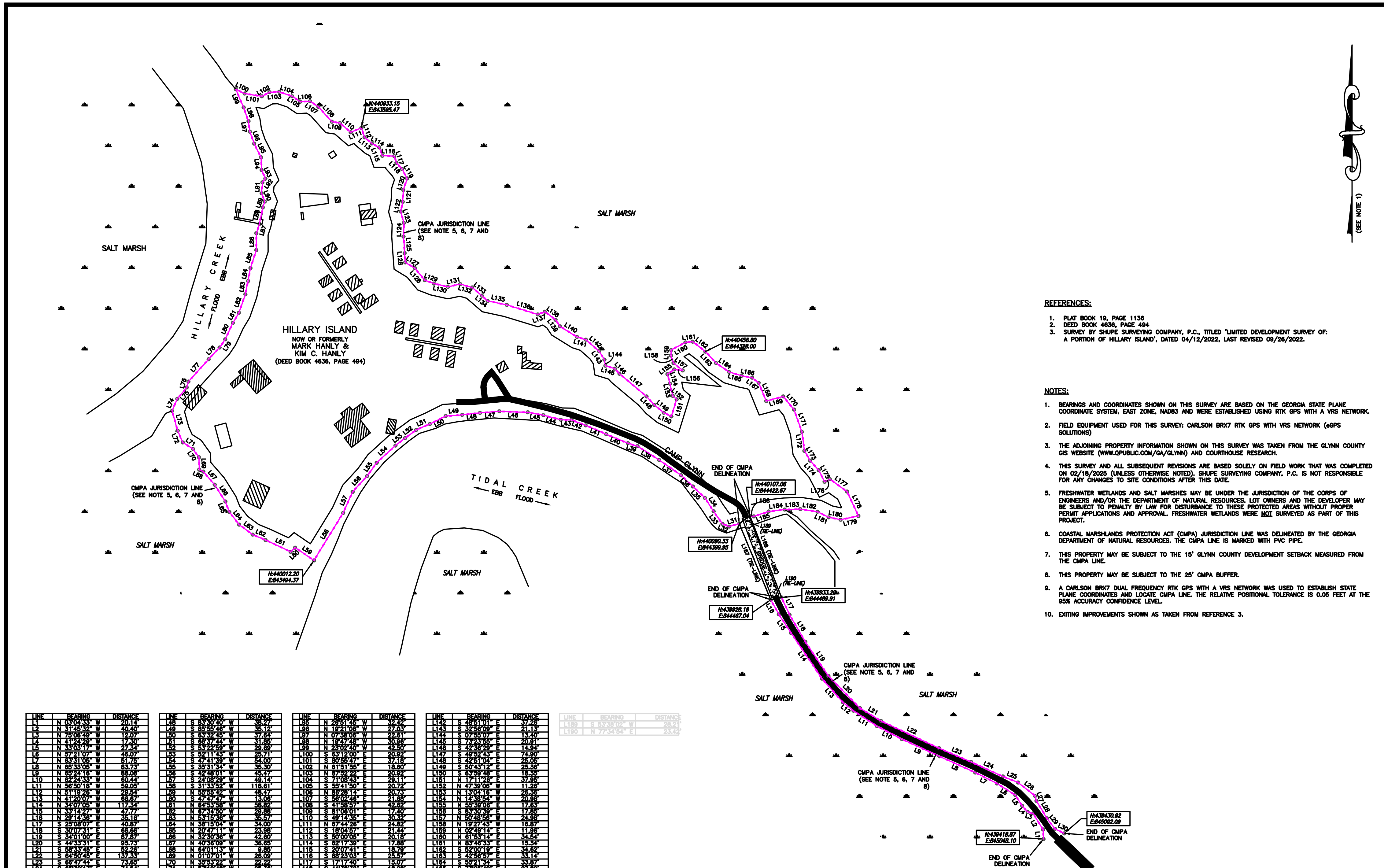
SHEET: 1

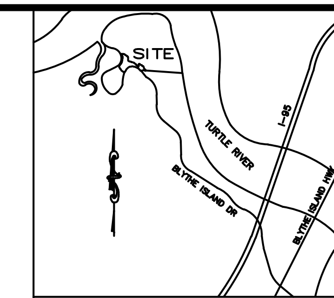
MP

NOT RELEASED FOR CONSTRUCTION

NOTES

1. AERIAL IMAGERY WAS OBTAINED 9/26/24.
2. BASE SURVEY PROVIDED BY SHUPE SURVEYING, DATED 4/14/25.
3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.





VICINITY MAP (NOT TO SCALE)

LEGEND:

- ASPHALT
- BUILDING
- CONCRETE
- SALT MARSH

REFERENCES:

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10. EXITING IMPROVEMENTS SHOWN AS TAKEN FROM REFERENCE 3.

LINE	BEARING	DISTANCE
L1	N 03°04'33" W	20.14'
L2	N 31°45'32" W	40.40'
L3	N 75°06'49" W	12.07'
L4	N 41°24'29" W	17.30'
L5	N 33°03'17" W	27.34'
L6	N 57°21'07" W	46.07'
L7	N 63°31'05" W	51.75'
L8	N 65°33'05" W	83.73'
L9	N 65°24'16" W	88.08'
L10	N 62°24'33" W	60.44'
L11	N 56°50'18" W	59.05'
L12	N 51°19'26" W	29.54'
L13	N 41°20'07" W	66.67'
L14	N 34°07'05" W	117.34'
L15	N 33°14'27" W	47.77'
L16	N 29°14'36" W	35.16'
L17	S 25°08'07" E	40.87'
L18	S 30°07'31" E	66.66'
L19	S 34°01'00" E	87.87'
L20	S 44°33'31" E	95.73'
L21	S 58°33'45" E	52.26'
L22	S 64°50'45" E	137.33'
L23	S 66°47'44" E	73.65'
L24	S 65°30'17" E	74.54'
L25	S 68°21'25" E	34.60'
L26	S 51°41'01" E	46.40'
L27	S 15°33'06" E	10.86'
L28	S 30°53'38" E	43.37'
L29	S 37°48'53" E	28.36'
L30	S 64°13'10" E	21.64'
L31	S 74°34'04" W	22.58'
L32	N 67°26'33" W	15.16'
L33	N 35°37'59" W	32.50'
L34	N 32°31'35" W	34.45'
L35	N 46°47'16" W	35.12'
L36	N 46°19'14" W	34.39'
L37	N 55°08'26" W	56.89'
L38	N 57°29'18" W	54.81'
L39	N 73°06'01" W	21.57'
L40	N 67°14'08" W	49.90'
L41	N 66°42'29" W	47.57'
L42	N 69°00'50" W	32.16'
L43	N 89°21'26" W	23.11'
L44	N 75°15'02" W	38.35'
L45	N 79°43'54" W	33.76'
L46	N 87°57'52" W	60.38'
L47	S 85°30'21" W	41.33'

LINE	BEARING	DISTANCE
L48	S 83°30'40" W	38.27'
L49	S 85°55'46" W	35.12'
L50	S 63°32'45" W	37.64'
L51	S 66°37'44" W	31.85'
L52	S 53°22'59" W	29.69'
L53	S 52°11'43" W	25.71'
L54	S 47°41'39" W	54.00'
L55	S 35°31'34" W	35.30'
L56	S 42°48'01" W	45.47'
L57	S 24°08'29" W	49.14'
L58	S 31°33'52" W	118.61'
L59	N 55°55'42" W	48.47'
L60	S 47°47'47" W	13.06'
L61	N 64°53'58" W	58.82'
L62	N 67°34'50" W	29.88'
L63	N 53°15'36" W	35.57'
L64	N 38°15'04" W	34.00'
L65	N 20°47'11" W	23.98'
L66	N 32°30'36" W	42.60'
L67	N 40°36'09" W	36.65'
L68	N 64°01'13" W	9.85'
L69	N 01°07'01" W	26.09'
L70	N 35°53'22" W	22.22'
L71	N 57°19'48" W	25.36'
L72	N 24°07'30" W	27.38'
L73	N 15°25'01" W	44.04'
L74	N 23°25'43" E	27.98'
L75	N 40°00'51" E	31.35'
L76	N 16°18'00" E	13.23'
L77	N 41°58'41" E	64.02'
L78	N 43°14'11" E	34.05'
L79	N 34°26'00" E	21.29'
L80	N 24°56'36" E	38.67'
L81	N 31°03'41" E	25.25'
L82	N 18°59'52" E	41.15'
L83	N 11°44'18" E	28.96'
L84	N 10°45'00" E	28.00'
L85	N 17°55'38" E	40.35'
L86	N 00°10'29" E	36.04'
L87	N 18°05'15" E	20.90'
L88	N 11°22'38" E	35.95'
L89	N 19°46'20" E	13.00'
L90	N 21°43'21" W	18.98'
L91	N 04°50'28" E	23.26'
L92	N 36°40'38" E	10.22'
L93	N 22°59'20" W	19.91'
L94	N 03°09'29" W	27.07'

LINE	BEARING	DISTANCE
L95	N 26°51'45" W	32.42'
L96	N 19°21'08" W	27.03'
L97	N 07°38'06" W	22.61'
L98	N 19°47'48" W	30.96'
L99	N 23°02'40" W	42.50'
L100	S 63°12'00" E	20.92'
L101	S 80°55'47" E	37.18'
L102	N 61°51'55" E	18.60'
L103	N 87°52'22" E	20.92'
L104	S 71°08'43" E	29.11'
L105	S 55°41'50" E	20.72'
L106	N 86°28'14" E	20.73'
L107	S 56°02'46" E	21.68'
L108	S 41°58'57" E	42.62'
L109	S 81°06'01" E	17.40'
L110	S 49°14'35" E	30.32'
L111	N 67°44'26" E	24.82'
L112	S 18°04'57" E	21.44'
L113	S 50°00'05" E	20.18'
L114	S 62°17'39" E	17.88'
L115	S 20°07'41" E	18.79'
L116	S 88°23'03" E	25.57'
L117	S 17°17'40" E	15.07'
L118	S 41°38'32" E	18.08'
L119	S 28°29'43" E	22.76'
L120	S 18°21'00" W	25.89'
L121	S 02°45'26" W	24.81'
L122	S 11°47'04" W	21.41'
L123	S 15°51'24" E	25.21'
L124	S 01°43'53" W	28.98'
L125	S 03°50'59" E	35.56'
L126	S 04°15'54" E	19.53'
L127	S 58°14'17" E	24.17'
L128	S 39°48'44" E	32.72'
L129	S 89°20'16" E	20.51'
L130	S 76°57'44" E	30.82'
L131	N 77°23'09" E	26.62'
L132	S 74°06'11" E	26.77'
L133	S 49°28'04" E	26.84'
L134	S 48°29'42" E	16.51'
L135	S 77°59'25" E	41.86'
L136	S 73°01'01" E	68.62'
L137	N 69°56'13" E	16.24'
L138	S 53°14'00" E	28.57'
L139	S 33°51'23" E	16.81'
L140	S 57°59'45" E	42.84'
L141	S 72°57'43" E	19.83'

LINE	BEARING	DISTANCE
L142	S 48°51'01" E	37.26'
L143	S 32°56'09" E	21.13'
L144	S 07°55'07" E	13.40'
L145	S 73°23'55" E	20.91'
L146	S 42°36'29" E	14.94'
L147	S 49°52'43" E	74.90'
L148	S 42°51'04" E	25.05'
L149	S 50°43'12" E	25.36'
L150	S 63°59'48" E	18.35'
L151	N 17°11'26" E	37.95'
L152	N 47°39'06" W	11.26'
L153	N 13°04'16" W	26.36'
L154	N 14°38'54" W	20.98'
L155	N 55°39'06" E	17.63'
L156	S 83°30'39" E	17.85'
L157	N 50°48'56" W	24.98'
L158	N 19°27'43" W	16.87'
L159	N 02°49'14" E	11.96'
L160	N 61°53'14" E	34.54'
L161	N 83°46'33" E	15.34'
L162	S 52°00'19" E	34.62'
L163	S 42°56'57" E	33.14'
L164	S 55°21'34" E	33.87'
L165	S 73°25'49" E	27.80'
L166	S 79°18'50" E	22.82'
L167	S 52°18'39" E	17.39'
L168	S 22°16'50" E	42.26'
L169	N 74°50'59" E	37.90'
L170	S 38°57'12" E	36.18'
L171	S 19°30'00" E	50.36'
L172	S 07°41'45" E	40.74'
L173	S 29°45'01" E	24.14'
L174	S 42°02'23" E	27.41'
L175	S 27°24'46" E	27.40'
L176	N 64°14'46" E	12.48'
L177	S 54°07'22" E	44.94'
L178	S 25°07'38" E	57.57'
L179	S 78°24'31" W	39.03'
L180	N 78°31'48" W	25.68'
L181	N 63°39'31" W	26.76'
L182	N 81°26'52" W	36.93'
L183	S 88°09'52" W	33.52'
L184	S 83°26'33" W	34.10'
L185	S 71°48'50" W	33.15'
L186	N 82°36'44" W	8.58'
L187	N 22°28'29" W	175.50'
L188	N 21°08'36" W	186.41'

LINE	BEARING	DISTANCE
L189	S 53°38'02" W	28.21'
L190	N 77°34'54" E	23.42'

A CMPA JURISDICTION LINE SURVEY OF:

CAMP GLYNN,
HILLARY ISLAND

27TH G.M.D.,
GLYNN COUNTY, GEORGIA

PREPARED FOR:
MARK HANLY AND KIM HANLY

100' 0 50' 100' 200'

SHEET 1 OF 1

0 250 500 750

CMPA LINE SURVEY

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA

PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025

SCALE: 1":250' (FOR 11"X17" PLOT)

S

SHEET:

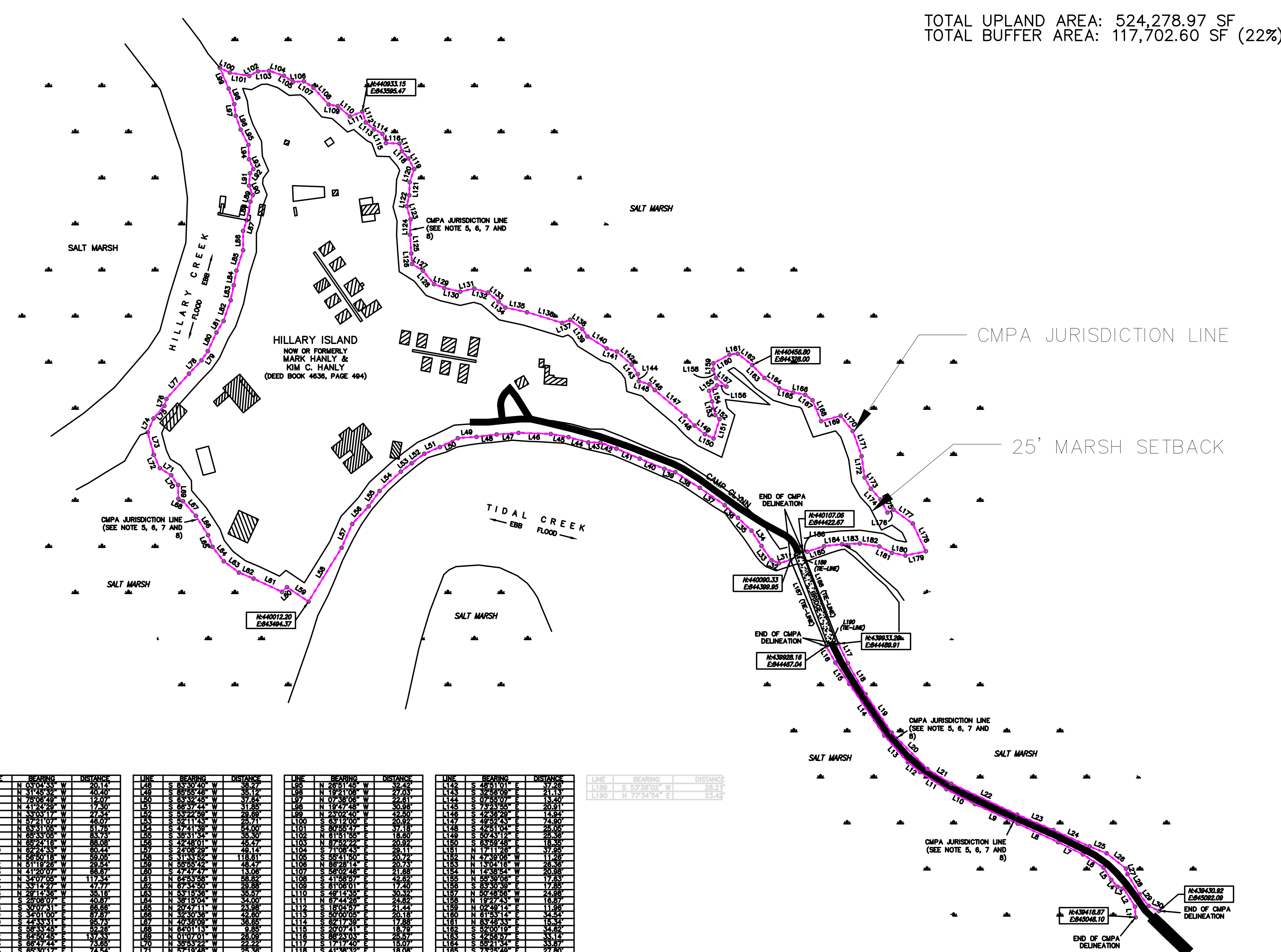
MP

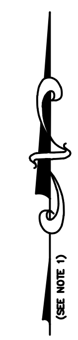
NOT RELEASED FOR CONSTRUCTION

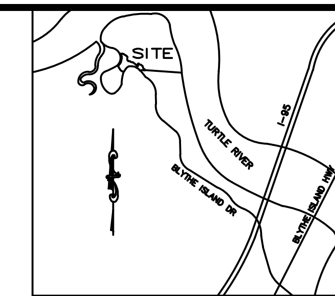
NOTES

1. AERIAL IMAGERY WAS OBTAINED 9/26/24.
2. BASE SURVEY PROVIDED BY SHUPE SURVEYING, DATED 4/14/25.
3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.

TOTAL UPLAND AREA: 524,278.97 SF
TOTAL BUFFER AREA: 117,702.60 SF (22%)







VICINITY MAP (NOT TO SCALE)

LEGEND:

- ASPHALT
- BUILDING
- CONCRETE
- SALT MARSH

LINE	BEARING	DISTANCE
L1	N 03°04'33" W	20.14'
L2	N 31°45'32" W	40.40'
L3	N 75°06'49" W	12.07'
L4	N 41°24'29" W	17.30'
L5	N 33°03'17" W	27.34'
L6	N 57°21'07" W	46.07'
L7	N 63°31'05" W	51.75'
L8	N 65°33'05" W	83.73'
L9	N 65°24'16" W	88.08'
L10	N 62°24'33" W	60.44'
L11	N 56°50'18" W	59.05'
L12	N 51°19'26" W	29.54'
L13	N 41°20'07" W	66.67'
L14	N 34°07'05" W	117.34'
L15	N 33°14'27" W	47.77'
L16	N 29°14'36" W	35.16'
L17	S 25°08'07" E	40.87'
L18	S 30°07'31" E	66.66'
L19	S 34°01'00" E	87.87'
L20	S 44°33'31" E	95.73'
L21	S 58°33'45" E	52.26'
L22	S 64°50'45" E	137.33'
L23	S 66°47'44" E	73.65'
L24	S 65°30'17" E	74.54'
L25	S 68°21'25" E	34.60'
L26	S 51°41'01" E	46.40'
L27	S 15°33'06" E	10.86'
L28	S 30°53'38" E	43.37'
L29	S 37°48'53" E	28.36'
L30	S 64°13'10" E	21.64'
L31	S 74°34'04" W	22.58'
L32	N 67°26'33" W	15.16'
L33	N 35°37'59" W	32.50'
L34	N 32°31'35" W	34.45'
L35	N 46°47'16" W	35.12'
L36	N 46°19'14" W	34.39'
L37	N 55°08'26" W	56.89'
L38	N 57°29'18" W	54.81'
L39	N 73°06'01" W	21.57'
L40	N 67°14'08" W	49.90'
L41	N 66°42'29" W	47.57'
L42	N 69°00'50" W	32.16'
L43	N 89°21'26" W	23.11'
L44	N 75°15'02" W	38.35'
L45	N 79°43'54" W	33.76'
L46	N 87°57'52" W	60.38'
L47	S 85°30'21" W	41.33'

LINE	BEARING	DISTANCE
L48	S 83°30'40" W	38.27'
L49	S 85°55'46" W	35.12'
L50	S 63°32'45" W	37.64'
L51	S 66°37'44" W	31.85'
L52	S 53°22'59" W	29.69'
L53	S 52°11'43" W	25.71'
L54	S 47°41'39" W	54.00'
L55	S 35°31'34" W	35.30'
L56	S 42°48'01" W	45.47'
L57	S 24°08'29" W	49.14'
L58	S 31°33'52" W	118.61'
L59	N 55°55'42" W	48.47'
L60	S 47°47'47" W	13.06'
L61	N 64°53'58" W	58.82'
L62	N 67°34'50" W	29.88'
L63	N 53°15'36" W	35.57'
L64	N 38°15'04" W	34.00'
L65	N 20°47'11" W	23.98'
L66	N 32°30'36" W	42.60'
L67	N 40°36'09" W	36.65'
L68	N 64°01'13" W	9.85'
L69	N 01°07'01" W	26.09'
L70	N 35°53'22" W	22.22'
L71	N 57°19'48" W	25.36'
L72	N 24°07'30" W	27.38'
L73	N 15°25'01" W	44.04'
L74	N 23°25'43" E	27.98'
L75	N 40°00'51" E	31.35'
L76	N 16°18'00" E	13.23'
L77	N 41°58'41" E	64.02'
L78	N 43°14'11" E	34.05'
L79	N 34°26'00" E	21.29'
L80	N 24°56'36" E	38.67'
L81	N 31°03'41" E	25.25'
L82	N 18°59'52" E	41.15'
L83	N 11°44'18" E	28.96'
L84	N 10°45'00" E	28.00'
L85	N 17°55'38" E	40.35'
L86	N 00°10'29" E	36.04'
L87	N 18°05'15" E	20.90'
L88	N 11°22'38" E	35.95'
L89	N 19°46'20" E	13.00'
L90	N 21°43'21" W	18.98'
L91	N 04°50'28" E	23.26'
L92	N 36°40'38" E	10.22'
L93	N 22°59'20" W	19.91'
L94	N 03°09'29" W	27.07'

LINE	BEARING	DISTANCE
L95	N 26°51'45" W	32.42'
L96	N 19°21'08" W	27.03'
L97	N 07°38'06" W	22.61'
L98	N 19°47'48" W	30.96'
L99	N 23°02'40" W	42.50'
L100	S 63°12'00" E	20.92'
L101	S 80°55'47" E	37.18'
L102	N 61°51'55" E	18.60'
L103	N 87°52'22" E	20.92'
L104	S 71°08'43" E	29.11'
L105	S 55°41'50" E	20.72'
L106	N 86°28'14" E	20.73'
L107	S 56°02'46" E	21.68'
L108	S 41°58'57" E	42.62'
L109	S 81°06'01" E	17.40'
L110	S 49°14'35" E	30.32'
L111	N 67°44'26" E	24.82'
L112	S 18°04'57" E	21.44'
L113	S 50°00'05" E	20.18'
L114	S 62°17'39" E	17.88'
L115	S 20°07'41" E	18.79'
L116	S 88°23'03" E	25.57'
L117	S 17°17'40" E	15.07'
L118	S 41°38'32" E	18.08'
L119	S 28°29'43" E	22.76'
L120	S 18°21'00" W	25.89'
L121	S 02°45'26" W	24.81'
L122	S 11°47'04" W	21.41'
L123	S 15°51'24" E	25.21'
L124	S 01°43'53" W	28.98'
L125	S 03°50'59" E	35.56'
L126	S 04°15'54" E	19.53'
L127	S 58°14'17" E	24.17'
L128	S 39°48'44" E	32.72'
L129	S 69°20'16" E	20.51'
L130	S 76°57'44" E	30.82'
L131	N 77°23'09" E	26.62'
L132	S 74°06'11" E	26.77'
L133	S 49°28'04" E	26.84'
L134	S 48°29'42" E	16.51'
L135	S 77°59'25" E	41.86'
L136	S 73°01'01" E	68.62'
L137	N 69°56'13" E	16.24'
L138	S 53°14'00" E	28.57'
L139	S 33°51'23" E	16.81'
L140	S 57°59'45" E	42.84'
L141	S 72°57'43" E	19.83'

LINE	BEARING	DISTANCE
L142	S 48°51'01" E	37.26'
L143	S 32°58'09" E	21.13'
L144	S 07°55'07" E	13.40'
L145	S 73°23'55" E	20.91'
L146	S 42°36'29" E	14.94'
L147	S 49°52'43" E	74.90'
L148	S 42°51'04" E	25.05'
L149	S 50°43'12" E	25.36'
L150	S 63°59'48" E	18.35'
L151	N 17°11'26" E	37.95'
L152	N 47°39'06" W	11.26'
L153	N 13°04'16" W	26.36'
L154	N 14°38'54" W	20.98'
L155	N 55°39'06" E	17.63'
L156	S 83°30'39" E	17.85'
L157	N 50°48'56" W	24.98'
L158	N 19°27'43" W	16.87'
L159	N 02°49'14" E	11.96'
L160	N 61°53'14" E	34.54'
L161	N 83°46'33" E	15.34'
L162	S 52°00'19" E	34.62'
L163	S 42°56'57" E	33.14'
L164	S 55°21'34" E	33.87'
L165	S 73°25'49" E	27.80'
L166	S 79°18'50" E	22.82'
L167	S 52°18'39" E	17.39'
L168	S 22°16'50" E	42.26'
L169	N 74°50'59" E	37.90'
L170	S 38°57'12" E	36.18'
L171	S 19°30'00" E	50.36'
L172	S 07°41'45" E	40.74'
L173	S 29°45'01" E	24.14'
L174	S 42°02'23" E	27.41'
L175	S 27°24'46" E	27.40'
L176	N 64°14'46" E	12.48'
L177	S 54°07'22" E	44.94'
L178	S 25°07'38" E	57.57'
L179	S 78°24'31" W	39.03'
L180	N 78°31'48" W	25.68'
L181	N 63°39'31" W	26.76'
L182	N 81°26'52" W	36.93'
L183	S 88°09'52" W	33.52'
L184	S 83°26'33" W	34.10'
L185	S 71°48'50" W	33.15'
L186	N 82°36'44" W	8.58'
L187	N 22°28'29" W	175.50'
L188	N 21°08'36" W	186.41'

LINE	BEARING	DISTANCE
L189	S 53°38'02" W	28.21'
L190	N 77°34'54" E	23.42'

0 250 500 750

BUFFER VARIANCE EXHIBIT

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA

PREPARED FOR:
MARK AND KIM HANLY

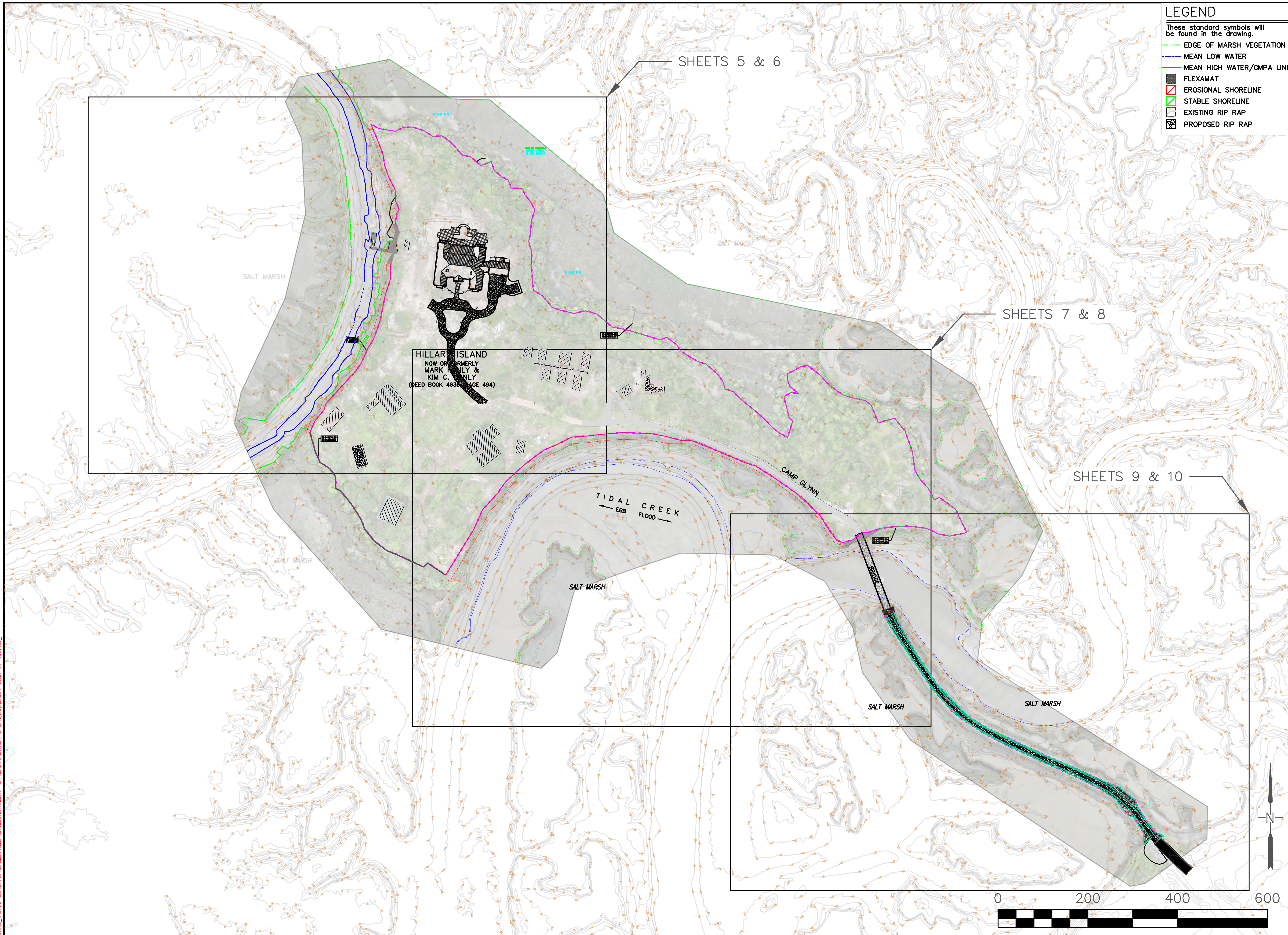
DATE: 5/4/2025

SCALE: 1"=250' (FOR 11"X17" PLOT)

BVE

SHEET:

MP



NOT RELEASED FOR CONSTRUCTION

NOTES

1. AERIAL IMAGERY WAS OBTAINED 9/26/24.
2. BASE SURVEY PROVIDED BY SHUPE SURVEYING, DATED 5/10/22.
3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.
4. TOPOGRAPHIC DATA WAS OBTAINED FROM GLYNN COUNTY GIS DEPARTMENT.

SHEET LAYOUT

LABARBA ENVIRONMENTAL SERVICES

BRUNSWICK, GA

PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025

SCALE: 1":200' (FOR 11"X17" PLOT)

4

SHEET:

MP

LEGEND

These standard symbols will be found in the drawing.

- EDGE OF MARSH VEGETATION
- MEAN LOW WATER
- MEAN HIGH WATER/CMPA LINE
- FLEXAMAT
- EROSIONAL SHORELINE
- STABLE SHORELINE
- EXISTING RIP RAP
- PROPOSED RIP RAP

SHORELINE NOTES

1. WESTERN SHORELINE ALONG HILLARY CREEK DOES NOT HAVE A MARSH BUFFER FROM THE WATERWAY.
2. THE HIGHER BLUFF WITH NO SHORELINE PROTECTION IS CAUSING UNDERCUTTING, UP TO 10-FOOT UNDERNEATH THE EXISTING TREES.
3. EXISTING RIP RAP AROUND THE DOCK IS BEING UNDERMINED.
4. LENGTH OF ERODING SHORELINE
   TOTAL LENGTH: 768 LF
   EXISTING RIP RAP: 100 LF
   NO EXISTING STABILIZATION: 668 LF

END EROSIONAL AREA

SHORELINE ERODING ALONG HILLARY CREEK

EXISTING RIP RAP

SHORELINE ERODING ALONG HILLARY CREEK

END EROSIONAL AREA

SALT MARSH

MARSH

STABLE SHORELINE

NOW OR FORMERLY
MARK HANLY
& KIM HANLY

CMPA JURISDICTION L
(SEE NOTE 5, 6, 7 A
8)

MARSH

HILLARY ISLAND
NOW OR FORMERLY
MARK HANLY &
KIM C. HANLY
(DEED BOOK 4636, PAGE 494)

N

0 200 400 600

NOT RELEASED FOR CONSTRUCTION

NOTES

1. AERIAL IMAGERY WAS OBTAINED 9/26/24.
2. BASE SURVEY PROVIDED BY SHUPE SURVEYING, DATED 4/14/25.
3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.
4. TOPOGRAPHIC DATA WAS OBTAINED FROM GLYNN COUNTY GIS DEPARTMENT.

SHORELINE EROSION (1)

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA

PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025

SCALE: 1":200' (FOR 11"X17" PLOT)

5

SHEET:

MP

LEGEND

These standard symbols will be found in the drawing.

- EDGE OF MARSH VEGETATION
- MEAN LOW WATER
- MEAN HIGH WATER/CMPA LINE
- FLEXAMAT
- EROSIONAL SHORELINE
- STABLE SHORELINE
- EXISTING RIP RAP
- PROPOSED RIP RAP

SHORELINE NOTES

1. THE EXISTING SHORELINE TO BE SLOPED TO 3:1.
2. FLEXAMAT TO BE USED AS THE BASE MATERIAL FOR THE SHORELINE STABILIZATION.
3. THE TOE TO BE TRENCHED AND OVERLAID WITH A COMBINATION OF ARTIFICIAL REEF MATERIAL.
4. VEGETATION TO BE PLANTED DIRECTLY INTO THE FLEXAMAT.
5. THE AREA WITH EXISTING RIP RAP TO BE SUPPLEMENTED WITH ADDITIONAL RIP RAP.
5. MATERIAL QUANTITIES
   FLEXAMAT: 693 LF (8,271 SF)
   OYSTER BAGS AND TABLES: 693 LF (1,425 SF)
   SUPPLEMENTAL RIP RAP: 100 LF (311 SF)
   EXISTING RIP RAP: 100 LF (414 SF)
6. IMPACTS TO CMPA JURISDICTION
   FLEXAMAT: 693 LF (5,617.47 SF)
   OYSTER BAGS AND TABLES: 693 LF (1,425 SF)
   RIP RAP: 100 LF (725 SF)

END STABILIZATION

FLEXAMAT WITH NATIVE VEGETATION AND OYSTER TOE

PROPOSED ADDITIONAL RIP RAP

FLEXAMAT WITH NATIVE VEGETATION AND OYSTER TOE

END STABILIZATION

MARSH

SALT MARSH

N:440933.15
E:843595.47

NOW OR FORMERLY
MARK HANLY
& KIM HANLY

CMPA JURISDICTION L
(SEE NOTE 5, 6, 7 A
8)

MARSH

HILLARY ISLAND
NOW OR FORMERLY
MARK HANLY &
KIM C. HANLY
(DEED BOOK 4636, PAGE 494)

N

0 200 400 600

NOT RELEASED FOR CONSTRUCTION

NOTES

1. AERIAL IMAGERY WAS OBTAINED 9/26/24.
2. BASE SURVEY PROVIDED BY SHUPE SURVEYING, DATED 4/14/25.
3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.
4. TOPOGRAPHIC DATA WAS OBTAINED FROM GLYNN COUNTY GIS DEPARTMENT.

PROPOSED STABILIZATION (1)

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA
PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025

SCALE: 1":200' (FOR 11"X17" PLOT)

6

SHEET:

MP

HILLARY ISLAND
NOW OR FORMERLY
MARK HANLY &
KIM C. HANLY
DEED BOOK 4636, PAGE 494)

SHORELINE ERODING ALONG HILLARY CREEK
(HIGH RISK DUE TO NO MARSH VEGETATION)

TIDAL CREEK
EBB
FLOOD

CAMP GLYNN

END EROSIONAL AREA

SHORELINE ERODING ALONG HILLARY CREEK
(MODERATE RISK DUE TO LIMITED VEGETATION
AND CUT BANK)

EXISTING RIP RAP (SEE SHORELINE
NOTES 1, 4, 5, 6 & 8))

SALT MARSH

END EROSIONAL AREA

SHORELINE NOTES

1. SOUTHERN SHORELINE IS EXPERIENCING EROSION.
2. THE HIGHER BLUFF WITH NO SHORELINE PROTECTION IS CAUSING UNDERCUTTING, UP TO 10-FOOT UNDERNEATH THE EXISTING TREES.
3. AREAS WITH SOME MARSH BUFFER BETWEEN THE UPLAND AND THE CREEK SHOW LESS EROSION.
4. EXISTING RIP RAP IS BEING UNDERMINED AND ABSENT IN MANY LOCATIONS.
5. LENGTH OF ERODING SHORELINE
   TOTAL LENGTH: 1,229.5 LF
   EXISTING RIP RAP: 100 LF
   HIGH RISK: ≈670 LF
   MODERATE RISK : 436 LF

LEGEND

These standard symbols will be found in the drawing.

- EDGE OF MARSH VEGETATION
- MEAN LOW WATER
- MEAN HIGH WATER/CMPA LINE
- FLEXAMAT
- EROSIONAL SHORELINE
- STABLE SHORELINE
- EXISTING RIP RAP
- PROPOSED RIP RAP

0 200 400 600

NOT RELEASED FOR CONSTRUCTION

NOTES

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3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.
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SHORELINE EROSION (2)

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA

PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025

SCALE: 1":200' (FOR 11"X17" PLOT)

7

SHEET:

MP

HILLARY ISLAND
NOW OR FORMERLY
MARK HANLY &
KIM C. HANLY
DEED BOOK 4636, PAGE 494)

FLEXAMAT WITH NATIVE VEGETATION AND OYSTER TOE

TIDAL CREEK
EBB
FLOOD

DREDGESOX WITH NATIVE VEGETATION SEEDING

CAMP GLYNN

END EROSIONAL AREA

SUPPLEMENTAL RIP RAP UNDER

SALT MARSH

END STABILIZATION

SHORELINE NOTES

1. THE EXISTING SHORELINE TO BE SLOPED TO 3:1.
2. FLEXAMAT TO BE USED AS THE BASE MATERIAL FOR THE SHORELINE STABILIZATION.
3. THE TOE TO BE TRENCHED AND OVERLAID WITH RIP RAP.
4. VEGETATION TO BE PLANTED DIRECTLY INTO THE FLEXAMAT.
5. THE AREA WITH EXISTING RIP RAP TO BE SUPPLEMENTED WITH ADDITIONAL RIP RAP.
6. MATERIAL QUANTITIES
   FLEXAMAT: 680 LF (≈13,530 SF)
   OYSTER BAGS & TABLES : 680 LF (1,387 SF)
   DREDGESOX: 420 LF (3,904 SF)
   SUPPLEMENTAL RIP RAP: 100 LF (771 SF)
   EXISTING RIP RAP: 100 LF (624 SF)
7. IMPACTS TO CMPA JURISDICTION
   FLEXAMAT: 680 LF (10,116 SF)
   OYSTER BAGS & TABLES : 680 LF (1,387 SF)
   DREDGESOX: 420 LF (2,989.36 SF)
   RIP RAP: 100 LF (1,395 SF)

LEGEND

These standard symbols will be found in the drawing.

- EDGE OF MARSH VEGETATION
- MEAN LOW WATER
- MEAN HIGH WATER/CMPA LINE
- FLEXAMAT
- EROSIONAL SHORELINE
- STABLE SHORELINE
- EXISTING RIP RAP
- PROPOSED RIP RAP

0 200 400 600

NOT RELEASED FOR CONSTRUCTION

NOTES

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4. TOPOGRAPHIC DATA WAS OBTAINED FROM GLYNN COUNTY GIS DEPARTMENT.

SHORELINE EROSION (2)

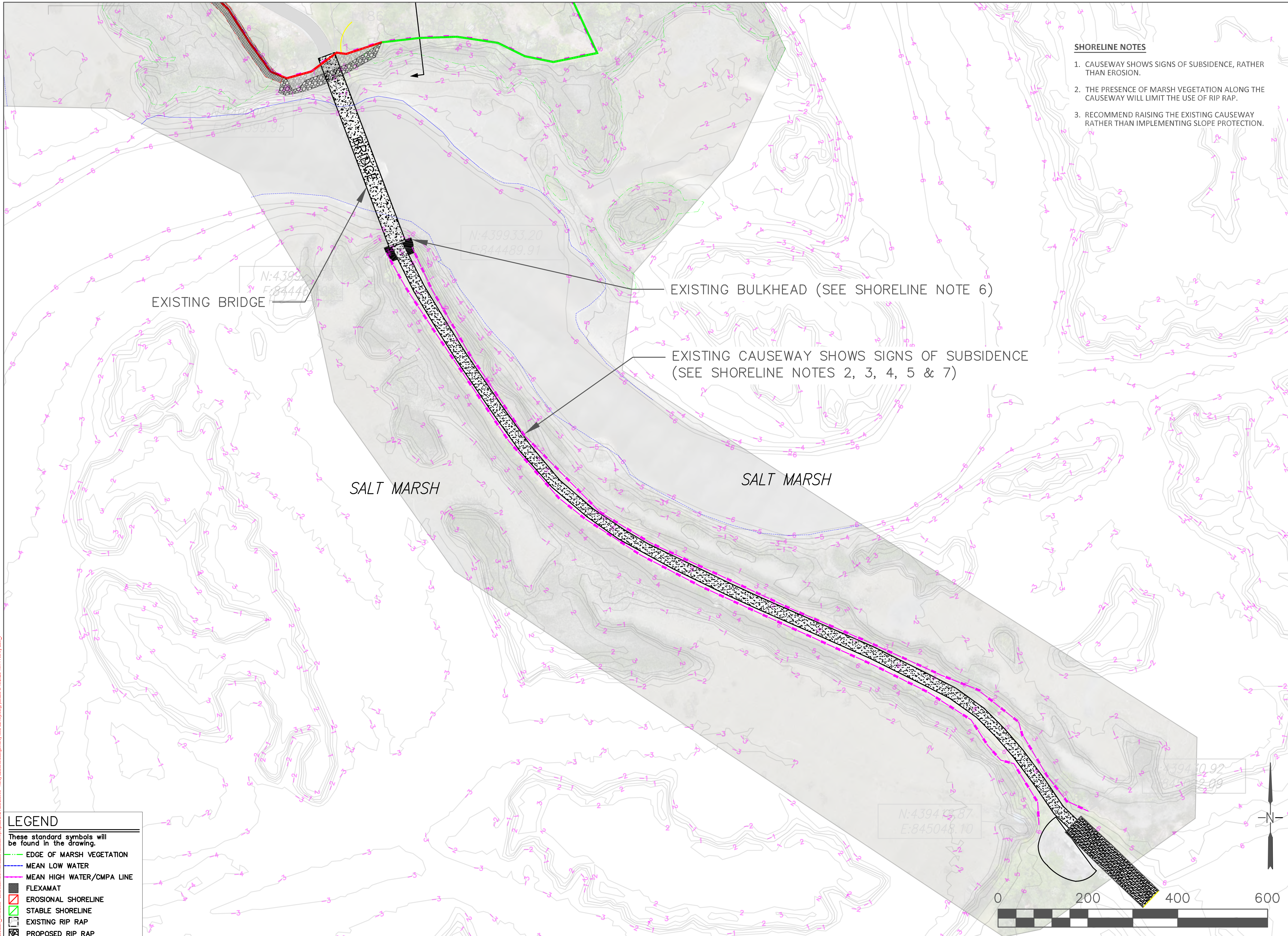
LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA
PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025

SCALE: 1":200' (FOR 11"X17" PLOT)

8
SHEET:

MP



SHORELINE NOTES

1. CAUSEWAY SHOWS SIGNS OF SUBSIDENCE, RATHER THAN EROSION.
2. THE PRESENCE OF MARSH VEGETATION ALONG THE CAUSEWAY WILL LIMIT THE USE OF RIP RAP.
3. RECOMMEND RAISING THE EXISTING CAUSEWAY RATHER THAN IMPLEMENTING SLOPE PROTECTION.

NOT RELEASED FOR CONSTRUCTION

NOTES

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3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.
4. TOPOGRAPHIC DATA WAS OBTAINED FROM GLYNN COUNTY GIS DEPARTMENT.

SHORELINE EROSION (3)

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA

PREPARED FOR:
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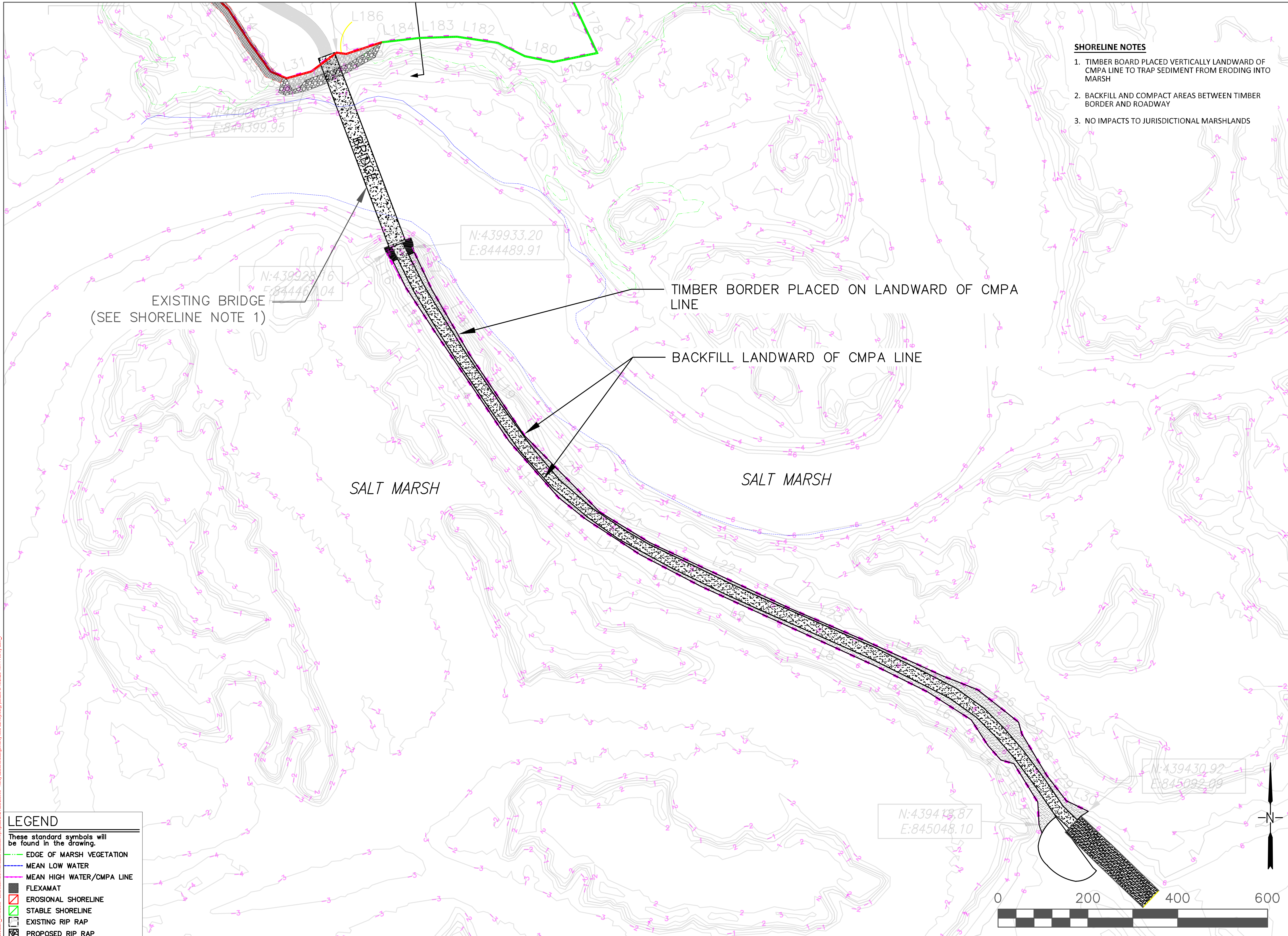
DATE: 5/4/2025

SCALE: 1":200' (FOR 11"X17" PLOT)

SHEET: 9

MP



SHORELINE NOTES

1. TIMBER BOARD PLACED VERTICALLY LANDWARD OF CMPA LINE TO TRAP SEDIMENT FROM ERODING INTO MARSH
2. BACKFILL AND COMPACT AREAS BETWEEN TIMBER BORDER AND ROADWAY
3. NO IMPACTS TO JURISDICTIONAL MARSHLANDS

NOT RELEASED FOR CONSTRUCTION

NOTES

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2. BASE SURVEY PROVIDED BY SHUPE SURVEYING, DATED 4/14/25.
3. HOUSE LOCATION BASED ON DRAWINGS BY DAVID E. AMOS ARCHITECT, DATED 3/19/24.
4. TOPOGRAPHIC DATA WAS OBTAINED FROM GLYNN COUNTY GIS DEPARTMENT.

PROPOSED STABILZATION (3)

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA
PREPARED FOR:
MARK AND KIM HANLY

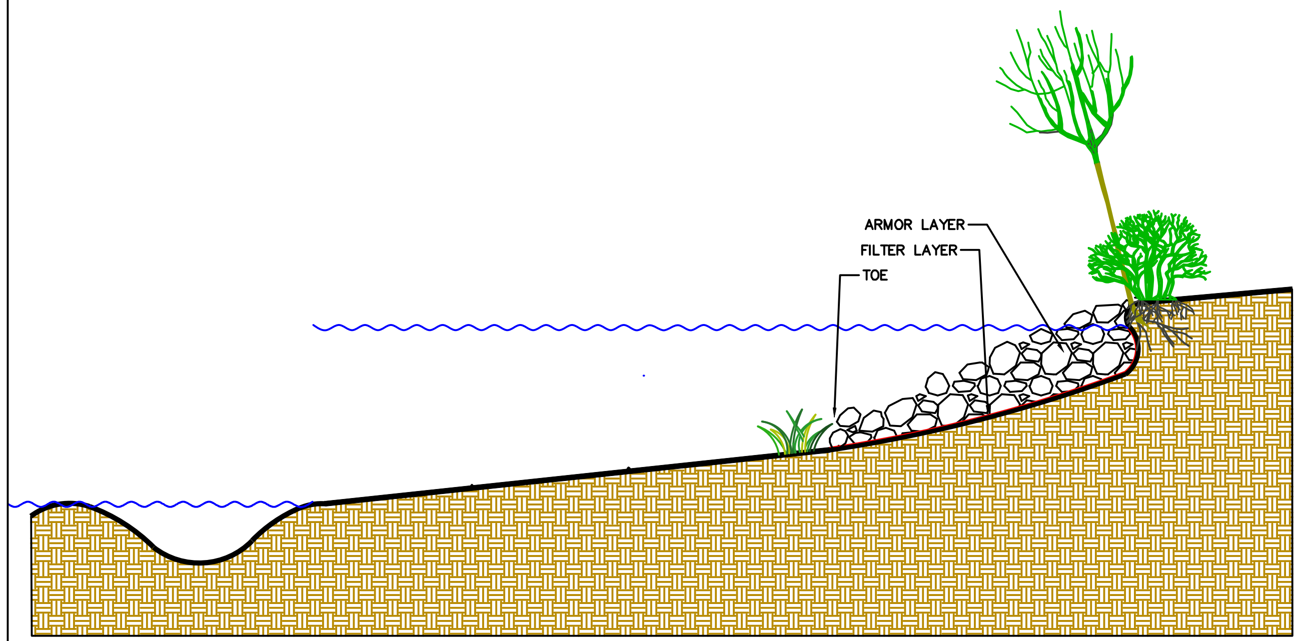
DATE: 5/4/2025

SCALE: 1":200' (FOR 11"X17" PLOT)

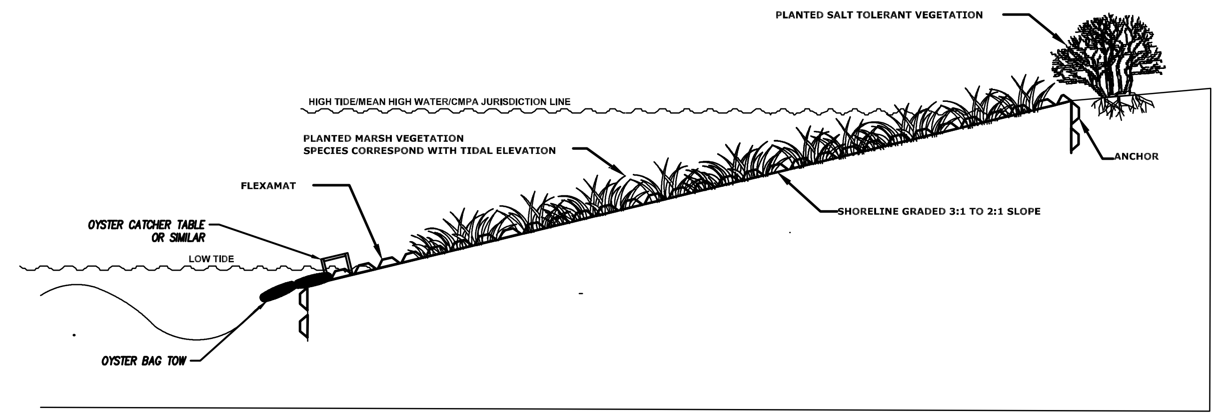
10

SHEET:

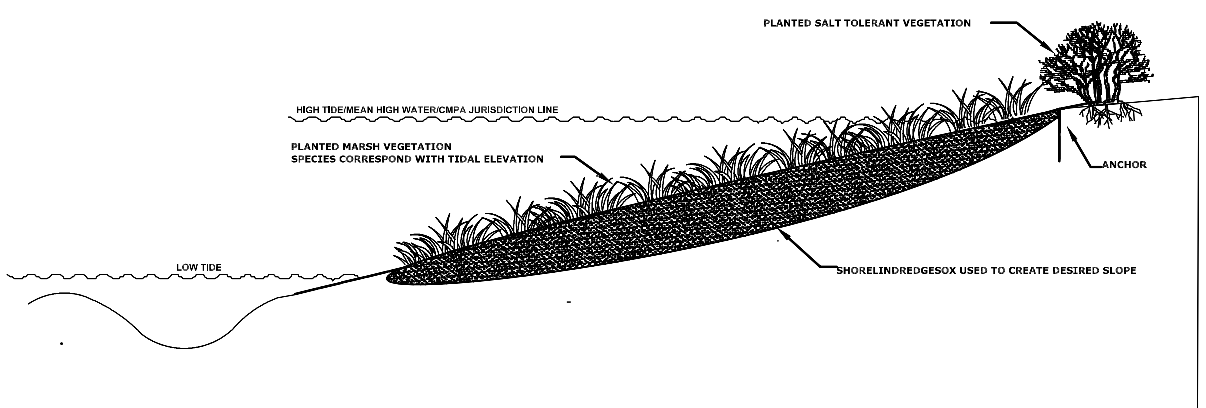
MP



FLEXAMAT & OYSTER TOE



DREDGESOX



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NOTES

TYPICAL PROFILES

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA

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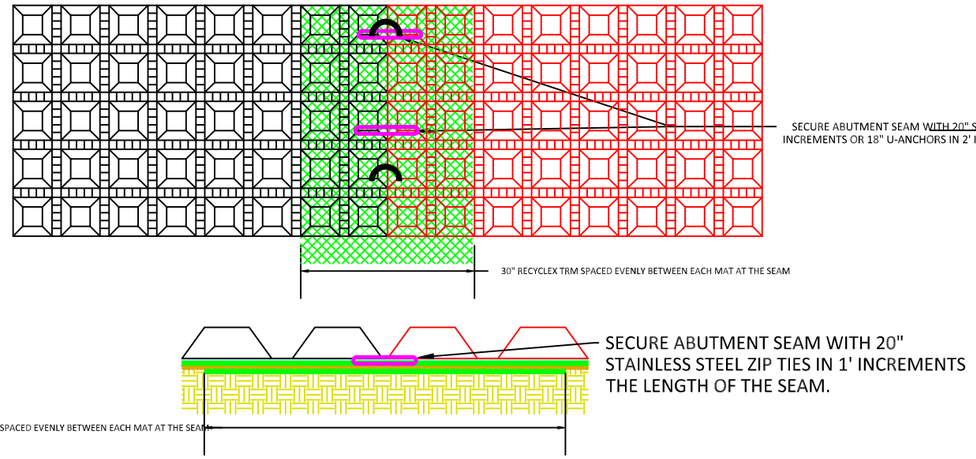
SCALE: NTS (FOR 11"X17" PLOT)

11

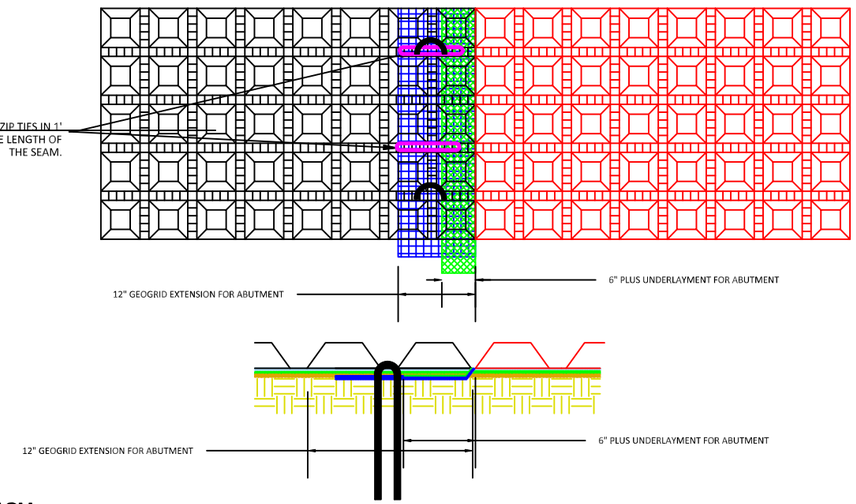
SHEET:

MP

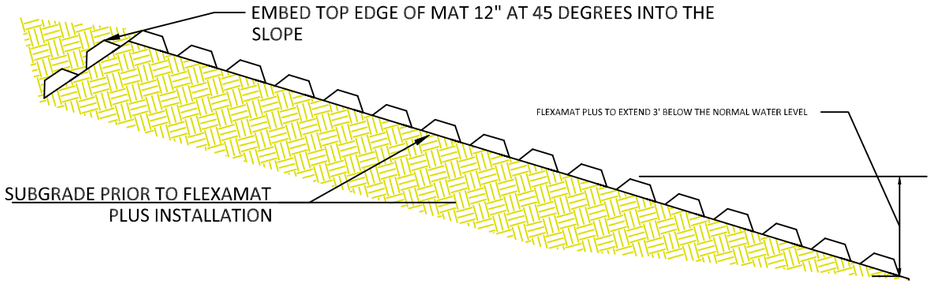
ABUTMENT METHOD FOR SHORELINE WIDTH LESS THAN 16'



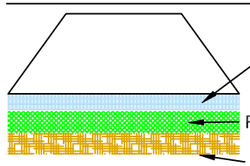
ABUTMENT METHOD FOR SHORELINE WIDTH GREATER THAN 16'



PROFILE VIEW OF SLOPE AND ANCHOR TRENCH



FLEXAMAT PLUS UNDERLAYMENT



FLEXAMAT PLUS - SHORELINE ARMORING

CONSTRUCTION NOTES:

1. AN ENGINEER OR MANUFACTURES REPRESENTATIVE SHALL BE ONSITE FOR THE START OF THE INSTALLATION.
2. ALL SUBGRADE SURFACES PREPARED FOR PLACEMENT OF MATS SHALL BE SMOOTH AND FREE OF ALL ROCKS, STICKS, ROOTS, OTHER PROTRUSIONS, OR DEBRIS OF ANY KIND.
3. PRIOR TO FLEXAMAT PLUS INSTALLATION, SEED AND FERTILIZE SUBGRADE WITH SITE SPECIFIC SEED MIX IN ACCORDANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. .
4. INSTALL FLEXAMAT PLUS ROLLS, MATS SHALL BE CONTINUOUS FOR ENTIRE LENGTH OF SLOPE.
   4.1. MATTING SHALL EXTEND 3' BELOW ORDINARY WATER LEVEL.
5. AT MAT ABUTMENT SEAMS, INSTALL RECYCLEX TRM SEAMS EVENLY UNDER EACH MAT.
6. SECURE ABUTMENT SEAMS IN 2' INCREMENTS USING STAINLESS STEEL ZIP TIES OR #3 REBAR - 18" U-ANCHORS. ZIP TIES SHALL ENCOMPASS 3 CORDS OF GRID OF EACH ABUTTING MAT OR GEOGRID EXTENSION. U-ANCHORS SHALL ENCOMPASS 2 CORDS OF GEOGRID OF EACH ABUTTING MAT OR GEOGRID EXTENSIONS.
7. AT THE BEGINNING AND END OF THE SHORELINE PROTECTION, EMBED THE MAT 18" PAST THE ANTICIPATED SCOUR POINT. FILL AND COMPACT TERMINATION TRENCH WITH COHESIVE SOIL.
8. RECESS TOP TWO BLOCKS OF MAT INTO THE SLOPE.

MOTZ ENTERPRISES, INC.

Flexamat

(513)772-6689

Info@Flexamat.com

Flexamat.com

Flexamat® PERMANENT EROSION CONTROL

REV - 2

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NOTES

FLEXAMAT

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA

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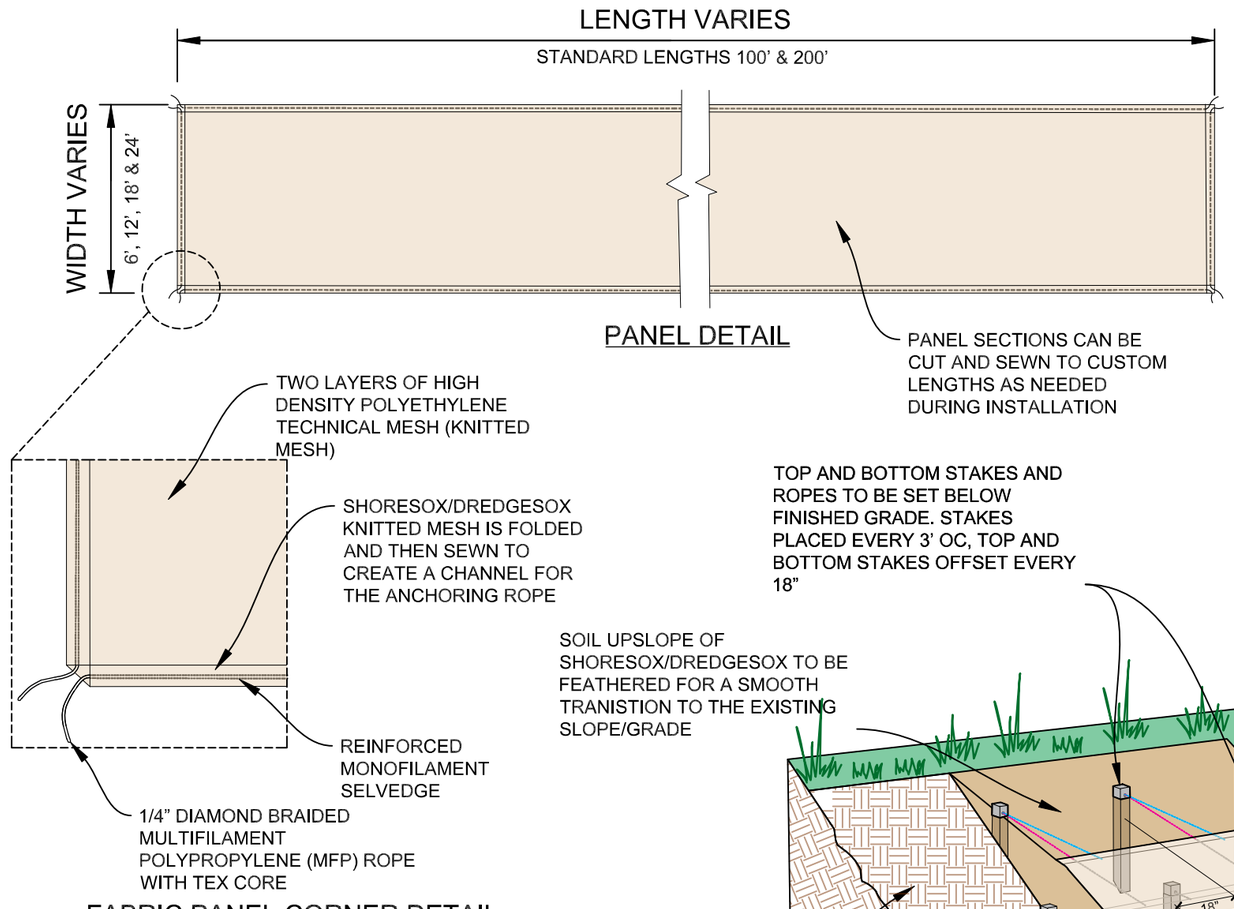
DATE: 5/4/2025

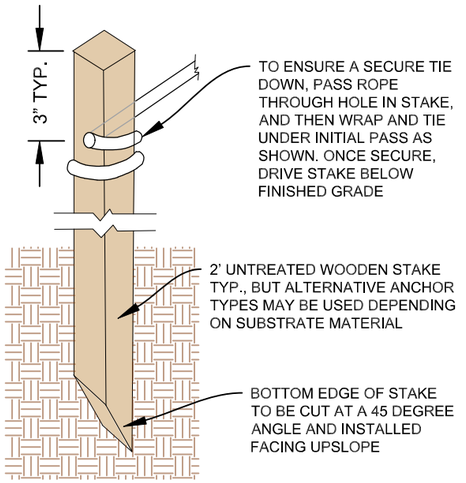
SCALE: NTS (FOR 11"X17" PLOT)

12

SHEET:

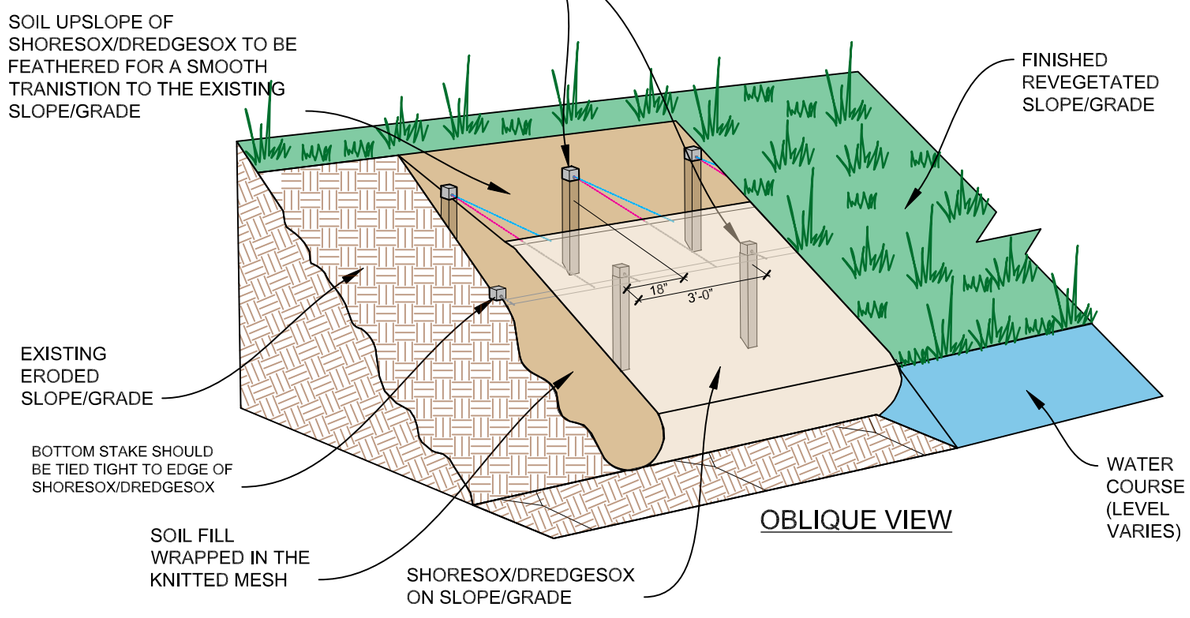
MP





DOUBLE-LAYERED KNITTED POLYETHYLENE MESH WITH THE FOLLOWING:

- 11 SPI COURSE COUNT
- 7.34 OZ/SQ-YD WEIGHT (ASTM D3776)
- 135 LBS WARP AND 207 LBS FILL BREAK STRENGTH (ASTM D5034)
- 32.3% WARP AND 61.7% FILL BREAK ELONGATION (ASTM D5034)
- 58.0 LBS WARP AND 70.3 LBS FILL TEAR STRENGTH (ASTM D5587)
- 284 PSI BURSTING STRENGTH (ASTM D3786)
- AVAILABLE IN SADDLE TAN OR NATURAL GREEN
- AVAILABLE IN FIRE RETARDANT VERSION



SHORESOX/ DREDGESOX DETAIL

950 PENINSULA CORPORATE CIRCLE, SUITE 2020
BOCA RATON, FL 33487
(561) 501-0057
WWW.SOXEROSION.COM

PROJECT NO.:
SCALE:
DRAWN BY:
CHECKED BY:
DETAIL NO.

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NOTES

DREDGESOX

LABARBA ENVIRONMENTAL SERVICES
BRUNSWICK, GA
PREPARED FOR:
MARK AND KIM HANLY

DATE: 5/4/2025
SCALE: NTS (FOR 11"X17" PLOT)

13
SHEET:

MP