Project Summary

The proposed project involves the improvement and stabilization of a historical drainage ditch at Howard Coffin Park in Brunswick, Georgia. The ditch provides stormwater conveyance from surrounding uplands and discharges to Clubbs Creek through an existing culvert under Highway 17. Over time, erosion, sediment buildup, and undersized infrastructure have reduced the ditch's ability to efficiently convey flows. These issues have led to bank destabilization, localized flooding, and risks to nearby park infrastructure.

The project will restore proper drainage function by regrading the banks, replacing the undersized culvert with a concrete box culvert, and installing erosion-control materials. These improvements will protect public infrastructure, reduce sedimentation, and ensure long-term drainage capacity. Secondary benefits include the establishment of vegetation and stabilization measures that also enhance habitat and water quality.

The proposed work will result in a total of 7,814.28 square feet of impact area and 268.59 cubic yards of impact volume, with 6,710.10 square feet (226.7 CY) occurring within CMPA jurisdiction.

Existing Conditions:

The project area is situated along a tidal ditch that runs east to west through Howard Coffin Park. The ditch is experiencing active erosion due to a combination of tidal exchange, upland runoff, and localized storm events. Areas adjacent to culvert outfalls and unprotected slopes exhibit exposed soil, sloughing banks, and loss of vegetative cover. This erosion threatens park infrastructure including fences, walking paths, and other park amenities.

The existing culvert is both undersized and perched, which contributes to scour and bank destabilization at its inlet and outlet. The perched condition also inhibits the movement of aquatic organisms and wildlife between the upstream and downstream segments of the stream, disrupting ecological continuity and reducing habitat quality.

The existing walkway yculvert covers an area of 149.42 SF, with the impacts within CMPA jurisdiction being 69.06 SF. The existing GDOT culvert also causes 21.15 SF of impacts within the project area. The total existing impacts within CMPA and USACE jurisdiction at the project location is 90.21 SF.

Currently, there are no shoreline armoring or stabilization measures within CMPA jurisdiction at the site. In the absence of intervention, erosion and sediment transport will continue to degrade the streambanks, water quality, and habitat function in this section of the park.

Proposed Conditions:

The proposed ditch maintenance design is intended to restore improve drainage in order to protect infrastructure and public assets within the park. Rather than relying on a single form of armoring, the project employs a layered strategy, integrating biodegradable and structural materials to accommodate various elevations and site conditions. By pairing erosion control with habitat creation, including native vegetation and oyster habitat, the plan supports long-term resilience as a major component of the stormwater system. The components of the proposed conditions are described in detail below:

1. Grading (Temporary Impacts)
Approximately 12,144.72 square feet of upland and intertidal area will be graded using on-site materials to create 2:1 and 3:1 slope profile. This grading will facilitate the stable installation of shoreline materials and promote natural drainage and plant establishment. Any existing vegetation or oysters that can be harvested and saved for use in the project will be collected prior to grading. The project will not result in the permanent loss of any jurisdictional vegetated wetlands.

2. DredgeSox Installation
Two configurations of DredgeSox totaling 1,657.35 square feet (184.15 CY) will be installed along vulnerable shoreline segments to sculpt the desired slope and provide soil containment. The installations include both a continuous 3-foot-high berm and isolated units.

The first DredgeSox configuration will be installed along the northwestern stream slope, where erosion has resulted in undercutting and bank subsidence. In this location, the DredgeSox system will provide a soft but stable shoreline reinforcement that reduces further collapse and allows for the successful re-establishment of vegetation along the slope. The containment function of the DredgeSox prevents soil displacement and supports the rebuilt slope geometry.

The second configuration will be used to encapsulate a tidal salt pan located in the southeastern portion of the project area. This area is highly vulnerable to periodic storm surge and tidal inundation, which often results in saltwater intrusion into the adjacent upland park features such as the walking trail. Here, the DredgeSox will create a vegetated berm that protects the upland from saltwater encroachment and filters overland flow before it enters the stream.

In both configurations, the fill material will be locally sourced from within the project area to minimize environmental disturbance and haul impacts. Once installed, the DredgeSox will be seeded with native plant species adapted to the site's conditions, promoting stabilization through root reinforcement and natural succession. The design ensures immediate erosion control while setting the stage for long-term ecological function and landscape integration.

3. Flexamat
3,808.94 square feet (28.21 CY) of Flexamat will be anchored along the regraded shoreline. This concrete-reinforced mat allows vegetation growth through the cells while providing structural support and erosion resistance.

Flexamat has emerged as a preferred material for ditch maintenance applications along the Georgia coast due to its unique combination of engineered stability and ecological compatibility. Its open-cell design facilitates the establishment of marsh and riparian vegetation through the mat while simultaneously preventing surface erosion. This dual function allows for immediate slope stabilization while supporting long-term vegetative growth and root development.

The material is particularly advantageous for areas where moderate flow energy or runoff might otherwise wash out new plantings or destabilize freshly graded slopes. Once established, the vegetation growing through Flexamat further anchors the system in place, creating a synergistic relationship between engineered infrastructure and natural processes. Its proven effectiveness, ease of installation, and capacity for blending into natural landscapes make it a reliable and widely accepted solution for hybrid shoreline stabilization in coastal Georgia.

4. Rip Rap Toe Protection
723.12 square feet (26.78 CY) of Type 3 granite rip rap will be placed at the toe of select ditch areas to absorb flow energy and protect the Flexamat edges and base.

The rip rap toe serves a critical function in protecting the integrity of the flexamat slopes by providing durable scour protection at the base of the slope. This is especially important in high-energy zones, such as at the inlet and outlet of culverts, where wave and flow velocity can quickly destabilize unarmored soils. The angular granite stones help dissipate kinetic energy from water movement, reducing erosion potential and protecting adjacent ditch components.

In areas where oyster recruitment is limited or unpredictable, rip rap provides a more economical and reliable alternative to biological structures, ensuring shoreline protection without relying on habitat colonization. Although it lacks the ecological benefits of living oysters, it contributes to the resilience of the ditch system and is an appropriate solution where physical conditions are too harsh or unstable to support oyster growth. The combination of rip rap with other living elements allows the project to balance structural durability with ecological uplift in a site-specific manner.

5. Oyster Bags and Oyster Tables
582.39 square feet (9.06 CY) of oyster bags will be installed at the seaward edge of the Flexamat and coir mats to further reduce scouring and create habitat. Additionally, 400.10 square feet of oyster catcher tables or similar devices will be positioned within the intertidal zone to promote oyster colonization and increase biodiversity.

The inclusion of living oysters within the ditch design offers significant environmental benefits. Oysters are filter feeders that improve water quality by removing suspended sediments, excess nutrients, and contaminants. They also create complex three-dimensional habitat structures that support a wide array of marine species including fish, shrimp, and crabs. The presence of these living reef elements enhances biodiversity and resilience, contributing to the overall health of the estuarine ecosystem.

Notably, the area proposed for oyster bag and table installation currently supports some natural oyster recruitment, as evidenced by existing shell clusters along the shoreline. This observed growth confirms the suitability of the location for oyster habitat expansion and reinforces the ecological viability of incorporating living oysters into the design.

6. Coir Logs and Mats
Coir mats and logs totaling 1,677.16 square feet (20.39 CY) will be used above and within the tidal zone to stabilize soils and provide a biodegradable substrate for plant growth and root anchoring. These natural fiber products are highly effective in shoreline applications due to their ability to conform to existing terrain and provide immediate surface protection. Once installed, coir logs reduce the velocity of surface runoff and tidal wash, helping to trap sediment and initiate the growth of new vegetation. Over time, they degrade naturally, transferring structural support to the establishing root systems beneath.

Importantly, coir materials shield the marsh substrate and root layer from direct impact by wave action, foot traffic, and erosion. This protection fosters a favorable microenvironment for root establishment and expansion, which is essential for long-term stabilization. Coir mats also create a stable surface for planting, ensuring that native vegetation can grow through the fibers while being sheltered from initial disturbances. Their use is especially well-suited for transitional areas where both upland and tidal marsh zones converge.

7. Vegetation
Salt-tolerant native vegetation will be planted along the newly stabilized slopes in accordance with tidal elevation and ecological suitability. Within CMPA jurisdiction, all vegetation will be selected exclusively from the list of 14 species approved for marsh plantings under the Coastal Marshlands Protection Act. These species include, but are not limited to, Spartina alterniflora (smooth cordgrass), Spartina patens (saltmeadow cordgrass), Juncus roemerianus (black needlerush), and Distichlis spicata (saltgrass), each of which provides essential erosion control and habitat support in brackish and saline environments.

Above the high tide line, in the adjacent upland buffer, planting selections will be based on the guidance outlined in the "Riparian Buffers in Your Backyard" publication for Chatham County and the Georgia Coast. This upland palette will include native grasses, perennials, shrubs, and trees known for their erosion control benefits, low maintenance needs, and habitat value. Representative upland species include:

Grasses and Groundcovers: Muhlenbergia filipes (sweetgrass), Panicum virgatum (switchgrass), Andropogon glomeratus (bushy bluestem), Uniola paniculata (sea oats)

Flowering Perennials: Asclepias tuberosa (butterfly weed), Coreopsis lanceolata (coreopsis), Rudbeckia hirta (black-eyed Susan), Salvia coccinea (scarlet sage), Liatris spicata (blazing star)

Shrubs: Itea virginica (Virginia sweetspire), Callicarpa americana (beautyberry), Myrica cerifera (wax myrtle), Clethra alnifolia (summersweet), Cephalanthus occidentalis (buttonbush)

Trees: Magnolia virginiana (sweetbay magnolia), Persea borbonia (red bay), Aesculus pavia (red buckeye), and Juniperus virginiana (eastern red cedar)

Prior to grading activities, existing vegetation within the project area will be carefully harvested and stored in a controlled environment to ensure its viability for reuse. This salvaged vegetation will be reinstalled as part of the final ditch configuration, helping to preserve genetic stock already adapted to the site conditions and improving the likelihood of long-term survival. This practice reflects a commitment to sustainability, cost-effectiveness, and ecological compatibility.

This diverse planting scheme will ensure soil stability, stormwater uptake, and aesthetic value across both tidal and upland zones. Plants will be installed in dense groupings to reduce soil exposure, maximize filtration, and create varied vertical structures for wildlife use.

8. Stormwater Infrastructure
An 82-square-foot bubbler box will be installed on the southern edge of the project site to enhance stormwater management and minimize erosion from upland flows. This structure will allow water to drain from the upland area in a controlled manner, reducing sheet flow and its erosive potential. Simultaneously, the bubbler box will act as a barrier to prevent saltwater intrusion during tidal events, thereby protecting the park’s walking path and adjacent amenities from saltwater damage. This structure will be installed landward of CMPA jurisdiction which will minimize impacts within jurisdictional wetlands.

Additionally, the existing round culvert that bisects the two halves of the project site will be replaced with a new 8-inch concrete box culvert. This replacement structure is designed in accordance with "Appendix D: Culvert Designs that Restrict Movement of Fish and Other

Aquatics," ensuring it supports ecological connectivity. The box culvert will be buried below the natural grade of the stream channel, creating a natural streambed within the culvert itself. This recessed design allows for seamless passage of aquatic fauna and maintains hydrologic continuity between the upstream and downstream segments of the stream. Collectively, these improvements to the stormwater infrastructure will strengthen the site's ecological function and reduce future maintenance needs. The total culvert impact area is 336.31 SF, with 209.81 SF being within CMPA jurisdiction.

Summary of Total Impacts:

- Temporary grading impacts: **10,904.41 SF**
- Total permanent impact area: (Upland+Marsh): **8,295.4 SF (268.59 CY)**
- Permanent impact area within CMPA jurisdiction: **7,045.7 SF**
- Impact volume within CMPA jurisdiction: **226.73 CY**
- The project will result in an increase of **6,955.4 SF** of impacts when compared to the existing structures

Feature	Total Area (SF)	Total Volume (CY)	CMPA Area (SF)	CMPA Volume (CY)
Grading (Temp.)	10,904.41	0	9,997.73	0
Flexamat	3,808.94	28.21	3,049.80	22.63
Rip Rap	723.12	26.78	716.40	26.54
DredgeSox	1,774.2	184.15	1,371.40	148.11
Oyster Bags	582.39	9.06	582.39	9.06
Oyster Tables	400.10	0	400.10	0
Coir Mat	1,310.22	0	1,310.22	0
Coir Logs	366.94	20.39	366.94	20.39
GDOT Culvert	21.15	0	21.15	0
WalkwayCulvert	336.31	0	209.81	0
Bubbler Box	82.00	0	0.00	0

*The impact chart shows the impacts from each type of structure, some which overlap each other. The impacts are not cumulative and do not represent the footprint of marshlands to be impacted.

Needs Assessment

The shoreline of Howard Coffin Park is undergoing progressive erosion, which threatens public infrastructure, degrades marsh and stream habitats, and contributes to poor water quality through increased sedimentation. The existing perched culvert further exacerbates erosion and inhibits aquatic organism passage. These environmental and structural issues, if left unaddressed, will escalate and result in more costly repairs, lost ecological function, and reduced recreational value for the community.

The proposed drainage maintenance will mitigate these concerns by stabilizing slopes, reducing sediment runoff, enhancing tidal connectivity, and promoting the re-establishment of native species. In doing so, the project supports broader coastal resilience goals outlined in local and state climate adaptation strategies and demonstrates a nature-based approach to infrastructure protection.

Alternative Analyses

Several alternatives were evaluated to address the shoreline erosion and habitat degradation:

- **No-Action Alternative**: This option was dismissed because it would allow erosion to continue, resulting in the ongoing loss of streambank and tidal marsh habitat, infrastructure instability, and impaired water quality. The no-action alternative does not meet the goals of resilience or ecological protection.
- **Traditional Bulkhead**: A vertical seawall or bulkhead would halt erosion but eliminate natural shoreline processes and habitat. It would also result in increased wave reflection, leading to scouring of adjacent areas and further degradation. Bulkheads do not provide ecological uplift and are inconsistent with regional and regulatory preferences for softer approaches.
- **Rip Rap Alone**: The use of rip rap without vegetative or habitat elements would reduce erosion but provide little habitat value and no support for biodiversity or water quality improvement. It is a purely structural approach with limited ecological co-benefits.
- **Preferred Alternative – Hybrid**: This design integrates vegetated and structural elements to reduce erosion, promote habitat recovery, and allow for tidal exchange. It aligns with the CMPA's emphasis on minimizing adverse impacts while enhancing natural functions. This alternative was selected for its sustainability, regulatory compliance, and capacity to deliver both structural protection and ecological enhancement.

Adjoining Landowners

The project is located in the center of a property owned by the City of Brunswick. The city also owns the parcel to the south and the roadway to the north. The drawings and application have been submitted to GDOT for review and approval of impacts within their Right-of-Way along Highway 17.

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 Howard Coffin Park property is bounded to the west by the Windsor Park Historic District; however, the specific project area lies near the eastern edge of the park and will not extend westward into the boundaries of the historic district. As such, no encroachment upon or alteration to historic resources is anticipated. Furthermore, no known historical or cultural resources have been identified within the designated project area based on available surveys and site reviews. Should any cultural or archaeological artifacts be encountered during the course of construction, all work in the immediate vicinity will be suspended, and the appropriate authorities will be promptly notified. Activities will not resume until proper assessments are conducted and formal authorization is granted to proceed.

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 City of Brunswick has received a buffer variance from Georgia EPD for the proposed project. A copy of the variance is included in the appendices.

The culvert at the eastern end of the project area is maintained by the Georgia Department of Transportation. This application has been provided to their office for review and approval of impacts within their Right-of-Way.

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 multiple permits: NWP 3 for the replacement of the existing culvert and NWP 54 for the construction of the living shoreline. The bubbler box will be installed landward of any jurisdictional wetlands and should not require a permit.

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 structures, including oyster habitat features and Flexamat, are low profile and located close to shore within the intertidal zone. They do not extend into navigation channels and are not anticipated to impede any vessel traffic. The stream segment is non-navigable by motorized boats, and the design ensures natural tidal flows will be preserved.

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

The project is explicitly designed to counteract erosion and sediment displacement. The incorporation of grading, rip rap, and bioengineered materials stabilizes soils and prevents further bank loss. The addition of living components like marsh vegetation and oyster tables will also filter sediments and prevent shoaling, particularly at the downstream culvert outlet.

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.

By reintroducing tidal marsh vegetation, installing oyster habitat, and improving streambed continuity, the project directly supports fish, crustaceans, and shellfish populations. It restores vital nursery habitat and enhances biodiversity while reducing runoff pollution. The design minimizes shading and avoids deep excavation or dredging, ensuring minimal disruption to existing aquatic species.

Conclusion

The Howard Coffin Park Ditch Maintenance Project exemplifies sustainable shoreline restoration by integrating nature-based and low-impact materials to stabilize eroding banks, protect infrastructure, and enhance coastal habitat. This design reflects a forward-thinking solution to shoreline erosion and supports the goals of coastal resilience, habitat conservation, and public access. We respectfully request approval under the Coastal Marshlands Protection Act for the implementation of this essential project.

Sam LaBarba
LaBarba Environmental Services
September 8, 2025

GEORGIA
DEPARTMENT OF NATURAL RESOURCES
COASTAL RESOURCES DIVISION
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WALTER RABON
COMMISSIONER

DOUG HAYMANS
DIRECTOR

July 10, 2025

Sam Labarba
Labarba Envirnmental Services
139 Altama Connector, #161
Brunswick, GA 31525

Re: Application for a Coastal Marshlands Protection Act for Howard Coffin Park Drainage Ditch Stabilization, City of Brunswick, Tidal Ditch, Glynn County (GPS 31.150397/-81.480806),

Dear Mr. Labarba:

The Department has reviewed the application for construction of a bank stabilization for a section of the Howard Coffin Park drainage ditches. The proposed project provides for the construction of a hybrid living shoreline bank stabilization and box culvert in vegetated tidal drainage ditches that will impact coastal marshlands. Staff have identified additional information that is needed before the application can be placed on Public Notice. Keep in mind that an application needs to be "substantially complete" before it can be presented to the Coastal Marshlands Protection Committee (CMPC). The following items are required before the application can be placed on Public Notice:

1. Project Description:
   a. Explain where the upland stormwater runoff is coming from and how the new stabilization will address erosion from upland stormwater, especially in the area of the berm.
   b. The area to the north of the downstream end of the project is also located within CMPA jurisdiction, the CMPA line in this area needs to be removed. How was the upland stormwater coming from the area this ditch is draining being addressed in the stabilization plan? How does the grading plan take into account the runoff from this area?
2. Project Area Concerns
   a. Staff have received a separate application for a project that will impact the western, upstream end of the proposed project area in this application. How will this impact the proposed activities and why is it not included in this application? Which project will begin first?
   b. There is a GDOT owned pipe at the eastern end of the project area. Have you gotten permission from GDOT to perform this work around their inlet? What kind of permissions will you obtain from GDOT? Have you considered how the additional volume of water that this system will receive after the project to the west is complete will be handled by this singular inlet/outlet?
   c. What will happen to the existing pipe (water line?) located within CMPA jurisdiction that crosses the ditch perpendicular to flow?

3. Project design questions:
   a. What is the purpose or advantage of straightening the channel?
   b. In the project drawings, it appears that the more hardened materials are located on the upstream end of the project area, when we assume the flow would increase on the ebb tide at the downstream area raising the risk for scouring and tidal erosion of the stabilization structures. Please explain why these materials were chosen for these areas.
   c. West of the proposed culvert, the plans indicate that the north bank will be stabilized with DredgeSox and the south side with rip rap. Why the different materials on either side?
   d. East of the proposed culvert, why is there a transition from Flexamat to coir mats/logs?
   e. The area that will be surrounded by a DredgeSox berm will have to drain. Is the intention for it to drain over the coir mat located between the berm and the channel? How will this be effective in draining the storm water that will be trapped within the berm?
   f. There seems to be a wide variety of materials being used for stabilization. Is this a demonstration project to show the use of these materials?

4. The proposed application is classified as a complex project in relationship to the application fee schedule. Please provide a $500.00 check made payable to the Georgia Department of Natural Resources.
5. A zoning letter from the appropriate department stating that the proposed project does not violate any zoning laws.
6. Once these materials have been received, and the application is substantially complete, we will begin the public notice process. During the public comment period, the committee will be reviewing the project. I will notify you of any additional information requested by them as provided in the Official Code of Georgia Annotated (O.C.G.A.) 12-5-286. Public comments and questions about your project will be forwarded to you for a written response. Staff will assist you throughout the process.

I appreciate your assistance in working with staff to provide a substantially complete permit application to the Coastal Marshlands Protection Committee for their consideration. Please feel free to contact me at 912-689-6261 with any questions or comments.

Sincerely,

Paul Tobler
Coastal Permit Coordinator
GADNR - Coastal Resources Division

1. Project Description:

a. Explain where the upland storm water runoff is coming from and how the new stabilization will address erosion from upland stormwater, especially in the area of the berm.

The project area is an integral part of a larger municipal drainage network that conveys stormwater runoff from Howard Coffin Park and the adjacent residential neighborhoods. In addition to these upstream sources, the site also receives direct sheet flow from the immediate upland area, including impervious surfaces such as the park's southern parking area and adjacent segments of Highway 17.

The proposed stabilization plan addresses stormwater-related erosion through a multifaceted approach:

Increased Storage and Flow Attenuation:

By widening the channel and improving bank stability, the project significantly increases the ditch's storage capacity. This additional volume helps attenuate peak flows during storm events, thereby reducing the velocity and erosive force of water moving through the system. The improved geometry promotes a more gradual, controlled flow, which benefits both water quality and long-term structural stability.

Living Shoreline Treatment:

Along the upland-marsh interface, the installation of a living shoreline system—consisting of bioengineered materials and native vegetation—will directly combat erosion caused by sheet flow and localized runoff. The combination of reinforced toe protection and dense vegetative cover will dissipate surface water energy and promote sediment retention. Over time, the system is designed to strengthen as vegetation becomes more established, creating a self-sustaining buffer zone.

Stormwater Management at the Berm Area:

In the southeastern portion of the site, where recurring floodwaters have encroached into the park, the project proposes the construction of a living berm coupled with a stormwater inlet and bubble-up structure. Located outside of jurisdictional boundaries, this system is designed to intercept and redirect upland runoff that would otherwise overwhelm the natural marsh. The bubbler box provides a controlled outlet, allowing excess water to discharge gradually into the ditch system while preventing uncontrolled sheet flow and erosion.

Collectively, these measures not only stabilize the existing shoreline but also improve the site's capacity to manage upland stormwater in a manner that is both resilient and ecologically sensitive.

b. The area to the north of the downstream end of the project is also located within CMPA jurisdiction, the CMPA line in this area needs to be removed. How was the upland stormwater coming from the area this ditch is draining being addressed in the stabilization plan? How does the grading plan take into account the runoff from this area?

The area located to the north of the downstream end of the project, while within the broader Coastal Marshlands Protection Act (CMPA) jurisdiction, lies outside the defined scope of work for this project due to the absence of active shoreline erosion in that location. The stabilization plan was specifically developed to address areas experiencing ongoing bank failure and sediment loss.

The proposed project does not modify or impede the existing hydrologic connection from the northern ditch into the project area. Runoff from that upland drainage corridor will continue to flow into the system as it does under current conditions. However, the project will provide a secondary benefit by increasing temporary storage capacity and improving conveyance within the stabilized sections of the channel, thereby accommodating inflows from the north more effectively.

While stormwater management was not the primary driver of this design, the improvements to bank stability and channel geometry are expected to enhance the overall performance of the ditch system without necessitating additional modifications to the northern inflow area.

2. Project Area Concerns

a. Staff have received a separate application for a project that will impact the western, upstream end of the proposed project area in this application. How will this impact the proposed activities and why is it not included in this application? Which project will begin first?

The adjacent project located upstream to the west is focused primarily on drainage improvements, whereas the current application pertains to shoreline stabilization and ecological enhancement. While both projects occur within the same general drainage corridor, they serve distinct purposes and are being managed independently due to differences in scope, permitting requirements, and project sponsorship.

Based on available information, the upstream project seeks to increase stormwater storage capacity by removing vegetative debris and widening portions of the existing ditch. These improvements align with our proposed grading approach, which also involves widening the channel to achieve more stable, gently sloped banks suitable for the installation of living shoreline materials.

Our project additionally includes the replacement of the existing perched culvert with a properly sized box culvert. This upgrade is intended to enhance hydraulic connectivity and restore a continuous wildlife passage between the upstream and downstream sections of the system—an objective not addressed in the upland project.

Although submitted separately, both project teams have coordinated closely to ensure that the two efforts will integrate seamlessly. Design elements such as grading transitions and culvert sizing have been considered collaboratively to promote system-wide functionality and avoid duplication or conflict. The sequencing of the projects will be finalized in coordination with permitting and construction timelines; however, the two efforts are complementary and intended to support one another.

b. There is a GDOT owned pipe at the eastern end of the project area. Have you gotten permission from GDOT to perform this work around their inlet? What kind of permissions will you obtain from GDOT? Have you considered how the additional volume of water that this system will receive after the project to the west is complete will be handled by this singular inlet/outlet?

Yes, coordination with the Georgia Department of Transportation (GDOT) has taken place, and permission has been obtained to conduct the proposed work in the vicinity of the GDOT-owned culvert at the eastern end of the project area. Documentation confirming GDOT's authorization is attached to this response, including a description of the approval method provided.

The proposed project is not anticipated to adversely affect the existing GDOT inlet. The culvert currently functions as the hydraulic control point for the broader drainage system and inherently limits outflow, which is why water tends to accumulate and drain gradually within the adjacent ditch network. This condition is expected to remain unchanged following the completion of the project.

Importantly, the project does not increase the contributing drainage area or overall runoff volume. Instead, it enhances stormwater management by providing temporary storage capacity within the improved ditch system, as opposed to

allowing uncontrolled surface ponding on the neighboring upland areas. As such, the hydraulic load entering the GDOT structure will not exceed current conditions, and the existing infrastructure will continue to perform its intended function.

c. What will happen to the existing pipe (water line?) located within CMPA jurisdiction that crosses the ditch perpendicular to flow?

A joint project between the City of Brunswick and Brunswick Glynn Joint Water Sewer Commission is currently being prepared to bury the four pipes that cross the drainage ditch. An application for the relocation of these pipes should be submitted within the next two months. Due to this activity not requiring a CMPA permit, we did not think it wise to tie the outcome of this project to that one. The intention is to have the pipe relocations (burials) permitted through a separate permitting mechanism and ready for construction prior to beginning construction on this living shoreline project. This will prevent damage to the newly installed living shoreline if pipe relocation were to occur after.

3. Project design questions:

a. What is the purpose or advantage of straightening the channel?

The purpose of the proposed channel modifications is not to straighten the channel in a conventional sense, but rather to re-establish a more hydraulically efficient and geomorphologically stable alignment within the limits of the existing drainage corridor. The proposed living shoreline maintains a naturally meandering path consistent with the pre-existing drainage pattern; however, it selectively removes excessive sediment accumulation and sharp deflections in the flow path that have developed over time due to sediment deposition and localized erosion.

These abrupt changes in flow direction have contributed to increased shear stress and scouring along the outer bends of the channel, leading to progressive bank erosion and instability on both sides of the ditch. By moderating these turns—removing only the most acute angles while preserving gentle meanders, the project enhances lateral stability and improves conveyance without substantially increasing flow velocity.

This balanced approach reduces erosive forces acting on the channel banks while maintaining enough sinuosity to promote energy dissipation and habitat function. Furthermore, because the drainage area and total discharge volume remain unchanged, the modifications are not expected to increase velocity or erosion risk at the downstream GDOT culvert.

b. In the project drawings, it appears that the more hardened materials are located on the upstream end of the project area, when we assume the flow would increase on the ebb tide at the downstream area raising the risk for scouring and tidal erosion of the stabilization structures. Please explain why these materials were chosen for these areas.

The selection and placement of stabilization materials throughout the project area were informed by a combination of site-specific factors, including observed erosion patterns, proximity to upland infrastructure, topographic conditions, and ecological sensitivity. While it may appear counterintuitive that the more structurally hardened materials are located at the upstream end of the project, this decision reflects the practical realities of the site.

The upstream portions of the ditch currently exhibit the most severe erosion, characterized by steep, actively failing banks located in immediate proximity to upland areas. These areas have shown a persistent inability to withstand the hydraulic forces present within the channel, even under moderate flow conditions. Accordingly, a more robust stabilization strategy was warranted in these segments to prevent further encroachment into the upland and to provide long-term structural integrity. Due to the limited presence of marsh vegetation and the degraded ecological condition of these upstream banks, the use of more engineered materials in these zones presents a lower environmental trade-off.

In contrast, the downstream reaches of the channel demonstrate greater natural resilience. These areas exhibit gentler bank slopes, established marsh vegetation, increased oyster colonization, and greater separation from critical upland resources. The presence of these biological indicators suggests a more stable and self-sustaining environment. In these sections, a softer stabilization approach was selected to reinforce existing ecological functions while minimizing disturbance to the emerging habitat. Additionally, the downstream segments benefit from broader marsh buffer zones and are not subject to the same immediate risk of structural failure as the upstream areas.

This tiered stabilization strategy ensures that each segment of the channel receives the most appropriate treatment for its specific hydraulic and ecological context, balancing long-term performance with environmental sensitivity.

c. West of the proposed culvert, the plans indicate that the north bank will be stabilized with DredgeSox and the south side with rip rap. Why the different materials on either side?

The use of different stabilization materials on the north and south banks west of the proposed culvert is a direct response to the differing physical constraints and site conditions present on each side of the channel. While the plans show riprap on the south side and DredgeSox on the north, it is important to clarify that riprap is used solely as toe protection beneath a Flexamat installation on the southern bank.

The southern shoreline offers sufficient space to regrade the slope to a stable angle suitable for Flexamat installation. Flexamat requires a uniform, moderate slope and is often paired with riprap at the toe to prevent undercutting from base flows. This configuration is appropriate where the site allows for reshaping and sufficient embedment of materials.

Conversely, the northern bank is more spatially constrained. Existing infrastructure, including the city's perimeter fence and a nearby utility building, limits the ability to grade the slope to the same degree. The erosion on this side is already encroaching toward the fence line and threatens to impact the utility structure. Given these constraints, DredgeSox was selected as the preferred stabilization method because it can be installed on steeper slopes and in tighter spaces with minimal grading. It also performs well in lower-energy environments like this segment of the ditch and integrates more easily into the existing bank profile.

Ultimately, the differing material choices reflect a tailored approach based on slope geometry, spatial constraints, infrastructure proximity, and the installation requirements of the respective stabilization systems.

d. East of the proposed culvert, why is there a transition from Flexamat to coir mats/logs?

The transition from Flexamat to coir mats and coir logs east of the proposed culvert reflects a deliberate shift in stabilization strategy based on the changing site conditions, ecological sensitivity, and proximity to critical upland features. As described in our response to question b, the upstream segments of the project area exhibit steep, actively eroding banks located immediately adjacent to the upland infrastructure. These areas warranted a more engineered solution—Flexamat with riprap toe protection—due to the severity of erosion and the limited opportunity for natural recovery.

In contrast, the downstream areas east of the culvert demonstrate a higher degree of natural resilience. These segments are characterized by gentler slopes, increased vegetative cover, and visible indicators of ecological recovery, such as marsh grass

and oyster colonization. Additionally, the buffer between the channel and upland features is greater in this area, reducing the urgency for a hardened solution.

The use of coir mats and coir logs in this portion of the project provides an effective but lower-impact method of stabilization. These biodegradable materials promote sediment capture, encourage vegetative growth, and protect the bank from minor erosive forces, all while allowing the natural marsh ecosystem to continue establishing itself. This softer approach is consistent with the project's goal of balancing structural integrity with environmental stewardship and is appropriate for a lower-energy section of the system that is not currently exhibiting critical erosion or infrastructure risk.

e. The area that will be surrounded by a DredgeSox berm will have to drain. Is the intention for it to drain over the coir mat located between the berm and the channel? How will this be effective in draining the storm water that will be trapped within the berm?

Yes, the area enclosed by the proposed DredgeSox berm is intended to continue draining through the naturally occurring low point located adjacent to the channel, where coir mats and logs will be installed. This location already functions as the primary drainage path for the area due to the subtle landward slope of the existing salt pan toward the ditch. The coir materials proposed in this zone will allow for the continued passage of shallow stormwater flows while also providing erosion protection and promoting vegetation establishment.

The site's current topography has created a salt pan feature landward of the channel—a relatively flat, low-lying area that periodically floods under extreme high tides and storm surges. Salt pans are recognized as unique and ecologically valuable coastal features. They support specialized halophytic plant species and provide critical habitat for a variety of invertebrates and shorebirds. Altering the topography to improve internal drainages such as by grading or cutting new swales—would compromise the integrity of this habitat, disrupt existing biological communities, and offer minimal hydrological benefit.

Rather than modifying this sensitive feature, the proposed design intentionally preserves its form and function. The DredgeSox berm serves primarily to buffer the park from the intrusion of storm surges and king tides, without impeding the area's ability to slowly drain back toward the main channel. In short, the project maintains the existing drainage functionality of the salt pan while protecting upland infrastructure and preserving an ecologically significant landscape element.

f. There seems to be a wide variety of materials being used for stabilization. Is this a demonstration project to show the use of these materials?

While the proposed variety of stabilization materials does offer educational value and an opportunity for public demonstration, this project is not intended primarily as a showcase. As stated in the permit application, the principal objective is to provide effective and durable stabilization of the shoreline using context-sensitive, environmentally responsible methods.

The selection of materials was guided first and foremost by engineering considerations, including existing site conditions, observed erosion patterns, infrastructure proximity, ecological sensitivity, and hydraulic behavior within the channel. Each material was chosen to address specific challenges at different points along the project area, ensuring that the stabilization method is appropriately matched to the physical and ecological conditions of each segment.

That said, we recognize the broader value of demonstrating how a range of nature-based and low-impact solutions—such as DredgeSox, coir products, and Flexamat—can be strategically applied to coastal erosion problems. In that sense, we hope the project will serve as a model for other public and private efforts seeking sustainable alternatives to traditional hard armoring, while maintaining the primary goal of long-term shoreline protection.

4. The proposed application is classified as a complex project in relationship to the application fee schedule. Please provide a $500.00 check made payable to the Georgia Department of Natural Resources.

A check in the amount of $500.00, made payable to the Georgia Department of Natural Resources, will be delivered to your office no later than Friday of this week.

5. A zoning letter from the appropriate department stating that the proposed project does not violate any zoning laws.

Attached are the required documents stating that the project does not violate any zoning laws, along with a reviewed set of the plans.

6. Once these materials have been received, and the application is substantially complete, we will begin the public notice process. During the public comment period, the committee will be reviewing the project. I will notify you of any additional information requested by them as provided in the Official Code of Georgia Annotated (O.C.G.A.) 12-5-286. Public comments and questions about your project will be forwarded to you for a written response. Staff will assist you throughout the process.

We appreciate your diligence in reviewing this project to ensure a successful outcome that serves the public interest. We look forward to continuing to work collaboratively throughout the remainder of the permitting process.

Sam LaBarba

From: Garrow Alberson <galberson@cityofbrunswick-ga.gov>
Sent: Wednesday, July 30, 2025 1:56 PM
To: Sam LaBarba
Subject: FW: [EXTERNAL] Howard Coffin Park Living Shoreline Project
Attachments: 250729 - Howard Coffin Park Living Shoreline Drawings. 5.19.2025.pdf

Sam,
See below for email from GDOT re: concurrence with project.
Let me know if you need anything else from them.

Garrow Alberson, P.E.
City Engineer / Public Works Director
City of Brunswick

From: Scarbrough, Brian (D5) <bscarbrough@dot.ga.gov>
Sent: Wednesday, July 30, 2025 9:30 AM
To: Garrow Alberson <galberson@cityofbrunswick-ga.gov>
Subject: [EXTERNAL] Howard Coffin Park Living Shoreline Project

Good morning Garrow,
GDOT has reviewed the attached plans for the shoreline project and agree with the BMP treatments being installed at the drainage structure that crosses SR 25/US 17. Seeing that the installation of the erosion control measures would fall under the maintenance of the drainage structure, the City of Brunswick can proceed with the work on GDOT R/W as allowed under GA Code 32-2-2 as long as all applicable permits are obtained for work within a tidal marsh area. If you need anything additional then please let me know.

Thank you,
Brian H. Scarbrough
Assistant District Engineer / District Maintenance Manager

Georgia Department of Transportation

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Jesup, Georgia 31546
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(912) 424-9081 (Mobile)
