



MAKE CAMBRIDGE RESILIENT

WWW.MAKECAMBRIDGERESILIENT.ORG

MAKE CAMBRIDGE RESILIENT INITIATIVE UPDATE

**PRESENTATION TO
DORCHESTER COUNTY
COUNCIL**

**LARRY WHITE P.E.
PROJECT MANAGER**

FEBRUARY 4, 2025

AGENDA

- **OVERVIEW OF MAKE CAMBRIDGE RESILIENT INITIATIVE**
- **FEMA APPROVED & FUNDED FLOOD MITIGATION PROJECT**
- **STATUS OF FEMA PHASE I DESIGN**
- **NFWF HABITAT RESTORATION & GREEN SWM PROJECT ENHANCEMENT**
- **REQUESTING COUNTY APPROVAL OF PROJECT TIE-IN IN DOCO**

MAKE CAMBRIDGE RESILIENT INITIATIVE

ADAPTING TO CLIMATE CHANGE

MITIGATING RISK THAT GROWS WITH TIME

- **RISK REDUCTION FOR TODAY - ENGINEERING WITH NATURE - HYBRID FLOOD MITIGATION PROJECT W/LIVING SHORELINE ALONG CHOPTANK RIVER**
 - EMBANKMENT WITH NATURE-BASED LIVING SHORELINE
 - STORMWATER MANAGEMENT
 - **ENHANCEMENT OF HABITAT AND WATER QUALITY (ADDED UNDER NEW NFWF COASTAL RESILIENCE GRANT)**
- **RISK REDUCTION FOR TOMORROW - LIVING WITH WATER LIKE DUTCH - COMMUNITY DEVELOPMENT PROGRAM GRANT TO MITIGATE RISK OF FLOODING DUE TO MORE INTENSE AND FREQUENT STORMS TO 2100**
 - COMMUNITY WIDE GREEN INFRASTRUCTURE PLAN
 - INTEGRATION OF FLOOD MITIGATION INTO CITY PLANNING
 - FLOOD MITIGATION SUPPORT FOR BUSINESSES AND RESIDENTS



MAKE CAMBRIDGE RESILIENT INITIATIVE

RISK REDUCTION FOR TODAY

FEMA APPROVED FUNDING OF \$18M

HYBRID FLOOD MITIGATION PROJECT PLAN



Cambridge Shoreline Resilience Plan - Project A

COMMUNITY INVOLVEMENT SHAPED DESIGN

- RISK ASSESSMENT OF FIVE DISTINCT AREAS
- ESTABLISHED FLOOD PROTECTION LEVEL AT ELEV 7 FT ABOVE MSL – 2 FT ABOVE BFE OF 5 FT (ISABEL)
- RANGE OF MITIGATION OPTIONS IDENTIFIED AND EVALUATED
- PUBLIC INPUT ON PREFERENCES
- DETAILED MATRIX TECHNICAL ANALYSIS OF OPTIONS
- PUBLIC OUTREACH SESSIONS ON RESULTS
- REGULAR BRIEFING TO CITY COUNCIL AND PRESENTATIONS TO VARIOUS ORGANIZATIONS

CAMBRIDGE SHORELINE RESILIENCE PLAN

OPEN HOUSE & LISTENING SESSION – AUGUST 10, 2021

To engage project stakeholders, an open house and listening session was held on August 10, 2021, at the Dorchester Center for the Arts. The open house, held in the gallery area, included graphic displays, informational brochures, and a flood modeling station. The listening session, held in the upstairs Performance Hall, included a brief project overview and then a series of discussion questions that participants discussed amongst those within their table group. Each table group selected a spokesperson who gave a report out to the larger group. The listening session was a great opportunity to hear public concerns specific to flooding and ideas for flood risk reduction solutions for both current and future conditions.

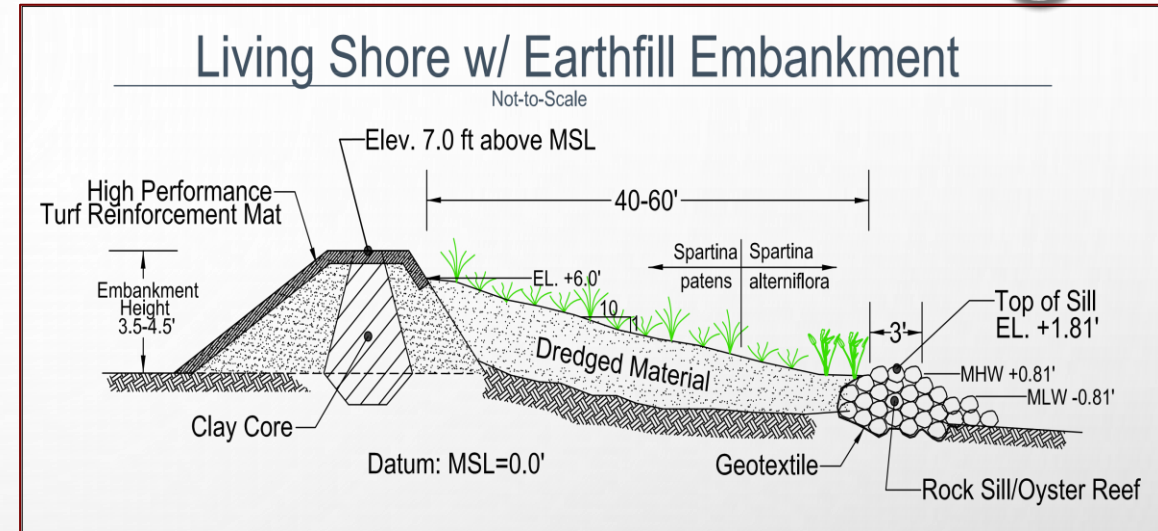


CAMBRIDGE SHORELINE RESILIENT INITIATIVE

FEMA APPROVED CONCEPT DESIGN FOR FLOOD PROTECTION PROJECT

ENGINEERING WITH NATURE

- **HYBRID FLOOD MITIGATION PROJECT.**
- **EMBANKMENT ALLOWS ELEVATION OF LIVING SHORELINE TO PROVIDE FLOOD PROTECTION**
- **LIVING SHORELINE PROTECTS EMBANKMENT & REDUCES STORM SURGE**
- **DESIGNED FOR OVERTOPPING AND CAN BE LANDSCAPED TO LOOK LIKE SAND DUNE**
- **NFWF HABITAT ENHANCEMENT DESIGN BASED ON FEMA MODELING INPUT TO HABITAT SUITABILITY MODELS (NFWF)**
- **GREEN SWM PROJECT DESIGNED TO CONTROL AMOUNT AND QUALITY OF WATER DISCHARGING TO LS TO PROTECT HABITAT**



CAMBRIDGE SHORELINE RESILIENT INITIATIVE

FLOOD PROTECTION PROJECT PRELIMINARY DESIGN (30%)

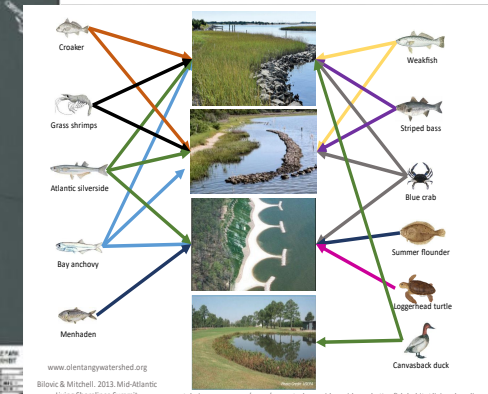
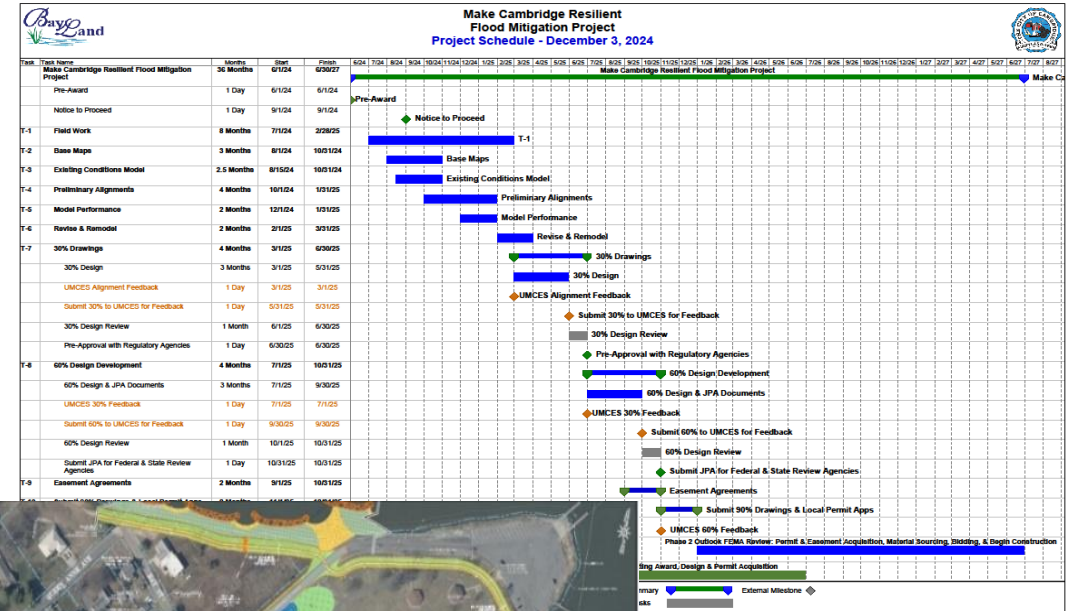
- **FUNDING FOR PHASE I DESIGN IN AUGUST 2024 \$1.7M. PHASE II FUNDING OF \$16M FOR CONSTRUCTION PENDING FEMA APPROVAL OF DESIGN**

■ PRELIMINARY DESIGN STATUS

- ✓ INITIAL PROJECT ALIGNMENT ESTABLISHED
- ✓ HYDROGRAPHIC SURVEY
- ✓ LAND SURVEY
- ✓ GEOTECHNICAL BORINGS FOR CHARACTERIZATION OF FOUNDATION
- ✓ COLLABORATION WITH UMCES ON PERFORMANCE MODELING
- ✓ STAKEHOLDER MTG AND PUBLIC INPUT PLANNED FOR FEBRUARY
- ✓ FINAL 30% DRAWING SCHEDULED FOR JUNE 2025.

■ INTEGRATION WITH NATIONAL FISH AND WILDLIFE FOUNDATION GRANT

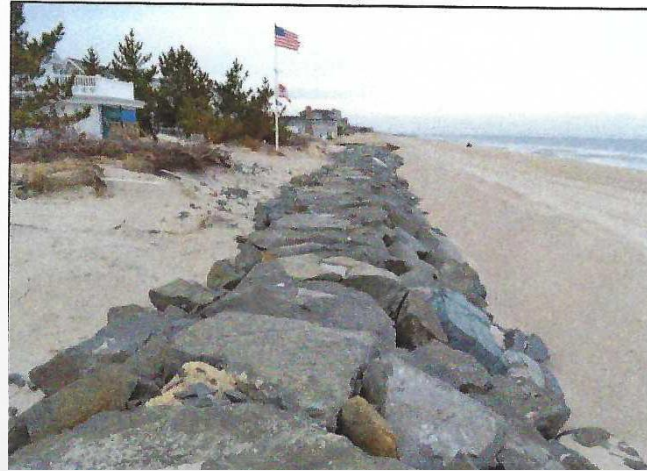
- ✓ FEMA MODELING INPUT TO HABITAT SUITABILITY MODELS
- ✓ GREEN SWM PROJECT AT GREAT MARSH/GBP TO CONTROL AMOUNT AND QUALITY OF WATER DISCHARGING TO LS



www.cientangwatershed.org
 Blouw & Mitchell, 2013. Mid-Atlantic Living Shorelines Summit.
 coastal.science.noaa.gov/newsroom/study-provides-evidence-better-fish-habitat-living-shoreline

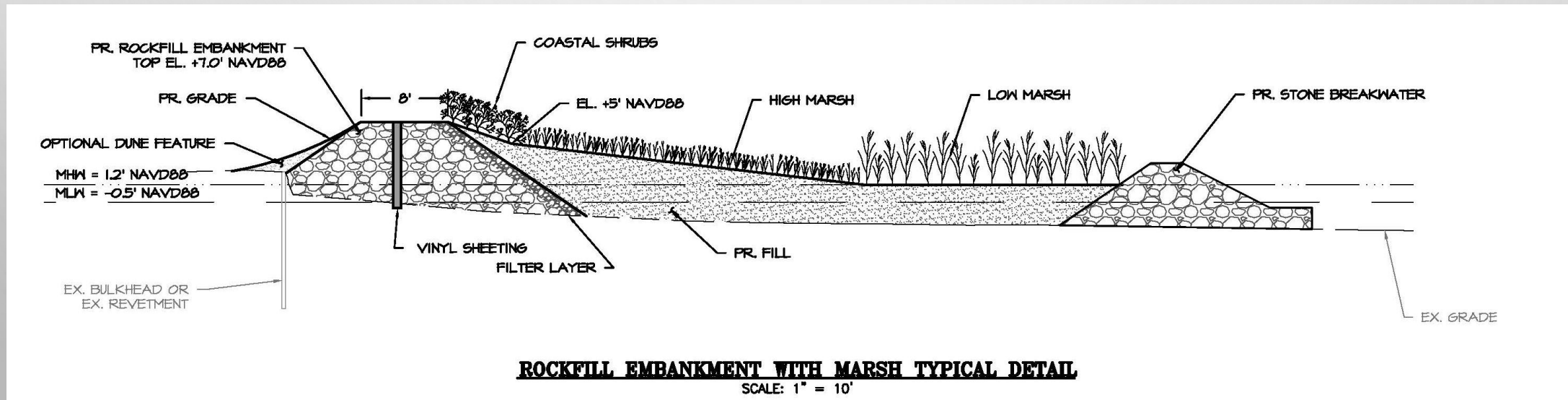
PRELIMINARY DESIGN

FLOOD PROTECTION CONCEPT ENHANCEMENTS



Engineered Dune Rock Core Survives Superstorm Sandy in Bayhead NJ

USACE Rockaway Beach NY, Sheet Pile Reinforced Sand Dune Atlantic Ocean Dec 2022



PRELIMINARY DESIGN

TAILORING DESIGN TO EXISTING SHORELINE CONDITIONS



Rocksill w Marsh Plantings



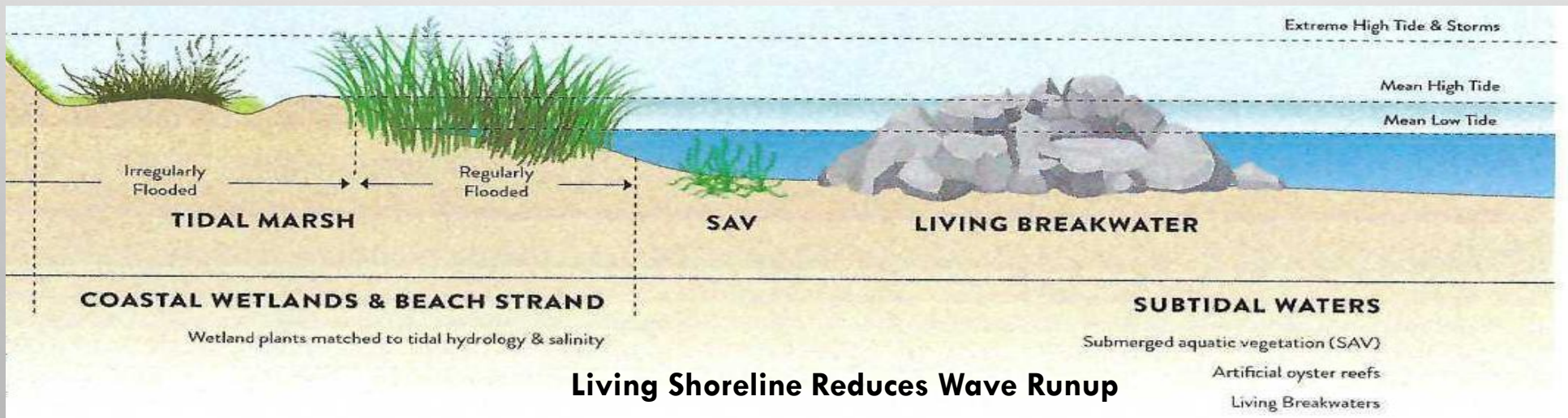
Rocksill w/ Windows



Designing Around Piers



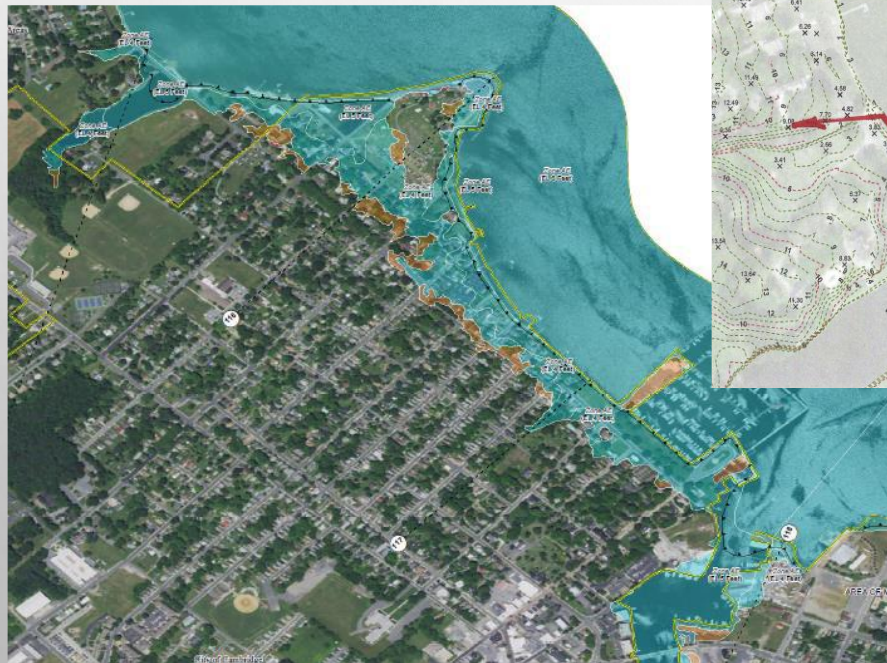
Design of Oyster Reef



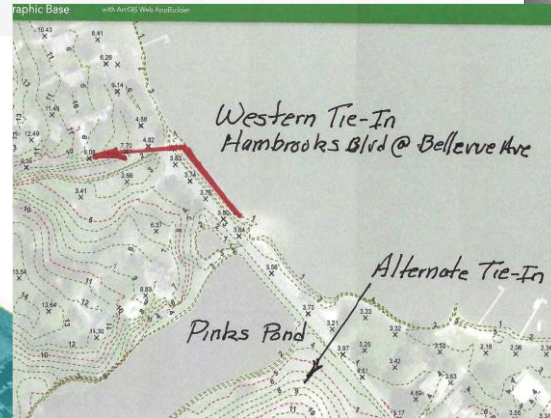
PRELIMINARY DESIGN

TIE-IN OF PROJECT AT PINKS POND

- MOST PRACTICAL PROJECT TIE-IN WITHIN DORCHESTER COUNTY TO ELEVATION 7 FT. IS AT PINKS POND
- NEXT STEP IS COMMUNICATION WITH RESIDENTS FOR INPUT TO DESIGN



Flooding Due to Projected Sea Level Rise in 2050 Extends to Pinks Pond



FLOOD PROTECTION PROJECT PLAN



Cambridge Shoreline Resilience Plan - Project A

PRELIMINARY DESIGN

TIE-IN OF PROJECT AT PINKS POND

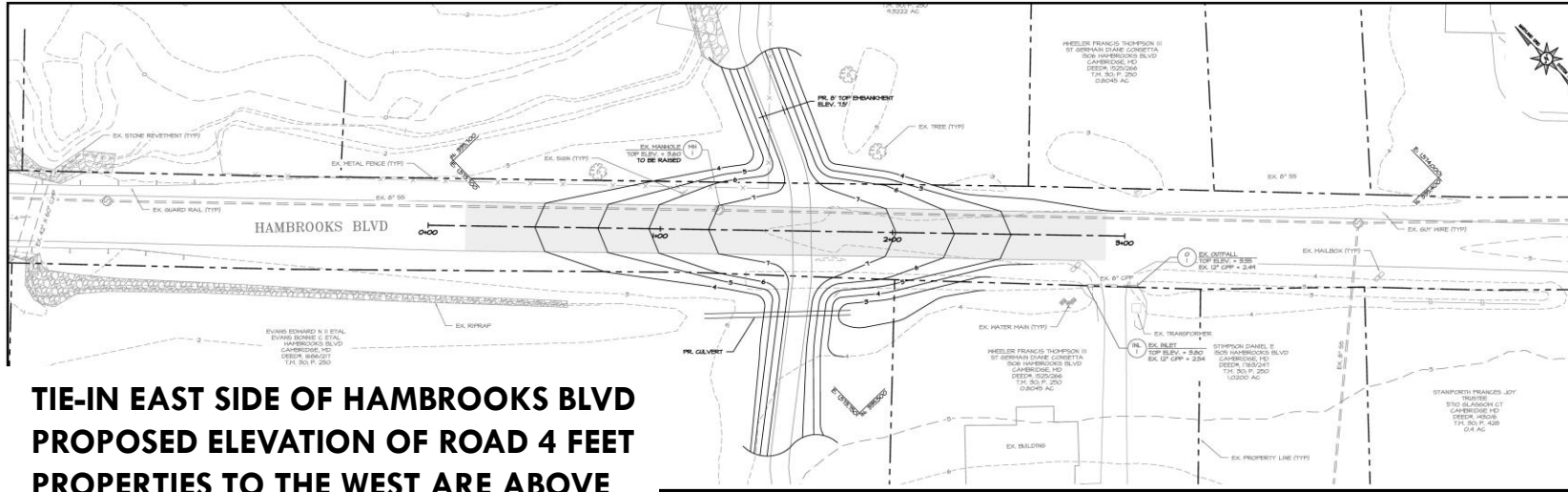
PROJECT TIE IN AT PINKS POND PROVIDES CONTINUOUS PROTECTION TO ELEVATION 7 FT ABOVE MSL



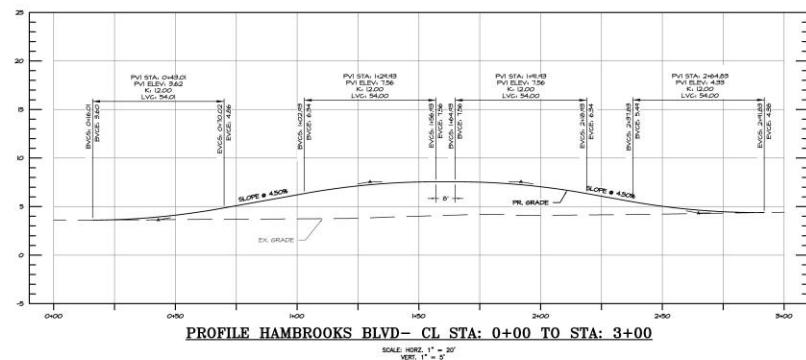
PRELIMINARY DESIGN

TIE-IN OF PROJECT AT PINKS POND

PROJECT TIE IN AT PINKS POND PROVIDES CONTINUOUS PROTECTION TO ELEVATION 7 FT ABOVE MSL



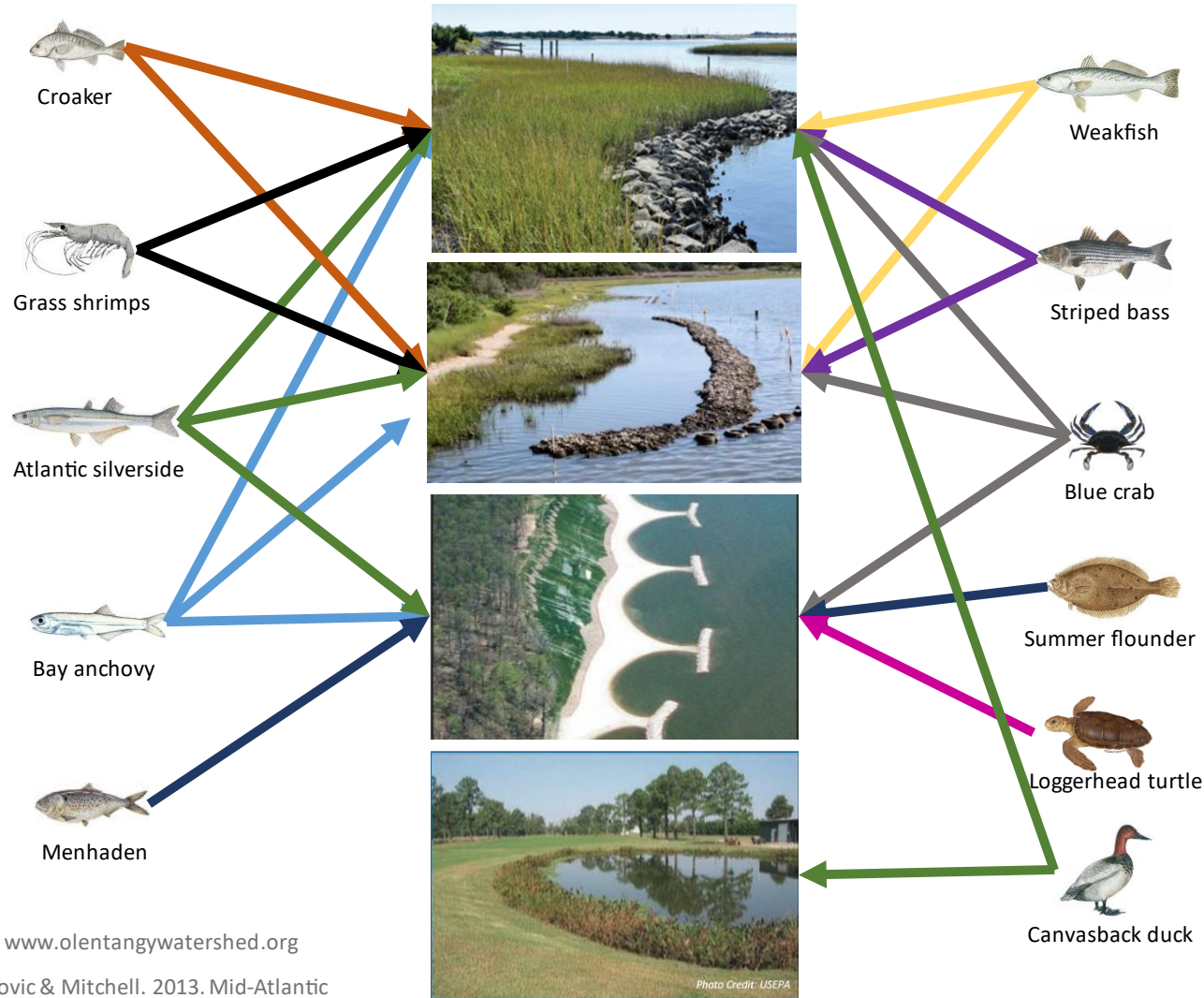
- TIE-IN EAST SIDE OF HAMBROOKS BLVD
- PROPOSED ELEVATION OF ROAD 4 FEET
- PROPERTIES TO THE WEST ARE ABOVE DESIGN FLOOD ELEVATION



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 BAYLAND JOB NO. 8_3003

MAKE CAMBRIDGE RESILIENT FLOOD MITIGATION DORCHESTER COUNTY TIE-IN EXHIBIT			
DATE	BY	REVISION/DESCRIPTION	SCALE: 1" = 20'
			DRAWN BY: AB DATE: 11/18/24
			CHECKED BY: MB DATE: 11/18/24
			DESIGNED BY: DATE: 11/18/24
			SHEET NO. 1 OF 1

NFWF HABITAT RESTORATION MODELING AND DESIGN INTEGRATED INTO LIVING SHORELINE DESIGN

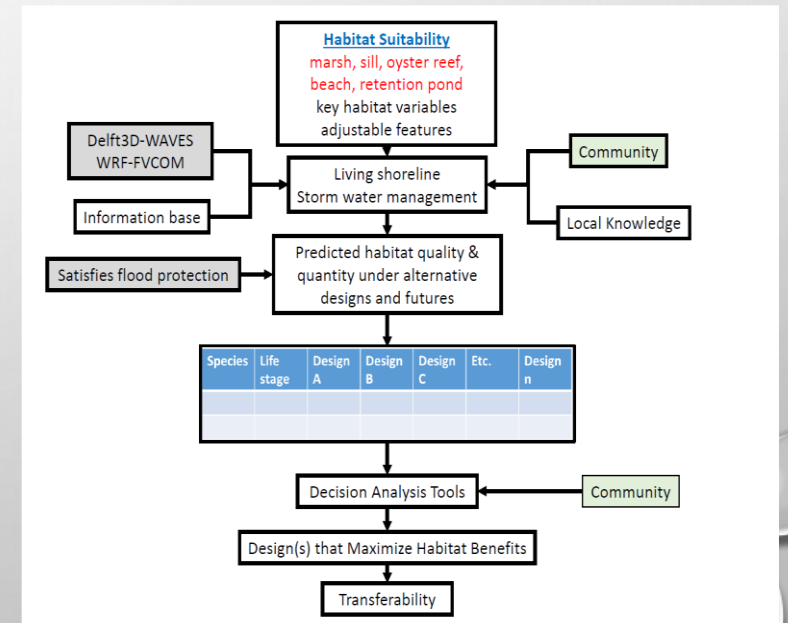


www.olentangywatershed.org

Bilovic & Mitchell. 2013. Mid-Atlantic Living Shorelines Summit.

coastalscience.noaa.gov/news/nccosstudy-provides-evidence-better-fish-habitat-living-shoreline

- HABITAT DESIGN LED BY UMCS
- BAYLAND/UMCS COLLABORATION
- DESIGN TO BE INTEGRATED INTO FINAL PROJECT DESIGN



NFWF ENHANCING STORMWATER QUALITY IN LIVING SHORELINE

GERRY BOYLE PARK GREEN STORMWATER MANAGEMENT INTEGRATION WITH FLOOD PROTECTION PROJECT

ENGINEERING WITH NATURE

- Green SWM project designed to control amount and quality of water discharging to LS to protect habitat
- Reduces dependence on gray SWM system to store stormwater
- Part of a large effort to develop a hybrid stormwater system to manage intense rainfall events



QUESTIONS