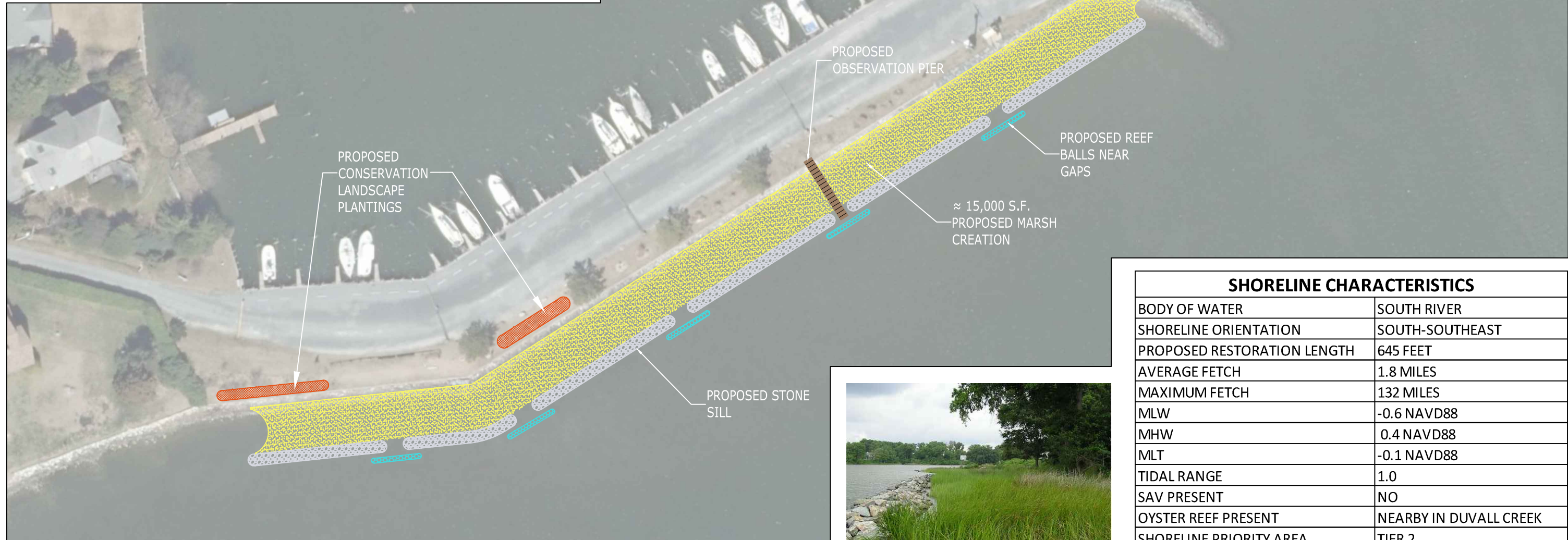


**Nutrient Removal Rates for Hillsmere Sand Spit
Living Shoreline and Conservation Plantings**

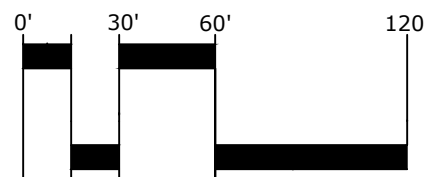
	Default Rate	Concept Design Protocol 1-4	
Total Nitrogen (TN)	111.74	31.78	lbs/yr
Total Phosphorus (TP)	78.71	1.94	lbs/yr
Total Suspended Sediment (TSS)	211560.00	2396.35	lbs/yr
Equivalent Impervious Acres (EIA)	25.81		



SHORELINE CHARACTERISTICS	
BODY OF WATER	SOUTH RIVER
SHORELINE ORIENTATION	SOUTH-SOUTHEAST
PROPOSED RESTORATION LENGTH	645 FEET
AVERAGE FETCH	1.8 MILES
MAXIMUM FETCH	132 MILES
MLW	-0.6 NAVD88
MHW	0.4 NAVD88
MLT	-0.1 NAVD88
TIDAL RANGE	1.0
SAV PRESENT	NO
OYSTER REEF PRESENT	NEARBY IN DUVALL CREEK
SHORELINE PRIORITY AREA	TIER 2
SHORELINE HAZARD INDEX	MODERATE
SEA LEVEL RISE HAZARD	MODERATE
PROJECTED MHW AT YEAR 2050	1.2 TO 2.7 NAVD88

PROJECT SUMMARY

THE HILLSMERE SAND SPIT, LOCATED AT THE MOUTH OF DUVALL CREEK ON THE SOUTH RIVER IN ANNAPOLIS, IS SURROUNDED BY SHALLOW WATER. THIS LIVING SHORELINE PROJECT ALONG 645 FEET OF SHORELINE WILL CREATE APPROXIMATELY 15,000 SF OF TIDAL MARSH PROTECTED BY STONE SILLS AND OYSTER REEF BALLS. THE REEF BALLS WILL BE PLACED CHANNELWARD OF THE STONE SILLS AND SET WITH OYSTER SPAT. CONSERVATION PLANTINGS ALONG THE SAND SPIT WILL HELP FILTER STORMWATER RUN-OFF AND HOLD THE SOIL DURING STORMS. THIS PROJECT WILL PROVIDE ECOLOGICAL LIFT THROUGH WATER QUALITY IMPROVEMENTS AND CREATION OF POLLINATOR, MARSH, AND SHALLOW WATER HABITAT. IT WILL PROVIDE CLIMATE CHANGE RESILIENCY BY BUFFERING STORM SURGE, INSTALLING PLANTS ADAPTED TO WARMING TEMPERATURES, CREATING A MIGRATION CORRIDOR FOR TIDAL MARSH AS SEA LEVELS RISE.



Prepared for: Hillsmere Shores Improvement Association P.O. Box 3485 Annapolis, MD 21403	Prepared by:  Environmental Systems Analysis, Inc. Natural Resources Management Ecological Restoration 2141 Priest Bridge Drive, Suite 1 Crofton, Maryland 21114	CONCEPT PLAN HILLSMERE SAND SPIT ANNE ARUNDEL COUNTY, MD	
		 NORTH	SCALE: 1"=60' DATE: JULY, 2021 ESA PROJECT NAME: 2021-31 HILLSMERE SAND SPIT SHEET: 1 of 1