Appendix J

USFWS

Chincoteague NWR

Chincoteague National Wildlife Refuge Beachfill: Abbreviated Analysis and Cost Opinion for Maintaining the Existing Parking Areas and Recreational Beach

Chincoteague National Wildlife Refuge Beachfill

Abbreviated Analysis and Cost Opinion for Maintaining the Existing Parking Areas and Recreational Beach

Purpose of this report:

The intent of this report to convey a cost opinion of stabilizing (not protecting) the existing parking areas and recreational beaches based on a similar recent United States Army Corps of Engineers (USACE) beach-fill project at Wallops Island, Virginia. The term protection is used when armoring (for example, revetments and seawalls) the shoreline and protecting inland development. The term stabilization is used to decelerate shoreline erosion using breakwater systems and/or increase the longevity of a beach by beach fill and maintain a wide berm for damage reduction. The design is proposing an establishment of a dune position on the exiting beach berm and beach nourishment that would extend towards the ocean. The intent and objective is to stabilize the existing parking areas. This report is not an economic analysis, alternative analysis or detailed design analysis.

Problem Statement:

Beach erosion along the open ocean of the Assateague Island is well documented with average net long-term rates of -1.2 meters/year (USGS 2010). Federal resources are expended yearly to maintain the recreational beach and parking areas.

Existing Conditions:

Based on the historical map data, the sediment transport is traveling from Toms Cove to Fishing Point (North to South). The sand from the north will, over time, travel to the south. The shoreline will continue to transgress west; however, the beach-fill will slow down the transgression in the vicinity of placement. Historical Sea Level Rise along the Assateague and Chincoteague shoreline will be considered at a minimum for this concept. Both erosion and sea level change rates are anticipated to continue at the current (historic measured) rates. In addition to the sea level rise and sediment transport, the shoreline of Assateague Island will continue to transgress west; however, the beach-fill will slow down the transgression in the vicinity of the placement. The dune and beach berm project will not prevent tidal flooding from the interior or backside of the shoreline.

Similar Projects:

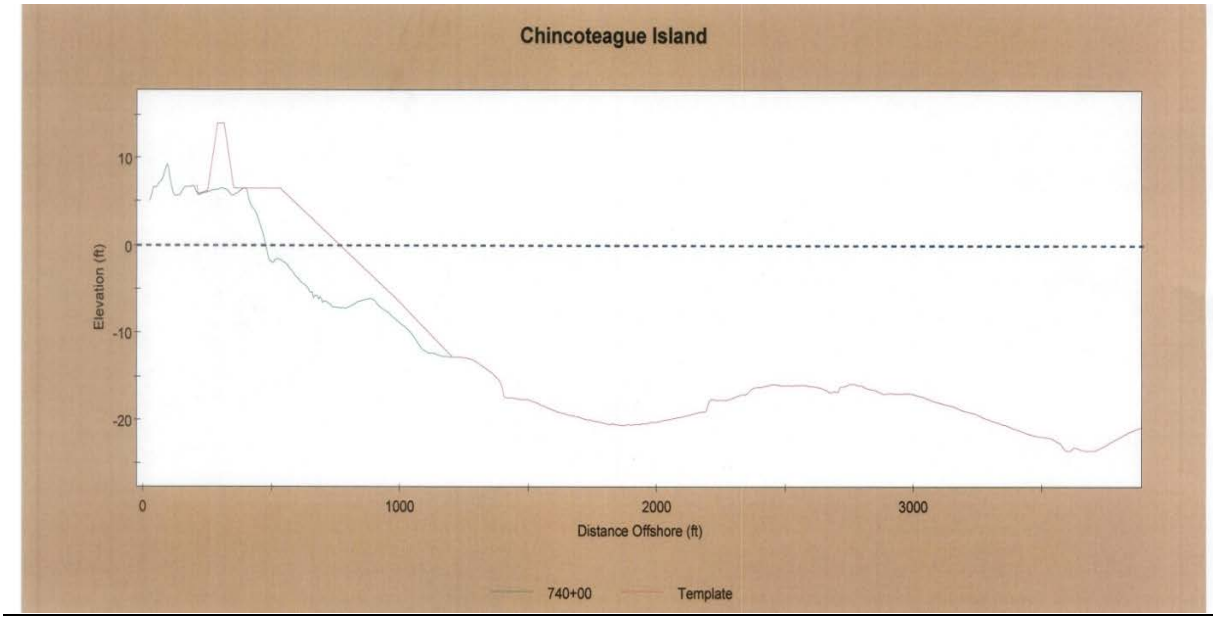
A recent (2012) project similar to a beachfill at Chincoteague includes the Wallops Island Shoreline Damage Reduction project with an initial cost of $35M and a project length of 3.6 miles. Other similar projects within the Norfolk District include Virginia Beach, Sandbridge and Hampton Storm Damage Reduction Projects.

Assumptions:

- Natural beach berm elevation = 6.0 ft. NAVD ‘88
- Project length = 1.5 miles
- Dune height = 14 ft. NAVD ‘88
- Dune Crest width = 25 ft.
- Foreshore slope 20:1
- Borrow material is beach compatible i.e. 0.29 mm or greater
- Profile template =160 CY/LF
- Total initial fill required = 1.5 MCY
- Dredging losses = 20%

Project Limits

Beach-fill Template



Cost Opinions:

Initial Fill					
Hopper Dredging from offshore shoals					
	Mob				$2,750,000
	Dredge	1,500,000 CY	@	$11.50 /CY	$17,250,000
	Standby Cost				$100,000
	ST				$20,100,000
	Contingencies	10%			$2,010,000
	Total Construction Cost				$22,110,000
	S&A	5%			$1,105,500
	Total Construction plus S&A Cost				$23,215,500
	PED cost	5%			$1,105,500
	TOTAL PROJECT COST				$24,321,000
Renourishment cycle (3 to 7 years)					
	Mob				$2,750,000
	Dredge	300,000 CY	@	$11.50 /CY	$3,450,000
	Standby Cost				$100,000
	ST				$6,300,000
	Contingencies	20%			$1,260,000
	Total Construction Cost				$7,560,000
	S&A	5%			$378,000
	Total Construction plus S&A Cost				$7,938,000
	PED cost	5%			$378,000
	TOTAL PROJECT COST				$8,316,000

- Wetland Mitigation Cost not included.