FIRE ISLAND INLET TO MORICHES INLET

FIRE ISLAND STABILIZATION PROJECT

TECHNICAL SUPPORT DOCUMENT

EVALUATION OF A STABILIZATION PLAN FOR STORM DAMAGE REDUCTION

COST APPENDIX

U.S. Army Corps of Engineers

June 2014

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1.0 INTRODUCTION

This appendix provides the detailed cost estimates for the Fire Island Stabilization Project. The Project consists of beachfill along Fire Island to reinforce the existing dune and berm system and the acquisition and relocation of ocean front structures.

The construction includes beachfill at Robert Moses State Park, Fire Island Lighthouse Tract, all of the communities outside of Federal Tracts, and Smith Point County Park. Beachfill is not included in any Major Federal Tracts, except Fire Island Lighthouse which was requested by the National Park Service to protect the Lighthouse. The beachfill sand will be obtained from offshore borrow areas at the western and eastern ends of the project area.

As part of construction a total of 41 ocean front structures require acquisition and 6 ocean front structures require relocation. In addition the Ocean Beach water supply requires relocation. The majority of the acquisitions are in either Ocean Bay Park (19) or Davis Park (19). The other three acquisitions are located in Dunewood (2) and Robbins Rest (1). The proposed relocations are located in Davis Park (3), Fire Island Pines (2), and Saltaire (1).

In addition to the acquisition and relocation of ocean front structures described above, real estate easements are required for construction.

The following sections provide a summary of the construction costs by code of account, abbreviated risk analysis, construction schedule, and fully funded and cost apportionment. Additional cost-backup is provided in Attachment A and B, which include the abbreviated risk analysis and M2 summary.

2.0 ACCOUNT SUMMARY

2.1 Basis for Estimates

Cost estimates were developed at a October 2013 price level for labor, material, and equipment. One estimate was created for the preferred plan, the Middle Updated (MIDU) baseline. The beach fill material quantities for the Selected Plan have been developed from the detailed plans shown in the Technical Support Document.

2.2 Work Breakdown Structure

The detailed estimate was compiled using MCACES MII ver. 4.1, and patterned after the Civil Works Template as a model. The estimate makes use of five reporting levels available in the following format:

- Level 1 – Construction Element: One of two major account codes used to estimate the total project cost.

- Level 2 – Sub Element / Segment: An individual segment of construction activity comprising one or more categories of work or features (cost account).

- Level 3 – Feature: A subcomponent of a major type of work (cost account).

- Levels 4 through 5 – Sub Feature, Bid Item, Assembly: Increasingly detailed levels of descriptions, assembly, and estimating dependent on the information and design level developed for the Feasibility Report.

2.3 Project Component Details and Associated Basis of Costs

Labor costs reflect Davis Bacon labor rates for heavy dredging work in New York (General Decision No. NY130001). Equipment costs are derived from the MII 2011 Equipment Library, Region 01. Other costs such as sales tax, labor adjustment factor, freight and other local area factors are derived from the USACE publication EP 1110-1-8, Vol. 1.

Code of Account 01 – Lands and Damages

The Federal Government is required to acquire all Lands, Easements, Rights-of-way, and Relocations (LERR) that are necessary for construction of the Stabilization Project. Additional detail is provided in the Real Estate Plan, attached as Appendix G of the FIMI HSLRR.

The LERR requirements for the construction of the Stabilization Project require the acquisition of easements and rights of entry on 691 properties. The easements include permanent construction easements to place beach fill, temporary easements for construction staging areas, rights of entry to access properties during construction, and an access easement 25-feet landward of the landward toe of the dune. The project will also require fee acquisition of 41 properties and 6 relocations. The permanent easement costs for the 411 properties are currently estimated at $5,000,000 pending final Appraisal Estimate. The temporary construction easements and rights of entry for 691 properties, relocation administration for 6 properties, and fee acquisitions for 41 properties are estimated at $1,687,400. A ten (10) percent contingency has been added to this cost.

In addition to the easement costs, the purchase of 41 properties will be required for the construction of the Stabilization Project. The estimated real estate purchase cost for the 41 properties is $62,131,101. A 10% contingency has been included as part of the real estate purchase cost. Damage cost to 17 pools and decks are estimated at $285,000. Relocation benefits/moving expenses (47 properties) is approximately $235,000

The total estimated cost for the LERR requirements for construction of the Stabilization Project is $64,820,316.

Code of Account 02 – Relocations

The relocation of six (6) houses will be performed in conjunction with the beach fill project and associated construction work. On-site field inspections, geotechnical investigation, and structural foundation requirements were not performed. Estimated quantities were based on aerial photographs and local tax maps. The cost to relocate six houses is estimated at $1,001,347. The relocation benefits/moving expenses is estimated at $235,000

Additionally, the relocation and reconstruction of the Ocean Beach well complex is required. The estimated construction cost for the Ocean Beach Well Complex is $2,600,000.

Code of Account 17 – Beach Replenishment

Beach fill placement quantities are based on Post-Sandy beach profile surveys. All borrow dredging costs were estimated by USACE using the Corps of Engineers Dredge Estimating Programs (CEDEP) (Attachment C). Labor rates and overhead costs were adjusted to reflect the Davis Bacon labor rates for heavy dredging work in New York (General Decision No. NY130001). The costs were divided into thirteen sub-reaches, stretching from Fire Island Inlet to Moriches Inlet. Mobilization/Demobilization costs are per contract and were estimated based on recent beach nourishment costs for other projects in the region.

In addition to the beach replenishment work, the dune at Great Gun and the area of New Made will need some construction work. Great Gunn dune will be reconfigured to promote ephemeral pools, and the New Made dike will be regraded to existing substrate where 2 ft of clean fill will be placed on top of it. This will be done to promote foraging/nesting habitats.

CEDEP incorporates influencing factors such as hopper capacity and safe load, area of borrow site, distance to borrow site, and current fuel, labor, and equipment costs, etc. Recent dredging experience with similar beach fill projects in the NY District, pumping distances, production capacities and wave conditions were considered in selecting a generic medium hopper dredge to accomplish the beach fill work. Losses were based on historical beach nourishment project information.

The beach fill material will be dredged from Borrow Area's 2C, 4C, and 5B. Approximately 7 million cubic yards of fill material will be placed over 13 separate sub-reaches in three separate contracts. Mobilization and demobilization costs for each contract have been shared between design reaches. The mobilization cost is distributed proportionately to each design reach based on the volume of fill within each design reach. The hopper dredge will excavate material from the borrow areas, transport the material to the required design reach and pump the sand fill to shore through a pipeline, using a booster pump if required. Onshore, dozers will be used to shape the sand fill to the required template and also to move shore pipe along the design reach. The estimated costs for the three beach replenishment contracts, including all associated shore work is approximately $87.8M.

Code of Account 30 – Engineering & Design

An estimated cost was developed for all activities related with the engineering and design effort using percentages provided by the USACE. The engineering and design cost includes project planning, environmental compliance, preparation of Plans and Specifications, as well as pre-construction monitoring and engineering support through project construction. The monitoring costs include plover monitoring, beach physical monitoring, borrow area ecological monitoring, and borrow area physical monitoring. These monitoring efforts will be conducted over a ten year period.

Engineering and design fees were calculated to be 1.52% of total construction cost based on a weighted average of project components from previous projects with similar components.

The coastal and environmental monitoring and adaptive management costs are required for the 10 year project life.

The operation maintenance, repair, replacement & rehabilitation costs are for the 10 year project life.

Code of Account 31 – Construction Management

A cost was developed for all construction management (supervision and administration) activities from pre-award requirements through final contract closeout. Construction management fees were calculated to be 7.37% based on a weighted average of project components from previous projects with similar components.

2.4 First Costs

First costs include charges arising from the acquisition or construction of each individual component, as well as the cost of easements, planning and environmental compliance, engineering and design, monitoring, engineering during construction, construction management (supervision & administration), and contingencies.

Unit Costs

Unit costs for material and equipment were developed and based on the MII English Cost Book 2012 related with MCACES; actual costs and productions on projects and construction of a similar nature; current Davis Bacon labor rates for heavy dredging work; and cost estimating judgment based on experience.

Based on historical project cost data, certain items of costs such as mobilization and demobilization, survey vessel, mooring barge, and tender were assigned a daily cost due to the multiplicity of activities required to accomplish such items.

Labor Rates

The labor rates including fringe benefits for the CEDEP and MCACES estimates were taken from the Davis Bacon labor rates for heavy dredging work in New York (General Decision No. NY130001).

Lands and Damages

In order to construct the beach fill project, the Federal Government will be required to provide lands, easements and rights-of-way. The extent and value of the lands required for project implementation are provided in the Real Estate Plan Appendix G.

Contingencies

A risk based contingency was developed for the Stabilization Project with an Abbreviated Risk Analysis (ARA). The ARA was performed with the involvement of the PDT and cost engineer. The contingency factor is used to identify the uncertainty associated with the work or task, forecast the risk/cost relationship, and assign a value that would limit the cost risk to an acceptable level. Contingency factors were assigned to the various project/construction elements, real estate, engineering and design, and construction management based on the level of detail in the degree of confidence. Based on the abbreviated risk analysis performed by the project development team, the following contingencies were assigned to the various project construction elements:

- 01 Land & Damages – 10% (contingencies included in contract cost)
- 02 Relocations – 25.46%
- 17 Beach Replenishment – 19.2%
- Overall Used Contingency – 19.44%
- 30 Engineering & Design – 12.97%
- 31 Construction Management – 12.6%

Summary

Detail project first costs for the selected plan are presented in Table 1.

Table 1: Project First Costs

Account Code	Description	Quantity	UOM	Amount	% Contingency	Contingency Amount	Total
2	02 - RELOCATIONS						
	Relocations	1	LS	$ 3,601,352	19.44%	$ 700,103	$ 4,301,455
	TOTAL RELOCATIONS			$ 3,601,352		$ 700,103	$ 4,301,455
17	17 - BEACH REPLENISHMENT						
	Hydraulic Beach Fill	1	LS	$ 87,731,216	19.44%	$ 17,054,948	$ 104,786,164
	TOTAL BEACH REPLENISHMENT	1	LS	$ 87,731,216		$17,054,948	$ 104,786,164
1	01 - LAND & DAMAGES	1	LS	$ 64,820,316	10.00%	$ 6,482,032	$ 71,302,348
30	30 - PLANNING, ENG., DESIGN						
	Planning, End, Design	1	LS	$ 1,388,000	12.97%	$ 180,024	$ 1,568,024
	Coastal & Environmental Management	1	LS	$ 15,500,000	12.97%	$ 2,010,350	$ 17,510,350
	OMRR&R	1	LS	$ 100,000	12.97%	$ 12,970	$ 112,970
	TOTAL PLANNING, ENG., DESIGN	1	LS	$ 16,988,000		$ 2,203,344	$ 19,191,344
31	31 - CONSTRUCTION MANAGEMENT	1	LS	$ 6,731,000	12.60%	$ 848,106	$ 7,579,106
	TOTAL PROJECT FIRST COST			$ 179,871,884		$27,288,532	$207,160,416

3.0 CONSTRUCTION SCHEDULE

The construction and pre-construction sequence and time schedule of the Stabilization Project is dependent on the timeliness of this report's approval, the foregoing construction procedures, and the ability of local interests to implement items of local cooperation. These items of local cooperation are principally the furnishing of offshore borrow easements by the State of New York as well as required shoreline real estate easements, and structure acquisition and relocation.

Due to the anticipated delay in obtaining the necessary real estate requirements in the communities, the construction will be split into three contracts:

- Contract 1: Smith Point County Park (MB-1A, MB-1B, MB-2A);
- Contract 2: Lonelyville to Robert Moses State Park (GSB-1A, GSB-1B, GSB-2A);
- Contract 3: Davis Park to Town Beach (GSB-2B, GSB-2C, GSB-2D, GSB-3A, GSB-3C, GSB-3E, GSB-3G).

The proposed construction schedule is as follows:

- Contract 1: September 2014 to April 2015
- Contract 2: November 2014 to March 2015
- Contract 3: December 2014 to Aug 2015

4.0 FULLY FUNDED & COST SHARING

The Total Project Cost Summary is provided in Table 2. The estimated total project cost is $223,324,000. The estimate costs for each contract are escalated to the midpoint of construction (described above).

The Fire Island Stabilization Project has 100% Federal funding. Therefore, the Federal cost apportionment is $223,324,000. The non-Federal partner is responsible for 0% of the total project cost. Administrative costs for real estate acquisition will be 100% non-Federal

Table 2: Total Project Costs Summary

PROJECT: Fire Island Stabilization Project — DISTRICT: NAN New York — PREPARED: 5/28/2014
POC: CHIEF, COST ENGINEERING, Mukesh Kumar
LOCATION: Fire Island Inlet to Moriches Inlet, NY
This Estimate reflects the scope and schedule in report; TSD Evaluation of an Emergency Plan for Storm Damage Reduction

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
						Program Year (Budget EC): 2014								
						Effective Price Level Date: 1 OCT 13								
WBS NUMBER A	Civil Works Feature & Sub-Feature Description B	COST ($K) C	CNTG ($K) D	CNTG (%) E	TOTAL ($K) F	ESC (%) G	COST ($K) H	CNTG ($K) I	TOTAL ($K) J	Spent Thru: 28-May-14 ($K) K	L	COST ($K) M	CNTG ($K) N	FULL ($K) O
02	RELOCATIONS	$3,601	$700	19.44%	$4,301	1.0%	$3,637	$707	$4,344	$0		$3,722	$723	$4,445
17	BEACH REPLENISHMENT	$87,731	$17,055	19.44%	$104,786	1.0%	$88,606	$17,225	$105,831	$0		$90,485	$17,590	$108,076
	CONSTRUCTION ESTIMATE TOTALS:	$91,333	$17,755		$109,088	1.0%	$92,243	$17,932	$110,175	$0		$94,207	$18,314	$112,521
01	LANDS AND DAMAGES	$64,820	$6,482	10%	$71,302	1.0%	$65,467	$6,547	$72,014	$0		$66,668	$6,667	$73,334
30	PLANNING, ENGINEERING & DESIGN	$1,388	$180	12.97%	$1,568	1.0%	$1,402	$182	$1,584	$0		$1,500	$195	$1,694
	Coastal & Environmental	$15,500	$2,010	12.97%	$17,510 #	1.0%	$15,654	$2,030	$17,685			$24,588	$3,189	$27,778
	OMRR&R	$100	$13	12.97%	$113	1.0%	$101	$13	$114			$159	$21	$179
31	CONSTRUCTION MANAGEMENT	$6,731	$848	12.60%	$7,579	0.9%	$6,794	$856	$7,650	$0		$6,943	$875	$7,818
	PROJECT COST TOTALS:	$179,872	$27,289	15.17%	$207,160		$181,662	$27,560	$209,222	$0		$194,065	$29,260	$223,324

_____ CHIEF, COST ENGINEERING, Mukesh Kumar
_____ PROJECT MANAGER, Frank Verga
_____ CHIEF, REAL ESTATE, Noreen Dresser
_____ CHIEF, PLANNING, Frank Santomauro
_____ CHIEF, ENGINEERING, Arthur Connolly
_____ CHIEF, OPERATIONS, Thomas Creamer
_____ CHIEF, CONSTRUCTION, Gerald Byrne
_____ CHIEF, CONTRACTING, Francis Cashman
_____ CHIEF, PM-PB, xxxx
_____ CHIEF, DPM, Joseph Seebode

ESTIMATED FEDERAL COST:	100%	$223,324
ESTIMATED NON-FEDERAL COST:	0%	$0
ESTIMATED TOTAL PROJECT COST:		$223,324

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		Estimate Prepared: 5/28/2014				Program Year (Budget EC): 2014									
		Effective Price Level: 28-May-2014				Effective Price Level Date: 1 OCT 13									
		RISK BASED													
WBS NUMBER A	Civil Works Feature & Sub-Feature Description B	COST ($K) C	CNTG ($K) D	CNTG (%) E	TOTAL ($K) F	ESC (%) G	COST ($K) H	CNTG ($K) I	TOTAL ($K) J	Mid-Point Date P	INFLATED (%) L	COST ($K) M	CNTG ($K) N	FULL ($K) O	
	PHASE 1 or CONTRACT 1														
17	BEACH REPLENISHMENT	$36,095	$7,017	19.44%	$43,112	1.0%	$36,455	$7,087	$43,542	2015Q1	1.8%	$37,124	$7,217	$44,341	
							$0								
	CONSTRUCTION ESTIMATE TOTALS:	$36,095	$7,017	19.44%	$43,112		$36,455	$7,087	$43,542			$37,124	$7,217	$44,341	
01	LANDS AND DAMAGES	$22	$2	10%	$25	1.0%	$23	$2	$25	2014Q4	1.3%	$23	$2	$25	
30	PLANNING, ENGINEERING & DESIGN														
0.001	Project Management	$36	$5	12.97%	$41	1.0%	$36	$5	$41	2014Q4	2.6%	$37	$5	$42	
0.0006	Planning & Environmental Compliance	$22	$3	12.97%	$25	1.0%	$22	$3	$25	2014Q4	2.6%	$23	$3	$26	
0.01	Engineering & Design	$361	$47	12.97%	$408	1.0%	$365	$47	$412	2014Q4	2.6%	$374	$49	$423	
0.0006	Reviews, ATRs, IEPRs, VE	$22	$3	12.97%	$25	1.0%	$22	$3	$25	2014Q4	2.6%	$23	$3	$26	
0	risks)	$0	$0	12.97%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0	
0.001	Contracting & Reprographics	$36	$5	12.97%	$41	1.0%	$36	$5	$41	2014Q4	2.6%	$37	$5	$42	
0.001	Engineering During Construction	$36	$5	12.97%	$41	1.0%	$36	$5	$41	2015Q1	3.7%	$38	$5	$43	
0.001	Planning During Construction	$36	$5	12.97%	$41	1.0%	$36	$5	$41	2025Q1	57.1%	$57	$7	$65	
0	Project Operations	$0	$0	12.97%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0	
31	CONSTRUCTION MANAGEMENT														
0.0737	Construction Management	$2,660	$335	12.60%	$2,995	0.9%	$2,685	$338	$3,023	2015Q1	1.9%	$2,736	$345	$3,081	
0	Project Operation:	$0	$0	12.60%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0	
0	Project Management	$0	$0	12.60%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0	
	CONTRACT COST TOTALS:	$39,327	$7,426		$46,752		$39,717	$7,499	$47,217			$40,472	$7,640	$48,113	

**** CONTRACT COST SUMMARY ****

PROJECT: Fire Island Stabilization Project
LOCATION: Fire Island Inlet to Moriches Inlet, NY
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DISTRICT: NAN New York
POC: CHIEF, COST ENGINEERING, Mukesh Kumar
PREPARED: 5/28/2014

Civil Works Work Breakdown Structure		ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
		Estimate Prepared: 5/28/2014 Effective Price Level: 28-May-2014				Program Year (Budget EC): 2014 Effective Price Level Date: 1 OCT 13								
WBS NUMBER	Civil Works Feature & Sub-Feature Description	COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	B	C	D	E	F	G	H	I	J	P	L	M	N	O
	PHASE 2 or CONTRACT 2													
02	RELOCATIONS	$167	$32	19.44%	$199	1.0%	$169	$33	$201	2015Q2	2.3%	$172	$34	$206
17	BEACH REPLENISHMENT	$21,590	$4,197	19.44%	$25,788	1.0%	$21,806 $0	$4,239	$26,045	2015Q2	2.3%	$22,312	$4,337	$26,649
	CONSTRUCTION ESTIMATE TOTALS:	$21,757	$4,230	19.44%	**$25,987**		$21,974	$4,272	$26,246			$22,484	$4,371	$26,855
01	LANDS AND DAMAGES	$6,706	$671	10%	$7,377	1.0%	$6,773	$677	$7,451	2015Q1	1.8%	$6,897	$690	$7,587
30	PLANNING, ENGINEERING & DESIGN													
0.001	Project Management	$22	$3	12.97%	$25	1.0%	$22	$3	$25	2015Q1	3.7%	$23	$3	$26
0.0006	Planning & Environmental Compliance	$13	$2	12.97%	$15	1.0%	$13	$2	$15	2015Q1	3.7%	$14	$2	$15
0.01	Engineering & Design	$218	$28	12.97%	$246	1.0%	$220	$29	$249	2015Q1	3.7%	$228	$30	$258
0.0006	Reviews, ATRs, IEPRs, VE	$13	$2	12.97%	$15	1.0%	$13	$2	$15	2015Q1	3.7%	$14	$2	$15
0	risks)	$0	$0	12.97%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
0.001	Contracting & Reprographics	$22	$3	12.97%	$25	1.0%	$22	$3	$25	2015Q1	3.7%	$23	$3	$26
0.001	Engineering During Construction	$22	$3	12.97%	$25	1.0%	$22	$3	$25	2015Q2	4.7%	$23	$3	$26
0.001	Planning During Construction	$22	$3	12.97%	$25	1.0%	$22	$3	$25	2025Q2	60.6%	$36	$5	$40
0	Project Operations	$0	$0	12.97%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
0.0737	Construction Management	$1,604	$202	12.60%	$1,806	0.9%	$1,619	$204	$1,823	2015Q2	2.4%	$1,658	$209	$1,867
0	Project Operation:	$0	$0	12.60%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
0	Project Management	$0	$0	12.60%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
	CONTRACT COST TOTALS:	$30,400	$5,145		**$35,545**		$30,702	$5,197	$35,899			$31,400	$5,316	**$36,716**

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A	B	C	D	E	F	G	H	I	J	P	L	M	N	O
	PHASE 3 or CONTRACT 3													
02	RELOCATIONS	$3,434	$668	19.44%	$4,102	1.0%	$3,469	$674	$4,143	2015Q2	2.3%	$3,549	$690	$4,239
17	BEACH REPLENISHMENT	$30,045	$5,841	19.44%	$35,886	1.0%	$30,345 $0	$5,899	$36,244	2015Q2	2.3%	$31,049	$6,036	$37,085
	CONSTRUCTION ESTIMATE TOTALS:	$33,480	$6,508	19.44%	**$39,988**		$33,814	$6,573	$40,387			$34,598	$6,726	$41,324
01	LANDS AND DAMAGES	$58,092	$5,809	10%	$63,901	1.0%	$58,671	$5,867	$64,538	2015Q1	1.8%	$59,747	$5,975	$65,722
30	PLANNING, ENGINEERING & DESIGN													
0.001	Project Management	$33	$4	12.97%	$37	1.0%	$33	$4	$38	2015Q1	3.7%	$35	$4	$39
0.0006	Planning & Environmental Compliance	$20	$3	12.97%	$23	1.0%	$20	$3	$23	2015Q1	3.7%	$21	$3	$24
0.01	Engineering & Design	$335	$43	12.97%	$378	1.0%	$338	$44	$382	2015Q1	3.7%	$351	$45	$396
0.0006	Reviews, ATRs, IEPRs, VE	$20	$3	12.97%	$23	1.0%	$20	$3	$23	2015Q1	3.7%	$21	$3	$24
0	risks)	$0	$0	12.97%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
0.001	Contracting & Reprographics	$33	$4	12.97%	$37	1.0%	$33	$4	$38	2015Q1	3.7%	$35	$4	$39
0.001	Engineering During Construction	$33	$4	12.97%	$37	1.0%	$33	$4	$38	2015Q2	4.7%	$35	$5	$39
0.001	Planning During Construction	$33	$4	12.97%	$37	1.0%	$33	$4	$38	2025Q2	60.6%	$54	$7	$60
0	Project Operations	$0	$0	12.97%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
31	CONSTRUCTION MANAGEMENT													
0.0737	Construction Management	$2,467	$311	12.60%	$2,778	0.9%	$2,490	$314	$2,804	2015Q2	2.4%	$2,550	$321	$2,871
0	Project Operation:	$0	$0	12.60%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
0	Project Management	$0	$0	12.60%	$0	0.0%	$0	$0	$0	0-Jan-1900	0.0%	$0	$0	$0
	CONTRACT COST TOTALS:	$94,545	$12,694		**$107,240**		$95,487	$12,821	$108,308			$97,445	$13,093	**$110,539**

****** CONTRACT COST SUMMARY ******

PROJECT: Fire Island Stabilization Project
LOCATION: Fire Island Inlet to Moriches Inlet, NY
This Estimate reflects the scope and schedule in report; TSD Evaluation of an Emergency Plan for Storm Damage Reduction

DISTRICT: NAN New York PREPARED: 5/28/2014
POC: CHIEF, COST ENGINEERING, Mukesh Kumar

Civil Works Work Breakdown Structure			ESTIMATED COST				PROJECT FIRST COST (Constant Dollar Basis)				TOTAL PROJECT COST (FULLY FUNDED)				
			Estimate Prepared: 5/28/2014 Effective Price Level: 28-May-2014				Program Year (Budget EC): 2014 Effective Price Level Date: 1 OCT 13								
WBS NUMBER	Civil Works Feature & Sub-Feature Description		COST ($K)	CNTG ($K)	CNTG (%)	TOTAL ($K)	ESC (%)	COST ($K)	CNTG ($K)	TOTAL ($K)	Mid-Point Date	INFLATED (%)	COST ($K)	CNTG ($K)	FULL ($K)
A	B		C	D	E	F	G	H	I	J	P	L	M	N	O
	Monitoring														
30	Coastal & Environmental	Year 1	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 1	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 2	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 2	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 3	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 3	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 4	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 4	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 5	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 5	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 6	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 6	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 7	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 7	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 8	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 8	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 9	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 9	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
30	Coastal & Environmental	Year 10	$1,550	$201	12.97%	$1,751	1.0%	$1,565	$203	$1,768	2024Q4	57.1%	$2,459	$319	$2,778
30	OMRR&R	Year 10	$10	$1	12.97%	$11	1.0%	$10	$1	$11	2024Q4	57.1%	$16	$2	$18
	CONTRACT COST TOTALS:		$15,600	$2,023		**$17,623**		$15,755	$2,043	$17,799			$24,747	$3,210	**$27,957**

Table 3: Abbreviated Risk Analysis

Abbreviated Risk Analysis

Project (less than $40M): **FIMI MIDU**
Project Development Stage: **Feasibility (Alternatives)**
Risk Category: **Moderate Risk: Typical Project or Possible Life Safety**

Total Construction Contract Cost = $ 91,332,568

	CWWBS	Feature of Work	Contract Cost		% Contingency	$ Contingency	Total
	01 LANDS AND DAMAGES	Real Estate	$ 64,820,316		10.00%	$ 6,482,032	$ 71,302,347.60
1	02 RELOCATIONS	Properties moved	$ 3,601,352		25.46%	$ 916,782	$ 4,518,134.02
2	17 BEACH REPLENISHMENT	Beach Replenishment	$ 87,731,216		19.20%	$ 16,842,162	$ 104,573,377.89
3					0.00%	$ -	$ -
4					0.00%	$ -	$ -
5					0.00%	$ -	$ -
6					0.00%	$ -	$ -
7					0.00%	$ -	$ -
8					0.00%	$ -	$ -
9					0.00%	$ -	$ -
10					0.00%	$ -	$ -
11					0.00%	$ -	$ -
12		Remaining Construction Items	$ -	0.0%	0.00%	$ -	$ -
13	30 PLANNING, ENGINEERING, AND DESIGN	Planning, Engineering, & Design	$ 16,988,000.00		12.97%	$ 2,203,222	$ 19,191,221.89
14	31 CONSTRUCTION MANAGEMENT	Construction Management	$ 6,731,000		12.60%	$ 847,988	$ 7,578,988.13

Totals					
Real Estate	$	64,820,316	10.00%	$	6,482,032	$	71,302,347.60
Total Construction Estimate	$	91,332,568	19.44%	$	17,758,944	$	109,091,512
Total Planning, Engineering & Design	$	16,988,000	12.97%	$	2,203,222	$	19,191,222
Total Construction Management	$	6,731,000	12.60%	$	847,988	$	7,578,988
Total	$	179,871,884		$	27,292,186	$	207,164,070