


**Design Package # (Colors correspond with map)**

	1	2	3	4
<b>Segment</b>	Segment 1A	Segment 4	Segment 1A	Segment 1A Segment 1B
<b>Station #</b>	N/A	N/A	HSC STA 138+369 TO 98+00	HSC 98+00 TO HSC 57+00
<b>Package Name</b>	Bolivar Roads to Redfish Reef Dollar Reef Oyster Mitigation	Boggy Bayou to Sims Bayou	Bolivar Roads to Redfish STA 138+369 TO HSC 98+00	Redfish to South Boaters Cut HSC 98+00 TO HSC 57+00
<b>Description</b>	<ul style="list-style-type: none"> <li>Traditional oyster pad (rock only) using 435,000 tons of crushed limestone</li> <li>No dredging activities</li> <li>Potential to bundle with Package 3</li> </ul>	Beltway 8 Site Preparation <ul style="list-style-type: none"> <li>Clearing &amp; grubbing and concrete removal (roadway and bunkers)</li> <li>Temporary access road development/construction</li> </ul> No dredging activities	<ul style="list-style-type: none"> <li>Widen the channel from 530 to 700 ft wide</li> <li>Hydraulic Pipeline Dredging 1.9 MCY</li> <li>Beneficial Use Placement for construction of               <ul style="list-style-type: none"> <li>» Long Bird Island</li> <li>» Evia Island II</li> </ul> </li> <li>Shore Protection 58,000 tons of rip rap</li> <li>Oyster Mitigation 22,000 tons of crushed limestone</li> <li>Relocate barge lanes</li> </ul>	Mechanical dredging to barge to 700 ft wide and relocate barge lanes material disposal offshore to Ocean Dredged Materials Disposal Site (ODMDS)
<b>Activities</b>	<ul style="list-style-type: none"> <li>Oyster mitigation</li> </ul>	<ul style="list-style-type: none"> <li>Site preparation of dredged material placement area</li> </ul>	<ul style="list-style-type: none"> <li>Channel widening (hydraulic dredging)</li> <li>Shoreline protection</li> <li>Bird island construction</li> <li>Oyster mitigation</li> </ul>	<ul style="list-style-type: none"> <li>Channel widening (mechanical dredging)</li> <li>Relocation of barge lanes</li> </ul>
<b>Initial Channel Width</b>	N/A	N/A	530 ft	530 ft
<b>New Channel Width</b>	N/A	N/A	700 ft and 153-155-ft barge lanes	700 ft and 12-ft barge lanes
<b>Initial Channel Depth</b>	N/A	N/A	-46.0' MLLW	-46.0' MLLW
<b>New Channel Depth</b>	N/A	N/A	N/A	N/A
<b>Lead Construction</b>	USACE	PHA	PHA	PHA
<b>Type/Volume Dredged Material</b>	N/A	N/A	1.9 MCY of dredged material	5.4 MCY
<b>Shoreline Protection AND Bulkhead Construction</b>	N/A	N/A	~30,000 tons of material to construct rip rap	N/A
<b>Ocean Dredged Materials Disposal Site (ODMDS) OR DMPAs OR Placement Areas</b>	No dredging activities	No dredging activities	<ul style="list-style-type: none"> <li>Beneficial Use Placement for construction of               <ul style="list-style-type: none"> <li>» Long Bird Island</li> <li>» Evia Island</li> </ul> </li> </ul>	5.4 MCY placed in ODMDS
<b>Flare Expansion</b>	N/A	N/A	N/A	N/A
<b>Utilities Relocation</b>	N/A	N/A	N/A	N/A
<b>Marsh Construction</b>	N/A	N/A	N/A	N/A
<b>Bird Island Construction</b>	N/A	N/A	Long Bird Island Evia Bird Island II	N/A
<b>Oyster Mitigation</b>	Construction of 67 acres of oyster mitigation pads using 435,000 tons of crushed limestone	N/A	See Package 1 description regarding Oyster Mitigation	N/A

**Abbreviations and Acronyms**

BCC - Barbours Cut Channel  
 BSC - Bayport Ship Channel  
 BWY 8 - Beltway 8  
 CY - Cubic yards  
 DMPA - Dredged Material Placement Areas

HSC - Houston Ship Channel  
 MCY - million cubic yards  
 MLLW - Mean Lower Low Water  
 NW - Northwest  
 ODMDS - Ocean Dredged Material Disposal Site

PA - Placement Area  
 PHA - Port of Houston Authority  
 STA - Station  
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 USACE - U.S. Army Corps of Engineers


**Design Package # (Colors correspond with map)**

	5	6
<b>Segment</b>	Segment 1B Segment 2	Segment 1C
<b>Station #</b>	HSC STA 57+00 TO HSC STA 20+000 & BSC STA 24+187.21 TO BSC STA 42+07.8	HSC STA 20+000 TO HSC STA -0+003.94
<b>Package Name</b>	South Boaters Cut to Bayport (Beacon 76) HSC STA 20+000 TO HSC STA 28+605 & BSC STA 24+187.21 TO BSC STA 42+07.8	Bayport (Beacon 76) to Morgans Point HSC STA 20+000 TO HSC STA 27+48.18
<b>Description</b>	<ul style="list-style-type: none"> <li>Widen the HSC from 530 to 700 ft wide</li> <li>Widen the BSC from 350/400 to 455 ft wide</li> <li>Hydraulic Pipeline Dredging 9.6 MCY (6.9 MCY HSC, 2.7 MCY BSC)</li> <li>Beneficial Use Placement for construction of               <ul style="list-style-type: none"> <li>» 240 acre Marsh/Bird Island Complex</li> <li>» 14 oyster mitigation pads</li> </ul> </li> <li>Shore Protection 147,000 tons rip rap</li> <li>Oyster bed cap 418,000 tons of crushed limestone</li> <li>Hydraulic dredge to 700-ft wide and relocate barge lanes in HSC and dredge BSC up to 455-ft wide</li> <li>Use material to construct bird island/marsh complex.</li> <li>Use material to construct oyster mitigation beds.</li> </ul>	<ul style="list-style-type: none"> <li>Hydraulic dredge to 700-ft wide and relocate barge lanes</li> <li>Use material to construct Marsh 11</li> <li>Contract 4 – Bayport to Barbours Cut HSC STA 20+000 to STA -0+003.94 (Segment 1C)</li> <li>Widen the HSC from 530 to 700 ft</li> <li>Hydraulic Pipeline Dredging 4.0 MCY</li> <li>Beneficial Use Placement for Construction of               <ul style="list-style-type: none"> <li>» Atkinson Island Marsh Cell M11</li> <li>» Repairs to existing Marsh Dikes M789 and M10</li> </ul> </li> <li>Shore Protection               <ul style="list-style-type: none"> <li>» 180,000 tons rip rap</li> </ul> </li> </ul>
<b>Activities</b>	<ul style="list-style-type: none"> <li>Channel widening (hydraulic dredging)</li> <li>Shoreline protection</li> <li>Marsh/Island construction</li> <li>Oyster mitigation</li> </ul>	<ul style="list-style-type: none"> <li>Channel widening (hydraulic dredging)</li> <li>Construction of bulkhead</li> <li>Shoreline protection</li> <li>Marsh construction</li> </ul>
<b>Initial Channel Width</b>	HSC - 530 ft BSC - 350 to 400 ft	530 ft
<b>New Channel Width</b>	HSC - 700 ft and 12-ft barge lanes BSC - 455 ft	700 ft and 12-ft barge lanes
<b>Initial Channel Depth</b>	-46' & -46.5' MLLW	-46.5 MLLW
<b>New Channel Depth</b>	N/A	N/A
<b>Lead Construction</b>	PHA	PHA
<b>Type/Volume Dredged Material</b>	9.6 MCY (6.9 MCY HSC & 2.7 BSC) of dredged material	~4.0 MCY
<b>Shoreline Protection AND Bulkhead Construction</b>	~95,000 tons of material to construct rip rap	~126,000 total tons of rip rap and concrete cap material for Morgans Point
<b>Ocean Dredged Materials Disposal Site (ODMDS) OR DMPAs OR Placement Areas</b>	Beneficial Use Placement for construction of <ul style="list-style-type: none"> <li>240 acre Marsh/Bird Island Complex</li> <li>14 oyster mitigation pads</li> </ul>	Beneficial Use Placement for Construction of <ul style="list-style-type: none"> <li>Atkinson Island Marsh Cell M11</li> <li>Repairs to existing Marsh Dikes M789 and M10</li> </ul>
<b>Flare Expansion</b>	N/A	N/A
<b>Utilities Relocation</b>	N/A	N/A
<b>Marsh Construction</b>		Construction of Marsh Cell 11 (Atkinson Island Marsh) Repairs to existing Marsh Dikes
<b>Bird Island Construction</b>	Beneficial use placement for construction of 240-acre marsh and bird Island complex	N/A
<b>Oyster Mitigation</b>	Construction of 291 AC mitigation pads using 327,000 tons of crushed limestone placed as a veneer on a raised bed constructed with dredged material	N/A

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**Design Package # (Colors correspond with map)**

	7	8	9
<b>Segment</b>	Segment 3	Segment 4	Segment 4
<b>Station #</b>	BCC 10+00 TO BCC 67+10.85	HSC STA 684+03.19 TO 930+00	HSC STA 684+03.19 TO 930+00
<b>Package Name</b>	Barbours Cut Ship Channel BCC 10+00 TO BCC 67+10.85	Boggy Bayou to Hunting Bayou Turning Basin	Boggy Bayou to Hunting Bayou Turning Basin
<b>Description</b>	<p>Hydraulic dredge BCC up to 455 ft wide and place in newly constructed Marsh Cell 12</p> <ul style="list-style-type: none"> <li>Widening channel to 455 ft from STA 25+00 to 67+11 at a depth of -46.5 ft MLLW (required depth -49.5 ft MLLW)</li> <li>Expanding North Flare (15+28 to STA 23+87) and South Flare (STA 8+77 to STA 31+98) to accommodate a 1,800 ft diameter turning basin.</li> <li>Length of Dredge – 5,800 ft               <ul style="list-style-type: none"> <li>Volume of Dredge – 2.6 MCY</li> <li>Demolition of structures may be required.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Construct placement areas for one-time use at Beltway 8 and East Clinton 2.</li> </ul>	<ul style="list-style-type: none"> <li>Widening channel to 530 ft from STA 684+03 to 823+35.359 at -46.5 ft MLLW (required depth -49.5 ft MLLW)</li> <li>Deepening channel from -41.5 to -46.5 ft MLLW from STA 684+03.19 to 930+00</li> <li>Length of Dredge – 4.7 miles</li> <li>Volume of Dredge – 4.2 MCY (including maintenance material and an allowance for 1 year of shoaling)               <ul style="list-style-type: none"> <li>2 MCY to East Clinton 2 and 2.2 MCY to BWY 8 DMPAs</li> </ul> </li> <li>If needed, upgrade of docks by Private Owners outside scope.</li> </ul>
<b>Activities</b>	<ul style="list-style-type: none"> <li>Channel widening (hydraulic dredging)</li> <li>Flare expansion</li> <li>Marsh construction</li> <li>Demolition of existing structures (as needed)</li> </ul>	<ul style="list-style-type: none"> <li>Construction of dredged material placement area</li> </ul>	<ul style="list-style-type: none"> <li>Channel widening (hydraulic dredging)</li> <li>Channel deepening (hydraulic dredging)</li> </ul>
<b>Initial Channel Width</b>	300 ft	N/A	300 ft
<b>New Channel Width</b>	BCC - up to 455 ft wide	N/A	530 ft (STA 684+03 to 823+35.359)
<b>Initial Channel Depth</b>	-46.5 ft MLLW	N/A	-41.5 ft MLLW (STA 684+03.19 to 930+00)
<b>New Channel Depth</b>	-46.5 ft MLLW	N/A	-46.5 ft MLLW (STA 684+03.19 to 930+00)
<b>Lead Construction</b>	PHA	PHA	PHA
<b>Type/Volume Dredged Material</b>	3.1 MCY	N/A	4.2 MCY (over a length of 4.7 miles)
<b>Shoreline Protection AND Bulkhead Construction</b>	<ul style="list-style-type: none"> <li>Spilman Island Bulkhead               <ul style="list-style-type: none"> <li>3,400 linear foot sheet pile cutoff wall:</li> <li>1,700 linear foot cantilevered NZ 38 steel sheet piles, -65 ft tip elevation</li> <li>1,800 Cantilevered PAZ 48 / NZ 38 Combi-wall, -90 ft tip elevation</li> <li>Concrete pile cap</li> </ul> </li> </ul>	N/A	N/A
<b>Ocean Dredged Materials Disposal Site (ODMDS) OR DMPAs OR Placement Areas</b>	Placement of 3.1 MCY of material to construct Marsh Cell 12	East Clinton 2 (EC2) <ul style="list-style-type: none"> <li>DMPA Construction (180,000 CY)</li> <li>Capacity of 2 MCY</li> </ul> Beltway 8 (BW8) <ul style="list-style-type: none"> <li>DMPA Construction (190,000 CY)</li> <li>Capacity of 2.2 MCY</li> </ul>	<ul style="list-style-type: none"> <li>East Clinton 2 (EC2): 2 MCY</li> <li>Beltway 8 (BW8): 2.2 MCY</li> </ul>
<b>Flare Expansion</b>	Expanding North Flare (STA 15+28 to STA 23+87) and South Flare (STA 8+77 to STA 31+98) to accommodate a 1,800-ft diameter turning basin	N/A	N/A
<b>Utilities Relocation</b>	Minor utility accommodations in new wall	N/A	N/A
<b>Marsh Construction</b>	Construction of Marsh Cell 12	N/A	N/A
<b>Bird Island Construction</b>	N/A	N/A	N/A
<b>Oyster Mitigation</b>	N/A	N/A	N/A

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	10 (Future Work)	11 (Future Work)	12 (Future Work)
<b>Segment</b>	Segment 5	Segment 6	Segment 5 Segment 6
<b>Station #</b>	N/A	N/A	HSC STA 1110+77.54 TO 1266+48 AND MAIN TB STA 00+00 TO 30+95.06
<b>Package Name</b>	Sims to Turning Basin	Sims to Turning Basin	Sims to Turning Basin
<b>Description</b>	Site Preparation to raise dikes at Glendale PA to receive new work material from Segment 5	Site Preparation to raise dikes at Filterbed PA to receive new work material from Segment 6	HSC hydraulic new work dredging to deepen the channel from Sims Bayou to the Main Turning Basin as follows: <ul style="list-style-type: none"> <li>• Segment 5 HSC hydraulic NW Dredging to deepen channel from Sims Bayou to I-610 Bridge with placement into Glendale PA</li> <li>• Segment 6 HSC hydraulic NW Dredging to deepen channel from I-610 Bridge to Main Turning Basin with placement into Beltway 8 PA</li> </ul>
<b>Activities</b>	• Construction of dredged material placement area	• Construction of dredged material placement area	• Construction of dredged material placement area
<b>Initial Channel Width</b>	N/A	N/A	Varies along channel length
<b>New Channel Width</b>	N/A	N/A	N/A
<b>Initial Channel Depth</b>	N/A	N/A	-37.5 ft MLLW
<b>New Channel Depth</b>	N/A	N/A	-41.5 ft MLLW
<b>Lead Construction</b>	USACE	USACE	USACE
<b>Type/Volume Dredged Material</b>	N/A	N/A	1,176,000 CY
<b>Shoreline Protection AND Bulkhead Construction</b>	N/A	N/A	N/A
<b>Ocean Dredged Materials Disposal Site (ODMDS) OR DMPAs OR Placement Areas</b>	N/A	N/A	Filterbed and Glendale (volume to each to be determined)
<b>Flare Expansion</b>	N/A	N/A	N/A
<b>Utilities Relocation</b>	N/A	N/A	N/A
<b>Marsh Construction</b>	N/A	N/A	N/A
<b>Bird Island Construction</b>	N/A	N/A	N/A
<b>Oyster Mitigation</b>	N/A	N/A	N/A

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# Project 11 Design Packages

**NOTE:** Map is not to scale and is purely representational

- 1. BOLIVAR ROADS TO REDFISH REEF - DOLLAR REEF MITIGATION
- 2. BOGGY BAYOU TO SIMS BAYOU - BELTWAY 8 PREPARATION
- 3. BOLIVAR ROADS TO REDFISH REEF HSC STA 138+369 TO 100+000
- 4. REDFISH HSC STA 100+000 TO 57+00
- 5. REDFISH TO BAYPORT (BEACON 76) HSC STA 57+00 TO 28+605 & BSC STA 241+87.21 TO 25+58.69
- 6. BAYPORT (BEACON 76) TO MORGANS POINT HSC STA 28+605 TO 0+00
- 7. BARBOURS CUT STA 10+00 TO 67+10.85
- 8. BOGGY BAYOU TO HUNTING BAYOU TURNING BASIN CONSTRUCT PLACEMENT AREAS
- 9. BOGGY BAYOU TO HUNTING BAYOU TURNING BASIN HSC STA 684+03.19 TO 930+00
- 10. SIMS TO TURNING BASIN - GLENDALE PA PREPARATION
- 11. SIMS TO TURNING BASIN - FILTERBED PA PREPARATION
- 12. SIMS TO TURNING BASIN HSC STA 1110+77.54 TO 1266+48 AND MAIN TB STA 00+00 TO 30+95.06