

**STRATEGY 18B: pilings removed; dredge to 3 1/2 feet in underpier, shipway, and enclosed water and cap to original elevation; no dredging in open water SMU; cap to original elevation in**

Task	Quantity	Unit	Unit Cost	Total Cost
<b>PRE-CONSTRUCTION</b>				
Mobe/demobe				
Dredge equipment-water based	1	LS	\$15,000	\$15,000
Dredge equipment-land based	1	LS	\$10,000	\$10,000
Demolition equipment		LS		\$0
Barges	3	LS	\$2,500	\$7,500
Tugs	1	LS	\$2,000	\$2,000
Misc. upland equipment	7	LS	\$300	\$2,100
Specialized capping equipment		LS		\$0
Pile drivers		LS	\$500	\$0
Site prep	1	LS	\$25,000	\$25,000
<b>DEMOLITION</b>				
Piers				
Deck removal	128,600	SF	\$1.90	\$244,340
Stringers, cords and cap removal	60,000	LF	\$7.34	\$440,400
Pile removal	2,130	EA	\$130.62	\$278,221
Shipways				
Deck removal	8,600	SF	\$4.54	\$39,044
Stringers, cords and cap removal	20,258	LF	\$10.93	\$221,420
Pile removal	3,280	EA	\$117.52	\$385,466
Building and Pavement	1	LS	\$50,000	\$50,000
<b>DREDGING</b>				
Open water		CY	\$9.60	\$0
Enclosed water	1,050	CY	\$9.60	\$10,080
Shipways (piles removed)	9,027	CY	\$14.13	\$127,552
Under pier (piles removed)	16,211	CY	\$14.13	\$229,061
Land-based		CY	\$3.42	\$0
Surficial debris removal (pier removed)	11,100	CY	\$28.25	\$313,575
Silt curtains	1	LS	\$100,000	\$100,000
<b>DISPOSAL-Subtitle D</b>				
Dredged sediment	26,288	CY	\$42	\$1,104,096
Debris	11,100	CY	\$42	\$466,200
Dewatering and handling	26,288	CY	\$9.14	\$240,272
<b>CAPPING</b>				
Purchase and transport of capping material				
Sand/gravel	37,453	TON	\$8.25	\$308,987
Armor	38,303	TON	\$15.25	\$584,121
Habitat mix	9,363	TON	\$8.25	\$77,245
Place underpier/shipways (piers removed)				
Sand/gravel	21,415	TON	\$4.21	\$90,157
Armor	21,902	TON	\$6.32	\$138,421
Habitat mix	5,354	TON	\$5.47	\$29,286
Place in enclosed water area				
Sand/gravel	2,094	TON	\$4.21	\$8,816
Armor	2,141	TON	\$6.32	\$13,531

	Habitat mix	523 TON	\$5.47	\$2,861
Place in open water				
	Sand/gravel	13,944 TON	\$4.21	\$58,704
	Armor	14,260 TON	\$6.32	\$90,123
	Habitat mix	3,486 TON	\$5.47	\$19,068
<b>RELATED CONSTRUCTION</b>				
Install sheet pile				
	Purchase sheetpile	SF	\$10.25	\$0
	Drive sheetpile	SF	\$2.65	\$0
	Remove sheet pile	SF	\$1.60	\$0
Misc. site work		0.40 PERC		\$0
Timber bulkhead repair		1 LS	\$416,027	\$416,027
Complete bulkhead reconstruction		LS	\$432,254	\$0
<b>PIER RECONSTRUCTION</b>				
Complete reconstruction		SF	\$60	\$0
Deck replacement		SF	\$35	\$0
<b>TOTAL PURCHASE AND INSTALLATION COSTS</b>				\$6,148,674
<b>INDIRECT COSTS</b>				
Contractor overhead and profit		0.18 DEC. PER	PIC	\$1,106,761
Construction observation		17 WKLY	\$7,500	\$127,500
Surveys				
	Pre-dredge and cap	1 EA	\$10,000	\$10,000
	Progress	15 EA	\$3,000	\$45,000
	Post-dredge and cap	1 EA	\$10,000	\$10,000
Water quality monitoring				
	Intensive	4 WKLY	\$20,000	\$80,000
	Routine	13 WKLY	\$14,000	\$182,000
Confirmational sediment monitoring		1 LS	\$35,000	\$35,000
<b>SUBTOTAL</b>				\$7,744,935
<b>CONSTRUCTION CONTINGENCY</b>				0.20 DEC. PER
<b>TOTAL CONSTRUCTION COSTS</b>				\$1,548,987
<b>DESIGN ENGINEERING</b>				\$9,293,922
<b>CONSTRUCTION MANAGEMENT</b>				0.12 DEC. PER
<b>LONG-TERM MONITORING/MAINTENANCE *</b>				TCC
		1 LS	\$400,000	\$400,000
	Capped areas	1 LS		\$0
<b>TOTAL CAPITAL COST (1999 \$\$)</b>				\$10,809,193

\* costs unknown at present

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Assumes no reconstruction

**STRATEGY 18C: pilings removed; dredge to 3  
1/2 feet only in underpier, shipway, and  
enclosed water SMUs and cap to original  
elevation; dredge to SQS in the open water SMU**

Task	Quantity	Unit	Unit Cost	Total Cost
<b>PRE-CONSTRUCTION</b>				
Mobe/demobe				
Dredge equipment-water based	1	LS	\$15,000	\$15,000
Dredge equipment-land based	1	LS	\$10,000	\$10,000
Demolition equipment		LS		\$0
Barges	3	LS	\$2,500	\$7,500
Tugs	1	LS	\$2,000	\$2,000
Misc. upland equipment	7	LS	\$300	\$2,100
Specialized capping equipment		LS		\$0
Pile drivers		LS	\$500	\$0
Site prep	1	LS	\$25,000	\$25,000
<b>DEMOLITION</b>				
Piers				
Deck removal	128,600	SF	\$1.90	\$244,340
Stringers, cords and cap removal	60,000	LF	\$7.34	\$440,400
Pile removal	2,130	EA	\$130.62	\$278,221
Shipways				
Deck removal	8,600	SF	\$4.54	\$39,044
Stringers, cords and cap removal	20,258	LF	\$10.93	\$221,420
Pile removal	3,280	EA	\$117.52	\$385,466
Building and Pavement	1	LS	\$50,000	\$50,000
<b>DREDGING</b>				
Open water	20,337	CY	\$9.60	\$195,235
Enclosed water	1,050	CY	\$9.60	\$10,080
Shipways (piles removed)	9,027	CY	\$14.13	\$127,552
Under pier (piles removed)	16,211	CY	\$14.13	\$229,061
Land-based		CY	\$3.42	\$0
Surficial debris removal (pier removed)	11,100	CY	\$28.25	\$313,575
Silt curtains	1	LS	\$100,000	\$100,000
<b>DISPOSAL-Subtitle D</b>				
Dredged sediment	46,625	CY	\$42	\$1,958,250
Debris	11,100	CY	\$42	\$466,200
Dewatering and handling	46,625	CY	\$9.14	\$426,153
<b>CAPPING</b>				
Purchase and transport of capping material				
Sand/gravel	23,509	TON	\$8.25	\$193,949
Armor	24,043	TON	\$15.25	\$366,656
Habitat mix	5,877	TON	\$8.25	\$48,485
Place underpier/shipways (piers removed)				
Sand/gravel	21,415	TON	\$4.21	\$90,157
Armor	21,902	TON	\$6.32	\$138,421
Habitat mix	5,354	TON	\$5.47	\$29,286
Place in enclosed water area				
Sand/gravel	2,094	TON	\$4.21	\$8,816
Armor	2,141	TON	\$6.32	\$13,531
Habitat mix	523	TON	\$5.47	\$2,861

Place in open water				
	Sand/gravel	TON	\$4.21	\$0
	Armor	TON	\$6.32	\$0
	Habitat mix	TON	\$5.47	\$0
<b>RELATED CONSTRUCTION</b>				
Install sheet pile				
	Purchase sheetpile	SF	\$10.25	\$0
	Drive sheetpile	SF	\$2.65	\$0
	Remove sheet pile	SF	\$1.60	\$0
Misc. site work		0.40 PERC		\$0
Timber bulkhead repair		1 LS	\$416,027	\$416,027
Complete bulkhead reconstruction		LS	\$432,254	\$0
<b>PIER RECONSTRUCTION</b>				\$0
Complete reconstruction		SF	\$60	\$0
Deck replacement		SF	\$35	\$0
<b>TOTAL PURCHASE AND INSTALLATION COSTS</b>				\$6,854,785
<b>INDIRECT COSTS</b>				
Contractor overhead and profit		0.18 DEC. PER	PIC	\$1,233,861
Construction observation		18 WKLY	\$7,500	\$135,000
Surveys				
	Pre-dredge and cap	1 EA	\$10,000	\$10,000
	Progress	16 EA	\$3,000	\$48,000
	Post-dredge and cap	1 EA	\$10,000	\$10,000
Water quality monitoring				
	Intensive	6 WKLY	\$20,000	\$120,000
	Routine	12 WKLY	\$14,000	\$168,000
Confirmational sediment monitoring		1 LS	\$35,000	\$35,000
<b>SUBTOTAL</b>				\$8,614,646
<b>CONSTRUCTION CONTINGENCY</b>				\$1,722,929
<b>TOTAL CONSTRUCTION COSTS</b>				\$10,337,575
<b>DESIGN ENGINEERING</b>				\$1,240,509
<b>CONSTRUCTION MANAGEMENT</b>				\$400,000
<b>LONG-TERM MONITORING/MAINTENANCE *</b>				
	Capped areas	1 LS		\$0
<b>TOTAL CAPITAL COST (1999 \$\$)</b>				\$11,978,084

\* costs unknown at present

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Assumes no reconstruction

**STRATEGY 18D: pilings removed; dredge to 3  
1/2 feet only in underpier, shipway, and  
enclosed water SMUs and cap to original  
elevation; dredge to CSL and cap to original  
elevation in the open water SMU.**

Task	Quantity	Unit	Unit Cost	Total Cost
<b>PRE-CONSTRUCTION</b>				
Mobe/demobe				
Dredge equipment-water based	1	LS	\$15,000	\$15,000
Dredge equipment-land based	1	LS	\$10,000	\$10,000
Demolition equipment		LS		\$0
Barges	3	LS	\$2,500	\$7,500
Tugs	1	LS	\$2,000	\$2,000
Misc. upland equipment	7	LS	\$300	\$2,100
Specialized capping equipment		LS		\$0
Pile drivers		LS	\$500	\$0
Site prep	1	LS	\$25,000	\$25,000
<b>DEMOLITION</b>				
Piers				
Deck removal	128,600	SF	\$1.90	\$244,340
Stringers, cords and cap removal	60,000	LF	\$7.34	\$440,400
Pile removal	2,130	EA	\$130.62	\$278,221
Shipways				
Deck removal	8,600	SF	\$4.54	\$39,044
Stringers, cords and cap removal	20,258	LF	\$10.93	\$221,420
Pile removal	3,280	EA	\$117.52	\$385,466
Building and Pavement	1	LS	\$50,000	\$50,000
<b>DREDGING</b>				
Open water	14,041	CY	\$9.60	\$134,794
Enclosed water	1,050	CY	\$9.60	\$10,080
Shipways (piles removed)	9,027	CY	\$14.13	\$127,552
Under pier (piles removed)	16,211	CY	\$14.13	\$229,061
Land-based		CY	\$3.42	\$0
Surficial debris removal (pier removed)	11,100	CY	\$28.25	\$313,575
Silt curtains	1	LS	\$100,000	\$100,000
<b>DISPOSAL-Subtitle D</b>				
Dredged sediment	40,329	CY	\$42	\$1,693,818
Debris	11,100	CY	\$42	\$466,200
Dewatering and handling	40,329	CY	\$9.14	\$368,607
<b>CAPPING</b>				
Purchase and transport of capping material				
Sand/gravel	41,707	TON	\$8.25	\$344,083
Armor	34,232	TON	\$15.25	\$522,038
Habitat mix	9,273	TON	\$8.25	\$76,502
Place underpier/shipways (piers removed)				
Sand/gravel	21,415	TON	\$4.21	\$90,157
Armor	21,902	TON	\$6.32	\$138,421
Habitat mix	5,354	TON	\$5.47	\$29,286
Place in enclosed water area				
Sand/gravel	2,094	TON	\$4.21	\$8,816
Armor	2,141	TON	\$6.32	\$13,531

	Habitat mix	523 TON	\$5.47	\$2,861
Place in open water				
	Sand/gravel	18,198 TON	\$4.21	\$76,614
	Armor	10,189 TON	\$6.32	\$64,394
	Habitat mix	3,396 TON	\$5.47	\$18,576
<b>RELATED CONSTRUCTION</b>				
Install sheet pile				
	Purchase sheetpile	SF	\$10.25	\$0
	Drive sheetpile	SF	\$2.65	\$0
	Remove sheet pile	SF	\$1.60	\$0
Misc. site work		0.40 PERC		\$0
Timber bulkhead repair		1 LS	\$416,027	\$416,027
Complete bulkhead reconstruction		LS	\$432,254	\$0
<b>PIER RECONSTRUCTION</b>				
Complete reconstruction		SF	\$60	\$0
Deck replacement		SF	\$35	\$0
<b>TOTAL PURCHASE AND INSTALLATION COSTS</b>				\$6,965,483
<b>INDIRECT COSTS</b>				
Contractor overhead and profit		0.18 DEC. PER	PIC	\$1,253,787
Construction observation		21 WKLY	\$7,500	\$157,500
Surveys				
	Pre-dredge and cap	1 EA	\$10,000	\$10,000
	Progress	19 EA	\$3,000	\$57,000
	Post-dredge and cap	1 EA	\$10,000	\$10,000
Water quality monitoring				
	Intensive	7 WKLY	\$20,000	\$140,000
	Routine	14 WKLY	\$14,000	\$196,000
Confirmational sediment monitoring		1 LS	\$35,000	\$35,000
<b>SUBTOTAL</b>				\$8,824,770
<b>CONSTRUCTION CONTINGENCY</b>				\$1,764,954
<b>TOTAL CONSTRUCTION COSTS</b>				\$10,589,724
<b>DESIGN ENGINEERING</b>				\$1,270,767
<b>CONSTRUCTION MANAGEMENT</b>				\$400,000
<b>LONG-TERM MONITORING/MAINTENANCE *</b>				
	Capped areas	1 LS		\$0
<b>TOTAL CAPITAL COST (1999 \$\$)</b>				\$12,260,490

\* costs unknown at present

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Assumes no reconstruction