



Appendix E

Cost Opinions



**US Army Corps
of Engineers**
Norfolk District

Chesapeake
VIRGINIA

Department of Public Works

URS

Table E-1. Cost Opinions

Improvement No. 2- West Shillelagh Drainage Improvements

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL (2009 Dollars)
1	Mobilization/Demobilization	1	LS	\$96,554	\$96,554
2	Regular Excavation	71292	CY	\$20.00	\$1,425,840
3	Earthwork and Grading	1	LS	\$45,000	\$45,000
4	48" RCP	48	LF	\$300	\$14,400
5	Endwall for 48" Pipe	1	EA	\$4,200	\$4,200
6	VDOT St'd ES-1 for 48" Pipe	1	EA	\$3,100	\$3,100
7	HRPDC Class I Dry Riprap (Overflow Spillway)	50	TONS	\$100	\$5,000
8	Seeding (lime, fertilizer, seed, and mulch)	1.8	AC	\$4,000	\$7,200
9	Dewatering	1	LS	\$35,000	\$35,000
10	Erosion and Sediment Control	1	LS	\$25,000	\$25,000
11	Relocate or Modify Existing Misc. Items	1	LS	\$3,000	\$3,000
12	VDOT EC-2 Soil Retention Mat	10500	SY	\$3.00	\$31,500
13	Traffic Maintenance	1	LS	\$10,000	\$10,000
Construction Sub-Total:					\$1,705,794
	Design and Permitting	1	LS	\$60,000	\$60,000
	Survey	1	LS	\$12,000	\$12,000
	Contingency	15	%	\$255,869	\$255,869
Design & Construction Subtotal:					\$2,033,663
	Easement Acquisition	15.5	AC	\$11,000	\$170,500
	Property Survey Fees	1	LS	\$5,000	\$5,000
	Attorney Fees	1	LS	\$10,000	\$10,000
Total Project Cost:					\$2,219,163

Cost Assumptions

- Mobilization/Demobilization set at 6% of construction subtotal.
- Excavation cost includes hauling material offsite and disposal.
- Earthwork and Grading cost assumes 3 pieces of heavy equipment at \$90/hr. for 8 hrs. per day for 20 days.
- Erosion and sediment control costs include; but are not limited to, construction entrance, dewatering basins if required and check dams.
- Areas assumed to require seeding include a 20' wide area along top of proposed ditch as well as all other areas disturbed during construction.
- EC-2 soil retention mat assumed to be placed on all side slopes of proposed ditch.
Cost for EC-2 includes topsoil, seed, lime and fertilizer.

Table E-1. Cost Opinions

Improvement No. 3- East Shillelagh Drainage Improvements

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL (2009 Dollars)
1	Mobilization/Demobilization	1	LS	\$14,165	\$14,165
2	Regular Excavation	4975	CY	\$20.00	\$99,500
3	HRPDC Class I Dry Riprap	10	TONS	\$100	\$1,000
4	Seeding (lime, fertilizer, seed, and mulch)	1.3	AC	\$4,000	\$5,200
5	Dewatering	1	LS	\$20,000	\$20,000
6	Erosion and Sediment Control	1	LS	\$25,000	\$25,000
7	Relocate or Modify Existing Misc. Items	1	LS	\$3,000	\$3,000
8	EC-2 Soil Retention Mat	13550	SY	\$3.00	\$40,650
9	Traffic Maintenance	1	LS	\$8,000	\$8,000
Construction Sub-Total:					\$216,515
	Design and Permitting	1	LS	\$40,000	\$40,000
	Survey	1	LS	\$6,000	\$6,000
	Contingency	15	%	\$32,477	\$32,477
Design & Construction Subtotal:					\$294,992
Total Project Cost:					\$294,992

Cost Assumptions

1. Mobilization/Demobilization set at 7% of construction subtotal.
2. Excavation cost includes hauling material offsite and disposal.
3. Erosion and sediment control costs include; but are not limited to, construction entrance, dewatering basins if required and check dams.
4. Areas assumed to require seeding include a 20' wide area along top of proposed ditch as well as all other areas disturbed during construction.
5. EC-2 soil retention mat assumed to be placed on all side slopes of proposed ditch.
Cost for EC-2 includes topsoil, seed, lime and fertilizer.

Table E-1. Cost Opinions

Improvement No. 4- Herring Ditch Outfall Improvements

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL (2009 Dollars)
1	Mobilization/Demobilization	1	LS	\$26,601	\$26,601
2	Regular Excavation	10381	CY	\$20.00	\$207,620
3	84" RCP	48	LF	\$850	\$40,800
4	Endwall for Double 84" Pipe	2	EA	\$20,000	\$40,000
5	HRPDC Class I Dry Riprap	96	TONS	\$100	\$9,600
6	Seeding (lime, fertilizer, seed, and mulch)	0.9	AC	\$4,000	\$3,600
7	Dewatering	1	LS	\$20,000	\$20,000
8	Erosion and Sediment Control	1	LS	\$18,000	\$18,000
9	Relocate or Modify Existing Misc. Items	1	LS	\$3,000	\$3,000
10	EC-2 Soil Retention Mat	10800	SY	\$3.00	\$32,400
11	Traffic Maintenance	1	LS	\$5,000	\$5,000
Construction Sub-Total:					\$406,621
	Design and Permitting	1	LS	\$35,000	\$35,000
	Survey	1	LS	\$5,000	\$5,000
	Contingency	15	%	\$60,993	\$60,993
Design & Construction Subtotal:					\$507,614
	Easement Acquisition	0.6	AC	\$11,000	\$6,600
	Property Survey Fees	1	LS	\$5,000	\$5,000
	Attorney Fees	1	LS	\$10,000	\$5,000
Total Project Cost:					\$524,214

Cost Assumptions

1. Mobilization/Demobilization set at 7% of construction subtotal.
2. Excavation cost includes hauling material offsite and disposal.
3. Erosion and sediment control costs include; but are not limited to, construction entrance, dewatering basins if required and check dams.
4. Areas assumed to require seeding include a 20' wide area along top of proposed ditch as well as all other areas disturbed during construction.
5. EC-2 soil retention mat assumed to be placed on all side slopes of proposed ditch.
Cost for EC-2 includes topsoil, seed, lime and fertilizer.

Table E-1. Cost Opinions

Improvement No. 9- Horse Run Ditch Outfall Improvements

ITEM	DESCRIPTION	QUANTITY	UNIT	UNIT COST	TOTAL (2009 Dollars)
1	Mobilization/Demobilization	1	LS	\$54,248	\$54,248
2	Regular Excavation	10960	CY	\$20.00	\$219,200
3	7' x 6' Double Box Culvert	218	LF	\$1,685	\$367,330
4	Headwalls for 7' x 6' Double Box Culvert	4	EA	\$2,550	\$10,200
5	Wingwalls for 7' x 6' Double Box Culvert	4	EA	\$5,600	\$22,400
6	HRPDC Class I Dry Riprap	160	TONS	\$100	\$16,000
7	Seeding (lime, fertilizer, seed, and mulch)	1.2	AC	\$4,000	\$4,800
8	Dewatering	1	LS	\$25,000	\$25,000
9	Erosion and Sediment Control	1	LS	\$40,000	\$40,000
10	Relocate or Modify Existing Misc. Items	1	LS	\$15,000	\$15,000
11	EC-2 Soil Retention Mat	11680	SY	\$3.00	\$35,040
12	Traffic Maintenance	1	LS	\$20,000	\$20,000
Construction Sub-Total:					\$829,218
	Design and Permitting	1	LS	\$50,000	\$50,000
	Utility Location	1	LS	\$10,000	\$10,000
	Survey	1	LS	\$10,000	\$10,000
	Contingency	15	%	\$124,383	\$124,383
Design & Construction Subtotal:					\$1,023,601
Total Project Cost:					\$1,023,601

Cost Assumptions

1. Mobilization/Demobilization set at 7% of construction subtotal.
2. Excavation cost includes hauling material offsite and disposal.
3. Erosion and sediment control costs include; but are not limited to, construction entrance, dewatering basins if required and check dams.
4. Areas assumed to require seeding include a 20' wide area along top of proposed ditch as well as all other areas disturbed during construction.
5. EC-2 soil retention mat assumed to be placed on all side slopes of proposed ditch.
Cost for EC-2 includes topsoil, seed, lime and fertilizer.



**US Army Corps
of Engineers**
Norfolk District

Chesapeake
VIRGINIA

Department of Public Works

URS
URS Corporation

URS No. 11657375