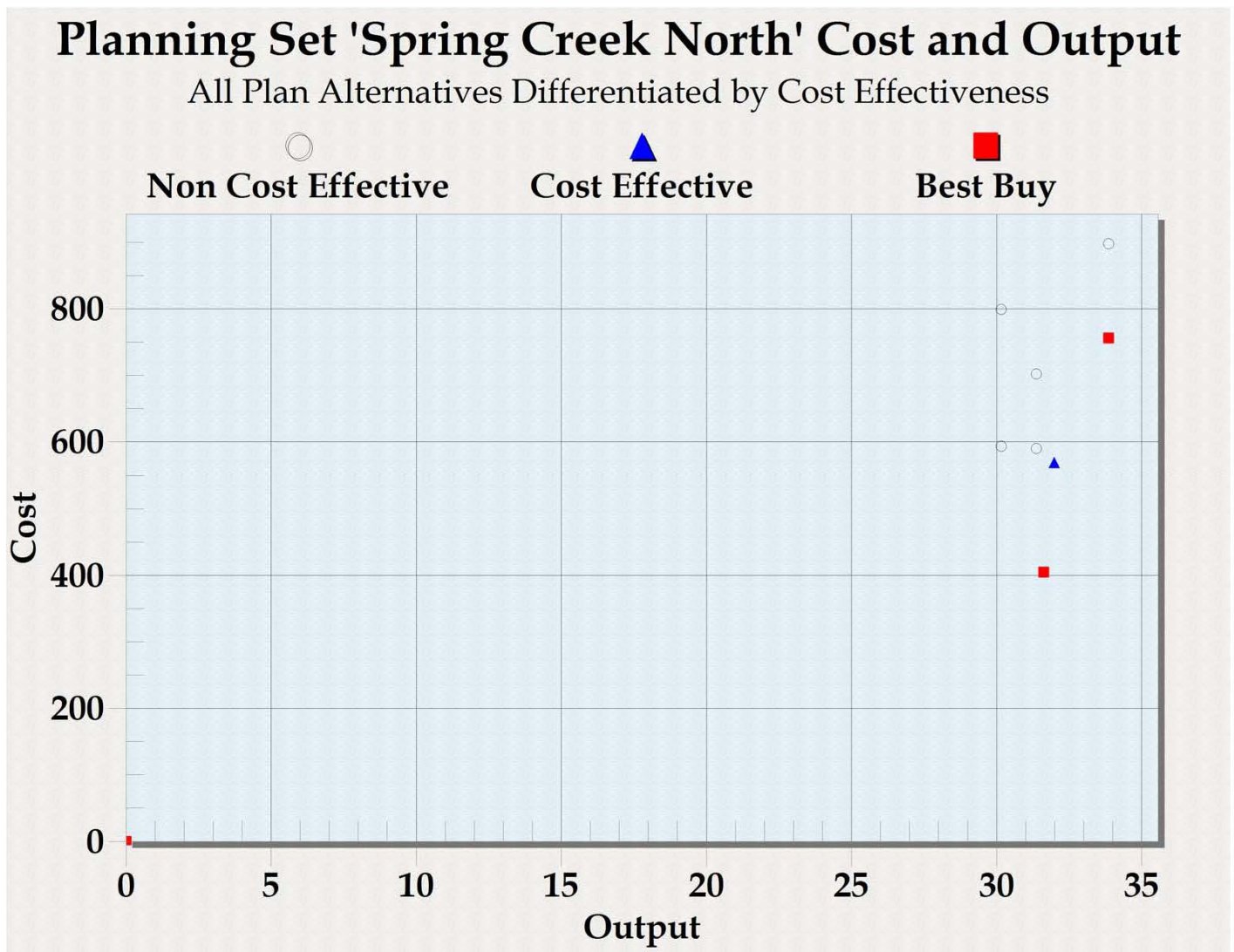


Appendix D

Spring Creek North Ecosystem Restoration Study
Updated Cost Effectiveness/Incremental Cost Analysis
10/8/2015

Counter	Name	Output AAFCU	Cost \$1000	Average Cost \$1000
1	No Action Plan	0.00	0.00	
2	SC 1	31.38	702.00	22.37
3	SC 2	33.87	898.00	26.51
4	SC 3A	31.38	590.00	18.80
5	SC 3B	31.99	569.00	17.79
6	SC 3C	31.63	405.00	12.80
7	SC 4A	33.87	756.00	22.32
8	SC 4B	30.17	799.00	26.48
9	SC 4C	30.17	593.00	19.66



Total and Average Cost

10/8/2015

9:59:18AM

Cost Effective Plan Alternatives**Planning Set:** Spring Creek North

Counter	Name	Output AAFCU	Cost \$1000	Average Cost \$1000
1	No Action Plan	0.00	0.00	
2	SC 3B	31.99	569.00	17.79
3	SC 3C *Best Buy*	31.63	405.00	12.80
4	SC 4A *Best Buy*	33.87	756.00	22.32

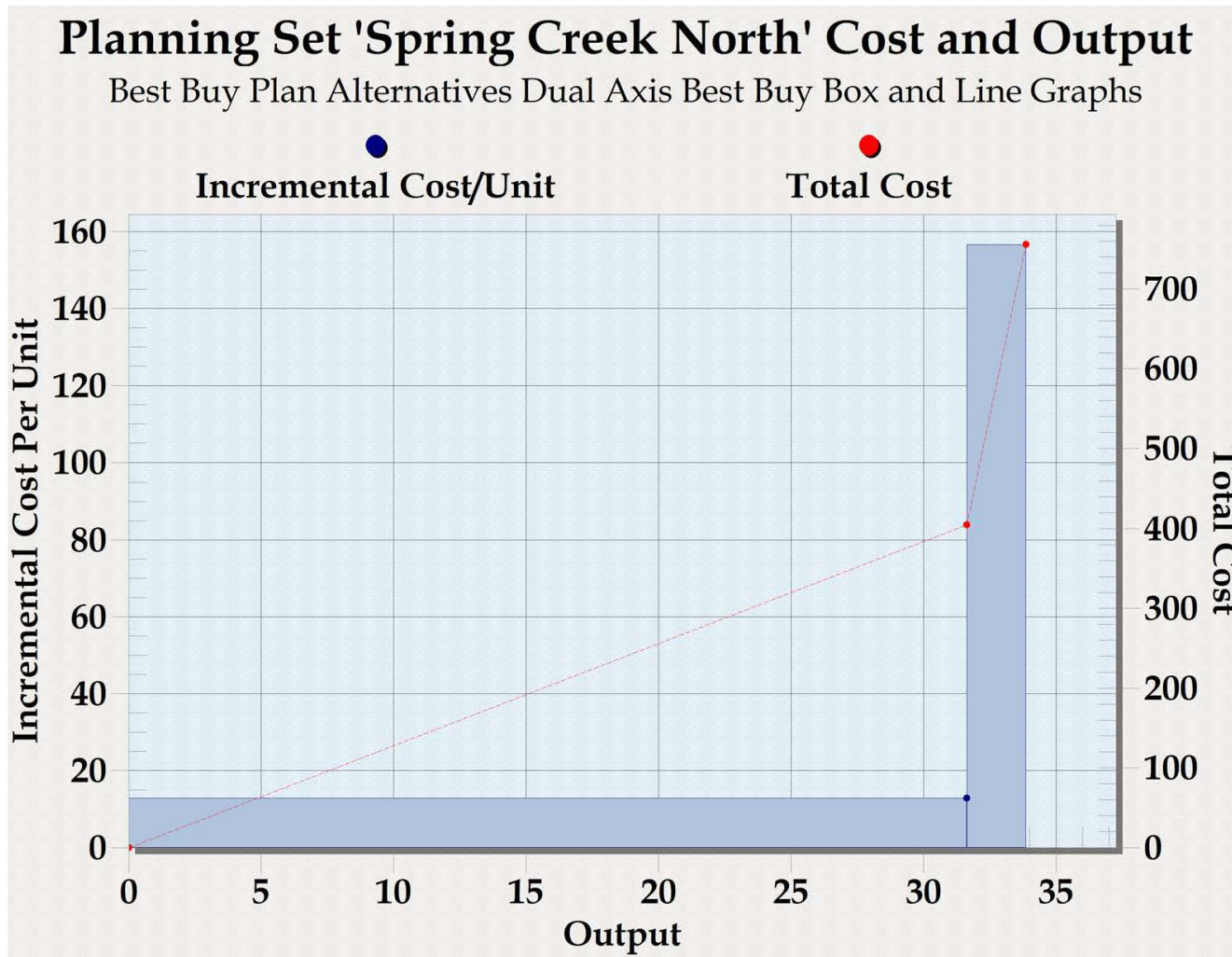
Incremental Cost of Best Buy Plan Combinations (Ordered By Plan Alternative Name)

10/8/2015

10:00:30AM

Planning Set: Spring Creek North

Counter	Plan Alternative	Output (AAFCU)	Cost (\$1000)	Average Cost (\$1000 / AAFCU)	Incremental Cost (\$1000)	Inc. Output (AAFCU)	Inc. Cost Per Output (\$1000)
1	No Action Plan	0.00	0.00				
2	SC 3C	31.63	405.00	12.8043	405.0000	31.6300	12.8043
3	SC 4A	33.87	756.00	22.32065	351.0000	2.2400	156.6964



Spring Creek North Ecosystem Restoration Study
Cost Estimate Back-Up

14 January 2004

Spring Creek Ecosystem Restoration

Spring Creek ecosystem restoration in Brooklyn NY between Flatlands Ave & Fountain Ave, consist of the restoration of approximately 23 acres. The project is part of the Jamaica Bay restoration project. The project consists of general site work including the excavation load and transport of onsite material along with final grading. There is also planting occurring in the Maritime Upland, Transition Area, High Marsh, and Low Marsh.

The option is for a path along the site for pedestrian access.

Davis Bacon rates are based on 7-6-12

Fuel prices 7-12-12

Cont. 15% was used due to the preliminary nature of the drawings and quantities for this project.

JOOH - 13%
HOOH - 3.9%
Profit - 10%
Bond - 2%
Sub JOOH - 5%
Sub HOOH- 5%
Sub Profit -10%

Estimated by Anthony Schiano
Designed by
Prepared by Anthony Schiano

Preparation Date 7/11/2012
Effective Date of Pricing 7/11/2012
Estimated Construction Time Days

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<u>Description</u>	<u>Quantity</u>	<u>UOM</u>	<u>ProjectCost</u>
Project Summary			6,560,521.67
Fish & Wildlife Facilities	1.0000	LS	6,560,521.67
Base Bid	1.0000	EA	6,449,324.38
Option #1	1.0000	EA	111,197.29

Description	Quantity	UOM	ProjectCost
Project Owner Summary			6,560,521.67
Fish & Wildlife Facilities	1.0000	LS	6,560,521.67
			<i>6,449,324.3832</i>
Base Bid	1.0000	EA	6,449,324.38
			<i>4,347,022.6268</i>
General Site Work	1.0000	EA	4,347,022.63
Mob & Demob	1.0000	LS	243,899.31
			<i>69.3259</i>
Chain-link Fence	1,300.0000	LF	90,123.62
			<i>36,400.5680</i>
Clearing and Grubbing	22.6600	ACR	824,836.87
			<i>928.6916</i>
Survey Layout	13.0000	ACR	12,072.99
			<i>21.9679</i>
Excavation, Load, Transport & Place	142,450.0000	CY	3,129,333.46
			<i>14.0325</i>
Silt Fence	3,332.0000	LF	46,756.37
			<i>15,036.3813</i>
Maritime Upland Community	14.4500	ACR	217,275.71
			<i>5,404.5339</i>
Maintenance Warm Season Grass Mix	2.8900	ACR	15,619.10
			<i>4,976.8745</i>
Maintenance Overseed (Annual Rye)	2.8900	ACR	14,383.17
			<i>63,920.1085</i>
Transition Area	3.0000	ACR	191,760.33
			<i>5,404.5339</i>
Maintenance Warm Season Grass Mix	0.6000	ACR	3,242.72
			<i>5.2741</i>
Herbaceous	32,670.0000	EA	172,304.00
			<i>15.5264</i>
Maintenance	3,267.0000	EA	50,724.62
			<i>93,997.5018</i>
High Marsh	2.3000	ACR	216,194.25
			<i>31,798.1928</i>
Herbivory Fence	2.3000	ACR	73,135.84

Description	Quantity	UOM	ProjectCost
Maintenance	0.2300	ACR	42,046.2808 9,670.64
Herbaceous	25,047.0000	EA	5.7116 143,058.41
Maintenance	2,504.7000	EA	19.8045 49,604.23
Low Marsh	10.7000	ACR	136,694.8772 1,462,635.19
Herbivory Fence	2.3000	ACR	419,321.8366 964,440.22
Maintenance	0.2300	ACR	103,354.3779 23,771.51
Herbaceous	116,523.0000	EA	4.2755 498,194.96
Maintenance	11,652.3000	EA	5.4435 63,429.85
Herbicide	22.6600	ACR	637.0821 14,436.28
Option #1	1.0000	EA	111,197.2880 111,197.29
Path and Overlook	1.0000	EA	111,197.2880 111,197.29
Path	800.0000	SY	52.1383 41,710.68
Path Edging	2,400.0000	EA	12.5293 30,070.37
Interpretive signage	8.0000	EA	315.8459 2,526.77
Granite Bollard Installation	6.0000	EA	6,148.2447 36,889.47

Spring Creek North Ecosystem Restoration Study
MCASES Cost Estimate 2004

Sun 06 Feb 2004
Eff. Date 02/05/04

U.S. Army Corps of Engineers
PROJECT SPRNG1: Spring Creek
??% Cost Estimate

TIME 19:57:40
TITLE PAGE 1

Spring Creek

Designed By: Matrix Environmental
Estimated By: Reid, Still & Associates, Inc.

Prepared By: Michael Reid

Preparation Date: 02/05/04
Effective Date of Pricing: 02/05/04

Sales Tax: 0.00%

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LABOR ID: NAT94A EQUIP ID: NAT95A

CREW ID: NAT95A UPB ID: NAT95B

SUMMARY REPORTS

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PROJECT DIRECT SUMMARY - SCOPE.....	2

DETAILED ESTIMATE

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No Backup Reports...

* * * END TABLE OF CONTENTS * * *

	QUANTITY	UOM	CONTRACT	ESCALATE	CONTINGEN	SIQH	TOTAL COST	UNIT COST
B			3,114,788	0	622,958	68887	3,924,633	
C	7.34	AC	151,259	0	22,689	9,076	183,024	24935.09
D	3.00	AC	114,501	0	17,175	6,870	138,546	46181.99
E	2.30	AC	152,052	0	22,808	921	183,983	79992.57
F	10.70	AC	624,372	0	93,656	37,462	755,490	70606.56
G	1200.00	LF	52,800	0	7,920	3,168	63,888	53.24
H			350,905	0	0	0	350,905	
I			175,000	0	0	0	175,000	
J			253,500	0	0	0	253,500	
TOTAL Spring Creek			4,989,177	0	787,205	252,586	6,028,968	

	QUANTITY UOM	LABOR MATERIAL	OTHER	TOTAL COST UNIT COST
B_ GeneralSite Work	3080014	27,275	7,500	3,114,788
C_ Maritime Upland Community	7.34 AC	100,688	49,571	1,000
D_ Transition Area	3.00 AC	63,829	43,172	7,500
E_ High MarshZone	2.30 AC	77,924	44,528	29,600
F_ Low Marsh Zone	10.70 AC	248,496	144,801	231,075
G_ Path and Overlook	1200.00 LF	0	0	52,800
H_ Operation & Maintenance		0	0	350,905
I_ Real Estate		0	0	175,000
J_ Miscellaneous		0	0	253,500
TOTAL Spring Creek	3570951	309,346	1108880	4,989,177
Contingency				787,205
SUBTOTAL				5,776,382
Supervision, Inspection, and Overhead				252,586
TOTAL INCL OWNER COSTS				6,028,968

LABOR ID: NAT94A EQUIP ID: NAT95A

Currency in DOLLARS

CREW ID: NAT95A UPB ID: NAT95B

QUANTITY	UOM	LABOR	MATERIAL	OTHER	TOTAL COST	UNIT COST	
USR	<02080 0001 >	Mobilization/Demobilization 1 (construction)	1.00 LS	30000.00	0.00	0.00	30000.00
				30,000	0	0	30,000 30000.00
USR	<02080 0002 >	8" High Chain Link Fence W/Razor Ribbon	1300.00 LF	57.60	0.00	0.00	57.60
				74,880	0	0	74,880 57.60
USR	<02080 0003 >	Clearing and Ribbing	22.66 ACR	1200.00	0.00	0.00	1200.00
				27,192	0	0	27,192 1200.00
USR	<02080 0004 >	Survey Layout	13.00 ACR	1200.00	0.00	0.00	1200.00
				15,600	0	0	15,600 1200.00
USR	<02080 0005 >	Excavation, Load, Transport & Place	142450 CY	18.00	0.00	0.00	18.00
				2564100	0	0	2,564,100 18.00
USR	<02080 0006 >	Imported Sand Delivered To Site	17000 CY	17.00	0.00	0.00	17.00
				289,000	0	0	289,000 17.00
USR	<02080 0007 >	Grade Imported Sand	1736CY	1.00	0.00	0.00	1.00
				17,763	0	0	17,763 1.00
USR	<02080 0008 >	Cut Manhole Flush	6.00 EA	0.00	0.00	1250.00	1250.00
				0	0	7,500	7,500 1250.00
USR	<02080 0009 >	Type II Turbidity Curtain	750.00 LF	13.35	8.90	0.00	22.25
				10,013	6,675	0	16,688 22.25
USR	<02080 0010 >	Silt Fence	3332.00 LF	0.44	0.18	0.00	0.62
				1,465	600	0	2,065 0.62
USR	<02080 0010 >	Hay Bales (Salt Marsh Hay)	2500.00 EA	20.00	8.00	0.00	28.00
				50,000	20,000	0	70,000 28.00
		TOTAL General Site Work	3080014	27,275	7,500	3,114,788	

E_ General Site Work

Sun 08 Feb 2004
 Eff. Date 02/05/04
 DETAILED ESTIMATE

U.S. Army Corps of Engineers
 PROJECT SPRING: Spring Creek
 ?? Cost Estimate
 C. Maritime Upland Community

TIME 19:57:40
 DETAIL PAGE 2

	QUANTITY	UOM	LABOR	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR <02080 0020 > Warm Season Grass Mix (50lbs/ac)	367.00	LB	94.00	5.83	0.00	99.83	99.83
			34,498	2,04	0	36,638	
USR <02080 0021 > Overseed (annual winter rye @ 50lbs/ac)	367.00	LB	0.00	0.45	0.00	0.45	0.45
			0	165	0	165	
USR <02080 0022 > Shrubs (-50% of planting zone) Approx 1 per 64 sf	2246.00	EA	16.80	12.00	0.00	28.80	28.80
			37,733	26,952	0	64,685	
UE <02080 0023 > Trees (-50% of planting zone) approx 1 per 100 sf	1451.00	EA	19.60	14.00	0.00	33.60	33.60
			28,440	20,314	0	48,754	
USR <02080 0024 > Tree Saver Fertilizer	1.00	LS	18.00	0.00	1000.00	1018.00	1018.00
			18	0	1,000	1,018	
TOTAL Maritime Upland Community	7.34	AC	100,688	49,571	1,000	151,259	20607.51

C. Maritime Upland Community

LABOR ID: NAT94A EQUIP ID: NAT95A

Currency in DOLLARS

CREW ID: NAT95A UPE ID: NAT95B

Sun 08 Feb 2004
 Eff. Date 02/05/04
 DETAILED ESTIMATE

U.S. Army Corps of Engineers
 PROJECT SPRNG1: Spring Creek
 ??% Cost Estimate
 D. Transition Area

TIME 19:57:40
 DETAIL PAGE 3

	QUANTITY	UOM	LABOR	MATERIAL	OTHER	TOTAL COST	UNIT COST		
USR	<02080 0030 >	Shrubs 37.5% of Zone (24"36" containerized) Approx 1 per 64 sf	1702.00	EA	15.80 28,594	12.00 20,424	0.00 0	28.80 49,018	28.80
USR	<02080 0031 >	Trees 37.5% of Zone (293" caliber b&b) Approx 1 per 100 sf	1089.00	EA	16.80 18,295	12.00 13,068	0.00 0	28.80 31,363	28.80
USR	<02080 0032 >	Herbaceous 25% Approx 1 per 2.25 sf	9680.00	EA	1.75 16,940	1.00 9,680	0.00 0	2.75 26,620	2.75
USR	<02080 0033 >	Warm Season Grass Mix (50lbs/ac)	3.00	AC	0.00	0.00	2500.00	7,500	2500.00
TOTAL Transition Area			3.00	AC	63,829	4372	7,500	114,501	38166.93

D. Transition Area

LABOR ID: NAT94A EQUIP ID: NAT95A

Currency in DOLLARS

CREW ID: NAT95A UPB ID: NAT95B

	QUANTITY	UOM	LABOR	MATERIAL	OTHER	TOTAL COST	UNIT	COST
USR	<02080 0040 >	Waterfowl Exclusion System (25' x 25' cells over 1.25 ac)	88.00	EA	0.00	0.00	325.00	325.00
					0	28,600	28,600	325.00
USR	<02080 0041 >	Herbaceous Plants (100 % of Planting Zone) Approx 1 per 2.25 sf	44528	EA	1.75	1.00	0.00	2.75
					77,924	44,528	0	122,452
USR	<02080 0042 >	Plant Saver	1.00	LS	0.00	0.00	1000.00	1000.00
					0	0	1,000	1,000.00
TOTAL High Marsh Zone			2.30	AC	77,924	44,528	29,600	152,052
								66109.57

E. High Marsh Zone

	QUANTITY	UOM	ABOR MATERIAL	OTHER	TOTAL COST	UNIT COST
USR <02080 0050 > Erosion Control Matting (BIONETRM Mat)	1000.00	SY	3.15 3,150	2.10 2,100	0.00 0	5.25 5,250
USR <02080 0051 > 16" Diameter Biologs 10 lf	1000.00	EA	11.40 11,400	7.60 7,600	0.00 0	19.00 19,000
USR <02080 0052 > Wooden Stakes (1"x1.5"x12")	452.00	EA	0.00 0	0.20 90	0.00 0	0.20 90
USR <02080 0053 > Wooden Stakes (2"x2"x36")	2000.00	WFA	0.00 0	0.75 1,500	0.00 0	0.75 1,500
USR <02080 0054 > Coir Twine (6mm diameter) 425' roll	6000.00	EA	0.00 0	0.02 120	0.00 0	0.02 120
USR <02080 0055 > Waterfowl Exclusion System (25' x 25' Cells over 10.16 ac)	711.00	EA	0.00 0	0.00 0	325.00 231.075	325.00 231.075
USR <02080 0056 > Herbaceous Plants (100% of Planting Zone) Approx 1 per 2.25 sf	205216	EA	1.14 233,946133,390	0.65 390	0.00 0	1.79 367,337
TOTAL Low Marsh Zone	10.70	AC	248,496	144,801	231,075	624,372
						58352.53

F. Low Marsh Zone

Sun 08 Feb 2004
 Eff. Date 02/05/04
 DETAILED ESTIMATE

U.S. Army Corps of Engineers
 PROJECT SPRNG1: Spring Creek
 ??% Cost Estimate
 G_ Path and Overlook

TIME 19:57:40
 DETAIL PAGE 6

	QUANTITY	UOM	LABOR	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR <02080 0060 > Path Construction (-1200'x6')	800.00	SY	0.00	0	14,400	14,400	18.00
USR <02080 0061 > Path Edging (-1200 lf x 2)	2400.00	LF	0.00	0	19,200	19,200	8.00
USR <02080 0062 > Interpretive Signage	8.00	EA	0.00	0	4,200	4,200	525.00
USR <02080 0063 > Granite Bollard Installation	6.00	EA	0.00	0	15,000	15,000	2500.00
TOTAL Path and Overlook	1200.00	LF	0	0	52,800	52,800	44.00

G_ Path and Overlook

LABOR ID: NAT94A EQUIP ID: NAT95A

Currency in DGIARS

CREW ID: NAT95A UPB ID: NAT95B

Sun 08 Feb 2004
 Eff. Date 02/05/04
 DETAILED ESTIMATE

U.S. Army Corps of Engineers
 PROJECT SPRNGL: Spring Creek
 ??? Cost Estimate
 H_ Operation & Maintenance

TIME 19:57:40
 DETAIL PAGE 7

	QUANTITY	UOM	LABOR	MATERIAL	OTHER	TOTAL COST	UNIT COST
USR <02080 0070 > Biologist's Oversight 1 day per year	50.00	DAY	0.00	0.00	226.24	226.24	226.24
USR <02080 0071 > Park Ranger's Oversight 5 days per year	250.00	DAY	0.00	0.00	158.37	158.37	158.37
USR <02080 0072 > Fence Maintenance 10 times over 50 years	10.00	EA	0.00	0.00	150,000	150,000	15000.00
USR <02080 0073 > Path Maintenance 10 replacements over 50 years	10.00	EA	0.00	0.00	150,000	150,000	15000.00
TOTAL Operation & Maintenance						350,905	350,905

H_ Operation & Maintenance

LABOR ID: NAT94A EQUIP ID: NAT95A

Currency in DOLLARS

CREW ID: NAT95A UPB ID: NAT95B

	QUANTITY UOM	LABOR MATERIAL	OTHER	TOTAL COST	UNIT COST
USR <02080 0070 > Acquisition (preliminary)	1.00 LS	0.00	0.00	150000.00	150000.00
		0	0	150,000	150,000
USR <02080 0071 > Administration (preliminary)	1.00 LS	0.00	0.00	25000.00	25000.00
		0	0	25,000	25,000
TOTAL Real Estate		0	0	175,000	175,000

I_ Real Estate

	QUANTITY	UOM	LABOR MATERIAL	OTHER	TOTAL COST	UNIT COST
USR <02080 0070 > Invasive/Exotic Vegetation Cntrl	15.00	DAY	0.00	0.00	3500.00	3500.00
			0	0	52,500	52,500
USR <02080 0071 > Monitoring	3.00	YR	0.00	0.00	67000.00	67000.00
			0	0	201,000	201,000
TOTAL Miscellaneous			0	0	253,500	253,500
TOTAL Spring Creek			3570951	309,346	1108880	4,989,177

J_ Miscellaneous

LABOR ID: NAT94A EQUIP ID: NAT95A
 CREW ID: NAT95A UPB ID: NAT95B

Currency in DOLLARS

Sun 08 Feb 2004
Eff. Date 02/05/04
ERROR REPORT

U.S. Army Corps of Engineers
PROJECT SPRNG1: Spring Creek
??% Cost Estimate

TIME 19:57:40
ERROR PAGE 1

No errors detected...

* * * END OF ERROR REPORT * * *

LABOR ID: NAT94A EQUIP ID: NAT95A

Currency in DOLLARS

CREW ID: NAT95A UPB ID: NAT95B