

Hudson-Raritan Estuary, Liberty State Park

Ecosystem Restoration

Appendix F

Cost Estimate

DESCRIPTION OF COSTS

Implementation costs for each restoration scenario were calculated based on estimates of location, mobilization/demobilization, site access, site preparation and excavation, disposal, planting, erosion and sediment control and monitoring costs. These project construction costs were estimated as part of the planning phase for the purpose of determining project feasibility, and to provide a means of comparing proposed restoration options. The chosen alternative will be designed further, and the quantities and costs will be refined in the cost appendix. However, for the alternative analysis, all alternatives have the same quantity and cost assumptions. A contingency cost of 20% was included to account for uncertainties in the final design and/or implementation of the selected NER Plan. Preliminary Engineering and Design (PED) and Management during construction were assumed as 10% and 7% respectively, of the total construction costs. An escalation factor of 3% was included to project the present day construction costs to the estimated midpoint of construction. All labor, material, equipment, overhead, bond and profit costs were considered in the costs. The costs were based on the cost estimate on experience at other projects and published estimating tools such as RS Means©.

The following describes the assumptions considered in the calculation of costs.

Costs Associated with All Proposed Restoration Areas and Activities:

Real Estate and Location

- The local sponsor owned the site prior to the start of the project, so no real estate costs were considered. However, all costs include an area cost factor of 3.6% to account for the higher cost of living in the project area (RS Means©).

Mobilization/Demobilization

- Mobilization and demobilization costs were the lump sum costs associated with the initiation and cessation of activities at the site, including obtaining and transporting equipment, and the removal of temporary site features and equipment upon completion of the Project.

Staging/Storage/Refueling Area

- A 4 in layer of gravel in an estimated 2500 sf area within Liberty State Park would be placed over a flat area before heavy machinery arrived at the site.
- Temporary chain link fencing would be erected around the site.

Temporary Erosion and Sediment Control

- During the earth movement phase of the project, the erosion of sediment will be minimized by controlling the runoff and turbidity that leaves the site. Erosion and sediment control is assumed to be required along the perimeters of the work zones. They will include staked straw bales, reinforced silt fencing, sediment traps with filters and maintenance of control measures

Site Access

- New access roads and maintenance costs were projected for the project area. The use of timber mats were included to allow heavy construction equipment to traverse the unconsolidated marsh surface.

Clearing and Grubbing

- Site preparation included the costs associated with the removal of *Phragmites Australis* and other existing vegetation in the proposed regrading locations. The assumption was made that this task, to be done for the entire proposed site, will entail herbicide treatments, clearing of existing vegetation by mowing above grade, stockpiling, shredding, loading and hauling to a designated area in the park. Herbicide and mechanical removal techniques will be used. Productivity is assumed to be at 82% to account for delays incurred while handling contaminated material.
- The additional cost of excavation of thatch material, including the rhizomes when indicated and other root material, is included in the locations that do not have cut/fill activities. Herbicide and mechanical removal techniques will be used. Productivity is assumed to be at 82% to account for delays incurred while handling contaminated material.

Monitoring Project Site

- Monitoring costs were assumed to be 1% of construction costs.

Tidal Wetland Costs

Earthwork

- Earthwork costs assumed that in the proposed low and high marsh areas, 60% of the material being excavated would be dry, and 40% would be wet, which is based on when groundwater was encountered in the geotechnical borings taken in the Fall 2003. The material would be hauled 0.5 miles round trip or less. The excavation locations will be finely graded/shaped and surveyed. The deposition area will be roughly graded. Productivity is assumed to be at 82% to account for delays incurred while handling contaminated material. The volume of material to be excavated was calculated from the 2003 site survey. For the low and high marsh, the proposed excavation depths were based on excavating the site to the range in which *Spartina alterniflora* and *Spartina patens* will most likely thrive. These elevations are based on bio-benchmarking and tidal datum data, plus an additional foot to allow room for a cap of clean clay fill 1 ft deep to be placed in all excavated areas, and another foot to allow room for a cap of clean sand fill 1 ft deep. A survey crew will be on site to confirm cut and fill placement elevations.

Clean Clay and Sand Fill Placement

- 1 ft of clean clay fill will be placed in the channel, mudflat, low and high marsh areas. The project expenses for this task include purchase/load/haul/spread/compact/shape the clean fill as per the plans and specifications. The placed clay will be compacted to create an impervious subsurface.
- 1 ft of clean sand fill will be placed in the channel, mudflat, low and high marsh areas. The project expenses for this task include purchase/load/haul/spread/compact/shape the clean fill as per the plans and specifications.
- 3 ft of clean sand fill will be placed in the upland scrub/shrub areas. The project expenses for this task include purchase/load/haul/spread/compact/shape the clean fill as per the plans and specifications.

Dewatering

- Dewatering will be necessary due to the high water table. It is assumed that 4 dewatering systems will operate for 12 months in the proposed tidal wetland area.

Temporary Cofferdam at Tidal Inlet

- Temporary sheeting will be installed at the mouth of the main inlet to prevent tidal inundation into the site while the earthwork is being completed.

Rip-Rap and Filter Fabric

- Rip-Rap and geotextile filter fabric will be placed at the tidal creek opening to stabilize the side slopes of the inlet to the North Cove. The costs include labor, equipment and materials for loading, hauling and placement.

Planting

- The costs for plants within the low and high marsh zones were based on plugs to be planted 18 in o.c. The cost include the purchase of the plug or peat pod stock, fertilizer, seeding, vector, pest control, weeding, watering and a restoration specialist. The high marsh will also have planted 100 shrubs/acre.
- The costs for plants within the maritime scrub/shrub zone were based on shrubs to be planted 8 ft o.c. The cost include the purchase of the shrubs, fertilizer, seeding, vector, pest control, weeding, watering and a restoration specialist.

Bird Control – Plant Protection

- The costs for protecting the young plugs from Waterfowl were based on methods used by the New York City Department of Parks and Recreation Department. Temporary goose exclusion fences will be placed at 25ft spacing intervals.

Upland Management Area and Disposal Area Costs

Top Soil/Sand Treatment

- It is assumed that either 2 ft of top soil, or 3 ft of clean sand fill will be placed in the upland management areas. The project expenses for this task include purchase/load/haul/spread/compact/shape the clean fill as per the plans and specifications.

Planting

- The costs for plants within the maritime forest zone were based the following planting scheme;
 - Canopy trees 1.5-2 inches diameter, spaced 10 ft o.c., for 10% of the upland management area
 - Canopy trees, 1-4 ft diameter, spaced 10 ft o.c., for 30% of the upland management area
 - Canopy trees, 5-6 ft diameter, spaced 10 ft o.c., for 30% of the upland management area
 - Understory trees, spaced 10 ft o.c., for 20% of the upland management area
 - Ferns/Forbs, spaced 3 ft o.c., for 5% of the upland management area
 - Shrubs, spaced 8 ft o.c., for 5% of the upland management area
 - The cost for all of the upland management plants listed above include the purchase of the stock, fertilizer, seeding, vector, pest control, weeding, watering and a restoration specialist.

Disposal Area Costs

Top Soil

- It is assumed that 1 ft of top soil will be placed in the upland management areas. The project expenses for this task include purchase/load/haul/spread/compact/shape the clean fill as per the plans and specifications.

Planting

- Grass seed and fertilizer will be placed on the disposal berm. It will be watered, and a jute mesh will be placed on it to minimize erosion.

Fresh Water Wetland Area

Earthwork

- Earthwork costs assumed that in the proposed fresh water areas, 80 % of the material being excavated would be dry, and 20% would be wet, which is based on when groundwater was encountered in the geotechnical borings taken in the Fall 2003. This ratio will vary with the season and depend on when the actual construction is carried out. The material would be hauled 0.5 miles round trip or less. The excavation locations will be finely graded/shaped and surveyed. The deposition area will be roughly graded. Productivity is assumed to be at 82% to account for delays incurred while handling contaminated material. The volume of material to be excavated was calculated from the 2003 site survey. The proposed regrading elevations are based on the existing drainage patterns within the site and the necessary hydrology to maintain the proposed ecosystems, plus an additional foot to allow room for a cap of clean clay fill 1 ft deep to be placed in all excavated areas, (and another foot to allow room for a cap of clean sand fill 1 ft deep on the average depending on specific soil conditions) A survey crew will be on site to confirm cut and fill placement elevations.
- Specialized equipment is needed to grade the wetland areas to 0.1 ft accuracy

Clean Clay and Sand Fill Placement

- 1 ft of clean clay fill will be placed in the drainage swales and area below Mean High Water.. The project expenses for this task include purchase/load/haul/spread/compact/shape the clean fill as per the plans and specifications. The placed clay will be compacted to create an impervious subsurface. Above this will be 6 inches of sandy loam or topsoil.

Dewatering

- Dewatering will be necessary due to the high water table. It is assumed that 4 dewatering systems will operate for 3 months.
- Planting
- The costs for plants within the biofilter are based on plugs to be planted 18 o.c . (The cost includes the purchase of the plug or peat pod stock, fertilizer, seeding, vector, pest control)
- The costs for plants within the deep emergent marsh are based on plugs to be planted 18 o.c (The cost includes the purchase of the plug or peat pod stock, fertilizer, seeding, vector, pest control)

- The costs for plants within the swales are based on seeding and net anchoring. (The cost includes seedbed prep, mulch, anchoring, fertilizer, one post germination watering)
- The costs for plants within the liberty science center wetland are based on plugs to be planted 18 o.c (The cost includes the purchase of the plug or peat pod stock, fertilizer, seeding, vector, pest control)

Bird Control – Plant Protection

- The costs for protecting the young plugs from Waterfowl were based on methods used by the New York City Department of Parks and Recreation Department. Temporary goose exclusion fences will be placed at 25ft spacing intervals.

Culverts

- The costs for the culverts assume they are 30 in diameter culverts, and it includes purchase, mob/demob, and installation.

Access Road:

Costs assume unbound base course of 1-1/2" stone base compacted 8" deep. (\$9.00 per square yard [RS Means]. Assuming 9 foot wide access road or \$9.00 per linear foot.

Biofilter:

Costs include:

- Excavation volume assume 3,541 CY based on over excavation by 1 foot. (under excavation costs)
- Clearing and grubbing area .95 acres or 20% larger area then the area within mean high water level.(under clearing and grubbing)
- Existing topsoil to be stockpiled and used to dress Riparian zone.
- Assume an additional 6 inch topsoil layer

Infiltration Costs:

- For LSP a full infiltration basin design can be used since infiltration tests indicate extremely permeable soils.
- The only outlet is and emergency spillway which passes larger storm (greater than 2 year design storm) events .
- A rip-rap apron is needed near the inlet to reduce incoming runoff velocities to promote more uniform infiltration. There is no need for other features for routing stormflow or baseflow through the structure.

Components include:

- Flat basin floor roto-tilled to ensure high permeability
- Based on infiltration test minimum sand is required (assume 4" of sand added)
- Dense grass turf to be seeded throughout the basin bottom.
- Inlet structure from adjacent deep emergent marsh

- Rip –rap area around the inlet
- Erosion control mat along embankment
- Emergency spillway
- Excavation volume assume 4,995 CY. Overexcavation is not needed (under excavation costs)
- Clearing and grubbing area 2.64 acres. Assume 20% greater than

Infiltration Costs:

Infiltration costs are usually estimated based on the dry pond cost equation (Schueller, 1987); particularly for basins with greater than 10,000 cubic feet in volume. The following equation has been used:

$$C = 10.7 Vs^{0.69}$$

C=Cost in dollars

Vs = storage volume up to the crest of the emergency spillway in the basin (including any dead storage reserved for exfiltration purposes)

$$C = 10.7 (4,995)^{0.69}$$

Cost to construct is about \$ 5,000.

Log Weirs:

25 Low weir is made up of three layers of logs; length varies; 30 feet long

- Bottom layer; 3 logs 12' long - 12-14" dia.
- 2nd layer 4 logs 6 ft long - 10-14" dia.
- 3rd layer 2 logs 6 feet long - 8-12" dia.
- 4th layer 2 logs - 4 long; 4-6" dia.

Totals:	Number	Total Length					
12" dia.	3 12	36					
	4 6	24					
	2 6	12					
						Total	
6" diam	2 4 8	Unit c	Cost			Log Weir Cost	\$600
		80	Installed				

Assumes installation by (R-3) Crew; One foreman (\$50 per hour - \$400 daily)

One laborer (\$49. per hour; 394 daily)

.5 equip operator (\$45.50 per hour; 181.60 per day)

One backhoe (\$ 150/ day)

Labor hours 6 hours per weir Average assuming total \$ 600.

Stone Weirs

Boulders set in place

6" gravel base

Assumes installation by (R-3) Crew; One formman (\$50 per hour - \$400 daily)
One laborer (\$ 49. per hour; 394 daily)
.5 equip operator (\$45.50 per hour; 181.60 per day)
One backhoe (\$ 150/ day)
Labor hours 3. hours per stone weir Average assuming (3 weirs constructed/day
Material 150; labor 150; total \$ 300.

Liberty State Park Ecosystem
Feasibility Phase
(Oct 2004 P.L.)

Project: Liberty State Park Ecosystem
Location: Hudson County

Account Number	Feature Description	Quantity	Unit	Unit Price	Total Cost (\$)	Cont. (\$)	Cont (%)	Total (\$)	
06	Fish & Wildlife Facility								
06.03.03	Sand Placement in North Cove								
16.03.03.20	Mob/Demob		ls		28,442	5,548	20%	33,990	
06.03.03.37	Sand Placement	14455	cy	38.60	557,967	108,830	20%	666,797	
06.03.04	Tidal Wetland & Disposal Area								
06.03.04.1	Disposal Area Berm								
06.03.04.1.01	Clearing and Scrubbing	38.95	acr	4815.25	187,554	36,582	20%	224,136	
06.03.04.1.02	Site Access	38.95	acr	8686.98	338,358	65,996	20%	404,354	
06.03.04.1.05	Sddedding -Upland Fill	38.95	acr	3576.52	139,305	27,171	20%	166,476	
06.03.04.1.08	Top Soil / Sand Treatment	38.95	acr	53023.52	2,065,266	402,826	20%	2,468,092	
06.03.04.1.10	Erosion and Sediment Control	38.95	acr	6672.30	259,886	50,690	20%	310,576	
06.03.04.1.12	Monitoring		ls		30,413	5,932	20%	36,345	
06.03.04.01	Tidal Wetland								
06.03.04.01.1	Bridge Construction	3600	sf	195.85	705,055	137,519	20%	842,574	
06.03.04.01.2	Relocate Statue		ls		34,302	6,691	20%	40,993	
06.03.04.01.3	Erosion and Sediment Control	36.14	acr	6672.29	241,137	47,033	20%	288,170	
06.03.04.01.4	Clearing & Scrubbing	36.14	acr	4815.24	174,023	33,943	20%	207,966	
06.03.04.01.01	Staging Area	2500	sf	6.80	16,991	3,314	20%	20,305	
06.03.04.01.03	Site Access	36.14	acr	8702.78	314,519	61,346	20%	375,865	
06.03.04.01.04	Cofferdam at Inlets	6500	sf	43.85	285,054	55,599	20%	340,653	
06.03.04.01.06	Dewatering		365	day	1961.89	716,090	139,672	20%	855,762
06.03.04.01.07	Earthwork-Dry	456427	bcy	11.57	5,281,002	1,030,048	20%	6,311,050	
06.03.04.01.08	Earthwork-wet	304285	bcy	14.11	4,292,956	837,332	20%	5,130,288	
06.03.04.01.09	Clean Sand-Wetland	58306	cy	17.24	1,005,282	196,078	20%	1,201,360	
06.03.04.01.11	Cleaning fill - Cohesive Material	58306	cy	17.24	1,005,282	196,078	20%	1,201,360	
06.03.04.01.12	Rip-Rap at Inlet	452	cy	87.44	39,525	7,709	20%	47,234	
06.03.04.01.13	Filer Fabric	678	sy	13.38	9,074	1,770	20%	10,844	
06.03.04.01.16	Subgrade Preparation to Lower Porosity	36.14	acr	3834.65	138,584	27,031	20%	165,615	
06.03.04.01.17	Fine Grading of Wetland	36.14	acr	11794.93	426,269	83,143	20%	509,412	
06.03.04.01.21	Bird Control - Plant Protection	36.14	acr	6975.91	252,109	49,173	20%	301,282	
06.03.04.01.23	Monitoring-Project Site		ls		145,452	28,370	20%	173,822	
06.03.04.01.28	Low Marsh Plants	15.21	acr	39889.80	606,724	118,340	20%	725,064	
06.03.04.01.33	High Marsh Plants	16.43	acr	42751.49	702,407	137,003	20%	839,410	
06.03.04.03	Mob/Demob		ls		142,412	27,777	20%	170,189	
06.03.05	Upland Management Area								
06.03.05.01	Clearing & Scrubbing	131.8	acr	4815.15	634,637	123,785	20%	758,422	
06.03.05.02	Site Access	131.8	acr	8464.44	1,115,613	217,598	20%	1,333,211	
06.03.05.07	Monitoring		ls		17,502	3,414	20%	20,916	
06.03.05.10	Mob/Demob				44,920	8,762	20%	53,682	
06.03.15	Fresh Water Wetland								
06.03.15.1	Mob/Demob		ls		143,901	28,068	20%	171,969	
06.03.15.01	Clearing & Scrubbing	9.28	acr	4815.24	44,685	8,716	20%	53,401	
06.03.15.02	New Culvers				102,138	19,922	20%	122,060	
06.03.15.03	Inlet Connection Plus flow	5	ea	132.28	661	129	20%	790	
06.03.15.04	Flow Dissipator	5	ea	396.62	1,983	387	20%	2,370	
06.03.15.05	Timber Mats	0.24	acr	1320.19	317	62	20%	379	
06.03.15.06	Erosion and Sediment Control		ls		89,925	17,540	20%	107,465	
06.03.15.08	Earthwork-dry	18402	bcy	11.71	215,454	42,024	20%	257,478	
06.03.15.09	Dewatering	90	day	1966.07	176,946	34,513	20%	211,459	
06.03.15.09	Fine Grading of Wetland	7.73	acr	11794.89	91,175	17,783	20%	108,958	
06.03.15.11	Tree	50	ea	333.35	16,668	3,251	20%	19,919	
06.03.15.12	Shrubs	1.28	acr	96537.18	123,568	24,102	20%	147,670	
06.03.15.13	Grassland /Herbaceous	25.65	msf	608.64	15,612	3,045	20%	18,657	
06.03.15.14	Wildflowers	25.65	msf	80.27	2,059	402	20%	2,461	
06.03.15.15	Bird Control - Plant Protection	11.75	acr	6975.88	81,967	15,987	20%	97,954	
06.03.15.16	Monitoring		ls		13,223	2,579	20%	15,802	
06.03.15.17	Cleaning fill - Cohesive Material	5751	cy	17.24	99,156	19,340	20%	118,496	
06.03.15.18	Subgrade Preparation to Lower	7.73	acr	2991.01	23,120	4,510	20%	27,630	
06.03.15.19	Stone Weir	3	ea	211.57	635	124	20%	759	
06.03.15.20	Log Weirs	11	ea	618.87	6,808	1,328	20%	8,136	
06.03.15.21	Access Road	2100	lf	30.64	64,338	12,549	20%	76,887	
06.03.15.22	Raptor Perches	1	ea	99.46	99	19	19%	118	
06.03.15.24	Raised Walks	200	lf		11,901	2,321	20%	14,222	
06.03.15.26	Observation Decks	2	ea		33,828	6,598	20%	40,426	
06.03.15.27	Earthwork-wet	4,600	bcy	14.95	68,755	13,411	20%	82,166	
	Total Acct 06				23,383,033	4,560,813		27,943,846	
01	Lands and Damages				25,000	5,000	20%	30,000	
30	Engineering & Design				1,870,000	187,000	10%	2,057,000	
31	Construction Management				1,830,000	366,000	20%	2,196,000	
	Total				27,108,033	5,118,813		32,226,846	

*** * *Liberty State Park Ecosystem * * ***

October 2004 P.L.

Project: Liberty State Park Ecosystem

Location: Hudson County, New Jersey

District: New York

POC: Emily Eng

Current MCACES Estimate				Fully Funded Estimate.....					
Account Number	Feature Description	Cost (\$K)	Cont. (\$K)	Cont (%)	Total (\$K)	Feature Midpoint	Midpt (%)	Cost (\$K)	Cont (\$K)	Total (\$K)
06	Fish & Wildlife	23,383	4,561	19.50%	27,944	May-07	6.72%	24,954	5450	30,405
01	Lands and Damages	25	5	20.00%	30	Jul-06	20.26%	30	6	36
30	Engineering & Design	1,870	187	10.00%	2,057	Jul-06	20.26%	2,249	206	2,455
31	Construction Management	1,830	366	20.00%	2,196	Jul-08	31.76%	2,411	439	2,850
Total		27,108	5,119		32,227			29,645	6101	35,746

Note: Inflation/escalation was developed using EM 1110-2-1304 dtd Sept 2004 & EC 11-2-187 Apr2005

Liberty State Park Ecosystem
Hudson County
New Jersey

Designed By: CENAN-EN-HH/DE
Estimated By: CENAN-EN-C

Prepared By: EE, JC

Preparation Date: 03/25/05
Effective Date of Pricing: 01/01/04

Sales Tax: 0.00%

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As per TM on 6/23/04, the Tree removal, landscaping/planting, Top Soil/Sand Treatment, Erosion and Sediment Control are deleted from the Upland Management Area

3/25/05 - The estimate is revised based on the comments from HQ & NAD (3/05), and comments from New England District(12/04)

According to Olivia Cackler, construction date is assumed on 4/06, the midpoint is on 5/07.

SUMMARY REPORTS	SUMMARY PAGE
PROJECT OWNER SUMMARY - Contract.....	1
PROJECT OWNER SUMMARY - Element.....	2
PROJECT OWNER SUMMARY - Level 5.....	4
PROJECT INDIRECT SUMMARY - Contract.....	7
PROJECT INDIRECT SUMMARY - Element.....	8
PROJECT INDIRECT SUMMARY - Level 5.....	10

DETAILED ESTIMATE	DETAIL PAGE
01. Lands and Damages	
05. Administration.....	1
06. Fish and Wildlife Facilities	
03. Wildlife Facilities & Sanctuary	
03. Sand Placement In North Cove	
20. Mob/Demob.....	2
37. Sand Placement in the North Cove.....	3
04. Tidal Wetland & Disposal Area	
1. Disposal Area Berm.....	4
01. Tidal Wetland.....	7
03. Mob/Demob.....	17
05. Upland Management Area	
01. Clearing & Grubbing.....	19
02. Site Access.....	20
07. Monitoring.....	21
10. Mob & Demob.....	22
15. Fresh Water Wetland	
1. Mob/Demob.....	23
01. Clearing & Grubbing.....	25
02. New Culverts.....	26
03. Inlet Connection plus flow.....	27
04. Flow Dissipator.....	28
05. Timber Mats.....	29
06. Erosion and Sediment Control.....	30
08. Earthwork-dry.....	31
09. Dewatering.....	32
10. Fine Grading of Wetland.....	33
11. Tree.....	34
12. Shrubs.....	35
13. Grassland/Herbaceous.....	36
14. Wildflowers.....	37
15. Bird Control -Plant Protection.....	38
16. Monitoring.....	39
17. Clean fill - Cohesive Material.....	40
18. Subgrade Preparation to Lower.....	41
19. Stone Weir.....	42
20. Log Weirs.....	43
21. Access Road.....	44
22. Raptor Perches.....	45
24. Raised Walks.....	46
26. Observation Decks.....	47

DETAILED ESTIMATE	DETAIL PAGE
27. Earthwork-wet.....	48
30. Planning, Engineering and Design.....	49
31. Construction Management.....	50

BACKUP REPORTS	BACKUP PAGE
LABOR BACKUP.....	1
EQUIPMENT BACKUP.....	2

* * * END TABLE OF CONTENTS * * *

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT OWNER SUMMARY - Contract **

TIME 10:38:45

SUMMARY PAGE 1

	QUANTY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT
01 Lands and Damages	42,000		8,400		50,400	
06 Fish and Wildlife Facilities	22,804,056		4,560,811		27,364,867	
30 Planning, Engineering and Design	1,820,000		182,000		2,002,000	
31 Construction Management	1,790,000		358,000		2,148,000	
TOTAL Liberty State Park Ecosystem	26,456,056		5,109,211		31,565,267	

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT OWNER SUMMARY - Element **

TIME 10:38:45

SUMMARY PAGE 2

		QUANTY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT
01	Lands and Damages						
01_05	Administration	42,000		8,400		50,400	
	TOTAL Lands and Damages	42,000		8,400		50,400	
06	Fish and Wildlife Facilities						
06_03	Wildlife Facilities & Sanctuary						
06_03.03	Sand Placement In North Cove						
06_03.03.20	Mob/Demob	27,738		5,548		33,286	
06_03.03.37	Sand Placement in the North Cove	14455 CY		544,151	108,830	652,981	45.17
	TOTAL Sand Placement In North Cove	54.90 ACR		571,889	114,378	686,266	12500
06_03.04	Tidal Wetland & Disposal Area						
06_03.04. 1	Disposal Area Berm	2,945,985		589,197		3,535,182	
06_03.04.01	Tidal Wetland	15,985,965		3,197,193		19,183,158	
06_03.04.03	Mob/Demob	138,886		27,777		166,663	
	TOTAL Tidal Wetland & Disposal Area	19,070,836		3,814,167		22,885,003	
06_03.05	Upland Management Area						
06_03.05.01	Clearing & Grubbing	131.80 ACR		618,923	123,785	742,708	5635.11
06_03.05.02	Site Access	131.80 ACR		1,087,990	217,598	1,305,588	9905.83
06_03.05.07	Monitoring			17,069	3,414	20,482	
06_03.05.10	Mob & Demob			43,808	8,762	52,570	
	TOTAL Upland Management Area	54.90 ACR		1,767,790	353,558	2,121,348	38640
06_03.15	Fresh Water Wetland						
06_03.15. 1	Mob/Demob	140,338		28,068		168,406	
06_03.15.01	Clearing & Grubbing	9.28 ACR		43,579	8,716	52,295	5635.21
06_03.15.02	New Culverts	950.00 LF		99,609	19,922	119,531	125.82
06_03.15.03	Inlet Connection plus flow	5.00 EA		645	129	774	154.75
06_03.15.04	Flow Dissapator	5.00 EA		1,934	387	2,321	464.24
06_03.15.05	Timber Mats	0.24 ARC		309	62	371	1547.16
06_03.15.06	Erosion and Sediment Control			87,698	17,540	105,237	
06_03.15.08	Earthwork-dry	18402 BCY		210,119	42,024	252,143	13.70
06_03.15.09	Dewatering	90.00 DAY		172,565	34,513	207,078	2300.87
06_03.15.10	Fine Grading of Wetland	7.73 ACR		88,917	17,783	106,701	13803

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT OWNER SUMMARY - Element **

TIME 10:38:45

SUMMARY PAGE 3

		QUANTY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT
06_03.15.11	Tree	50.00	EA	16,255	3,251	19,506	390.11
06_03.15.12	Shrubs	1.28	ACR	120,508	24,102	144,610	112977
06_03.15.13	Grassland/Herbaceous	25.65	MSF	15,225	3,045	18,270	712.29
06_03.15.14	Wildflowers	25.65	MSF	2,008	402	2,409	93.92
06_03.15.15	Bird Control -Plant Protection	11.75	ACR	79,937	15,987	95,925	8163.83
06_03.15.16	Monitoring			12,896	2,579	15,475	
06_03.15.17	Clean fill - Cohesive Material	5751.00	CY	96,701	19,340	116,041	20.18
06_03.15.18	Subgrade Preparation to Lower	7.73	ACR	22,548	4,510	27,058	3500.37
06_03.15.19	Stone Weir	3.00	EA	619	124	743	247.60
06_03.15.20	Log Weirs	11.00	EA	6,639	1,328	7,966	724.22
06_03.15.21	Access Road	2100.00	LF	62,745	12,549	75,295	35.85
06_03.15.22	Raptor Perches	1.00	EA	97	19	116	116.06
06_03.15.24	Raised Walks	200.00	LF	11,606	2,321	13,927	69.64
06_03.15.26	Obervation Decks	2.00	EA	32,990	6,598	39,588	19794
06_03.15.27	Earthwork-wet	4600.00	BCY	67,053	13,411	80,464	17.49
TOTAL Fresh Water Wetland				1,393,541	278,708	1,672,250	
TOTAL Wildlife Facilities & Sanctuary				22,804,056	4,560,811	27,364,867	
TOTAL Fish and Wildlife Facilities				22,804,056	4,560,811	27,364,867	
30	Planning, Engineering and Design			1,820,000	182,000	2,002,000	
31	Construction Management			1,790,000	358,000	2,148,000	
TOTAL Liberty State Park Ecosystem				26,456,056	5,109,211	31,565,267	

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT OWNER SUMMARY - Level 5 **

TIME 10:38:45

SUMMARY PAGE 4

	QUANTY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT
01 Lands and Damages						
01_05 Administration	42,000		8,400		50,400	
TOTAL Lands and Damages	42,000		8,400		50,400	
06 Fish and Wildlife Facilities						
06_03 Wildlife Facilities & Sanctuary						
06_03.03 Sand Placement In North Cove						
06_03.03.20 Mob/Demob	27,738		5,548		33,286	
06_03.03.37 Sand Placement in the North Cove	14455 CY		544,151	108,830	652,981	45.17
TOTAL Sand Placement In North Cove	54.90 ACR		571,889	114,378	686,266	12500
06_03.04 Tidal Wetland & Disposal Area						
06_03.04. 1 Disposal Area Berm						
06_03.04. 1_ 01 Clearing and Grubbing	38.95 ACR		182,910	36,582	219,492	5635.21
06_03.04. 1_ 02 Site Access	38.95 ACR		329,980	65,996	395,977	10166
06_03.04. 1_ 05 Seeding-Upland Fill	38.95 ACR		135,856	27,171	163,027	4185.55
06_03.04. 1_ 08 Top Soil /Sand Treatment	38.95 AC		2,014,129	402,826	2,416,954	62053
06_03.04. 1_ 10 Erosion and Sediment Control	38.95 ACR		253,451	50,690	304,141	7808.49
06_03.04. 1_ 12 Monitoring			29,660	5,932	35,592	
TOTAL Disposal Area Berm	2,945,985		589,197		3,535,182	
06_03.04.01 Tidal Wetland						
06_03.04.01_ 1 Bridge Construction	3600.00 SF		687,597	137,519	825,116	229.20
06_03.04.01_ 2 Relocate Statue			33,453	6,691	40,143	
06_03.04.01_ 3 Erosion and Sediment Control	36.14 ACR		235,166	47,033	282,199	7808.49
06_03.04.01_ 4 Clearing & Grubbing	36.14 ACR		169,714	33,943	203,657	5635.21
06_03.04.01_ 01 Staging Area	2500.00 SF		16,570	3,314	19,883	7.95
06_03.04.01_ 03 Site Access	36.14 ACR		306,731	61,346	368,077	10185
06_03.04.01_ 04 Cofferdam at Inlets	6500.00 SF		277,996	55,599	333,595	51.32
06_03.04.01_ 06 Dewatering	365.00 DAY		698,359	139,672	838,030	2295.97
06_03.04.01_ 07 Earthwork-Dry	456427 BCY		5,150,242	1,030,048	6,180,290	13.54
06_03.04.01_ 08 Earthwork-Wet	304285 BCY		4,186,660	837,332	5,023,992	16.51
06_03.04.01_ 09 Clean Sand -Wetland	58306 CY		980,391	196,078	1,176,469	20.18
06_03.04.01_ 11 Clean fill -Cohesive Material	58306 CY		980,391	196,078	1,176,469	20.18
06_03.04.01_ 12 Rip-Rap at Inlet	452.00 CY		38,546	7,709	46,255	102.33
06_03.04.01_ 13 Filter Fabric	678.00 SY		8,849	1,770	10,619	15.66
06_03.04.01_ 16 Subgrade Preparation to Lower	36.14 AC		135,153	27,031	162,184	4487.66

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT OWNER SUMMARY - Level 5 **

TIME 10:38:45

SUMMARY PAGE 5

		QUANTY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT
06_03.04.01_ 17	Fine Grading of Wetland	36.14	ACR	415,714	83,143	498,857	13803
06_03.04.01_ 21	Bird Control-Plant Protection	36.14	AC	245,867	49,173	295,041	8163.83
06_03.04.01_ 23	Monitoring-Project Site			141,851	28,370	170,222	
06_03.04.01_ 28	Low Marsh Plants	15.21	ACR	591,701	118,340	710,042	46683
06_03.04.01_ 33	High Marsh Plants	16.43	ACR	685,015	137,003	822,018	50032
TOTAL Tidal Wetland				15,985,965	3,197,193	19,183,158	
06_03.04.03	Mob/Demob			138,886	27,777	166,663	
TOTAL Tidal Wetland & Disposal Area				19,070,836	3,814,167	22,885,003	
06_03.05 Upland Management Area							
06_03.05.01	Clearing & Grubbing	131.80	ACR	618,923	123,785	742,708	5635.11
06_03.05.02	Site Access	131.80	ACR	1,087,990	217,598	1,305,588	9905.83
06_03.05.07	Monitoring			17,069	3,414	20,482	
06_03.05.10	Mob & Demob			43,808	8,762	52,570	
TOTAL Upland Management Area				54.90	ACR	1,767,790	353,558
						2,121,348	38640
06_03.15 Fresh Water Wetland							
06_03.15. 1	Mob/Demob			140,338	28,068	168,406	
06_03.15.01	Clearing & Grubbing	9.28	ACR	43,579	8,716	52,295	5635.21
06_03.15.02	New Culverts	950.00	LF	99,609	19,922	119,531	125.82
06_03.15.03	Inlet Connection plus flow	5.00	EA	645	129	774	154.75
06_03.15.04	Flow Dissapator	5.00	EA	1,934	387	2,321	464.24
06_03.15.05	Timber Mats	0.24	ARC	309	62	371	1547.16
06_03.15.06	Erosion and Sediment Control			87,698	17,540	105,237	
06_03.15.08	Earthwork-dry	18402	CY	210,119	42,024	252,143	13.70
06_03.15.09	Dewatering	90.00	DAY	172,565	34,513	207,078	2300.87
06_03.15.10	Fine Grading of Wetland	7.73	ACR	88,917	17,783	106,701	13803
06_03.15.11	Tree	50.00	EA	16,255	3,251	19,506	390.11
06_03.15.12	Shrubs	1.28	ACR	120,508	24,102	144,610	112977
06_03.15.13	Grassland/Herbaceous	25.65	MSF	15,225	3,045	18,270	712.29
06_03.15.14	Wildflowers	25.65	MSF	2,008	402	2,409	93.92
06_03.15.15	Bird Control -Plant Protection	11.75	ACR	79,937	15,987	95,925	8163.83
06_03.15.16	Monitoring			12,896	2,579	15,475	
06_03.15.17	Clean fill - Cohesive Material	5751.00	CY	96,701	19,340	116,041	20.18
06_03.15.18	Subgrade Preparation to Lower	7.73	ACR	22,548	4,510	27,058	3500.37
06_03.15.19	Stone Weir	3.00	EA	619	124	743	247.60
06_03.15.20	Log Weirs	11.00	EA	6,639	1,328	7,966	724.22
06_03.15.21	Access Road	2100.00	LF	62,745	12,549	75,295	35.85
06_03.15.22	Raptor Perches	1.00	EA	97	19	116	116.06
06_03.15.24	Raised Walks	200.00	LF	11,606	2,321	13,927	69.64
06_03.15.26	Observation Decks	2.00	EA	32,990	6,598	39,588	19794
06_03.15.27	Earthwork-wet	4600.00	BCY	67,053	13,411	80,464	17.49

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT OWNER SUMMARY - Level 5 **

TIME 10:38:45
SUMMARY PAGE 6

	QUANTY	UOM	CONTRACT	CONTINGN	TOTAL COST	UNIT
TOTAL Fresh Water Wetland	1,393,541		278,708		1,672,250	
TOTAL Wildlife Facilities & Sanctuary	22,804,056		4,560,811		27,364,867	
TOTAL Fish and Wildlife Facilities	22,804,056		4,560,811		27,364,867	
30 Planning, Engineering and Design	1,820,000		182,000		2,002,000	
31 Construction Management	1,790,000		358,000		2,148,000	
TOTAL Liberty State Park Ecosystem	26,456,056		5,109,211		31,565,267	

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT INDIRECT SUMMARY - Contract **

TIME 10:38:45

SUMMARY PAGE 7

	QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
01 Lands and Damages		42,000	0	0	0	0	42,000	
06 Fish and Wildlife Facilities		17,683,629	1,768,363	972,600	2,042,459	337,006	22,804,056	
30 Planning, Engineering and Design		1,820,000	0	0	0	0	1,820,000	
31 Construction Management		1,790,000	0	0	0	0	1,790,000	
TOTAL Liberty State Park Ecosystem		21,335,629	1,768,363	972,600	2,042,459	337,006	26,456,056	
Contingency		19.31 %					5,109,211	
TOTAL INCL OWNER COSTS							31,565,267	

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT INDIRECT SUMMARY - Element **

TIME 10:38:45

SUMMARY PAGE 8

	QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
01 Lands and Damages								
01_05 Administration		42,000	0	0	0	0	42,000	
TOTAL Lands and Damages		42,000	0	0	0	0	42,000	
06 Fish and Wildlife Facilities								
06_03 Wildlife Facilities & Sanctuary								
06_03.03 Sand Placement In North Cove								
06_03.03.20 Mob/Demob		21,510	2,151	1,183	2,484	410	27,738	
06_03.03.37 Sand Placement in the North Cove	14455 CY	421,967	42,197	23,208	48,737	8,042	544,151	37.64
TOTAL Sand Placement In North Cove	54.90 ACR	443,477	44,348	24,391	51,222	8,452	571,889	10417
06_03.04 Tidal Wetland & Disposal Area								
06_03.04. 1 Disposal Area Berm		2,284,493	228,449	125,647	263,859	43,537	2,945,985	
06_03.04.01 Tidal Wetland		12,396,473	1,239,647	681,806	1,431,793	236,246	15,985,965	
06_03.04.03 Mob/Demob		107,700	10,770	5,924	12,439	2,052	138,886	
TOTAL Tidal Wetland & Disposal Area		14,788,666	1,478,867	813,377	1,708,091	281,835	19,070,836	
06_03.05 Upland Management Area								
06_03.05.01 Clearing & Grubbing	131.80 ACR	479,950	47,995	26,397	55,434	9,147	618,923	4695.93
06_03.05.02 Site Access	131.80 ACR	843,693	84,369	46,403	97,447	16,079	1,087,990	8254.86
06_03.05.07 Monitoring		13,236	1,324	728	1,529	252	17,069	
06_03.05.10 Mob & Demob		33,971	3,397	1,868	3,924	647	43,808	
TOTAL Upland Management Area	54.90 ACR	1,370,850	137,085	75,397	158,333	26,125	1,767,790	32200
06_03.15 Fresh Water Wetland								
06_03.15. 1 Mob/Demob		108,827	10,883	5,985	12,569	2,074	140,338	
06_03.15.01 Clearing & Grubbing	9.28 ACR	33,794	3,379	1,859	3,903	644	43,579	4696.01
06_03.15.02 New Culverts	950.00 LF	77,243	7,724	4,248	8,922	1,472	99,609	104.85
06_03.15.03 Inlet Connection plus flow	5.00 EA	500	50	28	58	10	645	128.96
06_03.15.04 Flow Dissapator	5.00 EA	1,500	150	83	173	29	1,934	386.87
06_03.15.05 Timber Mats	0.24 ARC	240	24	13	28	5	309	1289.30
06_03.15.06 Erosion and Sediment Control		68,006	6,801	3,740	7,855	1,296	87,698	
06_03.15.08 Earthwork-dry	18402 BCY	162,939	16,294	8,962	18,819	3,105	210,119	11.42
06_03.15.09 Dewatering	90.00 DAY	133,817	13,382	7,360	15,456	2,550	172,565	1917.39
06_03.15.10 Fine Grading of Wetland	7.73 ACR	68,952	6,895	3,792	7,964	1,314	88,917	11503

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT INDIRECT SUMMARY - Element **

TIME 10:38:45

SUMMARY PAGE 9

		QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
06_03.15.11	Tree	50.00 EA	12,605	1,260	693	1,456	240	16,255	325.09
06_03.15.12	Shrubs	1.28 ACR	93,449	9,345	5,140	10,793	1,781	120,508	94147
06_03.15.13	Grassland/Herbaceous	25.65 MSF	11,807	1,181	649	1,364	225	15,225	593.58
06_03.15.14	Wildflowers	25.65 MSF	1,557	156	86	180	30	2,008	78.27
06_03.15.15	Bird Control -Plant Protection	11.75 ACR	61,988	6,199	3,409	7,160	1,181	79,937	6803.19
06_03.15.16	Monitoring		10,000	1,000	550	1,155	191	12,896	
06_03.15.17	Clean fill - Cohesive Material	5751.00 CY	74,987	7,499	4,124	8,661	1,429	96,701	16.81
06_03.15.18	Subgrade Preparation to Lower	7.73 ACR	17,485	1,749	962	2,020	333	22,548	2916.98
06_03.15.19	Stone Weir	3.00 EA	480	48	26	55	9	619	206.33
06_03.15.20	Log Weirs	11.00 EA	5,148	515	283	595	98	6,639	603.51
06_03.15.21	Access Road	2100.00 LF	48,657	4,866	2,676	5,620	927	62,745	29.88
06_03.15.22	Raptor Perches	1.00 EA	75	8	4	9	1	97	96.72
06_03.15.24	Raised Walks	200.00 LF	9,000	900	495	1,040	172	11,606	58.03
06_03.15.26	Obervation Decks	2.00 EA	25,582	2,558	1,407	2,955	488	32,990	16495
06_03.15.27	Earthwork-wet	4600.00 BCY	51,997	5,200	2,860	6,006	991	67,053	14.58

TOTAL Fresh Water Wetland			1,080,635	108,064	59,435	124,813	20,594	1,393,541	

TOTAL Wildlife Facilities & Sanctuary			17,683,629	1,768,363	972,600	2,042,459	337,006	22,804,056	

TOTAL Fish and Wildlife Facilities			17,683,629	1,768,363	972,600	2,042,459	337,006	22,804,056	

30	Planning, Engineering and Design		1,820,000	0	0	0	0	1,820,000	
31	Construction Management		1,790,000	0	0	0	0	1,790,000	

TOTAL Liberty State Park Ecosystem			21,335,629	1,768,363	972,600	2,042,459	337,006	26,456,056	

Contingency			19.31 %					5,109,211	

TOTAL INCL OWNER COSTS								31,565,267	

	QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
01 Lands and Damages								
01_05 Administration		42,000	0	0	0	0	42,000	
TOTAL Lands and Damages		42,000	0	0	0	0	42,000	
06 Fish and Wildlife Facilities								
06_03 Wildlife Facilities & Sanctuary								
06_03.03 Sand Placement In North Cove								
06_03.03.20 Mob/Demob		21,510	2,151	1,183	2,484	410	27,738	
06_03.03.37 Sand Placement in the North Cove	14455 CY	421,967	42,197	23,208	48,737	8,042	544,151	37.64
TOTAL Sand Placement In North Cove	54.90 ACR	443,477	44,348	24,391	51,222	8,452	571,889	10417
06_03.04 Tidal Wetland & Disposal Area								
06_03.04. 1 Disposal Area Berm								
06_03.04. 1_ 01 Clearing and Grubbing	38.95 ACR	141,839	14,184	7,801	16,382	2,703	182,910	4696.01
06_03.04. 1_ 02 Site Access	38.95 ACR	255,887	25,589	14,074	29,555	4,877	329,980	8471.90
06_03.04. 1_ 05 Seeding-Upland Fill	38.95 ACR	105,351	10,535	5,794	12,168	2,008	135,856	3487.96
06_03.04. 1_ 08 Top Soil /Sand Treatment	38.95 AC	1,561,876	156,188	85,903	180,397	29,765	2,014,129	51711
06_03.04. 1_ 10 Erosion and Sediment Control	38.95 ACR	196,541	19,654	10,810	22,700	3,746	253,451	6507.08
06_03.04. 1_ 12 Monitoring		23,000	2,300	1,265	2,657	438	29,660	
TOTAL Disposal Area Berm		2,284,493	228,449	125,647	263,859	43,537	2,945,985	
06_03.04.01 Tidal Wetland								
06_03.04.01_ 1 Bridge Construction	3600.00 SF	533,204	53,320	29,326	61,585	10,162	687,597	191.00
06_03.04.01_ 2 Relocate Statue		25,941	2,594	1,427	2,996	494	33,453	
06_03.04.01_ 3 Erosion and Sediment Control	36.14 ACR	182,362	18,236	10,030	21,063	3,475	235,166	6507.08
06_03.04.01_ 4 Clearing & Grubbing	36.14 ACR	131,606	13,161	7,238	15,201	2,508	169,714	4696.01
06_03.04.01_ 01 Staging Area	2500.00 SF	12,849	1,285	707	1,484	245	16,570	6.63
06_03.04.01_ 03 Site Access	36.14 ACR	237,858	23,786	13,082	27,473	4,533	306,731	8487.30
06_03.04.01_ 04 Cofferdam at Inlets	6500.00 SF	215,575	21,557	11,857	24,899	4,108	277,996	42.77
06_03.04.01_ 06 Dewatering	365.00 DAY	541,549	54,155	29,785	62,549	10,321	698,359	1913.31
06_03.04.01_ 07 Earthwork-Dry	456427 BCY	3,993,805	399,381	219,659	461,285	76,112	5,150,242	11.28
06_03.04.01_ 08 Earthwork-Wet	304285 BCY	3,246,587	324,659	178,562	374,981	61,872	4,186,660	13.76
06_03.04.01_ 09 Clean Sand -Wetland	58306 CY	760,253	76,025	41,814	87,809	14,489	980,391	16.81
06_03.04.01_ 11 Clean fill -Cohesive Material	58306 CY	760,253	76,025	41,814	87,809	14,489	980,391	16.81
06_03.04.01_ 12 Rip-Rap at Inlet	452.00 CY	29,891	2,989	1,644	3,452	570	38,546	85.28
06_03.04.01_ 13 Filter Fabric	678.00 SY	6,862	686	377	793	131	8,849	13.05
06_03.04.01_ 16 Subgrade Preparation to Lower	36.14 AC	104,806	10,481	5,764	12,105	1,997	135,153	3739.72

		QUANTY UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
06_03.04.01_ 17	Fine Grading of Wetland	36.14 ACR	322,369	32,237	17,730	37,234	6,144	415,714	11503
06_03.04.01_ 21	Bird Control-Plant Protection	36.14 AC	190,660	19,066	10,486	22,021	3,634	245,867	6803.19
06_03.04.01_ 23	Monitoring-Project Site		110,000	11,000	6,050	12,705	2,096	141,851	
06_03.04.01_ 28	Low Marsh Plants	15.21 ACR	458,841	45,884	25,236	52,996	8,744	591,701	38902
06_03.04.01_ 33	High Marsh Plants	16.43 ACR	531,202	53,120	29,216	61,354	10,123	685,015	41693
TOTAL Tidal Wetland			12,396,473	1,239,647	681,806	1,431,793	236,246	15,985,965	
06_03.04.03	Mob/Demob		107,700	10,770	5,924	12,439	2,052	138,886	
TOTAL Tidal Wetland & Disposal Area			14,788,666	1,478,867	813,377	1,708,091	281,835	19,070,836	
 06_03.05 Upland Management Area									
06_03.05.01	Clearing & Grubbing	131.80 ACR	479,950	47,995	26,397	55,434	9,147	618,923	4695.93
06_03.05.02	Site Access	131.80 ACR	843,693	84,369	46,403	97,447	16,079	1,087,990	8254.86
06_03.05.07	Monitoring		13,236	1,324	728	1,529	252	17,069	
06_03.05.10	Mob & Demob		33,971	3,397	1,868	3,924	647	43,808	
TOTAL Upland Management Area		54.90 ACR	1,370,850	137,085	75,397	158,333	26,125	1,767,790	32200
 06_03.15 Fresh Water Wetland									
06_03.15. 1	Mob/Demob		108,827	10,883	5,985	12,569	2,074	140,338	
06_03.15.01	Clearing & Grubbing	9.28 ACR	33,794	3,379	1,859	3,903	644	43,579	4696.01
06_03.15.02	New Culverts	950.00 LF	77,243	7,724	4,248	8,922	1,472	99,609	104.85
06_03.15.03	Inlet Connection plus flow	5.00 EA	500	50	28	58	10	645	128.96
06_03.15.04	Flow Dissapator	5.00 EA	1,500	150	83	173	29	1,934	386.87
06_03.15.05	Timber Mats	0.24 ARC	240	24	13	28	5	309	1289.30
06_03.15.06	Erosion and Sediment Control		68,006	6,801	3,740	7,855	1,296	87,698	
06_03.15.08	Earthwork-dry	18402 BCY	162,939	16,294	8,962	18,819	3,105	210,119	11.42
06_03.15.09	Dewatering	90.00 DAY	133,817	13,382	7,360	15,456	2,550	172,565	1917.39
06_03.15.10	Fine Grading of Wetland	7.73 ACR	68,952	6,895	3,792	7,964	1,314	88,917	11503
06_03.15.11	Tree	50.00 EA	12,605	1,260	693	1,456	240	16,255	325.09
06_03.15.12	Shrubs	1.28 ACR	93,449	9,345	5,140	10,793	1,781	120,508	94147
06_03.15.13	Grassland/Herbaceous	25.65 MSF	11,807	1,181	649	1,364	225	15,225	593.58
06_03.15.14	Wildflowers	25.65 MSF	1,557	156	86	180	30	2,008	78.27
06_03.15.15	Bird Control -Plant Protection	11.75 ACR	61,988	6,199	3,409	7,160	1,181	79,937	6803.19
06_03.15.16	Monitoring		10,000	1,000	550	1,155	191	12,896	
06_03.15.17	Clean fill - Cohesive Material	5751.00 CY	74,987	7,499	4,124	8,661	1,429	96,701	16.81
06_03.15.18	Subgrade Preparation to Lower	7.73 ACR	17,485	1,749	962	2,020	333	22,548	2916.98
06_03.15.19	Stone Weir	3.00 EA	480	48	26	55	9	619	206.33
06_03.15.20	Log Weirs	11.00 EA	5,148	515	283	595	98	6,639	603.51
06_03.15.21	Access Road	2100.00 LF	48,657	4,866	2,676	5,620	927	62,745	29.88
06_03.15.22	Raptor Perches	1.00 EA	75	8	4	9	1	97	96.72
06_03.15.24	Raised Walks	200.00 LF	9,000	900	495	1,040	172	11,606	58.03
06_03.15.26	Observation Decks	2.00 EA	25,582	2,558	1,407	2,955	488	32,990	16495
06_03.15.27	Earthwork-wet	4600.00 BCY	51,997	5,200	2,860	6,006	991	67,053	14.58

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** PROJECT INDIRECT SUMMARY - Level 5 **

TIME 10:38:45
SUMMARY PAGE 12

	QUANTY	UOM	DIRECT	FIELD OH	HOME OFC	PROFIT	BOND	TOTAL COST	UNIT
TOTAL Fresh Water Wetland	1,080,635		108,064	59,435	124,813	20,594		1,393,541	
TOTAL Wildlife Facilities & Sanctuary	17,683,629		1,768,363	972,600	2,042,459	337,006		22,804,056	
TOTAL Fish and Wildlife Facilities	17,683,629		1,768,363	972,600	2,042,459	337,006		22,804,056	
30 Planning, Engineering and Design	1,820,000		0	0	0	0		1,820,000	
31 Construction Management	1,790,000		0	0	0	0		1,790,000	
TOTAL Liberty State Park Ecosystem	21,335,629		1,768,363	972,600	2,042,459	337,006		26,456,056	
Contingency	19.31 %							5,109,211	
TOTAL INCL OWNER COSTS								31,565,267	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
01. Lands and Damages

TIME 10:38:45

DETAIL PAGE 1

01_05. Administration	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
01. Lands and Damages						0	0	0	0	42,000	42,000
TOTAL Administration						0	0	0	0	42,000	42,000

Fri 25 Mar 2005
 Eff. Date 01/01/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
 Liberty State Park LRR
 06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 2

06_03. Wildlife Facilities & Sanctuary			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06. Fish and Wildlife Facilities													
06_03. Wildlife Facilities & Sanctuary													
06_03.03. Sand Placement In North Cove													
06_03.03.20. Mob/Demob													
Assume all equipment moved to the jobsite at 2 days stand by time and 1 day to move equipment off-site or total of 24 hours													
Assume 16 hrs round trip for mobilized each equipment, 16 hrs round trip for demobilized each equipment													
MIL AA <	> Outside Truck Drivers, Heavy			64.00	HR	X-TRKDVRHV	1.00	1.00	27.99	0.00	0.00	0.00	27.99
								64	1,791	0	0	0	1,791 27.99
MIL AA <	> Outside Equip. Oilers			64.00	HR	X-EQOPROIL	1.00	1.00	29.93	0.00	0.00	0.00	29.93
								64	1,916	0	0	0	1,916 29.93
EP AA <	> Move Equipments to Job Site & Off-Site TRLR,LOWBOY, 60T, 3 AXLE (ADD TOWING TRUCK)			64.00	HR	T45XX017	1.00	0.00	0.00	10.15	0.00	0.00	10.15
								0	0	649	0	0	649 10.15
EP AA <	> Move Equipment to Job Site& Off-Site TRK,HWY, 46,000 GVW, 6X4, 3 AXLE			64.00	HR	T50FO018	1.00	0.00	0.00	42.25	0.00	0.00	42.25
								0	0	2,704	0	0	2,704 42.25
USR AA <	> 110hp tug w/crew 01509-700-800			40.00	HR			0.00	0.00	0.00	0.00	59.45	59.45
								0	0	0	0	2,378	2,378 59.45
Rent/day: \$168													
Crew Equipment Cost/day :\$236.6													
MAP AA <	> Standby Cost, HYD EXCAV BKT, 3.25CY, W/TIPS			24.00	HR	H25BS005	1.00	0.00	0.00	3.71	0.00	0.00	3.71
								0	0	89	0	0	89 3.71
MAP AA <	> Standby Cost, HYD EXCAV, CRWLR,110,880 LBS, 3.50 CY BKT,MASS BOOM			24.00	HR	H25CA029	1.00	0.00	0.00	90.06	0.00	0.00	90.06
								0	0	2,161	0	0	2,161 90.06
USR AA <	> Standy Cost, Deck Cargo Barge,800 ton			24.00	HR	ZRI001	1.00	0.00	0.00	75.41	0.00	0.00	75.41
								0	0	1,810	0	0	1,810 75.41
USR AA <	> Tug Captain			40.00	HR	X-TUG0001	1.00	1.00	125.86	0.00	0.00	0.00	125.86
								40	5,034	0	0	0	5,034 125.86
USR AA <	> Tug Mate			40.00	HR	X-TUG0002	1.00	1.00	74.41	0.00	0.00	0.00	74.41
								40	2,976	0	0	0	2,976 74.41
TOTAL Mob/Demob													
								208	11,718	7,414	0	2,378	21,510

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 3

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.03.37. Sand Placement in the North Cove												
Production rate calculation: 02315-424-0300 = 160cy/hr Assume differing site condition (deduct 50%) therefore production is 80 cy/hr												
MAP SC <	> HYD EXCAV BKT, 3.25CY, W/TIPS	180.69	HR	H25BS005	1.00	0.00	0.00	3.71	0.00	0.00	3.71	811 4.49
USR SC <	> Import Sand	14455	CY		0.00	0.00	0.00	16.00	0.00	0.00	16.00	279,849 19.36
USR SC <	> 110hp tug 01590-700-2000	180.69	HR		0.00	0.00	44.40	0.00	0.00	0.00	44.40	9,708 53.73
Crew Equipment Cost/day :\$236.6												
USR SC <	> Deck Cargo Barge,800 ton	180.69	HR	ZRI001	1.00	0.00	0.00	75.41	0.00	0.00	75.41	16,486 91.24
USR SC <	> Loading Ramps RRBB, volume 1 pg.14-1	180.69	HR	ZRI001	1.00	0.00	0.00	75.41	0.00	5.25	80.66	16,486 97.59
MIL SC <	> Equip. Operators	180.69	HR	B-EQOPRCRN	1.00	1.00	63.30	0.00	0.00	0.00	63.30	13,838 76.59
MIL SC <	> Equip. Operators, Oilers	180.69	HR	B-EQOPROIL	1.00	1.00	54.33	0.00	0.00	0.00	54.33	11,878 65.74
MIL SC <	> Laborers, (Semi-Skilled)	180.69	HR	B-LABORER	1.00	1.00	37.90	0.00	0.00	0.00	37.90	8,287 45.86
MAP SC <	> HYD EXCAV, CRWLR,110,880 LBS, 3.50 CY BKT,MASS BOOM	180.69	HR	H25CA029	1.00	0.00	0.00	90.06	0.00	0.00	90.06	19,690 108.97
USR SC <	> Tug Captain	180.69	HR	X-TUG0001	1.00	1.00	125.86	0.00	0.00	0.00	125.86	27,516 152.29
USR SC <	> Tug Mate	180.69	HR	X-TUG0002	1.00	1.00	74.41	0.00	0.00	0.00	74.41	16,269 90.04
TOTAL Sand Placement in the North Cove		14455	CY		903	77,789	63,182	279,849	1,148	421,967	29.19	
TOTAL Sand Placement In North Cove		54.90	ACR		1,111	89,506	70,596	279,849	3,526	443,477	8077.90	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 4

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.04. Tidal Wetland & Disposal Area																				
Berm																				
06_03.04. 1. Disposal Area Berm																				
06_03.04. 1_ 01. Clearing and Grubbing																				
USR SC <	> Herbicide Treatment Spreader 02935-100-0120			1696.66	MSF	ZA-2LAND01	25.87	0.04	2.19	1.03	0.26	0.00	3.48	7,144	4.21					
	Weed Control 02935-100-0190							66	4,496	2,114	534	0								
L AF SC <02110 0550 >	Phragmites cutting Brush mowing, dozer tractor 02230-200-0300			38.95	ACR	COTDB11A	1.33	1.50	70.95	48.89	0.00	827.00	946.84	44,624	1145.68					
L MIL SC <02234 2200 >	Hauling, off hwy haulers, 22 CY, rear/bottom dump, 1 mile round trip, incl. loading onto trucks Assuming 4" thick phrag			20737	CY	CTDHB34F	27.63	0.04	1.51	2.08	0.00	0.00	3.59	90,071	4.34					
	02315-490-2030 02315-462-9024							751	37,818	52,253	0	0								
TOTAL Clearing and Grubbing				38.95	ACR			875	45,658	56,671	534	38,976	141,839	3641.57						
06_03.04. 1_ 02. Site Access																				
B MIL AA <02244 0080 >	New Acess Road, Base course, crushed 3/4" stone, compacted, 4"D, large areas Assume 230 lf/acr of road x20' wide =511 sy/acr			19903	SY	COFGB36C	517.97	0.01	0.48	0.39	9.05	0.00	9.93	197,606	9.93					
	05655-700-1600							193	9,625	7,855	180,126	0								
USR AA <	> Timber Mats assume each mat is 10' x 10' per acre Each timber tie is 8" x 10' 10' / 8/12 = 15ea x 10' = 150'/acr			5842.50	LF	ZA-2LAND02	85.71	0.07	2.82	0.23	3.62	0.00	6.67	38,942	6.67					
	Labor&Material 05655-700-1600							409	16,465	1,327	21,150	0								

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45
DETAIL PAGE 5

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
USR AA <	> Temp Tidal Crossing Qty assumed. 15' wide. Use 6 timber mats, 2 as a base, 4 on top.						0.00	0.00	0.00	0.00	3.00 EA		0.00	0	0	0	0	3000.00	3000.00	
L USR AA <02512 0011 >	Access Road Fine Grade						19903 SY COFGB11L	250.00	0.01 159	0.38 7,527		0.14 2,811	0.00 0	0.00 0	0.00 0	0.00 0	0.52 10,338	0.52 0.52		
	TOTAL Site Access						38.95 ACR		761	33,618	11,993	201,276	9,000				255,887	6569.62		
06_03.04. 1_ 05. Seeding-Upland Fill																				
B MIL AA <02932 0320 >	Hypo Seeding Incl Seed & fertilizer 04-02920-310-1000						188516 SY COELB66	221.57	0.00 848	0.25 46,224	0.08 15,881	0.16 30,163	0.00 0	0.00 92,267	0.00 0	0.49 92,267	0.49 0.49			
L AF AA <02976 4930 >	Watering, water by truck 1 ac =43.56 msfx2pass=87.12 msf/ac						3393.32 MSF COFWB59	25.00	0.04 136	1.67 5,652	2.17 7,364	0.02 68	0.00 0	0.00 13,083	0.00 0	3.86 13,083	3.86 3.86			
	TOTAL Seeding-Upland Fill						38.95 ACR		984	51,876	23,245	30,230	0			105,351	2704.77			
06_03.04. 1_ 08. Top Soil /Sand Treatment																				
B MIL AA <02241 0705 >	Loam or topsoil, furnish & place, imported 02055-150-0800						62839 CY CODFB10S	30.34	0.05 3,104	2.49 156,621	0.95 59,487	18.10 1,137,392	0.00 0	0.00 1,353,499	0.00 0	21.54 21.54	21.54 21.54			
	43560sf/ac x 2' thick / 27 = CY/ACR																			
L USR AA <	> Add for hauling additional 5 mile						62839 CY COETH	25.00	0.04 2,514	1.67 104,659	1.65 103,718	0.00 0	0.00 0	0.00 0	0.00 208,376	3.32 3.32				
	TOTAL Top Soil /Sand Treatment						38.95 AC		5,618	261,280	163,204	1,137,392	0			1,561,876	40100			
06_03.04. 1_ 10. Erosion and Sediment Control																				
USR SC <	> Maintenance Assume 2 laborer 80hrs per acre to maintain erosion control measures						38.95 LS XLABB	0.03	78.00 3,038	2916.38 137,448	0.00 0	0.00 0	0.00 0	0.00 0	0.00 0	2916.38 137,448	3528.82			
L USR SC <	> Sediment Trap with filter assume \$200/acre						38.95 ACR		0.00 0	0.00 0	0.00 0	0.00 0	0.00 0	0.00 0	200.00 9,426	200.00 9,426				

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 6

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
USR SC <	> Straw Bales 02370-700-1250	7790.00	LF		0.00	0	0.35	0.06	1.93	0.00	2.34	
MIL SC <02228 1625 >	Excavate trench, normal soil, by hand, piled only, to 2' deep excavate 12" deep x 12" wide x 200' = CY/Acr	288.23	CY	ULABB2	7.00	206	0.71	27.22	0.00	0.00	27.22	
MIL SC <02215 0010 >	Backfill, by hand, no compaction, light soil	288.23	CY	ALABCLAB1	1.75	165	0.57	21.66	0.00	0.00	21.66	
B MIL SC <02266 1110 >	Silt fence, 3' high, polypropylene 02370-700-1100	7790.00	LF	ALABCLAB2	90.00	173	0.02	0.84	0.00	0.28	0.00	1.12
TOTAL Erosion and Sediment Control		38.95	ACR				3,582	165,732	551	20,831	9,426	196,541
												5045.98

06_03.04. 1_ 12. Monitoring

USR AA <	> Monitoring Assume 1% of \$2.3million	1.00	LS	0.00	0.00	0	0.00	0	0.00	23000.00	23000.00	
TOTAL Monitoring							0	0	0	0	23,000	23,000
TOTAL Disposal Area Berm							11,820	558,163	255,664	1,390,263	80,402	2,284,493

Fri 25 Mar 2005
 Eff. Date 01/01/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
 Liberty State Park LRR
 06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 7

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.04.01. Tidal Wetland												
06_03.04.01_ 1. Bridge Construction												
USR SC < > CON/SPAN Bridge System Material quote from BridgeTek Orchard Park, NY. not incl. markup												
1.00 EA 0.00 0 0.00 251000.00 0.00 251000.00 0.00 303,710 303,710 303,710												
equipment=\$1416*1.05*2=2974												
USR SC < > CON/SPAN Bridge System Install Material quote from BridgeTek Orchard Park, NY. not incl. markup												
3600.00 SF ZA-2LAND04 26.92 0.26 11.21 4.58 0.00 0.00 0.00 15.78 68,748 19.10												
BCCD04-02850-210-0050												
L USR SC < > Excavate & load, hydr excavator, 02315-424-1800												
1156.00 CY CODEB12D 28.61 0.07 4.11 5.15 0.00 0.00 0.00 9.26 12,952 11.20												
AF SC <02234 4000 > Hauling, w/loading, 12 CY truck, 5 mile haul, soil Swell at 20%												
204.00 CY CODEB30 87.00 0.03 1.61 1.76 0.00 0.00 0.00 3.36 830 4.07												
M RSM SC <03326 0400 > Concrete ready mix, regular weight, 5000 psi												
167.00 CY N/A 0.00 0.00 0.00 95.00 0.00 0.00 95.00 19,197 114.95												
footing =3'*10'*75'*2 =167CY												
MIL SC <03372 2700 > Placing conc, footings, spread, over 5 CY, w/crane & bucket												
167.00 CY ULABC7 12.50 0.64 27.26 8.33 0.00 0.00 0.00 35.59 7,192 43.07												
MIL SC <03158 0010 > Forms in place, footing, continuous wall, plywood, 1 use												
1020.00 SF ACARC1 46.88 0.09 3.10 0.00 2.40 0.00 0.00 5.50 6,790 6.66												
3'*10'*4+75'*3'*4=1020 SF												
M MIL SC <03217 0550 > Reinforcing in place, footings, #6 @ 8"												
7.60 TON SIWRRODM4 0.45 8.89 577.96 0.00 590.00 0.00 0.00 1167.96 10,741 1413.23												
10125lf*1.5002lb/lf=15208 lb=7.6 ton (short)												

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 8

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
MIL SC <02216 5530 >	Backfill, strl, 6" lifts, w/loader, no compaction, around foundation	986.00	CY	CODFB10N	70.00	0.02	1.08	0.56	0.00	0.00	1.64							1,954	1.98	
USR SC <	> Road Way Assemblies Cost Data 2004 G2010 210 2420	431.00	LF		0.00	0.00	91.46	0.00	102.38	0.00	193.84						101,089	234.55		
	Assuming 5" Thick Bituminous, paving, wearing course																			
	TOTAL Bridge Construction	3600.00	SF			1,306	118,599	29,918	384,687	0	533,204	148.11								
06_03.04.01_ 2. Relocate Statue																				
USR AA <02124 0040 >	Relocate and Install Statue USMA, Thomas J. Hall	1.00	EA	CLABB42	0.10	83.25	3946.19	995.05	0.00	21000.00	25941.24							25,941	25941	
	TOTAL Relocate Statue					83	3,946	995	0	21,000	25,941									
06_03.04.01_ 3. Erosion and Sediment Control																				
USR SC <	> Maintenance Assume 2 laborer 80hrs per acre to maintain erosion control measures	36.14	LS	XLABB	0.03	78.00	2916.38	0.00	0.00	0.00	2916.38							127,532	3528.82	
L USR SC <	> Sediment Trap with filter assume \$200/acre	36.14	ACR		0.00	0.00	0.00	0.00	0.00	200.00	200.00							8,746	242.00	
USR SC <	> Straw Bales 02370-700-1250	7228.00	LF		0.00	0.00	0.35	0.06	1.93	0.00	2.34							20,452	2.83	
MIL SC <02228 1625 >	Excavate trench, normal soil, by hand, piled only, to 2' deep	267.44	CY	ULABB2	7.00	0.71	27.22	0.00	0.00	0.00	27.22							8,807	32.93	
	excavate 12" deep x 12" wide x 200' = CY/Acr					191	8,807	0	0	0	0									
MIL SC <02215 0010 >	Backfill, by hand, no compaction, light soil	267.44	CY	ALABCLAB1	1.75	0.57	21.66	0.00	0.00	0.00	21.66							7,009	26.21	
B MIL SC <02266 1110 >	Silt fence, 3' high, polypropylene	7228.00	LF	ALABCLAB2	90.00	0.02	0.84	0.00	0.28	0.00	1.12							9,816	1.36	
	02370-700-1100																			

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 9

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
										-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	
TOTAL Erosion and Sediment Control 36.14 ACR												3,323	153,776	512	19,328	8,746	182,362	5045.98		
06_03.04.01_	4. Clearing & Grubbing	Includes phragmites removal, haul to on-site disposal																		
USR SC <	> Herbicide Treatment Spreader 02935-100-0120	1574.26 MSF	ZA-2LAND01	25.87	0.04	61	2.19	1,03	0.26	495	0	3.48	6,628	4.21						
	Weed Control 02935-100-0190																			
L AF SC <02110 0550	> Phragmites cutting Brush mowing, dozer tractor 02230-200-0300	36.14 ACR	COTDB11A	1.33	1.50	54	70.95	48.89	0.00	827.00	946.84	41,405	1145.68							
L MIL SC <02234 2200	> Hauling, off hwy haulers, 22 CY, rear/bottom dump, 1 mile round trip, incl. loading onto trucks Assuming 4" thick phrag	19241 CY	CTDHB34F	27.63	0.04	697	1.51	2.08	0.00	0.00	0.00	3.59	83,573	4.34						
	02315-490-2030																			
	02315-462-9024																			
TOTAL Clearing & Grubbing 36.14 ACR										812	42,364	52,583	495	36,164	131,606	3641.57				
06_03.04.01_ 01. Staging Area																				
USR AA <	> Grading small areas to 2500 SY	278.00 SY	COFGB32A	123.78	0.02	7	1.22	0.68	0.00	0.00	1.90	528	1.90							
	MHCCD004-02720-200-7000																			
USR AA <	> Filter Fabric MHCCD04-02720-200-6000/6900	278.00 SY	COELB66	561.67	0.00	1	0.10	0.03	0.87	0.00	1.00	278	1.00							
USR AA <	> 12" Aggregate, 3/4" Compacted compacted, 4"D, large areas MHCCD04-02720-200-0399	278.00 SY	COFGB36C	300.30	0.02	5	0.83	0.68	10.45	0.00	11.96	3,326	11.96							
USR AA <	> Remove Aggregate & Load MHCCD04-02315-442-0012	93.00 CY	CODFB10N	37.50	0.04	4	2.02	1.04	0.00	0.00	3.06	284	3.06							
USR AA <	> Haul Aggregate 10mil rnd trp. Dispose offsite.	93.00 CY	CODEB30	25.60	0.12	11	5.47	5.97	1.71	0.00	13.14	1,222	13.14							
LABOR ID: LSP603 EQUIP ID: LSP603 Currency in DOLLARS CREW ID: LSP603 UPB ID: UP01EA																				

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 10

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
MSWCD04-02325-490-1120&1300 462-9024												
M USR AA <02831 6560 > Fence, CL, 6' H, galv line post @ 10' OC, 9g mesh, 1-5/8" top rail MSWCD04-02820-130-0200M		250.00	LF	CLABB80	19.00	0.21 53	9.08 2,269	3.74 935	9.27 2,318	3.68 920	25.77 6,441	25.77
L MIL AA <02046 0752 > Site dml, chain link fence, remove & salvage for reuse MSWCD04-02220-220-1755		250.00	LF	ALABCLAB2	24.66	0.08 20	3.07 769	0.00 0	0.00 0	0.00 0	3.07 769	3.07
TOTAL Staging Area		2500.00	SF			99	4,332	1,974	5,623	920	12,849	5.14
06_03.04.01_ 03. Site Access												
B AA <02244 0300 > New Access Road 3/4" Crushed Stone 12" thk Assume 230 lf/acr of road x 20'wide = 51lsy/acr		18468	SY	COFGB36C	525.00	0.01 175	0.48 8,813	0.39 7,189	9.05 167,131	0.00 0	9.92 183,133	9.92
USR AA < > Timber Mats assume each mat is 10' x 10' per acre Each timber tie is 8" x 10' 10' / 8/12 = 15ea x 10' = 150'/acr Labor&Material 05655-700-1600		5421.00	LF	ZA-2LAND02	85.71	0.07 379	2.82 15,277	0.23 1,232	3.62 19,624	0.00 0	6.67 36,133	6.67
USR AA < > Temp Tidal Crossing Qty assumed. 15' wide. Use 6 timber mats, 2 as a base, 4 on top.		3.00	EA			0.00 0	0.00 0	0.00 0	0.00 0	3000.00 9,000	3000.00 9,000	3000.00 9,000
L USR AA <02512 0011 > Access Road Fine Grade		18468	SY	COFGB11L	250.00	0.01 148	0.38 6,984	0.14 2,608	0.00 0	0.00 0	0.52 9,592	0.52
TOTAL Site Access		36.14	ACR			703	31,074	11,028	186,755	9,000	237,858	6581.56

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 11

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT	
06_03.04.01_ 04. Cofferdam at Inlets																					
USR SC <	> Cofferdams incl.mob/demob, temp sheeting 02260-200-0020	6500.00	SF	CLADB49	39.35	0.28	1,817	14.06	2.80	10.55	0.00	27.41	215,575	33.17							
Assumes 250 ft lone, in 5 ft deep MLW, 5 ft tide +3 ft freeboard-13 ft high, driven 13 ft deep- LPW																					
	TOTAL Cofferdam at Inlets	6500.00	SF			1,817	110,571	22,028	82,976	0	0	215,575	33.17								
06_03.04.01_ 06. Dewatering Assuming take 12 months to dewater 36.14 ac. area																					
B USR AA <	> Dewater/Pump 02240-500-1100x1ea -1120x3ea	365.00	DAY	COFWD	0.08	20.00	7,300	990.42	265.41	0.00	0.00	1255.84	458,380	1255.84							
Assume 4 dewatering system and operating for 12 Months.																					
B USR AA <	> Generators Diesel engine, 100kw 01590-400-2700x2ea	12.00	MON	EELER3	0.03	96.90	1,163	6329.84	600.90	0.00	0.00	6930.74	83,169	6930.74							
\$720x2ea=\$1440/mon crew equipment cost/day=\$180/day ttl =1440+180*30=\$6840/mon																					
	TOTAL Dewatering	365.00	DAY			8,463	437,463	104,086	0	0	0	541,549	1483.70								
06_03.04.01_ 07. Earthwork-Dry																					
L MIL AA <02232 0140 >	Excavation work (dry area) Excavate & load, hydr excavator, 2 CY, medium matl	36.99	BCY	CODEB12C	0.05	3.18	14,110	1.98	0.00	0.00	5.16	2,353,771	5.16								
MSWCD04-02315-424-0260,0020,410 0																					
<*Mod*	> Add for loading on trucks				2,117	124,409		77,343													
<*Mod*	> Add for heavy soil				8,466	497,636		309,371													

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 12

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT	
L CIV AA <02234 2300 >	Haul 1/2 mile Hauling, Off hwy haulers, 40 CY 1/2 mile rt. MSWCD04-02315-490-2100					0.01	0.59	1.93	0.00	0.00	2.52		
USR AA <	> Survey Crew MSWCD04-01107-700-0010/0100 Project site.	36.14	AC		0.00	7,401	308,059	1,013,364	0	0	1,321,422	2.52	
USR AA <	> Productivity Loss-Level 'D' MERCD00,pg1-11 Productivity = 82% at Level 'D' 100-82=18% loss.			456427	BCY	0.00	0.61	0.00	0.00	0.00	0.61		
	\$1,551,852x18%=\$279,333/456,427 c y = \$.61 per cy.												
	TOTAL Earthwork-Dry			456427	BCY		32,094	2,074,454	1,918,171	1,180	0	3,993,805	8.75

06_03.04.01_ 08. Earthwork-Wet

L MIL AA <02232 0140 >	Excavation work (wet area) Excavate & load, hydr excavator, 2 CY, medium matl				0.07	4.25	2.64	0.00	0.00	0	6.89	
	Bccd-02315-424-0250 ,0020,410 0											
<*Mod*	> Add for loading onto trucks				1,535	90,224	56,094					
<*Mod*	> Add for wet excavation				10,232	601,494	373,963					
L CIV AA <02234 2300 >	Haul 1/2 mile Hauling, Off hwy haulers, 40 CY 1/2 mile rt. MSWCD04-02315-490-2100				0.01	0.59	1.93	0.00	0.00	0	2.52	
USR AA <	> Survey Crew MSWCD04-01107-700-0010/0100 Project site.	36.14	AC		0.00	7,401	308,059	1,013,364	0	0	1,321,422	2.52
USR AA <	> Productivity Loss-Level 'D' MERCD00,pg1-11 Productivity = 82% at Level 'D' 100-82=18% loss.			304285	BCY	0.00	0.75	0.00	0.00	0.00	0.75	
	\$1272155 x 18%=\$228988/304285cy .75 per cy.											

06 03. Wildlife Facilities & Sanctuary

QUANTITY HOM. CREW ID. OUTPUT MANHRS LABOR EQUIPMENTNT MATERIAL OTHER TOTAL COST UNIT

TOTAL: Earthwork-Wet 304,285 BCY 26,934 1,763,335 1,482,072 1,180 0 3,246,587 10,67

06 03.04.01 09. Clean Sand -Wetland

B	AF	SC <02234	4100	> Hauling, w/loading, 12 CY truck, 5 mile haul, sand	58306	CY	CODEB30	63.00	0.05	2.22	2.42	3.65	0.00	8.30	
L	MIL	SC <02216	5520	> Backfill, strl, 6" lifts, w/dozer, no compaction, around foundation	58306	CY	CODTB11R	137.50	0.01	0.55	0.47	0.00	0.00	1.02	
RSM	SC <02220	5600	> Compaction, riding, 6" lifts, 2 passes, sheepfoot/wobbly wheel roller	58306	CY	COFCB10G	300.00	0.01	0.25	0.18	0.00	0.00	0.44		
MIL	SC <02220	9000	> Compaction, water, truck, 3000 gal, 3 mile haul	58306	CY	COKBB45	236.00	0.01	0.42	0.25	0.20	0.00	0.87		
USR	SC <		> Finishing Grading MSWCD03-02310-440-3310	58306	SY		0.00	0.00	0.08	0.07	0.00	0.00	0.15		
			TOTAL Clean Sand -Wetland	58306	CY			4,198	248,309	240,326	271,619	0	760,253	13.04	

06_03.04.01_ 11. Clean fill -Cohesive Material

B	AF	SC	<02234	4100	> Hauling, w/loading, 12 CY truck, 5 mile haul, sand		58306	CY	CODEB30	63.00	2,775	156,706	171,039	257,508	0	0.00	8.30	
L	MIL	SC	<02216	5520	> Backfill, strl, 6" lifts, w/dozer, no compaction, around foundation		58306	CY	COTDB11R	137.50	636	38,796	33,438	0	0.00	0.00	1.02	
RSM	SC	<02220	5600	> Compaction, riding, 6" lifts, 2 passes, sheepfoot/wobbly wheel roller		58306	CY	COFCB10G	300.00	292	17,779	12,951	0	0.00	0.00	0.44		
MIL	SC	<02220	9000	> Compaction, water, truck, 3000 gal, 3 mile haul		58306	CY	COKBB45	236.00	496	29,384	17,945	14,110	0	0.00	0.87		
USR	SC	<		> Finishing Grading MSWCD03-02310-440-3310		58306	SY		0.00	0	5,644	4,953	0	0.00	0.00	0.15		
TOTAL Clean fill -Cohesive Material						58306	CY		4,198	248,309	240,326	271,619	0	0	760,253	13.04		

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 14

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT	
<hr/>													
06_03.04.01_ 12. Rip-Rap at Inlet													
USR AA <02270 1000 > Rip-rap, random pieces, dumped from truck, 3/8 - 1/4 CY addt'l cost = mats, etc., wet placement.		452.00	CY	CODEB3A	8.35	0.60	25.87	7.17	33.09	0.00	66.13	29,891	66.13
TOTAL Rip-Rap at Inlet		452.00	CY			271	11,691	3,243	14,957	0	29,891	66.13	
<hr/>													
06_03.04.01_ 13. Filter Fabric													
USR AA <	> Filter Fabric - at Tidal Channel Entrance	678.00	SY	ULABA2	16.20	0.19	7.23	1.10	1.79	0.00	10.12	6,862	10.12
02340-500-1500+50% work wet area at river													
TOTAL Filter Fabric		678.00	SY			126	4,902	747	1,214	0	6,862	10.12	
<hr/>													
06_03.04.01_ 16. Subgrade Preparation to Lower													
USR AA <	> Subgrade Preparation to Lower Porosity	36.14	ACR		0.00	0.00	0.00	0.00	0.00	2900.00	2900.00	104,806	104,806 2900.00
Green Brook Flood Control Finderne Mitigation Site Feasibility Report dated 8/03 The price is adjusted to scalated to PL 2004 \$2500*1.16=\$2900													
TOTAL Subgrade Preparation to Lower		36.14	AC			0	0	0	0	104,806	104,806	2900.00	
<hr/>													
06_03.04.01_ 17. Fine Grading of Wetland													
USR AA <02226	> Fine grade, 3 passes w/grader, irregular area	174918	SY	ZA-2LAND05	250.00	0.02	1.13	0.71	0.00	0.00	1.84	322,369	1.84
02310-100-1050													
TOTAL Fine Grading of Wetland		36.14	ACR			4,198	197,797	124,573	0	0	322,369	8920.02	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45
DETAIL PAGE 15

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.04.01_ 21. Bird Control-Plant Protection												
USR AA <	> Protect Planting from Water Fowl Item assumed, based on NYC eco. project spec & bid award price, incl. labor & material complete. Price is escalated to 2004 from 2003 $\$1.56/1.65*1.04=\$.98$ (FY03 Cost)*1.11=\\$1.09 (FY 04 Cost)		174918 SY		0.00	0	0.00	0.00	190,660	0.00	190,660	1.09
TOTAL Bird Control-Plant Protection		36.14 AC			0	0	0	190,660		0	190,660	5275.60
06_03.04.01_ 23. Monitoring-Project Site												
USR AA <	> Monitoring Assuming 1% of \$11 mil	1.00 LS			0.00	0	0.00	0.00	0	110000	110000.00	110000
TOTAL Monitoring-Project Site					0	0	0	0	110,000		110,000	
06_03.04.01_ 28. Low Marsh Plants												
B USR AA <	> Low Marsh Plants Spartina Alterniflora Cost from bid abstract NYC project. Cost escalating to 2004 from 2003 Spacing 1.5 ft on center. Includes fertilizer, seeding, restoration specialist, vector, and pest control, weeding Calc: 43560 sf/acr/1.5'/1.5' factor=19360	294466 EA	COEIB17	377.52	0.01	3,121	0.46	0.16	48,061	0.94	0.00	1.56
TOTAL Low Marsh Plants		15.21 ACR			3,121	133,982	48,061	276,798		0	458,841	30167
06_03.04.01_ 33. High Marsh Plants												
USR AA <	> Spartina Patens Cost from bid abstract- NYC project. Cost escalating to 2004 from 2003	318085 EA			0.00	0	0.00	0.00	0	1.67	1.67	1.67

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 16

06_03. Wildlife Facilities & Sanctuary	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT

Calc: 43560 sf/acr/1.5'/1.5'=19360 each/acr											
TOTAL High Marsh Plants	16.43	ACR			0	0	0	0	531,202	531,202	32331
TOTAL Tidal Wetland					91,745	5,584,903	4,280,643	1,709,090	821,838	12,396,473	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 17

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT	
06_03.04.03. Mob/Demob												Assume all equipment moved to the jobsite at 2 days standy time 1 day to move equipment off-site or total of 24 hrs.									
Assume 16 hrs RT. for mobilized each equipment, and 16 hrs RT. for demobilized each equipment																					
EP AA <	> Move Equipments to Job Site & off- Site, TRLR,LOWBOY, 60T, 3 AXLE (ADD TOWING TRUCK)	736.00	HR	T45XX017	1.00	0.00	0.00	10.15	0.00	0.00	0.00	7,468	0	0	0	0	0	0	10.15	7,468	10.15
EP AA <	> Move Equipment to Job Site & Off Job Site, TRK,HWY, 46,000 GVW, 6X4, 3 AXLE	736.00	HR	T50FO018	1.00	0.00	0.00	42.25	0.00	0.00	0.00	31,099	0	0	0	0	0	0	42.25	31,099	42.25
MIL AA <	> Outside Truck Drivers, Heavy	736.00	HR	X-TRKDVRHV	1.00	1.00	27.99	0.00	0.00	0.00	0	0	0	0	0	0	0	0	27.99	20,601	27.99
MIL AA <	> Outside Equip. Oilers	736.00	HR	X-EQOPROIL	1.00	1.00	29.93	0.00	0.00	0.00	0	0	0	0	0	0	0	0	29.93	22,029	29.93
GEN AA <	> Standy Cost, CRANE, HYD, 126' BOOM (59.0MT, 38.4M), 8X4	48.00	HR	C80Z2280	1.00	0.00	0.00	94.92	0.00	0.00	0.00	4,556	0	0	0	0	0	0	94.92	4,556	94.92
Assume 2 Crane on site																					
EP AA <	> Standy Cost, CR,ME,CWLR,LIFTING, 85T/160'BOOM	24.00	HR	C85AM010	1.00	0.00	0.00	107.45	0.00	0.00	0.00	2,579	0	0	0	0	0	0	107.45	2,579	107.45
MAP AA <	> Standy Cost, GRADER,MOTOR, ARTIC, CAT 14-H	48.00	HR	G15CA005	1.00	0.00	0.00	57.45	0.00	0.00	0.00	2,758	0	0	0	0	0	0	57.45	2,758	57.45
Assume 2 graders on site																					
EP AA <	> Standy Cost, HYD EXCAV, CRWLR, 55,660 LBS, 1.36 CY BKT	48.00	HR	H25KC010	1.00	0.00	0.00	48.43	0.00	0.00	0.00	2,325	0	0	0	0	0	0	48.43	2,325	48.43
Assume 2 HYD EXCAV on site																					
GEN AA <	> Standy Cost, LOADER, F/E, CRWLR, 1.50CY (1.2M3)	48.00	HR	L35Z4240	1.00	0.00	0.00	39.02	0.00	0.00	0.00	1,873	0	0	0	0	0	0	39.02	1,873	39.02
Assume 2 Loaders on site																					
EP AA <	> Standy Cost, LDR,BH,WH, 1.50CY FE BKT, 36"DIP 4X4	48.00	HR	L50JC006	1.00	0.00	0.00	26.64	0.00	0.00	0.00	1,279	0	0	0	0	0	0	26.64	1,279	26.64
Assume 2 backhoes on site																					

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 18

06_03. Wildlife Facilities & Sanctuary			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
GEN AA <	> Standy Cost, PUMP, CENTRF, DEWATER, 6" DIA 1825GPM(152MM, 6908LPM)@40' HEAD						0.00	0.00	19.91	0.00	0.00	19.91	19.91
	Assume 4 pumps on site						0	0	1,433	0	0	1,433	19.91
GEN AA <	> Standby Cost, ROLLER, VIB, SD, SP 13.0T (11.8MT), 84"(2.1M)W, SHEEPS FOOT		48.00	HR	R45Z5580		1.00	0.00	0.00	55.09	0.00	0.00	55.09
	Assume 2 Rollers on the site						0	0	2,644	0	0	2,644	55.09
MAP AA <	> Standy Cost, DOZER,CWLR, D-10R PS,W/BLADE (ADD ATTACHMENTS)		48.00	HR	T15CA018		1.00	0.00	120.60	0.00	0.00	120.60	120.60
	Assume 2 dozers on the site						0	0	5,789	0	0	5,789	120.60
GEN AA <	> DRILL, AUGER, FENCE POST, TM 550 DIG-R-MOBILE - GENERAL EQUIP		24.00	HR	XMEZ9300		1.00	0.00	52.83	0.00	0.00	52.83	52.83
	Assume 1 Drill on the site						0	0	1,268	0	0	1,268	52.83
TOTAL Mob/Demob							1,472	42,630	65,070	0	0	107,700	
TOTAL Tidal Wetland & Disposal Area							105,037	6,185,696	4,601,377	3,099,353	902,240	14,788,666	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 19

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
06_03.05. Upland Management Area												
06_03.05.01. Clearing & Grubbing												
Includes phragmities removal, haul to on-site disposal Due to the possibility that the area may have oil contaminants, the productivity loss will be decreased by about 15% and is reflected in the individual line items.												
L AF SC <02110 0550 > Phragmities cutting		131.80	ACR	COTDB11A	1.33	1.50	70.92	48.87	0.00	827.00	946.79	
Brush mowing, dozer tractor						198	11,310	7,794	0	131,888	150,992	1145.61
02230-200-0300												
L MIL SC <02234 2200 > Hauling, off hwy haulers,22 CY, rear/bottom dump, 1 mile round trip, incl. loading onto trucks		70170	CY	CTDHB34F	27.63	0.04	1.51	2.08	0.00	0.00	3.59	
02315-490-2030						2,540	127,970	176,815	0	0	304,786	4.34
02315-462-9024												
USR SC <	> Herbicide Treatment					0.04	2.19	1.03	0.26	0.00	3.48	
Spreader		5741.21	MSF	ZA-2LAND01	25.87	222	15,213	7,153	1,806	0	24,172	4.21
02935-100-0120												
Weed Control												
02935-100-0190												
<hr/>		TOTAL Clearing & Grubbing		131.80	ACR	2,960	154,493	191,762	1,806	131,888	479,950	3641.50
<hr/>												

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 20

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.05.02. Site Access												
B	AA <02244 0300 > New Access Road 3/4" Crushed Stone 4" thk	67350	SY	COFGB36C	524.45	0.01 640	0.48 32,173	0.39 26,248	9.05 609,516	0.00 0	9.92 667,937	9.92
Assume 230 lf/acr of road x 20'wide = 51lsy/acr												
USR AA <	> Timber Mats assume each mat is 10' x 10' per acre	19770	LF	ZA-2LAND02	85.71	0.07 1,384	2.82 55,714	0.23 4,492	3.62 71,567	0.00 0	6.67 131,773	6.67
Each timber tie is 8" x 10' 10' / 8/12 = 15ea x 10' = 150'/acr												
Labor&Material 05655-700-1600												
USR AA <	> Temp Tidal Crossing Qty assumed. 15' wide. Use 6 timber mats, 2 as a base, 4 on top.	3.00	EA		0.00	0.00 0	0.00 0	0.00 0	0.00 0	3000.00 9,000	3000.00 9,000	3000.00 9,000
L USR AA <02512 0011 > Access Road Fine Grade		67350	SY	COFGB11L	250.00	0.01 539	0.38 25,472	0.14 9,511	0.00 0	0.00 0	0.52 34,983	0.52
TOTAL Site Access		131.80 ACR				2,563	113,359	40,251	681,083	9,000	843,693	6401.31

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 21

06_03. Wildlife Facilities & Sanctuary	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT

06_03.05.07. Monitoring											
USR AA <	> Monitoring					0.00	0.00	0.00	0.00	13236.00	13236.00
	Assume 1% of \$1.3millions			1.00 LS		0.00	0	0	0	13,236	13,236

TOTAL Monitoring											
						0	0	0	0	13,236	13,236

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45
DETAIL PAGE 22

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT	
06_03.05.10. Mob & Demob												Assume all equipment move to the jobsite at 2 days standy time and 1 day to move equipment off-site or total of 24 hours									
Assume 16 hours round trip for mobilized each equipment, and 16 hours round trip for demobilize each equipment																					
EP SC <	> Move Equipments to Job Site & off-Site, TRLR, LOWBOY, 60T, 3 AXLE (ADD TOWING TRUCK)	192.00	HR	T45XX017	1.00	0.00	0.00	10.15	0.00	0.00	0.00	10.15	2,357	0	0	0.00	0.00	10.15	2,357	12.28	
EP SC <	> Move Equipments to Job Site & Off Job Site, TRK, HWY, 46,000 GVW, 6X4, 3 AXLE	192.00	HR	T50FO018	1.00	0.00	0.00	42.25	0.00	0.00	0.00	42.25	9,817	0	0	0.00	0.00	9,817	51.13		
MIL SC <	> Outside Truck Drivers, Heavy	192.00	HR	X-TRKDVRHV	1.00	1.00	27.99	0.00	0.00	0.00	27.99	6,503	0	0	0.00	0.00	0.00	0.00	6,503	33.87	
MIL SC <	> Outside Equip. Oilers	192.00	HR	X-EQOPROIL	1.00	1.00	29.93	0.00	0.00	0.00	29.93	6,953	0	0	0.00	0.00	0.00	0.00	6,953	36.22	
EP SC <	> Standy Cost, LDR,BH,WH, 1.50CY FE BKT, 36"DIP 4X4	48.00	HR	L50JC006	1.00	0.00	0.00	26.64	0.00	0.00	26.64	0.00	1,547	0	0	0.00	0.00	1,547	32.24		
GEN SC <	> Standby Cost, GRADER, MOTOR, 135 HP (101KW) 12' (3.6M) BLADE WIDTH, SP, ARTIC	48.00	HR	G15Z3080	1.00	0.00	0.00	35.30	0.00	0.00	35.30	0.00	2,050	0	0	0.00	0.00	2,050	42.72		
GEN SC <	> Standt Cost, DOZER, CRAWLER, 300-340HP (224-254KW), PS, (W/ U BLADE)	48.00	HR	T15Z6570	1.00	0.00	0.00	81.68	0.00	0.00	81.68	0.00	4,744	0	0	0.00	0.00	4,744	98.83		
TOTAL Mob & Demob										384	13,456	20,515	0	0	0	0	0	33,971			
TOTAL Upland Management Area										5,907	281,308	252,529	682,889	154,124	1,370,850	24970					

Fri 25 Mar 2005
 Eff. Date 01/01/04
 DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
 PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
 Liberty State Park LRR
 06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 23

06_03. Wildlife Facilities & Sanctuary				QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15. Fresh Water Wetland														
06_03.15. 1. Mob/Demob														
Assume all equipments moved to the jobsite at 2 days standy time and 1 day to move equipment off-site or total of 24 hours.														
Assume 16 hrs round trip for mobilized each equipment, and 16 hrs round trip for demobilized each equipment.														
EP SC <	> Move Equipments to Job Site & off- Site, TRLR,LOWBOY, 60T, 3 AXLE (ADD TOWING TRUCK)	609.00	HR	T45XX017	1.00		0.00	0	0	10.15	0.00	0.00	10.15	7,477 12.28
EP SC <	> Move Equipments to Job Site & Off Job Site, TRK,HWY, 46,000 GVW, 6X4, 3 AXLE	609.00	HR	T50FO018	1.00		0.00	0	0	42.25	0.00	0.00	42.25	31,137 51.13
MIL SC <	> Outside Truck Drivers, Heavy	609.00	HR	X-TRKDVRHV	1.00		1.00	609	20,626	27.99	0.00	0.00	27.99	20,626 33.87
MIL SC <	> Outside Equip. Oilers	609.00	HR	X-EQOPROIL	1.00		1.00	609	22,056	29.93	0.00	0.00	29.93	22,056 36.22
GEN SC <	> Standt Cost, CRANE, HYD,	48.00	HR	C80Z2260	1.00		0.00	0	0	58.44	0.00	0.00	58.44	3,394 70.71
MAP SC <	> Standby Cost, GRADER,MOTOR, ARTIC, CAT 14-H	24.00	HR	G15CA005	1.00		0.00	0	0	57.45	0.00	0.00	57.45	1,668 69.52
GEN SC <	> Standy Costk, HYD EXCV, CRAWLER, 55,000LBS, (24,948KG) 1.50CY, (1.2M3) BKT	48.00	HR	H25Z3185	1.00		0.00	0	0	59.89	0.00	0.00	59.89	3,478 72.46
GEN SC <	> Standby Cost, HYD EXCV, CRAWLER, 70,000LBS, (31,751KG) 2.00CY, (1.5M3) BKT	48.00	HR	H25Z3190	1.00		0.00	0	0	73.13	0.00	0.00	73.13	4,247 88.48
GEN SC <	> Standy Cost, LOADER, F/E, WHEEL, 2.75CY (2.1M3), 4WD	48.00	HR	L40Z4395	1.00		0.00	0	0	39.24	0.00	0.00	39.24	2,279 47.48
EP SC <	> Standy Cost, LDR,BH,WH, 1.50CY FE BKT, 36"DIP 4X4	48.00	HR	L50JC006	1.00		0.00	0	0	26.64	0.00	0.00	26.64	1,547 32.24
GEN SC <	> Standy Cost, PUMP, CENTRF, DEWATER, 6" DIA 1825GPM(152MM, 6908LPM)@40'HEAD	96.00	HR	P60Z5410	1.00		0.00	0	0	19.91	0.00	0.00	19.91	2,312 24.09
GEN SC <	> Standby Cost, ROLLER, VIB, SD, SP 13.0T (11.8MT), 84"(2.1M)W,SHEEPS FOOT	24.00	HR	R45Z5580	1.00		0.00	0	0	55.09	0.00	0.00	55.09	1,600 66.66

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 24

06_03. Wildlife Facilities & Sanctuary			QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
MAP SC <			> Standy Cost, DOZER,CWLR, D-10R PS,W/BLADE (ADD ATTACHMENTS)			48.00	HR	T15CA018	0.00	0.00	120.60	0.00	120.60
TOTAL Mob/Demob						1.00		0	0	7,005	0	0	7,005
								-----	-----	-----	-----	-----	145.93
								1,218	42,682	66,145	0	0	108,827

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 25

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
06_03.15.01. Clearing & Grubbing	Includes phragmites removal, haul to on-site disposal											
USR SC <	> Herbicide Treatment Spreader 02935-100-0120	404.24	MSF	ZA-2LAND01	25.87	0.04	2.19	1.03	0.26	0.00	3.48	
	Weed Control 02935-100-0190					16	1,071	504	127	0	1,702	4.21
L AF SC <02110 0550 >	Phragmites cutting Brush mowing, dozer tractor 02230-200-0300	9.28	ACR	COTDB11A	1.33	1.50	70.95	48.89	0.00	827.00	946.84	
						14	797	549	0	9,286	10,632	1145.68
L MIL SC <02234 2200 >	Hauling, off hwy haulers, 22 CY, rear/bottom dump, 1 mile round trip, incl. loading onto trucks Assuming 4" thick phrag	4940.67	CY	CTDHB34F	27.63	0.04	1.51	2.08	0.00	0.00	3.59	
						179	9,010	12,450	0	0	21,460	4.34
	02315-490-2030 02315-462-9024											
TOTAL Clearing & Grubbing		9.28	ACR			208	10,878	13,502	127	9,286	33,794	3641.57
<hr/>												

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 26

06_03. Wildlife Facilities & Sanctuary			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>													
06_03.15.02. New Culverts													
B USR AA <	> Ex/Bi/Comp/Bed							0.21	11.01	7.53	1.53	0.00	20.07
	MSWCD04-G1030-805-3830	950.00	LF	COETR23	17.32	196	10,455	7,155	1,454	0	19,063	20.07	
	815-2680												
MIL AA <02762 2050 > Piping, drainage & sewage, 30"	dia, RCP, class 3, no gaskets	950.00	LF	CLABB13	11.00	605	28.01	8.63	24.60	0.00	61.24		
							26,613	8,198	23,370	0	58,180	61.24	
TOTAL New Culverts			950.00	LF		801	37,067	15,352	24,824	0	77,243	81.31	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 27

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.03. Inlet Connection plus flow												
USR AA <	> Log Weir Assume log Weir Cost obtained from Kerry Ann's cost spread sheet which is AE' estimated in 2004		5.00	EA		0.00	0.00	0.00	0.00	100.00	100.00	500 100.00
TOTAL	Inlet Connection plus flow		5.00	EA		0	0	0	0	500	500	100.00

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 28

06_03. Wildlife Facilities & Sanctuary	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>											
06_03.15.04. Flow Dissapator											
USR AA <	> Flow Dissapator					0.00	0.00	0.00	0.00	300.00	300.00
	Cost from Kerry Ann's cost & qty spread sheet	5.00	EA		0.00	0	0	0	0	1,500	1,500
<hr/>											
TOTAL Flow Dissapator						0	0	0	0	1,500	1,500

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 29

06_03. Wildlife Facilities & Sanctuary	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT

06_03.15.05. Timber Mats											
USR AA <	> Timber Mats assume each mat is 10' x 10' per acre	36.00	LF ZA-2LAND02	85.71	0.07 3	2.82 101	0.23 8	3.62 130	0.00 0	6.67 240	6.67
	Each timber tie is 8" x 10' 10' / 8/12 = 15ea x 10' = 150'/acr										
	Labor&Material 05655-700-1600										
TOTAL Timber Mats		0.24	ARC		----- 3 101	----- 8	----- 130	----- 0	----- 240	999.80	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 30

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.06. Erosion and Sediment Control												
USR SC <	> Maintenance Assume 2 laborer 80hrs per acre to maintain erosion control measures	3.14	ACR	XLABB	0.03	78.00 245	2916.38 11,080	0.00 0	0.00 0	0.00 0	2916.38 11,080	3528.82
L USR SC <	> Sediment Trap with filter assume \$200/acre	1.00	ACR		0.00	0.00 0	0.00 0	0.00 0	0.00 0	200.00 242	200.00 242	242.00
USR SC <	> Straw Bales 02370-700-1250	7968.00	LF		0.00	0.00 0	0.96 9,256	0.06 564	1.93 18,608	0.00 0	2.95 28,427	3.57
B MIL SC <02266 1110 >	Silt fence, 3' high, polypropylene	7968.00	LF	ALABCLAB2	90.00	0.02 177	0.84 8,121	0.00 0	0.28 2,700	0.00 0	1.12 10,820	1.36
02370-700-1100												
MIL SC <02228 1625 >	Excavate trench, normal soil, by hand, piled only, to 2' deep	294.82	CY	ULABB2	7.00	0.71 211	27.22 9,709	0.00 0	0.00 0	0.00 0	27.22 9,709	32.93
excavate 12" deep x 12" wide x 1 = CY/LF												
MIL SC <02215 0010 >	Backfill, by hand, no compaction, light soil	294.82	CY	ALABCLAB1	1.75	0.57 168	21.66 7,727	0.00 0	0.00 0	0.00 0	21.66 7,727	26.21
TOTAL Erosion and Sediment Control												
						801	45,893	564	21,307	242	68,006	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 31

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.08. Earthwork-dry												
L MIL AA <02232 0140	> Excavation work (dry area) Excavate & load, hydr excavator, 2 CY, medium matl			18402 BCY CODEB12C	36.98	0.05 569	3.18 33,443	1.98 20,792	0.00 0	0.00 0	5.16 94,912	5.16
MSWCD04-2315-424-0260,0020,410 0												
<*Mod*	> Add for loading on trucks					85	5,016	3,119				
<*Mod*	> Add for heavy soil					341	20,066	12,475				
L CIV AA <02234 2300	> Haul 1/2 mile Hauling, Off hwy haulers, 40 CY	21162 LCY CTDHB34H			70.94	0.01 298	0.59 12,420	1.93 40,856	0.00 0	0.00 0	2.52 53,276	2.52
MSWCD04-02315-490-2100												
USR AA <	> Survey Crew MSWCD04-01107-700-0010/0100 Project site.	3.17 AC				0.00	1011.00 0	68.47 3,205	32.65 217	0.00 104	1112.12 3,525	1112.12
USR AA <	> Productivity Loss-Level 'D' MERCD00,pg1-11	18402 LCY				0.00	0.00 0	0.61 11,225	0.00 0	0.00 0	0.61 11,225	0.61
Productivity = 82% at Level 'D' 100-82=18% loss.												
\$62527 x 18%=\$11254/18402cy = \$.61 per cy.												
TOTAL Earthwork-dry			18402 BCY			1,294	85,376	77,460	104	0	162,939	8.85

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 32

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
06_03.15.09. Dewatering	Assuming take 3 months to dewater 8 ac area											
B USR AA <	> Dewater/Pump 02240-500-1100x1ea -1120x3ea Assume total 4 dewatering system will operate for 3 months	90.00	DAY COFWD		20.00 0.08	990.42 1,800	265.41 89,138	0.00 23,887	0.00 0	0.00 0	1255.84 113,025	1255.84
B USR AA <	> Generators Diesel engine, 100kw 01590-400-2700x2ea	3.00	MON EELER3		96.90 0.03	6329.84 291	600.90 18,990	0.00 1,803	0.00 0	0.00 0	6930.74 20,792	6930.74
	\$720x2ea=\$1440/mon											
	crew equipment cost/day=\$180/day											
	ttl =1440+180*30=\$6840/mon											
TOTAL Dewatering		90.00	DAY			2,091	108,128	25,690		0	0	133,817 1486.86
<hr/>												

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 33

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
06_03.15.10. Fine Grading of Wetland												
USR AA <02226	> Fine grade, 3 passes w/grader, irregular area			37413 SY ZA-2LAND05	250.00	0.02 898	1.13 42,307	0.71 26,645	0.00 0	0.00 0	1.84 68,952	1.84
	02310-100-1050											
TOTAL Fine Grading of Wetland		7.73	ACR			----- 898	----- 42,307	----- 26,645	----- 0	----- 0	68,952	8920.02

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 34

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
L USR AA <02957	> Trees, 2-1/2" caliper, in beds, B&B	50.00	EA	COEIB17	10.20	0.39	16.85	6.04	202.00	0.00	224.89	
	02915-400-0400					20	842	302	10,100	0	11,245	224.89
B MIL AA <02922 5000	> Plant bed preparation, 18" deep, by machine	157.00	SF	CLABB62	29.64	0.10	4.39	0.27	0.00	0.00	4.66	
	02910-720-1200					16	689	43	0	0	732	4.66
Assuming the Pit/bed 2'dia=3.14 SF for each plant												
USR AA <	> Backfill Planting Pit by machine, on site topsoil	235.50	CY	CLABB62	87.54	0.03	1.49	0.09	1.09	0.00	2.67	
	02910-720-0300					8	350	22	257	0	628	2.67
factor=1.5'*1'*1'*3.14=4.71 cy/tree												
<hr/>		TOTAL Tree	50.00	EA		44	1,882	366	10,357	0	12,605	252.10

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 35

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.12. Shrubs												
MIL AA <02954 0480 > Shrubs, 3 gal cont, in place, creeping gardenia, broadleaf evergreen	2231.04	EA	ULABB1		12.31	0.24 544	9.32 20,790	0.00 0	9.55 21,306	0.00 0	18.87 42,097	18.87
5' O.C.												
43560 sf/acr / (5)^2 = 1743 plants per acre												
B MIL AA <02922 5000 > Plant bed preparation, 18" deep, by machine	7005.44	SF	CLABB62		29.64	0.10 709	4.39 30,760	0.27 1,900	0.00 0	0.00 0	4.66 32,660	4.66
02910-720-1200												
Assuming the hole/bed 2'dia=3.14 Sq for each plant 1743 plants/acr *3.14 =5473 sf/acr												
USR AA < > Backfill Planting Pit by machine, on site topsoil 02910-720-0300	7005.00	CY	CLABB62		87.54	0.03 240	1.49 10,414	0.09 643	1.09 7,635	0.00 0	2.67 18,692	2.67
TOTAL Shrubs					1.28 ACR		1,493	61,964	2,543	28,942	0	93,449
<hr/>												
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Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 36

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.13. Grassland/Herbaceous												
AF AA <02932 7010 > Seeding, apply fertilizer, 35#/MSF	25.65	MSF	COELB66		37.50	0.03	1.45	0.50	2.00	0.00	3.95	
M MIL AA <02922 5000 > Grass bed preparation, assum 5" deep by machine	25.65	MSF	CLABB62		0.50	6.00	154	260.28	16.07	180.00	0.00	456.35
						154	6,676	412	4,617	0	11,705	456.35
TOTAL Grassland/Herbaceous	25.65	MSF				155	6,713	425	4,668	0	11,807	460.30

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 37

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.14. Wildflowers												
B USR AA <	> Site Preperation by machine	25.65	MSF	CLABB62	2.72	1.10 28	47.80 1,226	2.95 76	0.00 0	0.00 0	50.75 1,302	50.75
Assume \$2000 per acres site preparation, Rototill-2 year -LMS												
L AF AA <02932 7020 >	Seeding	25.65	MSF	COFWB59	13.13	0.08 2	3.17 81	4.13 106	2.64 68	0.00 0	9.95 255	9.95
Assume \$2000 per acre seed cost; Prairie Nursery; Wet/dry seed mix -LMS												
TOTAL Wildflowers		25.65	MSF			30	1,307	182	68	0	1,557	60.70

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 38

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.15. Bird Control -Plant Protection												
USR AA <	> Protect Planting from Water Fowl Item assumed, based on NYC eco. project spec & bid award price, incl. labor & material complete. \$1.56/1.65*1.04=\$.98 (2003 P.L) cost)* 1.11=1.09 (2004 P.L)Project site only. 11.75ac=56870sy		56870 SY		0.00	0.00	0.00	1.09	0.00	0.00	61,988	1.09
TOTAL Bird Control -Plant Protection		11.75	ACR		0	0	0	61,988	0	0	61,988	5275.60

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 39

06_03. Wildlife Facilities & Sanctuary	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT

06_03.15.16. Monitoring											
USR AA <	> Monitoring					0.00	0.00	0.00	0.00	10000.00	10000.00
	Assuming 1% of Construction	1.00	LS		0.00	0	0	0	0	10,000	10,000

TOTAL Monitoring											
						0	0	0	0	10,000	10,000

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45
DETAIL PAGE 40

06_03. Wildlife Facilities & Sanctuary										QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.17. Clean fill - Cohesive Material																				
B AF SC <02234 4100 > Hauling, w/loading, 12 CY truck, 5 mile haul, sand				5751.00	CY	CODEB30	63.00	0.05	2.22	2.42	3.65	0.00	8.30	57,726	10.04					
L MIL SC <02216 5520 > Backfill, strl, 6" lifts, w/dozer, no compaction, around foundation				5751.00	CY	CODTB11R	137.50	0.01	0.55	0.47	0.00	0.00	1.02	7,125	1.24					
RSM SC <02220 5600 > Compaction, riding, 6" lifts, 2 passes, sheepfoot/wobbly wheel roller				5751.00	CY	COFCB10G	300.00	0.01	0.25	0.18	0.00	0.00	0.44	3,031	0.53					
MIL SC <02220 9000 > Compaction, water, truck, 3000 gal, 3 mile haul				5751.00	CY	COKBB45	236.00	0.01	0.42	0.25	0.20	0.00	0.87	6,060	1.05					
USR SC < MSWCD03-02310-440-3310 > Finishing Grading				5751.00	SY		0.00	0.00	0.08	0.07	0.00	0.00	0.15	1,045	0.18					
TOTAL Clean fill - Cohesive Material				5751.00	CY			414	24,492	23,705	26,791	0	74,987	13.04						

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 41

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
06_03.15.18. Subgrade Preparation to Lower Porosity												
USR AA <	> Subgrade Preparation to Lower Porosity		7.73 ACR			0.00	0.00	0.00	0.00	2262.00	2262.00	
	Bare Unit cost based on Green Brook Flood Control Finderne Mitigation Site Feasibility Report dated 8/03 price is escalated to 2004 from 2003 \$1950*1.16=\$2262				0.00	0	0	0	0	17,485	17,485	2262.00
TOTAL	Subgrade Preparation to Lower		7.73 ACR			0	0	0	0	17,485	17,485	2262.00

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45
DETAIL PAGE 42

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
06_03.15.19. Stone Weir												
USR AA <	> Stone Weir						0.00	0.00	0.00	0.00	160.00	160.00
	Bare UC based on Kerry Ann's spread sheet which is AE's estiated in 2004	3.00	EA		0.00	0	0	0	0	480	480	160.00
TOTAL Stone Weir		3.00	EA				0	0	0	0	480	480 160.00

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 43

06_03. Wildlife Facilities & Sanctuary	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.20. Log Weirs											
USR AA <	> Log Weirs					0.00	0.00	0.00	0.00	468.00	468.00
	A/E's cost at \$600 each in 2004	11.00	EA		0.00	0	0	0	0	5,148	5,148
TOTAL Log Weirs				11.00	EA		0	0	0	5,148	468.00

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 44

06_03. Wildlife Facilities & Sanctuary			QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>													
06_03.15.21. Access Road													
Assumes Installed 2100 LF in place													
B	AA <02244 0300 > Access Road 3/4" Crushed Stone 4" thk		4662.00	SY	COFGB36C	524.45	44	0.01	0.48	0.39	9.05	0.00	9.92
Assume 20' wide road factor=1 ft x20'wide /9 sy/sf = 2.22 sy/lf													
L USR AA <02512 0011 > Access Road Fine Grade			4662.00	SY	COFGB11L	250.00	37	0.01	0.38	0.14	0.00	0.00	0.52
<hr/>													
TOTAL Access Road			2100.00	LF			82	3,990	2,475	42,191	0	48,657	23.17

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 45

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
<hr/>												
06_03.15.22. Raptor Perches												
USR AA <	> Raptor Perches											
	Bare cost based on AE'estimate	1.00	EA		0.00	0	0.00	0	0.00	75.00	75.00	75.00
	TOTAL Raptor Perches	1.00	EA				0	0	0	75	75	75.00

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 46

06_03. Wildlife Facilities & Sanctuary		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.24. Raised Walks												
USR AA <	> Raised Walks						0.00	0.00	0.00	0.00	45.00	45.00
	Bare unit cost obtained from the spread sheet provied by Kerry Ann	200.00	LF		0.00	0	0	0	0	9,000	9,000	45.00
	TOTAL Raised Walks	200.00	LF			0	0	0	0	9,000	9,000	45.00

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 47

06_03. Wildlife Facilities & Sanctuary	QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT

06_03.15.26. Obervation Decks											
USR AA <	> Observations Deck					0.00	10.00	3.85	43.00	0.00	56.85
	Assuming 15'* 15'=225 sf for	450.00	SF		0.00	0	4,500	1,732	19,350	0	25,582
	each deck. total qty=225*2 =450										56.85
	sf										
	02850-210-1600										

TOTAL Obervation Decks	2.00	EA				0	4,500	1,732	19,350	0	25,582
											12791

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
06. Fish and Wildlife Facilities

TIME 10:38:45

DETAIL PAGE 48

06_03. Wildlife Facilities & Sanctuary		QUANTY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
06_03.15.27. Earthwork-wet												
L MIL AA <02232 0140 > Excavation work (wet area)		Excavate & load, hydr excavator, 4600.00 BCY CODEB12C		27.68		0.07	4.25	2.64	0.00	0.00	6.89	
2 CY, medium matl						155	9,093	5,653	0	0	31,704	6.89
MSWCD03-02315-424-0260,0020,410		0										
<*Mod* > Add for loading onto trucks				23		1,364	848					
<*Mod* > Add for wet excavation				155		9,093	5,653					
L CIV AA <02234 2300 > Haul 1/2 mile		Hauling, Off hwy haulers, 40 CY 5290.00 LCY CTDHB34H		70.94		0.01	0.59	1.93	0.00	0.00	2.52	
1/2 mile rt.		MSWCD04-02315-490-2100				75	3,105	10,213	0	0	13,318	2.52
USR AA <		> Survey Crew		3.17 AC		0.00	1011.00	68.47	32.65	0.00	1112.12	
MSWCD04-01107-700-0010/0100						0	3,205	217	104	0	3,525	1112.12
Project site.												
USR AA <		> Productivity Loss-Level 'D'		4600.00 BCY		0.00	0.00	0.75	0.00	0.00	0.75	
MERCD00,pg1-11								0	3,450	0	3,450	0.75
Productivity = 82% at Level 'D' 100-82=18% loss.												
\$19232 x 18%=\$3462/4600cy =												
\$.75 per cy.												
TOTAL Earthwork-wet		4600.00 BCY				407	29,310	22,584	104	0	51,997	11.30
<hr/>												
TOTAL Fresh Water Wetland						9,937	506,590	279,379	240,950	53,716	1,080,635	
<hr/>												
TOTAL Wildlife Facilities & Sanctuary						121,992	7,063,100	5,203,880	4,303,042	1113606	17,683,629	
<hr/>												
TOTAL Fish and Wildlife Facilities						121,992	7,063,100	5,203,880	4,303,042	1113606	17,683,629	

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
30. Planning, Engineering and Design

TIME 10:38:45

DETAIL PAGE 49

	QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT
30. Planning, Engineering and Design											
USR <01000 0000 > P & S - Engr Div Cost Only, 10%	1.00	LS		0.00	0.00	0.00	0.00	0.00	1820000	1820000.00	
TOTAL Planning, Engineering and Design					0	0	0	0	1820000	1,820,000	1820000

Fri 25 Mar 2005
Eff. Date 01/01/04
DETAILED ESTIMATE

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
31. Construction Management

TIME 10:38:45
DETAIL PAGE 50

		QUANTITY	UOM	CREW ID	OUTPUT	MANHRS	LABOR	EQUIPMNT	MATERIAL	OTHER	TOTAL COST	UNIT

31. Construction Management												
USR <01000 0000 > SIOH (S&A) -		1.00	LS		0.00	0.00	0.00	0.00	0.00	1790000	1790000.00	
					0.00	0	0	0	0	1790000	1,790,000	1790000
TOTAL Construction Management						0	0	0	0	1790000	1,790,000	

TOTAL Liberty State Park Ecosystem		121,992	7,063,100	5,203,880	4,303,042	4765606	21,335,629					

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** LABOR BACKUP **

TIME 10:38:45

BACKUP PAGE 1

SRC LABOR ID	DESCRIPTION	BASE	OVERTM	TXS/INS	FRNG	TRVL	RATE	UOM	UPDATE	DEFAULT	***** TOTAL ***** HOURS
MIL B-CARPENTER	Carpenters	21.49	0.0%	36.4%	6.52	0.00	35.83	HR	01/01/01	35.83	65
MIL B-CEMTFINR	Cement Finishers	31.37	0.0%	28.0%	15.55	0.00	55.70	HR	05/14/04	32.29	13
MIL B-ELECTRN	Electricians	38.77	0.0%	23.5%	17.45	0.00	65.33	HR	05/14/04	40.18	1181
MIL B-EQOPRCRN	Equip. Operators, Crane/Shovel	34.50	0.0%	27.9%	19.17	0.00	63.30	HR	05/14/04	37.44	24991
MIL B-EQOPRLT	Equip. Operators, Light	27.49	0.0%	27.9%	19.17	0.00	54.33	HR	05/14/04	33.66	8267
MIL B-EQOPRMED	Equip. Operators, Medium	29.31	0.0%	27.9%	19.17	0.00	56.66	HR	05/14/04	35.24	7233
MIL B-EQOPROIL	Equip. Operators, Oilers	27.49	0.0%	27.9%	19.17	0.00	54.33	HR	05/14/04	29.93	24646
MIL B-LABORER	Laborers, (Semi-Skilled)	19.16	0.0%	36.4%	11.77	0.00	37.90	HR	05/14/04	27.04	11806
MIL B-PILEDRV	Pile Drivers	26.92	0.0%	46.4%	16.12	0.00	55.53	HR	05/14/04	38.32	330
MIL B-RODMAN	Rodmen, (Reinforcing)	27.63	0.0%	48.1%	24.10	0.00	65.02	HR	05/14/04	44.04	68
MIL B-TRKDVRHV	Truck Drivers, Heavy	24.70	0.0%	32.1%	9.01	0.00	41.64	HR	05/14/04	27.99	24933
MIL B-TRKDVRLT	Truck Drivers, Light	24.45	0.0%	32.1%	9.01	0.00	41.31	HR	05/14/04	26.74	110
MIL B-WELDERS	Welders, Structural Steel	29.53	0.0%	59.1%	24.10	0.00	71.08	HR	05/14/04	46.21	10
MIL X-EQOPRHVY	Outside Equip. Operators, Heavy	23.24	0.0%	27.9%	7.72	0.00	37.44	HR	01/01/01	37.44	134
MIL X-EQOPRLT	Outside Equip. Operators, Light	27.49	0.0%	27.9%	19.17	0.00	54.33	HR	05/14/04	33.66	362
MIL X-EQOPRMED	Outside Equip. Operators, Medium	29.31	0.0%	27.9%	19.17	0.00	56.66	HR	05/14/04	35.24	2912
MIL X-EQOPROIL	Outside Equip. Oilers	17.78	0.0%	27.9%	7.19	0.00	29.93	HR	01/01/01	29.93	1735
MIL X-LABORER	Outside Laborers, (Semi-Skilled)	19.16	0.0%	36.4%	11.11	0.00	37.24	HR	05/14/04	27.04	10462
MIL X-STRSTEL	Outside Steel Workers	22.68	0.0%	59.1%	10.58	0.00	46.66	HR	01/01/01	46.66	669
MIL X-TRKDVRHV	Outside Truck Drivers, Heavy	16.98	0.0%	32.1%	5.56	0.00	27.99	HR	01/01/01	27.99	1601
USR X-TUG0001	Tug Captain	69.19	0.0%	66.0%	11.00	0.00	125.86	HR	07/01/04	0.00	221
USR X-TUG0002	Tug Mate	38.20	0.0%	66.0%	11.00	0.00	74.41	HR	07/01/04	0.00	221

SRC	ID.NO.	EQUIPMENT DESCRIPTION	DEPR	FCCM	FUEL	FOG	TR	WR	TR REP	EQ	REP	** TOTAL **	
												TOTAL RATE	HOURS
GEN A25Z0580		ASPHALT DISTR, 3,000GAL (11355L)	5.58	1.10		1.80				7.38	15.86	HR	518
GEN B30Z1050		BUCKET, CONCRETE, 1.0CY (0.8M3)	0.20	0.05						0.21	0.46	HR	13
GEN C75Z2080		CRANE, HYD, R/T, 9T, 44' BOOM	5.74	1.73	8.73	3.41	0.21	0.04	6.64	26.50	HR	291	
GEN C80Z2260		CRANE, HYD, TRUCK MTD, 25T	18.75	5.67	5.96	2.60	0.61	0.11	16.25	49.95	HR	224	
GEN C80Z2280		CRANE, HYD, TRUCK MTD, 65T	28.44	9.73	9.93	3.20	0.92	0.16	28.76	81.13	HR	148	
EP C85AM010		CR,ME,CWLR,LIFTING, 85T/160'BOOM	33.40	12.63	3.85	1.02				40.94	91.84	HR	158
GEN D15Z2720		DRILL, HORZ BORING, 48" DIA, 30'	8.15	1.96	3.88	1.34				11.12	26.45	HR	176
MAP G15CA005		GRADER,MOTOR, ARTIC, CAT 14-H	15.61	5.82	5.73	2.37	1.26	0.22	18.09	49.10	HR	921	
GEN G15Z3080		GRADER, MOTOR, 135 HP (101KW)	9.72	3.59	3.60	1.49	0.47	0.08	11.23	30.17	HR	704	
MAP H25BS005		HYD EXCAV BKT, 3.25CY, W/TIPS	1.34	0.20						1.63	3.17	HR	205
MAP H25CA029		HYD EXCAV, CRWLR,110,880 LBS,	22.50	8.51	8.12	2.15				35.70	76.98	HR	205
EP H25KC010		HYD EXCAV, CRWLR, 55,660 LBS,	13.60	3.87	4.97	2.28				16.67	41.39	HR	48
GEN H25Z3175		HYD EXCV, CRAWLER, 40,000LBS,	14.54	4.14	3.77	1.74				17.82	42.01	HR	55
GEN H25Z3185		HYD EXCV, CRAWLER, 55,000LBS,	17.62	5.02	4.77	2.19				21.59	51.18	HR	2050
GEN H25Z3190		HYD EXCV, CRAWLER, 70,000LBS,	21.23	6.05	6.30	2.90				26.03	62.50	HR	24046
GEN H25Z3210		HYD EXCV, CRAWLER, 140,000LBS,	37.57	14.21	11.47	3.03				59.60	125.88	HR	40
GEN L15Z4040		SPREADER, DRY CHEMICAL .85CF	1.40	0.14			0.03	0.00	1.41	2.98	HR	852	
GEN L35Z4240		LOADER, F/E, CRWLR, 1.50CY	9.02	1.77	2.79	1.28				18.48	33.35	HR	65
GEN L40Z4390		LOADER, F/E, WHEEL, 1.75CY	7.88	2.15	2.98	1.54	0.90	0.16	8.93	24.55	HR	2071	
GEN L40Z4395		LOADER, F/E, WHEEL, 2.75CY	10.36	2.88	4.12	2.13	1.92	0.33	11.80	33.54	HR	103	
GEN L40Z4610		LOADER, SKIDSTEER, 13CWT (590KG)	2.02	0.37	1.35	0.70	0.12	0.02	2.30	6.87	HR	385	
EP L50CA001		LDR,BH,WH, 1.00CY FE BKT, 24"DIP	5.12	1.39	2.21	0.87	0.36	0.06	6.63	16.64	HR	362	
EP L50JC006		LDR,BH,WH, 1.50CY FE BKT, 36"DIP	7.15	1.96	2.61	1.02	0.64	0.11	9.28	22.77	HR	508	
GEN L50Z4640		LOADER/BCK-HOE,WH, 0.80CY(0.6M3)	3.78	1.06	1.70	0.67	0.72	0.12	4.93	12.98	HR	1637	
GEN P50Z5095		HOSE, SUCTION/DISCH,6"(153MM)DX	0.13	0.01						0.26	0.40	HR	330
GEN P60Z5410		PUMP, CENTRF, DEWATER, 6" DIA	1.59	0.34	9.18	3.59				2.32	17.01	HR	6400
GEN R45Z5580		ROLLER, VIB, SD, SP 13.0T	13.50	2.70	5.74	2.24	0.48	0.08	22.35	47.08	HR	480	
GEN R45Z5690		ROLLER, VIB, DD, SP 12.0T	12.55	2.47	3.96	1.55				20.72	41.24	HR	212
GEN R50Z5810		ROLLER, VIB, SD, SP 12.0T	12.22	2.45	5.74	2.24	0.48	0.08	18.41	41.62	HR	2	
MAP T15CA018		DOZER,CWLR, D-10R PS,W/BLADE	26.53	12.14	17.65	5.07				41.68	103.08	HR	945
GEN T15Z6520		DOZER, CRAWLER, 181-250HP	15.57	6.50	7.43	2.56				23.63	55.69	HR	1052
GEN T15Z6570		DOZER, CRAWLER, 300-340HP	19.25	8.03	9.91	3.42				29.21	69.81	HR	260
GEN T40Z9690		TRK FLATBED, 8'X 12'(2.4MX 3.7M)	0.35	0.07						0.32	0.73	HR	42
GEN T40Z7000		TRK FLATBED, 8'X 20'(2.4MX 6.1M)	0.50	0.10						0.45	1.05	HR	13
GEN T40Z7080		REAR DUMP BODY, 10.3CY	0.65	0.13						0.69	1.46	HR	55
GEN T40Z7090		REAR DUMP BODY, 12CY (9.2M3)	0.73	0.14						0.78	1.65	HR	4681
EP T45XX017		TRLR,LOWBOY, 60T, 3 AXLE	3.12	1.04		0.50	1.02	0.18	2.82	8.67	HR	1601	
GEN T45Z7280		TRAILER, WATER TANKER, 5000GAL	2.96	0.92	1.79	0.51	0.45	0.08	3.15	9.86	HR	138	
EP T50FO018		TRK,HWY, 46,000 GVW, 6X4, 3 AXLE	11.07	2.27	8.11	2.80	1.49	0.26	10.11	36.11	HR	1601	
GEN T50Z7400		TRUCK, HWY 25,000 (11,340KG)GVW	3.49	0.80	4.54	1.46	0.70	0.12	3.42	14.53	HR	55	
GEN T50Z7420		TRUCK, HWY 45,000 (20,412KG)GVW	10.91	2.20	10.30	3.55	0.97	0.17	9.93	38.03	HR	4681	
GEN T50Z7480		TRUCK, HWY 35,000 (15,876KG)GVW	9.46	1.89	10.30	3.55	0.56	0.10	8.60	34.47	HR	55	
GEN T50Z7520		TRUCK, HWY 55,000 (24,948KG)GVW	10.18	2.06	10.30	3.55	0.97	0.17	9.27	36.51	HR	138	
GEN T50Z7580		TRUCK, HWY 45,000 (20,412KG)GVW	10.80	2.21	8.11	2.80	1.43	0.25	9.86	35.46	HR	518	
GEN T55Z7680		TRUCK, OFF-HWY, REAR-DUMP, 25T	8.73	4.83	4.33	1.79	6.77	1.17	7.64	35.27	HR	2514	
GEN T55Z7720		TRUCK, OFF-HWY, REAR-DUMP, 36T	13.17	7.12	6.77	2.80	6.67	1.15	11.49	49.17	HR	4166	
GEN T55Z7800		TRUCK, OFF-HWY, REAR-DUMP, 85T	31.16	17.00	15.71	6.50	16.60	2.86	27.22	117.06	HR	12704	
GEN T60Z7910		TRUCK, OFF-HWY, WATER, 5000GAL	10.22	3.09	4.97	1.94	1.82	0.31	11.12	33.47	HR	212	
GEN W35Z8640		WELDER, 300AMP, TRAILER MTD	0.81	0.20	2.50	0.72	0.03	0.01	1.07	5.33	HR	10	
GEN XMEZ9300		DRILL, AUGER, FENCE POST, TM	43.96	0.13	0.67	0.25		0.12	0.02	45.15	HR	37	
GEN XMEZ9520		CONC VIBRATOR, 2.5" (63.5MM) DIA	1.04	0.16	0.69	0.48				1.33	3.70	HR	27

Fri 25 Mar 2005
Eff. Date 01/01/04

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR
** EQUIPMENT BACKUP **

TIME 10:38:45

BACKUP PAGE 3

SRC	ID.NO.	EQUIPMENT DESCRIPTION	DEPR	FCCM	FUEL	FOG	TR	WR	TR REP	EQ REP	** TOTAL **		
											TOTAL RATE	HOURS	
USR	ZRI001	Deck Cargo Barge,800 ton		64.45							64.45	HR	385

Fri 25 Mar 2005
Eff. Date 01/01/04
ERROR REPORT

Tri-Service Automated Cost Engineering System (TRACES)
PROJECT LSP603: Liberty State Park Ecosystem - Hudson County
Liberty State Park LRR

TIME 10:38:45
ERROR PAGE 1

No errors detected...

* * * END OF ERROR REPORT * * *