

APPENDIX C

**COST DETAIL FOR
REMOVAL ACTION ALTERNATIVES**

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COST DETAIL FOR REMOVAL ACTION ALTERNATIVES

BASIS OF ESTIMATE

Cost details for Alternatives 2, 4, 6, 10, and 11 are provided in tables at the end of this appendix. The following describes what is included in the cost details.

1.0 CONSTRUCTION DIRECTS

Construction direct costs include costs of construction labor, equipment, materials, cleanup, and disposal. Costs are based on built-up estimates of crews, production, and estimated quantities of work; past pricing; or budgetary subcontractor pricing (contractor-provided price quotes are footnoted in the table for each alternative). The costs included in Appendix C tables include a 20 percent overhead, fee, and technical development contingency for the prime contractor.

1.1 MOBILIZATION

All field related pre-construction costs are included in mobilization.

1.1.1 Procurement

Costs under this element include scope of work development for major project subcontractors and initial site supplies and materials. Costs include subcontract modifications and closeout.

1.1.2 Personnel Training

Costs under this element include entrance/exit medical exams for all craft workers throughout the duration of the project as well as all required site-specific health and safety training.

1.1.3 Site Mobilization and Preparation

Costs include mobilization costs for equipment and temporary facilities. Site fencing for setting up the site exclusion zone is included along with necessary traffic barriers and controls.

1.1.4 Utility Disconnect

The Engineering Evaluation/Cost Analysis (EE/CA) cost estimate includes costs for rerouting electrical power and isolating the water supply to the hangar. The hangar houses an electrical power supply room that feeds power to the hangar and to other users at former Naval Air Station Moffett Field (Moffett). To safely demolish the interior buildings and continue uninterrupted power, the electrical power supply must be rerouted permanently. In addition, the water supply lines entering the hangar will need to be isolated. The isolation of underground utilities, such as steam lines and phone lines, is not expected to impact other users at Moffett; therefore, re-routing costs for these isolations are not needed.

1.2 INTERIOR BUILDING ABATEMENT AND DEMOLITION

For alternatives that leave the siding in place (Alternatives 2, 4, and 6), demolition of approximately 70 percent of all interior buildings, as well as isolation of utilities, is required to gain access to the interior siding and lower sections of the structural steel for coating the interior. Alternatives 10 and 11 include costs for the demolition of all interior buildings.

1.2.1 Asbestos Abatement

Costs include the mobilization of the asbestos, hazardous, and regulated waste abatement subcontractor crew and equipment to initiate abatement of interior features. The abatement would be inclusive of all regulated wastes and asbestos (friable and nonfriable) within the hangar (exclusive of the Robertson Protected Metal siding). Abatement would include accessible pipe lines under removable floor plates and from all interior offices. The costs would also include cleaning ceiling and floor areas to be free from debris, dust, and paint chips; containing debris and spoils in roll-off boxes; and pre-profiling, manifesting, and shipping spoils to an approved landfill. The costs for Alternatives 2, 4, and 6 are equal and reflect demolition only of the perimeter buildings required to gain access to the interior siding. The costs included for Alternatives 10 and 11 are based on separate qualified contractor quotes. The Alternative 11 quote reflects the efficiency also achieved by demolition of all interior offices and complete removal of the Hangar 1 steel structure.

1.2.2 Interior Building Demolition

Costs include the demolition of all interior offices and complete removal of the Hangar 1 steel structure; cleaning ceiling and floor areas to be free from debris, dust, and paint chips; containing debris and spoils in roll-off boxes; and pre-profiling, manifesting, and shipping spoils to an approved landfill. For alternatives that leave the siding in place (Alternatives 2, 4, and 6), demolition of approximately 70 percent of all interior buildings is required to gain access to the interior siding and lower sections of the structural steel for coating the interior. Costs for Alternative 10 include the demolition of all interior buildings. Costs for Alternative 11 are based on a qualified contractor quote that reflects the efficiency also achieved by demolition of all interior offices and complete removal of the Hangar 1 steel structure.

1.2.3 Environmental Cleanout/Removal

All costs for environmental cleanup of equipment within the hangar, such as mercury switches, batteries, draining of oils, and fluorescent lights, are included in the environmental cleanout/removal for Alternatives 2, 4, 6, 10, and 11. Note that the costs included for Alternative 11 are based on a qualified contractor quote that reflects the efficiency also achieved by demolition of all interior offices and complete removal of the Hangar 1 steel structure.

1.2.4 Equipment Removal

Costs are included for the removal and cleaning of eight man-cranes located in Hangar 1 that were used to move equipment and conduct work on items in the hangar.

1.2.5 Facility Cleanout/Washing

This cost is for cleaning the hangar's interior to remove loose/flaking contamination and dust. In addition, for Alternatives 2, 4, and 6, costs are included for cleaning the exterior surfaces of the remaining interior buildings. Costs include initial environmental preparation, floor cleaning, and handling hazardous wastes. The costs for Alternative 11 are based on a qualified contractor quote that reflects the efficiency also achieved by demolition of all interior offices and complete removal of the Hangar 1 steel structure.

1.2.6 Waste Management/Transport and Disposal

Throughout the duration of the project, periodic cleanup of the site and adjacent properties will be performed to limit the accumulation of debris and waste materials. All wastes would be handled in accordance with a Waste Management Plan and would be removed from the site as quickly as possible.

Waste disposal costs are based on asbestos abatement debris and general construction debris going to a Class II Landfill. For applicable alternatives, Resource Conservation and Recovery Act /Toxic Substances Control Act waste (siding, redwood ceiling, structural steel, and catwalk planks) would be disposed of at a Class I Landfill.

Due to the extent of waste management/transport and disposal for Alternative 11, the costs have been further broken down to show individual costs for steel, asbestos-containing material, and miscellaneous debris.

1.3 ENVIRONMENTAL SAMPLING AND MONITORING

This section includes all costs associated with collecting, analyzing, reporting, and validating confirmation and air samples.

1.3.1 Analytical Sampling

Costs are for initial site verification sampling, waste characterization/profiling (including total threshold limit concentration and soluble threshold limit concentration tests required for California-specific state-regulated hazardous wastes), and initial water discharge sampling. Upon completion of the removal action and washing of the perimeter trench, swipe confirmation samples will be collected and analyzed for polychlorinated biphenyls (PCBs), lead, and asbestos.

1.3.2 Air/Personnel Monitoring

Costs include mobilization and installation of upwind and downwind air monitoring stations (meteorological station, and low- and high-volume air samplers). Costs also include baseline

sampling prior to intrusive activities and daily air monitoring during removal action activities. Pursuant to the Health and Safety Plan, personal air monitoring will be conducted and negative pressure exclusion zones will be used as needed.

1.4 EXTERIOR AND INTERIOR REMOVAL ACTIONS

The following sections include costs for executing the removal actions for Alternatives 2, 4, 6, 10, and 11. Interior coating costs are included for Alternatives 2, 4, and 6, since the siding would not be removed.

1.4.1 Removal Action Costs

Qualified contractors provided the costs for each alternative included in this element. For Alternatives 2, 4, and 6, costs include coating/encapsulation of the exterior siding and repair and/or coating of the roof. Costs also include window and access door replacement for Alternatives 2, 4, and 6. For Alternative 10, costs include coating accessible surfaces of the exposed structural steel with a primer and finish coat of weather-resistant epoxy to contain the steel paint.

1.4.2 Coating of Interior Components

Application and material cost estimates for the interior components were obtained from qualified contractors. The acrylic and asphalt-emulsion interior coating alternatives (evaluated in Section 4.7 of the main EE/CA) were significantly more expensive than the epoxy-coating alternative due to the significant costs associated with adequately maintaining the acrylic and asphalt-emulsion over a 30-year span, which cost \$53.2 million and \$44.9 million, respectively. Applying an epoxy coating over the interior components of the hangar, including operations and maintenance (O&M), costs \$15.4 million. This cost includes coating interior components (siding, redwood ceiling, and structural steel) for Alternatives 2, 4, and 6 with a long-lasting (50-year design life) epoxy coating requiring minimal maintenance. This cost has been commonly applied to Alternatives 2, 4, and 6.

1.4.3 Structural Retrofitting and Bracing

A structural analysis of Hangar 1 was completed by the Navy in 2008 (Exceltech, 2008). The Structural Analysis and Gravity, Seismic, and Wind Vulnerability Study provides the basis for the costs of structural retrofitting required for Alternatives 2, 4, and 6, and minor bracing required for Alternative 10. The costs included in Appendix C tables include a 20 percent overhead, fee, and technical development contingency for the prime contractor.

1.5 STRUCTURE DEMOLITION

The following sections describe the costs for executing the demolition portion of the removal actions for Alternatives 10 and 11.

1.5.1 RPM Siding / Roof Demolition

Includes contractor-provided costs for demolition of the hangar siding and roof. Alternatives 10 and 11 siding/roof demolition costs were provided by two separate contractors; therefore, the cost proposals varied since the approach for executing each alternative differed between the contractors.

1.5.2 Structural Steel Demolition

Includes contractor provided costs for demolition of structural steel for Alternative 11.

1.5.3 Waste Debris Handling/Sizing

Includes contractor provided costs for handling and sizing demolition debris such as structural steel, concrete curtain wall, door, and gear box foundations.

1.6 DEMOBILIZATION

All field-related, post-construction costs are included in demobilization.

1.6.1 Site Cleanup

Costs include cleaning floor areas that may have been affected by structure removal such as dust, paint chips, or wood debris; containing spoils in roll-off boxes; and pre-profiling, manifesting, and shipping spoils to an approved landfill.

1.6.2 Demobilization

Costs include equipment and temporary facilities demobilization.

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2.0 CONSTRUCTION INDIRECTS

Construction indirect (management/support) costs have been estimated based on required project support and the estimated level of effort to effectively manage the proposed work activities.

2.1 MEETINGS

All meeting-related costs are included in this cost element.

2.1.1 Pre-Mobilization Meetings

Upon award of the contract, a kick-off meeting/formal site visit will be held with all responsible parties and stakeholders.

2.1.2 Public and Agency Meetings

Costs are for attending and preparing discussion materials for an estimated 10 Base Realignment and Closure (BRAC) Cleanup Team (BCT) meetings and Restoration Advisory Board (RAB) meetings.

2.1.3 Community Relations

Costs are included for providing community relations support tasks as required by the Comprehensive Environmental Response, Compensation, and Liability Act to include risk communications services for the life of the project. This work element includes work the community relations subcontractor would perform, such as RAB meetings, BCT meetings, public meetings/open houses, public notices, Fact Sheets, media relations, and risk communication.

2.2 PROJECT DOCUMENTS

This work element includes development of the Work Plan.

A Work Plan will be prepared for this project, which will describe in detail how the fieldwork will be accomplished. This Work Plan will include a Health and Safety Plan, Contractor Quality Control Plan, Sampling and Analysis Plan, Waste Management Plan, Traffic Control Plan, Stormwater Management Plan, and Project Schedule.

2.3 GENERAL SITE REQUIREMENTS

General site requirements are based on removal action durations as proposed by product application contractors, with an additional 6 months for project management to allow for pre- and post-construction activities.

2.3.1 Construction Management

Construction management includes budget and schedule control, personnel and subcontractor management, health and safety/quality control oversight, and regulatory compliance.

2.3.2 Project Management

Project management includes overall project execution and coordination with all stakeholders and regulatory agencies.

3.0 OPERATIONS AND MAINTENANCE

Costs for O&M are to adequately maintain the removal action components to ensure the remedy remains protective of human health and the environment at Hangar 1 over the next 30 years. A present worth analysis was conducted on the O&M based on a nominal discount rate of three percent for 30-year Office of Management and Budget Circular A-94, and costs were normalized to 2007 dollars. To escalate the normalized 2007 dollars to normalized 2008 dollars, the costs would be adjusted by approximately four to five percent, based upon Global Insight Indices for the Labor/Consumer Products Indices escalation from May 2007 to July 2008.

3.1 EXTERIOR OPERATIONS AND MAINTENANCE

Costs for O&M include the inspections, repairs, and recoating required for monitoring and maintaining the exterior of the hangar for 30 years, including management.

3.1.1 Inspections, Touch-ups, and Recoating

Costs are based on manufacturers' recommended schedule for inspections, touch-ups, and recoating. Alternative 2 requires annual inspection with minimal repairs. Alternative 4 requires inspections and touch-ups at years 1, 3, and 5, and a recoat at years 10 and 20. Alternative 6 requires biannual inspections and minor maintenance. Alternative 10 requires inspection and touch-up every 5 years and a recoat of the structural steel at years 10 and 20. The interior epoxy-coating associated with Alternatives 2, 4, and 6 requires inspection every 5 years to ensure that no recoating is required.

3.1.2 Management

Management is estimated at 20 percent of the direct O&M costs.

3.2 INTERIOR OPERATIONS AND MAINTENANCE

Costs for O&M include the inspections, touch-ups, and recoating required to monitor and maintain the interior hangar coating for 30 years, including management.

3.2.1 Inspections, Touch-ups, and Recoating

Costs are based on manufacturers' recommended schedule for inspections, touch-ups, and recoating. The epoxy coating requires minimal maintenance. It is recommended that the coating be inspected every 5 years.

3.2.2 Management

Management is estimated at 20 percent of the direct O&M costs.

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APPENDIX C
ALTERNATIVE 2
COVER WITH RUBBERIZED MATERIAL

Item Description	Qty	Unit	Total Labor	Total Equipment	Total Subcontractor	Total Other (supplies/tax)	Total Cost
Construction Directs							
Mobilization							
Procurement	1	ls	\$ 77,331	\$ -	\$ -	\$ 2,069	\$ 79,400
Personnel Training	1	ls	\$ 27,277	\$ -	\$ 4,820	\$ 1,703	\$ 33,800
Site Mobilization and Preparation	1	ls	\$ -	\$ -	\$ 84,769	\$ 21,631	\$ 106,400
Utility Disconnect	1	ls	\$ -	\$ -	\$ 780,000	\$ -	\$ 780,000
Interior Building Abatement and Demolition							
Asbestos Abatement	1	ls	\$ -	\$ -	\$ 999,000	\$ -	\$ 999,000
Interior Building Demolition	0.7	ls	\$ -	\$ -	\$ 437,000	\$ -	\$ 305,900
Environmental Cleanout/Removal	1	ls	\$ -	\$ -	\$ 257,000	\$ -	\$ 257,000
Equipment Removal (Man-Cranes)	8	ea	\$ -	\$ -	\$ 240,000	\$ -	\$ 240,000
Facility Cleanout/Washing	1	ls	\$ -	\$ -	\$ 1,007,500	\$ -	\$ 1,007,500
Waste Management/Transport and Disposal	1	ls	\$ 186,320	\$ 100,276	\$ 462,644	\$ 5,760	\$ 755,000
Environmental Sampling and Monitoring							
Analytical Sampling	1	ls	\$ -	\$ -	\$ 20,400	\$ -	\$ 20,400
Air/Personnel Monitoring	21	mon	\$ -	\$ -	\$ 1,463,700	\$ -	\$ 1,463,700
Exterior and Interior Removal Actions							
Rubber Membrane Installation over Siding and Roof ^a	1	ls	\$ -	\$ -	\$ 11,477,000	\$ -	\$ 11,477,000
Coating of Interior Components ^b	1	ls	\$ -	\$ -	\$ 15,390,000	\$ -	\$ 15,390,000
Retrofit of Structural Systems ^c	1	ls	\$ -	\$ -	\$ 8,141,977	\$ -	\$ 8,141,977
Demobilization							
Site Cleanup	1	ls	\$ 61,033	\$ 7,047	\$ -	\$ 11,920	\$ 80,000
Demobilization	1	ls	\$ -	\$ -	\$ 8,727	\$ 5,973	\$ 14,700
Subtotal							\$ 41,151,777
Construction Indirects							
Meetings							
Pre-mobilization meetings	1	ls	\$ 26,909	\$ 334	\$ -	\$ 6,258	\$ 33,500
Public and Agency Meetings	1	ls	\$ 54,564	\$ 799	\$ -	\$ 9,837	\$ 65,200
Community Relations	1	ls	\$ -	\$ -	\$ 369,000	\$ -	\$ 369,000
Project Documents							
Comprehensive Work Plan	1	ea	\$ 360,000	\$ 2,000	\$ -	\$ 38,000	\$ 400,000
General Site Requirements							
Construction Management	21	mon	\$ 4,772,393	\$ 440,872	\$ -	\$ 1,401,303	\$ 6,614,568
Project Management	27	mon	\$ 506,803	\$ 46,818	\$ -	\$ 148,811	\$ 702,432
Subtotal							\$ 8,184,700
Operations & Maintenance (30 years)							
Exterior O&M							
Inspections, Touch-Ups and Recoating	1	ls	\$ -	\$ -	\$ 117,603	\$ -	\$ 117,603
Management	20	percent	\$ -	\$ -	\$ -	\$ -	\$ 23,521
Interior O&M							
Inspections and Touch-Ups (no recoating required)	1	ls	\$ -	\$ -	\$ 22,151	\$ -	\$ 22,151
Management	20	percent	\$ -	\$ -	\$ -	\$ -	\$ 4,430
Subtotal							\$ 167,704
Total							\$ 49,504,182

a) Based on Moisture -Guard Corporation estimate dated March 19, 2007 (exterior)

b) Based on International Pipe Lining Technologies estimate dated April 9, 2007 (interior) cost includes coating all interior components (structural steel, redwood ceiling, interior siding)

c) Based on Exeltech estimate dated July 21, 2008. The costs included in Appendix C tables include a 20 percent overhead, fee, and technical development contingency for the prime contractor.

APPENDIX C
ALTERNATIVE 4
COAT WITH ACRYLIC COATING

Item Description	Qty	Unit	Total Labor	Total Equipment	Total Subcontractor	Total Other (supplies/tax)	Total Cost
Construction Directs							
Mobilization							
Procurement	1	ls	\$ 77,331	\$ -	\$ -	\$ 2,069	\$ 79,400
Personnel Training	1	ls	\$ 27,277	\$ -	\$ 4,820	\$ 1,703	\$ 33,800
Site Mobilization and Preparation	1	ls	\$ -	\$ -	\$ 84,769	\$ 21,631	\$ 106,400
Utility Disconnect	1	ls	\$ -	\$ -	\$ 780,000	\$ -	\$ 780,000
Interior Building Abatement and Demolition							
Asbestos Abatement	1	ls	\$ -	\$ -	\$ 999,000	\$ -	\$ 999,000
Interior Building Demolition	0.7	ls	\$ -	\$ -	\$ 437,000	\$ -	\$ 305,900
Environmental Cleanout/Removal	1	ls	\$ -	\$ -	\$ 257,000	\$ -	\$ 257,000
Equipment Removal (Man-Cranes)	8	ea	\$ -	\$ -	\$ 240,000	\$ -	\$ 240,000
Facility Cleanout/Washing	1	ls	\$ -	\$ -	\$ 1,007,500	\$ -	\$ 1,007,500
Waste Management/Transport and Disposal	1	ls	\$ 186,320	\$ 100,276	\$ 462,644	\$ 5,760	\$ 755,000
Environmental Sampling and Monitoring							
Analytical Sampling	1	ls	\$ -	\$ -	\$ 20,400	\$ -	\$ 20,400
Air/Personnel Monitoring	12	mon	\$ -	\$ -	\$ 850,800	\$ -	\$ 850,800
Exterior and Interior Removal Actions							
Acrylic Coating over Siding and Roof ^f	1	ls	\$ -	\$ -	\$ 7,281,000	\$ -	\$ 7,281,000
Coating of Interior Components ^b	1	ls	\$ -	\$ -	\$ 15,390,000	\$ -	\$ 15,390,000
Retrofit of Structural Systems ^c	1	ls	\$ -	\$ -	\$ 8,141,977	\$ -	\$ 8,141,977
Demobilization							
Site Cleanup	1	ls	\$ 61,033	\$ 7,047	\$ -	\$ 11,920	\$ 80,000
Demobilization	1	ls	\$ -	\$ -	\$ 8,727	\$ 5,973	\$ 14,700
Subtotal							\$ 36,342,877
Construction Indirects							
Meetings							
Pre-mobilization meetings	1	ls	\$ 26,909	\$ 334	\$ -	\$ 6,258	\$ 33,500
Public and Agency meetings	1	ls	\$ 54,564	\$ 799	\$ -	\$ 9,837	\$ 65,200
Community Relations	1	ls	\$ -	\$ -	\$ 369,000	\$ -	\$ 369,000
Project Documents							
Comprehensive Work Plan	1	ea	\$ 360,000	\$ 2,000	\$ -	\$ 38,000	\$ 400,000
General Site Requirements							
Construction Management	12	mon	\$ 2,753,991	\$ 251,209	\$ -	\$ 806,030	\$ 3,811,230
Project Management	18	mon	\$ 302,603	\$ 27,602	\$ -	\$ 88,565	\$ 418,770
Subtotal							\$ 5,097,700
Operations & Maintenance (30 years)							
Exterior O&M							
Inspections, Touch-Ups and Recoating	1	ls	\$ -	\$ -	\$ 5,915,884	\$ -	\$ 5,915,884
Management	20	percent	\$ -	\$ -	\$ -	\$ -	\$ 1,183,177
Interior O&M							
Inspections and Touch-Ups (no recoating required)	1	ls	\$ -	\$ -	\$ 22,151	\$ -	\$ 22,151
Management	20	percent	\$ -	\$ -	\$ -	\$ -	\$ 4,430
Subtotal							\$ 7,125,642
Total							\$ 48,566,220

a) Based on Sherwin Williams Industrial and Marine Coatings estimate dated February 16, 2007 (exterior siding) and

D.C. Taylor Corporation estimate dated March 23, 2007 (exterior roof)

b) Based on International Pipe Lining Technologies estimate dated April 9, 2007 (interior) cost includes coating all interior components (structural steel, redwood ceiling, interior siding)

c) Based on Exeltech estimate dated July 21, 2008. The costs included in Appendix C tables include a 20 percent overhead, fee, and technical development contingency for the prime contractor.

APPENDIX C
ALTERNATIVE 6
COVER WITH NEW VISUALLY SIMILAR SIDING

Item Description	Qty	Unit	Total Labor	Total Equipment	Total Subcontractor	Total Other (supplies/tax)	Total Cost
Construction Directs							
Mobilization							
Procurement	1	ls	\$ 77,331	\$ -	\$ -	\$ 2,069	\$ 79,400
Personnel Training	1	ls	\$ 27,277	\$ -	\$ 4,820	\$ 1,703	\$ 33,800
Site Mobilization and Preparation	1	ls	\$ -	\$ -	\$ 84,769	\$ 21,631	\$ 106,400
Utility Disconnect	1	ls	\$ -	\$ -	\$ 780,000	\$ -	\$ 780,000
Interior Building Abatement and Demolition							
Asbestos Abatement	1	ls	\$ -	\$ -	\$ 999,000	\$ -	\$ 999,000
Interior Building Demolition	0.7	ls	\$ -	\$ -	\$ 437,000	\$ -	\$ 305,900
Environmental Cleanout/Removal	1	ls	\$ -	\$ -	\$ 257,000	\$ -	\$ 257,000
Equipment Removal (Man-Cranes)	8	ea	\$ -	\$ -	\$ 240,000	\$ -	\$ 240,000
Facility Cleanout/Washing	1	ls	\$ -	\$ -	\$ 1,007,500	\$ -	\$ 1,007,500
Waste Management/Transport and Disposal	1	ls	\$ 186,320	\$ 100,276	\$ 462,644	\$ 5,760	\$ 755,000
Environmental Sampling and Monitoring							
Analytical Sampling	1	ls	\$ -	\$ -	\$ 20,400	\$ -	\$ 20,400
Air/Personnel Monitoring	18	mon	\$ -	\$ -	\$ 1,258,200	\$ -	\$ 1,258,200
Exterior and Interior Removal Actions							
Cover with New Visually Similar Siding ^a	1	ls	\$ -	\$ -	\$ 12,585,600	\$ -	\$ 12,585,600
Coating of Interior Components ^b	1	ls	\$ -	\$ -	\$ 15,390,000	\$ -	\$ 15,390,000
Retrofit of Structural Systems ^c	1	ls	\$ -	\$ -	\$ 8,141,977	\$ -	\$ 8,141,977
Demobilization							
Site Cleanup	1	ls	\$ 61,033	\$ 7,047	\$ -	\$ 11,920	\$ 80,000
Demobilization	1	ls	\$ -	\$ -	\$ 8,727	\$ 5,973	\$ 14,700
Subtotal							\$ 42,054,877
Construction Indirects							
Meetings							
Pre-mobilization meetings	1	ls	\$ 26,909	\$ 334	\$ -	\$ 6,258	\$ 33,500
Public and agency meetings	1	ls	\$ 54,564	\$ 799	\$ -	\$ 9,837	\$ 65,200
Community Relations	1	ls	\$ -	\$ -	\$ 369,000	\$ -	\$ 369,000
Project Documents							
Comprehensive Work Plan	1	ea	\$ 360,000	\$ 2,000	\$ -	\$ 38,000	\$ 400,000
General Site Requirements							
Construction management	18	mon	\$ 4,093,003	\$ 377,229	\$ -	\$ 1,201,543	\$ 5,671,776
Project Management	24	mon	\$ 444,694	\$ 40,985	\$ -	\$ 130,545	\$ 616,224
Subtotal							\$ 7,155,700
Operations & Maintenance (30 years)							
Exterior O&M							
Inspections, Touch-Ups and Recoating	1	ls	\$ -	\$ -	\$ 57,932	\$ -	\$ 57,932
Management	20	percent	\$ -	\$ -	\$ -	\$ -	\$ 11,586
Interior O&M							
Inspections and Touch-Ups (no recoating required)	1	ls	\$ -	\$ -	\$ 22,151	\$ -	\$ 22,151
Management	20	percent	\$ -	\$ -	\$ -	\$ -	\$ 4,430
Subtotal							\$ 96,100
Total							\$ 49,306,677

a) Based on Best Contracting Services Incorporated estimate dated March 23, 2007 (exterior)

b) Based on International Pipe Lining Technologies estimate dated April 9, 2007 (interior), cost includes coating all interior components (structural steel, redwood ceiling, interior siding)

c) Based on Exeltech estimate dated July 21, 2008. The costs included in Appendix C tables include a 20 percent overhead, fee, and technical development contingency for the prime contractor.

APPENDIX C
ALTERNATIVE 10
REMOVE SIDING AND COAT EXPOSED SURFACES

Item Description	Qty	Unit	Total Labor	Total Equipment	Total Subcontractor	Total Other (supplies/tax)	Total Cost
Construction Directs							
Mobilization							
Procurement	1	ls	\$ 55,783	\$ -	\$ -	\$ 1,917	\$ 57,700
Personnel Training	1	ls	\$ 27,277	\$ -	\$ 4,820	\$ 1,703	\$ 33,800
Site Mobilization and Preparation	1	ls	\$ -	\$ -	\$ 84,769	\$ 21,631	\$ 106,400
Utility Disconnect	1	ls	\$ -	\$ -	\$ 780,000	\$ -	\$ 780,000
Interior Building Abatement and Demolition							
Asbestos Abatement ^a	1	ls	\$ -	\$ -	\$ 1,081,000	\$ -	\$ 1,081,000
Interior Building Demolition [†]	1	ls	\$ -	\$ -	\$ 437,000	\$ -	\$ 437,000
Environmental Cleanout/Removal [†]	1	ls	\$ -	\$ -	\$ 257,000	\$ -	\$ 257,000
Equipment Removal (Man-Cranes)	8	ea	\$ -	\$ -	\$ 240,000	\$ -	\$ 240,000
Facility Cleanout/Washing ^a	1	ls	\$ -	\$ -	\$ 775,000	\$ -	\$ 775,000
Waste Management/Transport and Disposal	1	ls	\$ 393,143	\$ 156,148	\$ 1,060,102	\$ 8,606	\$ 1,618,000
Environmental Sampling and Monitoring							
Analytical Sampling	1	ls	\$ -	\$ -	\$ 20,400	\$ -	\$ 20,400
Air/Personnel Monitoring	17	mon	\$ -	\$ -	\$ 1,123,200	\$ -	\$ 1,123,200
Exterior and Interior Removal Actions							
Coat Structural Steel with Paint/Primer ^a	1	ls	\$ -	\$ -	\$ 3,732,000	\$ -	\$ 3,732,000
Structure Demolition							
RPM Siding / Roof Demolition ^a	1	ls	\$ -	\$ -	\$ 5,000,000	\$ -	\$ 5,000,000
Structural Retrofit - Local Impacts ^b	1	ls	\$ -	\$ -	\$ 425,250	\$ -	\$ 425,250
Demobilization							
Site Cleanup	1	ls	\$ 61,033	\$ 7,047	\$ -	\$ 11,920	\$ 80,000
Demobilization	1	ls	\$ -	\$ -	\$ 8,727	\$ 5,973	\$ 14,700
Subtotal							\$ 15,781,450
Construction Indirects							
Meetings							
Pre-mobilization meetings	1	ls	\$ 26,909	\$ 334	\$ -	\$ 6,258	\$ 33,500
Public and agency meetings	1	ls	\$ 54,564	\$ 799	\$ -	\$ 9,837	\$ 65,200
Community Relations	1	ls	\$ -	\$ -	\$ 369,000	\$ -	\$ 369,000
Project Documents							
Comprehensive Work Plan	1	ea	\$ 360,000	\$ 2,000	\$ -	\$ 38,000	\$ 400,000
General Site Requirements							
Construction Management	17	mon	\$ 3,893,873	\$ 359,674	\$ -	\$ 1,202,651	\$ 5,456,198
Project Management	23	mon	\$ 423,059	\$ 39,078	\$ -	\$ 130,665	\$ 592,802
Subtotal							\$ 6,916,700
Operations & Maintenance (30 years)							
O&M							
Inspections, Touch-Ups and Recoating	1	ls	\$ -	\$ -	\$ 2,595,539	\$ -	\$ 2,595,539
Management	20	percent	\$ -	\$ -	\$ -	\$ -	\$ 519,108
Subtotal							\$ 3,114,647
Total							\$ 25,812,797

a) Based on past pricing received from RESTEC during summer of 2006. Scope includes abatement, interior demolition, siding removal and Structural Steel Coating.

b) Based on Exeltech estimate dated July 21, 2008. The costs included in Appendix C tables include a 20 percent overhead, fee, and technical development contingency for the prime contractor.

APPENDIX C
ALTERNATIVE 11
DEMOLISH AND REMOVE HANGAR

Item Description	Qty	Unit	Total Labor	Total Equipment	Total Subcontractor	Total Other (supplies/tax)	Total Cost
Construction Directs							
Mobilization							
Procurement	1	ls	\$ 55,783	\$ -	\$ -	\$ 1,917	\$ 57,700
Personnel Training	1	ls	\$ 34,779	\$ -	\$ 9,612	\$ 2,909	\$ 47,300
Site Mobilization and Preparation	1	ls	\$ -	\$ -	\$ 84,769	\$ 21,631	\$ 106,400
Utility Disconnect	1	ls	\$ -	\$ -	\$ 780,000	\$ -	\$ 780,000
Interior Building Demolition							
Asbestos Abatement ^a	1	ls	\$ -	\$ -	\$ 776,000	\$ -	\$ 776,000
Interior Building Demolition ^h	1	ls	\$ -	\$ -	\$ 252,000	\$ -	\$ 252,000
Environmental Cleanout/Removal ^f	1	ls	\$ -	\$ -	\$ 44,100	\$ -	\$ 44,100
Equipment Removal (Man-Cranes)	8	ea	\$ -	\$ -	\$ 240,000	\$ -	\$ 240,000
Facility Cleanout/Washing ^g	1	ls	\$ -	\$ -	\$ 662,000	\$ -	\$ 662,000
Waste Management/Transport and Disposal							
Steel Handling, Transport and Disposal	1	ls	\$ -	\$ -	\$ 3,187,800	\$ -	\$ 3,187,800
Asbestos Containing Material Transport and Disposal	1	ls	\$ -	\$ -	\$ 1,659,433	\$ -	\$ 1,659,433
Miscellaneous Debris and Material Handling	1	ls	\$ 114,597	\$ -	\$ 126,170	\$ -	\$ 240,767
Environmental Sampling and Monitoring							
Analytical Sampling	1	ls	\$ -	\$ -	\$ 88,800	\$ -	\$ 88,800
Air/Personnel Monitoring	19.5	mon	\$ -	\$ -	\$ 1,632,150	\$ -	\$ 1,632,150
Structure Demolition							
RPM Siding / Roof Demolition ^d	1	ls	\$ -	\$ -	\$ 3,736,000	\$ -	\$ 3,736,000
Structural Steel Demolition	170	days	\$ 1,065,072	\$ 814,601	\$ 1,736,178	\$ 49,150	\$ 3,665,000
Waste Debris Handling/Sizing	170	days	\$ 323,445	\$ 736,779	\$ -	\$ 44,776	\$ 1,105,000
Demobilization							
Site Cleanup	1	ls	\$ 61,033	\$ 7,047	\$ -	\$ 11,920	\$ 80,000
Demobilization	1	ls	\$ -	\$ -	\$ 8,727	\$ 5,973	\$ 14,700
Subtotal						\$	18,375,150
Construction Indirects							
Meetings							
Pre-mobilization meetings	1	ls	\$ 26,909	\$ 334	\$ -	\$ 6,258	\$ 33,500
Public and agency meetings	1	ls	\$ 54,564	\$ 799	\$ -	\$ 9,837	\$ 65,200
Community Relations	1	ls	\$ -	\$ -	\$ 369,000	\$ -	\$ 369,000
Project Documents							
Comprehensive Work Plan	1	ea	\$ 360,000	\$ 2,000	\$ -	\$ 38,000	\$ 400,000
General Site Requirements							
Construction Management	19.5	mon	\$ 4,635,405	\$ 395,848	\$ -	\$ 1,391,381	\$ 6,422,634
Project Management	25.5	mon	\$ 480,936	\$ 41,070	\$ -	\$ 144,360	\$ 666,366
Subtotal						\$	7,956,700
Total						\$	26,331,850

a) Based on past pricing received from Bayview Environmental during summer of 2006. Scope includes abatement, interior demolition, and siding removal.