



Cost and Schedule

WBS 2.1 – Site and Buildings

June 5, 2007

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Cost and Schedule - History

- April 2006 – FESS/E estimate
- Spring 2006 – Burns and McDonnell Estimate
 - Bottoms Up estimate assuming Design/Build approach
- December 2006 – Burns and McDonnell updated cost estimate
 - based on 14DEC06 design revisions
 - Assumed a design-bid-build approach
- April 2007 – Three cost estimates
 - Based on 18APR07 Title 1 documents for Far Detector Building
 - 95% complete Advanced Technical Design for Site Prep Package
 - Included a schedule component
 - Included value engineering review
 - Burns and McDonnell (completed) – Used in developing cost/schedule information
 - J.E. Dunn Northcentral (completed)
 - Constructive Ideas (expected in mid-June)

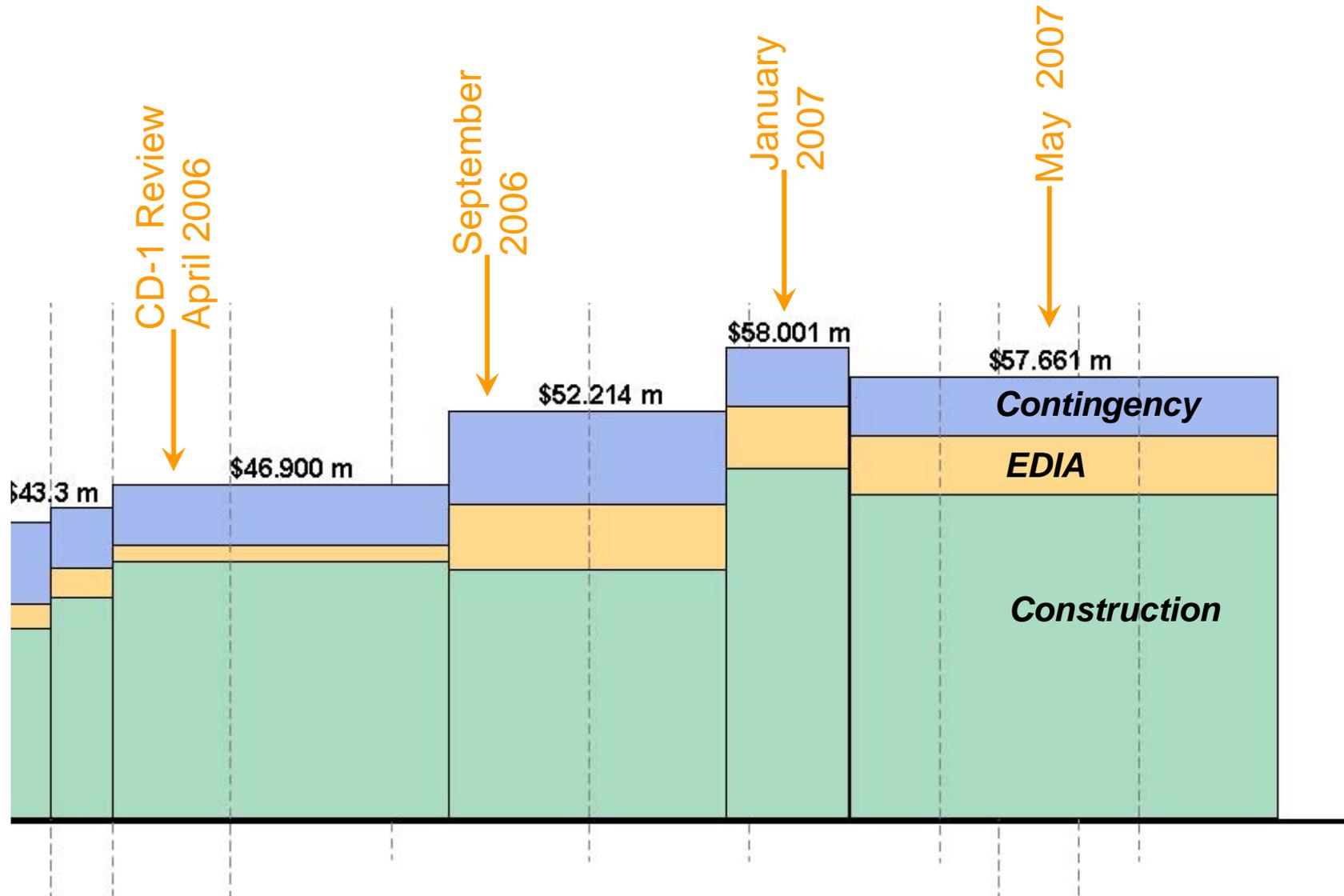


Basis of Estimate

- **Engineering Design Inspection & Administration** NOVA-doc-2081
- **Construction Contingency** NOVA-doc-2105
- **Barite** NOVA-doc-1933
- **Computer Room UPS** NOVA-doc-1951
- **Precast Concrete Planks** NOVA-doc-1936
- **Pre-engineered Metal Building** NOVA-doc-1950
- **Propane Fired Generators** NOVA-doc-1941
- **Computer Room Air Conditioning Unit** NOVA-doc-1942
- **Adhesive Areas HVAC Unit** NOVA-doc-1937
- **Moveable Access Platform** NOVA-doc-1934
- **Detector Enclosure HVAC Unit** NOVA-doc-1938
- **Secondary Containment Coating** NOVA-doc-1935
- **Far Detector Building Overhead Cranes** NOVA-doc-1915
- **Far Detector Building Data/Comm Service** NOVA-doc-1914
- **DE/AA Foam Fire Suppression System** NOVA-doc-1912
- **Service Building Fire Suppression System** NOVA-doc-1911
- **Far Detector Building Fire Alarm** NOVA-doc-1910
- **Far Detector Site Electrical Service Upgrade** NOVA-doc-1881



Cost and Schedule





April 2007 Process

- Each firm working towards a common format for comparison purposes (NOVA-doc-1886)
- Requested to exclude contingency and escalation, **but** provide a recommendation for values based on the status of the design.
- Compare and evaluate each category
- Utilize each estimate to determine a likely construction cost and establish reasonable contingencies and escalations

Phase 1 - NOVA Site Prep

FESS/Engineering Project No. 15-1-3A

This cost estimate/schedule will be based on the drawings/specifications

Mobilization

Include costs for mobilization/demobilization of the equipment

Also included in this category is the survey work, construction

Access Road

This category should include costs associated with constructing grubbing, road bed construction, etc..

Building Site

This category should include costs associated with the area adjacent to clearing, grubbing, establishment of stockpiles and rock excavation support and temporary construction drainage system/

Utilities

This category should include the electric service upgrade from service from Black Duck. These costs will be provided to the cost of the domestic water well.

Pavement

This category should include the cost associated with installing access road.

Sample category description from NOVA-doc-1886



Cost and Schedule

- Utilized the Burns and McDonnell preliminary numbers to develop the cost and schedule

Activity ID	Activity Description	Early Dates	Funding Source	BAC Material	BAC Labor	BAC Total	M&S Cont. (\$)	M&S Cont. (%)	Labor Cont. (\$)	Labor Cont. (%)	Total Cont. (\$)	Total Cont. (%)	BAC + Cont. (\$)
2.1.2.3.4	Service Building	23Oct09 01Feb10		\$1,403,634	\$0	\$1,403,634	\$280,727	20%	\$0	0%	\$280,727	20%	\$1,684,361
2.1.2.3.4.1	Construct service building foundations	23Oct09 19Nov09	DC	\$712,955	\$0	\$712,955	\$142,591	20%	\$0	0%	\$142,591	20%	\$855,546
2.1.2.3.4.2	Construct service building shell	20Nov09 21Dec09	DC	\$457,331	\$0	\$457,331	\$91,466	20%	\$0	0%	\$91,466	20%	\$548,797
2.1.2.3.4.3	Structural support for cranes	22Dec09 01Feb10	DC	\$233,348	\$0	\$233,348	\$46,670	20%	\$0	0%	\$46,670	20%	\$280,018
2.1.2.3.4.4	Service building shell completed	01Feb10 01Feb10		\$0	\$0	\$0	\$0	0%	\$0	0%	\$0	0%	\$0
2.1.2.3.5	Outfitting	13Nov08 29Mar10		\$12,057,419	\$0	\$12,057,419	\$2,411,484	20%	\$0	0%	\$2,411,484	20%	\$14,468,903
2.1.2.3.5.1	Building Finishes	02Feb10 29Mar10		\$4,093,742	\$0	\$4,093,742	\$818,748	20%	\$0	0%	\$818,748	20%	\$4,912,490
2.1.2.3.5.1.1	Access walkways	02Feb10 22Mar10	DC	\$2,261,691	\$0	\$2,261,691	\$452,338	20%	\$0	0%	\$452,338	20%	\$2,714,029
2.1.2.3.5.1.2	Secondary containment	02Feb10 01Mar10	DC	\$236,823	\$0	\$236,823	\$47,365	20%	\$0	0%	\$47,365	20%	\$284,188
2.1.2.3.5.1.3	Architectural finishes	02Feb10 29Mar10	DC	\$1,595,228	\$0	\$1,595,228	\$319,046	20%	\$0	0%	\$319,046	20%	\$1,914,274
2.1.2.3.5.2	Detector Enclosure/Assembly Area Electrical	20Nov09 08Mar10		\$1,815,738	\$0	\$1,815,738	\$363,148	20%	\$0	0%	\$363,148	20%	\$2,178,886
2.1.2.3.5.2.1	Rough-ins	20Nov09 22Feb10	DC	\$1,452,738	\$0	\$1,452,738	\$290,548	20%	\$0	0%	\$290,548	20%	\$1,743,286
2.1.2.3.5.2.2	Trim-outs	23Feb10 08Mar10	DC	\$363,000	\$0	\$363,000	\$72,600	20%	\$0	0%	\$72,600	20%	\$435,600
2.1.2.3.5.3	Service Building Electrical	02Feb10 29Mar10		\$760,548	\$0	\$760,548	\$152,110	20%	\$0	0%	\$152,110	20%	\$912,658
2.1.2.3.5.3.1	Rough-ins	02Feb10 15Mar10	DC	\$608,548	\$0	\$608,548	\$121,710	20%	\$0	0%	\$121,710	20%	\$730,258
2.1.2.3.5.3.2	Trim-outs	16Mar10 29Mar10	DC	\$152,000	\$0	\$152,000	\$30,400	20%	\$0	0%	\$30,400	20%	\$182,400
2.1.2.3.5.4	Detector Enclosure/Assembly Area Mechanical	20Nov09 08Feb10		\$1,227,527	\$0	\$1,227,527	\$245,505	20%	\$0	0%	\$245,505	20%	\$1,473,032
2.1.2.3.5.4.1	Rough-ins	20Nov09 25Jan10	DC	\$981,527	\$0	\$981,527	\$196,305	20%	\$0	0%	\$196,305	20%	\$1,177,832
2.1.2.3.5.4.2	Trim-outs	26Jan10 08Feb10	DC	\$246,000	\$0	\$246,000	\$49,200	20%	\$0	0%	\$49,200	20%	\$295,200
2.1.2.3.5.5	Service Building Mechanical	02Feb10 29Mar10		\$798,517	\$0	\$798,517	\$159,703	20%	\$0	0%	\$159,703	20%	\$958,220
2.1.2.3.5.5.1	Rough-ins	02Feb10 15Mar10	DC	\$638,517	\$0	\$638,517	\$127,703	20%	\$0	0%	\$127,703	20%	\$766,220



What's Next

- Complete the analysis of the three estimates;
- Refine the schedule;
- Complete the value engineering review with the three firms;
- This will become the cost point for the Title 2 design.