



Memorandum

October 23, 2012

To: Jim Dinley, Municipal Administrator
From: Christopher Brewton, Utility Director, Electric Department
Subject: **Blue Lake Hydroelectric Expansion Project-
Notice to Proceed Contract No. 9 –General Construction**

Request:

I request Assembly approval authorizing the City Administrator to issue Barnard Construction a Notice to Proceed for Contract 9, General Construction for the Blue Lake Expansion Project. The amount of this contract would be \$88,387,300 based on cost reductions from the bid price of \$92,975,300. In addition, I request the Assembly approve a 4.9% contingency of \$4,307,000, bringing the total requested amount to \$92,694,300.

Background:

The City and Borough of Sitka issued Notice of Award for the Blue Lake Expansion Project General Construction Contract No. 9 on September 12, 2012. The Notice of Award was contingent upon the City and Barnard successfully negotiating cost reductions for the work. The Construction Management team and Barnard proposed cost reduction measures and met in Bozeman, MT to evaluate the measures. The negotiated value of the cost reductions is \$4,588,000.

Evaluation of Cost Reduction Measures:

The cost reduction measures were evaluated based on the cost reduction available, advantages, disadvantages and the risks associated with each measure by the Construction Management team. The attached Memo from McMillen (ADM-9-MCM-M003) Cost Reduction Efforts Summary, summarizes the cost reduction process and results.

Barnard's Assurance of Price

The Construction Management Team and City have requested a letter from Barnard stating that they are committed to completing the Blue Lake Project for the negotiated budget with the cost reduction measures incorporated. Barnard stated verbally that they are willing to provide a letter indicating that the budget is sufficient to complete the work. At the October 23 Assembly meeting, we anticipate presenting a letter from Barnard confirming this commitment.

Additional Funding and Resulting Electric Rates:

The Construction Management team identified 3 possible funding scenarios and computed the resulting electric rates. These scenarios should bracket the funding possibilities.

Memorandum to Jim Dinley
 Re: Blue Lake Expansion Construction Contract 9 Notice to Proceed
 October 23, 2012
 Page 2 of 3

Worst Case: \$0 million grants, \$81 million bond sales
 Probable Case: \$21.5 million grants, \$54.5 million bond sales (50% grant funding)
 Best Case: \$47 million grants, \$29 million bond sales

The Table below describes the assumptions and the resulting electric rates for each scenario.

Variable	Best Case	Most Probable Case	Worst Case
Blue Lake Expansion Total Cost	\$140,000,000	\$141,000,000	\$145,000,000
Additional Grant Funding	\$47,000,000	\$21,500,000	\$0
Additional Bonding	\$29,050,000	\$55,550,000	\$81,000,000
Bond Interest Rate/term	4% / 35yr	4.5% / 35yr	5% / 35yr
Coverage Ratio	1.25/1	1.25/1	1.3/1
Base Electric Load	112,000 MWh/yr	112,000 MWh/yr	112,000 MWh/yr
Electric Load Growth	2%	1%	0%
Interruptible Load	10,000 MWh/yr	7,700 MWh/yr	5,000 MWh/yr
ELECTRIC RATE SUMMARY – EXISTING AND FORECAST RATES			
2012 Electric Rate, (Existing rate)	9.8¢/kWh	9.8¢/kWh	9.8¢/kWh
2013 Electric Rate	11.4¢	11.6¢	11.8¢
2014 Electric Rate	11.9¢	13.3¢	13.6¢
2015 Electric Rate	12.1¢	15.1¢	15.5¢
2016 Electric Rate	12.5¢	15.6¢	16.2¢
2017 Electric Rate	12.6¢	15.8¢	16.4¢
Total % Electric Rate Increase, 2012 to 2017	26.9%	51.1%	55.6%

Recommendation:

I recommend the Assembly authorize the Municipal Administrator to issue to Barnard Construction Company, Inc. a Notice to Proceed for Contract No. 9, General Construction for the Blue Lake Expansion Project prior to November 1, 2012. The maximum amount of this contract would be \$88,387,300. In addition, I recommend the Assembly approve a 4.9% contingency bringing the total requested project cost to \$92,694 300. We will keep the Assembly informed on the status of the project.

Memorandum to Jim Dinley

Re: Blue Lake Expansion Construction Contract 9 Notice to Proceed

October 23, 2012

Page 3 of 3

Proposed Motion:

I MOVE to authorize the Municipal Administrator to issue Barnard a Notice to Proceed prior to November 1, 2012, for Contract No. 9, General Construction and obligate project funds in the amount of \$88,387,300 from the Blue Lake Third Turbine and Dam Upgrade Capital Project No. 90594: and execute this action on behalf of the Assembly of the City & Borough of Sitka.

Cc: Jay Sweeney, Finance Director
Dean Orbison, Blue Lake Project Manager

MEMORANDUM

McMILLEN, LLC

To:	Dean Orbison, City of Sitka	Project:	Blue Lake Expansion Project
From:	Morton D. McMillen, P.E.	Cc:	File
Date:	October 23, 2012	Job No:	12-040
Subject:	ADM-9-MCM-M003 - Cost Reduction Efforts Summary		

1.0 PURPOSE

The purpose of this memorandum is to present the cost reduction proposals which will be recommended for implementation.

2.0 BACKGROUND

A cost reduction and value engineering effort was organized and implemented to identify and evaluate options for reducing the overall capital cost of the Blue Lake Hydro Expansion project. This effort was conducted by the construction management team (McMillen) with participation by CBS and the selected contractor Barnard Construction Company Incorporated (Barnard). The work effort was organized into the following basic steps:

- 1) CBS and McMillen developed a list of design and contract general conditions modifications, such as the milestone schedule, which we believed could result in an overall cost savings to the project without compromising the intended operation or power generation. These options were organized by project element and provided to Barnard for initial review and consideration.
- 2) Concurrently, Barnard developed a list of cost reduction modifications which they believed could provide some cost reduction. In general, these alternatives were focused on work elements which if modified, could result in schedule improvement which translated to cost reduction.
- 3) A workshop was conducted and attended by CBS, McMillen, and Barnard to review the cost reduction items. Within this workshop, each item was presented, discussed, and prioritized based on implementation feasibility and potential cost reduction value. Those items which provided little cost reduction value or impacted the project operation were removed from consideration. A potential cost savings range was developed by the team in order to judge the potential impact of individual measures as well as the aggregate value. As a follow up to the workshop, CBS and McMillen were tasked with preparing more detailed sketches of the individual measures to provide to Barnard for use in refining their cost estimates. A deliverable date of October 8, 2012 was selected for Barnard to have all of the refined cost estimates completed and provided to CBS/McMillen.
- 4) At the completion of the workshop, CBS and McMillen provided summaries of each of the cost reduction measures to Hatch for review. Hatch provided a written response to the cost reduction measures on September 28, 2012. In general, Hatch did not support the proposed cost reduction measures for a variety of reasons. The CBS and McMillen team chose to continue the evaluation process.

- 5) On October 8, 2012, Barnard provided the final cost estimates for the cost reduction measures. The CBS, McMillen, and Barnard reviewed the cost estimates associated with each measure. In preparing their estimates, Barnard provided three basic categories of options: (1) Option 1 which focused on maintaining the existing dam and tunnel arrangement and implementing cost reduction measures associated with the original project arrangement; (2) Option 2 consisting of constructing a new intake tunnel and replacing the intake gate house with a valve house; and (3) Option 3 consisting of a Hybrid approach which eliminated the gate house, but maintained the intake tunnel alignment. After extensive discussion and review, CBS and McMillen determined that the Option 1 cost reduction measures provided the best value approach to cost reduction. Options 2 and 3 would require extensive re-design and coordination with the Board of Consultants and FERC. The process to garner approval from the BOC and FERC as well as the cost associated with preparing the new design documents would consume a large portion of the estimated cost reduction savings as well as delay the project schedule. For this reason, Options 2 and 3 were eliminated.

The recommended cost reduction measures resulted in an overall cost reduction of \$4,588,000. Table 1 presents a summary of each cost reduction measure, the associated value, and the total cost reduction savings anticipated.

3.0 NEXT STEPS AND SCHEDULE

As we discussed, CBS has incorporated the estimated cost reduction value into the financing model for presentation to the Assembly meeting on October 23, 2012. At this meeting, we are requesting Notice to Proceed (NTP) with the project construction. Once NTP has been approved, we anticipate the following work elements will be implemented:

1. McMillen team will complete the final design details and prepare construction drawings as required for the cost reduction proposals. These revised and new drawings will be incorporated into the conformed construction drawings set and included in the conformed drawing set.
2. Barnard will update their cost reduction estimates using the final design drawings prepared by McMillen. These estimates will be reviewed and approved by the CBS/CM team, then included in the contract.
3. Barnard will provide the bonds and insurance for the project based on the final approved construction cost which includes the cost reduction measures by October 26, 2012.
4. Barnard will complete their detailed workplan and schedule incorporating the cost reduction measures and submit to CBS/CM team for review and approval by November 8, 2012.

Table 2 presents the milestone schedule anticipated following issuing NTP to Barnard. This schedule assumes approval for NTP on October 23, 2012. The final contract documentation including bonds and insurance submittals, work plan submittal, and schedule update will be completed by Barnard to support mobilization and ground breaking by November 19, 2012.

Table 1. Blue Lake Hydroelectric Expansion – Summary of Selected Preliminary Cost Reduction Proposals

Item Number	Description	Original Intake Tunnel Options	Accept (Yes/No?)	Required Action
05-001	Modify Builders Risk Policy	NA	NA	None
05-002	Change Summer Concrete Placement Temperature to 75 degrees	\$40,000.00	No	None
05-003	Start Generation Outage Earlier in 2014	\$300,000.00	Yes	CBS/CM to provide memo

				summarizing the operation requirements and restrictions
20-003	Remove Limitation on Dam Raise Height in 1 st Season – Opt B	\$150,00.00	Yes	BOC approval
20-006	Utilize PEX material instead of EMT for Dam Contraction Joint Grouting	\$10,000.00	Yes	Modify contract documents to allow PEX material.
20-007	Change Coarse Aggregate Max Size to 1”	\$10,000.00	No	None
23-001	Utilize smaller core holes for Drainage Tunnel Exploration	\$0	NA	None
23-003	Shorten Drainage Tunnel by 40LF	\$100,000.00	No	None
23-004	Relocated Drainage Tunnel Portal	\$60,000.00	No	None
24-002	Revised Hydraulic Liner Detail	\$1,365,000.00	Yes	McMillen to prepare revised design drawings and specs for revised hydraulic liner. Barnard to provide final pricing based on final design details. Incorporate final cost reduction into the contract.
24-004	Eliminate Intake Tunnel Rock Trap – Complete – see narrative for additional details.	\$58,000.00	Yes	McMillen to revise the contract drawings to reflect elimination of rock trap.
24-006	Revised Intake Tunnel/Valving in place of Gate Shaft	\$0	No	None
24-007	Flat Roof on Intake – Lower 4’	\$5,000.00	Yes	McMillen to revise the contract drawings to reflect the flat roof.
30-001	Reduce Surge Chamber Diameter to 10’, modify Top structure	\$2,300,000.00	Yes	McMillen to provide revised design drawings for the surge chamber modifications. Barnard to provide final pricing to be based on the final design details. Incorporate final cost reduction into the contract.
30-004	Reduce Length of Tunnel Plug to 24LF	\$16,500.00	No	None
30-005	Replace concrete curb with steel guardrail in Adit Tunnel Tie-in	\$3,000.00	No	None
31-001	Eliminate Penstock Anchor Blocks 1,2 & 4	\$350,000.00	Yes	McMillen to provide revised design drawings for eliminating penstock anchor blocks. Barnard to provide final pricing to be based on the final design details. Incorporate final cost reduction into the contract.
45-002	Eliminate Concrete Slab in After-Bay Floor	\$50,000.00	Yes	McMillen to revise design drawings for the concrete slab elimination. Incorporate final cost reduction into the contract.
45-003	Eliminate H-Beam tailrace Cofferdam supports, and the cofferdam	\$8,500.00	No	None
45-004	Eliminate Steel Guardrail along Afterbay, replace with Ecology Blocks	\$15,000.00	No	None
MISC	Change in Rock Support	\$125,000.00	Yes – Not included in the total below.	McMillen to provide revised unit quantities based on the revised surge chamber design. Barnard to provide final pricing to be based on the final quantities. Incorporate final

				cost reduction into the contract.
	Total Recommended Cost Reductions	\$4,588,000.00		

Table 2. Blue Lake Expansion – Schedule to Groundbreaking

Item	Description	Date
1	USFS Approval on all Plans	10/5/2012
2	All Plans filed with the FERC	10/11/2012
3	Package to City Assembly	10/16/2012
4	Assembly Meeting	10/23/2012
5	Bonds/Insurance Submittals	10/26/2012
6	Notice to Proceed	11/1/2012
7	Work Plan, Schedule, SOV submittal	11/8/2012
8	Preconstruction Meeting	11/15/2012
9	Partnering Meeting	11/19/2012
10	Groundbreaking	11/19/2012

Blue Lake Expansion 90594 Estimate and Cost Report 10/16/2012
 updated 16-Oct-12

				CY2013		CY2014		CY2015				
				FY2013	FY2014	FY2015						
Contract	Item	Sub Project	Months	Actual Cost	Approx. Cost/Month	Additional Approved Funds	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun	Jul-Dec	Jan-Jun
1	Turbine Generators - Contract 1	(.0011)	--	\$11,323,786		\$1,891,941	\$2,705	\$6,795	\$0	\$0	\$928	\$0
2	Switchgear - Contract 2	(.0012)	--	\$684,000			\$34	\$239	\$410	\$0	\$0	\$0
3	Intake Gate & Bulkhead - Contract 3	(.0013)	--	\$761,431			\$78	\$281	\$364	\$0	\$0	\$0
4	Penstock Manifold - Contract 4	(.0014)	--	\$827,975		\$100,000	\$0	\$578	\$0	\$0	\$0	\$0
5	Transformer - Contract 5	(.0015)	--	\$619,484			\$0	\$200	\$333	\$798	\$0	\$0
6	Bridge Crane - Contract 6	(.0016)	--	\$270,518		\$18,367	\$28	\$108	\$27	\$0	\$0	\$0
7	Steel Building - Contract 7	(.0017)	--	\$1,138,918		\$46,730	\$0	\$1,087	\$0	\$0	\$0	\$0
8	Debris Management - Contract 8	(.0018)	13	\$1,530,000			\$0	\$0	\$0	\$0	\$706	\$118
9	General Multiple feature	(.0019)	24	\$23,998,900	\$957,665		\$0	\$5,674	\$5,674	\$5,674	\$5,674	\$0
9	20 Dam	(.0019)	22	\$19,367,450	\$640,897		\$0	\$3,803	\$3,803	\$3,803	\$2,536	\$0
9	22 Scour Wall	(.0019)	3	\$1,038,750	\$516,017		\$0	\$516	\$1,032	\$0	\$0	\$0
9	23 Drainage Tunnel	(.0019)	9	\$3,785,200	\$276,821		\$0	\$1,661	\$830	\$0	\$0	\$0
9	24 Intake Tunnel	(.0019)	6	\$3,072,000	\$643,780		\$0	\$2,435	\$0	\$0	\$0	\$0
9	25 Intake structure	(.0019)	8	\$2,700,000	\$357,708		\$0	\$0	\$0	\$1,789	\$1,073	\$0
9	26 Gate Shaft	(.0019)	2	\$4,500,000	\$1,856,916		\$0	\$1,857	\$1,857	\$0	\$0	\$0
9	30 Tunnel Modifications	(.0019)	16	\$12,300,000	\$827,286		\$0	\$813	\$4,880	\$4,880	\$3,253	\$0
9	31 Penstock	(.0019)	3	\$1,125,000	\$1,014,668		\$0	\$0	\$2,957	\$0	\$0	\$0
9	32 Penstock Drain	(.0019)	1	\$400,000	\$777,746		\$0	\$0	\$778	\$0	\$0	\$0
9	33 Water treatment Modifications	(.0019)	2	\$200,000	\$153,503		\$0	\$0	\$0	\$0	\$307	\$0
9	45 Powerhouse	(.0019)	20	\$14,750,000	\$965,113		\$0	\$3,852	\$5,779	\$5,779	\$5,779	\$0
9	46 Fish Valve Unit	(.0019)	3	\$350,000	\$220,175		\$0	\$0	\$0	\$0	\$440	\$220
9	55 Switchyard Modifications	(.0019)	8	\$700,000	\$136,059		\$0	\$0	\$0	\$136	\$816	\$136
	Incentive Payment-MS2&MS3	(.0019)		\$1,600,000			\$0	\$0	\$600	\$0	\$1,000	\$0
	City Performed Work	(.0007)		\$1,495,000			\$139	\$195	\$90	\$70	\$125	\$0
	Contract 9 Sub Total=			\$88,387,300								
	Sub Total =			\$108,638,412								
	Amendment	(.0001)	26	\$1,150,000			\$0	\$0	\$0	\$0	\$0	\$0
	BOC Meetings	(.0004)	26	\$250,000			\$24	\$36	\$36	\$36	\$36	\$0
	Engineering	(.0004)	2	\$10,600,000			\$20	\$60	\$60	\$60	\$60	\$0
	CM Engineering Hatch	(.0008)	26	\$315,200			\$0	\$0	\$0	\$0	\$0	\$0
	Constr Mgmt CBS	(.0008)	26	\$2,331,000			\$48	\$72	\$72	\$72	\$72	\$0
	Constr Mgmt McMillen	(.0008)	30	\$4,328,394			\$320	\$480	\$480	\$480	\$480	\$0
	Contingency (Contract 8 - 9)		4.9%	\$4,307,000			\$644	\$966	\$966	\$966	\$966	\$0
	Contingency (Contract 1-7)		5%	\$711,944			\$144	\$866	\$866	\$866	\$866	\$0
	Contingency Const. Mgmt		10%	\$697,459			\$29	\$198	\$198	\$198	\$198	\$0
	Diesel Fuel (Generation Outage)		2	\$1,260,000			\$116	\$174	\$174	\$174	\$174	\$0
	Temporary Filtration			\$2,000,000			\$0	\$0	\$0	\$0	\$1,260	\$0
	Sub Total =			\$27,950,998			\$0	\$0	\$0	\$40	\$160	\$0
	Cost of Issuance and Reserve Account=			\$3,500,000								
	Total=			\$140,089,410								
	Amount Expensed to date=			\$16,421,970								
	Amount Encumbered to date=			\$16,935,913								
	Total after expenditures=			\$106,731,527								
	Total Cash Flow=						\$4,329	\$32,947	\$32,266	\$25,820	\$26,909	\$1,062
												\$118

* Contract 5 bid amount was \$710,516 less than EE so that amount will be added to C9 Contingency once awarded.