

POSSIBLE MOTION

I MOVE to authorize the Administrator to execute an agreement for Contract No. 3 – Supply of Gates and Hoist for the Blue Lake Expansion Project to Linita Design and Manufacturing Corporation not to exceed \$817,690.00



Memorandum

June 7, 2012

To: Jim Dinley, Municipal Administrator
 From: Christopher Brewton, Utility Director
 Subject: **Blue Lake Hydroelectric Expansion Project- Award of Contract No. 3
 Supply of Gates and Hoist**

Request:

I request Assembly approval authorizing the City Administrator to issue Linita Design & Manufacturing Corp., a Notice of Award, clarify and confirm a final price, and to enter into an agreement for Contract No. 3, Supply of Gates and Hoist for the Blue Lake Expansion Project. The maximum amount of this contract would be the amount of \$761,431.00. In addition, I request the Assembly approve an additional amount of \$56,259.00, to cover the cost of spare parts, a site representative and contingency bringing the total requested amount to \$817,690.00.

Background:

The City and Borough of Sitka advertised Supply of Gates and Hoist for the Blue Lake Expansion Project, on April 12, 2012. Bids were received from six bidders. The bids were opened on May 25, 2012. The base bid results are as follows:

<u>Company</u>	<u>Total Bid</u>
Jesse Engineering	\$772,653.00
Thompson Metal Fabricators	\$679,745.00
EDCO Inc.	\$885,446.00
Linita Design & Manufacturing	\$761,431.00
Rodney Hunt	\$1,004,070.00
Oregon Iron Works	\$1,164,800.00

Analysis:

The engineers estimate for this contract was \$560,000.00; the bids were reviewed by Department staff and its consultants as indicated in the attached bid evaluation.

Department staff believe that the low bid offered by Thompson Metal Fabricators does not indicate that they have adequate previous experience in the supply and manufacture of wheeled gates and wheel gate hoists. The department has therefore recommended that Contract 3 be awarded to Linita Design and Manufacturing, the second lowest bidder. Linita demonstrated adequate experience in the supply and manufacture of the gates and hoist specified.

The Electric Department requests that the Assembly provide authorization for the City Administrator to issue Linita Design and Manufacturing Corp. Inc. a Notice of Award, clarify

Memorandum to Jim Dinley
Re: Blue Lake Gates and Hoist Award
June 5, 2012
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and confirm the final contract price and enter into an agreement for Contract No. 3 Supply of Gates and Hoist for the Blue Lake Expansion Project based on the Bidding Documents, the Linita bid, our requests for clarification, and Linita's subsequent responses.

The anticipated contract amount will be:

Bulkhead Gate	\$102,813.00
Guide for Bulkhead Gate	\$46,123.00
Fixed Wheeled Gate	\$199,002.00
Guides for Fixed Wheel Gate	\$134,186.00
Hoist for Wheeled Gate	<u>\$279,307.00</u>
Total Base Bid (Contract Amount)	\$761,431.00
Spare Parts	\$5,522.00
Site Representative	\$12,737.00
Contingency	<u>\$38,000.00</u>
Variable Costs	\$56,259.00
Requested Authorization	\$817,690.00

The Electric Department requests that the City Administrator be given authorization to exercise change orders for variable cost of \$56,259.00. This will bring the total request for authorization to \$817,690.00

Funding:

Adequate funding is available in the Blue Lake Third Turbine and Dam Upgrade Capital Project No. 90594.

Recommendation:

I recommend the Assembly authorize the Municipal Administrator to issue Linita Design and Manufacturing Corp. a Notice of Award, clarify and confirm a final price, and enter into an agreement for Contract No. 3 the Supply of Gates and Hoist for the Blue Lake Expansion Project. The maximum amount of this contract would be the amount of \$817,690.00.

Cc: Theresa Hillhouse, Municipal Attorney
Jay Sweeney, Finance Director
Dean Orbison, Blue Lake Project Manager

Draft Memo

TO: Steve Hart

FROM: Chris May

June 1, 2012

cc:

City and Borough of Sitka Blue Lake Expansion Project

Review of Bids for Contract No. 3 - Supply of Gates and Hoist

1. Introduction

Bids for supply of the gates and hoist for the intake at the Blue Lake Expansion Project were received by the City and Borough of Sitka on May 25, 2012. Proposals were submitted by the following:

- Jesse Engineering Company – Tacoma, WA
- Thompson Metal Fab – Vancouver, WA
- EDCO Inc – Mount Vernon, WA
- Linita Design and Manufacturing – Lackawanna, NY
- Rodney Hunt Company – Orange, MA
- Oregon Iron Works – Clackamas, OR

A comparison of the bid prices, schedule and technical data for the gates and hoist proposals is provided as Attachment 1. A review of the bids is discussed in the sections below.

2. Bid Prices

Bid pricing, has been provided by all bidders, basically as requested in the bidding documents. The pricing includes:

- Supply of gates and hoist
- Supply of spare parts
- Rates for Site Representative

The prices are summarized in the attached table.

The bid prices vary considerably. The cost for the fixed wheel gate ranges from \$167,138 to \$485,640. Similarly the hoist cost ranges from \$192,300 to \$376,467.20.

It should be noted that there appears to be an arithmetic error in the bid from Rodney Hunt. The total of Items 1 to 5 is \$1,004,070 not \$1,332,570. Clarification would be needed if the Rodney Hunt bid were to be considered.

3. Technical Comparison

3.1 Hoist layout and Catalogue Information

Three of the six bidders, Jesse, EDCO and Linita, provided a sketch showing the overall dimensions of the hoist as required by Addendum 1. The remaining bidders did not provide a sketch. None of the bidders provided catalogue information for the hoist components that was required by Addendum 1.

All three hoist sketches indicate good layouts and working arrangements with good clearances for access. By making the drive gear on the hoist drum large they are able to better place the reducer gearbox. The gear for the Linita hoist is the largest at 64 inch while Jesse and EDCO both indicate 48 inch.

3.2 Wire Rope Sizing

Two bidders, Jesse and EDCO, have indicated that the wire rope size needs to increase from the specified 1-1/8" to 1-3/8" diameter. Rodney Hunt have increased the rope size to 1-1/4". Jesse and EDCO state that this is due to the motor pull-up and breakdown torque. EDCO go on to say that they would not be able to supply a motor meeting the 215% +/- 10% parameter. EDCO have a breakdown value of 259%.

Hatch calculations would indicate that the rope size of 1-1/8" is satisfactory so this would be subject to verification.

3.3 Rope Drum Diameter

The diameter of the rope drum is required by spec Item 13300.2.03.D to be a minimum of 25 times the rope diameter. For 1-1/8" rope this amounts to 28-1/8" and for 1-3/8" rope it amounts to 34-3/8". This ratio comes from our past experience but it can vary considerably. The Corps of Engineers requires a ratio of 30 while the Wire Rope Users Manual requires a ratio of 26.

Both EDCO and Jesse propose using a ratio of 21 noting that CMAA allows the ratio to be as low as 20 for Class D (Heavy Service). However, the definition of Class D per CMAA, allows for loads approaching 50% of the rated capacity to be handled constantly during the working period. Not over 65% of the lifts to be at rated capacity. Here it should be noted that the minimum lift is the dead weight of the gate which amounts to 68% of rated capacity, thus exceeding the 50% allowance.

The next higher service is Class E (Severe Service) which allows loads approaching rated capacity throughout its life. Class E of CMAA requires a minimum ratio of 24. On this basis we should not permit the reduction to 21 ratio. Reducing the rope bend radius has the effect of reducing the service life of the rope.

Thompson Metal Fab, the low bidder, proposes a drum diameter of 36" which allows for a rope diameter of 1-3/8" with a ratio of 26. This complies with Specification requirements. It is noted that Thompson Metal Fab have not indicated a change of rope size.

Similarly Linita have not indicated a change of rope size and cite a drum diameter of 28 inch which is in compliance with the Specification.

3.4 Thompson Metal Fab (TMF)

This bidder shows general compliance with the project technical requirements for the gates and guides in terms of materials and component weights.

This bidder proposes using Coffman Engineers (www.coffman.com) to design the gate hoist. The bid cites three projects for which Coffman have worked with hoists. Unfortunately all three appear to be rehabilitation projects and not design of new hoist equipment. These projects are also not of similar design to that required for Blue Lake. As such their experience appears lacking. The bid form is noted to have several areas where it is stated "TBD per Coffman Design". This does not provide much assurance that the hoist design and bid has been completely thought through and is complete. There is also the question of who actually supplies the hoist since Coffman appear to do the design only.

This bidder does not indicate any experience with fabrication of wheeled gates. It is unclear if they have supplied gates or gate guides similar to those required for Blue Lake.

Questions 1 to 5 were sent to TMF and they responded today, 6/1/2012 as shown below. Attachment 2 is a copy of their letter with their detailed response to each question. Their responses are summarized below in parenthesis after each question:

1. Confirm that bulkhead gate and guides would be delivered 180 days after notice to proceed, as required by Addendum 1. (Confirmed)
2. Will rope size be 1 1/8" as we currently indicate? (Yes)
3. Would lubricant for hoist reducer be provided by Seller for installation by Buyer? (see exceptions) If not, then please explain why. (Yes)
4. Please provide motor rpm for hoist. (836 rpm)
5. Motor power is noted to be 10hp. Has it been verified that this power will not overload the hoist components and rope, particularly under stall conditions? (Yes)

These questions were posed before review was complete. TMF should additionally be asked to provide the name of the company that would supply the hoist.

3.5 Linita Design and Manufacturing

Linita are the second lowest bidder. If it is decided that the hoist design experience of Thompson Metal Fab (Coffman) is insufficient then this Bidder would be next in line for consideration. Linita have cited 6 recent wheeled gate projects and 5 recent hoist projects. Linita have provided project descriptions for their hoist projects which indicate that they have designed and supplied new hoists for all 5 of the hoist projects. They have also provided a project description of the hoists designed and supplied for Duncairn Dam.

Linita have provided a copy of their Quality Control Manual which has not been reviewed for this bid comparison.

Linita have made the delivery of the gates, guides and hoist contingent upon notice to proceed with fabrication which follows after the design and drawings process. The schedule provided by Linita indicates a start date of 5/28/2012 which has already passed. The schedule also has 6/29/2012 as the notice to proceed with fabrication of gates and guides and 8/3/2012 as the notice to proceed with hoist fabrication. Using these dates we infer 32 days from award for gates and guides and 67 days

for hoist design. These times are inconsistent with the 49 days and 70 days respectively for shop drawings. However, the inference is that the gates would be delivered after 182 days and the hoist after 277 days. Both are marginally acceptable considering the required 180 and 270 days respectively.

If Linita are to be considered then the following questions should be posed to them prior to award:

1. Motor power is noted to be 7.5hp. Has it been verified that this power will not overload the hoist components and rope, particularly under stall conditions?
2. Clarify that the bulkhead gate and guides can be delivered 180 days after notice to proceed and the fixed wheel gate, guides and hoist can be delivered 270 days after notice to proceed.
3. The percentage breakdown for Items 1-5 on the Bid Form total 99% not 100%, please adjust.

3.6 Jesse Engineering

Jesse is the third lowest bidder but is only \$6,425 more than Linita when considering evaluated price.

Jesse have cited 3 projects for which they have hoist experience. One for a gate hoist (Wanapum Fish Gate), one for a bridge hoist and one for a shipyard magnet crane. Of these projects only Wanapum can be considered equivalent to the requirements for Blue Lake.

If Jesse are to be considered, then the following questions should be posed to them prior to award:

1. The weight of the fixed wheel gate is stated to be 36,100 lb which exceeds the required designed weight of 28,500 lb. Please explain why the proposed gate exceeds the design weight be over 25%.
2. The roller path material is stated to be A167 Type 304 whereas A564 Type 630 Condition H1150 is required. Please confirm this is included.

4. Evaluated Price

For bid comparison purposes we have not included the costs for spare parts. It would be expected that spare parts would be subject to negotiation and could vary. The spare parts list should be discussed with the preferred / selected bidder.

We have added the cost for a site representative using the rates provided in the bids. The price for the site representative assumes one trip to Sitka with one six-day week at site and 10 hour days. We have entered zero for Rodney Hunt since they appear to have included site representative costs in their bid (4 trips totaling 20 days). Similarly, EDCO state that a site representative is included although the periods are not mentioned.

A comparison of the evaluated bid prices is provided on the attached table. The low bidder is Thompson Metal Fab with an evaluated price of \$691,235. The next highest bidder is Linita with an evaluated price of \$774,168 which is \$82,933 (12%) higher.

It is noted that percentage distribution of costs appears somewhat arbitrary comparing all six bids. Consequently not much faith should be put in the accuracy of these percentages. However, Linita,

with their facility in New York, has a high percentage of their cost in delivery and warranty (17%) as compared to Thompson Metal Fab (4%). This difference of 13% accounts for \$98,986 which is more than the \$82,933 difference between the two lowest bids.

5. Conclusions and Recommendation

The low evaluated price is for the bid from Thompson Metal Fab. However, there is significant concern that their hoist designer is not showing the required experience for new hoist design. There is also concern that TMF do not show experience manufacturing wheeled gates. Furthermore TMF did not submit a sketch of the proposed hoist nor sufficient details of the proposed hoist. Therefore it would be our recommendation that Linita be selected as the preferred bidder and a contract negotiated with this company.

Linita shows significantly greater hoist design and supply experience as well as gate supply experience. Linita appear to be in full compliance with Specification requirements, however, the questions indicated in Section 3.5 above should be posed and satisfactorily answered prior to award.

CM: cm
Attachment(s)/Enclosure

ATTACHMENT 1 – Bid Comparison Table

	JESSE ENGINEERING CO	THOMPSON METAL FAB	EDCO INC	LINITA DESIGN & MFG.	RODNEY HUNT CO	OREGON IRON WORKS	ENGINEERS ESTIMATE
Item 1 - Bulkhead gate	\$77,761.00	\$90,900.00	\$69,144.30	\$107,813.00	\$77,000.00	\$118,000.00	\$80,000.00
Item 2 - Guide for bulkhead gates	\$44,591.00	\$33,300.00	\$53,879.65	\$46,123.00	\$36,500.00	\$58,800.00	\$30,000.00
Item 3 - Fixed wheeled gate	\$167,138.00	\$215,035.00	\$170,437.25	\$199,002.00	\$485,640.00	\$391,000.00	\$210,000.00
Item 4 - Guides for fixed wheel gate	\$113,528.00	\$148,210.00	\$215,518.00	\$134,186.00	\$76,000.00	\$277,000.00	\$70,000.00
Item 5 - Hoist for wheel gate	\$169,635.00	\$192,300.00	\$376,467.20	\$279,307.00	\$328,930.00	\$320,000.00	\$170,000.00
	\$772,653.00	\$679,745.00	\$885,446.40	\$761,431.00	\$1,004,070.00	\$1,164,800.00	\$560,000.00
Item 6 - Spare Parts	\$12,311.00	\$49,620.00	TBD	\$5,522.00	\$7,500.00	\$65,000.00	\$20,000.00
Item 7							
Round trip travel expenses	\$700.00	\$1,200.00	\$2,100.00	\$4,730.00	\$2,000.00	\$2,000.00	
Hourly rate/weekday for initial 8 hours	\$85.00	\$120.00	\$95.00	\$90.00	\$66.00	\$85.00	
Hourly rate/weekday in excess of 8 hours	\$110.00	\$180.00	\$120.00	\$126.00	\$100.00	\$125.00	
Hourly rate for Weekend-Holiday days (when applicable)	\$110.00	\$240.00	\$120.00	\$126.00	\$190.00	\$125.00	
Daily rate (per diem) for travel and site living expenses including local transportation	\$310.00	\$295.00	\$300.00	\$356.50	\$250.00	\$165.00	
Site Representative (one 6 day week with 10 hr days)	\$7,940.00	\$11,490.00	\$0.00	\$12,737.00	\$0.00	\$8,640.00	
TOTAL EVALUATED COST	\$780,593.00	\$691,235.00	\$885,446.40	\$774,168.00	\$1,004,070.00	\$1,173,440.00	
Price breakdown for Items 1 to 5							
Engineering and drawings	15%	5%	6.32%	6%	10%	10%	
Material procurement	35%	56%	55.81%	4%	35%	40%	
Manufacture	45%	35%	24.50%	72%	50%	45%	
Delivery and Warranty	5%	4%	13.37%	17%	5%	5%	
Total	100%	100%	100%	99%	100%	100%	
Shop Drawings							
fabrication drawings of bulkhead gate	90 days	60 days	60 days	49 days	42 days	45 days	
fabrication drawings of guides for bulkhead gate	90 days	60 days	60 days	49 days	42 days	50 days	
fabrication drawings of fixed wheel gate	90 days	60 days	60 days	49 days	56 days	50 days	
fabrication drawings of guides for fixed wheel gate	90 days	60 days	60 days	49 days	56 days	60 days	
drawings of hoist for fixed wheel gate	90 days	90 days	90 days	70 days	56 days	60 days	
Quality Assurance Procedures							
	30 days	90 days	5 days	15 days	56 days	30 days	
Delivery							
bulkhead gate and guides	180 days			see bid		180 days	180 days (Add 1)
fixed wheel gate and guides	270 days			see bid		270 days	270 days (Add 1)
gates and guides		270 days	180 days	see bid	196 days		
hoist	270 days	270 days	180 days	see bid	196 days	270 days	
Total weight							
Bulkhead gate	12,900 lb	11,100 lb	13,504 lb	11,600 lb	17,000 lb	11,500 lb	
Guides for bulkhead gate	3,200 lb	4,100 lb	4,285 lb	3,050 lb	4,500 lb	3,000 lb	
Fixed wheel gate	36,100 lb	28,500 lb	28,401 lb	22,100 lb	21,000 lb	33,500 lb	
Guides for fixed wheel gate	12,400 lb	12,700 lb	15,500 lb	13,000 lb	7,000 lb	8,800 lb	
Hoist for fixed wheel gate	17,500 lb	20,172 lb	19,280 lb	16,000 lb	15,000 lb	20,000 lb	
Material (ASTM designation and grade)							
Bulkhead gate structure	A572-50	A572-50	A572-50	A572-50	per spec	A992 / A572-50	A992 / A572-50
Guides for bulkhead gate	A176, Type 304	A572-50 and A167 Type 304	A572-50 and A167, Type 304	A572-50 and A276, Type 304	per spec	A572-50 / A240 Type 304	
Fixed wheel gate structure	A572-50	A572-50 and A992	A572-50	A572-50	per spec	A992 / A572-50	A992 / A572-50
Gate wheels	A564, Type 630	A564 Type 630 Condition H1150M 255BHN	A564 Type 630 Condition H1150M 255BHN	A564 Type 630	per spec	A564 Type 630 HT 1150	A564 Type 630 Condition H1150M 255BHN
Gate guides for fixed wheel gate							
roller path	A167 Type 304	A564 Type 630 Condition H1150 277BHN	A167 Type 304	A564 Type 630 Condition H1150	per spec	A564 Type 630	A564 Type 630 Condition H1150 277BHN
seal path	A167 Type 304	A167 Type 304L	A167 Type 304	A276 Type 304	per spec	A167 Type 304	
miscellaneous plate steel	A167 Type 304	A572-50	A572-50	A572-50	per spec	A572-50	

Wire rope hoist

Rope Diameter
Drum diameter
Drum length

Exposed gear
width
pitch diameter

Exposed pinion
width
pitch diameter

Gear reducer
manufacturer
model number
number of stages
speed reduction ratio

Motor
manufacturer
power
speed

Holding brake
manufacturer
model number

Fan brake
manufacturer
model number

JESSE ENGINEERING CO	THOMPSON METAL FAB	EDCO INC	LINITA DESIGN & MFG.	RODNEY HUNT CO	OREGON IRON WORKS	ENGINEERS ESTIMATE
1 3/8 in	assumed 1 1/8 in as spec	1 3/8 in	assumed 1 1/8 in as spec	1 1/4 in	assumed 1 1/8 in as spec	1 1/8 in
29 in	36 in	28.62 in	28 in	32 in	32 in	33.75 in
93 in	TBD per Coffman design	93 in	70 in	73.125 in	73.125 in	
10 in	TBD per Coffman design	10 in	10 in	8.875 in	TBD	7.5 in
48 in	TBD per Coffman design	48 in	64 in	43.5 in	TBD	42.49 in
10.125 in	TBD per Coffman design	10.125 in	11 in	9.25 in	TBD	7.5 in
10 in	TBD per Coffman design	10 in	16 in	13.5 in	TBD	7.16 in
Falk	S.E.W.	Falk	SEW Eurodrive	Wilson Machine Co Ltd.	Wilson Machine Co Ltd.	Renold or Brook Hansen
405-A	TBD per Coffman design	405-A4-C-323.1:1	XFS190	Q462	N/A	
4	TBD per Coffman design	4	4	4		4
323.1 to 1	375 to 1	323.1 to 1	400	684.5	684.5	456.9 or 523.66
Baldor	Magnetek	Baldor	Baldor	Marathon Electric (Blue Max)	TBD / 254 T-Frame	
7.5 hp	10 hp	7.5 hp	7.5 hp	5	5	5
900 rpm	4ft per minute	900 rpm	900 rpm	900 rpm	900 rpm	900 rpm
Johnson Industries Ltd	Magnetek	Johnson Industries Ltd	Magnetek Mondel Hitork	Mondel	Mondel Drum Brake	
KX08035-DT3	TBD per Coffman design	KX08035-DT3	6" MSA Hoist Brake	6" MSA	2005	
Sheldon Industries	Magnetek	Sheldon Industries	Daltec Industries Ltd	Sheldons Engineering Inc	Sheldons Engineering	
NA - 12hp @ 2200rpm	TBD per Coffman design	13hp @ 2200rpm	FC 994-3.5 (finalize later)	1300PA Brake Fans	1300	

ATTACHMENT 2 – Thompson Metal Fab Responses



THOMPSON METAL FAB, INC.

3000 SE HIDDEN WAY • P.O. BOX 5276 (98668) • VANCOUVER • WA 98661
PH 360.696.0811 PORTLAND 503.283.4494 • FX 360.693.1017

June 1st, 2012

Attention: Don Jarrett (McMillen)
CC: Andrew Pharis, Chris May, Paul Carson

Reference: Blue Lake Expansion Project – Contract No. 3
Subject: TMF Bid 12-087 (*Proposal Clarification*)

Mr. Jarrett:

On behalf of TMF, we are pleased that you requested clarification on our proposal. We hope that you find your questions are appropriately answered:

1. Confirm that bulkhead gate and guides would be delivered 180 days after notice to proceed, as required by Addendum 1.
Confirmed. Our plan is for our shop drawing detailer to expedite the drawing package for the bulkhead gate and guides. This package would be submitted in advance of the drawings for the fixed wheel gate/guides and hoists. We acknowledge that the Buyer intends to return drawings to the Seller not later than 21-days, but anticipate a 14-day (maximum) approval period will be acceptable for this first drawing package of bulkhead gate/guides.
2. Will rope size be 1 1/8" as we currently indicate?
Rope Strength required (SF 5 on 100%) is 53.2 T. 1-1/8" Extra Improved Plow Steel 6x37 Rope is rated at 65.0 T. 1-1/8" rope is adequate.
3. Would lubricant for hoist reducer be provided by Seller for installation by Buyer? (see exceptions) If not, then please explain why.
Yes we will be providing oil for the hoist reducer as the oil will have to be in the reducer for the in facility test we will be doing. The reducer oil will not have to be installed by the buyer because it will ship full after testing.
4. Please provide motor rpm for hoist.
Motor RPM at rated hoisting speed is 836 rpm with a 315:1 reducer ratio and 6.25 external gear ratio.
5. Motor power is noted to be 10hp. Has it been verified that this power will not overload the hoist components and rope, particularly under stall conditions?
The typical Breakdown Torque for a 10 hp 900 rpm motor is 166 ft-lbs, which can produce a rope tension of 54.5 Tons (OK). The gearbox must be rated at 627,480 in-lbs and have a ratio of 315:1.

Best Regards,

Michael Moore



ISO 9001:2008

ASME SEC. VIII

