

## **FIXED BUDGET VARIABLE QUANTITY CONTRACTING REPORT**

Project Location: Upper Middle Fork Road, Atlanta Highway District

Project No: A 0013(515)

Key No: 13515

Project Manager: LHTAC Gerald Flatz, P.E.

Report Date: October 23, 2015

### **INTRODUCTION**

This report was written to document the performance of Fixed Budget/ Variable Quantity Contracting on the above-mentioned project. This report is required by FHWA after completion of the project and final acceptance by the ITD. The report contains an overall evaluation of the project.

### **PROJECT DESCRIPTION**

This project was developed to improve the service life of an existing gravel road. Public Lands Discretionary funds were utilized. The Upper Middle Fork Road is the only year-round access to the community of Atlanta, Idaho. The project consisted of the rehabilitation of the Upper Middle fork Road between milepost 114 to MP 129. Material used for resurfacing the road was from a nearby USFS material site, crushed, blended with bentonite, placed, graded, and compacted by the Contractor. A USFS aggregate specification was utilized for this project.

The contractors bid this project on a Fixed Budget / Variable Quantity (FB/VQ) basis. They provided a defined area of square yards of aggregate, in place, for a total cost of \$410,000, including a \$10K contingency bid item. The primary selection was based upon the greatest amount of square yards of aggregate placed (bid item S912-05A). A secondary qualifier, in the case of identical aggregate amounts were bid, was a bid on the fewest working days.

All work necessary to provide the surface aggregate, in place, was included on one bid item. This included mobilization, crushing aggregate to specification, blending aggregate with bentonite, placing aggregate to a specified thickness, grading, testing, erosion and sediment control, and traffic control.

There were only two bid items; the square yards of aggregate (all work inclusive) and a contingency bid item (S900-05A) for additional erosion control items, if needed. This contract was a fixed completion date determined by the amount of working days bid by the contractor added to the actual start date.

**Initial Budget**

Engineer's Estimate (\$):	\$410,000	(Fixed Budget)		
Engineer's Estimate (quantity):	119,761	(Variable Quantity)	Units	Square Yards
Contract Time Determination:	Bid by Contractor.			
Initial Duration:	0	Units	Working days (amount bid by Contractor)	
Time Restraints:	<u>none</u>			

**BIDDING RESULTS****Project Bid Results**

Total Number of Bidders:	2			
Bid Opening Date:	5/5/2015			
Contractor (low bid):	Robison Logging and Excavation			
Award Date:	7/1/2015			
Contractor's Bid (\$):	\$410,000			
Contractor's Bid (quantity):	105,202		Units	SY
Contract Time Determination:	Working Days bid by Contractor			
Contractor's Bid (time):	65	Units	Working Days	

**EVALUATION OF FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE***Metric 1 – Cost of Inspection*

The construction engineering and inspection agreement was written with Horrocks Engineers for \$76,500, which is approximately 19% of the construction contract. To date, Horrocks has nearly fulfilled their scope, and have invoiced \$45,114.55. The final amount for CE should be less than budgeted.

CE costs for this project were lower than is typical of conventionally contracted project. This, though, is likely due to the fact that the Contractor accelerated his schedule, completing the project in less than half of the time that was bid.

The project bid 10% higher than the Engineer's estimate, regardless of this, the project was a success.

This project presented a very minimal construction engineering and inspection budget, which required modification to a standard projects inspection practices. The Consultant was in constant communication with the Contractor for quantity tracking purposes, and ensured that a representative was always on site when random numbers were achieved, and testing was

required. Inspection of all material and construction requirements were reviewed on days that inspection staff was present. Inspection occurred a minimum of two days per production week.

*Metric 2 – Final Construction Cost*

The Contractor bid 65 working days for this work. He completed the project in 27 working days. This was due to acceleration in his schedule, only.

*Metric 3 – Industry Reaction*

All reaction received from this project was positive. Inspection staff was able to easily track quantities, and ensure compliance with all items deemed incidental to the work of gravel placement. The Contractor was new to federal aid construction contracts, but did not express any dissatisfaction with the method that this contract was administered.

**Actual Project Statistics**

Cost of Inspection (CE):	\$60,246.55 to date		
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Final Construction (CN):	\$410,000.00		
Change Orders (CN):	\$0		
Other CN	\$0		
Adjustments:			
Total (CN):	\$410,000.00		

Final Quantity:	105,202	Units	SY

Actual Construction Duration:	27	Units	WD
Project Completion Date:	9/11/2015		

**RECOMMENDATIONS USING THE FIXED BUDGET VARIABLE QUANTITY CONTRACTING TECHNIQUE**

This contracting method is still a bit new; consequently an inordinate amount of time was spent on the design, reviews, and approvals – only because it was unusual for the bureaucracy. This will improve with practice. The method is VERY appropriate for some projects, keep employing it.

## **CONCLUSION**

Atlanta Highway District and LHTAC were pleased with the results of this project. Atlanta Highway District received what they anticipated; as much of a good quality surface as they could afford. The fixed budget / variable quantity contracting technique worked well; it was suited for this project. Both the Sponsor and LHTAC would recommend using FB/VQ contracting for similar projects in the future.