

VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

* By: APAC-Missouri, Inc.
Date 11APR 13

Conceptual Proposal Final Proposal

Contract ID 130125-D02 Job No. J5S3012

County Cooper/Moniteau Route 87 Original Bid Cost \$3,820,907.75

Contractor APAC-Missouri By * Steve Bubanovich, H-R-Quadri (sub) --

Designed By MoDOT (Michael Dusenberg) Phone 573-945-2224

VECP# 13-34 (to be completed by C.O.) VECP or PDVECP

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages

The project was designed utilizing Rock Fill in several areas to create the required shoulder fill. The proposed change is to eliminate the rock fill and utilize rocky borrow material in its place. The material to be used is overburden from a nearby quarry and is an extremely rocky red clay material. We have utilized a very similar material on three recent shoulding projects with extremely good success in constructing deep shoulder fills, photos are attached.

2. Estimate of reduction in construction costs. \$20,882.89

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.

The proposed change will reduce future maintenance costs as the material will support vegetation much better than typical rock fill.

4. Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.

Negotiable
(date)

5. Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.

_____ (date) _____ (effect)

6. Dates of any previous or concurrent submission of the same proposal.

(date and/or dates)

Additional Comments:

This change eliminates Rock Fill from various locations on the project. A new Misc. Linear Grading Class 2 item will replace this original item. The new item has a unit cost of \$330.96, an increase of \$4.00/STA. This increase covers the additional borrow necessary. These changes are further explained

Line No.	Item No.	Description	Unit	Quantity	Price	Underrun	Overrun
0020	2079909	Misc. Modified Linear Grading Class 2	STA	2752.5	\$326.96 ✓	\$899,957.40	
0030	2149910	Misc. Furnishing and Placing Rock Fill	CY	3006.83	\$13.60 ✓	\$40,892.89	
50XX	2079909	Misc. Modified Linear Grading Class 2	STA	2752.5	\$330.96 ✓		\$910,967.40
50XX	8061019	Silt Fence	LF	2500	\$2.10 ✓		\$5,250.00
50XX	8061022	Type II Ditch Check	EA	25	\$150.00 ✓		\$3,750.00
50XX		VE Savings	EA	10441.45	\$1.00		
						\$940,850.29	\$919,967.40
MoDOT SAVINGS							\$10,441.45

Below are photographs of this exact type of construction. These photos were taken on Route 72, north of Bunker, MO. Donald Hills, SCI, or Lindell Huskey, RE, of the Willow Springs project office would be good contacts regarding this construction. We have also had good success utilizing the same techniques on Route 106, Shannon Co. and Route 51, Bollinger Co.



Approximate 8ft fill, 2:1 slope

Approximate 18-20ft fill, 2:1 slope

Both of these examples utilize the same type of material we plan to utilize for constructing the shoulders.

The quantities above represent those locations identified during a field visit on May 28, 2013. Rock Fill can likely be eliminated in other areas of the project during construction. Those locations can be added to this VE at a later time.

Areas to be changed from Rock Fill to earthen fills shall follow the following criteria, ~~fill heights will be measured to the catch point if applicable:~~

- Fill heights up to 6ft, maximum slope of 2:1
- Fill heights between 6-9ft, maximum slope of 2.5:1
- Fill heights greater than 9ft, maximum slope of 3:1

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments: *See attachment. I recommend approval of this*

Tony Schubert
Submitted By Resident Engineer

6-18-13
Date

Comments: Following further review, I agree and recommend approval of this V.E. The final product in the subject areas, which were originally rock fill @ a 2:1 slope, will now be built with a flatter slope that's well stabilized(2.5:1 and 3:1). Savings should be 50/50

Approval Recommended _____
 Rejection Recommended _____
District Engineer Date

Comments:
N/A

Approval Recommended _____
 Rejection Recommended _____
Federal Highway Administration Date
Required for FHWA Full Oversight Projects

Comments: This is a 50/50 cost share proposal.

Approval _____
 Rejection _____
State Construction and Materials Engineer Date

Distribution: Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer, FHWA Value Engineering Administrator - MoDOT, P. O. Box 270, Jefferson City, MO 65102



Terry Imhoff, Resident Engineer

Value Engineering Proposal: Class A material in lieu of Rock Fill
Contract ID No. 130125-D02

The locations highlighted on the attachment indicates all areas in which a predominantly CI A material will be utilized in lieu of Rock Fill. This represents a total linear footage of 2875. The original project provided for Misc. Modified Linear Grading Class 2 throughout the length of the project at locations where an existing asphalt shoulder is not present.

The Misc. Modified Linear Grading Class 2 provides for preparing the shoulder subgrade by excavating, compacting, fine grading and shaping the existing shoulder and inslope. Misc. Modified Linear Grading Class 2 also provides hauling embankment material to the project or obtaining embankment material from the right of way to accommodate the 2 foot shoulder widening and inslope as shown on the plans. Therefore, as noted above, Misc. Modified Linear Grading Class 2 will still be performed throughout the locations highlighted on the attachment.

H.R. Quadri has submitted the VECP by underrunning Line No. 0020 Misc. Modified Linear Grading Class 2 in it's entirety and creating a new Contigent Item Misc. Modified Linear Grading Class 2. The proposed increase in unit price of the Misc. Modified Linear Grading Class 2 is \$4.00 per Station. The resulting total increase in cost is 2752.5 stations (plan qty.) X \$4.00 per station = \$11,010.00. This increase in cost is represented in the 2875 linear feet of shouldering that is utilizing CI A material in lieu of Rock Fill. For comparison, this results in an additional unit price increase of $\$11,010.00/28.75$ stations = \$382.96 for the locations highlighted on the attachment. This, in turn, results in a comparative unit price of \$326.96 (original unit bid price) + \$382.96 (additional unit price increase) = \$709.92 / station. Line No. 0030 Rock Fill is subsequently underran by 3006.83 CY's and additional erosion control devices are necessary at the proposed fill areas which will utilize a Class A material.

The locations highlighted on the attachment are areas with fill heights that range from 6 feet to 14 feet. A provision of this VECP stipulates that existing roadway fill heights up to 6 feet shall have a maximum inslope of 2:1, existing roadway fill heights greater than 6 feet and up to 9 feet shall have a maximum slope of 2.5:1 and existing roadway fill heights greater than 9 feet shall have a maximum slope of 3:1. The requirement above is derived from the Roadside Design Guide. This provision will insure stability for the inslope constructed of CI A material as well as prevent roll over accidents should a motorist leave the driving surface.

The average fill height for a large portion of Rte. 87 ranges from 2' to 5'. Therefore, the much increased volume of CI A material needed at these locations justifies overall increased unit price of \$4.00 per station for Misc. Modified Linear Grading Class 2.

Based on the information listed above, I recommend approval of this VECP (50% savings).