
SEP-14 INTERIM REPORT

M-222 Slope Stability Project At the Kalamazoo River, City of Allegan *Construction Manager / General Contractor (CMGC)*

SUBMITTED TO FHWA: September 7, 2011



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1.0 INTRODUCTION

The Michigan Department of Transportation (MDOT), Southwest Region submits this Interim Report for review by the Federal Highway Administration (FHWA) under the provisions of the Special Experimental Project No. 14 (SEP-14) for the use of the Construction Manager / General Contractor (CMGC) contracting process as written in the February 15, 2011 Work Plan. This the first use of the CMGC contracting process by MDOT.

The scope of the project is to stabilize a volatile slope located between M-222 and the Kalamazoo River in the City of Allegan. The Work Plan proposed the Project be designed and constructed using the CMGC project delivery method. The purpose of utilizing this innovative and accelerated delivery method was to design and construct the project as rapidly as possible given the on-going shifting of the M-222 slope at the Kalamazoo River, while minimizing the risks for all parties to this project.

Design of the project has been completed and a contract has been executed with the selected CMGC for the construction of the M-222 slope stabilization project. Construction began in June, 2011 and is expected to continue until June, 2012.

This report serves as an interim update on the progress of the project as related to the CMGC contracting process.

2.0 PROJECT TIMELINE

10/1/2010	Design-Build Kick-Off Meeting & Risk Assessment
2/10/2011	FHWA and MDOT meeting to make the final decision to proceed with CMGC and stop Design-Build process
2/18/2011	MDOT issues RFP for Design contract with FHWA approval
2/23/2011	Submittal of the SEP-14 Work Plan to Washington for review and approval
2/28/2011	Approval for the SEP-14 Work Plan was given from Washington (actual letter is dated 3/1/2011)
3/3/2011	MDOT issues RFQ for contractor (Phase one "Construction Manager" and Phase Two "General Contractor")
3/7/2011	MANDATORY pre-RFQ submittal meeting for the M-222 project within the MDOT Southwest Region Office Training Center
3/8/2011	FHWA made arrangements for Jim McMinimee, the FHWA Technical Expert on CMGC, to come to Michigan to discuss the Construction Manager/General Contract (CMGC) project delivery method with MDOT and MITA.
4/11/2011	Project Kick-off Meeting for the designer and contractor held

4/30/2011	MDOT closed M-222 after shoulder fails
5/12/2011	Environmental Classification
5/13/2011	MDOT sends FHWA letter declaring an emergency and requesting urgent procedures to address the problem
5/20/2011	Advanced purchase of soldier pile wall materials approved by the Division
6/9/2011	MDEQ permit for M-222 job approved
6/9/2011	FHWA approved ROW certification
6/21/2011	FHWA Receives 95% complete PS&E package and request for GMP approval; FHWA approves PS&E package and GMP and give MDOT authority to proceed with a contract for construction
6/22/2011	FHWA approves obligation of construction funds
6/23/2011	State Transportation Commission approves the funding for M-222 project
6/27/2011	Construction begins
6/2012	Scheduled finish

3.0 EMERGENCY STATUS NOTE

It should be noted that after continued and accelerated failure of the slope, MDOT declared the project an emergency on April 29, 2011. This added additional complexities to the project and accelerated the schedule. Due to the emergency situation, it will be difficult to fully evaluate the effectiveness of the CMGC process for this project.

4.0 PROJECT GOALS

The initial project goals as stated in the RFQ are listed below, followed by remarks concerning the CMGC contracting process in *italics*:

- **Protect M-222 in a cost effective manner. Stabilize the slope between M-222 and the Kalamazoo River.** *The CMGC worked with the Design Team to develop a solution that met design requirements and was reasonably constructible. Several traditionally cheaper alternatives were identified as not practical by the CMGC because of additional cost due to the site conditions.*
- **Obtain all proper permits to construct the project.** *The CMGC assisted the Design Team in developing a site access plan. The plan required approval from the MDEQ, but was submitted in a timely fashion with all impacts identified to help eliminate changes often required during construction.*

- **Protect the Kalamazoo River.** *After the Pre-Construction Phase (design), the CMGC had a better understanding of the environmental constraints often placed on a project and how they dictate many decisions. It is MDOT's belief that this will result in a better relationship between Contractors and Designers in the future.*
- **Eliminate / minimize environmental impacts, while addressing soil erosion and sedimentation control, and similar impacts**
- **Appropriate contaminated soils handling, treatment and disposal.** *The CMGC assisted in the development of a soils handling plan that reduced the potential cost of contaminated soils by minimizing their exposure and risk.*
- **Maintain traffic on M-222 and within the Kalamazoo River and reduce mobility impacts on M-222.** *MDOT originally planned on maintaining two lanes of traffic on M-222 throughout the project, but the CMGC identified that additional space would be required for construction and that one lane would have to be closed. This allowed MDOT to negotiate a detour route with the City and County, and adequately prepare for the project. MDOT and CMGC coordinated work efforts to ensure that two lanes of traffic will be opened during the County Fair. The fair generates excessive traffic but is very important to the local economy.*
- **Substantially complete the construction on August 26, 2011.** *The CMGC identified early in the design process that this project could not be completed in the original time frame due to the nature of the project site, construction requires inefficient and time consuming construction methods. Understanding this early in the process helped MDOT communicate expectations to the local stakeholders and to make appropriate accommodations for traffic, personnel, and residents. The CMGC developed a realistic construction schedule to aide in these discussions.*

5.0 EVALUATION PROCESS

SOQ's were initially evaluated to determine if the Submitter met the minimum requirements ("Pass") on all Pass / Fail evaluation factors. The Pass / Fail evaluation factors are outline in Section 5.1. SOQ's were then scored using the evaluation criteria. If a Submitter received a "Fail" on any single Pass / Fail requirement, the SOQ was rated as unacceptable and was not scored on the evaluation criteria.

Once a SOQ had been determined to meet the minimum Pass / Fail criteria, MDOT evaluated the SOQ relative to the MDOT Project Goals and scoring criteria as listed herein to determine the SOQ total score.

The qualitative evaluation score was determined as follows:

- The MDOT Selection Committee reviewed each SOQ identifying significant and minor strengths and weaknesses of the Submitter.

- Strengths and weaknesses were defined as follows:
 - Strengths – That part of the SOQ which ultimately represents a benefit to the Project and is expected to increase the Submitter's ability to meet or exceed the Project Goals. A minor strength has a slight positive influence on the Submitter's ability to meet or exceed the Project Goals, while a significant strength has a considerable positive influence on the Submitter's ability to meet or exceed the Project Goals.
 - Weaknesses – That part of the SOQ which detracts from the Submitter's ability to meet the Project Goals or may result in an inefficient or ineffective performance. A minor weakness has a slight negative influence on the Submitter's ability to meet the Project Goals, while a significant weakness has a considerable negative influence on the Submitter's ability to meet the Project Goals.

Based on the identified strengths and weaknesses, the Selection Committee selected an objective rating and selected a percent of maximum score in the identified range.

The following rating system was used in determining the value for each Scoring Element of the SOQ:

- **Excellent (81-100 % of points possible):** The SOQ is considered to significantly exceed the RFQ requirements / objectives in a beneficial way (providing advantages, benefits, or added value to the project) and provides a consistently outstanding level of competency. In order for the SOQ to meet the minimum criteria to be scored as Excellent, it must be determined to have more than one significant strength, additional minor strengths and no appreciable weaknesses. There is a high expectation that the team as proposed, would be successful in delivering the Project to the owner's satisfaction, and would most likely exceed all Project Goals.
- **Very Good (61-80 % of points possible):** The SOQ is considered to exceed the RFQ requirements / objectives in a beneficial way (providing advantages, benefits, or added value to the project) and offers a generally better than acceptable competency. In order for the SOQ to meet the minimum criteria for consideration to be scored as Very Good, it must be determined to have at least one significant strength, additional minor strengths and no significant weaknesses. The greater the significance of the strengths and/or the number of strengths, and the fewer the minor weakness will result in a higher score. It is expected that the team as proposed, would be successful in delivering the Project to the owner's satisfaction, and will most likely meet and/or exceed all Project Goals.
- **Good (41-60 % of points possible):** The SOQ is considered to meet the RFQ requirements / objectives and offers an acceptable level of competency. In order for the SOQ to meet the minimum criteria for consideration to be scored as Good, it must be determined to have several strength(s), even though minor and/or significant weaknesses exist. The greater the significance of the strengths and/or the number of strengths, and the fewer the minor or significant weakness will result in a higher score. It is expected that the team as proposed, will be able to deliver the Project and meet the Project Goals.

- **Fair (21-40 % of points possible):** The SOQ is considered to contain several minor and/or significant weaknesses, some minor strengths and no significant strengths. The greater the strengths and fewer the minor or significant weakness will result in a higher score. It is expected that the team as proposed, should be able to deliver the Project but may not be able to meet some of the Project Goals.
- **Poor (0-20 % of points possible):** The SOQ is considered to contain significant weaknesses and no appreciable strengths. The SOQ demonstrates a low probability of meeting the RFQ requirements and may be determined to be non responsive. The fewer the minor or significant weakness will result in a higher score. It is unlikely that the team as proposed would be able to deliver the Project to the owner's satisfaction.

A score was calculated for each Qualitative Evaluation Criteria by multiplying the percentage of maximum score by the points available.

5.1 PASS / FAIL EVALUATION CRITERIA

- CMGC-001 Submitter Information
- CMGC-002 Statement of Qualifications Checklist
- CMGC-003 Addenda Acknowledgment
- Attendance at Pre-Submittal Meeting
- Bonding Company Letter
- Conflict of Interest Form (MDOT form 5100I)

5.2 QUALITATIVE EVALUATION CRITERIA

5.2.1 UNDERSTANDING OF SERVICE (100 POINTS)

- Understanding of CMGC project delivery
- Understanding of project scope
- Approach to managing and coordinating all project elements
- Potential innovations in construction and their potential for cost savings and time reduction

5.2.2 EXPERIENCE / PAST PERFORMANCE (200 POINTS)

- Experience on projects of similar scope and complexity
- Experience working on/from barge, in/near rivers, and similar structures
- Experience on other CMGC projects

- Experience with integrating design and construction activities
- Safety record

5.2.3 PRE-CONSTRUCTION SERVICES (150 POINTS)

- Approach to providing construction input during design
- Approach to producing estimates
- Approach to developing a timely GMP

5.2.4 CONSTRUCTION SERVICES (150 POINTS)

- Ability to perform the labor and secure the material necessary to complete the project
- Ability to competitively and fairly bid subcontractor work
- Quality Assurance / Quality Control Plan

5.2.5 STAFFING (400 POINTS)

- Submitter's appropriate staff qualifications during the Pre-Construction and Construction phases under the CMGC construction deliver processes.
- Submitter's capability and ability to successfully interact with the Owner, Consultant, and Sub-Contractors.
- Project Manager's qualifications
- Team qualifications (including any subcontractors)

5.3 FINAL SCORE & SELECTION

Selection was based on the Submitter with the highest total combined score (1000 possible points). MDOT only received three (3) SOQ's for this project. This could be due to several factors:

- Unique nature of project
- Lack of understanding of CMGC process
- Accelerated posting

6.0 PRE-CONSTRUCTION SERVICES FEE

In addition to the other requirements of the SOQ, the Submitter's were required to submit a Pre-Construction Services Fee. This lump sum price was to help MDOT gauge the Contractors'

understanding of the process and their expectations for involvement.

The sealed Pre-Construction Services Fee was not opened or considered during the evaluation process. After scoring was completed, only the highest scoring Submitter's Pre-Construction Services Fee was opened. The others remained sealed and were returned to Submitters after the contract was awarded.

MDOT negotiated the cost of the Pre-Construction Services Fee with the selected Contractor to agree on a total price, excepted hours of effort, and number of employees providing pre-construction services.

7.0 LESSONS LEARNED

- MDOT needs to provide more “education” of the CMGC process to the industry as well as staff before embarking on another project. MDOT Management, MDOT support groups, the State Transportation Commission, Contractor, and Consultants need to be made aware of the CMGC process. The greatest issue on this job was a lack of understanding of the process, resulting in the forced use of Design-Bid-Build procedures. MDOT needs to establish a CMGC process that includes:
 1. Part 1 and Part 2 contracts
 2. Standard forms for the CMGC process (not Design-Bid-Build forms)
 3. Approval process (signing / stamping of plans?)
 4. Specifications for GMP process
 5. Clarification of roles. While the designer is legally responsible for the design, the CMGC should be involved in some design to add more benefit to the project other than just constructability reviews.
 - The MDOT Contracts unit should develop flexible or template contracts for the CMGC process to expedite awarding. Significant valuable time was spent negotiating specific contract language between the Contractor, MDOT, and the office of Attorney General.
 - MDOT needs to communicate with and educate the construction industry about the CMGC process. Some potential contractors did not fully understand the process or were intimidated by the requirements of submitting a SOQ, while others do not agree with selection based on “qualifications” instead of low bid.
- The CMGC process should be established based on the experience of this project and be modified as more experience is gained.
- Independent cost estimate (ICE) verification is very important. This project resulted in three substantially different estimates and to-date there is a difference of opinions on these estimates.

- The GMP should be a significant percentage of the total contract. Adjustable and/or contingency pay items should be minimized when possible.

The contract consists of three (3) total pay items:

1. **Guaranteed Maximum Price GMP:** Fixed price lump-sum, accounting for 55% (not including Contingency Work) of the total contract.
 2. **Adjustable Work:** The evolving nature of the project site resulted in several items that were very difficult quantify. After several discussions with the Contractor, it was agreed that these items would be paid for “per unit” to minimize risks. This accounts for 45% (not including Contingency Work) of the total contract, but could be more or less depending on the final quantities.
 3. **Contingency Work:** An additional lump sum amount was added to the contract to be used at the expense of Engineer. Several items of possible concern were identified by MDOT and the Contractor. A general list of items was established prior to construction that would be paid for using the Contingency Work item, if required.
- Once construction begins then the designer role should be limited to design assistance during construction for the construction phase which include review and approval of shop drawings, and any other design assistance which is needed during construction.
 - Price negotiations can be very difficult and should be done in a smaller group of decision makers and estimators. The ICE should not see the Owner's or CMGC's estimate, but should be involved in discussions on the project.

8.0 PROJECT SUCCESSES

- The CMGC assisted in the development of a constructible project, which would have been highly unlikely without Contractor input. The CMGC assisted by developing staging ideas and providing estimates for alternatives solutions based on actual field placement, not just standard unit prices.
- The CMGC assisted with developing a realistic construction progress schedule.
- Working with the Contractor through the design phase resulted in nearly all issues resolved before the start of construction. The Contractor was well versed in the project and any remaining issues and will be able to easily mitigate them.
- The Contractor had a better understanding of the design process and how certain decisions are made after the Pre-Construction Services Phase of the project. Additionally, MDOT employees and the Design Team had a greater appreciation for the effort required by a Contractor to Bid a project and how certain design decisions can have a significant impact to the Contractor's operation—increasing the project price.

9.0 FINAL COMMENTS

The use of the CMGC process resulted in a successful project so far and should be considered for future projects. It is recommended that the CMGC process be used on more conventional but complex project without an accelerated schedule until MDOT is very comfortable with its use. Using the CMGC process on a projects with a traditional paced schedule will allow MDOT to gain significant experience and better evaluate its use.

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