



December 2009

Technical Audit–Due Diligence Report (Loan 2257-AFG: North-South Road Corridor Project)

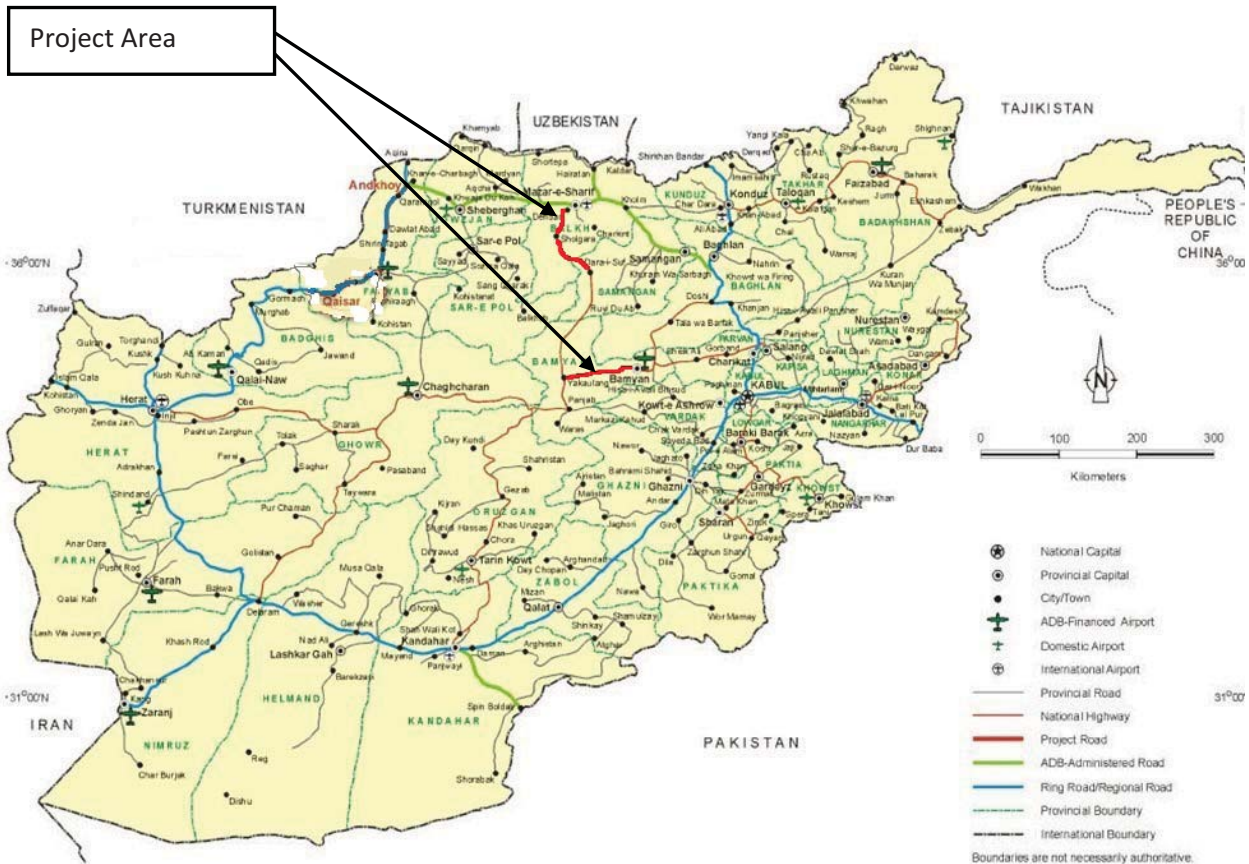
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Due Diligence Report

Contract Number S19303

Afghan Ministry of Public Works

Loan 2257 North-South Corridor Road Project



Resolute Construction Management, LLC
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Hagatna, GU 96910



December 10, 2009

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1. Introduction

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The Asian Development Bank (ADB) has engaged Resolute Construction Management and their Consultant (the Auditor) to execute a Due Diligence Review for a roads project in Afghanistan. This Report is a required deliverable in accordance with the terms of contract S19303, Technical Audit of Roads in the Andhoy-Qasir region (ADB loan 2140 AFG, ICB2) and associated modifications, funded under TA/SRC 4675, *Islamic Republic of Afghanistan: Capacity Building for Road Sector Institutions*. This Report is a draft of the final report to be submitted on November 30, 2009.

2. Scope and Purpose

This Report is intended to assist the project management team in making decisions with respect to the outstanding Variation Order Request for this project. The included information is intended to provide estimated cost savings from changes the Contractor may be asked to execute at the project management team's discretion. In the interest of assuring accuracy with respect to the Contractor's survey data as well as maintaining the appropriate chain of responsibility for design, the PM team is strongly urged to require that the Contractor make design changes based on the information in this report, and recalculate the associated quantities for approval based on their revised design.

This project has been evaluated based on the technical requirements of Asian Development Bank's Loan 2257-AFG Contract, AASHTO design standards current as of the original Contract date, the 1999 FIDIC *Conditions of Contract for Construction for Building and Engineering Works Designed by the Employer* and the *Islamic Republic of Afghanistan Interim Road and Highway Standards (IRAHS) R1*, 21 March 2005, and specific design direction provided for this project by MPW. The road to be evaluated is categorized as a "Regional Highway" as defined in the IRAHS.

3. Current Project Status and Possible Cost Avoidance

3.1. 2257 Summary

The commencement date for packages 1,2, and 3 was May 5, 2008.

3.2. ICB 1 and ICB 2

These packages are contiguous and the project terminology typically refers to these two packages as one project.

4. Management Team Effectiveness and Contract Management

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Numerous issues were found regarding contract management and due diligence during the course of the review.

The Contractor does not appear to be concerned about the contractual authority of the Engineer or the Employer. In one meeting at Dongshin's project office in Pul-e Barack, the Contractor's project manager stated that he would not author a recovery plan to get ICB1/ICB2 on schedule until the outstanding RVO is approved. In another meeting at the Bamyan project office the Contractor stated that they will deal directly with ADB and the Deputy Minister regarding contract issues, ignoring the instructions of the Engineer and MPW PM (see minutes below).

The Engineer does not appear to prioritize cost control as a management or design review criteria. The Engineer stated repeatedly that, though costly and conservative, the design meets the minimum contractual standards. The Engineer stated in a Thursday, November 19 meeting that Dongshin has no responsibility for design review.

MPW does not appear to have the personnel or resources to supervise the actions of the engineer and enforce the Engineer's contract. Though MPW does have PIU engineers on each project site, MPW's project management team does not seem capable to influence project events in a timely way because of lack of information. The Contractor consistently states that all proposed changes have been approved by the supervision consultant and does not comply with direct instructions from MPW that disagree with the SC's findings.

4.1. Minutes of Thursday, November 19 Meeting

These meeting minutes were distributed to all attendees on November 21 via email. No objections were received from any of the attendees after the distribution.

Attendees:

Chun-Mook Jang	Samwhan PM (CMJ)
Romal Baluchzada	PMU/MPW PM(RB)
Mohammed Amjad Hossain	Dongshin Team Leader(MAH)
Jan Agha	PIU Engineer(JA)
Ron Hunter	ADB Technical Auditor(RBH)

The meeting started at about 2:30 PM

1. Discussion about snow removal during the upcoming winter season. As a result of a courtesy call at the local PRT unit, PRT has stated that they will be involved in snow removal during this winter season. MPW's Bamyan municipal office apparently also has some commitment to snow removal. RBH shared this information and suggested that Samwhan, MPW, and PRT hold a coordination meeting to work together on snow removal this winter. In particular PRT does not have current information on the alignment under construction. RB and CMJ agreed that the meeting was a good plan and that the meeting will be held soon.

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2. Discussion about reducing the carriageway width to 6M (meets AASHTO requirements) while increasing the shoulder width to 2.5M, leaving the total roadway width at 11M to accommodate MPW's snow removal requirements. CMJ stated that the cost savings associated with this design change are insignificant. RBH disagreed, and suggested that Dongil, the Contractor's designer, submit calculations that show the cost change. CMJ stated that he is the designer for this project. MAH stated that his contract does not include staffing for a Highway Engineer and thus Dongshin is not responsible for design review, regardless of specific contract requirements for design review. The issue of reducing costs through design changes was left unresolved in this meeting.
3. Discussion about the approval of work in progress. MAH provided a summary sheet and supporting documents. RBH stated that none of the documents demonstrate that ADB or MPW have approved any increase in cost or quantities. RBH further stated that the minutes from the January, 2009 Mazir-e-Sharif meeting clearly approve only those areas which have no cost increase and MPW requested a revised design at that time. RBH asked MAH and CMJ why the work has continued in the unapproved areas, and why the requested design revision has not been submitted. CMJ responded with the statement that he has asked if the work should be stopped, and Samwhan's assumption is that MPW's request to continue work implies that the December, 2008 design and associated costs are approved.
4. RBH stated that he is available for the next few weeks to discuss design changes should Samwhan decide to be responsive to MPW's clear and explicit instructions to reduce the cost of ICB3. RBH further stated that should Dongshin and Samwhan continue to be nonresponsive, the only option available to the Auditor's due diligence report is to recommend that MPW submit a stop work order. CMJ stated that this is not a concern and he will negotiate directly with the Deputy Minister.

The meeting was concluded at about 4:30 PM.

5. Document Review

5.1.1. Maximum Grade Criteria

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The Feasibility Study design tabulates the various geometric design criteria for the Project in the Summary Report, on Sheet 19. The same information is repeated in the Feasibility Study Appendix 6, Table 1. The table is duplicated once more in the Bid Documents, Volume II, Table B01. The Design Implementation Plan submitted by the Contractor includes the same information in Table 3.1. The maximum allowable gradient for various terrain conditions are shown. The maximum allowable gradient for exceptional conditions in exceptional conditions is 18%, for mountainous conditions 14%, and for rolling conditions 8%. The applicable terrain conditions for the Heart-Andkhoy Road Project are listed on pages 20-22 of the Feasibility Study Summary Report. For the Contract 2 portion of the alignment (shown as PK 398 to PK 468) there are 20 km of level road, 45 km of rolling terrain, 5 km of mountainous terrain, and no terrain described as exceptional.

The Bid Documents, Volume II, Section B109 specify a maximum gradient of 18% in exceptional conditions, using the same terminology as the Feasibility Study.

The November, 2004 Report and Recommendations to the President are consistent with the Feasibility Study and Bid Documents with respect to terrain classification.

AASHTO standard "*A Policy on Geometric Design of Highway and Streets*" (2001), Exhibit 7-2 makes recommendations regarding maximum grade criteria for rural roads. Exhibit 7-2 shows a maximum gradient of 8% in mountainous areas.

To be clear, none of the design documents associated with the tender were compliant with the AASHTO standard with respect to maximum grade. Apparently the error made by Getinsa/Sheladia in the feasibility study was simply copied over to the subsequent project documentation, without referring to the AASHTO standard for verification.

Therefore the maximum gradient of the initial Contractor's design should have been 8% for compliance with the Feasibility Study design and the Bid Documents, and the Contractor's original design was non-compliant.

Any adjustment to the bid quantities based on an employer-driven variation from the requirements of the Feasibility Study and Bid Documents should have been based on an adjustment of maximum grade from 14% to 8% for 5km of the alignment.

5.1.2. Feasibility Study Accuracy and Contractor's Design

The survey provided with the Feasibility Study was not accurate enough to provide accurate earthwork quantities for the Contract bid. The figure below shows the situation graphically. In essence, the survey

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data did not show all of the elevation changes that were found when the Contractor did a detailed survey. The Contractor is entitled to the costs associated with increased quantities arising from their more accurate survey. The Contractor's design also deviates significantly from the existing alignment in many cases, which is the primary source of the large quantity changes in Variation Order One.

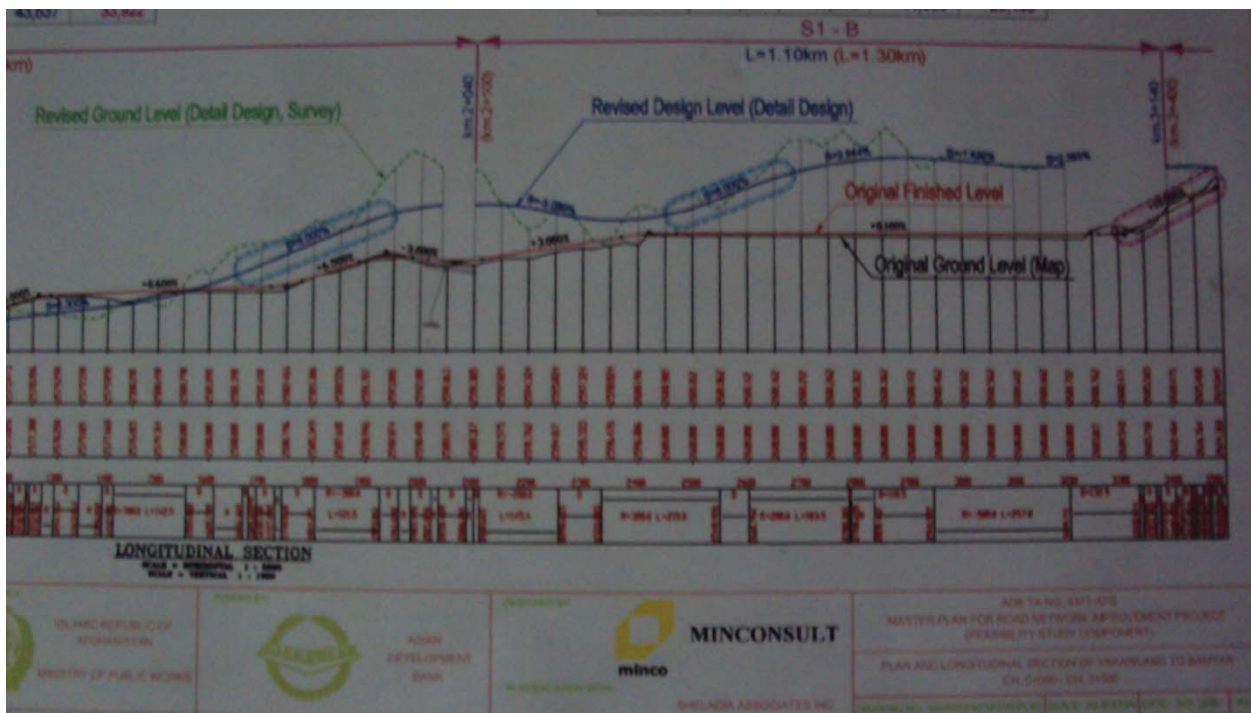


Figure 1 - Feasibility Study vs Contractor's Survey and Design

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In a January 20, 2009 letter the Deputy Minister of Public Works directed the Contractor to revise the design to show a minimum curve radius of 80M to save on costs. The Contractor's current design does not reflect MPW's direction. In some cases this substantially increases the cost of a particular road section. In other cases the cost is the same or lower. The figure below shows a situation in which the Contractor's designer could have reduced costs by hugging the natural contours and reducing the cost of the road section while producing a compliant design.

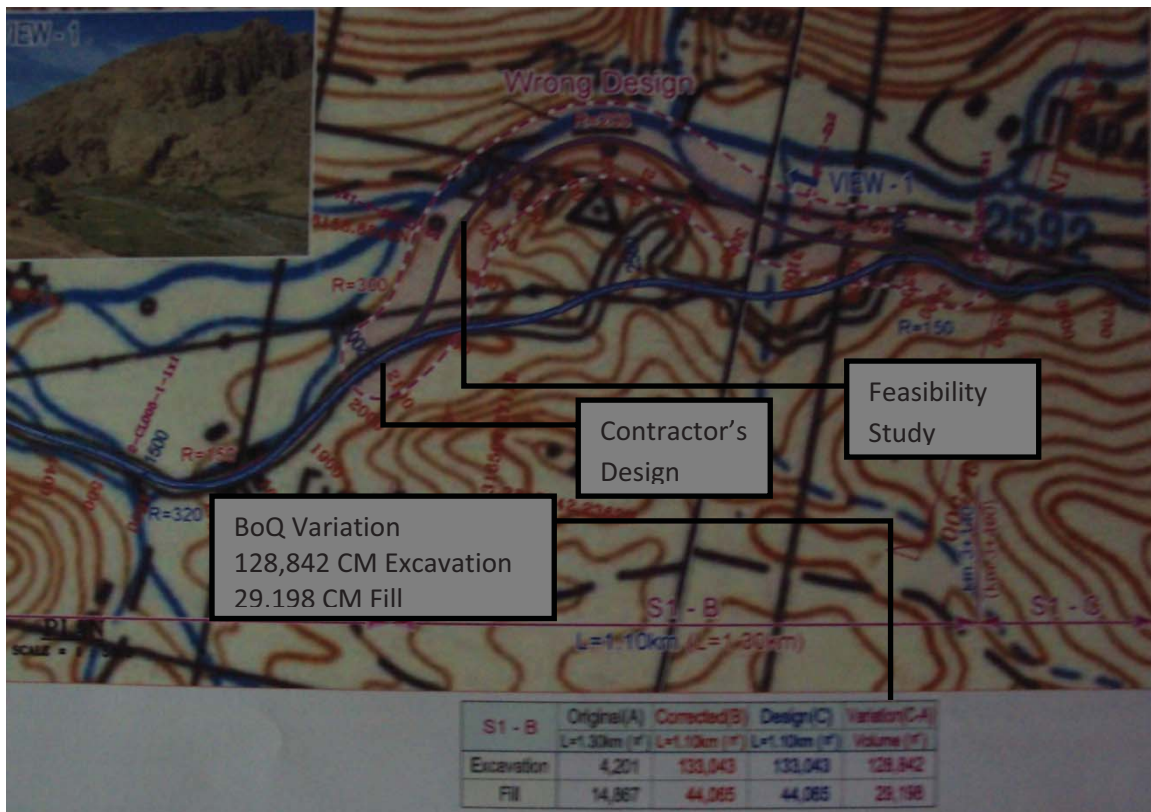


Figure 2 - Costly Alignment Change

Note that the changes shown in the variation cost \$884,774. The alignment shown as “wrong design” is not as attractive as the alternative alignment chosen by the Contractor, but the change is not justified when considering the additional expense associated with this 1KM section of road and the clear direction of the Deputy Minister. These situations along the alignment are the primary source of potential cost savings indicated in this report. It should be noted that most of the cost-avoidance that was possible at the design stage (early 2009 timeframe) cannot be recovered for Contract 3. The Contractor has accelerated excavation work on ICB3 throughout the spring, summer, and fall of 2009 such that most of the unapproved excavation is complete. It is important to note that at the same time

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ICB1/ICB2 are significantly behind schedule, apparently as a result of the Contractor's relocation of resources to the contract package that has the largest potential for variation order claims.

5.1.3. Contractor's Escalation Requests

In general, the Contractor's basis for escalation request is based on the assertion that there is a typographical error in the Contract. The Terms of Particular Application clearly state that escalation will be applicable to Contract 1 but not Contracts 2 and 3. A review of the Contractor's Contract analysis, letters, and meeting minutes did not yet reveal compelling evidence to support the Contractor's claim to escalation costs for Contracts 2 and 3.

5.1.4. Bill of Quantities Analysis

Samwhan requested adjustments to the original BoQ for Contract 3 based on the design changes from the grades that were shown in the Feasibility Study. At the same time, Samwhan also made significant changes in the road's alignment in the revised design that significantly increased the excavation and fill quantities. In some cases the resulting design increased the required excavation and fill quantities by an order of magnitude. The proposed changes in the BoQ were not accepted by MPW and ADB. The table below shows the potential impact of following the original road alignment more closely, following the directive to economize the alignment by using a minimum horizontal curve radius of 80M. The table below covers approximately 60% of the 2257 ICB3 Alignment. Estimated savings for the reviewed portion of Contract 3 are \$4,182,137 USD. Projecting the reviewed data across the remainder of Contract 3 and including Contracts 1 and 2, a conservative estimate of total potential savings for all 3 packages was \$6.5MUSD.

The proposed changes in the BoQ were not accepted by MPW and ADB (see attached correspondence).

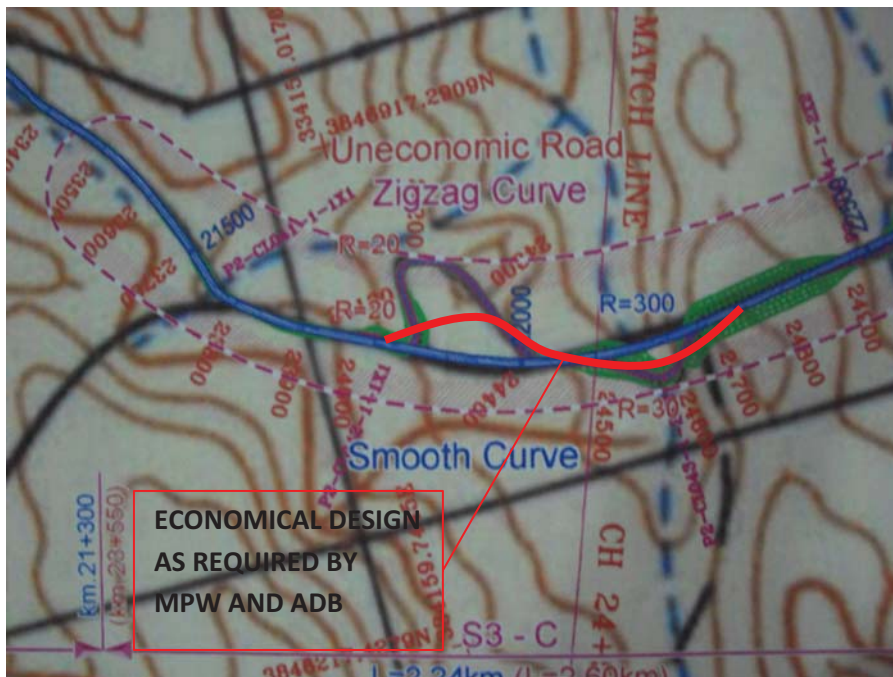


Figure 3 - One example of the contractor's design basis for the rejected change order



Figure 4 – ICB3 km 81 looking west-



Figure 5 - ICB3 km 81 looking west

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In a January 27, 2009 letter the Contractor claimed that only \$225,026 in cost avoidance was available in the ICB3 contract from adjusting the design to use a minimum curve radius of 80M and to follow the existing alignment as closely as possible. Given the chronology of the project correspondence (7 days between MPW's instruction and the Contractor's publication of findings on 27 January) it is not credible to assume that the Contractor's design team was involved in the analysis. The Contractor's analysis (and the Engineer's review) failed to include the following and underestimated the potential cost savings by an order of magnitude:

1. All potential cost avoidance from cut/fill. 35,158 and 4,241 CM, respectively, was very inaccurate based on a review of the drawings.
2. The existing road alignment provides a good subgrade for compaction (CBR>10). Subgrade materials, placement, and compaction costs were not considered.

To provide a basis for evaluating the Contractor's claims to changes in quantities, an analysis of the requested design changes was conducted to evaluate the Contractor's choice to ignore ADB and MPW's direct instructions and build the ICB3 design based on prioritization of the "smooth flowing alignment" concept. The finding of the audit is that the Contractor's estimate of \$1.5M in potential cost avoidance from changing their design to follow the existing alignment as closely as possible was a significant underestimation, and as much as \$6M in costs could have been avoided had the design been changed in January 2009 as requested.

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North-South Corridor Design/BOQ Analysis-change in curve radii from 140M to 80M									
Sec	Feasibility Study BoQ			Revised BoQ		DD estimate			
	LENGTH	EXC	FILL	EXC	FILL	EXC	FILL	ΔExcav.	ΔFill
S1-A	2.1	3,081	9,715	157,777	43,637	157,777	43,637	0	0
S1-B	1.3	4,201	14,867	133,043	44,065	7,201	14,867	-125,842	-29,198
S1-C	1.3	143,736	23,133	154,652	18,170	154,652	17,262	0	-909
S1-D	1.85	22,854	30,010	30,715	82,108	30,715	66,108	0	-16,000
S1-E	2.15	34,954	4,880	34,697	27,731	34,697	27,731	0	0
S1-F	0.7	10,419	36,400	19,752	22,531	19,752	22,531	0	0
S2-A	1.5	1,120	10,700	13,330	5,617	13,330	5,617	0	0
S2-B	2.3	4,033	40,480	83,906	41,846	83,906	41,846	0	0
S2-C	1.65	10,167	49,740	57,974	66,593	57,974	66,593	0	0
S2-D	3.75	195,506	90,540	172,796	51,853	172,796	51,853	0	0
S3-A	2.95	7,904	24,040	127,321	29,659	127,321	29,659	0	0
S3-B	2	11,646	16,830	136,737	25,917	135,500	25,917	-1,237	0
S3-C	2.6	266,448	149,990	134,134	137,138	134,134	137,138	0	0
S3-D	1.15	5,882	55,060	7,593	28,849	7,593	28,849	0	0
S3-E	2.36	2,913	11,412	10,283	10,574	10,283	10,574	0	0
S4-A	2.44	112,592	192,280	164,168	34,959	152,168	34,959	-12,000	0
S4-B	2	3,641	15,580	34,067	21,457	28,000	20,599	-6,067	-858
S4-C	0.5	5,882	9,252	52,960	3,139	10,592	9,252	-42,368	6,113
S4-D	1.5	13,321	26,464	47,998	14,595	47,998	14,595	0	0
S4-E	0.8	6,453	4,840	70,639	4,524	21,192	4,840	-49,447	316
S4-F	1.4	0	8,636	39,785	17,880	32,285	13,880	-7,500	-4,000
S4-G	0.7	71,991	6,045	45,619	11,948	45,619	11,948	0	0
S5-A	0.5	1,849	1,850	9,176	6,749	9,176	6,749	0	0
S5-B	0.45	0	2,776	9,512	3,110	4,756	3,110	-4,756	0
S5-C	0.6	0	3,700	20,490	6,112	18,441	6,112	-2,049	0
S5-D	0.65	0	4,010	23,876	1,441	4,775	1,441	-19,101	0
S5-E	1	560	10,410	38,389	26,066	28,792	15,640	-9,597	-10,426
S5-F	3	10,083	37,630	305,575	175,910	45,836	105,546	-259,739	-70,364
S5-G	0.9	0	5,550	93,102	7,400	65,171	7,400	-27,931	0
S5-H	1.4	6,207	84,681	169,615	13,226	118,731	13,226	-50,885	0
							Total Volume	-618,518	-125,326
							Unit Rate	\$5.87/CM	\$4.40/CM
							Total Cost Δ	-\$3,630,702	-\$551,435
							Grand Total Cost Δ	-\$4,182,137	

Additional savings of approximately \$2M are available based on an analysis of AASHTO requirements for shoulder and verge widths, modified by MPW requirements for a total minimum clear road width of 11M and carriageway width of 10M. Hard shoulders could be reduced from 1.5M to 1M, resulting in a 30% reduction in associated costs while retaining compliance with AASHTO requirements.

3. Conclusions and Recommendations

- 3.1.** The Contractor is solely responsible for the cost and quantity overruns for Loan 2257. No work has been approved for areas where the cost of the project exceeds the original Contract price.
- 3.2.** The pattern of events that precipitated the cost overruns for 2257 ICB3 are likely to be repeated for ICB1/ICB2 if the Engineer, Employer, and Donor do not make significant changes to the contract management process. Suggested strategies include renegotiating unit rates, stopping work and withholding payment to exert authority over the contract and involve the design Contractor's team in finalizing an acceptable design with an acceptable cost. The project management team should seriously consider stopping work on ICB1/ICB2 to preserve capital and mitigate the risks of continuing with this Contractor.
- 3.3.** Without survey equipment, a full-time site presence, and an approved design, it's nearly impossible for this report accurately estimate of the cost to complete the project. To be clear, the finding of this due diligence study is that the Contractor, if inclined to do so, can produce a design for loan 2257 that complies with all design criteria for approximately 25% of the \$10M requested in the May 4, 2009 RVO.
- 3.4.** The management team is advised to require an immediate redesign of the project with economy as a priority, stopping work if necessary to determine if the Contractor can complete the work within the approved budget. The following draft text is recommended for the management team's response to Request for Variation Order 2:

"The Request for Variation has been rejected. The design that was used as a basis for the quantities in Request for Variation 1 is not economical and does not comply with the requirements of the Ministry of Public Works.

1. Work areas that have been designed such that there is no increased cost above the contract estimate are approved for completion as designed. No other work areas are approved, and any work in these other areas is at the Contractor's risk.
2. The Contractor is explicitly advised that the submittal of a Request for Variation in no way modifies the original contract terms and schedule. Delays in the submittal of recovery plans and other schedule slippage that is the Contractor's responsibility will not be entertained by MPW as legitimate claims to Extension of Time.

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3. The Engineer shall require that the Contractor revise the design to achieve economy and comply with the requirements of MPW. Design revisions shall produce a compliant design with economy as a high priority design criteria. Design revisions shall include but not be limited to:
 - 3.1. Cross section geometry is not economical and does not comply with MPW requirements. The following shall be incorporated into the design:
 - 3.1.1. Maximum carriageway width of 6 meters in areas where design speed is 50km/hr or less.
 - 3.1.2. Maximum shoulder width of 1.5 meters.
 - 3.1.3. Minimum clear width at carriageway elevation shall be 11 meters to allow for winter snow storage. Note the term "clear width", which does not imply roadway width but space for snow storage. This minimum limit shall not apply in areas that do not have a history of deep snowfall.
 - 3.1.4. PIU Engineers report that much of the in situ subgrade is competent to support compaction. The revised design shall include excavation reductions that accommodate this and minimize subgrade quantities. The alignment is long and passes through a variety of existing conditions, and the uniform subgrade cross section shown on the design drawings is not economical. The Designer shall reevaluate the CBR test results and recalculate the subgrade strata requirements for reasonable lengths of roadway with in situ CBR values greater than 10.
 - 3.2. Alignment geometry is not economical and does not comply with MPW requirements. The following shall be incorporated into the design, based on MPW's repeated previous instructions:
 - 3.2.1. Follow the existing alignment where possible. This criteria shall be considered a higher priority criteria than references to "smooth, flowing alignment".
 - 3.2.2. Minimum curve radius of 80M.
 - 3.2.3. Economy in earthworks shall be given due consideration in the alignment design.
 - 3.2.4. The balance of slope and curve radius shall be considered. Where one factor limits the design speed of a particular section, the other factor shall be modified for the purpose of economy.
 - 3.3. The estimate of ESAL has been found to be very conservative. The designer shall recalculate ESAL and the required asphaltic surface thickness using the following adjustments:
 - 3.3.1. Traffic projections are very conservative considering the data contained in the pavement design report. Make reasonable but less conservative assumptions in the interest of economy. Coordinate with the consultant and PIU engineers to obtain current traffic information from the site.
 - 3.3.2. Adjust for reasonable seasonal traffic variations.
 - 3.3.3. Adjust for reasonable night/day traffic variations.
 - 3.3.4. A single asphaltic layer that meets all relevant design criteria is desired.
 - 3.4. Design shall accommodate the fact that the alignment's elevation varies greatly and shall not assume the same environmental conditions for the high and low elevations where this assumption produces an uneconomical design.
 - 3.5. Concrete lined ditches shall be replaced by earthen ditches where practical and economical.
 - 3.6. Designers shall coordinate with Consultant and PIU Engineers to locate and utilize nearby sources for subgrade materials rather than manufacturing at the crusher plant.
 - 3.7. The design shall specify economical bitumen grades where justified by the alignment's climactic and traffic conditions.
4. Contractor shall submit a revised design based on the stated requirements to the Engineer before January 28, 2010 for review. Design submittal shall include an adjusted bill of quantities and associated estimated cost."

4.1. The Contractor's claim for escalation in materials costs should not be considered. The following draft text is recommended for the management team's response to the Contractor's escalation request:


"After a careful review of the contract documentation and discussions with the parties involved, I've reached the following conclusions with respect to the Contractor's request for escalation of costs for the construction contract of Loan 2257, PKG2 and PKG3:

1. The Specific Conditions of Contract (SCC), Section 8A, clearly state "Whenever there is a conflict, the provisions herein shall prevail over those in the GCC".

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2. For the contracts related to PKG2 and PKG3, the SCC specifically states that Section 13.8 of the General Conditions of Contract (GCC) is "not applicable"
3. GCC, section 13.8 includes the Contract language necessary to execute the escalation clauses of the GCC.
5. SCC, Section 12.3 clearly states that "The unit rates for all items of the Works described in the Bill of Quantities shall remain fixed during the whole contract period".
6. Therefore the Contractor's claims to price escalation are not supported by an analysis of the Contract language. "

7. Project Correspondence



Asian Development Bank

FAX

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 Transport & Communication Division
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To: Dr. Suhrab Ali Safary Minister Ministry of Public Works Kabul Afghanistan	Date: 8 April 2009 Fax No.: Thru AFRM
Originator: Manzoor Rehman Senior Transport Specialist, C/AFRC mrehman@adb.org	Noted By: Patrick R. Lizot Head, Project Administration Unit

Loan 2257-AFG: North-South Corridor Project. Contract Package 3- Yakwalang to Bamyan Road – Variation Order No 1. Design Changes

Dear Dr. Safary,


After a careful review, we regret to disapprove of the proposed variation order #1 for the design changes in the contract 3 of the project resulting in the extra cost of \$12.6 million as proposed in your letter no. MPW/PMU-39 dated 15 March 2009.

Please consider our main concerns:

The reasons presented to justify the design changes are not based on any new information or discovery that would not be available at the feasibility study design stage. For example: (i) 65.3 km of the road section out of total 98.9 km passes through the mountainous terrain; (ii) the geometric design following Highway Standards of Afghanistan; and (iii) changing the maximum gradient from 14% to 8% following Highway Standards of Afghanistan. The reasons for increasing the width of carriageway, shoulders, road width are not given.

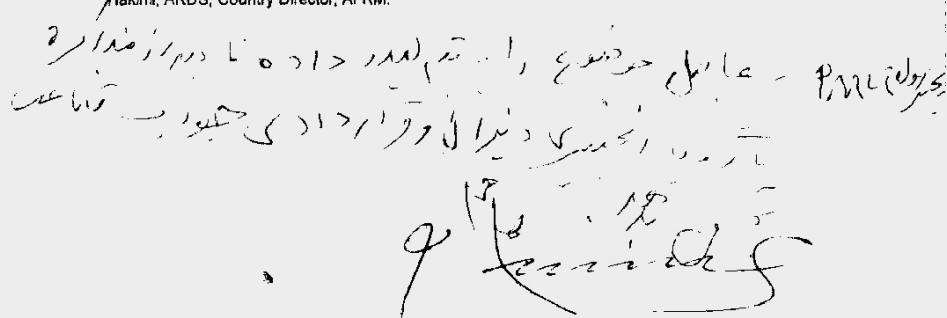
Please ask the Contractor to provide convincing technical justifications of any proposed changes in the design with cost breakdown in the future.

Sincerely yours,



HONG WANG
 Director
 Transport and Communications Division
 Central and West Asia Department

Cc: Deputy Minister Dr. W. M. Rasooli, MPW, Deputy Minister M. M. Mastoor, MOF, Director N. A. Akimi, ARDS, Country Director, AFRM.



Handwritten notes:
 From SAMO HAN COOP
 For receiving return
 21/06/09



Asian Development Bank



FAX

Central and West Asia Department
 Transport & Communication Division
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To:	Dr. Sohrab Ali Saffary Minister Ministry of Public Works Kabul, Islamic Republic of Afghanistan	Date:	5 June 2009
Originator:	Manzoor Rehman Senior Transport Specialist, CWTC mrehman@adb.org	Fax No.:	Thru AFRM
	<i>[Signature]</i>	Noted by:	Risa-Zhilia Teng Acting Head PAU, CWTC

Loan 2257-AFG: North-South Corridor Project—Yakwalang-Bamyan Road (Package 3)
 —Request for ADB's No-Objection for Additional Budget for Construction of Roads

Dear Dr. Saffary:

1. After a careful review of PMU/MPW's letter of 4 May 2009, we conclude that the Contractor's claim lacks justification for ADB to approve the additional budget. The Contractor was required to check and inform large variations in the quantities of major items of work or mistakes in the feasibility study design at the time of bidding. After the detail design changes amounting around 5% are generally acceptable but not of such large magnitude.

2. For example, the longitudinal grades of more than 10% for national highways in mountainous terrain shown in the feasibility study design should have been picked up by the Contractor prior to bidding. The Engineer and the Contractor need to explain why it was not noticed before. We agree that the gradient design should be changed to 8–9% as required by the Afghanistan Highway Standard. However, the Engineer needs to provide a comparison of calculations of the required excavation volumes at each cross section along with the calculations done at the time of bidding and detail design.

Widening of pavement

3. Snow removal cannot be the only reason for widening the pavement from 6 to 7 meters. One lane can be cleared from snow as easily on 6 meter pavement as on 7 meter pavement. The real reason for widening the pavement in mountainous areas must be traffic safety, as trucks climb and descend, which is justified. Please show calculation of the additional costs.

Shoulders

4. DBST on shoulders can be deleted without jeopardizing traffic safety and usability of the road provided that the shoulders are made entirely of sub-base material and shoulders are constructed simultaneously with base course before placing asphalt. Please show calculation of the savings.

5. We look forward to receiving PMU/MPW's clarification on the above issues.

Sincerely,

[Signature]

Hong Wang
 Director
 Transport and Communications Division
 Central and West Asia Department

cc: Dr. Wali Mohammad Rasooli, Deputy Minister (Technical), Ministry of Public Works
 Ms. Marzia Sulimankhet, Deputy Project Director, PMU
 C. Steffensen, AFRM; M. Prebich, AFRM; Afghanistan Transport Team, CWTC Project File



SAMWHAN CORPORATION

House No.35, Street No.13, T-Road, Wazir Akbor Khan, Kabul
 TEL No. (93) 0797667611

Ref. No. SWC-SA1508-09-31 27 January 2009

To Mr. Selimuzzaman Sikder Team Leader

DONGSHING ENGINEERING & CONSULTANT CO., LTD. In association with RENARDET S.A.
 CONSULTING ENGINEERS

Subject: Rehabilitation and Reconstruction of North South Corridor Yakawalang ~ Bamyan Section
 Package-3, Ref.MPW/613/ADB/CON-3
Instructions to Follow Existing Road Alignment

Dear Sir,

References are made to our letter Ref. No. SWC-SA-1508-08-249 dated 23 November 2008, and instruction given by the deputy Minister of MPW at the meeting held at MPW office on 20 January 2009 and 22 January 2009 respectively.

The Contractor submitted the BOQ to be revised based on detail design, of which the Contract amount increased US\$ 13,408,420 against original BOQ, through aforesaid reference for approval. Accordingly, the Engineer reviewed and recommended to the Employer for approval.

However, in the course of review by the Employer, the first instructions were given by the deputy Minister to the Contractor at the meeting held on 20 January 2009 as follow; 1) change of road width from 11.0m to 10.0m for 35km of mountainous section of road, 2) change of gradient from 8% to 9% in some section where allowable, 3) change of minimum radius to horizontal curve from 140m to 80m for mountainous section of road.

According to the deputy Minister's instruction, the Contractor carried out detail calculation and explained to the deputy Minister on 22 January 2009 as shown below table.

As shown above, the savable amount from changes is only US\$ 1,587,997 against US\$13,408,420 of total variation

Items	Length (M)	Detail Design As per Specification		As per Instruction		Balance		
		Cut (M3)	Fill (M3)	Cut (M3)	Fill (M3)	Cut (M3)	Fill (M3)	Amount (US\$)
1.Width Change from 11.0m to 10.0m	35.00	2,009,229	808,001	1,928,710	787,003	-80,520	-20,999	-565,043
2.Gradient Change from 8% to 9%	4.02	638,884	246,545	541,847	194,654	-97,037	-51,891	-797,928
3.Min. radius Change from 140m to 80m	3.70	374,603	86,491	339,447	82,250	-35,158	-4,241	-225,026
Total	42.72	3,022,716	1,141,037	2,810,004	1,063,907	212,713	-77,131	-1,587,997

amount based on detail design. This result shows that there are not any significant financial and technical benefits

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from these changes.

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The second instruction was given by the deputy Minister to the Contractor at the meeting held on 22 January 2009 that the design alignment should follow existing road to construct road within Contract amount as much as possible although that alignment is not straight and smooth curve for traffic flow. Although we design the alignment to follow existing road alignment in order to save construction cost, the horizontal and vertical design alignment should be satisfied with the design specification stipulated in section B108 of technical specification such as design speed(100km/hr in plat section, 80km/hr in rolling, 50km/hr in mountain), Min. Radius(350m in plat, 80m in rolling, 50m in mountain), Max. Gradient(5% in plat, 6% in rolling, 8% in mountain). Some section of existing road alignment had been revised in order to meet specification requirement in detail design for smooth and safe traffic flow.

The construction amount of increase in detail design is resulted from discrepancy in design specification applied between Bid/Feasibility Study Document and Project Design Specification and miscalculation of quantities in Bid document. Ground levels in the Bid drawings clarify the accuracy of the drawings as well as quantities in BOQ. Ground levels in the Bid drawings quite differ from the actual. Ground levels in some sections show same figure even though actual quite vary.

In consideration of the fact that this road shall be constructed with long term plan complying with economic situation and with best alignment based on geographical features and environment friendly, we would like to request you to approve our detail road design so that we produce construction drawings as well as physical works at the site. If delay, our works would be affected by this delay causing extension of time for the project.

Your imminent measures to settle on the above issue would be highly appreciated.

Sincerely yours,

Chun-Mook Jang Project Manager



Copy to:

1. Mr. Jan Agha, PIU/MPW
2. RE
1. MPW
2. ADB

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