

**Government of the Republic of Kiribati**  
Ministry of Finance and Economic Development  
Ministry of Public Works and Utilities



The World Bank



Asian Development Bank

## Kiribati Road Rehabilitation Project

Consulting Services: Preparation of Design  
and Construction Supervision of Road  
Rehabilitation Works

## Construction Phase Quarterly Progress Report

September 2014



<b>PROJECT NAME:</b>	<b>CONSULTING SERVICES: PREPARATION OF DESIGN AND CONSTRUCTION SUPERVISION OF ROAD REHABILITATION WORKS</b>
<b>REPORT TITLE:</b>	<b>CONSTRUCTION PHASE QUARTERLY REPORT</b>
<b>DATE:</b>	<b>SEPTEMBER 2014</b>

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## CONSULTING SERVICES: PREPARATION OF DESIGN AND CONSTRUCTION SUPERVISION OF ROAD REHABILITATION WORKS

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**APPENDICES**

**Appendix A: Summary of Environment Licences**

**Appendix B: Key Materials & Material Suppliers**

**Appendix C: Programme (rev 3, April 2014)**

**Appendix D: Progress Graphs**

**Appendix E: Cash Flow**

**Appendix F: Complaints Summary**

**Appendix G: Weather**

**Appendix H: Progress Diagrams**

**Appendix I: UXO findings report**

**Appendix J: Import Permits & Fumigation Certificates**

**Appendix K: Contract Variations**

**Appendix L: Contract Claims**

**Appendix M: Payments**

**EXECUTIVE SUMMARY**

This report covers the period from 1<sup>st</sup> July 2014 to 30<sup>th</sup> September 2014. Key Contract information relating to the financial and programme status is summarised hereunder:

Item	Status	Comment
<b>Contract Award</b>		
Letter of Acceptance (LoA)	Issued 12 <sup>th</sup> February 2013	Donor 'No Objection Letter', to award Contract, provided 8 <sup>th</sup> February 2013
Contract Agreement	Issued 12 <sup>th</sup> February 2013	Signed & issued by the Employer with the LoA
	Returned 11 <sup>th</sup> March 2013	Signed & returned by the Contractor
<b>Financial Status</b>		
Accepted Contract Amount	AUD 48,197,957.20	Following adjustment from Contract Award negotiations
Approved Variations	AUD 922,298	Details provided at Appendix K
Approved Claims	AUD 0.00	Details provided at Appendix L
Contract Price Adjustment	AUD 36,871	Details provided at Appendix M
Current Estimated Cost at Completion	AUD 51,370,000	Details provided at section 35.
Certified Payments to Date	AUD 16,545,142	Details provided at Appendix M
Balance of Amount to Completion	AUD 34,824,858	
<b>Programme Status</b>		
Commencement Date	1 <sup>st</sup> July 2013	
Time for Completion	690 calendar days	
Date for 'Practical Completion'	22 <sup>nd</sup> May 2015	
Extensions of Time (EoT)	0 calendar days	The Contractor has lodged 4 claims for extensions of time and these are described at section 31.3
Revised Contractual Date for Practical Completion	22 <sup>nd</sup> May 2015	
Engineer assessment of actual Date for Practical Completion	October 2015	Notwithstanding any justified claims the progress to date has been below that required to complete the works within the contract period and late completion seems likely unless there is significant improvement in the Contractors' levels of production.
<b>Performance Indicators</b>		
Assessment of Physical Works status		Favourable weather conditions continued throughout the period and this has been continued for further good progress to be achieved. The Contractor contends that progress continues to be hampered by conflicts with existing services.
Excluding 'Materials on Site'	11.2%	
Including 'Materials on Site'	13.4%	
Elapsed Time		
No adjustment for mobilisation	70.7%	
Adjustment for mobilisation	57.7%	
Actual vs Anticipated Cash Flow	76.4%	Based on overall earnings per programme (rev 3)
	38.5%	Based on earnings/projections from June-14 alone

By way of a 'Letter of Acceptance' from the Employer dated 12<sup>th</sup> February 2013, following a 'No Objection Letter' from the World Bank on 8<sup>th</sup> February 2013, the Contract for services associated with construction activities on the Kiribati Road Rehabilitation Project (KRRP) was awarded to McConnell Dowell (Aust) Pty Ltd for the 'Accepted Contract Amount' of Australian Forty-Eight Million One Hundred and Ninety-Seven Thousand Nine Hundred and Fifty-Seven Dollars and Twenty Cents (AUD 48,197,957.20).

After fulfilment of certain Contractual obligations (by the Employer and Contractor) a 'Commencement Date' of 1<sup>st</sup> July 2013 has been established for the Contract. With a Contract duration of six hundred and ninety (690) calendar days the currently scheduled date for Practical Completion (issue of the Taking Over Certificate) will be 22<sup>nd</sup> May 2015 after which there will be a 'Defects Notification Period' of seven hundred and thirty (730) calendar days and the date of Contract Completion (issue of the Performance Certificate) will be 21<sup>st</sup> May 2017.

Clarity has now been provided on many of the previously uncertain work scope and material supply issues although the finer details still need to be worked through on some aspects. Current status of key components and issues, in this area, are itemised below:

**Betio causeway;** pavement and asphalt surfacing works have been deleted from the Contract, bridge improvement works remain. Government of Kiribati continues to explore options for separate project to provide long term protection to the causeway (this will likely now include road improvements).

**Coastal protection;** Due to budget constraints a more 'minimalistic' approach has now been adopted towards coastal protection works. More 'robust' concrete block walls, earmarked for construction at two sites along the main Betio-Temaiku road (site #1 @ Ch 5+200 and site 5 @ Ch 12+600), have reverted to sand-cement bag walls similar to those included in the 'original' work scope. Following damage/erosion during 'king' tides, earlier in the year, a number of other 'localised' sites have also been identified for protective measures. Works at sites along the main Betio-Temaiku road (lagoon side) will be sufficient to allow the roadworks to be constructed although, whilst this will offer some short-term protection, the Works will be at risk if follow-up more robust works do not follow. Government of Kiribati will explore opportunities, possibly through the Kiribati Adaptation Project (KAP).

For two sites along the Temaiku road (site #10 @ Ch 2+400 and site #11 @ Ch 1+500), where more 'high energy' waves are prevalent, the Employer has retained the more robust (rock boulder) protection offered by recent designs. A site at the ocean end of the airport runway, which had been earmarked for inclusion under the KRRP (as transfer from KAIP), is no longer under consideration as the KAIP budget provision is understood to be insufficient.

**Valve chambers;** for KAP related 'fresh' water supply works the number of chambers, to facilitate leak detection activities (and follow up monitoring) along the 225mm diameter transmission main, had been reduced from over two hundred (256) to two (2) and subsequent design requirements have been completed. Following engagement and mobilisation of 'new' leak detection water engineer(s), under KAP, the number of new chambers has further reduced to one (1) with one existing chamber now being modified to accommodate necessary requirements. KAP have advised that covers to existing chambers, along the 225mm transmission main, are to be replaced (possibly around 13 in number with size around 3m x 2m) and liaison is on-going over work requirements and coordination issues associated with KRRP activities. Previously expressed reservations in regards to targeting the facilitating of leak detection, and not necessarily dealing with leaks if/when detected, remain. KAP have advised that, following an initial leak detection exercise no leaks had been identified along the existing transmission main from Bonriki to Teaoraereke (performance of valves, once the line is pressurised, has yet to be determined).

Chamber requirements associated with the STSISP, for upgrading salt water mains and sewers (in Betio, Bairiki & Bikenibeu), have been finalised although the exact locations need to be confirmed. Liaison with the STSISP is ongoing.

**Local coralline material supply;** the Contractor now has supply agreements in place for sourcing materials material from TACL and PVU. Supply from PVU remains an interim measure (possibly for ~3 months) pending arrival of equipment, being mobilised by the Contractor, needed to extract material from the TACL source. Equipment is expected to arrive mid-October 2014 with corresponding material availability being some 4 weeks later. As the supply costs, under the separate contract arrangements, are higher than those provided for by the Contractor (as a qualification to their bid) a variation to adjust the 'unit rates' is currently under review. Having 'local' material available will however mitigate the risk of additional costs (as the need for additional imported aggregates can be avoided).

**Betio & Bairiki roads;** general improvement of the main roads within Betio and Bairiki are no longer under consideration due to budget constraints. The 2 main feeder/loop roads in Bairiki remain in the KRRP work scope (albeit with modified requirements) as, depending on the actual works required, improvement could still be completed at a similar cost to current budget allowance. The short link to the Bairiki wharf has also been included together with improvement of the general wharf area.

**Bonriki to Tanaea road;** termed as an 'extension' of the Airport, road works have been added to the KRRP where realignment of the existing road is required, at the western (lagoon) end of the airport runway, to avoid conflict with the line of the new airport security fencing.

Instructions and/or variations associated with the aforementioned work scope issues have been provided to the Contractor and, as a consequence, there is a need for an updated works programme. This is currently under preparation by the Contractor and a draft of a new works programme (rev 4), was informally provided at the end of September 2014. The programme shows completion of physical works on 1<sup>st</sup> September 2015 (ie just over 3 months delay to the currently contracted completion date). The Contractor has submitted various contractual claims (as reported herein) some of which seek extensions of time (totalling ~3 to 4 months) together with associated costs. The time extensions associated with individual claims may run 'in parallel' and the justification and quantum of each claim, for which detailed particulars have been provided by the Contractor, will be assessed by the Engineer

As far as physical works are concerned the Contractor continues to have greater presence along the project roads and has been active on a number of work fronts along the Betio-Temaiku, Airport and Temaiku roads. Weather conditions have improved and this has been conducive towards better progress being achieved.

A brief summary of areas of physical road works, and tasks undertaken to date, follows below:

**Betio-Temaiku road;** the Contractor does now have greater presence along this road with focus of attention being:

- Asphalt surfacing; Ch 0+000 to 0+400 (toll booth area) and Ch 6+100 to 6+760
- Drainage and pavement preparation works; Ch 4+700 to 7+200 (Bairiki to Teaoraereke)
- Coastal works; installation of 'enabling' works, Ch 5+000 and 5+200 areas (Bairiki causeway)
- Ducting & Drainage works; Ch 21+500 to 23+900 (Naiverevere)
- Kerbing; installed Ch 6+100 to 6+800 and ongoing throughout the Ch 22+200 to 23+900 area

**Airport road (Ananau causeway);** works have proceeded to essentially complete much of the asphalt surfacing along this road (currently just short of the airport terminal facility) although the main focus of activity has now moved to the main Betio-Temaiku road. Works completed to date include:

- Coastal works, installation of embankment protection now complete (Ch 0+050 to 2+000),
- Services, installation of ducting for future fibre optic services (Ch 0+050 to 1+900),
- Drainage, installation of stormwater culverts (1 no. at Ch 2+000),
- Kerbing, installation of edge strips, Ch 0+050 to 1+900 LHS & RHS, and
- Asphalt surfacing, Ch 0+050 to 1+900

**Temaiku road;** there has been no further activity along this road following previous work relating to basecourse and asphalt surfacing trials on a section from Ch 5+400 to 5+700.

Difficulties continue to be experienced with regards to conflict between the new road works and existing underground services and this could continue for some time. Liaison with the service providers (PUB/TSKL) is on-going and, despite limited resources, there is a cooperative approach and assistance is being provided. Notwithstanding the assistance offered so far the Contractor contends that the extent of conflict experienced is far more than they had expected and hence, as production levels have been lower than they had allowed for, a claim has been lodged for an extension of time and additional costs. The claim is on-going however the Contractor has provided detailed particulars of part of the claim and this remains under review (currently 'on hold' at the request of the Contractor).

Associated with the physical works are various 'safeguards' issues that the Employer and Contractor have to address and the key components are highlighted below together with any pertinent issues that have developed during the report period:

**Resettlement Plan;** the Employer, through MELAD/LMD, has completed making payments of compensation entitlements to the vast majority of affected parties (AP). Payments to a few remaining AP's cannot be finalised until such time as on-going court actions (related to ownership or boundary disputes) have been settled. As works progress there will still be a need for further compensation assessment/payment as, prior to clearing activities, there may be some additional trees/crops identified that need to be considered (arising costs are not expected to be significant).

**Health & Safety;** the Contractor is implementing and rigidly enforcing a comprehensive Health & Safety Plan that has been prepared for the KRRP site activities. To ensure there is a safe working environment all employees, and visitors, have to pass through a site 'safety induction'. There are also a variety of separate meetings, primarily aimed at the Contractors workforce, where specific concerns and/hazards are highlighted and discussed. Selected members of the workforce are also attending first aid programmes being run by the Red Cross.

Separate to the needs of physical site activity the Contractor is also responsible for initiating HIV/AIDS IEC campaigns with the assistance of a local NGO. The Kiribati Family Health Association (KFHA) are tasked with the necessary activities and, following a period where some difficulties were being experienced, there are now signs that the main aims are beginning to be achieved.

**Environment;** the Contractor is working within an approved Contractor Environmental Management Plan (CEMP) although it has been acknowledged that this is a 'living' document that will, from time to time, need to be updated to ensure certain site specific activities are properly covered. Observation around the site does show that the Contractor continues to take his responsibilities, on environmental

matters, seriously and is intent on 'doing the right thing'. The Engineer is coordinating with the Employer (and Donors) on a proposed revision, no.5, to the project Environmental Management Plan. This will amend some anomalies related to the use of local aggregates and make minor modifications to some restrictions on the Contractor's operations.

The Employer is tasked with obtaining Environmental Licences (EL) for the works and all those required for the current KRRP work scope have now been issued by MELAD/ECD. On-going coastal erosion does give rise to occasional 'localised damage', particularly during times of very high tides, and these are being dealt with as and when such areas become apparent.

**Quality Assurance;** the Contractor has now provided a 'Laboratory Management Plan' (LMP) that sets out the procedures that need to be followed for the specific requirements of the KRRP. Further information has been requested in respect of 'inspection & testing procedures' and this is awaited. Otherwise the Contractors' laboratory and Engineers' audit laboratory continue to implement quality control measures to ensure the requirements of the specification are achieved.

Total payments certified to the Contractor to date amount to AUD 16,545,141.84 (adopting provisional assessment for September 2014). Adjustments for price fluctuation, and repayment of the Advance Payment, commenced in the interim payment certificate prepared for August 2014. Physical works have been assessed as being ~12% complete with ~60-70% of time elapsed (depending on how any mobilisation period might be considered). Whilst there has been recent improvement in general levels of progress the overall progress achieved to date remains a cause for concern. It has to be acknowledged that there have been some uncertainties with a variety of work scope issues although, now these have largely been clarified, the provision of a new programme will allow better monitoring of 'actual' vs 'scheduled' works.

The Accepted Contract Amount for the KRRP was ~AUD 48.1 million however there is potential for costs to increase to ~AUD 51.37 million (an additional ~ AUD 3.27 million) depending on decisions yet to be finalised in respect of work scope requirements. This figure remains essentially the same as that reported in previously reported (August 2014).

It is important the Employer appreciates that there are likely to be increases in the contract price that, unless alternative arrangements are made, will require financing by the Government of Kiriabti (GoK).

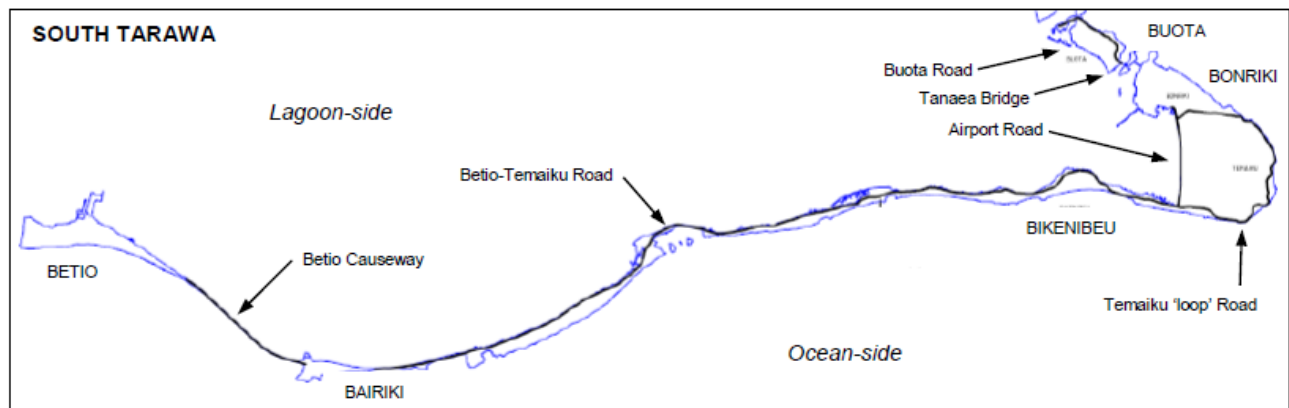
## GENERAL

## 1. INTRODUCTION

## 1.1 Project Background

The Kiribati Road Rehabilitation Project (KRRP) involves the 'Improvement of the Main Betio-Buota Road, Temaiku Road and Feeder Roads in Betio, Bairiki and Bikenibeu' on the atoll of Tarawa, Kiribati. The principal roads are shown in Figure 1-1.

Figure 1-1: Location of main road components



The KRRP is jointly funded by the Government of Kiribati, World Bank, Asian Development Bank and Australian Aid (under the overall administration of the World Bank) with the Ministry of Finance and Economic Development (MFED) identified as the Executing Agency (EA) and the Ministry of Public Works and Utilities (MPWU) identified as the Implementing Agency (IA). The overall Work Scope, at the time of Bid, involved the following components:

## South Tarawa

- Main road, Betio-Temaiku 24.0 km
- Temaiku road, 6.1 km
- Airport road, 2.2 km
- Betio feeder roads, 3.7 km
- Bikenibeu feeder roads, 3.1 km
- Betio main road repairs
- Bairiki feeder/loop road repairs

## North Tarawa

- Buota 'main' road (ocean side), 2.0 km
- Buota feeder road (lagoon side), 1.0 km

Associated works involve:

## South Tarawa

- Repairs and improvements to the Betio causeway bridge
- Upgrade of water supply transmission main from Teaoraereke to Betio (~11km)



The Works are anticipated to involve the following main construction activities:

- Scarify, regulate, reshape and compact existing pavement,
- Construction of new pavement layers,
- Installation of concrete edge strips/kerbs,
- Provision of footpaths
- Bituminous asphalt surfacing,
- Drainage improvements,
- Provisions for existing and future services,
- Installation of road safety features,
- Bridge repair and widening,
- Coastal protection works, and
- Installation of water supply pipeline and associated valves

The Contract was Bid under the World Bank Guidelines for International Competitive Bidding (ICB) procedures and on 8<sup>th</sup> February 2013, following the Bid and Bid review process (including pre-Contract Award Negotiations), the World Bank provided their '*No Objection*' to award the Contract to McConnell Dowell (Aust) Pty Ltd for the '*Accepted Contract Amount*' of Australian Forty-Eight Million One Hundred and Ninety-Seven Thousand Nine Hundred and Fifty-Seven Dollars and Twenty Cents (AUD 48,197,957.20). Accordingly the Employer issued a '*Letter of Acceptance*', to the Contractor, on 12<sup>th</sup> February 2013.

### **1.2 Consulting Services**

Roughton International Ltd, in association with Fraser Thomas Ltd, were engaged to provide Consultant Services for Design and Supervision services by way of an agreement with the Ministry of Public Works and Utilities that was signed on 2<sup>nd</sup> December 2010 and which became effective on 8<sup>th</sup> February 2011. The Authorised Representative of the Consultant, for matters regarding this Contract, is Mr. Robert D'Cruz as the Roughton International Regional Manager for the Pacific.

### **1.3 Report Details**

The Consultants' Contract requires, during supervision of the physical works, preparation of reports on a 'Quarterly' basis. This report has been prepared to cover the period from the 1<sup>st</sup> July 2014 to 30<sup>th</sup> September 2014.

## 2. CONTRACT PARTICULARS

### 2.1 Key Data

A summary of relevant key data is provided in a Basic Data Sheet provided as Table 2-1 below.

**Table 2-1: Basic Data Sheet**

BASIC DATA SHEET		Reference <sup>1</sup>	Details
1	Project Title	ITB 2.1	KIRIBATI ROAD REHABILITATION PROJECT (KRRP)
2	Contract Details		
	Name	ITB 1.1	Improvement of the Main Betio-Buota Road, Temaiku Road and Feeder Roads in Betio, Bairiki and Bikenibeu
	Number	ITB 1.1	KIR-12/01
3	Funding Arrangements		
	Financing Institutions (the 'Bank')	CC 1.1.2.11	World Bank (Grant H645)
			Asian Development Bank (Loan No.2718-KIR)
			Australian Agency for International Development
	Borrower	ITB 2.1	Government of KIRIBATI (GoK)
	Executing Agency		Ministry of Finance and Economic Development (MFED)
	Implementing Agency (and 'Employer')		Ministry of Public Works and Utilities (MPWU)
4	Design and Supervision Arrangements		
	Consultant Services (and 'Engineer')	CC 1.1.2.4	Roughton International Ltd <i>in association with</i> Fraser Thomas Ltd
5	Procurement Details		
	Mode of Procurement		International Competitive Bidding (ICB) with Post-Qualification
	Deadline for Bids	ITB 22.1	Friday, 31 <sup>st</sup> August 2012
6	Contract Award		
	No Objection Letter to Award Contract		Friday, 8 <sup>th</sup> February 2013
	Letter of Acceptance	ITB 39.1	Tuesday, 12 <sup>th</sup> February 2013
	Contractor		McConnell Dowell (Aust) Pty Ltd
	Accepted Contract Amount	ITB 39.1	Australian Forty-Eight Million One Hundred and Ninety-Seven Thousand Nine Hundred and Fifty-Seven Dollars and Twenty Cents (AUD 48,197,957.20)
7	Programme Details		
	Commencement Date	CC 8.1	1 <sup>st</sup> July 2013
	Contract Duration	CC 1.1.3.3	Six hundred and ninety (690) calendar days
	Date of Practical Completion		22 <sup>nd</sup> May 2015
	Defects Liability Period	CC 1.1.3.7	Seven hundred and thirty (730) calendar days
	Date of Contract Completion		21 <sup>st</sup> May 2017

<sup>1</sup> ITB = Instructions to Bidders (inc particulars in the Bid Data Sheet)

CC = Conditions of Contract (General and Particular Conditions)

## **2.2 Pre-Works Obligations**

### **2.2.1 Contract Agreement**

The Employer attached a signed Contract Agreement to the '*Letter of Acceptance*' of 12<sup>th</sup> February 2013 for counter-signature and return by the Contractor. The Contractor returned a signed Contract Agreement, to the Employer, on 11<sup>th</sup> March 2013.

### **2.2.2 Performance Bond**

The Contractor delivered a Performance Bond to the Employer on 4<sup>th</sup> April 2013 together with the associated Power of Attorney. The Bond was approved by the Employer on 18<sup>th</sup> April 2013.

### **2.2.3 Insurances**

In accordance with clause 18 of the Conditions of Contract the Contractor has taken out the various insurances required and provided evidence/policies of these.

### **2.2.4 Employers Financial Arrangements**

In accordance with clause 2.4 of the Conditions of Contract the Employer provided the Contractor with details of proposed financing arrangements on 10<sup>th</sup> April 2013.

### **2.2.5 Possession of Site**

In accordance with clause 2.1 of the General Conditions of Contract the Employer is required to provide the Contractor with 'Right of Access to the Site' within the time stipulated in the Contract.

It is to be noted that clause 2.1 of the Particular Conditions of Contract requires the Contractor to apply for 'Possession of Site' at least 14 days in advance of the actual date needed (as per requirements dictated by the Works programme submitted pursuant to clause 8.3 of the Conditions of Contract).

The Employer has generally been in a position to grant 'Possession of Site', to the Contractor, at the required time or soon thereafter (in a staged manner as set out by the 'current' Works programme).

### **2.2.6 Advance Payment**

The Contractor did receive an Advance Payment – this will start to be recovered in the certificate following the one in which the total of all payments, including the advance payment, has reached 30% of the Accepted Contract Amount.

### **2.2.7 Commencement Date**

Following completion of contractual obligations, on the part of the Employer and the Contractor, the Engineer delivered an instruction to 'Commence the Works', to the Contractor, on 1<sup>st</sup> July 2013.

### **2.2.8 Contract Documents**

The Employer and the Contractor have been provided with copies of the Contract Documents. Each party have a set of documents signed and countersigned by the other and these have been put aside for safe keeping.

### **2.2.9 Dispute Board**

In accordance with clause 20.2 of the Conditions of Contract the Dispute Board shall comprise one (1) sole member, who shall be agreed by the Parties, and shall be appointed within twenty-eight (28) days after the '*Commencement Date*'.

Following liaison and communication the Employer and Contractor have signed a contract with Mr Derek Firth on 4<sup>th</sup> September 2013.

### **2.2.10 Environmental Licences**

The Employer is responsible for obtaining Environmental Licences (EL) required for the Works.

EL's are provided for under Government Acts/Regulations and applications have to be made to the 'Environment Control Division' (ECD) of the Ministry of Environment, Lands, Agriculture and Development (MELAD). In addition to obtaining an EL for the road works, the Employer is required to obtain, and has obtained, separate licenses for each site where coastal protection works will be constructed.

A summary of all EL's provided for the KRRP is provided at Appendix A.

#### **2.2.11 Unexploded Ordnance**

Section 1900 of the Specification sets out requirements for dealing with Unexploded Ordnance and which targets the Betio area (scene of a major battle during World War II). The Contractor has engaged Milsearch, an organisation with a proven track record in dealing with UXO survey & disposal, to conduct necessary activities.

#### **2.2.12 Manuals and Plans**

Specification clause 1801 requires that the Contractor prepare a '*Contractors' Environmental (Management) Plan*' (CEMP) and stipulates that '*no physical works shall be carried out*' until such CEMP has been approved by the Engineer. The Contractor is also required to prepare other manuals and/or plans in respect of Health & Safety (H&S), Quality Assurance (QA), Traffic Management (TM) and General Construction Methodology (Construction Execution Plan – CEP).

#### **2.2.13 HIV/AIDS prevention**

The contract contains a requirement for the Contractor to provide an HIV-AIDs Information, Education and Consultation Communication (IEC) campaign. This is set out at clause 6.7 of the Particular Conditions of Contract, Part A; Contract Data. The clause originates from the World Bank standard forms for bidding documents that were specified for use on the project. Under this clause the Employer is obliged to provide a list of approved service providers and the Contractor is obliged to select a service provider from this list to undertake the IEC campaign.

The Employer (MPWU) provided the list of approved service providers in the contract documents at clause 6.7 Particular Conditions of Contract Part B; Specific Provisions. The list consisted of just one organisation, namely Kiribati Family Health Association (KFHA). Under clause 6.7 the approved service provider shall prepare the IEC campaign which shall be submitted to the Employer for approval. The Engineer advised the Contractor on 24th June 2013 that the IEC campaign should be based upon the World Bank's 'The Road to Good Health' toolkit ([www.theroadtogoodhealth.org](http://www.theroadtogoodhealth.org)), because the toolkit is specifically designed to ensure that proper IEC campaigns are executed for road projects.

The Contractor subsequently engaged the KFHA, who had acknowledged familiarity with the 'toolkit', to undertake the requisite IEC campaigns.

### 3. EMPLOYERS' ORGANISATION

#### 3.1 Project Management

The KRRP is administered by the Ministry of Finance and Economic Development (MFED) as the Executing Agency (EA), supported by the Kiribati Fiduciary Support Unit (KFSU), and the Ministry of Public Works and Utilities (MPWU) as the Implementing Agency (IA).

The Employer for the KRRP is the MPWU as set out in the Conditions of Contract at clause 1.1.2.2. The Employers' Representative is Mr. Ioataake Timeon, the current Secretary for MPWU (the former Secretary, Mr Elliot Ali, has transferred to the MFED). The Secretary is supported by:

- Mr Kireua B Kaia, Director of Engineering Services (DES), and
- Mr Patrick Mannix, Technical Auditor and Advisor (TAA)

Mr Kaia, formerly 'Head of Department' for the 'Energy Unit' arm of the MPWU, has assumed the position of DES following the resignation of Mr Toani Toatu.

The Employer has advised that communications for the KRRP (formal and informal) should be addressed to the Secretary, annotated for the attention of the DES and copied to the TAA.

## **4. ENGINEERS' ORGANISATION AND ESTABLISHMENT**

### **4.1 Engineer Details**

The Engineer for the KRRP is Roughton International (RI), as set out in the Conditions of Contract at clause 1.1.2.4, and Mr John McFarlane, based in Fiji, is the Engineers' Representative (ER). The Engineer has been engaged by the MPWU, as the Design and Supervision Consultant (DSC), under separate contract arrangements for the design and supervision of the Works.

The Engineer has delegated responsibility for day-to-day administration of the KRRP construction contract to Mr. Ian Archer as the Resident Engineer (RE). Mr Archer will be resident in Tarawa during the execution of the works, except for designated periods of leave (during which cover will be provided by 'the ER').

### **4.2 Staffing**

#### **4.2.1 International**

The Engineers' resident international staff comprises:

- Resident Engineer, Mr Ian Archer
- Quality Assurance Engineer, Mr Peter Padmore
- Works Inspector, Mr Llewellyn (Lew) Morgan
- Assistant Resident Engineer, Mr Rajendra Mouny

Mr Padmore has recently tendered his resignation, from the QA Engineer position, citing medical reasons. The Engineer is mindful of contracted obligations and is endeavouring to identify a suitable replacement who can be mobilised to the project in time for a satisfactory handover.

#### **4.2.2 National**

National staff engaged directly by the Engineer comprises:

- Environmental Inspector, Ms Bweneata Kaoti,
- Community Liaison Officer, Mr Moanataake Beiabure
- Office Administrator, Ms Regina Fay
- Laboratory Technician, Mr Savaliga Malau

#### **4.2.3 Counterpart**

The Consultants' contract provides for the Employer to assign full time counterpart staff, to the KRRP, for the duration of the physical works. Identified staffing positions, and assigned candidates, comprise:

- Technician Engineer, Onikanara Arika
- Technician Engineer, Mikeere Neemia
- Community Liaison Officer, Unassigned

The MPWU have assigned Mr Arika as a replacement for Mr Laurence Neemia who has resumed duties for the MPWU.

The Engineer continues to encourage the Employer to assign other Engineers within their organisation to the KRRP, on a rotating short-term basis, so they might benefit from the experience gained.

### 4.3 Engineers' Facilities

#### 4.3.1 Office & Laboratory

The main office and laboratory facilities have been established in part of the Employers' 'Civil Yard' compound in Betio (areas have been made available, within such facilities, for use by the Contractor). The facilities were available in Oct/Nov 2014 and, on completion of the Works, the main buildings will be handed over to the Employer.

#### 4.3.2 Transport

Vehicles for the Engineer are being provided through the construction contract. Four vehicles have been provided and these vehicles will become the property of the Employer when the contract is completed. In addition the Engineer has provided an additional vehicle from its own resources.

### 4.4 Construction Supervision Plan

The Engineer submitted a draft 'Construction Supervision Plan' (CSP) to the Employer on 26th February 2014. Feedback from the Employer has been received and the issues raised are being assessed prior to finalising the CSP.

### 4.5 Ceiling Amount

The contract is time based and payments are made on the basis of the actual inputs made by the various individual inputs. The quantities stipulated in the contract, as amended by variations, are estimates.

The following table gives an estimate of the final costs:

**Table 4-1: Estimate of Costs for Consulting Services**

Currency	Current Ceilings (inclusive VO3)	Anticipated cost to complete	Difference
GBP	445,368	492,746	47,378
USD	1,733,444	1,823,892	90,448
AUD	933,054	872,056	(60,998)

It is to be noted that, at this stage, no adjustment has been made to take into account any prolongation of the Works contract and the consequential need to align the DSC contract to suit (costs can be expected to be of the order of AUD 100k/month, split into the various currencies of payment). A better estimate of final cost will be available once the final work scope is finalised and programming needs of the Contractor taken into consideration.

## 5. CONTRACTORS' ORGANISATION AND ESTABLISHMENT

### 5.1 Mobilisation

The Contractor is now considered to be substantially mobilised although, given progress to date, it does seem likely that additional resources will have to be mobilised in order to complete the works within the scheduled time for completion.

### 5.2 Subcontracts

Clause 4.4 of the Conditions of Contract set out the provisions for subcontracting arrangements and it is to be noted that the Contractor is not permitted to subcontract the whole of the Works. Unless any subcontractor is named in the Contract (or Bid) the prior consent of the Engineer is required for proposed subcontracting arrangements.

To date the Contractor has entered into few sub-contract arrangements with the following being the current status:

- Blacktop Construction; major sub-contract for asphaltting (and some pavement) activities subsequently fell through when company entered receivership in early September 2013
- Milsearch; minor sub-contract for UXO surveys

### 5.3 Staffing

The Contractors' staffing and workforce levels fluctuate during the reporting period but, at the end of September 2014 the number of persons engaged was:

- International, 31 (28 male, 3 female)
- National, 175 (148 male, 27 female)

The Contractors' international staff comprises the following numbers and positions:

**Table 5-1: Details of Contractor Management Staff**

Discipline	Numbers
Project Manager	1
Commercial Manager	1
Accounts/Administration	2
Project Engineers	2
Laboratory Manager	1
Site Engineers/surveyors	2
Graduate Engineer/Technicians	2
Health, Safety & Environ Supervisor	1
Works Superintendents	1
Works Supervisors	8
Workshop	3
Plant controllers/operators	7
<b>Total</b>	<b>31</b>



The Contractor has been coordinating local labour requirements with the Ministry of Labour under an 'Employment Agreement' that meets with their approval. A breakdown of the labour force into the various disciplines follows:

**Table 5-2: Details of Contractor Labour force**

Organisation	Discipline	Numbers
MacDow	Carpenters	15
	Drivers	32
	Operators	36
	Labour (skilled)	17
	Labour (unskilled)	75
	Total direct employees	175
	Male	148
	Female	27
	Resignation and/or dismissal	30
TSS	Security	14

TSS are a 'local' company offering security services. The Contractor has reported no industrial relations issues to date.

#### 5.4 Equipment

The Contractor has mobilised a total number of over 200 items of plant and equipment as of the end of September 2014. This includes major items of construction equipment together with miscellaneous items such as pumps and generators. A summary of the various items is provided hereunder:

**Table 5-3: Details of Contractor Equipment**

Description	Number
Construction plant	43
Trucks (general, crane, concrete, tanker)	27
Utility vehicles	21
Transport	2
Pumps, compressors & generators	20
Plate compactors & power tools	21
Containerised facilities	26
Miscellaneous	47
Facilities: Screen plant	1
Concrete batcher	1
Asphalt plant	1

All vehicles have been registered and insured in Kiribati. The Contractor has an established plant workshop in Betio and servicing schedules have been prepared.

## **5.5 Materials and Material Suppliers**

### **5.5.1 Materials on Site**

Clause 14.5 of the Conditions of Contract does make provision for the payment of '*Materials on Site*' for certain materials:

- Precast concrete items,
- Imported processed aggregates,
- Bitumen,
- PVC pipes/ducts, and
- Street lighting

Consignments of materials are now arriving at Tarawa on a routine basis. Due to supply demand (and barging constraints) the Contractor is now importing some processed aggregates in containers using commercial shipping lines.

### **5.5.2 Material Suppliers**

The Contractor is making arrangements, with many suppliers, to provide certain items and materials required for the Works. A current listing of material and/or suppliers, and their status, is provided at Appendix B.

## **5.6 Workshops, Depots and Storage Areas**

Apart from the main office-laboratory compound the Contractor requires many other 'areas' to use for workshops (mechanical, carpentry etc), depots (concrete batching, asphalt plant etc) and general storage (imported aggregates, precast concrete units etc). The following main areas are currently being utilised:

- Storage & Weigh station area, Betio (adjacent to meteorological station)
- Storage & stockpile area, Betio (ESAT/TACL compound, Takoronga)
- Storage area, Bairiki (north loop road)
- Storage area, Bairiki causeway (km5)
- Storage area, Betio-Temaiku road (km9, behind Tarawa Motors)
- Storage & screening plant, Betio-Temaiku road (km11, opposite parliament)
- Storage & concrete plant, Betio-Temaiku road (km22.5, McKenzie Point), and
- Asphalt plant, Temaiku (old PVU car dump site)

## **5.7 Micro-enterprise Groups**

The Contract makes provision for training of routine road maintenance micro-enterprise groups by the Contractor.

The 3 groups (of 6/7 individuals) engaged by the Contractor continue to operate within the Betio (2 groups) and Bairiki (1 group) areas. Tasks remain focused towards cleaning the road and drains, together with cutting back vegetation (for say 1m behind kerb lines).

## **6. PROGRAMME & CASHFLOW**

### **6.1 Programme**

As set out under clause 8.3 of the Conditions of Contract the Contractor has to submit a Works Programme within twenty-eight (28) days of the receipt of an instruction to 'Commence the Works' and subsequently update the programme if at any time the Engineer notifies the Contractor that the programme is not consistent with the actual rate of progress.

The Contractor is currently working to revision 3 of his programme (although some activities are noted to be 'out of sequence') a summary of which is provided at Appendix C and which provides a comparison of actual vs scheduled work activities for various sections of the Works. During the report period some clarity has been provided on a number of uncertain work scope issues and this has resulted in a need for an updated programme. A draft copy of programme revision 4 was informally provided on 30<sup>th</sup> September 2014 (for 'information' ahead of pending donor mission in early October) with the Contractor noting that there were 'some errors'. The programme shows completion by 1<sup>st</sup> September 2015 which is just over 3 months later than the scheduled completion date of 22<sup>nd</sup> May 2015. The Engineer has drawn the Contractors' attention to the 'late' completion however formal review and comment will be provided once an updated programme has been formally submitted. Unless additional resources are mobilised it seems likely that the Engineer will have to give notice to the Contractor, under clause 8.6 of the Conditions of Contract, seeking advice on measures to be adopted to ensure Works are completed 'on time'.

Graphical representations of progress on key activities, for the various road components (still against programme rev 3), are provided separately as Appendix D. An overview of each programme is briefly described below.

#### **6.1.1 Programme rev.0 (July 2013)**

A programme (rev 0) was issued within 28 days of Commencement but it initially lacked the additional supporting information required by the specification. The general philosophy of the Contractors programme remained as per the programme provided with their Bid ie one team working along the main Betio-Temaiku road (starting at the western 'Toll Booth' end and working progressively eastwards) and one team working in parallel in the Temaiku area (working, in turn, on the Temaiku, Airport and Buota roads).

#### **6.1.2 Programme rev.1 (November 2013)**

A revised programme (rev 1) was provided on 25<sup>th</sup> November 2013 which still did not provide all the supporting information provided by the terms of the contract. Completion of works was still being targeted for 21<sup>st</sup> May 2015 in line with Contract requirements.

By the end of the December 2013 the programme had already become out of date, certain works were behind programme and being executed out of sequence, and further revision was requested, by the Engineer, in late-January 2014.

#### **6.1.3 Programme rev.2 (February/March 2014)**

A revised programme (rev 2) was submitted on 26<sup>th</sup> February 2014 with a supporting 'report' provided on 4<sup>th</sup> March 2014.

On the basis of the deficiencies that were identified programme (rev.2) was not accepted the Contractor was asked to resubmit accordingly.

Due to the deteriorating condition of the Betio causeway protection revetment, and following discussions during the Donor mission in March 2014, the Contractor was notified, on 21<sup>st</sup> March 2014, to defer much of the pavement works, across the Betio causeway until as late as possible in a revised programme.

#### **6.1.4 Programme rev.3 (April 2014)**

The Contractor submitted an updated programme (rev 3), together with supporting information, on 15<sup>th</sup> April 2014.

Following Employer/Engineer/Contractor discussion the Contractor has reprogrammed the works giving due consideration to the need to defer selected works across the Betio causeway and the current unavailability of firm direction in respect of coastal protection works in the Nanikaai and Ambo areas. To mitigate prolongation impacts the Contractor has rescheduled main activities to the Temaiku area with works on the main Betio-Temaiku road 'commencing' at Ch 23+900 (intersection with the Airport and Temaiku roads) and working westwards towards Betio.

The overall impact has resulted in the Contractor seeking an extension of time of the Contract period to 10th July 2015 ie an additional 50 calendar days (the Contractor has separately submitted a formal claim for the additional time involved). However, the Employer subsequently decided that pavement works on Betio Causeway should be deleted from the KRRP to allow time for funding to be put in place for the rehabilitation of the causeway structure. On this basis the Employer declined to agree to any extension of time. The causeway works were subsequently deleted under variation 12 and the Contractor has given notice of a new claim, for which details and particulars are awaited.

### 6.1.5 Cashflow

The Contractor most recent cash flow information provided by the Contractor is that associated with, and subsequent to, submission of programme revision 3. Details are tabulated below:

**Table 6-1: KRRP Cash-flow Expectations**

Year	Month	Amount (monthly)		Cumulative
		Actuals	Predicted	
2013	April	4,819,796		4,819,796
	May	1,112,066		5,931,862
	June	839,800		6,771,662
	July	771,880		7,543,542
	August	448,582		7,992,124
	September	361,831		8,353,955
	October	353,545		8,707,500
	November	446,960		9,154,460
	December	385,386		9,539,846
	January	754,090		10,293,936
	February	374,850		10,668,786
	March	718,254		11,387,040
2014	April	920,284		12,307,324
	May	1,028,904		13,336,228
	June		609,000	13,945,228
	July		2,400,000	16,345,228
	August		3,047,000	19,392,228
	September		2,270,000	21,662,228
	October		2,292,000	23,954,228
	November		2,373,000	26,327,228
	December		2,452,000	28,779,228
	January		2,686,000	31,465,228
	February		2,609,000	34,074,228

	March		2,478,000	36,552,228
	April		2,653,000	39,205,228
	May		4,088,000	43,293,228
	June		2,913,000	46,206,228
	July		702,000	46,908,228
Repayment of Retention			2,407,897.86	49,316,126

Figures to May 2014 are based on certified amounts, actual earnings are reported at section 33 and tabulated at Appendix M. There remains some discrepancy in the Contractors final 'cost to complete' (ie after repayment of retention) and although clarification has been sought further information has not yet been provided. An updated cash flow will be provided with the Contractors' new programme (rev 4) which is under preparation. It is however clear that earnings to date fall far below that anticipated and serves to demonstrate that improved rates of progress are necessary if Works are to be completed within the scheduled time for completion.

A graphical representation is of cashflow (expected) against earnings (actual) provided at Appendix E.

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## **7. CONTRACT ADMINISTRATION**

### **7.1 Communications**

To avoid confusion it is important that proper lines of communication are available between the Employer, Engineer and Contractor. Required procedures have been established and, apart from odd occasions, are functioning satisfactorily.

### **7.2 Meetings**

Site meetings, with the Contractor (and Employer), are being held on a routine basis. Additional meetings will be called if and when circumstances dictate this is required. Two formal site meetings were held during the current report period with several other informal discussions taking place over work scope matters and existing services issues.

### **7.3 Notices & Instructions**

During the course of the Works there will be times when the Engineer has to give instruction to the Contractor and when the Contractor needs to seek clarification from the Engineer. Systems have been established whereby this can take place.

### **7.4 Site Records**

The importance of having good site records available is recognised and, wherever practicable, such records should be agreed by personnel from the respective Engineer/Contractor organisations. Of particular note is the need to agree measurements of completed works that is due for payment (particularly if it is to be 'covered up'). Systems have been established to ensure such records are maintained.

### **7.5 Inspection and Testing**

As set out at section 1205 of the Specification the Contractor maintains responsibility for overall Quality Control of the Works. The Engineer will however institute routine inspection and testing through an 'Audit' Laboratory that is being established for the Engineers' use. Systems have been established whereby the Contractor provides the Engineer with due notice of on-going works that are ready for testing and the Contractors' records will be reviewed and checked. Additional 'audit' checks may be carried out as and when required and various standard forms, established and used on past projects, will be adapted for use in monitoring the KRRP day-to-day activities, conducting various inspections and undertaking, and reporting on, the various laboratory testing that is required.

### **7.6 Measurement and Payment**

Clauses 12 and 14 of the Conditions of Contract respectively set out the various formal requirements for Measurement and Payment. Procedures for routine agreement (Engineer/Contractor) of measured works and/or activities have been established. Agreed quantities of works will be used to prepare Interim Payment Certificates and summaries will be provided in the attached supporting documentation.

## 8. COMMUNITY LIAISON

It is recognised that it will be important for local communities to be kept apprised, in advance, of the Contractors' scheduled activities. There is close on-going dialogue with the various local communities, during actual physical works, to make sure they are informed about the potential hazards and dangers involved, as well as general liaison in respect of permanent/temporary access arrangements and issues with existing services & utilities. In particular work on feeder roads is constrained by lack of working space and this will need careful planning

Both the Engineers' and Contractors' staffing arrangements provide for a 'local' Community Liaison Officer (CLO) who will deal with issues raised by the various stakeholders and communities as the works proceed. Following communications with the Employer/Donors, and discussions with the Contractor, the CLO's will also coordinate any comments and complaints (and any subsequent responses) received either by telephone call to the Contractors' office or by SMS (text messaging) to the web-based system established by the Donors. Telephone numbers have been included on the project noticeboards for the public to use for advice and/or complaints. Proposed arrangements have been incorporated into the Contractors CEMP.

Complaints received to date have been few, generally of a relatively minor nature and have been dealt with through consultation and action as might be appropriate. A combined record of complaints (those received by Engineer and Contractor) is being maintained and a summary of complaints received, together with any resolution action, is provided at Appendix F.

## ISSUES IMPACTING ON THE WORKS

### 9. WORK SCOPE

#### 9.1 General

The main road components of the KRRP, as described at section 1.1, are shown on a plan of South Tarawa included as Figure 1-1.

Since the award of the construction contract, the Donors have made suggestions to the Government on various proposed work scope changes. During past meetings and communications it is now understood that additional funding (from donors) may be problematic and the Government of Kiribati will be expected to make up any shortfall between the 'final' cost to complete and the funding that has already been pledged.

The Government of Kiribati has therefore reviewed work scope requirements and the Employer has provided clarity on a number of outstanding issues (some of which followed Cabinet consideration and decision).

#### 9.2 Betio Causeway & Temaiku Road

##### 9.2.1 Betio Causeway

Pavement & surfacing works have been deleted from this section of the main Betio-Temaiku road (Ch 0+400 to 3+200) and will now be considered for inclusion in any subsequent follow up project(s) to provide long term protection to the causeway.

Works associated with bridge improvements (Ch 1+400) will continue as planned.

##### 9.2.2 Temaiku Road

Bituminous surfacing to the Temaiku road has been changed, from Asphalt to a 2-coat surfacing dressing, over much of the total length. Sections at each 'end' of the road, where traffic levels are highest, will remain as asphalt (Ch 0+000 to 0+750 and 5+400 to 6+100).

#### 9.3 Coastal Protection

The Employer has confirmed that works, as designed by Tonkin & Taylor (for sites along the main Betio-Temaiku road), will now no longer proceed and a more minimalistic approach has been adopted. Works will revert to the sand-cement bag type of construction similar to that originally scheduled although, for the sites designed by T&T, the profile will be modified such that the T&T walls can be more readily constructed immediately in front of the works to be done. The works have been labelled as 'enabling works' and it has been acknowledged that the T&T designed walls will need to follow current works if a more robust and longer term protection is required.

For two major sites along the Temaiku road the Employer has confirmed that the more robust long term solution of rock boulders (as designed by T&T) will be adopted. In conjunction with this the road pavement, for sections behind both 'walls', will be formed with concrete.

The more major sites where works under the KRRP are still required (to allow works to be constructed and/or to protect the investment being made in the new infrastructure) remain as:

- Site 1; Betio-Temaiku road ~Ch 5+350 (flank protection each end of existing wall)
- Site 5; Betio-Temaiku road ~Ch 12+600 (Ambo causeway)
- Site 10; Temaiku road ~Ch 2+400
- Site 11; Temaiku road ~Ch 1+500, and
- Site 15; Airport runway, ocean end, 2 locations (transfer from KAIP)

Works are required in other, more localised areas, where works had been scheduled or on-going erosion dictates that works are necessary, notably those along the main Betio-Temaiku road at:

- Ch 4+950,
- Ch 6+850,



- Ch 9+360,
- Ch 14+280, and
- Ch 21+920

#### **9.4 Valve Chambers (KAP Water Supply)**

Following mobilisation of replacement the KAP-III water (leak detection) engineers the Employer has confirmed a need for only 1 new 'chamber' to facilitate flow metering requirements. A proposed second chamber is no longer required as an existing chamber (at the Airport road intersection) will be modified/extended to suit requirements.

Designs for the various 'chambers' that had previously been contemplated had been commenced (under variation to the Design Consultant services) and, following a previous reduction in chamber requirements, two of these had been completed to allow a variation to be prepared, and instruction issued, to the Contractor. The Works involved do require new unit rates for some items and the Contractor has been invited to make proposals accordingly.

During informal discussions with the Employer and leak detection engineer there is some thought now being given towards replacing covers/lids currently on the existing chambers along the existing 225mm transmission main. Some of the lids, covering the openings in the cover slabs, are damaged and concerns have been raised over remaining lids that are rusting. The number of covers involved likely numbers around 13 and the Employer will liaise with KAP-III on requirements. Funding arrangements will need to be given some consideration.

#### **9.5 Valve Chambers (STSISP Sanitation upgrade)**

The Employer continues to liaise with the STSISP on requirements although, for the purposes of preparing a variation to issue to the Contractor, advice has been provided to allow for inclusion of 24 chambers. The general rationale, agreed with the Employer and STSISP, is that:

- where any valves/hydrants lie within the asphalt surfaced carriageway chambers will be installed
- where any valves/hydrants lie within a concrete footpath or concrete feeder road a 'box-out' will be formed (and in-filled with a concrete 'surface') for future access/works by the STSISP contractor

The position of valves/hydrants remains uncertain and the STSISP engineers have been asked to assist with locating any such assets that might impact on the KRRP works; this activity is on-going.

Designs for required 'chambers' have been completed (under variation to the Design Consultant services) and this has allowed a variation to be prepared, and instruction issued, to the Contractor. The Works involved do require new unit rates for some items and the Contractor has been invited to make proposals accordingly. Funding arrangements will need to be given some consideration.

#### **9.6 Ambo causeway**

Following review of design profile, and subsequent joint site inspection, the protection works were modified and will now be formed along the seaward side of the exposed water supply transmission main. This will negate the need for service relocation works as, together with the water supply main, the main power supply lines (11 kVa and 415V) and telecommunications cables also run across the Ambo causeway. The Employer was keen to mitigate potential disruption to key services should difficulties arise with potential relocation works.

#### **9.7 Betio and Bairiki Roads**

Although the condition of the Betio and Bairiki roads have deteriorated, since the time of design (early 2011), there are currently no plans to review or expand the KRRP to cover any new sections of road.

Within Bairiki, for the works to the north and south feeder/loop roads, allowance has been made to rework both roads due to their deteriorating condition (original works scope was primarily a 1-coat reseal) although actual requirements will be confirmed at time works are carried out.

A short spur road to the Bairiki wharf, off the northern loop road, will also be improved together with the general wharf area (where a concrete geo-cell pavement will be used).

#### **9.8 Bonriki to Buota Road**

To facilitate the installation of new security fencing around the Bonriki International Airport complex (being upgraded under KAIP) it will be necessary to realign the existing road, locally, around the western end of the main runway. The Employer has been liaising with KAIP on necessary arrangements and preliminary designs have been prepared.

Prior to finalising designs the current work limits will be established 'on site', together with actual fence lines, to ensure there are no conflict issues (particularly as the KRRP and KAIP are using a different co-ordinate base). The fencing contractor is understood to be mobilising in October 2014 and it is likely that issues will be assessed soon thereafter.

## 10. MATERIAL SUPPLY

### 10.1 Environmentally Safe Aggregates for Tarawa (ESAT)

The Contractor has now entered into a formal contract with Te Atinimarawa Co. Ltd. (TACL) for the supply of coralline materials. Equipment (1 x 45t excavator and 2 x 10m<sup>3</sup> articulated dump trucks) is being mobilised and, although initially targeted for arrival in September 2014, it is now expected in mid- to late- October 2014.

### 10.2 Supply of Material from MPWU/PVU

As an interim measure, pending availability of material from TACL, the Plant & Vehicle Unit (PVU) were approached to supply coralline materials. Following successful discussions the Contractor also finalised a supply agreement with PVU for such material and this has been utilised latterly during the report period.

The PVU hold environment licences for 3 areas being those close to:

- the High Court buildings (Betio),
- the Parliament complex (Ambo), and
- the Otintaai hotel facility (Bikenibeu)

The Contractor had indicated a preference for material being available at Betio or Bikenibeu however, following assessment of material properties, has opted to utilise material from the source in Betio only.

### 10.3 Contract Arrangements (for local aggregate use)

Prior to entering into any formal supply contract the Contractor does need to obtain the approval of the Employer if costs exceed \$10/m<sup>3</sup>. The Contractor will be entitled to reimbursement of any additional costs incurred if the supply cost exceeds \$10/m<sup>3</sup> (as provided for during contract award negotiations). As costs do exceed \$10/m<sup>3</sup> (supply cost ex PVU is \$35/m<sup>3</sup> and ex TACL \$65.5/m<sup>3</sup>) such approval has been sought from, and granted by, the Employer for sources operated by TACL and PVU.

### 10.4 Imported Crushed Stone Basecourse

The Contractor has been sourcing crushed stone basecourse from a river gravel 'quarry' in Fiji. Material being supplied complies with specification requirements and required bio-security measures are routinely followed when importing such material into Kiribati. To date ~6,000 m<sup>3</sup> of basecourse material has been imported.

With the expected availability of larger quantities of local coralline materials it can be expected that reliance on imported aggregates will drop off and this will mitigate (or negate) any potential cost increases that might have occurred had 'local' materials not become available. Proper assessment of cost implications can only be made once 'local' material does become available and the Contractor confirms when 'imported' material is no longer required.

## 11. WEATHER

### 11.1 Automatic Extension of Time for Wet Weather

Specification clause 1215 provides a formula for calculating the 'Extension of Time' (EoT) associated with weather conditions that differ from the average conditions (based on available historical records). The EoT is an automatic entitlement that can go up and down during the course of the Contract but the Contract period cannot be reduced if the overall EoT becomes negative. A detailed listing of monthly weather conditions, and EoT entitlements (in calendar days), is presented at Appendix G.

During the design of the works rainfall data was collected from the Metrological Office, Betio and used to determine the 'fixed' elements in a formula established to calculate any extension of time (EoT) entitlement for weather conditions that differ from the historical 'norm'. The Contract does not permit the overall Contract duration to be reduced but negative figures can be used to off-set against those times when conditions are wetter than average and additional time does become due to the Contractor.

Data is being collected from the same station to determine the quantum of any associated EoT. For the report period weather conditions have been wetter than average and, to date, the current EoT due to rainfall stands at 'plus twenty five' (+25) calendar days.

## 12. RESETTLEMENT

The Government have been initiating the various requirements of the RP and payment of compensation to Affected Parties has been on-going since late-May 2013. The Engineer has met with the various parties involved in the implementation of the RP and has and continues to liaise with, and assist, the Employer in their dealings with the Lands Management Division (LMD).

The LMD have generally been dealing with issues in a manner that reflects the Contractors programmed needs and sections of the works are available should the Contractor request them. The overall resettlement process continues to remain at ~95% complete with those outstanding primarily related to locations where there are on-going ownership or boundary disputes (which are subject to court proceedings).

The Contract does make provision for the extent of the physical works to be set-out two weeks ahead of any construction activity so that LMD have opportunity to ensure, through site inspection, that all affected property has been properly compensated for. During this process any additional trees/crops that have to be included (those leaning into the roadway, newly planted, small and not surveyed, or missed) are identified and this is being managed so that entitlements are properly compensated.

From the Engineers' on-going discussions with LMD it became evident that some of those people who had previously 'agreed' to 'stopping' areas had a change of mind and the Engineer has worked with LMD in regards to identifying alternative positions. In some instances this has been possible whilst, in other areas, the 'stopping' area has had to be deleted. The general outcome is that some of the 'stopping' areas may not necessarily be as convenient (for 'travellers') as they might otherwise have been and this may result in vehicles stopping on-road (causing blockage to traffic) or in poorly controlled areas off-road (impacting adjacent properties). The need for such change has dropped off considerably since virtual completion of the 'resettlement' exercise (payment of compensations to AP's). If/when required, changes to stopping places will be confirmed with Lands Department, at the time Possession of Site is granted (section by section basis), and appropriate instruction provided to the Contractor.

### 13. POSSESSION OF SITE

The Contractor has requested, and the Employer has granted, Possession of Site for the following locations.

**Table 13-1: Details of 'Possession of Site' Requests**

Component	Location / Chainage	Date Requested	Granted	Comments
Office and laboratory facilities within the MPWU civil works yard in Betio.	MPWU yard in Betio	8 May 2013	3 June 2013	The Contractor accepted this as fulfilment of the Employers' obligations prior to the Engineer issuing the Contractor with an instruction to 'Commence the Works'.
Betio-Temaiku road	Ch 0+000 to 3+250	10 October 2013	10 October 2013	Contractor application dated 27 September 2013
	Ch 3+250 to 4+700	08 September 2014	15 September 2014	Needed for water main works only
	Ch 4+700 to 10+000	10 February 2014		Contractor withdrew his request 5 February 2014
	Ch 4+700 to 10+000	27 February 2014	14 March 2014	Contractor application dated 29 January 2014
	Ch 12+450 to 12+950	22 September 2014	29 September 2014	Primarily for initial coastal protection works
	Ch 19+000 to 23+900	22 April 2014	22 April 2014	Contractor application dated 27 February 2014. Date was changed from 17th April 2014 (due to Easter holiday)
Airport Road	Ch 0+000 to 2+230	10 October 2013	10 October 2013	Contractor application dated 27 September 2013
Temaiku Road	Ch 5+000 to 6+100	10 October 2013	10 October 2013	Contractor application dated 27 September 2013
	Ch 0+000 to 5+000 (exc Ch 2+200-2+450)	11 November 2013	11 November 2013	Contractor application dated 4 November 2013. Ch 2+200 to 2+450 was excluded as a possible realignment of the road was under consideration
	Ch 2+200 to 2+450	11 November 2013	4 December 2013	Contractor application dated 4 November 2013.
Bikenibeu Feeder roads	Link 04 Link 05 Link 07	20 January 2014	27 January 2014	Contractor application dated 20 January 2014

It is to be noted that clause 2.1 of the Conditions of Contract requires the Contractor to apply for 'Possession of Site' at least 14 days in advance of the actual date needed.

## 14. PROJECT COORDINATION

### 14.1 General

The Employer has now initiated separate project coordination meetings, to address issues related to any areas of potential conflict or concern, with invitations being extended to various projects and organisations, notably:

- Kiribati Adaptation Project, phase 3 (KAP-III),
- South Tarawa Sanitation Improvement Sector Project (STSISP),
- Kiribati Aviation Investment Project (KAIP), and
- Public Utilities Board (PUB – existing services)

There are other projects recently commenced in South Tarawa such as:

- Development of the University of the South Pacific campus (USP), and
- Bairiki Housing Development (BHD)

The Employer liaises separately with these projects to ascertain any implications that these projects might have on the KRRP (and vice versa). The introduction of these coordination meetings has allowed for greater interaction between the projects and further allows the Employer to provide better informed routine updates to the National Infrastructure Development Steering Committee (NIDSC).

### 14.2 Coastal works; KAP-III

Issues relating to coastal works and fresh water supply are now being managed with outcomes as highlighted within work scope issues reported on at sections 9.3 and 9.4.

### 14.3 Sanitation works; STSISP

Issues relating to works needed to facilitate future valve/hydrant replacement are now being managed with outcomes as highlighted within work scope issues reported on at section 9.5.

### 14.4 Airport works; KAIP

Issues relating to works needed to facilitate installation of security fencing are now being managed with outcomes as highlighted within work scope issues reported on at section 9.8.

### 14.5 Existing services; PUB & TSKL

Issues relating to conflict between construction activity and existing underground services have been reported on previously. Materials, ordered to assist with necessary works, have now arrived and systems are in place for service providers to draw on such materials which are stored by the Contractor.

Coordination with, and assistance from, the service providers (PUB & TSKL) has improved but it is recognised that, notwithstanding recent arrival of materials, limited resources (equipment & personnel) within each organisation does restrict their capacity to carry out necessary works in a timely manner.

Separate discussions have been held (Employer/Engineer/Contractor), towards the end of the report period, which have resulted in two 'initiatives' being considered worthy of further consideration, namely:

- Mobilisation of a separate team of resources dedicated to service repair/relocation works, and
- Raising designed road levels, say 150mm (now availability of local materials is 'imminent') where practical to do so, to mitigate conflict issues.

The Contractor has been asked to prepare a detailed cost proposal for consideration whilst the Engineer will assess issues relating to raised levels (that does need input from the Contractor in regards to local material availability and cut-off supply of imported aggregates).

#### **14.6 University development; USP**

Development works recently commenced at the USP complex do, on the basis of information informally obtained, impact on the KRRP works along the frontage (access and boundary wall) at ~Ch 7+650 on the main Betio-Temaiku road. The Employer is liaising with the developer in order to arrive at mutually acceptable arrangements.

#### **14.7 Bairiki housing; BHD**

Development works recently commenced (demolition/clearing) at each 'end' of the Bairiki town area. The only area likely to impact directly on roadworks activities is that at the western 'end' where a new roundabout intersection is to be constructed (~Ch 3+300, adjacent to Mary's Motel). From information provided there is minor encroachment of KRRP works into the BHD works (for footpath formation) and the Employer is liaising with the developer/designer in order to ensure arrangements are suitable to both projects. Installation of the new water transmission main is unlikely to have any direct impacts but has been mentioned as construction activity will be bordering (in some areas) on the proposed development sites at each 'end' of the town.



## PROGRESS ON PHYSICAL WORKS

A brief narrative is provided, in following sections, on the status of various work activities for each of the various road components within the KRRP. A schematic representation of key activities is provided as Appendix G together with a selection of site photographs.

### 15. BETIO-TEMAIKU ROAD

#### 15.1 General

##### 15.1.1 Possession of Site

The Contractor currently has 'possession of site' for the following sections of road:

- Ch 0+000 to 10+000,
- Ch 12+450 to 12+950, and
- Ch 19+000 to 23+920

##### 15.1.2 Existing Services

Investigations to assess existing underground services have been completed in the following areas:

- Ch 0+000 to 3+300,
- Ch 4+700 to 6+100, and
- Ch 22+100 to Ch 23+900

Results of the investigations are fed through to the Engineer and instruction is provided, following liaison with relevant service providers, on any required relocation works. The Contractor also coordinates any works with service authorities (particularly for power isolation).

##### 15.1.3 Entry upon Land

A separate exercise is undertaken to inspect 'general' requirements along the existing road (ie primarily resettlement issues but also other aspects which might impact on the works) prior to commencing clearing activities and this has been completed in the following areas:

- Ch 0+000 to 3+300,
- Ch 4+700 to 9+000, and
- Ch 21+000 to 23+920

There are a number of issues that have been identified for consideration, and instruction (primarily issues related to existing services), but none of these impact on clearing activities.

##### 15.1.4 Clearing and Grubbing

Clearing and grubbing has been completed in the following areas:

- Ch 0+000 to 0+400, completed
- Ch 4+700 to 8+300, completed
- Ch 21+000 to 21+500, on-going, and
- Ch 21+500 to 23+920, completed

##### 15.1.5 Road Maintenance

Road maintenance, in the areas where 'possession of site' has been granted, is being carried out on a routine basis.

#### 15.2 Drainage

##### 15.2.1 Ducting

Fibre optic ducting has been installed in the following areas:

- Ch 0+000 to 3+300,
- Ch 4+700 to 7+400, and
- Ch 21+550 to 23+900

### **15.2.2 Stormwater**

Stormwater u-drains have been installed, or are underway, in the following areas:

- Ch 6+300 to 6+540 LHS
- Ch 7+100 to 7+210 LHS (ongoing but 'on-hold'),
- Ch 23+180 to 23+440 LHS & RHS, and
- Ch 23+870 to 23+900 LHS & RHS

Progress on some sections of u-drain has been hampered by the presence of existing underground services and the Contractor continues to advise that production levels being achieved are far less than what had been planned for in their bid/programme.

### **15.2.3 Kerbing and Edge strips**

The following kerbing activities have been undertaken to date:

- Ch 0+000 to 0+080 LHS (flush edge strip)
- Ch 6+100 to 6+800 LHS & RHS (flush edge strip),
- Ch 22+000 to 22+400 RHS (raised kerb ongoing),
- Ch 22+400 to 23+100 LHS & RHS (flush edge strip ongoing),
- Ch 23+100 to 23+440 LHS & RHS (raised kerb), and
- Ch 23+440 to 23+900 LHS & RHS (flush edge strip)

## **15.3 Earthworks**

### **15.3.1 Bulk Earthworks**

No works to date – some removal of 'unsuitable' material commenced at the end of September 2014, along the Betio-Temaiku road at ~Ch 22+500. Although currently within the road pavement horizon continued testing may determine that improvements to the road subgrade will also be needed.

## **15.4 Pavement**

### **15.4.1 Sub-base**

Sub-base has been prepared in the following areas:

- Ch 0+000 to 0+400,
- Ch 4+700 to 5+500 (in progress), and
- Ch 6+100 to 6+800,

### **15.4.2 Basecourse**

Basecourse (nominal 150mm) has been completed in the following areas:

- Ch 0+000 to 0+400 (imported material),
- Ch 6+100 to 6+800 (imported material), and
- Ch 22+820 to 23+110 (coralline material)

## **15.5 Surfacing**

Surfacing (30mm asphalt) has been carried out in the following areas:

- Ch 0+000 to 0+400, and
- Ch 6+100 to 6+800 (primed only)

## **15.6 Ancillary Works**

No further works.

## 16. TEMAIKU ROAD

### 16.1 General

#### 16.1.1 Possession of Site

The Contractor currently has 'possession of site' for the following sections of road:

- Ch 0+000 to 6+100

#### 16.1.2 Existing Services

Investigations to assess existing underground services have been completed in the following areas:

- Ch 0+000 to 6+100 (necessary instructions provided to Contractor)

There has been no further activity since last quarterly report.

#### 16.1.3 Entry upon Land

A separate exercise is undertaken, to inspect 'general' requirements along the existing road (ie primarily resettlement issues but also other aspects which might impact on the works), prior to commencing clearing activities and this has been completed in the following areas:

- Ch 1+300 to 6+100 (necessary instructions provided to Contractor)

There has been no further activity since last quarterly report.

#### 16.1.4 Clearing and Grubbing

Clearing and grubbing has been completed in the following areas:

- Ch 3+200 to 6+100 but has yet to commence in other areas.

There has been no further activity since last quarterly report. Clearing has been undertaken some time ago and it is likely that re-clearing will be necessary in some areas.

#### 16.1.5 Road Maintenance

Road maintenance, in the areas where 'possession of site' has been granted, is being carried out on a routine basis. A grader is being utilised where the road has no bituminous surfacing and a gang of manual labour is available to fill in potholes, within surfaced sections, when conditions require.

### 16.2 Drainage

#### 16.2.1 Ducting

Ducts for future fibre optic cable (including jointing chambers), and cross-road ducts, have been installed from Ch 5+000 to 6+100 (RHS).

There has been no further activity since last quarterly report.

#### 16.2.2 Stormwater

Stormwater culverts have been installed within the section from Ch 5+000 to 6+000. Inlet/outlet structures are still required.

There has been no further activity since last quarterly report.

#### 16.2.3 Kerbing and Edge strips

The following kerbing activities have been undertaken to date:

- Ch 4+600 to 4+800 LHS (flush edge strip), and
- Ch 4+800 to 5+600 LHS & RHS (flush edge strip)

### **16.3 Earthworks**

#### **16.3.1 Bulk Earthworks**

Excavation of unsuitable material, and backfill with approved fill, has been completed from Ch. 5+950 and 6+040 where it was necessary to widen the existing road in an area of soft/swampy ground conditions.

There has been no further activity since last quarterly report.

### **16.4 Pavement**

#### **16.4.1 Sub-base**

The Contractor has prepared sub-base from Ch 5+400 to 5+600 and, following satisfactory inspection and testing, the section has been approved to 'cover up' with basecourse.

There has been no further activity since last quarterly report.

#### **16.4.2 Basecourse**

Basecourse (nominal 150mm) has been completed in the following areas:

- Ch 5+400 to 5+600 (imported material)

Works to date have been restricted to 'trialling' of different material types (AP20/AP40) prior to confirmation of supply needs.

There has been no further activity since last quarterly report.

### **16.5 Surfacing**

Surfacing (30mm asphalt following prime coat) has been carried out in the following areas:

- Ch 5+400 to 5+500 (asphalt)
- Ch 5+500 to 5+600 (prime)

Works to date have been restricted to 'trialling' of different prime treatments, and proposed asphalt design mix, prior to confirmation of requirements.

There has been no further activity since last quarterly report.

### **16.6 Ancillary Works**

No works to date.

## **17. AIRPORT ROAD**

### **17.1 General**

#### **17.1.1 Possession of Site**

The Contractor currently has 'possession of site' for the following sections of road:

- Ch 0+000 to 2+300

#### **17.1.2 Existing Services**

Investigations to assess existing underground services have been completed in the following areas:

- Ch 0+000 to 2+300 (necessary instructions provided to Contractor)

No further works required on this road.

#### **17.1.3 Entry upon Land**

A separate exercise is undertaken; to inspect 'general' requirements along the existing road (ie primarily resettlement issues but also other aspects which might impact on the works), prior to commencing clearing activities and this has been completed in the following areas:

- Ch 0+000 to 2+300 (necessary instructions provided to Contractor)

No further works required on this road.

#### **17.1.4 Clearing and Grubbing**

Clearing and grubbing has been completed from Ch 0+000 to Ch 2+300.

No further works required on this road.

#### **17.1.5 Road Maintenance**

Road maintenance, in the areas where 'possession of site' has been granted, is being carried out on a routine basis. A gang of manual labour is available to fill in potholes, within surfaced sections, when conditions require. The vast majority of this road has received the new asphalt surfacing and hence maintenance of the 'existing road' is now greatly reduced.

### **17.2 Drainage**

#### **17.2.1 Ducting**

Ducts for future fibre optic cable (including jointing chambers), and cross-road ducts, have been installed from Ch 0+000 to 1+850 (LHS).

No further works required on this road.

#### **17.2.2 Stormwater**

Stormwater culverts have been installed at Ch 2+000. Inlet/outlet structures are still required.

No further works required on this road.

#### **17.2.3 Kerbing and Edge strips**

Concrete edge strips (flush with the road surface) have been installed from:

- Ch 0+050 to 1+900 (LHS & RHS)

### **17.3 Earthworks**

#### **17.3.1 Bulk Earthworks**

No works to date.

## **17.4 Pavement**

### **17.4.1 Sub-base**

No works required.

### **17.4.2 Basecourse**

Basecourse has been prepared, by regulating the existing basecourse with coralline material, in the following areas:

- Ch 0+050 to 1+900

### **17.5 Surfacing**

Asphalt surfacing has been placed, in the following areas:

- Ch 0+050 to 1+900

### **17.6 Ancillary Works**

No works to date.

## **18. BUOTA ROAD**

### **18.1 General**

No works to date.

### **18.2 Drainage**

No works to date.

### **18.3 Earthworks**

No works to date.

### **18.4 Pavement**

No works to date.

### **18.5 Surfacing**

No works to date.

### **18.6 Ancillary Works**

No works to date.

## **19. BETIO FEEDER ROADS**

### **19.1 General**

No works to date.

### **19.2 Drainage**

No works to date.

### **19.3 Earthworks**

No works to date.

### **19.4 Pavement**

No works to date.

### **19.5 Surfacing**

No works to date.

### **19.6 Ancillary Works**

No works to date.



## **20. BAIRIKI FEEDER ROADS**

### **20.1 General**

No works to date.

### **20.2 Drainage**

No works to date.

### **20.3 Earthworks**

No works to date.

### **20.4 Pavement**

No works to date.

### **20.5 Surfacing**

No works to date.

### **20.6 Ancillary Works**

No works to date.

## **21. BIKENIBEU FEEDER ROADS**

### **21.1 General**

#### **21.1.1 Possession of Site**

The Contractor currently has 'possession of site' for the following road links:

- Link (04),
- Link (05), and
- Link (07)

#### **21.2 Drainage**

No works to date.

#### **21.3 Earthworks**

No works to date.

#### **21.4 Pavement**

No works to date.

#### **21.5 Surfacing**

No works to date.

#### **21.6 Ancillary Works**

No works to date.

## **22. BETIO REPAIRS**

### **22.1 General**

No works to date.

### **22.2 Repair Area 1**

No works to date.

### **22.3 Repair Area 2**

No works to date.

### **22.4 Repair Area 3**

No works to date.

### **22.5 Repair Area 4**

No works to date.

### **22.6 Repair Area 5**

No works to date.

### **22.7 Repair Area 6**

No works to date.

### **22.8 Repair Area 7**

No works to date.

## **23. BETIO CAUSEWAY BRIDGE**

### **23.1 General**

No works to date.

### **23.2 Sub-structure**

No works to date.

### **23.3 Super-structure**

No works to date.

## 24. COASTAL PROTECTION WORKS

### 24.1 General

### 24.2 Betio-Temaiku Road

Coastal protection works, consisting of sand cement bags, has been undertaken in the following areas:

- Ch 4+950 area, complete
- Ch 5+200 area, complete,
- Ch 5+500 area, complete
- Ch 6+900 area, complete
- Ch 9+250 area, nearing completion

### 24.3 Temaiku Road

No works to date.

### 24.4 Airport Road

Coastal protection works consisting of sand cement bags has been completed from:

- Ch 0+400 to 0+435 (LHS), and
- Ch 0+800 to 2+000 (LHS)

These works are now essentially complete.

## **25. WATER SUPPLY**

### **25.1 General**

### **25.2 Pipeline**

The new 200mm water main has been installed in the following areas of the main Betio-Temaiku road:

- Ch 0-120 to 3+200, and
- Ch 4+700 to 7+400

### **25.3 Chambers and Valves**

Chambers installed, and status of 'fittings' works, follows below:

- Ch 0+260 (valves installed)
- Ch 2+300 (valves installed)
- Ch 6+550 (valves installed), and
- Ch 7+000 (valves installed)

### **25.4 Testing and Commissioning**

Testing of the water main has been completed from Ch 0-120 (ie ~120m to the Betio side of Ch 0+000) to Ch 3+200 and 4+700 to 7+000 with satisfactory results.

**ISSUES RESULTING FROM THE WORKS****26. HEALTH & SAFETY****26.1 General Works**

The Contractor has provided a formal document outlining the procedures that will be put in place to provide for the health and safety of its' employees and other visitors to areas where work activities are on-going. Issues related to safety are dealt with in a number of ways, notably through:

- Site safety inductions (367 to date),
- Pre-start meetings (2669 held to date),
- Toolbox meetings (359 to date),
- Safety inspections (72 to date), and
- Job Safety & Environmental Hazard Analysis (18 to date)

The Contractor has arranged for documents used in many of the above have been translated into the local language. A 'Safety Committee' has been established by the Contractor, from within his own workforce, and the committee has met on 7 occasions to date. The Contractors procedures are subject to 'internal' audit of which there have been 3 to date. The Contractor has provided audit reports, which appear very thorough, to the Engineer with advice that action is being taken where deficiencies were identified (predominantly procedural issues).

There have been a number of minor incidents/accidents to date although none have resulted in serious injury. Pertinent statistics reported by the Contractor are as follows:

**Table 26-1: HSE Statistics**

<b>Index</b>	<b>Target</b>	<b>To Date</b>
Injuries or illness to anyone associated with company operations	0	9
Incidents due to change	0	1
Prosecutions	0	0
Significant reduction in Golden Rules breaches and At Risk behaviour	0	0
Lost time incident frequency rate (LTIFR) <sup>1</sup>	<0.55	0

**1 - LTIFR = No. LTI's x 1 million / No. hours worked**

Although disappointing, and unfortunate, the Contractor has had to begin dismissing employees as a result of unacceptable alcohol related incidents. The Contractor has initiated a 'zero tolerance' approach to being 'on site' under the influence of alcohol and these rules apply to both local and expatriate staff.

The Contractor has arranged, with the Kiribati Red Cross, to conduct 'work place' First Aid training courses for selected members of the senior workforce (the Engineer has been invited to send selected members of his staff) and this is an on-going process.

**26.2 HIV/AIDS Campaign**

Required IEC campaigns have been conducted, by the Kiribati Family Health Association (KFHA), during the report period (being run bi-monthly) with the programmes being well attended and received. To date there has been a total of 9 campaigns undertaken (separate campaigns are now being run for new employees and those who have previously attended earlier campaigns). To date over 190 persons have attended the various presentations that have been arranged.

The Contractor has engaged the KFHA to undertake required HIV-AIDS IEC campaigns and presentations continue on a bi-monthly basis. KFHA have provided reports (on their presentations and baseline survey) and there has been improvement in the reports provided - this has been acknowledged by the Donors who have

accepted the reports (but have asked for further data collection improvements). Templates suggested by the Donors (with adaptation to Kiribati conditions) have been forwarded to KFHA for consideration and action as appropriate.

### **26.3 Unexploded Ordnance**

Following successful negotiations the Contractor engaged 'Milsearch' to carry out necessary UXO survey activities. Milsearch provided a methodology for their intended approach and this was incorporated into the (Contractors') CEMP. Following a review process the CEMP was approved and, subsequently, surveys have been completed and a 'post activity report' (text only, appendices not included), provided at Appendix I, has been submitted which documents all of the items discovered during the exercise. All items discovered have been stored in a 'bunker within a bunker' at the Betio Police Station compound and have deemed to be in a safe condition by Milsearch (provided not tampered with). The UXO report has been provided to the Employer (and the Ministry of Foreign Affairs) so that arrangements can be made for disposal (normally undertaken by visiting military forces from America, Australia or New Zealand).



## 27. ENVIRONMENT

### 27.1 Environmental Management Plans

The latest Environmental Management Plan (EMP rev 4), prepared by the 'Design & Supervision Consultant' (DSC), was approved in December 2013 and remains current. The Engineer has subsequently prepared an updated EMP (rev 5), primarily to address some issues relating to the use of 'local' aggregates, and this remains under the review process. Following various communications it is expected that some issues will be further discussed, during the pending donor mission visit (in early October), following which the revision 5 EMP can be finalised.

The Contractor has provided their Contractors' Environmental Management Plan (CEMP), as reported at section 2.2.12. It has previously been recognised that the CEMP is a 'living' document that will be updated, to address specific needs, ahead of when certain specific activities are scheduled to commence. To that end the CEMP (version 'H' of which was approved for the purposes of commencing works) has been updated with version 'I' being approved ahead of asphalt plant operation and version 'J' prepared to address a range of issues relating to coastal works, UXO surveys, bridge works and water use/management. CEMP (version K), a further update to incorporate specific UXO procedures, is current at the end of this report period.

As previously reported the CEMP is supported by other documentation, notably:

- Job Safety & Environmental Hazard Analysis (JSEA), and
- Environmental Protection Instructions (EPI)

### 27.2 Imported Materials

The Contractor continues to import 'processed aggregates' to Tarawa (barged and containerised shipments), notably:

- sands & aggregates for concrete works, and
- aggregates for basecourse and surfacing works

As previously reported, with the imminent availability of local aggregates for basecourse the need for imported basecourse aggregates is likely to no longer be required in the near future.

Biosecurity arrangements, as previously reported, continue to be carried out on a routine basis and fumigation certificates are provided for each consignment (and for the different material types where necessary). On arrival in Kiribati the importer is required to provide the Customs and Port officials with the necessary certification prior to being allowed to offload any materials.

Copies of certificates, for the current report period, are included at Appendix J.

### 27.3 Monitoring and Incidents

Monitoring of environmental compliance is carried out by the Engineer, the Contractors HS&E officer, the Contractors internal HS&E auditing and MELAD/ECD inspections. ECD have confirmed that they do not provide reports on inspections carried out if compliance with EL conditions is being achieved. ECD have provided one compliance 'notice' to the MPWU (holder of the EL) although the 'incident' was more as a result of misunderstanding than non-compliance.

Few 'environmental' incidents have been recorded to date and, apart from some minor events (including hydraulic oil spillage and bitumen/prime run-off), there have been no major issues of concern, arising from the Contractors' activities, which have had negative impact of the local environment. Where spillage of 'hazardous' materials have occurred they have been dealt with in accordance with the Contractors CEMP provisions (contaminated material is collected and stored for disposal off-island).

The Contractors activities are monitored, from an environmental perspective, by the Engineers' Environmental Inspector with separate dedicated reports being provided on a monthly basis.

## 28. QUALITY CONTROL

### 28.1 General

The Contractor has provided a Quality Control Plan (QCP) but, as reported at section 2.2.12, the Engineer considers that some update will need to be carried out to align the document with particular requirements of the Contract. The Engineer's QA Engineer continues to liaise with the Contractor on this matter.

The Contractor has now engaged a 'laboratory manager (March 2014) and has advised that he will be preparing a 'Laboratory Management Plan' (LMP) that will be specific to the requirements of the KRRP. The LMP has not yet been submitted.

The Contractor is proceeding with some permanent works activities but it has been made clear to him that works cannot be 'covered up' until such time as proper quality control has been exercised and the works are considered acceptable. The Engineer has emphasised to the Contractor, on a number of occasions, the need to provide:

- Laboratory/field test result data sheets on a routine basis, and
- Certificates for materials delivered to the site

There has been some improvement in the submission of quality control documentation from the Contractor however there is still room for further improvement and the Engineer continues to discuss the issue with the Contractor.

With the recent increase in pavement and surfacing works the provision of test results for key components of the physical works have, as a consequence, started to become available. To date results achieved have generally been satisfactory and in accordance with specification requirements. Insufficient results are currently available for statistical analysis however, as soon as sufficient results do become available summary tables/charts will be prepared for inclusion in subsequent reports.

### 28.2 Testing Approach

Materials quality control is being undertaken in three ways:

- testing by the Consultant's Audit Laboratory independently, or
- in conjunction with the tests being carried out by the Contractor's laboratory, or
- direct supervision of the Contractor's technicians

In addition calculation audits of the Contractor's test sheets is undertaken on a random basis.

### 28.3 Physical Works

The works carried out during this reporting period are briefly described in the following sections together with comment on pertinent issue and results achieved.

#### 28.3.1 Trench Backfill

The previously established routine of testing layers in trench backfill for U-drains, fibre optic cable and water main installation using the nuclear densometer in back-scatter mode continues in a satisfactory manner.

The matter relating to limited testing in trench works along Betio Causeway was overcome at the suggestion of the Engineer where a section of water main trench was 'opened up' and the trench being backfilled and compacted in layers of 150mm compacted thickness with in-situ density tests being carried out on each layer using both the sand replacement method and the nuclear densometer in both direct and back-scatter mode; this would enable full correlation by each method of test to determine actual degree of compaction and whether a correction to either back-scatter or direct nuclear readings are necessary in accordance with AASHTO T238. These related tests would also demonstrate which nuclear densometer mode provides the more accurate results in the type of backfill material (generally sand) and within a trench. Following completion of satisfactory backfilling and testing by conventional means several DCP tests were undertaken along the trial section of trench to provide a known parameter that was compared along other sections of trench where in-situ density testing was omitted. The foregoing was carried out during August 2014 and the

results were satisfactory. NDM Back-scatter mode was found to be acceptable and this has been adopted for all trench backfill works.

### **28.3.2 Kerb Backfill**

Initially no testing of backfill to slip form or cast-in-place kerbing was undertaken by the Contractor along Airport Road, however, similar to the trench backfill, in-situ density testing commenced during this period using the nuclear densometer in back-scatter mode. The method described above for trench backfill, where testing had been omitted, was undertaken toward the latter part of the reporting period with a reasonable correlation between DCP values and in-situ density results at about Ch 1+665 RHS along Airport Road and this was carried through to other sections along Airport Road at Ch 0+045 to 1+280 (LHS & RHS), where testing had not been undertaken. The results of the DCP tests indicated that the backfill to kerbs satisfied the Specified requirements.

### **28.3.3 Coralline Sub-base**

Coralline sub-base was constructed on the Betio-Temaiku Road from Ch 6+100 to 6+780 and this conforms to Specification requirements, with relative compaction being on average 104.3% with a range of between 97.0% and 111.6%. The sub-base was primarily a mixture of reworked in-situ material with some additional coralline material imported for regulating.

Laboratory CBR value was determined as 75% with an MDD varying between 1.84 and 1.95 Mg/m<sup>3</sup> with an OMC of 16 to 18%.

### **28.3.4 Coralline Basecourse**

Along the Airport road, Ch 0+380 to 1+380, the Contractor reworked the existing in-situ material, together with some additional regulating material, and results have been generally satisfactory following some re-rolling and re-testing over part of the section. The average relative density of the approved area was 101.3% with a range of 96% to 113.9%.

In-situ density testing was carried out using the sand replacement method. It has been noted that the laboratory compaction curves for this material tend to be very flat, almost concave rather than convex and following a joint investigation with the Contractor this appears to be normal for much of this particular material.

Longitudinal and transverse straight edge readings were undertaken every 20m along both the left and right sides of the carriageway with readings being within specified tolerance.

### **28.3.5 Crushed Stone Basecourse**

Basecourse was constructed on the Betio-Temaiku Road from about Ch 6+100 to Ch 6+800 using crushed aggregates sourced from a river gravel quarry in Fiji. The material is crushed in Fiji and shipped by barge to Kiribati where it is off-loaded, stockpiled and, following satisfactory testing, applied to the road as basecourse.

In-situ density testing using the nuclear densometer was determined after compaction and found to be in conformance with the Specification with an average relative density of 103.7% and a range of 100% to 106.2%. The MDD of the material was 2.49 Mg/m<sup>3</sup> with a CBR value exceeding 100%.

Surface tolerance was measured longitudinally and transversely every 20m along each side of the single carriageway using a 3 metre straight edge with all results conforming to the Specification.

### **28.3.6 Prime Coat**

This was undertaken using a calibrated and certified bitumen distributor following preparation to satisfactory condition of level, surface regulatory and density of the basecourse, including brushing to remove loose dust from the surface. Due to the time gap between basecourse preparation, coupled with inclement weather, some minor damage to the base course surface did occur together with some over-brushing near the kerbs causing loss to the base course. The Contractor effected remedial works ahead of placing the final surfacing.

The measured spray rate of about 0.46 L/m<sup>2</sup> has been satisfactory in providing suitable sealing and penetration of the base course surface together with providing a suitable layer for adhesion by the subsequent pavement layer to the base course.

#### **28.3.7 Asphalt Pavement Laying Trials**

During construction of a section of the Airport road from Ch 0+520 to Ch 0+960 the Contractor's combination roller had mechanical problems and the compaction was carried out using a steel tandem roller for breakdown and finishing, with a PTR being used in between. It was noted that, due to lack of the normally used additive for the water, poor lubrication of the PTR tyres took place and paving particles picked up. Additionally initial mat density testing indicated non-compliance with the specification; however following advice from the Engineer, further rolling was undertaken during the hottest period of a following day with the re-tests indicating compliance.

The above led in September 2014 to the Contractor instigating a further trial on Temaiku Road between km 5+550 to km 5+610 to compare the results of two different combinations of rollers and the use of an alternative tyre lubricant: vegetable oil.

##### *Trial 3:*

The normally used pattern of breakdown rolling using a steel tandem roller, followed by the combination roller with 3 passes and ending with the tandem steel roller for finishing was undertaken on the RHS. For the LHS it was intended that breakdown rolling would be carried out with a PTR with continuation of the PTR for further compaction and a tandem steel roller for finishing. The PTR did not perform well in breakdown rolling and the roller was removed from the mat and following some repairs to the mat (following damage caused by the PTR) the combination roller was used to replace it. During the repairs the mat cooled considerably.

The cooking oil was satisfactory as an alternative lubricant but as the application method was crude a higher than expected coating on the tyres occurred and this caused minor flushing and a reduction in the surface texture of the mat as confirmed by the sand circle test. Despite the oil the PTR tyres still picked up aggregate particles from the mat and this was attributed to the poor application of the oil.

No record was made by the Contractor on the number of passes of each type of roller and no plateau testing was undertaken on the mat during any of the rolling.

The average mat density for both methods was almost identical at 99% and 98% relative with about the same range, for each section of mat, of about 97% to 100%. The mixture complied with the mix design except for a slighter higher flow than specified, which would not be expected to cause any problems to the life of the pavement.

The use of a PTR for breakdown rolling is not normally practised as steel rollers carry this out to a better standard leaving the mat both initially compacted and the surface closed up. If this had been done it is less likely that the PTR would have picked up aggregate particles from the mat.

This trial was poorly directed by the Contractor and little information was gained from it. The purpose of determining a further pattern of rolling in case of future difficulties with the combination roller was not achieved. The Engineer has recommended that a further trial be carried out in the near future with better control and with breakdown rolling being achieved using a steel roller.

#### **28.3.8 Asphalt Surfacing Construction**

Asphalt surfacing was undertaken both on Airport Road and the Betio-Temaiku Road during this period. The section on the Main Road at Nanikai Causeway (Ch 6+100 to Ch 6+800), although ready for asphalt surfacing for some time, was delayed due to awaiting the arrival from New Zealand of paver screw extensions necessary to pave the widths required at this location.

Samples taken from the paver and at the plant during construction along Airport Road indicated a binder content of 6.9% with Marshal plugs indicating that the specimens complied with the Specification apart from flow which was recorded on average to be 4.1mm (the specified maximum being 4mm). It is not considered that this will adversely affect the performance of the pavement, however the Contractor was instructed to investigate his production in order to have all properties within the required values given in the Specification before paving at Nanikai Causeway and this was achieved.

Samples taken from the site during construction at Nanikai Causeway indicated a reduced binder content at 6.7% compared to previous production with Marshall plugs indicating compliance with the Specification, particularly with regard to flow values.

The cores taken provide an average relative density compared to the target density set by the Marshall plugs to be in the range of 94.6% to 101.4% with an average of 98.6%. The depth of asphalt surfacing measure from the cores gave an average of 37mm and a range of 27 to 64mm; the lower value conforming to the requirements for minimum value given in the specification table 72095/1 (acceptance limits).

The regulatory of the pavement was checked using a 3 metre straight edge both transversely every 20m and longitudinally continuously and found to conform to the specified requirements.

Sand circle tests were undertaken and these indicated the surface texture depth was not measurable. This is not considered uncommon for this type of mix (for a thin asphalt layer) and is not seem as being problematic.

## 29. TRAFFIC MANAGEMENT

The Contractors' 'Traffic Management Plan' (TMP) continues to be effective and all work sites are provided with advance warning signs together with barriers/cones and stop/go boards (as may be appropriate). The Contractor is working closely with the KPS (who are more than happy to assist) on traffic management matters.

## 30. VARIATIONS

A summary of all Contract variations (and their status) is provided at Appendix K, together with formal communications relating to instructed variations during the report period. Each has been assigned a 'variation' number for future reference, including expected variations that are under discussion but have not yet been finalised and authorised.

### 30.1 Variation No.1 - Work Scope (1) Changes

The variation order was issued on 9th September 2013 and covers various work scope changes as previously reported.

The financial impact of this variation is estimated to be a reduction of AUD 1.35 million.

### 30.2 Variation No.2 – Local Material Supply

A potential contract variation to cover issues discussed at section 10.1.

Following the deletion of pavement works across the Betio causeway, and the prospect of raising road levels to mitigate service conflict issues, there will be significant changes to material and mass-haul requirements and it is likely that the major impact of having local materials available will be incorporated into a separate/new variation (labelled as no. 16).

As an interim measure the Contractor has obtained local materials from the PVU. Estimated financial impact, on the basis of ~4,000 m3 supply, would amount to ~AUD 100,000.

### 30.3 Variation No.3 - Betio Causeway Repairs

The variation order was issued on 9th September 2013 and covers remedial works needed to the existing concrete revetment protection across the Betio Causeway as previously reported.

Estimated financial impact was to increase the contract price by AUD 80,000 although the cost of actual works has amounted to ~AUD 40,000.

Given the on-going deterioration of the causeway revetment protection consideration does now need to be given towards a longer term solution in order to ensure continuing stability of the causeway (as reported at section 9.2). The Donors have indicated that any such work will not be carried out under KRRP.

### 30.4 Variation No. 4 - Coastal Protection Works

There have been a number of components to variation 4 for the inclusion, exclusion and modification (sometimes by site instruction) with an outcome as described under work scope issues described at section 9.3.

Following completion of works along Airport road (Ananau causeway) and at a number of sites along the Betio-Temaiku road, together with assessment of remaining works, the overall financial impact of all the changes made (excluding the Temaiku road 'walls') is not likely to be significant with additional costs not expected to exceed AUD 50,000.

The Engineer has highlighted an on-going need for 'maintenance' works to existing seawalls (road side as well as water side) which is currently not included in any KRRP work scope. The Employer has advised that this should be addressed under KAP and has brought it to their attention.

### 30.5 Variation No 5 - Water Valve Fittings

The variation order was issued on 9<sup>th</sup> September 2013. Its purpose is to standardise valves that will be installed under KRRP water supply items with those being planned for installation under KAP-III.

The financial impact will be an increase of AUD 11,575.

### 30.6 Variation No. 6 - Solar Street Lighting - LED lighting

The variation order was issued on 4<sup>th</sup> December 2013 and covers the change in type of street lighting from 'sodium' based to 'LED' based technology, as previously reported.

There is no financial impact from this variation.

### **30.7 Variation No. 7 - Valve Chambers (KAP)**

Issues are as reported at section 9.4 and an instructed variation has been delivered to the Contractor.

Costs are not expected to be significant and have been assessed at ~AUD 20,000 pending provision of, and agreement to, new unit rates requested from the Contractor.

### **30.8 Variation No. 8 - Valve Chambers (STSISP)**

Issues are as reported at section 9.5 and an instructed variation has been delivered to the Contractor.

Costs are not expected to be significant and have been assessed at ~AUD 120,000 (assuming only 12 of the 24 chambers are required) pending provision of, and agreement to, new unit rates requested from the Contractor.

### **30.9 Variation No. 9 – Basecourse Specification**

The variation order was issued on 29<sup>th</sup> March 2014, to cover a change in basecourse specification as reported at section 10.4, subject to the Contractors' acceptance of various conditions. The Contractor has accepted those conditions which provided for no additional costs as a direct result of the change being accepted.

There is no financial impact from this variation.

### **30.10 Variation No. 10 – Deferral of Betio Causeway Pavement**

The variation order was issued on 31<sup>st</sup> March 2014 and covers the deferral of pavement works, across the Betio causeway, as reported at section 9.2.

The Contractor had provided an updated programme showing completion of works on 10th July 2015 ie a delay of 50 calendar days. This was been assessed by the Engineer and a recommendation provided to the Employer which, if agreed to, would have resulted in an increased cost of AUD 571,366. The Employer subsequently decided to delete Betio causeway works and this variation has been superseded by variation no. 12 instructing such action.

There is therefore no financial impact from this variation.

### **30.11 Variation No. 11 – Prime and Tack Coat Requirements**

A variation was instructed, on 19<sup>th</sup> July 2014, to provide for a prime coat (with blinding aggregate) and reduce the amount of 'tack coat'.

There was expected to be no financial impact from this variation (overall impact of changes was expected to be cost neutral) however the Contractor has subsequently sought new unit rates for the proposed activities and these are under review. If the Contractor proposed rates are adopted that additional cost would amount to ~AUD 400,000.

### **30.12 Variation No. 12 – Deletion of Pavement Works on Betio Causeway**

This variation, issued on 26<sup>th</sup> July 2014, followed reconsideration of issues that had led to the deferral of works, as instructed under variation no.10, and the subsequent contractual claim submitted by the Contractor.

The Employer provided advice that all road pavement works, bituminous surfacing, and road marking works on Betio Causeway from chainage 0+400 km to 3+200 km be deleted from the contract. Works from chainage 3+200 to 3+300 (new Bairiki roundabout) were to be retained, as were modifications/repairs to the causeway bridge and subsequent completion of the new water transmission main, with programming of associated works at the Contractor's discretion and convenience within the overall Time for Completion.

Cost implications associated with this variation were assessed at savings of ~AUD 1.33 million.

### **30.13 Variation No. 13 – Work Scope (2) Changes**

Due to on-going uncertainties over certain work scope issues, and the potential impact on financial arrangements, the Employer undertook a review of the KRRP in order to assess a range of options, and associated costs, that could be presented to Cabinet for consideration. Following Cabinet review a decision was made and details of the required changes, as instructed to the Contractor on 28<sup>th</sup> July 2014, are summarised below:



### **Bairiki**

- Asphalt surfacing works, to 'rework' areas of the Bairiki 'loop roads' (north/south), and Single Bitumen Surface Treatment (SBST) to the remaining lengths, are to be deleted and works amended to include reconstruction full length (including the short extension to the Bairiki wharf) with a Double Bitumen Surface Treatment (DBST); and
- The wharf area is to be constructed with a concrete geocell detail (100mm) specified for feeder roads in Betio and Bikenibeu.

### **Temaiku**

- Due to expected water inundation at Coastal Protection sites 10 and 11, the pavement adjacent to the proposed seawall works is to be constructed with concrete (to replace the granular basecourse and asphalt surfacing);
- The majority of the asphalt surfacing in other areas is now to be replaced with a Double Bitumen Surface Treatment (DBST). The more heavily trafficked locations at each end (Ch 0+000 to Ch 0+750 and Ch 5+400 to Ch 6+100) will remain as asphalt construction; and
- The currently scoped seawall works at ~Ch 1+500 (Site 11) and ~Ch 2+400 (Site 10) are to be deleted and replaced with the seawalls as designed by Tonkin & Taylor International (TTI).

### **Bonriki International Airport**

- As an 'extension' to the 'Airport' road works a realignment of the existing road at the western end of the Bonriki International Airport runway will be included in the KRRP. Works will include pavement, surfacing (asphalt) and miscellaneous ancillary works (road markings/furniture together with speed humps and lighting).

Cost implications associated with this variation were assessed at ~AUD 1.90 million pending provision of, and agreement to, some new unit rates requested from the Contractor.

#### **30.14 Variation No. 14 – TSKL covers**

A number of existing 'chambers', for telecommunications assets across the Betio causeway, had covers that were either damaged or had lids that were so badly rusted they could not be opened. The Employer asked the Engineer to design replacement covers following which instructions were provided, to the Contractor, for their procurement and fixing.

Costs are not expected to be significant and have been assessed at ~AUD 20,000 (for 12 cover slabs) pending provision of, and agreement to, new unit rates requested from the Contractor.

#### **30.15 Variation No. 15 – KOIL building**

A variation is under consideration for the demolition and rebuilding of a small operations building used by KOIL at their fuelling depot located within the Bonriki Airport complex. The building does pose a potential safety hazard (due to roof overhang and restricted lines of visibility) and the Employer is liaising with KOIL in regards to necessary arrangements.

Costs associated with this variation are not expected to be significant and have been assessed at ~AUD 10-15,000.

#### **30.16 Variation No. 16 – Initiatives to deal with Existing Services**

A variation is under consideration for initiatives to deal with conflicts that continue to arise between construction activities and existing underground services. Options, including mobilising additional resources and raising road levels, have been informally discussed although further discussion, and detailed particulars, will be required before firm decisions can be made.

Costs associated with this variation, which incorporates the impact of sourcing materials locally (as previously described under variation no.2) have been quickly assessed with a 'ball park' figure being of the order of ~AUD 0.8 million.

**30.17 Variation No. 17 – KAP chamber covers**

Similar to variation no.14 consideration is being given towards the provision of new covers to some existing chambers along the existing water transmission main running from Teorareke to Bonriki. The Employer is liaising with KAP-III over requirements and financial arrangements.

Costs associated with this variation are not expected to be significant and have been assessed at ~AUD 80,000.

**30.18 Variation No. 18 – Airport road ‘extension’**

To facilitate installation of security fencing at the Bonriki International Airport the Employer has instructed that the existing road, at the western end of the main runway, be realigned to avoid conflict with the proposed new fence line. Preliminary designs have been prepared and arrangements have been made to carry out setting out to ensure any potential conflict is avoided.

Costs associated with this variation have been assessed at ~AUD 200,000.

## 31. CLAIMS

### 31.1 General

The Conditions of Contract follow the 'Bank Harmonised Edition' of the Conditions of Contract for Construction prepared and copyrighted by the International Federation of Consulting Engineers (*Federation Internationale des Ingenieurs-Conseils*, or FIDIC). The Conditions of Contract establish the respective obligations of the Employer and Contractor and provide for a 'shared risk' approach for the implementation of the necessary works. It is not uncommon, particularly on large civil engineering works, for actual conditions and circumstances to be different to what might have been expected and the Conditions of Contract (supported by any Particular or Special Conditions), provide a mechanism for dealing with such situations (including the establishment of timelines for provision and review of supporting particulars). Should the Contractor (or Employer) consider that he has incurred delay or additional cost, as a result of any changed condition or circumstance, a contractual 'claim' may be submitted for any resulting additional time or cost and this will then be assessed, initially by the Engineer, in accordance with the provisions of the Contract.

Costs associated with 'delays' are provided for under Specification clause 1303 and specifically Pay Item 13.01 (b) 'Maintenance of the Contractors Establishment' which stipulates that "In the event of an extension of the Contract period being granted by the Engineer (excluding any extension for which the Contractor is not entitled to costs, eg. extensions pursuant to Clause 1215 of the Specification) then payment shall be due at the lump sum rate per month for an extension not exceeding three months. Thereafter, costs associated with time extension shall be determined as provided for by the contract."

The amount assigned, by the Contractor, against Pay Item 13.01(b) is Australian Two Hundred and Ninety Thousand Nine Hundred and Five Dollars and Seventy-Nine Cents (AUD 290,905.79) per month. The inclusion of time related costs (for performance bond and certain other BoQ items) would raise this figure to around Australian Three Hundred and Fifty Thousand Dollars (AUD 350,000) per month ie an amount of ~\$12,000/day (for each day of delay). It is to be noted that such amount would need to be re-negotiated with the Contractor for delays beyond the three (3) month time span stipulated.

### 31.2 Potential

There are a number of Contract variations pending, as reported at section 30, and if/when they are issued to the Contractor there is some likelihood that some will attract Contractual claims (for additional time and associated costs).

### 31.3 Notices & Status

The Contractor has provided a number of 'notices of claim'. For future reference all contractual 'claims' are assigned a 'claim number' and a summary of their status is provided at Appendix J. The Contract requires that the Engineer seek the specific approval of the Employer before providing the Contractor with any determination on any claims issues. If the Employer/Engineer fail to provide a determination within the required timeline then the Contractor can refer the issue to the Dispute Board. Each of the claims are briefly described hereunder:

#### 31.3.1 Claim No.01; Work Scope (1)

Issues of a changed work scope, leading to the Contractor providing notice of a claim on this issue (NTC 047 dated 7<sup>th</sup> June 2013) have now been finalised (under variation no.01). At this time the Contractor has provided no indication that this claim will be pursued.

#### 31.3.2 Claim No.02; Betio Causeway Remedial Works

Issues related to remedial works required to damage of the concrete revetment protection along the causeway, leading to the Contractor providing notice of a claim on this issue (NTC 029 dated 22<sup>nd</sup> August 2013), have now been finalised (under variation no.03). At this time the Contractor has provided no indication that this claim will be pursued.

### **31.3.3 Claim No.03; Damage to Betio Causeway**

Issues related to three localised failures in the Betio causeway concrete revetment protection, leading to the Contractor providing notice of a claim on this issue (NTC 103 dated 3<sup>rd</sup> February 2014) have largely been dealt with, through works undertaken by the Contractor and the MPWU, but the MPWU have yet to fully complete more robust repairs as a 'follow up' (there are signs of further scour now taking place). At this time the Contractor has provided no indication that this claim will be pursued.

### **31.3.4 Claim No.04; Deferral of Pavement Works across Betio Causeway**

Issues related to deferral of pavement works across the Betio causeway, instructed as variation no.10, led to the Contractor providing notice of a claim on this issue (NTC 132 dated 25<sup>th</sup> March 2014). The Contractor has pursued this claim and provided detailed particulars for consideration.

Following review the Engineer arrived at a determination and accordingly provided a recommendation to the Employer. Subsequently the Employer decided to delete pavement/surfacing works across the causeway and hence the claim was rejected. It is unlikely that this claim will be pursued however the Contractor has lodged a new claim associated with the deletion of the said works.

### **31.3.5 Claim No.05; Introduction of VAT**

Issues related to introduction of VAT has led to the Contractor providing notice of a claim on this issue (NTC 150 dated 17<sup>th</sup> April 2014).

This is deemed to be a 'change in legislation' and the Contractor will be fairly entitled to reimbursement of any justified additional costs. Whilst this has been recognised the mechanism of how such reimbursement is to take place has to be confirmed with the options being:

- If the Contractor is registered for VAT then through VAT returns, and
- If the Contractor is not registered for VAT then through the KRRP contract

The Contractor has been liaising directly with the tax department on this issue and has been advised that they should not be registered for VAT. Notwithstanding the lack of registration the tax department have established procedures, for donor funded projects, whereby the Contractor still lodges a quarterly 'VAT return' (showing zero income) for reimbursement of VAT costs incurred.

The above reflects informal advice provided by the Employer. On the basis of the procedures that now appear to have been put in place it is considered unlikely that the Contractor will pursue any claim on this issue however it is considered that the matter be properly formalised.

### **31.3.6 Claim No.06; Prime Coat**

The lack of 'Prime' as a specific line item in the Bill of Quantities has led to the Contractor providing notice of a claim on this issue (NTC 154 dated 26<sup>th</sup> April 2014).

A recommendation from the Engineer for a Contract variation, to reflect the change from tack coat to prime, has been accepted by the Employer (following donor no objection) and the required variation has been issued. Subsequent to the variation being prepared the Contractor has proposed new unit rates, for the works involved, and these are under review. If agreement on rates cannot be reached the Contractor may revert to a more formal 'claim' approach.

Cost implications associated with any claim could therefore amount to ~AUD 400,000 (as currently allowed for under potential 'variation' costs). It is unlikely that any claim will result in any additional time needs.

### **31.3.7 Claim No.07; Underground service obstructions**

Issues related to underground service obstructions has led to the Contractor providing notice of a claim on this issue (NTC 173 dated 16<sup>th</sup> June 2014). The Contractor is alleging that the presence of underground services is adversely impacting his programme causing delay and additional cost.

The Contractor provided detailed particulars of his claim (NTC 206 dated 29<sup>th</sup> July 2014) and this prompted review by the Engineer. Following such review the Engineer made a determination and a recommendation was provided to the Employer for consideration. At the time the Engineers' determination had to be

provided the Contractor asked that the review process be 'put on hold' pending submission of further supporting particulars. In order to mitigate potential dispute the Engineer recommended to the Employer that this request be accepted and the Employer agreed. Further particulars have been submitted (NTC 259 dated 23<sup>rd</sup> September 2014) and this is currently under review.

For the record the Contractors initial claim, for events between 24<sup>th</sup> March 2014 and 27<sup>th</sup> July 2018 (126 calendar days), was for an extension of time of 94 calendar days and associated costs of ~AUD 2.0 million. Subsequently the quantum of the claim has been modified and, for events between 3<sup>rd</sup> March 2014 and 31<sup>st</sup> August 2014 (182 calendar days), an extension of time of 93 days is being sought together with associated costs of ~AUD1.0m for 'delay' with further direct costs to be advised.

#### **31.3.8 Claim No.08; Survey controls and Setting out**

Although not formally presented under clause 20.1 the Contractor provided detailed particulars of this claim (NTC 209 dated 30<sup>th</sup> July 2014) and these have been reviewed.

There were some errors identified in the primary control points (primarily related to level) and the Engineer surveyors returned to Tarawa in 2013 to undertake checks and, following such exercise, agreed control points were established. Subsequently there has been some discrepancy in horizontal alignment data and the Engineer has been working through these, with their CAD designer, to provide the Contractor with revised set-out information in a timely manner.

The detailed particulars provided are under review, together with consideration of the particular circumstances involved, and the Engineer has to provide a determination in early October 2014.

#### **31.3.9 Claim No.09; Services, no power disconnection**

The Contractor has provided notice for a specific event that occurred on the 18<sup>th</sup> June 2014, notably the inability of the PUB (power) to isolate areas of work from 415V and 240V services (NTC 178 dated 18<sup>th</sup> June 2014). Circumstances leading to the claim were described in the same communication and these are under consideration by the Engineer – it is likely that this claim will be incorporated into the main 'services' claim described under claim no.07.

#### **31.3.10 Claim No.10; Supply of local materials**

Issues related to the availability (or lack thereof) of local material has led to the Contractor providing notice of a claim on this issue (NTC 179 dated 18<sup>th</sup> June 2014).

Pending finalisation of separate 'agreements' for obtaining coralline material from 'local' suppliers the Contractor has advised that material was not available and that this has caused delay to the Works. At this time the Contractor has provided no indication that this claim will be pursued.

#### **31.3.11 Claim No.11; Services, Impact on clearing & u-drain works**

Issues related to service conflict with on-going work activities has led to the Contractor providing notice of a claim on this issue (NTC 181 dated 27<sup>th</sup> June 2014).

This can be considered as an extension of 'claim 07' albeit, on this occasion, that specific parts of the site (various locations) are referred to.

#### **31.3.12 Claim No.12; Ducts provided through sea walls**

Issues related to the provision of drainage ducts through existing seawalls has led to the Contractor providing notice of a claim on this issue (NTC 183 dated 30<sup>th</sup> June 2014).

The Contract does make provision, within the BoQ, for installation of such ducts however the Contractor contends that the item is not appropriate for what is involved and further information is being collated to support their position. Further information has not yet been provided and, at this time, the Contractor has provided no indication that this claim will be pursued.

#### **31.3.13 Claim Nos.13-17; Services, Impact on clearing & u-drain works**

Issues related to service conflict with on-going work activities has led to the Contractor providing notices of a claim on this issue, on a weekly basis, for the period from 23<sup>rd</sup> June 2014 to 19<sup>th</sup> July 2014.

Although details have been submitted under separate claim notices the claims can be considered as extensions of 'claim 07'.

#### **31.3.14 Claim No.18; Delay associated with TACL contract**

Issues related to delay over receipt of an advance 'mobilisation payment', after signing a separate contract to excavate an 'access channel' for TACL, has led to the Contractor providing notice of a claim on this issue (NTC 200 dated 22<sup>nd</sup> July 2014).

At this time the Contractor has provided no indication that this claim will be pursued.

#### **31.3.15 Claim No.19; Deletion of Works across Betio Causeway**

Issues related to the deletion of selected works, under variation no.12, has led to the Contractor providing notice of a claim on this issue (NTC 208 dated 31<sup>st</sup> July 2014).

At this time the Contractor has provided no indication that this claim will be pursued.

#### **31.3.16 Claim Nos.20-33; Services, Impact on clearing & u-drain works**

Issues related to service conflict with on-going work activities has led to the Contractor providing notices of a claim on this issue, on a weekly basis, for the period from 21<sup>st</sup> July 2014 to 27<sup>th</sup> September 2014.

Although details have been submitted under separate claim notices the claims can be considered as extensions of 'claim 07'.

### **31.4 Determinations and Approvals**

A summary of the status of any 'determinations and approvals' is provided below:

#### **31.4.1 Claim No.04; Deferral of Pavement Works across Betio Causeway**

The Engineers determination was submitted to the Employer for approval. The recommendations were rejected as a decision was taken, by the Employer, to delete selected works across the causeway.

## 32. DISPUTE BOARD

Issues relating to the establishment of a Dispute Board (DB) are as reported at section 2.2.9. Mr Firth (the appointed candidate) visited the site (from 14<sup>th</sup> to 18<sup>th</sup> September 2014), in accordance with the procedural rules, to keep himself acquainted with recent developments. The DB visited the site and met with the Engineer and Contractor. Mr Firth has submitted a brief report on his visit to the project and the Engineer has provided Mr Firth with copies of relevant site correspondence (on DVD).

At the time of the most recent visit there were no specific issues that needed to be addressed although advice was offered on the 'disputes management regime and construction law principles'.

Mr Firth is next scheduled to visit the site in mid-January 2015 (TBC).

## **33. PAYMENTS**

### **33.1 General**

The KRRP Contract was awarded for the 'Accepted Contract Amount' of Australian Forty-Eight Million One Hundred and Ninety-Seven Thousand Nine Hundred and Fifty-Seven Dollars and Twenty Cents (AUD 48,197,957.20) and it is to be noted that such sum was derived using unit rates and prices that excluded local taxes and duties. It is also to be noted that such amount is not a 'Lump Sum' and the final 'Contract Price' will be determined according to the actual works undertaken and measured and evaluated in accordance with the provisions of clause 12 of the Conditions of Contract.

Clause 14.3 of the Conditions of Contract does make provision for amounts to be deducted for Retention. Such amounts are based on ten percent (10%) of the amount due, under any Certificate (excluding the Advance Payment), to a maximum amount of five percent (5%) of the 'Accepted Contract Amount'. Retention is repaid on Practical Completion (50% on issue of the Taking Over Certificate) and Contract Completion (50% on issue of the Performance Certificate) with provision for the Contractor to provide a 'Bond', in lieu of Retention, for the 50% still held after Practical Completion.

Although amounts due to the Contractor will be certified entirely in Australian Dollar (AUD) payments to the Contractor will be made in the various currencies, and at the designated exchange rates, nominated by the Contractor in their Bid.

As highlighted in previous reports the Government of Kiribati has now introduced 'Value Added Tax' (effective from 1st April 2014) although, following informal advice, there is no requirement to include VAT on interim payment certificates.

### **33.2 Interim Payment Certificates**

In accordance with clause 14.3 of the Conditions of Contract the Contractor has submitted fourteen (17) statements as an Application for Interim Payment Certificate (No.18, for works undertaken in September 2014, is due at the start of October 2014). The Engineer, pursuant to clause 14.6 of the Conditions of Contract, has subsequently issued Interim Payment Certificate (IPC) Nos. 01 to 17 for amounts that have been deemed to be fairly due to the Contractor, in accordance with the Contract, for activities carried out up to the end of August 2014. Notwithstanding issues that delayed payment on IPC No.01 subsequent IPC's have, apart from some minor delay to a few of the IPC's, generally been processed with no apparent difficulties. A summary of all IPC's issued to date, together with copies of IPC's issued during the report period, is included at Appendix K.

### **33.3 Cost Fluctuation**

Cost Fluctuation adjustment is provided for under clause 13.8 of the General Conditions of Contract and the Particular Conditions state that the first adjustment is due 6 months after the closing date for bids, with adjustment factor amended every three months thereafter.

There are no schedules bound into the Contract Documents although the Contractor did supply indices during pre-Contract Award negotiations. Despite being reminded to do so, the Contractor has so far presented no indices for review and approval although this can be expected (possibly once it has been compiled). There are no time limitations (other than that mentioned above) on applying price adjustment to payments due and adjustments can be back-dated, to past certificates, as IPC's do only represent interim assessments which can be 'corrected' by subsequent IPC's.

In the absence of any information from the Contractor the Engineer has compiled required information on indices (one index had been discontinued necessitating a new index to be established) and, following liaison with the Contractor, there is general agreement on indices to be adopted and these are now being applied to interim payment certificates. A summary of price fluctuation is provided with interim payment certificate details at Appendix M.



## 34. OVERALL STATUS

### 34.1 General

Giving due regard to the various issues reported on herein, some of which still require further action, the KRRP project does continue to progress forward albeit not at the rate that had been anticipated. Whilst there has been noticeable improvement in 'visible' works, and works in general, it is considered that further improvement is required if completion deadlines are to be achieved. The particular circumstances of working in Kiribati do involve certain logistical difficulties and 'lead' time for delivery of materials is generally of the order of two (2) to three (3) months. However the Contractor should, by now, be sufficiently familiar with particular circumstances and conditions and plan accordingly.

### 34.2 Physical Works

Works progress has improved and is now sufficiently advanced for progress graphs (actual vs scheduled works) and schematic diagrams (actual and scheduled works) to be prepared in order to gain better appreciation of the current status. These are presented as Appendices D & G and show the status of the various road works activities, for the separate road components, together with general summaries of the percentage completion for key work activities on a section-by-section basis.

### 34.3 Financial Position

The quantum of Interim Payment Certificates issued to date amounts to Australian Fifteen Million Eight Hundred and Ninety-Three Thousand Seven Hundred and Fifty-Four Dollars and Ninety-Three Cents (AUD 15,893,754.93). The amount certified includes deductions for Retention which currently stands at Australian One Million One Hundred and Fifty-Five Thousand Four Hundred and Ninety-Three Dollars and Four Cents (AUD 1,155,493.04). Retention is deducted at a rate of 10% up to a limit of 5% of the Accepted Contract Amount.

It is to be noted that the Contract Conditions do allow payment for certain 'Materials on Site', as reported at section 5.5.1, and currently this amounts to Australian Eight Hundred and Ninety-Six Thousand Three Hundred and Fifty-Three Dollars and Forty-Five Cents (AUD 896,353.45).

Following the issue of instructions to the Contractor in respect of 'approved' variations, as described at section 30, the Contract Price has been adjusted and currently stands at Australian Fifty-One Million Three Hundred and Seventy Thousand Dollars and Fifty-Two Cents (AUD 51,370,000). This amount also includes estimated provisions for cost fluctuation and time extensions arising from contractual claims.

Although there are a number of other Contract variations pending, as set out at section 30, these have so far not been formally prepared and issued. Once clarifications and/or approvals have been provided the various issues will be assessed and the cost implications associated with the various variations reported on.

Likewise, although the Contractor has provided due 'notice' of potential Contractual claims, as reported on at section 31, full and detailed particulars are not available for most of these at present and issues will be assessed and reported on in due course. The one claim that has significant implications and is under review (service conflict issues) could, if accepted, result in additional costs of around Australian Two Million Dollars (AUD 2,000,000). An amount for this specific claim has not yet been added to the projected final Contract Price although some general provisions have been included for.

### 34.4 Completion Date

The automatic Extension of Time (EoT) that arises from weather conditions, as reported at section 11.1, will be calculated from the Commencement Date that has been established as 1st July 2013. To date the EoT due to adverse weather conditions stands at plus twenty-five (+25) calendar days. If normal rainfall patterns were to continue for the remainder of the contract period then the date for Practical Completion would be 16<sup>th</sup> June 2015 with corresponding adjustment to the Contract Completion date ie to 15<sup>th</sup> June 2017.

The Contractor is seeking additional time (~3 months to end-August 2014) for issues related to 'service conflicts' that he considers have impacted on general progress. The associated 'claim' is currently being assessed by the Engineer however it would be prudent, for planning purposes, that some time extension will be justified (and may be longer as, although mitigating measures are being discussed, the issue is 'on-going').

Given current progress, and pending claim assessments, it seems likely that completion will not be achieved much before September/October 2015.

### 34.5 Completion of Physical Works vs Elapsed Time

Following receipt by the Contractor, of an instruction from the Engineer, the Commencement Date has been established as 1<sup>st</sup> July 2013. Together with progress graphs and schematic diagrams a good indication of the overall status of the project can be obtained by comparing progress made on physical works against time that has elapsed.

#### 34.5.1 Physical Works

The current status of physical works (on a financial basis), excluding General, Dayworks and Provisional Sums, and adjusted for instructed variations, is set out at Table 34-1.

**Table 34-1: Status of Physical Works**

Bill Series	Amounts (AUD)				Completion %
	As Bid	Variations	To Complete	To Date	
Drainage	4,930,764.15	-132,624.00	4,798,140.15	786,889	16.0
Earthworks	613,730.00	0.00	613,730.00	18,960	3.1
Pavement	7,901,230.00	-132,624.00	7,716,081.40	813,874	10.4
Surfacing	14,987,282.20	-1,544,828.00	13,442,454.20	1,274,883	8.6
Ancillary	4,596,370.77	511,824.22	5,108,194.99	21,394	0.5
Structures	1,106,239.54	0.00	1,106,239.54	612,764	55.4
Water	1,008,230.35	11,574.70	1,019,805.05	399,875	39.7
Totals(1)	35,143,847.01	-1,286,677.08	33,804,645.33	3,928,639	11.2
Materials on Site				767,483	
Totals(2)				4,696,122	13.4

The 'totals to date' include amounts certified through to end of August 2014 and provisionally assessed amounts for September 2014.

#### 34.5.2 Elapsed Time

The current status of elapsed time is set out at Table 34-2.

**Table 34-2: Elapsed Time**

Period	Description	Date	Time (calendar days)
To Complete	Contract Period		690
	Extensions of Time		0
	Revised Contract Period		690
To Date	Commencement Date	1 <sup>st</sup> July 2013	
	Effective Report Date	30 <sup>th</sup> September 2014	
	Elapsed Time		488
	Elapsed time less 90 day mobilisation		398
Completion (%) – elapsed time			70.7
Completion (%) – elapsed time less 90 day mobilisation			57.7

The adjustment for 90 day mobilisation is made to reflect the lack of 'General' items in the assessment of physical works.

### 34.5.3 Cumulative Record

An overview of the cumulative status of the KRRP is presented at Table 34-3.

**Table 34-3: Overview of Project Status**

	Percentage Completion (%)								
	2013			2014				2015	
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Physical Works									
Exc Materials on Site	0	0	0.2	1.6	5.2	11.2			
Inc Materials on Site				2.4	7.8	13.4			
Elapsed Time									
Elapsed time	0	13	22	40	53	71			
Elapsed time – 90 days				26	40	58			

Although there are signs of improvement there continues to be concern over the poor progress achieved to date and this is an issue that continues to be taken up with the Contractor. The Contractor has cited difficulties associated with services conflict, between the new works and existing underground services, as a cause of poor production levels throughout the report period.

**35. PROJECTED COST TO COMPLETION**

The KRRP Contract is an 'add-measure' contract based on a Bill of Quantities prepared at the time of inviting bids. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment (and hence final cost) will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices tendered in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

Depending on site conditions and circumstances instructions may need to be issued that will either increase or decrease quantities (and hence costs) as works are progressed. It is not anticipated that quantities will be reassessed for every instruction that is issued however the Engineer will monitor the progress of the works and, when required, will review outstanding remaining works (in conjunction with completed works) in order to keep the Employer apprised of the potential final cost to complete the Works.

Detailed below in Table 35-1 is an assessment of the 'Costs to Completion' as discussed with the Employer and as currently projected:

**Table 35-1: Projected Costs to Completion**

Ref	Details	Amount (AUDx10 <sup>6</sup> )	Comments
<b>1</b>	<b>Accepted Contract Amount</b>	<b>48.10</b>	
<b>2</b>	<b>Variations</b>	<b>0.92</b>	As listed at appendix K
<b>3</b>	<b>Claims</b>	<b>0.00</b>	No claims approved to date
<b>4</b>	<b>Allowances</b>	<b>2.35</b>	
4.1	Potential (current) EoT claims	0.35	Based on 1 month extension
4.2	Price fluctuation	1.0	Based on 3% allowance
4.3	Potential (future) claims	1.0	Based on 90 days @ \$11,400/day
<b>5</b>	<b>TOTAL (1+2+3+4)</b>	<b>51.37</b>	
<b>4</b>	<b>Additional Cost (5-1)</b>	<b>3.27</b>	

It is very important that the Employer appreciates that any increase in the contract price will, unless alternative arrangements are made, require financing by the Government of Kiribati. It is understood that the donors have given some indication that additional financing may be available, from alternate sources, and pursuing such financing should be considered.