

Environmental and Social Monitoring Report

July - December, 2016

Kiribati: South Tarawa Sanitation Improvement Sector Project

Prepared by Ministry of Public Works and Utilities, Government of Kiribati for the Asian Development Bank

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Government of Kiribati
Ministry of Public Works & Utilities



Safeguards Monitoring Report, 2016 (July – December)



Grant-0263 KIR: South Tarawa Sanitation Improvement Sector Project
THE SMEC International (February 2017)

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1 ICB 01

This Semi-Annual Safeguard Monitoring Report covers the period from July through December 2016. The purpose of the report is to document the environmental management activities and resettlement and related land issues for:

- ICB 01 Rehabilitation of Sewerage and Saltwater Systems Betio, Bairiki and Bikenibeu;
- ICB 02 Upgrading of Ocean Outfalls at Betio, Bairiki and Bikenibeu

ICB01 Safeguard systems are in place. The BEIA and Contractor's EMP (CEMP) are approved and compliance thereof is generally good based on the Consultants monthly monitoring. Land issues at Bikenibeu PS5 are settled in the sense that new land has been allocated for the pump station relocation. However, the affected land owner has an ongoing dispute with the government that could impact works.

ICB02 has been awarded to CCB/Maritime Constructions Joint Venture. A "basic" status for the BEIA was approved earlier in 2015 and the resultant BEIA issued to MPWU for review and comment in August 2015. The BEIA was approved in November 2015 as was the relevant Environmental License. The Contractor's Environmental Management Plan (CEMP) was approved by the Engineer in December – MELAD/ECD approval is pending. Preliminary clearance of obstacles in the Bikenibeu alignment was carried out in December. However, no construction activities are slated until January and hence there was no OHS or environmental monitoring during the reporting period.

The Resettlement and (Principle) Environmental specialists have completed their work on the project and are no longer active. Mr. Iannang Teaioro continues to provide service related to resettlement and environment on an as-needed basis. ICB01 Environmental compliance is generally good. ICB02 works are not yet underway.

2 ICB 01

2.1 Status

ICB 01 involves the rehabilitation of the existing sewerage system in Betio, Bairiki and Bikenibeu. The works include rehabilitation of: the salt water system, manholes, sewerage, saltwater and sewer building services, pump stations, electrical/controls equipment, saltwater towers, and saltwater intakes. Saltwater pipeline cleaning, and pump restoration in Betio and Bairiki is effectively complete – cleaning, inspection and repair of the sewer system is ongoing. Saltwater pipeline cleaning and restoration in Bikenibeu has been delayed and reduced in scope.

Works on the saltwater system in Bikenibeu were effectively suspended due the fact that most piping in the area is located under the newly constructed pavement – repair of the saltwater piping would require extensive pavement cutting and repair. Eventually, both GoK and ADB indicated that they want works to proceed on a limited basis that includes a new intake PS,

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construction of the saltwater tower, and pipeline refurbishment in areas where it is located outside of the pavement.

The site of the original Saltwater Intake PS at Bikenibeu has been subject to extensive beach erosion. A recently constructed seawall (by others) now partially protects the tower and intake PS sites. The Engineer instructed CCB to demolish the top slab early in 2016 with the intent that this action would make the wetwells and possibly the seawall salvageable for new works. The erosion is considerably worse now and original seawall is not deemed to be salvageable. A new PS site adjacent to the saltwater tower foundation has been proposed on Government land within the Ministry of Education compound.

Land adjacent to the tower is understood to be government owned as part of the Ministry of Education campus. The Engineer and Employer discussed PS siting options with the MoE Secretary, Ms. Terary Abbot, who indicated that siting of the PS poses no problems from MoE. The area in question lies east and west of the Intake PS site. Subsequent developments propose that the new PS will be reconstructed on the footprint of the existing PS, as such no new land parcel will be required.

The anaerobic digesters (AD) originally proposed were deemed to be infeasible and have been deleted from the works. A solids drying bed at Nanikai Landfill is proposed as an alternative to the AD for the purpose of sewer-solids removal and disposal. The drying bed concept was superseded by a proposal for a septage receival station which is generally deemed to be a more reliable system for solids removal.

The location of the septage receival station is still under discussion however GoK is working to approve the procurement of the equipment while siting discussions continue. In principle the facility can be located anywhere there is available land with vehicle access, fresh water supply, and connection to a sewer. At present placing the facility within PUB's power plant site is preferred but final siting is contingent on PUB approval. Odour remains a concern but since the equipment housing is largely enclosed it may not be a valid issue. The proposed site may require the addition of a small pump station since there is very little drop between the at-grade elevation and nearby sewer pipe.

2.2 Environmental Monitoring

The Engineer continues to conduct monthly audits of CCB – generally compliance is good with no findings of significance to report. These reports have been forwarded to the Environmental officer at MELAD. the monthly audits are presented in Appendix A – Environmental Monitoring.

CCB reported no Environmental Incidents or Community Complaints in the reporting period. The Consultant's monthly audits include a few minor actions but compliance with standards is generally good.

2.3 Resettlement Status

All but three pump stations within ICB01 are located in Government Lease Land. The three pump stations of interest that are all located in Bikenibeu, being Pump Station one, five and six. Pump

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Station six, is owned by three parties - division of compensation is not settled but at present there are no *legal* impediments to prevent construction. Access to the existing PS5 has become troublesome. Land issues at PS1 are not currently an impediment but are worth noting.

PS5 Bikenibeu

The new PS5 site is approved for construction from a legal standpoint. An unexpected dispute has flared with the occupant of the existing PS5 site. The person in question is Mr. Tauroa Temeaa (Land Owner of Ribono 663a/1) who resides adjacent to the existing PS5. Both the Engineer and CCB have previously discussed the demolition of the existing PS, relocation of a sewer line and manhole, and restoration of the site – it was understood that all parties were in agreement. Any such agreement however was not legally binding and the land owner is now claiming that he does not permit access to his land and that he is taking legal action against the government.

The Technical Advisor has furnished advice in the form of laws of Kiribati that indicate to the Engineer that PUB have an existing right to access and service their assets after haven given notice to affected landowners. Kiribati Law also provides for Compulsory Acquisition should it be necessary.

[Author's note: The bracketed remarks herein note January 2017 activities related to PS5 even though this is outside of the reporting period – this to encapsulate historical and ongoing issues. All pertinent documentation is included in Appendix 2.

In January a second potential landowner was identified, Mr. Arawatau Miito. Mr. Miito has approached CCB and the Engineer asserting that CCB were using his property for storage and that compensation was due. CCB had previously consulted with Lands who had informed them (verbally) that the area in question was actually Kiribati Housing Land. Research from PUB Counsel suggests that the question of ownership has never been legally resolved.

Two negotiation meetings were held in January 2017 between PUB and Mr. Temeaa. The dispute remains unresolved. The Technical Advisor has also issued a Cabinet Paper and supporting documentation to escalate the matter. In general, this entire matter is one for GoK and the Kiribati Court System – there is little more that can be done as a “resettlement” issue within STSISP. SMEC continues to offer assistance as a facilitator and document the status of the dispute(s) and the ultimate resolution thereof.]

PUB tried unsuccessfully to engage Mr Temeaa in December. Eventually they issued a Notice of Intent to Enter as is their prerogative. PUB and CCB were subsequently advised by GoK not to forcibly enter the land pending further discussions with the presumed land owner.

The new PS5 is on a dedicated parcel of GoK land and can be built without intruding on the landowner's property - CCB have been advised to proceed without intruding onto the disputed land. The Engineer is seeking a legal description of the landowner's property to verify that works can be completed without intrusion. The elementary school east of the land owner's property and

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the landowner's own sewer connection can continue to flow through the existing PS5 without pumping although this is not an ideal long term solution.

A small pre-packaged lift station could be installed to serve the school and pump via a rising main to a manhole north of the school. Invasive works would be minimal but there remains a possibility that land owners along the rising main alignment could seek compensation and raise new legal barriers.

PS1 Bikenibeu

The landowner at the PS1 has previously indicated that she will not permit entry onto her land – this would impact both ICB01 and ICB02. Access is required to complete the installation of the screens (ICB01), installation of the outfall piping, and access to the reef (ICB02). The Engineer/Employer are in possession of a letter signed by the landowner in 2014 whereby compensation of \$10,500 is offered (and apparently accepted) to compensate for land access and construction. As a final action on consultation the Engineer will speak with the landowner again to make sure that we understand the landowner's position. CCB have discussed access with the landowner off the record who has informed them that she actually will allow access

There are a number of trees that must be removed at the PS1 site. The Engineer is coordinating with Lands (MELAD) for a tree survey. Upon completion of the survey, CCB may remove the trees and the landowner can seek appropriate compensation from Lands.

3 ICB02

3.1 Status

Field works have commenced with the clearing of obstacles on the intertidal reef. The Felenius dive crew has performed their initial alignment inspection at Bikenibeu in December. Pipe string fabrication will not begin until January. Strings will be assembled and stored on the ocean side of the fabrication site. Work platform boats are scheduled to arrive in Jan/Feb of 2017.

The Joint Venture (JV) with the Engineer/Employer have entered discussions with the Public Broadcast Authority to use a portion of their radio tower site in Nanikai for a laydown, construction, and staging area. Pipe material is slated to arrive in mid-December. PBA have indicated that they do not foresee a problem with using the site but have not issued formal permission. Due to the presence of buried antenna radials the JV are required to locate their containers on the west end of the site (to prevent RF interference) and are not permitted to do any digging (none is needed of proposed).

There will be smaller construction sites at the respective PS1 locations – these will be used primarily for tool vehicle/equipment storage – some tree removal will be required for the completion of ICB01 screens and piping, and for equipment access and the demolition of the vent stacks under ICB02.

The dive team, Felenius Consultants, completed obstacle removal on the Bikenibeu alignment in December. This work was deemed to be a preconstruction activity and was allowed to proceed prior to the formal approval of the Contractor's Environmental Management Plan (CEMP). At the time of the work the CEMP had been approved by the Engineer and MELAD (ECD) approval was pending – ECD approval was granted in late December.

At present the works are on schedule with an expected completion date in May 2017.

3.2 Environmental Safeguards

There was no field activity in the reporting period other than dive surveys and obstacle removal. Construction will begin in earnest in January 2017 along with routine Environmental Monitoring.

The diving team issued the report, "Bikenibeu Outfall Pre-Installation Survey Report" to document reef health and note their activities (Appendix 3). The report notes that conditions have changed since their initial survey in 2015. Some coral has been lost due to bleaching or possibly due to Crown of Thorns Starfish. Obstacles (believed to be an accumulation of anchor blocks) impeded the original alignment. The location of the "new" obstacles was also an area of healthy corral. Felenius suggested a minor re-routing of the pipeline to avoid the obstacles and avoid corral damage. The alignment change was requested in RFI 012 and subsequently approved as a no cost item.

3.3 Social Safeguards

The ICB 02 Project works area is mostly off shore. The Contractor will need a construction yard and there will be some land disturbance between the PS1 sites and the shore. At present there are no

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known legal impediments regarding access to the sites and affected landowners have been previously advised of the works. It is recommended that the Contractor and Consultant visit the landowners as a courtesy to advise of the upcoming works prior to any intrusive activity.

APPENDIX 1 EMP COMPLIANCE MONITORING AND AUDIT

Environment Monitoring and Auditing

Date of Inspection : 4 July 2016

Site : Records – checked at CCB compound, Betio
 Monitoring – work sites at Bairiki and Betio

Environmental Issue	Monitoring Detail	Issues	Actions taken
1.3 Occupational health and safety measures	1.3 Ensure all staff are wearing appropriate PPE. JSEAs for work tasks have been completed and signed.	No issues	
2.1 Generation of construction waste	2.1 Inspection to ensure that non-hazardous materials are collected and dispose of in the landfill, and hazardous materials are stored safely. Inspection to ensure that all hazardous waste are shipped out of the Kiribati at the completion of the project.	No issues. Compostable wastes (grass and tree branches) from CCB yard were disposed at Betio landfill. Silt/mud from Bairiki seawater main pipe was disposed at Nanikai dumping site. Volume is required	CCB to devise log sheet to record volume disposed
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Pump broken at PS1 on the 14 June 2016 and there was minor sewage overflow at the site. Fencing wall of PS1 at Betio has not been fixed since it was	Pump was fixed on 15 June 2016

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Environmental Issue	Monitoring Detail	Issues	Actions taken
		damaged by the Americans digging for live shells.	
2.3 Accidental damage to utilities	2.3 As above.	nil	
2.4 Noise nuisance from construction activities.	2.4 As above and conduct a set of interviews with closest residents to establish impacts and actions taken by contractor	No complain from community	
2.5 Exhaust emissions and black smoke excessive	2.5 As above and check for maintenance records, age of equipment and operation within specifications and instruct contractor to correct problem within 2 days.	Nil	
2.6 Pollution from chemicals and fuels	2.6 Regular inspection of sites for pollution from storage of hazardous materials and likely leakages and exhaust emissions from the drilling rigs and vehicles	No pollution. Petrol, diesel and lubrication oils are the only forms of chemical kept in containers.	
2.7 Removed trees and vegetation along sewer line trenches not replanted	2.7 Confirm that revegetation has taken place or local consultation agreed to another approach to mitigate losses	nil	

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Environmental Issue	Monitoring Detail	Issues	Actions taken
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports	.	

Environment Monitoring and Auditing

Date of Inspection : 3 August 2016

**Site : Records – checked at CCB compound, Betio
Monitoring – work sites at Bairiki and Betio**

Environmental Issue	Monitoring Detail	Issues	Actions taken
1.3 Occupational health and safety measures	1.3 Ensure all staff are wearing appropriate PPE. JSEAs for work tasks have been completed and signed.	No issues	
2.1 Generation of construction waste	2.1 Inspection to ensure that non-hazardous materials are collected and dispose of in the landfill, and hazardous materials are stored safely. Inspection to ensure that all hazardous waste are shipped out of the Kiribati at the completion of the project.	No issues. Record of dumping <ul style="list-style-type: none"> - About 3 m³ of rubbish (grass, packing materials) from yards were disposed at Betio dumping area - About 6 m³ of mud/sand/hardened scum on manhole inner lining from Betio manholes were disposed at Nanikai dumping area. 	

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Environmental Issue	Monitoring Detail	Issues	Actions taken
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	No complaint	
2.3 Accidental damage to utilities	2.3 As above.	No complaint	
2.4 Noise nuisance from construction activities.	2.4 As above and conduct a set of interviews with closest residents to establish impacts and actions taken by contractor	No complain from community	
2.5 Exhaust emissions and black smoke excessive	2.5 As above and check for maintenance records, age of equipment and operation within specifications and instruct contractor to correct problem within 2 days.	Nil	
2.6 Pollution from chemicals and fuels	2.6 Regular inspection of sites for pollution from storage of hazardous materials and likely leakages and exhaust emissions from the drilling rigs and vehicles	No pollution. Petrol, diesel and lubrication oils are the only forms of chemical kept in containers.	
2.7 Removed trees and vegetation along sewer line trenches not replanted	2.7 Confirm that revegetation has taken place or local consultation agreed to another approach to mitigate losses	nil	


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Environmental Issue	Monitoring Detail	Issues	Actions taken
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports	.	

Environment Monitoring and Auditing

Date of Inspection : 6 October 2016

Site : Records – checked at CCB compound, Betio
Monitoring – work sites at Bairiki and Betio

Environmental Issue	Monitoring Detail	Issues	Actions taken
1.3 Occupational health and safety measures	1.3 Ensure all staff are wearing appropriate PPE. JSEAs for work tasks have been completed and signed.	Working with raw sewerage (27 – 28 September) without wearing proper protective clothing and equipment 	

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Environmental Issue	Monitoring Detail	Issues	Actions taken
2.1 Generation of construction waste	2.1 Inspection to ensure that non-hazardous materials are collected and dispose of in the landfill, and hazardous materials are stored safely. Inspection to ensure that all hazardous waste are shipped out of the Kiribati at the completion of the project.	1 m ³ of sand from Betio saltwater main pipe. Disposed at Nanikai dumping area.	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Old lady living next to the Meteorological station at Betio complained that her water well was contaminated with raw sewerage. The source could not be located.	CCB Clean the well
2.3 Accidental damage to utilities	2.3 As above.	Two complains received with severed electricity cables at Kirabun Beru and Temanoku near the primary school.	Fixed on the spot
2.4 Noise nuisance from construction activities.	2.4 As above and conduct a set of interviews with closest residents to establish impacts and actions taken by contractor	No complain from community	
2.5 Exhaust emissions and black smoke excessive	2.5 As above and check for maintenance records, age of equipment and operation within specifications and instruct contractor to correct problem within 2 days.	CCB vacuum truck is down .	Use PUB vacuum truck
2.6 Pollution from chemicals and fuels	2.6 Regular inspection of sites for pollution from storage of hazardous materials and likely leakages and exhaust	No pollution. 100 litres Petrol, 100 litres diesel, 200 litres lubrication oil, and 200 litres engine oil are the only forms of	

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Environmental Issue	Monitoring Detail	Issues	Actions taken
	emissions from the drilling rigs and vehicles	chemical kept in containers.	
2.7 Removed trees and vegetation along sewer line trenches not replanted	2.7 Confirm that revegetation has taken place or local consultation agreed to another approach to mitigate losses	nil	
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports		

Environment Monitoring and Auditing

Date of Inspection : 7 November 2016

Site : Records – checked at CCB compound, Betio
 Monitoring – work sites at Bairiki and Betio

Environmental Issue	Monitoring Detail	Issues	Actions taken
1.3 Occupational health and safety measures	1.3 Ensure all staff are wearing appropriate PPE. JSEAs for work tasks have been completed and signed.	Working on site without protective clothing while using power tool.	Mr Mack at main office was informed. He will inform the workers at all sites concerning wearing protective clothing when working with raw sewage and power tools.

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Environmental Issue	Monitoring Detail	Issues	Actions taken
2.1 Generation of construction waste	2.1 Inspection to ensure that non-hazardous materials are collected and dispose of in the landfill, and hazardous materials are stored safely. Inspection to ensure that all hazardous waste are shipped out of the Kiribati at the completion of the project.	22 bags of wastes from manholes around Betio mainly black sand Disposed at Betio dump site	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	One PUB water pipe	Fix on same day
2.3 Accidental damage to utilities	2.3 As above.	nil	
2.4 Noise nuisance from construction activities.	2.4 As above and conduct a set of interviews with closest residents to establish impacts and actions taken by contractor	No complain from community	
2.5 Exhaust emissions and black smoke excessive	2.5 As above and check for maintenance records, age of equipment and operation within specifications and instruct contractor to correct problem within 2 days.	CCB vacuum truck is still down. .	Use PUB vacuum truck
2.6 Pollution from chemicals and fuels	2.6	No pollution.	

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Environmental Issue	Monitoring Detail	Issues	Actions taken
	Regular inspection of sites for pollution from storage of hazardous materials and likely leakages and exhaust emissions from the drilling rigs and vehicles	100 litres Petrol, 100 litres diesel, 200 litres lubrication oil, and 200 litres engine oil are the only forms of chemical kept in containers.	
2.7 Removed trees and vegetation along sewer line trenches not replanted	2.7 Confirm that revegetation has taken place or local consultation agreed to another approach to mitigate losses	nil	
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports	.	

Environment Monitoring and Auditing

Date of Inspection : 7 December 2016

Site : Records – checked at CCB compound, Betio
Monitoring – work sites at Bairiki and Betio

Environmental Issue	Monitoring Detail	Issues	Actions taken
1.3 Occupational health and safety measures	1.3 Ensure all staff are wearing appropriate PPE. JSEAs for work tasks have been completed and signed.	Nil	

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Environmental Issue	Monitoring Detail	Issues	Actions taken
2.1 Generation of construction waste	2.1 Inspection to ensure that non-hazardous materials are collected and dispose of in the landfill, and hazardous materials are stored safely. Inspection to ensure that all hazardous waste are shipped out of the Kiribati at the completion of the project.	1.4 ton of mud from Betio manholes dumped at Betio dumping ground	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	PS5 Landowner did not want CCB to leave tanks on his land	Have liaised with Landowner. The landowner will claim \$25,000.00 for the use of his land from early 1980s. This is between the landowner and PUB
2.3 Accidental damage to utilities	2.3 As above.	nil	
2.4 Noise nuisance from construction activities.	2.4 As above and conduct a set of interviews with closest residents to establish impacts and actions taken by contractor	No complain from community	
2.5 Exhaust emissions and black smoke excessive	2.5 As above and check for maintenance records, age of equipment and operation within specifications and instruct contractor to correct problem within 2 days.	CCB vacuum truck is still down.	Use PUB vacuum truck

South Tarawa Sanitation Improvement Sector Project

Environmental Issue	Monitoring Detail	Issues	Actions taken
2.6 Pollution from chemicals and fuels	2.6 Regular inspection of sites for pollution from storage of hazardous materials and likely leakages and exhaust emissions from the drilling rigs and vehicles	No pollution. 100 litres Petrol, 100 litres diesel, 200 litres lubrication oil, and 200 litres engine oil are the only forms of chemical kept in containers.	
2.7 Removed trees and vegetation along sewer line trenches not replanted	2.7 Confirm that revegetation has taken place or local consultation agreed to another approach to mitigate losses	nil	
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports	.	

Environment Monitoring and Auditing

Date of Inspection : 19 January 2017

Site : Records – checked at CCB compound, Betio
Monitoring – work sites at Bairiki and Betio

Environmental Issue	Monitoring Detail	Issues	Actions taken
1.3 Occupational health and safety measures	1.3 Ensure all staff are wearing appropriate PPE. JSEAs for work tasks have been completed and signed.	Nil	

South Tarawa Sanitation Improvement Sector Project

Environmental Issue	Monitoring Detail	Issues	Actions taken
2.1 Generation of construction waste	2.1 Inspection to ensure that non-hazardous materials are collected and dispose of in the landfill, and hazardous materials are stored safely. Inspection to ensure that all hazardous waste are shipped out of the Kiribati at the completion of the project.	Wastes from Betio manholes still dumped at Betio dumping ground	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	PS5 landowner is complaining and claimed that 3 coconut trees were cut down instead of 1 as reported by CCB	CCB to confirm
2.3 Accidental damage to utilities	2.3 As above.	Leakage of salt water main at road tee junction to Betio wharf	CCB is fixing it. Ongoing
2.4 Noise nuisance from construction activities.	2.4 As above and conduct a set of interviews with closest residents to establish impacts and actions taken by contractor	No complain from community	
2.5 Exhaust emissions and black smoke excessive	2.5 As above and check for maintenance records, age of equipment and operation within specifications and instruct contractor to correct problem within 2 days.	CCB vacuum truck is still down.	Use PUB vacuum truck

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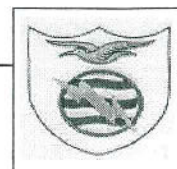
Environmental Issue	Monitoring Detail	Issues	Actions taken
2.6 Pollution from chemicals and fuels	2.6 Regular inspection of sites for pollution from storage of hazardous materials and likely leakages and exhaust emissions from the drilling rigs and vehicles	No pollution. 100 litres Petrol, 100 litres diesel, 200 litres lubrication oil, and 200 litres engine oil are the only forms of chemical kept in containers.	
2.7 Removed trees and vegetation along sewer line trenches not replanted	2.7 Confirm that revegetation has taken place or local consultation agreed to another approach to mitigate losses	nil	
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports	.	

Additional Note:

1. Most of the taps (brass) fixed on salt water outlets intended for flushing toilet were stolen. CCB is replacing all with plastic taps

APPENDIX 2 PS5 AND PS1 DOCUMENTATION

Public Utilities Board



Established on 01 July 1977

We provide

Electricity, Water and Sewage Disposal

Our Ref: STSISP 2016

Date: 14 December 2016

Your Ref:

Tauroa Temeea mtmm
Bikenibeu
KIRIBATI

Cc: Rodd O'Grady
STSISP

Dear Mr. Tauroa,

NOTICE TO ENTER RIBONO 663a/1a at Bikenibeu WITHIN 7 DAYS.

Mauri,

Subject to section 9 (2) (a) and Section 11 of the Public Utilities Board Ordinance CAP 83, PUB hereby formally give you notice that we intend to enter into your land for the purposes of STSISP employees, agents of PUB to carry out work related to sections 8 (2) (e) and (f) of the PUB Ordinance.

The work include the maintenance of the Pump Station number 5 located on Ribono 663a/1a by carrying out the following activities:

- Demolition & decommissioning of the old pump station
- Construction of additional manholes and pipeswork to connect existing sewer reticulation into the new pump station and new rising main into the system downstream system

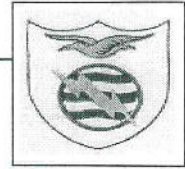
During the process, trees or part of a growing trees may be cut or remove.

Please do note that, should you have any queries or need any clarification do not hesitate to contact us at any time.

Ko rabwa.

Yours faithfully


Peregrine Tonking
Chief Executive Officer
Public Utilities Board
Betio



Our Ref: STSISP 2016

Date: 14 December 2016

Your Ref:

Tauroa Temeea mtmm
Bikenibeu
KIRIBATI

Cc: Rodd O'Grady
STSISP

Dear Mr. Tauroa,

KARIAIA TE ROKO N RIBONO 663a/1a, Bikenibeu inanon 7 te bong

Mauri,

Ni kaineti ma te Kibu 9 (2) (a) ao te Kibu 11 n te Tua ae PUB, Cap 83, ao Ko a kaongoaki ikai man te PUB bwa e na iai kawaran mwakoron aba mane e mwaneweaki ieta irouia taan mwakuri n te karikirake ae te STSISP ngaia te rabwata are e katabeaki iroun te PUB bwa e na karaoa te mwakuri ni kaineti ma are e mwaneweaki inanon te Tua ae PUB te Kibu 8 (2) (e) ao (f).

Te mwakuri aei e na irekereke ma onobwaian te Bwam ~~ibukite Ra~~ Nambwa 5 are e mena iaon te mwakoro n aba ae Ribono 663a/1a ao are a na kona ni karaoaki mwakuri aika a na oti i nano:-

- Uruakakin ao kanakoakin te Bwam ni kawai;
- Ao manga karaoan ma mwakurian bwaibun kai nakotaari ake a na katomai bwaibu aikai nakon te bwam ae boou.

Inanon tain te mwakuri ao e na mataata bwa aroka ake a riki inanon te mwakoro n aba aei a na bon bane ni koreaki.

Ngkana iai titiraki ni kan oota mairoum ni kaineti ma te itera aei ao Ko kona n reitaki ma aobitin te PUB i Betio.

Ko rabwa.

Yours faithfully

Peregrine Tonking
Chief Executive Officer
Public Utilities Board
Betio



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Mr. Benjamin Tokataake
Secretary
Ministry of Public Works & Utilities
Betio, South Tarawa
Republic of Kiribati

5 December 2016
Our Ref. 161205AC

South Tarawa Sanitation Improvement Sector Project
Subject: Bikenibeu Pump Station Land Owner Issues

Dear Mr. Secretary,

This letter is as a result of two meetings held today with land owners of Pump Station 1 and Pump Station 5 in Bikenibeu. At Pump Station 5 the project had agreed with the landowner to move the pump station off his land, this morning the landowner denied access to the ICB 01 Contractor to perform the works. At Pump Station 1 the project has agreed with multiple contesting landowners to allow access for Construction. This morning one of the contesting landowners requested that a sea wall be constructed on her land, before construction begin. This is in excess of the current agreement.

Bikenibeu Pump Station 5

An agreement has been made with Kiribati Housing Corporation to relocate the existing Pump Station 5 from its current location to a new site on Government leased land. This was discussed with the landowner of the current Pump Station 5 site, Mr. Tauroa Temeaa, in November 2015. A variation was agreed with the ICB 01 Contractor to complete the works required and a pre-construction visit with Mr. Temeaa was completed in November 2016. No objections were received from Mr. Temeaa at this time.

This morning the Engineer attended a meeting with Mr. Temeaa. He noted that he had contacted his legal representatives and would not be allowing the ICB 01 Contractor on his lands to undertake any works until the settlement of legal action.

The Engineer recommends that the works that can take place outside Mr. Temeaa's lands be undertaken. This includes the excavation for the new pump station and the realignment of at least one of the new lines. The Engineer requests that a survey is undertaken by the Ministry of Lands to delineate exactly where Mr. Temeaa's lands are. The Engineer then proposes to reroute the sewers around Mr. Temeaa's lands.

The Engineer will investigate the number of sewer connections effected by the rerouting of the sewer and will provide a proposal should there be any connections that become isolated by the rerouting of PS5. However, the Engineer recommends that the Ministry investigate the possibility and mechanisms for compulsory acquisition in order to allow reconnection of any sewer users isolated by the rerouting around Mr. Temeaa's lands.

Bikenibeu Pump Station 1

This morning the Engineer also attended a meeting with one of the landowners at Pump Station 1 Bikenibeu. The meeting was a courtesy meeting with the landowner to discuss the upcoming works that are due to take place under ICB 02. The landowner stated that she required a seawall to be built prior to allowing the ICB 02 Contractor onto her lands.



Tarawa Sanitation Improvement Sector Project
Ministry of Public Works and Utilities, Kiribati / ADB
Bairiki, South Tarawa
Republic of Kiribati
Mobile Phone No. +686 73024557
E-mail: andrew.connell@smec.com

We are currently in possession of copies of three letters, one signed by each of the three landowners who claim possession of this site. It is our understanding that these letters provide access to the site for works to be undertaken. We have arranged a meeting with the landowner for 10:00 next Monday 12th of December. The Engineer requests that a member representing the Government of Kiribati attend this meeting and receive the landowners position.

If you have any further queries on these issue, please don't hesitate to contact us.

Sincerely,

Andrew Connell | Project and Supervision Manager STSISP / SMEC Kiribati
SMEC International Pty Ltd

CC

- Rodd O'Grady, STSISP Technical Advisor to MPWU
- Jonathan Carroll, STSISP Construction Supervision Engineer, ICB 01
- Remoun Ramzy, STSISP Construction Supervision Engineer, ICB 02

Attachments

- Minutes of Meeting Bikenibeu PS5 discussion with Landowner 09.11.2016
- Minutes of Meeting Bikenibeu PS5 discussion with Landowner 05.12.2016
- STSISP Letters Transferring land ownership

Minutes of Meeting

Place:	Pump Station 5, Bikenibeu		
Date:	09/11/2016	Time:	1400 to 1500
Minutes Name & No: PS5 09/11/16	Subject: Discussion on the permission for construction access to Pump Station 5, Bikenibeu Minutes By: Jonathan Carroll		

Present:	Members of following institutions: 1. Tauroa Temeaa – Landowner Current PS5
	SMEC /STSISP 1. Mr Jonathan Carroll – Construction Supervision Engineer 2. Mr Iannang Teaioro – Safeguard Officer (Environment and Resettlement) 3. Mr Darryl Pyke – Construction Supervisor, CCB Envico
Apologies	Nil

ITEM No.	MINUTES	ACTION	
		BY	DATE
1.	<u>Points of discussion:</u>		
	i. Construction Access to PS5 site and Landowners land ii. Construction Works to take place		
<u>The proceedings of the meeting include</u>			
2.	Meeting was with PS5 landowner Mr. Tauroa Temeaa to discuss the upcoming construction works. Access to his land will be required in order to decommission pump station 5 and build the new manholes.		
3.	Mr. Teaioro and Mr. Temeaa undertook the discussion in i-Kiribati. The parties inspected the proposed site for the new PS5. Mr. Teaioro noted that construction was due to start in early December. Mr. Pyke showed where the new line incoming from manhole BK51/1 would have to pass through Mr. Temeaa's land.		
4.	Mr. Temeaa noted that the new line from BK51/1 would require relocation of a small wooden house belonging to his brother and an existing well. Mr. Pyke offered to dig a new well for Mr. Temeaa. Mr. Temeaa requested that the project find out if compensation was due to him from the Lands department. Mr. Teaioro is to consult with MELAD.	SMEC	ASAP
5	Mr. Pyke also offered to relocate Mr. Temeaa's brother's house temporarily and then replace it anywhere after the construction. Mr. Temeaa agreed.	CCB	
6	Mr. Temeaa noted that in order to construct the pump station at the new location, the line entering from manhole BK 1/49 would require closing of the only access road. SMEC are to investigate alternative emergency access areas.	SMEC	ASAP



**South Tarawa Sanitation Improvement Sector
Project**
Ministry of Public Works and Utilities, Kiribati



Minutes of Meeting

ITEM No.	MINUTES	ACTION	
		BY	DATE
7	Mr. Carroll noted the new proposed location for the first manhole upstream of the new PS5. Mr. Temeaa noted that this was outside his land, by approximately a metre. Mr. Carroll requested that the manhole be moved a metre back to Mr. Temeaa's land. Mr. Temeaa agreed.		

Minutes by:

Jonathan Carroll

SMEC ICB 01 Construction Supervision Engineer, STSISP

Minutes of Meeting

Place:	Pump Station 5, Bikenibeu		
Date:	05/12/2016	Time:	0900 to 0930
Minutes Name & No: PS5 05/12/16	Subject: Discussion on the permission for construction access to Pump Station 5, Bikenibeu Minutes By: Jonathan Carroll		

Present:	Members of following institutions: 1. Tauro Temeaa – Landowner Current PS5
	SMEC /STSISP 1. Mr Jonathan Carroll – Construction Supervision Engineer 2. Mr Iannang Teaioro – Safeguard Officer (Environment and Resettlement) 3. Mr Rikaare Bonto – Assistant Community Mobiliser, MPWU
Apologies	Nil

ITEM No.	MINUTES	ACTION	
		BY	DATE
1.	<u>Points of discussion:</u>		
	i. Incident on Thursday 1 st of December; ii. Construction Access to PS5 site and Landowners land		
<u>The proceedings of the meeting include</u>			
2.	Meeting was called after the ICB 01 Contractor CCB temporarily stored the new pump station well on Mr. Tauro Temeaa land. Mr. Temeaa requested CCB to remove this at once.		
3.	Mr. Teaioro and Mr. Temeaa undertook the discussion in i-Kiribati. Mr. Teaioro apologised for the placement of the well temporarily on the Mr. Temeaa's land. Mr. Teaioro noted that the well will be moved by CCB later today.	CCB/STSI SP	05/12
4.	Mr. Temeaa noted that he was no longer happy for the project works to take place on his land. He noted that in 2014 that the Secretary of Cabinet made an offer of 25,000\$AUD for his land. He is seeking this full amount, as payment for historical use of his land and the removal of the pump station. He told us that he has contacted his Legal Representatives.		
5	The meeting concluded at 0930 and the STSISP team left.		

Minutes by:

Jonathan Carroll

SMEC ICB 01 Construction Supervision Engineer, STSISP

Annexure 3A



GOVERNMENT OF KIRIBATI
MINISTRY OF ENVIRONMENT, LANDS & AGRICULTURAL DEVELOPMENT

LAND MANAGEMENT DIVISION
 PO Box 7, Bairiki, Tarawa. Republic of Kiribati.
 Phone No: 686 21283 Fax No: 686 21463

File ref:

Date: May 2014

BORARAOI MA TAAN ABABA IBUKIN PUMPS No1, 5 & 6 Bikenibeu
May 2014

Ngaira aika taan ababa aika oti arara ma ara tiaina inano ti kakoaua ao ni kariaia kanoan te boraraoi aio n aron taekana ae inano; (We, the landowners whose names and signatures appears below agree to content of the letter of intent as follow :)

- i) Bwa ti kariaia ao man kukurei ni butimaei ana kabowmi te Tautaeaka ibukin kabonganana abara ibukin taian bam aika a tei iaona ngkai. (We agree and accept Government compensations for the use of our land plot.)
- ii) Bwa ti kariaia bwa ena waaki ngkai karaoan ao biriakinan te kabwamwane ibukin te kabomwii nakoira n te mwaiti are ea tia n kabwatia ao ni baireia te Kaebineti. (We agree that Government is arranging payment of compensation recently approved by Cabinet.)
- iii) Bwa ena waaki te mwakuri ni katamaroa ke te Project nakon bwam aikai n akea ara totoko ni itera nako nakoia taan mwakuri ake ana waakina aio. (We agree that the work on the Project can proceed without our interference.)
- iv) Bwa ena waaki karaoan te boraraoi n riiti imarenara ma te Tetautaeaka are ena rinanon kawaina iaan te Tua. (That a special lease agreement between us and Government will be prepared according to the existing laws.)
- v) Bwa ngkana iai tangiran te toutia ke kaitiakan te aro ni bwaibwai ao bon tabera bwa tina waakina moa aio imwain butimwaeen te kabomwii te mwane ma aio e na aki totokoa wakinan mwakuri aikana oti n i), ii), iii) ao iv). (That if there is an issue on landownership on the land plot where the Pump Station is located, it is our duty to ensure the issue is resolved through Court Proceeding without hindering works in i), ii), iii) and iv).)

Ngaira taan ababa aika oti inano

Pump No1
 Ruiti Uriano
 mtmm (list all)

Pump No5
 Tetaua Temea
 Tauroa Temea
 Nangkiba Temea
 Tamarontarae Temea

Pump No6
 Toka Baitere
 Kakoroa Karekenna
 Aroito Bitanana
 (list others as well)

Witness by
 (Title)

Date:

Annexure 3B

GOVERNMENT OF KIRIBATI

MINISTRY OF ENVIRONMENT, LAND & AGRICULTURE DEVELOPMENT
LAND MANAGEMENT DIVISION

PO Box 7, BAIRIKI, TARAWA, REPUBLIC OF KIRIBATI

Phone No. +686 21283 Fax No. +686 21463

E-mail.



BORARAOI MA TAAN ABABA IBUKIN PUMP No1, Bikenibeu

25 July 2014

Ngaira aika taan ababa aika oti arara ma ara tiaina inano ti kakoaua ao ni kariaia kanoan te boraraoi aio n aron taekana ae inano;

- i) Bwa ti kariaia ao ni kukurei ni butimaeia taan mwakuri bwa ana roko ni karaoa te mwakuri ni katamaroa nakon te pump ke aomatan te Project n roko n tua te mwakuri ni katamaroa nakon te pump n akea ara totoko,
- ii) Ti kukurei n butimaea ana kabomwi te Tautaeika ibukin kabonganana abara ibukin te bwam ae tei iaona ngkai, *n te mwaiti ae \$10,500 are ea tia ni kabwatia ao ni bareia Kaebineti.*
- iii) Bwa ti kariaia bwa ena waaki karaoan ao biriakinan te kabwaka mwane ibukin te kabomwii nakoira n te mwaiti are ea tia n kabwatia ao ni bareia Kaebineti imwin tian te toutia ao kanakoan ana moti te bowi n Aba *ibukin kakoauana bwa e tei iaon aban antai te bwam ao antai are ena riai ni bwaka nakoina te kabomwii.*
- iv) Bwa ena waaki karaoan te boraraoi n riiti imarenara ma te Tetautaeika ibukin kabonganakin abara ibukin te bwam are ena rinanon karaoana iaan te Tua *ngkana e tia ii) ao iii) ieta*
- v) Ngkai ti kakoaua bwa iai tangiran te toutia bon taben ana Project te Tautaeika kaitaran kabanemane ao biriakinan te toutia ma te kabowi imwain butimwaeen te kabomwii te mwane ma aio e na aki totokoa wakinan mwakuri irouia taan mwakuri ke aomatan te Project ibukin karaoan te pump n aron are oti n i) ieta.
- vi) Ara kariaia ao ara boraraoi aika oti ieta bon ti ibukin taekan te bwam. Ibukin "man-holes" aike a tei naba iaon abara *n reitaki ma baibu aike a wene iaan abara ti na manga rinanoia ma te Tautaeika ke ana rawabata te Tautaeika are tabena imwin tian te toutia ao kanakoan ana moti te bowi n Aba iaon tian abara ma taan ababa aika tii aontia ma ngaia.*

Ngaira taan ababa aika oti inano:

South Tarawa Sanitation Improvement Sector Project:

Ruiti Uriano mtmm

25/7/14

Taboia Metutera
Water Sanitation Engineer

25/7/14

Witness:

Tekabang Uriano
Dated: 25/7/14

Witness:

Tebulonga Kreda
Dated: 25/7/14

Annexure 3D

GOVERNMENT OF KIRIBATI
 MINISTRY OF ENVIRONMENT, LAND & AGRICULTURE DEVELOPMENT
 LAND MANAGEMENT DIVISION
 PO Box 7, BAIRIKI, TARAWA, REPUBLIC OF KIRIBATI
 Phone No. +686 21283 Fax No. +686 21463
 E-mail.



BORARAOI MA TAAN ABABA IBUKIN PUMPS No1, 5 & 6 Bikenibeu
 28th May 2014

Ngaira aika taan ababa aika oti arara ma ara tiaina inano ti kakoaua ao ni kariaia kanoan te boraraoi aio n aron taekana ae inano;

- i) Bwa ti kariaia ao man kukurei ni butimaeia taan mwakuri bwa ana kona n roko n karaoa te mwakuri ni katamaroa nakon te pump ke aomatan te Project n roko n tuo te mwakuri ni katamaroa nakon te pump n akea ara totoko,
- ii) Bwa ti kariaia bwa ena waaki karaoan ao biriakinan te kabwamwane ibukin te kabomwii nakoira n te mwaiti are ea tia n kabwatia ao ni baireia te Kaebineti imwin tian te kakaraoi iaon te bwaibwai n te aba nakon are ena toka arana n te aba man motin te boowi n Aba
- iii) Ti kukurei n butimaea ana kabomwi te Tautaeaka ibukin kabonganan abara ibukin te bwam ae tei iaona ngkai,
- iv) Bwa ena waaki karaoan te boraraoi n riiti imarenara ma te Tetautaeaka are ena rinanon kawaina iaan te Tua
- v) Bwa ngkana iai tangiran te toutia ke kaitiakan te aro ni bwaibwai ao bon tabera bwa tina waakina moa aio imwain butimwaeen te kabomwii te mwane ma aio e na aki totokoa wakinan mwakuri aikana oti n i), ii), iii) ao iv)

Ngaira taan ababa aika oti inano ibukin Pump Nos: One (Pump 1)

* KABUTA TEKITANGA

LANDOWNER
 TITLE:

Dated on this 28th May 2014.

Witnessed by:

Taboia Metutera

Moote Korina

SMEC Engineer
 Title

LAND VALUER
 Title:

Annexure 3E

GOVERNMENT OF KIRIBATI
 MINISTRY OF ENVIRONMENT, LAND & AGRICULTURE DEVELOPMENT
 LAND MANAGEMENT DIVISION
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 E-mail.



BORARAOI MA TAAN ABABA IBUKIN PUMP No1 Bikenibeu
 12th June 2014

Ngaira aika taan ababa aika oti arara ma ara tiaina inano ti kakoaua ao ni kariaia kanoan te boraraoi aio n aron taekana ae inano;

- i) Bwa ti kariaia ao man kukurei ni butimaeia taan mwakuri bwa ana kona n roko n karaoa te mwakuri ni katamaroa nakon te pump ke aomatan te Project n roko n tuo te mwakuri ni katamaroa nakon te pump n akea ara totoko,
- ii) Bwa ti kariaia bwa ena waaki karaoan ao biriakinan te kabwamwane ibukin te kabomwii nakoira n te mwaiti are ea tia n kabwatia ao ni baieraia te Kaebineti imwin tian te kakaraoi iaon te bwaibwai n te aba nakon are ena toka arana n te aba man motin te boowi n Aba
- iii) Ti kukurei n butimaea ana kabomwi te Tautaeika ibukin kabonganana abara ibukin te bwam ae tei iaona ngkai,
- iv) Bwa ena waaki karaoan te boraraoi n riiti imarenara ma te Tetautaeika are ena rinanon kawaina iaan te Tua
- v) Bwa ngkana iai tangiran te toutia ke kaitiakan te aro ni bwaibwai ao bon tabera bwa tina waakina moa aio imwain butimwaeen te kabomwii te mwane ma aio e na aki totokoa wakinan mwakuri aikana oti n i), ii), iii) ao iv)

Ngaira taan ababa aika oti inano ibukin Pump No1:

Takaria Tiira

Dated on this 12th June 2014.

Witnessed by:

Moote Korina

AG. CLMO (LAND VALUER).

Title:

Annexure 3F

GOVERNMENT OF KIRIBATI

MINISTRY OF ENVIRONMENT, LAND & AGRICULTURE DEVELOPMENT

LAND MANAGEMENT DIVISION

PO Box 7, BAIRIKI, TARAWA, REPUBLIC OF KIRIBATI

Phone No. +686 21283 Fax No. +686 21463

E-mail.



BORARAOI MA TAAN ABABA IBUKIN PUMP No1, Bikenibeu

25 July 2014

Ngaira aika taan ababa aika oti arara ma ara tiaina inano ti kakoaua ao ni kariaia kanoan te boraraoi aio n aron taekana ae inano;

- i) Bwa ti kariaia ao ni kukurei ni butimaeia taan mwakuri bwa ana roko ni karaoa te mwakuri ni katamaroa nakon te pump ke aomatan te Project n roko n tua te mwakuri ni katamaroa nakon te pump n akea ara totoko,
- ii) Ti kukurei n butimaea ana kabomwi te Tautaeika ibukin kabonganana abara ibukin te bwam ae tei iaona ngkai, *n te mwaiti ae \$10,500 are ea tia ni kabwatia ao ni bareia Kaebineti.*
- iii) Bwa ti kariaia bwa ena waaki karaoan ao biriakinan te kabwaka mwane ibukin te kabomwii nakoira n te mwaiti are ea tia n kabwatia ao ni bareia Kaebineti imwin tian te toutia ao kanakoan ana moti te bowi n Aba *ibukin kakoauana bwa e tei iaon aban antai te bwam ao antai are ena riai ni bwaka nakoina te kabomwii.*
- iv) Bwa ena waaki karaoan te boraraoi n riiti imarenara ma te Tetautaeika ibukin kabonganakin abara ibukin te bwam are ena rinanon karaoana ian te Tua *ngkana e tia ii) ao iii) ieta*
- v) Ngkai ti kakoaua bwa iai tangiran te toutia bon taben ana Project te Tautaeika kaitaran kabanemane ao biriakinan te toutia ma te kabowi imwain butimwaeen te kabomwii te mwane ma aio e na aki totokoa wakinan mwakuri irouia taan mwakuri ke aomatan te Project ibukin karaoan te pump n aron are oti n i) ieta.
- vi) Ara kariaia ao ara boraraoi aika oti ieta bon ti ibukin taekan te bwam. Ibukin "man-holes" aike a tei naba iaon abara *n reitaki ma baibu aike a wene iaon abara ti na manga rinanoia ma te Tautaeika ke ana rawabata te Tautaeika are tabena imwin tian te toutia ao kanakoan ana moti te bowi n Aba iaon tian abara ma taan ababa aika tii aontia ma ngaia.*

Ngaira taan ababa aika oti inano:

South Tarawa Sanitation Improvement Sector Project:

Ruiti Uriano mtmm

25/7/14

Taboia Metutera
Water Sanitation Engineer

25/7/14

Witness:

Tekabang Uriano
Dated: 25/7/14

Witness:

Tebulonga Kreda
Dated: 25/7/14
DOL

Annexure 3G

GOVERNMENT OF KIRIBATI

MINISTRY OF ENVIRONMENT, LAND & AGRICULTURE DEVELOPMENT

LAND MANAGEMENT DIVISION

PO Box 7, BAIRIKI, TARAWA, REPUBLIC OF KIRIBATI

Phone No. +686 21283 Fax No. +686 21463

E-mail.



BORARAOI MA TAAN ABABA IBUKIN PUMPS No1, 5 & 6 Bikenibeu

May 2014

Ngaira aika taan ababa aika oti arara ma ara tiaina inano ti kakoaua ao ni kariaia kanoan te boraraoi aio n aron taekana ae inano;

- i) Bwa ti kariaia ao man kukurei ni butimaei ana kabowmi te Tautaeaka ibukin kabonganana abara ibukin tain bwam aikana tei iaona ngkai
- ii) Bwa ti kariaia bwa ena waaki ngkai karaoan ao birizkinan te kabwamwane ibukin te kabomwii nakoira n te mwaiti are ea tia n kabwatia ao ni baiera te Kaebineti
- iii) Bwa ena waaki te mwakuri ni katamaroa ke te Project nakon bwam aikai n akea ara totoko ni itera nako nakoia taan mwakuri aike ana waakina aio
- iv) Bwa ena waaki karaoan te boraraoi n riiti imarenara ma te Tetataeaka are ena rinanon kawaina ian te Tua
- v) Bwa ngkana iai tangiran te toutia ke kaitiakan te aro ni bwaibwai ao bon tabera bwa tina waakina moa aio imwain butimwaeen te kabomwii te mwane ma aio e na aki totokoa wakinan mwakuri aikana oti n i), ii), iii) ao iv)

Ngaira taan ababa aika oti inano

Pump No1:

Ruiti Uriano

mtmm (list all)

Pump No5:

Tetaua Temea

Tauroa Temea

Nangkiba Temea

Tamarontarae Temea

Pump No6:

Toka Baitere

Kakoroa Karekenna

Aroito Bitanana

(list others as well)

Witness by:

Taboia Wiefukera
Title Water Engineer, SMC

Date:

14/05/2014

MOOTE ANATA
Title: LAND VALUER
MOOTE ANATA

14/05/2014

File Ref: 19/49

Memo No. /17

(Date)

INFORMATION ON LAND ACCESS TO RIBONO

(Presented by the Minister for Public Works and Utilities)

PURPOSE

1. The purpose of this paper is to update and inform Cabinet on the status of negotiations in the attempts to gain access to land to undertake works associated with the South Tarawa Sanitation Improvement Sector Project (STSISP).

BACKGROUND

2. STSISP, the ADB/DFAT funded project, is for the purpose of improving sanitation in South Tarawa and among other components includes works associated with the rehabilitation of the sewer network in Betio, Bairiki and Bikenibeu.
3. A particular matter in relation to the works is the relocation of Pump Station No 5 in Bikenibeu currently being located on land identified on the Land List as Ribono 663a/1a. The relocation has been required due to GoKir being unsuccessful in their attempts to gain agreement with the landowner on an offer/s of compensation to lease the current pump station site. Attached are details of previous assessments and evaluations of previous offers made over the course of the project. Of which were not accepted.
4. The basis of determining the value of the offers were in line with GoKir determined land compensation leasing rates appropriate and is comparable with other land agreements in Kiribati. It was determined that the compensation being claimed was excessive and outside the guidelines for determining the amount due.

SECRET

PROPERTY OF THE CABINET

5. As a result the decision was to relocate the pump station onto nearby Government leased land with acknowledgement that this would also involve removal of the old pump station from the private land in question and reconnection of the existing sewer into the new pump station. This would be in lieu of payment of any compensation.

ISSUES

6. In Nov 2017 the representatives of the STSISP project team the landowner Mr: Tauroa Temeaa of whom was the party that had been engaged in the previous compensation negotiations. At the time he was informed that the project was at stage that the component of works to remove the pump station, reconnect the pipework and reinstate the land was due to commence shortly.
7. When the contractor arrived on-site in early Dec 2016, they were informed by Mr Temeaa that they were not permitted to enter the land.
8. In consultation with PUB a letter was issued to formally advise of the rights under the PUB ordinance to enter the land to undertake the works, however Mr Temeaa continued to object to that advice. In order not to cause any confrontation the contractor was instruction not to undertake any works on the land unless otherwise instructed. The contractor then proceeded with work on installing the new pump station and other associated works outside of the land.
9. On 26 Jan 2017 a PUB led delegation met with Mr Temeaa in order to attempt to gain an agreement to enter the land and undertake the works. Unfortunately the delegation was unsuccessful and the minutes of the meeting are attached. It should be noted that it is of Mr Temeaa's benefit to allow entry otherwise the restoration of the old site cannot occur which was highlighted to Mr Temeaa.
10. There is however another emerging matter associated with ownership of the land whereby other parties have recently made representations claiming ownership of the land. We have been advised that these

matters are being or will be submitted as a matter for the court to determine. From recent research, it is appears from the Land List extracted from Lands Department, that Mr. Temeaa is not the only owner of the land Ribono 663a/1a but others are also registered on the same land. Further advice is that named land owners have been determined on the land however no boundaries determinations have been carried out on which plot belongs to whom.

RISKS

11. There are a number of other properties upstream of the pump station that are being and remain affected by the old inoperable pump station in question. The risk is high that in order to determine an alternative solution the risk of delaying the rectifying this problem is high.
12. Assuming the land in question has an existing connection to the sewer the project will not be able to make good a new connection to the realigned sewer nor restore the old pump station site.
13. The Contractor undertaking the works are effectively being delayed either now or very soon and there is a risk of financial impacts as a result of time related costs associated with the delay being claimed by the Contractor.

OPTIONS

14. The project is current undertaking an investigation on how works may proceed without entering onto the land. In particular there is a school located to the east of the land in question that is being affected. At this early stage full options for this and potential impacts on working on other land/s have not been assessed.
15. Under Sections 8 (2) (e) and (f) PUB Ordinance STSISP being agents of PUB has the right to enter the land to undertake the works and notice to that affect was served on 14 Dec 2016. At this stage the

decision has been not to exercise that right and such an option to do so is not preferred.

16. The Government may wish to consider undertaking a Ministerial delegation and enter into high level negotiations with Mt Temēaa to determine. With the emerging issues of the existence other landowners the project team will be required to undertake further activities on determine other parties' positions on consenting to enter the land to carry out the works.

LINKS WITH GOVERNMENT POLICY AND PRIORITIES

17. The rehabilitation of the sewerage system is a key output for the project of which timely delivery is being impacted by the land issues associated with the PS 5 site matter.

PUBLIC IMPACT

18. As indicated in the risks the effect on other land owners by way off sewer overflow continues to occur.

FINANCIAL IMPLICATION

19. The financial cost of an alternative design to remain outside the land is yet to be determined as it will depend on whether the solution involves additional pump station/s and pipework's etc. Hence advice on this may require further reporting.
20. The Contractor is yet to make notice of a claim for financial losses due to time related delay. In similar matters related to time related cost the Contractor has indicated amounts ranging from \$1,000 to \$3,000 per day. However no assessment has been made on any actual impact at present.

CONSULTATIONS

21. Consultations have occurred with the PUB and Secretary to Cabinet and the landowner understood to be the rightful owner and/or the representative for the other parties. Given that now appears not the case further consultations will be required to occur.

RECOMMENDATIONS

22. Cabinet is kindly asked to consider the options presented in this paper with the preferred option to undertake a Ministerial delegation to attempt to gain agreement to enter the Land Ribono 663a/1a

23. The project continues to investigation on alternatives in the event the delegation is unsuccessful.

Betio

K.N

Tarawa

[Date]

From: Fuatino Noa <fuatinonoaga@gmail.com>
Sent: Tuesday, 27 December 2016 4:17 PM
To: Rodd O'Grady; CONNELL, Andrew; Itienang Timona
Cc: Tokaata Niata; Peregrine Tonking
Subject: Meeting with Mr. Tauroa Temeea @PUB

Good Afternoon everyone,

Today 27/12/2016, Mr. Tauroa was served with the Notice of Entry. At about 2pm he came to PUB about the letter.

Mr. Tauroa is very unhappy with the letter. He believed that there was an unsettled agreement for compensation to be paid. The agreement have yet to be settled and PUB is giving him notice of entry of 7 days.

NOTE: Mr. Tauroa's feeling during the meeting, he was very angry and unhappy with the approach.

Mr. Tauroa, is unhappy about the law that PUB is using to enter his land, as it seem that we have no respect for them land owners. He even threaten us, to do come to his land, and will see what will happen, they will be ready for us when we enter his land.

He talked about not accepting the \$10,000 like the other lands owners have, because where the PS is located on others land is close to the road and not must work will be required to do their lands. Compare to the PS5 located on his land, it will require a lot of damages, not forgetting the trees, land itself, his well water and his family home will be damaged as a result of this entry.

Mr. Tauroa despite our effort to ease him and calm him down, he intended to leave. We kindly asked him not to leave, and that we want to talk things over with him, and then sat back down on his seat.

We explained to him the Law (Public Utilities Ordinance) and reason why entry is required. Although he did not seem to accept our explanation, it was clear that Mr. Tauroa was unhappy for us to enter his land, until settlement is made.

We have asked Mr. Tauroa of his willingness to negotiate this matter to which he agreed and will await our letter for another appointment with him. Mr Tauroa will liaise with his Lawyer Mr. Banuera. Berina.

After the meeting, Mr. Tuaroa apologized for his reactions. We informed him that it was ok, and we understand his point of view as a land owner.

That is a summary of our meeting with Mr. Tauroa.

Now, Rod, i recall that when we met at Itienang's room, you talked about the Project willingness to pay compensation of say \$25,000 -\$30,000. We PUB again propose whether this willingness still stands? If Project is prepared to pay this amount, how do we go about in processing this?

I fear that, this is likely to result in a violent if this matter is not settle anytime soon. We must bare in mind the RIGHTS OF LAND OWNERS OVER THEIR LANDS as we go about in implementing the Project and also for the safety of all employees.

Itienang, please if i have left anything out please do fill in the gabs.
Ko rabwa and hope to hear from you.

Kind Regards

Tino

--

Anieli Fuatino Noa
Legal Advisor
PUB
Betio
Kiribati

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MINUTES OF MEETING WITH MR. TAUROA TEMEAA

Venue: Utirerei Motel Conference Room, Ambo

Date: 26 January 2017

Time: 11:30 am

Present: 1. Mr. Tauroa Temeaa (Land Owner of Ribono 663a/1)

PUB Members

1. Mr. Tebano Tauatea (PUB Board Director/Acting Chirman)
2. Mr. Tokaata Niata (Advisor to CEO, PUB)
3. Mrs. Anieli Fuatino Noa (Legal Advisor)

CCB/STSISP/SMEC

1. Mr. Iannang Teaioro- Safeguard Officer (Environment & Resettlement) representing STSISP
2. Mr. Rodd O'Grady (CCB)
3. Andrew Connell (STSISP)

Apologies: Mr. Banuera Berina (Counsel/Legal Representative for Mr. Tauroa)

Subject: Discussion on Permission for Construction/Project to enter Ribono 663a/1 to Rehabilitate PS 5.

Minutes By: Anieli Fuatino Noa

BEFORE DISCUSSION COMMENCED:

- Before the discussion commenced, Mr. Tauroa explained that his lawyer cannot make it to the meeting but if he is required he can be called.
 - It was explained to members of the meeting that, Mr. Banuera was contacted yesterday and he explained he was available for the meeting at 11 am but unavailable in the afternoon.
 - He was asked if it was ok to continue without his lawyer, Tauroa said it is ok, he has seen him already, when he is needed he will contact him.
-

MEETING COMMENCED

Mr. Tebano: Meeting will be in Kiribati
Opening Prayer

Mr. Tebano explained the purpose of the meeting- To seek permission from land owner Mr. Tauroa for project to enter his land to rehabilitate land, access the pump station # 5 and do what is required to be done.

Mr. Tauroa appeared to understand what Mr. Tebano explained.

Mr. Tauroa:

Explained that he understood what Mr. Tebano explained. He further stated that all is done in court, it was left to PUB with his claim of \$25,000 and then Cabinet did not accept this amount and so it was left unattended until today.

He claim that what PUB/Project want now is to remove, rehabilitate and clean the Pump station. There are pipes that require to be installed.

These are the things that PUB/Project want to do, BUT how about what the amount he demanded.

Even if Project enters the land to do rehabilitation, it is not like it will restore the land to its old status in the beginning.

The only way that PUB/Project enter his land is that \$25,000 be paid, once this is paid, then Project can enter his land.

Mr. Tebano:

The Intention to enter is not only to rehabilitate your land, but to remove PS 5 off your land which is your request to the Court in the very beginning. You sued PUB in court to have PS#5 be evicted from you land.

To fulfil what you have requested, we need to enter your land to take away the PS5.

Mr. Tebano explained that the offer from Government is only \$10,000 just like what other landowners have received.

Where there are damages that may arise as a result of entry to do the work on his land, Mr. Tauroa will be compensated for, but he must bring this to court.

Mr. Tebano continually, request saying PLEASE to allow PUB/Project to enter to repair/rehabilitate his land in order to have the Project proceed with its components, very soon this project will come an end.

Ms. Noa/ Mr. Rodd:

Explain that Project need to start working on the PS5 by next week, it is likely that by June the overall the project will end.

Therefore it is very crucial that permission to enter is given.

Mr. Tauroa:

It is his understanding that, just because Project will come to an end soon, entrance is required immediately.

BUT how about my claim that he have demanded for in court, it was left unattended until this day that Project/PUB want entrance in to his land.

The request PUB/Project is making is something very new, compare to what he have demanded for back when it all started in court.

Ms. Noa

To assist please, yes this matter was in court back in 2010. In 2011 Single Magistrate Katikora rule that the matter be left to the parties to come up with a compensation amount out of court, the case have not been fully disposed.

PUB/Government offered \$10,000 (an offer from Government) whereas Tauroa wanted \$25,000.

PUB have taken all the effort of contacting Tauroa and arranged meeting with him and legal counsel. For these effort either Tauroa or lawyer responded to these, and the matter was left unattended and it remained unsolved.

Because no agreement as to compensation, you as claimant/plaintiff in the court proceeding needed to go back to court, so that the court will make a determination of how much compensation you will be entitle to.

Recently, in 2016 sometimes in November, Tauroa was approached by members of the Project that they will come on to the land to do work, which Mr. Tauroa accepted.

In December, when Project returned to land to commenced work, Mr. Tauroa was no longer happy for the project work to take place on his land.

Today, we kindly seek your permission for access on to your land. It is not that Tauroa will not receive any compensation, I believe Tauroa will receive compensation, however at this point of time, it is crucial that entrance or permission to enter is given.

We will not enter to destroy the land NO... entrance to land is to remove the PS5, clean it all up, rehabilitate, install the required pipes from PS5 to the new pump station.

This work is required to be done, so that Tauroa don't ever have to continue to experience the nuisances, smell the terrible smell of human waste, etc.

If no entrance/permission to enter, it is likely that you Tauroa will continue to face the same problems you have faced in the past, in the future.

Mr. Tauroa:

He apologized that it cannot happen, he has taken PUB to court already and still no money has been paid to him.

He is off the understanding that \$10,000 accepted by other landowners is because the PS on their land is close to the road, whereas the PS on his land is not by the road.

Allowing the Project to continue construction.... Where will he and family live?

There are about 5 Manhole connected to PS5 and at times it overflows and the smell he and his family had to live with for the past years needs to be compensated in the amount demanded.

Mr. Iannang:

To assist to clarify more, what is going to be done in order to end the nuisances you have faced for so many years, it is to enter your land, install the relevant pipe lines from those manhole and have them redirected to the new pump station across your land.

So accessing your land will enable us to make connections from PS5 on your land to the new pump station.

Mr. Tauroa:

If access is given to you, my "well" (maniba) will be affected. Those pipe lines will damage the land, my house will be affected.

Mr. Iannang:

There is another way that the engineers (Mr. Rodd) explained your well and home will not be affected. (Plan of how well will not be affected explained and showed to him)

Mr. Tauroa:

So you want me to accept entry to my land, and I have to continue chasing up the amount I demanded. NO, unacceptable.

Ms. Noa

It is our kind request that you please, allow us access on to your land to do the work required, and we continue to work together on the compensation amount

Ms. Tauroa:

Apologize in regards to the request, we have also request for compensation in the past, no acceptance, disregard rights of land owner, if request for compensation was granted it would not be a problem today. Court is done and still no payments.

Mr. Tokaata:

There is a way that you can make sure PUB will pay this amount of \$25,000. One of the option is for Tauroa to file a case in the court for the amount of \$25,000, the court will make an order and PUB/ Government will be bound by this amount.

If it is possible, we again request that construction to continue as this is what you requested, to have the pump station removed and clean it all up from your land, and compensation will be chased up, followed up and court to decide.

Mr. Tauroa:

The amount demanded must be paid first and then entrance for construction will be given.

The construction will surely cause damages to land, just like the coconut trees they are digging at the moment, the money you are going to pay will not return the life of a coconut. Family well will be affected and this is a well from my ancestors.

Therefore, Apology no entrance until full amount is paid.

Mr. Tebano:

When entrance is made, construction continue, any damages caused will all be compensated to you.

Mr. Tauroa:

I have to apologize, but pay the amount requested and entrance will be permitted.

Mr. Tebano:

Explained that meeting has come to an end.

End of Discussion

From: CONNELL, Andrew
Sent: Thursday, 26 January 2017 3:08 PM
To: Rodd O'Grady Kir; Tino (fuatinonoaga@gmail.com)
Cc: Remoun Ramzy (Remoun.Ramzy@smec.com); Iannang Teaioro
Subject: SMEC office visit by PS5 Landowner
Attachments: 008.JPG; 010.JPG

All,

Mr. Arawatau Miito (PS5 landowner) came by the SMEC office yesterday. I met with him to see if I could ascertain his concerns as I will document herein. The tone was amicable however communication was hampered by a lack of common language and lack of documentation. Charis (office Manager) served as a translator.

Mr Miito advised that he had been directed to the SMEC office by Mack (CCB) in regards to seeking compensation for shipping containers he believes are on his land. I informed him that SMEC has no role in his dispute or compensation issues but advised him that we would document and pass along his concerns. His suggested compensation rate for the container land use was \$20/day. He also stated that he had discussed this matter with Lands but could not produce any documentation or the name of the person he talked with. Later, Charis went to lands with Mr Miito to establish whom he had talked to and whether there were any pending actions. Lands (Mr Johnson _____) informed Charis that they plan to visit the site today to determine whether the containers are actually on government land.

Noel provided some photos to document the location of the containers (attached).

To be clear SMEC's only role is to document Mr Miito's concerns – we are happy to facilitate all parties towards an agreement but have no advocacy position.

On a related note Mr Miito has been advised that he can seek compensation for the removal of two coconut trees from Lands – It is my understanding that he understands this and has entered discussions with Lands.

Andrew Connell
Project/Supervision Manager STSISP

APPENDIX 3 BIKENIBEU OUTFALL PRE-INSTALLATION SURVEY REPORT



Bikenibeu Outfall Pre-Installation Survey Report

Contract Name : South Tarawa Sanitation Improvement Sector Project
Contract No : KIR-STSISP – Works ICB02
Job No : MC.E.0453
Client : Ministry of Public Works & Utilities, Republic of Kiribati
Project Location : South Tarawa, Kiribati
Project Manager : Matt Haskett
Survey Dates : December 5-15, 2016

1. Bikenibeu survey report

This pre-installation survey report was conducted by B. K. Fellenius Consultants on behalf of Maritime Constructions to fulfil the contract requirements.

The pre-installation Survey was carried out over a number of days to document the removal of obstructions and relocation of corals from the proposed route.

2. Proposed route changes

The proposed change in route shown in figure 1 is an optimisation of the outfall route at Bikenibeu due to changed seabed conditions since the initial survey was undertaken in 2015.

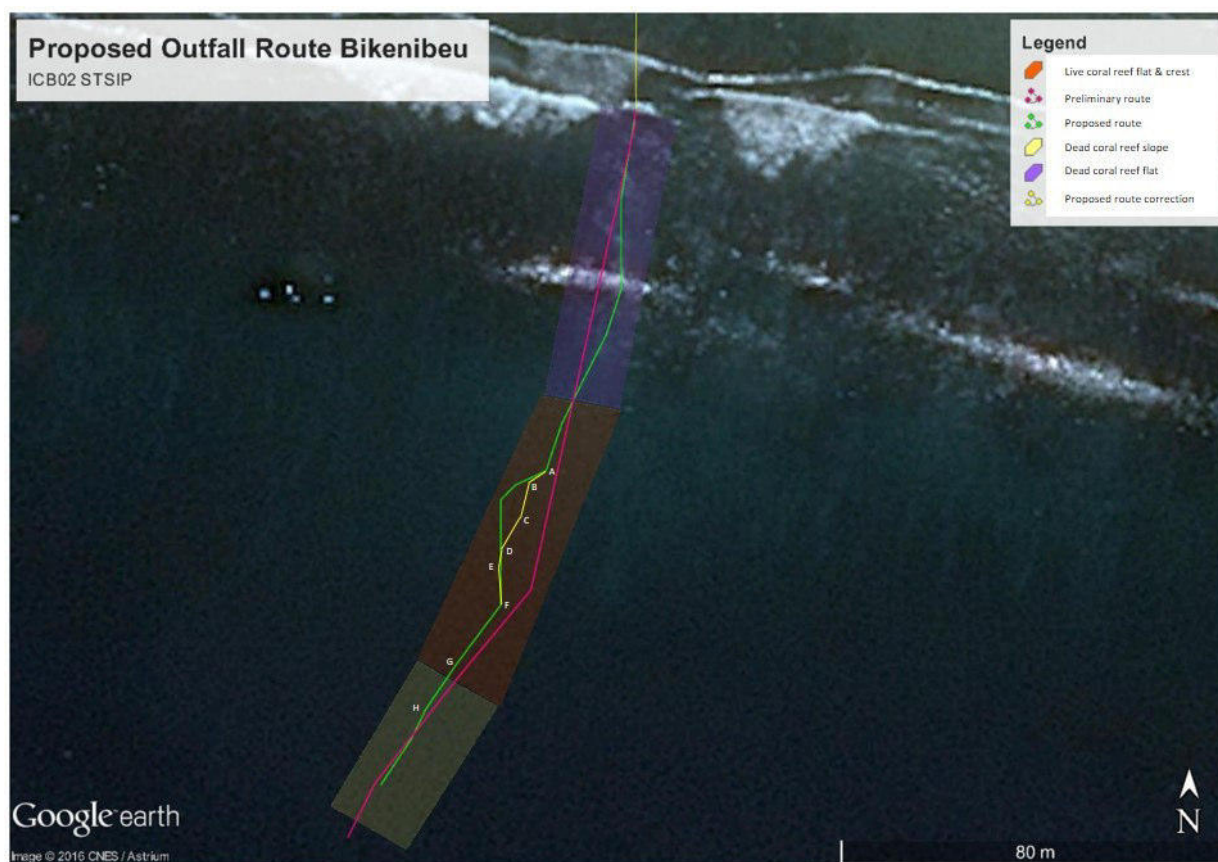


Figure 1: Preliminary and Proposed Pipe routes [Adapted from Anderson Dec 2016 by Fellenius]



Bikenibeu Outfall Pre-Installation Survey Report

Major factors influencing the route optimisation:

- Severe coral bleaching has continued to occur since the initial survey, in Sept-Dec of each of 2015 and 2016. The optimised route crosses a larger portion of the dead coral, minimising the impact on living coral colonies.
- The optimised route has less established living coral colonies to relocate, and therefore minimises the disturbance to the coral reef ecosystem.
- The preliminary (current design) route has more obstacles to be moved than described in the initial survey. Since the initial survey more obstacles have migrated into the preliminary route, likely from storms or strong swell activity. Moving less obstacles provides a better outcome as ecosystem disturbance is minimised.
- The optimised outfall route provides a more consistent gradient, reducing the risk of any high point that may trap air and increase the outfall pipe line buoyancy.

The optimised route is defined by the proposed route (green) with the corrected segment A through F (yellow) in figure 1. The proposed route (green) was outlined in December 2016 using GPS positions taken by Maritime Constructions and chainage between staked positions with a tape measure by B. K. Fellenius Consultants. The significant deviation between points B and D necessitated a re-alignment of the proposed route during the latter half of the obstructions removal work. The corrected segment (in yellow) between points A and F was verified in the field by B. K. Fellenius Consultants, and is validated by the attached video and photos below.

3. Survey Photos

The intent of the survey photos is four-fold:

- Provide examples of coral colonies to emphasize the lack of variety of species that survived the coral bleaching events in 2014-2016.
- Show specific examples of relocated corals, pre- and post-relocation where possible. The survey team was tasked with this report after the work was complete, so this objective is only partially met with photos. However, the attached video of the route clearing of obstructions and coral relocation clearly shows the method used for the placement of relocated coral colonies. Note that this will be more fully addressed in photos for similar reports for Betio and Bairiki.
- Demonstrate a clear route via trench line video captures, referencing obstructions pre- and post-removal.
- Demonstrate a relatively straight route via high angle trench line video captures and top-view photos, where possible. Photos showing the route angle and substrate at each of points A through H are provided to give further detail for the ease of laying of the pipe.

Broken Pipe Removal

Four lengths of broken pipe were separated at their flanges using bolt cutters and floated via lift bags to an excavator for removal to shore (figs. 2 and 3).



Figure 2: Broken pipe removal via lift bags



Figure 3: Broken pipe removal via excavator

Bikenibeu Outfall Pre-Installation Survey Report

Reef Flat from End of Existing Pipe to Point A

The shallow reef flat is devoid of live coral, like it was during the initial 2015 survey. The route follows a straight line for one-quarter of the way and then goes to the east of a large coral rock spur inside the groove for the remaining length. At point A it bends slightly west (figs. 4 and 5).



Figure 4: Point A bend, pre-obstruction removal



Figure 5: Point A bend, post-obstruction removal

Obstructions within the straight line segment were a dozen 0.3-1.5m diameter rocks. Obstructions within the groove were of similar size, although there were many more large rocks to remove. A dozen old concrete anchor blocks were also moved.

A route lining up point A and F was initially staked, but similar to the preliminary route the coral bedrock rises almost 1m and proved difficult to remove. Therefore, the optimised route goes slightly west, adjacent to the rock spur. The pipe can bend against the wall of this large rock spur.

Reef Flat Point B

The rock spur adjacent to point A terminates at a large rock outcrop at point B. To the east is the 1m high bedrock rise and to the west is a narrow gap and a smaller rock outcrop (figs. 6 and 7).



Figure 6: Point B bend, pre-obstruction removal



Figure 7: Point B bend, during obstruction removal

This gap was widened by the removal of the smaller obstruction, and shaving of the side of the larger one. This was a very significant obstruction due to the density of the coral rock, and had to be removed using a car jack. The remaining large rock outcrop is very strong, and can easily facilitate pipe tension.

Bikenibeu Outfall Pre-Installation Survey Report



Figure 8: Point B bend, post-obstruction removal



Figure 9: Point B bend, post-obstruction verification

Some *Pocillopora* sp. (common name broccoli coral) and *Heliopora* sp. (common name blue coral) colonies are present outside the route at point B. While *Heliopora* sp. is bleaching resistant, *Pocillopora* sp. is only partially resistant for some shallow water varieties. It is likely that some bleaching has occurred in the shallows. But since coral cover is 1% at best and bleached coral over time looks like any other algae-covered dead coral, it is difficult to ascertain for sure.

Reef Flat Point C

Once past the large rock outcrop, the groove at point A continues between point B and C. It is not precisely straight and makes a very slight angle, but minimal compared with points A and B (figs. 10-13). The segment from points B to C was filled with 0.5-2.0m diameter rocks. Once removed, the depression had to be raised using numerous old concrete anchor blocks to avoid downstream high points in the pipe (fig. 12).

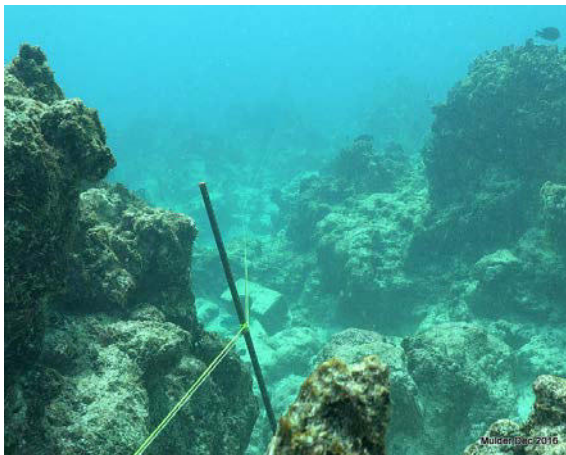


Figure 10: Point B-C depression, pre-obstruction removal



Figure 11: Point B-C depression, post-obstruction removal



Figure 12: Point B-C depression, post-obstruction removal



Figure 13: Point C bend, post-obstruction removal

Bikenibeu Outfall Pre-Installation Survey Report

Reef Flat between Points C and D

Significant *Pocillopora* sp. and some *Heliopora* sp. coral colonies had to be relocated from the continued groove between points C and D (figs. 14 to 16).



Figure 14: Point C-D, *Pocillopora* sp. colony removal



Figure 15: Point C-D, *Pocillopora* sp. colony transport

All relocated coral is placed next to coral of the same type outside of the route at the same depth (fig. 16). The colony is stabilized by digging a hole for the base and placing rock around the sides. Where possible, stability and re-growth is enhanced by having physical contact with the branches of the other colony so that tissues grow together more quickly. On average this can take 2 weeks to 2 months.



Figure 16: Point C-D, *Pocillopora* sp. colony relocation – smaller colony on right.

Some *Pocillopora* sp. colonies displayed evidence of recent bleaching, and coral cover overall in this area is about half compared with the initial 2015 survey. Numerous bleaching-resistant *Porites cylindrica* coral colonies are also present near point D, but all are outside the route.

Bikenibeu Outfall Pre-Installation Survey Report

There were also a few significant bedrock rises and rock outcrops that were removed along this segment of the route (bottom left of fig. 17 and centre of fig. 18, post-obstruction removal only).

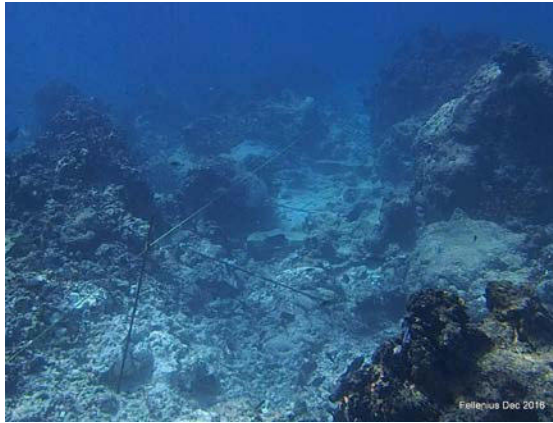


Figure 17: Point C-D centre, post-obstruction removal



Figure 18: Point C-D south, post-obstruction removal

Reef Flat Point D

Just south of point D the adjacent coral assemblage changed from compact colonies of limited variety to single-species cover of the common submassive *Porites rus* (fig. 19). This variety of coral grows quickly, resulting in very weak rock. Thus the side of the trench line at point D will not support significant bending of the pipe (fig. 20).

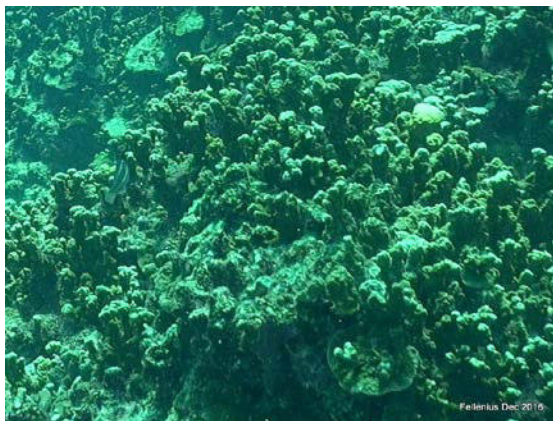


Figure 19: Point D, common *Porites rus* colony



Figure 20: Point D south, post-obstruction removal

The single-species coral assemblage proliferation is typical of atoll lagoon and ocean side subtidal reef flats and reef crests that are less than pristine. It especially occurs in areas that have either had severe bleaching events that cause other species die-off, predation by Crown-of-Thorns seastar, or gradual degradation in water quality from nutrient loading and other stressors. Bikenibeu has had all three.

Reef Flat Point E

One 2m diameter rock and half a dozen 0.3m-0.7m diameter rock obstructions were removed from the groove between points D and E (figs. 21 and 22). There is a good bedrock base to support bending of the pipe at point E.



Figure 21: Point E seaward, during obstruction removal



Figure 22: Point E shoreward, during obstruction removal

Bikenibeu Outfall Pre-Installation Survey Report

Porites rus is common and small broken pieces left in the trench line will re-grow on their own without relocation. Therefore, the live coral obstruction removal along this segment and seawards involved shaving the sides of the trench line and trying to break off as large pieces as possible. Several were up to 1m in diameter and anything over 0.3m was relocated by placing in a depression adjacent to the route amongst the same species. The resulting sides of the trench are therefore vertical, with an exposed rock base and surface live coral cover (fig. 22). The broken coral rock exposes numerous invertebrates like brittle stars, feather stars (crinoids) and cowrie shells. Every effort was made to recover these invertebrates and place them on adjacent coral.

In addition, the water quality conditions that yield *Porites rus* also gives rise to common zooanthids, a coral-like animal that grows in an encrusting manner on coral rock surfaces on reef flats. Zooanthids were only relocated if broken pieces were large enough to warrant the effort to ensure attachment in adjacent rock crevices.

Reef Flat and Back-side of Reef Crest between Points E and F

This segment along the back-side of the reef crest rests within a groove, allowing for a straight route with no bends (figs. 23 and 24).



Figure 23: Point F-E shoreward, during obstruction removal



Figure 24: Point E-F seaward, post-obstruction removal

Just south of point E is a large rock outcrop on the east side of the route. This location marks the end of the reef flat and the beginning of the back-reef crest. The presence of a groove through this often elevated area of abundant coral cover is fortunate for the optimised route. The preliminary route also had a groove, although it was not as ideal as this one (figs. 25 and 26).



Figure 25: Point E-F, pre-obstruction removal



Figure 26: Point E-F, post-obstruction removal

Bikenibeu Outfall Pre-Installation Survey Report

Significant *Porites rus* had to be relocated from within the trench line, with some pieces being 1.5-2.5m in diameter. The colonies grew from a coral rubble and sand base, and broke off intact and relatively easily. The low density of the coral and coral rock enabled the use of lift bags to relocate to adjacent depressions in the reef (figs. 27 and 28).



Figure 27: Point E-F, during obstruction removal



Figure 28: Point E-F, during obstruction removal

At least one large *Pocillopora* sp. was also relocated, and several 0.5-0.8m diameter rocks were moved. The sides of the trench were shaved and the smaller broken pieces left in place to flatten the substrate in preparation for the placement of half a dozen old concrete anchor blocks. The blocks were necessary to avoid rises in the gradient leading up the crest.

Reef Crest Point F

This point has a moderate bend in the route for two reasons (figs. 29 and 30). The segment between points E and F was defined based on the partial sand and rubble base and ease of removal of coral in an existing groove. If a line to the west had been used, it would have tripled the amount of coral to be removed and would have resulted in significant rises in the route due to the lack of a pre-existing groove. Moreover, the segment going west to point G from a route further west would have impacted more diverse coral colonies on the crest than occurred with the optimised route chosen.



Figure 29: north of Point F, pre-obstruction removal



Figure 30: Point F, post-obstruction removal

Reef Crest between Points F and G

This segment makes up most of the reef crest. There is low relief encrusting growth of *Porites rus*, which was left in place with significant effort in flattening protruding pieces. The pipe can easily be laid on top of this substrate. There were three *Pocillopora* sp. colonies that were relocated.

Bikenibeu Outfall Pre-Installation Survey Report

Reef Crest at Point G

There is a 3m diameter *Millepora dichotoma* (common name, net fire coral) colony at this point on the reef crest. It is the only one in the vicinity (fig. 31). Its western edge fell within the route for 0.6m and was relocated (fig. 32).



Figure 31: Point G looking south, Fire coral pre-obstruction removal



Figure 32: Point G looking south, Fire coral during obstruction removal

Net fire coral does not relocate in one piece because it is made up of many separate branches. The base of the branches are usually 5-10cm wide, lacking tissue at the bottom, and accessible. Therefore, about fifty branches were carefully chiselled loose and inserted within the branches on the colony adjacent to the route. The transplanted branches are kept relatively stable within the colony 'net' to allow for re-attachment. They do not re-attach at the base, but rather grow together where their tissues meet further up on the branches.

Pipe laying adjacent to the fire coral does not allow for deviation from the route in either direction, and especially to the east due to the need to avoid contacting the fragile colony (fig. 33).



Figure 33: Point G looking south, Fire coral post-obstruction removal

Bikenibeu Outfall Pre-Installation Survey Report

Reef Crest and Upper Reef Slope between Points G and H

The first half of the segment from point G to H has a high variety of coral types, but similar to segments seaward of point D it has about half the coral cover in non-*Porites rus* species than it did during the initial survey in 2015 (fig. 34).



Figure 34: South of Point G looking south, pre-obstruction removal

Several Fungiid (common name mushroom) and *Pocillopora* sp. corals were relocated. Fungiids are solitary and can move, so this simple task likely needs to be repeated just before pipe laying takes place.

It is noteworthy that *Acropora* sp. coral was not present within or in close proximity to the optimised route. Only one colony of this habitat-rich, fast-growing, and water-quality sensitive coral was found at 20m east of point G on the reef crest, a 2m diameter table (fig. 35). The *Acropora* spp. documented in the initial 2015 survey are largely dead, likely due to a combination of bleaching, nutrient loading, and Crown-of-Thorns predation.



Figure 35: East of Point G looking south, 20m outside of optimised route

Bikenibeu Outfall Pre-Installation Survey Report

The second half of the segment is entirely on the upper reef slope and largely devoid of coral. However, the coral rock and debris present contained many void spaces. All of this substrate had to be flattened, broken up, and packed down to allow for an adequate pipe-laying surface.

Reef Slope near Point H and South

Just east (upslope) of point H was a 1.5m diameter dead massive coral colony that was removed from the route (fig. 36). This point on the central reef slope also defines the start of the exclusively *Plerogyra sinuosa* (common name bubble coral) rubble and debris field, which extends well below the proposed end of pipe.



Figure 36: Point H looking south, pre-obstruction removal

The initial 2015 survey reported significant live coral of this species along the entire surveyed slope, but also noted extensive Crown-of-Thorns seastar feeding scars and ongoing loss of cover. It appears that the seastars have run out of their food supply and moved on. The rubble and debris that remain is very light, and is stacked in layers up to 1m thick. The pieces range from 0.1-1.0m in diameter, and blanket the entire reef slope. All pieces greater than 0.3m were removed, with hundreds of pieces piled up as ridges on either side of the route (figs. 37 and 38).



Figure 37: Point H looking south, post-obstruction removal



Figure 38: South of Point H looking at proposed end of pipe location, post-obstruction removal



Bikenibeu Outfall Pre-Installation Survey Report

4. Survey Video Transects

Please refer to the attached video for comprehensive documentation of the route clearing of obstructions and coral relocation. It is in draft form, pending additional edits and inclusion of the pipe-laying segment once installed.



Figure 39: Between Point H and proposed end of pipe looking west, post-obstruction removal (Roy Mulder, Videographer)