

# Environmental and Social Monitoring Report

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January - June, 2018

## 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 Infrastructure and Sustainable Energy

# Safeguards Monitoring Report

January-June 2018

South Tarawa Sanitation Improvement Sector Project



July 2018



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# 1 Executive Summary

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The South Tarawa Sanitation Improvement Sector Project (STSISP) includes rehabilitation of the salt water (saltwater) flushed sewerage system in the three urban areas of Betio, Bairiki and Bikenibeu in South Tarawa, Kiribati. The following report documents the environmental activities, resettlement and related land issues for the period January to July 2018. The report is divided into three sections to cover the following projects:

- ICB 01 - Rehabilitation of the saltwater and sewer network in Betio, Bairiki and Bikenibeu,
- ICB 02 - Upgrading the ocean outfalls at Betio, Bairiki and Bikenibeu,
- OSSP - On Site Sanitation Sub-Project spanning from the village of Teaoraereke to Bonriki.

The Engineer continues to conduct monthly audits of the Contractor's operations with compliance observed across the ICB 01 and ICB 02 projects.

Works progressed on the final remaining tasks under the ICB 01 Contract with work continuing on the remaining sections of the Bikenibeu Saltwater Network, Septage Receiving Unit, Sewer Jetting and repairs and outstanding punch list items. ICB 02 works included installation of the third and final ocean outfall in Betio, and Variation works to install air valves and additional concrete mattresses at all three locations of Betio, Bairiki and Bikenibeu.

Salt water leaks were observed in Betio with the leaks isolated and repaired by both the PUB and the Contractor. The Environmental Compliance Division within MELAD conducted three separate site inspections to audit compliance against the ICB 01 and ICB 02 Environmental Licences.

Contract award and works commenced on the Onsite Sanitation Sub-Project during the reporting period with 10 of the 34 toilets captured in the successful bid. Ground water sampling tubes were installed during May and June allowing baseline groundwater sampling to commence. A variation is being prepared to replace three of the sites with more appropriate sites due to unforeseen circumstances including inability to contact landowners and lack of area available for construction.

## 2 ICB 01

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### 2.1 Status

The ICB 01 Contract involves the rehabilitation of three separate sewer networks in the areas of Bikenibeu, Bairiki and Betio. The works require the cleaning of previously installed sewer infrastructure in addition to major overhaul of existing sewer pump stations and the saltwater flushing network.

The sewer networks in all three locations have been rehabilitated and handed over to PUB for ongoing operation, with the additional saltwater network system in Bikenibeu being the only remaining saltwater network requiring energising and handover.

### 2.2 Salt Water Works

Intake Pump Stations are complete and commissioned in Bairiki and Betio. Handover of the Bikenibeu pump station has been delayed due to a pump corrosion issue. Replacement pumps are currently being procured with final inspections and handover scheduled for July.

#### 2.2.1 Bikenibeu Salt Water Network

Extensive components of the saltwater network lie under recently sealed roads in the furthestmost regions of east and west Bikenibeu, with restoration requiring a considerable amount of cut and repairs to the sealed main road. The Contractor submitted an alternative design to offer saltwater services to the communities in Bikenibeu without the need for road cuts. This alternative approach involves installing the bypass lines used under the ICB 02 Contract in trenches along the roadside.

The alternate works were approved under Variation 36.7. Installation of new saltwater taps at residential properties and toilet blocks is complete. 1,500 of the 2,000 metres of the 160 OD main backbone pipeline is installed with the final 500 metres scheduled for installation during early July 2018.

As detailed in the Q2 2017 report, under the Highway Act a road reserve exists adjacent to roads under the KRRP. Local resident consultation also occurred prior to approval of the works to ensure all queries raised by local residents were addressed.

Due to the use of flexible pipeline material, there is no requirement for the removal of trees or permanent structures during the installation. Local residents were consulted by the Contractor's onsite personnel as the works progressed. Residents were asked to indicate their preferred location for installation of the tap, with care taken to install the tap and isolation valve in a location away from trafficable areas.

SMEC will implement a follow up round of resident consultations to the area of installation in order to reinforce the intended use of the saltwater system, and to inform residents of the process of reporting to PUB any issues with the condition of the system once it becomes operational.

#### 2.2.2 Salt Water Leaks

Additional saltwater leaks were reported over the reporting period, primarily in the Betio Region. The Engineer is aware of six separate saltwater leaks occurring in Betio between January and July 2018, with all leaks occurring under or adjacent to the pavement installed under the KRRP. The saltwater networks in Betio and Bairiki were handed over to the Employer in August 2017. All saltwater lines were pressure tested at 1.5 times operation pressure, with inspection records showing work in Betio



was completed in late 2015. These failures occurred within the defect liability period, with PUB inspection crews advised to report if the line failures were due to contractor fault or defect.

Table 1 below summarises all reported leaks during the reporting period, with indication of the apparent cause of the leak.

Table 1. Salt Water Leaks Register

Date	Area	Location	Likely or Observed Cause	Comments
4/02/2018	Betio	BTH5	Existing Failed tapping	Repaired by the Contractor
8/03/2018	Betio	BTH21	Pipe crown- longitudinal failure	Repaired by PUB
16/03/2018	Betio	BTH20	Existing Corroded Connector Nipple	Repaired by PUB
6/04/2018	Betio	BTH67	Existing Leaking Tapping Band	Repaired by PUB
6/04/2018	Betio - Graveyard	BTH19	Existing Corroded pipe clamp	Repaired by PUB
4/05/2018	Betio - Graveyard	BTH20	Tapping band failure	Repaired by PUB

As indicated above, the leaks appear to be occurring in a localised area; being the ocean side main road of the Betio region. It is understood that this road is subject to frequent use by heavy vehicles with this offering one explanation for the reoccurring issue. It is also possible that the pipe material may be faulty, and PUB has offered to provide a length of failed pipe for the Engineer to conduct material testing to determine the condition of the material and ensure it is fit for use.

As detailed in the previous safeguards report, a leak occurring in November 2017 led to a compensation claim for damages to garden and household well contamination. The incident occurred on infrastructure previously energised, tested and handed over to PUB. The Contractor was notified of the leak and proceeded to repair the fault. No report was issued to the Engineer with the cause of the leak left undefined. Due to the lack of information around the incident, the compensation claim was settled with the claimant by the Contractor, with the matter now considered closed.

## 2.3 Pump Station 1

PS1 at each of the three sewer systems is complete with the final footprint of the installations being determined. Surveys have been conducted at all sites with documentation forwarded to MISE. MISE has determined compensation amounts and provided information and instruction to Lands Management Division (LMD) to proceed with offering payment to the persons identified by the LMD as owners. The Engineer understands that payment for land occupied by Pump Station 1 in Bikenibeu is yet to be released.

## 2.4 Septage Receival Unit (SRU)

Works to install the SRU are ongoing with the unit remaining uncommissioned at the time of writing. The unit lies within the footprint of the Pump Station 1 in Betio which lies on Government Lease Land. Initial testing was conducted with the effluent flowing successfully from the PUB vacuum truck to the unit.

Due to the common occurrence of concrete septic tanks in Tarawa, small stones or concrete chips are found within the effluent removed from the septic tank. These stones are captured between the screw of the SRU and the side of the unit chamber causing excessive scraping and potential damage to the unit. The Contractor is currently manufacturing a screening device using PVC, to be installed at the SRU inlet to separate any small stones or hard objects from the septic tank effluent prior to entry into the machine. This addition will not require works outside of the existing footprint. Testing of this screening

unit will occur prior to commissioning, handover and training of the PUB waste water staff in operation of the SRU. Installation of the screening unit and testing is scheduled to occur in July 2018.

## **2.5 Pump Station 5**

The Contractor demobilised from the previously controversial site in the first week of October after completing all works. The existing Pump station was demolished and replaced with a man hole. The school sewer line was cleaned and inspected to ensure correct operation. There were no further altercations between the residents, Contractor or Police.

## **2.6 Environmental Monitoring**

Monthly environmental monitoring of the Contractor's work continued in the first half of 2018 with a total of 12 audits being conducted by the Safeguards Officer. The Audits are available in Appendix 1. Issues were minor, including Contractor's staff not correctly wearing PPE.

### **2.6.1 Odour Complaint**

The Engineer attended a meeting with local residents at PS1 Bikenibeu on 19 February 2018. The meeting was held in response to an odour complaint made to the Engineer during a previous site visit. Documentation relating to this complaint and interview are included in Appendix B.

The complaint was associated with excessive odour being observed adjacent to the outfall screen, especially when the PUB were cleaning the screen with the rake and vacuum truck. The resident stated that the presence of odour had improved since the project began to upgrade the infrastructure, but the odour was still an issue for the family. It is noted that the family has constructed a dwelling directly adjacent to the outfall screen since the previous reporting period.

Odour has been identified as a potential issue since the project's inception with possible mitigation options including installation of extra covers on the outfall screen and techniques to reduce the odour emitted by the vacuum truck during cleanout, including minimising spillage and always containing raw effluent after cleanout.

### **2.6.2 Environmental Compliance Division (ECD) Inspections**

For simplicity, ICB 01 and ICB 02 will be considered together in this section of the report. The ECD within the Ministry of Environment, Lands and Agricultural Development (MELAD) conducted two site inspections during the reporting period. The first inspection occurred on 2 March 2018. The report compiled in response to the audit is detailed in Appendix C, Section 1. The concerns raised by ECD were addressed by the Contractor: extra inspections were conducted to ensure correct use of PPE; ensuring fuel was stored correctly; and confirmation that debris at the Betio PS1 site was not derived from either the ICB 01 or ICB 02 Project.

The second ECD inspection occurred on 2 May at Temakin Point, Betio. ECD issued a letter to the Contractor advising that the ECD believed the Contractor had breached the Environmental licences under ICB 01 and ICB 02. This letter is provided in Appendix C.

ECD has communicated their concerns to the Contractor and MISE regarding a number of issues (Appendix C, Section 2). ECD's primary concerns for both the ICB 01 and ICB 02 works are noted in the following extract from the Notice of Compliance.



- i. EL 048/15 Condition 17, which required the Contractor to get the approval first from the Lands Management Division for the use of Government Land before using the land for stockpiling of materials. This involves the use of Betio Temakin Point (PUB Pump Station 1) for the use of stockpiling of construction materials.
- ii. EL 048/15 Condition 45, which required the Contractor to submit to MELAD, a monitoring report on the sewage plume movement identified in the environmental monitoring plan of the basic EIA report, every three months after the start of the Project.
- iii. EL 048/15 Condition 46, which required the Contractor to submit to MELAD, a monitoring report on the coral reef ecosystem at the sewage outfall discharge point surrounding identified in the environmental monitoring plan of the basic EIA report, six months after the start of the work, and every twelve months thereafter.
- iv. EL 048/15 Condition 12 for failing to take heed of the directions issued by the Environment Inspector advising the Contractor by email (dated 17/05/2018) on the specific reporting requirements.
- v. EL 143/12 Condition 26, which required the Contractor to report every three months to the Principal Environment Officer (MELAD) related to the public complaints and

any damage to the environment cause during and after the operation of the activity and the corrective action undertaken.

The following notes provide an update on the status of the five concerns listed above. At the time of writing:

**Item (i)**

LMD has issued an approval letter to the Licence holder granting approval for use of the Temakin Point site for temporary storage of project materials and plants during the project implementation stage.

**Item (ii)**

The Licence states that the Licence holder, not the Contractor, must submit the reports. Discussions are ongoing to determine responsibilities. The Contractor states that these requirements were not included in the Contract with MISE. The BEIA states this is the responsibility of PUB and ECD. ECD has stated that responsibility lies with the Contractor during the Construction phase. There is no discussion in the contract that would support this statement.

**Item (iii)**

As above

**Item (iv)**

The Contractor's monthly reports have been forwarded to ECD for review.

**Item (v)**

The monthly reports referenced above include a complaint register and details of any environmental damage.

The Engineer continues to conduct monthly audits of the Contractor against the approved Contractor's Environmental Management Plan. Compliance is generally good with no findings of significance to report. These reports have been forwarded to the Environmental Officer at MELAD. The monthly audits for January to June are presented in Appendix A.

## **2.7 Social Safeguards**

All but three pump stations within ICB 01 are located on Government Lease Land. The three pump stations of interest, Pump Stations 1, 5 and 6, are all located in Bikenibeu. Surveys have been conducted at PS1 with documentation associated with compensation rates forwarded to the LMD for processing. As discussed in Section 2.5 of this report, works at the new PS5 and decommissioning of the existing PS5 are complete. Three separate persons have claimed ownership of the PS6 land. Negotiations commenced in 2012 with the persons of question with a resolution occurring earlier in the project. At present, land or access issues are not impeding project completion.

## 3 ICB 02

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### 3.1 Status

All construction works under the initial Contract BOQ are now complete. Remaining works include installation of additional mattresses on the edge of the intertidal reefs in order to mitigate risk of outfall line floatation. A 400 metre long string of outfall pipeline became detached from the intertidal reef and was lost from Betio on 31 January. The Pipeline was moored parallel to the existing trench awaiting installation, when it was separated from the moorings and carried away with the large tidal movements. The replacement pipeline was procured and is now installed. However this event has caused a delay to project completion.

### 3.2 Bikenibeu Outfall Floatation

Measures to address potential outfall pipeline floatation incidents have been approved and procured. Air valves have been installed at all three locations at local high spots on the outfall alignment. Four separate air valves have been installed in Betio due to the 800 metre section of near horizontal intertidal reef alignment. No further floatation observations have been reported since the installation of the air valves and 30 metres of additional concrete mattresses at each site.

All rectification works took place on or adjacent to the intertidal reef leading to limited social and environmental impact. In order to settle the floating Bikenibeu pipeline, a 6 mm penetration was drilled in the crown of the pipe at the transition zone from intertidal zone to deep water. This penetration resulted in the introduction of a small amount of sewage effluent to be discharged at the intertidal reef. The penetration was required to ensure air release occurred during the procurement and installation of specialty air valves.

### 3.3 Loss of Betio Outfall Pipeline

An incident report was issued to the Engineer and Employer on 2 February 2018, advising of the loss of the length of pipe. At the time the Contractor was continuing in-scope works to install the remainder of the Betio outfall pipeline after extensive delays when tidal patterns only allowed access to the reef for approximately four days per month.

The existing trench was cleared towards the end of January and a 400-metre long string of 315 mm diameter HDPE pipe was moored parallel to the trench awaiting installation during the morning low tide of 1 February 2018.

When the pipe string was discovered to be missing, local boats were used to search the immediate area while pilots of Air Kiribati were requested to provide location of the pipe if sighted from the air. However the pipe string was unable to be located.

The incident report detailing the actions and further information around the disappearance of the pipeline is available in Appendix D of this report.

Unfortunately, the event had a significant impact on the completion date of the project and introduced a large marine hazard into the immediate area. There are also potential future claims for recovery of the pipeline if it is discovered.

The incident was determined to be an un-compensable event, and the Contractor has absorbed the cost of procuring a replacement pipeline. This was procured by the Contractor and Installation was completed in June 2018.

### **3.4 Environmental Monitoring**

SMEC undertook routine monthly audits of the JV, as noted in Appendix 1. The majority of works undertaken occurred on the intertidal reef, using a 20 tonne excavator equipped with rubber tracks in order to minimise impact on the reef. There are two noteworthy deficiencies in the reporting period including the continued release of sewage at the reef edge, and concern, recently raised, over the lack of approval documentation from the LMD for use of the PS1 site for storage of equipment.

### **3.5 Social Safeguards**

Works during the reporting period occurred primarily at the Betio PS1 site. The area used for construction is Government Lease Land with no requirement for the resettlement of local residents.

Works to install the Bairiki outfall require access to the LDS church in West Bairiki. The Contractor was instructed to align the pipe as to cause minimal damage to trees and existing sea wall. Works involved trenching through the church yard and installation of a new outfall line under the existing sea wall. Works were completed with no concerns raised by LDS personnel with the Engineer conducting post construction inspections to ensure property was left in as good or better condition that it was found.

## 4 On-Site Sanitation Sub-Project

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### 4.1 Status

The construction Contract for 10 of the 34 toilets was awarded to Hi Tek Constructions in April 2018 with site layouts and engagement with the local residents occurring shortly thereafter. Potential sites had been specified when the project was originally approved. The 10 sites included in the Hi-Tek bid were located between Eita and Teoraereke in South Tarawa. Local inspections soon revealed that construction was not suitable at a number of the proposed locations and as a result three alternative sites were approved. Water sampling equipment arrived in Tarawa in June with baseline water sampling ongoing. Materials for construction are currently being procured internationally with construction anticipated to begin in July 2018.

### 4.2 Revision of Sites

Post Contract award site inspections identified issues related to several proposed areas of construction that were not previously noted in the September 2017 inspections.

ANT4 was visited in April but no landowner could be located. Neighbours advised that the family currently resided in New Zealand and had not returned in previous months. No information was available regarding the return date of the residents, nor any contact details. Further inspection led to the removal of the site due to restricted access, little room for construction and the inability to confirm land owner approval and cooperation.

TEA5 was visited by the Contractor representative and SMEC Community Engagement staff to determine approval for construction and confirm a suitable site layout. TEA5 requires the installation of two separate septic systems, on a site initially proposed on the lagoon side behind the fish market in Teoraereke. the local landowner was unable to be located and several families occupy the restricted space. The proposed construction site had incurred erosion with a seawall and grave sites impeding construction activities. Any excavations of the site would lead to potential collapse of the seawall and the area was determined to be unable to accommodate a single installation.

Visit to the TEA6 site revealed a container and gravesite located at the proposed area of construction. Project team members were advised that the landowner was not currently on Tarawa and that residents did not have authority to approve use of the land and removal of the grave.

Sites that were no longer suitable for construction were replaced by sites previously identified in the initial project surveys during project inception. The new proposed sites are EIT1, EIT4 and BN4. In order to include the new sites, a contract variation is currently being finalised to accommodate the changes.

### 4.3 Environmental Monitoring

The contractor has installed three groundwater monitoring tubes at each of the eight sites. These monitoring points will be oriented to allow samples to be taken from the location of a future soak away field and in close vicinity to the household well. The purpose of the water sampling is to ascertain existing water quality at that location, and monitor any impact the project may have on the local area in terms of water contamination. Equipment to conduct this exercise was included in SMEC V013 and has arrived in Tarawa at the time of writing. Water sampling will continue throughout the life of the project with MISE and PUB to undertake future monitoring to determine any impact of the installed sanitation infrastructure.

Equipment purchased by the consultant under V013 will be used to quantify and test the following:

- Salinity (g/L)
- pH
- Ammonia  $\text{NH}_3\text{-N}$  (mg/L)
- Nitrate  $\text{NO}_4\text{-N}$  (mg/L)
- Total Ortho-Phosphate (mg/L)
- Faecal Coliform and E.coli presence.

Tests will be conducted for a period of up to three years post construction by MISE, with the installation to be decommissioned if groundwater contamination is identified. Initial sampling will be completed prior to commissioning of the systems and a background report on groundwater quality identified by the sampling will be submitted to the Employer and ADB. This report will set out a future monitoring schedule to be adopted by the teams responsible for monitoring of the project.

The Kiribati Ministry of Health conduct ongoing water sampling of the PUB groundwater in Bonriki, including biological testing similar to that required under OSSP. Analysis for Faecal Coliform and E.Coli requires an incubator and a suitable device is available at Naverere. SMEC has consulted with the Chief of Laboratory Services at Naverere to request assistance by allowing their incubator to be used for these analyses. Laboratory staff have offered their expertise and equipment to the project team and a training day is planned to ensure correct water collection and testing methodologies are followed. Chemical testing does not require laboratory equipment and will be conducted onsite or in office.

Members of PUB, MISE and MoH have been invited to participate in the water sampling activities in order to provide appropriate training in the use of the equipment and finalise a procedure for the required future sampling. All equipment will be handed over to the Employer at the end of the baseline water sampling period, and GoK will be responsible for ongoing monitoring.

The OSSP BEIA also includes measures to mitigate negative environmental impact including pre-construction consultation with local residents on how to operate and maintain the installation.

#### **4.4 Social Safeguards**

Follow up visits to the sites included in the project were conducted in April to confirm site access arrangements and to inform the local resident of the upcoming works. SMEC community engagement staff attended to translate and offer advice to the local residents and facilitate the signing of a Memorandum of Understanding (MOU). This MOU was approved for use by the Water Unit within MISE and a signed example is provided in Appendix D.

The MOU spells out responsibilities of all parties including requirements of the residents to report on specific usage behaviours of the users and it also provides advice on seeking assistance if an issue with the system is identified. MISE representatives recommended that the MOU be signed by the land owner with the inclusion of a local priest and member of parliament in order to further formalise the agreements. The MOU for all of the eight locations has now been signed by land owners or the respective local elders.



## Appendix A ICB 01/02 EMP Compliance Monitoring and Audit

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**ICB 01 January**

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 26 February 2018	Site : Records – Interview with Michael Simmons in Bikenibeu Monitoring –Bikenibeu
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	
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.	Waste sand from Bairiki salt water main were dumped at Nanikai dumping ground. Approximately 3 truck loads were disposed.	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
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	Nil	

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 26 February 2018	Site : Records – Interview with Michael Simmons in Bikenibeu Monitoring –Bikenibeu
Environmental Issue	Monitoring Detail	Issues	Actions taken
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.	All machinery is working well	
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. Less than 100 litres of diesel are kept in cans. Butt welding of salt water main pipes is undertaken on site.	
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	Nil	

**ICB 01 February**

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 26 March 2018	Site : Records – Interview with Michael Simmons Monitoring –Bikenibeu
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.	2 workers were not wearing safety boots	The concerned workers were reminded to wear safety boots at all times
2.1 Generation of construction waste	2.1 Inspection to ensure that non-hazardous materials are collected and disposed of in the landfill, and hazardous materials are stored safely.  Inspection to ensure that all hazardous wastes are shipped out of the Kiribati at the completion of the project.	Nil	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	One landowner in Bikenibeu does not want to have the salt water distribution pipe run across his land to serve the house behind his property	The Contractor discontinued the work, informed the affected person of the issue and advice to seek assistance from the Government
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	Nil	
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	All machinery is working well	

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 26 March 2018	Site : Records – Interview with Michael Simmons Monitoring –Bikenibeu
Environmental Issue	Monitoring Detail	Issues	Actions taken
	contractor to correct problem within 2 days.		
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. Less than 100 litres of diesel are kept in cans.	
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		

**ICB 01 March**

ICB :01	Environment Monitoring and Auditing	Date of Inspection: 14 April 2018	Site: Records – Interview with Michael Simmons Monitoring –Bikenibeu
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	
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.	Two truckloads of sand from cleaning the sewer main at Bairiki Betio and Bikenibeu were disposed at Nanikai	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
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	Nil	



ICB :01	Environment Monitoring and Auditing	Date of Inspection: 14 April 2018	Site: Records – Interview with Michael Simmons Monitoring –Bikenibeu
Environmental Issue	Monitoring Detail	Issues	Actions taken
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.	All machinery is working well. the Contractor has a routine maintenance schedule.	
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. Less than 100 litres of diesel are kept in cans on sites	
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		

**ICB 01 April**

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 28th November 2017	Site : Records – Interview with Michael Simmons Monitoring –Bikenibeu
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	
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.	Four truckloads of sand from cleaning the sewer main at Bairiki and Betio were disposed at Nanikai	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
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	Nil	

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 28th November 2017	Site : Records – Interview with Michael Simmons Monitoring –Bikenibeu
Environmental Issue	Monitoring Detail	Issues	Actions taken
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.	All machinery is routinely maintained and working.	
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.  About 20 litres of diesel are kept in cans on sites	
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		

**ICB 01 May**

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 14th December 2017	Site : Records – Interview with Michael Simmons Monitoring –Bikenibeu 15 December 2017
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	
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.	Four truckloads of sand were disposed at Nanikai	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
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	Nil	

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 14th December 2017	Site : Records – Interview with Michael Simmons Monitoring –Bikenibeu 15 December 2017
Environmental Issue	Monitoring Detail	Issues	Actions taken
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.	All machinery is routinely maintained and working	
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 fuels are stored on site.	
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		

**ICB 01 June**

ICB :01	Environment Monitoring and Auditing	Date of Inspection : 3 July 2018	Site : Records – Interview with Michael Simmons. Monitoring – July 2018
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	
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.	Nil	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
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	Nil	



ICB :01	Environment Monitoring and Auditing	Date of Inspection : 3 July 2018	Site : Records – Interview with Michael Simmons. Monitoring – July 2018
Environmental Issue	Monitoring Detail	Issues	Actions taken
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.	All machinery is routinely maintained and working	
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 fuels are stored on site.	
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		

**ICB 02 January**

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 17 February 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
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	
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.	Nil	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Report of missing small fishing boat in which the Contractor workers were blamed	the Contractor has talked with people concerned
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	Nil	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 17 February 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
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. All machinery is operating well	
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	Nil. Less than 100 litres of diesel is kept in cans	
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	No removal of trees has taken place	
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports		
2.9 Damage to and /or loss of coral	The replacement of the old outfall pipes could impact live coral in the direct path of the pipeline trenches. To address this a detailed marine survey was completed and existence of all coral species mapped. Based on this survey a total of 5-7 m2 of coral could be impacted. The use of an experienced marine ecologist to help locate the outfall when near corals and to lead the relocation of coral heads will minimize further the minor impact of this work.	Work done	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 17 February 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
3.0 Poor Trenching work area controls	Contractor will be required to mark work area corridors with anchored buoys (14m construction width), ensure that rubber tracked, light weight excavator is used; and optional approach to pipeline replacement be reviewed and the best approach applied	Trenching for Betio has started.  A section of an outfall pipe was gone missing over night after it was left on the reef flat overnight.  Trenching spoil were seen at the trenching site at Betio reef flat	To be taken out once the Betio outfall completes
3.1 Polluting anchor fabrication and batch plant operations	Runoff from any staging area fabrication sites will need to be diverted to a detention area to reduce the amount of sediment reaching the sea. If a local fabrication and batch plant is used, the contractor will need to provide an inspection certificate, signifying that operations are in compliance with all Kiribati regulations. The contractor will be responsible for assisting the local provider to become more environmentally compliant	Butt welding to connect the pipes was carried out at the outfall site.	
3.2 Diffuser unit not suited for site conditions, leading to potential effluent pollution 2	Prior to the diffuser being attached to each pipeline, it will be inspected and certified as being adequate for this specific application	All diffusers have been deployed. Diffusers at Bikenibeu and Bairiki are connected and operational. Betio diffuser is yet to be connected to the main outfall.	
3.3 Inadequate worker sanitation facilities provided	Contractor will be required to make arrangements for workers to use public/private toile facilities or to provide portable toilets such as porta-potties	Public sanitation facility at Betio is being used.	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 17 February 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
<p>3.5</p> <p>Effluent plume reaching shore and causing GI and other microbial and viral sicknesses</p>	<p>Plume monitoring at three diffuser sites to be implements starting on year one – as defined in the IEE Section 7.3.2. Monitoring should be conducted during normal and spring tide conditions, once every 3 months at the three diffuser sites. Parameters to be monitored should be current speed and direction at 3 depths and at the same time pH, TSS, turbidity, salinity, total phosphorus, Nitrate (NO3) and at four locations, i.e. two upstream (25m and 50m) and two downstream (25 and 50m) of the diffuser immediately over the diffuser, 20m downstream, and 50m downstream and 100m downstream. Prior to the start of sampling a tracer should be introduced into the wastewater stream to establish the general movement of the plume.</p>	<p>Monitoring to commence when the diffusers are connected and operational</p>	

**ICB 02 February**

ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 March 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
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	
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.	Nil	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
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	Nil	



ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 March 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
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. All machinery is operating well.	
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	Nil. Less than 100 litres of diesel is kept in cans.	
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	No removal of trees has taken place	
2.8 Failure to prepare and submit monitoring checklist reports	2.8 Have available full record of monthly monitoring checklist reports		
2.9 Damage to and /or loss of coral	The replacement of the old outfall pipes could impact live coral in the direct path of the pipeline trenches. To address this a detailed marine survey was completed and existence of all coral species mapped. Based on this survey a total of 5-7 m2 of coral could be impacted. The use of an experienced marine ecologist to help locate the outfall when near corals and to lead the relocation of coral heads will minimize further the minor impact of this work.	Work done	

ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 March 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
3.0 Poor Trenching work area controls	Contractor will be required to mark work area corridors with anchored buoys (14m construction width), ensure that rubber tracked, light weight excavator is used; and optional approach to pipeline replacement be reviewed and the best approach applied.	Nil	
3.1 Polluting anchor fabrication and batch plant operations	Runoff from any staging area fabrication sites will need to be diverted to a detention area to reduce the amount of sediment reaching the sea. If a local fabrication and batch plant is used, the contractor will need to provide an inspection certificate, signifying that operations are in compliance with all Kiribati regulations. The contractor will be responsible for assisting the local provider to become more environmentally compliant	Nil	
3.2 Diffuser unit not suited for site conditions, leading to potential effluent pollution 2	Prior to the diffuser being attached to each pipeline, it will be inspected and certified as being adequate for this specific application	All diffusers have been deployed. Diffusers at Bikenibeu and Bairiki are connected and operational. Betio diffuser is yet to be connected to the main outfall.	
3.3 Inadequate worker sanitation facilities provided	Contractor will be required to make arrangements for workers to use public/private toilet facilities or to provide portable toilets such as porta-potties	Public sanitation facility at Betio is being used.	

ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 March 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
<p>3.5</p> <p>Effluent plume reaching shore and causing GI and other microbial and viral sicknesses.</p>	<p>Plume monitoring at three diffuser sites to be implements starting on year one – as defined in the IEE Section 7.3.2. Monitoring should be conducted during normal and spring tide conditions, once every 3 months at the three diffuser sites. Parameters to be monitored should be current speed and direction at 3 depths and at the same time pH, TSS, turbidity, salinity, total phosphorus, Nitrate (NO3) and at four locations, i.e. two upstream (25m and 50m) and two downstream (25 and 50m) of the diffuser immediately over the diffuser, 20m downstream, and 50m downstream and 100m downstream. Prior to the start of sampling a tracer should be introduced into the wastewater stream to establish the general movement of the plume.</p>	<p>Monitoring to commence when the diffusers are connected and operational.</p> <p>However, it was noted that air valves have not been installed on the defected outfall pipes at Bikenibeu. Sewage jetting out of the hole that was drilled to let trapped air escaped, is visible during low tides when the sewage is being discharged. The hole is located at the reef edge.</p>	

**ICB 02 March**

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 April 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfalls
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. No works were undertaken during the month of March	
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.	Nil	
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
2.3 Accidental damage to utilities	2.3 As above.	Nil	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 April 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfalls
Environmental Issue	Monitoring Detail	Issues	Actions taken
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	Nil	
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. All machinery is operating well.	
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	Nil	
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		
2.9 Damage to and /or loss of coral	The replacement of the old outfall pipes could impact live coral in the direct path of the pipeline trenches. To address this a detailed marine survey was completed and existence of all coral species mapped. Based on this survey a total of 5-7 m2 of coral could be impacted. The use of an	Work done	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 April 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfalls
Environmental Issue	Monitoring Detail	Issues	Actions taken
	experienced marine ecologist to help locate the outfall when near corals and to lead the relocation of coral heads will minimize further the minor impact of this work.		
3.0 Poor Trenching work area controls	Contractor will be required to mark work area corridors with anchored buoys (14m construction width), ensure that rubber tracked, light weight excavator is used; and optional approach to pipeline replacement be reviewed and the best approach applied	Nil	
3.1 Polluting anchor fabrication and batch plant operations	Runoff from any staging area fabrication sites will need to be diverted to a detention area to reduce the amount of sediment reaching the sea. If a local fabrication and batch plant is used, the contractor will need to provide an inspection certificate, signifying that operations are in compliance with all Kiribati regulations. The contractor will be responsible for assisting the local provider to become more environmentally compliant	Nil	
3.2 Diffuser unit not suited for site conditions, leading to potential effluent pollution.	Prior to the diffuser being attached to each pipeline, it will be inspected and certified as being adequate for this specific application	All diffusers have been deployed. Diffusers at Bikenibeu and Bairiki are connected and operational. Betio diffuser is yet to be connected to the main outfall.	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 April 2018	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu & Betio Outfalls
Environmental Issue	Monitoring Detail	Issues	Actions taken
3.3 Inadequate worker sanitation facilities provided	Contractor will be required to make arrangements for workers to use public/private toilet facilities or to provide portable toilets such as porta-potties	Public sanitation facility at Betio	
3.5 Effluent plume reaching shore and causing GI and other microbial and viral sicknesses	Plume monitoring at three diffuser sites to be implemented starting on year one – as defined in the IEE Section 7.3.2. Monitoring should be conducted during normal and spring tide conditions, once every 3 months at the three diffuser sites. Parameters to be monitored should be current speed and direction at 3 depths and at the same time pH, TSS, turbidity, salinity, total phosphorus, Nitrate (NO <sub>3</sub> ) and at four locations, i.e. two upstream (25m and 50m) and two downstream (25m and 50m) of the diffuser immediately over the diffuser, 20m downstream, and 50m downstream and 100m downstream. Prior to the start of sampling a tracer should be introduced into the wastewater stream to establish the general movement of the plume.	Monitoring to commence when the diffusers are connected and operational.  Air valves have not been installed on the defected outfall pipes.	

**ICB 02 April**

ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 May	Site: Records – Interview with Michael Simmons. Monitoring –Betio, Bairiki & Betio Outfalls
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	
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.	Dredged spoil (boulders and stones) occupy the length of the dredged trench	To be removed when the outfall pipeline is completed
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
2.3 Accidental damage to utilities	2.3 As above.	Nil	



ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 May	Site: Records – Interview with Michael Simmons. Monitoring –Betio, Bairiki & Betio Outfalls
Environmental Issue	Monitoring Detail	Issues	Actions taken
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	Nil	
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. All machinery is operating well	
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	Nil.	
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		
2.9 Damage to and /or loss of coral	The replacement of the old outfall pipes could impact live coral in the direct path of the pipeline trenches. To address this a detailed marine survey was completed and existence of all coral species mapped. Based on this survey a total of 5-7 m2 of coral could be impacted. The use of an	Work done	

ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 May	Site: Records – Interview with Michael Simmons. Monitoring –Betio, Bairiki & Betio Outfalls
Environmental Issue	Monitoring Detail	Issues	Actions taken
	experienced marine ecologist to help locate the outfall when near corals and to lead the relocation of coral heads will minimize further the minor impact of this work.		
3.0 Poor Trenching work area controls	Contractor will be required to mark work area corridors with anchored buoys (14m construction width), ensure that rubber tracked, light weight excavator is used; and optional approach to pipeline replacement be reviewed and the best approach applied	Trenching is done along the designed route	
3.1 Polluting anchor fabrication and batch plant operations	Runoff from any staging area fabrication sites will need to be diverted to a detention area to reduce the amount of sediment reaching the sea. If a local fabrication and batch plant is used, the contractor will need to provide an inspection certificate, signifying that operations are in compliance with all Kiribati regulations. The contractor will be responsible for assisting the local provider to become more environmentally compliant	Nil	
3.2 Diffuser unit not suited for site conditions, leading to potential effluent pollution	Prior to the diffuser being attached to each pipeline, it will be inspected and certified as being adequate for this specific application	All diffusers have been deployed. Diffusers at Bikenibeu and Bairiki are connected and operational. Betio diffuser is yet to be connected to the main outfall.	

ICB :02	Environment Monitoring and Auditing	Date of Inspection: 26 May	Site: Records – Interview with Michael Simmons. Monitoring –Betio, Bairiki & Betio Outfalls
Environmental Issue	Monitoring Detail	Issues	Actions taken
3.3 Inadequate worker sanitation facilities provided	Contractor will be required to make arrangements for workers to use public/private toilet facilities or to provide portable toilets such as porta-potties	Public sanitation facility at Betio	
3.5 Effluent plume reaching shore and causing GI and other microbial and viral sicknesses	Plume monitoring at three diffuser sites to be implemented starting on year one – as defined in the IEE Section 7.3.2. Monitoring should be conducted during normal and spring tide conditions, once every 3 months at the three diffuser sites. Parameters to be monitored should be current speed and direction at 3 depths and at the same time pH, TSS, turbidity, salinity, total phosphorus, Nitrate (NO <sub>3</sub> ) and at four locations, i.e. two upstream (25m and 50m) and two downstream (25m and 50m) of the diffuser immediately over the diffuser, 20m downstream, and 50m downstream and 100m downstream. Prior to the start of sampling a tracer should be introduced into the wastewater stream to establish the general movement of the plume.	Monitoring to commence when the diffusers are connected and operational hopefully by PUB  Air trapped in the outfall pipes beyond the reef surf zone has been causing problems with the outfall. Holes were drilled to release trapped air but also raw sewage plumes	Air valve has been installed at Bairiki but not at Bikenibeu.

**ICB 02 May**

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 May	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu, Betio and Bairiki Outfall
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	
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.	Dredged spoil (boulders and stones) occupy the length of the dredged trench	To leave the dredged boulders and stones alone as advised by the Environment.
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
2.3 Accidental damage to utilities	2.3 As above.	Nil	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 May	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu, Betio and Bairiki Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
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	Nil	
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. All machinery is operating well	
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	Nil.	
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		
2.9 Damage to and /or loss of coral	The replacement of the old outfall pipes could impact live coral in the direct path of the pipeline trenches. To address this a detailed marine survey was completed and existence of all coral species mapped. Based on this survey a total of 5-7 m2 of coral could be impacted. The use of an	Work done	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 May	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu, Betio and Bairiki Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
	experienced marine ecologist to help locate the outfall when near corals and to lead the relocation of coral heads will minimize further the minor impact of this work.		
3.0 Poor Trenching work area controls	Contractor will be required to mark work area corridors with anchored buoys (14m construction width), ensure that rubber tracked, light weight excavator is used; and optional approach to pipeline replacement be reviewed and the best approach applied.	Trenching is done along the designed route	
3.1 Polluting anchor fabrication and batch plant operations	Runoff from any staging area fabrication sites will need to be diverted to a detention area to reduce the amount of sediment reaching the sea. If a local fabrication and batch plant is used, the contractor will need to provide an inspection certificate, signifying that operations are in compliance with all Kiribati regulations. The contractor will be responsible for assisting the local provider to become more environmentally compliant	Nil	
3.2 Diffuser unit not suited for site conditions, leading to potential effluent pollution.	Prior to the diffuser being attached to each pipeline, it will be inspected and certified as being adequate for this specific application	All diffusers have been deployed. Diffusers at Bikenibeu and Bairiki are connected and operational. Betio diffuser is yet to be connected to the main outfall.	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 18 May	Site : Records – Interview with Michael Simmons. Monitoring –Bikenibeu, Betio and Bairiki Outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
3.3 Inadequate worker sanitation facilities provided.	Contractor will be required to make arrangements for workers to use public/private toilet facilities or to provide portable toilets such as porta-potties.	Public sanitation facility at Betio	
3.5 Effluent plume reaching shore and causing GI and other microbial and viral sicknesses.	Plume monitoring at three diffuser sites to be implemented starting on year one – as defined in the IEE Section 7.3.2. Monitoring should be conducted during normal and spring tide conditions, once every 3 months at the three diffuser sites. Parameters to be monitored should be current speed and direction at 3 depths and at the same time pH, TSS, turbidity, salinity, total phosphorus, Nitrate (NO <sub>3</sub> ) and at four locations, i.e. two upstream (25m and 50m) and two downstream (25m and 50m) of the diffuser immediately over the diffuser, 20m downstream, and 50m downstream and 100m downstream. Prior to the start of sampling a tracer should be introduced into the wastewater stream to establish the general movement of the plume.	Monitoring to commence when the diffusers are connected and operational hopefully by PUB  Air trapped in the outfall pipes beyond the reef surf zone has been causing problems with the outfall. Holes were drilled to release trapped air but also raw sewage plumes.	Air valve has been installed at Bairiki outfall. Installation of air valves at Bikenibeu and Betio outfalls to follow soon.  1 air valve is to be installed at Bikenibeu outfall, 1 at Bairiki and 4 at Betio.

**ICB 02 June**

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 3 July 2018	Site : Records – Interview with Greg Halls Monitoring –Betio outfall
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	
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.	Dredged spoil (boulders and stones) occupy the length of the dredged trench	To be reused as weight along the outfall pipe
2.2 Accidental damage to property	2.2 Visual inspection of project sites, and records of grievance made and actions taken	Nil	
2.3 Accidental damage to utilities	2.3 As above.	Nil	



ICB :02	Environment Monitoring and Auditing	Date of Inspection : 3 July 2018	Site : Records – Interview with Greg Halls Monitoring –Betio outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
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	Nil	
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. The bid excavator has hydraulic hose problem.	Awaiting spare parts from Australia
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	Less than 20 litres of fuel is kept in container on site.	
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		

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 3 July 2018	Site : Records – Interview with Greg Halls Monitoring –Betio outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
2.9 Damage to and /or loss of coral	The replacement of the old outfall pipes could impact live coral in the direct path of the pipeline trenches. To address this a detailed marine survey was completed and existence of all coral species mapped. Based on this survey a total of 5-7 m2 of coral could be impacted. The use of an experienced marine ecologist to help locate the outfall when near corals and to lead the relocation of coral heads will minimize further the minor impact of this work.	Deployment of weight to weigh down the outfall pipes were carried out at the Bikenibeu and Bairiki outfalls. Work is restricted to the area over the pipes to minimise coral damage.	
3.0 Poor Trenching work area controls	Contractor will be required to mark work area corridors with anchored buoys (14m construction width), ensure that rubber tracked, light weight excavator is used; and optional approach to pipeline replacement be reviewed and the best approach applied.	Trenching is done along the designed route	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 3 July 2018	Site : Records – Interview with Greg Halls Monitoring –Betio outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
3.1 Polluting anchor fabrication and batch plant operations	Runoff from any staging area fabrication sites will need to be diverted to a detention area to reduce the amount of sediment reaching the sea. If a local fabrication and batch plant is used, the contractor will need to provide an inspection certificate, signifying that operations are in compliance with all Kiribati regulations. The contractor will be responsible for assisting the local provider to become more environmentally compliant	Nil	
3.2 Diffuser unit not suited for site conditions, leading to potential effluent pollution 2	Prior to the diffuser being attached to each pipeline, it will be inspected and certified as being adequate for this specific application	All diffusers have been deployed. Diffusers at Bikenibeu and Bairiki are connected and operational. Betio diffuser is yet to be connected to the main outfall.	
3.3 Inadequate worker sanitation facilities provided	Contractor will be required to make arrangements for workers to use public/private toile facilities or to provide portable toilets such as porta-potties	Public sanitation facility at Betio	

ICB :02	Environment Monitoring and Auditing	Date of Inspection : 3 July 2018	Site : Records – Interview with Greg Halls Monitoring –Betio outfall
Environmental Issue	Monitoring Detail	Issues	Actions taken
<p>3.5</p> <p>Effluent plume reaching shore and causing GI and other microbial and viral sicknesses</p>	<p>Plume monitoring at three diffuser sites to be implements starting on year one – as defined in the IEE Section 7.3.2. Monitoring should be conducted during normal and spring tide conditions, once every 3 months at the three diffuser sites. Parameters to be monitored should be current speed and direction at 3 depths and at the same time pH, TSS, turbidity, salinity, total phosphorus, Nitrate (NO<sub>3</sub>) and at four locations, i.e. two upstream (25m and 50m) and two downstream (25 and 50m) of the diffuser immediately over the diffuser, 20m downstream, and 50m downstream and 100m downstream. Prior to the start of sampling a tracer should be introduced into the wastewater stream to establish the general movement of the plume.</p>	<p>Monitoring to commence when the diffusers are connected and operational hopefully by PUB</p> <p>Air trapped in the outfall pipes beyond the reef surf zone has been causing problems with the outfall. Holes were drilled to release trapped air but also raw sewage plumes.</p>	<p>Air valve has been installed at Bairiki and Betio outfalls. Installation of an air valve at Bikenibeu to follow soon.</p>

## Appendix B Odour Complaint – PS1 Bikenibeu

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local people  
global experience

Ref: 090318PC  
9 March 2018

Mr Lindsey Davison  
Director of Engineering  
Ministry of Infrastructure and Sustainable Energy  
Betio, South Tarawa.  
Republic of Kiribati

Dear Mr Davison,

RE: Resident Complaint – Odour – Pump Station 1 Bikenibeu.

This letter is to document a complaint about excessive odour observed at Bikenibeu PS1 made on Monday 19 February 2018.

Name: Kabuta Tekitanga

Location: Lands Management Division ID: 682o/1

: Pump Station 1 Bikenibeu.

Complaint: Odour from the outfall screen and pump station is evident every day. The odour increases when PUB clean out the screen with the vac truck. The resident confirmed that the odour had been present since 1980 when the pump station had been originally installed. The resident explained the intensity of the odour had decreased since the rehabilitation of the pump station and installation of the screen.

The resident is pursuing compensation for the installation of the outfall screen on her land. The resident was advised that all surveys were completed and that LMD are executing payment to the rightful recipient. It is the Engineers opinion that this delay in land compensation settlement has resulted in the resident becoming further agitated.

Discussion and solution: Odour has been identified as a risk ever since the design phase of the ICB01 project. the currently installed infrastructure is a vast improvement on the existing and failure prone system.

As evident by the resident's comments, the odour has decreased in intensity. Minor odour mitigation steps have been taken including extension of the pump station ventilation stack and install of covers to the screen channels.

As Saltwater taps are installed in Bikenibeu, the sewer will become further diluted. PUB regular cleaning the outfall screens should also in turn reduce odour issues in the immediate areas.

PUB may consider further odour mitigation strategies in the form of further sealing the outfall screen channel or install of extended ventilation stacks for the pump and collector well.

SMEC International Pty Ltd  
Tarawa Sanitation Improvement Sector Project  
Ministry of Public Works and Utilities, Kiribati / ADB  
Bairiki, South Tarawa  
Republic of Kiribati  
Mobile Phone No. +686 73077716  
E-mail: patrick.clarke@smec.com  
www.smec.com

Yours sincerely,



Patrick Clarke  
Construction Supervision Engineer - STSISP / SMEC Kiribati  
SMEC International Pty Ltd

Copies:

- ▶ Reenate Willie-Foon, MISE
- ▶ Areke Alexander, MISE

## Appendix C Appendix C – ECD Audit Letter

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## Section 1 – Result of 2 March 2018 Audit.



**GOVERNMENT OF KIRIBATI  
MINISTRY OF ENVIRONMENT, LANDS & AGRICULTURAL  
DEVELOPMENT**

**P.O BOX 234, BIKENIBEU, TARAWA**

Telephone Number: (686) 752 28000/28425/28211

Email: [information@environment.gov.ki](mailto:information@environment.gov.ki)

From:	Secretary, Ministry of Environment, Lands and Agriculture Development (MELAD)	To:	Secretary, Ministry of Infrastructure and Sustainable Energy (MISE)
File ref:	3/7(a)	Attn:	Lindsey Davison, Director, Engineering Services
Date:	01:29	CC:	Patrick Clarke, Construction Supervision Engineer, SMEC Alastair Cusack, Project Manager, CCB Enviro

**RE: Result of Environmental Compliance Auditing on STSISP,  
02/03/2018**

I write to share with your good Ministry as the Environment Licence (EL) Holder for the South Tarawa Sanitation Improvement Sector Project (STSISP), the outcome of the environment compliance auditing (ECA) undertaken on 02/03/2018. MELAD-ECD appreciated the availability and assistance of the Engineer's representative in joining the Environment Team when undertaking the auditing.

Find below a couple of environmental and social issue identified during the auditing that are important to bring them to the attention of the Contractor for corrective actions and for the next quarterly environmental reporting under the Environment Licence;

1. There was no roadwork signage seen at the active construction on one side of the road (eastern end). The signage was only put up on the other end to warn the motorists of the excavation ahead for laying the sea water pipes.
2. The fuel container (full) for the on-site Generator at the active construction site was left in the open under the Sun near the Generator.
3. Some of the Contractor's local staff working at the active construction site were seen not wearing the PPEs (helmet and safety shoe)
4. There was a complaint reported to the Environment Auditors on-site during the inspection of the Bikenibeu Sewerage Pump Station 1. The neighboring residents complained of bad odor emitted from Pump Station every time the Pump turns on

- and also when the PUB vacuum truck is emptying its content into the system. The Environment Officers were able also to verify the complaints and found the complaints to be true though, the odor was found not too significant on that day.
5. The inspection of the Bikenibeu Pump Station 1 was done during the low tide and the Auditing Team was able to observe the leak from the outfall pipe just before the reef crest. The Environmental Auditors and the Engineer's representative managed to walk towards the outfall and confirmed a fountain of water leaking from the under water outfall pipe.
  6. There was a pile of concrete debris/demolition waste found at the Betio outfall site at Temakin Point. The debris was dumped on the beach and it damaged the beach berm posing risks with coastal flooding and inundation during the Spring tide. The Engineer's representative was not sure if this debris was to do with the STSISP.

The above findings/issues had been discussed with the Engineers' representative during the on-site debriefing for the Engineer's information and to discuss with the Contractor for timely corrective actions.

MELAD-ECD would like to suggest for the Contractor to make its representative available to join future auditing. This will be useful for the Contractor to provide its clarification on-site during the inspection on potential issues identified just like any auditing with other on-going national infrastructure projects. The Engineer's representative also shared a few suggestions including sharing of revised drafts of environmental reports with MELAD, which were useful to improve future auditing. The MELAD would like to seek the availability of STSISP's Contractor and Engineer representatives next **Wednesday 02/05/2018 for the next ECA**.

I thank you for your continued support and commitment to safeguard our Kiribati environment and comply with the Kiribati Environment Act 2007. Should you have questions with regard to this letter, please don't hesitate to contact us through the address above.

  
for **Ms. Taare Aukitino**  
Secretary, MELAD

## Section 2 – Result of 5 May Audit and Compliance Notice



**GOVERNMENT OF KIRIBATI  
MINISTRY OF ENVIRONMENT, LANDS, & AGRICULTURAL  
DEVELOPMENT**

**P.O BOX 234, BIKENIBEU TARAWA  
Telephone Number: (686) 75228211, 75228212**

**File ref: 3/7(d)**

**Date: 1-Jun-18**

To: Mr. Alastair Cusack  
Project Manager  
CCB Envico  
South Tarawa Sanitation Improvement Sector Project (STSISP)

**RE: Non-compliance by CCB Envico with the Environment Licence (EL) under the  
Kiribati Environment Act 2007**

I write to convey the MELAD's serious concern about the poor record on the compliance by CCB Envico with the Environment Licence (EL) issued for the South Tarawa Sanitation Improvement Sector project (STSISP), specifically the EL for ICB-01 and ICB-02 sub-components, which CCB Envico is the Contractor.

During the STSISP stakeholders (MISE, Engineer, CCB, Contractor, and MELAD) meeting held on 11/05/2018 to discuss the outstanding issues identified during the environment compliance audit undertaken by MELAD-ECD on 02/03/18 and 02/05/18, there were a number of requirements of the Contractor to attend/submit to MELAD. One of these critical outstanding issues was the absence of the environmental reports. There had been no reports submitted to MELAD since the start of the ICB-01 (December, 2014) and ICB-02 (August, 2016).

It was also revealed during the meeting by the Contractor's representative, that the positions for both the on-site Project Manager and Site Manager were vacant. The Contractor's Environment and Social Management Plan (CESMP) stated these two positions would be responsible for producing the required environmental reports. This issue exposed the concern with the CESMP, which is outdated.

The MELAD has reviewed the submission received from CCB Envico on Wednesday 30/05/18 on the outstanding report and the Contractor's response to the MELAD's audit findings on 02/03/2018. My Ministry is concerned with the quality of the report and the attention given by the Contractor to the monitoring and reporting obligations under the

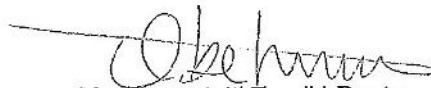


Environment Licence (EL) Conditions including the specific advice on this outstanding reporting requirement sent by email on 17/05.

In addition to the above concerns, the Contractor was found on 23/05/18 to contravene the EL Condition due to the poor storage of its used oil at its PUB Yard in Betio (two 200L drums of used oil were left outside in the open). Though, the Contractor was swift to rectify the problem after it was spotted by the Environment Inspectors, the MELAD noted with grave concern this poor practice by the Contractor. The MELAD was also aware of the Contractor's suspected involvement in the illegal dumping of car wrecks at Temaiku. The MELAD is now working on this case with other responsible authorities to get the full fact before it proceeds to take action under the Environment Act.

The MELAD is looking forward to meeting with MISE soon to discuss these important concerns and to ensure there is a serious commitment by the STSISP stakeholders towards the compliance with the Kiribati Law and also for proper documentation.

Yours sincerely,



Ms. Nenenteiti Teariki-Ruatu

Director, Environment and Conservation Division

For Secretary, Ministry of Environment, Lands, and Agriculture Development (MELAD)

CC: Secretary, Ministry of Infrastructure and Sustainable Energy (MISE)  
Director, Engineering Services, MISE  
Team Leader, SMEC (STSISP Engineer)  
Attorney General, Office of Attorney General



GOVERNMENT OF KIRIBATI  
**MINISTRY OF ENVIRONMENT, LANDS AND AGRICULTURAL  
DEVELOPMENT**

P.O BOX 234, BIKENIBEU TARAWA  
Telephone Number: (686) 28000, 28211 Fax Number (686) 28334,  
E-mail: [information@environment.gov.ki](mailto:information@environment.gov.ki)

File ref: 3/7(d)

Date: 1 June 18

## COMPLIANCE NOTICE

Issued under section 57 of the *Environment Act 1999* (as amended 2007)

Attention:

Mr. Alastair Cusack  
Project Manager  
CCB Envico  
South Tarawa Sanitation Improvement Sector Project (STSISP)

I, Farran Redfern, appointed in accordance with Section 5 of the *Environment Act 1999* (as amended 2007) ('the Act') have determined that CCB Envico, which is engaged to implement the two components (ICB-01 and ICB-02) under the South Tarawa Sanitation Improvement Sector Project (STSISP), has failed to comply with the Conditions of the Environment Licence (EL) 048/15 and 143/12, which contravened the Act.

Specifically, CCB Envico (the Contractor) has been found in breach of the Conditions of EL 143/12 and 048/15 issued for ICB-01 and ICB-02, respectively, as stated below:

- i. EL 048/15 Condition 17, which required the Contractor to get the approval first from the Lands Management Division for the use of Government Land before using the land for stockpiling of materials. This involves the use of Betio Temakin Point (PUB Pump Station 1) for the use of stockpiling of construction materials.
- ii. EL 048/15 Condition 45, which required the Contractor to submit to MELAD, a monitoring report on the sewage plume movement identified in the environmental monitoring plan of the basic EIA report, every three months after the start of the Project.
- iii. EL 048/15 Condition 46, which required the Contractor to submit to MELAD, a monitoring report on the coral reef ecosystem at the sewage outfall discharge point surrounding identified in the environmental monitoring plan of the basic EIA report, six months after the start of the work, and every twelve months thereafter.
- iv. EL 048/15 Condition 12 for failing to take heed of the directions issued by the Environment Inspector advising the Contractor by email (dated 17/05/2018) on the specific reporting requirements.
- v. EL 143/12 Condition 26, which required the Contractor to report every three months to the Principal Environment Officer (MELAD) related to the public complaints and

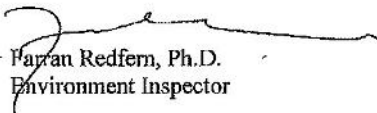
any damage to the environment cause during and after the operation of the activity and the corrective action undertaken.

The failure to comply with the Conditions of the EL is an offense under Section 29 of the Act, and there is a maximum penalty of \$100,000 fine, imprisonment of five years. Accordingly, under Section 57 of the Act, I am issuing this Notice requiring the following actions to be undertaken by CCB Envico:

- i. A separate report for each of the STSISP sub-components ICB-01 and ICB-02 has to be prepared and submitted to MELAD. For each sub-component, a consolidated report to be prepared for the period covering the Project Inception to September 2017. From October 2017 to date, a three-month report is required for each sub-component.
- ii. The report for ICB-01 to include the reporting on at least EL 143/12 Conditions 19 and 23.
- iii. The report for ICB-02 to include the reporting on at least EL 048/15 Conditions 43 and 44.
- iv. The Contractor to submit to MELAD all the reports in (ii) and (iii) above following the given instruction in (i) before end of working hours on Friday 8/06/18.
- v. The Contractor to provide an evidence of an official approval by the Land Management Division for the use of Betio Temakin Point (PUB Pump Station 1) as per requirement of EL 048/15 Condition 17, before end of working hours on Friday 8/06/18. Failure to comply with this requirement would trigger the MELAD to instruct the Contractor to discontinue using the site immediately, and to proceed to deal with the issue under Act.

You will be separately notified in writing of any decision made to issue an Infringement Notice and/or prosecute you for a failure to comply with any of the directions given in this Compliance Notice.

Ko bati n rabwa,

  
Parman Redfern, Ph.D.  
Environment Inspector

#### ACKNOWLEDGMENT OF RECEIPT

I, Alexander Wende acknowledge receiving a copy of this notice, by hand.

Signed:



Dated:

24/6/2018

It is an offence to fail to comply with this notice and may lead to a fine of up to \$100,000, imprisonment for five years

Failure to comply may also result in directions made under section 59(2) of the Act and could result in liability for costs in carrying out the direction to be borne by the offender.

## Appendix D Appendix D – Pipe Loss Incident Report

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### CCB ENVICO OHS Management System

DESCRIPTION:


#### OCCUPATIONAL HEALTH, SAFETY AND REHABILITATION INCIDENT REPORT - DRAFT

OHS/F: 001A

Attach additional information if insufficient space.

<b>01 Employer Details (By Site Manager)</b>	Employer: CCB Envico P/L Address: Level 1, 473-479 Victoria Street, West Melbourne, Vic Australia 3003
<b>02 Workers Details (By Site Manager)</b>	Surname (BLOCK LETTERS): Simmons Given Names (BLOCK LETTERS): Mick Address: Ambo, South Tarewa Postcode: N/A Occupation: Site Manager Date of Birth: 28/06/1974    Sex: M
<b>03 Time of Incident (By Site Manager)</b>	Time of Incident: Between 7-11pm Wednesday 31 <sup>st</sup> Jan Worker Ceased Work: N/A When was the incident first reported? 8.10am Wednesday to CCB Management Location of Accident: Betio Out fall Tarawa Kiribati at PS1 site Betio
<b>04 Incident Details (By Site Manager)</b>	What was the nature of the Incident? Loss of 400m of 315mm HDPE pipe What was wrong, or what broke down? The rope on the securing moorings appeared to have been cut overnight allowing the pipe to float away on the king tide. Describe how the incident was caused? It appeared that some rope on the securing mooring had been cut allowing the pipe to break free to float away on the king tide. Has the incident been resolved?    Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, date resolved: TBA



<b>CCB ENVICO</b> <b>OHS Management System</b>	
<b>DESCRIPTION:</b> <b>OCCUPATIONAL HEALTH, SAFETY AND REHABILITATION</b> <b>INCIDENT REPORT - DRAFT</b>	<b>OHS/F: 001A</b>
<b>05</b> <b>Incident Details</b> <b>(By Site Manager)</b>	Item Affected: 400 mtrs of 315mm out fall pipe    Nature of Incident: Serious Risk Location: Beach at PS1 Betio Tarawa Has a similar incident occurred previously:    No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> Details: If yes, was it reported:    No <input type="checkbox"/> Yes <input type="checkbox"/> Details: What process was interrupted by the incident: the laying of said pipe for the out fall project. How long was item functioning correctly prior to the incident? N/A Was the item designed to perform this function? N/A
<b>06</b> <b>Other Details</b> <b>(By Site Manager)</b>	The person in charge at the time, his / her position: Mike Simmons Site Manager Has he / she verified the particulars? Yes Give any names of any witnesses of the occurrence: Local Residents: TEWANRENGA RURATE, TAEA ARETANA AREKE, TIRAE REREUA Have they verified the particulars given? Yes
<b>07</b> <b>Site Manager's</b> <b>Report</b> <b>(By Site Manager)</b>	Investigation commenced: 11pm 31/01/2018    Injury reported: N/A Were you advised of the incident within 24hours of occurrence?    Yes Comments: CCB Management were informed by email at 6am 1/02/2018 Last night we lost a string of pipe about 400 mtrs We had it tied up on reef yesterday afternoon ready to put weights on during the low tide at night then position the pipe Thursday morning We have employed security to watch the pipe they did not turn up. Locals say some one cut our ropes The boys and myself walked the reef looking for it asked some local fisherman in boats to look as well but no pipe. What action has been taken or is recommended to prevent recurrence? We have notified local police and marine authorities and will provide further details on name and position to individuals notified along with time of notification.
<b>08</b> <b>Project Manager's</b> <b>Report</b> <b>(By Project Manager)</b>	Comments: See below incident and response details next page. Signed:  Date 02/02/2018 Has the Project Engineer been notified?    Yes    If yes, Date 01/02/2018

## CCB ENVICO OHS Management System

**DESCRIPTION:**

### OCCUPATIONAL HEALTH, SAFETY AND REHABILITATION INCIDENT REPORT - DRAFT

OHS/F: 001A

The details & information provided in this report is the best information available to us at the time of submission. In the event the additional information is subsequently made available to us we may have further/alternate details or information to add or subtract. No details or information contained herein should be considered contrary to a Police Report should one be forthcoming.

**Incident Details**

- Mr Simmons is a responsible, safe and diligent long term staff member of CCB with an excellent safety record.
- On Wednesday Mr Simmons had moved a 400m string of 355OD HDPE pipe onto the reef flat during low tide in Betio in preparation for installation the following day.
- The pipe was tethered with rope and strapping at to temporary anchor weights at a number of locations along the pipe – the standard practice used to secure strings of pipe effectively on the reef flat to date.
- Between 6pm & 11pm by third party reports unidentified locals walked out onto the reef, cut and removed the rope and strapping from each of the temporary anchor weights.
- See below photos showing at least 3 cut tethers.



- 1)



- 2)



## CCB ENVICO OHS Management System

### DESCRIPTION:

### OCCUPATIONAL HEALTH, SAFETY AND REHABILITATION INCIDENT REPORT - DRAFT

OHS/F: 001A

- 3)



- This left the pipe string untethered on a rising tide and able to float away.

### CCB Response

- CCB site staff attended the site at around 11pm on Wednesday night at high tide and could not see the pipe. At this time it was not known if the pipe was in the immediate area or not.
- CCB returned to the Outfall Site at low tide the following morning 7am to search the immediate area anticipating the pipe had not traveled very far.
- We enlisted the assistance of local boats to search the area of water to the north & south west of the reef as well searching as north and south along the shore and reef flat.
- Following the search it became evident the pipe was not in the immediate area and we reported the incident to the relevant authorities, listed below;
  - LCDR - George McKenzie 12pm Thurs 1/2
  - KPA - Derek Andrewartha - 12pm Thurs 1/2
  - Police - Commissioner Name TBA - 1pm Thurs 1/2
  - Air Kiribati - Name TBA - 1pm Thurs 1/2
- CCB's notification to project engineer and client could have occurred in a more timely manner, however our initial focus was notification of local authorities listed above.
- Project Representatives received informal notification of the incident within 24 hours.
- Project Representatives received formal notification of the incident within 48 hours.

### MISE Response

- Notification of Search and Rescue (SAR) Co-ordinator in the Marine Division who is arranging for a general radio announcement for the public and an alert to boating/shipping.

Please note our investigations are incomplete and ongoing and we appreciate the input and assistance of Project Engineers SMEC and Client MISE in relation to this incident.

## Appendix E OSSP MOU

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## MINISTRY OF INFRASTRUCTURE & SUSTAINABLE ENERGY

P.O. Box 498, Betio, Tarawa, Republic of Kiribati

Phone: (686) 26192, Email Address; [registry@mise.gov.ki](mailto:registry@mise.gov.ki)

Website: [www.mise.gov.ki](http://www.mise.gov.ki)

### Terms of Agreement

Kanoan te Boraraoi

#### Purpose

The following is an agreement between the Water and Sanitation Engineering Unit (WSEU) within the Ministry of Infrastructure and Sustainable Energy (MISE) hereafter known as the 'WSEU' and the representatives or head of households hereafter named the 'Beneficiary', as follows:

#### Ana taakete te Boraraoi:

Aio te boraraoi imarenan te rabwata ae te Water and Sanitation Engineering Unit (WSEU), ae e mena i aan ana tararua te Ministry of Infrastructure and Sustainable Energy (MISE), ao mai ikai ae e na ataaki n arana ni kauarereke ae te WSEU, n te boraraoi are e na karaoia ma taan tei ke te tia tei ibukin mataniwin te utu, ao mai ikai are e na ataaki n arana ae te 'Beneficiary', ke te tia butimwaea te buoka.

The purpose of this agreement is to: i) provide a framework by which all parties will co-operate to satisfy requirements for operation and maintenance of the sanitation facility as installed under the On-Site Sanitation Sub-Project (OSSP) as implemented under the Tarawa Sanitation Improvement Sector Project (STSISP), and ii) Provide time-frames for the performance of the obligations expected from each party.

Aikai bukin karaoan te boraraoi aio: i) e kaotaki iai te kataunaari ke kairan te iango ibukiiia botaki aika uabaronga ke bwaatei, ba a na ikarekebai ibukin kakoroan raoi bukin baika a riai ni karaoaki ma n onobwaiaki ni kaineti ma tararuan ao kateimatoaan roki n nakotaari, n tebotebo ibukin te kakaitiaki, n aron ae e a tia ni kateaki ke ni barongaaki i aan te karikirake

ae e aranaki ba te On-Site Sanitation Sub-Project (OSSP), ae e mena i aan ana tararua te Tarawa Sanitation Improvement Sector Project (STSISP); ii) ao e na kaotaki naba iai te tai ae e babaireaki ibukon kakoroan bukin te bwai ae e riai ni karaoaki n te boraraoi aio, irouia koraki ke bwaatei aika uoua.

#### **A. General Conditions and Statements**

##### **Baika a riai n ataaki ni kanoan te Boraraoi aio:**

1. This document is to be read and understood by all parties prior to signing. The purpose of this document is to ensure that individual households have a clear understanding regarding their, and other parties' responsibilities under the project, and to ensure correct, safe and ongoing operation of the sanitation facility (SF).

E riai te boraraoi aio ni warekaki ao n ataaki raoi nanona irouia bwaatei ke koraki aika uabaronga imwain ae e tiainaaki. Oin te boraraoi aio ba e na katerea nakoia utu ke kain te mweenga nako, te bwai ae a riai n ataia ma ni mataata raoi iai, ni kaineti ma oin tabeia ao taben te botaki ke te bwaatei are teuana, n te karikirake aio, ao n ata raoi kamanoaia ao aika a riai ni karaoi ibukin kakoroan ao kateimatoan auti ibukin kai n nakotaari (SF) ibukin kamwengaraoia te botan'aomata ao tararuaan te kakaitiaki.

2. Incorrect use of the sanitation facility may result in contamination of the nearby environment and reduction in well water quality. Non-Compliance with the terms listed below may result in transfer of authority for the facility to another benefactor, or removal of the sanitation facility and reinstallation at another location for use by a different benefactor.

By agreeing to this MOU, all parties confirm agreement to ensure the safe and fair operation of the system.

Aki kabonganaan raoi tabo ke kateitei aikai ibukin tararuan te kakaitiaki, e kona ni karika te urubwai nakon te otabwanin ao ni kauarerekea naba mwaitin te ran ao raoiroina. Aki irakin raoi kanoan te boraraoi, aika a na kaotaki i nano, e kona ni karika katokan te buoka ao manga anganakin temanna te buoka ibukin kabonganaan kateitei aikai, ke kanakoan kateitei aikai, ao manga kateiaia n te tabo riki teuana ibukin kabonganaana irouia aika a kainnanaia.

Ni katauan te boraraoi aio ke te MOU, ao a kaotia iai bwaatei ke koraki aika uabaronga ba a kukurei ni kakoroa ma ni kamanoa raoi te boraraoi aio i nanon te eti n tain mwakuriana.



The following sets a frame work for terms around installation of the sanitation facility and required actions to be performed by all parties after construction and handover:

Aikai kataunaari ke kairan te iango ni kaineti ma moanakin kateitei aikai ibukin tararuan ao kateimatoan te itiaki ao baika a riai ni karaoaki irouia koraki ke bwaatei aika uoua, imuin moanakin te kateitei ao anganakin te tia butimwaea te buoka:

## **B. RESPONSIBILITIES OF BENEFICIARY HOUSEHOLD**

### **ABEIA TAANI BUTIMWAEA TE BUOKA**

The Beneficiary and associated households shall do the following:

Aikai baika e riai ni karaoi te tia butimwaea te buoka, n raonaki ma kain mweengana:

1. Adhere to all relevant Mitigation Measures as detailed in the Environmental Monitoring Table (EMoT) as provided in the BEAI and attached to this MOU.  
E riai n iri nanon taiani kainibaire ni kaineti ma totokoan taian urubwai nakon te otabwanin ke 'Mitigation Measures', n aron ae e oti n te 'Environmental Monitoring Table (EMoT)', n aron ae e kaotaki n te BEAI ao ni karinaki naba ba kanoan te MOU aio.
2. Provide at least one person to be point of contact between the Beneficiary and the Project Team.  
E riai n iai temanna te aomata ae e muiokoaki ba e na riki ba te tia itoman imarenan te tia butimwaea te buoka ao te Project Team ke kain te tiim ni karikirake.
3. A copy of recent land ownership certificate must be provided by the Beneficiary or representative to the Project Team before construction starts.  
E riai n iai katotongan te beebwa ni kakoaua iroun te tia ababa ke te tia tei ibukin te tia butimwaea te buoka, ike e na oti iai ba boni ngaia te tia abaaba ni boong aikai, ni kaotia nakon te Tiim ni Karikirake imwain moanakin te kateitei.
4. Allow access to the land proposed and agreed upon for construction activities to occur. This access right includes allowing persons associated with inspections to enter the property for the sole purpose of activities related to the SF.  
E riai n iai te kariaiakaki ao te boraraoi ibukin kabonganaan te aba are e na kabonganaaki ibukin te kateitei

5. Allow access to the land in question to members of the project or designated Contractors to perform construction and maintenance procedures.  
E na iai te kariaia nakoia kain te tiim ni karikirake ke nakon te kambwana ni kateitei ibukin moanaki ao waakinan te kateitei.
6. Report any issues related to the functionality or condition in detail to the designated officer within the PUB. These issues may include, but are not limited to; strange odor from the trench or latrine, construction defect of the latrine building, movement of the septic tank, flooding or overflow of the soak away trench, damage or vandalization of the facility.  
A riai n ribotinaki baika iai irekerekeia ma kabonganaan ke taekan te aba nakon te aomata ae e muiokoaki man te PUB, n aron aikai: te boi ae e kamwara man te keniken ke man te roki n nakotaari, aki nakoraoin katean te roki n nakotaari, mwaingingin te 'septic tank' ke te tabo are e raanga nako iai te nakotaari, onraken ke taonakon te tabo are e na raanga nako iai ranin te nako taari, ke uruakin ma karaon mwakuri n ioawa nakon taian roki ke kateitei, ao tabeua riki.
7. Maintain appropriate cleanliness of the toilet including but not limited to: cleaning of the floor, toilet seat and latrine with correct cleaning products. Training on operation and maintenance will be provided during handover at construction completion and requires attendance by all persons using the SF.  
E riai ni kateimatoaki te kakaitiaki nakon taian roki n nakotaari n aron aikai: kaitiakan nanon te roki n nakotaari, te tabo n tekateka ao te tabo ni mwaimwai ke ni mim ni kabonganai bwai ni kaitiaki aika a riai ni kabonganaaki. Te kataneiai ibukin aron waakin ao kateimatoan te roki ke te kateitei, ngkana e anganaki te muioko te tia butimwaea te buoka, ao aio are e riai n iiraki irouia te koraki aika a kabonganaa te Sanitation Facility (SF).
8. Ensure the soak away trench and chambers of the installation are kept in a condition that allows proper operation, with the components to be kept free of rubbish or obstructions.  
Kataia ni kateimatoa itiakin taiani mwanono ma taabo ni keniken ibukin karaon kai n nakotaari, n te aro ba e na aki tutuuki aron karaon te mwakuri, n akea te maange ke bwaai aika a na tutuuki.
9. Complete the responses report as required by the WSEU at the conclusion of each quarter. This report is to include the following: a) number of people with approval to use the toilet, b) confirm accessibility to everyone in the household to the toilet, c) convenience of location, d) frequency of cleaning, e) confirmation of required maintenance and frequency f) type of anal cleaning material used and available, g) water source for flushing (well water or rain water), h) number of visits per day to the toilet. A template of this report will be issued to the Beneficiary.  
Kataia ni katiiai ma ni kaekai titiraki n te ribooti, ae e kainnanaaki man te WSEU, ni katoa tokin te teniua (3) n namwakaina. Aikai baika a riai n oti n te ribooti anne:



a) mwaitiia aomata aika a katauaki ni kabongana te kai n nakotaari; b) e na kamatoaki ba e na kona ni kabonganaaki te kai n nakotaari irouia kain te mweenga ke te utu; c) e na angaraoi ma n nakoraai te tabo are e kateaki iai te roki n nakotaari; d) tain mwaitin kaitiakan te roki n nakotaari; e) kamatoan te onobwai nakon te roki n nakotaari ao mwaitina; f) te aeka n tiraa ae e kabonganaaki ao ae e kona n reke; g) te ran ae e kabonganaaki ibukin te bo n nakotaari (ba te ran ke te karau); h) mwaitin kakabonganaan te roki n nakotaari ni katoa bong. E na kabonganaaki te beebwa ibukin te ribooti irouia taani butimwaea te buoka ke taani buokaki.

10. Ensure toilet paper is provided and replenished accordingly.

E riai ni kakatauraaki te tiraa ma n aki taatare ibukiiia taani kabongana te roki n nakotaari.

11. Cover cost of maintenance and replacement components as required. Any defects reported during the defect liability period (90 days beginning at hand over) will be replaced or made good by the Contractor.

E na karaoaki te kataubo ibukin te katamaroa ao te onobwai nakon bwain nako te roki n nakotaari n aron ae e baireaki. Te uruaki ke te kanganga nako ae e nooraki n tain te 90 ni bong, mai muin te tai are e moanaki iai kabonganaan te roki n nakotaari irouia taani butimwaea te buoka, e na karaoaki ke n onobwaiaki iroun te tia karaoa te roki n nakotaari ke te 'Contractor'.

### C. Responsibilities of the WSEU and Engineer

#### Taben te WSEU ao te Intinia

The WSEU in cooperation with the Engineer shall be responsible for the following:

Aikai taben te WSEU n raonaki ma te Intinia (Engineer):

1. Construction of the SF is to specification and operates correctly and safely at handover  
Katean te roki n nakotaari (SF) n aron ae e a tia ni baireaki, ao e riai n nakoraai raai ao mani mano raai n te tai are e anganaki iai te tia kabonganaa te roki n nakotaari.
2. Training sessions are organized and held at time of handover, for attendance by persons intended to use the SF  
E na iai te reirei ao te kataneiai ae e barongaaki raai imuin tian te roki n nakotaari ao n te tai are e anganaki iai te muioko te tia kabongana te roki n nakotaari, ma n iraki irouia taani kabongana te roki n nakotaari (SF).
3. Respond to reports of issues, defects or damage to the SF.

Mwakurian ke kaekaan taian ribooti i aon uruaki ao kanganga nakon te roki n nakotaari (SF).

4. Provide technical advice relating to the operation and maintenance of the SF  
A na anga te ibuobuoki ao ni buoka karaoan ao kateimatoan ma te onobwai nakon te roki n nakotaari (SF).
5. Carry out water sampling of the site to ensure contamination of local water lens does not occur. Sampling to occur prior to construction and the first, third and fifth year after commissioning. Sampling will be conducted every four months during these years.

E na karaoaki te tutuo nakon te ran n te tabo are e kateaki iai te roki n nakotaari, n te aro ba e na ataaki raoi ba akea te rotaki nakon raoiroin ma itiakin ao rietan te ran i aantare. E na tuoaki te ran imwain katean te roki n nakotaari, ao e na manga tuoaki imuin 1, 3, ao 5 te ririki imuin kabonganaan te roki n nakotaari. E na kakaraoki te tutuo nakon te ran ni katoa 4 te namwakaina inanon ririki akanne.

6. Ensure contamination to local environment is mitigated in the event that water sampling reveals detrimental impact to local water lenses and health of local residents. This may include decommissioning of the SF in extreme cases.

E na buoka totokoan buakakan te ran nakon te otabwanin ao nakoia taani maeka, imuin te tai are e noraki iai ba e rotaki itian ao mwaitin te ran ibukin mauria taani maeka n uakaan ma te roki n nakotaari.

Agreed by all parties;

Kamatoaan te boraraoi;

TEA 3 Catholic

<b>Beneficiary Representative / Te Tia tei ibukin te tia butimwaea te buoka</b>		
Name / Te Ara: LOKATAAM TEKIRE	Signature / Te Tiaaina: <i>[Signature]</i>	Date / Te bong n tiaaina: 26/5/18

<b>Pastor/ Priest / Te Minita / Berebitero</b>		
Name / Te Ara: Marlene Rasmussen	Signature / Te Tiaaina: <i>[Signature]</i>	Date / Te bong n tiaaina: 1/6/2018

<b>Island Council Clerk / Ana tia mwakuri te Kauntira</b>		
Name / Te Ara:	Signature / Te Tiaaina:	Date / Te bong n tiaaina: / /

<b>Member of Parliament / Te Tia Tei n te auti ni maungatabu</b>		
Name / Te Ara: MP. Tasebe Kaiar	Signature / Te Tiaaina: <i>[Signature]</i>	Date / Te bong n tiaaina: 11/06/18

<b>WSEU Representative / Ana tia tei te WSEU</b>		
Name / Te Ara: Aneke Alexander-Tianeti	Signature / Te Tiaaina: <i>[Signature]</i>	Date / Te bong n tiaaina: 28/06/2018
Position / Te Nakoa: Sanitation Engineer		

