



# MOOI MGENI TRANSFER SCHEME PHASE 2 (MMTS-2) Construction of the Spring Grove Dam & Appurtenant Works

[DEA Reference Number: 12/12/20/220]



## MONTHLY ECO REPORT : August 2012



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## TITLE AND APPROVAL PAGE

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## LIST OF ACRONYMS & ABBREVIATIONS

<b>DEA</b>	Department of Environmental Affairs
<b>ECO</b>	Environmental Control Officer
<b>EO</b>	Environmental Officer
<b>EMP</b>	Environmental Management Plan
<b>EM</b>	Environmental Monitor
<b>EMC</b>	Environmental Monitoring Committee
<b>MMS-2</b>	Mooi Mgeni Transfer Scheme Phase 2
<b>TCTA</b>	Trans-Caledon Tunnel Authority
<b>RoD</b>	Record of Decision

## DEFINITIONS

### Auditing

An 'environmental' audit is a methodical examination (including tests, checks, and confirmation) of environmental procedures and practices with the view of verifying whether they comply with internal policies, accepted practices and legal requirements

### Environment

The surroundings in which humans exist and which comprise:

- The land, water and atmosphere of the earth.
- Micro-organisms, plant and animal life.
- Any part or combination of a) and b) and the interrelationships among and between them.
- The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.

### Environmental Aspect

Those components of the company's activities, products and services that are likely to interact with the environment.

### Record of Decision

The written statement from the relevant environmental authority in terms of the Environment Conservation Act (Act 73 of 1989), with or without conditions, that records its approval of a planned activity and the implementation thereof and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

### Environmental Feature

Elements and attributes of the biophysical, economic and social environment.

### Environmental Impact

The change to the environment resulting from an environmental aspect (an activity) on the environment, whether desirable or undesirable. An impact may be the direct or indirect consequence of an activity.

### Environmental Management Plan (EMP)

A detailed plan of action prepared to ensure that recommendations for enhancing positive impacts and/or limiting or preventing negative environmental impacts are implemented during the life-cycle of a project.

Environmental Objective

Overall environmental goal pertaining to the management of environmental features.

Environmental Target

Performance requirement that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives.

Hazardous Waste

Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment

Monitoring

'Compliance' monitoring is a continuous and systematic process to ensure that the conditions in the Record of Decision (RoD) Environmental Management Plan (EMP) are being adhered to.

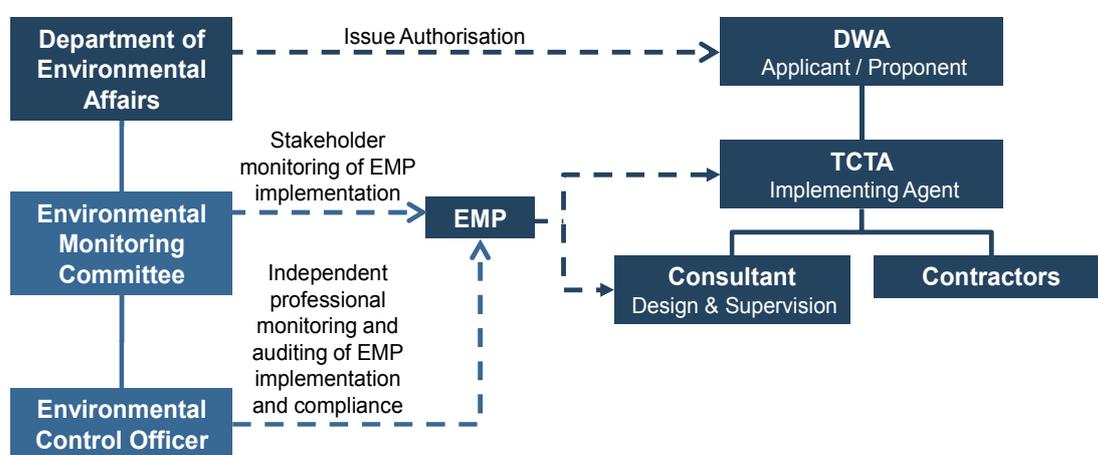
Pollution

Any change in the environment caused by substances, radioactive or other waves, or noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

## 1 INTRODUCTION

Nemai Consulting was appointed as the independent Environmental Control Officer (ECO) for the Trans-Caledon Tunnel Authority (TCTA) for the Mooi-Mgeni Transfer Scheme Phase 2 (MMS-2) project.

The ECO's functions in terms of environmental compliance monitoring are to systematically monitor the processes and activities required for the implementation of each Environmental Management Plan (EMP) and the conditions in the Record of Decision (RoD) (refer to environmental governance arrangements in **Figure 1**).



**Figure 1: Environmental Governance Arrangements: Lines of Accountability**

The RoD requires that a suite of EMPs be prepared for the project. Each EMP comprises two sections, namely a project description and the Environmental Management Philosophy as well as the EMP for a specific activity/phase of construction. To date, the following EMPs have been approved by the Department of Environmental Affairs (DEA):

- Construction of the Spring Grove Dam Wall – approved on 03 May 2011;
- Traffic Management and Mitigation Plan – approved on 16 August 2011 (amendment application approved on 21 February 2012);
- Search, Rescue and Relocation – approved on 07 September 2011;
- Mooi River Gauging Weir – approved on 08 October 2011;
- Mooi River Fish Barrier – approved on 06 February 2012;
- Mpofana River Gauging Weir – approved on 07 March 2012;
- Transplantation of red data species found at Inchbrakie Falls to the Reekie Lynn Falls – approved on 13 April 2012;

- Roads realignment and flood protection of affected sections of the Lower Loteni Road – approved on 07 May 2012;
- Relocation of people living in the dam basin – approved on 09 May 2012;
- Refurbishment;
- Service Relocation & Decommissioning – approved on 24 July 2012;
- Rehabilitation of off-site wetlands – approved on 12 July 2012; and
- Establishment of biodiversity offsets – approved on 12 July 2012.

This document serves as the monthly ECO Report for August 2012. The monitoring event was undertaken on 15 August 2012, and the monitoring period commenced on 20 July 2012.

## 2 ECO MONITORING APPROACH

### 2.1 Weekly Monitoring

**Weekly** ECO monitoring sessions are conducted where a full day is spent on site to inspect the overall construction domain on a weekly basis. The weekly ECO monitoring reports, which are submitted to TCTA, serve as an overview of the following:

- New or improved areas of good environmental practices and compliance;
- Areas of poor practices or where concerns have been noted;
- Status of previous issues; and
- Conclusions.

The weekly ECO monitoring events are more focused on best environmental practices, rather than regulatory compliance.

### 2.2 Monthly Monitoring

**Monthly** ECO monitoring serves to check compliance against the following:

- Conditions of the RoD for the construction of the Spring Grove Dam and Appurtenant Works; and
- EMPs and associated conditions of approval.

The Monthly ECO monitoring reports are submitted to TCTA, the Environmental Monitoring Committee (EMC), and ultimately DEA. The monthly ECO monitoring includes once a month full day site inspections, checking environmental administrative provisions (e.g. documentation, files, registers), analysing monitoring data, checking complaints, interviewing the Environmental Manager, Environmental Monitor (EM) and Environmental Officer (EO) (as required) and completing a detailed ECO Monitoring Checklist.

The ECO Monitoring Checklist consists of monitoring items extracted from the EMP and RoD, and are categorised as follows:

- Environmental Authorisation;
- Administration;
- Environmental Education and Awareness;
- Construction;
- Materials;
- Water Quality;
- Air Quality;
- Noise;
- Community Engagement;
- Archaeology and Cultural Sites;
- Vegetation;
- Fauna;
- Traffic;
- Safety and Security;
- Waste;
- Rehabilitation; and
- Search, Rescue and Relocation.

The following Conformance Scores, based on the level of compliance for the overall site, is allocated to each monitoring item in the checklist:

CONFORMANCE SCORES	DESCRIPTION
1	Task not achieved
2	Task 20% complete
3	Task 50% complete
4	Task 80 % complete
5	Task 100% completed in accordance with the EMP

Where non-conformance to the RoD conditions and EMP mitigation measures is encountered (i.e. COMFORMANCE SCORE < 5), the significance of the associated Impact is recorded based on the following guidelines):

IMPACT SCORES	IMPACT
1	<b>Low</b> – mitigation not needed/ mitigation measures to be maintained
2	<b>Medium</b> – mitigation should be considered
3	<b>High</b> – mitigation compulsory

The identified non-conformances and related impacts are also rated based on the following **Penalty Scores**:

PENALTY SCORES	DESCRIPTION
0	Not Applicable / Impact or Non-Conformance occurred in area of low Environmental Significance
1	<b>Moderate</b> – Impact/Non-Conformance occurred in area of moderate Environmental Significance ( <i>1% Deduction from total conformance score</i> )
2	<b>High</b> – Impact/Non-Conformance occurred in area of high Environmental Significance ( <i>3% Deduction from total conformance score</i> )
3	<b>Very High</b> – Impact/Non-Conformance Occurred in area of very high Environmental Significance ( <i>5% Deduction from total conformance score</i> )

The overall compliance score is based on:

- No of items scored for the monitoring event;
- The highest conformance score for the monitoring event;
- The actual conformance score for the monitoring event;
- The conformance percentage for the monitoring event (%);
- Total Penalty Deductions (%); and
- Total Conformance Score Including Penalty Deductions (%).

### 2.3 Surprise Inspections

It was requested by the EMC that surprise inspections of the site be undertaken on a monthly basis. Such an inspection includes revisiting selected issues identified as part of the previous weekly monitoring event, as well as spot-checks of certain areas within the construction domain.

The findings of the surprise inspection for August 2012 are included in **Appendix A**.

### 3 CONSTRUCTION ACTIVITIES FOR THE MONITORING PERIOD

Amongst others, the following main construction activities took place during the monthly monitoring period, as identified during the monitoring sessions and from the EO's daily site diary:

- Operations at batching plant (see **Figure 2**);
- Pouring of concrete at the dam foundation is ongoing (see **Figure 3**);
- Installation of shutters for the dam base at the dam foundation is ongoing;
- Backfilling of the earth embankment (see **Figure 4**);
- Pipe installation at the earth embankment is ongoing;
- Construction of the Spring Grove Weir is ongoing downstream from the dam wall;
- Construction of Route 2 culvert is ongoing below the dam foundation;
- Construction of a concrete drainage channel adjacent to the permanent access road into the dam basin is ongoing;
- Borrow pit excavation and usage adjacent to the haul road (see **Figure 5**);
- Occupation of offices on the left bank;
- Construction of D146 Road /R103 intersection is completed, minor works still in progress;
- Truck watering haul roads on site and the D146;
- Construction of the road embankment on Route 13 and use of associated site camp is ongoing (see **Figure 6**);
- Hauling of aggregate and fill;
- Upgrading of Route 9 is ongoing;
- Creation of a stock pile area on Route 11;
- Excavation of borrow pit adjacent to river;
- River diversion at fish barrier site is ongoing (see **Figure 7**).



**Figure 2:** Operations at batching plant



**Figure 3:** Pouring of concrete at dam foundation



**Figure 4:** Backfilling of the earth embankment



**Figure 5:** Borrow pit adjacent to the haul road



**Figure 6:** Construction of the road embankment on Route 13



**Figure 7:** Construction of the fish barrier

The following key areas were inspected during the monitoring session:

- Site offices;
- Spoil sites;
- Dam foundation;
- River diversion;
- Workshop;
- Route 2 culvert;
- Borrow areas;
- Spring Grove weir;
- Area designated for waste storage;
- Stores area;
- Batch plant area;
- Route 13;
- Route 11;
- Fish barrier construction site.

\* **COMMENTS:**

TCTA

## 4 ENVIRONMENTAL ACTIVITIES FOR THE MONITORING PERIOD

Some of the **key environmental activities** on site, which also include areas of good practices and compliance, were as follows:

- On-going activities –
  - Regular dust suppression;
  - Safe storage and use of hazardous substances;
  - Use of mobile toilets;
  - Vehicle maintenance in dedicated area;
  - Management of siltation;
  - Mixing cement on impermeable surfaces;
  - Appropriate signage displayed and barricading;
  - Waste management (see **Figure 8**);
  - Housekeeping;
  - Trucks abiding by speed limit, displaying chevrons, covered loads and numbered;
  - Use of personal protection equipment;
  - Washing of trucks in dedicated areas;
  - Environmental awareness;
  - Flagmen deployed on new routes (see **Figure 9**);
  - Fire risk management (see **Figure 10**);
- Activities identified during the monitoring event –
  - Speed enforcement (see **Figure 11**);
  - Toolbox talks –
    - Littering - 29 July 2012;



**Figure 8:** Waste separation area



**Figure 9:** Dedicated flag person



**Figure 10:** Fire break at camp site



**Figure 11:** Speed enforcement – dedicated person and system

**\* COMMENTS:**

TCTA

## 5 WATER, AIR AND NOISE MONITORING

Amongst others, the functions of the ECO include the following:

- Conduct third-party monitoring and auditing;
- Regularly monitor and review the progress towards achieving the specific strategies, objectives and performance targets of the EMP; and
- Review monitoring data and evaluate against performance targets.

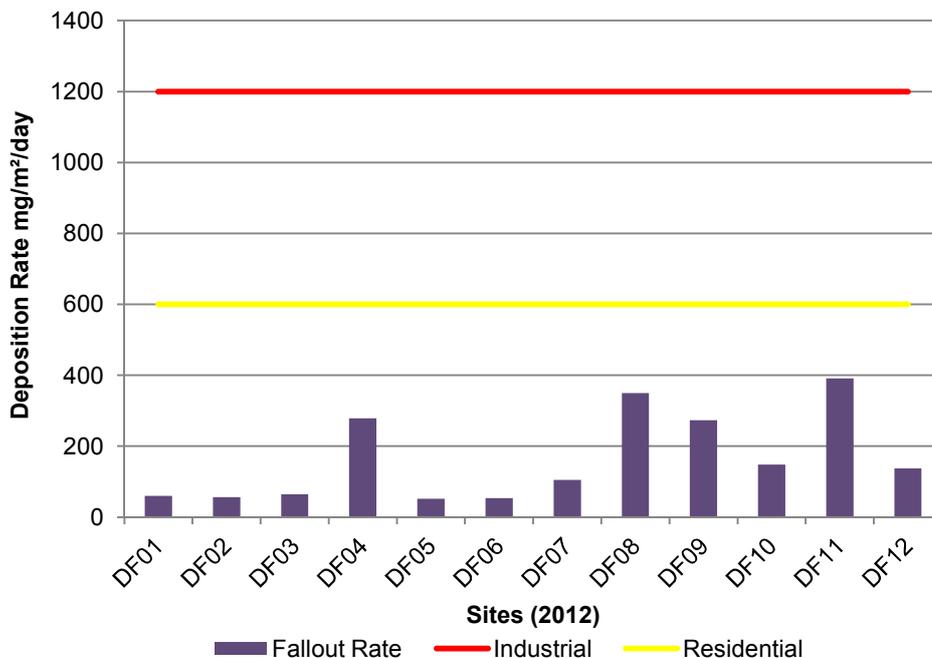
### 5.1 Contractor’s Monitoring Results

The Contractor has appointed Blue Sands to conduct monthly water, air and noise monitoring (refer to monitoring sites, as shown in **Appendix B**). The last set of reports received was for monitoring conducted in June 2012, which is elaborated on in the sub-sections to follow. Raw data has been received for Water Quality Monitoring for August 2012.

#### 5.1.1 Air Quality

##### **Dust Fallout**

- Dust fallout samples were collected on 29 June 2012. The sampling period for June 2012 was 29 days. Results shown in **Figure 12**.

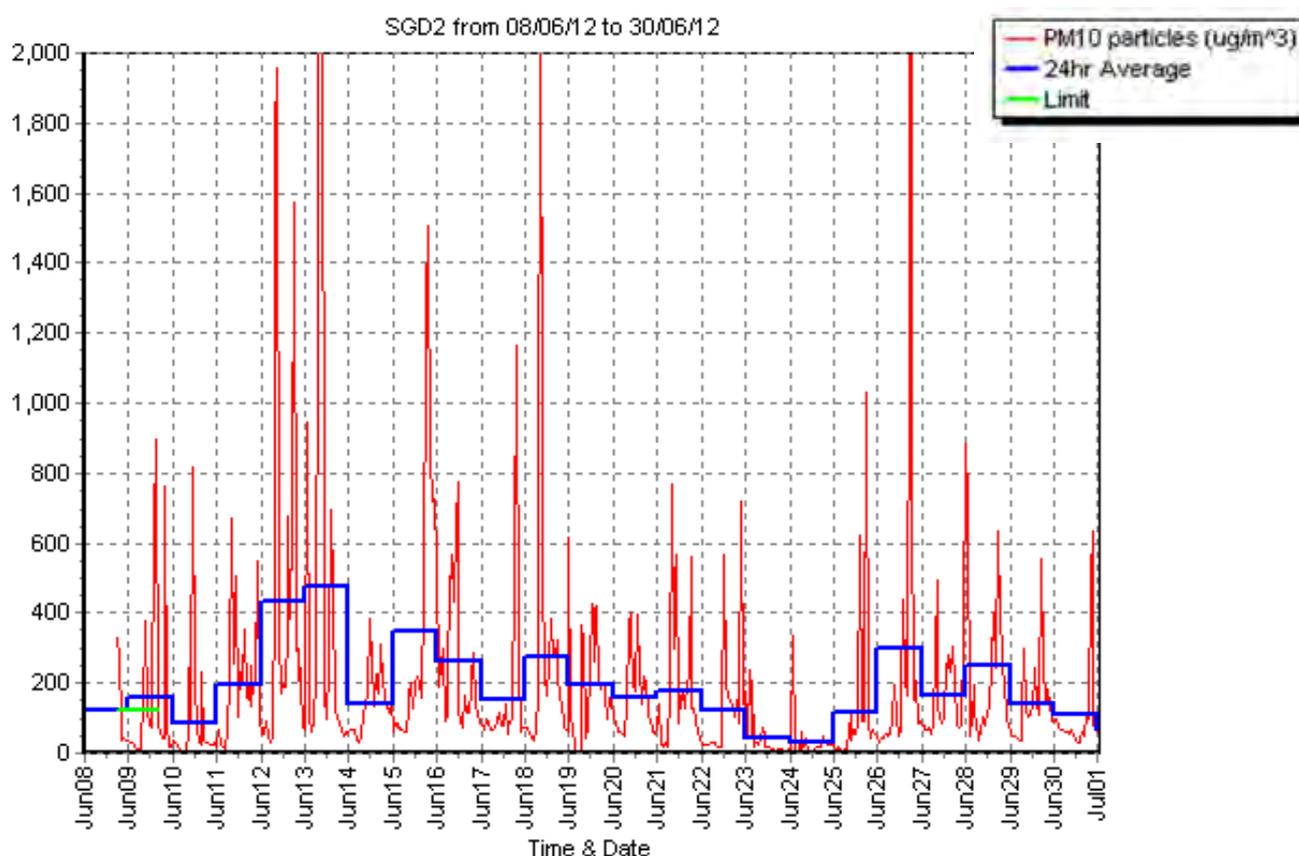


**Figure 12:** Dust fallout rates for June 2012 (Blue Sands, 2012a)

- Site DF12 is now located at Mpfana Outfall site (no longer at Mr John Wetton's Property), since 31 May 2012.
- Dry winter conditions noted.
- Dust fallout rates remained well within the residential band.
- Highest fallout rate measured at site D11 (Peter Warren's Property).

**Continuous Particulate Monitoring (PM<sub>10</sub>) with Wind Speed and Direction**

- The sample period was from 08 – 30 June 2012. Results shown in **Figure 13**.



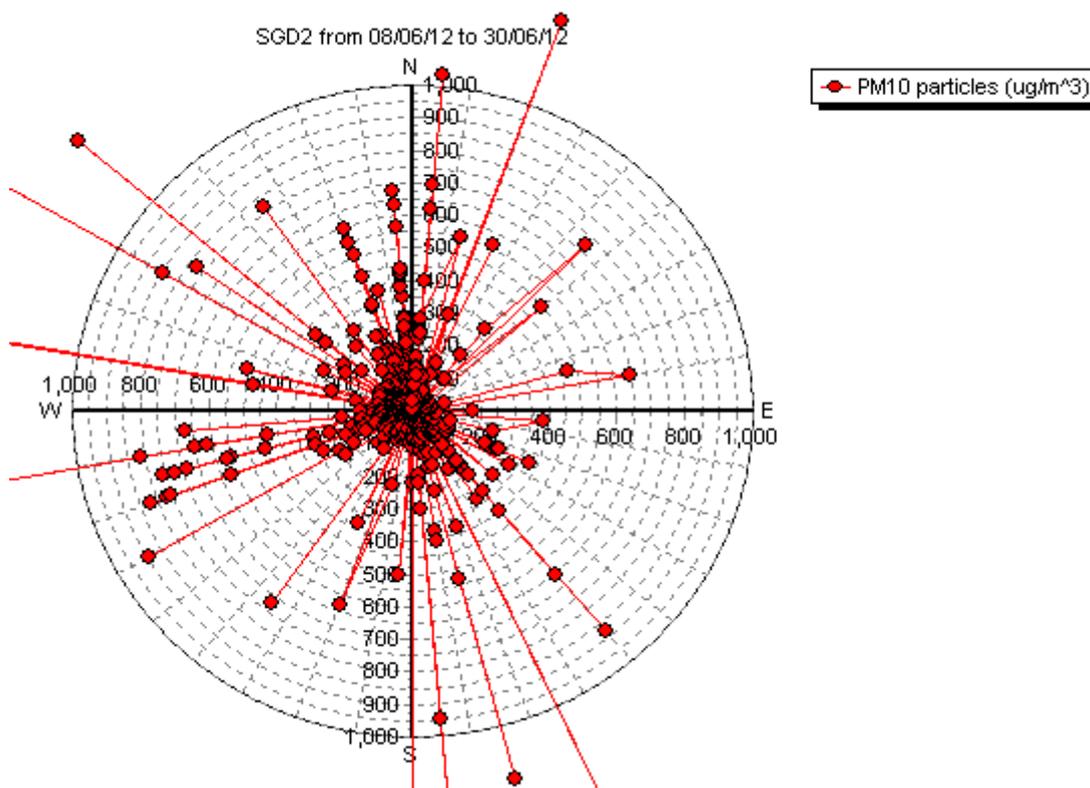
**Figure 13:** PM<sub>10</sub> concentrations from 08 – 30 June 2012 (Blue Sands, 2012a)

- During June 2012, the PM<sub>10</sub> exceeded the 24-hour limit of 120 µg/m<sup>3</sup> for 17 days in total. The top ranked exceedences are examined in **table 1**.

**Table 1: Analysis of highest PM<sub>10</sub> exceedence events (days) (Blue Sands, 2012a)**

Date	24-hour Concentration	Peak Hourly Conditions	Suggested Source
12 June	430 µg/m <sup>3</sup>	08h00-09h00; low to zero wind speeds; direction not relevant	Vehicular traffic on D146 & access road to main gate
13 June	476 µg/m <sup>3</sup>	07h00-09h00; low to zero wind speeds; direction not relevant	Vehicular traffic on D146 & access road to main gate
15 June	348 µg/m <sup>3</sup>	18h00-20h00; low wind speeds; direction northwest	Stockpiles, batch plant & unpaved car park
26 June	300 µg/m <sup>3</sup>	17h00-19h00; low wind speeds; direction variable	Stockpiles & vehicular traffic on D146 & access road to main gate

- The pollution rose (see **Figure 14**) shows that the major contribution to the dust levels recorded came from the D146 and from an area north of the office block. There are two sources in the area north of the office block one being the aggregate stock pile and the other being the parking area for the office block. Another source also from south-west, which relates to hauling and activities at the dam wall.



**Figure 14: 1-hour PM<sub>10</sub> pollution rose from 08 – 30 June 2012 at site SG01 (Blue Sands, 2012a)**

- Blue Sands (2012a) recommended that the Contractor will need to increase the frequency of the water cart irrigation if possible, or utilize additional carts to keep unpaved roads wet

throughout increased operating hours in the dry season, whilst also maintaining pressure on Afrisam to control emissions from the aggregate piles over the next few months, during which time Berg Winds from the north to northwest will tend to exacerbate this particular source.

- It is noted that the following target, as set by the National Ambient Air Quality Standards, has not been met: *the  $PM_{10}$  concentration should not exceed  $120 \mu\text{g}/\text{m}^3$  within a 24-hour period more than four times a year*, where the  $120 \mu\text{g}/\text{m}^3$  has been exceeded more than four times in the past year.

\* **COMMENTS:**

<b>TCTA</b>	<p><i>The Engineer has issued an instruction to install further dust suppression controls at the batch plant, i.e. sprinkler system. An NCR was issued and remains open.</i></p> <p><i>There is a dedicated water truck to the D146 and a total of 4 water trucks on site.</i></p>
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### 5.1.2 Environmental Noise

- From June 2012 night-time surveys are being conducted, as operating hours have been extended to 24-hours a day. The daytime levels stipulated by SANS refer to the hours between 06:00 and 22:00 and night-time level refers to the hours between 22:00 and 06:00.
- Four surveys were undertaken for June 2012. Two daytime surveys were conducted. These ran from 15h00 to 20h00 on 15/06/2012 and 07h30 to 13h00 on 29/06/2012. Two night-time surveys ran from 22h00 to 02h00 on both 15/06/2012 and 28/06/2012.
- The following exceedences of the  $L_{Aeq}$  (i.e. the equivalent continuous sound level, normally measured on an A-weighted decibel scale) were measured:

**Table 2: Summary of exceedence of  $L_{Aeq}$  levels (Blue Sands, 2012b)**

Site	Date	Time	SANS District	$L_{Aeq}$	Source of dominant noise
EN02	15/06/2012 (daytime)	15h59	Rural/Sub-urban	<b>58.0</b>	Construction vehicles, reverse hooters, Afrisam machinery, traffic
EN02	15/05/2012 (night-time)	22h25	Rural/Sub-urban	<b>50.0</b>	Machinery drone (idling), reverse hooters, vehicle in Shonalanga
EN07	16/05/2012 (night-time)	00h33	Rural/Sub-urban	<b>45.5</b>	Reverse hooters loud, impacting graph
EN12	15/05/2012 (night-time)	22h46	Rural/Sub-urban	<b>50.9</b>	Noise from dam wall, workmen shouting, reverse hooters
EN01	29/06/2012(daytime)	07h35	Rural/Sub-urban	<b>48.7</b>	Site noise, reverse hooters, engines revving, birds

Site	Date	Time	SANS District	LAeq	Source of dominant noise
EN02	29/06/2012 (daytime)	07h53	Rural/Sub-urban	57.8	Construction site, site truck engine noise domestic vehicles
EN01	29/06/2012 (night-time)	01h43	Rural/Sub-urban	45.1	Dog barking, generator from site,
EN12	29/06/2012 (night-time)	01h05	Rural/Sub-urban	40.7	Generator from site, R103

- According to Blue Sands (2012b), it is clear from the observations that the reverse hooters and sirens on the construction site are clearly audible and this may need to be investigated and mitigated if community complaints arise about this specific source.
- The largest contributor to noise at the majority of sites, as reflected in the observations, continues to be road traffic, principally heavy vehicles.

\* **COMMENTS:**

TCTA

### 5.1.3 Water Quality

#### Mooi River Sampling

- Samples were taken on 15 and 29 June 2012.
- Variables at sampling sites associated with construction activities were below thresholds.

#### Separator Sampling

- Thresholds exceeded - chemical oxygen demand, faecal coliforms, phenol, phosphate, soap oil and grease, and suspended solids.
- Noted that the raw borehole water is already contaminated beyond certain thresholds.

\* **COMMENTS:**

TCTA

*A site instruction was issued by the Engineer to get the water quality discharge in line with the limits in the Specifications. The Contractor has closed the wash bay in the interim*

## 6 ENVIRONMENTAL PERFORMANCE

An overview of the environmental performance during the monthly monitoring period is provided in the sub-sections to follow.

### 6.1 Weekly ECO Monitoring – Status of Issues

Note that only significant environmental aspects and impacts are listed in this section, based on the following qualitative criteria that were used to screen the weekly ECO monitoring Reports:

1. **Hazardous** nature of the environmental aspect or impact;
2. **Extent** of impact (within / beyond the boundaries of the construction domain);
3. **Sensitivity** of receiving environment;
4. **Probability** of aspect resulting in significant impact;
5. **Regulatory** context;
6. **Liability / cost** related to corrective actions;
7. Potential to lead to legitimate **concerns** by interested and affected parties; and
8. **Cumulative** impacts.

#### 6.1.1 26 July 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
160	<b>Hazardous Material</b>	High level of hazardous fumes present in storage container at Mpofana gauging weir. Ventilation required.	Unattended to
161	<b>Pollution</b>	Presence of water contaminated with concrete slurry below the dental concrete at the dam foundation.	Unattended to
164	<b>Hazardous Material</b>	Parked diesel bowser at workshop area without a drip tray.	Unattended to
168	<b>Hazardous Material</b>	1. Lack of drip tray under parked diesel bowser at borrow pit adjacent to haul road. 2. Lack of drip tray under hazardous materials containers in storage container above Spring Grove gauging weir. 3. Two spills at the Spring Grove gauging weir: one at the weir and one on the road leading to the weir. 4. Oil spill under equipment at workshop area.	Attended to
		5. Lack of drip tray under hazardous materials containers in storage container above Spring Grove gauging weir. 6. Oil leak from hazardous materials storage container at the workshop area.	Unattended to
169	<b>Flora</b>	Felled trees left in the open water of riparian areas within the dam basin	Unattended to
170	<b>Pollution</b>	1. Construction vehicles crossing the river at the site of the fish barrier is causing sedimentation.	Attended to
		2. Construction activities causing sediment release into	

Issue Ref.	Category	Summary of poor practice / area of concern	Status
		the stream at the Route 13 embankment.	
171	Fire prevention	Dry grass located inside and around the perimeter of the Mpofana gauging weir site camp poses a fire hazard.	Unattended to
172	Hazardous Material	High level of hazardous fumes present in storage container at workshop area	Unattended to
173	Waste water management	Uncontrolled release of contaminated water from back of batch plant wash bay	New issue
176	Pollution	Oil spill at the dam foundation garage.	New issue

6.1.2 02 August 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
160	Hazardous Material	High level of hazardous fumes present in storage container at Mpofana gauging weir. Ventilation required.	Unattended to
161	Pollution	Presence of water contaminated with concrete slurry below the dental concrete at the dam foundation.	Unattended to
164	Hazardous Material	Parked diesel bowser at workshop area without a drip tray.	Unattended to
168	Hazardous Material	1. Lack of drip tray under hazardous materials containers in storage container above Spring Grove gauging weir. 2. Oil leak from hazardous materials storage container at the workshop area.	Unattended to
169	Flora	Felled trees left in the open water of riparian areas within the dam basin	Attended to
171	Fire prevention	Dry grass located inside and around the perimeter of the Mpofana gauging weir site camp poses a fire hazard.	Unattended to
172	Hazardous Material	High level of hazardous fumes present in storage container at workshop area	Unattended to
173	Waste water management	Uncontrolled release of contaminated water from back of batch plant wash bay	Attended to
176	Pollution	Oil spill at the dam foundation garage.	Attended to
178	Hazardous Material	No drip trays under diesel generators in left bank storage container.	New issue

6.1.3 10 August 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
160	Hazardous Material	High level of hazardous fumes present in storage container at Mpofana gauging weir. Ventilation required.	Unattended to
161	Pollution	Presence of water contaminated with concrete slurry below the dental concrete at the dam foundation.	Unattended to
164	Hazardous Material	Parked diesel bowser at workshop area without a drip tray.	Attended to
168	Hazardous Material	1. Lack of drip tray under hazardous materials containers in storage container above Spring Grove gauging weir.	Unattended to
		2. Oil leak from hazardous materials storage container at the workshop area.	Attended to

Issue Ref.	Category	Summary of poor practice / area of concern	Status
171	Fire prevention	Dry grass located inside and around the perimeter of the Mpofana gauging weir site camp poses a fire hazard.	Unattended to
172	Hazardous Material	High level of hazardous fumes present in storage container at workshop area	Unattended to
178	Hazardous Material	No drip trays under diesel generators in left bank storage container.	Unattended to
179	Pollution Prevention	<ol style="list-style-type: none"> <li>1. Unlabelled hazardous materials containers without drip trays on the river diversion walkway.</li> <li>2. Jerry cans without drip trays in the storage container at the dam foundation.</li> <li>3. Diesel generators without drip trays in the storage container above the Spring Grove gauging weir.</li> <li>4. Diesel generator in the water at the Spring Grove gauging weir.</li> <li>5. Exterior hazardous materials storage container at the workshop area close to full.</li> <li>6. Drip tray under parked equipment close to full at workshop area.</li> </ol>	New issue
180	Waste water management	Uncontrolled release of contaminated water from batch plant wash bay.	New issue
181	Fire prevention	Open fire pit observed in the Mpofana gauging weir site camp.	New issue

#### 6.1.4 16 August 2012

Issue Ref.	Category	Summary of poor practice / area of concern	Status
160	Hazardous Material	High level of hazardous fumes present in storage container at Mpofana gauging weir. Ventilation required.	Attended to
161	Pollution	Presence of water contaminated with concrete slurry below the dental concrete at the dam foundation.	Attended to
168	Hazardous Material	Lack of drip tray under hazardous materials containers in storage container above Spring Grove gauging weir.	Attended to
171	Fire prevention	Dry grass located inside and around the perimeter of the Mpofana gauging weir site camp poses a fire hazard.	Attended to
172	Hazardous Material	High level of hazardous fumes present in storage container at workshop area	Attended to
178	Hazardous Material	No drip trays under diesel generators in left bank storage container.	Unattended to
179	Pollution Prevention	1. Unlabelled hazardous materials containers without drip trays on the river diversion walkway.	Unattended to
		<ol style="list-style-type: none"> <li>2. Jerry cans without drip trays in the storage container at the dam foundation.</li> <li>3. Diesel generators without drip trays in the storage container above the Spring Grove gauging weir.</li> <li>4. Diesel generator in the water at the Spring Grove gauging weir.</li> <li>5. Exterior hazardous materials storage container at the workshop area close to full.</li> <li>6. Drip tray under parked equipment close to full at workshop area.</li> </ol>	Attended to
180	Waste water management	Uncontrolled release of contaminated water from batch plant wash bay.	Attended to

Issue Ref.	Category	Summary of poor practice / area of concern	Status
181	Fire prevention	Open fire pit observed in the Mpofana gauging weir site camp.	Unattended to
182	Pollution prevention	<ol style="list-style-type: none"> <li>1. Lack of drip tray under diesel-powered equipment at the river diversion (fish barrier).</li> <li>2. Lack of drip tray under diesel-powered equipment at the left bank storage container.</li> <li>3. Oil spill under equipment at the dam foundation.</li> <li>4. Lack of drip tray under diesel-powered equipment at Route 2 construction site.</li> <li>5. High water levels in settlement ponds 1 and 2 at the batch plant.</li> <li>6. Lack of drip tray under diesel-powered equipment in container at workshop area.</li> </ol>	New issue

### 6.1.5 Conclusions

Certain issues were not attended to for a pro-longed period, with a lack of appropriate action.

Drip trays to be provided for all equipment that poses a risk of contamination. This was a common problem identified during the weekly inspections. Hazardous material needs to be stored in accordance with the regulatory requirements and the MSDSs.

**\* COMMENTS:**

<b>TCTA</b>	An NCR has been issued by the Engineer for the lack of response to the ECO issues. Further the Contractor has held meetings on 20 and 21 August 2012 with the sub-contractors and foremen respectively about the seriousness of environmental issues. Minutes of these meetings were copied to the ECO.
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## 6.2 Monthly ECO Monitoring Checklist

The results of the monthly ECO Monitoring Checklist are summarised in the sub-sections to follow.

### 6.2.1 Monitoring Categories

The results of the monitoring categories are summarised in **Table 3**.

**Table 3: Summary of Monthly ECO Monitoring Checklist categories: June 2012**

Monitoring Category	Conformance Score (%)
Environmental Authorisation	94.34
Administration	100.00
Environmental Education and Awareness	90.00
Construction	100.00
Materials	87.06
Water Quality	88.75
Air Quality	96.00
Noise	100.00
Community Engagement	100.00
Archaeology and Cultural Sites	100.00
Vegetation	93.33
Fauna	100.00
Safety & Security	100.00
Waste	84.00
Traffic	100.00
Search, Rescue and Relocation	94.07

6.2.2 Areas of Non-Compliance

Selected areas of significant non-compliance for Aug 2012, which (amongst others) influenced the conformance and penalty scores contained in **Table 3**, are captured in the table to follow.

**Table 4: Selected areas of non-compliance: Aug 2012**

Monitoring Category	Condition / Mitigation Measure	Comments
Environmental Authorisation	Hazardous and flammable substances must be stored and used in compliance with the applicable regulations and safety instructions	<ul style="list-style-type: none"> <li>Comply with conditions stipulated in MSDSs.</li> <li>Containers to be adequately labelled.</li> <li>Inadequate secondary containment of hazardous material (<b>Figure 15</b>).</li> <li>Ventilation to be provided in containers where hazardous material is stored.</li> </ul>
	Provisions of the Hazardous Substances Act (Act 15 of 1973) to be adhered to	
	Provisions of the National Water Act, 1998 (Act 36 of 1998).	
Materials	Spill reporting procedures to be posted at all storage facilities so that the appropriate emergency response can be mobilised in the event of a spill	Additional signage required for all relevant storage areas.
	Chemicals stored in drums to be located in areas with a secondary containment capacity of at least 25% of the maximum stored quantity of chemicals	Secondary containment with adequate capacity required for all chemicals on site.
	Bund volumes of drum storing chemicals to have sufficient capacity for spill containment	Secondary containment required for all chemicals on site ( <b>Figure 15</b> ).
	A record of all types and quantities of hazardous materials on site to be kept	Hazardous material register available, which records fuel at bulk storage area. Need to include hazardous material in containers.

Monitoring Category	Condition / Mitigation Measure	Comments
	Flammable liquids to be issued only on a need-to-use basis and strict control to be implemented to ensure that the quantity drawn is what is needed for a specific job	On-going. Need to be checked by stores manager for sub-contractors. Contractor to advise on requisite improvements.
	Flammable liquid stores to be well ventilated and free of explosive vapours	Ventilation to be provided in containers where hazardous material is stored.
	Flammable liquid stores to be well ventilated and free of explosive vapours	
Fire Risk	Necessary precautions to be taken to minimize fire risk on site	Complaint received regarding illegal fire at camp site for fish barrier.
Water Quality	Cement-laden water can only be discharged at the batch planting facility to settlement and treatment ponds	Silted-up ponds at the bottom end of the batch plant to be deepened ( <b>Figure 17</b> ).
	Silt laden water shall not be directly discharged over land or directly into watercourses and shall be contained in settlement ponds and managed before release	No provision for management of siltation at instream works. ( <b>Figure 16</b> ).
Waste	Site to be kept clean and free of litter	<ul style="list-style-type: none"> <li>Complaint received regarding litter.</li> <li>Diesel rags inappropriately disposed of on site (<b>Figure 18</b>).</li> <li>Spillage from hazardous waste in bags at workshop left on ground (<b>Figure 19</b>).</li> </ul>
Search, Rescue and Relocation	Conduct a detailed search of the inundation area (including Inchbrakie Fall) during spring and summer, taking due cognizance of specialist studies already undertaken as part of the EIA process	Site surveys will be done during the flowering season. However, the current tree felling activities will jeopardise the ability to establish a baseline in terms of species occurrence and population sizes.
	All necessary precautions must be taken to minimize the risk of fire on the site	Complaint received regarding illegal fire at camp site for fish barrier and smoking on site.



**Figure 15:** Inadequate secondary containment of hazardous material



**Figure 16:** No provision for management of siltation at instream works – Route 11



**Figure 17:** Silted-up ponds at the batch plant to be deepened



**Figure 18:** Diesel rags inappropriately disposed of



**Figure 19:** Spillage from bagged hazardous waste

**\* COMMENTS:**

<b>TCTA</b>	<p><i>With reference to Figure 16, the issue was reported to the Engineer immediately after the ECO finding. An instruction was issued by the Engineer to stop work immediately until proper measures are put in place. This has been rectified by the Contractor and work has now resumed</i></p>
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**6.2.3 Overall Monitoring Results**

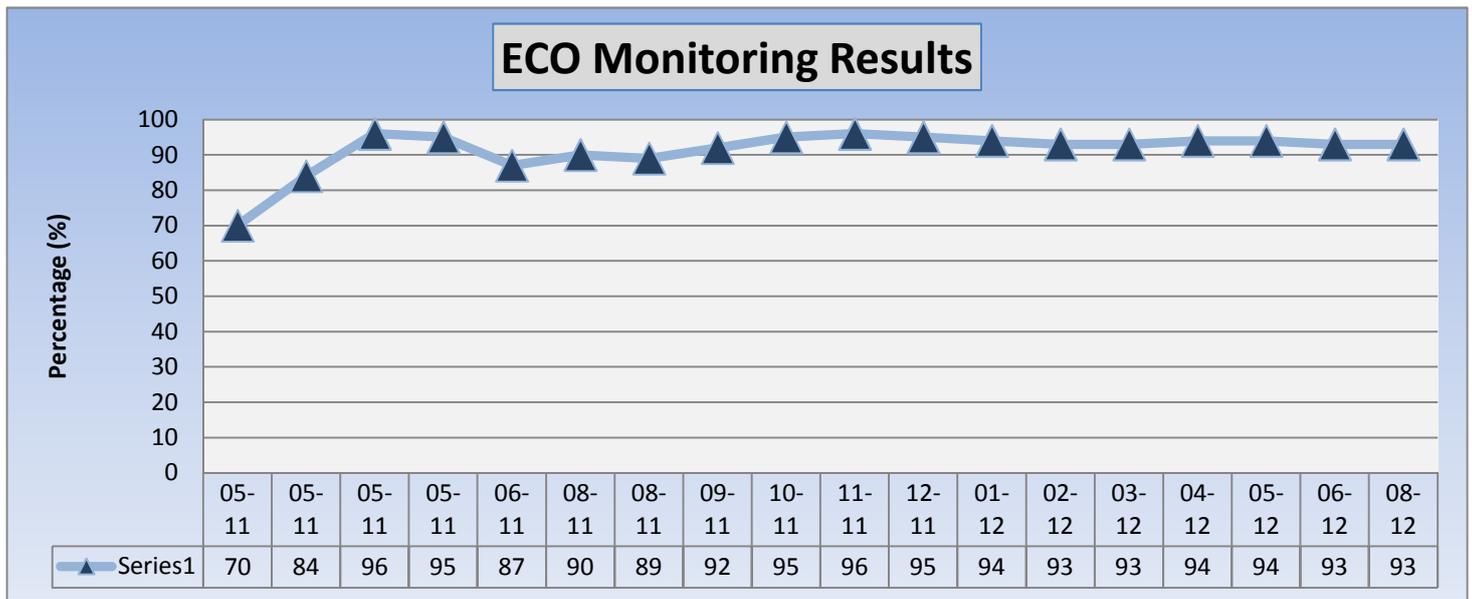
A summary of the results of the ECO monitoring checklist follows.

**Table 5: Summary of results of Monthly ECO Monitoring Checklist: August 2012**

Description	Total	Percentage
Number of Items Scored for this Audit	213	
Highest Possible Conformance Score for this Audit	1065	100
<b>Actual Conformance Score</b>	<b>992</b>	<b>93.15</b>

6.2.4 Sequential ECO Monitoring Results

A graph indicating the sequential ECO Monitoring Results from May 2011 until present follows.



**Figure 20: Graph – summary of results of Monthly ECO Monitoring Checklists**

Although a high conformance score was achieved, those areas where non-compliance was noted need to be attended to as they are regarded as significant. Without the weighting of the scoring items, a full appreciation of the significance of the non-compliance is not conveyed.

A more pro-active approach is required to environmental management on the site. This is particularly relevant to sediment management at river crossings, where the sediment caused by construction activities should not be left to be assimilated by the watercourse without appropriate mitigation by the Contractor.

**\* COMMENTS:**

TCTA

## 7 NON-CONFORMANCE / INCIDENT REPORTING

The following non-conformances / incidents previously recorded remain unattended to:

- NCR/Incident No. J00846-NCR19 (issued on 18-04-12) – inadequate dust suppression on the D146;
- NCR/Incident No. J00846-NCR027 (issued on 12-07-12) – Use of defective geotextile socks when dewatering; and
- NCR/Incident No. J00846-NCR028 (issued on 24-07-12) – PM10 monitoring for Spring Grove dam has exceeded the stipulated allowance.

New environmental non-conformances / incidents recorded by the EM during the monthly ECO monitoring period are tabulated below.

**Table 6: Environmental Non-Conformance / Incident Register entries for July – Aug 2012**

Date of NCR / Incident	Description	Suggested Corrective Action	EM Suggested Deadline	Actual Date Corrected
2012/08/15	Jojo tank at the Afrisam batching plant was observed overflowing again.	Contractor needs to review current measures in place. This has been an ongoing issue for months.	2012/09/03	
2012/08/15	The current storage, handling and management of hazardous and flammable materials onsite is in contravention of Section 3.2.1.5 of the RoD. This includes the storage/parking off of Diesel bowsers overnight onsite without any spill prevention in place.	The contractor must ensure that all hazardous and flammable materials onsite are stored, managed and handled in accordance with above regulations. The contractor must document action taken (photo's) and submit to RE with close-out of this NCR.	2012/09/03	

*Note: Wording directly extracted from Environmental Non-Conformance / Incident Register*

\* **COMMENTS:**

TCTA

## 8 ISSUES AND COMPLAINTS

**Table 7** contains the issues and complaints (27 entries) that were recorded by the Social Monitor during the monthly ECO monitoring period (up to 15 August 2012). The following issues (apart from matter pertaining to expropriation) remain open, based on the Issues and Complaints Register, which require feedback / action from the project team:

- Open issues from current monitoring event –
  - a) Issue no. 310 – relocation of staff;
  - b) Issue no. 318 – severance packages
  - c) Issue no. 321 – future water supply
  - d) Issue no. 323 – littering, smoking, open fire at fish barrier camp site;
  - e) Issue no. 325 – road condition;
  - f) Issue no. 334 – illegal access.

**Table 7: Issues and Complaints Register: July – August 2012**

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
308	23-Jul-12	Peter Greene	18h40: One of the aggregate trucks (either K772 or K722) has just turned off the N3 onto the P147 with no tail lights. Very dangerous.	Tail lights working, checked on site as it came in. Seems to be no problem, but have instructed Afrisam to check the trailer.	24-Jul-12
309	23-Jul-12	Charles Jonsson	Dear Katie, 3 points. Now that the points person has been done away with ( not that they were ever there in the 1st place ) we now have 30 ton trucks driving up our concrete strips, never designed to carry such a load. As these are essential to us during wet weather, I need an undertaking that they will be left to us in a useable state or repaired / replaced post construction. I insist that the revised 20kmph speed limit also apply to our property as we too have children, pets, livestock and staff that are on the road. We have agreed recently that the current road surface has been made with too much clay and insufficient shale, this will become hugely problematic when the spring rains come in 2 months. What is going to be done to rectify this before then? Regards, Charles Jonsson	Dear Charles, Thank you for raising these points, and also for being agreeable to our proposed speed limit. 1. If the concrete strips are damaged they will be repaired or replaced post construction. Please see edits made to Point 9 in the attached document. 2. We'll instruct that the 20kph limit be applicable to your section of the road too. The speed humps also help with traffic calming. 3. We have instructed that a layer of gravel be placed on the surface of the road, and will ensure that this is done as soon as possible, and maintained during the wet season for the duration of the construction team's use. Kind regards, Katie	24-Jul-12
310	24-Jul-12	Baden Smythe and Rob McCarthy	Cannot move off the land (i.e. Move the pivot) until the Eskom lines have been reconfigured. Also, what is the news regarding rehousing for staff, who will all be retrenched at the end of July.	e-mail from Katie to TCTA: Just had a call from the Smythe's lawyer, Rob McCarthy, who asked what progress has been made with the families on the Smythe's property, seeing that the Strathern labour force will be retrenched at the end of this month (31 July 2012). I am obviously not in a position to give him a progress report and have been advised that he should be seeking updates from a lawyer instead. Mr McCarthy has been asked about progress by his client. If feedback should or can be given to the Smythes who should be doing this?	
311	25-Jul-12	Annelie Kleinloog	Booked a site visit and at the same time asked about the rock art/paintings. Was told that she couldn't see them, but then when she got to site was told that Katie Fenenga would take her to them. Since rock art has been removed, with only one small piece still in situ, and since the request was last minute and would need permission from the landowner, it was agreed that a later date would be set for a potential visit.		In process
312	26-Jul-12	John Wetton	1. Electricity pole hit by truck last week has still not been fixed. 2. Accolade re work done at intersection, well done.	1. Thanks for letting us know. This is an Eskom matter, and the SM called Eskom and arranged for the pole to be righted. 2. Thanks for your feedback, we appreciate positive responses.	27-Jul-12
313	27-Jul-12	Charles Jonsson	In response to e-mail alert about work over a weekend: Dear Katie, Please correct me if I am wrong but I seem to recall no work was supposed to take place over the weekend, especially if it inconveniences us. Now a giant jack hammer over the weekend ? I think not.	via e-mail: Dear Charles, We discussed working times in a meeting that was held in May. It was understood that we would work faster and be out of your hair more quickly if we could work normal construction working hours as follows: Monday to Friday 07h30 until 17h00, Saturdays 07h30 until 15h00, Some early evenings when a concrete pour must be finished (notice of this will be given the day before). Pay weekends (when feasible or applicable) Friday 07h30 until 13h00 and back at 07h30 the following Tuesday. We are aware that the construction of the fish barrier is a major imposition, but the more effectively we can manage our work the faster it will be finished. Keying the structure into a solid rock base is the most important step at the moment. Please find construction operational management plan for the fish barrier construction attached. Kind regards	27-Jul-12

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
314	27-Jul-12	Tiff Whitehouse	Donald, Katie, I have looked again and it looks very big! From the levels it looks as if almost all of it will be below ground and the grass should cover it up. Is that correct? Is the project on track overall? I also thought that the mass of concrete would be ideal to use as the base for the footbridge that is in the plan and it could run over the weir - would also be very useful there if you ever wanted to clean debris of the top of the weir. Just a suggestion but if you agree please send some sketches. Regards, Tiff	Dear Tiff, Apologies for only getting back to you now. We had another one of those pay weekends, so I've only chatted with Gavin and Donald today to go through your queries. The weir is on track; the concrete works are progressing well. The training walls shown in the photo are higher than the spillway level. The spillway is about 700mm below the concrete sidewall that you see now. The cast of the spillway should be complete within the next two to three weeks, and Donald or I could send you an update photo at that stage. The river will then be diverted to its permanent flow over the spillway, and the left bank concrete wall will be extended (more excavation, more concrete works). The training walls will protrude above ground slightly, but not the full length of the wall; they disappear into the earth. The level of what we've referred to as "meander island" has been raised. Topsoil will be required to re-grass the disturbed area, and will all be part of the final rehabilitation of the works. DWA approval to construct a bridge on top of their weir would, unfortunately, be a problem, so the plan for a bridge to be built slightly upstream on the meander stands. The design will be discussed with you. Kind regards, Katie	31-Jul-12
315	27-Jul-12	Pippa Huggins	In response to message sent to all Fish Barrier affected residents re planned blasting: Thanks Katie, Best we stock up on some ear plugs!! P	Dear Pippa, It will echo down the valley, but it isn't an "in your face" noise. All houses are situated far away enough away to be well within the tolerance levels. Distance and height make a huge difference, and provide great mitigation. But you will hear it, and we're going to get it done as fast as possible, instead of extending over more days. We absolutely must key the structure into hard rock so that it can be anchored properly. The breaker will be delivered on a lowbed sometime around midday, and I will send a sms when it is on its way. Kind regards, and thanks for maintaining your upbeat approach, Katie	27-Jul-12

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
316	29-Jul-12	Brett Scott	Via phone call: fence near the river has been broken, and a bit plastic bag is lying along the bank. What is going on? What is it? It needs to be off the property immediately. Had enough of trespassing. Don't trust anything that the project says/does; the weir has been broken, not cut as was promised, so why should the Scotts believe that the project will fix the fence?	Via phone call: Brett, the plastic bag that you see is a silt sock. Hugest apologies that permission for it to be placed on your property was not obtained, that's extremely rude. Via e-mail: Dear Brett (cc Peter and Gavin), I must apologise for the appalling way in which the placing of the silt sock on your land has been handled. Permission should have been sought before the sock even edged towards your property, let alone landed up on it! I'm so sorry that your willingness was just taken for granted. Brett, please can I now ask that you give the contractor permission to place the sock on your property for the remainder of construction? The way in which the environmental team ensures good water quality is by feeding the effluent/suspended residue from the dewatering process through silt socks in order to capture as much of the mud as possible, and reduce turbidity. The cleaned water then flows from the socks, through the grass and back into the river. I've spoken to Ryan, and he has given me the information below: He requests the use of 6/7m of grassy bank on your property, please. 2/3 lengths of silt sock would be placed alongside one another. When these are full they would need to be removed and replaced. This area could, for safety reasons and peace of mind, be demarcated with survey pegs and chevron/danger tape, from your boundary fence down to the river. This would clearly indicate the area into which you'd allow the project team to move. A small tie-in portion of your boundary fence was swung aside as the silt socks were placed on the bank. The project team will fix/replace/rehabilitate this portion of the boundary fence to your satisfaction on completion of the work. I look forward to your response. Kind regards, Katie	31-Jul-12
317	31-Jul-12	Karen Short	Haven't heard anything from TCTA. They want answers about: servitudinal rights; dates/timing; what can be done in terms of house plans.	The SM indicated to Karen that these are the exact answers that were given to Karen earlier in the month. Karen indicated that she needs the answers straight from TCTA. Arrangement eventually made for Kogi Govender, James Nyakale and Katie Fenenga to visit Adrian Short on Friday 10 August 2012 to provide feedback.	10-Aug-12
318	01-Aug-12	Baden Smythe and Rob McCarthy	Via phone call: someone has told the Strathern staff that the Smythes will pay severance packages. There is a dangerous situation unfolding on the property, as people have been retrenched and have not been given their packages yet. When will this happen, what is the plan?		
319	01-Aug-12	Andy and Mary Lund	In response to message about blasting: Thanks Katy. Just worried about the horses. Will chat to Andy but suspect someone may need to be with them. Chances are we might not be here. Thanks, Mary. Hi Katie, We have one VERY gun shy horse. I will need to know the exact times the blasting will take place. Also I can't keep sedating the horse day after day. How long will they need to blast for? Andy	Hi Mary, That is the kind of service that we provide. During the main dam blasts (huge, on a totally different scale to the fish barrier ones) we spent time with horses further up the D146, and fed them and held their reigns as the blasts went off. So, we'd be happy to do that again. Just let me know. Katie	01-Aug-12
320	01-Aug-12	Idah Majola	Via phone call: the Smythe's staff say they're going to be moved to Gowrie. Why has Idah not been told the same thing? She'd also like to go to Gowrie	Via phone call: Gowrie is not a serious option at the moment, but there is land for sale there. The Smythe's staff must have heard rumours about a possible development. You are being given exactly the same information as everyone else, and will have all the same choices.	01-Aug-12

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
321	02-Aug-12	Stuart Winckworth	Hi Katie, I am writing about two things: Water: Those of us at Vaalekop have no idea what decisions have been made, if any, about our future water supply. Various possibilities have been aired but we have nothing in writing. There are a number of us who currently get water pumped from the Mooi - Mc Kenzie, George, Jerman, Cartwright, Lister, Hougham, Winckworth, Bartlett - and I am not sure about some of the others, and as far as we are concerned this will continue to be the case while we can pump. The problem arises when the river starts to fill and we are no longer able to pump. This could easily be within weeks of impoundment and is certainly likely by March 2013. This gives us about 6 months or less before we have problems. TCTA needs to come up with a definite plan of action with deadlines which are not negotiable. We cannot survive without water. Please do what you can to get some sort of decisions made and if you are unable to do so please let me know and we, as a group, will look at other options. Thatch from sub 42: We have someone who has made enquiries about purchasing the thatch from our old house. Can you provide me with a name and contact no. of someone involved with the clearing who can make a decision regarding this.	1. TCTA will be in contact with you about the proposed solution to continued water abstraction. I will keep you updated where I can. 2. When the house is demolished you could contact Ryan Phelan about the thatch. The house will not be demolished yet, though, because it may be needed at temporary accommodation for people who are retrenched from their dairy worker jobs and then need alternative accommodation.	
322	04-Aug-12	Brandon and Glynis Karg	Any idea when we can expect payment? Also, we're leaving the country again and want to hand all work over to a lawyer, what do you advise?	Ugo offered to write the Kargs a letter detailing what they can expect from the rest of the process, so that there is no need to get a lawyer involved. The Kargs are happy with this, and mentioned that as long as TCTA communicates with them they don't need to get a lawyer involved.	15-Aug-12
323	06-Aug-12	Pippa Huggins	Hello Katie, Donovan and Ryan, Donovan and Ryan, I am emailing you both directly as I believe the issues I am going to address below fall within your ambit of influence! 1) Litter along Route 11 – there is a direct correlation between the arrival of the contracting staff and an increase in litter along Route 11. The discarded chop bones amount to a smorgasbord for my dog when we go on walks. Spar chicken chunks and nuggets are a clearly a favourite as indicated by the number of empty containers and packets left behind. Empty 2 litre cold drink bottles, chip packets and cigarette boxes are seen frequently. The list goes on, but I will not bore you with it. This is all rather environmentally unfriendly, not to mention unnecessary. Might I suggest a chicken parade every so often, where the contractor's staff is required to go out and pick up their rubbish. I collected quite a bit of it this morning when returning home from my walk, but there is still plenty out there. 2) Smoking in the open – I was privy to a cigarette exchange out of the window of one of the construction vehicles on Route 11. A foreman had accepted a cigarette from one of the drivers, lit it and proceeded to smoke it in the open on a very blustery day. I approached him about this, and while he was polite, he made no effort to extinguish his cigarette. This indicates 2 things – i) drivers of heavy machinery are smoking in their vehicles and most likely throwing lit butts out of their window; ii)The toolbox talks regarding the dangers of smoking in the open are not being taken too seriously. 3) Open fire at the contractor's camp on the fish barrier construction site – There has been evidence of fires being made in the open at the contractor's site at the fish barrier. It is illegal to make and maintain a fire in the open at this time of year. Given that night time temps fall to around – 10, it is unsurprising that workers will try to keep warm around a fire. Perhaps well- insulated freezer suits may be the answer.	Hi Pippa, Thank you very much for having brought this to our attention. Will discuss further with the project team to determine how this can be rectified soonest. As part of the appraisal of the Issues Register, we will also formally capture these matters in the next ECO Monthly Report. Regards, Donovan Henning 1) Hugest apologies re this litter. A toolbox talk has been conducted with site staff again about not littering, and we will endeavour to maintain a litter free environment. 2) the site is too big for smoking areas to be designated, and people will, unfortunately, continue to smoke. It is agreed that it should not take place in open veld where there is a fire risk, but firebreaks have been sufficiently burnt for there to be little risk. Again, a toolbox talk has been conducted with everyone on site about behaviour associated with smoking in the open, and disposal of the butts. 3) we await feedback from the security company re freezer suits. The site camp has been properly secured with a fire break, but we understand that open fires at this time of year are illegal.	

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
			Kind regards, Pippa		
324	07-Aug-12	Peter Greene	Can't believe that trucks are on the road in this weather! Dam should have been preparing for this for a week already, all farmers have been.	Sorry Peter, you're right. We must try to get deliveries in when we can but the trucks are being stopped from leaving PMB, and will pull over in Mooi River. They cannot be stopped on the P147 anymore, so the load that has come through must continue to do so.	07-Aug-12
325	08-Aug-12	Greg Huggins	Road is impassible. The clay material that has been put down is not of a sufficient grade, and this means that residents cannot get in or out of their homes.	We're so so sorry about the mess. The road has been upgraded with the same material that has always been used, from the same quarry, so this would in all likelihood have happened anyway. However, we had promised to put a layer of gravel down onto the road and will do so before any further bad weather is expected.	
326	08-Aug-12	Stuart Winckworth on behalf of Ntaba staff	Black car from soil lab house pitched up at staff house, and proceeded to take firewood that had been safely stacked, undercover, by the staff. When the driver was confronted by the staff he hopped back into his car and sped back to the soil lab house! This is considered to be theft. The staff are now without heat.	Response from Douglas: The workers there asked the Soilco guys to pay for the wood, so they tuned them off and left. Regardless, I spoke to Louis and he will arrange the bit they took to be sent back. What's not theirs in not theirs. Simple.	08-Aug-12
327	10-Aug-12	Mary Lund, Andy Lund, Greg and Pippa Huggins	17h55: Flatbed has jack-knifed at the hairpin/gabion bend, blocking access in or out of the properties.	sms sent to all: Dear all, apologies for the jack-knifed truck at the gabion hairpin bend (it was trying to deliver a rig to drill for blasting). Please use the alternate road along the river on the Marshall's property to get around to your homes. Kind regards, Katie. Response from contractor: truck moved that night, and finally removed on Monday 13th. Repairs will be needed on the hairpin bend.	13-Aug-12
328	11-Aug-12	Resident	Tap has been running at the house at Tamakwa for three days. Do your guys live there? Can someone turn it off?	Called PJ at the house; he turned it off.	11-Aug-12
329	13-Aug-12	Brett Scott	An excavator is in the river digging away at our bank, our property, taking meters off our land to widen the river. He's broken our fence, which is hanging out into the river now. Nobody asked permission for this; this is our land, you're trespassing! The foreman is an arrogant guy who won't give me his name. He says he's been told that Ryan's chevron tape is the site boundary. That's it, the silt socks are not allowed onto this property ever again, I'm closing the fence up.	Hi Brett, hugest apologies, again, for this type of behaviour. We do see that the excavator has encroached onto your land. The silt sock won't be placed on your property again.	13-Aug-12

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
330	13-Aug-12	Pippa Huggins	<p>Dear Gavin, Andrew, Donald , Ryan and Katie, Gavin, Andrew , Ryan and Donald , this email pertains more to you than Katie, although I am sending it to her too as a courtesy measure. As I understand, Katie's role is as the Social Monitor for the construction and implementation phase of Springgrove Dam and the associated Fish Barrier. I believe that this requires her to act as a liaison person between the contractor and affected individuals, providing important communications between the two groups and generally monitoring that the social impacts of the dam and related structures are mitigated as much as possible. However I have noticed of late that Katie's role seems to have become rather blurred and that she is frequently being called upon to act as a co-ordinator/damage control officer to manage various engineering and technical problems that are arising as a consequence of the Fish Barrier Construction. Such an unfortunate incident occurred yesterday evening (Friday 10 Aug) around 5:30 pm. I will briefly summarise: The driver of a large articulated flat bed vehicle attempted the astonishingly foolhardy feat of conveying a drilling rig to the Fish Barrier Construction site via our road in the developing dusk . The inevitable happened , and the vehicle jack knifed at the hair pin bend, blocking access to and from the road above the area. It required considerable manoeuvring to extricate the vehicle. At the outset , the contractor was warned that large articulated vehicles cannot attempt to use the hair pin bend. A similar incident happened a few years ago with the same results. Furthermore, the repair of the said hair pin bend is incomplete, and contra to our road use agreement. While a gabion has been situated to support the side of the road, the necessary culvert has not yet been put in place. The temporary repair will not suffice in the long term, and this bend needs to be fully repaired as promptly as possible. Clearly the driver of this vehicle acted irresponsibly by attempting to traverse this section of the road. Not only did he put himself , his vehicle and some extremely expensive machinery in jeopardy, but he could have caused delays in the Fish Barrier Construction process. As Residents, we are fully aware of the tight construction time schedule, and are doing everything possible to accommodate the contractor to ensure that the process is completed safely and timeously. We would like the assurance that the Contractor and their subs are operating with the same attention to safety and schedule. While the driver of the vehicle was irresponsible and possibly inexperienced, there are 2 greater , glaring concerns. Firstly, the lines of communication via the Social Monitor ( Katie) were not used , as Katie was completely unaware of this operation when she was contacted. Surely the contractor should have discussed these plans with the relevant persons to ensure adequate preparation and liaison with the affected parties. Secondly, when Katie was contacted she had to track down a supervisor to inform him of the incident and begin the process of recovering the flat bed. The concern is that there is limited supervision of potentially dangerous technical operations, and again the affected residents would like the assurance that appropriate and adequate supervision is taking place.</p>	<p>Response from Andrew Olden: Morning Gavin/Katie, The issue with the low bed was a communication problem as the delivery of the Drill rig was supposed to have been delivered on the Wednesday but due to the snow was called off. The Transporter failed to communicate the time of delivery and the ED contractor did not follow up for the new delivery date. The transporter also did not follow the instructions that the off load point was at Route 11 – did not communicate with the driver and the supervisor had an accident on route (hit a cow) so was not with the lowbed at the time of delivery. The communication was poor and the responsible parties have been brought to book. We share the concern and consider this incident as a near miss and is investigated and measures are implemented to stop the re occurrence. We do apologise for any inconvenience caused by this temporary road blockage. Safety is a high priority. Regards Andrew Olden. Reply to Pippa from Gavin: Dear Pippa, Despite all the parties' proactive efforts to prevent these type of incidents from happening, it seems as if the sequence of events in this instance was against us. Please refer to the explanation from the contractor below which I understand but do not accept that it could not have been avoided. We will continue to attempt to prevent further occurrences of this nature. Please accept our apologies as well for the inconvenience caused. Regards, Gavin</p>	14-Aug-12
331	15-Aug-12	Peter Warren	<p>Please ask someone to oil your sliding gate, my dogs bark in the night each time it opens.</p>	<p>Douglas and Ryan oiled the gate immediately, and maintenance will be ongoing.</p>	15-Aug-12

No	Date	Submitted by	Description of Issue	Response to Issue	Date Resolved
332	15-Aug-12	Mary Lund	Sent to Donald: Sorry to hassle you, all looks very busy down there. Just worried all your lovely machines may go home before delivering me some topsoil! Have got my eye on a load of stuff near the river. Any chance?	Response: Definitely Mary, BUT there is no payloader amongst that machinery. Hang in there.	In process
333	16-Aug-12	Clive Garlick	Would like to have just over 4000m3 of the soil and topsoil from stockpiles on site, in order to fill in his silage pit. The silage pit used to belong to the dairy, that can no longer operate, and he wants to fill the pit in so that he can use that land.		In process
334	17-Aug-12	Chris King	White singlecab bakkie with orange light spotted driving through her property yesterday evening (evening of 16 August 2012) at about 17h30. This makes one worried about access. Please remind people that Chris' property is out of bounds.		

*Note: Wording directly extracted from Issues and Complaints Register*

**\* COMMENTS:**

TCTA

## 9 PROPOSED AMENDMENTS TO THE ROD AND EMP

### 9.1 Proposed Amendments to RoD

An application for an amendment to the RoD was submitted by DWA to DEA on 15 August 2011. Proposed amendments or matters for clarification related to the RoD are contained in **Table 8**.

**Table 8: Proposed amendments / matters for clarification related to the RoD**

Condition No.	Description	Comments / Amendment
<b>Amendments Previously Recorded</b>		
3.2.1.22	Indigenous vegetation removed from the dam basin must be kept in a temporary nursery to be used for rehabilitation	Addressed in EMP for Search, Rescue and Relocation, which was approved on 07 September 2011.
3.2.1.23	The wood from exotic and/or invasive species removed from the dam basin must be made available to the local community free of charge	Decision pending from Contractor regarding the way forward for the disposal of the cleared vegetation. RoD condition may prove to be costly.
3.2.3.1	Daily monitoring by ECO	ECO was not appointed as a daily monitor. Daily monitoring is undertaken by the EO on behalf of the Contractor and by the EM on behalf of the Engineer. Weekly ECO monitoring conducted.
3.2.3.3	ECO's quarterly environmental performance audits	Environmental performance audits undertaken by the ECO every six months.
3.2.3.4	Submission of environmental compliance report every two months by the ECO.	Environmental compliance report submitted monthly.
3.2.3.5	ECO to maintain – a) Daily site diary b) Non-conformance register c) Public complaints register d) Register of audits e) Copies of method statements f) Material Safety Data Sheets (MSDS) g) Monitoring reports of the contractor/s h) Compliance and audit reports i) Training registers j) Copies of the RoD and EMPs k) Waste disposal certificates l) Copies of all permits required during construction	ECO to ensure that these documents, registers, reports and permits are maintained.
3.2.3.6	ECO to remain employed until the end of rehabilitation	ECO to remain employed until the end of defects liability period
<b>New Recommended Amendments</b>		
3.2.6.1(d)	Provisions of the National Water Act, 1998 (Act 36 of 1998). Silting, demarcation and management of material storage and vehicle servicing areas used by the contractor to be outside of the 1:50 year flood line or at least 100 meters from any watercourses.	Mobile toilets to be situated at least 50m away from a watercourse.

\* **COMMENTS:**

TCTA

**9.2 Proposed Amendments to EMP**

In accordance with the RoD condition no. 3.2.4.4, EMPs will be regarded as dynamic documents and any changes to the EMPs must be submitted to DEA for acceptance, which is to be accompanied by recommendations of the EMC.

An EMP Amendments Register was submitted by TCTA to DEA on 21 September 2011, which records the proposed amendments to the EMP for management measures that are deemed to be ineffective or redundant. These amendments were discussed with the EMC on 03 August 2011.

Proposed amendments or matters for clarification related to the EMP are contained in **Table 9**.

**Table 9: Proposed amendments / matters for clarification related to the EMP**

No.	Description	Comments
<b>Mitigation Measures identified during previous ECO monitoring events</b>		
<b>Existing Mitigation Measures contained in EMPs</b>		
1.	EMPs to provide rehabilitation measures for areas to be disturbed during the construction phase [RoD condition no. 3.2.4.3(b)].	EMP for the Construction of the Spring Grove Dam Wall to make provision for rehabilitation of areas affected by construction work outside of dam basin (e.g. access roads).
2.	EMPs to include implementation measures aimed at controlling invasive plant species and weeds [RoD condition no. 3.2.4.3(f)].	Addressed in EMP Register.
3.	Cover vehicles transporting spoil, topsoil or other dust generating materials.	Addressed in EMP Register.
4.	Dust suppression measures must be implemented on dry weather days.	The spoil area opposite Erika Millican's property is considered a working area and will not be watered down for dust suppression. Instead, visual inspections will be undertaken and if dust is a nuisance the area will be watered down.
5.	For each waste type create a MSDS that is always available to accompany the waste.	Addressed in EMP Register.
6.	All waste containers designated for off site transport to be secured and labelled with the contents and associated hazards, be properly loaded and be accompanied by a shipping paper (i.e. manifest) describing the load and its associated hazards	Impractical for all waste containers. Suitable for hazardous waste.
7.	Transporters of hazardous materials to ensure	Bulk fuel transporters comply with this

No.	Description	Comments
	that: vehicles transporting hazardous materials are registered for this purpose; clearly display in English the nature of materials being transported; what to do in the event of an emergency and an emergency telephone number (24 hour) of a responsible person who can provide advice in an emergency	measure. However, requirements are too onerous for sub-contractors (e.g. mechanics). EMP deviation to be discussed.
8.	The quantity of hazardous material used each month is to be documented	Requirement is more feasible in terms of fuel usage. Necessity of measure to be explored further in terms of other hazardous material used on site, such as material used for the maintenance of vehicles, material used at the laboratory, etc.
9.	Monitor the number of project related vehicles travelling off site per day	Trucks are being monitored through GPS tracking system. Monitoring of other construction-related vehicles is an onerous task, and the practicality thereof needs to be investigated further.
10.	Phase 2 of social monitoring is monthly local area monitoring where in-depth research will be done in all the local 'communities' identified in the MEP as constituting local social environment. These areas will be covered over 12 months and comprehensive narrative reports will be compiled. The first round of longitudinal survey will be conducted. A sample of households will be interviewed every four months until the project completion to determine how they experience social impacts related to MMS2	Need to consider how current social monitoring conforms to original intentions of the associated mitigation measure.
11.	Phase 3 of social monitoring is in-depth investigation and participation appraisal where the focus shifts from area monitoring to specialist investigation of themes and participatory appraisal and planning with project communities to determine whether social changes claimed by respondents have significance in the project social environment, the level of significance, what they involve and what responses are required	Need to consider how current social monitoring conforms to original intentions of the associated mitigation measure.
<b>Additional Mitigation Measures to supplement EMPs</b>		
12.	Working within watercourses and safeguarding the characteristics of the watercourse, including flow, water quality, habitat (morphology) and aquatic biota	
13.	Borrow pits (e.g. stormwater management). It is noted that certain of the existing categories of the EMP for the Construction of the Spring Grove Dam Wall make provision for managing the environmental aspects and impacts associated with the borrow pits	
14.	Mobile toilets to be situated at least 50m away from a watercourse.	
<b>Mitigation Measures identified during last ECO monitoring event</b>		
15.	Specify targets for minimum numbers of each species to be relocated; the selected destination and the party responsible for post-relocation care	

\* **COMMENTS:**

TCTA

**10 REFERENCES**

Blue Sands, 2012a. Air Quality Monitoring. June 2012. Spring Grove Dam Construction. Prepared for Group Five (Pty) Ltd.

Blue Sands, 2012b. Environmental Noise Surveys. June 2012. Spring Grove Dam Construction. Prepared for Group Five (Pty) Ltd.

Blue Sands, 2012c. Water Quality Monitoring. June 2012. Spring Grove Dam Construction. Prepared for Group Five (Pty) Ltd.

# APPENDIX A

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## SURPRISE ECO INSPECTION REPORT

**MOOI MGENI TRANSFER SCHEME PHASE 2 (MMTS-2)**

**ENVIRONMENTAL CONTROL OFFICER**

**MONTHLY UNSCHEDULED INSPECTION REPORT**

<b>DATE:</b>	14 August 2012
<b>REPORT NUMBER:</b>	01
<b>TARGET LOCATION(S):</b>	Spring Grove Gauging Weir. On 10 August 2012, a diesel generator was submerged in the coffer dam of the gauging weir. During this inspection, the generator had been removed from this area.
<b>RANDOMLY SELECTED AREAS VISITED</b>	Site offices; temporary river crossing; 4 stream crossings; left bank and river diversion walkway; lab area..
<b>DURATION:</b>	Two hour inspection
<b>PURPOSE:</b>	Unscheduled ECO Inspection
<b>ATTENDANCE:</b>	ECO (Nemai Consulting – A. Burke); Environmental Monitor (BKS – S. J. Narain)

PHOTOGRAPHIC RECORD – PREVIOUS ISSUE FROM 10 AUGUST 2012	
	<p style="text-align: center;"><i>No Photo Taken</i></p>
<p>Fig 1: On 10 August 2012 (date of last weekly inspection) a diesel generator was submerged in the coffer dam of the gauging weir</p>	<p>During this inspection, this generator had been removed from the gauging weir construction area</p>

**PHOTOGRAPHIC RECORD – GOOD PRACTICES**

	
<p>Fig 1: Use of drip trays under diesel generators at left bank</p>	<p>Fig. 2: Use of drip tray under jerry cans and hazardous materials container on river diversion walkway</p>

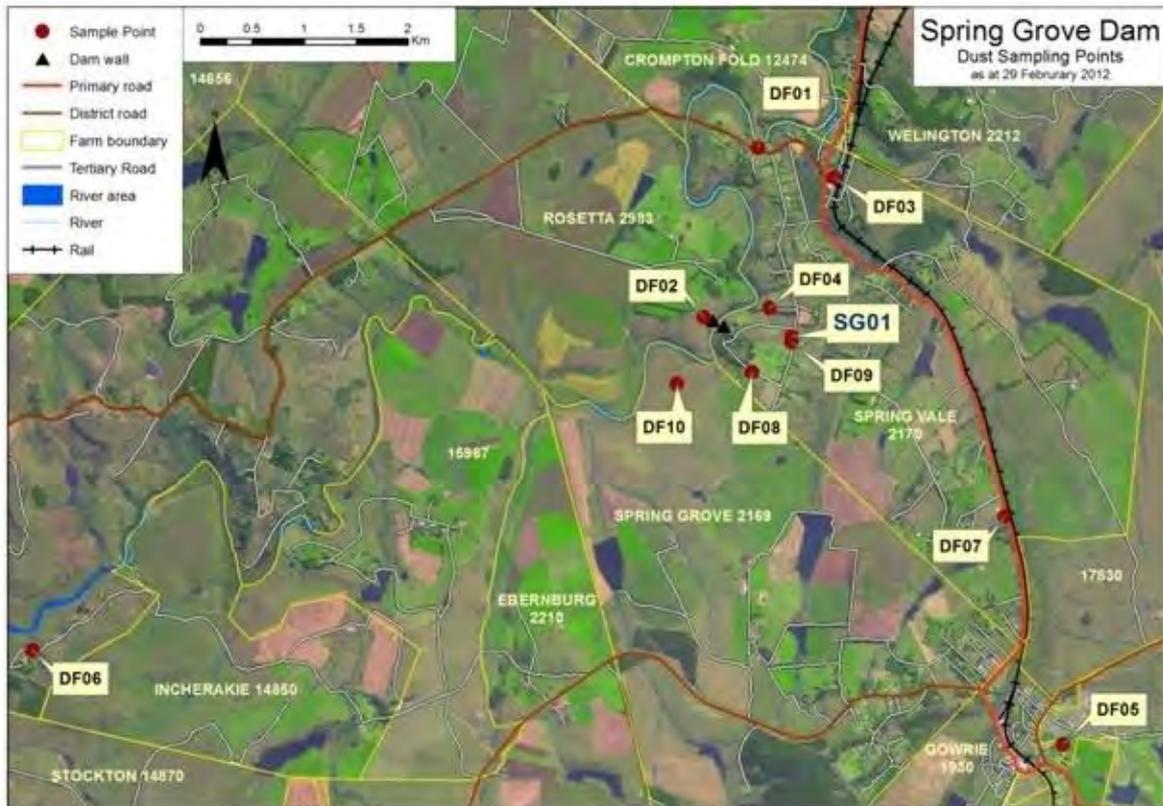
**PHOTOGRAPHIC RECORD – POOR PRACTICES**

	
<p>Fig 3: Felled trees in waterway at stream crossing on way to Route 13</p>	<p>Fig. 4: Silt barrier at stream crossing #3 in need of adjustment</p>
	
<p>Fig 5: Silt barrier at stream crossing #2 in need of adjustment</p>	<p>Fig. 6. Housing keeping required at the lab area (general waste to be removed)</p>

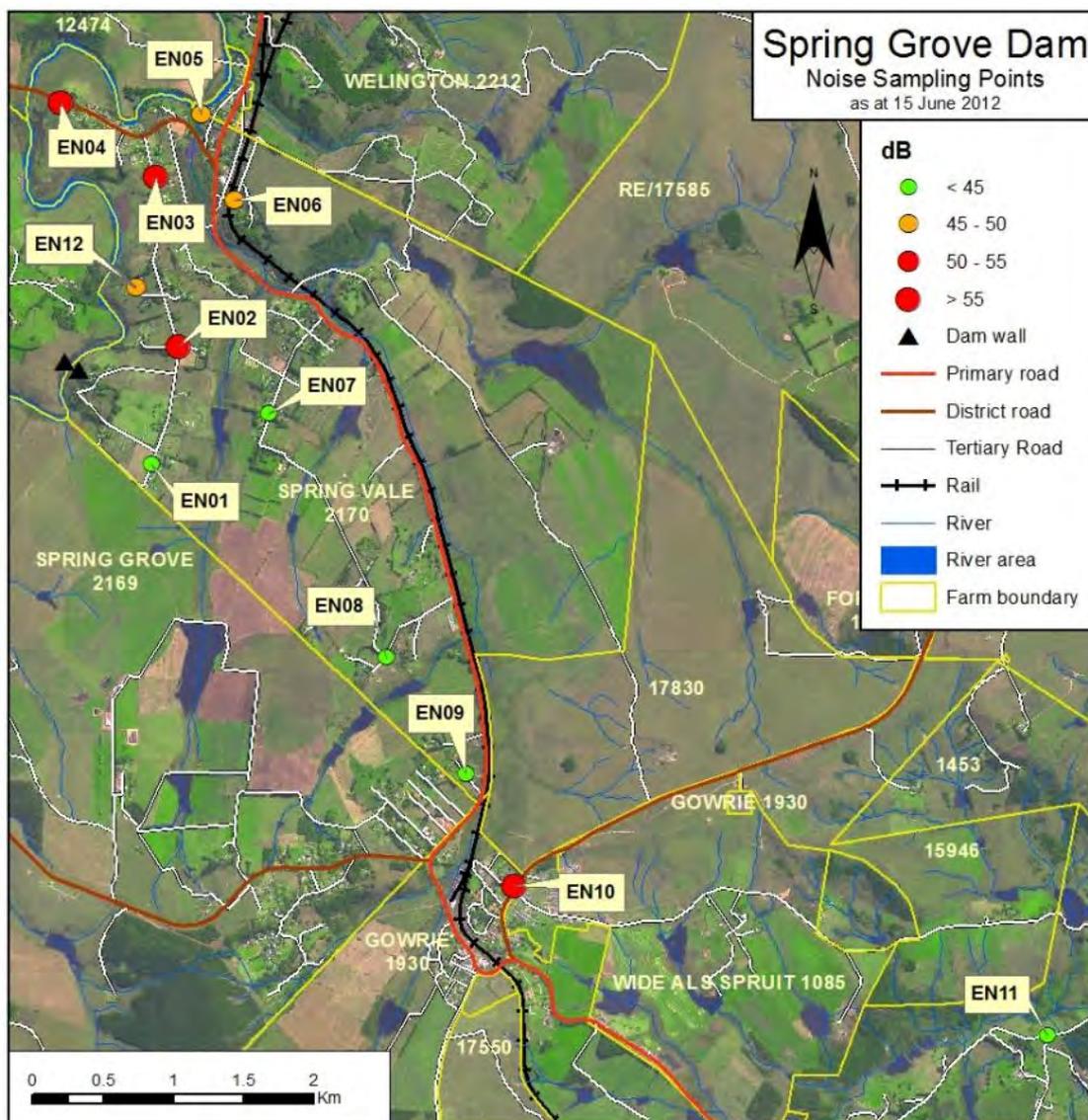
# APPENDIX B

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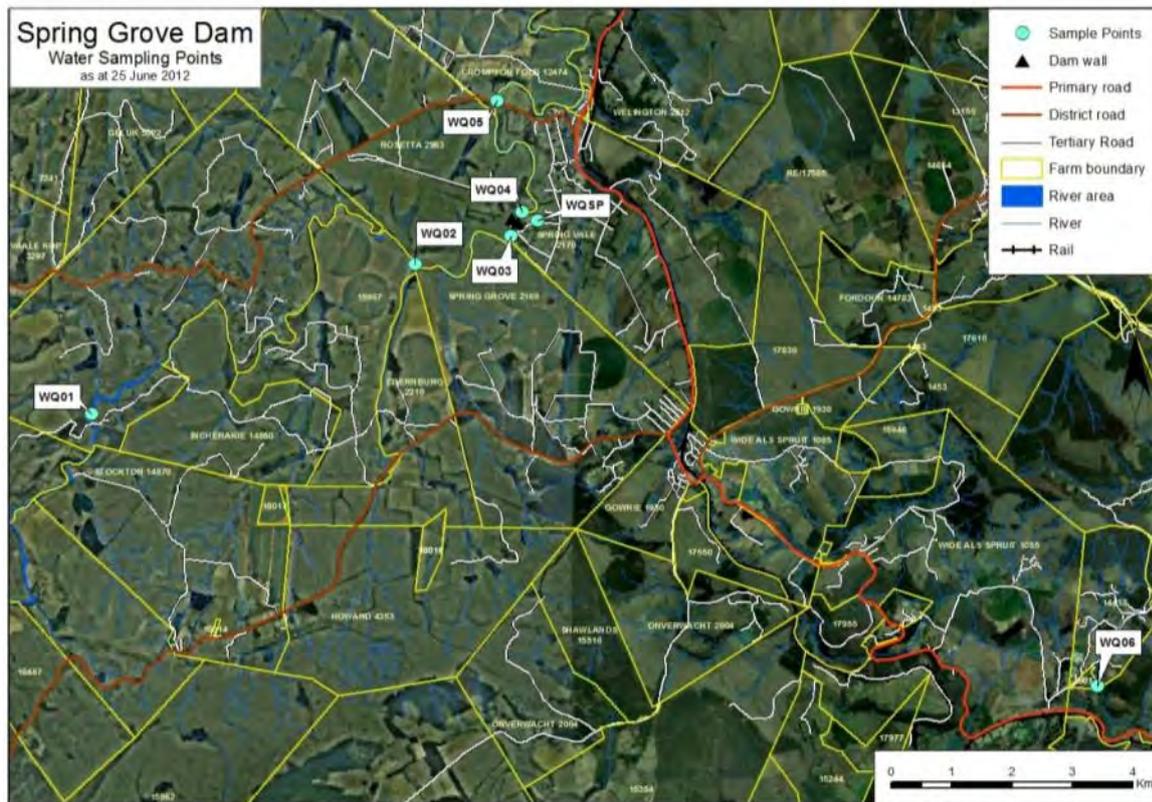
## MONITORING SITES



**Dust Sampling Points**



**Noise Sampling Points**



**Water Quality Sampling Points**