10.0 Monitoring Plan and Intervention Strategy

The Kilgwyn Bay Hotel Project Monitoring Plan, will be considered as a subset of the company's EMP (Refer to **Section 9.0: Mitigation Strategy and Environmental Management Plan**) which has been designed to measure ALG's environmental performance against National Legislation and International Treaties/Multi-lateral Agreements. The results of the monitoring activities will be reported to the HSSE Department and Environmental Advisor, ALG's management team and to the EMA as required. The Hotel Project team will review the findings of all monitoring plans periodically and if necessary, will modify to include any additional parameters necessary to ensure good environmental and social performance. Monitoring methods and frequencies will also be reviewed periodically, and will be adjusted as required to ensure efficiency and maximum effectiveness of the monitoring program.

The key monitoring requirements identified through the EIA process to monitor the environmental impacts of the Hotel Project are outlined here. The overall objectives of the Monitoring Plan for the Hotel Project are to:

- Ensure regulatory requirements are met;
- Check that impacts do not exceed project standards and other environmental standards described in **Section 2.0: Legislative and Regulatory Considerations**
- Verify that mitigation measures are effective and implemented in the manner described in **Section 9.0: Mitigation Strategy and Environmental Management Plan**
- Provide an early warning of potential environmental impacts; and
- Inform future operations and subsequently contribute to continuous improvement in the management of environmental and social issues related to the project.

10.1 Monitoring Plan for Specific Mitigation Measures

The monitoring plan addresses the physical, biological and social impacts of the project that may arise from the GAD Project as identified in **Section 8.0: Analysis of Environmental and Climate Change Impacts**. The plan describes the potential impact, the frequency of monitoring and an indicative project phase outlining when monitoring will occur.

10.2 Site Preparation and Construction Phase

- Undertake monthly water quality monitoring (for the first 12 months, then quarterly thereafter) for temperature, salinity, pH, Dissolved Oxygen, light irradiance and turbidity in and around the project area, or at a frequency agreed to with EMA to ensure that the construction works are not negatively impacting on water quality.

  Any organization with the capability to conduct monitoring of the listed parameters should be used to perform this exercise. It is recommended that a report should be given to EMA at the end of each monitoring exercise.

- Weekly inspections to ensure that construction activities are not being conducted outside of regular working hours (e.g. 7 am – 7 pm). In addition to environmental noise monitoring, a noise survey should be undertaken to determine workers exposure and construction equipment noise emission. Noise monitoring to be conducted monthly at the site and settlements near to site.

  The project engineer / site supervisor should monitor the construction work hours. EMA should conduct spot checks to ensure that the hours are being followed.

- Daily monitoring to ensure that fugitive dust from raw materials are not being entrained in the wind and creating a dust nuisance.

The project engineer / site supervisor should monitor the construction work hours. EMA should conduct spot checks to ensure that this stipulation is being followed.

- Conduct daily inspections to ensure that flagmen where necessary are in place and that adequate signs are posted along the roadways where heavy equipment interact with existing roads. This is to ensure that traffic have adequate warnings and direction.
- Undertake daily assessment of the quantity of solid waste generated and keep records of its ultimate disposal. Additionally, solid waste generation and disposal of the campsite should also be monitored.
- Weekly assessment to determine that there are adequate numbers of portable toilets and that they are in proper working order. This will ensure that sewage disposal will be adequately treated.
- Daily monitoring of vehicle refueling, and repair should be undertaken to ensure that these exercises are carried out on hardstands. This is to reduce the potential of water/soil/sand contamination from spills. Spot checks should be conducted by EMA.
- Undertake daily inspections to ensure that workers are wearing adequate personal protective equipment (PPE), such as hard hats, hard boots, air protection, safety glasses, reflective vests and fall protection is necessary. Ensure that safety signage is in place.
- Health, safety and emergency response plans should be prepared prior to site preparation and construction phases.
- Where possible, construction crews should be sourced from within the study area. This will ensure that the local community will benefit from the investment reduce uptake of GRM
- Nearshore Marine Reef in the vicinity of the baseline EIA monitoring sites should be monitored quarterly or at a frequency agreed to with EMA. This will include:

1) Photo Inventory and/or Roving Surveys:

Corals of particular interest (endangered species, diseased or bleached colonies for example), Fish species and counts.

2) To monitor the potential sediment impact from construction activities on the marine environment, one sediment trap should be deployed in the vicinity of construction activity and in nearby sensitive reef areas. The settlers should be retrieved on a monthly basis, its contents analysed and redeployed to determine the rate of sedimentation ($mg/cm^2/day$) and dispersal patterns over the area.

- Mangrove swamp water quality will also be monitored to ensure there is no drainage of oil, lubricants and excess sediments into the mangrove swamp.

10.3 Operational Phase

- Water quality monitoring should be done at least fortnightly after construction. If three to six results demonstrate that the site or parts of the site have stabilized, the sampling frequency and sampling locations may be reviewed and reduced or discontinued as per and approved monitoring plan. This will be discussed and agreed with the EMA.
- Monitor the potential impact on the marine environment, photo Inventory and/or roving surveys in the vicinity of nearby sensitive reef areas. This should be done on an annual basis.

10.4 Reporting Requirements

10.4.1 Water Quality

A report shall be prepared by the Contracted party. It shall include the following data:

- Dates, times and places of test.
- Weather condition.
- A defined map of each location with distance clearly outlined in metric.
- Test Method used.
- Parameters measured
- Results
- Conclusions

The report will be submitted to the Client or his designate within two (2) weeks of the monitoring being completed.

The Client shall distribute the report within four (4) weeks of testing being completed to EMA.

In the event that the water quality does not meet the required criteria, investigations shall be carried out and corrective actions were necessary taken and a re-test shall be scheduled at the earliest possible time and a new report submitted.

If three (3) to six (6) results demonstrate that the site or parts of the site have stabilized, the sampling frequency and sampling locations may be reviewed and reduced or discontinued as per approved monitoring plan.

Reports will be maintained on file for a minimum of three years.

10.4.2 Reef Surveys

A report shall be prepared by the Contracted party. It shall include the following data:

- Percentage Coral Cover; Live coral
- Recently killed, Dead coral, Diseased or bleached coral
- Percentage Algae Cover
- General Substrate Composition; The substrate type will also be identified (sand, pavement rock etc.)
- Sediment Dispersal
- Fish counts, species and size classes
- Presence of fish nets, pots, spearfishers, invasive and rare species.
- Dates, times and places of test
- Weather condition
- A defined map of each survey location with distance clearly outlined in metric.
- Other Data

Any rare, endangered, commercially important (lobster and conch) and invasive organisms (lionfish) observed will also be noted and photographed, as well as the presence/absence of seagrasses. Any obvious sedimentation, anchor damage, marine debris and other direct impacts will also be recorded.

The report will be submitted to the Client or his designate within two weeks of the monitoring being completed.

The Client shall distribute the report within four (4) weeks of testing being completed to EMA. Reports will be maintained on file for a minimum of three years.

10.4.3 Mangrove Surveys

Phasing and Monitoring Frequency of the Mangrove Monitoring Programme will be implemented during three (3) phases:

- Pre-construction (to serve as a baseline)
- During construction period
- Post-construction/Operational Phase (5 years assuming replanting/afforestation)

The proposed frequency of monitoring is outlined below based on the various phases.

Pre-Construction (baseline); Mangrove belt transect surveys throughout various sections of the property.

During Construction; Visual/roving observations for drainage of oil, lubricants and excess sediments into mangrove swamp and monthly water quality monitoring.

Post-Construction; Quarterly mangrove monitoring for the first 2 years, then biannual thereafter. Water quality monitoring is also to be conducted alongside the mangrove monitoring, at each relocation site, using the same frequency.

The report will be submitted to the Client or his designate within two weeks of the monitoring being completed.

The Client shall distribute the report within four (4) weeks of testing being completed

to EMA. Reports will be maintained on file for a minimum of three years.