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STORMWATER MANAGEMENT PLAN
FOR
(Transnet Richards Bay Lighthouse)

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1. PURPOSE

This Stormwater Management Plan (SWMP) was developed for the purpose of establishing, implementing and enforcing a stormwater management program to reduce onsite and off-site erosion from the activities of the Richards Bay Lighthouse to the maximum extent practicable. The SWMP also aims at maintaining stormwater that is of a good quality which will not significantly impact the surrounding area.

2. STORMWATER MANAGEMENT PRINCIPLES

- Prevent concentration of stormwater flow at any point where the ground is susceptible to erosion.
- Reduce stormwater flows as far as possible by the effective use of attenuating devices (such as swales, berms, silt fences). As construction progresses, the stormwater control measures are to be monitored and adjusted to ensure complete erosion and pollution control at all times.
- Minimise the area of exposure of bare soils to minimise the erosive forces of wind, water and all forms of traffic.
- Ensure that development does not increase the rate of stormwater flow above that which the natural ground can safely accommodate at any point in the sub-catchments.
- Ensure that all stormwater control works are constructed in a safe and aesthetic manner in keeping with the overall development.
- Plan and construct stormwater management systems to remove contaminants before they pollute surface waters or groundwater resources.
- Contain soil erosion, whether induced by wind or water forces, by constructing protective works to trap sediment at appropriate locations. This applies particularly during construction.
- Avoid situations where natural or artificial slopes may become saturated and unstable, both during and after the construction process.

3. APPLICABLE SPECIFICATIONS AND STANDARDS

- Environmental Management Programme
- Environmental Authorisation

4. RESPONSIBILITIES

4.1. Management and Supervisor

- Transnet National Ports Authority is responsible for the allocation of sufficient resources and ensuring the plan is successfully implemented.
- The HSE Manager or delegated representative is responsible for the detailed application of this plan.
- Supervisors are also responsible for implementing this plan and ensuring that all employees under their supervision are aware of the requirements thereof.
- Transnet National Ports Authority shall implement actions aimed at ensuring that the environmental impacts, resulting from the project, which could arise during construction activities are maintained

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within acceptable limits, minimized as far as possible and in compliance with the applicable standards and regulations.

- Ensure that service providers are licensed or have necessary approvals to collect, treat, transport, recycle and/or dispose of waste.
- Keep records of all waste management activities on site, such as safe disposal certificates, invoices from general waste service providers, to demonstrate compliance with this plan.

4.2. Employees and Contractors

- All Transnet National Ports Authority personnel and/ or subcontractors shall be made aware of, and shall adhere to the provisions of this plan.
- All employees, visitors and subcontractors are charged with the environmental protection responsibility by ensuring that they comply with the requirements of this plan.
- It is the responsibility of all employees to tidy their work areas, segregate and store waste in the appropriate waste containers at designated areas and to avoid littering always.
- Employees and subcontractors are encouraged to report any deviations and non-conformances, like overflowing, windblown waste, little or no segregation of waste.

5. METHOD

5.1. The Planning Phase

- All roads and parking areas must have stable surfaces and channels lined (where possible) with vegetation.
- Points of stormwater discharge must be stabilised and energy dissipation measures specified. Ecological methods (gabions, perforated mattresses, vegetation, etc.) are preferred.
- All activities that affect surface drainage should be designed so as to ensure that stormwater runoff does not lead to excessive surface erosion problems on the site.
- Stormwater infiltration must be promoted through minimising hard paved areas and using porous paving surfaces wherever possible.
- Rainwater runoff must be directed onto the north-western side of the site away from the coastal forest.
- Waste traps (fencing) must be planned and included in the stormwater design to catch litter conveyed by surface runoff.

5.2. The Construction Phase

- Remove only vegetation essential for construction and do not allow any disturbance to the adjoining coastal forest.
- Ensure that measures are in place to control the flow of excess water so that it does not impact on surface vegetation
- The accumulation of water on the surface should be prevented. The drainage of the surface should be done in such a way that stormwater will be led away quickly and efficiently without any erosion taking place.

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- Prevent stormwater or contaminated water directly entering any surrounding area.
- Install waste traps to catch litter conveyed by surface runoff.
- Dissipate concentrated stormwater flows through energy dissipaters.
- Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs.
- All hazardous substances must be stored on an impervious surface in a designated bunded area, able to contain 110% of the total volume of materials stored at any given time.
- The integrity of the impervious surface and bunded area must be inspected regularly and any maintenance work conducted must be recorded in a maintenance report.
- Implement topsoil and stormwater runoff control management measures to prevent the loss of topsoil.
- An earth berm must be created within the site along the south-eastern boundary of the site to prevent stormwater from entering the costal forest, the berm must be grassed.
- The site must be contoured with a slight angle sloping from south-east to north-western this will allow for all stormwater to runoff towards the sportsfield and not the coastal forest.

5.3. The Operational Phase

- Ensure that measures are in place to control the flow of excess water so that it does not impact on surface vegetation.
- Ensure the contoured site created during construction is maintained with a slight angle sloping from south-east to north-western which will continue to direct stormwater towards the sportsfield and not the coastal forest.
- The earth berm created must be maintained along the south-eastern boundary of the site. A grass cover must be maintained along the entire berm.
- The accumulation of water on the surface should be prevented. The drainage of the surface should be done in such a way that stormwater will be led away quickly and efficiently without any erosion taking place.
- As much of the site as possible must be grassed to allow for infiltration of rainwater thus preventing stormwater run-off.
- Runoff from roads/parking areas must be managed to avoid erosion and pollution problems.
- Prevent stormwater or contaminated water directly entering the surrounding area.
- All waste traps within the stormwater system must be emptied/cleaned regularly to ensure their efficient functioning.
- Repair all erosion damage as soon as possible. Do not allow erosion to develop on a large scale before effecting repairs.

6. GENERAL REQUIREMENTS

6.1. Performance and Compliance Evaluation

- Stormwater management analysis reports will be produced to check how the objectives of this plan are being met.

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- Inspections, audits, and observations shall be used as methods of evaluating compliance with the requirements of this plan.
- Corrective action shall be implemented to remedy deviations from the requirements of this plan.
- Entry of any substance (i.e. any material or substance that is not clean stormwater) into the stormwater or a water body is considered an incident and must be reported to the ECO immediately for the purposes of maintaining the site's incident records.

6.2. Training

Appropriate training of all employees and sub-contractors in the requirements of this plan shall be conducted on a continuous basis to ensure that the intent of this plan is realised. Records of such training shall be kept on file.

7. STORMWATER LAYOUT

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