CITY OF WINDHOEK’S POLICY TOWARDS SUSTAINABLE SAND MINING

June 2017
Glossary of Terms

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Applicant</td>
<td>Any person or legal entity who applies with the City of Windhoek for approval to undertake a sand mining activity.</td>
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<tr>
<td>Approval</td>
<td>For purpose of this policy refers to the approval granted by the Council of the City of Windhoek, subject to approvals/permits being obtained from the Directorate of Environmental Affairs and the Department of Water Affairs and Forestry.</td>
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<tr>
<td>Assessment</td>
<td>Refers to the process of identifying, predicting and evaluating- (a) the significant effects of activities on the environment; (b) the risks and consequences of activities and their alternatives and options for mitigation with a view to minimise the effects of activities on the environment and to maximise the benefits and to promote compliance with the principles set out in section 3 of the Environmental Management Act (No. 7 of 2007).</td>
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<tr>
<td>City of Windhoek</td>
<td>Refers to the Windhoek Municipality as the Local Authority having jurisdiction over the particular Local Authority Area.</td>
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<tr>
<td>City of Windhoek Extended Boundary</td>
<td>The area of jurisdiction of the City of Windhoek as defined in Government Notice No. 184 promulgated in Government Gazette No. 4801 of 30 September 2011 and presented by Annexure A, attached to this Policy Report.</td>
</tr>
<tr>
<td>Council</td>
<td>Means the Municipal Council of Windhoek</td>
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<tr>
<td>Cumulative Effect</td>
<td>Cumulative effect, in relation to an activity, means the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.</td>
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<tr>
<td>Environment</td>
<td>Is the complex of natural and anthropogenic factors and elements that are mutually interrelated and affect the ecological equilibrium and the quality of life, including – (a) the natural environment that is the land, water and air, all organic and inorganic material and all living organisms; and</td>
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(b) the human environment that is the landscape and natural, cultural, historical, aesthetic, economic and social heritage and values.

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<tr>
<th>Term</th>
<th>Definition</th>
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<tr>
<td>Environmental Assessment Practitioner</td>
<td>A person designated by a proponent to manage the assessment process.</td>
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<tr>
<td>Environmental Clearance Certificate</td>
<td>Means an environmental clearance certificate issued in terms of section 34 or 37 of the Environmental Management Act (No. 7 of 2007), authorising a listed activity to be undertaken.</td>
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<tr>
<td>Environmental Control Officer</td>
<td>Is an independent quality controller and monitoring agent.</td>
</tr>
<tr>
<td>Environmental Management Plan</td>
<td>A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project</td>
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<tr>
<td>Environmental Officer</td>
<td>Means an environmental officer appointed in terms of section 18 of the Environmental Management Act (No. 7 of 2007).</td>
</tr>
<tr>
<td>Licensee</td>
<td>Means a person who holds a licence to excavate and remove sand or gravel from any watercourse issued under section 3 of the Water Resources Management Act (No. 11 of 2013) or any other law relating thereto</td>
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<tr>
<td>Local Authority</td>
<td>Means a local authority council as defined in section 1 of the Local Authorities Act, 1992 (Act No. 23 of 1992).</td>
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<td>Local Authority Area</td>
<td>Means the area declared under section 3 to be a municipality, town or village, as the case may be, or deemed to be so declared.</td>
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<tr>
<td>Operator</td>
<td>The mining operator holds the rights and obligations related to a sand mining permit issued by the</td>
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<tr>
<td>Owner</td>
<td>includes:</td>
</tr>
<tr>
<td></td>
<td>(a) the registered owner;</td>
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<tr>
<td></td>
<td>(b) the lessee under a lease registered under any law;</td>
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<tr>
<td></td>
<td>(c) the person administering the estate of any person referred to in the above-mentioned subsections (a) or (b) whether it is in the capacity of executor,</td>
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administrator, curator guardian or any other capacity;

(d) any person receiving payment from any occupant or other person, or would have received such payment if such building or land was leased, whether for his own account or as an agent for somebody entitled to it or having an interest therein; and

(e) a duly authorised agent.

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<th>Person</th>
<th>Includes an organisation, institution, entity or authority.</th>
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<td>Regulatory Framework</td>
<td>A framework document that provides a broad overview or an outline of a subject or area of focus and acts as a guideline and may be amended and updated as processes are implemented and reviewed. A framework document provides practical management strategies viewed in the context of present regulatory and/or legislative gaps.</td>
</tr>
<tr>
<td>Responsible Person</td>
<td>Is both the person responsible for the creation of the adverse condition, but also the owner of the property from which the adverse condition originates.</td>
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<tr>
<td>Sand Mining</td>
<td>Means the removal or excavation of sand, soil or gravel from, for example from, any watercourse.</td>
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<td>Scoping report</td>
<td>Environmental Management Act, 2007 (Act No. 7 of 2007)</td>
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<tr>
<td>Study Area</td>
<td>Refers to the entire study area encompassing the total area as indicated on the study area map.</td>
</tr>
<tr>
<td>Unregulated Sand Mining</td>
<td>An operator that is undertaking sand mining activities with the absence of land rights, sand mining license, or of any document that could legitimise the on-going operations.</td>
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| Watercourse | Means -

  a) a river or spring, and includes the base flow of an ephemeral river at the time of no visible surface flow;

  b) a natural channel in which water flows regularly or intermittently; |
c) an estuary, wetland, lake or dam into which, or from which, water flows;

d) any collection of water which the Minister declares under section 5(2)(i) of the Water Resources Management Act (No. 11 of 2013) to be a watercourse; and

e) includes, where applicable, its bed and banks.

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<td>DEDE</td>
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<td>EAP</td>
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<td>ECC</td>
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1. INTRODUCTION

1.1. Overview of Sand Mining

For thousands of years, sand and gravel has been used as an essential resource playing a major role in the construction sector in general.

Irresponsible sand mining has and will continue to cause a variety of impacts, which include river bank erosion, river bed degradation, river buffer zone encroachment and deterioration of river water quality. Sand mining management and regulation of the industry is well known throughout the world, although the rate of success differs between countries.

Green (2012) argues that continual replenishment of sediment deposits in river beds and estuaries by sediment transport confers a false perception that sand is a renewable resource. However, since it takes many hundreds of years for sand to form from the weathering of rock, it is essentially non-renewable and its continued unsustainable extraction from the environment will lead to depletion. Apart from depletion, sand mining can also cause significant damage to the environment, particularly to riparian habitats. Such damage can include soil erosion, destruction of vegetation, altering the flow of a river, destruction of river banks, and destruction of wetlands.

In the interest of both the natural and social environments, but equally so to the socio-economic benefit of the people dependent directly and indirectly on this industry, it is extremely important and necessary that sustainable practises be applied and monitored by authorities.

1.2. Sand Mining in the City of Windhoek

The mining of sand for commercial purpose and small scale use (by individuals) has been in existence since the origin of Windhoek. Over these years no control was applied from the side of the CoW or any other Authority at Central Government level.

Sand and gravel material forms an essential and strategic component in the construction of roads and buildings. In recent years, rapid development has led to an increased demand for river sand as a source of construction material.

In Windhoek, the main source of sand is from in-stream mining. In-stream sand mining is a common practice because the mining locations are usually near the “markets” or along the transportation route, hence reducing transportation costs.

According to a preliminary assessment conducted by the Department of Economic Development and Environment in May 2013, 49 sand mining sites were identified within the urban area alone, which is believed to be a ‘huge underestimate’ considering the extent of the study area. Sand mining activities are found to be widespread situated and focusing on river areas, be it within the build-up urban area of Windhoek (i.e. along the Arebbusch-, Klein Windhoek- and Gammams River) or within the larger rural part (i.e. Seeis and Usib River). The scale of these activities varies from small scale mining by individuals or small
contractors within rivers (mainly within the urban areas) to large scale commercial activities operated by companies. Based on the study by the DEDE (CoW) in 2013 and investigations from the side of the consultant conducted during 2014 and 2015, most of the sites within the urban area are abandoned (i.e. no ownership or active management) and un-rehabilitated, but frequently used as and when sand is needed. In some instances natural rehabilitation (i.e. inflow of topsoil and revegetation) of these smaller sites has taken place, mainly due to rains and river flow. Apart from the abandoned large scale sand mining operations within the Klein Windhoek River, situated north of the Northern Industrial area, most other large scale sand mining sites are still active.

The socio-economic contribution of the sand mining industry is not known, but expected to account for a very large portion considering the scale and economic growth over the last few years.

1.3. The Need for Control

Rapid development in recent years has resulted in a mushrooming of river sand mining activities which have given rise to various problems, which include river bank erosion, river bed degradation, river buffer zone encroachment and deterioration of river water quality. As a result, large areas of riverine habitat have been and are in danger of being degraded, leading to the heightened loss of biodiversity. An assessment of the biodiversity of the CoW (Windhoek Biodiversity Inventory Baseline Report, October 2009) revealed that sand mining is considered a major threat to local biodiversity, affecting ecological processes such as soil preservation, flood attenuation and systematic soil infiltration of water.

Very often, over-mining occurs which jeopardises the health of the river and the environment in general. The most well-known area that has suffered severely as a result of uncontrolled sand mining is the northern-section of the Klein Windhoek River, stretching from the Northern Industrial area northwards into the Brakwater area. Not only has the past activities resulted in irreversible environmental damages, but also a decrease in property value.

Sand mining within the jurisdictional area of Windhoek is currently being done within an ‘uncontrolled manner’ without the existence of any legal framework.

The quantum of sand mined every year is several fold more than what flows down and accumulate in the riverbeds, which creates a serious environmental threat to the riverine system. On the other hand sand is an essential construction material and it gives employment to a large number of people. So the complete banning of sand mining is not a practicable solution to this multidisciplinary problem. A balanced amount of sand mining enables the river to maintain its stability.

There is thus a need for the City of Windhoek to be equipped with the necessary planning and management tools to deal with the problems that arise from river sand mining and the preparation of this guideline is an effort in this direction.
1.4. Format of the Policy

This Policy consists of five parts, the first providing an introduction to sand mining in general and within the jurisdictional boundaries of the City Council of the Municipality of Windhoek (hereafter referred to as the City of Windhoek), and the resulting need to regulate the particular industry.

The second part gives and overview of the legislative control to the sand mining industry in Namibia as it is currently practised and applied.

Part three provides a brief background to the objectives of this Policy, the study area to which the policy is applicable, the activities covered by the Policy, the responsible authority, and legislative framework on which the Policy is based, concluding with the enforcement date.

Part four, the core of the Policy, provides for a detailed outline of the approval process to be followed, first setting the application requirements; which is followed by the evaluation process to be followed and applicable criteria; the content of an approval from the side of the CoW and the terms and conditions of such; the duration of an approval; the renewal procedure; requirements in the event of review, an amendment, suspension and/or cancellation; the effects during suspension and/or cancellation; offences and penalties that would apply; requirements for closure by the operator; lease and succession of an approval; interim measures that apply for the period until the Policy has been approved; concluding with how existing approvals are treated.

Part five of this Policy provides general principles for sand mining, first focusing on a very basic criteria for identifying an appropriate site; which is followed by recommendations for both in-stream and off-channel or floodplain extraction of sand. This part is concluded with the requirements for reclamation plans and monitoring plans that should be drafted and submitted.
2. LEGISLATIVE CONTROL

Considering the nature of the activity various existing legislation becomes applicable, of which the Forest Act (No. 12 of 2001), Soil Conservation Act (No. 76 of 1969), Water Act (No. 54 of 1956), and soon to be enforced Water Resources Management Act (No. 11 of 2013) can be considered as the most important.

What distinguish the Water Resources Management Act (No. 11 of 2013) from the others, which all focus on environmental protection of certain natural resources, is that it provides for the licencing of sand mining activities, which previously did not exist.

Sand is excluded from the definition of being considered a 'mineral', as defined by the Minerals (Prospecting and Mining) Act (No. 33 of 1992), based on the understanding that it is required for purposes of (i) agriculture, building works, fencing or road making; (ii) the manufacture of bricks and tiles; (iii) the construction of sports fields, airfields, railways, bridges, dams, reservoirs, weirs, canals or other irrigation works; or (iv) any other purpose defined by the Minister by notice in the Gazette, as is the case with soil, clay, gravel or stone (other than rock material specified in Part 2 of Schedule 1 of the Minerals Act).

To date permits has been issued for sand mining activities by the Department Water Affairs and Forestry (Ministry of Agriculture, Water and Forestry).

The Windhoek Town Planning Scheme provides for the protection of the natural environment and social wellbeing of its residents through implementing and controlling land uses, as reflected in Table B of the Scheme. Sand mining is not defined in the Scheme and not listed as a land use per se, but is indirectly covered as an activity and accordingly controlled. Section V of the Scheme, provides for protection to human life (Section 26) and conservation of the natural resources (Section 29) by means of any activity. Section 29(g) specifically requires that approval be obtained from Council for mining or removal of sand and gravel from any water course. In accordance with Section 27 of the Scheme, the Council is entitled to serve a notice on the responsible person where the amenity or groundwater or other environmental asset in any area is adversely affected by the condition of any activity taking place in the area, requiring the person to take such action as is necessary to eliminate the source of annoyance and, or remove any polluting agent and cause the ground to be rehabilitated to a condition that it was at prior to being polluted or to a condition acceptable to Council.

With the promulgation of the ‘List of activities that may not be undertaken without an Environmental Clearance Certificate’ (GN. No. 29 of 2012) and commencement of the Environmental Management Act (Act No. 7 of 2007) during February 2012 (GN. No. 28 of 2012), a much more effective and direct means of controlling sand mining activities has been established.
3. THE POLICY

3.1. Background

In the light of the mentioned the City of Windhoek resolved to put in place the necessary control measures at Local Authority Level to ensure a sustainable and well managed industry within the existing legal parameters and the principles for environmental management (i.e. Central Government level). To achieve this, the CoW initiated the drafting of this ‘Policy Towards Sustainable Sand Mining Activities in Windhoek’, to be implemented at the Local Authority level within the legal framework provided by both the Local Authorities Act (No. 23 of 1992) and the Water Act (No. 54 of 1956), and other laws as applicable.

The purpose of this Policy is not to replace or repeat the legal requirements as set by the Water Act (No. 54 of 1956) and the Water Resources Management Act (No. 11 of 2013), as well as the Environmental Management Act (No. 7 of 2007), but to become a policy at local authority level to be managed at much more detail within the jurisdictional area of the City of Windhoek.

Different from other legislation, this Policy places emphasis on setting up of monitoring plans that will provide data on profile changes and sediment transport capacity to enable the authorities to evaluate the long-term effect of the mining activities both upstream and downstream of sand extraction sites.

3.2. Policy Objectives

This Policy is intended for use by the CoW to achieve the following regulatory and management objectives:

(a) Put an application procedure with assessment criteria in place at local authority level, which ties in with the existing application procedure as provided for by National Legislation; and

(b) Promote sustainable practices by setting basic principles having the objective of minimise the impact of sand mining activities on the social and biophysical environment.

3.3. Study Area

The study area for purpose of this project is defined to be the newly extended Municipal Boundaries (Namibia:Government Gazette no 4801 of 2011).
3.4. Activities Covered

Considering the status quo, all forms of sand mining as defined in this Policy and/or other legislation are covered under this Policy, be it of a temporary or permanent nature, conducted for own consumption or commercial use on private or public owned land.

3.5. Scale of the Policy

This policy is prepared for the City Council and sand mining operators seeking approval for the –

(a) Continuation of sand mining operations at existing and active site;

(b) Continuation of sand mining operations at an existing but previously abandon site; and

(c) Commencement of sand mining operations at a new site.

3.6. Responsible Authority

The Council shall be the authority responsible for enforcing and carrying into effect the provisions of this Scheme.

3.7. Legislative Framework

This policy is prepared under the guidance and provision made in the following National Acts:

(a) Water Act, No. 54 of 1956

(b) Water Resources Management Act, No. 11 of 2013

(c) Forest Act, No. 12 of 2001

(d) Nature Conservation Ordinance, No. 4 of 1975

(e) Soil Conservation Act, No 76 of 1969

(f) Atmospheric Pollution Prevention Ordinance, No. 11 of 1976

(g) Draft Pollution Control and Waste Management Bill, 2003

(h) Public Health Act, No. 36 of 1919

(i) Labour Act, No 11 of 2007

(j) National Heritage Act, No 27 of 2004

(k) Environmental Management Act, No. 7 of 2007

(l) Local Authorities Act, No. 23 of 1992

(m) Town Planning Ordinance, No 18 of 1954
3.8. Enforcement Date

This Policy commences on the date approved by the Municipal Council of the City of Windhoek.
4. APPLICATION REQUIREMENTS AND PROCEDURES

4.1. Introduction

The requirements set and procedure to be followed has been developed considering the existence of having to obtain a Permit from the Department of Water Affairs and Forestry (Water Resources Management Act No. 11 of 2013), and having to obtain an Environmental Clearance Certificate from the Environmental Commissioner (Environmental Management Act, No. 7 of 2007).

Where ever this Policy requires documentation/information that has been covered within either the permit application with the Department of Water Affairs and Forestry or for an Environmental Clearance Certificate from the Environmental Commissioner, the applicable documentation/information can be used for purpose of the application with the CoW.

4.2. Application Requirements

A person who wishes to apply for approval to continue or commence with sand mining within the jurisdictional area of the City of Windhoek must submit to Council (Chief Executive Officer) an application in the prescribed form or manner and from, which applications must include-

(a) the name of the applicant;
(b) legal agreement, enter into between the landowner or legal custodian of the land and the operator, if the operator is not the owner of the land;
(c) the watercourse from which sand will be removed;
(d) the location (i.e. coordinated and outer boundary) of the proposed sand mining site, including maps showing the site in relation to the water course and features such as roads, buildings (other infrastructure) or boundaries;
(e) the names of the owner and occupier of the land on which the proposed sand mining will take place;
(f) the proposed volume or quantity of sand to be mined per month;
(g) the proposed duration of the sand mining;
(h) in the instance of a first time application, the complete Scoping Assessment Report or complete Environmental Impact Assessment Report, which contains as a minimum the following -
   a. contact details and qualifications of the independent Environmental Assessment Practitioner (EAP) responsible for preparing the report;
   b. indicating of the condition of and existing damage to the environment that the application relates to;
c. a detailed assessment of the potential sedimentation impact, which should provide a good understanding of the theory of sediment transport process, which again will determines the sand replenishment rate and hence the volume of sand that can be extracted from the reach of the river channel.

d. assessment of the impacts which the proposed operations may have on the environment (i.e. natural and social environments); and

e. mitigation measures that should be taken to mitigate the identified impacts;

f. Proof of notification for comments and objections from Interested and Affected parties

(i) in the instance of a renewal, the Construction Monitoring Record and Operational Monitoring Record for the period that has passed since issuing of the first time approval or previous renewal,

(j) proof of adequate financial provision (Bank Issued Guarantee) for the rehabilitation of the mining site; and

(k) any additional information the Strategic Executive may prescribe.

4.3. Consideration of Application for Approval and/or Renewal for Sand Mining

Upon receipt and registration of an application referred to in section 4.2, the Chief Executive Officer -

(a) Acknowledge receipt of application within seven (7) working days

(b) Refer the application to the Department (Environmental Management Division) concerned with investigation and recommendations whether compliance requirements set under section 4.2 of policy are met.

(c) Request for comment from other Departments/Divisions, as might be necessary, for consideration by the Environmental Management Division and inclusion into the recommendations from the Environmental Management Division.

On receipt of an application referred to in section 4.2, the Department must -

(a) investigate all matters pertaining to the application;

(b) consider objections, if any;

(c) consider comment from other Departments/Divisions, if any;

(d) Request additional information from applicant, if any

(e) give the applicant an opportunity to make representations in support of his or her application in case of any uncertainty; and
(f) make recommendations to the Management Council.

After considering -

(a) the recommendations from the Department;
(b) the objections by interested persons, if any;
(c) the representations of the applicant, if any;
(d) the Scoping Assessment Report or complete Draft Environmental Assessment Report; and
(e) the compliance with the criteria referred to in section 4.4,

Management Council may grant the application to remove sand, with or without conditions, or deny the application.

A person who wishes to appeal against the decision of Council regarding an application for approval for sand mining may file a notice of appeal as provided for under Clause 51 of the Town Planning Scheme.

4.4. Evaluation Criteria

In considering an application for approval for sand mining, the following shall as a minimum be considered -

(a) The potential impact that the activity (existing or new) might have on the surrounding land uses and activities within a radius of 1km; and
(b) The potential impact that the activity (existing or new) might have on any other development upstream or downstream situated within the 1:100 flood line.

In deciding whether an approval should be issued, Council must consider the following criteria, which is expected to be covered and presented in the Draft Scoping Assessment Report or complete Draft Assessment Report -

(a) whether the proposed sand mining are consistent with -

(i) the Windhoek Town Planning Scheme and other applicable legislation as listed under 3.7 of this Policy;
(ii) the Windhoek Urban Structure Plan;
(iii) the Windhoek Environmental Structure Plan; and
(iv) conditions stipulated here under.

(b) the likely effect of the proposed sand mining on the riparian vegetation, the quality of any water resource, and on aquatic ecosystems dependent on the resource; and

(c) any additional criteria Council may prescribe.
4.5. Contents of Approval for Sand Mining

An approval to conduct sand mining must specify:

(a) the duration of the approval;
(b) the location of sand mining site;
(c) the sand use or uses for which it is granted;
(d) the person to whom it is granted;
(e) the conditions subject to which it is granted;
(f) the frequency of review of the approval;
(g) the fact that the approval is subject to periodic review and withdrawal, amendment or cancellation in accordance with this Policy; and
(h) any other prescribed matters.

4.6. Terms and Conditions of Approval for Sand Mining

An approval to excavate or remove sand is issued subject to the following conditions:

(a) an Environmental Clearance be obtained from the Environmental Commissioner (Directorate of Environmental Affairs);
(b) a permit be obtained from the Department of Water Affairs and Forestry (Ministry of Agriculture, Water and Forestry);
(c) an approved construction and operational environmental management plan and proposed rehabilitation plan are submitted to the Strategic Executive prior to the initiation of the sand mining activities;
(d) proof of adequate financial provision (Bank Issued Guarantee) for the rehabilitation of the mining site;
(e) the conditions set under Section 4(3) of the Sand Mining Regulations, as provided for under Section 129 of the Water Resources Management Act, No. 11 of 2013; and
(f) Council or his authorised representative reserves the right to carry out periodic inspections to determine whether the conditions of this approval are adhered to.

4.7. Duration of Approval for Sand Mining

Subject to point 4.8 and 4.9, an approval to remove sand may be granted for a term not exceeding three years.

4.8. Renewal of Approval for Sand Mining
An approval to conduct sand mining, issued under Section 4.3, may be renewed at least three months prior to its expiry, if an application is submitted for renewal to the Strategic Executive in the prescribed manner.

When considering an application for renewal, the Strategic Executive must consider the application using the requirements provided under Section 4.4 and in addition the following -

(a) Proof of notification of all neighbouring property owners, the broader public and relevant Ministries of the intention to renew the approval, by way of -

i. Written correspondence clearly stipulating the intention to renew the approval;

ii. Placing a notice once a week for two consecutive weeks in at least two newspapers circulating in the area; and

iii. Placing a notice with the minimum size of 65cm x 40cm on-site at a place visible to the public.

(b) Obtain permission from the landowner, in writing, if the operator is not the owner of the land;

(c) Provide proof of having substantially adhered to the provisions of the original permit or right in the form of a written report by the ECO;

(d) Provide proof of adequate financial provision for the rehabilitation of the mining site; and

(e) Submit the above to the CoW.

4.9. Review, Amendment, Suspension and/or Cancellation of Approval for Sand Mining

Council may at any time during the term of duration of any approval issued under this Policy, review such approval and, pursuant to such review, may amend the terms or conditions thereof, or suspend or cancel such approval, if it is in the public interest to do so.

Council may suspend or cancel an approval to remove sand from a watercourse, in whole or in part, if the approval -

(a) fails to abide by any of the terms or conditions of the approval;

(b) fails to renew the Environmental Clearance Certificate and Sand Mining Permit;

(c) cancellation of proof of adequate financial provision (Bank Issued Guarantee) for the rehabilitation of the mining site; and

(d) fails to meet the conditions as stipulated under Section 9 of the Sand Mining Regulations, as provided for under Section 129 of the Water Resources Management Act, No. 11 of 2013.
Before Council amends, suspends or cancels any approval, the Strategic Executive must invite the applicant to make representations in respect of the proposed amendment, suspension or cancellation.

In the event that the approval is suspended or cancelled, the Strategic Executive should inform the office of the Environmental Commissioner (Directorate of Environmental Affairs) and the Department of Water Affairs and Forestry (Ministry of Agriculture, Water and Forestry) of such decision and instruction that the Environmental Clearance Certificate and Permit should be cancelled accordingly.

4.10. Effects of Suspension and/or Cancellation of Approval for Sand Mining

If an approval to conduct sand mining expires and is not renewed, or is cancelled, the Strategic Executive may -

(a) require the expired approval holder, at his/her expense, to remove any liens or other restrictions preventing the free use of the sand mining area and works;

(b) order the expired approval holder to restore, at his/her expense, the state of affairs which existed before an approval was granted, if doing so is reasonable and practicable under the circumstances; or

(c) enter into an arrangement with the expired approval holder or any other person for maintenance of the sand mining site and works.

4.11. Offences and Penalties

The operator -

(a) Must at all times give effect to the general objectives of integrated environmental management laid down in Part II of the EMA;

(b) Must manage all environmental impacts -

(i) In accordance with the Operational Environmental Management Plan approved by the CoW; and

(ii) As an integral part of the mining operation; and

(c) Is responsible for any environmental damage, pollution or ecological degradation as a result of his or her mining operations and which may occur inside and outside the boundaries of the area to which such approval/permit and/or Clearance relates.

Failure to adhere to the above is considered an offense. Specifically, the following offenses will result in a penalty as determined by the CoW:

(a) Failure to apply for the appropriate sand mining approval;

(b) Continuation of activities without a renewed approval;

(c) Failure to adhere to the provisions of an approval, including:
Failure to appoint a suitably qualified on-site Environmental Control Officer;

(ii) Inadequate performance when measured against the Operational Environmental Management Plan;

(iii) Undertaking activity(ies) beyond the boundaries of the site or activities not provided for in the approval; and

(iv) Inadequate rehabilitation following site closure.

(d) Excavation and/or processing of any other mineral from a sand mining operation site that is not authorised as part of the approval obtained from the CoW.

On identification of an offense:

(a) All activity must be immediately stopped until a decision is made by the CoW on the penalty and the rectification of the offense; and

(b) Should the activity not be stopped voluntarily, the CoW has the right to confiscate and impound any vehicles, machinery or tools associated with the operation until such time as the matter is resolved. The cost of the transport and storage of these items will be for the operator, if found to be to be guilty of the offence.

The CoW may request:

(a) The approval holder to submit supporting documentation in his/her defence;

(b) A report by an Environmental Control Officer and/or an independent EAP identifying the impacts of the operator’s actions and the rectification/mitigation requirements, which will be for the cost of the operator;

(c) Rectification of any damages to the environment or property on which the operations were undertaken; and

(d) Application for an approval in terms of this Policy and permit in terms of the Sand Mining Regulations, as provided for under Section 129 of the Water Resources Management Act, No. 11 of 2013.

(e) Mining Plan


If the sand mining activities are to be closed, the operator must -

(a) Notify the CoW of the intention to close and request a closure certificate from the CoW; and

(b) Submit an updated rehabilitation plan for approval together with the notification of intention to close.

The closure certificate can only be issued:
(a) Once all mining activities have ceased; and

(b) Once rehabilitation has been undertaken in accordance with the approved rehabilitation plan.

4.13. Lease of Approval for Sand Mining

An approval may not be leased to another person.

4.14. Succession to Approval for Sand Mining

An approval may not be passed on to another person as a successor-in-title at death or transfer.

4.15. Interim Measures

The following interim measures may be implemented by the CoW -

(a) All active sand mining operators situated within the jurisdictional area of the CoW having a permit from the Department of Agriculture and Water or not must register with the CoW database as per this Policy;

(b) Operators who fail to register within the allocated timeframe as indicated in Section 4.16 may be liable to closure from the side of the CoW; and

(c) The CoW may choose to appoint a service provider to locate all existing mining operators and notify them of the approval process and the procedures associated with this process.

Any operation operating without a permit from the Department of Agriculture and Water, which closes within a minimum of 1 month after this approval procedures are passed by Council, will be required to:

(a) Rehabilitate the mining site to the satisfaction of the CoW, regardless of whether an approval has been obtained as per this Policy.

Operations on land which is identified in any legislative provision as being protected or set aside for some other use should be immediately ceased and the operators of these mines should be required to rehabilitate the site to the satisfaction of the CoW.

4.16. Existing Approvals

A person who, on the date of commencement of this Policy, undertakes a sand mining with some or other written approval from the CoW may continue to undertake such activity for a period not exceeding one year, or remaining period as per the CoW approval, whichever is the most restrictive.

A person who, on the date of commencement of this Policy, undertakes a sand mining with a valid permit from the Department of Agriculture and Water may continue to undertake such
activity for a period not exceeding the remaining period of the permit and/or one (1) year, whichever is the most restrictive.

A person who, on the date of being informed in writing or by public notice from the side of the CoW of the commencement of this Policy, is in position of a written approval from the CoW or is in position of a valid permit, must inform the CoW of such approval and/or permit within 30 days of the commencement of the Policy.

4.17 Council invitations

The public may be invited to apply for sand mining rights on land owned by Council via a notice in a daily newspaper. The notice may run for a period of no longer than one month. The evaluation may take one to three month depending on the number of applications received.
5. GENERAL PRINCIPLES FOR SAND MINING

This part of the Policy provides general principles that should be applied in general and has been adopted from the River Sand Mining Management Guideline for Malaysia (September 2009).

The application of annual replenishment concept is key to ensuring long-term river channel stability as well the health of the aquatic and riparian habitats by allowing only a sustainable volume of sand based on the natural sediment transport process to be extracted.

5.1. Appropriate Extraction Sites

(a) Appropriate extraction sites are locations chosen based on knowledge of the local rate of aggradation or scour, a site-specific determination of channel stability and bank erosion and evaluation of riparian resources.

(b) Site-specific evaluation is needed to evaluate each proposed operation to minimize disturbance and maximise stability of channel.

(c) In-stream extraction sites should be located where the channel loses gradient or increases in width, and deposition occurs unrelated to regular bar-pool spacing in channel. Particular sites may include sites upstream of a bedrock constriction or backwater, or at deltas created near confluences.

5.2. In-Stream Mining Recommendations

(a) Permit Mining Volume Based on Measured Annual Replenishment

In the first year following adoption of the management plan, a volume equal to the estimated annual replenishment could be extracted from the reach of channel. Replenishment (up to the elevation of the selected channel configuration) would need to occur before subsequent extraction could take place.

The concept of annual replenishment accounts for the episodic nature of sediment transport. For example, during wet periods with high stream flows, and a high contribution of sediment from hillslopes and tributaries, monitoring data would show that sand and gravel bars are replenished quickly. During drought periods with low streamflow, and little sediment supply or transport, monitoring data would likely show that bars were replenished at a slower rate. The use of monitoring data is essential in measuring when actual replenishment occurs. The use of the concept of annual replenishment protects long-term channel stability as well as aquatic and riparian habitat by extracting a volume sustainable by watershed processes.

It is important to develop a system to allocate the total estimated annual replenishment between all of the operators.
(b) **Establish an Absolute Elevation below Which No Extraction May Occur**  
(Minimum Enveloped Level or Redline)

The absolute elevation below which no mining could occur or “redline” would be surveyed on a site-specific basis in order to avoid impacts to structures such as bridges and to avoid vegetation impacts associated with down cutting due to excessive removal of sediment.

An extraction site can be determined after setting the deposition level at 1 m above natural channel elevation, as determined by the survey approved.

(c) **Limit In-stream Extraction Methods to Bar Skimming**

If mining is limited to the downstream end of the bar with a riparian buffer on both the channel and hillslope (or floodplain) side, bar skimming would minimise impacts.

Other methods such as excavation of trenches or pools in the low flow channel lower the local base level, and maximise upstream (head cutting and incision) and downstream (widening and braiding) impacts. In addition, direct disturbance of the substrate in the low flow channel should be avoided.

Trenching on bars may be beneficial in the future if the river becomes severely aggraded, flat, shallow and braided.

Trenching of bars may initially impact a smaller area of riparian habitat than skimming - as a result of excavating deeper rather than shallow skimming of a large area. However, over the long-term, the upstream and downstream effects of a trench on the bar or in the channel may offset any short-term benefit derived from this method.

(d) **Extract Sand and Gravel from the Downstream Portion of the Bar**

Retaining the upstream one to two thirds of the bar and riparian vegetation while excavating from the downstream third of the bar is accepted as a method to promote channel stability and protect the narrow width of the low flow channel. Sand and gravel would be redeposit in the excavated downstream one to two thirds of the bar (or downstream of the widest point of the bar) where an eddy would form during sediment transporting flows. In contrast, if excavation occurs on the entire bar after removing existing riparian vegetation, there is a greater potential for widening and braiding of the low flow channel.

(e) **Concentrate Activities to Minimise Disturbance**

In-stream extraction activities should be concentrated or localised to a few bars rather than spread out over many bars. This localisation of extraction will minimise the area of disturbance of upstream and downstream effects. Skimming decreases habitat and species diversity - these effects should not be expanded over a large portion of the study area.
(f) **Review Cumulative Effects of Sand and Gravel Extraction**

The cumulative impact of all mining proposals should be reviewed on an annual basis to determine if cumulative riverine effects or effects to the estuary are likely and to ensure that permits are distributed in a manner that minimises long-term impacts and inequities in permits between adjacent mining operations.

(g) **Maintain Flood Capacity**

Flood capacity in the river should be maintained in areas where there are significant flood hazards to existing structures or infrastructure.

(h) **Establish a Long-term Monitoring Program**

Monitoring of changes in bed elevation and channel morphology, and aquatic and riparian habitat upstream and downstream of the extraction would identify any impacts of sand and gravel extraction to biologic resources. Long-term data collected over a period of decades as sand and gravel extraction occurs will provide data to use in determining trends.

(i) **Minimise Activities That Release Fine Sediment to the River**

No washing, crushing, screening, stockpiling, or plant operations should occur at or below the streams "average high water elevation," or the dominant discharge. These and similar activities have the potential to release fine sediments into the stream.

(j) **Retain Vegetation Buffer at Edge and Against River Bank**

Riparian vegetation performs several functions essential to the proper maintenance of geomorphic and biological processes in rivers. It shields river banks and bars from erosion.

(k) **Limit In-stream Operations During Flood Periods**

The in-stream mining should only be allowed during the times of now flooding.

(l) **An Annual Status and Trends Report**

This report should review permitted extraction quantities in light of results of the monitoring program, or as improved estimates of replenishment become available.

The report should document changes in bed elevation, channel morphology, and aquatic and riparian habitat. The report should also include a record of extraction volumes permitted, and excavation location. Finally, recommendations for reclamation, if needed should be documented.
5.3. Off-Channel or Floodplain Extraction Recommendations

(a) **Floodplain Extraction Should Be Set Back from the Main Channel**

In a dynamic alluvial system, it is not uncommon for meanders to migrate across a floodplain. In areas where sand and gravel occurs on floodplains or terraces, there is a potential for the river channel to migrate toward the pit. If the river erodes through the area left between the excavated pit and the river, there is a potential for "river capture," a situation where the low flow channel is diverted through the pit.

In order to avoid river capture, excavation pits should set back from the river to provide a buffer, and should be designed to withstand the 100-year flood. Adequate buffer widths and reduced pit slope gradients are preferred over engineered structures which require maintenance in perpetuity. Hydraulic, geomorphic, and geotechnical studies should be conducted prior to design and construction of the pit and bund.

In addition to river capture, extraction pits create the possibility of stranding aquatic life during floods. To avoid this impact, all off-channel mining should be conducted above the 50-year flood line.

(b) **The Maximum Depth of Floodplain Extraction Should Remain above the Channel Thalweg**

Floodplain pits should not be excavated below the elevation of the thalweg in the adjacent channel. This will minimise the impacts of potential river capture by limiting the potential for head cutting and the potential of the pit to trap sediment. A shallow excavation (above the water table) would provide a depression that would fill with water part of the year, and develop seasonal wetland habitat. An excavation below the water table would provide deep water habitat.

(c) **Side Slopes of Floodplain Excavation Should Range from 3:1 to 10:1**

Side slopes of a floodplain pit should be graded to a slope that ranges from 3:1 to 10:1. This will allow for a range of vegetation to establish. Steep side slopes excavated in floodplain pits on other systems have not been successfully reclaimed, since it is difficult for vegetation to become stabilised. Terrace pits should be designed with a large percentage of edge habitat with a low gradient which will naturally sustain vegetation at a variety of water levels.

(d) **Place Stockpiled Topsoil above the 25-year Return Period or ARI Level**

Stockpiled topsoil can introduce a large supply of fines to the river during a flood event and have various negative implications. Storage above the 50-year flood inundation level is sufficient to minimise this risk.

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1 In hydrological and fluvial landforms, the thalweg is a line drawn to join the lowest points along the entire length of a stream bed or valley in its downward slope, defining its deepest channel.
(e) *Floodplain Pits Should Be Restored to Wetland Habitat or Reclaimed for Agriculture*

There are very few examples of successfully restored or reclaimed extraction pits on river systems. The key to successful restoration or reclamation is to conserve or import adequate material to re-fill the pit, while ensuring that pit margins are graded to allow for development of significant wetland and emergent vegetation.

(f) *Establish a Long-term Monitoring Program*

A long-term monitoring program should provide data illustrating any impacts to river stability, groundwater, and riparian vegetation. The monitoring program should assess the success of any reclamation or restoration attempted.

(g) *An Annual Status and Trends Report*

The status and trends report described previously should include a section on the hydrologic and biologic components of floodplain pit reclamation.

5.4. **Reclamation Plans**

In-stream reclamation plans should include:

(a) a baseline survey consisting of existing condition cross-section data. Cross-sections must be surveyed between two monumented endpoints set back from the top of bank;

(b) the proposed mining cross-section data should be plotted over the baseline data to illustrate the vertical extent of the proposed excavation;

(c) the cross-section of the replenished bar should be the same as the baseline data. This illustrates that the bar elevation after the bar is replenished will be the same as the bar before extraction;

(d) a planimetric map showing the aerial extent of the excavation and extent of the riparian buffers;

(e) a planting plan developed by a plant ecologist familiar with the flora of the river for any areas such as roads that need to be restored;

(f) a monitoring plan (See below).

5.5. **Monitoring Plan**

Monitoring will provide data to evaluate the upstream and downstream effects of sand and gravel extraction activities, and long-term changes. A brief report summarizing the annual results of the physical and biological monitoring should document the evolution of the sites over time, and the cumulative effects of sand and gravel extraction. The summary should also recommend any maintenance or modification of extraction rates needed to minimize impacts of extraction.
(a) Sand Replenishment, Geomorphology and Hydrology

Physical monitoring requirements of sand and gravel extraction activities should include surveyed channel cross-sections, longitudinal profiles, bed material measurements, geomorphic maps, and discharge and sediment transport measurements. The physical data will illustrate bar replenishment and any changes in channel morphology, bank erosion, or particle size.

In addition to local monitoring for replenishment at specific mining sites, monitoring of the entire reach through the estuary will provide information on the cumulative response of the system to sand and gravel extraction. For example, it is important for downstream bars and the estuary to receive sufficient sand and gravel to maintain estuarine structure and function.

Because the elevation of the bed of the channel is variable from year to year, a reach-based approach to monitoring will provide a larger context for site-specific changes.

If long-term monitoring data show that there is a reach-scale trend of bed lowering (on bars or in the thalweg), the extraction could be limited.

(b) Riparian Habitat

Document the extent and quality of riparian vegetation, including successional status, and an increase in disturbance indicators (non-indigenous plants). The extent of riparian habitat can be determined utilising aerial photos. Habitat quality data, i.e., successional status and species composition, must be determined through field reconnaissance.

Develop yearly maps of the sensitive habitat areas and document their aerial extent over time. These maps may be combined with the geomorphic maps. Monitor sites identified as sensitive for disturbance in excess of expected geomorphic trends - i.e., massive bank wasting up or downstream from an active mine site. Monitor sand and gravel mining impacts which may translate up and downstream, causing accelerated erosion of sensitive zones and impacting the ability of new habitat to form due to excessive scour or sedimentation.