PROPOSED MOUNT VIEW RESIDENTIAL DEVELOPMENT, SIR LOWRY'S PASS VILLAGE, WESTERN CAPE.

SECOND DRAFT RIVER MAINTENANCE MANAGEMENT PLAN

Prepared For:

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Guillaume Nel environmental consultants

24 February 2022

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ACRONYMS

BAR	Basic Assessment Report
BPG	Best Practice Guideline
CBA	Critical Biodiversity Area
DEA&DP	Department of Environmental Affairs & Development Planning
DWS	Department of Water & Sanitation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Programme
GA	General Authorisation, in terms of the National Water Act, 1998 (Act No. 36 of 1998)
GN	Government Notice
IB	Irrigation Board
MEC	Member of Executive Council
MMP	Maintenance Management Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFEPA	National Freshwater Ecosystem Priority Areas
NWA	National Water Act, 1998 (Act No. 36 of 1998)
RE	Resident Engineer
PES	Present Ecological State
SANParks	South African National Parks Authority
SUDS	Sustainable Urban Drainage Systems
WUA	Water Users Association
WULA	Water Use Licence Application

DEFINITIONS OF TERMS

"Activity" means an activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the Act as a listed activity or specified activity. Activity in this document refers to the activities as listed in Listing Notice 1, 2 and 3 of the Environmental Impact Assessment Regulations, 2014 (as amended).

"Bush Encroachment" means stands of plants of the kinds specified in column 1 of Table 4 of the Conservation of Agricultural Resources Act (Act No. 43 of 1983) where individual plants are closer to each other than three times the mean crown diameter.

"Diverting" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, cause the instream flow of water to be rerouted temporarily or permanently.

"Ecological Infrastructure" refers to naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction.

"Estuary" has the meaning assigned to it in the National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)

"Flood event" is the event where land is inundated by the overflowing of water from a river channel and where this event causes significant damage to infrastructure or results in watercourse erosion and/or sediment deposition.

NOTE that flooding can be a natural phenomenon in many river or wetland systems which, due to encroachment and human modification of the form and function of the affected system, may have evolved into a potential hazard to life or property.

"Flow-altering" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, alter the instream flow route, speed or quantity of water temporarily or permanently.

"General Authorisation" in this document refers to the General Authorisation in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) or Section 21(i) (GN. 509 of 26 August 2016).

"Impeding" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, hinder or obstruct the instream flow of water temporarily or permanently, but excludes the damming of flow so as to cause storage of water.

"Indigenous vegetation" refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

"Maintenance" means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.

"Maintenance Management Plan" means a management plan for maintenance purposes defined or adopted by the competent authority.

"**River Management Plans**" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), any river management plan developed for the purposes of river or storm water management in any municipal/metropolitan area or described river section, river reach, entire river or sub quaternary catchment that considers the river in a catchment context.

"River reach", a length of river characterised by a particular channel pattern and channel morphology, resulting from a uniform set of local constraints on channel form. A river reach is typically hundreds of meters in length.

"Stretch" a section of watercourse, delineated between two or more mapped coordinates, within which proposed maintenance activities are to take place as guided by a MMP.

"Thalweg" refers to the line of lowest elevation within a valley or watercourse.

"Watercourse" means:

(a) a river or spring;
(b) a natural channel in which water flows regularly or intermittently;
(c) a wetland, lake or dam into which, or from which, water flows; and
any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998); and

a reference to a watercourse includes, where relevant, its bed and banks.

"Wetland" means, land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

REFERENCES

Ecosystem Guidelines for Environmental Assessment in the Western Cape, Edition 2, 2016. Available at: www.bgis.org.za

FEN Consulting, 2021. Freshwater Ecological Assessment for The Proposed Mount View Mixed Use Development on the Remainder of Farm 869, Farm 1262, Remainder of Farm 866, Remainder of Farm 1054, Portions 2 and 3 of Farm 1054 and Portion 2 of Farm 870, Sir Lowry's Pass, Western Cape Province.

General Authorisation, in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) for water uses as defined in Section 21(c) or Section 21(i).

National Water Act, 1998 (Act No. 36 of 1998). Available at: http://www.gov.za/documents/national-water-act

Preliminary guideline for the determination of buffer zones for rivers, wetlands and estuaries, 2014. Available at: http://www.wrc.org.za

Wetland offsets: A best practice guideline for South Africa, 2016. Available at: http://www.wrc.org.za

Request for the relevant Competent Authority to define or adopt a Maintenance Management Plan for a watercourse in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental Impact Assessment Regulations, 2014 (as amended).

		(For official use only)
File Reference Number:		
Date Received by Department:		
Date Received by Component:		
Form Duly Signed and Dated:		Yes No

PROJECT TITLE

PROPOSED MOUNT VIEW RESIDENTIAL DEVELOPMENT ON THE REMAINDER OF FARM 869, FARM 1262, REMAINDER OF FARM 866, REMAINDER OF FARM 1054, PORTIONS 2 AND 3 OF FARM 1054 AND PORTION 2 OF FARM 870, SIR LOWRY'S PASS VILLAGE, WESTERN CAPE.

A. SCOPE AND IMPORTANT INFORMATION

1) This document is to be used to ensure that the request for adopting or defining a Maintenance Management Plan (MMP) in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) is undertaken to the sufficient standard and requirements as defined by the competent authority, the Department of Environmental Affairs and Development Planning of the Western Cape Government (henceforth the Department). It is advised that the determination of applicability regarding the scale of the proposed maintenance/management activity(ies) be undertaken through a pre-application consultation with the Department.

2) The geographical scope of the MMP is limited to watercourses as defined in the EIA Regulations, 2014(as amended). The document does not relate to coastal activities or activities to be undertaken in an estuary.

3) The use of this document for the development of a MMP for a watercourse **will only** be considered when the proposed maintenance activities constitute any one of the following listed activities identified in terms of the NEMA EIA Regulations, 2014 (as amended):

EIA Regulations Listing Notice 1 of 2014 (as amended)

- **Activity 19, Listing Notice 1: The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but**

excluding where such infilling, depositing, dredging, excavation, removal or moving-

(a) will occur behind a development setback;

(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;

(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;

(N.B. Points (d) and (e) does not apply as these activities fall within the coastal zone)

- Activity 27, Listing Notice 1: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-
    i. The undertaking of a linear activity; or
    ii. Maintenance purposes undertaken in accordance with a MMP.

EIA Regulations Listing Notice 2 of 2014 (as amended)

- Activity 15, Listing Notice 2: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-
    I. The undertaking of a linear activity; or
    II. Maintenance purposes undertaken in accordance with a MMP.

- Activity 24, Listing Notice 2: The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat or peat soils, but excluding where such extraction or removal is for the rehabilitation of wetlands in accordance with a MMP.

EIA Regulations Listing Notice 3 of 2014 (as amended)

Please note that DEA&DP confirmed that Activity 12 of Listing Notice 3 will not be triggered by the proposed development. Therefore, this listed activity is also removed from this MMP document.

- Activity 12, Listing Notice 3: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a MMP.
  i. Western Cape
    i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;
    ii. Within critical biodiversity areas identified in bioregional plans;
    iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or
    v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.

  (NB. Point iii does not apply as this activity falls within the coastal zone)

4) In deciding the request, the competent authority may define conditions related to auditing compliance with the MMP; monitoring requirements; reporting requirements, review; updating and amending the document and period for which the MMP is defined/adopted.

5) The purpose of the MMP is to maintain both man-made and ecological infrastructure in a manner that either improves the current state of, and/or reduces the negative impacts on a watercourse to ensure that ecosystems services are preserved/improved and to prevent further deterioration of the watercourse.

6) Notwithstanding the MMP possibly being defined or adopted by the Competent Authority, any other applicable statutory requirement must still be complied with (e.g. any obligations under the National Water Act, 1998 (Act 36 of 1998) or the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)).

7) The proponent must note that a MMP for a watercourse **must** be undertaken through consultation with the Department of Water and Sanitation and/or the relevant Catchment Management Agency (responsible water authority). This is to ensure compliance in terms of a Permissible Water Use as set out in the National Water Act, 1998 (Act No. 36 of 1998). It is recommended that this process for authorisation in terms of the National Water Act be clarified prior to the drafting and submission of the MMP.

8) The development of this document has been done in such a way so as to meet the requirements of both this Department as the competent authority in terms of the NEMA EIA Regulations, 2014 (as amended), as well as the requirements of the delegated water authority, regarding general authorisation considerations for sections 21(c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998), to ensure alignment between the two authorities when defining or adopting the MMP.

9) In situations where a Water Use Licence Application (WULA) is required by the water authority regarding the proposed activities within a MMP, this will not prevent the proponent from submitting a request for a MMP to be defined or adopted by the Department.

10) Unless protected by law, all information contained in, and attached to this document, shall become public information on receipt by the competent authority.

11) A duly dated and originally signed copy of this document together with one hard copy and one electronic copy of the MMP must be posted, to the Department at the postal address given below, or delivered to the Registry Office of the Department.

12) A copy of the final defined/adopted MMP and cover letter **must** be submitted to the responsible water authority.

13) **NOTE: Adopting or defining the MMP does not absolve the** proponent **from complying with any applicable legislation or the general "duty of care" set out in Section 28(1) of the NEMA that states, *"Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.*" (Note: When interpreting this "duty of care" responsibility, cognisance must be taken of the national environmental management principles contained in Section 2 of the NEMA.**

14) **NOTE: This document can be used as a template to assist in the information required and is to be filled out in full. The Department reserves the right to request any additional information during the initial development and submission of the draft MMP.**

15) **NOTE: The Department reserves the right to not adopt the MMP and require that an application be submitted to obtain Environmental Authorisation for the respective activities. Furthermore, consideration for the review should also be aligned to the periodic reviews of the General Authorisation for sections 21 (c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998) to ensure continued alignment and compliance.**

RELEVANT LEGISLATION AND POLICIES

This RIVER MAINTENANCE MANGEMENT PLAN includes **Activity 19 of Listing Notice 1** ***(GN R 983, 7 April 2017):***

Activity 19 Listing Notice 1 (GN R 983, 2014, as amended 7 April 2017)

The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from-

(i) ***a watercourse****;*
(ii) *the seashore; or*
(iii) *the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater but excluding where such infilling, depositing, dredging, excavation, removal or moving-*
(a) *will occur behind a development setback;*
(b) ***is for maintenance purposes undertaken in accordance with a maintenance management plan;*** *or*
(c) *falls within the ambit of activity 21 in this Notice, in which case that activity applies;*
(d) *occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or*
(e) *where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.*

B. MAINTENANCE MANAGEMENT PRINCIPLES

1) The following are overarching principles to be used by landowners and managers when considering the development and implementation of a MMP:

   a. The anticipation and prevention of negative impacts and risks, then minimisation, rehabilitation or 'repair', where a sequence of possible mitigation measures to avoid, minimize, rehabilitate and/or remedy negative impacts is explicitly considered;
   b. Avoid and reduce unnecessary maintenance;
   c. Maintenance and management of a watercourse must be informed by the condition of the physical and ecological processes that drive and maintain aquatic ecosystems within a catchment, relative to the desired state of the affected system;
   d. Management actions must aim to prevent further deterioration to the condition of affected watercourses and, overall, be guided by a general commitment to improving and maintaining ecological infrastructure for the delivery of ecosystem services;
   e. Managers and organs of state must identify, address and, where feasible, eliminate the factors that necessitate intrusive, environmentally-damaging maintenance; and
   f. A process of continuous management improvement be applied, namely Planning; Implementing; Checking (monitoring, auditing, determine corrective action) and Acting (management review).

2) The following table provides a simple overview for the determination of the need for a MMP:

	Question	**If the answer to any of the questions is YES, then a MMP may be applicable.**
2.1	Is there a watercourse on or adjacent to the property?	**YES**
2.2	Has there been a history of flood damage or vandalism to the existing infrastructure or watercourse – erosion and/or sedimentation?	**YES**
2.3	Is there infrastructure or any community at risk of being damaged by flooding?	**NO**
2.4	Is the design of infrastructure considered inadequate in terms of managing the risk of flooding, erosion and/or sedimentation?	**YES**
2.5	Would you consider an improved design to existing infrastructure to reduce maintenance needs?	**YES**
2.6	Are there specific incidences where the watercourse is obstructed, or blockages occur that alter the flow of the river during floods?	**NO**
2.7	Is there an existing obstruction in the watercourse that has changed the flow of the river under normal conditions?	**NO**
2.8	Is there a marked increase in the rate of erosion/sedimentation being experienced, which threatens operations and assets?	**NO**
2.9	Is there a presence of alien or bush encroachment vegetation within the watercourse and/or the presence of woody debris after flooding?	**YES**

3) It is important to consider that the type of maintenance required will impact on the level of assessment needed in terms of the impact the activity will have on the system and how best to mitigate the impact. Types of maintenance can broadly be classified in the

following categories, with recognition that maintenance activities vary across the rural and urban context:

Maintenance Category	Types of maintenance activities (examples only)

Category A:
Sediment removal as a result of deposition or sediment deposition as a result of erosion
	• Clearing sediment or placing sediment at:
	  o Pump hole/trench
	  o Return flow (irrigation)
	  o Off-take weir
	  o Stormwater outfall
	  o Detention/retention ponds
	  o Canalized urban rivers
	  o Bridges, culverts and drifts
	• Prevent formation of islands in the channel of the river
	• Dredging of in-stream dams

Category B: Emergency repairs – urgent action required to manage risk and damage to assets	• Repair to erosion of river bank or servicing infrastructure (e.g. pipelines/roads) • Removal of material built up as a result of flooding/sedimentation and increasing risk to infrastructure • Address damage or replacement of infrastructure (e.g. bridge, pipeline, pump house) • Manage the condition of flood protection berms, and existing structures such as gabions, canalized and stormwater systems • Installing temporary gravel approaches at flood-damaged river crossings
Category C: Managing alien invasive and bush encroachment plant species	• Clearing of alien invasive vegetation out of a watercourse to reduce maintenance requirements as they relate to erosion and sedimentation • Management of indigenous species categorized as bush encroachment, to improve hydrological flow and reduce associated flooding impacts
Category D: Rehabilitation and restoration activities for maintaining ecological infrastructure	• Development and maintenance of ecological buffering systems to improve and/or restore functioning (e.g. wetlands and stormwater detention ponds) • Actively rehabilitating riparian zones through planting of locally indigenous species • Bank grading and movement/removal of berms and barriers to flow

4) The development of appropriate method statements to mitigate the impact of the maintenance needs, should be aligned within the framework of these considerations:

   a. Watercourses experience a natural process of sedimentation and erosion, with varying rates depending on the geomorphology and the integrity of the land-uses within the catchment;

   b. Manipulation of the watercourse results in increased erosion and/or deposition being experienced further downstream, perpetuating greater need for manipulation and more drastic and costly maintenance interventions;

c. Locally indigenous riparian and wetland vegetation assists in the stabilization of river banks through effective root structures, while contributing to improve in-stream habitat and water quality conditions;

d. Invasive alien and bush encroachment vegetation significantly impacts on the functioning of a watercourse, often leading to increased flood associated damage, with further implications and a reduction in water quality and availability;

e. Persons undertaking maintenance activities have a responsibility to ensure a sense of duty of care is applied as prescribed within NEMA Section 28(1).

5) It is recognized that within urban areas, sedimentation and erosion rates are significantly amplified as a result of development in urban areas and thus systems associated with watercourses in such areas can no longer be considered as 'natural'. In such a context, the drivers of such a process are often located outside the control of the landowner or responsible authority (i.e. Municipality). Therefore, the response taken to address the needs of a maintenance management plan for a watercourse within the urban environment may be limited in mitigating the requirement for maintenance to be undertaken.

C. REQUEST FOR THE COMPETENT AUTHORITY TO DEFINE OR ADOPT A MAINTENANCE MANAGEMENT PLAN FOR A WATERCOURSE IN TERMS OF THE NEMA, EIA REGULATIONS 2014 (AS AMENDED).

The following information must be submitted as part of the request for the competent authority to define or adopt the MMP:

1. PERSONAL DETAILS

Highlight the Departmental Sub-Region(s) in which the maintenance is to be undertaken. (mark the appropriate box with an 'X'). For Departmental, details see Annexure A.

REGION 1 (City of Cape Town Metropolitan and West Coast District)	REGION 2 (Cape Winelands District, Overberg District)	REGION 3 (Eden & Central Karoo Districts)
■	☐	☐

Name of person/authority who will undertake responsibility for the activity:	Mount View (Pty) Ltd.		
Contact person (if other):	Mr. Johan du Plessis		
Postal address:	Zomerlust Estate, Corner of Bergrivier Boulevard & Bergsig Avenue		
Telephone:	(021) 872 0028	Postal code:	7646
Fax:	( )	Cell:	074 148 8119
Email:	johan@propinvest.co.za		
Name of person who has prepared the MMP:	Guillaume Nel		
Contact Person (if other):	Carina Becker		
Postal address:	P.O. Box 2632, Paarl		
Telephone:	(021) 870 1874	Postal code:	7620
Fax:	(021) 870 1873	Cell:	072 157 1321
E-mail:	gn@gnec.co.za / carina@gnec.co.za		
Name of landowner(s) on whose behalf the plan has been developed:*	Goedeverwachting (Pty) Ltd.		
Contact person(s):	Alta Hazelden		

Postal address:	Suite 234, Private Bag X29		
Telephone:	Somerset West	Postal code:	7129
Fax:		Cell:	082 922 7268
E-mail:	alta@ghp.co.za		
Name of landowner(s) on whose behalf the plan has been developed:*	Michael Gerard St Arnaud		
Contact person(s):	P.O. Box 512		
Postal address:	Somerset West		
Telephone:		Postal code:	7129
Fax:		Cell:	082 800 8496
E-mail:	mike@assetfire.co.za		
Municipality for proposed project:	City of Cape Town Municipality		
Farm name(s), erf(s) and portion number(s) etc*:	Remainder of Farm No. 869, Farm No. 1262, Remainder of Farm No. 866, Remainder of Farm No. 1054, Portions 2 and 3 of Farm No. 1054 and Portion 2 of Farm No. 870		
Magisterial District or Town:	Sir Lowry's Pass		
Name(s) of watercourse(s) in question:	Tributary of the Sir Lowry's Pass River 5 Channelled Valley Bottom Wetlands		
***In instances where there is more than one landowner, please attach a list of landowners with their full names, contact details, farm name, farm number, portion number, Erf number, coordinates and signed declaration confirming approval for development and responsibility of the MMP**			

2. DECLARATION- As per signature attached within the BAR.

THE PERSON THAT WILL BE UNDERTAKING THE MAINTENANCE

I ……., in my **personal capacity** or **duly authorised** (please circle the applicable option) by …… (name of legal entity) thereto hereby declare that I/we:

- Request the MMP to be adopted by the Competent Authority;
- Regard the information contained herein to be true and correct for this Maintenance Management Plan;
- Am fully aware of my responsibilities in terms of the National Environmental Management Act of 1998 ("NEMA") (Act No. 107 of 1998) and that, notwithstanding the adoption of this MMP, I/we shall comply with any other statutory requirement applicable, which may include, but not limited to the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), the National Water Act, 1998 (Act No. 36 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended) ("EIA Regulations"), in terms of NEMA;
- Am fully aware that the proposed maintenance constitutes a listed activity in terms of the NEMA EIA Regulations, 2014 (as amended) and that an environmental assessment for environmental authorisation may be required for any other listed activities not included as part of this MMP;
- Acknowledge that any activity undertaken that does not form part of the defined and adopted MMP, will be subject to the Section 24(F) of NEMA and that appropriate enforcement and compliance requirements will follow;
- Shall undertake only those tasks described in the MMP, failing which environmental authorisation will be required, where applicable;
- Shall provide the competent authorities with access to all information at my disposal that is relevant to this request;
- Shall be responsible for any costs incurred in complying with environmental legislation;
- Hereby indemnify the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of, inter alia, any loss or damage to property or person as a consequence of undertaking this MMP; and
- Am aware that a false declaration is an offence in terms of Regulation 48(1)(a) GN No. R. 982 of 4 December 2014 (as amended).

Signature of the proponent: Date:

Name of institution/company:

3. BACKGROUND AND INTRODUCTION

Guillaume Nel Environmental Consultants (GNEC) have been appointed by Mount View (Pty) Ltd (applicant) to facilitate the Environmental Impact Assessment (EIA) process in terms of the National Environmental Management Act (NEMA) (Act No. 107 of 1998) and a Water Use Licence in terms of the National Water Act, 1998 (Act No. 36 of 1998), for the proposed Mount View residential development on Portion 2 of Farm Goede Verwachting No. 870, Remainder of Farm No. 869, Farm No. 1262, Remainder of Farm No. 866, Remainder of Farm No. 1054, Portion 2 of Farm No. 1054 and Portion 3 of Farm No. 1054, Sir Lowry's Pass, Western Cape.

The proposed development site boasts a total of 32.2 Hectares in extent and is located within the consolidated area of the City of Cape Town (CoCT) Municipality.

The proposed development will entail the construction of a residential development on the above-mentioned proposed development site. The subject property also has a tributary of the Sir Lowry's Pass River bisecting the proposed site.

The majority of the proposed Mount View development is situated above the post-development 1:100-year floodline; however, some aspects of the proposed development are located below the post-development 1:100-year floodline and within the proposed variable buffer of the watercourse. Additionally, measures will also be implemented to reduce the extent of the floodline to accommodate portions of the proposed development.

Please note that the proposed development should still be constructed. This MMP is focused on maintenance related activities within the watercourse and associated wetlands during the operational phase of the proposed development.

The expertise of the person who prepared this report follows:

MSc & Man (PUK), B(Hons) & Man (US), B Geography (US), Certificate- Environmental Law (PUK), Certificate – EIA (PUK), Certificate– EMS 14000 (PUK), Certificate– Air Quality Management (PUK), Certificate– Environmental Auditing (SABS). Guillaume Nel has eighteen years relevant experience as an Environmental Assessment Practitioner.

4. ENGAGEMENT PROCESS

4.1 AUTHORITY ENGAGEMENT

Please indicate (with an 'x') which of the following authorities have been consulted to provide input based on the proposed maintenance activities:

- ☐ **Department of Water and Sanitation**
- ~~☐ Catchment Management Agency~~
- ☐ **Cape Nature**
- ~~☐ SANParks~~

- ☐ **Western Cape Department of Agriculture, Directorate: Sustainable Resource Management**
- ☐ **District Municipality**
- ☐ **Local Municipality**
- ☐ ~~Irrigation Board / Water Users Association~~
- ☐ **Heritage Western Cape**
- ☐ ~~Department of Agriculture, Forestry and Fisheries~~
- ☐ **Department of Environmental Affairs & Development Planning**
- ☐ Other (please list):

_____

_____

For each of the indicated authorities, please provide an explanation as to their required involvement. Details of interactions with each of the respective authorities should be captured by providing an attendance register and minutes of meetings attended with the authority in question. Comments received from the authorities must be submitted and referenced within the final application.

The Draft RMMP will be submitted to the following Authorities:

- Department of Environmental Affairs and Development Planning (DEA&DP)
- Department of Agriculture
- Department of Water and Sanitation (DWS)
- Department of Transport and Public Works
- CapeNature
- Heritage Western Cape
- WESSA
- City of Cape Town: Environmental Management

For a MMP where multiple property owners are involved or a plan is developed for members of an association, it is recommended that a Project Liaison Committee is setup, to achieve the following objectives:

- Present the project work plan and objectives for approval;
- Present the initial findings and draft of the plan for discussion and approval;
- Present the final accepted plan for agreement and clarification.

In cases where the Municipality is the proponent, it is advised that the Project Liaison Committee represent the multiple departments involved with the maintenance and management of watercourse, which could include but is not limited to departments of, Stormwater, Water and Sanitation, Environment, Parks and Wastewater. Such an approach seeks to ensure alignment and an understanding of the roles and responsibilities of the varying maintenance requirements within the Municipality.

4.2 PUBLIC PARTICIPATION

You are required to notify any and all potential interested and affected party(ies) of the proposed activity(ies) and allow them the opportunity to comment on the MMP for a watercourse. The detail required is outlined below, however this can be further discussed and determined as part of the pre-consultative meeting with the Department, which would ensure due diligence and good governance principles are applied.

It is noted, that for the development of MMPs for watercourses within the urban area, by Municipalities, public notice can be undertaken through the advertisement of the development of a MMP within local/community newspapers for the respective areas, with the relevant evidence of such an advertisement included in the final submission.

The following public participation recommendations, regarding the different scale or geographical extent of the request, are as follows. If no, then motivation must be given as to why a particular process was not undertaken.

Single property / maintenance and management activities along a watercourse occurring along a stretch of no more than 1 kilometer (≤1000 meters):

(i) Given written notice to the owner or person in control of that land if the person undertaking the maintenance activity is not the owner or person in control of the land.	***N/A***	***Written notice was given to the property owners.***
(ii) Given written notice to adjacent landowners (up to 500m upstream and downstream from furthest upstream and downstream maintenance site and opposite side of the banks) of the development of the MMP.	***N/A***	***Site notices were placed at four separate locations along the site boundary.***
(iii) Stakeholder meeting held for adjacent landowners, in which MMP is presented. This must include an opportunity for adjacent landowners to provide comment.	***N/A***	***No stakeholder meeting has been held.***
(iv) Given written notice to any organ of state having jurisdiction in respect of any aspect of the activity(ies) proposed within the development of the MMP.	***N/A***	***The following Organs of State were given notice:*** • ***Department of Environmental Affairs and Development Planning*** • ***Cape Nature*** • ***City of Cape Town Municipality*** • ***Heritage Western Cape*** • ***Department of Agriculture*** • ***Department of Water and Sanitation***

(v) Provided written notice and confirmation to the relevant Water Users Association (WUA) or Irrigation Board (IB) of the development of the MMP, if applicable.	***N/A***	***The Department of Water and Sanitation provided comment during the second public participation period.***

Single or Multiple properties / WUA / IB / local authority applying for a single MMP to cover a stretch of a watercourse <u>longer than 1 kilometer (>1000 meters) OR</u> a catchment or sub-catchment area

(i) Given written notice to the owner(s) or person(s) in control of the land if the person(s) undertaking the maintenance activity(ies) is not the owner or person in control of the land.	***N/A***	***N/A***
(ii) Given written notice to non-participating adjacent landowners (up to 1km upstream and downstream from furthest upstream and downstream maintenance site and opposite side of the river banks) of the development of the MMP. *This must also include general notice to adjacent WUA or IB of the proposed MMP development if application is made by a WUA or IB.*	***N/A***	***N/A***
(iii) Stakeholder meeting held for all participating and non-participating landowners, in which details and methodology of MMP is presented. A minimum of two meetings are required, to present on the development of the plan and a final draft version of the plan.	***N/A***	***N/A***
(iv) Given written notice to any organ of state having jurisdiction in respect of any aspect of the activity(ies) proposed within the development of the MMP.	***N/A***	***N/A***
(v) Provide written notice and confirmation to the relevant Water Users Association (WUA) or Irrigation Board (IB), of the development of the MMP *(if a MMP is not requested and managed through a WUA/IB)*.	***N/A***	***N/A***
(vi) Describe any other measures taken to inform the public about this MMP. A complete list of measures that are in place to deal with interactions with the public, if it becomes necessary and required by the competent authority during implementation of the project, must be provided for.	***N/A***	***N/A***

Please circle the appropriate answer above to indicate the public participation process that has been followed to give notice of this request to potential interested and affected parties and attach any comments and/or objections received, with evidence provided and referenced.

5. DATA COLLECTION AND ASSESSMENT

Information required for *maintenance and management activities for a single/ multiple owner along a watercourse.*

Site Location and Activity Description

34°07‘17.00“S 18°55‘20.70“E

Please note that the proposed maintenance activities relate to the entire riparian extent of the proposed development site. The total length is approximately 770 metres, while the width is approximately 30 metres. The co-ordinates of the start, middle and end of the tributary and associated wetlands are:

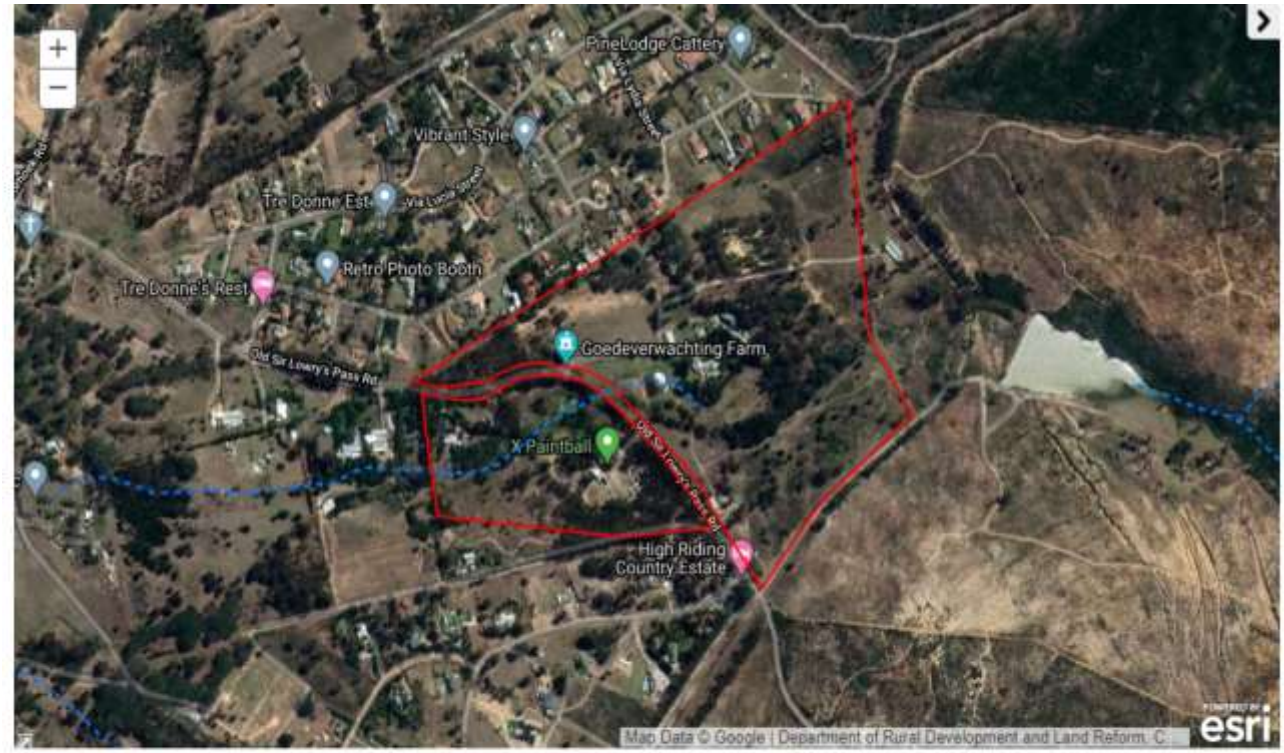
Start – 34°07’09.98’’ S 18°55’38.35’’E

Middle – 34°07’13.49’’S 18°55’23.35’’E

End – 34°07’17.33’’S 18°55’10.87’’E

Site Location

Site location of the section of the Tributary of the Sir Lowry’s Pass River with associated Channelled Valley Bottom Wetlands:



Freshwater Resources Map of the Proposed development site, Sir Lowry'sPass, Western Cape

Source: Cape Farm Mapper

Guillaume Nel
environmental consultants
Tel: (021) 870 1874 | Fax: 086 6933 802 | Cell: 072 1571 321

FIGURE 1: FRESHWATER RESOURCE MAP OF THE TRIBUTARY OF THE SIR LOWRY’S PASS RIVER ON THE PROPOSED MOUNT VIEW DEVELOPMENT SITE, SIR LOWRY’S PASS.

Activity description

Mount View (Pty) Ltd is applying for an Environmental Authorisation and Water Use Licence (WUL) for the proposed Mount View development on the aforementioned properties.

The proposed development will consist of 383 residential erven, a clubhouse comprising of a deli / shop, coffee shop and / or restaurant and gym; as well as a crèche, sales offices, board room and security control room. Approximately 6.78 hectares (almost 29% of the proposed development) will be green space that will be landscaped or rehabilitated.

As mentioned, all portions of the proposed development will be accessed from Old Sir Lowry's Pass Road. The main access to the proposed development is proposed approximately 160 m west of the High Riding Estate Street and approximately 265 m east of the existing access road to Farm 1262. The existing access to Farm 1262 will be an additional access for the development, however this access will only be used by some residents in the vicinity of the access to exit the development. The internal road network will consist of 6.3 m / 5.5 m wide brick paved roads with formal kerbs / edgings, roadside open stormwater channels and a stormwater drainage system consisting of an underground pipe / road edge culvert network.

An unnamed tributary of the Sir Lowry's Pass River was identified to bisect the property; while 5 channelled valley bottom (CVB) wetland fragments, which would have naturally been associated with the entire channel length of the unnamed tributary, were also identified on site. The pre- and post-development 1:100 year floodline of the watercourse have been modelled. It was noted that the majority of the proposed development will be located above the post-development 1:100 year floodline; however some component of the proposed development will be located below the post development 1:100 year floodline (which are mentioned below).

Additionally, in light of the City of Cape Town (CoCT) Floodplain and River Corridor Management Policy requirements, a conservation buffer was applied to the unnamed tributary of the Sir Lowry's Pass River and CVB wetlands. The CoCT policy recommends a minimum conservation buffer of 10 metres; however a variable conservation buffer of varying width (minimum of 5 m from the delineated edge of the watercourses) was applied to accommodate the proposed development layout in some areas, with the provision that the buffer extent be increased in size to 15 m to compensate for the reduced buffer extent and to ensure that the conservation area extent is equal to the 10 m buffer and that the buffer area be suitably rehabilitated (FEN, 2021). The variable conservation buffer is supported by the freshwater ecologist, Freshwater Ecological Network (FEN) and the impact of the variable buffer on the watercourse was identified as being Low. The rehabilitation of the conservation buffer will improve the ecological integrity of the receiving environment and is therefore seen as a major benefit of the proposed development.

Please note that a Watercourse Rehabilitation and Management Plan has been compiled by FEN; while a Rehabilitation Plan has also been compiled by Mr Christoff Dippenaar from Guillaume Nel Environmental Consultants (GNEC). The mentioned rehabilitation plans are included in Appendix F.

Please note that the proposed development should still be constructed. This MMP is focused on maintenance related activities within the watercourse and associated wetlands during the operational phase of the proposed development. The activities within or within close proximity to the watercourse and wetlands are identified below. The maintenance activities will therefore also relate to the below activities.

It should be noted that the activities proposed to take place below the post-development 1:100 year floodline, conservation buffer and located within close proximity to the watercourse include (FEN, 2021):

- Some activities as part of the lower development are located below the post-development 1:100 year floodline and within the delineated boundary of the watercourses. As part of the development, it is proposed that previously unauthorised infilled material below the 1:100 year floodline and within the delineated boundary of the wetland associated with the unnamed tributary of the Sir Lowry's Pass River (located as shown in Figure 2 below – indicated by red circle) be removed to spoil on site and the infilled area subsequently reshaped and rehabilitated.
- Alteration of the modelled pre-development 1:100 year floodline to reduce the extent of the floodable area south east of Old Sir Lowry's Pass Road to accommodate portions of the proposed Mount View mixed-used development. This will entail:
  - o An open stormwater channel proposed upgradient of Old Sir Lowry's Pass Road to channel flow to the existing culvert under the road within the unnamed tributary. The stormwater channel will be approximately 96 m in length and located as shown in Figure 6 below;
  - o Enlargement of the existing pipe culvert below Old Sir Lowry's Pass Road to a 2.4 m wide and 1 m high portal culvert;
  - o A flood management berm is proposed just downstream of the culvert and extends parallel to the road in a south eastern direction. The berm will be 1 m high above the natural ground level and will extend for approximately 50 m, located as shown in Figure 2; and
  - o Landscaping of the adjusted floodline and culverts for erosion control.
- Internal Roads and Parking Areas
  - o An internal roadway is proposed to traverse the unnamed tributary along the

northern boundary of the study area, on an existing access road for the site and will require the installation of a rectangular portal culvert with 330 mm brick wing walls. This culvert will be sized to accommodate up to a 1:100 year flow in the watercourse and have reno-mattresses at the inlet and outlet to reduce erosion including riprap below the culvert outlet to dissipate flow and further reduce erosion; and

o All internal roads/parking areas within development clusters will be designed to accommodate low heavy vehicle traffic (construction vehicles, furniture removal and refuse trucks). This road network will consist of 6.3 m / 5.5 m wide brick paved roads with formal kerbs/edgings, roadside open stormwater channels and a stormwater drainage system consisting of an underground pipe/road edge culvert network.

- Internal Stormwater Network

  o Three new stormwater attenuation facilities will be constructed above the post-development 1:100 year floodline as part of the development in addition to utilising the existing farm impoundment situated north of the main farm house (see Figure 2 below for the position and identification of these stormwater attenuation facilities);

  o The main purpose of these facilities will be to attenuate stormwater run-off and promote on-site infiltration. In order to achieve the required attenuation, the storage volume of the attenuation facility must be able to retain a 1:50 year post-development flood while only discharging a peak flow equal to the 1:10 year pre-development flow; and

  o Outlet structures will discharge stormwater into an open stormwater channel network, which will convey stormwater run-off into the watercourse. Gabion weirs will be constructed within the stormwater channel to reduce stormwater velocity and erosion. The stormwater discharge points will be located below the post-development 1:100 year floodline but above the 1:50 year post-development floodline but some encroaching into the delineated watercourses. The estimated position of the stormwater discharge points is indicated in Figure 2 below – with purple triangles.

- Portions of private erven associated with the proposed lower and upper Mount View mixed-use development are located within the conservation buffer of the watercourses;
- Portions of in situ compacted walkways are located above the post-development 1:100 year floodline but within the conservation buffer as part of the lower and upper development;
- Wastewater Treatment Plant (WWTP)

o Two WWTPs are proposed for the Mount View mixed-use development, namely WWTP A and WWTP B. WWTP A will be situated in the most western corner of the proposed lower Mount View mixed-use development, above the modelled post-development 1:100 year floodline and outside the conservation buffer of the watercourses. The treated effluent will be used for irrigation purposes in order to minimise the load on the municipal water supply. Treated effluent from the WWTP will be pumped into irrigation storage tanks located next to the stormwater attenuation facilities. Storage tanks will have an emergency overflow which will discharge treated effluent into a bio-retention swale before discharging into the stormwater attenuation facility. It is recommended that a second WWTP (i.e. WWTP B) be installed should the Macassar Wastewater Treatment Works (WWTW) not be upgraded before the start of construction of the upper development. The Macassar WWTW is part of the existing municipal foul sewer network where all sewage generated from the proposed Mount View mixed-use development will ultimately feed to. The Macassar WWTW is currently undergoing upgrades proposed to be completed by 2027. The proposed WWTP B is located above the modelled post-development 1:100 year floodline and outside the conservation buffer of the watercourses, at the entrance of the upper development located upgradient of the Old Sir Lowry's Pass Road (see Figure 2 below). The WWTP B is proposed to be handled in the same manner as the WWTP A.

- Bulk Services

  o The construction of bulk services infrastructure will cross the tributary of the Sir Lowry's Pass River as indicated in the Civil Services Engineering Report.

  o The proposed lower Mount View mixed-use development will require the installation of a pump station in the most western corner of the study area, above the post-development 1:100 year floodline and outside the conservation buffer of the watercourses. This pump station will be situated next to the WWTP A and will pump treated effluent into irrigation storage tanks located next to the stormwater attenuation facilities where it will be used for irrigation supply.

Please refer to the figure below for an indication of the watercourse related activities. Please note that the stormwater ponds are numbered 1-4; the red circle indicates the previous infill area within the 1:100-year flood line; stormwater discharge points are indicated with the purple triangles; and the portion of the proposed development that falls within the variable conservation buffer area of the unnamed tributary is indicated by the yellow dashed line.

FIGURE 2 WATERCOURSE RELATED ACTIVITIES (FEN, 2021).

FEN Consulting also recommends that erosion protection measures be implemented where the stormwater will discharge to the watercourse. This can include concrete apron slabs, reno mattresses, wingwalls and stone pitching.

In addition to the above, the activities specifically within the variable conservation buffer of the watercourses include (FEN, 2021):

• Portions of private erven are located within the variable conservation buffer. A stub wall of approximately 300 mm height and 230 mm width is proposed outside the edge of the variable conservation buffer to separate the lawn area of the private erven currently located within the conservation buffer and the start of the conservation buffer, as a means of restricting and protecting the conservation buffer from Alien Invasive Plant (AIP) infestation. A solid concrete foundation and masonry wall is proposed for the stub wall.

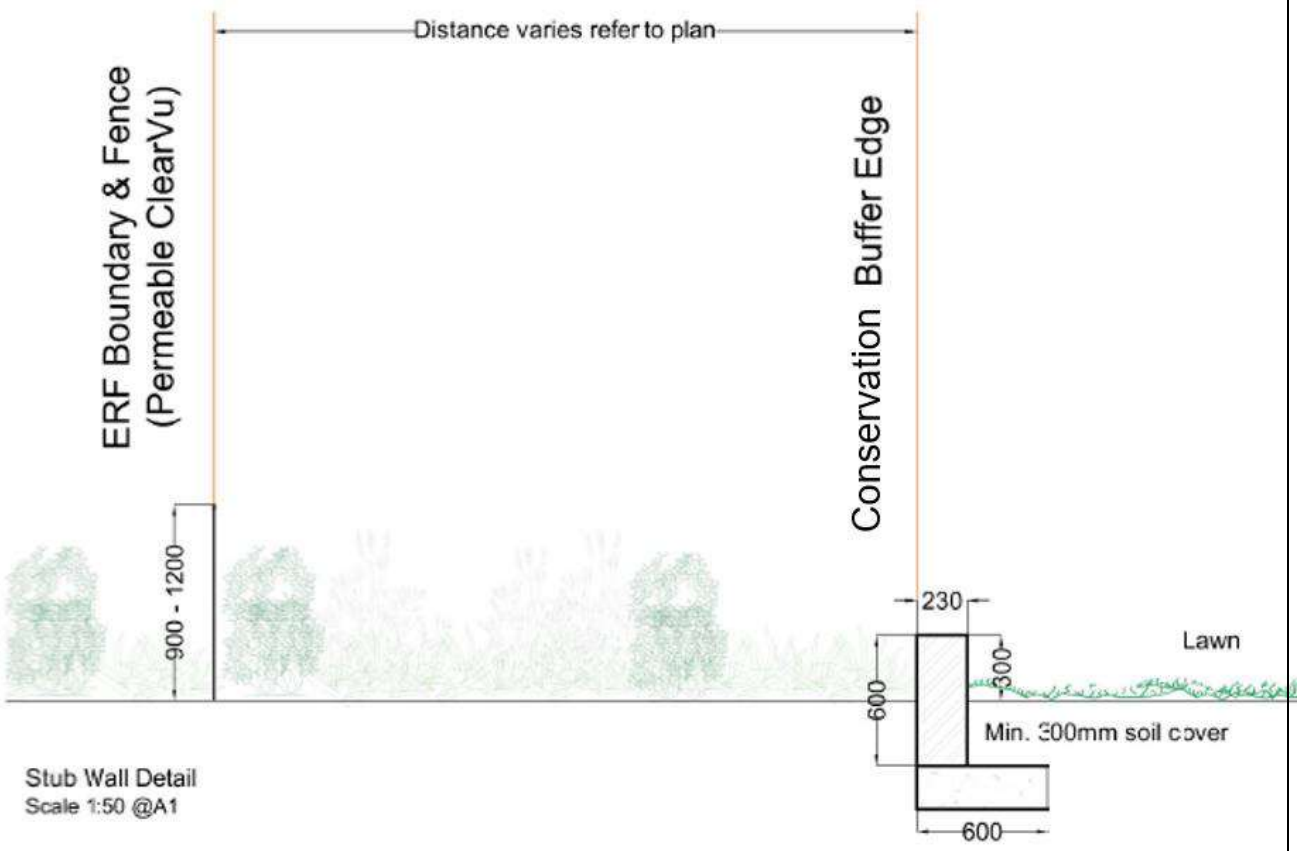


Figure 3 Schematic design of the proposed stub wall, as provided by Viridian Consulting (2021)

Stormwater Drainage

A flood line assessment was conducted during May 2018 and revised in February 2021 by Storey Eng. It should be noted that the proposed development is located outside the flood lines, however some of the portions of the proposed development downstream of Old Sir Lowry's Pass Road falls within the 1:50-year and 1:100-year flood line boundaries. It is proposed that the flood lines be altered in one area by diverting water back to the main tributary by increasing the size of the existing stormwater pipe culvert through Old Sir Lowry's Pass Road and the addition of stormwater channel / cut-off berms upstream of the lower development portion (KLS, 2021).

The internal stormwater network will consist out of an underground gravity pipe network, roadside channels, inlet structures and a series of open swales that will drain the roads and other impermeable and semi-permeable surface areas. Provision will also be made for a subsoil drainage network beneath the roads and parking areas. This subsoil drainage infrastructure will consist of a 110 mm diameter perforated pipe network installed approximately 800 mm below the final road level.

The internal roads infrastructure will be designed in such a way that during rainfall events with a return period larger than 1:10-years, the proposed roads, walkways, parking areas

and channels will act as overland flow routes which will channel and convey the surface run-off via predetermined escape routes towards the four attenuation facilities and existing watercourse. Three new stormwater attenuation facilities will be constructed as part of the development in addition to utilizing the existing farm dam situated north of the main farm house.

The following section was extracted from The Freshwater Impact Assessment Report compiled by Freshwater Ecologist Network (FEN) Consulting (Pty) Ltd:

Freshwater Ecologist Network (FEN) Consulting (Pty) Ltd. (hereafter referred to as FEN) was appointed to conduct a freshwater assessment of the proposed development. FEN noted that an unnamed tributary of the Sir Lowry's Pass River bisects the central portion of the proposed development site. Additionally, a 1:50 year and 1:100-year flood line has been determined for the unnamed tributary of the Sir Lowry's Pass River. The majority of the proposed development up gradient of Old Sir Lowry's Pass Road is located outside the flood lines, however some of the portion of the proposed development downgradient of Old Sir Lowry's Pass Road will be located within the flood line boundaries.

In addition to the identified unnamed tributary of the Sir Lowry's Pass River; several channelled valley bottom (CVB) wetlands were also identified to be associated with the mentioned watercourse. CVB wetland 1 was assessed as separate to the rest of the CVB wetlands in the study area due to the fragmented nature of the CVB wetlands. Modifications to the unnamed tributary and CVB wetlands were identified, consisting of numerous alien plant species within the riparian area; as well as alterations to the hydrological integrity of the tributary and associated wetlands through the construction of in and off stream impoundments and diversion of instream flow from the tributary to these artificial impoundments.

The Present Ecological Status (PES) of the unnamed tributary as well as CVB wetlands 2-5 were categorised as Category D (Largely modified); while the CVB wetland 1 has a Category C (Moderately Modified) rating.

The Freshwater Risk Assessment indicated that the proposed development will have a **Moderate Risk Rating** and therefore a Water Use Licence Application process is being facilitated with the Department of Water and Sanitation (DWS).

Due to the unnamed tributary being heavily infested with alien invasive species, it was proposed that the watercourse be rehabilitated as part of the proposed development.

Additionally, to ensure that the integrity of the degraded wetland area downstream of Old Sir Lowry's Pass Road is improved, rehabilitation thereof is also proposed. Mr Christoff Dippenaar from GNEC incorporated the abovementioned rehabilitation measures in a Rehabilitation Plan.

6. METHOD STATEMENT

The following serves as a general guide required to minimise the spatial impact of the maintenance activity:

- Repairs and maintenance should be undertaken within the dry season, except for emergency maintenance works.
- Where at all possible, existing access routes should be used. In cases where none exist, a route should be created through the most degraded area avoiding sensitive/indigenous vegetation areas.
- Responsible management of pollutants through ensuring handling and storage of any pollutants is away from the watercourse. When machinery is involved, ensure effective operation with no leaking parts and refuel outside of the riparian area, at a safe distance from the watercourse to manage any accidental spillages and pose no threat of pollution.
- At no time should the flow of the watercourse be blocked (temporary diversions may be allowed) nor should the movement of aquatic and riparian biota (noting breeding periods) be prevented during maintenance actions.
- No new berms can be created.
- In circumstances which require the removal of any top soil, this must be sufficiently restored through sustainable measures and practices.
- Concerted effort must be made to actively rehabilitate repaired or reshaped banks with indigenous local vegetation.
- No deepening of the watercourse beyond the original, pre-damage determined thalweg, unless such deepening is directly related to the natural improved functioning and condition of such a watercourse.
- Where at all possible, limit the disturbance to the zone of the thalweg. This is due to the ecological importance of the low flow channel and respective habitat being allowed to re-establish improving the ecological condition.
- The build-up of debris/sediment removed from a maintenance site may:
    - be utilised for the purpose of in-filling or other related maintenance actions related to managing erosion, which form part of an adopted MMP;
    - not be used to enlarge the height, width or any extent of existing berms;
    - not be deposited anywhere within the watercourse or anywhere along the banks of a river where such action is not part of the proposed maintenance activity (ies). Material that cannot be used for maintenance purposes must be removed out of the riparian area to a suitable stockpile location or disposal site. Further action and consideration may be required where the possibility of contaminated material may occur, such as in urban watercourses.
- The use of foreign material, such as concrete, rubble, woody debris and/or dry land based soil, is strictly prohibited from being used in maintenance actions, unless for the specific purpose of repairs to existing infrastructure, coupled with appropriate mitigation measures.

- On completion of the maintenance action, the condition of the site in terms of relative topography should be similar to the pre-damaged state (i.e. the shape of the river bank should be similar or in a state which is improved to manage future damage). This ultimately dictates that the channel, banks and bed cannot be made narrower, higher or deepened respectively. Exceptions are considered for systems involved with the management of stormwater and improvements for water quality within the urban context.

The roles and responsibilities of the various role players involved in the maintenance phase should be noted. The possible role players include the Proponent, Project Manager, Contractor, Environmental Control Officer (ECO) (if applicable) and Civil Engineer (if applicable).

Proponent

The holder of the RMMP, in this case Mount View (Pty) Ltd, will be the responsible party in ensuring that all mitigation measures are implemented. The proponent will consequently be responsible for the appointment of a suitably qualified independent Environmental Control Officer (ECO) for works where Activity 19 of Listing Notice 1 of GN Reg. No. 983, 2014 (as amended 07 April 2017) is applicable. Hence, the appointment of an independent ECO for minor maintenance activities will not be required.

The proponent will be responsible for ensuring that all Contractors receive a copy of the RMMP and understands its contents.

The proponent can be the Project Manager should they not wish to appoint a separate project manager.

Project Manager

The Project Manager must ensure a clear communication line between all parties working on the project, to ensure all environmental concerns and measures, as stipulated in this RMMP, are implemented.

The Project Manager should have direct communication with the Proponent.

The Project Manager must ensure that there are sufficient funding and resources for an ECO to adequately perform their role (should the appointment of an ECO be required).

Registered Civil Engineer (if applicable)

Provide all relevant instructions / drawings to the Contractor.

Must immediately inform the Project Manager and ECO if any changes to the project are envisaged.

Must immediately inform the Project Manager and ECO if any aspects of this RMMP cannot be complied with.

Must remain in communication with the ECO and the Project Manager to ensure that any design changes required are issued to the Contractor.

Environmental Control Officer (ECO) (if applicable)

As mentioned, the appointment of a suitably qualified independent Environmental Control Officer (ECO) is only required for works where Activity 19 of Listing Notice 1 of GN Reg. No. 983 (as amended 07 April 2017) is applicable. Hence, the appointment of an ECO for minor maintenance activities will not be required.

The ECO is mandated to do the following:

- Ensure that all contractors / subcontractors / employees / construction workers are fully aware of their environmental responsibilities. The ECO is responsible in ensuring everyone on site is given an environmental awareness induction session which not only clearly defines what the environment is and specifics detailing the local environment but outlines the requirements of the RMMP as a management tool to protect the environment.
- Monitor site activities on a regular basis (Monthly) (fortnightly site visits) to ensure that there are minimal environmental impact due to the proposed maintenance activities. An environmental audit report should be submitted to the DEA&DP and local municipality on a monthly basis.
- The ECO has the authority to stop works if in his / her opinion there is / may be a serious threat to or impact on the environment caused directly by the maintenance activities.
- The ECO must be competent, independent and suitably qualified.

Contractor

The Contractor/s, in this case, refers to any contractor/s on site.

Such contractor/s will take full responsibility for each of his / her employees and any penalties imposed.

The Contractor must immediately inform the Project Manager and ECO if any changes to the project are envisaged and if any aspects of this RMMP cannot be complied with.

It is the responsibility of the Contractor/s to ensure that the measures stipulated within this RMMP are adhered to.

Should the Contractor/s require clarity on any aspect of the RMMP the Contractor must contact the ECO for advise.

The steps followed before development activities are undertaken, will be the same for all related development activities.

The following should be determined before any works within the freshwater system transpires:

- *Identify risk*

The proposed maintenance will be periodic, therefore occurring at intervals as and when required. Extreme weather conditions, such as flooding, can also damage infrastructure, which might require maintenance activities. The proponent, or any appointed consultant, will inspect the infrastructure in order to determine the need for maintenance activities.

- *Determine whether the development activities will impact on sensitive natural habitat, i.e. will the maintenance impact on watercourses or natural vegetation.*

If the development activities will have an impact on natural habitat, the implementation of the mitigation measures stipulated in this RMMP is imperative.

- *Before any maintenance activities are conducted, it should be determined whether the proposed works are classified as maintenance activities.*

This RMMP is compiled for maintenance related activities. If the scope of the proposed works fall outside of the definition of maintenance, the relevant authorisations should be obtained before construction activities commences.

- *Timing of development*

It is considered imperative that the proposed development activities occur during the drier summer periods, to minimise any impact on the hydrological functioning of the watercourses. An exclusion can be made for emergency related maintenance activities.

General Mitigation Measures during maintenance activities

It should be noted that the implementation of the mitigation measures will ensure that potential impacts on the receiving environment is prevented / minimised.

Maintenance footprint

- All maintenance footprint areas should remain as small as possible and should not encroach into watercourse and conservation buffer unless absolutely essential. It must be ensured that the freshwater habitat is off-limits to construction vehicles and non-essential personnel.
- The boundaries of footprint areas, including contractor laydown areas, are to be clearly defined and it should be ensured that all activities remain within defined footprint areas. Edge effects will need to be extremely carefully controlled.
- Planning of temporary roads and access routes (if applicable) should avoid watercourse and be restricted to existing roads where possible.
- Appropriate sanitary facilities must be provided for the life of the maintenance phase and all waste removed to an appropriate waste facility.
- All hazardous chemicals as well as stockpiles should be stored on bunded surfaces and have facilities constructed to control runoff from these areas.

- It must be ensured that all hazardous storage containers and storage areas comply with the relevant SABS standards to prevent leakage.
- No fires should be permitted in or near the maintenance area.
- Ensuring that an adequate number of waste and “spill” bins are provided will also prevent litter and ensure the proper disposal of waste and spills.

Vehicle access

- During maintenance activities access to and from the site will be obtained from existing constructed roads.
- All vehicles must be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area to prevent ingress of hydrocarbons into the topsoil.
- In the event of a vehicle breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced near the surface area to prevent ingress of hydrocarbons into topsoil and subsequent habitat loss.
- All spills should they occur, should be immediately cleaned up and treated accordingly.

Vegetation

- Removal of the alien and weed species encountered on the property must take place in order to comply with existing legislation (amendments to the regulations under the Conservation of Agricultural Resources Act (CARA, Act 43 of 1983) and Section 28 of the National Environmental Management Act, 1998 (Act No. 107 of 1998)). Removal of species should take place throughout the construction, operational, and maintenance phases.

➢ Species specific and area specific eradication recommendations:

- Care should be taken with the choice of herbicide to ensure that no additional impact and loss of indigenous plant species occurs due to the herbicide used.
- Footprint areas should be kept as small as possible when removing alien plant species.
- No vehicles should be allowed to drive through designated sensitive wetland areas during the eradication of alien and weed species.

Soils

- During the maintenance phase excavated material should be temporarily stored outside of the delineated extent of the watercourse.
- As far as possible, all maintenance activities should occur in the low flow season, during the drier summer months.

- As much vegetation growth as possible (of indigenous floral species) should be encouraged to protect soils.
- All soils compacted as a result of maintenance activities as well as ongoing operational activities falling outside of the project footprint areas should be ripped and profiled.

Rehabilitation

- Implementation of the rehabilitation plans compiled by Freshwater Ecological Network (FEN), as well as Mr Christoff Dippenaar from GNEC is imperative.

Method Statements for the proposed maintenance activities

Proposed Maintenance Activity-(1&2)	**Site access, clearing and preparation for civil works**
Actions	• Removal of vegetation including the removal of all alien trees including their roots within the maintenance footprint. • Removal of all existing piles of disposed and spread material around the site. • Removal of all fences and previously used farm materials on the site. • Associated disturbances of soils above the 1:100-year floodline of the unnamed tributary of Sir Lowry's Pass River. • Possible indiscriminate driving within the 1:100-year floodline. of the unnamed tributary of Sir Lowry's Pass River and potentially the CVB wetlands.
Impacts	• Potential increased dust generation, leading to potential smothering of watercourse vegetation and potentially altering surface water quality within the watercourses. • Decreased ecoservice provision. • Indirect impacts to the watercourse, leading to exposed/compacted soils, in turn leading to increased runoff and erosion. • Decreased ecoservice provision. • Further decreased ability to support biodiversity.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Low** Risk
Mitigation measures	• It is recommended that the variable conservation buffer be utilised as a conservation buffer from the delineated edge of the watercourses. This area should be demarcated a no-go area and no unauthorised activities are allowed within the delineated extent of the watercourses. If a more permanent fencing is desired, a pole and

electric wire fence is considered suitable as this will still allow movement of faunal species (Figure A).

Figure A: (Left) example of temporary safety fencing used to demarcate a watercourse

- Areas which are to be cleared of vegetation, including contractor laydown areas, must remain as small as possible, in order to reduce the risk of proliferation of alien vegetation, and in order to retain a level of protection to the watercourses during construction (e.g. dust generation, sediment trapping, slowing of stormwater runoff – specifically due to the study area being at a gradient sloping towards the watercourses).
- Contractor laydown areas and equipment storage are to remain outside of the 32 m NEMA ZoR associated with the watercourses.
- Clear areas for the proposed maintenance in a phased manner and retain as much indigenous vegetation as possible.
- No indiscriminate driving of construction equipment is allowed. All vehicles and machinery must utilise existing roads or pre-planned roads.

Proposed Maintenance Activity-(3 & 4)	**Construction activities / maintenance activities related to building activities outside the delineated extent of the watercourses and associated conservation buffer and above the post development 1:100-year floodline but within the 500 m GN509 Zone of Regulation**
Actions	Earth works involving removal of topsoil and creation of soil stockpiles including: – The demolition of the existing farm dam and large earth berm situated north of the main farm house to allow this area to be included in the development footprint by means of removing the large berm and filling the material in controlled layers within the existing dam Construction / maintenance of: – Residential households; – Internal roads and walkways; – Stormwater attenuation facilities; – Wastewater Treatment Plants; – Internal sewage network; and – Landscaping associated with the proposed mixed-use development.
Impacts	• Disturbances of soils leading to increased alien vegetation proliferation, and in turn to altered freshwater habitat. • Altered runoff patterns, leading to increased erosion and sedimentation of freshwater habitat. • Proliferation of AIP plants within the stormwater system, which could lead to dispersal of AIP seeds into the watercourses. • Increased sediment loads entering the watercourses.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Low** Risk
Mitigation measures	• All footprint areas must remain as small as possible and vegetation clearing to be limited to what is absolutely

	essential. • All vehicles are to remain within existing roads and no new roads should be developed without prior authorization. • All stockpiles should not exceed 2m in height and should be covered with a suitable geotextile such as hessian sheeting to prevent excessive dust generation. **Cement usage** • Concrete and cement-related mortars can be toxic to aquatic life. Proper handling and disposal should minimize or eliminate discharges into watercourses. High alkalinity associated with cement, which can dramatically affect and contaminate both soil and ground water. The following recommendations must be adhered to: - Proper handling and disposal should minimise or eliminate discharges into watercourses. High alkalinity associated with cement, which can dramatically affect and contaminate both soil and ground water. The following recommendations must be adhered to: - Fresh concrete and cement mortar should not be mixed below the 1:100 year floodline of the unnamed tributary of Sir Lowry's Pass River and at least 10 m from the delineated extent of all watercourses. Mixing of cement may be done within the construction camp, may not be mixed on bare soil, and must be within a lined, bound or bunded portable mixer. Consideration must be taken to use ready mix concrete. - No mixed concrete shall be deposited directly onto the ground. A batter board or other suitable platform/mixing tray is to be provided onto which any mixed concrete can be deposited whilst it awaits placing. - Cement bags must be disposed of in the demarcated hazardous waste receptacles and the used bags must be suitably disposed of. - Spilled or excess concrete must be disposed of at a suitable landfill site. • Only indigenous vegetation species may be used as part of the landscaping of the development, and invasive plant species should be eradicated.

Proposed Maintenance Activity-(5)	**Construction / maintenance activities related to building activities outside the delineated extent of the watercourses but below the post development 1:100-year floodline and within the 32 m NEMA and 500 m GN509 Zone of Regulation**
Actions	• Establishment of stormwater discharge points below the 1:00 year floodline and within the delineated wetlands and associated conservation buffer (stormwater outlets associated with CVB wetland 1 and 4); and • Establishment of stormwater channels (as part of reducing the 1:100 floodline)
Impacts	• Alterations to the sediment loads within the watercourses. • Potential deposition of waste material into the watercourses. • Potential changes to the water retention pattern of the watercourses.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Medium** Risk
Mitigation measures	• The use of Sustainable Drainage Systems (SuDs) to manage stormwater is considered critical for the mixed-use development as there will be an increase in hardened surfaces within close proximity to the watercourses. SuDs will assist in preventing significant impacts on the hydrological functioning of the watercourses, reduce the risk of flooding during high flow periods and reduce the risk of increased erosion. • On review of the Civil Engineering Services Report prepared by KLS Consulting Engineers (2020), the proposed Mount View mixed-use development will utilise open swales (considered to be SuDs) for the discharge of treated effluent before discharging into storage tanks. The following is deemed applicable for the construction of the SuDs: · – SuDs should be constructed through excavation of the in-situ material, sloped to a ratio not steeper than 3:1 and lined with rocks and cobbles to assist with energy dissipation and prevent sedimentation and erosion as well as improve the aesthetic appeal of the SuDs (Figure B); and – SuDs should be vegetated with indigenous obligate and facultative species suitable for seasonal saturation. Wooden boardwalks could be developed over the swales for pedestrian walkways should

the developer so desire.

Figure B: Examples of open swales, considered to be SuDs utilised as part of residential developments for conveyance of stormwater

Since some of the stormwater discharge points proposed may fall within the delineated extent of the CVB wetland, the design of the stormwater discharge points must incorporate energy dissipating structures to prevent erosion and incision. Figure C below provides an example of a stormwater outlet into a watercourse habitat.

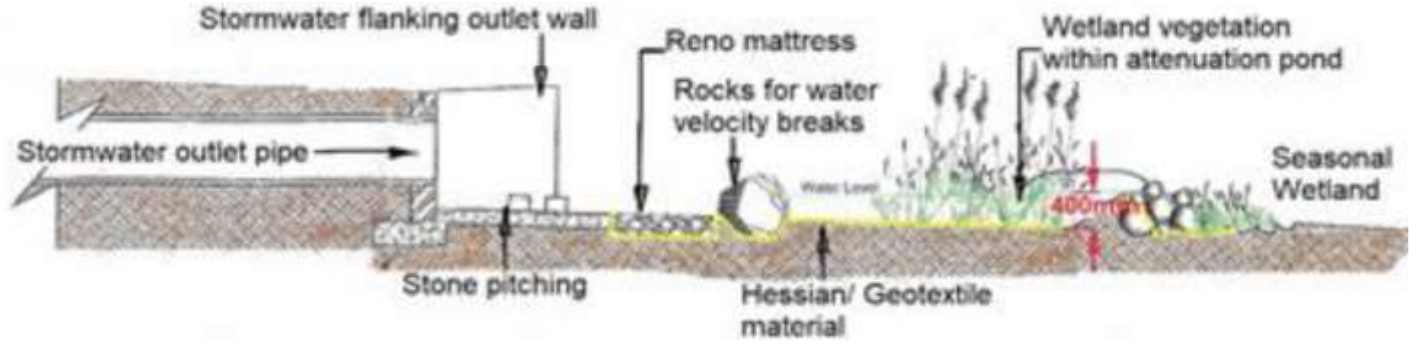


	Figure C: Schematic of an outlet structure directly adjacent to a wetland. • Cobbles should be placed in front of the stormwater discharge points and below the reno mattress to further assist with energy dissipation. At no point should erosion or gully formation be allowed as this will have impact on the water dispersal into and across the watercourses, which could potentially reduce the extent and functionality of the wetland in the long-term. • All soils compacted within the watercourses as a result of construction equipment must be loosened prior to revegetation with suitable indigenous species. • No indiscriminate movement of vehicles or personnel is allowed within the watercourses or the 32 m NEMA ZoR where no activities are proposed. Careful planning of all construction equipment must be undertaken beforehand to ensure that the minimum impact on the watercourses occurs. • Litter traps should be installed at all the inspection chambers to prevent any litter from entering into the watercourses. Concrete works See Activity 3 and 4 above with regards to concrete mixing on site.
Proposed Maintenance Activity- (6)	**Construction / maintenance activities within the watercourses**
Actions	• Removal of unauthorised infilled material within portions of the CVB wetland 3 and below the 1:100 year floodline. This may involve: – Diversion of the active channel of the unnamed tributary within the infilled reach; – Clear and grubbing of the area of all existing vegetation and materials; · – Excavation and stripping of topsoil, cut-to-spoil; and – Reshaping of the fill area following removal of the infill material.
Impacts	• Removal of the infilled material will result in an anticipated loss of 0.032 ha of riparian habitat and 0.136 ha of wetland habitat. • Alteration to the patterns and timing of flow within the downstream reach of the unnamed tributary and CVB

	wetland. • Removal of any remaining vegetation which may still provide habitat and deliver ecoservices. • Potential sedimentation of the watercourses. • Increased likelihood of dust generation due to exposed soil. • Potential indiscriminate movement of construction equipment leading to compaction of soils which may result in the formation of gullies, resulting in erosion and incision.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Medium** Risk
Mitigation measures	• Use should be made of existing roads to gain access to the areas proposed to be excavated below the floodline. Due to the relative accessibility of the site, no unnecessary crossing of the unnamed tributary may be permitted. This will limit any further erosion of the tributary. • The clearing of vegetation within the footprint area must be kept to a minimum to avoid unnecessary disturbance within the active channel of the tributary and channelled valley bottoms. • The removed vegetation must be stockpiled outside of the delineated boundary of the wetlands. The footprint areas of these stockpiles should be kept to a minimum. Should the vegetation not be suitable for reinstatement after the construction phase or be alien/invasive vegetation species, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site. • Limit construction equipment within the watercourses to what is essential. • The proposed excavation activities for the removal of the unauthorised infilled material will potentially result in bank destabilisation, and an increase in bank incision and sedimentation of the watercourses. Therefore, sediment control devices must be constructed in situ prior to excavation activities and reshaping activities. With regards to the diversion of flow in preparation for the removal of the unauthorised infilled material within the active channel of the unnamed tributary: • Should maintenance works not be finalised during the dry season, a coffer dam area can be created and dewatered around the maintenance area associated with any pillars by using sandbags and cobbles. Water

must be diverted into the downstream reaches, around the coffer area (as indicated in Figure D below). Water must be allowed to flow to the downstream reaches at all times. And sediment traps must be installed.

- Sediment traps must be installed every 20 m downstream for any works for a length of 200 m. For example, see Figure E below.
- Ensure that the creation of the diversion (by means of sandbags) does not result in a significant water level difference upstream or downstream of the installation site.
- It is recommended that a suitably qualified freshwater specialist and Environmental Control Officer (ECO) should monitor any coffer dam areas created on site as well as sediment traps at least bimonthly during the construction period to monitor the CVB wetland and tributary conditions during construction and after the removal of the diversion.

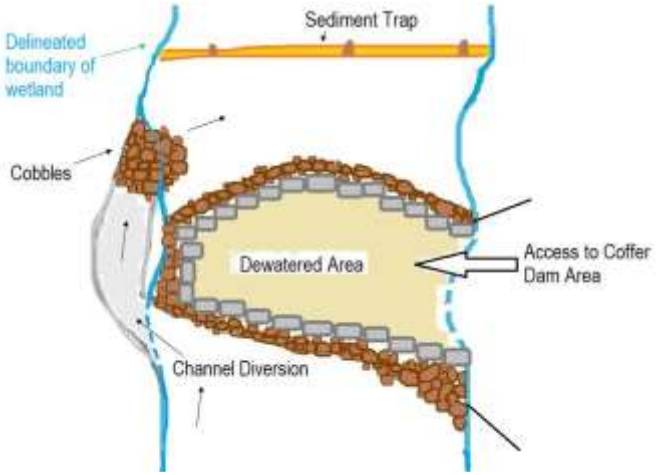


Figure D: Schematic drawing of a coffer dam and sediment trap recommended to be implemented around the construction area associated with activities within or in close proximity to the active channel.


Figure E: Examples of silt traps to be used during the construction phase, to limit additional sediment from entering the downstream reach of the unnamed tributary.

- The area must be suitably compacted and reshaped to levels close to the surrounding wetland habitat to allow opportunities for the reinstatement of wetland habitat and to prevent any erosion or preferential flow paths from occurring.
- All shaping must be done as natural as possible, and the area should be designed to have varying depths to facilitate microhabitat formation.
- Excavated materials may not be contaminated, and it must be ensured that the minimum surface area is taken up, and the stockpiles may not exceed 2m in height. Stockpiling of removed materials may only be temporary (may only be stockpiled during the period of maintenance at a particular site) and should be disposed of at a registered waste disposal facility.
- All exposed soil must be protected for the duration of the maintenance phase with a suitable geotextile (e.g. Geojute or hessian sheeting) to prevent erosion and sedimentation of the tributary.
- Since portions of the unauthorised infilled material are located within the CVB wetland 3, the removal thereof will result in loss of wetland habitat. The wetland loss should ideally be reinstated within the fill area following removal of the infilled material to ensure no net loss to the CVB wetland.
- No hard infrastructure is allowed within the reshaped area and use of hard engineering structure (such as gabion retention structures or reno -mattresses) should be avoided as far as feasibly possible.

	• Revegetation of re -profiled slopes of the infilled area, the excavated area below the 1:100 year floodline and any other areas (including the unnamed tributary) that may have potentially been impacted by the opposed infilling/excavation activities. • Rehabilitation of the disturbed area must be undertaken, including re-vegetation with indigenous wetland vegetation and stabilisation of the embankments of the unnamed tributary in the affected area following a suitably developed watercourse management plan for the study area. • Only indigenous vegetation species may be used as part of the landscaping of the development, and invasive plant species should be eradicated; and • Soil shaping and final designs should be overseen by a suitably qualified freshwater specialist to ensure wetland functionality is reinstated.
Proposed Maintenance Activity-(7&8)	**Construction / maintenance activities within the watercourses**
Actions	Installation of the rectangular portal culvert with 330 mm brick wing walls under the section of the internal roadway which traverses the northern reach unnamed tributary and upgrading of the existing culvert under Old Sir Lowry's Pass Road within the downstream reach of the tributary. This may involve the following: – Diversion of flow by means of sandbags; – Excavation activities and compaction of soils for the construction of the culvert; – Concrete works; – Installation of reno-mattresses at the inlet and outlet of the culvert and riprap below the culvert outlet; and – Movement of construction equipment and personnel within the unnamed tributary. Installation of the bulk service sewer and water pipelines along the Old Sir Lowry's Pass Road within the downstream reach of the tributary.
Impacts	• Disturbances of soils leading to ponding of water as a result of over compaction of soils in some areas, increased alien vegetation proliferation, and in turn altered riparian habitat. • Excavation and trenching leading to stockpiling of soil.

	• Altered runoff patterns, leading to increased erosion and sedimentation of the downstream riparian habitat. • Decrease of surface water quality due to the use of concrete within the active channel of the tributary. • Construction of flow leading to turbulent erosive flow of increased velocity and possible loss of recharge to downstream areas, impacting on downstream biota. • Decrease of surface water quality due to the use of concrete within the active channel of the tributary.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Medium** Risk
Mitigation measures	• The design of the culvert should ensure adequate flow connectivity between the upstream and downstream portions of the tributary. • The culvert structure must extend the width of the tributary to ensure recharge of the tributary downgradient of the crossing. • The crossing and the through -flow structures should be sized to accommodate a 1:100 year flood and must be placed to be level/flush with the tributary bed to ensure under scouring or erosion at the inlet side does not occur. • It is recommended that the construction associated with the culvert be undertaken during the dry summer months, when limited throughflow of water is experienced. However, should construction occur within the rainy season, a diversion for the drainage line should be excavated around the proposed culvert crossing location for the period of construction to ensure hydrological connectivity is maintained, however this should be considered at the time of construction on consultation with the ECO. • With regards to the diversion of flow in preparation for the installation of the culvert crossing: - See activity 6 above with regards to creation of a sump area and sediment traps. - The duration of impacts within the tributary should be minimised as far as possible by ensuring that the duration of time in which flow alteration and sedimentation will take place is minimised. - It is recommended that a freshwater specialist ECO should monitor the diversion site once a week during the diversion period to monitor the tributary conditions during construction and after the removal of the

	diversion. • <u>With regards to excavation and soil compaction activities within the tributary associated with the culvert</u>: - During excavation activities, soil removed from the dewatered section should be stockpiled outside the delineated edge of the tributary. - Excavated materials should not be contaminated, and it should be ensured that the minimum surface area is taken up, and the stockpiles may not exceed 2m in height. Mixture of the lower and upper layers of the excavated soil should be kept to a minimum, so as for later usage as backfill material or as part of rehabilitation activities. - All exposed soils must be protected for the duration of the construction phase with a suitable geotextile (e.g. Geojute or hessian sheeting) to prevent erosion and sedimentation of the tributary. • See Activity 3 and 4 above with regards to concrete mixing on site. <u>With regards to trenching of pipes</u> • Soil can be stockpiled alongside the trench, with preference to the eastern side, furthest away from the watercourse. Stockpiles may not exceed 2 m in height (Figure F) and all trenches must be backfilled as soon as feasibly possible. • Protect exposed soil and stockpiles from wind, and limit the time in which soil are exposed, by covering with a suitable geotextile such as hessian sheeting during extremely windy conditions. • Trenches should be backfilled as soon as the pipes have been installed in any given section in order to reduce potential erosion of exposed soil. • Mixture of the lower and upper layers of the excavated soil should be kept to a minimum. • Unused excavated soil/sediment should be utilised as part of the open space areas or be removed from site to a registered landfill.

Figure F: Excavation for pipe trenching with stockpiles alongside.

Rehabilitation on completion of construction

- Care must be taken when maintenance to the culverts take place to ensure that the design accommodates a 1 in 100 year flood event and that the base levels are maintained so that no erosion or ponding of water occurs surrounding the crossing.
- Soil surrounding the wingwalls must be suitably backfilled and sloped (minimum of a 1:3 ratio) and concrete aprons as well as gabion mattresses should be installed both up and downstream for energy dissipation and sediment trapping.
- All soils within the tributary surrounding the culvert must be loosened on completion of works to allow for re-vegetation.
- All footprint areas must remain as small as possible and vegetation clearing to be limited to what is absolutely essential.
- All vehicles are to remain within existing roads and no new roads should be developed to access this maintenance site.
- All stockpiles must be located at least 10 m from the delineated extent of the tributary should not exceed 2 m in height and should be covered with a suitable geotextile such as hessian sheeting to prevent excessive dust generation.

Proposed Maintenance Activity-(9, 10 & 11)	**Construction/maintenance activities within the variable conservation buffer of the watercourses**
Actions	• Construction/maintenance of the portions of the three private erven located within the variable conservation buffer. The portions of the erven falling within the variable conservation buffer are the outdoor lawn or garden areas of the proposed residential erven (thus no building infrastructure). • Proposed construction/maintenance of a stub wall, approximately 320 mm wide and 300 mm high, just outside the edge of the variable conservation buffer to separate the lawn areas from the conservation buffer.
Impacts	• Disturbances of soils leading to increased alien vegetation proliferation, and in turn to altered freshwater habitat. • Altered runoff patterns, leading to increased erosion and sedimentation of freshwater habitat. • Increased sediment loads entering the watercourses. • Potential impacts on water quality of the receiving freshwater environment.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Low** Risk
Mitigation measures	• All stockpiles must be located at least 10 m from the delineated extent of the tributary should not exceed 2 m in height and should be covered with a suitable geotextile such as hessian sheeting to prevent excessive dust generation. • No formal paving should be used for the proposed walkway. In situ compaction of soil for the walkways as proposed is preferred. • Revegetation of the areas surrounding the walkways with suitable indigenous species is recommended. These can be low growing species such as grasses, shrubs, or fynbos vegetation to allow access for access during fire emergencies. • Once construction/maintenance activities are done, the surrounding area to the construction/maintenance footprint must be suitably rehabilitated. Only indigenous vegetation species may be used as part of the

	landscaping of the development, and invasive plant species should be eradicated. **Cement usage** See Activity 3 and 4 above with regards to concrete mixing on site.
Proposed Maintenance Activity-(12)	**Potential indiscriminate waste disposal and/or spillage from construction/maintenance vehicles**
Actions	• Disposal of construction-related wastes (such as rubble, hazardous chemicals and litter)
Impacts	• Altered flow regime as a result of solid waste within the freshwater environment. • Altered water quality due to chemical waste disposal.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Low** Risk
Mitigation measures	• No waste disposal is to be permitted below the 1:100 year floodline of the unnamed tributary of Sir Lowry's Pass River and associated CVB wetlands. • Any solid waste or litter generated as part of the construction activities must be disposed of within suitable waste bins. • Re-fuelling of vehicles must be undertaken at a suitable facility off site or on a non-permeable surface, associated with a construction camp outside of the 1:100 year floodline of the Unnamed tributary of Sir Lowry's Pass River. • All wastes are to be removed from the site and disposed of at a registered facility

Operational Phase

Proposed Maintenance Activity- (13)	**Rehabilitation of the watercourse areas below the post-development 1:100 year floodline following excavation and removal of infill material and construction / maintenance activities**
Actions	• Movement of construction vehicles within the watercourses. • Soil exposure and reshaping, resulting in potential sedimentation and erosion. • Re-vegetation of surrounding wetland areas, remove any obstructions to flow. • Proliferation of alien and invasive plant species within the unnamed tributary and CVB wetland 3 and surroundings.
Impacts	• Loss of wetland and riparian habitat. • Potential changes to the hydrological drivers of the CVB wetland, resulting in decreased functional wetland habitat. • Soil compaction within the watercourses. • Potential sedimentation of the watercourses due to activities within the watercourses. • Impacts to water quality as a result of the application of herbicides.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Medium** Risk
Mitigation measures	• On completion of works, the unnamed tributary and associated CVB wetland 3 must be reinstated. At no point should a straight channel be excavated, and no hard infrastructure is allowed (i.e., no gabion walls, concrete slabs etc). • All rehabilitation actions should be implemented to reinstate the wetland as close as possible to the reference state (i.e., natural), not the state of the wetland prior to the proposed removal of unauthorised infilled material.

- The impacted wetland and tributary area must be re-instated, and soil-scaping must be undertaken in such a way as to reinstate the seasonal and temporary zones of the CVB wetland. Works should be undertaken during the dry season, (ideally during March/April just before the rainy season. A site-specific rehabilitation, maintenance and monitoring plan as initially compiled by FEN Consulting (Pty) Ltd (2021) must be updated to include specific rehabilitation measures for the reinstatement of riparian and wetland habitat.

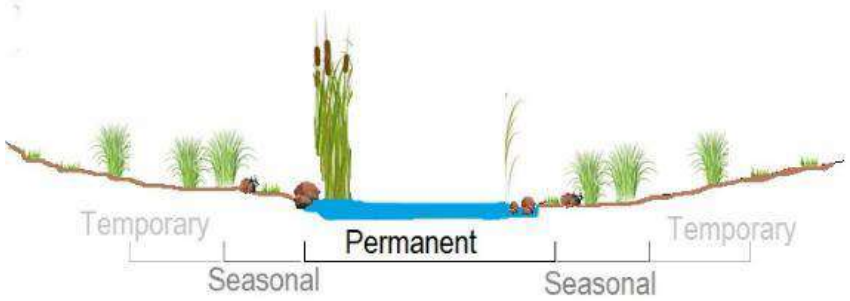


Figure F: Representation of the permanent, seasonal and temporary wetland zones to be associated with the rehabilitated CVB wetland 3 following construction activities.

- All disturbed soil must be ripped and loosened. Any existing erosion must be remediated.
- Following construction, a suitable alien invasive management plan must be implemented to ensure that alien invasive plant species do not become established within the areas disturbed by construction activities.
- Rehabilitation of the unnamed tributary and CVB wetlands must be undertaken, including clearing of woody alien invasive vegetation and reinstatement of indigenous wetland vegetation.
- A Residual Wetland Impact Compensation Plan may need to be compiled (should it be requested by the legislative authorities) by a suitably qualified freshwater ecologist as part of investigating the functional habitat hectare equivalents that must be conserved by the proponent to account for the above-mentioned residual wetland and riparian habitat loss associated with the removal of the unauthorised infilled material, should the rehabilitation of the impacted areas not be sufficient.
- The variable conservation buffer should also be rehabilitated with terrestrial vegetation. It is considered advantageous if the area below the 1:100 year floodline be rehabilitated with indigenous terrestrial vegetation and that indigenous wetland vegetation be reinstated within the CVB wetland 3 to create an open space corridor

	and reinstate the ecological buffer to the wetland; • When activities do occur within the active channel of the tributary, silt traps as applicable to Activity 1 above, should be implemented. • Incorporate as much indigenous terrestrial, wetland and riparian vegetation into the landscape plan for all open space areas and stormwater, attenuation facilities.
Proposed Maintenance Activity-(14)	**Operation of the residential development and associated open space areas**
Actions	• Potential fertilizers entering the watercourses through stormwater run-off. • Potential indiscriminate movement of vehicles within the watercourses for perimeter inspections/ maintenance.
Impacts	• Potential eutrophication of water as a result of increased nitrates and phosphate loads into the watercourses. • Proliferation of alien and invasive plant species within the watercourses.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Low** Risk
Mitigation measures	• An alien vegetation management plan should be developed and implemented and managed by the property managers or various Homeowner Association's for all open space areas as well as the watercourses. • No vehicles are permitted to enter into the watercourses. Any maintenance works must be undertaken by foot or the relevant authorisations obtained beforehand. • As much indigenous terrestrial, wetland and riparian vegetation should be included into the landscape plan for the open space areas. Indigenous vegetation will reduce the irrigation requirements as well as fertilizers. • Care must be taken when using herbicides and pesticides in gardens and open space areas, especially during the rainy season when stormwater runoff is high. These chemicals must be used in accordance with the prescribed quantities to prevent contamination of surface water in the nearby watercourse, especially since stormwater is released therein.

Proposed Maintenance Activity- (15)	**Operation and maintenance of the road culvert crossing the unnamed tributary.**
Actions	• Debris collecting on the upstream side of the culvert could potentially impact on the flow. • Disturbances to or removal of vegetation whilst accessing the culvert crossing to carry out maintenance activities.
Impacts	• Disturbance to flow regime and temporary inundation of the channel upstream of the inlet; • Potential loss of indigenous vegetation and the further proliferation of alien floral species due to the disturbances.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Low** Risk
Mitigation measures	• All watercourses are to be considered "off limits" to any vehicular activity. • Disturbances to the watercourses should be limited to what is essential for long-term maintenance in line with the mitigation measures presented herein. • Existing access roads must be used for monitoring purposes. No indiscriminate movement of vehicles is allowed as this would result in the compaction of soils and potential loss of riparian and instream habitat. • Hot spots for the build-up of debris and excess sediment must be identified and when necessary, debris/excess sediment must be removed by hand to prevent future flooding and potential damage to infrastructure. In this regard, special mention is made of periods following high rainfall and subsequent high instream water volumes. Removal of debris must be undertaken in line with the above listed construction mitigation measures. • The watercourses must be monitored for alien and invasive vegetation encroachment and all alien vegetation/weeds must be removed according to a suitable alien vegetation control plan. Annual follow up should be undertaken to all watercourses for at least 3 years post construction. • Any erosion or gully formation must be identified on an ongoing basis and reprofiled and revegetated accordingly.

Proposed Maintenance Activity- (16)	**Operation and maintenance of the stormwater retention facilities and wastewater treatment plants.**
Actions/ Aspects	• Potential of sewerage to spill from the treatment plant at inlet chamber due to blockages. • Lack of humus to be wasted from the plant during maintenance activities, causing the plant to become anaerobic. • Contaminated stormwater runoff entering the tributary from the outlets of the stormwater retention facilities. • Erosion of the tributary at the outlet of the stormwater outlets.
Impacts	• Alteration of the hydroperiod of the tributary; Sedimentation of the tributary and impact on the water quality of the tributary leading to the degradation of the freshwater habitat and sensitive freshwater species (although unlikely to be present); Erosion of soils, alteration to the geomorphology of the freshwater habitat, and reduction of the ecoservices provided by the tributary as a result. • Potential spillage of sewerage into the tributary (unlikely due to distance from tributary), decreasing the quality of surface water present in the tributary. • The anaerobic conditions in the septic tank could lead to a decrease in effluent quality which will be discharge into the tributary;
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Medium** Risk
Mitigation measures	• The likelihood of erosion is reduced due to a higher surface roughness of the earth swale, allowing for water to enter the tributary at a lower velocity. • The swales should be inspected regularly to ensure proper functioning, monitoring of erosion and clearing of any debris or litter in the swales. • Any water potentially discharged into the watercourses (that is not used for irrigation purposes - from the storage tanks/attenuation facilities) must regularly be tested to monitor the quality of the effluent and to be pro-active regarding potential spills or malfunctioning of the treatment plant.

	• Regular inspection of the effluent pipe outlet structure should be undertaken to monitor the occurrence of erosion. If erosion has occurred, it should immediately be rehabilitated by means of revegetation. • Control measures associated with the constructed wetland/retention pond, if implemented: • The constructed wetland/retention pond should be cleared of litter during regular maintenance activities. • The effluent outlet in the basin and the earth swale should be monitored for erosion. If erosion is noted, the area associated with the outlet should be rehabilitated with the use of cobbles, with guidance from a freshwater specialist; and • The quality of the treated effluent used for irrigation purposes must be tested at regular intervals and must comply with the wastewater limit values applicable to irrigation of any land or property as stated by Government Notice 665 as published in the Government Gazette 36820 of 2013 as it relates to activity as stipulated in Section 21(e) of the National Water Act, 1998 (Act No. 36 of 1998).

Proposed Maintenance Activity- (17)	**Use of treated effluent for irrigation purposes**
Actions/Aspects	• Potential of low quality effluent to enter the unnamed tributary via surface water runoff
Impacts	• Decrease in the quality of surface water present in the unnamed tributary.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	The result of the DWS Risk Assessment was a **Low** Risk.
Mitigation measures	N/A

7. MONITORING AND REPORTING

It is important to note that any and all activities undertaken outside the scope of the adopted MMP, in terms of the action outlined within the given method statement, the responsible person(s) will be subject to Section 24(F) of NEMA and that appropriate enforcement and compliance requirements will follow.

The specific reporting information required by the competent authority should be discussed during the consultation phase between the proponent and the Department. The relevant information required should be considered on a case-by-case basis.

The following Forms A and B are to be considered as a guideline in terms of the type of information required. It is proposed that Form A below must be completed by the relevant person(s) before maintenance activities are undertaken and Form B after a maintenance activity has been completed. A copy of each completed Form A & B must be sent to the relevant WUA/IB/local authority management if they have undertaken the development of the MMP. For any individual landowner applications, the landowner is responsible to ensure a record of all maintenance activities is recorded as per Form A & B below. Form A and B must also be sent to the Provincial Department of Agriculture, Directorate: Sustainable Resource Management.

The Department may, within a reasonable notice period, request to evaluate the maintenance activities and assess the maintenance sites as per the adopted MMP.

Form A should be completed at least 7 working days before the commencement of any maintenance activity and Form B at least 3 working days following the completion of the maintenance activity(ies). At least two photographs are required from two different points of perspective (A and B) looking at the site (coordinates of these points are required). When listing the type and reference code, this must be done by specifically listing the relevant detail within the adopted MMP.

The monitoring requirements stipulated in both the Watercourse and Wetland Rehabilitation Plan (compiled by Freshwater Ecological Network), as well as the Rehabilitation Plan compiled by Mr Christoff Dippenaar from GNEC, should be enforced during the operational phase of the proposed development.

	Monitoring of structural integrity of culverts.
Actions	• Proactive monitoring to ensure structural integrity is maintained and to identify early signs of erosion around the culverts. • Proactive monitoring to ensure that any litter or debris which may accumulate on and around the culverts is cleared to maintain the flow of water.
Impacts	• No direct impacts perceived.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	N/A
Mitigation measures	• All watercourses are to be considered "off limits" to any vehicular activity. • Disturbances to the watercourses should be limited to what is essential for long-term maintenance in line with the mitigation measures presented herein. • Existing access roads must be used for monitoring purposes to minimise the compaction of soils and loss of riparian and instream habitat. • Hot spots for the build-up of debris and excess sediment must be identified and when necessary, debris/excess sediment must be removed by hand to prevent future flooding and potential damage to infrastructure. In this regard, special mention is made of periods following high rainfall and subsequent high instream water volumes. Removal of debris must be undertaken in line with the above listed construction mitigation measures. • The watercourse must be monitored for alien vegetation encroachment and all alien vegetation/weeds must be removed according to a suitable alien vegetation control plan. • Any erosion or gully formation must be identified on an ongoing basis and re-profiled and revegetated accordingly.

	Maintenance of culverts in the event of failure (if necessary)
Actions	• Disturbances to or removal of vegetation whilst accessing culverts to carry out maintenance activities.
Impacts	• Potential loss of indigenous vegetation and the further proliferation of alien floral species due to disturbances.
Severity of the impacts according to the DWS Risk Assessment conducted by Freshwater Specialist	N/A
Mitigation measures	• Ensure that the footprint area of cleared vegetation remains as small as possible. • Limit clearing of indigenous vegetation. • If deemed necessary, re-seed with indigenous vegetation once maintenance activities have been completed.

REPORTING FOR INTENT TO UNDERTAKE MAINTENANCE ACTIVITIES – FORM A				
Section A: Landowner Details				
Name	**Surname**	**Farm No.**	**Erf No.**	**Today's Date**
Section B: Details of proposed maintenance activity				
WUA/GA reference number and DEA&DP reference number for MMP.	**Activity Type:**	**Reference code (*make reference to MMP*)**	**Footprint area (m^2)**	**Volume of material (m^3)**
Equipment to be used:	**Description of method for planned activity:**			**Date when work will commence:**
Date of last flood event for site:	**Note any further damage and comments regarding the state of the site**			
Section C: Photographs of activity location before maintenance				
Before A **Coordinates:** **S** **E**				
Before B **Coordinates:** **S** **E** **Date of photos taken:**				

REPORTING FOR COMPLETION OF MAINTENANCE ACTIVITIES – FORM B				
Section A: Landowner Details				
Name	**Surname**	**Farm No.**	**Erf No.**	**Today's Date**
Section B: Details of proposed maintenance activity				
WUA/GA reference number and DEA&DP reference number for MMP.	**Activity Type:**	**Reference code (*make reference to MMP*)**	**Footprint area (m^2)**	**Volume of material (m^3)**
Equipment that was used:	**Description of method for completed activity and if commence date changed**			**Date activity completed**
Date of last flood event for site:	**Note any challenges or difficulties experienced in following the MMP method statement**			
Section C: Photographs of activity location after maintenance				
After A **Coordinates:** **S** **E**				
After B **Coordinates:** **S** **E** **Date of photos taken:**				

ANNEXURES

ANNEXURE A

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE: REGION 1 (City of Cape Town & West Coast District)	**CAPE TOWN OFFICE: REGION 2 (Cape Winelands District & Overberg District)**	**GEORGE OFFICE: REGION 3 (Central Karoo District & Eden District)**
Requests for competent authority to adopt an MMP must be sent to the following details: Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 1) at: Tel: (021) 483-5829 Fax (021) 483-4372	Requests for competent authority to adopt an MMP must be sent to the following details: Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 2) Private Bag X 9086 Cape Town, 8000 Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town Queries should be directed to the Directorate: Development Management (Region 2) at: Tel: (021) 483-5842 Fax (021) 483-3633	Requests for competent authority to adopt an MMP must be sent to the following details: Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530 Registry Office 4th Floor, York Park Building 93 York Street George Queries should be directed to the Directorate: Development Management (Region 3) at: Tel: (044) 805-8600 Fax (044) 8058650

WESTERN CAPE DEPARTMENT OF AGRICULTURE DETAILS

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