



DOLOMITE RISK MANAGEMENT PROGRAM (DRMP) (EXTENSIONS 80,90,92,94 AND 100)

1. INTRODUCTION

The purpose of this document is to set out the parameters of a dolomite risk management program that is both technical and practical.

The technical information contained herein is for the purposes of a professional person to assess the factual conditions. Based on this information the program can be assessed on a continuous basis. Also in the case of a disaster, the factual information can be readily accessed and corrective steps can be taken.

On the practical side this program takes relevant information by way of a protocol to be managed by a responsible person in the ZHOA. The person is hereby armed with an easy and simple guideline to manage the risks of all dolomite area.

SANS 1936 – 4 – 2012 Edition 1 (Latest version) was used in the drafting the program. The full version is enclosed as an **Annexure B** to this document.

The ZHOA has identified suitable personnel to manage the DRMP and includes the organization's dedicated Board Member: Risk Management, the Estate Manager, the Operational Manager and the Maintenance Manager.

2. TECHNICAL INFORMATION

The following conditions are prevalent on the land on which the Estate is situated.

2.1 The Estate is underlain at depth by dolomite and a DRMP is therefore essential. The dolomite stability investigation showed that the site is directly underlain by syenite which overlies the dolomite. The risk for sinkhole and doline formation is considered to be low to medium.

2.2 The entire estate is considered to represent an 'Inherent Risk Class 2-5'. The NHBRC overall classification of the site is a D3 and the foundation design for structures must therefore be able to accommodate a 5m loss of support. Concrete raft type foundations are a requirement for any development in the Estate.

2.3 The layout of the Estate is found in **Annexure C**

3. DRMP BASED ON THE TECHNICAL INFORMTION.

The wet service layouts (water; sewerage and storm water) are filed in the office per development Phase) and wet service type.

The DRMP is delegated to a responsible staff member at the ZHOA. The following services are installed:

3.1 Water

The water network per area (phase) is set out in plans filed in the ZHOA office as per **Annexure E:**

- The main connections are located in Golf Avenue (Clubview 80) and Ashwood Road ((Clubview 94, 90, 92,100).
- All individual stands have a water connection, a valve and a water meter.
- In Clubview 90 there are two sectional title complexes:
 - Sarazen View consisting of 6 apartment blocks, Blocks A to F with 89 units in total. Blocks A to E consisting of 2 connections per block, whilst Block F has 4 connections. All of these points have meters. The entire development is connected with a single point at Block A.
 - The second sectional title complex is Snead Manor and consist of 3 units, each with its own connections.
- All irrigation systems connected to the municipal water are measured by way of meters.

3.2 Sewerage

The sewerage network per area (phase) is set out in plans filed in the ZHOA office and as per **Annexure E:**

3.3 Storm water

The storm water network per area (phase) is set out in plans filed in the ZHOA office and as per **Annexure E**

3.4 Irrigation

Irrigation systems ae is installed at all 3 gates. The main gate uses bore hole water.

4. MONITORING AND MAINTENANCE

The following monitoring process applies:

4.1 Water

Monthly water meter readings are conducted and the sheets exist filed in the office.

The water recovery (reselling) from residents is performed by the ZHOA itself. Bulk buying and retail selling of water with allowable losses is balanced monthly by area and differences followed up. The monthly excel sheet can be found on the computer – *Utility meter readings*.

The StopLeak warning system has been installed on all major water inlets. Water usage (measured during the low usage period) reports are received daily. Warnings are received if the usage is abnormally high. These are followed up.

On Fridays and Wednesday nights the bulk meters are read at 2h00 and 4h00. The consumption during this period is checked to see if there is any abnormal usage. Any abnormalities are followed up.

4.2 Sewerage network

The sewerage network will be monitored by doing regular inspections. This inspection primarily consists by walking along the sewerage network lines. The purpose is to check for dampness and any indication of water leaking. Excessive greening of grass for example would be investigated to endure that there are no leaks in the network.

Every 5 years the sewerage network is CCTV inspected by means of a pipe camera system. Service providers are:

Greyling – incline.inspects@gmail.com – 083 947 0666

Marais - claude.marais@averda.co. - 082 871 6181

4.3 Storm water

The storm water network is monitored by doing regular inspections. This inspection primarily consists of walking along the network lines. The purpose is to check for any indication of water leaking. Excessive greening of grass for example would be investigated to endure that there is no leaks in the network.

The network inlets are cleaned once a year in August/September.

The network has a number of outlet points. *After rain* inspections are done at these outlet points to ensure that no water is ponding at these points or around structures.

Every 5 years these storm water pipes will be inspected physically and/or by means of a pipe camera. Service providers are:P

Greyling – incline.inspects@gmail.com – 083 947 0666

Marais - claude.marais@averda.co. - 082 871 6181

4.4 Monitoring borehole

A monitoring borehole has been installed opposite Erf 1148 Nelson Woods on the golf course. This borehole is measured once a month to determining the trends of the water table.

The original developer with the ZHOA has entered into an agreement with the City of Tshwane whereby they will refrain from any further extraction from the reservoir should there be a lowering of the water table. The water table has been initially determined at

level of 13.3 meters below surface level. A fluctuation of 2 meters has been established and the alarm bells must therefore ring at 15.3 m. The ZHOA will be more conservative and report if the water level drops below 14.3 m.

The Operations manager will notify the following persons immediately if the readings fall within the category for reporting.

- Mr. M Shabangu (Director Water and Sanitation) 012 358 7733/7 mduduzis@tshwane.gov.za
- Me. A Sudu (Geology Department) AshikaS@tshwane.gov.za
- Mr. L vd Vyver (Developer) 0861 568 475 louis@investgp.co.za

4.5 Irrigation

A general inspection of surroundings to look at extraordinary wetness outside and inside of the flower beds is performed.

Sprayers are closed and a water pressure check done monthly. Leaks are fixed.

4.6 Roads, walls and buildings

Roads, walls and buildings are monitored for cracks or indications of soil instability. These are reported and investigated. Roads are also checked for surface drainage and repaired where there are such issues.

4.7 Resident participation

Residents are part of the DRMP and as such we expect them to do regular checks on possible water leaks, blockages and pooling of water. These are performed quarterly. **Annexure G** enclosed.

5. PROCEDURES

5.1 In **Annexure D** attached hereto the daily, weekly and monthly inspection routines are set out. Risk events such as leaking water pipe are followed up immediately.

5.2 The management of the DRMP is the responsibility of the Operational Manager and is a standard agenda point at the Operational Manager's OHSACT meetings. The Operations Manager reports to the Estate Manager who ensures that the dolomite risk management is of a good standard. The Estate Manager reports to the Board who takes overall responsibility for the process. The Director: Legal oversees the DRMP. The DRMP appears as a permanent item on the agenda of the directors meeting.

5.3 Inspections are delegated to staff members such as security and maintenance but the ultimate responsibility remains with the Operational Manager.

5.4 Once a year the Estate Manager compiles a report to the City of Tshwane, reporting on the duties complied with during the year. The latest DRMP is submitted as an annexure.

5.5 Once a year the DRMP is reviewed and updated and as new technology becomes available, this program will be updated to make it as relevant as possible.

5.6 Every five years an independent person reviews the DRMP and will retain records of the review.

6. EMERGENCY REACTION

7.1 As soon as we have the first occurrence of soil instability or a sinkhole a register will be opened in accordance with section 4.2.3 and 4.2.5 of SANS 1936-4:2012.

7.2 The Operational Manager and the Estate manager are responsible to respond to emergency situations as a result of sinkhole formations or a subsidence event. These two managers have the knowledge and access to all the plans of the Estate and are capable of giving and ensuring that instructions are followed. Dealing with occurrences will be done in accordance with section 4.2.4 and 4.2.5 of SANS 1936-4:2012 – Attached as **Annexure B**.

7.3 The Estate appointed Emuel Kok of GeoBuro (083 556 0968) and Bennie du Plessis of BM du Plessis Civil Engineering (082 375 3003/ 012 346 7586) and these gentlemen will be called upon to advise the HOA as to the risk and mitigation of incidents.

7.4 Incidents will be reported to the dedicated Director of the ZHOA and CoT as in paragraph 4.4

7. NEW DEVELOPMENTS

New developments that are incorporated into the Estate will be investigated for special risk and the developer will be asked for all the reports and known issues around the dolomite risk of the newly to be incorporated area. The standard DRMP will apply to the newly incorporated area.

9. RESPONSIBLE PERSON

The ZHOA is responsible for monitoring all the aspects of the management program. Attached hereto is the Operational Manager's acceptance of his responsibility.

Annexure A.

Version 7

R Wesseloo – October 2019



ZWARTKOP GOLF ESTATE HOME OWNERS ASSOCIATION

Date

TO WHOM IT MAY CONCERN

DEAR SIR

Re: APPOINTMENT OF RESPONSIBLE PERSON

I have read the Dolomite Management Program and I hereby accept the responsibilities as set out in this document.

I undertake on a monthly basis to comply with the duties as set out in the report.

Yours faithfully

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M Lindeque
Operations Manager