



## **DOLOMITE RISK MANAGEMENT PROGRAM (DRMP) EXTENSION 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 was used in the drafting of this program. The full version is enclosed as an annexure 1 to this document.

The ZHOA has identified suitable personnel to manage the DRMP and includes the organization's Operations Manager, the Estate Manager, the handyman and a dedicated director. We also have a builder/developer on the Board and the ZHOA has quick access to knowledgeable people if required.

### **2. TECHNICAL INFORMATION**

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

2.1 The developments are underlain at depth by dolomite and a dolomite risk management system is therefore required. 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 Clause 18(2)(d) of Part 4 of the Tshwane Town Planning Scheme stipulates that *'no wells or boreholes may be sunk on any erf except with permission of the Municipality and subject to such conditions as the Municipality may impose'* The ZHO will keep to this condition.

2.3 The layout of the Estate can be found in Annexure C

### **3. DOLOMITE MANAGEMENT PROGRAM BASED ON THE TECHNICAL INFORMTION.**

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

### **4. PRACTICAL MANAGEMENT PROGRAM**

This part of the program is delegated to a responsible person in the ZHOA.

**The following services are installed:**

#### **Water**

The water network per area is set out in plans filed in the ZHOA offices:

- 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. Each water connection has a water meter.
- In Clubview 90 are two sectional title complexes. Sarazen View consists of 6 blocks, Blocks A to F, 89 units in totality. 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 its own connections.
- All irrigation consumption is measured by way of meters.
- The water network plans per extension can be found in annexure E

#### **Sewerage**

The sewerage networks per extension can be found in annexure E

#### **Storm water**

The storm water networks per extension can be found in annexure E

**The following monitoring process applies:**

## **Water**

Monthly water meter reading sheets exist and are kept in a 'meter reading file'.

The water and electricity consumption and recovery (reselling) is operated by the ZHOA itself. The inflow (bulk buying) and outflow (retail selling) of water is balanced monthly by area and differences followed up.

Three times a week the bulk meters are read 12h00, 3h00 and 5h00. The consumption during this period is checked to see if there is any usage at all. Any usage is followed up and abnormalities are monitored.

## **Sewage network**

The sewerage network will be monitored by making regular inspections. This inspection would primarily consist 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 ensure that there is no leaks in the network.

Every 5 years the sewerage network is inspected by means of a pipe camera system.

## **Storm water**

The storm water network is monitored by making regular inspections. This inspection would primarily consist 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 ensure that there is no leaks in the network.

The network has a number of outlet points. Regular 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.

## **Monitoring borehole**

A monitoring borehole has been installed opposite Erf 1148 Nelson Woods on the golf course properties.

This borehole is measured once a month to determine the trends of the water table.

The HOA and Developer has entered into an agreement with the City of Tshwane to refrain from any further extraction 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. This is an average measurement. A fluctuation of 2 to 3 meters has been determined. The alarm bells must ring if the water level drops below 15.3 or above 11.3.

The HOA will be more conservative in its approach and the system will trigger a response if the measurement drops below 14.3 meters. The procedure is as follows:

The General Manager of the Estate will upon receipt of a reading with the parameters that require action immediately notify the following:

- a. Mr Mduduzi Shabangu, Director Water & Sanitation Division Room A704, 7<sup>th</sup> Floor Capital Towers North, 225 Madiba Street, Pretoria. Tel 012 358 7733/7 Fax 012 357 4684 and email [mduduzis@tshwane.gov.za](mailto:mduduzis@tshwane.gov.za)
- b. Me Ashika Sudu, Geology Department, Centurion office, c/o Rabie & Basden Ave, Lyttleton, Centurion with email [AshikaS@TSHWANE.GOV.ZA](mailto:AshikaS@TSHWANE.GOV.ZA).
- c. Mr Louis van der Vyver as Developer, Krisp Props 12, Suite C15, Rabie & Glover, Lyttleton, Centurion. Tel 0861 568 475 Fax 0866 896 081 with email [louis@investgp.co.za](mailto:louis@investgp.co.za)

The General Manager will ensure that there is acknowledgement of the receipt of the notification.

Regular measurement of the monitoring borehole will be done and the monthly reading will be changed to first weekly and then daily when the levels drop below the 15.3m level.

The Developer will be tasked to ensure that the extraction of water is ceased as per the undertaking.

### **Others**

Roads 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. See Annexure A of SANS1936-4:2012.

### **PROCEDURES**

In Annexure “D” attached hereto the DMRP, reflecting the daily, weekly and monthly inspections done.

It will also record any risks etc such a leaking water pipe, the date and the action taken.

Inspection may be delegated to other persons, such as gardeners or security staff but the ultimate responsibility remains with the Operations Manager.

The management of the “Dolomite Risk Management Program” is the responsibility of the Operations Manager and a standard agenda point at the Operation Managers Security and OHASA meetings.

The Operations Manger reports to the Estate Manager who ensures that the management is of a high standard. The Estate Manager reports to the Board who takes overall responsibility for the process. A dedicated Director (Environmental portfolio) oversees the process.

The “Dolomite Risk Management Program” appears as a permanent item on the agenda of the directors meeting and this item is discussed at the Board meetings.

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.

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

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

## **5. EMERGENCY REACTION**

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

The Operations Manager and the Estate manager are responsible to respond to emergency situations as a result of sinkhole formations or a subsidence event.

These two gentlemen 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.

The Estate has appointed Hennie ter Stege from Dolmatec to be on stand by if needed. In the case where he is not available, Emile Kok of Geo Buro will be called upon to advise the HOA as to the risk.

The issue will be reported to the Director Environment, the ZHOA Board, the Sarazen View Body Corporate and the Local Council.

The Estate Manager's contact no is 012 654 7062 or 082 492 2544  
The Geologist's contact no is Hennie ter Stege at 082 466 7052 or Emile Kok at 083 556 0968  
The Tshwane emergency services 012 358 6300 or 012 358 6400

## **6. 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.

## **7. RESPONSIBLE PERSON**

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

The Risk Managers/Operations Manager's contact no is 012 654 7062 083 778 8704



**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**