

DOLOMITE RISK MANAGEMENT POLICY

A-CPED (02-2013) CM 2013/06/20	CITY PLANNING AND ECONOMIC DEVELOPMENT : OVERSIGHT COMMITTEE REPORT ON THE DOLOMITE RISK MANAGEMENT POLICY OF THE EKURHULENI METROPOLITAN MUNICIPALITY
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RESOLVED :

1. **That** the report on the Dolomite Risk Management Policy **BE NOTED**
2. **That** the Dolomite Risk Management Policy **BE APPROVED**

**EKURHULENI METROPOLITAN
MUNICIPALITY**

DOLOMITE RISK MANAGEMENT POLICY

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1. PREAMBLE

In excess of fifty (50) per cent of the land area of the Ekurhuleni Metropolitan Municipality is located on dolomite land including areas of intense residential, commercial and industrial development. Dolomite land is susceptible to sinkhole and subsidence formation primarily through ground water level drawdown and ingress of water. Dolomite land is defined as land underlain by dolomite at depths of no more than:

- a) 60m in areas where no dewatering has taken place and the local authority has jurisdiction, is monitoring and has control over the ground water levels in the areas under consideration; or
- b) 100m in areas where de-watering has taken place or where the local authority has no jurisdiction or control over ground water levels.

Cognisant of the fact that pro-active dolomite risk management can reduce the incidence of sinkhole and subsidence formation, the Ekurhuleni Metropolitan Municipality commits itself to the implementation and ongoing maintenance of a comprehensive Dolomite Risk Management Strategy to ensure sustainable development and the safety of its inhabitants.

A Dolomite Risk Management Strategy refers to the process of using scientific, planning, engineering and social processes, procedures and measures to manage an environmental hazard, and encompasses policies and procedures set in place to reduce the likelihood of sinkholes and subsidences occurring on dolomite land.

It is resolved that the structure and content of the Dolomite Risk Management Strategy should serve to meet the legal obligations of the Ekurhuleni Metropolitan Municipality with respect to safe development of dolomite land and the management of the associated risks.

This policy document outlines the Ekurhuleni Metropolitan Municipality's approach to Dolomite Risk Management and gives effect to the associated procedural requirements.

2. DOLOMITE RISK MANAGEMENT SECTION

The Ekurhuleni Metropolitan Municipality resolves that:

- 2.1 A Dolomite Risk Management Section is created and maintained within the Ekurhuleni Metropolitan Municipality's area of jurisdiction.
- 2.2 The Dolomite Risk Management Section will be housed in the Roads and Stormwater Department, but may be relocated as an entity from time-to-time, based on the administrative requirements of the Municipality. To effectively undertake its designated task the Dolomite Risk Management Section should function as an entity.

- 2.3 An individual should be identified as the Dolomite Risk Manager on behalf of the Ekurhuleni Metropolitan Municipality and should be deployed in the Dolomite Risk Management Section of the Municipality to meet current and evolving statutory requirements in this regard.
- 2.4 The Dolomite Risk Manager should be a suitably experienced person who may be an official of Municipality or externally appointed to perform such functions and duties for and on behalf of the Ekurhuleni Metropolitan Municipality. The person should be qualified by virtue of his/her experience, training, in-depth contextual knowledge of development on dolomite land and be able to comprehend the contents of dolomite stability reports. The person should be capable of translating such reports into executable dolomite risk management strategies and/or suitable engineering design and/or precautionary measures, inspect the construction design or implement precautionary measures and monitor development in its entirety for safe development to take place. Due to the level of specialisation involved in aspects of the tasks to be performed, it is noted that the Manager may require external support by specialist Competent Persons (dolomite), as required, to fulfil the Municipality's legal and technical obligations.
- 2.5 The Dolomite Risk Management Section is tasked with establishing and maintaining a Dolomite Risk Management Strategy and supporting systems.
- 2.6 The Dolomite Risk Management Section is authorised to select, from time-to-time, the relevant standards and specifications to be adhered to in land use planning, infrastructure design, construction, maintenance and mitigation of dolomite risk, etc.
- 2.7 Appropriate ancillary structures such as inter-departmental task teams or steering committees, may be created, as required from time-to-time to successfully manage the risk of sinkhole and subsidence formation on an ongoing basis.
- 2.8 As dolomite land constitutes fifty per cent of the Ekurhuleni Metropolitan Municipality area of jurisdiction and includes densely developed areas, it is essential that the Dolomite Risk Management Section should be provided with the resources and means to effectively and efficiently execute dolomite risk management.

3. DOLOMITE RISK MANAGEMENT STRATEGY

The Ekurhuleni Metropolitan Municipality resolves that:

- 3.1 The Municipality maintain a Dolomite Risk Management Strategy to ensure sustainable development and the safety of its inhabitants.
- 3.2 Dolomite risk management is to be undertaken in accordance with current industry standards

- 3.3 Applications in terms of land control legislation will be consistent with and give effect to the principles contained in the Dolomite Risk Management Strategy.
- 3.4 The Dolomite Risk Management Section should develop procedures for controlling of the approval process for Site Development Plans in dolomite areas.
- 3.5 Building inspectors of the Building Control Office shall apply the Dolomite Risk Management Section's policy requirements, standards and precautionary measures in areas underlain by dolomite. Regular meetings should be convened between the Dolomite Risk Management Section and the Building Inspectors operating in dolomite areas, preferably on a three monthly basis. The purpose of these meetings is to exchange information concerning problems encountered by inspectors, technical and policy matters, latest standards, etc.
- 3.6 Dolomite risk management is to be undertaken by the Ekurhuleni Metropolitan Municipality in public areas, on municipal property, within its servitudes and along its infrastructure. Although collective risk management is applied, it is in no way implied that the Ekurhuleni Metropolitan Municipality is responsible for Dolomite Risk Management on private property. Individual home owners, organisations managing private developments such as Bodies Corporate and Section 21 companies shall be responsible for risk management on their properties. With respect to Bodies Corporate and Section 21 Companies it is resolved that structures are created for this risk management process and data to be reported to the Ekurhuleni Metropolitan Municipality at time-intervals to be determined by the Dolomite Risk Management Section from time-to-time.
- 3.7 The dolomite areas of the Ekurhuleni Metropolitan Municipality are mapped in terms of hazard zones. These hazard maps are a fundamental part of the Dolomite Risk Management Strategy and will be maintained and updated to appropriate levels over time to ensure safe, sustainable development.
- 3.8 Development in the dolomite areas of the Ekurhuleni Metropolitan Municipality is to be appropriate in terms of the hazard zonation of these sub-regions. The Dolomite Risk Management Section is authorised to select, from time-to-time, those standards, guidelines and specifications that pertain in this regard. Those relevant requirements imposed by an Act, Regulation or Regulatory Authority shall apply.
- 3.9 Development planning, development types and densities will be in accordance with the hazard zonation of the dolomite areas of the Ekurhuleni Metropolitan Municipality and will take cognisance of current standards and specifications identified by the Dolomite Risk Management Section of the Ekurhuleni Metropolitan Municipality.
- 3.10 The Dolomite Section is to create and maintain a dolomite risk management data base which stores relevant cadastral (including topographic, road networks, infrastructure networks, land uses, etc), geophysical, borehole, geological, geohydrological data (including groundwater compartments, groundwater level

monitoring wells and groundwater depths and elevations and historical groundwater level trends), sinkhole and subsidence data set, hazard zonation, monitoring designations, existing reports, infrastructure, etc. The data base should be a repository for appropriate standards and policies selected by the Dolomite Risk Management Section for the dolomite areas of the Ekurhuleni Metropolitan Municipality.

3.11 Undertaking of education and awareness programmes concerning dolomite risk management in affected Communities when necessary.

3.12 Encouragement of Vigilance.

3.13 Constant evaluation of legal considerations.

3.14 An Emergency Reaction Plan should be drafted.

3.15 The Ekurhuleni Metropolitan Municipality will establish a Groundwater Level Monitoring and Control System as a fundamental part of its Dolomite Risk Management Strategy. This system will involve:

3.15.1 Evaluating the current geohydrological information relating to the dolomite areas of Ekurhuleni Metropolitan Municipality. Of particular interest are the existing monitoring wells of the Department of Water Affairs.

3.15.2 Establishing boreholes in those areas within the Ekurhuleni Metropolitan Municipality that require ground water level monitoring or where a short fall in data is noted.

3.15.3 Undertaking measurements of the ground water levels within the dolomite aquifers at a frequency and spatial distribution deemed necessary by the Dolomite Risk Management Section.

3.15.4 Developers should be required to establish monitoring wells on new sites proposed for development at their own expense where the Dolomite Risk Management Section deems such wells as necessary. The location and design of the wells should be in accordance with the requirements of the Dolomite Risk Management Section.

3.15.5 The Ekurhuleni Metropolitan Municipality should create a Dolomite Groundwater Level Monitoring Committee involving relevant authorities to ensure an efficient exchange of groundwater data with such authorities and to solicit comments of authorities concerning this critical element of Dolomite Risk Management in the Ekurhuleni Metropolitan Municipality. The Committee should involve parties such as the Council for Geoscience, the Department of Water Affairs and any other relevant authorities from time- to-time. Meetings should be held at intervals deemed appropriate by the Dolomite Risk Management Section.

- 3.15.6 Groundwater matters should be reported to the Groundwater Monitoring Committee on a regular basis.
- 3.15.7 Where the ground water level is noted to be drawn down, the source of drawdown is to be established. Appropriate action is to be taken to prevent continued lowering of the water level if it should pose a risk of generating sinkhole or subsidence formation.
- 3.16 The Ekurhuleni Metropolitan Municipality will investigate and consider the implementation of a once off, pro-rata (to size or value of development) Dolomite Risk Management Contribution to the Dolomite Risk Management process and Strategy by developers on approval of developments on dolomite land.
- 3.17 All geotechnical reports pertaining to land use planning, rezoning, infrastructural development or rehabilitation of sinkholes or subsidences are to be submitted to the Dolomite Risk Management Section for comment and data banking. Such data is to be added to the data base regularly to keep the system current. By-laws should be drafted to ensure that action can be taken against third parties to prevent continued lowering of the ground water level. In addition, the assistance of the Department of Water Affairs should be sought where relevant.
- 3.18 As it is understood that dolomite environments and aquifers straddle the municipal boundary, the Ekurhuleni Metropolitan Municipality will pro-actively seek cross boundary collaboration with affected neighbouring local and regional authorities to facilitate exchange of information and co-operation on the management of the dolomite hazard. It is understood that poor management of dolomite risk in one local authority's area of jurisdiction can impact on safety and sustainable development in an adjoining authority. Ekurhuleni Metropolitan Municipality can experience problems generated by a third party outside its area of jurisdiction. Consequently the Ekurhuleni Metropolitan Municipality authorises the Dolomite Risk Management Section to encourage and develop communication with adjoining authorities in this regard utilising appropriate forums and channels.
- 3.19 The Dolomite Risk Management Section shall establish reporting procedures and time limits for the reporting of sinkholes or subsidences to the Ekurhuleni Metropolitan Municipality by private land owners, Bodies Corporate and Section 21 companies.
- 3.20 The Dolomite Risk Management Section should establish reporting procedures for sinkholes and subsidences that may occur on:
- 3.20.1 Public or municipal property or
 - 3.20.2 Private land.
- 3.21 The Dolomite Risk Management Section shall establish procedures for the evacuation of hazardous areas in the event of an incident.

- 3.22 Rehabilitation of sinkholes and subsidences caused by leaking municipal services will be undertaken within budgetary constraints and available means. Rehabilitation of sinkholes and subsidences caused by leaking private services on private property is excluded unless the Dolomite Risk Management Section provides strong motivation from a risk management perspective for intervention. The legal implication of such intervention is to be considered prior to any rehabilitation work being undertaken.
- 3.23 The Dolomite Risk Management Strategy of the Ekurhuleni Metropolitan Municipality should be subjected to external audit or Peer Review every five years and records kept of such audits.
- 3.24 As and when required, other Departments within the Ekurhuleni Metropolitan Municipality may be requested to assist with the Dolomite Risk Management Strategy and related functions, as it pertains to their particular sphere of responsibility or expertise.
- 3.25 The management of disasters in dolomite areas shall take cognisance of dolomite risk management requirements and applicable standards. The Dolomite Risk Management Section should be consulted in such instances.
- 3.26 The emergency services should be provided with background and awareness training on dolomite matters such as distribution of dolomite land in the Ekurhuleni Metropolitan Municipality, sinkhole and subsidence formation, identification of potential problems, how events develop, and evolve over time, appropriate safety zones, etc.
- 3.27 If an event on private land is deemed as a serious threat to the safety of third parties, the Dolomite Risk Management Section may request the assistance of the Disaster Management Department of the Ekurhuleni Metropolitan Municipality to declare the area unsafe and institute immediate remedial actions. In addition, the Dolomite Risk Management Section of the Ekurhuleni Metropolitan Municipality shall have the authority to serve notice on developers, land owners, heads of Section 21 Companies or Bodies Corporate, servitude holders or utilities, as is relevant, that a potentially hazardous situation shall be remedied at their own expense within a reasonable period of time determined by safety considerations.
- 3.28 The design, maintenance and repair of infrastructure and services on dolomite land shall be in accordance with the requirements and standards selected by the Dolomite Risk Management Section from time-to-time and the requirements of any relevant Act, Regulation or Regulatory Authority.
- 3.29 Consideration be given to the implementation of a WIER System (Water Infrastructure Evaluation and Review System) on dolomite land when resources permit.

4. ALIENATION, LEASING OR GRANTING OF SERVITUDES ON EKURHULENI METROPOLITAN MUNICIPALITY LAND:

4.1 The Ekurhuleni Metropolitan Municipality shall establish and maintain dolomite risk management policies with respect to the alienation or leasing of its properties situated on dolomite land and the granting of servitudes on such land.

4.1.1 Where the EMM alienate or lease its property or grants a servitude to or allows the use of its properties in any other manner by a third party, the relevant agreement in respect of such alienation, leasing or granting shall contain the following clause:

It is hereby recorded that the property is situated on dolomite land and that sinkholes and, or subsidences may occur on the property or affect the property. The purchaser, lessee, grantee/ servitude holder/user accept such risk and shall have no claim whatsoever against the seller/lessor, grantor/ owner arising from damage or destruction of the property as a result of the occurrence of sinkholes and/or subsidences.

4.1.2 In the event that the EMM alienates, leases property situated on dolomite and or grants a servitude over such land the following further clause shall be included in the relevant agreement:

The seller/lessor/grantor does not guarantee and makes no warranty as to the condition or suitability of the soil for building or other purposes and accepts no responsibility or liability for any sinkhole, subsidence, cracks or movement of the soil or damage to any building or structure erected on land hereby sold howsoever caused and the purchaser, lessee, grantee hereby waives any claims to cancellation of the relevant agreement by reason of any deficiency in area, unsuitability of the soil or any latent defects in/on the property.

4.2 Dolomite Risk Management of Servitudes

4.2.1 Risk management standards are required on servitudes granted by the Council to third-parties. It is essential that the level of risk management within servitude areas matches that outside the servitude area. If servitudes over dolomite land is granted the following clauses shall be included in the deed of servitude:

The servitude holder shall efficiently execute dolomite risk management. The servitude holder shall further make sure that all infrastructure to be constructed within the servitude area comply with the standards and specifications as determined by the grantor's Dolomite Risk Management Section.

5. CONDITIONS OF ESTABLISHMENT The**following is resolved:**

The following condition of title shall be included in the Conditions of Establishment of new townships located on dolomite land in the Ekurhuleni Metropolitan Municipality:

It is recorded that the erf is located on dolomite land and is therefore susceptible to sinkhole and subsidence formation. The owner of the erf accepts the risk of such a hazard occurring and shall have no claim whatsoever arising from damage or destruction of the erf as a result of the occurrence sinkholes or subsidences caused by the ingress of water from leaking, privately owned services or poor storm water drainage on the erf. This clause is to be included in any deed of sale of an erf.

6. INSURANCE COVER**The following is resolved:**

That the Ekurhuleni Metropolitan Municipality provide insurance cover, commercial or self-insurance, within means available, for claims arising from damage resulting from the occurrence of a sinkhole and or subsidence, where acts or omissions by the Ekurhuleni Metropolitan Municipality may have directly contributed to the formation of such an event.

7. PENALTIES

It is resolved that appropriate penalties shall be determined, from time-to-time, by the Dolomite Risk Management Section of the Roads and Stormwater Department for contraventions of the Dolomite Risk Management by-laws by developers or landowners. The Dolomite Risk Manager is authorized to issue such penalties for contravention of the by-laws.