

MSUNDUZI MUNICIPALITY

**PIETERMARITZBURG
MSUNDUZI**

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Prepared for the DEA, DAEA&RD and Msunduzi Municipality by:

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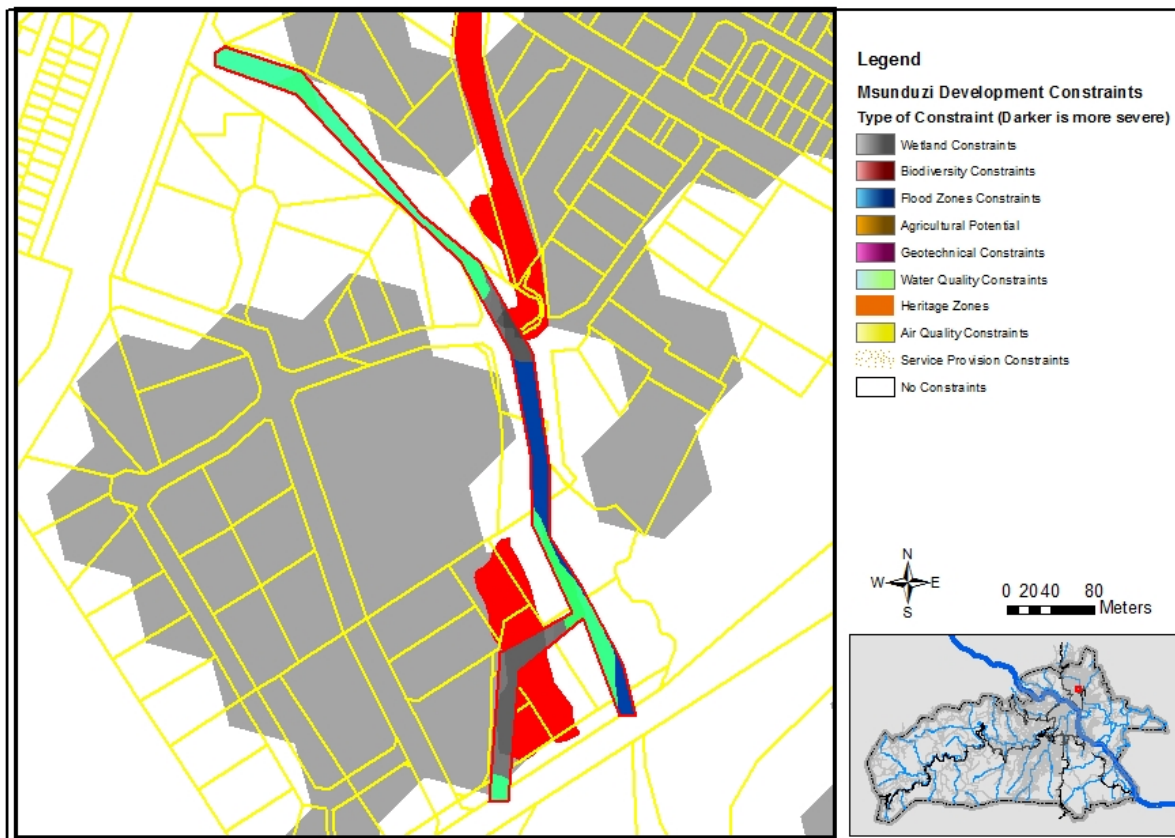
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PLEASE NOTE: LAYOUT MUST BE SET TO LANDSCAPE, BEFORE PRINTING THIS DOCUMENT

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Conservation Significance



Conservation Significance: High Wetland Development Constraint

Wetland areas are prized for the ecosystem goods and services that they provide in the form of water management and biodiversity conservation. Wetlands are deemed to be no-go areas in terms of development on site. Further specialist investigations including wetland delineation and functionality assessments should be undertaken to inform any proposed development application process on or within a reasonable distance of any wetland area.

No land use that will result in the transformation of wetlands is recommended. Wetlands should be retained for the ecosystem goods and services they supply, therefore only rehabilitation and conservation activities are proposed within this zone. There should be no net loss of wetland area or functionality as a result of any proposed development. In cases where wetland impacts cannot altogether be avoided or acceptably mitigated on-site, consideration must be given to establishing off-site wetland offsets that would result in positive impacts for wetland management in the region.

Should it be impossible to avoid the transformation of wetland habitat a suitable off-set area should be identified and conditions pertaining to the rehabilitation of the off-set area included as a condition of any development authorization.



Conservation Significance: High Biodiversity Constraint

Areas of high biodiversity are important for their intrinsic value and the ecosystem goods and services that they provide. These areas were identified by the Msunduzi C-Plan as being necessary to ensuring the persistence of biodiversity in Msunduzi. These areas have very high development constraint and care should be taken to ensure that large scale transformation does not occur and that the ecological functioning of these sites is not lost.

Any development proposed within this zone should be subject to a pre-feasibility assessment, which must include all necessary specialist biodiversity investigations and the consideration of alternatives. If the site is confirmed to be highly sensitive and the proposed activity is expected to result in the potential net loss of critical biodiversity elements, then the development should be considered fatally flawed from a biodiversity perspective and should not proceed.

Land use that would result in transformation or the net loss of critical biodiversity elements should not be undertaken in this zone.

Land use that is compatible with biodiversity management objectives and that would result in a net increase in biodiversity should be supported. This may be achieved through mitigation measures such as the consideration of alternatives; the reduction of land use density; the commitment to rehabilitation of any degraded areas; and, local indigenous landscaping. In cases where biodiversity impacts cannot altogether be avoided or acceptably mitigated on-site, consideration must be given to establishing suitable off-site biodiversity offsets that would result in positive impacts for biodiversity in the region.



Conservation Significance: High Flood Potential

Any development occurring within a possible flood zone is in danger of being affected by a river in flood and may place people and infrastructure in danger on-site, upstream or downstream of the site. Developments within flood prone areas may also negatively impact the river ecology and hydrology. If development is proposed within a flood zone a detailed flood line assessment should be conducted in order to ascertain the location of the 1:10, 1:50 and 1:100 flood lines for the site prior to the development of any infrastructure.

Should development be proposed within an established floodline, precautions must be made to ensure the protection of the infrastructure as well as any people associated with that development and, the protection of infrastructure and people both up- and down-stream of the site. Flood zone areas can contain ecological features that help mitigate flooding potential and if development is proposed within a predicted flood zone, care must be taken to ensure that the functioning of the flood zone area is not compromised. A hydrological and ecological assessment of the potential impact of large scale infrastructure proposed within the flood zone area should be undertaken.

Land use that will result in acceptable flood risk, or that would negatively impact on the ecological and hydrological functioning of the floodplain are not supported in the floodzone. More appropriate land uses for this zone would include uses that require little infrastructure or that would not negatively affect the functioning of the floodplain system such as sports fields and parks. The abattoirs, millers associated with these types of land use should however be located outside the determined floodline to ensure that they do not result in the pollution of the river system.



Conservation Significance: Good Agricultural Potential

These areas may have agricultural value, however this can only be determined through more detailed site specific slope and soil analysis. These areas could possibly have high agricultural potential and further investigation of these sites is recommended. If the site is deemed to have high agricultural potential then the management priorities and land use guidelines for the High agricultural potential constraint should be applied.



Conservation Significance: Gentle Slopes (0 - 10 degrees)

Gentle slopes (0-10 degrees) do not constrain development, however geotechnical studies should be undertaken to ensure that the site can accommodate the proposed development. Land use in these areas is not constrained by slope.



Conservation Significance: High Water Quality Constraints

Water quality within this catchment area has been seriously modified. In order for these catchments to be rehabilitated as per municipal requirements, catchment management interventions are required prior to any further development of the catchment. Development (future and present) within water quality constrained catchments should demonstrate how they intend to improve water quality within the catchment. Mechanisms proposed may include improved drainage; tracking and monitoring of legal and illegal discharge; management of agricultural activities; wetland and riverine rehabilitation and management; the improvement of waste services; and, the use of advanced effluent management and treatment systems in the catchment.

Land use in these catchments is severely constrained and only land use that would result in positive impacts to water quality should be undertaken. Monitoring of industrial and sewerage discharges and illegal activities will be critical in this zone. Activities such as recreation which make use of these river systems is also constrained as use of these rivers may result in impacts to human health.



Conservation Significance: High Air Quality constraints

This area is located below the inversion layer in the Municipality and is therefore most sensitive to air pollution emissions. The area has the highest ambient pollutant concentrations. Prior to any development commencing in this zone that will result in air pollutant emissions it is recommended that a Tier 3 Air Quality Assessment be undertaken. It is recommended that existing emitting industry within this zone be encouraged to invest in cleaner production technology in order to reduce emissions. Development that will result in unacceptable air pollutant emissions is not recommended for this area. Development such as schools or social facilities, sensitive to poor air quality is also not recommended for this area, especially in close proximity to air pollution emission sources, if possible.



Conservation Significance: Low Cultural Heritage Significance

No cultural heritage resources have been identified in these areas. It is however acknowledged that the data set used to identify sites and zones of cultural significance is incomplete and focused mainly European cultural heritage sites. Cultural heritage assessments must be undertaken in accordance with the requirements of the KZN Heritage Resources Act. Amafa aKwaZulu-Natali should be consulted prior to any transformation of buildings older than 60 years. If any potential heritage objects are identified during any earthmoving activities, all development activities should immediately cease, and may only proceed with the approval of Amafa aKwaZulu-Natali.

Land use should not negatively impact on the cultural or historic importance of any area or any specific cultural heritage resources identified.



Conservation Significance: Very High Service Provision

This zone has all of the service required for the sustainability of developments. New developments may however exceed the current capacity of the zone and investigations into the capacity and possible upgrading of the services within this zone may be needed. Land use is therefore not limited by the existence of basic services but rather by their capacity. Service capacity, particularly of existing infrastructure, should be considered prior to the approval of any development that would result in increased population density. Opportunities for alternative service options such as biodigesters and renewable energy (solar, wind, cogeneration) should be considered in this zone.

Attribute Information

LAYER: Intersect_Result. 37 features selected.												
FID	Name	Pred_Sens	Sensi_Code	Wetlands	B_iversity	Flood_Zone	Agric_Pot	Geotech	Water_Qual	Air_Qual	Heritage	Serv_Del
0		Water Quality	42007	No Wetland Area Identified	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
1		Water Quality	42106	Identified Wetland Buffer Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
2		Wetlands	93006	Identified Wetland Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
3		Flood Zones	73204	Identified Wetland Buffer Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
4		Flood Zones	73204	Identified Wetland Buffer Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
5		Water Quality	42205	Identified Wetland Buffer Area	No Biodiversity Constraint	None	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
6		Wetlands	93006	Identified Wetland Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
7		Wetlands	94005	Identified Wetland Area	High Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
8		Wetlands	93006	Identified Wetland Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
9		Wetlands	93105	Identified Wetland Area	No Biodiversity Constraint	None	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
10		Water Quality	42106	No Wetland Area Identified	No Biodiversity Constraint	None	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
11		Flood Zones	73105	No Wetland Area Identified	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels

12		Water Quality	42205	Identified Wetland Buffer Area	No Biodiversity Constraint	None	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
13		Flood Zones	73204	Identified Wetland Buffer Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
14		Water Quality	42106	Identified Wetland Buffer Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
15		Flood Zones	73105	Identified Wetland Buffer Area	No Biodiversity Constraint	Within Flood Zone	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
16		Flood Zones	73006	No Wetland Area Identified	No Biodiversity Constraint	Within Flood Zone	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
17		Flood Zones	73204	Identified Wetland Buffer Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0 - 0.5 degrees (Extremely Flat)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
18		Flood Zones	73105	No Wetland Area Identified	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
19		Flood Zones	73105	No Wetland Area Identified	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
20		Flood Zones	73204	Identified Wetland Buffer Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
21		Wetlands	94104	Identified Wetland Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
22		Wetlands	94104	Identified Wetland Area	High Biodiversity Constraint	None	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
23		Wetlands	93105	Identified Wetland Area	No Biodiversity Constraint	None	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
24		Wetlands	95103	Identified Wetland Area	High Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
25		Wetlands	94104	Identified Wetland Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
26		Wetlands	94104	Identified Wetland Area	No Biodiversity Constraint	Within Flood Zone	Investigation into Agricultural Potential Required	0 - 0.5 degrees (Extremely Flat)	Catchment Management Intervention Required	High Air Quality Contraints	Base	Very High Service Levels
27		Wetlands	93105	Identified Wetland	No Biodiversity	None	Investigation into Agricultural	0 - 0.5 degrees (Extremely	Catchment Management Intervention	High Air Quality	Base	Very High Service

				Area	Constraint		Potential Required	Flat)	Required	Contraints		Levels
28		Wetlands	93006	Identified Wetland Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0 - 0.5 degrees (Extremely Flat)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
29		Water Quality	42106	Identified Wetland Buffer Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0 - 0.5 degrees (Extremely Flat)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
30		Water Quality	42106	Identified Wetland Buffer Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
31		Water Quality	42106	Identified Wetland Buffer Area	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	6 - 10 degrees (Steep)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
32		Water Quality	42007	No Wetland Area Identified	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	6 - 10 degrees (Steep)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
33		Water Quality	42007	No Wetland Area Identified	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
34		Water Quality	42106	No Wetland Area Identified	No Biodiversity Constraint	None	Investigation into Agricultural Potential Required	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
35		Water Quality	42007	No Wetland Area Identified	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels
36		Water Quality	42007	No Wetland Area Identified	No Biodiversity Constraint	None	Urban - Not Available for Agriculture	0.5 - 6 degrees (Moderate Slope)	Catchment Management Intervention Required	High Air Quality Contraits	Base	Very High Service Levels