Gauteng Provincial Environmental Management Framework

Supplementary information to the Environmental Management Zones map poster

Table 1: Developments or land uses that would be compatible, conditionally compatible and undesirable in the Environmental Management zones

Category of developments or land uses	Developments or land uses[1]	Zones that are:		
		Compatible with the developments or land uses	Conditionally compatible with the developments or land uses	Undesirable for the developments and land uses
Agriculture & fisheries	Crop production (excluding existing crop production).	4	3	1, 2 and 5
	Cultivation of virgin soil.	4	1 and 5	2 and 3
	Animal production (free range).	3 and 4	2	1 and 5
	Agricultural infrastructure.	4	3	
	Battery farming (poultry, feedlots, etc.).	4	5	1, 2 and 3
	Aquaculture (off stream).	5	4	1, 2 and 3
	Urban agriculture.	1 and 5	4	2 and 3
Forestry	Production forestry.	4	5	1, 2 and 3
	Subsistence forest use (small scale forest use).	4	1 and 5	2 and 3
	Agroforestry.	4	5	1, 2 and 3
	Forestry research & education.	4	1 and 5	2 and 3
	Forest resource use (natural indigenous).		1, 4 and 5	2 and 3
	Forest recreation & tourism.	3 and 4	1 and 2	5
	Forest cultural / spiritual use.	1, 2, 3 and 4		
Conservation	Protected areas.	2 and 3	4	1 and 5
	Conservation areas.	2 and 3	4	1 and 5
	Cultural and historical conservation of sites, features and precincts.	1, 2, 3, 4 and 5		
Residential	Accommodation establishments / temporary or transient formal residential.	1	5	2, 3 and 4
	Multiple residential.	1	5	2, 3 and 4
	Single residential.	1	5	2, 3 and 4
	Transitional residential settlement area.	1	5	2, 3 and 4
	Dispersed residential.	1	5	2, 3 and 4
	Farm worker accommodation.	3 and 4	5	1 and 2
	Living accommodation for domestic workers.	1	5	2, 3 and 4
	Holiday housing.	1 and 4	3	2 and 5
	Rural residential development nodes (not		4	1, 2, 3 and 5

[1] Based on the new land use categories currently being developed by the Department of Rural Development and Land Affairs as part of the SPLUMA implementation.

Table 2: General guidelines for the Environmental Management Zones

Ref.	Guideline description	Applicable zones
	Water utilisation	
1.	Water utilisation from the surface natural hydrological system in this zone should be kept to an absolute minimum. Preservation of the water systems in its most natural state possible is desired as rivers and streams form the most important links with natural areas in other zones. No additional damming of rivers and streams should be allowed in this zone.	1, 2, 3, 4 and 5
2.	Water abstraction from karst aquifers (aquifers occurring in dolomite) in this zone should be prohibited except in places where it forms part of the management of Acid Mine Drainage (AMD) as authorised by the Department of Water and Sanitation (DWS).	1, 2 and 5
	Water quality and stormwater management	
3.	The water quality of all rivers in this zone is unacceptable and should not be allowed to deteriorate any further due to any kind of development. Legislation to protect water quality and prevent pollution should be strictly enforced and policed.	1, 2, 3, 4 and 5
4.	The management of stormwater to prevent flooding must be done in accordance with the requirements of the relevant municipal engineer, and in accordance with DWS requirements, which must ensure that additional runoff water is stored and released at a rate that will not impact negatively (not be more than before the development activity) on the natural flow capacity of rivers and streams. Caution must be exercised in dolomitic areas where stormwater retention methods and structures should be approved by the South African Council for Geosciences. Special caution must also be exercised in instances where additional runoff is released on granitic soils, especially in the presence of shallow perched water tables underlain by a hard plintic (hard ferrous or "ouklip") layer.	1, 4 and 5
5.	Stormwater retention facilities should ideally incorporate an additional 15% to 20% capacity to cater for potential higher runoff events that are likely to occur as a result of climate change.	1 and 5
6.	The use of impermeable surface in new developments should be kept to the minimum and SuDS[3] components should be included to the extent possible.	1 and 5
7.	Stormwater management must be based on the following principles: • The need to protect the health, welfare and safety of the public, and to protect property from flood hazards by safely routing and discharging stormwater from developments; • the quest to improve the quality of life of affected communities; • the opportunity to conserve water and make it available to the public for beneficial uses; • the responsibility to preserve the natural environment; • the need to strive for a sustainable environment while pursuing economic development; and • the desire to provide the optimum methods of controlling runoff in such a way that the main beneficiaries pay in accordance with their potential benefits. The following guidelines must be applied to all development activities in this zone in a manner that will satisfy these principles: • Water Research Commission Report, 2012. *The South African Guidelines for Sustainable Drainage Systems*. • CSIR, 2000. *Guidelines for Human Settlement Planning and Design, Volume 2, Chapter 6: Stormwater Management*.	1 and 5
8.	Stormwater and sewage drainage must remain separate at all times.	1 and 5

[3] The South African Guidelines for Sustainable Drainage Systems (SuDS), 2013 (WRC Report No. TT558/13 of the Water Resource Commission, by University of Cape Town) can be download from: http://www.wrc.org.za/Pages/DisplayItem.aspx?ItemID=10575&FromURL=%2fPages%2fKH_AdvancedSearch.aspx%3fdt%3d%26ms%3d%26d%3dThe+South+African+Guidelines+for+Sustainable+Drainage+Systems%26start%3d1 (registration might be necessary).

18.	General (non-recyclable) solid waste generated must be removed by the relevant local authority or service provider to an appropriate class landfill site.	1, 2 and 5
19.	New landfill sites should as far as possible be located in this zone.	5
	Housing / Residential	
20.	All new housing developments must comply with the energy efficiency requirements of the National Building Regulations through the application of South African National Standard[7] SANS 10400 Part XA: Energy usage in buildings.	1
21.	Green roofs and other source control methods should be incorporated into existing and new developments.	1
22.	Water recycling and the use of grey water should be included in design.	1
23.	The use of coal products for cooking and space heating must be prohibited in all new development activities.	1
24.	Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings.	1
25.	Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.	1
26.	LP Gas or natural gas should be considered as an alternative energy source to electricity for cooking, space heating and water heating (often very effective if combined with solar water heating).	1
27.	The Department of Public Works Guideline, Appropriate Development of Infrastructure on Dolomite: Guideline for Consultants, 2003, as well as the requirements of the Council for Geoscience as reflected in the South African National Standards (SANS)[8], must also be taken into account and be adhered to when development is envisaged on dolomites[9].	1
28.	Residential development in this zone should focus (there should be a bias/preference) on medium-density mixed housing in order to attain the desired higher density for the zone[10]. Residential development should also be planned to make maximum use of public transport (existing and future).	1
29.	Retail development should be planned to be efficient in terms of location in respect to customers (residential and places of work).	1
30.	Low density residential development, including new natural urban open space, in this zone should be located on land that is not suitable for medium to high density residential purposes due to geological constraints.	1
31.	Gardens and parks should be regarded as an important part of the "green infrastructure" of Gauteng[11] and should be incorporated in the planning of all new development in this zone. It should	1

[7] South African National Standards (SANS) documents must be purchased from the South African Bureau of Standards.

[8] There are six national standards (SANS), the SANS 1936 series, dealing with the subject of land development on dolomite (October 2012). The objective of the SANS 1936 series is to set requirements for the development of dolomite land in order to ensure that people live and work in an environment that is seen by society to be acceptably safe, where loss of assets is within tolerable limits, and where cost-effective and sustainable land usage is achieved. SANS 633:2012 soil profiling and rotary percussion borehole logging on dolomite land in Southern Africa for engineering purposes was developed for the purpose of soil and rock profiling for dolomite areas. The standard serves to standardise the methods, procedures and nomenclature required to accurately define ground profiles for the purposes of infrastructure development and the repair of subsiding dolomite land. SANS 634:2012 geotechnical investigations for township development identifies the applicable requirements for a preliminary and two-phase detailed geotechnical site investigation on unoccupied undeveloped parcels of land for settlement development purposes. SANS 633 and SANS 634 are complimentary to the SANS 1936 series.

[9] It is recognised that the cost of geotechnical investigations is very high and that it has a crippling effect on especially low cost housing projects in certain areas with devastating unintended consequences. This is a matter that needs to be dealt with urgently by all the relevant government organisations.

[10] For more insight please read: the June 2011 CSIR factsheet: Focus on medium-density mixed housing – and important component in the transformation of South African housing environments.

	○ Hazard mitigation; ○ Waste treatment; ○ Noise screening; ○ Stormwater management; ○ Prevent habitat fragmentation; and ○ Provision of habitats for indigenous plants and animals. • Social functions that include: ○ Provision of space for leisure and recreation; ○ Facilitating social contact and communication; ○ Allowing access to nature; ○ Providing space for, and allowing access to community (food) gardens; ○ Reduction of social inequality, ○ Promoting access to public open space, and ○ Influencing human health and well-being. • Structural and symbolic functions including: ○ Articulating, dividing and linking areas of the urban fabric; ○ Improving the legibility of the urban landscape; ○ Establish as sense of place; and ○ Provide identity, meaning and values.	
	Industry and commercial	
47.	Non-polluting industry and large commercial activities should be located in this zone whenever possible.	5
48.	New industrial and commercial developments should only be allowed in this zone if there is no suitable alternative location available in Zone 5. Any such location of commercial and industrial developments must take the guidelines applicable to Zone 1 into account.	1
49.	Solar energy, especially for the heating of water but also space heating, should be maximised in all buildings. Solar energy for the purpose of lighting must also be promoted together with the use of LED globes and other energy saving innovations.	1 and 5
50.	The large roof areas of new and existing Industrial and commercial facilities including covered parking lots provide ideal surfaces for mass installation of solar energy panels and should be considered as an option in every new development.	5
51.	Open parking areas should adhere to principles of SuDS and include permeable paving, swales and bio-retention areas.	5
52.	Water recycling and the use of grey water should be included in design.	5
53.	Green infrastructure should be used in these areas for water and air purification and water treatment.	5
54.	Green roofs and roof gardens should also be prioritised as this would change the urban heat environment.	5
55.	Rain water tanks and other source control measures must be incorporated into the designs of buildings.	5
	Mining	
56.	Existing legal mining operations should be allowed to continue in this zone provided that it meets the relevant legal requirements in terms of emissions, effluent and noise.	1, 2, 3, 4 and 5
57.	New mining development would be preferred in this zone provided that it will meet the relevant legal requirements in terms of emissions, effluent and noise.	5
58.	Green and ecological infrastructure should be used in these areas for water and air purification and water treatment.	5
59.	No new mining development should be allowed in this zone.	1,2 and 3

	infrastructure and vehicles on pollution, stormwater, etc.	
	Nature conservation	
71.	Conservation is the primary objective in this zone and no new residential, retail, business, commercial, industrial or any other land use, with the exception of unavoidable linear service infrastructure, may be allowed in this area.	2
72.	Municipal SDFs must establish ecological linkages and corridors with Zone 2: High Control Zone (within the urban development zone) by incorporating municipal Bioregional Plans in the SDFs where such plans exist or by using the Ecological Support Arras (ESAs) as defined in C-Plan 3.3 where there is no municipal Bioregional Plans[14].	1
73.	The protection of Critical Biodiversity Areas and Ecological Support Areas is the primary objective in this zone and no new residential, retail, business, commercial, industrial, mining or any other land use, with the exception of unavoidable linear service infrastructure, may be allowed in this area, with the exception of tourism hospitality facilities that adhere to SuDS and green infrastructure principles where the zone also forms part of a Special Control Zone (e.g. Dinokeng and the Cradle of Humankind Word Heritage Site) which has area specific management plans and objectives.	3
74.	Land used for agriculture in this area forms part of Ecological Support Areas and agriculture should therefore continue on such land as a compatible land use.	3
	Agriculture	
75.	Agriculture is a primary activity in this zone and new development activities that would impact on agriculture potential[15] in this zone should not be allowed, with the exception of unavoidable linear service infrastructure that may be allowed in this area.	4
76.	New agricultural practices must allow enough land to remain in a natural state to allow for refugia for pollinators and predators of pests (ecosystem services to farmers, especially small scale ones).	4
77.	New agricultural practices should take water wise principles into account, using rain gardens and retention strategies whenever possible.	4
78.	New extensive agriculture should not be encouraged in this zone. Existing farming may continue as long as it remains viable in the urban development context.	1, 2, 3 and 5
79.	Small scale niche market agriculture may be appropriate as part of other development initiatives. The feasibility and desirability of such initiatives should be evaluated as part of the town/development planning process in this zone.	1 and 5
80.	Vegetable gardens and fruit trees within the urban development structure should be encouraged in this zone, especially if it makes extensive use of rainwater runoff.	1
81.	The use of polluting fertilisers and pesticides should be limited and releasing polluted water into the natural system must be prohibited.	4
	Game and cattle farming	
82.	Sustainable game and cattle faming may be appropriate in this zone but each new development of such farming activities should be assessed for its sustainability in terms of natural veld conditions.	3 and 4
83.	Game and cattle farming should not be encouraged in this zone. Existing game (with the necessary permits) and cattle farming may continue as long as it remains viable in the urban development context.	1 and 5

[14] The establishment of spatial linkages and corridors that form part of the green and ecological infrastructure of the envisaged future urban area can only be achieved in the spatial planning process. It is not feasible to achieve a functional outcome through the EIA process that focus on individual applications.

[15] Refer to: Gauteng Agricultural Potential Atlas (GAPA IV), 2014.

26	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	X	X
29	The expansion of facilities for the generation of electricity where: (i) the electricity output will be increased by 10 megawatts or more, excluding where such expansion takes place on the original development footprint; or (ii) regardless the increased output of the facility, the development footprint will be expanded by 1 hectare or more.		X
37	The expansion of facilities or infrastructure for the bulk transportation of water, sewage or stormwater where: (a) the facility or infrastructure is expanded by more than 1000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more– excluding where such expansion: (i) relates to transportation of water, sewage or storm water within a road reserve; or (ii) where such expansion will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.	X	X
38	The expansion of facilities for the transmission and distribution of electricity where the expanded capacity will exceed 275 kilovolts and the development footprint will increase.	X	X
41	The expansion of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, where the combined capacity will be increased by 50000 cubic metres or more.	X	X
42	The expansion of facilities for the storage, or storage and handling, of a dangerous good, where the capacity of such storage facility will be expanded by 80 cubic metres or more.	X[18]	X
46	The expansion of cemeteries by an additional 2500 square metres or more.	X	X
47	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre - (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres – excluding widening or lengthening occurring inside urban areas.	X	X
50	The expansion of airports where the development footprint will be increased.	X	X
52	The expansion of facilities or infrastructure for the transfer of water from and to or between any combination of the following: (i) water catchments; (ii) water treatment works; or (iii) impoundments; where the capacity will be increased by 50 000 cubic metres or more per day, but excluding water treatment works where water is treated for drinking purposes.	X	X
53	The expansion of railway lines, stations or shunting yards where there will be an increased development footprint – excluding: (i) railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) underground railway lines in mines; and (iii) additional railway lines within the reserve of an existing railway line.	X	X
55	The expansion of a dam where: (i) the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more; or (ii) where the high-water mark of the dam will be increased with 10 hectares or more.	X	X

[18] Only in respect to filling stations.

Table 5: Proposed exclusion/exemption activities in respect to No. R. 546 18 June 2010: LISTING NOTICE 3: LIST OF ACTIVITIES IN RESPECT TO GAUTENG

Activity No	Activity description (applicable portions)	Zone 1	Zone 5
1(b)	The construction of billboards exceeding 18 square metres in size outside urban or mining areas or outside industrial complexes, within: v. Sites identified as irreplaceable or important sites in the Gauteng Conservation Plan.	X	X
2(b)	The construction of reservoirs for bulk water supply with a capacity of more than 250 cubic metres, within: v. Sites identified as irreplaceable or important sites in the Gauteng Conservation Plan; vi. Areas larger than 2 hectares zoned for use as public open space.	X	X
3(b)	The construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast: (a) is to be placed on a site not previously used for this purpose, and (b) will exceed 15 metres in height, but excluding attachments to existing buildings and masts on rooftops, within (b): v. Sites identified as irreplaceable or important sites in the Gauteng Conservation Plan, and, vi. Areas larger than 2 hectares zoned for use as public open space.	X	X
4(b)	The construction of a road wider than 4 metres with a reserve less than 13,5 metres, within: v. Sites identified as irreplaceable or important in the Gauteng Conservation plan; vi. Areas larger than 2 hectares zoned for use as public open space; ix. Any site identified as land with high agricultural potential located within the Agricultural Hubs or Important Agricultural Sites identified in terms of the Gauteng Agricultural Potential Atlas, 2006.	X	X
5(c)	The construction of resorts, lodges or other tourism accommodation facilities that sleep less than 15 people, outside urban areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.	X	X
5(e)	The construction of resorts, lodges or other tourism accommodation facilities that sleep less than 15 people, within: i. Sites that have been identified as irreplaceable or important in the Gauteng Conservation Plan; ii. Any sites located within the Agricultural Hubs or Important Agricultural Sites identified in terms of the applicable Gauteng Agricultural Potential Atlas.	X	X
6(b)	The construction of resorts, lodges or other tourism accommodation facilities that sleep 15 people or more, within: v. Sites identified as irreplaceable or important in the Gauteng Conservation Plan; vii. Any sites located within the Agricultural Hubs or Important Agricultural Sites identified in terms of the applicable Gauteng Agricultural Potential Atlas.	X	X
7(b)	The conversion of existing structures to resorts, lodges or tourism accommodation facilities that sleep 15 people or more, within: v. Sites identified as irreplaceable or important in the Gauteng Conservation Plan; vii. Any sites located within the Agricultural Hubs or Important Agricultural Sites identified in terms of the applicable Gauteng Agricultural Potential Atlas.	X	X
8(b)	The construction of aircraft landing strips and runways [shorter than 1,4 kilometres] 1.4 kilometres and shorter, within: v. Sites identified as irreplaceable or important in the Gauteng Conservation Plan.	X	X
9(b)	The construction of above ground cableways and funiculars within: ii. Sites identified as irreplaceable or important in the Gauteng Conservation plan.	X	X
10(c)	The construction of facilities or infrastructure for the storage, or storage and handling	X	X

	viii. Areas larger than two hectares zoned for use as public open space.		
24(b)	The expansion of (a) jetties where the jetty will be expanded by 10 square metres in size or more; (b) slipways where the slipway will be expanded by 10 square metres or more; (c) buildings where the buildings will be expanded by 10 square metres or more in size; or (d) infrastructure where the infrastructure will be expanded by 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. Within: (b)v. Sites identified as irreplaceable or important in the Gauteng Conservation Plan.	X	X
25	The expansion of facilities, infrastructure or structures of any size for any form of aquaculture.	X	X
26	The following phased activities for all activities listed in this Schedule: 1(b)v., 2(b)iv and vi., 3(b)v. and vi., 4(b)v., vi. and ix., 5(c),(e)i. and ii., 6(b)v. and vii., 7(b)v. and vii., 8(b)v., 9(b)ii., 10(c)v., 12(b)., 13(a) and (d)v., 16(b)v., 17(b)v. and vii., 18(b)v. and vii., 19(b)v. and vi., 20(b)v., 21(b)ii., 22(d)v. and viii., 23(b)v. and viii., 24(b) v,. 25.	X	X

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