SECTION E: ENVIRONMENTAL COMPOSITE

SECTION SYNOPSIS
This section provides a summary and sensitivity analysis of the key environmental characteristics of the site. These assessments will provide the basis for the preparation of the development suitability plan for the GRCA.

The Environmental Composite serves as background for the following:

a) Determining the suitability of the site for the proposed developments
b) Preparing information for the Site Development Plan, which provides the spatial parameters for all aspects of the proposed projects.

5. ENVIRONMENTAL COMPOSITE

5.1 ENVIRONMENTAL COMPOSITE PROCESS

The primary objectives with the Environmental Composite are the following:

1. Provide a basis for the preparation of a Development Suitability Plan
2. Determine the spatial parameters for the proposed projects that will be illustrated by the Site Master Plan. Diagram 1 below illustrates relationship between the various plans and related maps.
Diagram 1: Process development and relationships
5.2 SPATIAL ZONING PARAMETERS

In Chapter 3 (Site Description and Context), the Biophysical aspects, Social context and Current land use was explained and mapped. The suitability analysis procedure explained in Chapter 4 (Guidelines and Principles for Planning, Design and Management) will now be used to overlay each of the Biophysical Characteristics with Conservation, Agriculture, Recreation and Urbanisation to reveal the relative values for each region. Table 6 gives a description and basic purpose of these four primary zones.

In order to provide more detailed information for the zoning of each of the primary zones, a matrix was developed for both the Gourits River Catchment Area (GRCA) as well as the Kannaland Tourism Node (KTN). It shows all the possible zoning elements and requirements related to each of the primary zones (Refer to Addendum B). These elements are then evaluated and categorized as either suitable (marked with an X) or not suitable. With these categories identified in each zone, a suitability plan for each of the primary zones is drawn up.

<table>
<thead>
<tr>
<th>ZONES</th>
<th>BASIC PURPOSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation Zones</td>
<td>• Comprising areas of conservation importance.</td>
</tr>
<tr>
<td></td>
<td>• Only non-consumptive land-sues may be allowed conditionally.</td>
</tr>
<tr>
<td>Agricultural Zones</td>
<td>• Constituting rural areas where extensive and intensive agriculture is practiced, including exotic forestry areas.</td>
</tr>
<tr>
<td>Urban Zones</td>
<td>• Representing a broad spectrum of nodal urban related settlements and associated services and infrastructure.</td>
</tr>
<tr>
<td></td>
<td>• Representing industrial areas.</td>
</tr>
<tr>
<td>Recreation Zones</td>
<td>• Representing all the possible recreation and tourism activities.</td>
</tr>
</tbody>
</table>

Table 7: The four primary spatial zones
5.2 SUITABILITY ZONING FOR THE GOURITS RIVER CATCHMENT AREA

5.3.1 Suitability Zones
5.3.1.1 Conservational Suitability Zones

Figure 22: Conservational Suitability Zones in the GRCA
5.3.1.2 Agricultural Suitability Zones

Figure 23: Agricultural Suitability Zones in the GRCA
5.3.1.3 Urban Suitability Zones

Figure 24: Urban Suitability Zones in the GRCA
5.3.1.4 Recreational Suitability Zones

Figure 25: Recreational Suitability Zones in the GRCA
5.4 SUITABILITY ZONING FOR THE KANNALAND TOURISM NODE (KTN)

5.4.1 CONSERVATIONAL SUITABILITY ZONE

Figure 26: Conservational Suitability Zones in the KTN

Conservational Suitability Zones
- Suitable for conservation
- Not suitable for conservation
5.4.2 AGRICULTURAL SUITABILITY ZONES

Figure 27: Agricultural Suitability Zones in the KTN

Agricultural Suitability Zones
- Suitable for agriculture
- Not suitable for agriculture
5.4.3 URBAN SUITABILITY ZONES

Figure 28: Urban Suitability Zones in the KTN
5.4.4 RECREATIONAL SUITABILITY ZONES

Figure 29: Recreational Suitability Zones in the KTN
5.4.5 RECREATION POTENTIAL

Figure 30: Recreational potential (DEAT 2002/3)
5.5 LAND-USE ZONES

The ecological characteristics, suitability's and potentials have now been identified and mapped. The next step in the planning process is to identify the relevant activities linked to the various values and zone them accordingly. In Table 6 the Zones are divided into activities and facilities needed. The intensity is the possible impact these facilities will have on the environment.

The three zones are:
- Conservational
- Cultural
- Recreational

Figure 31: Land-use Zones in the KTN
Table 8: Zoning of Kannaland Tourism Node

<table>
<thead>
<tr>
<th>ZONING OF LADEMTH TOURISM NODE</th>
<th>CONSERVATIONAL ZONES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIVITIES</td>
<td>INTENSITY FACILITIES</td>
</tr>
<tr>
<td>SUPPORTING FACILITIES</td>
<td></td>
</tr>
<tr>
<td>Entrance</td>
<td>Medium</td>
</tr>
<tr>
<td>Nature management</td>
<td>Medium</td>
</tr>
<tr>
<td>Services</td>
<td>Medium</td>
</tr>
<tr>
<td>Utilization</td>
<td></td>
</tr>
<tr>
<td>Veld study</td>
<td>Low</td>
</tr>
<tr>
<td>Bird watching</td>
<td>Low</td>
</tr>
<tr>
<td>Hiking</td>
<td>Low</td>
</tr>
<tr>
<td>Game viewing</td>
<td>Low</td>
</tr>
<tr>
<td>Horse Riding</td>
<td>Low</td>
</tr>
<tr>
<td>Nature management</td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td></td>
</tr>
<tr>
<td>Utilization</td>
<td></td>
</tr>
<tr>
<td>Formal learning</td>
<td>High</td>
</tr>
<tr>
<td>Informal learning</td>
<td>Low</td>
</tr>
<tr>
<td>Educational trips</td>
<td>Low</td>
</tr>
<tr>
<td>Cultural zones</td>
<td></td>
</tr>
<tr>
<td>SUPPORTING FACILITIES</td>
<td></td>
</tr>
<tr>
<td>Entrance</td>
<td>Low</td>
</tr>
<tr>
<td>Sanitary</td>
<td>Low</td>
</tr>
<tr>
<td>Services</td>
<td>Low</td>
</tr>
<tr>
<td>Eat and Drink</td>
<td>Medium</td>
</tr>
<tr>
<td>Recreation</td>
<td></td>
</tr>
<tr>
<td>Hiking</td>
<td>Low</td>
</tr>
<tr>
<td>Walking</td>
<td>Low</td>
</tr>
<tr>
<td>Camping</td>
<td>Medium</td>
</tr>
<tr>
<td>Picnic</td>
<td>Medium</td>
</tr>
<tr>
<td>Braai</td>
<td>Medium</td>
</tr>
<tr>
<td>Cycling</td>
<td>Low</td>
</tr>
<tr>
<td>Accommodation</td>
<td>High</td>
</tr>
<tr>
<td>Canoeing</td>
<td>Low</td>
</tr>
<tr>
<td>Swimming</td>
<td>Low</td>
</tr>
</tbody>
</table>

Conservational Zones:
- Entrance control, parking, ablutions, info centre
- Fauna and Flora
- Service roads

Cultural Zones:
- Entrance control, parking, ablutions, info centre
- Cultural centre
- Info kiosks at cultural historical features
- Cultural, historical features

Recreational Zones:
- Entrance control, parking, ablutions, info centre
- Trails, info centres, waterpoints
- Chalets, ablution, parking, caravan stands, food preparing areas, services
- Picnic area
- Picnic area, taps, tables
- Cycling routes
- Chalets
- Perennial water, waterfront
- Swimming pool
## RECREATIONAL ZONES

<table>
<thead>
<tr>
<th>ACTIVITIES</th>
<th>INTENSITY</th>
<th>FACILITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RECREATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Horse Riding</td>
<td>Low</td>
<td>Horse trails, Stables</td>
</tr>
<tr>
<td>Climbing</td>
<td>Low</td>
<td>Info centre</td>
</tr>
<tr>
<td>Scenic Drives</td>
<td>Low</td>
<td>Info boards, Gateway, Roadside stalls, Restaurants</td>
</tr>
<tr>
<td>Viewing</td>
<td>Low</td>
<td>Fauna, Flora, Waterfalls, Rock Formations, Landforms, Topographical features, Cultural Patterns, Man-made structures, Historical, Archeological, Geological</td>
</tr>
</tbody>
</table>
5.5.1 CONSERVATION

Conservational activities are related to the study of nature and natural processes. These activities do not need facilities as such, but are in need of relatively unspoilt natural features. Some of the proposed activities are listed below:

- Veld study
- Bird watching
- Wilderness trail
- Game viewing
- Horse riding
- Hiking

Figure 32: Conservational Zones in the KTN
5.5.2 CULTURE

These activities are linked to the way in which human utilize the environment and relevant historical structures. The successes of these activities are therefore dependent on the integration of these structures such as fountains and homesteads.

They are listed below:
- Formal learning
- Informal learning
- Educational trips

Figure 33: Cultural Zones in the KTN

Cultural Zone 1:
- Entrance
- Cultural tours
- Info Centre
- Historical Features

Cultural Zone 2:
- Cultural Centre
- Historical Features

Cultural Zone 3:
- Info Kiosk
- Historical Features

Figure 33: Cultural Zones in the KTN
5.5.3 RECREATION

Recreation activities can be either passive activities linked to the environmental features or active activities linked to both open space and facilities. Their impact can be fairly high and therefore management input to deal with these impacts must be high.

These activities are listed as follows:
- Hiking
- Walking
- Camping
- Picnic
- Braai
- Cycling
- Accommodation
- Canoeing
- Swimming
- Horse riding
- Climbing
- Scenic drives
- Viewing

Figure 34: Recreation Zones in the KTN
5.6 SITE ANALYSIS

5.6.1 ZONE 2:

- Site for picnic, braai and recreation activities possible drainage
- Starting point for hiking and horse trails
- Gravel road in good condition
- Vineyards

**Figure 35: Site Analysis – Zone 2**
5.6.2 ZONE 3:

Figure 36: Site Analysis – Zone 3
5.6.3 ZONE 3:

Figure 37: Site Analysis - Zone 4
5.7 SENSITIVITY ANALYSIS

The three zones of the Kannaland Tourism Node is analysed and divided into six sensitivity areas. These areas are then analysed according to the extent of degradation, ecological sensitivity, and aesthetic sensitivity. Table 9 provide the description of each area.

Table 9: Sensitivity analysis area descriptions

<table>
<thead>
<tr>
<th>AREA</th>
<th>DESCRIPTION</th>
<th>EXTENT OF DEGRADATION</th>
<th>ECOLOGICAL SENSITIVITY</th>
<th>AESTHETIC SENSITIVITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Modified sites</td>
<td>Severe</td>
<td>Very low</td>
<td>Low to medium</td>
</tr>
<tr>
<td>2</td>
<td>Former agricultural fields</td>
<td>High</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>3</td>
<td>Modified natural remnants</td>
<td>Medium</td>
<td>Low to medium</td>
<td>Low to medium</td>
</tr>
<tr>
<td>4</td>
<td>Watercourses</td>
<td>High to medium</td>
<td>Medium to high</td>
<td>Low to high</td>
</tr>
<tr>
<td>5</td>
<td>Natural vegetations</td>
<td>Medium to low</td>
<td>Medium to high</td>
<td>High</td>
</tr>
<tr>
<td>6</td>
<td>Continuous tracts of Fynbos</td>
<td>Medium to low</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>
5.7.1 ZONE 2

Figure 38: Sensitivity Analysis – Zone 2
5.7.2 ZONE 3

Figure 39: Sensitivity Analysis – Zone 3
5.7.3 ZONE 4

Figure 40: Sensitivity Analysis – Zone 4