Hi my name is CarboNoxx. I am a Second Life Avatar representing the Qarbon Qampus Virtual World. Today we will be doing a real world assessment for a development. My Role is that of a student at the University of the Western Cape assuming the role of a farmer and I am looking to develop a farm to be used in growing and contributing to food security in the Western Cape given the current issue of providing food to the masses.
New centre pivot irrigation potato fields
Combatting the Issue of Food Security!

What is the New centre pivot irrigation potato fields and why is it significant?

Co-ordinates (dd): 32.5191 S, 18.4429 E

The potato farm development’s eight fields will be grouped in pairs to form a rectangle two fields wide and four deep. The top two will lie adjacent to the farm boundary to the east of the coordinates given and the rest be will be South of these. These potatoes will be used for making "French fries" for a well know international fast food company that specializes in chicken.

These are for the purpose of alleviating food security pressures due to growing fears of not being able to meet food needs for those in the country.
New centre pivot irrigation potato fields
Where will it be located?

The potential site for the Potato farm development lies on the boundary of farmlands within the area North East of Dwarskerbos in the Bergrivier Municipality.
Summary of Bergrivier Integrated Development Plan IDP Goals

- Create a financially viable and sustainable Municipality
- An effective productive administration capable of sustainable service delivery
- A corruption free municipality
- A quality living environment that is conducive to development
- A safe, healthy and secure living environment
- Sustainable development of the Municipal Area (environment, economy, people) including Food Security

Bergrivier Municipality Profile

Description
Bergrivier Municipality is a local municipality located within the West Coast Municipality in the Western Cape province. The municipality is a popular caravanning and holiday location including various holiday resorts, camping facilities and caravan parks. The Municipality is bordered to the North by the Cederberg Municipality, to the West by the Saldanha Bay Municipality, to the South by Swartland Municipality and to the East by the Drakenstein and Witzenberg Municipalities.

General statistics
Area: 4 407 km²
Total Population 2011: 61 897
Population density: 14/km²
Bergrivier Municipality
Transformation and protection

Total area: 440704.3ha

Landscape transformation
The split between remaining natural landscape and transformed landscape is approximately 50% each.

Protected areas
Formal land-based protected areas: 5 reserves covering 33975ha (7.7% of Municipality)
Bergrivier municipality

Vegetation types – original extent

Main vegetation types (>10% of municipal area)

- Swartland Shale Renosterveld 31.61%
- Hopefield Sand Fynbos 23.09%
- Leipoldtville Sand Fynbos 17.77%
- Piketberg Sandstone Fynbos

Other vegetation types (<10% of municipal area)

- Swartland Silcrete Renosterveld 0.27%
- Western Altimontane Sandstone Fynbos 0.02%
- Winterhoek Sandstone 6.74%
- Saldanha Flats Strandveld 1.76%
- Swartland Alluvium Fynbos 1.23%
- Northern Inland Shale Band Vegetation 0.66%
- Olifants Sandstone Fynbos 1.4%
- Piketberg Quartz Succulent Shrubland 0.05%
- Langebaan Dune Strandveld 2.02%
- Cape Estuarine Salt Marshes 0.54%
- Cape Inland Salt Pans 0.08%
- Cape Seashore Vegetation 0.08%
- Cederberg Sandstone Fynbos 0.12%
- Graafwater Sandstone Fynbos 2.07%
Bergrivier Municipality
Nationally listed threatened ecosystems

Percentage of municipal area now covered by threatened ecosystem shown

- Swartland Alluvium Fynbos – 0.25%
- Swartland Shale Renosterveld – 4.3%
- Swartland Silcrete Renosterveld – 0.02%
  - Critically Endangered

- Cape Vernal Pools – >1%
  - Endangered

- Cederberg Sandstone Fynbos – 0.07%
- Hopefield Sand Fynbos – 7.95%
- Leipoldtville Sand Fynbos – 8.4%
- Piketberg Quartz Succulent Shrubland – 0.03%
- Piketberg Sandstone Fynbos – 9.02%
- Saldanha Flats Strandveld – 0.27%
  - Vulnerable
Bergrivier Municipality
Nationally listed threatened ecosystems

Map showing the original extent of the ecosystems which are now threatened
Bergriver District Conservation Plan Assessment

Assessment location

The map to the right shows the assessment area which was run for the identified potential location of the Dwarskerbos potential potato farm.

Assessment results

The assessment report is a compilation of data of various spatial biodiversity data sets and planning production. These are:

1. National terrestrial or aquatic spatial data sets and protected area boundaries and
2. The most relevant Biodiversity Conservation Plan BCP for the municipality in which the assessment is located. In the case of Bergriver the most relevant is the Fine Scale Conservation Plan.
**Threatened Ecosystems**

Section 1.1.1 of the report lists one national threatened ecosystem which does occur within the assessment area. Although this information is extracted from the original extents of these ecosystems, satellite imagery of the area does indicate a small amount of the vegetation within the development area. If this is true then the ecosystem. The ecosystem in question is:

1. Leipoldtville Sand Fynbos

Note the results for the National vegetation types section 1.1.2 confirms that the only vegetation type which may occur is this Vulnerable Ecosystems.

**Soils**

The 3 soil classes encountered (section 1.1.4) are probably associated with the ecosystem within the analysis area. Further investigation into their properties revealed that:

1) Freely drained, structureless soils
2) Imperfectly drained sandy soils
3) Imperfectly drained soils, often shallow with a plinthic horizon.

**Indigenous Forest Patches**

There were no indigenous forest patches (section 1.1.3)
Bergriver District Conservation Plan Assessment
Rivers, wetlands and protected areas

National Fresh Water Priority Areas (NFEPA)

Wetlands

No Wetlands Occurred within the Analysis area

Rivers Units Sub-quaternary catchments (River FEPA’s)
The Analysis area included 2 sub-quaternary catchments of which only one had a FEPA status.
This FEPA status was upstream making it an Upstream Management Area.

Protected Areas (NBA 2011)
The analysis area did intersect any formal protected areas however an informal focus area was present (Section 1.3) This area was in fact the West Coast Leipoldtville Peninsula.

Note: The analysis area should likely be shifted in order to avoid this focus area.
In the Berg District Conservation Plan a lookup layer is provided which divides the area of the plan into units each of which gives biodiversity feature information responsible for the classification of the unit’s CBA map category CBA, ESA or PA. The analysis area intersected 228 of these such units (section 2). In the report each unit is listed separately rather than in a table due to the amount and complexity of information it contains.

**Critically Endangered ecosystems (CBAs)**

Most of the analysis area intersected with lookup layer units which were classified as Critical Biodiversity Areas. The biodiversity features responsible for this classification indicated potential occurrence of both endangered species and national threatened ecosystems. These units correspond with the one vulnerable Ecosystem within the area.

**Ecological Support Areas (ESAs)**

The analysis area intersected no CBA’s units classed as ESA’s.

**Protected Areas (PAs)**

The analysis area intersected no Formal protected areas although one focus area fell into the Analysis area.
Recommendations

• Given the exceptional concentration of rare, threatened, and localised species in this unit the ongoing and rapid transformation of this habitat by agriculture is of major national conservation concern.

• Due to this No new developments should be initiated unless Offset by significant Conservation gains.

• Dept. of Agriculture guidelines indicate a 15ha offset per every 1ha of land lost.
Prepared by your Second Life Ambassador

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Biodiversity & Conservation Biology
Environmental & Sustainability Studies