

**BACKGROUND INFORMATION DOCUMENT (BID) FOR CONSULTATION**

**DRAFT**

as a component of the  
**Basic Assessment (Environmental Impact Assessment Process)**  
 for the  
**Proposed Mdlazi Portal Culvert Bridge Upgrade Project,**  
**Hibiscus Coast Municipality**  
**EIA Reference No: TBA**

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**1. CONTACT NAMES AND ADDRESSES**

Interested and Affected Parties may contact the Environmental Consultant listed below for additional information.

Applicant:	Environmental Consultant:
	
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**2. BACKGROUND INFORMATION**

The proposed Mdlazi Portal Culvert Bridge project is an *in-situ* upgrade and of an existing stream crossing, located within Mdlazi in ward 21 of the Hibiscus Coast Municipality.

**Enviroedge cc.** was commissioned to undertake an environmental impact assessment for the proposed development in the form of a basic assessment. This basic assessment process is being undertaken in accordance with Regulations 19 – 20 in terms part 2 of chapter 4 of the National Environmental Management Act (Act No 107 of 1998), as amended, and the Environmental Impact Assessment Regulations of December 2014. These regulations identify various activities which may have a substantial detrimental effect on the environment. In addition the Regulations list procedures for assessing potential associated environmental impacts. Public participation and the scoping of issues form part of these procedures.

**3. PURPOSE OF THIS REPORT AND PUBLIC PARTICIPATION**

This report provides preliminary project information to enable interested and/or affected parties (IAPs) an opportunity to comment on the proposed development (a process known as public participation or scoping). All issues and comments raised by IAPs during scoping will be documented in the Comments and Reponses Report,

which is included in the Basic Assessment Report, submitted to the Department of Environmental Affairs and other commenting authorities. This will assist in the identification of environmental issues that could have a negative and/or positive impact on the site and the community.

#### 4. PROJECT LOCATION

The project area is situated approximately 6,6km north-west of the Port Shepstone CBD, within the semi-rural residential area of Mdlazi. Additional semi-rural areas of Mtengwana and Dujazana are located 2km north-west and 2km south-east of the site respectively. The semi-rural area of Boboyi is located to the immediate south (see **Figure 1** below), but on the opposite side of the National Highway (N2), which itself is 480m from the site. The site is on Farm portion Re/15845 of Farm name No. 551845 and it is 2.08km south of the Mzimkhulu River. The main Boboyi River is located 400m south of the site, and the site itself is on a tributary of this river.

#### 5. DEVELOPMENT PROPOSAL

The proposed Mdlazi Portal Culvert Bridge Upgrade is an *in-situ* upgrade of an existing river crossing, and is located within ward 21 of the Hibiscus Coast Municipality. The project aims to improve the existing river crossing over the Boboyi River tributary to improve safety and access in the area. The Boboyi River tributary is currently traversed via four concrete pipes in this area: one pipe of 450mm diameter and three 600mm diameter pipes. The headwalls are eroded, and the available information suggests that the river crossing is impassable during flood events.

The project area consists of a “Y-shaped” intersection of gravel roads known as the L1027, over the Boboyi River tributary. The construction of two sections of culvert are proposed, one a single barrel and the other a triple barrel installation. The pre-cast culverts are 2.1m total external width (internal width of 1,8m). The internal culvert height is approximately 1.5m while the length of each culvert unit is 1.22m. In the three barrel configuration three rows of 1.8m x 1.5m x 1.22m long culverts (comprised of 9, 10 and 11 units respectively) will be placed in parallel to one another to form a combined section of culvert 13.5m in length. In the single barrel portion, six 1.8m x 1.5m units will be placed to form a combined barrel length of 7.5m. The pre-cast portal culverts will be reinforced with reinforced hot rolled steel bars as specified by engineers and founded on a reinforced concrete base at 6.9m x 13.5m x 260mm thick for the triple barrel structure and 2.5m x 7.5m x 260mm thick for the single barrel structure. Wingwalls and apron slabs will also be reinforced concrete also. The portal culvert bridge structure will be founded on the riverbed alluvial deposits sand. The decks of the two culvert barrels will be connected via a 200mm thick concrete slab (6m wide), which will form the road surface over which vehicles and pedestrians can pass, see **Figure 2** below. The gravel road will be resurfaced either side of the proposed bridge for 50m, and will tie in with the existing gravel road. The nearest roadworks benchmark will be utilised for levels for the proposed portal culvert bridge.

The approximate centre point of the site can be found at: 30°43'19.58" S; 30°22'53.32"E. The L1027 access road is accessible via the N2, at 30°43' 34.39" S; 30°23' 3.97"E

#### 6. AFFECTED AREA

##### Vegetation

According to The Vegetation of South Africa, Lesotho and Swaziland, the vegetation in the study area can be classified as Indian Ocean Coastal Belt, which corresponds with the Subtropical Coastal Forest Biome, and Mucina and Rutherford (2006) classify the vegetation group as KwaZulu-Natal Coastal Belt (CB3). The KwaZulu-Natal Coastal Belt is characterised by highly dissected undulating plains, which previously may have been covered to a large extent with various types of subtropical coastal forest. Some primary grassland dominated by *Themeda triandra* still occurs in the hilly, high rainfall areas; however, anthropological activities in this belt have created secondary *Aristida* grasslands, thickets and patches of coastal thornveld. Three endemic plant species are recorded by Mucina and Rutherford for the KwaZulu-Natal Coastal Belt (CB3) vegetation type, and these include *Vernonia Africana* (Extinct), *Barleria natalensis* (Baleria) (Extinct) and *Kniphofia pauciflora* (Dainty poker) (Critically Endangered and Declining).

The vegetation within the study area has, however, been highly disturbed and modified through anthropogenic activities. Sections of indigenous vegetation were noted on site, together with areas of predominantly alien invasive weed infestation. Some erosion of the headwalls within the watercourse has occurred on site; however the grassy vegetation is dense. Some large shade trees and palms were noted along the road side: *Albizia* sp., *Syzigium* sp. and *Phoenix reclinata*, together with alien invasive species such as *Senna didmobotrya*, *Lantana camara*, *Ricinus communis*, and *Ageratum* sp. *Cyperus* sp. was observed in the riverway.

### Fauna

The Boboyi River falls within the study area. This riverine area and its associated vegetation is likely to provide habitat for associated faunal species such as avifauna, reptiles and amphibians. Domestic livestock also graze in this area.

### Culture and Heritage

No sites of cultural significance were noted within the site or within close proximity to the site. The presence of additional features of cultural or historical importance is currently unknown. The requirement for a Heritage Assessment is not triggered by the proposed bridge upgrade.

### National and District Roads

The proposed site is accessed via the L1027, from an access point off the N2 (coordinates provided above). The proposed development (operational phase) will not impact any provincial or national road, although slow turning construction traffic and the generation of dust may have an impact. There may also be a slight increase in the number of vehicles utilising the new bridge, and connecting roads to the N2, as well as the N2 itself, which has recently been upgraded in this area.

### Services

Electricity lines, telephone lines, water and sewage infrastructure were noted on site. There are services currently located across the existing bridge structure. These services have become exposed and it will be necessary to accommodate this HDPE conduit/sleeve within the design of the proposed new portal culvert bridge structure.

### Topography and Drainage

The site topography and drainage are affected by the underlying geology of the area. The study area is generally undulating, and it is dissected by numerous steep valley areas. The approximate centre point of the site can be found at: 30°43'19.58" S; 30°22'53.32"E.

The site is located directly on a tributary of the Boboyi River which then drains in a south-easterly direction towards the southern area of Port Shepstone. The Mzimkhulu River passes the site 2km to the north. The site is located at approximately 131masl, there are steep slopes in all directions around the site, but in closest proximity to the immediate north-east (up to 160masl, 213m from the centre point of the site), and most notably to the far west (up to 263masl, but further than 500m away).

### Geology and Hydrology

Ordovician Natal Group sandstone, Dwyka tillite, Ecca shale and Mapumulo gneiss or Mokolian are described within the KwaZulu Natal Coastal Belt. The weathering process of old dunes has produced Berea red sand in places and the soils supported by the rock types in the area are shallow over hard sandstones and deeper over younger and softer rocks. The site is located within the T40G Catchment.

### Land use and Socio-economic structure

Land use in the surrounding areas consists of predominantly subsistence farming activities associated with individual households. The socio-economic structure can be classified as primarily low income. Most of the surrounding region within the catchment of the proposed development area is undeveloped, although a number of schools are present within close proximity (three schools with 40 – 350m of the site (Sister Joans High School, Mdlazi Primary School and Mdlazi CP School), shops and both informal and formal dwellings along the road side and further inland.

## **7. POTENTIAL KEY ISSUES**

**Access to River and Drainage areas** – Access to the river area within the study area by construction vehicles will cause damage to the fauna and flora associated with these systems; it will also alter water and soil characteristics and flow patterns. Owing to the nature of the project, this cannot be avoided and should be managed appropriately during and after construction (rehabilitation).

**Surface Water Runoff** – The construction activities may affect the area through changed hydrological patterns and this could have an ecological impact. Permanent alteration of flow patterns is a risk and could lead to detrimental effects on the vegetation if these are not mitigated during and after construction. Storm water management associated with the proposed development should be incorporated into the design and should take into consideration the erosion potential of the region.

**Rehabilitation** – A rehabilitation programme should be developed for all areas to be affected by the proposed development. Rehabilitation of the damage to the watercourse during construction (compaction and erosion) should be ensured through planning from the outset. Alien plants which establish during construction should be

removed. This must be an on going process and should not be left to the end of the projected construction period. Any vegetation rehabilitation which occurs post construction should be with indigenous vegetation.

**Vegetation Clearance** – Where it is necessary for vegetation to be removed, this should not occur as a once off clearance, but should be phased, as needed, in order to reduce soil erosion potential and the proliferation of exotic weeds. Weeds will thrive on disturbed soil, and will present an eradication problem later should these plants set seed, especially near the watercourse. No protected plant species were noted on site.

**Erosion** – Potential erosion should always be considered during and after construction. If strict mitigation measures are implemented these potential factors can be prevented / reduced. Mitigation measures include soil stabilisation and re-vegetation of affected areas as well as the avoidance (during construction and operation phases) of all areas susceptible to erosion.

**The opportunities created** by this development through social upliftment may help to outweigh the negative impacts. It is imperative; however, that the construction activities occur over as small an area as is practical.

## 7. INTERESTED AND AFFECTED PARTIES

All Interested and Affected Parties (IAPs) wishing to become registered as such and receive additional information, should contact the environmental consultant to register as soon as possible (within 14 days of receiving this document). If you would be so kind, if you are aware of any IAPs who have not been informed or identified by ourselves, please let us know, so that they too may have the opportunity to register and / or receive information. Any issues, which you would like to raise and have not been identified to date, would be welcomed.

### References

Mucina L & Rutherford MC (eds) 2006. *The Vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. South African National Biodiversity Institute. Pretoria.



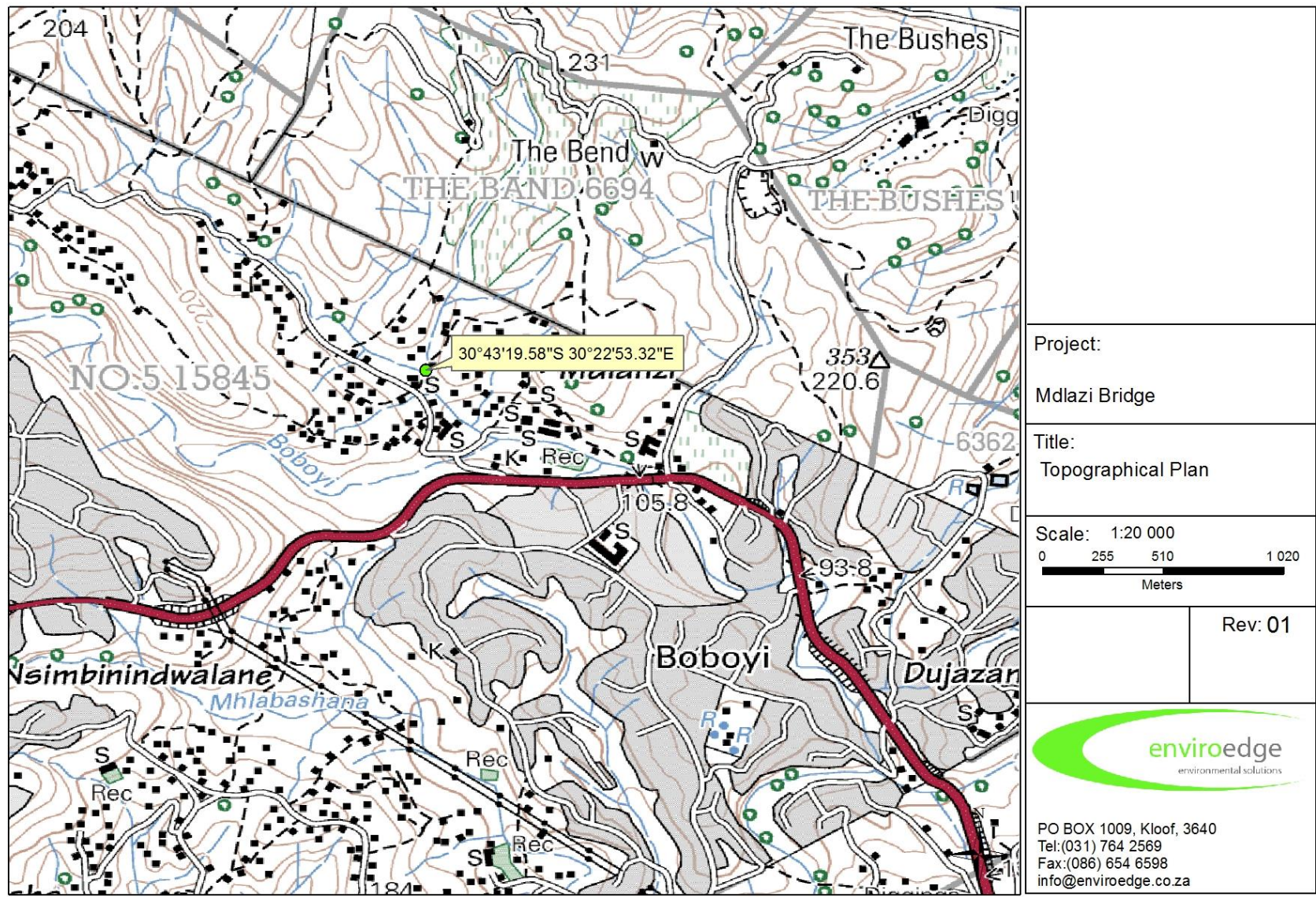


Figure 1: Location of the Proposed Mdlazi Portal Culvert Bridge Upgrade

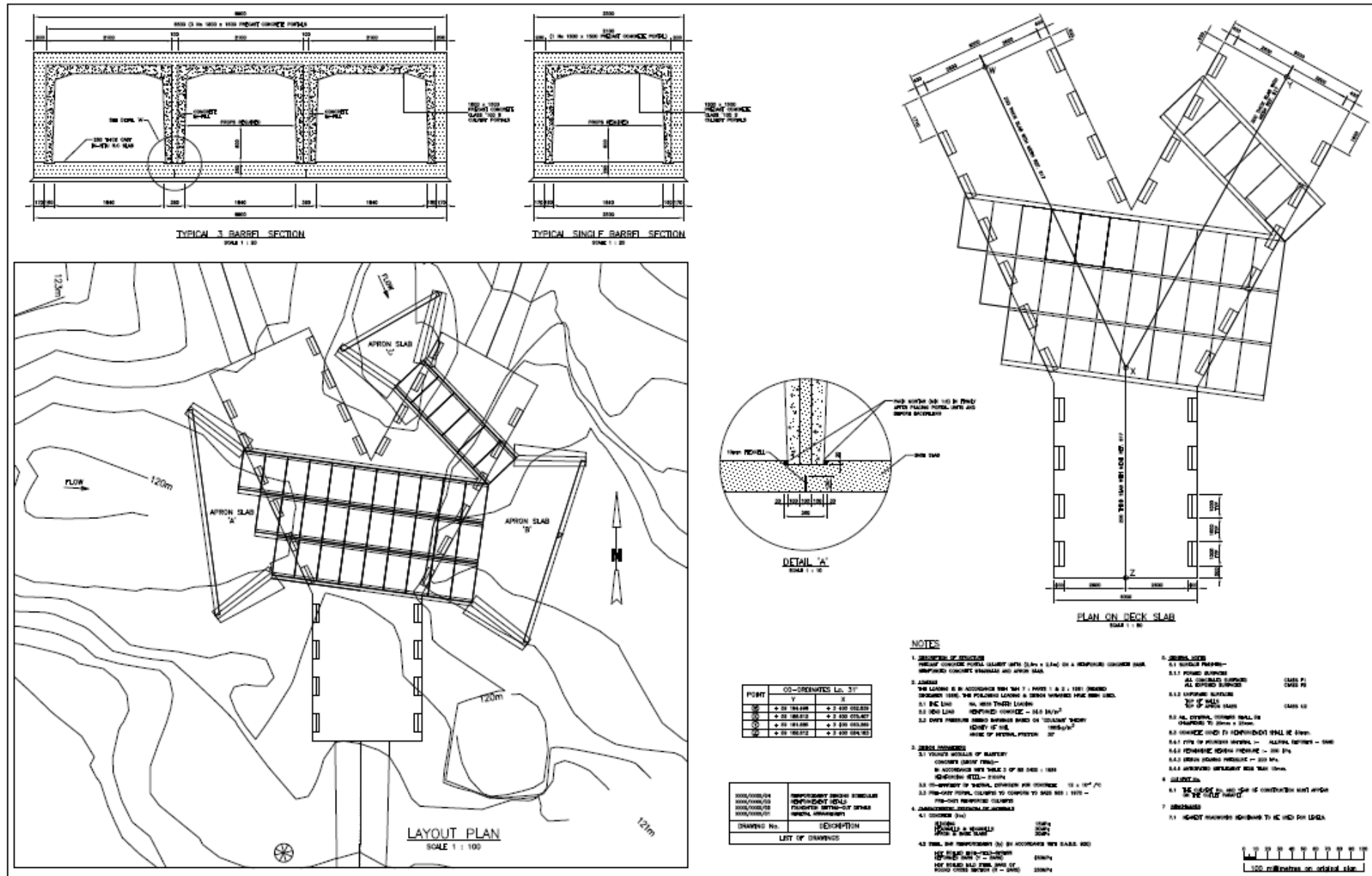


Figure 2: Proposed Mdlazi Portal Culvert Bridge Layout Plan