Draft Basic Assessment Report

Proposed Construction of Dressing Pedestrian Bridge within Hibiscus Coast Local Municipality, Kwa-Zulu Natal

EIA REF NUMBER:

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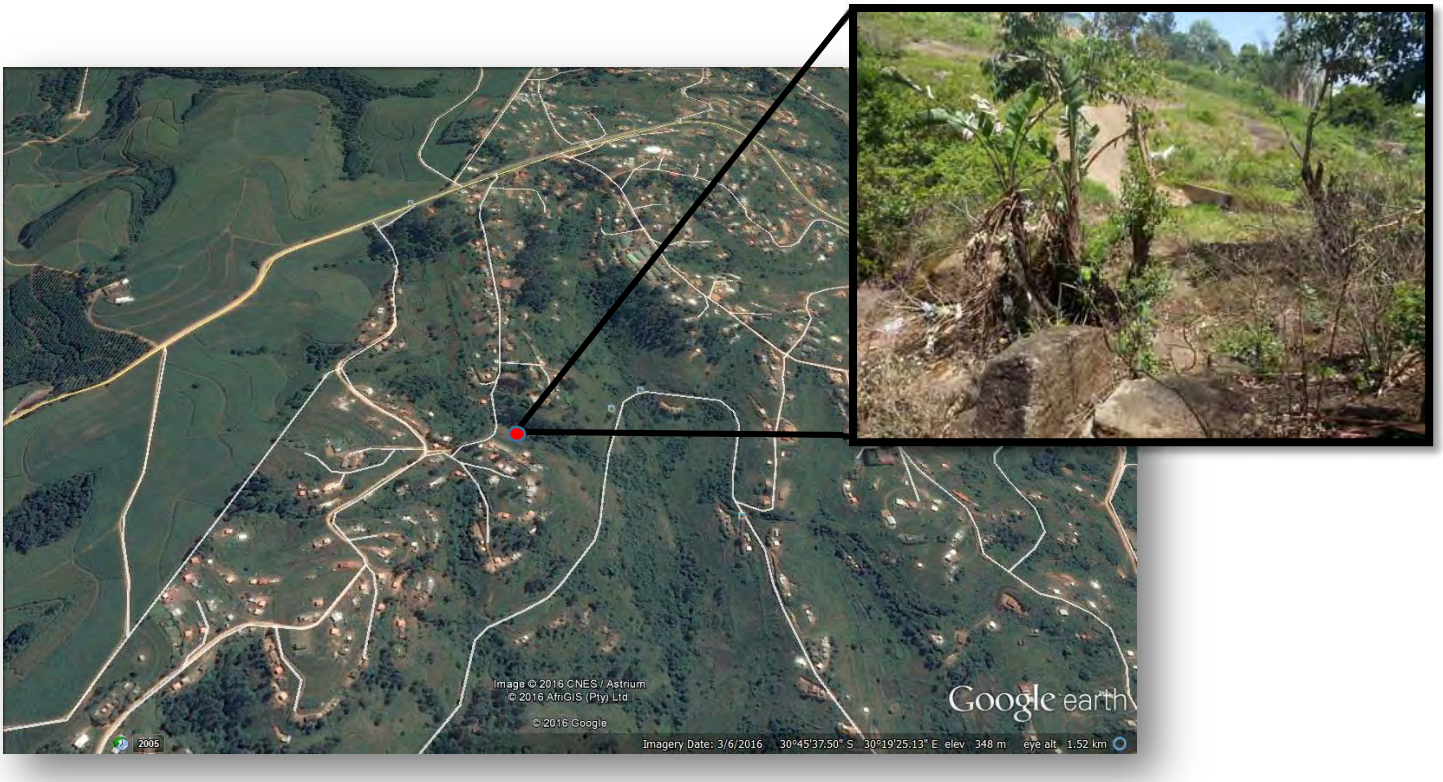

Commissioned by:

PGA Consulting Engineers

PO Box 65291, Reservoir Hills, 4090

Tel: 031 262 0126

Contact: Mr Darren Chetty

Email: darren.chetty@pgaconsulting.co.za

Prepared by:

1World Consultants (Pty) Ltd

P. O. Box 2311, Westville, 3630

Tel: 031 262 8327

Contact: Fatima Peer

Email: fatima@1wc.co.za

Physical Address: 181 Winchester Drive,
Reservoir Hills, Durban, 4091
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

DRAFT BASIC ASSESSMENT REPORT

Proposed Construction of Dressing Pedestrian Bridge within Hibiscus Coast Local Municipality, Kwa-Zulu Natal

EIA Ref No.:

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Verification	Capacity	Name	Signature	Date
Author	EAP	Adila Gafoor		12 April 2016
Reviewed by	Project Manager	Fatima Peer		12 April 2016

Physical Address: 181 Winchester Drive,
Reservoir Hills, Durban, 4091
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Executive Summary

1World Consultants (Pty) Ltd have been appointed by PGA Consulting, on behalf of the Hibiscus Coast Local Municipality, to undertake the required Basic Assessment Process for the proposed construction of a pedestrian bridge that will traverse a water course. The bridge will be situated approximately 1km south of the road from Margate to Izotsha and Paddock.

The proposed development comprises the construction of a pedestrian bridge that will allow the local communities to safely cross a water course. Footpaths leading to the bridge will also be constructed. This Basic Assessment will entail the assessment of a total of approximately 95m length and varying width of approximately 5m. The site for the proposed bridge has been assessed based on a working footprint of approximately 500sqm for the construction phase to allow for all related activities.

The Hibiscus Coast Local Municipality has identified the right and need for community members to safely cross watercourses within their area of jurisdiction. Currently, the water course is traversed without any safety aids or measures in place. In times of drought, as experienced during this assessment, crossing the rivers is relatively safe and incident free. However, the same cannot be predicted for the usual rainy seasons experienced in the humid and subtropical coastal area. The proposed bridge will be constructed to aid in this regard.

The preferred site alternative is a site that is well established as a river crossing, with associated footpaths that are also well established. The proposed bridge is to be constructed on this already disturbed site to prevent additional damage to the environment and to ensure that the bridge is in a location that will definitely be used by the public. The preferred technology alternative is to construct the bridges from prefabricated steel members that require assembly on site. Excavations for the piers will only be required and the method is deemed to have less impact than building the bridges using concrete.

The Public Participation Process involved consultation with the relevant authorities, the landowners who are the Ingonyama Trust, community members and other identified Interested and Affected Parties (IAPs). Newspaper advertisements were published to inform the general public of the Basic Assessment Process. An advertisement was published in isiZulu on 31 March 2016 in the isiZulu version of the South Coast Fever newspaper. Site notices were erected at the site on 11 April 2016 & notification letters were distributed via post and email. A Public Meeting was not deemed necessary as no significant interest was received by the community with respect to this project.

Specialist studies included:

- *A Wetland Delineation by Aeon Nexus to determine the impact the proposed development will have on watercourses;*
- *A Heritage Impact Assessment by JLB Consulting to ensure that no items of cultural or historical value would be impacted on by the construction;*
- *A Biodiversity Study by David Styles Consulting, since the area falls within a Critical Biodiversity Area;*

No fatal flaws were identified by the Specialist Studies. No tree removal permits are required. A Water Use License is required since the project involves excavation of the bed and banks of the water course it is traversing (refer to wetland study).

Physical Address: 181 Winchester Drive,
Reservoir Hills, Durban, 4091
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

The Draft BAR and EMP are hereby circulated to registered IAP's for a 30-day review and comment period. The comments and responses provided by 1World will be incorporated into a Comments and Responses Report which will be included in the Final BAR for subsequent submission to the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA) for a decision on the Environmental Authorisation.

This BAR has been prepared in Accordance with the EIA Regulations, 2014 and follows the requirements for a BAR in Appendix 1 of GNR 982.

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

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BASIC ASSESSMENT REPORT (REF NO.)

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

INTRODUCTION

1World Consultants has been appointed by PGA Consulting, on behalf of the Hibiscus Coast Local Municipality Roads Department, to undertake the required environmental services for the proposed construction of a pedestrian bridge that will traverse a water course. The bridge will be situated approximately 1km south of the road from Margate to Izotsha and Paddock. The bridge will be situated roughly 12km inland and north-west of the town of Margate. The site for the proposed bridge has been assessed based on a working footprint of approximately 230sqm for the construction phase to allow for all related activities. The specifications of the bridge are provided in Table 1 below.

Table 1: Dressing Bridge Specifications

	Dressing Pedestrian Bridge
Ward	Ward 24 Hibiscus Coast Local Municipality
Property Description	Portion 0 of Farm 15845
Bridge Specifications	28m long and 2m wide = 56.8m^2
Footpath Specifications	(9.5 + 7) m long and 1.2m wide = 19.8m^2
Development Final Footprint	76.6 m^2

As per GN R982 of the EIA Regulations, 2014, a Basic Assessment (BA) Process has been undertaken and the environmental outcomes, impacts and residual risks of the proposed Listed Activity being applied for have been noted in this BA Report and assessed accordingly by the Environmental Assessment Practitioner (EAP). The requirements of the BA Process have been noted in Appendix 1 of GNR 982 (2014) and are consequently adhered to in this report.

It must be noted that the Listed Activities in terms of GN R983 of the EIA Regulations, 2014, are applicable to this proposed project only with regard to the construction phase since the bridge does not trigger operational phase activities. Hence, this BA Report focuses only on construction phase impacts and mitigation measures.

Ultimately, the outcome of a BA Process must be to provide the Competent Authority, the Department of Economic Development, Tourism and Environmental Affairs (EDTEA), with sufficient information to provide an informed decision on the Application, in terms of Environmental Authorisation (EA), in order to avoid or mitigate any detrimental impacts that the activity may inflict on the receiving environment.

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

BASIC ASSESSMENT REPORT

(a) ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Business name of EAP: 1World Consultants
Physical address: 181 Winchester Drive, Reservoir Hills, 4091
Postal address: PO Box 2311, Westville,
Postal code: 3630 Cell: 082 640 4900
Telephone: 031 262 8327 Fax: 086 726 3619
E-mail: fatima@oneworldconsultants.co.za

Table 2: Names and Expertise of Representatives of the EAP

Name and Title	Qualifications and Affiliations	Experience at Environmental Assessments
Fatima Peer	B.Sc (Hons) Pr. Sci. Nat., IAIASA	5 ½ years
Adila Gafoor	B.Soc. Sci. (Geog)	1 ½ years
Bryan Paul	B.Sc	4 months

A Company Profile, CV's and Project Experience for 1World Consultants is Provided in Appendix A.

Table 3: Names and Expertise of Specialists

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix E
David Styles (David Styles Consulting cc)	B.Sc. (Agric) (Zoology)	Biodiversity and vegetation specialists	Biodiversity Assessment (Section k)	VEGETATION AND FAUNAL ASSESSMENT AND REPORT: PROPOSED DRESSING PEDESTRIAN BRIDGE, HIBISCUS COAST MUNICIPALITY
Naeem Agjee (Aeon Nexus Consulting)	MSc (Environmental Science)	Wetland and Freshwater Studies	Wetland Delineation and Freshwater Study (Section k)	PROPOSED DRESSING PEDESTRIAN BRIDGE, UGU DISTRICT MUNICIPALITY, KWAZULU-NATAL WETLAND DELINEATION AND FUNCTIONAL ASSESSMENT

Jean Beater (JLB Consulting)	MA (Archeology)	Heritage Impact Assessment	Heritage Impact Assessment (Section k)	PROPOSED MBHELE PEDESTRIAN BRIDGE, KWAZULU-NATAL PHASE 1 HERITAGE IMPACT ASSESSMENT

(b) LOCATION OF THE ACTIVITY

The proposed bridge is located within Ward 24 of the Hibiscus Coast Local Municipality. The 21-digit Surveyor General (SG) number for the property affected is provided below. The coordinates for the bridge are also provided in Table 4.

Table 4: Site Details

	Mbhele Bridge
Property Description	Portion 0 of Alfred Location No. 5 Farm No. 15845
SG Number	N0ET00000001584500000
Property Size	3785.16 Ha
GPS Coordinates	30˚ 45' 38.72" S 30˚ 19' 20.23" E

(c) PROPOSED PLANS

Proposed plan of the bridge is provided in Appendix B. The plan depicts the positioning and scale of the bridge and the associated footpaths. On the property size of approximately 3785Ha, the bridge footprint will be as follows:

18.4m steel bridge and 2 x 5m concrete approach slabs = 28.4m long and 2m wide	=	56.8m^2
9.5 m + 7m footpaths of 1.2m width	=	19.8 m^2
Total Final Development Footprint	=	76.6m^2

(d) SCOPE OF THE PROPOSED ACTIVITY

(i) Applicable Listed Activities

In terms of the Environmental Impact Assessment (EIA) Regulations (2014), promulgated in terms of the National Environmental Management Act, 1998 (NEMA), certain Listed Activities are specified for which either a Basic Assessment (GNR 983 and 985) or a full Scoping and EIA (GNR 984) is required. The following Listed Activities in Government Notice (GN) R 983 (Listing Notice 1), requiring a Basic Assessment (BA) Process are applicable to the proposed construction of the two bridges:

Table 5: Relevant Activities from EIA Regulations 2014

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Activity Number	Description	Applicability
GNR 983, Item 19 (i)	The excavation or moving of more than 5 cubic metres soil and rock from a watercourse	Relevant since the construction of the proposed bridge will require excavations and involve the moving of 23.34m3 of soil and rock from the bed and banks of the watercourses they are traversing.
GNR 985, Item 14 (iii) (xi), (d) (vii)	The development of bridges exceeding 10sqm and boardwalks exceeding 10sqm, in Kwa-Zulu Natal,) in a Critical Biodiversity Area	The bridge and footpaths are a total of 86sqm and are in a Critical Biodiversity Area, as identified during the Biodiversity Specialist Study (see Page 8 of the Biodiversity Report)

Calculations for excavations and fillings:

Structure	Excavated Volume
West Abutment	6 m^3
East Abutment	5.8 m^3
Path (West+East)	2.45 m^3
Total Excavation	14.25 m^3
Structure	Fill Volume
West path	6.46 m^3
East path	2.63 m^3
Total Fill	9.09 m^3
TOTAL MOVEMENT OF SOIL, ETC	23.34 m^3

Hence, a BA Process is required. The Application for Environmental Authorisation document is attached to this report as Appendix C. The Acknowledgement and Acceptance of the Application received from KZN EDTEA is also provided in Appendix C.

(ii) Project Description

The proposed development comprises the construction of a pedestrian bridge that will allow the local community to safely cross a water course. The new bridge will be approximately 19m long with 5m concrete approach slabs on either side. Footpaths of 9.5 and 7m on either side of the bridge will also be constructed. This Basic Assessment will entail the assessment of approximately 46m length and varying width of approximately 5m i.e. approximately 230sqm area.

The Hibiscus Coast Local Municipality has identified the right and need for community members to safely cross watercourses within their area of jurisdiction. The proposed bridge will be constructed to aid in this regard.

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Fax: 086 726 3619

(e) POLICY AND LEGISLATIVE CONTEXT

Table 4 provides a list of all applicable legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations.

Table 5: Applicable Legislation, Policies and/or Guidelines

Title of Legislation, Policy or Guideline	*Administering authority*	*Date*
National Environmental Management Act (Act 107 of 1998) – for its potential to cause degradation of the environment (Section 28)	Department of Environmental Affairs	1998
EIA Regulations GNR 983 and 985 – for identifying the triggers for a basic assessment	Department of Economic Development, Tourism and Environmental Affairs	2014
Environmental Conservation Act (Act 73) – for potential environmental degradation.	Department of Environmental Affairs	1989
National Water Act (Act 36 of 1998) – for potential to cause pollution of water resources defined under the Act (Section 19).	Department of Water Affairs and Forestry	1998
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) – for protection of agricultural resources and for control and removal of alien invasive plants.	National Department of Agriculture	1983
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) – for protection of biodiversity.	Department of Agriculture and Environmental Affairs & Ezemvelo KZN Wildlife	2004
The National Heritage Resources Act (Act No 25 of 1999 as amended) – for the identification and preservation of items of heritage importance.	Department of Arts and Culture (Amafa KwaZulu-Natal)	1999
Guideline 4: Public Participation in support of the EIA Regulations (2005) and EIA Regulations GNR 982 for Public Participation Guidelines	Department of Economic Development, Tourism and Environmental Affairs	2006 and 2014
EIA Regulations GNR 982 – for guidelines on the process to be followed and the format of the BAR	Department of Economic Development, Tourism and Environmental Affairs	2014
Hibiscus Coast Local Municipality/ Ugu District Municipality By-Laws	Local and District Municipality	Current

(f) NEED AND DESIRABILITY

Currently, the water course is traversed without any safety aids or measures in place. In times of drought, as experienced during this assessment, crossing the rivers is relatively safe and incident free. However, the same cannot be predicted for the usual rainy seasons experienced in the humid and subtropical coastal area.

According to the Hibiscus Local Municipality website, on 12 January 2016, "The Hibiscus Coast experienced more than 125 mm of rainfall in the past week. These recent heavy rains which have battered our cost have left serious damage. All towns from Hibberdene to Port Edward including inland areas have been severely affected. Reports of residents that are unable to come out of their properties due to damages have also been received, especially in Port Edward and surrounding areas. Roads have been washed away and some stormwater systems have reportedly flooded some resident's properties."

Hence, the local municipality has identified the need for pedestrian bridges that will allow the community safe passage across.

(g) MOTIVATION FOR THE PREFERRED SITE, ACTIVITY AND TECHNOLOGY ALTERNATIVE

The proposed bridge development triggers Listing Notice GNR 983, Item 19 (i) and GNR 985, Item 14 of the EIA Regulations. As per GNR 982, Appendix 1(2)(b) and 1(3)(g), alternatives for the proposed development are to be identified and considered. Chapter 1 of the EIA Regulations provides an interpretation of the word "alternatives", which are options "in relation to a proposed activity, mean(ing) different means of meeting the general purpose and requirements of the activity, which may include alternatives to the -

a) Property on which or location where the activity is proposed to be undertaken;
b) Type of activity to be undertaken;
c) Design or layout of the activity;
d) Technology to be in the activity; or
e) Operational aspects of the activity;
And includes the option of not implementing the activity."

Based on the above, the following alternatives are presented for the proposed construction of the bridge.

(i) Preferred Site Alternative

The preferred site alternative is a site that is well established as a river crossing, with associated footpaths that are also well established. The proposed bridge is to be constructed on this already disturbed site to prevent additional damage to the environment and to ensure that the bridge is in a location that will definitely be used by the public. Placing the bridge at another site may not be considered ideal by the end-users.

Figure 1 provides the layout plan for Dressing Bridge. The images are provided as A3 drawings in Appendix B.

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

Figure 1: Locality - Dressing Pedestrian Bridge

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P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

Site Photographs

Plate 1: View from the river of the North East side of the site

Plate 2: View of the South West side of the site

Plate 3: General view of the watercourse proposed to traversed

Plate 4: View of the South East side of the site

Plate 5: View from the Northern Bank of the river

Plate 6: General view of the approach for the bridge

(ii) Preferred Technology Alternative

The preferred technology alternative is to construct the bridge from prefabricated steel members that require assembly on site. Concrete approach slabs of 5m each, on either side of the bridge will be constructed. Excavations for the piers will be required and the method is deemed to have less impact than building the entire bridge using concrete.

Footpath specifications – Thickness 75mm, 15MPa Concrete reinforced with REF 193 mesh

(iii) No-Go Alternative

The No-Go Alternative is to not construct the bridge nor the associated footpath. The residents of the area would continue to cross the rivers without any permanent safety measures in place. The watercourse would not be impacted upon by construction related activities.

(h) THE PROPOSED PREFERRED ALTERNATIVE

The following measures were implemented to fulfil the required public participation process:

(i) Alternatives

No other alternatives have been considered since the proposed development is site specific. The alternative of constructing a bridge that would allow vehicles to traverse the rivers is not possible since the site is not on an access road, but rather along an existing footpath.

(ii) Public Participation

- Newspaper Advertisement

Newspaper advertisements were published early in the project to inform the public of the BA Process. An advertisement was published in the predominant language of the project area, isiZulu on 31 March 2016 in the isiZulu version of the South Coast Fever newspaper. A copy of the advertisement is provided in Appendix D of this report.

- Site Notice Boards

A strategically placed notice board was placed at the site on 11 April 2016. The notice board was provided in English with illustrations of the plan. Appendix D contains a copy of the notice board and pictures of the notice board on site.

The purpose of the notice board was to inform the community members of the proposed BA Application and Pedestrian Bridge. Contact details of the EAP were also provided to facilitate public participation.

- Written Notifications

Interested and Affected Parties (I&APs) were identified and notified of the Basic Assessment. A Background Information Document (BID) was prepared and distributed via email and post. The BID provided information on the proposed development and site and also provided information on the process to be followed by the EAP. A copy of the BID and the distribution list, is provided in Appendix D.

- Public Meeting

None requested or required to date of the Draft BAR.

(iii) Issues Raised by the I&APs

Copies of the Draft BAR will be circulated to the following IAPs for review and comment:

- Ezemvelo KZN Wildlife
- Department of Water and Sanitation
- Hibiscus Coast Local Municipality
- Ugu District Municipality
- Amafa Heritage
- Department of Corporative Governance and Traditional Affairs
- Ingonyama Trust
- Ward Councillor

All registered I&APs were notified of the availability of the Draft BAR and of the deadline for comment. All I&APs were reminded that in terms of the EIA Regulations (2014), GNR 982 43(2), all State Departments that administer a law relating to a matter affecting the environment, specific to the Application, must submit comments within 30 days to the Environmental Assessment Practitioner (1World Consultants (Pty) Ltd). Should no comment be received within the 30-day commenting period, it will be assumed that the relevant State Department has no comment to provide.

All comments received on the Draft BA Report are summarized below. The full report is provided as the Comments and Responses Report in Appendix D.

Issues Raised Following Review of the BID:

- Environmental Management Plan needs to be prepared
- Stormwater management and erosion measures are required
- Specialist studies to determine environmentally sensitive elements, extent of water courses and geology must be conducted
- A Water Use License is required for Section 21 (c) and (i) uses.

Issues Raised Following Review of the Draft BAR:
(to be recorded in the Final BAR)

(iv) Environmental Attributes (geographic, physical, biological, social, economic, heritage and cultural aspects)

The gradient of the land leading to the proposed bridge site is steep with the watercourse lying in a valley. A Freshwater Study has been completed and provided in Appendix E. The proposed development site falls within the Mvoti to Umzimkulu Water Management Area (WMA 11) and Quaternary Catchment T40G. The main hydrological feaure in the area is the Mhlanga River which flows in a south easterly direction eventually flowing into the Indian Ocean at South Bay. The Dressing stream is a non-perennial stream that extends approximately 400m eventually joining the Mhlanga River at the confluence 3.40 km downstream. There are no major dams along the Mhlanga River system.

The Department of Water and Sanitation (DW&S) has been contacted and included in the Basic Assessment Process. A Water Use License Application (WULA) is being applied for in terms the National Water Act (1998 (Act No. 36 of 1998)) since there are identified water uses. The construction will intersect a watercourse which is identified to be a water use in terms of:

Section 21 (c) : Impeding or diverting the flow of water in a watercourse; and
Section 21 (i) : Altering the bed, banks, course or characteristics of a watercourse.

Any activity that triggers the above-mentioned Sections, within the 1:100 year floodline, or within 500m of a wetland, requires a WULA. The WULA will be submitted to DW&S by 1World Consultants.

In Margate, the climate is warm and temperate. There is significant rainfall throughout the year and even the driest month still has a lot of rainfall. The climate is considered to be Cfb according to the Köppen-Geiger climate classification. The average annual rainfall is 717 mm per annum.

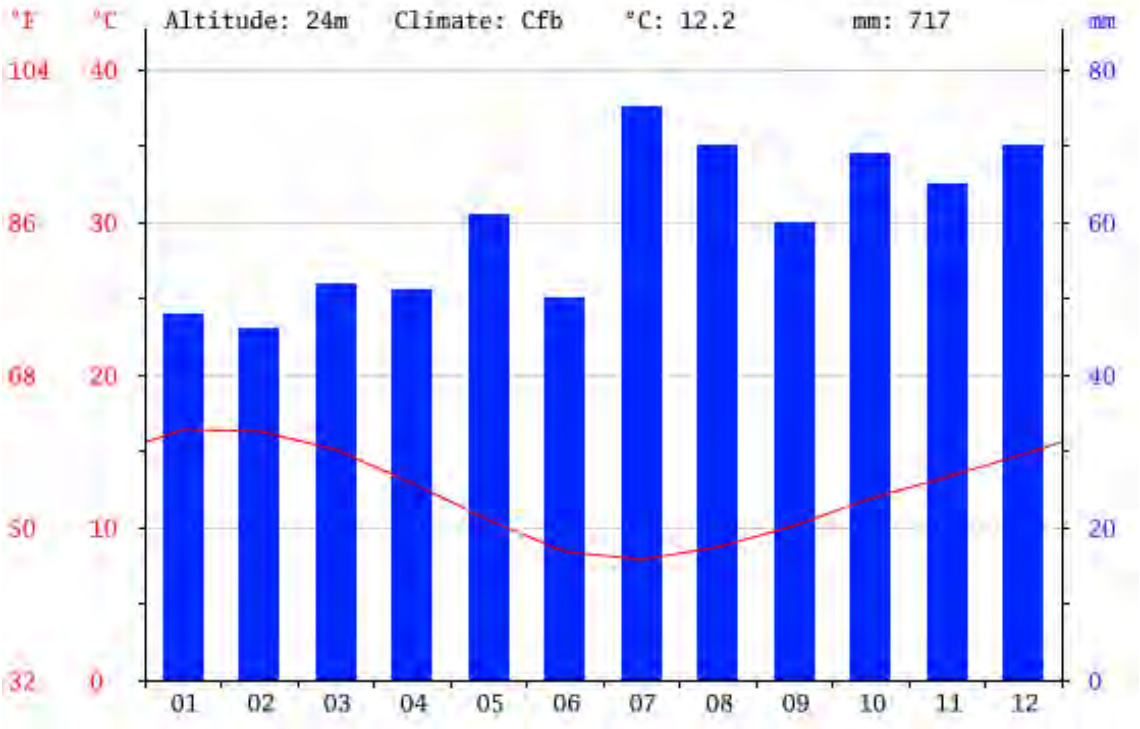


Figure 3: Graph depicting temperatures and rainfall for Margate (http://en.climate-data.org/)

A Heritage Impact Assessment was undertaken since the site is in a rural setting. The HIA Report is discussed in detail in Section k of this report and is attached in its entirety in Appendix E. Amafa Kwa-Zulu Natal (Amafa), as the authority responsible for KZN Heritage aspects, has been contacted regarding the proposed bridge. A copy of the HIA report has been provided for comment.

A Biodiversity Study has been completed for the site and is included as Appendix E. The proposed development is sited in an area which has been cleared of vegetation at some point in its history to make way either for informal housing or subsistence farming practices. The majority of the vegetation encountered was alien and invasive with a few indigenous ruderals and pioneer species typical of disturbed or secondary areas. From a vegetation perspective, the proposed study site appears to be devoid of local sensitivities, however, the small stream present at the site constitutes a sensitive habitat which will require the submission of a WULA to DWAS. The stream is in a poor ecological state and has been impounded for part of its extent.

The faunal study reveals that no species of potential conservation significance have been recorded from the study site. The transformed nature of the vegetation is considered the reason for this lack of faunal diversity. There is a remote possibility of encountering the Leaf-folding Frog, as a small amount of potentially suitable habitat for this species exists at the study site. However, this habitat is not likely to be affected by the development.

The avifauna reported from the greater study area includes a number of potential Red Listed species, none of which is expected to occur at the study site due to the lack of suitable habitat or habitat transformation.

With regard to Social Aspects, the site is currently unoccupied and unused except for the informal establishment of footpaths and the river crossing which are not impacting on neighbouring dwellings. The areas in the immediate vicinity of the proposed bridge are undisturbed although polluted in some areas. The areas in the immediate vicinity of the footpaths are occupied by low cost housing, associated vegetable gardens and informal grazing areas. There appears to be only one established river crossing that is used by the public. Care to avoid damage to the gardens and properties is required and must be included in the EMP.

(i) IMPACT ASSESSMENT

(i) Methodology

EIA Regulation 982, 2014 prescribes the requirements and aims of environmental impact assessments. In terms of the regulations, the following objectives are specified:

- Determine the nature, significance, consequence, extent, duration and probability of impacts; and
- The degree to which these impacts:
  - Can be reversed,
  - May cause irreplaceable loss of resources, and
  - Can be avoided, managed or mitigated

The impacts of any development including the construction and operational phases are identified, using the following definitions:

- *"significant Impact" : an impact that may have a notable effect on one or more of the aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence;*
- *"cumulative impact" : in relation to an activity, means the past, present and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.*

The potential impacts are listed and assessed for significance. Significance is assessed by scoring each impact based on four variables viz. probability, severity, duration and spatial impact. The four variables, with their score criteria are detailed below:

Frequency / Probability (FR)
(Frequency or likelihood of activities impacting on the environment)

- 1: Almost Never / impossible
- 2: Very seldom / highly unlikely
- 3: Infrequent / Seldom
- 4: Often / Regular
- 5: daily / Highly regular

Severity (SV)
(Degree of change to the baseline environment in terms of reversibility of impact; Sensitivity of receptor, duration of impact and threat to environment and health standards)

- 1: Insignificant / not harmful / totally reversible
- 2: Small / potentially harmful / reversible within 05 years
- 3: Significant / slightly harmful / needs specific mitigation to reverse in a time span of between 05 and 15 years
- 4: Great / harmful / irreversible
- 5: Disastrous / extremely harmful / totally irreversible and damaging

Duration (DR)
(Length of time over which activities will cause change to the environment)

- 1: One day to a month
- 2: One month to a year
- 3: One year to ten years
- 4: Life of project
- 5: Post closure

Spatial Scope (SS)
(Geographic overage)

- 1: Activity Specific
- 2: Site specific
- 3: Area
- 4: Regional
- 5: National

The impacts are also scored taking any mitigation into consideration. The impacts are scored and scaled for significance as follows:

- Negligible (scoring of 3 or less) – The impact is unimportant / indiscernible and hence insignificant – little or no mitigation adequately addresses the impact
- Low (scoring of 4 to 9) – The impact is of little importance since it is easily and adequately mitigated
- Medium (scoring of 10 to 15) – The impact is considerable and requires adequate mitigation to reduce potential damage to the environment.
- High (scoring of 16 or more) – the impact is adverse and may never be adequately mitigated. The impact has a high probability of causing cumulative effects of other less significant impacts. It may be considered to be a fatal flaw of the project and requires intense consideration.

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

(ii) Impacts Identified

The impacts of the construction and operation of the Mbhele pedestrian bridge traversing the river are summarised in Table 6.

Table 6: Impacts Identified and Associated Mitigation Measures

Nature of Impact	Frequency		Severity		Duration	Spatial Scope	Impact Score with Mitigation	Significance
	Unmitigated	Mitigated	Unmitigated	Mitigated				
CONSTRUCTION PHASE OF THE PREFERRED ALTERNATIVE (approximately 4 months)								
Pedestrian Traffic and Access	5	**4**	4	**2**	**2**	**3**	11	Medium
Soil erosion and stormwater	3	**2**	3	**2**	**2**	**2**	8	Low
Ground and Surface water pollution (river)	4	**3**	3	**2**	**2**	**3**	10	Medium
Noise and disturbance	5	**4**	2	**1**	**2**	**2**	9	Low
Destruction of flora and fauna	5	**3**	3	**2**	**2**	**3**	10	Medium
Waste and litter	5	**3**	2	**1**	**2**	**2**	8	Low
Visual impacts	5	**4**	2	**1**	**2**	**2**	9	Low
Public safety and health	5	**4**	4	**2**	**2**	**2**	10	Medium
Existing Infrastructure Disturbance	4	**3**	2	**1**	**2**	**3**	9	Low
Social Impacts	5	**5**	3	**2**	**4**	**3**	14	Medium

(iii) Significance of Impacts

Based on the outcome of the impact assessment matrix noted in Table 6 above, the overall significance impact with mitigation measures, is considered to be LOW to MEDIUM i.e. the impact is considerable and requires adequate mitigation to reduce potential damage to the environment. However, due to the short duration of four months for the construction the impacts are of low significance and will be easily reversed post construction.

The highest impact of significance is the social impact with particular emphasis on pedestrian crossings, which is linked to public safety. This impact is positive since it will lead to improved public safety and convenience.

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

(j) MITIGATION MEASURES

Traffic and Access – presence of construction vehicles and personnel leading to traffic congestion, dust, noise and threat of accident

- Construction vehicles and personnel must adhere to business hours. This may be relaxed to accommodate abnormal vehicles so they may not hinder daily life and/or regular traffic.
- Pointsmen to guide traffic for entry and exit of construction vehicles must be used.
- Signage for presence of construction vehicles and for workmen must be erected.
- Construction phase must be as short as possible. Reliable building contractors must be employed to avoid delays.
- The site must be wet regularly to minimise dust. Vegetation must be removed as and where required only.
- Vehicles must park on demarcated site only

Soil erosion and stormwater – heavy rains may cause a nuisance to the neighbours and also cause damage to the river by localised high levels of erosion. Loss of stockpiles, instability of soils and associated loss of vegetation may also result. Ecological disturbances from high levels of erosion are also possible.

- Project management of construction activities must be done to ensure that only small and/or necessary portions will be disturbed at any given time. Vegetation must not be removed until necessary.
- Soil erosion measures must be placed on sensitive areas like banks and slopes.
- All stock piles must be covered with suitable material to prevent loss of sediment via wind / water.
- Topsoil (top 300mm layer minimum) must be removed prior to the construction by earthmoving equipment. Topsoil must be stored in heaps of not higher than 2m in a way that prevents damming. Stored top soil must not be compacted.
- Top soil must not be used as fill material for backfilling of excavations on site
- Minimize the amount of area that needs to be disturbed and the amount of time spent on sensitive areas
- Offsite runoff around disturbed areas should be diverted to reduce the amount of stormwater which comes into contact with exposed soils, as a result there will be less erosion.
- A storm water management plan must be devised and implemented for the construction phase to prevent stormwater from pooling and to direct stormwater to any existing stormwater infrastructure on the surrounding roads and residential areas. This plan can include the following mitigation methods;
    - Interceptor Ditches/Dikes
    - Stream bank stabilisation: riprap, gabion, reinforced concrete, asphalt paving etc.
    - Silt fencing
- Upon completion of construction top soil must be replaced in bare ground areas.
- All surfaces hardened due to construction activities are to be ripped and imported materials removed, this must be done in consultation with the Contractor/s and the ECO. The ECO is to ensure that these areas are adequately rehabilitated and re-vegetated where appropriate.

Groundwater pollution – Pollution of ground surfaces and water may result from chemical substance spills and sewage spills.

- Chemical substances must be mixed or handled on impervious surfaces. Concrete must be mixed on impervious surfaces. There should a contained area for washing out and cleaning of concrete mixing equipment, to further prevent pollution. In addition, wash waters from site should be collected and disposed of off-site.
- An adequate number of chemical toilets for the staff must be provided and serviced regularly. The positioning of the toilets must be determined taking cognisance of the neighbours. The ECO must authorise the positioning of the toilets.
- Spills that result in the contamination of ground and/or surface water must be reported immediately to the ECO
- Spills must be managed in the following manner:
    - Stop the spill
    - Contain the spill
    - Report significant spills to DWS and the Local Municipality Water and Sanitation Department.

- Remove spilled material for treatment/disposal.
- Determine any possible impact to soils, groundwater, storm water, etc.
- Undertake any necessary remedial actions
- Document the spill

Surface water pollution (river) – protection of the river includes the water, the banks (floodlines) and the bed

- Comments from Ezemvelo and Environmental protection bodies must be kept in consideration in order to protect the watercourse on the site.
- A no-go area to protect the watercourses must be demarcated. No personnel may enter this area for any reason.
- Environmental training must be provided to personnel.
- No laundry and bathing is allowed in the water courses. Contractors must provide ablution facilities to staff.
- Abstraction of water for construction use is prohibited. Municipal water must be brought in by tanker/vessels to the site for use by the contractors.
- Concrete and cement mixing wash areas should be placed at least 10m from any watercourse/ surface water drain to minimise the risk of run-off entering a water source.
- Storage areas for any chemical, fuel (for machinery), oil, cement etc., should be located above any flood line and away from high risk areas (i.e.; 10m from a watercourse) to minimise the risk of spill entering the water

Noise and disturbance – the presence of personnel and machinery will present a nuisance to the area

- Personnel must be trained in etiquette regarding noise and trespassing, as well as in health issues and occupational safety.
- Local people should be employed where possible.
- Construction activities must be limited to working hours.
- A registered contractor providing a project schedule must be employed. Penalties for extending the timeline could be enforced to try and minimise the period of impact.
- Vehicles and equipment must be well maintained to prevent excessive noise.

Destruction of flora and fauna– destruction of flora would have impacts on fauna

- Identify sensitive flora and fauna on the site prior to construction. Conduct a specialist study if necessary.
- Comments from Ezemvelo and Environmental protection bodies must be kept in consideration in order to protect the flora on the site and surrounds.
- The recommendations provided in the Biodiversity Study must be incorporated into the EMP and adhered to.
- Alien vegetation is to be removed, should other species require removal the ECO and Biodiversity Specialist must be consulted prior to removal.
- Prior to the clearing of the site, the ECO and the Biodiversity Specialist must ensure that all plants of conservation significance are removed.
- The 'rescued trees / shrubs' may be utilised in the rehabilitation of areas affected by the project; this must be over seen by the ECO. Alternatively, these plants can be replanted in nature reserves, etc.
- Harvesting of plants for medicinal use is prohibited.
- A site boundary must be erected to identify the limits of the construction site. Construction activities must be limited to within these boundaries. Training to staff must be provided.
- Vegetation will be removed; this may include alien species. The removed vegetation must be disposed of as soon as possible. Burning of removed vegetation is prohibited.
- Trapping/snaring/killing of animals including snakes and reptiles is prohibited.
- Fishing is prohibited.
- Laundry and bathing in the river is prohibited.
- Sealant, coatings, adhesives and glazing's, can be toxic to flora and fauna, if released in to the environment. Therefore, the products used should be stored and used carefully, to save resources as well as protect the environment.
- The ECO is to ensure that a list of any indigenous trees / shrubs which are to be removed is provided; this list must include the tree / shrub species and the number of each species.

Waste and litter – may affect neighbours as well as cause damage to the watercourse • A waste management plan for litter and construction packaging refuse has been devised and is part of the EMP. The plan must be implemented. • Waste must be separated especially with regard to hazardous waste. This would include soils that have been contaminated by cement, fuel, paints, etc. Care should be taken to avoid contamination of soils. • Personnel must be trained in etiquette regarding littering and waste management. • Appropriate scavenger proof vessels for wastes must be provided in suitable locations and must be adequate in number. • A waste storage area must be allocated and adhered to. • Waste must be disposed of at registered landfill sites or appropriate facilities. Proof of disposal must be provided when requested. • Staff must have a system of housekeeping to ensure litter is minimised.
Visual impacts – the area is residential and neighbours may not appreciate the presence of a construction site in their neighbourhood • The site must be well maintained and neat • The contractor must adhere to project schedule in order to minimise the length of the construction period. • Inspections of the site by an Environmental Control Officer are required.
Public safety and health –occupational safety, security and health of staff and public in general • Specialist studies and tasks must be conducted by trained and relevant consultants. • Skilled contractors must be utilised for specialised tasks • Unskilled labour must be trained relevantly including environmental training. • Buildings and/or steel structures must be constructed according to engineers' specifications. • Fire safety measures must be included in the design of the facility. Fire safety equipment must be provided on site during construction. • First aid kits are required on site as well as an incident records file. • Construction related vehicles must adhere to speed limits of the surrounding roads and a limit of 20km/hr on site. • Safety gear including hard hats and safety shoes must be provided and worn at all times while on site. • Emergency numbers must be clearly visible on site. • Trespassing and/or utilising the site as a thorough fare is prohibiting by unauthorised persons. • Contractor staff are prohibited from trespassing over the site boundaries. • Interaction with neighbours and objecting parties at the site must be well documented. A complaints register must be readily available on site. Interaction with external parties must be courteous. • Although the Contractor is responsible for ensuring that the environmental awareness training of staff members is put in place, it must be the direct responsibility of the appointed ECO to carry out the training. Each staff member sign a register confirming their attendance at this training. This register must be included in the site Environmental file.
Disturbance to Existing Infrastructure – the footpaths and crossings are not infrastructure established by the municipality. However, they are utilised by the community as existing infrastructure. Water, electricity, telecommunications, roads and railway infrastructure must also be considered. • Stakeholders must be notified as soon as possible. This includes the community, the municipalities, the service providers and ward councillor. • Servitudes of infrastructure must be confirmed prior to design of the development and permission granted. • No-Go areas must be demarcated. This would include any known existing grave sites. • The recommendations of the Heritage Impact Assessment must be adhered to.
Socio Economic Impacts – Job creation and possible economic benefit to construction material suppliers in the area. The establishment of safe river crossing benefits the community.

- Community members and leaders must be notified as soon as possible by posting notice boards with illustrations on site.
- Local people should be employed if/where possible
- Traditional leaders and/or ward councillors must be involved in the public participation.

(k) SUMMARY OF SPECIALIST STUDY FINDINGS AND IMPACTS

Freshwater Delineation

Four HGM units were identified as being potentially at risk from the proposed bridge development. These HGM units include (1) HGM2 a river with an associated riparian area, (2) HGM3 a channelled valley bottom, (3) HGM4 a river with an associated riparian area and (4) HGM5 a river with an associated riparian area. The extent of each HGM unit is illustrated in figure 4.1. of the Wetland Delineation Report in Appendix E.

Figure 4: HGM Units Delineated

WET-Health (Present Ecological Status) score - PES determination for HGM3 shows that in its present state, the wetland falls into PES category D indicative of a largely modified system.

WET-Eco Services (Ecological Goods and Services) - HGM3 is not a wetland of importance that provides streamflow regulation, sediment trapping, phosphate removal, toxicant removal and carbon storage. In addition, the HGM unit is not of any cultural significance and given the extent of transformation cannot be used for education or research purposes.

Ecological Importance and Sensitivity - The ecological importance and sensitivity assessment revealed that HGM3 yielded a median score of 0 whilst HGM2, HGM4 and HGM5 yielded a median score of 1 indicating low importance and sensitivity. These HGM units are not very unique and in terms of biota and habitat not very sensitive to flow modifications and have a substantial capacity for use.

For HGM2 and HGM4 the instream environment and riparian habitat of can be considered to be largely natural with few modifications. A small change in natural habitat and biota has taken place but the ecosystem functions are essentially unchanged.

For HGM5, both the instream environment and riparian habitat can be considered to be moderately modified. Many activities/impacts within the instream habitat are moderately severe including channel modification, bed modification, flow modification, water quality and water abstraction. Whilst in the riparian habitat zone vegetation removal, invasive alien encroachment, channel modification, water abstraction, and water quality were moderately severe. A loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged. Overall the habitat of the system can be considered to be moderately modified.

Heritage Impact Assessment

No obvious heritage sites were identified during the site investigation of the project area. Local residents confirmed these findings by indicating that to their knowledge there were no heritage sites in the area where the bridge and associated pathways are to be built.

The fossil sensitivity map of the South African Heritage Resources Agency (SAHRA) indicates that the project area falls within an area that is largely unknown in terms of fossil sensitivity (see Figure 6 below). Although a desktop study is required, as indicated in the Legend for Figure 6, this is not recommended nor supported as the area of development is highly disturbed by residential development, roads, pathways and subsistence farming. There is therefore a very low chance of intact, significant fossils being found in the area.

Biodiversity Study

The study area is located in the QDGS 3030CD and is situated in a rural area which is substantially transformed by human activities, notably human settlement and subsistence agriculture, both of which have resulted in considerable disturbance and resultant alien plant invasion. KZN Coastal Belt Grassland is considered a Critically Endangered vegetation type because of the development pressures exerted on this habitat. On the site, however, this area has been substantially transformed.

Given the highly transformed nature of the site and its biota there should be little impact from the proposed activity. The proposed activity will occur entirely in transformed habitat. The major impact of the proposed activity will be disturbance during construction. Some habitat loss will be inevitable, but the loss is generally of poor quality habitat. Once the development is completed, the rehabilitation of the disturbed area may allow natural habitat to return, especially if the recommended alien plant control programme is instituted. Care will

need to be taken when working in or near the watercourse as this represents a sensitive habitat type despite its current depurate ecological state.

Geology

The general description of soils in the area is soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime is rare or absent in the landscape. These soils belong to a class of undifferentiated clays.

(l) ENVIRONMENTAL IMPACT STATEMENT

Through this Basic Assessment, it had been concluded that the proposed development is not expected to have any significant, adverse or lasting impacts on the environment. The project will have positive impacts, viz:

- Provision of safe crossing to the local residents;
- Short term skills development and job creation

The positive impacts will be long term and will greatly contribute towards public safety during rainy seasons.

The construction phase is short term (4 months) and is not anticipated to cause any further detriment to the environment but the post construction rehabilitation will in fact aid in the rehabilitation of the immediate vicinity of the bridge. The EMP must be adhered to and will ensure that any negative impacts however minimal are not magnified.

During the post construction phase of the project, the contractors must ensure that all hazardous materials are removed from the site and that rehabilitation of land is undertaken according to the requirements of the EMP.

(m) IMPACT MANAGEMENT MEASURES FROM SPECIALIST STUDIES

All recommendations from the specialist studies must be incorporated into the development to render the proposed development as low impact as possible. The studies that are critical are:

- Biodiversity Study
    - Disturbance and habitat loss must be kept to a minimum.
    - Care must be taken to keep soils stabilized when removing vegetation during construction and as part of alien plant eradication and strict on-site soil erosion measure must be implemented.
    - Topsoil must be stockpiled for eventual return during rehabilitation.
    - Care must be taken to prevent the contamination of ground water with accidental fuel and oil spills from earth-moving and construction equipment and vehicles.
    - Trenches and/or pits created during construction must have one sloped side to allow animals which fall in to get out.
    - Trenches and/or pits must be checked daily while open for animals which may be unable to get out. Any animals found must be returned uninjured to suitable safe habitat.
    - An alien plant eradication programme must be implemented to limit the establishment of exotic species during the rehabilitation of the disturbed areas.

- Heritage Impact Study
    - For any chance finds, all work must cease in the area affected and the Contractor must immediately inform the Project Manager. A registered heritage specialist must be called to site

for inspection. The relevant heritage resource agency (Amafa) must also be informed about the finding.
  - The heritage specialist will assess the significance of the resource and provide guidance on the way forward.
  - Permits to be obtained from Amafa if heritage resources are to removed, destroyed or altered.
  - All heritage resources found in close proximity to the construction area to be protected by a 10m buffer in which no construction can take place. The buffer material (danger tape, fencing, etc.) must be highly visible to construction crews.
  - Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist.
  - Should any remains be found on site that is potentially human remains, the South African Police Service should also be contacted.
  - If there are chance finds of fossils during construction, a palaeontologist must be called to the site in order to assess the fossils and rescue them if necessary (with an Amafa permit). The fossils must then be housed in a suitable, recognized institute

- Freshwater study
  - Remove all category 1a and 1b invasive alien plant species during construction of the proposed development.
  - All development footprint areas should remain as small as possible during construction and should, ideally, not encroach onto sensitive wetland/riparian areas.
  - All construction staff should be educated about on the importance and sensitivity of the wetland/riparian systems around the construction site. This should form part of the induction process.
  - Care should be taken not to remove indigenous vegetation unnecessarily from the sensitive wetland/riparian areas and their associated buffers during all phases of construction.
  - Soil excavated during construction should not be piled onto sensitive wetland/riparian areas.
  - Stormwater management and erosion control measures should be applied to the construction phase of the development to prevent surface run-off and sedimentation.
  - Site engineers should regularly inspect the erosion control measures to confirm their appropriateness and integrity.
  - No dumping of any materials or storage of any equipment should be allowed within the wetland/riparian areas.
  - All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms/bunds to avoid spread of any contamination into wetland/riparian areas.
  - Washing and cleaning of equipment should also be done within berms or bunds, in order to trap any cement and prevent excessive soil erosion. These sites must be re-vegetated after construction has been completed.
  - During all phases of the construction, appropriate sanitary facilities must be provided and all waste removed to an appropriate waste facility.
  - Frequent inspection of the site must be done to ensure that the integrity of the wetlands is maintained at all times.

(n) CONDITIONS OF AUTHORISATION

In terms of Monitoring and Auditing, the following are recommended to ensure protection of the environment during construction:

- An ECO must monitor the construction site and activities on a monthly basis,
- An ECO must document the findings and submit a monthly report to the Competent Authority;
- The Project Manager and Contractor are responsible for the implementation of the EMP and protection of the environment for the duration of the construction period.

(o) ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

Not applicable

(p) RECOMMENDATION OF THE EAP

The information contained in this report and the documentation attached hereto, in the view of the EAP, is sufficient for the Competent Authority to make a decision.

The EMP, which includes recommended conditions and mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application, is provided. Refer to Appendix F for a full Environmental Management Plan. The EMP must be read in conjunction with the BAR.

(q) TIMEFRAMES

The anticipated construction phase is 12 weeks from commencement, since the bridges need assembly of pre-fabricated steel members and positioning of piers on site. An environmental authorisation that is valid for five (05) years is requested. This will allow sufficient time for the Water Use License and budgeting purposes.

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

(r) UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP

i. 1World Consultants (Pty) Ltd hereby confirms that the information provided in this Basic Assessment Report is correct at the time of the compilation and distribution for review. Input from specialists was utilised in the compilation of the Report.

ii. 1World Consultants (Pty) Ltd confirms that all comments received from Stakeholder and I&APs have been included in this report. It is to be noted that in terms of the EIA Regulations (2014), GNR 982 43(2), all State Departments that administer a law relating to a matter affecting the environment, specific to the Application, must submit comments within 30 days to the EAP. Should no comment be received within the 30-day comment period, it will be assumed that the relevant State Department has no comment to provide.

iii. All information from the specialist studies have been included in this Basic Assessment Report. Recommendations from the specialists have been included in the EMP.

iv. All information and comments received in response to this Basic Assessment Report will be summarised and responded to in a final version of the Report, which will be submitted to EDTEA for consideration in terms of issuing Environmental Authorisation.

For 1World Consultants (Pty) Ltd:

Fatima Peer B.Sc. (Hons) Pr. Sci. Nat.
SENIOR ENVIRONMENTAL ASSESSMENT PRACTITIONER

Environmental Assessment Practitioners
P.O. Box 3211, Westville, 3630
Landline: 031 262 8327
Fax: 086 726 3619

APPENDICES

The following appendixes must be attached as appropriate:

Appendix	Description of Contents
A	Company Profile of EAP Project Experience of EAP Curricula Vitae of EAP Team
B	Proposed plans of development
C	Application for Environmental Authorisation Acknowledgement and Acceptance of Application
D	Newspaper advertisement Copy of notice board and photograph of notice boards at site Background Information Document and distribution list Comments and Responses Report Copies of correspondence with I&AP's
E	Wetland Delineation and Freshwater Study report Heritage Impact Assessment Report Biodiversity Report
F	Draft Environmental Management Plan

APPENDIX A

1world consultants

COMPANY PROFILE

Environmental and Engineering Professionals

P O Box 2311, Westville, 3630
T 031 262 8327
F 086 726 3619
E admin@1wc.co.za

INTRODUCTION

1World Consultants (PTY) Ltd. is a Professional Environmental and Electrical Engineering services to a variety of clients in both the public and private sectors.

At 1World, we have extensive experience in the environmental and energy sectors mostly developed through practical involvement in projects for utilities and private consultants. Both our environmental and engineering divisions offer personalised attention on every project. The environmental consultants on our team have successfully executed work for large municipalities, namely eThekwini, Msunduzi and Kwadukuza Municipalities. Our consultants in the recently formed engineering division have added knowledge and skills, ranging across the fields of electrical engineering, engineering project management and computer modelling, to the team at 1World. The unique combination of engineering and environmental knowledge and experience enables 1World to provide holistic solutions to projects.

VISION

1World Consultants (PTY) Ltd. pride themselves on individual attention to every project. We aim to be a leading provider of consultancy services for projects in South Africa and beyond.

MISSION

We aim to deliver a quality and efficient service by:

- Using highly skilled and motivated professionals
- Consulting with all stakeholders
- Training and developing our staff
- Working with local communities
- Being honest and humble in dealings with stakeholders, providing best value in all aspects of our services

FIELDS OF EXPERTISE

1World Consultants (PTY) Ltd. provide a wide range of services with specialist expertise in the following key core areas and tasks:

ENVIRONMENTAL SERVICES

- Basic Assessments
- Full scoping and Environmental Impact Assessments (EIA's) and reporting
- Administration and management of EIA processes
- Facilitation of public participation including advertising and large format printing
- Section 24G Rectification Applications
- Water Use License Applications (NWA)
- Waste Management License Applications (NEM:WA)
- Environmental Auditing and Site Compliance
- Supply of Environmental Control Officer (ECO)
- Environmental Management Plans, recommendations and advice
- Environmental Planning/Risk Assessments/Screenings/ Due Diligence

ELECTRICAL ENGINEERING EXPERTISE AND SERVICES

- **Power System modelling and simulation**

  1World has expertise in the following simulation software; PSS/e, DigSILENT, Reticmaster and PowaMaster providing the following broad services:
  - Master planning;
  - Network development planning (NDP);
  - Long term load forecasting.
  - System analysis and optimisation

- **Reticulation & Electrification design**
  - Rural and urban electrification design;
  - Building reticulation and refurbishment

- **Substation & Line design**
  - High and medium voltage substation design;
  - High and medium voltage line design;
    - High and medium voltage cable design;

- **Project management**

  1World offers project management and on-site

supervision capabilities for any type of electrical project, especially where we are responsible for detail design of such projects. This allows our engineers to ensure that required standards and quality is maintained during the construction/implementation phases of the project, given the budget and schedule constraints.

- **Building Services**
  - Electrical reticulation & distribution,
  - Lighting, Security, Access Control,
  - Standby Power generation
  - Energy Efficiency Analysis
  - BIM Systems.

- **Demand Side Management / Energy Audits**

  DSM is the process by which electric utilities achieve predictable changes in customer demand, which can be considered as alternatives to the provision of additional generation plant. The following services are offered:

  - Commercial
    - Energy efficiency and load management in buildings;
    - In line water heaters;
    - Thermal energy storage;
    - Tariff analysis;
    - Power factor correction
  - Industrial
    - Industrial and Power Station energy efficiency;
    - In line water heaters;
    - Industrial Load Control;
    - Tariff analysis;
    - Power factor correction

PROFESSIONAL REGISTRATION

The team members at 1World Consultants (PTY) Ltd. are affiliated to, amongst other industry specific organisations, the following recognised institutions:

- South African Council for Natural Scientific Professions (SACNASP)
- International Association for Impact Assessment South Africa (IAIAsa)
- Engineering Council of South Africa (ECSA)
- South African Institute of Electrical Engineers (SAIEE)
- South African Federation of Health Engineers (SAFHE)

BLACK ECONOMIC EMPOWERMENT

B-BBEE Level: 01

COMPANY DETAILS

Legal Name:

1World Consultants (PTY) Ltd.

VAT Registration No.: 445 0271 756

PROJECT EXPERIENCE

NO.:	YEAR	PROJECT TITLE AND CLIENT NAME	DESCRIPTION OF WORKS DONE	NAME OF CONTACT PERSON AND CONTACT TELEPHONE/CELL NUMBER
1	2011	Title: Cliffdale Hydroponic Farms Client Name: Trans Africa Farms	Appeals Process (S24G) for unlawful clearing of vegetation in a D'MOSS protected area.	Name: Rishi Sookoo Tel: 082 418 6599 Email: transafrica@mweb.co.za
2	2012-2013	Title: Cliffdale Hydroponic Farms Client Name: Trans Africa Farms	Retrospective Environmental Authorisation (Basic Assessment) for unlawful clearing of vegetation and for proposed hydroponic tunnel farm and associated warehousing and facilities. BA process included full public participation process and I&AP involvement. Involvement of eThekwini Municipality was critical for this project due to D'MOSS zones. Consultation with government departments was also conducted according to EIA guidelines.	Name: Rishi Sookoo Tel: 082 418 6599 Email: transafrica@mweb.co.za
3	2012	Title: Cliffdale Hydroponic Farms Client Name: Trans Africa Farms	Appeals Process (S24G) for Diesel Storage facilities.	Name: Rishi Sookoo Tel: 082 418 6599 Email: transafrica@mweb.co.za
4	2012-2013	Title: Cato Ridge Race Track Client Name: Pilson Developers cc	Environmental Authorisation (Basic Assessment) for a Proposed Drag Race Track and Entertainment Complex. Basic Assessment process included; full public participation and I&AP involvement, traffic Impact assessment, Stormwater Management Plan, Noise Study, Soil Assessment specialist studies, which were coordinated by EAP.	Client: Pilson Developers cc Name: Rajan Pillay Tel: 084 440 0887 Email: ranap@sanlamsky.co.za
5	2012-2013	Title: Cato Ridge Race Track		Name: Rajan Pillay Tel: 084 440 0887

		Client Name: Pilson Developers cc	Application for Waste Management License and related Environmental Authorisation (Basic Assessment) for sewage, contaminated stormwater and food grease storage facilities within the Proposed Drag Race Track and Entertainment Complex. Basic Assessment process included full public participation and I&AP involvement that was independent from the above mentioned public participation for the Environmental Authorisation.	Email: ranap@sanlamsky.co.za
6	2014	Title: Kwadukuza Churches Client: Kwadukuza Municipality	Environmental screening for seven sites earmarked for places of worship.	Name: Nokubonga Kunene Tel: 071 897 9366 Email: nokubongak@kwadukuza.gov.za
7	2014-2015	Title: Umgeni Bridge Vegetation Rehabilitation Client: eThekwini Municipality & SMEC	Formulation of Vegetation Rehabilitation Plan for Pipeline Bridge. Environmental Compliance Monitoring (ECO) for Vegetation Rehabilitation	Name: Leisel Bowes Tel: 031 311 8656/ 076 412 8575 Email: leiselbowes@durban.gov
8	2014-Current	Title: Canelands Bridge Client: eThekwini Municipality & SMEC	Formulation of Environmental Management Plan for the Rehabilitation of a Pipeline Bridge. Environmental Compliance Monitoring (ECO) for the Rehabilitation of a Pipeline Bridge	eThekwini Munic.: Leisel Bowes SMEC: Mohamed Parak Tel eThekwini Munic.: 031 311 8656/ 076 412 8575 Tel SMEC: 084 678 6416 Email eThekwini Munic.: leiselbowes@durban.gov
9	2014-2015	Title: Canelands Bridge Client: eThekwini Municipality & SMEC	Application of Water Use License and coordination of Specialist Study for the Rehabilitation of a Pipeline Bridge	Name: Leisel Bowes Tel: 031 311 8656/ 076 412 8575 Email: leiselbowes@durban.gov
10		Title: Brookside Taxi Holding	Environmental Compliance Monitoring (ECO) for construction of the Brookside Taxi Holding Area	Client: Name: Khethiwe Mvelase

	2014-Current	Client: Msunduzi Municipality Transportation		Tel: 073 593 1885 Email: khethiwe.mvelase@msunduzi.gov.za
11	2014	Title: Fuel Station Retail License Client: Woodford Motors cc	Environmental Management Plan for a Fuel Retail License	Name: Owaiys Soleman Tel: 083 577 8600 Email: owaiys@woodford.co.za
12	2014-Current	Title: Ward 20 Edendale Sewage Reticulation System Client: Msunduzi Municipality Water and Sanitation	Sewage Pipeline Basic Assessment, Public Participation and Environmental Management Plan	Client: Msunduzi Municipality Water and Sanitation Name: Dhamendra Ragunanthan Tel: 033 392 2115 Email: Dhamendra.Ragoonandan@msunduzi.gov.za
		Title: Brookside Taxi Holding	Water Use License Application for a Sewage pipeline	
13	2014	Title: Halpin Avenue Muslim Cemetery Client: PAR Quantity Surveyors	Environmental Screening for a cemetery.	Name: Rasheed Peer Tel: 082 876 5887 Email: arpqs@wol.co.za
14	2014-Current	Title: Inanda Square Shopping Mall Client: ARUP & SMFT Properties	Environmental Screening and Basic Assessment for the construction of a proposed new shopping mall.	ARUP: Mohamed Kajee SMFT: Nadheem Sheik Tel ARUP: 083 639 9933 Tel SMFT: 072 437 8299 Email ARUP: mohamed.kajee@arup.com Email SMFT: nsa@vodamail.co.za
15	2014	Title: Eminen Warehousing.	Environmental Screening for proposed new warehousing	Name: Muhammed Naroth

		Client: Eminen Architects		Tel: 078 573 9970 Email: muhammed@eminen.co.za
16	2014	Title: Waste Management Facility Client: We're Recycling (Pty) Ltd	Environmental Screening for two proposed sites earmarked for Waste management facilities.	Name: Riaz Vanker Tel: 082 080 9764 Email: vankersinternational@telkomsa.net
17	2015-Current	Title: Midnite Café Reservoir and Pipeline Client: Royal Haskoning DHV & eThekwini Municipality	Basic Assessment, Water Use license Application and Environmental Compliance Monitoring (ECO) for a proposed new water pipeline and reservoir.	Name: Roxanne Mans Tel: 083 776 0626 Email: Roxanne.mans@rhdhv.com
18	2015-Current	Title: Madressa An-Noor for the Blind Client: Madressa An-Noor for the Blind.	Environmental Compliance Monitoring (ECO) for the extension and construction of new facilities to the Madressa (school).	Name: Mohamed Timol Tel: 033 343 3301 Email: admin@mnblind.org
19	2015-Current	Title: Reforestation Hub within Buffelsdraai Landfill Site Client: Ethekwini Municipality	Training and Environmental Compliance Monitoring (ECO)	Name: Errol Douwes Tel: 031 311 7952 Email: Errol.Douwes@durban.gov.za
20	2015-Current	Title: Burbreeze Reservoir and Pipeline Client: Msunduzi Municipality Transportation	Basic Assessment, Water Use license Application and Environmental Compliance Monitoring (ECO)	Name: Roxanne Mans Tel: 083 776 0626 Email: Roxanne.mans@rhdhv.com
21	2015-Current	Title: Dressing Pedestrian Bridge Client: PGA Consulting	Basic Assessment, Water Use License Application, Environmental Compliance Monitoring (ECO) and Environmental Training	Name: Marcus Sadhai Tel: 031 263 2583 Email: marcus.sadhai@pgaconsulting.co.za

22	2015-Current	Title: Mbhele Pedestrian Bridge Client: PGA Consulting	Basic Assessment, Water Use License Application, Environmental Compliance Monitoring (ECO) and Environmental Training	Name: Marcus Sadhai Tel: 031 263 2583 Email: marcus.sadhai@pgaconsulting.co.za
23	2015-Current	Title: Maphephethweni Water Pipeline Client: eThekwini Municipality Water & Sanitation	Basic Assessment, Water Use License Application, Environmental Compliance Monitoring (ECO) and Environmental Training	Name: Nomagugu Ncemane Tel: 031 311 8148 / 071 855 8124 Email: nomagugu.ncemane@durban.gov.za
24	2016-Current	Title: Alverstone Pipeline Client: eThekwini Municipality Water & Sanitation	Basic Assessment, Water Use License Application, Environmental Compliance Monitoring (ECO) and Environmental Training for a water pipeline.	Name: Leisel Bowes Tel: 031 311 8656/ 076 412 8575 Email: leiselbowes@durban.gov
25	2016-Current	Title: Adams Mission Water Pipeline Client: eThekwini Municipality Water & Sanitation	Water Use License Application for the Augmentation of a Bulk Water Supply Scheme.	Name: Nomagugu Ncemane Tel: 031 311 8148 / 071 855 8124 Email: nomagugu.ncemane@durban.gov.za
26	2016-Current	Title: SANRAL Periodic Road Maintenance Client: Aurecon & SANRAL	Environmental Compliance Monitoring (ECO) for period maintenance of National Route 2	Name: Johan Calitz Tel: 012 427 2634 Email: Johan.Calitz@aurecongroup.com

Fatima Peer
(Director)

PROJECT ROLE : SENIOR ENVIRONMENTAL ASSESSMENT PRACTITIONER

Name :	Fatima Peer
Address:	181 Winchester Drive, Reservoir Hills, Durban, 4091
Telephone:	031 262 8327
Fax:	086 726 3619
Email:	fatima@1wc.co.za

Nationality at birth	South African				
Present nationality	South African				
Date of birth (day,month,year)	13/12/1976				
Place of birth	Durban				
sex	Male		Female	x	

WORK EXPERIENCE
(ADD SEPARATE ENTRIES FOR EACH RELEVANT POST OCCUPIED STARTING WITH THE MOST RECENT)

Date (from- to)	August 2010- Present
Name and address of employer	1World Consultants 181 Winchester Drive, Reservoir Hills, Durban, 4091
Type of business sector	Engineering and Environmental Consultants
Occupation or position held	Owner Senior Environmental Assessment Practitioner
Main activities and responsibilities	Facilitation of environmental authorisations from Department of Environmental Affairs, Public Participation of projects for authorisation processes Water Use License Applications Waste Management Applications and/or Plans Environmental Management Plans Environmental Control Officer Monitoring Appeals processes Environmental Screening Processes and general advice to clients

Date (from- to)	June 2002- December 2003
Name and address of employer	Sasol Ltd Research and Development
Type of business sector	Coal Research and Development
Occupation or position held	Safety Representative for Coal & Syngas Research
Main activities and responsibilities	Ensure the Coal Processing Unit adhered to safety plans and protocols, by inspections and monitoring

Date (from- to)	May 2002 - March 2004
Name and address of employer	Sasol Ltd Research and Development
Type of business sector	Coal Research and Development
Occupation or position held	Senior Scientist
Main activities and responsibilities	Research coal processes and investigate novel equipment and/or processes. Lead teams of research. Present at conferences.

Date (from- to)	January 2001- April 2002
Name and address of employer	Sasol Ltd Research and Development
Type of business sector	Coal Research and Development
Occupation or position held	Grade 01 Scientist
Main activities and responsibilities	Research coal processes and investigate novel equipment and/or processes.

Date (from- to)	1999-2001
Name and address of employer	University of Natal (Durban)
Type of business sector	Academic
Occupation or position held	First Year Chemistry Laboratory Demonstrator
Main activities and responsibilities	Coach students on lab protocols Assess students on research done in laboratories

Date (from- to)	December 1998
Name and address of employer	Sasol Technology (Process Water)
Type of business sector	Research
Occupation or position held	Vacation Student
Main activities and responsibilities	Investigate used process water and attempt to mitigate it by researching novel ways to reduce the volumes released into rivers.

EDUCATION AND TRAINING

(ADD SEPARATE ENTRIES FOR EACH RELEVANT COURSE YOU HAVE COMPLETED, STARTING WITH MOST RECENT)

Date (from – to)	January 1995 – December 2000
Name and type of organization providing education and training	UKZN - University
Principal subject/ occupational skills covered	Chemistry and Cell Biology Environmental Management Science, Photochemistry, Wood and Paper Milling, Computational Chemistry
Title of qualification awarded	Bachelor of Science in Chemistry (Hons)
Level in national classification (if appropriate)	

PERSONAL SKILLS AND COMPETENCES

(ACQUIRED IN THE COURSE OF LIFE AND CAREER BUT NOT NECESSARILY COVERED BY FORMAL CERTIFICATES AND DIPLOMA)

MOTHER TONGUE	ENGLISH

OTHER LANGUAGES	AFRIKAANS (BASIC)

	ZULU (BASIC)

(SPECIFY LANGUAGE)	ENGLISH	AFRIKAANS	ZULU
READING SKILLS	PERFECT	GOOD	POOR
WRITING SKILLS	PERFECT	GOOD	POOR
VERBAL SKILLS	PERFECT	GOOD	FAIR

DRIVING LICENSE(S)	CODE 8

ADDITIONAL INFORMATION	SACNASP MEMBER IAIASA MEMBER ENVIRONMENTAL LAW COURSE ENVIRONMENTAL IMPACT ASSESSMENT : THEORY AND PRACTICE (BY VICKI KING OF METAMORPHOSIS ENVIRONMENTAL CONSULTANTS) ROLES AND RESPONSIBILITIES OF AN ECO (BY IAIASA-INTERNATIONAL ASSOCIATION FOR IMPACT ASSESSMENT SOUTH AFRICA)

PROJECT ROLE : JUNIOR ENVIRONMENTAL ASSESSMENT PRACTITIONER

Name :	Adila Sheik Gafoor
Address:	137 Plumstead Crescent ,Reservoir Hills, Durban, 4091
Telephone:	031 262 8327
Fax:	086 726 3619
Email:	adila@1wc.co.za

Nationally at birth	South African				
Present nationality	South African				
Date of birth (day,month,year)	01/10/1990				
Place of birth	Durban				
sex	Male		Female	x	

WORK EXPERIENCE
(ADD SEPARATE ENTRIES FOR EACH RELEVANT POST OCCUPIED STARTING WITH THE MOST RECENT)

Date (from- to)	October 2014- Present
Name and address of employer	1World Consultants
Type of business sector	Engineering and Environmental Consultants
Occupation or position held	Junior Environmental Assessment Practitioner
Main activities and responsibilities	Office Administration Tender administration (compilation) Data capturing Report writing Environmental Compliance Monitoring Water Use License Application Officer

Date (from- to)	September 2013- September 2014
Name and address of employer	Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmbH- South African- German Energy Programme (SAGEN)
Type of business sector	Renewable Energy, Energy Efficiency and Climate Change
Occupation or position held	Intern
Main activities and responsibilities	Data capture Digitizing Training of Staff from various municipalities on energy efficient household surveys Field work Report Writing

Date (from- to)	September 2010- September 2013
Name and address of employer	Natal Wholesale Jewellers
Type of business sector	Retail
Occupation or position held	Sales Assistant
Main activities and responsibilities	Customer Care Sales Jewellery Repair Administration

Date (from- to)	2009 - 2010
Name and address of employer	Umoya-Nilu Consulting
Type of business sector	Air Quality Consulting
Occupation or position held	Intern
Main activities and responsibilities	Administration Database Registration

EDUCATION AND TRAINING
(ADD SEPARATE ENTRIES FOR EACH RELEVANT COURSE YOU HAVE COMPLETED, STARTING WITH MOST RECENT)

Date (from – to)	February 2010 – June 2013
Name and type of organization providing education and training	UKZN - University
Principal subject/ occupational skills covered	Geography and Environmental Management Political Science
Title of qualification awarded	BSc Geography and Environmental Management Science
Level in national classification (if appropriate)	NQF 6

PERSONAL SKILLS AND COMPETENCES

(ACQUIRED IN THE COURSE OF LIFE AND CAREER BUT NOT NECESSARILY COVERED BY FORMAL CERTIFICATES AND DIPLOMAS)

MOTHER TONGUE	ENGLISH

OTHER LANGUAGES	AFRIKAANS (BASIC) ZULU (BASIC)

(SPECIFY LANGUAGE)	ENGLISH	AFRIKAANS	ZULU
READING SKILLS	PERFECT	GOOD	POOR
WRITING SKILLS	PERFECT	GOOD	POOR
VERBAL SKILLS	PERFECT	GOOD	FAIR

DRIVING LICENSE(S)	CODE 8

ADDITIONAL INFORMATION	ENVIRONMENTAL IMPACT ASSESSMENT : THEORY AND PRACTICE (BY VICKI KING OF METAMORPHOSIS ENVIRONMENTAL CONSULTANTS) ROLES AND RESPONSIBILITIES OF AN ECO (BY IAIASA- INTERNATIONAL ASSOCIATION FOR IMPACT ASSESSMENT SOUTH AFRICA)

PROJECT ROLE : FIELD SERVICES PRACTITIONER

Name :	Bryan Walter Paul
Address:	47 Longwoods Drive, Glen Hills, Durban, 4051
Telephone:	031 262 8327
Fax:	086 726 3619
Email:	bryan@1wc.co.za

Nationally at birth	South African				
Present nationality	South African				
Date of birth (day,month,year)	23/04/1991				
Place of birth	Durban				
sex	Male	x	Female		

WORK EXPERIENCE
(ADD SEPARATE ENTRIES FOR EACH RELEVANT POST OCCUPIED STARTING WITH THE MOST RECENT)

Date (from- to)	December 2015- Present
Name and address of employer	1World Consultants 181 Winchester Drive, Reservoir Hills, Durban, 4091
Type of business sector	Engineering and Environmental Consultants
Occupation or position held	Junior Environmental Assessment Practitioner
Main activities and responsibilities	Environmental Compliance Monitoring Biodiversity Surveying and reporting

Date (from- to)	January 2012 – November 2015
Name and address of employer	Umgeni River Bird Park
Type of business sector	Environmental Education/Conservation
Occupation or position held	Show Department - Manager
Main activities and responsibilities	Public Speaking Resource Management Staff Training and Administration Environmental Education

Date (from- to)	January 2011 – December 2011
Name and address of employer	Babanango Valley Environmental Adventures
Type of business sector	Environmental Education/Hospitality
Occupation or position held	Camp Leader/Facilitator
Main activities and responsibilities	Public speaking/Environmental education Logistical Planning Basic Invoicing and accounts Management Resource Management

EDUCATION AND TRAINING

(ADD SEPARATE ENTRIES FOR EACH RELEVANT COURSE YOU HAVE COMPLETED, STARTING WITH MOST RECENT)

Date (from – to)	January 2010 – December 2014
Name and type of organization providing education and training	Unisa – University of South Africa
Principal subject/ occupational skills covered	Environmental Science
Title of qualification awarded	BSc Botany and Zoology with a Geography stream
Level in national classification (if appropriate)	NQF Level 6

Date (from – to)	January 2010 – Still Completing
Name and type of organization providing education and training	Unisa – University of South Africa
Principal subject/ occupational skills covered	Environmental Management
Title of qualification awarded	BSc Honours Environmental Management
Level in national classification (if appropriate)	NQF Level 7

PERSONAL SKILLS AND COMPETENCES

(ACQUIRED IN THE COURSE OF LIFE AND CAREER BUT NOT NECESSARILY COVERED BY FORMAL CERTIFICATES AND DIPLOMAS)

MOTHER TONGUE	ENGLISH

OTHER LANGUAGES	AFRIKAANS (BASIC) ZULU (BASIC)

(SPECIFY LANGUAGE)	ENGLISH	AFRIKAANS	ZULU
READING SKILLS	PERFECT	FAIR	POOR
WRITING SKILLS	PERFECT	FAIR	POOR
VERBAL SKILLS	PERFECT	FAIR	FAIR

DRIVING LICENSE(S)	CODE 8

APPENDIX B

Footpath

Footpath

Staircase

Hibiscus Coast municipality

ISSUED FOR: HIBISCUS COAST MUNICIPALITY

DRESSING PEDESTRIAN BRIDGE

SCALE : 1:125

FULL BRIDGE LAYOUT

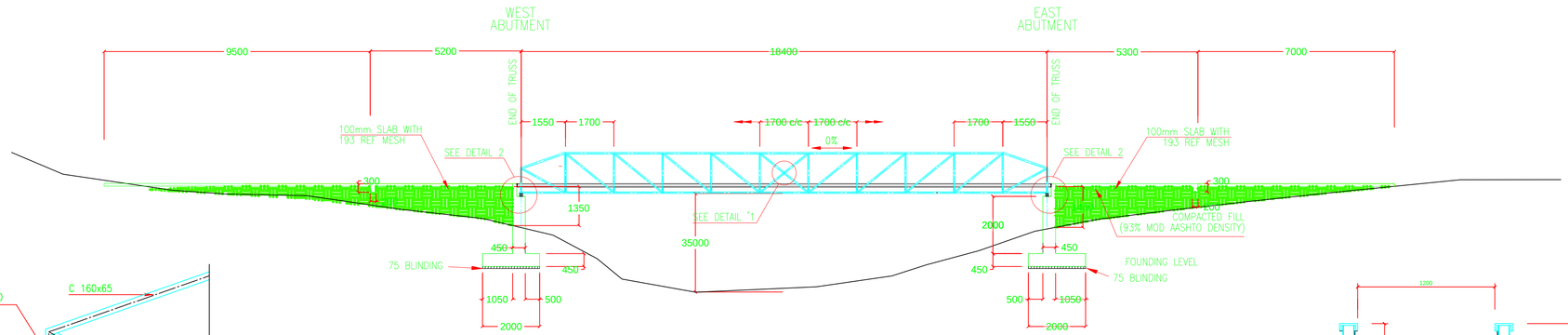
Drawing No.- 1084/02

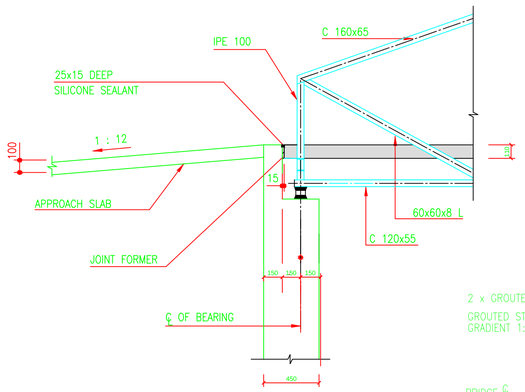
Hibiscus Coast municipality

ISSUED FOR: HIBISCUS COAST MUNICIPALITY

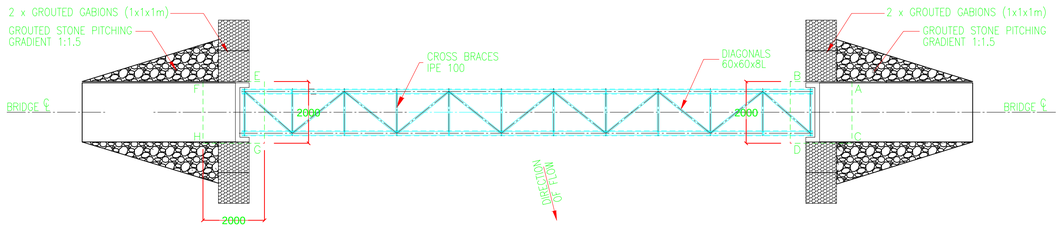
DRESSING PEDESTRIAN BRIDGE

SCALE: 1;200

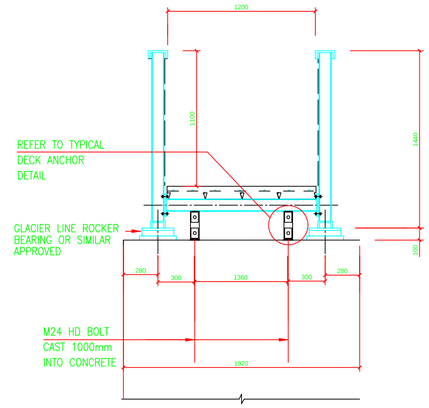




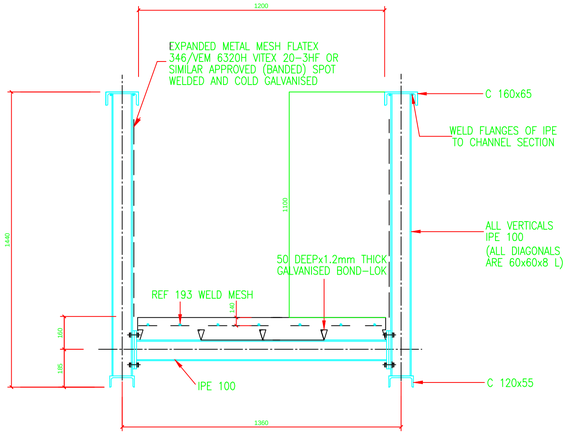
DETAIL B
SCALE 1:25



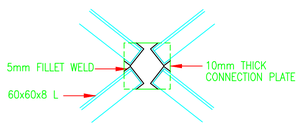
PLAN
SCALE 1:100



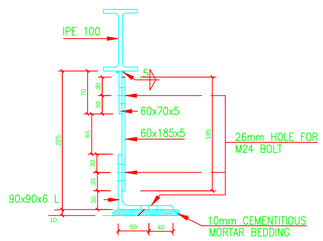
DECK ANCHOR CROSS SECTION
SCALE 1:25



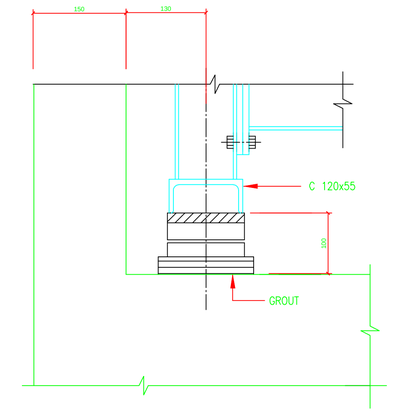
TYPICAL CROSS SECTION
SCALE 1:15



DETAIL A
SCALE 1:15



TYPICAL DECK ANCHOR DETAIL
SCALE 1:5
(AT ABUTMENTS - 2 PER ABUTMENT)



FRONT ELEVATION : ABUTMENT BEARING DETAIL
SCALE 1:5

Hibiscus Coast municipality

ISSUED FOR: HIBISCUS COAST MUNICIPALITY

REVISION	DATE	DESCRIPTION

DRESSING PEDESTRIAN BRIDGE

PRELIMINARY DESIGN LAYOUT

APPENDIX C

edtea
Department :
Economic Development, Tourism and Environmental Affairs
PROVINCE OF KWAZULU-NATAL

	(For official use only)
File Reference Number:	DC/
NEAS Reference Number:	KZN/EIA/
Date Received:	

APPLICATION FOR ENVIRONMENTAL AUTHORIZATION

Submitted in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and regulation 6 (1) and 16 (1) of the Environmental Impact Assessment (EIA) Regulations, 2014 (Government Notice No. R 982, 04 December 2014).

PROJECT TITLE

Proposed "Dressing Pedestrian Bridge" near Bomela, within Hibiscus Coast Local Municipality

DISTRICT MUNICIPALITY

Ugu District Municipality

IMPORTANT INFORMATION

PLEASE NOTE:

1. It is the responsibility of the applicant to confirm that the Department is the competent authority to which this application must be submitted (refer to NEMA section 24C).

2. The application must be typed within the spaces provided in the form. The size of the space provided is not necessarily indicative of the amount of information required.

3. Where required, place a cross in the box you select.

4. Incomplete applications will be returned to the applicant for revision.

5. The use of the phrase "not applicable" in the form must be done with circumspection. Should it be done in respect of material information required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the Regulations.

FEES APPLICABLE FOR APPLICATIONS FOR ENVIRONMENTAL AUTHORIZATIONS

6. The following fees for the consideration and processing of applications for an environmental authorization will be applicable from **01 April 2014** (refer to the Annexure in Government Notice No.141 dated 28 February 2014):

Application	**Fee**
Application for an environmental authorization subject to a Basic Assessment in terms of the EIA Regulations	R2 000.00
Application for an environmental authorization subject to a Scoping and Environmental Impact Report in terms of the EIA Regulations	R10 000.00

7. Where an applicant is required to pay fees for an application for environmental authorization as contemplated in section 6, this must be made by means of a bank deposit or electronic fund transfer into the bank account of this Department (refer to section 8).

8. **Payment reference number for applications for environmental authorizations** and **banking details** for the Department:

Reference number (**only reference number to be used for environmental authorization applications**):	**03026982**
Account name:	**KwaZulu-Natal Provincial Government Agriculture**
Bank name:	**ABSA**
Branch code:	**630495**
Account number:	**4072480963**

9. Proof of payment of fees (if applicable) for an environmental authorization application must be attached as **Appendix 10** to this application form and submitted with it. Proof of payment is either a stamped deposit slip or an electronic fund transfer payment advice.

INSTANCES WHERE FEES FOR APPLICATIONS FOR ENVIRONMENTAL AUTHORIZATIONS ARE NOT APPLICABLE

10. Where an application is for a community based project funded by a government grant or the application is made by an organ of state, the fees for considering and processing applications for an environmental authorization do not apply (refer to regulation 2 in Government Notice No.141 dated 28 February 2014).

11. Where an applicant is not required to pay a fee as contemplated in section 6 of this form, a **written motivation** (with proof of funding if a government grant is applicable) must be attached as **Appendix 11** to this application form and submitted with it.

12. If you have any queries regarding the EIA process or fees applicable for applications for environmental authorizations please contact the relevant District Office of this Department. These contact details are obtainable from Regional Offices (see below).

REGIONAL OFFICE DETAILS

13. The original application must hand delivered or posted to the appropriate Regional Offices of this Department as provided below. **No faxed or e-mailed applications will be accepted** Regional Office details are:

- **FOR APPLICATIONS IN NORTHERN KWAZULU-NATAL** (Amajuba, Umkhanyakude, Uthungulu, Umzinyathi and Zululand District Municipalities)

  Environment: North Region
  KwaZulu Natal Department of Economic Development, Tourism & Environmental Affairs
  Private Bag X1048, RICHARDS BAY, 3900

  5th Floor ABSA Building, Lakeview Terrace, RICHARDS BAY

  Contact Person: **Ms Jacqueline Ndlovu**
  Cellular Telephone No: **076 806 2641/ 084 919 8939**

  Alternative Contact Person:Mr Muzi Mdamba
  Cellular Telephone No: **082 822 2582**

- **FOR APPLICATIONS IN SOUTHERN KWAZULU-NATAL** (Ethekwini Metro, Ilembe, Harry Gwala, Ugu, Umgungundlovu and Uthukela District Municipalities):

  Environment: South Region
  KwaZulu-Natal Department of Economic Development, Tourism & Environmental Affairs
  Private Bag X6005, HILTON, 3245

  A Block, 4 Pin Oak Avenue, HILTON

  Contact Person: **Ms Mavis Padayachee**
  Telephone No.: **(033) 343 8495**

14. Unless protected by law, all information filled in on this application will become public information on receipt by this Department. Any interested and affected party must be provided with the information contained in this application on request, during any stage of the application process.

15. Please note an exemption application must be finalized before lodging an application for environmental authorization with the Department.

16. If an Environmental Assessment Practitioner (EAP) has not been appointed at the time of the submission of this application form, the declaration from the EAP must be included in the Basic Assessment Report.

17. Pages 2 and 3 may be deleted from the application form submitted to the Department.

CONTENTS

LIST OF APPENDICES

		SUBMITTED	
Appendix 1	Written consent from the land owner or the person in control of the land (Regulation 39(1) (If the applicant is not the land owner and Regulation 39(2) does not apply).	YES	
Appendix 2	Listing Notice 3 Map with details of activities triggered (as confirmed by the Department) (if applicable)	YES	
Appendix 3	Approval by the Department that a combined application in terms of Regulation 11 of the EIA Regulations, 2014 may be submitted (if applicable)		N/A
Appendix 4	A locality map and a plan (Regulation 16 (1) (vii)	YES	
Appendix 5	Proof of payment of environmental authorization fees (if applicable). Proof of payment includes a stamped deposit slip or an electronic fund transfer payment advice.		N/A
Appendix 6	A written motivation explaining why the payment of environmental authorization fees are not applicable (an application for a community based project funded by a government grant or an application by an organ of state).	YES	

BIODIVERSITY REPORT ATTACHED

1. PROJECT DESCRIPTION

Please provide a **detailed** description of the project.

The Hibiscus Coast Local Municipality proposes the construction of a pedestrian bridge, to be referred to as "Dressing Bridge" to provide safe crossing over a river, for the local community (map provided in Appendix 4).

The new bridge will be approximately 19m long with 5m concrete approach slabs on either side. Footpaths of 9.5m and 7m on either side of the bridge will also be constructed. The bridge will have a final development footprint of 85.6m^2.

Construction Activities

The construction of the bridge will require approximately four (04) months to complete since it is an installation of metal members.

Construction will comprise of a number of activities including the establishment of a temporary construction camp, site demarcation, excavations, metal members transportation and rehabilitation of all work areas. All activities will take place within the demarcated. Potable water in containers and chemical toilets will be provided for staff.

All work will be conducted in line with an approved environmental management plan to be prepared by 1World. Rehabilitation of all affected sites must be conducted.

Site Facilities Required by Contractor

Toilet facilities provided for the sole use of the contractors' staff must be of the chemical type, maintained in a hygiene and sanitary condition and must be removed on completion of the works.

Alternatives

There are no alternatives to the site since the proposed bridge is at a river crossing already being used and is already disturbed.

(a) Strategic Infrastructure Projects

Does the project form part of any of the Strategic Infrastructure Projects (SIPs) as described in the National Development Plan, 2011?		NO

2. BACKGROUND INFORMATION

Project applicant:

Trading name (if any):	Hibiscus Coast Local Municipality – Roads Department		
Contact person:	Khulekhani Basil Msomi		
Physical address:	10 Connor Street, Marburg		
Postal address:	10 Connor Street, Marburg		
Postal code:	4240	Cell:	081 523 6862
Telephone:	039 688 2139	Fax:	086 214 6328
E-mail:	khulekani.msomi@hcm.gov.za		

Owner or person in control of the land: (if the applicant is not the owner or the person in control of the land or Regulation 39(2) in the EIA Regulations 2014 does not apply)

Contact person:	Pravesh Manipersadh
Postal address:	P.O. Box 601, Pietermaritzburg,

Postal code:	3200	Cell:	072 382 8609
Telephone:	033 846 9900	Fax:	033 386 2528
E-mail:	praveshm@ingonyamatrust.org.za		

District Municipality:	Ugu District Municipality
Local Municipality:	Hibiscus Coast Local Municipality
	In instances where the project includes more than one local or district municipality, please provide a list.

Contact person at Local Municipality:	Khulekhani Basil Msomi		
Postal address:	10 Connor Street, Marburg		
Postal code:	4240	Cell:	081 523 6862
Telephone:	039 688 2139	Fax:	086 214 6328
E-mail:	khulekani.msomi@hcm.gov.za		

In instances where there is more than one local authority involved, please include details of local authorities with their contact details in an Appendix.

Property description/physical address: Portion 0 of Farm 15845

(Farm name, portion etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list in an Appendix to the application.

Nearest town/s: Bomela, Ward 24
Directions to the physical address: Take Izotsha turn off, turn right at the cross and follow the road according to the map attached in Appendix 4. Take second left off the main road after Mr Lunch Shop. Follow footpaths to bottom of valley and head 20m east along the watercourse.
Current land-use zoning: Farm

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings in the Appendix and also indicate which portions are relevant to this application.

Is a change of land-use or a consent use application required?		NO
Must a building plan be submitted to the local authority?	YES	

Locality map:

An A3 locality map must be attached to the back of this document, as Appendix 4. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.) The map must indicate the following:

- an accurate indication of the project site position in relation to known landmarks such as towns/villages, as well as the positions of the alternative sites, if any;
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds.

Site identification and linkage

Please indicate all the Surveyor-General 21 digit site (erf/farm/portion) reference numbers for all sites (including portions of sites) that are part of the application.

N	0	E	T	0	0	0	0	0	0	0	1	5	8	4	5	0	0	0	0	0

(if there are more than 6, please expand the list with the rest of the numbers)
(These numbers will be used to link various different applications, authorizations, permits etc. that may be connected to a specific site)

Please provide the **geographical coordinates** for the site:

Latitude /Longitude	Degrees	Minutes	Seconds
South	30	45	38.72
East	30	19	20.23

3. ACTIVITIES APPLIED FOR

a. For an application for authorization that involves more than one listed or specified activity that, together, make up one development proposal, all the listed activities pertaining to this application must be indicated.

Indicate the number and date of the relevant notice:	**Activity No (s) (in terms of the relevant or notice) :**	**Describe each listed activity as per the project description (and not as per wording of the relevant Government Notice)[1]:**
Listing Notice 1- December 2014	19 (i)	Relevant since the construction of the proposed bridge will require excavations and involve the moving of soil and rock from the bed and banks of the watercourses they are crossing.
Listing Notice 3 - December 2014	14 (iii) (xi), (d) (vii)	The bridge and footpaths are a total of 86sqm and are in a Critical Biodiversity Area, as identified during the Biodiversity Specialist Study

Please note that any authorization that may result from this application will only cover activities specifically applied for.

4. STATE DEPARTMENTS IDENTIFIED IN TERMS OF S240

Please indicate to which State departments reports related to your application will be forwarded to provide comments in terms of section 24 0 (2) of NEMA:

Please note: details of the relevant contact person and the address of the State department must be provided. Add the names and other details for State departments not listed.

YES	NO	Name of Department	Contact person	Address
√		Ezemvelo KZN Wildlife	Dominic Wieners	Queen Elizabeth Park 1 Peter Brown Drive PO Box 13053 Cascades 3200
√		Amafa	Admin	beadmin@amafapmb.co.za
√		Department of Water Affairs	Siyabonga Buthelezi	P.O Box 1018 Durban 4000
	√	Department of Agriculture, Forestry and Fisheries		
√		Department of Cooperative Governance and Traditional Affairs	Pat Luckin (Chief Town and Regional Planner)	1 Buro Crescent Mayville Durban 4001
√		Department of Transport	Roy Ryan	Private Bag X9043, Pietermaritzburg, 3201

[1] Please note that this description should not be a repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description, i.e. describe the components of the desired development

			Michele Schmid	michele.schmid@kzntransport.gov.za
	√	Department of Human Settlements	Govin Naicker	Private Bag X54313 Durban 4000
	√	Department of Health	Bruce Margot	bruce.margot@kznhealth.gov.za
√		Department of Rural Development (Land Claims)	Lynn Boucher	lmjboucher@ruraldevelopment.gov.za
√		Hibiscus Coast Local Municipality	Khuleka Msomi	khuleka.msomi@hcm.gov.za

Please note that: The EAP must request comments from all relevant State departments and remind such departments that failure to submit comments with 30 days will, in terms of sub-regulation 3(4) of the EIA Regulations, 2014 be regarded as no comments..

5. ECONOMIC AND SOCIAL INFORMATION

Provide details on the anticipated socio-economic values associated with the proposed project

Anticipated CAPEX value of the project on completion	R1.5m
What is the expected annual turnover to be generated by or as a result of the project?	NIL
New skilled employment opportunities created in the construction phase of the project	5
New skilled employment opportunities created in the operational phase of the project	NIL
New un-skilled employment opportunities created in the construction phase of the project	5
New un-skilled employment opportunities created in the operational phase of the project	NIL
What is the expected value of the employment opportunities during the ~~operational and~~ construction phase?	R200, 000.00 (approx.)

6. TYPE OF APPLICATION

(a) Application for Basic Assessment

This is an application that is subject to a basic assessment (EIA Regulations 2014: Chapter 4, Part 2)) and Regulation 19 in the EIA Regulations 2014 will be complied with.

YES	

(b) Application for Scoping and Environmental Impact Assessment (EIA

This is an application that is subject to Scoping and EIA (EIA Regulations 2014: Chapter 4: Part 3) and Regulation 21 in the EIA Regulations 2014 will be complied with.

	NO

7. DECLARATIONS

(a) Declaration by the applicant

I, KHULEKANI BASIL MSOMI ,declare that I-

- am, or represent[2], the applicant in this application;
- have appointed an environmental assessment practitioner to act as the independent environmental assessment practitioner for this application;
- will provide the environmental assessment practitioner and the KZN Department of Economic Development, Tourism & Environmental Affairs with access to all information at my disposal that is relevant to this application;
- will be responsible for the costs incurred in complying with the Environmental Impact Assessment Regulations, 2014, including but not limited to –
  - costs incurred in connection with the appointment of the environmental assessment practitioner;
  - costs incurred in respect of the undertaking of any process required in terms of the Regulations;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the Regulations;
  - costs in respect of specialist reviews, if the competent authority decides to recover costs; and
  - the provision of security to ensure compliance with conditions attached to an environmental authorization, should it be required by the KZN Department of Economic Development, Tourism & Environmental Affairs;
- will ensure that the environmental assessment practitioner is competent to comply with the requirements of the EIA Regulations, 2014 and will take reasonable steps to verify whether the EAP complies with the Regulations;
- will inform all registered interested and affected parties of any suspension of the application, as well as of any decisions taken by the KZN Department of Economic Development, Tourism & Environmental Affairs in this regard;
- am responsible for complying with the conditions of any environmental authorization issued by the KZN Department of Economic Development, Tourism & Environmental Affairs;
- hereby indemnify the Government of the Republic of South Africa, the KZN Department of Economic Development, Tourism & Environmental Affairs and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action which the applicant or environmental assessment practitioner is responsible for in terms of the EIA Regulations, 2014;
- will not hold the KZN Department of Economic Development, Tourism & Environmental Affairs responsible for any costs that may be incurred by the applicant in proceeding with an activity prior to obtaining an environmental authorization or prior to an appeal being decided in terms of the EIA Regulations, 2014;
- I will perform all other obligations as expected from an applicant in terms of the EIA Regulations, 2014;
- all the particulars furnished by me in this form are true and correct; and

I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B-(1) of the National Environmental Management Act, 1998 (Act 107 of 1998)

Signature of the applicant[3]/ Signature on behalf of the applicant

HIBISCUS COAST MUNICIPALITY

Trading name (if applicable)

24/03/2016

Date

[2] If this is signed on behalf of the applicant, proof of such authority from the applicant must be attached.

[3] If the applicant is a juristic person, a signature on behalf of the applicant is required as well as proof of such authority.

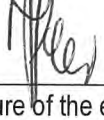
(b) Declaration by the environmental assessment practitioner.

Environmental assessment practitioner (EAP):[4]

Trading name (if any):	1World Consultants		
Contact person:	Fatima Peer		
Postal address:	181 Winchester Drive, Reservoir Hills		
Postal code:	4091	Cell:	082 640 4900
Telephone:	031 262 8327	Fax:	086 726 3619
E-mail:	fatima@oneworldconsultants.co.za		
Education Qualifications[5]:	Bachelor of Science with Honours		
Professional affiliation(s) (if any)[6]	Professional Scientist with South African Council for Natural Scientific Professionals		

I, **FATIMA PEER** declare that I

- am the independent environmental practitioner in this application;
- will comply with the requirements for an EAP as stipulated in Regulation 13 of the EIA Regulations, 2014;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 20144;
- will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- declare that there are no circumstances that may compromise my objectivity in performing such work;
- have expertise in conducting environmental impact assessments, including knowledge of the National Environmental Management Act, 1998 (Act107 of 1998), regulations and any guidelines that have relevance to the proposed activity;
- will comply with the National Environmental Management Act, 1998 (Act107 of 1998), regulations and all other applicable legislation;
- 2014undertake to disclose to the applicant and the KZN Department of Economic Development, Tourism & Environmental Affairs all material information in my possession that reasonably has or may have the potential of influencing its decision with respect to this application;
- will ensure that information containing all reports in respect of this application is distributed or made available to interested and affected parties and that their participation is facilitated in such a manner that they will be provided with a reasonable opportunity to participate and provide comments on the reports;
- will provide the competent authority with access to all information at my disposal regarding this application, whether such information is favourable to the applicant or not;
- declare that all the particulars furnished by me in this form are true and correct;
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998); and
- I will comply with all the requirements as indicated in the National Environmental Management Act, 1998 (Act 107 of 1998) and Environmental Impact Assessment Regulations, 2014.



Signature of the environmental assessment practitioner

1WORLD CONSULTANTS
Trading name

31/03/2016
Date

[5] [8] Please include details of names, education qualifications and professional affiliations of the EAP and each representative of the EAP appointed to manage this application.

1world consultants

APPENDIX 1

1world consultants

P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Attention: *Pravesh Manipersadh*
Ingonyama Trust
P.O. Box 601
Pietermaritzburg
3201

Date: *31 March 2016*

Our ref.: *ENV15023 Dressing Bridge*

Contact Person: *fatima@1wc.co.za*

Dear Sir,

NOTIFICATION OF A BASIC ASSESSMENT PROCESS FOR THE PROPOSED DRESSING PEDESTRIAN BRIDGE, WARD 24 HIBISCUS COAST LOCAL MUNICIPALITY, UGU DISTRICT MUNICIPALITY

This letter serves to inform you, the landowner (title deed holder) of Portion 0 of Farm 15845, that 1World Consultants (Pty) Ltd has been appointed by PGA Consulting Engineers, on behalf of Hibiscus Coast Local Municipality, to undertake a Basic Assessment process for the proposed Dressing Pedestrian bridge. The project involves installation a metal bridge to aid river crossings and will feature concrete approach slabs and footpaths.

This letter should be considered as formal notification of the Basic Assessment process, as required by the EIA Regulations dated December 2014 promulgated in terms of the national Environmental Management Act (NEMA) (Act No 107 of 1998). As the landowner, you are encouraged to participate in this Basic Assessment process and are provided with the Background Information Document (BID) for more information and direction.

Should you require any further information, do not hesitate to contact Fatima Peer using the following details:

P.O. Box 2311, Westville, 3630
(T): 031 262 8327
(C): 082 640 4900
(E): fatima@1wc.co.za

1world consultants
P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

DETAILS OF LANDOWNER OR PERSON IN CONTROL OF THE LAND

Organization (if applicable)	INGONYAMA TRUST BOARD.		
Property Number:	THE FARM ALFRED LOCATION NOS N0158645-GT.		
Contact Person:	P J WARNER	Email:	
Postal Address:	65 TRGLAWNEY ROAD, SOUTHGATE - PMB-3201		
Tel:	0338469900	Cell:	—

DECLARATION OF NOTIFICATION BY LANDOWNER OR PERSON IN CONTROL OF THE LAND

I, P J Warner, declare under oath that I:

- Am the landowner or person in control of the property(ies) described above on this document, and
- Hereby state that I have been notified of the proposed activity/ies as described in the provided BID, on the above mentioned property:

P J Warner

(Signature of the landowner or person in control of the land)

11. 4. 2016

Date

Unit B4, Arden Grove, Montague Gardens
Tel: +27 86 044 3333, Fax: +27 21 555 3127
Website: http://www.searchworks.co.za

15845 ET, P:0 (PIETERMARITZBURG)

Deeds Office Property Farm

Search Information

Summary

Search Type	DEEDSOFFICE PROPERTY FARM
Search Description	15845 ET, P:0 (PIETERMARITZBURG)
Reference	PRAVESH
Date	25/01/2016

Farm Information

Summary

Deeds Office	PIETERMARITZBURG
Property Type	FARM
Municipality	NOT AVAILABLE
Province	KWAZULU NATAL
Registration Division	ET
Farm Name	ALFRED NATIVE LOCATION NO 5
Farm Number	15845
Portion Number	0 (REMAINING EXTENT)
Previous Description	-
Diagram Deed	G4666/875
Size	3785.1152 H
LPI Code	N0ET00000001584500000

Owner Summary

Owner Name	ID / Reg. Number	Purchase Price	Purchase Date
INGONYAMA TRUST-TRUSTEES	-	R 0,00	UNKNOWN

Owner Information

Owner 1 of 1

Owner Type	TRUST
Owner Name	INGONYAMA TRUST-TRUSTEES
ID / Reg. Number	-
Title Deed	T24280/1995
Registration Date	19/07/1995
Purchase Price	R 0,00
Multiple Owners	NO
Multiple Properties	NO
Share	-
Purchase Date	UNKNOWN
Microfilm Reference No.	2008 0608 2767

Endorsement(s)

Document Number	Microfilm Ref. Number	Institution	Value
EX324/1990-5/9/90-46	-	66/875G	R UNKNOWN
I-2417/2012LG	-	-	R UNKNOWN
I-355/2000LG	-	-	R UNKNOWN
I-3126/2010LG	-	-	R UNKNOWN
I-755/1994LG-27/1/19	-	94-4666/1875G	R UNKNOWN
VA1085/2000	2000 0364 2445	-	R UNKNOWN
RENUMBER FROM	-	NATAL RD , 15845 , 0	R UNKNOWN
NATAL RD,15845	1994 0078 1722	-	R UNKNOWN

1world consultants

APPENDIX 2

David Styles

Vegetation Surveys, Advice and Consulting

P O Box 50030, Musgrave 4062
Cell: 082 555 8649 • Fax: 082 131 555 8649
davidstyles@vodamail.co.za

16th February 2016

Fatima Peer
1World Consultants
181 Winchester Drive, Reservoir Hills, 4091
Tel 031 262 8327 / Cell 082 640 4900 / Fax 086 726 3619
Email: fatima@oneworldconsultants.co.za

Dear Fatima

VEGETATION AND FAUNAL ASSESSMENT AND REPORT: PROPOSED DRESSING PEDESTRIAN BRIDGE, HIBISCUS COAST MUNICIPALITY

○ Executive summary

The proposed development is sited in an area which has been cleared of vegetation at some point in its history to make way either for informal housing or subsistence farming practices. The majority of the vegetation encountered was alien and invasive with a few indigenous ruderals and pioneer species typical of disturbed or secondary areas.

From a vegetation perspective, the proposed study site appears to be devoid of local sensitivities, however, the small stream present at the site constitutes a sensitive habitat which will require the submission of a WULA to DWAS. The stream is in a poor ecological state and has been impounded for part of its extent.

The faunal study reveals that no species of potential conservation significance have been recorded from the study site. The transformed nature of the vegetation is considered the reason for this lack of faunal diversity. There is a remote possibility of encountering the Leaf-folding Frog, as a small amount of potentially suitable habitat for this species exists at the study site. However, this habitat is not likely to be affected by the development.

The avifauna reported from the greater study area includes a number of potential Red Listed species, none of which is expected to occur at the study site due to the lack of suitable habitat or habitat transformation.

• Project motivation

The applicant proposes to construct a pedestrian bridge and walkway. In order to comply with South Africa's environmental legislation an environmental assessment for the proposed development has been undertaken. The main aim of this assessment was to identify any limitations that the environment may impose on the proposed project and the proposed project on the receiving biophysical, cultural and socio-economic environments.

- **Terms of reference**

David Styles Consulting was sub-contracted to assess the likely impacts of the activity on the vegetation and fauna of the area. This is a Basic Assessment.

- **Objectives of the botanical and faunal assessment**
  - To provide a basic description of the vegetation and fauna occurring around the proposed site.
  - To identify any threatened plant or animal (mammal, bird, reptile, amphibian or invertebrate) occurring or likely to occur on and around the proposed development site.
  - To describe the available habitats including areas of conservation value or areas most likely to form important habitat for remaining threatened plant and animal species.
  - To determine potential impacts of the proposed development on the immediate environment and associated flora and fauna.

- **Scope of the study**
  - An initial ecological survey or sensitivity scan to identify the dominant vegetation on the site and to record sightings and/or evidence of fauna present.
  - An assessment of the ecological habitats and evaluation of their conservation importance and significance with special emphasis on the current status of threatened plant and animal species (Red Data species) within the proposed site and adjacent areas.
  - Undertake a literature review to augment field data where necessary.
  - Identification of potential ecological impacts that could occur as a result of the proposed development activity and an evaluation of the significance of these where possible.
  - Present actions which should reduce or minimize the impacts of the proposed development.
  - Report generation.

- **Constraints of study/fieldwork**
  - The major constraints of such surveys are time and season. Often where more intensive field work is possible, rarer and more cryptic species may be encountered. Furthermore, flowering is season-dependent and makes it easier to locate and identify certain non-woody forb and geophyte species. However, there was a limited presence of natural vegetation and what was found was highly impacted upon. The species checklists provided in this report are reflective of only those species identified at the time of the survey and cannot be regarded as exhaustive.

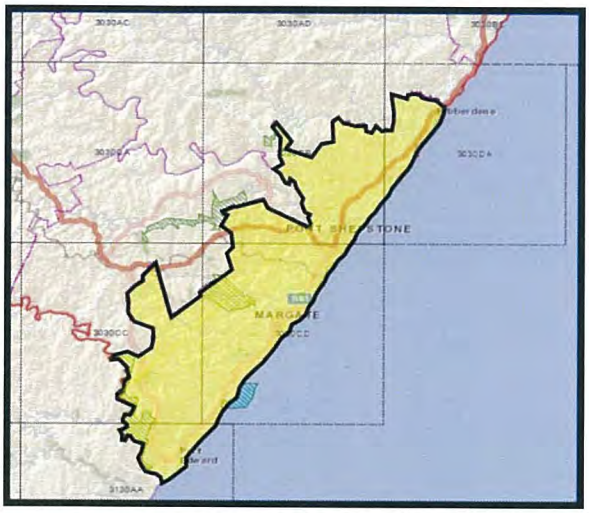
    Any faunal study is largely limited to a literature survey of species known to occupy the general area or vegetation type as a result of the mobility of the species involved. Repeated visits and intensive sampling may still not reveal the true presence or absence of certain species.

- **Methodology**
  - Ground study to determine the impact of the proposed activity on the vegetation and fauna of the study sight.
  - The generation of recommendations.

- The vegetation literature search was undertaken utilising *The Vegetation of South Africa, Lesotho and Swaziland* (Mucina & Rutherford 2006) for the vegetation description as well as the *National Red List of Threatened Plants of South Africa* (Raimondo *et al.* 2009). Mammal names are those used by Skinner and Chimimba (2005), bird names by Hockey, Dean and Ryan (2006), reptile names by Branch (1998) and amphibian names by Du Preez and Carruthers (2009).

- **The general area**

The proposed activity falls within the Hibiscus Coast Municipality (HCM) which is located within Quarter Degree Grid Squares (QDGSs) 3030DA, 3030CB, 3030CC, 3030CD, and 3130AA.



The Hibiscus Coast Municipality (HCM)

According to the BGIS LUDS tool, the HCM is 83901.6 hectares in extent and has areas remaining in a natural state which constitute some 35785.6 hectares (42.7% of municipality), while areas where no natural habitat remains constitute 47810.3 hectares (57% of municipality).

Formal land-based protected areas include Mbumbazi (Provincial) Nature Reserve (2033.9ha - 2.42% of municipality), Mehlomnyama (Provincial) Nature Reserve (<1ha), Mpenjati (Provincial) Nature Reserve (73.6ha - 0.09% of municipality), Oribi Gorge (Provincial) Nature Reserve (2.7ha - <1% of municipality), Skyline (Provincial) Nature Reserve (21ha - 0.02% of municipality) and uMtamvuna (Provincial) Nature Reserve (2627.8ha - 3.13% of municipality) in total covering 4760.9ha (5.7% of municipality).

There is a single Marine Protected Area, namely Trafalgar (Provincial) Marine Reserve (2ha - <1% of municipality).

River and wetlands

Rivers in the municipality include the Mbizana, uMtamvuna, uMzimkhulu, uMzumbe and the Vungu. There are 632 wetlands covering 701.9ha (0.8%) of Hibiscus Coast Municipality.

There are no RAMSAR sites in the municipality.

Estuaries

There are 27 estuaries all of them temporarily closed systems, namely:
Bilanhlolo in fair condition, Boboyi (fair), Damba (good), Intshambili (good), Kaba (poor), Kandandhlovu (fair), Kongweni (poor), Koshwana (poor), Ku-Boboyi (poor), Mbango (fair), Mbizana (poor), Mhlabatshane (fair), Mhlangamkulu (fair), Mhlangeni (poor), Mpenjati (fair), Mtamvuna (excellent), Mtentweni (fair), Mvutshini (fair), Mzimkulu (poor), Mzumbe (poor), Sandlundlu (good), Tongazi (good), Umhlangankulu (fair), Uvuzana (fair), Vungu (fair), Zolwane (good) and the Zotsha (good).

Vegetation types

There are two biomes in the municipality, namely Indian Ocean Coastal Belt of 82416.6ha (98.23% of municipality) and Savanna of 1438.5ha (1.71% of municipality) and within these biomes are 8 vegetation types, namely:

Eastern Valley Bushveld 0.8ha (<0.1% of municipality)
KwaZulu-Natal Coastal Belt Grasslands 61923.6ha (73.81% of municipality)
Ngongoni Veld 1438ha (1.71% of municipality)
Northern Coastal Forest 1155.2ha (1.38% of municipality)
Pondoland-Ugu Sandstone Coastal Sourveld 17328.1ha (20.65% of municipality)
Scarp Forest 1585.2ha (1.89% of municipality)
Subtropical Coastal Lagoons 162.6ha (0.19% of municipality)
Subtropical Seashore Vegetation 261.4ha (0.31% of municipality)

Threatened Terrestrial Ecosystems

Critically Endangered (CR)
Interior South Coast Grasslands (KZN_7) 18183.1ha (21.67% of municipality)
Margate Pondoland-Ugu Sourveld (KZN_10) 2906ha (3.46% of municipality)
Southern Coastal Grasslands (KZN_18) 3343.2ha (3.98% of municipality)

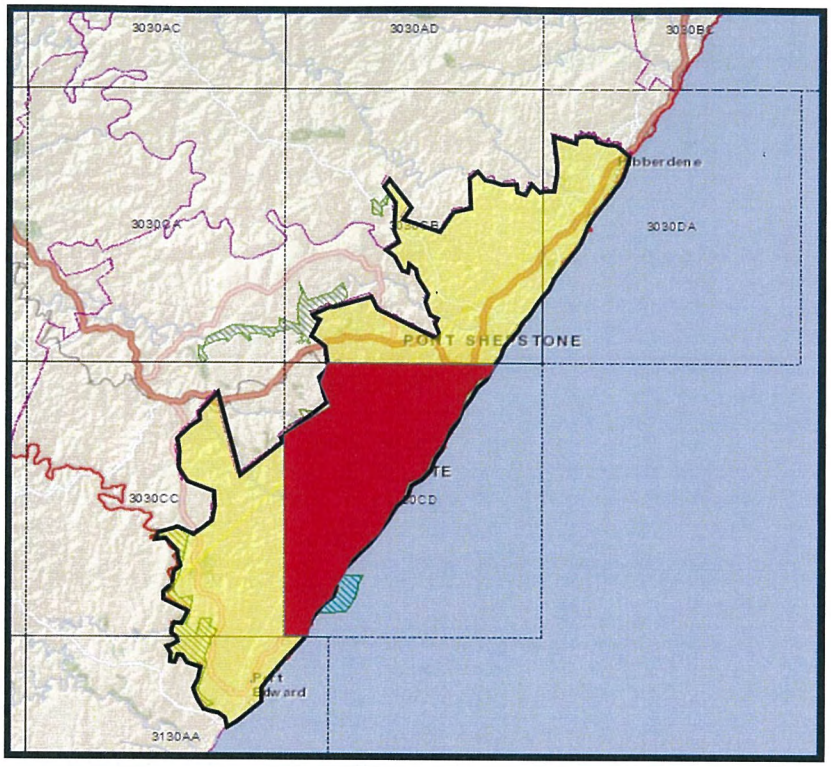
Endangered (EN)
Oribi-Port Edward Pondoland-Ugu Sourveld (KZN_33) 8697.8ha (10.37% of municipality)

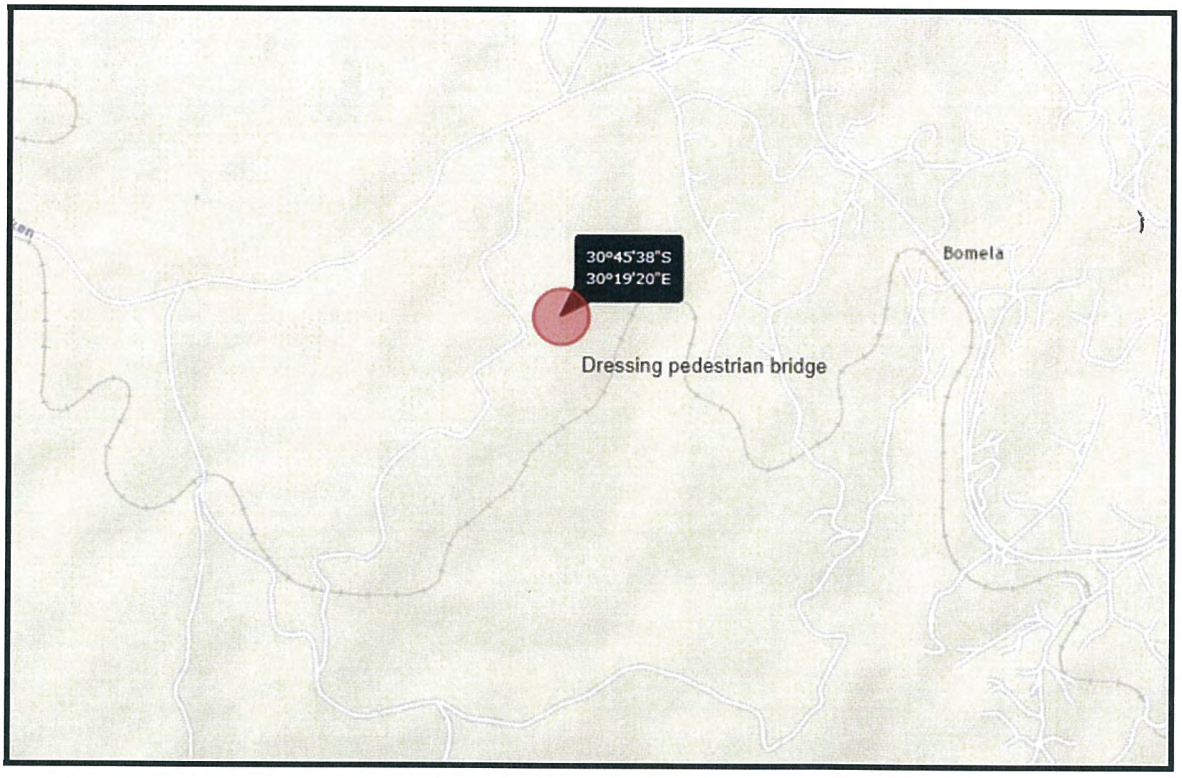
Vulnerable (VU)
KwaZulu-Natal Coastal Belt Grassland (KZN_29 = **CB 3**) 2167.5ha (2.58% of municipality)
Ngongoni Veld - **SVs 4** 516.5ha (0.62% of municipality)
Pondoland Scarp Forest - **FOz V2** 84.2ha (0.1% of municipality)

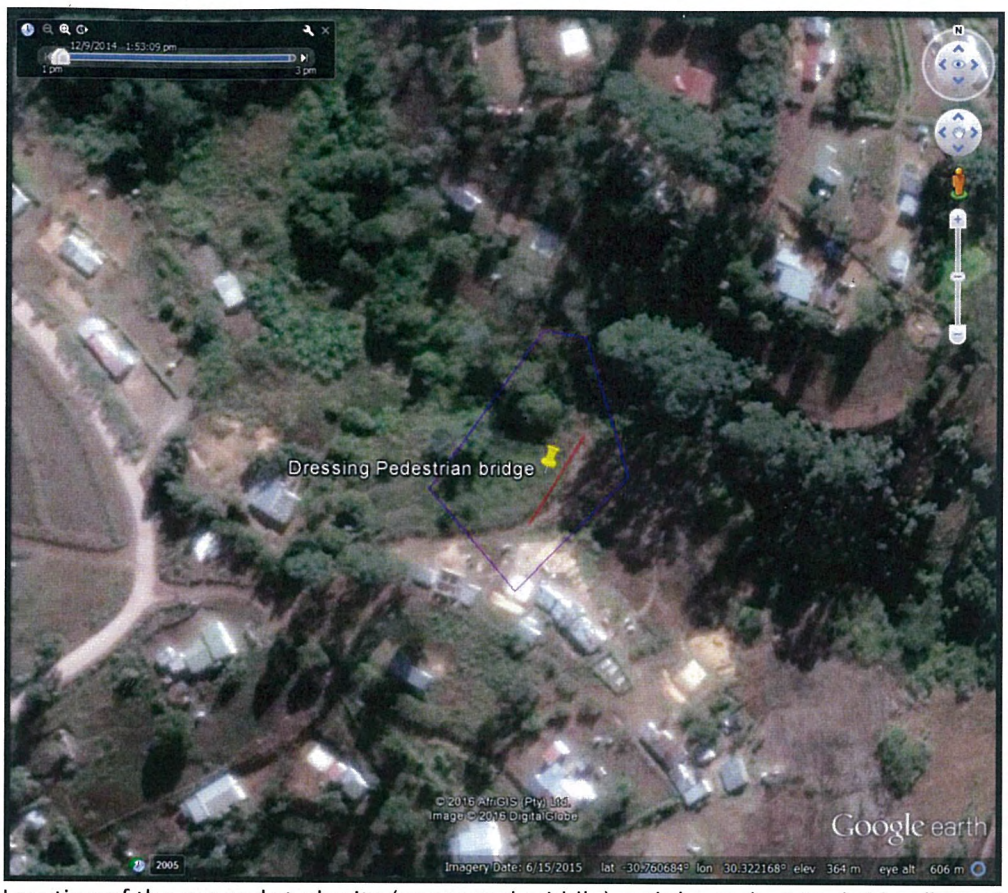
○ Study area and land use practices

The study area is located in the QDGS 3030CD (as indicated below) and is situated in a rural area which is substantially transformed by human activities, notably human settlement and subsistence agriculture, both of which have resulted in considerable disturbance and resultant alien plant invasion. Dwellings are located at various localities around the area of the proposed activity. There is a small stream which has been impounded on the site. The predominant woody vegetation

comprises of a mix of alien species such as *Eucalyptus grandis* and relict indigenous species along the old watercourse. The Google Earth image below shows the predominant land use of the area.

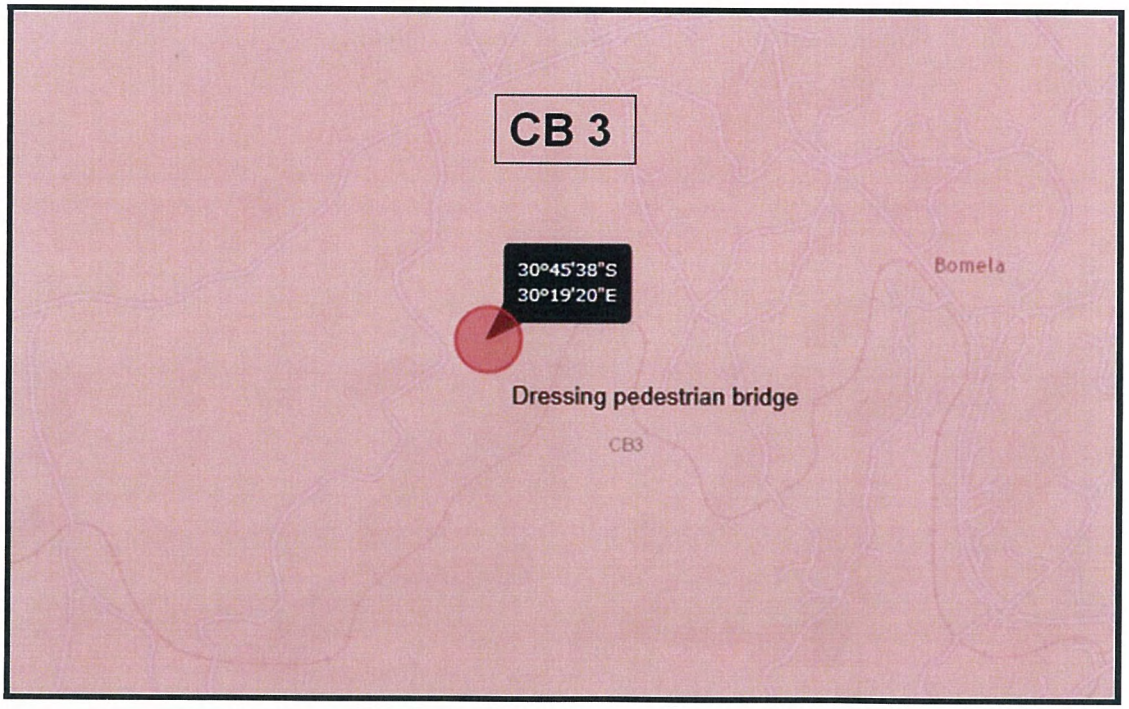






Location of the general study site (upper and middle) and the pedestrian bridge (lower)

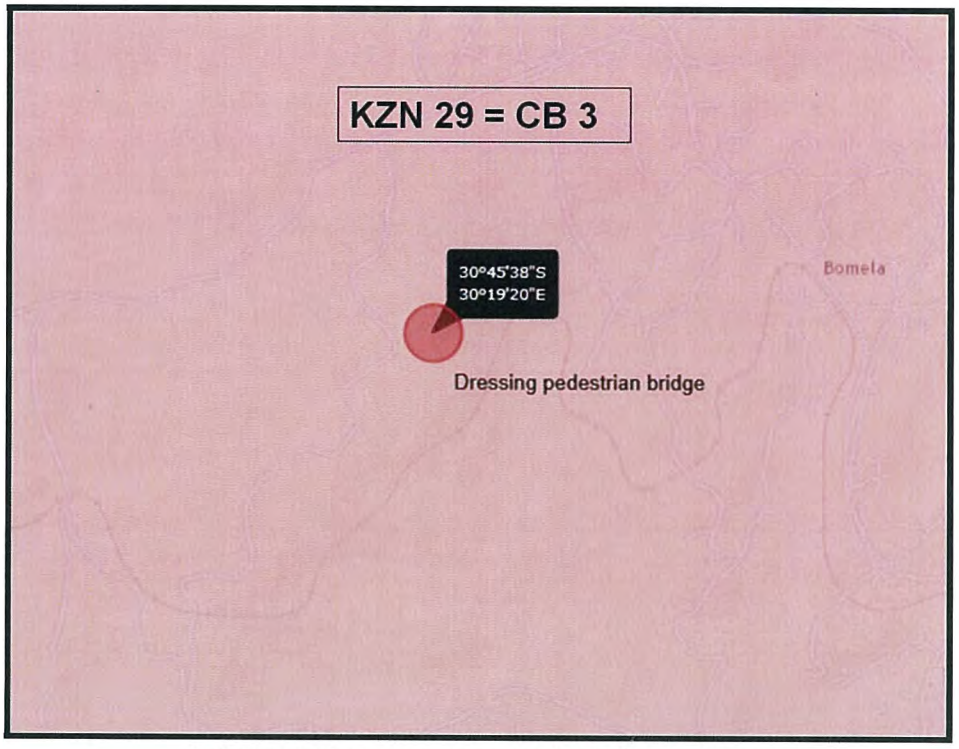
- **General mapping results**
  Vegetation types



Mucina and Rutherford (2006) vegetation map of the area

According to Mucina and Rutherford (2006) the natural vegetation of the area is CB 3 - KwaZulu-Natal Coastal Belt Grassland. The distribution of this vegetation type is reportedly from the KwaZulu-Natal Province and consists of a long (and in places broad) coastal strip along the KwaZulu-Natal coast from near Mtunzini in the north, via Durban to Margate and just short of Port Edward in the south. Altitude ranges from about 20–450m. Features of the vegetation and landscape include "highly dissected undulating coastal plains which presumably used to be covered to a great extent with various types of subtropical coastal forest, the remnants of one of which are described as Northern Coastal Forest – FOz 7 (which occurs in the general area, but not at the site). Some primary grassland dominated by *Themeda triandra* still occurs in hilly, high-rainfall areas where pressure from natural fire and grazing regimes prevailed. At present the KwaZulu-Natal Coastal Belt is affected by an intricate mosaic of very extensive sugarcane fields, timber plantations and coastal holiday resorts with interspersed secondary *Aristida* grasslands, thickets and patches of coastal thornveld".

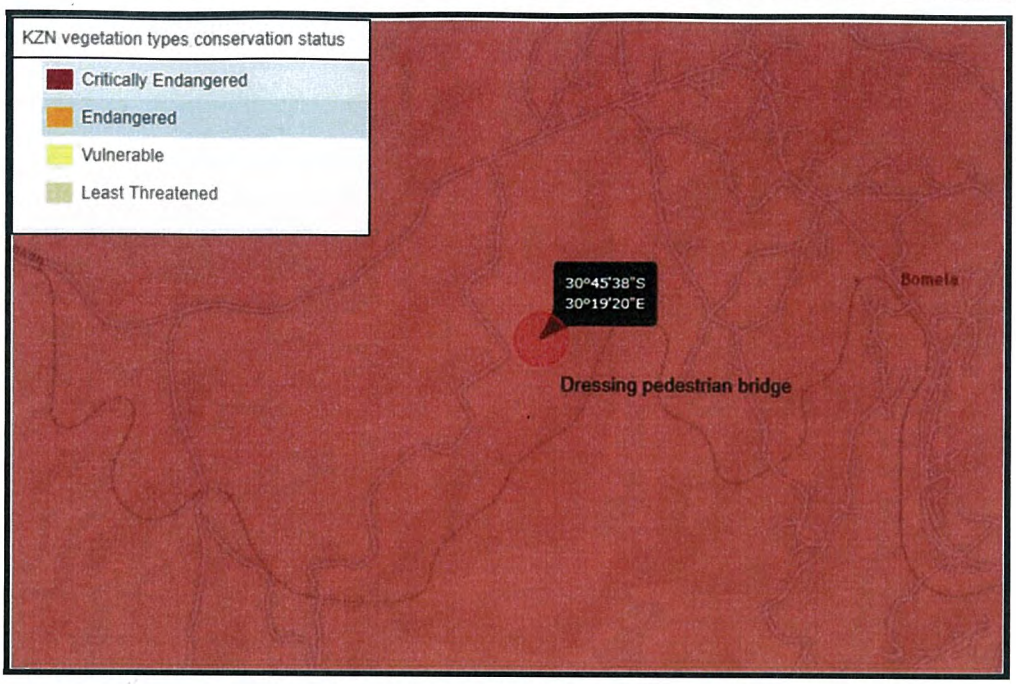
The KZN vegetation map shows a somewhat higher resolution mapping of vegetation of an area, but records only KZN 29 (=CB 3) known as KZN Coastal Belt Grassland from the area.



KZN vegetation types reported from the study site

- **Vegetation conservation status**

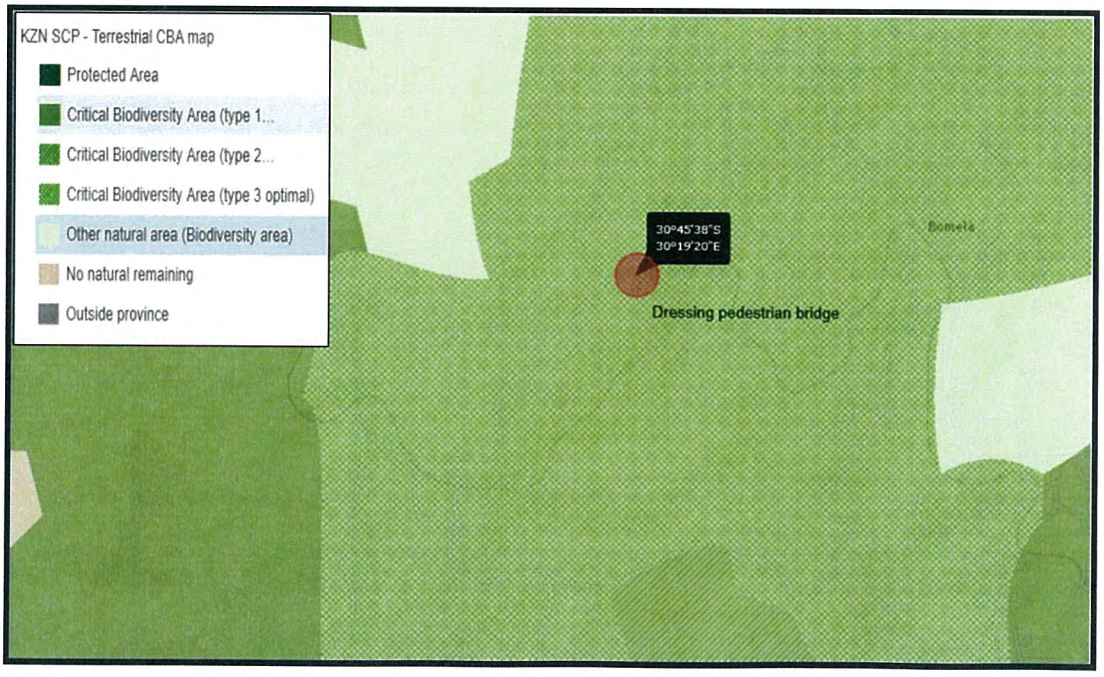
KZN Coastal Belt Grassland is considered a Critically Endangered vegetation type because of the development pressures exerted on this habitat. On the site, however, this area has been substantially transformed.



Conservation status of KZN vegetation types

- **C-Plan impacts: Terrestrial**

There are no eKZNW C-plan impacts of the proposed development and the proposed activity is centred in an area designated as Critical Biodiversity Area (CBA) type 3 indicating the presence of one (or more) feature(s) with **a low irreplaceability** score. This rating results from the possible presence of: *Charaxes druceanus*, a regional endemic (not Red Listed), *Doratogonus infragilis* and *D. montanus*, *Gulella separata*, *Phylica natalensis* and South Coast Grassland. This broad-scale mapping of the potential presence of species of conservation significance does not reflect the reality of the habitat encountered on the ground in terms of suitability or quality.



eKZNW C-plan impacts (terrestrial) of the proposed development

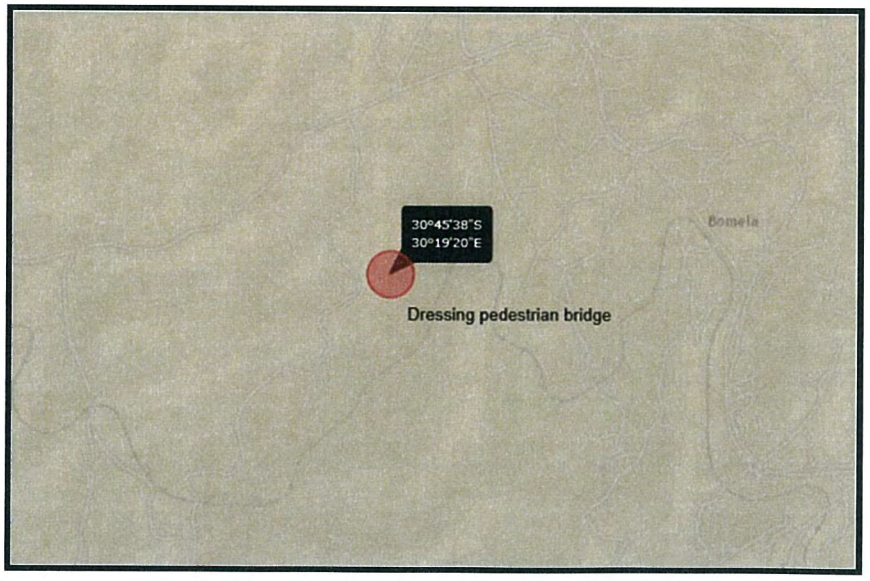
- **C-Plan impacts: Freshwater and wetlands**

  There are no eKZNW C-plan impacts of the proposed development and the proposed activity is centred in habitat considered as "Available" (Biodiversity support area). There are no NFEPA wetlands associated with the site as seen below.

eKZNW C-plan impacts (Freshwater) of the proposed development

- **Geology and Soils**

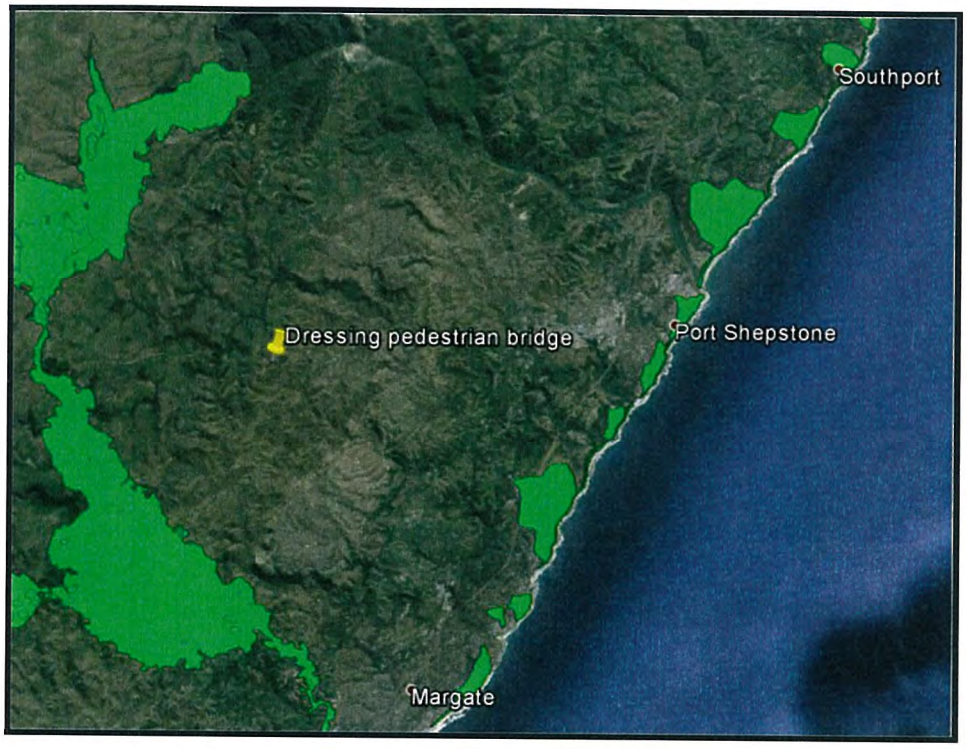
The general description of soils in the area is soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime is rare or absent in the landscape. These soils belong to a class of undifferentiated clays.



Distribution of soil types in the study area

- **Corridors**

The Biodiversity Conservation Planning Division of eKZN Wildlife has identified a series of altitudinal and biogeographic corridors in KZN which create a linked landscape for the conservation of species in a fragmented landscape and to facilitate evolutionary, ecological and climate change processes (Ezemvelo KZN Wildlife 2010). This system of corridors in the regions of the proposed activity can be seen below and indicates that no impacts are expected.



- **General findings**

Vegetation

The proposed bridge and walkway runs through a mosaic of informal residential areas, subsistence agricultural lands, secondary grasslands and wooded areas dominated by alien vegetation. The disturbance associated with these land use practices has allowed fairly substantial alien species invasion in many areas, especially where regular disturbance is obvious in the suite of alien and "weedy" indigenous species encountered.

- **Alien and invasive species recorded from the site**

The site has a rather high preponderance of these species which thrive on the disturbance and have become extensively established across the site resulting in areas which are nearly 100% transformed as a result of human settlement and subsistence agriculture. The list appears below:

Ambrosia artemisiifolia
Araucaria bidwillii
Bidens pilosa
Caesalpinia decapetala
Senna sp.
Chromolaena odorata
Colocasia esculenta
Conyza spp.
Curcubita pepo
Cuscuta campestris
Desmodium incanum
Eucalyptus grandis

Eugenia uniflora
Lantana camara
Melia azedarach
Musa hybrid
Persicaria hydropiper
Plectranthus ornatus
Psidium guajava
Rubus sp.
Solanum mauritianum
Tagetes minuta
Tecoma stans
Tithonia diversifolia
Xanthium strumarium
Zea mays

- **Indigenous species recorded from the site**

The list of indigenous species recorded from the site includes a number of earlier pioneer species and ruderal/weedy species which thrive in disturbed areas. The biodiversity in terms of indigenous vegetation is relatively low, but not unexpected for an area that has been extensively impacted upon by human activities.

Aristida junciformis
Asparagus falcatus
Berkheya bipinnatifida
Bridelia micrantha
Centella asiatica
Cheilanthes viridis
Cissampelos torulosa
Coddia rudis
Commelina erecta
Cotula nigellifolia
Cyperaceae species
Cyperus dives
Dalbergia obovata
Endostemon obtusifolius
Galopina tomentosa
Grewia occidentalis
Harpephyllum caffrum
Helichrysum panduratum
Hypoestes aristata
Indigofera micrantha
Isolepis prolifera
Leucas martinicensis
Ludwigia octovalvis
Panicum maximum
Pavonia columella
Phoenix reclinata
Selaginella dregei
Senecio deltoideus
Senecio madagascariensis
Senecio polyanthemoides
Setaria megaphylla
Sida rhombifolia
Smilax anceps
Solanum duplo-sinuatum
Strelitzia nicolai
Syzygium cordatum
Tarenna pavettoides
Tephrosia macropoda var. *diffusa*
Tricalysia lanceolata
Triumfetta rhomboidea
Vangueria infausta

- ***Categories of Protected Plants***
  - **Plants protected under the provincial conservation ordinance**
    None were recorded from the study site
  - **Plants protected by the National Forests Act**
    None were recorded from the study site
  - **Rare, Red Listed and Endemic Species**
    None were recorded from the study site

- ***Local sensitivities***

  The small watercourse which is indicated by the yellow pin constitutes a sensitive habitat and construction in and around this natural feature will require the submission of a WULA to DWAS.

- **General findings**

Fauna

The site visit allowed a determination of the remaining habitats on the site. During this visit a survey of faunal species was undertaken. In addition, literature surveys were undertaken of mammals, avifauna, herpetofauna and invertebrates occurring and likely to occur in the area. The findings from these studies have been used to identify the number of species likely to occur in the general area and species of conservation concern that are likely to be found on the site. It is an accepted limitation of such studies that the time required to adequately sample such a site exhaustively is not available and that great reliance has to be placed on published records from the area and similar areas.

- ***Mammals***

  Twelve species are reported with 10 of these being regional endemics and 3 are Red Listed.

FAMILY	GENUS and SPECIES	COMMON NAME
*Bovidae	*Philantomba monticola*	Blue Duiker (VU)
Bovidae	*Redunca arundinum*	Southern Reedbuck
Bovidae	*Sylvicapra grimmia*	Bush Duiker
Bovidae	*Tragelaphus scriptus*	Bushbuck
Equidae	*Equus quagga*	Plains Zebra
Leporidae	*Lepus saxitalis*	Scrub Hare
*Molossidae	*Otomops martiensseni*	Large-eared Giant Mastiff Bat (VU)
Pteropodidae	*Epomophorus wahlbergi*	Epauletted Fruitbat
Suidae	*Potamochoerus larvatus*	Bush-pig
**Vespertilionidae	*Kerivoula argentata*	Damara Woolly Bat (EN)

*= Red Listed as VULNERABLE **=Red Listed as ENDANGERED

Threatened species

The Blue Duiker is often found in a broad range of forested and wooded habitats and they can persist in small patches of modified or degraded forest and thicket, even on the edge of urban centres. It is, therefore, possible that some may have persisted in the study area as, being a small antelope, they have adapted to surviving in areas which are relatively transformed by human activities. If present they may be displaced during construction, but should return thereafter.

In southern Africa colonies of *Otomops martiensseni* tend to be small (numbering up to 30 animals) and are regularly recorded from buildings around Durban. Other populations mainly roost in caves and hollow trees (Adams *et al.* 2015). The Damara Woolly Bats is generally associated with moist savanna habitats (including bushveld) (Taylor 2000). Roosting sites include deserted weaver bird nests, among clusters of leaves, on the bark of trees, and on traditional houses (rondavels) (Skinner and Chimimba 2005).

It seems unlikely, therefore, that these species will be impacted by the proposed activity.

- ***Birds***

  The South African Bird Atlas Project (SABAP1) lists a total of 316 species (96 breeding) from the QDGS in which the study site is situated. Of these, twenty three are Red Listed as indicated below and the White Stork is protected by the Bonn Convention on Migratory Species.

COMMON NAME	RED LISTING
White Stork	Bonn
Eurasian (Great) Bittern	CR
Black-browed Albatross (Mollymawk)	EN
Spotted (Natal) Ground-Thrush	EN
African Black Oystercatcher	NT
African Crowned (Crowned) Eagle	NT
African Pygmy-Goose	NT
Black Stork	NT
Black-winged Lapwing (Plover)	NT
Broad-tailed Warbler	NT
Cape Cormorant	NT
Caspian Tern	NT
Half-collared Kingfisher	NT
Lanner Falcon	NT
Lesser Jacana	NT
Woolly-necked Stork	NT
African Finfoot	VU
African Marsh-Harrier	VU
Blue Crane	VU
Cape Gannet	VU
Grey Crowned- (Crowned) Crane	VU
Mangrove Kingfisher	VU
Martial Eagle	VU
Southern Ground-Hornbill	VU

Threatened species

The large number of species reported for the general study area can be ascribed to the fact that the QDGS extends from the coast to inland areas and contains two Important Bird Areas (IBA's), namely Umtamvuna and Oribi Gorge Nature Reserves. The habitat at the site of the proposed activity is highly transformed and the aerial extent of the development is limited. It is highly unlikely that any Red Listed species would be found at the site, nor disturbed beyond the construction phase if present. The removal of *Eucalyptus grandis* may result in the loss of perching, foraging and nesting sites for raptors, but beyond this, no further impacts are anticipated.

IBA's, CAR routes and CWAC sites

There are no Important Bird Areas (IBA's), Coordinated Avifaunal Roadcount (CAR) routes nor Coordinated Waterbird Count (CWAC) sites associated with the study area as indicated below.

IBA's (upper) and CAR routes (lower) associated with the study site (yellow pin)

Reptiles

Generating a fully inclusive list of reptiles requires intensive surveys over several seasons as a result of the secretive and cryptic nature of these organisms. The majority of reptiles are sensitive to severe habitat alteration and fragmentation and disturbances such as clearing and burning. The human presence in the area has further impacted on the likelihood of encountering a diverse reptile fauna, as has the agricultural activities. No reptiles were found during the site visit, however, the Animal Demography Unit Town Reptile Atlas Project reports 44 species from the QDGS with seven regional endemics and two species of Red List concern as indicated below.

FAMILY	GENUS and SPECIES	COMMON NAME
Agamidae	*Agama aculeata distanti*	Distant's Ground Agama
Atractaspididae	*Amblyodipsas concolor*	Natal Purple-glossed Snake
*Atractaspididae	*Macrelaps microlepidotus*	Natal Black Snake (NT)
Colubridae	*Dasypeltis inornata*	Southern Brown Egg-eater
Colubridae	*Duberria lutrix*	South African Slug-eater
Colubridae	*Lamprophis fuscus*	Yellow-bellied House Snake
Colubridae	*Lycodonomorphus inornatus*	Olive House Snake
Colubridae	*Lycodonomorphus laevissimus*	Dusky-bellied Water Snake
Cordylidae	*Chamaesaura anguina*	Cape Grass Lizard
**Elapidae	*Dendroaspis angusticeps*	Green Mamba (VU)
Gekkonidae	*Afroedura pondolia*	Pondo Flat Gecko
Gerrhosauridae	*Tetradactylus africanus*	Eastern Long-tailed Seps
Lacertidae	*Nucras lalandii*	Delalande's Sandveld Lizard

*=Red Listed as NEAR THREATENED **=non endemic Red Listed as VULNERABLE

Threatened species

No threatened reptile species are likely to occur at the site of the proposed activity or the immediate areas surrounding the site due to extensive habitat transformation and degradation.

Amphibia

During the site visits no frog species was recorded, resulting mostly from habitat transformation. The Animal Demography Unit's Frog Atlas reports 27 species from the QDGS with one regional endemic (*Amieta quecketti*) and one Red Listed species (*Afrixalus spinifrons* - VULNERABLE).

FAMILY	GENUS and SPECIES	COMMON NAME
*Hyperoliidae	*Afrixalus spinifrons*	Natal Leaf-folding Frog (VU)
**Pyxicephalidae	*Amieta quecketti*	Drakensberg River Frog (regional endemic)

*=Red Listed as VULNERABLE **=Red Listed as of LEAST CONCERN

Threatened species

There is a limited presence of suitable habitat occurring for the above-mentioned species in the vicinity of the proposed development. The stream present at the study site has been impounded and this has lead to the establishment of a small amount of marginal and emergent vegetation which may act as potential habitat for the Leaf-folding Frog. The amount of habitat is very limited and not likely to be directly impacted upon by the proposed activity.

Invertebrates

The Animal Demography Unit's invertebrate atlases record the following from the QDGS:

- Twenty one species of Odonata, none of which is Red Listed or an Atlas Region endemic.
- Four species of Neuroptera, none of which is Red Listed or an Atlas Region endemic.
- There are 234 recorded species of Lepidoptera with 26 regional endemics all Red Listed as of Least Concern, except for the Amakoza rocksitter and the Ketsi Blue which are Red Listed as VULNERABLE.

FAMILY	GENUS and SPECIES	COMMON NAME
Hesperiidae	*Astictopterus inornatus*	Modest sylph
Hesperiidae	*Coeliades keithloa*	Red-tab policeman
Hesperiidae	*Eretis umbra*	Small marbled elf
Lycaenidae	*Alaena amazoula*	Yellow zulu
Lycaenidae	*Aloeides henningi*	Henning's copper
Lycaenidae	*Aloeides penningtoni*	Pennington's copper
Lycaenidae	*Chrysoritis natalensis*	Natal opal
*Lycaenidae	*Durbania amakosa albescens*	Amakoza rocksitter
Lycaenidae	*Iolaus silas*	Southern sapphire
*Lycaenidae	*Lepidochrysops ketsi leucomacula*	Ketsi blue
Lycaenidae	*Leptomyrina Gorgias*	Common black-eye
Lycaenidae	*Pentila tropicalis*	Spotted pentila
Lycaenidae	*Tarucus bowkeri*	Bowker's dotted blue
Nymphalidae	*Amauris echeria*	Chief friar
Nymphalidae	*Cassionympha cassius*	Rainforest brown
Nymphalidae	*Charaxes druceanus*	Silver-barred charaxes
Nymphalidae	*Cymothoe alcimeda trimeni*	Battling glider
Nymphalidae	*Pseudacraea eurytus imitator*	False wanderer
Nymphalidae	*Pseudacraea lucretia tarquinea*	False chief
Nymphalidae	*Pseudonympha magoides*	False silver-bottom brown
Nymphalidae	*Stygionympha scotina*	Eastern hillside brown
Nymphalidae	*Stygionympha wichgrafi grisea*	Wichgraf's hillside brown
Nymphalidae	*Vanessa hippomene*	Southern short-tailed admiral
Papilionidae	*Papilio ophidicephalus phalusco*	Emperor swallowtail
Pieridae	*Colotis erone*	Coast purple tip
Pieridae	*Nepheronia argia varia*	Large vagrant

*=Red Listed as VULNERABLE

Threatened species

No invertebrates of conservation significance are expected to occur on the site or the immediate areas surrounding the site due to a lack of suitable habitat.

- **Impacts of the proposed activity on the environment**

Given the highly transformed nature of the site and its biota there should be little impact from the proposed activity. The proposed activity will occur entirely in transformed habitat. The major impact of the proposed activity will be disturbance during construction. Some habitat loss will be inevitable, but the loss is generally of poor quality habitat. Once the development is completed, the rehabilitation of the disturbed area may allow natural habitat to return, especially if the recommended alien plant control programme is instituted. Care will need to be taken when working

in or near the watercourse as this represents a sensitive habitat type despite its current depauperate ecological state.

The following mitigatory measures must be implemented.

- Disturbance and habitat loss must be kept to a minimum.
- Care must be taken to keep soils stabilized when removing vegetation during construction and as part of alien plant eradication and strict on-site soil erosion measure must be implemented.
- Topsoil must be stockpiled for eventual return during rehabilitation.
- Care must be taken to prevent the contamination of ground water with accidental fuel and oil spills from earth-moving and construction equipment and vehicles.
- Trenches and/or pits created during construction must have one sloped side to allow animals which fall in to get out.
- Trenches and/or pits must be checked daily while open for animals which may be unable to get out. Any animals found must be returned uninjured to suitable safe habitat.
- An alien plant eradication programme must be implemented to limit the establishment of exotic species during the rehabilitation of the disturbed areas.

- **Conclusion**

The survey indicated that no floral species of conservation significance are present, nor are they likely to exist at the site due to habitat alteration.

No faunal species of conservation significance were encountered during the survey. Whilst there is a low probability of encountering the Leaf-folding Frog, the small amount of potentially suitable habitat for this species is not likely to be affected by the development.

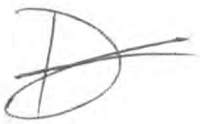
The route of the proposed bridge and walkway impacts upon a small watercourse and, therefore, the applicant will have to submit a WULA to DWAS.

The results of this survey indicate that there should be no objections raised to the proposed activity from a botanical and faunal point of view. The near absence of any indigenous vegetation of conservation significance and the preponderance of ruderal and early seral species means that impacts on the vegetation will be minimal.

The nature of the development will allow faunal species to relocate due to the anticipated disturbance during construction and return after its completion.

Should you have any queries please do not hesitate to contact me through details above.

Yours sincerely



David Styles

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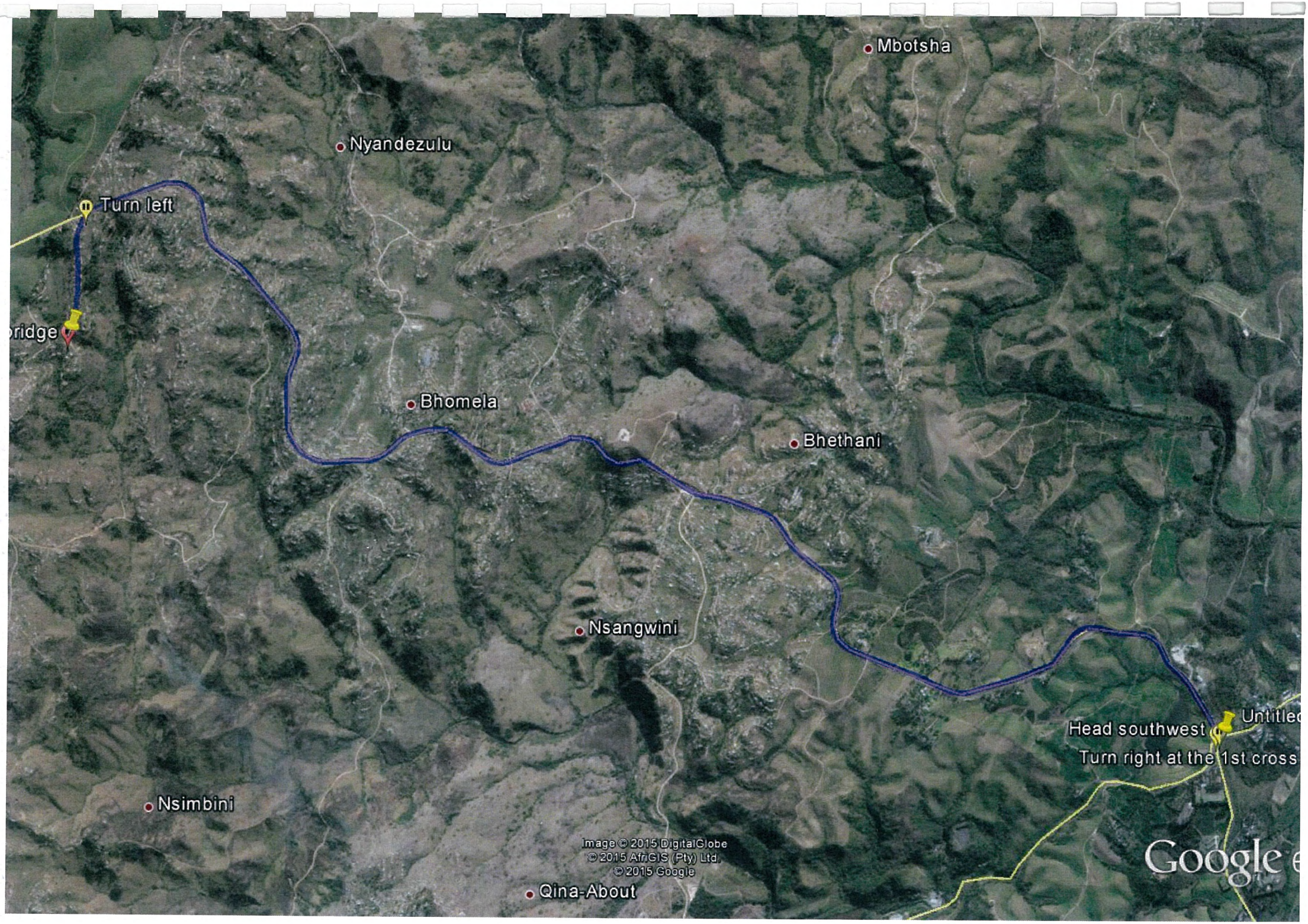
APPENDIX 3

(not applicable)

1world consultants

APPENDIX 4


Mbotsha
Nyandezulu
Turn left
ridge
Bhomela
Bhethani
Nsangwini
Untitled
Head southwest
Turn right at the 1st cross
Nsimbini
Image © 2015 DigitalGlobe
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Google

Hibiscus Coast municipality

ISSUED FOR HIBISCUS COAST MUNICIPALITY

DRESSING PEDESTRIAN BRIDGE

SCALE: 1;200

1world consultants

APPENDIX 5

(not applicable)

1world consultants

APPENDIX 6

1world consultants

P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Attention: **Date:** *31 March 2016*

Our ref.: *ENV15023 Dressing Bridge* **Contact Person:** *fatima@1wc.co.za*

Dear Sir,

WAIVER OF SUBMISSION FEES FOR ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED DRESSING PEDESTRIAN BRIDGE, WARD 24 HIBISCUS COAST LOCAL MUNICIPALITY, UGU DISTRICT MUNICIPALITY

This letter serves to confirm that this is a project for the Hibiscus Coast Local Municipality Roads Department, who aim to provide safe water course crossings within the Municipality.

Should you require any further information, kindly contact Mr. K. Msomi using the following details:

10 Connor Street, Marburg, 4240
(T): 039 688 2139
(C): 081 523 6862
(E): khulekani.msomi@hcm.gov.za

Further information on the project may be obtained from 1World Consultants (Pty) Ltd.

APPENDIX D

Copy of Original Newspaper advertisement

ast Fever

31 March2016

ALS

INQUBO YOKUZIBANDAKANYA KOMPHAKATHI

LESI YISAZISO SESICELO SEMVUME YOKUHLOLA NOKUSEBENZISA AMANZI EKWAKHIWENI KWEBHULOHO LABAHAMBA NGEZINYAWO ELIZOKWAZIWA NGE "DRESSING" ELIHLONGOZWAYO EDUZE KWASEBHOMELA NASE MARGATE KUWADI 24 NGAPHANSI KUKAMASIPALA WASEKHAYA I-HIBISCUS COAST, KUMASIPALA WESIFUNDA UGU, KWAZULU-NATALI

Lesi saziso sikhishwa ngokomthetho i-National Environment Act , ka-1998 (Umthetho We-107 ka-1998) (NEMA) njengokuchibiyelwa kwawo, i-Environment Impact Assessment Regulation (2014) kanye ne-National Water Act (Umthetho 36 ka 1998) kulomsebenzi osungulwa wuMasipala waseKhaya i-Hibiscus Coast:

Umsebenzi ngamafuphi: UMasipala waseKhaya i-Hibiscus Coast uhlongoza ukwakhiwa kwebhuloho lensimbi labahamba ngezinyawo elizokwaziwa njenge "Dressing Bridge". Leli bhuloho lizoba cishe ngamamitha ayishumi nesishiyagalolunye (19m) ubude, kanye nezingeniso ezingamamitha ayisihlanu (5m) ngapha nangale kwalo ibhuloho. Kuzophinde kwakhiwe indlela yezinyawo engamamitha ayisishiyagalolunye nesigamu (9.5m) nenye futhi engamamitha ayisikhombisa (7m) ngapha nangapha kwebhuloho. Inhloso-nqangi yokwakha lelibhuloho wuhlinzeka ngendawo ephephile yokuwela umfula.

Lelibhuloho elihlongozwayo lizoholela ekuthintekeni komgudu wokugeleza kwamanzi endaweni esemaphandleni futhi kuzodingeka ukuthi kususwe umhlabathi, amadwala nokunye emfuleni nasosebeni lwawo. Ngenxa yalokhu, kudingeka imvume yezemvelo emNyangweni waKwaZulu-Natali weziNdaba Zokuthuthukiswa koMnotho, ezokuVakasha kanye nezeMvelo. Ngaphezu kwalokho, ngokwemibandela yeNational Water Act (1998) iSigaba 21 (c) kanye no (i), isicelo semvume yokusebenzisa amanzi kufanele silungiswe sithunyelwe kuMnyango wezaManzi neNhlanzeko.

INQUBO YOKUBANDAKANYEKA KULESI SIMEMEZELO SOMPHAKATHI

I-1World Consultants (Pty) Ltd okungabahloli bezemvelo abazimele (EAP) iqokwe wuMasipala waseKhaya i-Hibiscus Coast ukuthi yenze i-Basic Assessment, inqubo ye-Wula kanye nenqubo yokubandakanya umphakathi ngalomsebenzi ohlongozwayo.

- Labo abanelaka nabathintekayo bayacelwa ukuthi babhalise nge-email noma ngesikhahlamezi (fax) ngokuthumela igama, imininingwane yokuxhumana kwisazi sezemvelo ebese beyasho ukuthi bathinteka kanjani zingakapheli izinsuku ezingamashumi amathathu (30) siphumile lesi saziso ukuze bafakwe kwinqubo yokuzibandakanya.
- Wonke amaphepha nemininingwane eqondene nalokhu iyatholakala ukuze kucutshungulwe nokubeka umbono ngesicelo kubahloli abazimele (EAP).

Imininingwane ye-EAP
Bryan Paul, B.Sc. (Zoology and Botany)
Ikheli | PO Box 2311, Westville, 3630
Fax | 086 726 3619
Email | bryan@1wc.co.za

1world consultants

INQUBO YOKUZIBANDAKANYA KOMPHAKATHI

LESI YISAZISO SESICELO SEMVUME YOKUHLOLA NOKUSEBENZISA AMANZI EKWAKHIWENI KWEBHULOHO LABAHAMBA NGEZINYAWO ELIHLONGOZWAYO "IMBHELE" EMARGATE KUWADI 29 NGAPHANSI KUKAMASIPALA WASEKHAYA I-HIBISCUS COAST, KUMASIPALA WESIFUNDA UGU, KWAZULU-NATALI

Lesi saziso sikhishwa ngokomthetho i-National Environment Act , ka-1998 (Umthetho We-107 ka-1998) (NEMA) njengokuchibiyelwa kwawo, i-Environment Impact Assessment Regulation (2014) kanye ne-National Water Act (Umthetho 36 ka 1998) kulomsebenzi osungulwa wuMasipala waseKhaya i-Hibiscus Coast:

Umsebenzi ngamafuphi: UMasipala waseKhaya i-Hibiscus Coast uhlongoza ukwakhiwa kwebhuloho lensimbi labahamba ngezinyawo eMargate elizokwaziwa njenge "Mbhele Bridge". Leli bhuloho lizoba cishe ngamamitha ayishumi nesishiyagalolunye (19m) ubude kanye nezingeniso ezingamamitha ayisihlanu (5m) ngapha nangale kwalo ibhuloho. Kuzophinde kwakhiwe indlela yezinyawo engamamitha ayikhulu nesihlanu (105m) nenye futhi engamamitha angamashumi amahlanu nanye (51m) ngapha nangapha kwebhuloho. Inhloso-nqangi yokwakha lelibhuloho wuhlinzeka ngendawo ephephile yokuwela umfula.

Lelibhuloho elihlongozwayo lizoholela ekuthintekeni komgudu wokugeleza kwamanzi endaweni esemaphandleni futhi kuzodingeka ukuthi kususwe umhlabathi, amadwala nokunye emfuleni nasosebeni lwawo. Ngenxa yalokhu, kudingeka imvume yezemvelo emNyangweni waKwaZulu-Natali weziNdaba Zokuthuthukiswa koMnotho, ezokuVakasha kanye nezeMvelo. Ngaphezu kwalokho, ngokwemibandela yeNational Water Act (1998) iSigaba 21 (c) kanye no (i), isicelo semvume yokusebenzisa amanzi kufanele silungiswe sithunyelwe kuMnyango wezaManzi neNhlanzeko.

INQUBO YOKUBANDAKANYEKA KULESI SIMEMEZELO SOMPHAKATHI

I-1World Consultants (Pty) Ltd okungabahloli bezemvelo abazimele (EAP) iqokwe wuMasipala waseKhaya i-Hibiscus Coast ukuthi yenze i-Basic Assessment, inqubo ye-Wula kanye nenqubo yokubandakanya umphakathi ngalomsebenzi ohlongozwayo.

- Labo abanelaka nabathintekayo bayacelwa ukuthi babhalise nge-email noma ngesikhahlamezi (fax) ngokuthumela igama, imininingwane yokuxhumana kwisazi sezemvelo ebese beyasho ukuthi bathinteka kanjani zingakapheli izinsuku ezingamashumi amathathu (30) siphumile lesi saziso ukuze bafakwe kwinqubo yokuzibandakanya.
- Wonke amaphepha nemininingwane eqondene nalokhu iyatholakala ukuze kucutshungulwe nokubeka umbono ngesicelo kubahloli abazimele (EAP).

Imininingwane ye-EAP
Bryan Paul, B.Sc. (Zoology and Botany)
Ikheli | PO Box 2311, Westville, 3630
Fax | 086 726 3619
Email | bryan@1wc.co.za

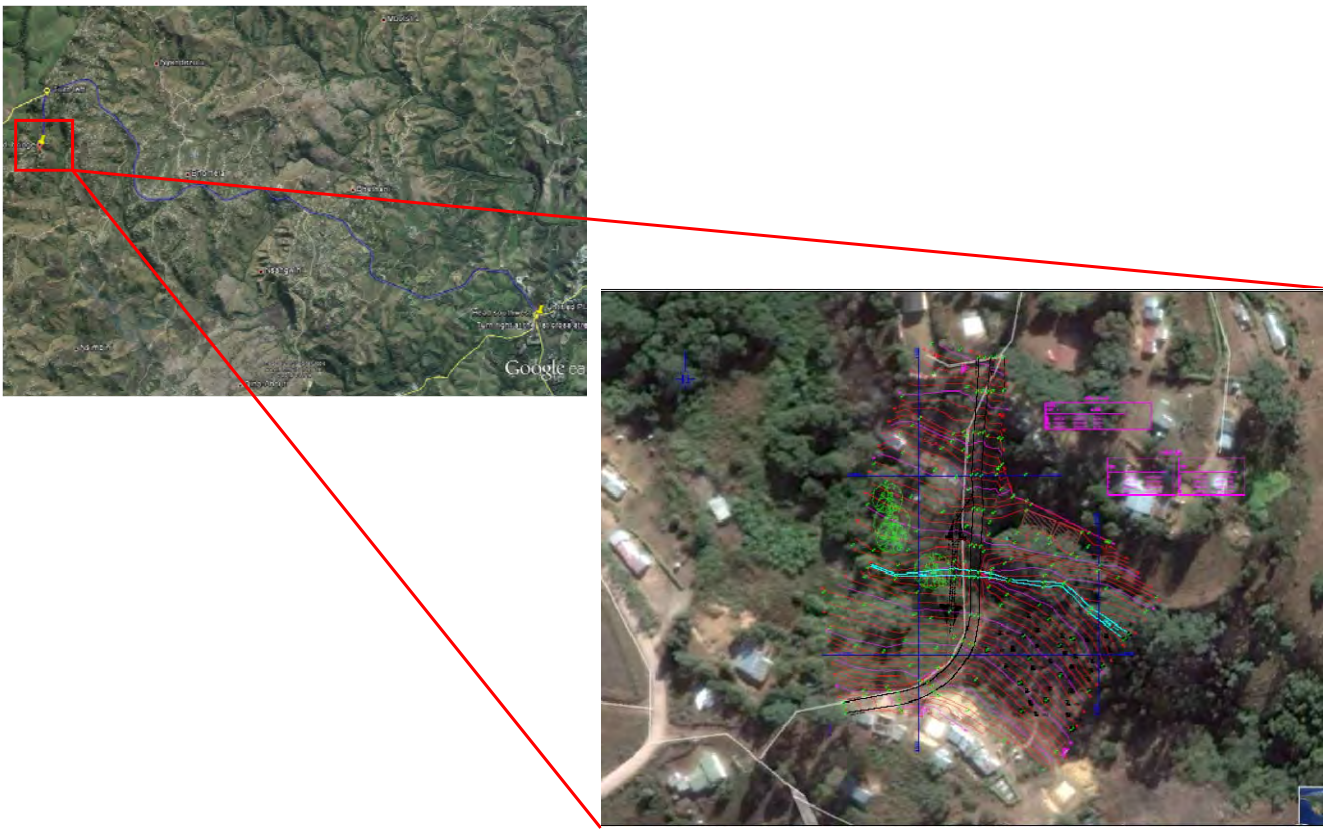
1world consultants

NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION

(BASIC ASSESSMENT) AND WATER USE LICENSE APPLICATION (WULA)

FOR THE CONSTRUCTION OF THE NEW DRESSING PEDESTRIAN BRIDGE OVER A RIVER WITHIN HIBISCUS COAST MUNICIPALITY, KWA-ZULU NATAL

Notice is hereby given in terms of the NEMA Regulations, as promulgated in GNR 982 (04 December 2014), of intent to lodge an Application for Environmental Authorisation with the Kwa-Zulu Natal Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) by Hibiscus Coast Municipality Water and Sanitation (EWS), for the construction of a new pedestrian bridge. Notice is also given with respect to the WULA, in terms of the National Water Act (Act 36 of 1998).



Project Details: The Hibiscus Coast Local Municipality proposes the construction of a pedestrian bridge, to be referred to as "Dressing Bridge" to provide safe crossing over a river, for the local community in Ward 24. The new bridge will be approximately 19m long with 5m concrete approach slabs on either side. Footpaths of 17m and 7m on either side of the bridge will also be constructed. The proposed activity is subject to a Basic Assessment process. All Interested and Affected Parties (I&AP's) are invited to register with 1World Consultants (contact details below) and to participate in the process

Contact Details: Interested and Affected Parties must register via email or fax by submitting their name, contact information and interest in the project using the contact details for Fatima Peer below.

Bryan Paul, B.Sc. (Zoology and Botany)
Postal: PO Box 2311, Westville, 3630
Email: bryan@1wc.co.za
Tel: 031 262 8327
Fax: 086 726 3619

Date of this Notice: March 2016

Environmental Assessment Practitioners
P.O. BOX. 3211, Westville, 3630
Landline - 031 262 8327
Fax – 086 726 3619

Photographs of the notice boards on site

[11 April 2016]

Purpose of a Background Information Document (BID)

The purpose of this Background Information Document (BID) is to provide Interested and Affected Parties (IAP's) with background information on the proposed project and introduce the Environmental Basic Assessment (BA) process to be followed. It also aims to (i) inform IAP's on how to participate in the BA, (ii) encourage responses to documents that will be distributed for review and (ii) encourage I&AP's to attend any public meetings.

1World Consultants have been appointed as the independent Environmental Assessment Practitioner (EAP), to undertake the Basic Assessment for the proposed pedestrian bridge.

Nature and Location of Activity

The Hibiscus Coast Local Municipality proposes the construction of a pedestrian bridge, to be referred to as "Dressing Bridge" to provide safe crossing over the _____ River, for the local community (map provided in Appendix A).

The new bridge will be approximately 19m long with 5m concrete approach slabs on either side. Footpaths of 17m and 7m on either side of the bridge will also be constructed.

Environmental Impact

The proposed bridge will involve the intersection of a natural watercourse in a rural area and will require the removal of soils, rock, etc from the bed and banks of the river. Hence an Environmental Authorisation and a Water Use License Application will be required.

In terms of the Environmental Impact Assessment (EIA) Regulations (2014) promulgated under the National Environmental Management Act (Act No. 107 of 1998) (as amended), a Basic Assessment Study will be required. The proposed development involves inter alia, the following listed activity, as per Listing Notice 1:

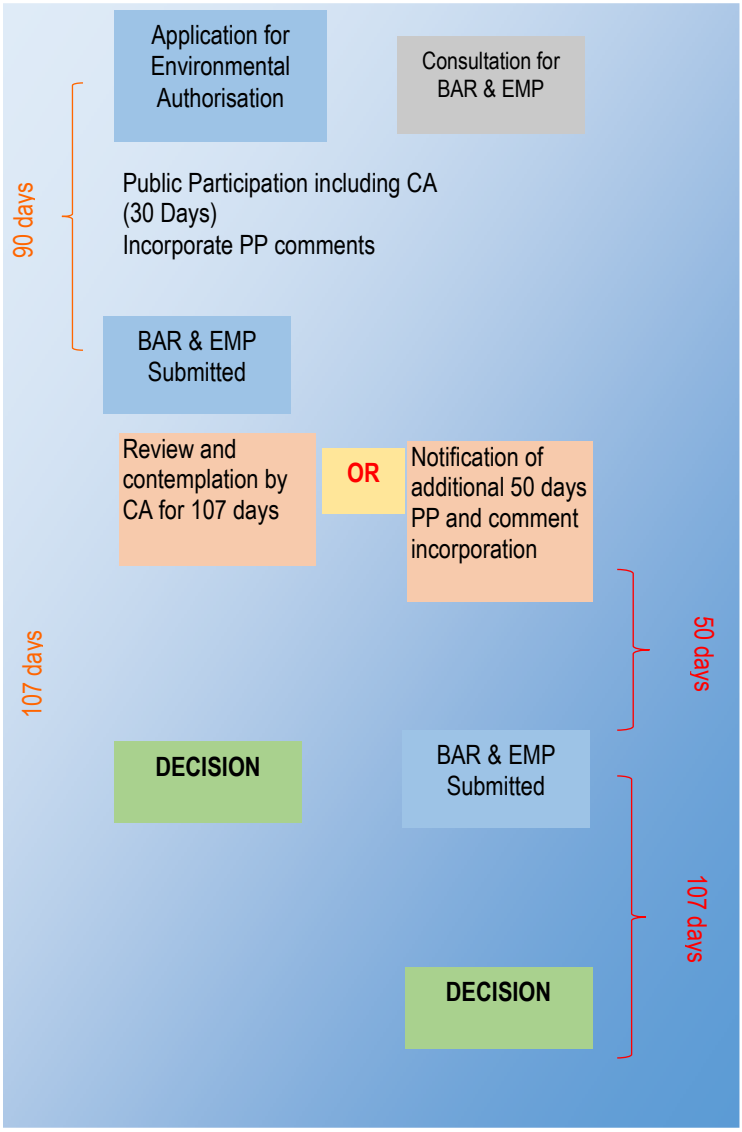
Activity 19 (i): The infilling or depositing of any material of more than 5 cubic metres into, or the excavation, removal or moving of soil and rock of more than 5 cubic metres from a water course during construction.

The Basic Assessment Process and Public Participation Process (PPP)

The primary aim of the Basic Assessment is to ensure that any potential environmental impacts that may occur, due to the construction and/or operation of the proposed development, are mitigated.

The main aspects of a Basic Assessment are:

- Investigate and gather information on the area,
- Describe the environment and how the development would fit in,
- Identify and involve potential I&AP's and stakeholders,
- Identify potential impacts,
- Investigate alternatives to the proposed development,
- Recommend mitigation measures and compile an Environmental Management Plan (EMP) for the construction and operational phases.



Mitigation Measures:

There are several risks associated with construction activities in the locality of a water course. Initial mitigation measures include a minimal working footprint, site demarcation, demarcation of no-go areas, designated and demarcated site access routes, sediment control measures, spillage control measures, dust control measures, general construction control, staff training and site rehabilitation post construction. A monitoring and auditing plan for the construction and rehabilitation phases of the bridge, will be formulated to ensure that the mitigation measures, detailed in the Environmental Management Plan (EMP) are followed.

Elements of the PPP

The public will be invited to register as an IAP and take part in the PPP through:

- Media Notices placed in newspapers.
- Distribution of this Background Information Document (BID)
- Site notice boards
- Stakeholder meetings
- Public meeting (if necessary)
- Submission of comments on the media notices, BID and Draft Basic Assessment Report (BAR)

Note: All information is available on request.

How to Participate?

All Interested and Affected Parties (I&AP's) are invited to register, on the database managed by 1World Consultants by email or fax using the details provided.

Comments and recommendations regarding the proposed pipeline are welcome and may be addressed to:

Fatima Peer B.Sc. (Hons) Pr. Sci. Nat.
Tel: 031 262 8327
Fax: 086 726 3619
Postal: PO Box 2311, Westville, 3630
Email: fatima@oneworldconsultants.co.za

Figure 1 Locality Map of the Proposed Mbhele Bridge

Figure 2: Proposed Layout of Dressing Bridge

I&AP REGISTER/DATABASE - DISTRIBUTION LIST

ORGANISATION	CONTACT PERSON	Phone Number	FILE REFERENCE N	CONTACT DETAILS	Copy Of BID Sent	Copy of Draft BAR Sent
KZN Dept. Of Transport	Michele Schmid			Private Bag X9043 Pietermaritzburg, 3200 michele.schmid@kzntransport.gov.za	YES	
Ezemvelo KZN Wildlife	Dominic Wieners			o data@kznwildlife.com; o Dominic.Wieners@kznwildlife.com	YES	
Hibiscus Coast	Mr. K. Msomi	039 688 2013		khulekani.msomi@hcm.gov.za	YES	
DWS	R.K. Pillay	031 336 2742		pillayr@dws.gov.za	YES	
	Hassina Aboobaker			PO Box 1018, Durban, 4001	YES	
Ugu District Municipality	D D Naidoo			Physical Address: 28 Connor Street, Port Shepstone, 4240	YES	
AMAFA	Bernadet Pawandiwa			bernadetp@amafapmb.co.za	YES	
KZN Corporate Governance and Traditional Affairs	Vishnu Govender			Vishnu.Govender@kzncogta.gov.za	YES	
Ward Councillor, Ward 24	Christopher Phiwokuhle Hlope	083 613 4980		christopher.hlophe@hcm.gov.za	YES	
Commission on Restitution of Land Rights	Lynn Boucher			lynn.boucher@drdlr.gov.za	YES	
Eskom	Mr Purdon			PurdonNW@eskom.co.za	YES	

APPENDIX D: COMMENTS AND RESPONSES REPORT

ORGANISATION	CONTACT PERSON	COMMENT SUBMITTED	EAP RESPONSE
		COMMENTS ON THE BID	
AMAFA	Bernadet Pawandiwa	Thank you for informing us about the development. You are required to Create an application on the online SAHRIS facility on www.sahra.org.za and upload all the relevant documents for review. Please ensure that you provide us with the following prerequisites: • Proof of payment for processing fee(See the cover sheet of the NID Form J by navigating to permit/download forms on www.heritagekzn.co.za for payment details. • Site photos /case images showing the area to be traversed as well as the approach roads and immediate surroundings • Location information/kml file showing polygon of area to be disturbed	
DWS	R.K. Pillay	Reference is made to the aforementioned document emailed to this office on the 11 December 2015 Reference - 16/2/7/T402/D3/X1 This Department would like the following matters to be addressed in the Basic Asssessment Report: (1) Management of solid waste and hazardous waste material generated during the construction phase. This should include the storage of any material, chemicals, fuels etc. (2) Indentification of any environmental sensitive areas and water resources such as wetlands, streams, rivers, etc. as well as possible pollution impacts and proposed mitigation measure to protect such water resources. (3) Stormwater management plan both during and after construction. (4) Type of toilet facilities to be provided for construction workers. (5) Information regarding the 1:50 and 1:100 year floodlines of any watercourses. (6) Erosion control measures. (7) Spill contingency plan for the construction phase of the project. (8) Environmental Management Programme for the construction phase of the project. (9) Geotechnical investigation (10) Bridge design (11) Please note that a Water Use Authorisation is required in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) for any activity within the reparian habitat or 1:100 year flood line, whichever is the greatest. In addition, if an activity is identified as a Section 21 (i) (i.e. altering the bed, banks, course or characteristic of a watercourse) water use, the Applicant must delineate the watercourse and riperian habitat using the Department's guideline titled "A Practical Field Procedure for Identification and Delineation of Wetlands and Riperian Areas". A Report must be submitted as part of the Water Use Authorisation Application. (12) It is noted that the proposed bridge will involve the intersection of a natural watercourse and will require the removal of soil, rocks, etc. from the bed and banks of the river. Please note that this activity constitutes Section 21 (c) and section 21 (i) wate uses, i.e. "impeding or diverting the flow of water in a watercourse" and "altering the bed, banks, course or characteristics of a watercourse" respectively and must be authorised under provisions of the (NWA). (13) This Department would like to bring to the attention of the Applicant that any activity/development occuring within a 500 m radius from the boundary of any wetland requires a Water Use license in terms of Section 21 (c) and (i) of the NWA. The Applicant must therefore ascertain the absence or presence of wetlands on site or areas surrounding the site (including the 500 m radius). (14) It is recommended that the Applicant contact this Department to schedule a pre-water use authorisation application meeting to discuss the type of authorisation and requirements for the Water Use Authorisation process prior to submission of application. Please contact Ms Coleen Moonsamy of this Department's Water Use Authorisation Sub-Directorate on (031) 336 2700/2846 in this regard. (15) It is the responsibility of the Applicant to identify all water uses applicable to the activity in terms of Section 21 of the NWA and to ensure that all applicable water uses are authorised as such. The Applicant must consult with this Department if clarity is required with regard to water uses and water uses authorisations. These water uses are listed in Table 1. Table 1: Water Uses as per Section 21 of the NWA (s21 a) Taking water from a water resource; (s21 b) Storing water; (s21 c) impeding or diverting the flow of water in a watercourse; (s21 d) engaging in a stream flow reduction activity (currently only commercial afforestation); (21 e) engaging in a controlled activity - activities which impact detrimentally on a water resource (activities identified in s37(1) or declared as such under s38(1) namely : - Irrigation of any land with waste or water containing waste which is generated through an industrial activity or a waterwork; - an activity aimed at the modification of atmospheric precipitation; - a power generation activity which alters the flow regime of a water resource; or - intentional recharge of an aquifer with any waste or water containing waste. (s21 f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; (s21 g) disposing of waste or water containing waste in a manner which may detrimentally impact on a water resource; (s21 h) disposing in any manner of water which contains waste from, or has been heated in, any industrial or power generation process; (s21 i) altering the bed, banks, course or characteristics of a watercourse; (s21 j) removing, discharging or disposing of water found underground if it is necessary for the effient continuation if an activity or for the safety of people; and (s21 k) using of water for recreational purposes; (16) The onus is on the Applicant to submit a complete Water Use Licence Application to this Department for water uses under Section 21 of the NWA that will be exercised in time to avoid unnecessary delays. (17) Please note that no person may use water otherwise as permitted under the NWA. Should you engage in any water use without the necessary Water Use Authorisation it will be regarded as an unlawful water use and are guilty of an offence and liable for a fine or imprisonment as stipulated in Section 151 of the NWA. - Notwithstanding the above, the responsibility rests with the Applicant to identify all sources or potential sources of pollution from his undertaking and to take appropriate measures to prevent any pollution of the environment. Failure to comply with the requirements of the National Water Act, 1998 (Act No 36 of 1998) could lead to legal action being instituted against the Applicant. This reply does not grant any exemption from the requirements of any applicable Act, Ordinance, Regulation or Bylaw.	Your comments on the Background Information Document (BID), received via posted mail and dated 21 December 2015, refer. 1) Management of waste during construction and storage of waste, any materials, chemicals, fuels, etc will be addressed during the compilation of the Environmental Management Plan (EMP). 2) Specialist studies have been completed to identify environmentally sensitive elements such as water courses and critical biodiversity areas. 3) The Engineers have been requested to provide a Stormwater Management Plan for during and after construction. 4) Temporary toilet facilities will be provided by the Contractor for staff during construction. 5) The Wetland Delineation and Freshwater Study will provide details on the floodlines of the watercourses. 6) Erosion control measures will be specified in the EMP. 7) Spill contingency plans and protocols for the construction phase will be detailed in the EMP. 8) An EMP for the construction phase is being prepared. 9) The Engineer has been requested to provide the Geotechnical Report. 10) The final bridge designs will be submitted as part of the BAR. 11) A Wetland Delineation is being finalised. 12) A WULA will be prepared and submitted to Department of Water and Sanitation for the bridge. 13) The Wetland Delineation will cover the site buffer of 500m to determine if there are any wetlands within 500m of the proposed bridge. 14) A Pre-Application meeting with the licensing division of DW&S will be scheduled once the Wetland Delineation Report is received from the Specialist. 15) At present, the only water uses identified for the construction of the bridge are Section 21 (c) impeding the flow of water in a watercourse, and (i) altering the bed and banks of a watercourse. 16) PGA Consulting Engineers, acting on behalf of the client, Hibiscus Coast Local Municipality, is aware of the delays that may arise from delayed WUL Applications. 17) Your comment regarding the unlawful use of water is noted. Kindly note that a copy of the draft Basic Assessment Report (BAR) will be submitted to your Department for review and comment, for a legislated period of 30 days.

APPENDIX D: COMMENTS AND RESPONSES REPORT

ORGANISATION	CONTACT PERSON	COMMENT SUBMITTED	EAP RESPONSE
		COMMENTS ON THE BID	
Eskom	Mr Purdon	No Comment received.	Hi Brian, thank you for the details.
Ezemvelo KZN Wildlife	Dominic Wieners	No Comment received.	
Ugu Municipality	D D Naidoo	No comment received.	
Ward 24 (Dressing Bridge)	Christopher Hlope	No comment received.	
KZN Corporate Governance and Traditional Affairs	Vishnu Govender	No comment received.	
Regional Land Claims Commission: KZN	Lynn Boucher	Dear Sir/Madam Request information on Property: Land Claim We acknowledge receipt of your enquiry received on 14 December 2015 and advise that our records indicate that no claim for restitution in terms of the provisions of the Restitution of Land Rights Act, 22 of 1994 (as amended) has been lodged in respect of the property described as Ptn 0 of Farm No. 15845 Whilst great care is taken to verify the accuracy of the information regarding all claims, the Regional Land Claims commission will not be held responsible for any damage or loss suffered as a result of information furnished in this regard as there are claims lodged with the Commission which are not yet captured in our database as they are not yet published in the relevant government gazette. (Dressing) Regards 24/12/2015 No, we will not require the reports. Have a great and blessed festive season too...	Thank you for your response. Both responses for "Dressing" and "Mbhele" Pedestrian bridges have been noted on our register. In conclusion, I will assume that with the finding of no claims present on these two properties you will not require the Basic Assessment Documents. 11/01/2015 Thank you for your response and assistance with the project. I have received the attached files and will attach it to our register. Kind Regards Bryan Paul
KZN Dept. Of Transport	Michele Schmid	Good afternoon, Please would you supply co-ordinates for both projects? As far as we can see we are not affected but with the co-ordinate I can confirm for definite. 28/01/2015 Please be advised this Department has no comments to offer as these projects do not affect our provincial road network. Attached are two maps confirming so from the co-ordinates you sent me. Our Bridge office has also confirmed this.	Dear Michele Thank you for your response and assistance with the project. I have received the attached files and will attach it to our register. Kind Regards Bryan Paul
Hibiscus Coast Municipality	K. Msomi	No comment received.	

bryan@1wc.co.za

From: bryan@1wc.co.za
Sent: Friday, 11 December 2015 3:53 PM
To: 'Bernadet'
Subject: RE: Dressing Pedestrian Bridge - Background Information Document

Dear Bernadet

Thank you very much for your speedy reply and interest.

We will most definitely be doing that as soon as possible, having already started with the process but we will address it further on the Monday of next week taking into account each of the aspects that you listed.

Thank you again for your email and have a wonderful weekend.

Kind Regards
Bryan Paul

From: Bernadet [mailto:bernadetp@amafapmb.co.za]
Sent: Friday, December 11, 2015 3:29 PM
To: bryan@1wc.co.za
Subject: RE: Dressing Pedestrian Bridge - Background Information Document

Good day Bryan

Thank you for informing us about the development. You are required to Create an application on the online SAHRIS facility on www.sahra.org.za and upload all the relevant documents for review. Please ensure that you provide us with the following prerequisites:

- Proof of payment for processing fee(See the cover sheet of the NID Form J by navigating to permit/download forms on www.heritagekzn.co.za for payment details.)
- Site photos /case images showing the area to be traversed as well as the approach roads and immediate surroundings
- Location information/kml file showing polygon of area to be disturbed

Kind regards
Bernadet Pawandiwa
Senior Heritage Officer
Archaeology Compliance/Permits
Amafa /Heritage KwaZulu -Natali
P.O. Box 2685
Pietermaritzburg
3201
Tel: 033 394 6543
Fax: 033 394 6552

"Stand up for what is right even if you stand alone."
— Suzy Kassem

From: bryan@1wc.co.za [mailto:bryan@1wc.co.za]
Sent: 10 December 2015 04:05 PM
To: purdonNW@eskom.co.za; Vishnu.Govender@kzncogta.gov.za; christopher.holophe@hcm.gov.za; bernadetp@amafapmb.co.za

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

Enq: Ms R.K. Pillay
Date: 21st December 2015
File: 16/2/7/T402/D3/X1
Tel: 031 336 2742
E-mail: pillayr@dws.gov.za

P.O. Box 1018, Durban 4000
Southern Life Building, 88 Joe Slovo Street, Durban

The Director
1 World Consultants
PO Box 2311
WESTVILLE
3630

ATTENTION: MS FATIMA PEER

Dear Madam

RE: BACKGROUND INFORMATION DOCUMENTS – PROPOSED "DRESSING PEDESTRIAN BRIDGE" NEAR BOMELA, WITHIN HIBISCUS COAST LOCAL MUNICIPALITY, UGU DISTRICT MUNICIPALITY

Reference is made to the aforementioned document e-mailed to this Office on 11 December 2015.

This Department would like the following matters to be addressed in the Basic Assessment Report:

(1) Management of solid waste and hazardous waste material generated during the construction phase. This should include the storage of any material, chemicals, fuels, etc.

(2) Identification of any environmental sensitive areas and water resources such as wetlands, streams, rivers, etc. as well as possible pollution impacts and proposed mitigation measures to protect such water resources.

(3) Stormwater management plan both during and after construction.

(4) Type of toilet facilities to be provided for construction workers.

(5) Information regarding the 1: 50 and 1:100 year floodlines of any watercourses.

(6) Erosion control measures.

(7) Spill contingency plan for the construction phase of the project.

(8) Environmental Management Programme for the construction phase of the project.

(9) Geotechnical investigation

(10) Bridge design

(11) Please note that a Water Use Authorisation is required in terms of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) for any activity within the riparian habitat or 1:100 year flood line, whichever is the greatest. In addition, if an activity is identified as a

Section 21 (i) (i.e. altering the bed, banks, course or characteristics of a watercourse) water use, the Applicant must delineate the watercourse and riparian habitat using the Department's guideline titled "A Practical Field Procedure for Identification and Delineation of Wetlands and Riparian Areas". A Report must be submitted as part of the Water Use Authorisation Application.

(12) It is noted that the proposed bridge will involve the intersection of a natural watercourse and will require the removal of soil, rocks, etc. from the bed and banks of the river. Please note that this activity constitutes Section 21 (c) and Section 21 (i) water uses, i.e. "impeding or diverting the flow of water in a watercourse" and "altering the bed, banks, course or characteristics of a watercourse" respectively and must be authorised under the provisions of the (NWA).

(13) This Department would like to bring to the attention of the Applicant that any activity/development occurring within a 500 m radius from the boundary of any wetland requires a Water Use Licence in terms of Section 21 (c) and (i) of the NWA. The Applicant must therefore ascertain the absence or presence of wetlands on site or areas surrounding the site (including the 500 m radius).

(14) It is recommended that the Applicant contact this Department to schedule a pre-water use authorisation application meeting to discuss the type of authorisation and requirements for the Water Use Authorisation process prior to submission of application. Please contact Ms Coleen Moonsamy of this Department's Water Use Authorisation Sub-directorate on (031) 336 2700/2846 in this regard.

(15) It is the responsibility of the Applicant to identify all water uses applicable to the activity in terms of Section 21 of the NWA and to ensure that all applicable water uses are authorised as such. The Applicant must consult with this Department if clarity is required with regard to water uses and water use authorisations. These water uses are listed in Table 1.

Table 1: Water Uses as per Section 21 of the NWA

s21(a)	taking water from a water resource;
s21(b)	storing water;
s21(c)	impeding or diverting the flow of water in a watercourse;
s21(d)	engaging in a stream flow reduction activity (currently only commercial afforestation);
s21(e)	engaging in a controlled activity – activities which impact detrimentally on a water resource (activities identified in s37(1) or declared as such under s38(1)) namely: ➢ irrigation of any land with waste or water containing waste which is generated through an industrial activity or a waterwork; ➢ an activity aimed at the modification of atmospheric precipitation; ➢ a power generation activity which alters the flow regime of a water resource; or ➢ intentional recharge of an aquifer with any waste or water containing waste
s21(f)	discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
s21(g)	disposing of waste or water containing waste in a manner which may detrimentally impact on a water resource;
s21(h)	disposing in any manner of water which contains waste from, or has been heated in, any industrial or power generation process;
s21(i)	altering the bed, banks, course or characteristics of a watercourse;
s21(j)	removing, discharging or disposing of water found underground if it is necessary for the efficient continuation if an activity or for the safety of people; and
S21(k)	using water for recreational purposes

(16) The onus is on the Applicant to submit a complete Water Use Licence Application to this Department for water uses under Section 21 of the NWA that will be exercised in time to avoid unnecessary delays.

(17) Please note that no person may use water otherwise as permitted under the NWA. Should you engage in any water use without the necessary Water Use Authorisation it will be regarded as an unlawful water use and are guilty of an offence and liable for a fine or imprisonment as stipulated in Section 151 of the NWA.

Notwithstanding the above, the responsibility rests with the Applicant to identify all sources or potential sources of pollution from his undertaking and to take appropriate measures to prevent any pollution of the environment. Failure to comply with the requirements of the National Water Act, 1998 (Act No 36 of 1998) could lead to legal action being instituted against the Applicant.

This reply does not grant any exemption from the requirements of any applicable Act, Ordinance, Regulation or Bylaw.

Please do not hesitate to contact this office should you have any concerns, comments or queries.

Yours faithfully

for ACTING CEO: PONGOLA TO UMZIMKULU PROTO CMA
RKP/rkp/14048

1world consultants
Environmental Assessment Practitioners
181 Winchester Drive, Reservoir Hills, 4091
082 640 4900
031 262 8327
086 726 3619

30 March 2016

Our Ref : **ENV15023**

Your Ref: **16/2/7/T402/D3/X1**

Attention: **Ms Ntombi Madibe (Department of Water and Sanitation)**

RE: BACKGROUND INFORMATION DOCUMENT: PROPOSED "DRESSING PEDESTRIAN BRIDGE" NEAR BOMELA, WITHIN HIBISCUS COAST LOCAL MUNICIPALITY, UGU DISTRICT MUNICIPALITY, KWAZULU-NATAL

Your comments on the Background Information Document (BID), received via posted mail and dated 21 December 2015, refer.

1) Management of waste during construction and storage of waste, any materials, chemicals, fuels, etc will be addressed during the compilation of the Environmental Management Plan (EMP).
2) Specialist studies have been completed to identify environmentally sensitive elements such as water courses and critical biodiversity areas.
3) The Engineers have been requested to provide a Stormwater Management Plan for during and after construction.
4) Temporary toilet facilities will be provided by the Contractor for staff during construction.
5) The Wetland Delineation and Freshwater Study will provide details on the floodlines of the watercourses.
6) Erosion control measures will be specified in the EMP.
7) Spill contingency plans and protocols for the construction phase will be detailed in the EMP.
8) An EMP for the construction phase is being prepared.
9) The Engineer has been requested to provide the Geotechnical Report.
10) The final bridge designs will be submitted as part of the BAR.
11) A Wetland Delineation is being finalised.
12) A WULA will be prepared and submitted to Department of Water and Sanitation for the bridge.
13) The Wetland Delineation will cover the site buffer of 500m to determine if there are any wetlands within 500m of the proposed bridge.
14) A Pre-Application meeting with the licensing division of DW&S will be scheduled once the Wetland Delineation Report is received from the Specialist.
15) At present, the only water uses identified for the construction of the bridge are Section 21 (c) impeding the flow of water in a watercourse, and (i) altering the bed and banks of a watercourse.
16) PGA Consulting Engineers, acting on behalf of the client, Hibiscus Coast Local Municipality, is aware of the delays that may arise from delayed WUL Applications.
17) Your comment regarding the unlawful use of water is noted.

1world consultants
Environmental Assessment Practitioners
181 Winchester Drive, Reservoir Hills, 4091
082 640 4900
031 262 8327
086 726 3619

30 March 2016

Kindly note that a copy of the draft Basic Assessment Report (BAR) will be submitted to your Department for review and comment, for a legislated period of 30 days.

Should there be any enquiries please contact Fatima Peer using the details provided.

Yours faithfully,

Fatima Peer B.Sc. (Hons) Pr. Sci. Nat.

Director, Senior EAP

bryan@1wc.co.za

From: LYNN BOUCHER <lynn.boucher@drdlr.gov.za>
Sent: Thursday, 24 December 2015 7:09 AM
To: bryan@1wc.co.za
Subject: RE: Dressing Pedestrian Bridge - Background Information Document

Hi Bryan

No, we will not require the reports.

Have a great and blessed festive season too...

Regards
Lynn

From: bryan@1wc.co.za [mailto:bryan@1wc.co.za]
Sent: Tuesday, December 22, 2015 3:30 PM
To: LYNN BOUCHER
Subject: RE: Dressing Pedestrian Bridge - Background Information Document

Dear Lynn

Thank you for your response. Both responses for "Dressing" and "Mbhele" Pedestrian bridges have been noted on our register.

In conclusion, I will assume that with the finding of no claims present on these two properties you will not require the Basic Assessment Documents.

Have a great festive season and if you mean to travel, travel safely.

Kind Regards
Bryan Paul

From: LYNN BOUCHER [mailto:lynn.boucher@drdlr.gov.za]
Sent: Tuesday, December 22, 2015 3:14 PM
To: bryan@1wc.co.za
Subject: RE: Dressing Pedestrian Bridge - Background Information Document

Good day

Please find attached letter in response to your enquiry.

Regards
Lynn Boucher
Senior Admin Officer: Information Management Unit & Lodgement
Regional Land Claims Commission: KZN
Department of Rural Development & Land Reform

COMMISSION ON RESTITUTION OF LAND RIGHTS

OFFICE OF THE REGIONAL LAND CLAIMS COMMISSIONER: KWAZULU-NATAL
Private Bag X 9120, PIETERMARITZBURG, 3200, 200 Church Str / 139 Langalibalele Str
Tel: (033) 355-8400 / 341-2600 | Fax: (033) 345 5011
lynn.boucher@drdlr.gov.za

Your Ref:

Enquiries: Lynn Boucher

1World Consultants
P O Box 2311
WESTVILLE
3630

Dear Sir/Madam

REQUEST INFORMATION ON PROPERTY: LAND CLAIM

We acknowledge receipt of your enquiry received on 14 December 2015 and advise that our records indicate that no claim for restitution in terms of the provisions of the Restitution of Land Rights Act, 22 of 1994 (as amended) has been lodged in respect of the property described as **Ptn 0 of Farm No. 15845.**

Whilst great care is taken to verify the accuracy of the information regarding all claims, the Regional Land Claims Commission will not be held responsible for any damage or loss suffered as a result of information furnished in this regard as there are claims lodged with the Commission which are not yet captured in our database as they are not yet published in the relevant government gazette.

Regards

MR N. MDLULI
MANAGER: INFORMATION AND RECORDS MANAGEMENT
DATE: 22 December 2015

bryan@1wc.co.za

From: Michele Schmid <michele.schmid@Kzntransport.gov.za>
Sent: Monday, 28 December 2015 12:27 PM
To: bryan@1wc.co.za
Cc: Roy Ryan
Subject: RE: Background Information Document's for Mbhele Pedestrian Bridge & Dressing Pedestrian Bridge
Attachments: Mbhele Pedestrian Bridge-BID_GIS map.pdf; Dressing Pedestrian Bridge - BID_ GIS map.pdf

Dear Bryan,
Please be advised this Department has no comments to offer as these projects do not affect our provincial road network.
Attached are two maps confirming so from the co-ordinates you sent me. Our Bridge office has also confirmed this.
Thanking you.

"May the Good LORD bless you!"

Michéle Schmid | Engineering Services: Road Control
Office: 033 355 0581 **Fax:** 033 342 3962 **Cell:** 082 902 0120

Someone taught me years ago..... It's important to take special note how a person spells their name...it makes a HUGE difference...
TIP* How to type my é on my name: NumLock On, hold down Alt, type 130 from Num Keys ☺

From: bryan@1wc.co.za [mailto:bryan@1wc.co.za]
Sent: 11 December 2015 03:26 PM
To: Michele Schmid <michele.schmid@Kzntransport.gov.za>
Subject: RE: Mbhele Pedestrian Bridge - Background Information Document

Hi Michele

Just in case you cannot open the previously sent files the co-ordinates are below.

Dressing Bridge - 30°45'38.72"S 30°19'20.23"E

Mbhele Bridge - 30°52'24.03"S 30°18'4.26"E

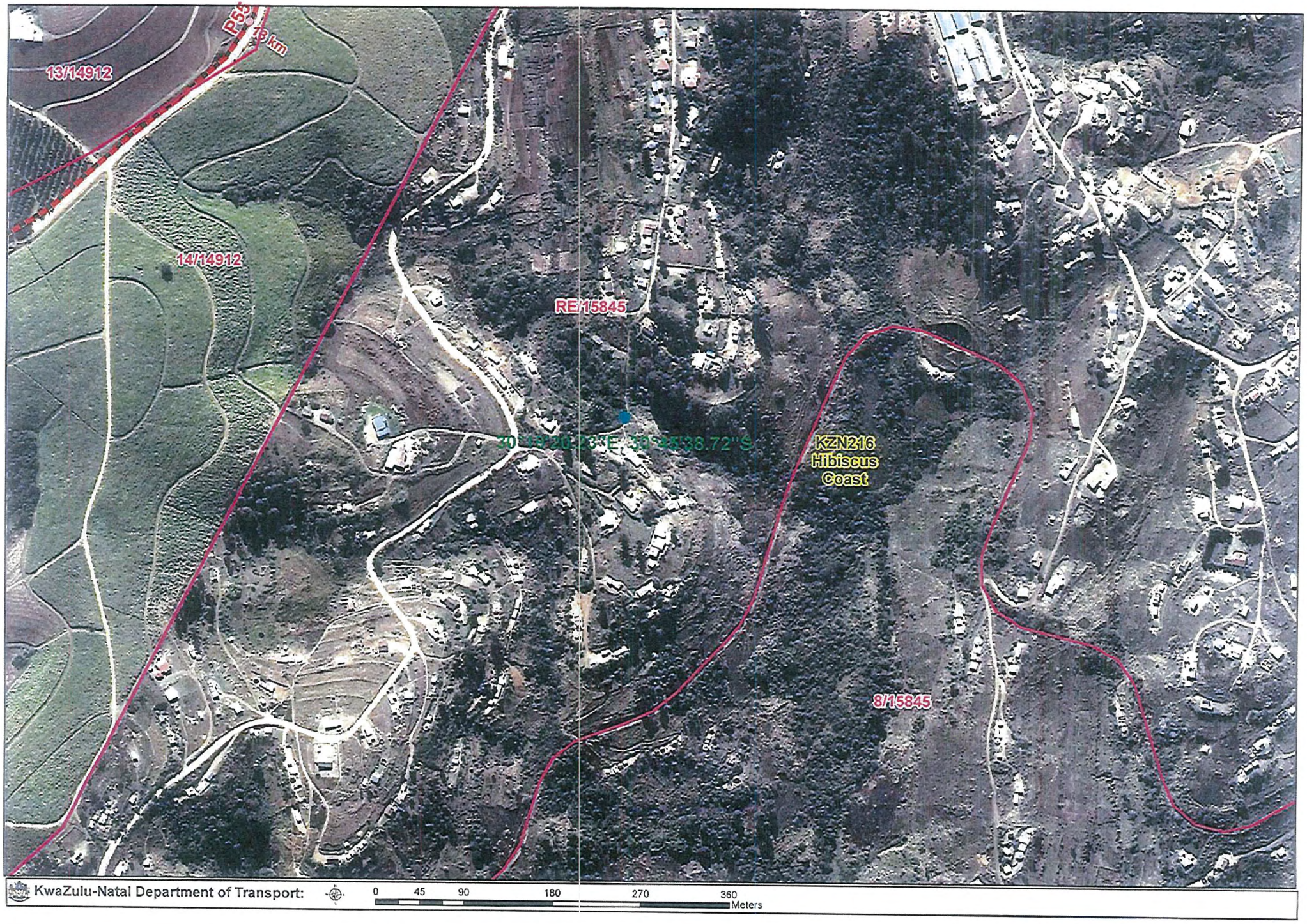
Kind Regards
Bryan Paul

From: Michele Schmid [mailto:michele.schmid@Kzntransport.gov.za]
Sent: Friday, December 11, 2015 3:08 PM
To: bryan@1wc.co.za
Subject: RE: Mbhele Pedestrian Bridge - Background Information Document

Good afternoon,
Please would you supply co-ordinates for both projects?
As far as we can see we are not affected but with the co-ordinate I can confirm for definite.
Thanking you.

"May the Good LORD bless you!"

Michéle Schmid | Engineering Services: Road Control
Office: 033 355 0581 **Fax:** 033 342 3962 **Cell:** 082 902 0120


P53
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KwaZulu-Natal Department of Transport:
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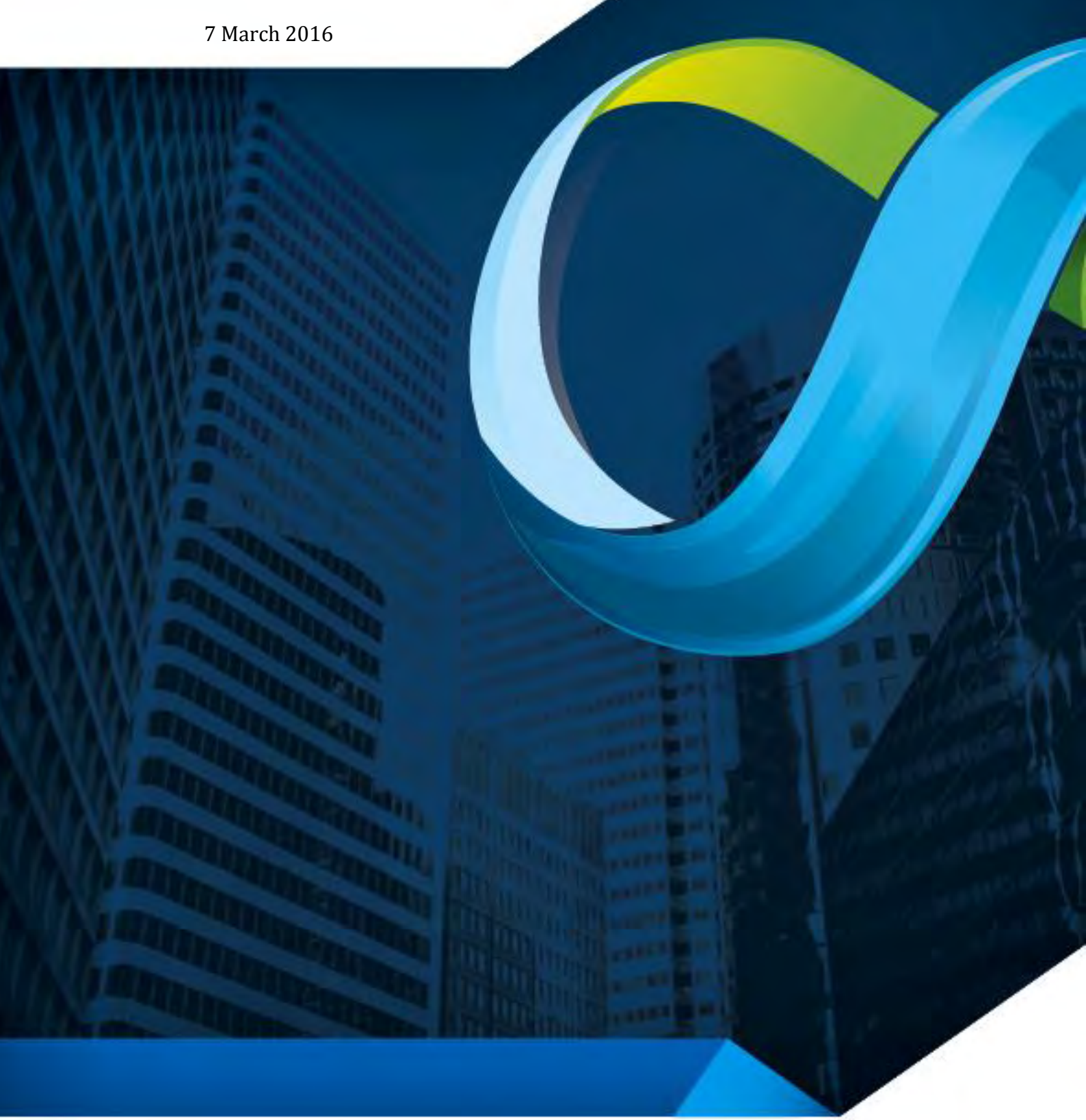
Meters

APPENDIX E

7 March 2016



Proposed Dressing Pedestrian Bridge, Ugu District Municipality, KwaZulu-Natal

Wetland Delineation and Functional Assessment

Aeon Nexus (Pty) LTD

1world consultants

AN V 1.0

Specialist Wetland Delineation & Functional Assessment for the proposed Dressing Pedestrian Bridge, Ugu District Municipality, KwaZulu-Natal

Prepared for: 1World Consultants (Pty) Ltd
P.O. Box 2311, Westville, 3630
Tel: (031) 262 8327
E-mail: fatima@1wc.co.za

Prepared by: Aeon Nexus (Pty) Ltd.
Unit 1, 32 West Riding Row, Sherwood, Durban, 4091
Tel: (031) 826 2050
E-mail: aeon.nexus@neomail.co.za

Indemnity

Aeon Nexus Pty Ltd exercises reasonable skill, care and diligence in the provision of services and accepts no liability or consequential liability for the use of the supplied project deliverables (in part or in whole) and any information or material contained therein. The client, including their agents, by receiving these deliverables indemnifies Aeon Nexus (Pty) Ltd (including its sub-consultants) against any actions, claims, demands, losses, liabilities, costs, damages and expenses arising directly or indirectly from or in connection with services rendered.

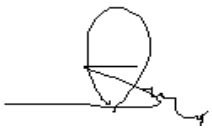
The project deliverables, including reported results, comments, recommendations and conclusions, are based on the author's professional knowledge and available information. The client acknowledges that the study is based on assessment techniques and investigations that are limited by time and budgetary constraints applicable to the type and level of survey undertaken.

WETLAND DELINEATION AND FUNCTIONAL ASSESSMENT DETAILS AND DECLARATION OF INDEPENDENCE

This report has been prepared as per the requirements stipulated in Appendix 6 (1) of the NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014.

Report prepared by:	Naeem Agjee, Shanice Mohanlal
Reviewed by:	Dr. S. Pillay
Approved by:	Dr. S. Pillay
Date:	7 March 2016
Client:	1World Consultants (Pty) Ltd

We the undersigned hereby declare that we act as independent specialist consultants in the field of wetland and riparian ecology.

 **Dr. Srinivasan Pillay**	 **Naeem Agjee**

Place: Durban **Date:** 7 March 2016

PROJECT TEAM

Dr. Srinivasan Pillay Project principal	**Mr. Naeem Agjee** Environmental consultant (Msc. - University of KwaZulu-Natal)
	Miss. Shanice Mohanlal Jnr. Environmental consultant (BSc. - University of KwaZulu-Natal)

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GLOSSARY OF ABBREVIATIONS

ASL	- Above Sea Level
CARA	- Conservation of Agricultural Resource Act
DWA	- Department of Water Affairs
EIS	- Ecological Importance Sensitivity
GIS	- Geographic Information System
GPS	- Global Positioning Satellite
HGM	- Hydrogeomorphic
IAP	- Invasive Alien Plant
MAP	- Mean Annual Precipitation
NEMA	- National Environmental Management Act
PES	- Present Ecological State
SANBI	- South African National Biodiversity Institution
WMA	- Water Management Area

GLOSSARY OF TERMS

Buffer zone	- A strip of land surrounding a wetland or riparian area in which activities are controlled or restricted, in order to reduce the impact of adjacent land uses on the wetland or riparian area.
Delineation	- To determine the boundary of a water resource (wetland or riparian area) based on soil and vegetation (wetland) or geomorphological and vegetation (riparian zone) indicators.
Facultative plant species	- Species usually found in wetlands (67% – 99% of occurrences) but occasionally found in non-wetland areas.
Gleying	- A soil process resulting from prolonged soil saturation, which is manifested by the presence of neutral grey, bluish or greenish colours in the soil matrix.
Mottles	- Soils with variegated colour patterns are described as being mottled, with the "background colour" referred to as the matrix and the spots or blotches of colour referred to as mottles.
Obligate plant species	- Species almost always found in wetlands (> 99% of occurrences).
Permanent zone of wetness	- The inner zone of a wetland that is permanently saturated.
Seasonal zone of wetness	- The zone of a wetland that lies between the Temporary and Permanent zones and is characterized by saturation for three to ten months of the year, within 50cm of the surface.
Temporary zone of wetness	- The outer zone of a wetland characterized by saturation within 50cm of the soil surface for less than three months of the year.
Terrain unit morphological classes	- Areas of the land surface with homogenous form and slope. Terrain may be seen as being made up of all or some of the following units: (1) crest, (2) scarp, (3) midslope, (4) footslope, and (5) valley bottom.
Wetland *(As defined by the National Water Act)*	- Land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which under normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

EXECUTIVE SUMMARY

Introduction

Aeon Nexus (Pty) Ltd. was appointed by 1World Consultants (Pty) Ltd. to undertake a wetland assessment for the proposed Dressing pedestrian bridge, Ugu District Municipality, KwaZulu-Natal. On completion, the Dressing Pedestrian Bridge would provide a safe means of crossing the natural watercourse for the local community. The aim of this wetland assessment was to delineate the outer boundary of wetland environments potentially at risk from the proposed bridge development and assess their functionality. This wetland delineation and functional assessment report provides a detailed description of the methodology employed, results of the assessment and proposes recommendation and mitigation measures to be implemented.

Approach and methodology

A desktop study was undertaken in order to gain a broad understanding of the general study area. To categorize the regional setting for national and regional water resource management applications, especially in relation to rivers, the DWA Ecoregion and dominant vegetation within the region was determined using secondary sources. The Water Management Area, primary streams and drainage lines located in close proximity to the proposed bridge development were identified and relevant lengths characterized using satellite imagery. In addition, perceived wetland boundaries of potential wetland areas located within 500m of the proposed bridge development were delineated using satellite imagery. An aquatic screening was undertaken to identify wetlands that are likely to incur direct or indirect impacts from the proposed bridge development. Wetlands that were potentially at risk from the construction of the proposed bridge development were assessed further.

A field survey was undertaken in January 2016 where wetland environments potentially at risk from the proposed development were identified and delineated. Hydrogeomorphic (HGM) units within the wetland environments were delineated (DWAF, 2008) and classified (Ollis *et al.*, 2013).). A Habitat Integrity Assessment was undertaken to establish the Present Ecological State (PES) of the river riparian systems. The PES of the wetlands was determined using a Level 1 wetland functional assessment (WET-Health). Further, a Level 2 wetland functional assessment (WET-EcoServices) was undertaken to establish the primary ecosystem goods and services that each HGM unit provides. Finally, the Ecological Importance and Sensitivity (EIS) of the wetland were calculated using the *Resource Directed Measures for Protection of Water Resources* (Kleynhans, 1999) methodology.

Summary of findings

Wetland delineation:

- From the desktop study, five wetland units (HGMs) were identified. Four of these HGM units were identified as being potentially at risk from the proposed bridge development. These include HGM2 (river with an associated riparian area), HGM3 (channelled valley bottom), HGM4 (river with an associated riparian area) and HGM5 (river with an associated riparian area). The extent of each HGM unit is illustrated in figure 4.1.

Functional assessment:

- ***Habitat Integrity Assessment***

  Both the instream environment and riparian habitat for HGM2 and HGM4 can be considered to be largely natural (PES Class B). A small change in natural habitat and biota has taken place but the ecosystem functions are essentially unchanged. However, HGM5 can be considered moderately modified (PES Class C). A loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged (Table 4.2/Table 4.3).

- ***WET-Health (Present Ecological Status) score***

  PES determination for HGM3 shows that in its present state, the wetland falls into PES category D indicative of a largely modified system.

- ***WET-EcoServices (Ecological Goods and Services)***

  The WET-EcoServices Level 2 functional assessment for HGM3 yielded low importance for all the ecosystem goods and services.

- ***Ecological Importance and Sensitivity***

  The ecological importance and sensitivity assessment revealed that HGM3 yielded a median score of 0 whilst HGM2, HGM4 and HGM5 yielded a median score of 1 indicating low importance and sensitivity (Table 4.4).

Potential activities and impacts

Potential activities include vegetation removal, excavation of topsoil and bank alteration. Potential negative impacts associated with the proposed development include increased surface run-off from excavated areas, sedimentation of the wetland area, alteration of hydrological

regimes, reduction in surface water quality and the proliferation of invasive alien plant species. Mitigation measures suggested include re-vegetation of excavated sites

Conclusion and recommendations

- ***Buffer zone recommendation:***

Buffer zones are areas of natural vegetation around the wetland boundaries, which protect the wetland from developmental or landuse changes. Protection may also extend to peak runoff / flood flows and the buffer zone may also provide feeding / breeding areas for wetland or river fauna and accordingly enhance the corridor function of drainage lines. In this study, we propose a 20m buffer around the wetland/riparian areas excluding the location of the proposed bridge development. The proposed 20 m buffer around the wetlands will maintain the integrity of the wetland environments in its current state. This is provided that the recommendations and mitigation measures outlined in this report and the environmental management plan are adhered to.

1. INTRODUCTION

Aeon Nexus (Pty) Ltd was appointed by 1World Consultants (Pty) Ltd on behalf of Ugu District Municipality to undertake a wetland delineation and functional assessment for the proposed Dressing Pedestrian Bridge, Ugu District Municipality, KwaZulu-Natal. Once completed, the proposed bridge will provide a safe means of crossing the natural watercourse for the local community. The proposed bridge will be 19m long with 5m concrete approach slabs and two footpaths (17 m and 7 m) on either side of the bridge.

The proposed alteration to the beds, banks and characteristics of the watercourse resulting from the construction of the pedestrian bridge are considered listed activities under the National Environmental Management Act (Act No. 107 of 1998) and water uses under the National Water Act (Act No. 36 of 1998).

In light of the above, a wetland assessment was undertaken to identify the presence of wetland environments and to delineate the outer boundary of the wetland environments. In addition, a level 1 functional assessment was undertaken to rapidly assess the health status and ecosystem goods and services provided by the delineated wetlands. Following the study, appropriate recommendations and mitigation measures were proposed.

1.1. Background and importance of preserving wetland environments

A 'wetland' is land that is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land under normal circumstances can support or would support vegetation adapted to saturated soil. The term "wetland" is a family name given to a variety of ecosystems, ranging from springs, seeps and mires in the upper catchment, to midlands marshes, pans and floodplains, to coastal lakes, mangrove swamps and estuaries at the bottom of the catchment (DWAF, 2005).

Wetlands are important as they provide a variety of direct and indirect ecosystem services that humans depend on. The primary function of wetland environments is to protect and regulate the water resources. Wetlands support biodiversity, maintain hydrological services, recharge ground water sources, attenuate flood peaks, aid in erosion control, trap pollutants and improve water quality. In addition, wetlands provide a suite of resources such as water supply, the provision of harvestable resources (reed beds etc.) as well as provide sites for tourism and recreation.

The benefits of wetlands are invaluable yet the continued exploitation and destruction of wetlands from a range of anthropogenic activities is placing severe strain of South Africa's limited water resources. Consequently, it is imperative to protect wetland environments to ensure the future sustainability of South Africa's water resources.

1.2. Scope of work

The aim of this wetland assessment is to identify and delineate wetland environments at risk within 500m of the proposed Dressing Pedestrian Bridge as well as assess the ecological health and functionality of these wetlands.

The detailed scope of work includes the following:

1. To identify and delineate potential wetlands within 500m of the proposed bridge based on aerial photography and available wetland/river coverage's via a desktop survey;
2. To conduct a comprehensive field survey to identify and delineate wetlands within 500m of the proposed bridge using the Department of Water Affairs & Forestry guideline manual "*A practical field procedure for the identification and delineation of wetlands and riparian areas*" (DWAF, 2005);
3. To classify and describe the wetlands/riparian areas adhering to the "*National Wetland Classification System for Wetlands and other Aquatic Ecosystems in South Africa"* (SANBI, 2013);
4. To undertake an aquatic screening to determine which of the delineated wetlands are likely to be affected by the proposed bridge;
5. To conduct a risk assessment to determine the level of impacts on wetland areas, if any, as a result of the proposed bridge;
6. To establish the Present Ecological State (PES) of the affected wetlands using a Level 1 WET-Health assessment tool (Macfarlane *et al.,* 2008);
7. To assess the importance of the affected wetland areas in providing ecosystem goods and services using a Level 2 WET-EcoServices assessment tool (Kotze *et al.,* 2009);
8. To assess the Ecological Importance and Sensitivity (EIS) of the affected wetland areas (Kleynhans *et al.,* 1999);
9. To identify and describe the potential aquatic ecological impacts associated with the proposed bridge, if any; and
10. To provide wetland buffer zone recommendations based on best-practice guidelines and available buffer zone guidelines.

1.3. Assumptions and limitations

The following assumptions and limitations apply to the studies undertaken to develop the wetland delineation and functional assessment:

- Due to the scale of the imagery (1:10 000 orthophotos and Google Earth Imagery), as well as the accuracy of the handheld GPS Unit used to delineate wetlands in the field, the delineated wetland boundaries cannot be guaranteed beyond an accuracy of about 5m on the ground.
- The wetland boundary needs to be identified and classified along a transitional gradient from the saturated soils through to terrestrial soils which makes it difficult to identify the exact location of the wetland boundary. Therefore, the boundaries mapped in this report represent an approximate boundary of the wetlands evaluated by the wetland specialists.

1.4. Legislative framework

TABLE 1.1: A review of the applicable guidelines under international and national legislation.

Name	Short Description and relevant section/s
International Legislation	
RAMSAR Convention	Importance is placed on the ecological, economic and social feasibility of wetland restoration programmes in order to protect wetlands by implementing initiatives to maintain or improve the state of wetland resources.
Convention on Biological Diversity	An important tool for the *in situ* conservation of biodiversity is wetland rehabilitation. Countries are to rehabilitate and restore degraded ecosystems and promote the recovery of threatened species through the formulation and implementation of appropriate plans and strategies.
United Nations Convention to Combat Desertification	Countries are to respond to land degradation and the effects of drought which includes the rehabilitation, conservation and sustainable management of land and water resources. South Africa has responded by developing a National Action Plan which aims to implement current and future policies that affect the natural resource management and rural development as well as to establish partnerships between all sectors this includes government departments, overseas development agencies, the private sector and non-governmental organizations.
New Partnership for Africa's Development (NEPAD)	One of the eight themes under the environmental initiative is wetland conservation.
The World Summit on Sustainable Development (WSSD)	The implementation plan places emphasis on the actions that reduce the risk of flooding in drought-vulnerable countries through promoting the restoration and protection of wetlands and watersheds.
National Legislation	
South African Constitution No 108 of 1996	The constitution is the overarching framework of South African law. It provides a legal foundation for the existence of the republic, outlines the rights and responsibilities of South African citizens and it defines the structure of government.

	Chapter 2- Bill of rights (Section 24) Everyone has a right to **an environment that is not harmful** to their health or wellbeing and is protected through reasonable legislative or other measures. (Section 27) National government is the custodian of all the country's water resources.
National Environmental Management Act (NEMA) No. 107 of 1998	This is an overarching statute regulating various aspects of natural resource use, integrating environmental management and pollution control. It provides principles and guidelines for sensitive, dynamic or stressed ecosystems i.e. wetlands. NEMA effectively promotes sustainable development into all planning and decision-making processes and adopts principles such as the 'precautionary approach,' 'polluter pays approach,' and requires that environmental responsibility be taken throughout the lifecycle of a project. Chapter 5 – Integrated Environmental Management (Section 24) provides for the prohibition, restriction and control of activities which are likely to have detrimental effects on the environment. The activities listed in the environmental impact assessment regulations that require assessment and environmental assessment have been promulgated in 2010 under NEMA. A number of activities listed in the regulations have relevance to wetland environments including a range of activities within 32m of a water course (including wetlands).
National Water Act No. 36 of 1998	This act provides a framework to protect the country's water resources this includes rivers, streams, estuaries, dams, wetlands and groundwater as well as the sustainable management thereof. The act provides guidelines and procedures on the protection, management and use of water resources in a controlled and integrated manner. Chapter 4 – Use of water - Deals with setting the basis for regulating water usage as well as details of various types of licensed and unlicensed entitlements to the use of water. Water use has a broad definition in the Water Act and requires that any activities with a potential impact on wetlands (within a parameter of 500m upstream or downstream of a wetland) be authorized. Chapter 19 (1) - *"An owner of land, a person in control of land or a person who occupies or uses the land on which a) any activity or process is or was performed or undertaken; which caused or is likely to cause pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring."* General Authorisations (GA's) – have been promulgated under the National water Act and were published under GNR 398 of 2004. Any uses of water which do not meet the requirements of Schedule 1 or the accompanied GA's, require a license which should be obtained from the Department of Water Affairs and Forestry.
National Environmental Management Act (NEMA): Biodiversity Act No. 10 of 2004	This act provides the management and conservation of the country's biodiversity within the framework of NEMA 1998. The sustainable use of indigenous biological resources and the protection of species and ecosystems that warrant natural protection as well as to ensure the fair and equitable sharing of the benefits arising from the use of biological resources. It addresses aspects such as protection of threatened ecosystems and requires a duty of care relating to listed invasive alien plants.
Conservation of Agricultural Resource Act (CARA) No. 43 of 1983	This act deals with control of the over-utilization of South Africa's natural agricultural resources, and to promote the conservation of soil and water resources and natural vegetation. This includes wetland systems and requires authorizations to be obtained for a range of impacts associated with cultivation of wetland areas.

2. STUDY AREA

2.1. Details of the study area and development site description

The proposed Dressing Pedestrian Bridge will be located approximately 20km from Port Shepstone on Portion O of Farm 15845 in Ward 24 (30°45'38.60"S; 30°19'19.70"E), Hibiscus Coast Local Municipality, Ugu District Municipality, KwaZulu-Natal (Figure 2.1). Prominent communities in the study area include Bhomela to the west, Nsimbini in the south and Paddock in the northwest. Land uses in the study area include sugarcane agriculture, rural dwellings and vacant land. At the time of the field survey, the immediate area surrounding the proposed bridge was significantly transformed. Much of the natural vegetation was removed with solid waste deposited throughout the area. The proposed development will include the construction of a pedestrian bridge (19m) and two footpaths situated (17m and 7m) on either side of the bridge.

2.2. Climate

The province of KwaZulu-Natal experiences a temperate climate and is mostly influenced by the warm Indian Ocean and the relative position and strength of the semi-permanent high pressure system over the Indian Ocean (Preston-Whyte and Tyson, 1988). The South African Weather Service's monitoring station on the coast at Port Shepstone is indicative of the meteorological conditions of the Ugu District Municipal coastal regions. The Ugu District Municipality falls within the summer rainfall region with the major rainfall events occurring from October to March. The mean daily temperature is 20.3 °C and the mean daily minimum and maximum is 16.9 °C and 23.7 °C, respectively. The period is normally associated with convective storms and occasional cold fronts. Whereas, winter rainfall events are only associated with cold fronts. The mean annual precipitation for Ugu coastal regions is 1271 mm (DWA, 2011; Ugu DM, 2013).

2.3. Hydrology

The proposed development site falls within the Mvoti to Umzimkulu Water Management Area (WMA 11) and Quaternary Catchment T40G. The main hydrological feaure in the area is the Mhlanga River which flows in a south easterly direction eventually flowing into the Indian Ocean at South Bay. The Dressing stream is a non perenial stream that extends approximately 400m eventually joining the Mhlanga River at the confluence 3.40 km downstream. There are no major dams along the Mhlanga River system.

2.4. DWA Ecoregions

Ecoregions are used to categorise the regional setting for national and regional water resource management applications. Ecoregions are regions within which there is relative similarity in the mosaic of ecosystems and ecosystem components (biotic and abiotic, aquatic and terrestrial). Main attributes include physiography, climate, rainfall, geology and potential natural vegetation (Kleynhans *et al*., 2005). The proposed development site is located within the North Eastern Coastal Belt Ecoregion (Ecoregion 17). This ecoregion is characterised by a diversity of terrain morphological types (Closed Hills, Mountains, Plains, Table lands), whilst vegetation types consist of Valley Thicket and a variety of Grassland and Bushveld types.

2.5. Vegetation

According to Mucina and Rutherford (2006) the proposed warehouse expansion development is located within the Indian Ocean Coastal Belt Biome and the KwaZulu-Natal Coastal Belt Grassland (CB3). The landscape and vegetation features found within the biome consist of highly dissected rolling coastal plains that were presumably covered to a large extent with several types of subtropical forest. In some hilly, high-rainfall areas where pressures from natural fire and grazing regimes persist, some primary grassland still occur. The CB3 vegetation unit is considered endangered and poorly protected (Mucina & Rutherford, 2006).

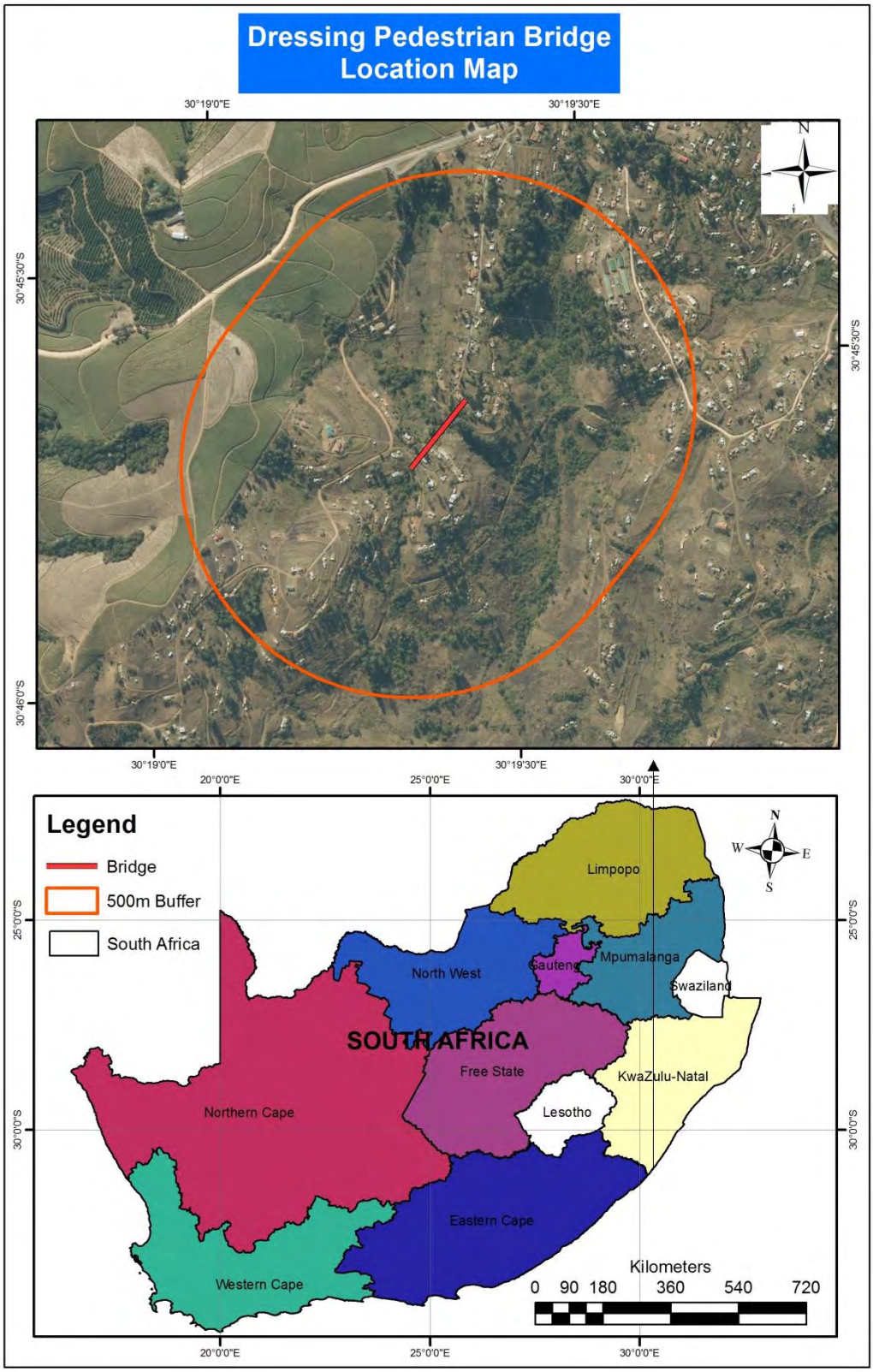


FIGURE 2.1: Locality map of the proposed Dressing Pedestrian Bridge in Ward 24, Hibiscus Coast Municipality, Ugu District Municipality, KwaZulu-Natal.

3. APPROACH AND METHODOLOGY

3.1. Desktop study

A desktop study was initially undertaken to establish a broad understanding of the general study area. Dominant vegetation species, river systems and land uses occurring in the region were identified using secondary data sources. Thereafter, a detailed desktop survey was conducted to identify potential areas of interest in terms of wetland/riparian systems within 500m of the proposed development, using satellite imagery and shape files obtained from the South African National Biodiversity Institute (SANBI) (SANBI, 2010). Perceived wetland/riparian boundaries within 500m of the proposed bridge development were delineated at a desktop level and were later verified via a comprehensive field survey.

3.2. Wetland delineation: Field survey

A field survey was conducted in January 2016 during which perceived wetland/riparian boundaries delineated at the desktop level were verified. Field surveys included identifying wetland areas, delineating the outer boundaries of the wetland/riparian areas and classifying wetland areas. Wetland delineation was conducted in accordance with the wetland and riparian delineation guideline set forth by DWAF (2005) in: "*A Practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones*".

Four specific indicators of riparian areas were used to identify riparian areas on the development sites: landscape position, alluvial soils, topography and vegetation. Delineation of riparian areas is highly dependent on vegetative indicators. The outer boundary of the riparian area was determined by the distinct change in vegetation species composition and physical structure between the area adjacent to the channel and upland terrestrial areas. In addition, obligate and facultative indicator species were used to denote riparian areas.

Similarly, three specific wetland indicators were used to identify/verify wetland areas: terrain unit, vegetation and soil wetness. Once wetland areas were identified, wetland delineation was undertaken. The wetland delineation procedure identifies the outer edge of the temporary wetland zone, which marks the boundary between the aquatic and adjacent terrestrial areas. The wetland delineation field verification began at the lowest lying point of the wetland and proceeds outwards into the permanent, seasonal and ultimately the outermost temporary zone (Figure 3.1.). To identify the outer edge of the temporary wetland zone, a Dutch soil auger was

used to extract sediment cores. The sediment samples were evaluated on-site for redoxymorphic soil features, soil wetness and gleying after which the samples were discarded.

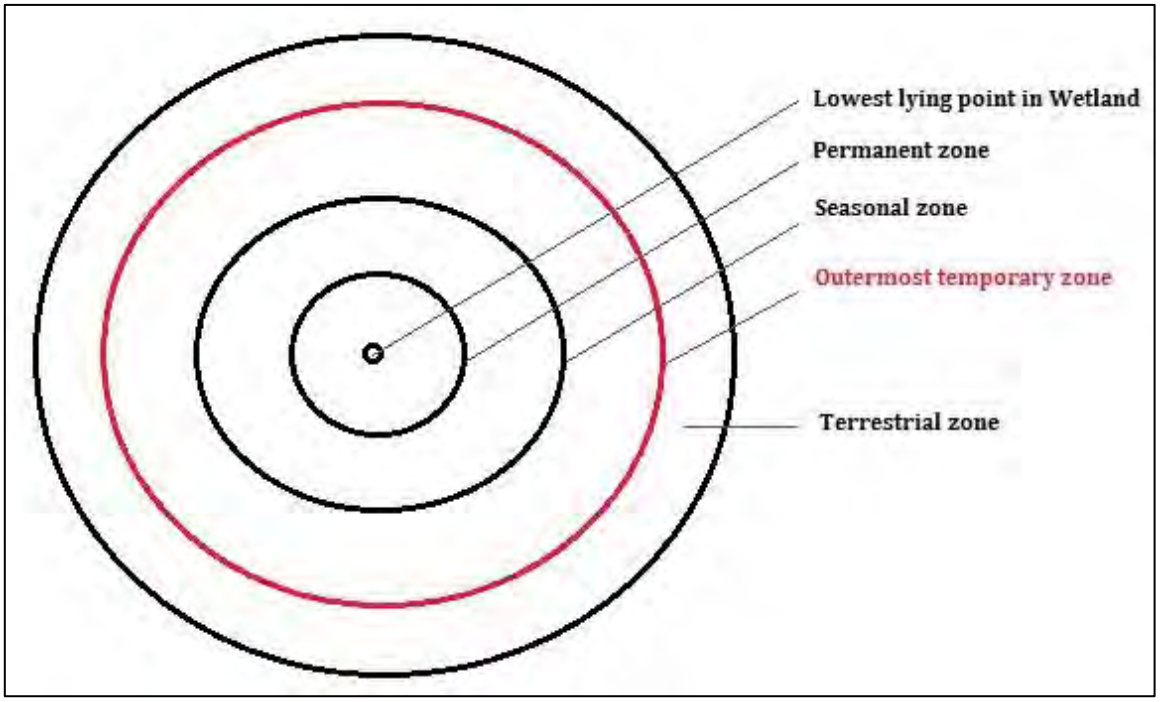


FIGURE 3.1.: Sketch representation of the wetland zones of interest.

The GPS coordinates of all soil sampling locations were captured and mapped using Geographic Information Systems (GIS) (ArcView 10.2) for further processing and analysis. Aerial photography, field notes and coordinates of the sampling sites were then used in combination to identify and delineate the extent of wetlands/riparian areas.

3.3. Wetland classification

The wetland areas identified were classified into Hydrogeomorphic (HGM) units according to the National Wetland Classification System developed by the SANBI (Ollis *et al.,* 2013). The HGM classification system uses the geomorphological and hydrological features of the delineated wetland unit to determine its classification. The features that are assessed relate to the way in which water behaves in the wetland system.

3.4. Aquatic screening/risk assessment

An aquatic screening/ risk assessment was conducted to determine which of the delineated wetlands/watercourses were likely to be affected by the proposed bridge development and likely to trigger a Section 21 Water Use License Application (WULA). The aquatic screening

looks at the position of delineated wetlands in the landscape and the level of development in the area to determine if the wetland will incur direct or indirect impacts from the proposed development.

3.5. Wetland functional assessment

Should the results of the risk assessment indicate any HGM to be at risk of being compromised as a consequence of the proposed activity, a WET-Health Level 1 assessment, WET-Ecoservices Level 2 assessment and Ecological Importance and Sensitivity assessment would be necessary.

3.5.1. Habitat integrity assessment

The general habitat integrity of the rivers was determined based on the application of the Intermediate Habitat Integrity (IHIA) assessment for use in rapid and intermediate habitat assessments (Kleynhans, 1999). This method describes the Present Ecological State (PES) of both the instream and riparian habitats at each site according to a weighting system ranging from 0 to 25 with 0 representing no impact and 25 an extremely critical impact. The system then makes use of an average of the weighted rating of each aspect to determine the integrity of both the instream environment and the riparian zone. The IHIA score is then defined as the average score for the instream and riparian habitat integrity scores. The method classifies Habitat Integrity into one of six classes, ranging from unmodified/natural (Class A), to critically modified (Class F).

3.5.2. WET-Health (Present Ecological State)

A WET-Health Level 1 assessment determines the PES of the wetland environments potentially affected by the proposed development (Macfarlane *et al*. 2009). The WET-Health index considers the state of the three main functional aspects of the wetland units, namely: (1) hydrology, (2) geomorphology and (3) vegetation. Each of these components follows a similar approach and were used to determine the extent to which anthropogenic impacts have affected the health status of the wetland. The overall score is integrated and expressed as a PES category (Table 3.1).

TABLE 3.2: Present Ecological Score Categories used by WET-Health for describing the integrity of wetlands.

Impact Category	Health Category	Description	Range
None	A	Unmodified/natural	0 – 0.9

Small	B	Mostly Natural with a few modifications. A slight change in ecosystem processes is discernable and a small loss of natural habitats and biota may have taken place.	1 – 1.9
Moderate	C	Moderately modified. A moderate change in the ecosystem processes and the loss of natural habitats has taken place but the natural habitat remains predominantly intact	2 – 3.9
Large	D	Largely modified. A large change in ecosystem processes and loss of natural habitat and biota has occurred.	4 – 5.9
Serious	E	A very large change in ecosystem processes and loss of natural habitat and biota but some of the remaining natural habitat features are still recognizable.	6 – 7.9
Critical	F	The modification has reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota	8 – 10

3.5.3. WET-EcoServices (Ecological Goods and Services)

A WET-EcoServices Level 2 assessment assess the "ecological goods and services" provided by HGM units potentially affected by the proposed development. The tool provides information on the importance of a HGM wetland unit in delivering different ecosystem services under a number of different categories (Kotze *et al.*, 2009). These categories are illustrated in Figure 3.2.

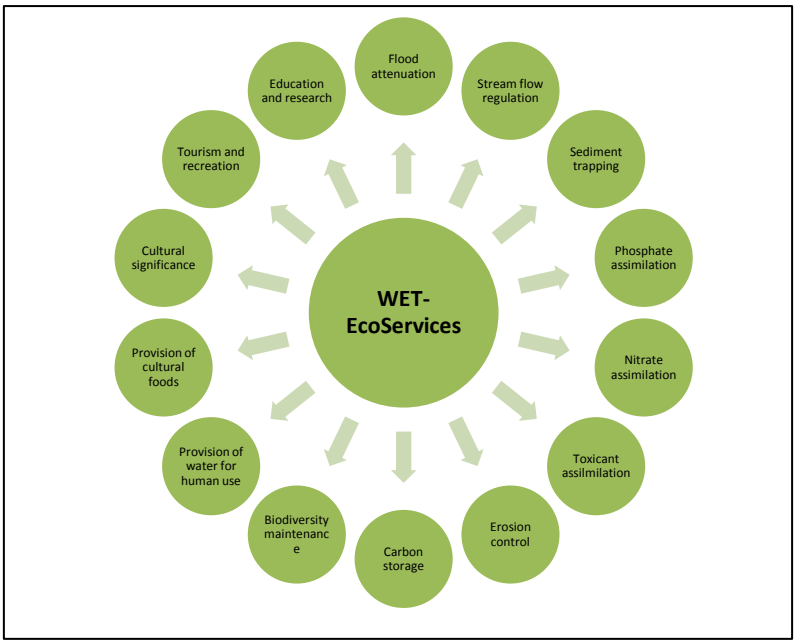


FIGURE 3.2: Wetland ecological goods and services assessed by the WET-EcoServices tool.

3.5.4. Ecological Importance and Sensitivity

The Ecological Importance and Sensitivity (EIS) scores are calculated using the methods outlined by the "*Resource Directed Measures for Protection of Water Resources*" (Kleynhans, 1999). This approach provides information on the ecological importance of the HGM unit in

terms of unique biodiversity and sensitivity which refers to the system's ability to resist disturbance and its capability to recover from disturbance once it has occurred (resilience).

TABLE 3.3: Ecological Importance and Sensitivity Scores.

Ecological Importance and Sensitivity Category (EIS)	Recommended Ecological Management Class[1]	Range of Median
Very high	A	>3 and <=4
High	B	>2 and <=3
Moderate	C	>1 and <=2
Low/marginal	D	>0 and <=1

4. WETLAND DELINEATION ASSESSMENT RESULTS

4.1. Desktop aquatic screening and risk assessment

Five HGM units were identified within 500m of the proposed bridge (Figure 4.1). These include:

1) HGM1 - a river with an associated riparian area;
2) HGM2 - a river with an associated riparian area;
3) HGM3 - channeled valley bottom;
4) HGM4 - a river with an associated riparian area; and
5) HGM5 - a river with an associated river area.

The aquatic screening revealed that HGM1 would not incur direct / indirect impacts from the proposed bridge development. HGM1 is located a significant distance away from the proposed bridge development site. In addition, HGM1 is separated from the proposed development by a ridge. Consequently, HGM1 will not incur direct/indirect impacts from the proposed bridge development. However, HGM2, HGM3, HGM4 and HGM5 are likely to incur direct/indirect impacts from the proposed bridge development. Construction will primarily take place in HGM2, HGM3 and HGM4 directly impacting on these freshwater resources. Water from HGM2, HGM3 and HGM4 flows into HGM5 approximately 200m further downstream indirectly impacting on this water resource. Consequently, the functionality of HGM2, HGM3, HGM4 and HGM5 was assessed further.

4.2. Wetland delineation and classification

4.2.1. Hydrogeomorphic units

Four HGM units (HGM2, HGM3, HGM4 and HGM5) potentially at risk from the proposed bridge development were delineated, classified and functionality assessed. They are described in greater detail below.

- **HGM2 – River with an associated riparian area**

HGM2 is a river with an associated riparian area that is located west of the proposed bridge development site (Figure 4.1/Table 4.1). It extends approximately 480m downstream and has an average width of approximately 3m. The active river channel is located on the valley bottom and confined by steep banks on either side. Alluvial deposits were present, however, not very extensive. Consequently, topography and vegetation were used as the primary indicators to delineate the riparian boundary. The steep slopes on either side of the channel assisted in identifying the inflection point between the riparian area and terrestrial area. The vegetation along the banks of the HGM unit was very dense with areas along the periphery of the HGM unit showing signs of disturbance. Numerous IAP species were identified adjacent to the river channel. HGM2 is fairly natural. It is distinctly separated from HGM3 by a foot path crossing which is used by pedestrians to cross between the two ridges.

- **HGM3 – Channelled valley bottom wetland**

HGM3 is a transformed channeled valley bottom wetland that is located downstream of HGM2 (Figure 4.1/Table 4.1). It is very small in size given the significant transformation that has occurred within the HGM unit. HGM3 extends only 10m downstream and is approximately 1m wide. HGM3 is located on the valley bottom. The application of the vegetation unit indicator was limited because much of the vegetation had been cleared to accommodate for informal housing and subsistence agriculture along the banks. Remnants of wetland plant species were identified within the unit including *Thypha capensis*. IAP species were identified adjacent to the wetland area. The soil unit indicator assisted in delineating the boundary of the wetland. The temporary wetland zone was clearly distinguishable. Solid waste was excessively deposited throughout the HGM unit with a constructed concrete wall at the end of the HGM unit for flood attenuation.

- **HGM4 – River with an associated riparian area**

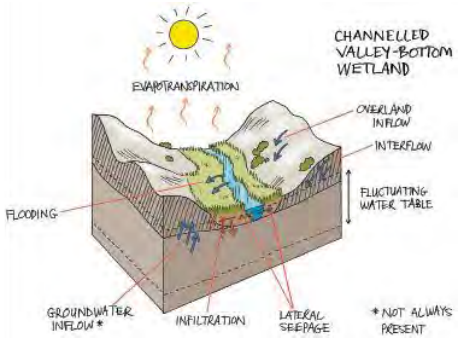
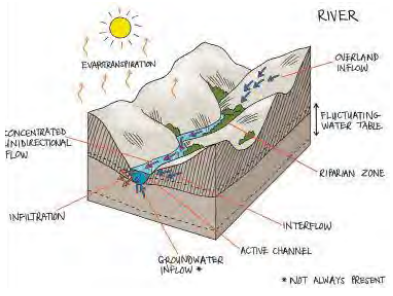
HGM4 is a river with an associated riparian area that is located downstream of HGM3 (Figure 4.1/Table 4.1). It extends approximately 360m downstream and has an average width of

approximately 17m; eventually joining HGM5 at the confluence. HGM4 is located on the valley floor. Alluvial deposits were present, however, not very extensive. Similarly to HGM2, the active river channel is confined by steep banks on either side of the river. The topography of banks and vegetation were used to delineate the boundary of the riparian area. The steep slopes on either side of the channel assisted in identifying the inflection point between the riparian area and terrestrial area. IAP species were ident8ified adjacent to the river channel. However, rehabilitation methods have been implemented within the HGM unit. Gabion baskets have been constructed across the channel to prevent upstream erosion and attenuate flood waters. Solid waste was found within the HGM unit, however very localised.

- **HGM5 – River with an associated riparian area**

HGM5 is a river with an associated riparian area (Figure 4.1/Table 4.1). HGM5 extends approximately 860m downstream. HGM5 is located on the valley floor and confined by very steep banks on either side. Access to the HGM unit was limited given steep nature of the banks. Consequently, delineation of the riparian boundary was primarily conducted via desktop delineation with visual verification and expert assessment.

TABLE 4.1: HGM units present on the development site (DWAF, 2008; Ollis et al., 2013).

Wetland type	Illustration	Description
Channelled valley bottom		Linear fluvial, net depositional valley bottom surfaces which have a straight channel with flow on a permanent or seasonal basis. Episodic flow is thought to be unlikely in this wetland setting. The straight channel tends to flow parallel with the direction of the valley The valley floor is a depositional environment such that the channel flows through fluvially-deposited sediment. These systems tend to be found in the upper catchment areas.
River		Linear fluvial, eroded landforms which carry channelized flow on a permanent, seasonal or ephemeral/episodic basis. The river channel flows within a confined valley (gorge) or within an incised macro-channel. The "river" includes both the active channel (the portion which carries the water) as well as the riparian zone.

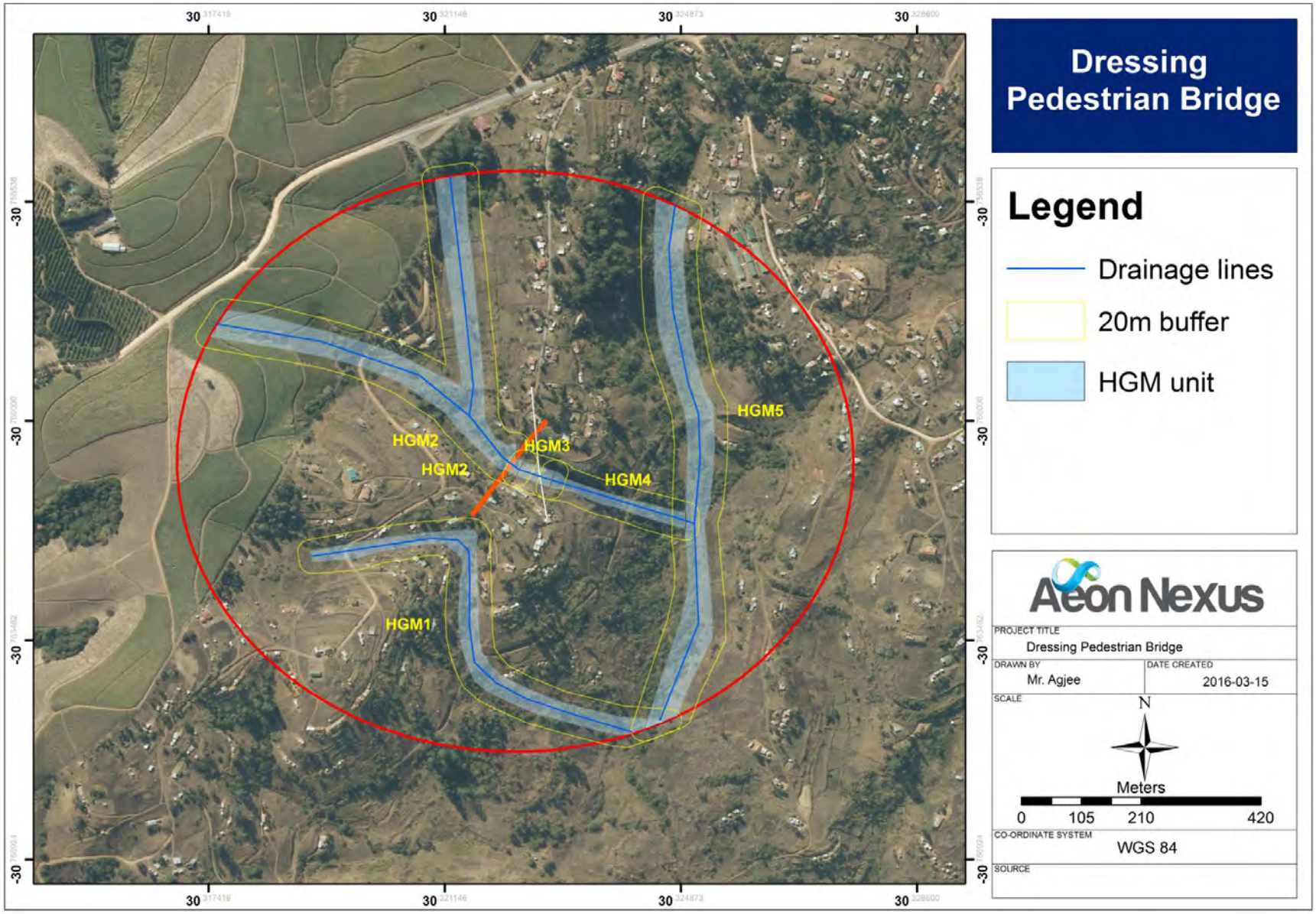


FIGURE 4.1: HGM units delineated and their associated buffer zones

4.3. Wetland functional assessment

4.3.1. Habitat Integrity Assessment

The IHIA describes the Present Ecological State (PES) of both the instream and riparian habitats for HGM2, HGM4 and HGM5 according to a weighting system ranging from 0 to 25, with 0 representing no impact and 25 an extremely critical impact. The system then makes use of an average of the weighted rating of each aspect to determine the integrity of both the instream environment and the riparian zone. The IHIA score is then defined as the average score for the instream and riparian habitat integrity scores. The method classifies Habitat Integrity into one of six classes, ranging from unmodified/natural (Class A), to critically modified (Class F). The IHIA scores for HGM2, HGM4 and HGM5 is presented below (Table 4.2/Table 4.3).

TABLE 4.2: Instream Habitat Integrity.

Weights	**14**	**13**	**13**	**13**	**14**	**10**	**9**	**8**	**6**		
Criteria	**Water abstraction**	**Flow Modification**	**Bed Modification**	**Channel modification**	**Water quality**	**Inundation**	**Exotic macrophytes**	**Exotic fauna**	**Solid waste disposal**	**Total score (%)**	**Classification**
HGM2	3	0	0	0	8	6	0	0	5	**22**	
HGM2	1.68	0	0	0	4.48	2.40	0	0	1.20	**90.24**	**B – Largely natural**
HGM4	0	0	0	0	17	0	0	0	18	**35**	
HGM4	0	0	0	0	9.52	0	0	0	4.32	**86.16**	**B – Largely natural**
HGM5	7	8	8	8	7	0	0	0	4	**42**	
HGM5	3.92	4.16	4.16	4.16	7	0	0	0	4	**78.72**	**C-Moderately modified**

TABLE 4.3: Riparian Zone Habitat Integrity.

Weights	**13**	**12**	**14**	**12**	**13**	**11**	**12**	**13**		

Criteria	Vegetation removal	IAP encroachment	Bank erosion	Channel modification	Water abstraction	Inundation	Flow modification	Water quality	Total score (%)	Classification
HGM2	3	18	0	3	3	7	0	8	**42**	
HGM2	1.56	8.64	0	1.44	1.56	3.08	0	4.16	**79.56**	**C – Moderately modified**
HGM4	3	4	3	0	0	0	0	17	**27**	
HGM4	1.56	1.92	1.68	0	0	0	0	8.84	**86.00**	**B – Largely natural**
HGM5	7	8	2	7	7	0	8	7	**46**	
HGM5	3.64	3.84	1.12	3.36	3.64	0	3.84	3.64	**76.92**	**C – Moderately modified**

HGM	Instream Habitat	Riparian Zone	IHI Score	Class
HGM2	90.24	79.56	84.90	B
HGM4	86.16	86.00	86.08	B
HGM5	78.72	76.92	77.82	C

The following points summarize the key findings of the habitat integrity assessment for HGM2:

Both the instream environment and riparian habitat can be considered to be largely natural with few modifications. A small change in natural habitat and biota has taken place but the ecosystem functions are essentially unchanged. Based on field observations, most of the activities/impacts fall into impact category “none” and “small”. Solid waste is being disposed of in the HGM unit but very localized. There are a few activities/impacts which do “moderately” occur along the river system including a reduction in surface water quality and flood inundation Invasive alien plant encroachment is “serious” impacting the whole HGM unit. The instream habitat is largely natural whist the riparian zone is moderately modified. However, overall the habitat of the system can be considered to be largely natural (IHI Score 84.90), PES Class B (Table 4.2/Table 4.3).

The following points summarize the key findings of the habitat integrity assessment for HGM4:

Similarly to HGM2, the instream environment and riparian habitat of HGM4 can be considered to be largely natural with few modifications. A small change in natural habitat and biota has taken place but the ecosystem functions are essentially unchanged. Field observation revealed that most of the instream habitat activities/impacts fall into category "none" that there is no discernable impact. However, two activities/impacts solid waste disposal and water quality are seriously serve with the habitat quality of the whole area possibly being affected. Similarly, to the instream habitat, most of the riparian zone habitat activities/impacts fall into category "none" or "small". Water quality is seriously severe. However, overall the habitat of the system can be considered to be largely natural (IHI Score 86.08), PES Class B (Table 4.2/Table 4.3).

The following points summarize the key findings of the habitat integrity assessment for HGM5:

Both the instream environment and riparian habitat can be considered to be moderately modified. Many activities/impacts within the instream habitat are moderately severe including channel modification, bed modification, flow modification, water quality and water abstraction. Whilst in the riparian habitat zone vegetation removal, invasive alien encroachment, channel modification, water abstraction, and water quality were moderately severe. A loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged. Overall the habitat of the system can be considered to be moderately modified (IHI Score 77.82), PES Class C) (Table 4.2/Table 4.3).

4.3.2. WET-Health (Present Ecological State)

Wetland health is defined as a measure of the similarity of a wetland to a natural or reference condition. The state of a wetland is a measure of the extent to which human impacts have caused the wetland to differ from the natural reference condition. In this study, the WET-Health procedure (Macfarlane *et al*., 2009) was used which examines deviation from the natural reference condition for three components of health; hydrology, geomorphology and vegetation. PES determination for HGM3 shows that in its present state, the wetland falls into PES category D indicative of a largely modified system.

4.3.3. WET-EcoServices (Ecological Goods and Services)

The WET-EcoServices tool provides guidelines for scoring the importance of an HGM unit in delivering fifteen different ecosystem goods and services. Ecosystem goods and services include flood attenuation, streamflow regulation, nutrient cycling, erosion control, toxicant removal, carbon storage, phosphate assimilation, biodiversity maintenance, provision of food and water,

cultural services and recreation. Figure 4.2 illustrates the ecosystem services scores of HGM3, a channeled bottom wetland. A general overview of the ecosystem goods and services provided by HGM3 revealed that HGM3 is not a wetland of importance as all the ecosystem goods and services are less than 2.0. The extensive transformation of the HGM unit and its surrounding area has resulted in much of the vegetation being cleared. Consequently, HGM3 is not a wetland of importance that provides streamflow regulation, sediment trapping, phosphate removal, toxicant removal and carbon storage. In addition, the HGM unit is not of any cultural significance and given the extent of transformation cannot be used for education or research purposes.

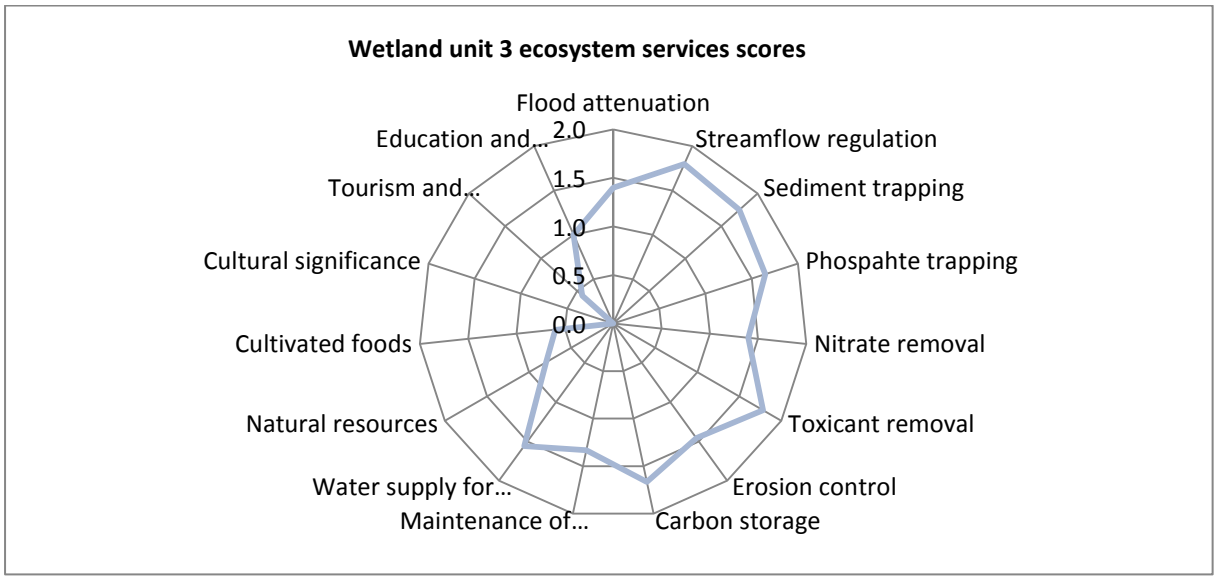


FIGURE 4.2: Wetland ecological goods and services provided by HGM3

4.3.4. Ecological importance and sensitivity

The ecological importance of a wetland is an expression of its importance to the maintenance of ecological diversity and functioning on local and wider scales. Ecological sensitivity refers to the system's ability to tolerate disturbance and its capacity to recover from disturbance once it has been impacted (Kleynhans *et al.*, 1998). The EIS considers biodiversity, rarity, uniqueness and fragility of the resource. The intrinsic ecological value of the resource and its importance to the functioning of neighbouring ecosystems are the main concerns. The EIS assessment for the study area river riparian/wetland areas was conducted in accordance with the HGM units identified. This provided a convenient basis for assessing ecological importance and sensitivity as each of the units has distinctive characteristics and impacts, thus rendering particular opportunities for biota. HGM3 yielded a median score of 0 whilst HGM2, HGM4 and HGM5 yielded a median score of 1 indicating low importance and sensitivity (Table 4.4). These HGM

units are not very unique and in terms of biota and habitat not very sensitive to flow modifications and have a substantial capacity for use.

TABLE 4.4: Table showing the factors considered within the EIS assessment, their scores, confidence levels and descriptions.

Determinant	HGM2	HGM3	HGM4	HGM5	Conf.
1. Rare and endangered species	0	0	0	0	2
2. Populations of unique species	0	0	0	0	2
3. Species / taxon richness	1	0	1	1	2
4. Diversity of habitat types or features	1	1	1	1	3
5. Migration/breeding and feeding site for wetland species	2	0	2	2	2
6. Sensitivity to changes in natural hydrological regime	2	3	2	2	3
7. Sensitivity to water quality changes	3	0	3	2	3
8. Flood storage, energy dissipation and particulate/element removal	1	2	1	1	3
9. Base flow augmentation; dilution	0	0	0	0	3
10. Protected Status Area	0	0	0	0	4
11. Ecological importance (rarity of size/type/condition) – local, regional or national context	2	3	2	2	3
TOTAL	***12***	**9**	**12**	**11**	**30**
Average	**1.09**	**0.81**	**1.09**	**1**	**2.7**
MEDIAN	**1**	**0**	**1**	**1**	**3**

4.5. Buffer zones

Buffer zones are areas of vegetation around the wetland boundaries, which are requested to protect the wetland from developmental or landuse changes. Protection may also extend to peak runoff / flood flows and the buffer zone may also provide feeding / breeding areas for wetland or river fauna and accordingly enhance the corridor function of drainage lines. In this study, we propose a 20m buffer around the wetland/riparian areas excluding the proposed bridge location. A general 20 m buffer around the wetlands will maintain the integrity of the wetland environments in its current state. This is provided that the recommendations and mitigation measures outlined in this report and the environmental management plan are adhered to.

5. IMPACTS

At the time of compiling this report the preliminary design of the pedestrian bridge was made available. The proposed pedestrian bridge will be suspended across the stream and be secured in the abutment constructed on each side of the stream. Based on the preliminary design there will be no plinths or columns to be constructed in the instream habitat. Construction activities will be restricted to the riparian zone. Given that the proposed bridge development will be primarily intersecting HGM6 it will cause direct impacts to HGM2. However, HGM3, HGM4 and HGM5 will incur indirect impacts from the proposed bridge development. Impacts include removal of vegetation, bank alteration and a reduction in surface water quality.

- ***Removal of vegetation***

  The removal of indigenous vegetation during construction by machinery or by workers accessing the site will reduce the ecological condition of the environment and result in a significant reduction in available habitat for indigenous faunal species. The proposed construction of the bridge development will likely involve the physical modification of the riparian areas that intersect the positioning of the abutment and footpaths leading to the pedestrian bridge. The physical clearing will result in the clearing of riparian wetland vegetation and topsoil, and the exposure of the bare surfaces to the natural elements. Such clearing and physical modification activities will likely result in the erosion and sedimentation of onsite and downstream wetland/riparian areas HGM7 and HGM8 in particular during high rainfall events. Increased bare areas will ultimately lead to the proliferation of invasive alien plant species. The significance of this impact is moderate, however, with correct erosion control measures in place this can be mitigated resulting in a low impact.

- ***Bank alteration and disturbance to slope stability***

  During the construction phase there will excavation at HGM2. Alteration of the slopes will decrease bank stability and increase localised erosion. Destabilization of the channel banks and the slumping of bank material will increase sediment deposition into the instream river habitat. This will lead to altered sediment regimes and reduction in water quality. The significance of this impact is moderate however it can be lowered if bank stabilisation methods are implemented and sedimentation prevented.

- ***Water quality***

The undertaking of construction work within the wetland will expose HGM3, HGM4 and HGM5 to increased pollution risks. Surface runoff and/or river water contamination may occur during the construction phase as a result of negligence, inappropriate planning, lack of supervision and general handling errors. Potential pollutants include cement, oils, hydrocarbons, chemical admixtures and waste from chemical toilets. The degree of contamination depends on the extent of the chemical spill or the cumulative effects of a number of chemical spills. Cement and hydrocarbons are considered toxicants that reduce water quality through the alteration of pH, biological oxygen demand and turbidity that ultimately results in negative impacts on the survival and mortality rates of aquatic biota. Besides reducing water quality, the toxicants also have direct impacts on aquatic biota like the clogging/coating of gills and the contamination of aquatic food (e.g. detritus, bacteria, algae, higher plants and invertebrates). The significance of this impact is moderate but will however be low with mitigation.

- ***Proliferation of Invasive Alien Plants (IAP)***

  Once areas have been cleared of vegetation it is likely that invasive alien plants will colonize certain areas posing a threat to indigenous vegetation. IAP species have the ability propagate and proliferate rapidly. Once established, IAP species generally outcompete indigenous plant species for natural resources therefore altering the structure and functioning of terrestrial ecosystems. The significance of this impact is low if the area cleared of vegetation is kept to a minimum.

It is therefore proposed that all phases of construction and post construction be controlled and monitored to ensure that the above is prevented. Given sufficient care during the construction phase, this possibility can be eliminated almost completely.

6. RECOMMENDATIONS AND MITIGATION MEASURES

6.1. Proposed development recommendations

- All banks or slopes should be profiled to maintain to the geomorphological integrity of the HGM units.
- Disturbed wetland areas should be revegetated immediately after construction has been undertaken with vegetation indigenous to the area.

6.2. General proposed recommendations and mitigation measures that should be instituted into the EMP for the development site

- Remove all category 1a and 1b invasive alien plant species during construction of the proposed development.
- All development footprint areas should remain as small as possible during construction and should, ideally, not encroach onto sensitive wetland/riparian areas.
- All construction staff should be educated about on the importance and sensitivity of the wetland/riparian systems around the construction site. This should form part of the induction process.
- Care should be taken not to remove indigenous vegetation unnecessarily from the sensitive wetland/riparian areas and their associated buffers during all phases of construction.
- Soil excavated during construction should not be piled onto sensitive wetland/riparian areas.
- Stormwater management and erosion control measures should be applied to the construction phase of the development to prevent surface run-off and sedimentation.
- Site engineers should regularly inspect the erosion control measures to confirm their appropriateness and integrity.
- No dumping of any materials or storage of any equipment should be allowed within the wetland/riparian areas.
- All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms/bunds to avoid spread of any contamination into wetland/riparian areas.
- Washing and cleaning of equipment should also be done within berms or bunds, in order to trap any cement and prevent excessive soil erosion. These sites must be re-vegetated after construction has been completed.
- During all phases of the construction, appropriate sanitary facilities must be provided and all waste removed to an appropriate waste facility.
- Frequent inspection of the site must be done to ensure that the integrity of the wetlands is maintained at all times.

7. CONCLUSION

7.1. General summary

Aeon Nexus (Pty) Ltd was appointed by 1World Consultants (Pty) Ltd to conduct a wetland assessment for the proposed Dressing Pedestrian Bridge. The aim of this wetland assessment was to delineate wetland and riparian environments and assess the ecological state and functional importance of these environments. In addition, identify potential impacts of the proposed bridge development on the delineated environments as well as propose appropriate recommendations and mitigation measures.

The proposed bridge development will be located in the T40G quaternary catchment, within the Mvoti to Mzimkulu Water Management Area (MWA 11) and North Eastern Coastal Belt Ecoregion (Ecoregion 17). Five HGM units were delineated and mapped within 500m of the proposed bridge development. Four HGM units were identified as being potentially at risk from the proposed bridge development. These HGM units include 1) HGM2 a river with an associated riparian area, 2) HGM3 a channelled valley bottom, 3) HGM4 a river with an associated riparian area and 4) HGM5 a river with an associated riparian area.

The instream environment and riparian habitat for HGM2 and HGM4 can be considered to be largely natural (PES Class B). A small change in natural habitat and biota has taken place but the ecosystem functions are essentially unchanged. However, HGM5 can be considered moderately modified (PES Class C). A loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged. PES determination for HGM3 showed that in its present state, the wetland falls into PES category D, indicative of a largely modified system. The WET-EcoServices Level 2 functional assessment for HGM3 yielded low importance for all ecosystem goods and services. The ecological importance and sensitivity assessment revealed that HGM3 yielded a median score of 0 whilst HGM2, HGM4 and HGM5 yielded a median score of 1, all indicating low importance and sensitivity.

This wetland assessment concludes by identifying activities and potential negative impacts of the proposed bridge development on the wetland ecology. Potential activities include vegetation removal and bank alteration. Potential negative impacts associated with the proposed bridge development include increased surface run-off from excavated areas, sedimentation of the wetland area, alteration of hydrological regimes and the proliferation of invasive alien plant species. Mitigation measures suggested include re-vegetation of excavated sites.

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PROPOSED DRESSING PEDESTRIAN BRIDGE, KWAZULU-NATAL

PHASE 1 HERITAGE IMPACT ASSESSMENT

JANUARY 2016

Compiled for: 1World Consultants

Compiled by: Jean Beater
JLB Consulting

EXECUTIVE SUMMARY

The Hisbiscus Coast Municipality proposes the construction of a pedestrian bridge, to be known as the Dressing pedestrian bridge and associated footpaths, which will situated approximately 1km south of the road from Margate to Izotsha and Paddock. The bridge will be situated roughly 12km inland and north-west of the town of Margate.

This report serves as the Phase 1 Heritage Impact Assessment (HIA) for the proposed construction of the pedestrian bridge and associated footpaths. A site inspection of the area where the bridge will be constructed was undertaken on 29 December 2015.

The proposed construction of the bridge and associated could impact on graves and structures, as well as archaeological and palaeontological resources that are protected in terms of sections 33, 34, 35, and 36 of the KwaZulu-Natal Heritage Act (No. 4 of 2008) as well as sections 34, 35, and 36 of the National Heritage Resources Act.

The immediate project area is characterised by low to medium density rural settlement, with subsistence farming and livestock herding. Traditional building techniques and styles still occur supplemented by homes and other structures built in a western architectural style.

The potential for finding *in situ* significant archaeological sites and other heritage resources is regarded as low due to the highly disturbed nature of the surrounding area. Traditional burial places are typically located in homestead precincts; the proposed pedestrian bridge is situated quite close to two dwellings but discussions held with local residents indicated that there are no graves or other heritage sites in the area where the bridge is proposed.

The fossil sensitivity map indicates that the project area falls within an area that is largely unknown in terms of fossil sensitivity. Although a desktop study is required, this is not recommended or supported as the area of development is highly disturbed by residential development, roads, pathways and subsistence farming. There is therefore a very low chance of intact, significant fossils being found in the area.

Based on the findings of the assessment, the development can proceed as the development will not impact on any heritage resources, with the proviso that the mitigation measures provided in the main body of this report are implemented.

Contents

LIST OF FIGURES

AUTHOR DETAILS

Verification	Name	Qualification	Professional Registration
Author	Jean Beater	MA (Heritage Studies)	Affiliate Member of Association of South African Professional Archaeologists (No. 349) Member of IAIAsa (No. 1538)

1 INTRODUCTION

The Hisbiscus Coast Municipality proposes the construction of a pedestrian bridge, to be known as the Dressing pedestrian bridge that will be situated roughly 12km inland and north-west of the coastal town of Margate.

This report serves as the Phase 1 Heritage Impact Assessment (HIA) for the proposed construction of the Dressing pedestrian bridge.

2 LEGISLATIVE CONTEXT

The proposed pedestrian bridge is approximately 29 m in length and the associated footpaths are 17m on one side and 7m on the other side of the bridge. Therefore, the project does not trigger subsections (a) and (b) of section 38 of the National Heritage Resources Act, 1999 (Act No 25 of 1999) that state the following:

"(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length

However, the proposed construction of the bridge may impact on graves and structures, as well as archaeological and palaeontological resources that are protected in terms of sections 33, 34, 35, and 36 of the KwaZulu-Natal Heritage Act (No. 4 of 2008) as well as sections 34, 35, and 36 of the National Heritage Resources Act (NHRA), therefore a HIA was undertaken for the project.

In terms of Section 3 of the NHRA, heritage resources are described as follows:

(a) places, buildings, structures and equipment of cultural significance;

(b) places to which oral traditions are attached or which are associated with living heritage;

(c) historical settlements and townscapes;

(d) landscapes and natural features of cultural significance;

(e) geological sites of scientific or cultural importance;

(f) archaeological and paleontological sites;

(g) graves and burial grounds, including—

(i) ancestral graves;

(ii) royal graves and graves of traditional leaders;

(iii) graves of victims of conflict;

(iv) graves of individuals designated by the Minister by notice in the *Gazette*;

(v) historical graves and cemeteries; and

(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);

(h) sites of significance relating to the history of slavery in South Africa;

(i) movable objects, including:

(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

(ii) objects to which oral traditions are attached or which are associated with living heritage;

(iii) ethnographic art and objects;

(iv) military objects;

(v) objects of decorative or fine art;

(vi) objects of scientific or technological interest; and

(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

The Phase I HIA was undertaken to assess whether any heritage resources will be impacted by the proposed pedestrian bridge.

3 LOCATION

The project is situated approximately 1km south of the tar road from Margate to Paddock that eventually joins the N2 that leads to Kokstad and the Eastern Cape. The bridge and associated footpaths will be situated roughly 12km inland and north-west of the town of Margate. – see Figure 1 below. The total development area of the Dressing Bridge will be 85.6m².

Figure 1: Location of proposed bridge

Figure 2: Location of proposed bridge

4 METHODOLOGY

A site inspection of the area where the pedestrian bridge and footpaths are to be constructed was undertaken on 29 December 2015.

A survey of literature, including other heritage impact assessments completed in the surrounding area, was undertaken in order to understand the potential heritage resources that could be found in the area where the proposed bridge is to be constructed.

5 HISTORICAL BACKGROUND OF PROJECT AREA

Archaeology of area

Stone Age sites of all the main periods and cultural traditions occur along the coastal cordon in the immediate vicinity of Port Shepstone which is situated north of the project area. Most of the sites occur in open air contexts as exposed by donga and sheet erosion. The occurrence of Early Stone Age tools in the near vicinity of permanent water resources is typical of this tradition. These tools were most probably made by early hominins such as *Homo erectus* or *Homo ergaster*. Based on typological criteria they most probably date back to between 300 000 and 1.7 million years ago. The presence of the first anatomically modern people (i.e. Homo sapiens sapiens) in the area is indicated by the presence of a few Middle Stone Age blades and flakes. These most probably dates back to between 40 000 and 200 000 years ago. The later Stone Age flakes and various rock painting sites identified in the area are associated with the San (Bushmen) and their direct ancestors. These most probably dates back to between 200 and 20 000 years ago (Prins 2012:4).

Around 1 700 years ago, an initial wave of Early Iron Age people settled along the inland foot of the sand dunes in KwaZulu-Natal on sandy but humus rich soils which would have ensured good crops for the first year or two after they had been cleared. They produced a characteristic pottery style known as Matola. The Matola people exploited the wild plant and animal resources of the forest and adjacent sea-shore. The communities seemed to have been small groups of perhaps a few dozen people, moving into a landscape sparsely inhabited by Later Stone Age San hunter- gatherers. By 1500 years ago, another wave of Iron Age migrants entered the area. Their distinct ceramic pottery has been classified as styles known as

“Msuluzi” (AD 500-700), Ndondondwane (AD 700-800) and Ntshekane (AD 800-900) (Prins 2012: 4).

Early Iron Age sites in the greater Ugu District Municipality to the north of the project area belong to these traditions (Maggs 1989:31; Huffman 2007:325-462). These sites characteristically occur on alluvial or colluvial soil adjacent to large rivers below the 1000m contour. The Early Iron Age farmers originally came from western Africa and brought with them an elaborate initiation complex and a value system centred on the central significance of cattle. The flat alluvial and colluvial areas adjacent to the Mzimkhulu River, which is situated north of the site of the proposed bridge, have been identified as potential Early Iron Age site locations (Prins: 5).

Later Iron Age communities in KwaZulu-Natal were the direct ancestors of the Zulu-speaking people (Huffman 2007). Many African groups moved through the study area due to the period of tribal turmoil as caused by the expansionistic policies of king Shaka Zulu in the 1820’s and subsequent civil wars in Zululand to the north. It is known from oral history that the greater project area was inhabited by Zulu refugees in the 19th century (Bryant 1965) especially by members of the abakwaCele clan. The abakwaCele arrived in the surrounding areas around 1828 soon after the murder of King Shaka when they were being pursued by supporters of King Dingane.

History of area

There is limited specific history of the project area therefore some historical background of the surrounding area will be provided. In 1908, Henry Richardson, an English surveyor laid out the town and named it Margate after another seaside resort on the northern coast of the United Kingdom. The river which flows into the sea at Margate is called "Nkhongweni" (place of entreaty) because the original inhabitants were reputed to be so mean that travellers had to beg for hospitality (Online 2015:1).

Margate hit the world headlines in 1922 (although this date is often disputed and stated as 1924) when an enormous, white, furry creature (dubbed "Trunko" due to it having an elephantine trunk) was washed up on the beach. Unfortunately the "Margate monster" was too decomposed to be identified accurately (Online 2015:1).

6 RESULTS OF SITE INVESTIGATION

The project area is characterised by low to medium density rural settlement, with subsistence farming and livestock herding with a few schools, shops and clinics. Traditional building techniques and styles still occur supplemented by homes and other structures built in a western architectural style.

The potential for *in situ* significant archaeological sites and other heritage resources is regarded as low due to the disturbed nature of the surrounding area. Traditional burial places are typically located in homestead precincts; the proposed pedestrian bridge and associated footpaths are situated very close to two residences/dwellings. However, local residents Sifiso and Mthokosizi Machi and Samuel Hadiya told the specialist that there were no graves in close proximity to the houses or to the area where it is proposed to build the bridge. The area of the proposed development is densely overgrown with vegetation which made visibility poor (see Figures 3 and 4).

It should be noted that the residents that spoke to the specialist seemed to be unaware of the project and Mrs Machi, who owns one of the residences close to the proposed bridge, expressed concern that her house and vegetable field would be affected/damaged by the bridge. It is suggested that the Municipality discuss the proposed development with the homeowner. Mrs Machi's house can be seen in the top left hand corner of Figure 4 below.

Figure 3: View of section of area to be developed looking in south-westerly direction

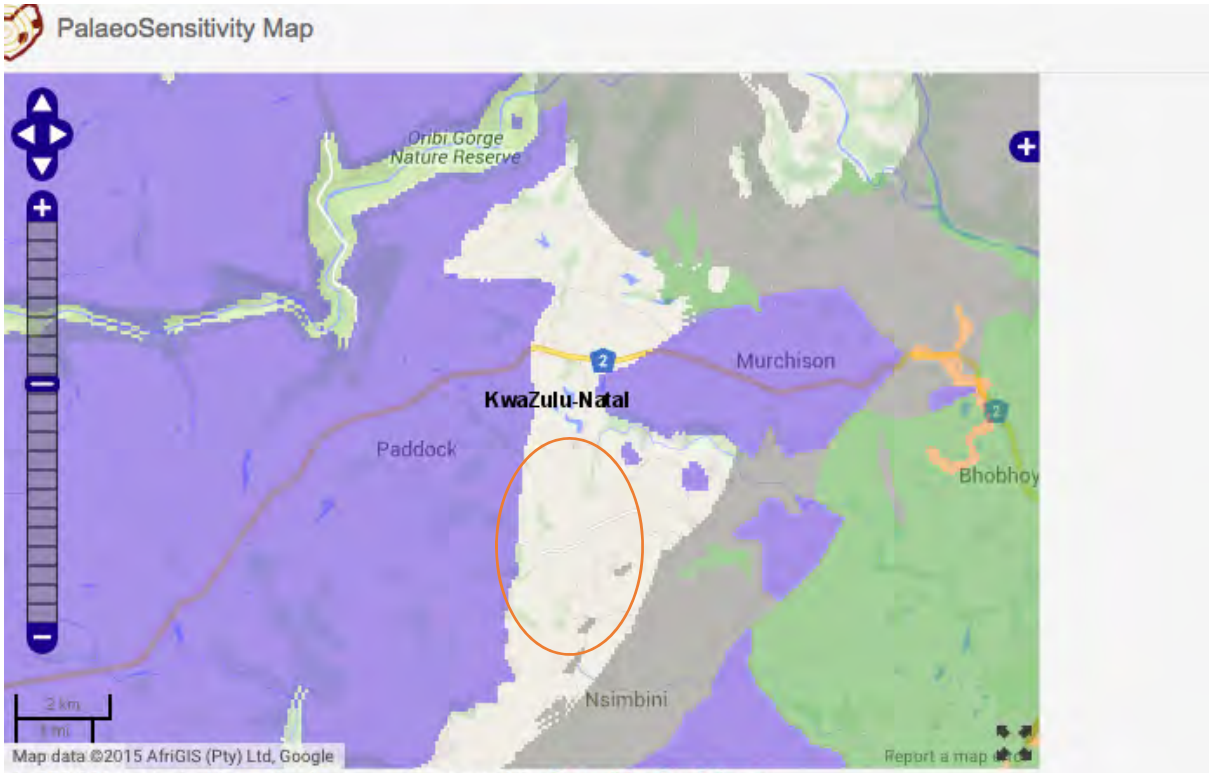
Figure 4: Area to be developed – north direction

Figure 5: Second residence situated close to bridge with subsistence farming in foreground

7 DISCUSSION AND RECOMMENDATIONS

No obvious heritage sites were identified during the site investigation of the project area. Local residents confirmed these findings by indicating that to their knowledge there were no heritage sites in the area where the bridge and associated pathways are to be built.

The fossil sensitivity map of the South African Heritage Resources Agency (SAHRA) indicates that the project area falls within an area that is largely unknown in terms of fossil sensitivity (see Figure 6 below). Although a desktop study is required, as indicated in the Legend for Figure 6, this is not recommended nor supported as the area of development is highly disturbed by residential development, roads, pathways and subsistence farming. There is therefore a very low chance of intact, significant fossils being found in the area.



in 250 000 geological formation layers are courtesy of the Council for GeoScience

For more information, go to How to Use the Palaeontological (fossil) Sensitivity Map

Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 6: Fossil sensitivity of project area (circled)

8 CONCLUSION

Based on the findings of the site visit, the development can proceed as no visible heritage sites were identified during the site visit which was supported by the evidence of local residents. This recommendation is based on the proviso that the implementation of the mitigation measures, as listed below, must also be taken into account.

9 MITIGATION MEASURES

- For any chance finds, all work must cease in the area affected and the Contractor must immediately inform the Project Manager. A registered heritage specialist must be called to site for inspection. The relevant heritage resource agency (Amafa) must also be informed about the finding.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.
- Permits to be obtained from Amafa if heritage resources are to removed, destroyed or altered.
- All heritage resources found in close proximity to the construction area to be protected by a 10m buffer in which no construction can take place. The buffer material (danger tape, fencing, etc.) must be highly visible to construction crews.
- Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist.
- Should any remains be found on site that is potentially human remains, the South African Police Service should also be contacted.
- If there are chance finds of fossils during construction, a palaeontologist must be called to the site in order to assess the fossils and rescue them if necessary (with an Amafa permit). The fossils must then be housed in a suitable, recognized institute

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David Styles
Vegetation Surveys, Advice and Consulting
P O Box 50030, Musgrave 4062
Cell: 082 555 8649 • Fax: 082 131 555 8649
davidstyles@vodamail.co.za

16th February 2016

Fatima Peer
1World Consultants
181 Winchester Drive, Reservoir Hills, 4091
Tel 031 262 8327 / Cell 082 640 4900 / Fax 086 726 3619
Email: fatima@oneworldconsultants.co.za

Dear Fatima

VEGETATION AND FAUNAL ASSESSMENT AND REPORT: PROPOSED DRESSING PEDESTRIAN BRIDGE, HIBISCUS COAST MUNICIPALITY

○ Executive summary

The proposed development is sited in an area which has been cleared of vegetation at some point in its history to make way either for informal housing or subsistence farming practices. The majority of the vegetation encountered was alien and invasive with a few indigenous ruderals and pioneer species typical of disturbed or secondary areas.

From a vegetation perspective, the proposed study site appears to be devoid of local sensitivities, however, the small stream present at the site constitutes a sensitive habitat which will require the submission of a WULA to DWAS. The stream is in a poor ecological state and has been impounded for part of its extent.

The faunal study reveals that no species of potential conservation significance have been recorded from the study site. The transformed nature of the vegetation is considered the reason for this lack of faunal diversity. There is a remote possibility of encountering the Leaf-folding Frog, as a small amount of potentially suitable habitat for this species exists at the study site. However, this habitat is not likely to be affected by the development.

The avifauna reported from the greater study area includes a number of potential Red Listed species, none of which is expected to occur at the study site due to the lack of suitable habitat or habitat transformation.

- **Project motivation**

The applicant proposes to construct a pedestrian bridge and walkway. In order to comply with South Africa's environmental legislation an environmental assessment for the proposed development has been undertaken. The main aim of this assessment was to identify any limitations that the environment may impose on the proposed project and the proposed project on the receiving biophysical, cultural and socio-economic environments.

- **Terms of reference**

David Styles Consulting was sub-contracted to assess the likely impacts of the activity on the vegetation and fauna of the area. This is a Basic Assessment.

- **Objectives of the botanical and faunal assessment**
  - To provide a basic description of the vegetation and fauna occurring around the proposed site.
  - To identify any threatened plant or animal (mammal, bird, reptile, amphibian or invertebrate) occurring or likely to occur on and around the proposed development site.
  - To describe the available habitats including areas of conservation value or areas most likely to form important habitat for remaining threatened plant and animal species.
  - To determine potential impacts of the proposed development on the immediate environment and associated flora and fauna.

- **Scope of the study**
  - An initial ecological survey or sensitivity scan to identify the dominant vegetation on the site and to record sightings and/or evidence of fauna present.
  - An assessment of the ecological habitats and evaluation of their conservation importance and significance with special emphasis on the current status of threatened plant and animal species (Red Data species) within the proposed site and adjacent areas.
  - Undertake a literature review to augment field data where necessary.
  - Identification of potential ecological impacts that could occur as a result of the proposed development activity and an evaluation of the significance of these where possible.
  - Present actions which should reduce or minimize the impacts of the proposed development.
  - Report generation.

- **Constraints of study/fieldwork**
  - The major constraints of such surveys are time and season. Often where more intensive field work is possible, rarer and more cryptic species may be encountered. Furthermore, flowering is season-dependent and makes it easier to locate and identify certain non-woody forb and geophyte species. However, there was a limited presence of natural vegetation and what was found was highly impacted upon. The species checklists provided in this report are reflective of only those species identified at the time of the survey and cannot be regarded as exhaustive.

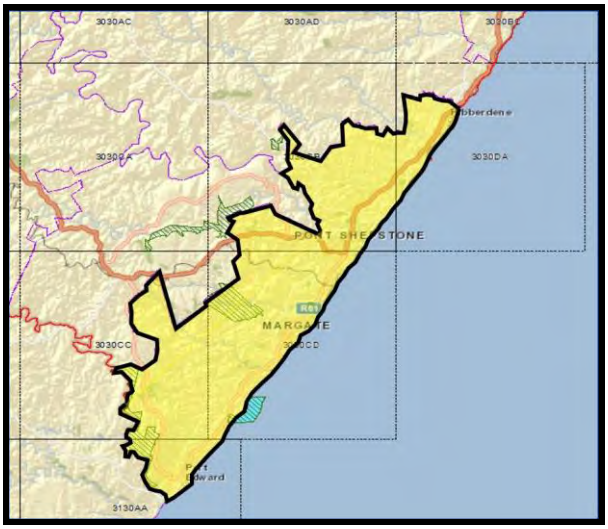
    Any faunal study is largely limited to a literature survey of species known to occupy the general area or vegetation type as a result of the mobility of the species involved. Repeated visits and intensive sampling may still not reveal the true presence or absence of certain species.

- **Methodology**
  - Ground study to determine the impact of the proposed activity on the vegetation and fauna of the study sight.
  - The generation of recommendations.

- The vegetation literature search was undertaken utilising *The Vegetation of South Africa, Lesotho and Swaziland* (Mucina & Rutherford 2006) for the vegetation description as well as the *National Red List of Threatened Plants of South Africa* (Raimondo *et al.* 2009). Mammal names are those used by Skinner and Chimimba (2005), bird names by Hockey, Dean and Ryan (2006), reptile names by Branch (1998) and amphibian names by Du Preez and Carruthers (2009).

- **The general area**

The proposed activity falls within the Hibiscus Coast Municipality (HCM) which is located within Quarter Degree Grid Squares (QDGSs) 3030DA, 3030CB, 3030CC, 3030CD, and 3130AA.



The Hibiscus Coast Municipality (HCM)

According to the BGIS LUDS tool, the HCM is 83901.6 hectares in extent and has areas remaining in a natural state which constitute some 35785.6 hectares (42.7% of municipality), while areas where no natural habitat remains constitute 47810.3 hectares (57% of municipality).

Formal land-based protected areas include Mbumbazi (Provincial) Nature Reserve (2033.9ha - 2.42% of municipality), Mehlomnyama (Provincial) Nature Reserve (<1ha), Mpenjati (Provincial) Nature Reserve (73.6ha - 0.09% of municipality), Oribi Gorge (Provincial) Nature Reserve (2.7ha - <1% of municipality), Skyline (Provincial) Nature Reserve (21ha - 0.02% of municipality) and uMtamvuna (Provincial) Nature Reserve (2627.8ha - 3.13% of municipality) in total covering 4760.9ha (5.7% of municipality).

There is a single Marine Protected Area, namely Trafalgar (Provincial) Marine Reserve (2ha - <1% of municipality).

River and wetlands

Rivers in the municipality include the Mbizana, uMtamvuna, uMzimkhulu, uMzumbe and the Vungu. There are 632 wetlands covering 701.9ha (0.8%) of Hibiscus Coast Municipality.

There are no RAMSAR sites in the municipality.

Estuaries

There are 27 estuaries all of them temporarily closed systems, namely:
Bilanhlolo in fair condition, Boboyi (fair), Damba (good), Intshambili (good), Kaba (poor), Kandandhlovu (fair), Kongweni (poor), Koshwana (poor), Ku-Boboyi (poor), Mbango (fair), Mbizana (poor), Mhlabatshane (fair), Mhlangamkulu (fair), Mhlangeni (poor), Mpenjati (fair), Mtamvuna (excellent), Mtentweni (fair), Mvutshini (fair), Mzimkulu (poor), Mzumbe (poor), Sandlundlu (good), Tongazi (good), Umhlangankulu (fair), Uvuzana (fair), Vungu (fair), Zolwane (good) and the Zotsha (good).

Vegetation types

There are two biomes in the municipality, namely Indian Ocean Coastal Belt of 82416.6ha (98.23% of municipality) and Savanna of 1438.5ha (1.71% of municipality) and within these biomes are 8 vegetation types, namely:

Eastern Valley Bushveld 0.8ha (<0.1% of municipality)
KwaZulu-Natal Coastal Belt Grasslands 61923.6ha (73.81% of municipality)
Ngongoni Veld 1438ha (1.71% of municipality)
Northern Coastal Forest 1155.2ha (1.38% of municipality)
Pondoland-Ugu Sandstone Coastal Sourveld 17328.1ha (20.65% of municipality)
Scarp Forest 1585.2ha (1.89% of municipality)
Subtropical Coastal Lagoons 162.6ha (0.19% of municipality)
Subtropical Seashore Vegetation 261.4ha (0.31% of municipality)

Threatened Terrestrial Ecosystems

Critically Endangered (CR)
Interior South Coast Grasslands (KZN_7) 18183.1ha (21.67% of municipality)
Margate Pondoland-Ugu Sourveld (KZN_10) 2906ha (3.46% of municipality)
Southern Coastal Grasslands (KZN_18) 3343.2ha (3.98% of municipality)

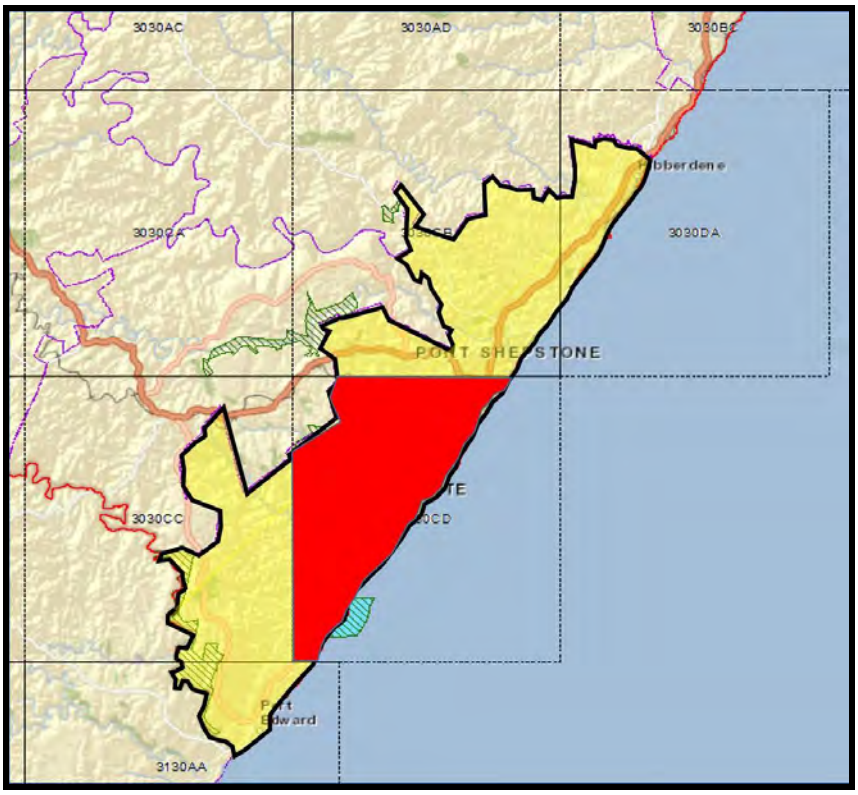
Endangered (EN)
Oribi-Port Edward Pondoland-Ugu Sourveld (KZN_33) 8697.8ha (10.37% of municipality)

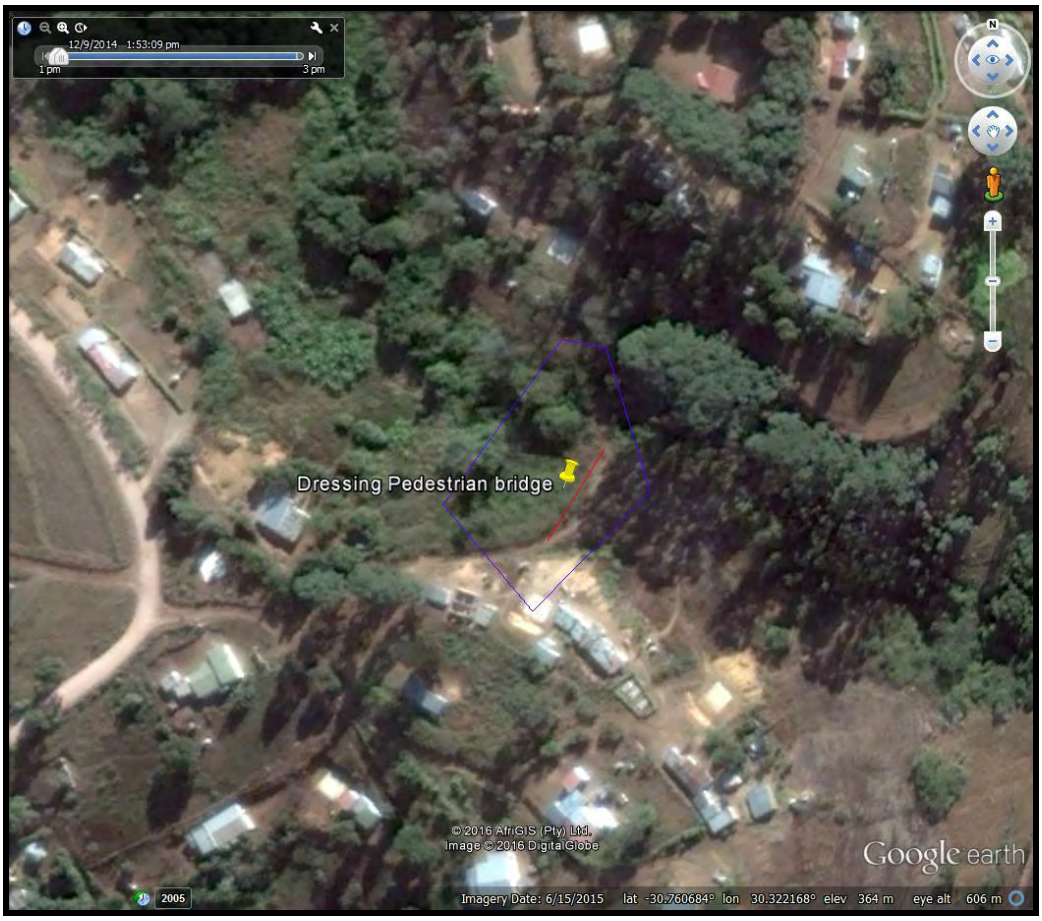
Vulnerable (VU)
KwaZulu-Natal Coastal Belt Grassland (KZN_29 = **CB 3**) 2167.5ha (2.58% of municipality)
Ngongoni Veld - **SVs 4** 516.5ha (0.62% of municipality)
Pondoland Scarp Forest - **FOz V2** 84.2ha (0.1% of municipality)

- **Study area and land use practices**

The study area is located in the QDGS 3030CD (as indicated below) and is situated in a rural area which is substantially transformed by human activities, notably human settlement and subsistence agriculture, both of which have resulted in considerable disturbance and resultant alien plant invasion. Dwellings are located at various localities around the area of the proposed activity. There is a small stream which has been impounded on the site. The predominant woody vegetation

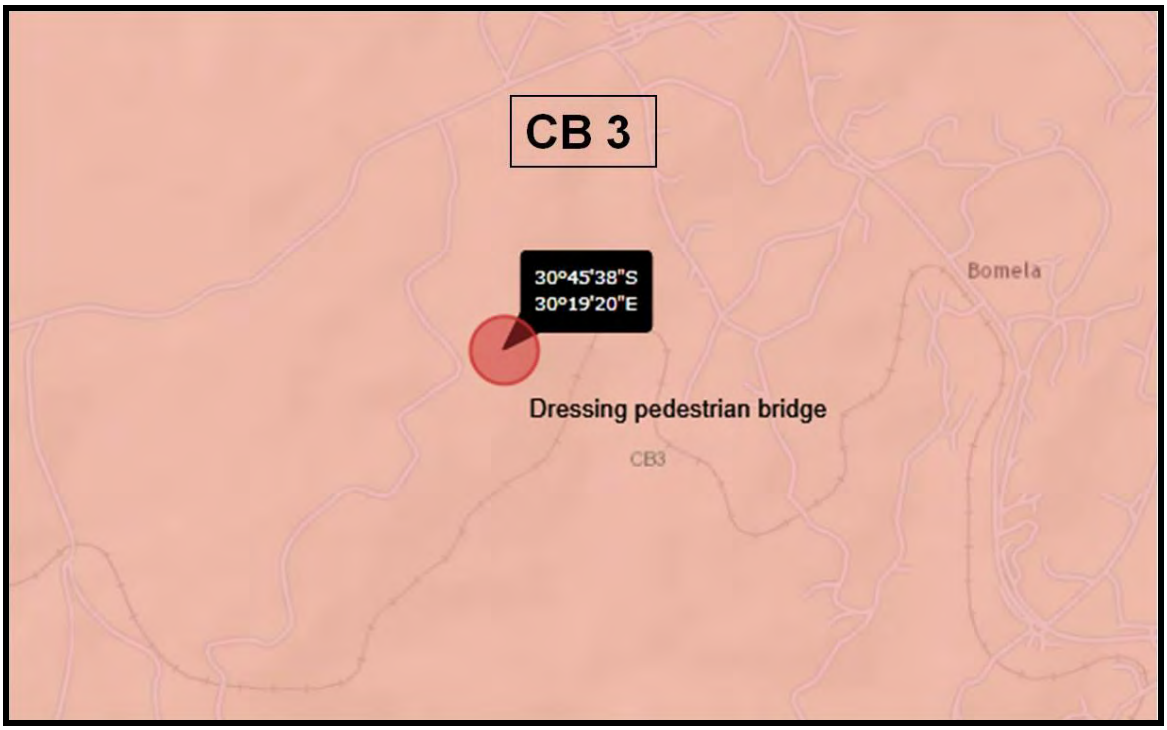
comprises of a mix of alien species such as *Eucalyptus grandis* and relict indigenous species along the old watercourse. The Google Earth image below shows the predominant land use of the area.





Location of the general study site (upper and middle) and the pedestrian bridge (lower)

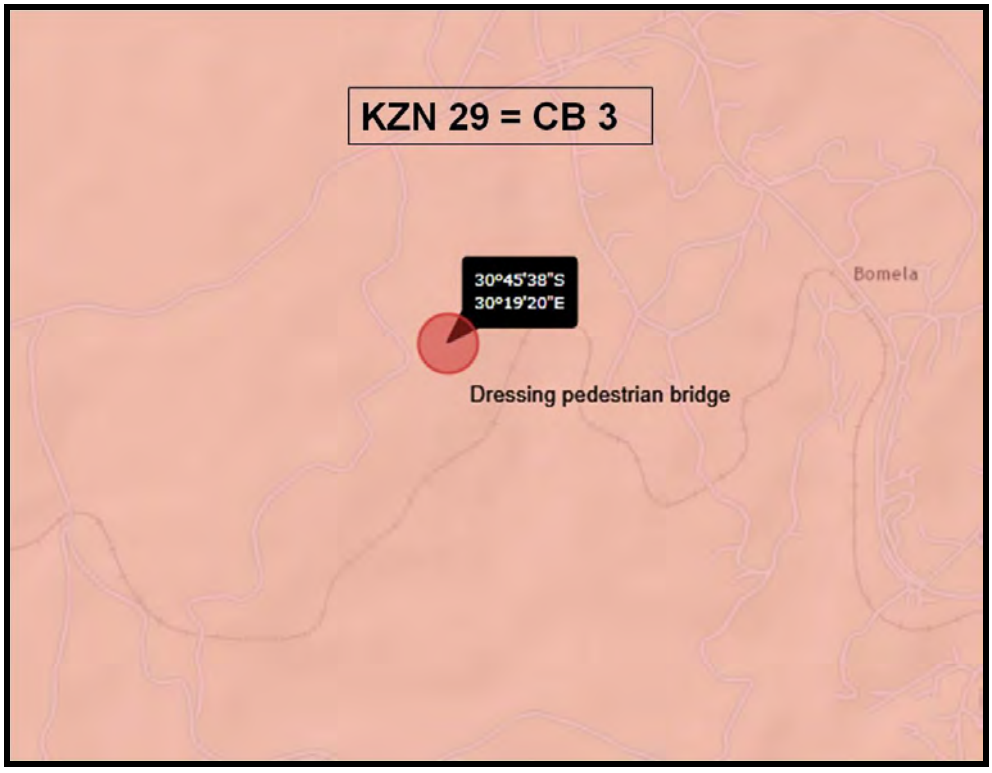
- **General mapping results**
  Vegetation types



Mucina and Rutherford (2006) vegetation map of the area

According to Mucina and Rutherford (2006) the natural vegetation of the area is CB 3 - KwaZulu-Natal Coastal Belt Grassland. The distribution of this vegetation type is reportedly from the KwaZulu-Natal Province and consists of a long (and in places broad) coastal strip along the KwaZulu-Natal coast from near Mtunzini in the north, via Durban to Margate and just short of Port Edward in the south. Altitude ranges from about 20–450m. Features of the vegetation and landscape include "highly dissected undulating coastal plains which presumably used to be covered to a great extent with various types of subtropical coastal forest, the remnants of one of which are described as Northern Coastal Forest – FOz 7 (which occurs in the general area, but not at the site). Some primary grassland dominated by *Themeda triandra* still occurs in hilly, high-rainfall areas where pressure from natural fire and grazing regimes prevailed. At present the KwaZulu-Natal Coastal Belt is affected by an intricate mosaic of very extensive sugarcane fields, timber plantations and coastal holiday resorts with interspersed secondary *Aristida* grasslands, thickets and patches of coastal thornveld".

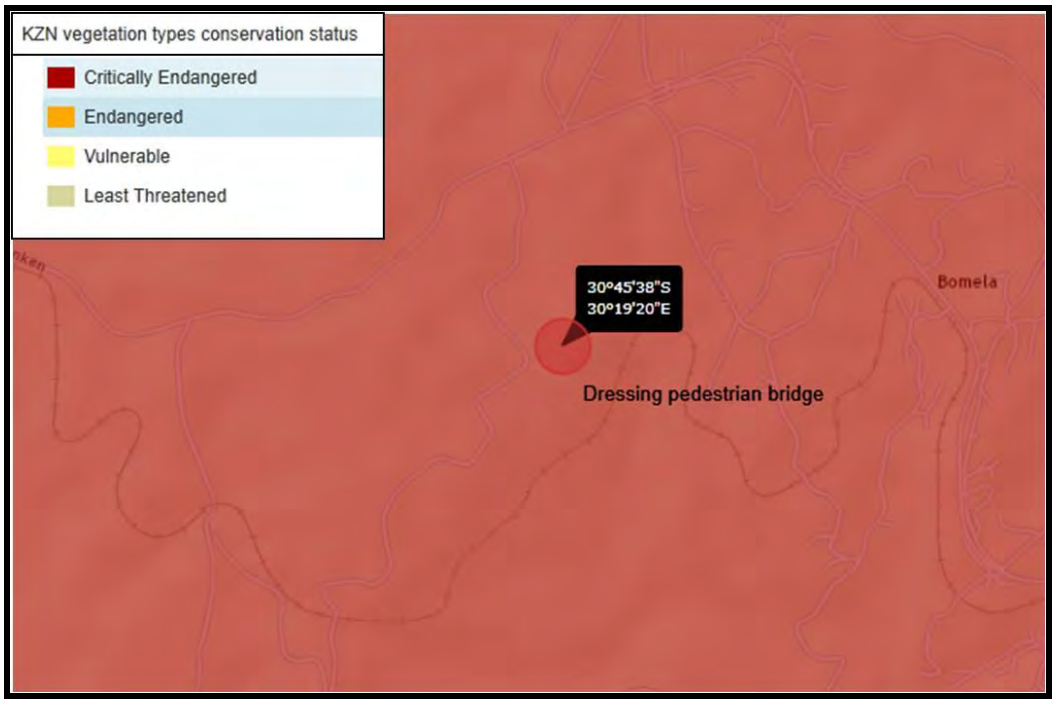
The KZN vegetation map shows a somewhat higher resolution mapping of vegetation of an area, but records only KZN 29 (=CB 3) known as KZN Coastal Belt Grassland from the area.



KZN vegetation types reported from the study site

- **Vegetation conservation status**

KZN Coastal Belt Grassland is considered a Critically Endangered vegetation type because of the development pressures exerted on this habitat. On the site, however, this area has been substantially transformed.



Conservation status of KZN vegetation types

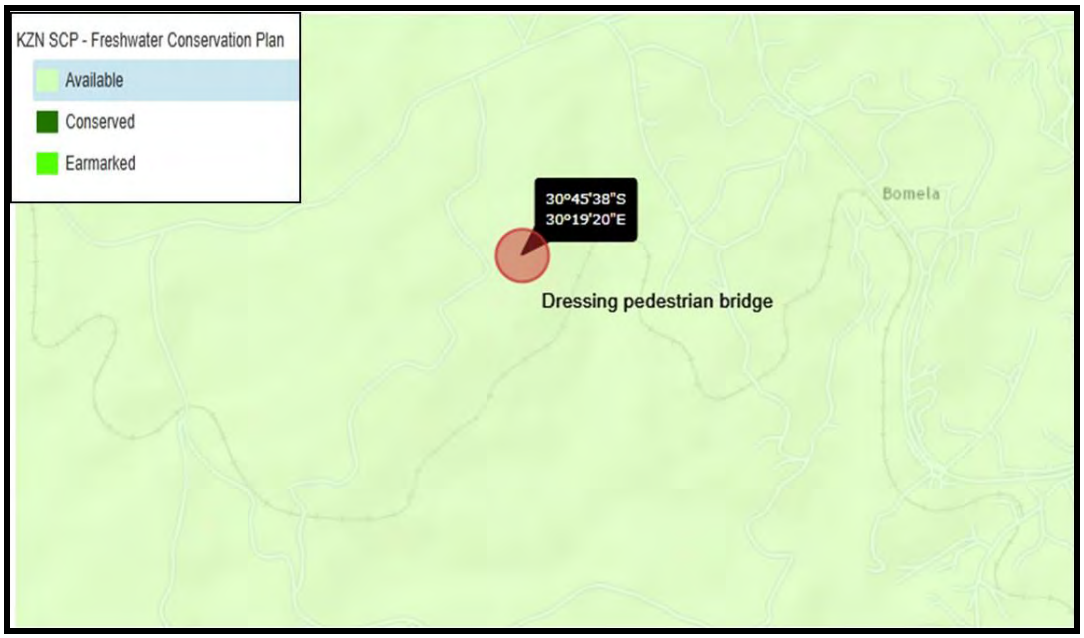
- **C-Plan impacts: Terrestrial**

There are no eKZNW C-plan impacts of the proposed development and the proposed activity is centred in an area designated as Critical Biodiversity Area (CBA) type 3 indicating the presence of one (or more) feature(s) with **a low irreplaceability** score. This rating results from the possible presence of: *Charaxes druceanus*, a regional endemic (not Red Listed), *Doratogonus infragilis* and *D. montanus*, *Gulella separata*, *Phylica natalensis* and South Coast Grassland. This broad-scale mapping of the potential presence of species of conservation significance does not reflect the reality of the habitat encountered on the ground in terms of suitability or quality.

eKZNW C-plan impacts (terrestrial) of the proposed development

- **C-Plan impacts: Freshwater and wetlands**

  There are no eKZNW C-plan impacts of the proposed development and the proposed activity is centred in habitat considered as "Available" (Biodiversity support area). There are no NFEPA wetlands associated with the site as seen below.



eKZNW C-plan impacts (Freshwater) of the proposed development

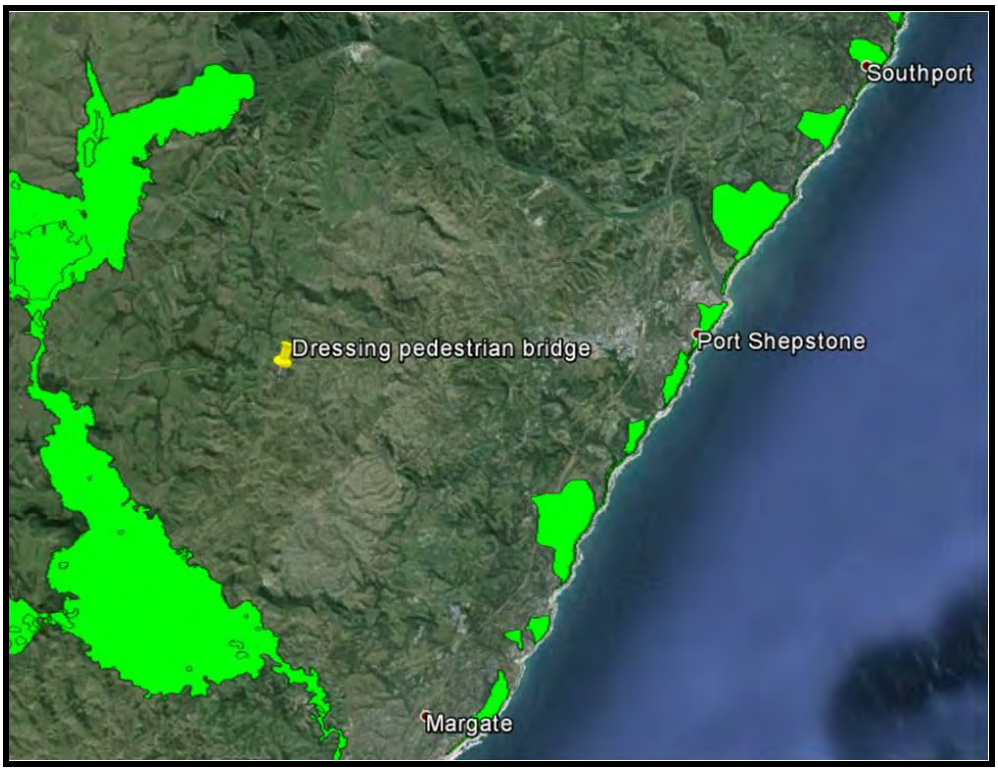
- **Geology and Soils**

The general description of soils in the area is soils with minimal development, usually shallow, on hard or weathering rock, with or without intermittent diverse soils. Lime is rare or absent in the landscape. These soils belong to a class of undifferentiated clays.

Distribution of soil types in the study area

- **Corridors**

The Biodiversity Conservation Planning Division of eKZN Wildlife has identified a series of altitudinal and biogeographic corridors in KZN which create a linked landscape for the conservation of species in a fragmented landscape and to facilitate evolutionary, ecological and climate change processes (Ezemvelo KZN Wildlife 2010). This system of corridors in the regions of the proposed activity can be seen below and indicates that no impacts are expected.



- **General findings**

Vegetation

The proposed bridge and walkway runs through a mosaic of informal residential areas, subsistence agricultural lands, secondary grasslands and wooded areas dominated by alien vegetation. The disturbance associated with these land use practices has allowed fairly substantial alien species invasion in many areas, especially where regular disturbance is obvious in the suite of alien and "weedy" indigenous species encountered.

- **Alien and invasive species recorded from the site**

The site has a rather high preponderance of these species which thrive on the disturbance and have become extensively established across the site resulting in areas which are nearly 100% transformed as a result of human settlement and subsistence agriculture. The list appears below:

Ambrosia artemisiifolia
Araucaria bidwillii
Bidens pilosa
Caesalpinia decapetala
Senna sp.
Chromolaena odorata
Colocasia esculenta
Conyza spp.
Curcubita pepo
Cuscuta campestris
Desmodium incanum
Eucalyptus grandis

Eugenia uniflora
Lantana camara
Melia azedarach
Musa hybrid
Persicaria hydropiper
Plectranthus ornatus
Psidium guajava
Rubus sp.
Solanum mauritianum
Tagetes minuta
Tecoma stans
Tithonia diversifolia
Xanthium strumarium
Zea mays

- **Indigenous species recorded from the site**

The list of indigenous species recorded from the site includes a number of earlier pioneer species and ruderal/weedy species which thrive in disturbed areas. The biodiversity in terms of indigenous vegetation is relatively low, but not unexpected for an area that has been extensively impacted upon by human activities.

Aristida junciformis
Asparagus falcatus
Berkheya bipinnatifida
Bridelia micrantha
Centella asiatica
Cheilanthes viridis
Cissampelos torulosa
Coddia rudis
Commelina erecta
Cotula nigellifolia
Cyperaceae species
Cyperus dives
Dalbergia obovata
Endostemon obtusifolius
Galopina tomentosa
Grewia occidentalis
Harpephyllum caffrum
Helichrysum panduratum
Hypoestes aristata
Indigofera micrantha
Isolepis prolifera
Leucas martinicensis
Ludwigia octovalvis
Panicum maximum
Pavonia columella
Phoenix reclinata
Selaginella dregei
Senecio deltoideus
Senecio madagascariensis
Senecio polyanthemoides
Setaria megaphylla
Sida rhombifolia
Smilax anceps
Solanum duplo-sinuatum
Strelitzia nicolai
Syzygium cordatum
Tarenna pavettoides
Tephrosia macropoda var. *diffusa*
Tricalysia lanceolata
Triumfetta rhomboidea
Vangueria infausta

- ***Categories of Protected Plants***
  - **Plants protected under the provincial conservation ordinance**
    None were recorded from the study site
  - **Plants protected by the National Forests Act**
    None were recorded from the study site
  - **Rare, Red Listed and Endemic Species**
    None were recorded from the study site

- ***Local sensitivities***

  The small watercourse which is indicated by the yellow pin constitutes a sensitive habitat and construction in and around this natural feature will require the submission of a WULA to DWAS.

- **General findings**

Fauna

The site visit allowed a determination of the remaining habitats on the site. During this visit a survey of faunal species was undertaken. In addition, literature surveys were undertaken of mammals, avifauna, herpetofauna and invertebrates occurring and likely to occur in the area. The findings from these studies have been used to identify the number of species likely to occur in the general area and species of conservation concern that are likely to be found on the site. It is an accepted limitation of such studies that the time required to adequately sample such a site exhaustively is not available and that great reliance has to be placed on published records from the area and similar areas.

- ***Mammals***

  Twelve species are reported with 10 of these being regional endemics and 3 are Red Listed.

FAMILY	GENUS and SPECIES	COMMON NAME
*Bovidae	*Philantomba monticola*	Blue Duiker (VU)
Bovidae	*Redunca arundinum*	Southern Reedbuck
Bovidae	*Sylvicapra grimmia*	Bush Duiker
Bovidae	*Tragelaphus scriptus*	Bushbuck
Equidae	*Equus quagga*	Plains Zebra
Leporidae	*Lepus saxitalis*	Scrub Hare
*Molossidae	*Otomops martiensseni*	Large-eared Giant Mastiff Bat (VU)
Pteropodidae	*Epomophorus wahlbergi*	Epauletted Fruitbat
Suidae	*Potamochoerus larvatus*	Bush-pig
**Vespertilionidae	*Kerivoula argentata*	Damara Woolly Bat (EN)

*= Red Listed as VULNERABLE **=Red Listed as ENDANGERED

Threatened species

The Blue Duiker is often found in a broad range of forested and wooded habitats and they can persist in small patches of modified or degraded forest and thicket, even on the edge of urban centres. It is, therefore, possible that some may have persisted in the study area as, being a small antelope, they have adapted to surviving in areas which are relatively transformed by human activities. If present they may be displaced during construction, but should return thereafter.

In southern Africa colonies of *Otomops martiensseni* tend to be small (numbering up to 30 animals) and are regularly recorded from buildings around Durban. Other populations mainly roost in caves and hollow trees (Adams *et al.* 2015). The Damara Woolly Bats is generally associated with moist savanna habitats (including bushveld) (Taylor 2000). Roosting sites include deserted weaver bird nests, among clusters of leaves, on the bark of trees, and on traditional houses (rondavels) (Skinner and Chimimba 2005).

It seems unlikely, therefore, that these species will be impacted by the proposed activity.

- ***Birds***

  The South African Bird Atlas Project (SABAP1) lists a total of 316 species (96 breeding) from the QDGS in which the study site is situated. Of these, twenty three are Red Listed as indicated below and the White Stork is protected by the Bonn Convention on Migratory Species.

COMMON NAME	**RED LISTING**
White Stork	Bonn
Eurasian (Great) Bittern	CR
Black-browed Albatross (Mollymawk)	EN
Spotted (Natal) Ground-Thrush	EN
African Black Oystercatcher	NT
African Crowned (Crowned) Eagle	NT
African Pygmy-Goose	NT
Black Stork	NT
Black-winged Lapwing (Plover)	NT
Broad-tailed Warbler	NT
Cape Cormorant	NT
Caspian Tern	NT
Half-collared Kingfisher	NT
Lanner Falcon	NT
Lesser Jacana	NT
Woolly-necked Stork	NT
African Finfoot	VU
African Marsh-Harrier	VU
Blue Crane	VU
Cape Gannet	VU
Grey Crowned- (Crowned) Crane	VU
Mangrove Kingfisher	VU
Martial Eagle	VU
Southern Ground-Hornbill	VU

Threatened species

The large number of species reported for the general study area can be ascribed to the fact that the QDGS extends from the coast to inland areas and contains two Important Bird Areas (IBA's), namely Umtamvuna and Oribi Gorge Nature Reserves. The habitat at the site of the proposed activity is highly transformed and the aerial extent of the development is limited. It is highly unlikely that any Red Listed species would be found at the site, nor disturbed beyond the construction phase if present. The removal of *Eucalyptus grandis* may result in the loss of perching, foraging and nesting sites for raptors, but beyond this, no further impacts are anticipated.

IBA's, CAR routes and CWAC sites

There are no Important Bird Areas (IBA's), Coordinated Avifaunal Roadcount (CAR) routes nor Coordinated Waterbird Count (CWAC) sites associated with the study area as indicated below.

IBA's (upper) and CAR routes (lower) associated with the study site (yellow pin)

Reptiles

Generating a fully inclusive list of reptiles requires intensive surveys over several seasons as a result of the secretive and cryptic nature of these organisms. The majority of reptiles are sensitive to severe habitat alteration and fragmentation and disturbances such as clearing and burning. The human presence in the area has further impacted on the likelihood of encountering a diverse reptile fauna, as has the agricultural activities. No reptiles were found during the site visit, however, the Animal Demography Unit Town Reptile Atlas Project reports 44 species from the QDGS with seven regional endemics and two species of Red List concern as indicated below.

FAMILY	GENUS and SPECIES	COMMON NAME
Agamidae	*Agama aculeata distanti*	Distant's Ground Agama
Atractaspididae	*Amblyodipsas concolor*	Natal Purple-glossed Snake
*Atractaspididae	*Macrelaps microlepidotus*	Natal Black Snake (NT)
Colubridae	*Dasypeltis inornata*	Southern Brown Egg-eater
Colubridae	*Duberria lutrix*	South African Slug-eater
Colubridae	*Lamprophis fuscus*	Yellow-bellied House Snake
Colubridae	*Lycodonomorphus inornatus*	Olive House Snake
Colubridae	*Lycodonomorphus laevissimus*	Dusky-bellied Water Snake
Cordylidae	*Chamaesaura anguina*	Cape Grass Lizard
**Elapidae	*Dendroaspis angusticeps*	Green Mamba (VU)
Gekkonidae	*Afroedura pondolia*	Pondo Flat Gecko
Gerrhosauridae	*Tetradactylus africanus*	Eastern Long-tailed Seps
Lacertidae	*Nucras lalandii*	Delalande's Sandveld Lizard

*=Red Listed as NEAR THREATENED **=non endemic Red Listed as VULNERABLE

Threatened species

No threatened reptile species are likely to occur at the site of the proposed activity or the immediate areas surrounding the site due to extensive habitat transformation and degradation.

Amphibia

During the site visits no frog species was recorded, resulting mostly from habitat transformation. The Animal Demography Unit's Frog Atlas reports 27 species from the QDGS with one regional endemic (*Amieta quecketti*) and one Red Listed species (*Afrixalus spinifrons* - VULNERABLE).

FAMILY	GENUS and SPECIES	COMMON NAME
*Hyperoliidae	*Afrixalus spinifrons*	Natal Leaf-folding Frog (VU)
**Pyxicephalidae	*Amieta quecketti*	Drakensberg River Frog (regional endemic)

*=Red Listed as VULNERABLE **=Red Listed as of LEAST CONCERN

Threatened species

There is a limited presence of suitable habitat occurring for the above-mentioned species in the vicinity of the proposed development. The stream present at the study site has been impounded and this has lead to the establishment of a small amount of marginal and emergent vegetation which may act as potential habitat for the Leaf-folding Frog. The amount of habitat is very limited and not likely to be directly impacted upon by the proposed activity.

Invertebrates

The Animal Demography Unit's invertebrate atlases record the following from the QDGS:

- Twenty one species of Odonata, none of which is Red Listed or an Atlas Region endemic.
- Four species of Neuroptera, none of which is Red Listed or an Atlas Region endemic.
- There are 234 recorded species of Lepidoptera with 26 regional endemics all Red Listed as of Least Concern, except for the Amakoza rocksitter and the Ketsi Blue which are Red Listed as VULNERABLE.

FAMILY	GENUS and SPECIES	COMMON NAME
Hesperiidae	*Astictopterus inornatus*	Modest sylph
Hesperiidae	*Coeliades keithloa*	Red-tab policeman
Hesperiidae	*Eretis umbra*	Small marbled elf
Lycaenidae	*Alaena amazoula*	Yellow zulu
Lycaenidae	*Aloeides henningi*	Henning's copper
Lycaenidae	*Aloeides penningtoni*	Pennington's copper
Lycaenidae	*Chrysoritis natalensis*	Natal opal
*Lycaenidae	*Durbania amakosa albescens*	Amakoza rocksitter
Lycaenidae	*Iolaus silas*	Southern sapphire
*Lycaenidae	*Lepidochrysops ketsi leucomacula*	Ketsi blue
Lycaenidae	*Leptomyrina Gorgias*	Common black-eye
Lycaenidae	*Pentila tropicalis*	Spotted pentila
Lycaenidae	*Tarucus bowkeri*	Bowker's dotted blue
Nymphalidae	*Amauris echeria*	Chief friar
Nymphalidae	*Cassionympha cassius*	Rainforest brown
Nymphalidae	*Charaxes druceanus*	Silver-barred charaxes
Nymphalidae	*Cymothoe alcimeda trimeni*	Battling glider
Nymphalidae	*Pseudacraea eurytus imitator*	False wanderer
Nymphalidae	*Pseudacraea lucretia tarquinea*	False chief
Nymphalidae	*Pseudonympha magoides*	False silver-bottom brown
Nymphalidae	*Stygionympha scotina*	Eastern hillside brown
Nymphalidae	*Stygionympha wichgrafi grisea*	Wichgraf's hillside brown
Nymphalidae	*Vanessa hippomene*	Southern short-tailed admiral
Papilionidae	*Papilio ophidicephalus phalusco*	Emperor swallowtail
Pieridae	*Colotis erone*	Coast purple tip
Pieridae	*Nepheronia argia varia*	Large vagrant

*=Red Listed as VULNERABLE

Threatened species

No invertebrates of conservation significance are expected to occur on the site or the immediate areas surrounding the site due to a lack of suitable habitat.

- **Impacts of the proposed activity on the environment**

Given the highly transformed nature of the site and its biota there should be little impact from the proposed activity. The proposed activity will occur entirely in transformed habitat. The major impact of the proposed activity will be disturbance during construction. Some habitat loss will be inevitable, but the loss is generally of poor quality habitat. Once the development is completed, the rehabilitation of the disturbed area may allow natural habitat to return, especially if the recommended alien plant control programme is instituted. Care will need to be taken when working

in or near the watercourse as this represents a sensitive habitat type despite its current depauperate ecological state.

The following mitigatory measures must be implemented.

- Disturbance and habitat loss must be kept to a minimum.
- Care must be taken to keep soils stabilized when removing vegetation during construction and as part of alien plant eradication and strict on-site soil erosion measure must be implemented.
- Topsoil must be stockpiled for eventual return during rehabilitation.
- Care must be taken to prevent the contamination of ground water with accidental fuel and oil spills from earth-moving and construction equipment and vehicles.
- Trenches and/or pits created during construction must have one sloped side to allow animals which fall in to get out.
- Trenches and/or pits must be checked daily while open for animals which may be unable to get out. Any animals found must be returned uninjured to suitable safe habitat.
- An alien plant eradication programme must be implemented to limit the establishment of exotic species during the rehabilitation of the disturbed areas.

- **Conclusion**

The survey indicated that no floral species of conservation significance are present, nor are they likely to exist at the site due to habitat alteration.

No faunal species of conservation significance were encountered during the survey. Whilst there is a low probability of encountering the Leaf-folding Frog, the small amount of potentially suitable habitat for this species is not likely to be affected by the development.

The route of the proposed bridge and walkway impacts upon a small watercourse and, therefore, the applicant will have to submit a WULA to DWAS.

The results of this survey indicate that there should be no objections raised to the proposed activity from a botanical and faunal point of view. The near absence of any indigenous vegetation of conservation significance and the preponderance of ruderal and early seral species means that impacts on the vegetation will be minimal.

The nature of the development will allow faunal species to relocate due to the anticipated disturbance during construction and return after its completion.

Should you have any queries please do not hesitate to contact me through details above.

Yours sincerely

David Styles

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APPENDIX F

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Proposed Construction of Dressing Pedestrian Bridge within Hibiscus Coast Local Municipality, Kwa-Zulu Natal

[EDTEA reference number]

VERSION 1

April 2016

Postal Address	|	*PO Box 2311, Westville, 3630*
Tel	|	*031 262 8327*
Fax	|	*086 726 3619*
Email	|	*fatima@1wc.co.za*

Report Author : F. Peer *Pr. Sci. Nat.; IAIASA*

Prepared for : Hibiscus Coast Local Municipality

Roads Department

Table of Contents

Acronyms Used

EDTEA	**Department of Economic Development, Tourism and Environmental Affairs**
DW&S	**Department of Water and Sanitation**
ECO	**Environmental Control Officer**
EWS	**Ethekwini Water and Sanitation**
EMP	**Environmental Management Plan**
I&AP	**Interested and Affected Party(ies)**
PM	**Project Manager**

1. INTRODUCTION

1.1. Background Information

1World Consultants has been appointed by PGA Consulting, on behalf of the Hibiscus Coast Local Municipality Roads Department, to undertake the required environmental services for the proposed construction of a pedestrian bridge that will traverse a water course. The bridge will be situated approximately 1km south of the road from Margate to Izotsha and Paddock. The bridge will be situated roughly 12km inland and north-west of the town of Margate. The site for the proposed bridge has been assessed based on a working footprint of approximately 230sqm for the construction phase to allow for all related activities. The specifications of the bridge are provided in Table 1 below.

Table 1: Dressing Bridge Specifications

	Dressing Pedestrian Bridge
Ward	Ward 24 Hibiscus Coast Local Municipality
Property Description	Portion 0 of Farm 15845
Bridge Specifications	28m long and 2m wide = 56.8m^2
Footpath Specifications	(9.5 +7) m long and 1.2m wide = 19.8m^2
Development Final Footprint	85.6m^2

As per GN R982 of the EIA Regulations, 2014, a Basic Assessment (BA) Process has been undertaken and the environmental outcomes, impacts and residual risks of the proposed Listed Activity being applied for have been noted and assessed accordingly by the Environmental Assessment Practitioner (EAP).

1.2. Points to Consider

- Traffic Impacts - Residential nature of the area and pedestrian traffic impacts during the construction phase
- Soil Erosion and stormwater management
- Ground and surface water pollution
- Noise and disturbances
- Flora and Fauna in the Locality
- Waste management
- Visual impacts
- Public safety and health

2. PROJECT RESPONSIBILITIES

The project team will consist of the Project Manager from Hibiscus Coast Local Municipality, the Project Engineer, the Environmental Control Officer (ECO) and the Contractor.

2.1. Project Engineer

The Project Engineer will provide the project specifications of the construction phase. The contractor is legally bound to follow these specifications unless agreed upon by the Engineer. The engineer has the following responsibilities:

- Monitor compliance of the project, following provision of inspection reports provided by the ECO.
- Assess the Contractors performance with regard to completion of the task and keep records on a monthly basis.
- Facilitate the site handover to the Contractor

Company Name	PGA Consulting
Contact Person	Darren Chetty
Address	19 Aberfeldly Road, Atholl Heights, Westville 3629
Telephone	031 262 0126
Cell	073 452 7470
Email	darren.chetty@pgaconsulting.co.za

2.2. Environmental Control Officer

The ECO is responsible for monitoring and reporting that the contractor and applicant are implementing and following the EMP during the construction and operational phases (for the timeframe specified in the conditions of the environmental authorisation) and to liaise and report to EDTEA. The following will fall within the ECO responsibilities:

- Have a working knowledge of the recommendations and mitigation measures as provided in this EMP and of the permits, authorisations and licenses.
- Conduct monthly audits of the construction site according to the EMP and according to the conditions of the environmental authorisation.
- Provide the contractor with environmental training and a copy of the EMP and ensure in writing that it is understood.
- Liaise regularly with the contractor and project manager.
- Recommend corrective steps for any non-compliance activity on site with respect to the EMP.
- Compile a monthly audit report highlighting compliance and non-compliance with the EMP and submit to EDTEA.
- All agreements between the contractor and the ECO with regard to the EMP will be in writing and co-signed by the Project Manager.

- The ECO will not be on site on a daily basis and the Contractor is responsible for implementing the EMP. The Contractor will be provided with a contact number for the ECO.

Company Name	
Contact Person	
Address	
Telephone	
Fax	
Email	

2.3. Contractor and Sub-Contractors

The Contractor is responsible for implementing and adhering to the EMP during the construction phase, in all respects as stipulated. Compliance with the EMP by staff during the construction must be ensured by the contractor and this must be recorded by the contractor for audit purposes. The following will be the responsibility of the Contractor:

- Be familiar with the EMP and all conditions of authorisations, licenses and/or permits.
- Supply method statement for implementation of the EMP
- Attend training provided by the ECO, and relay training to all staff and sub-contractors. Proof of training must be kept on record.
- Maintain an environmental file that must contain the following documents:
    - Company environmental policy
    - Hazardous material handling and storage protocols
    - Spill Contingency Plan
    - Emergency Response Plan and Contact Numbers
    - Waste disposal certificates
    - Servicing of portable toilets

- Maintain an environmental complaints register that must have carbon copies and numbered pages, to record all incidents that occur on site during construction. Incidents include but may not be limited to:
    - Public involvement / complaints
    - Occupational health and safety incidents
    - Incidents involving hazardous materials and/or equipment on site
    - Non-compliance incidents
    - Spills into or around watercourses
    - Encountering fauna of interest
    - Finding archaeological artefacts and/or human remains

- Bear any costs associated with non-compliance and/or damage to the environment as a result of not implementing the EMP or due to negligence.

2.4. Developer (Hibiscus Coast Local Municipality)

The Developer is legally ultimately responsible for the overall compliance with the conditions of the environmental authorisation, since any authorisation and/or license is in the name of Hibiscus Coast Local Municipality. The following fall within the responsibilities of the Municipality:

- Be familiar with the recommendations and mitigation measures of the EMP and ensure that the contractor and all staff agree to adhere to it.
- Monitor site activities on an ongoing basis or contract the service out
- Conduct internal audits of the site
- Ensure the contractor confines their activities to within the demarcated area
- Rectify transgressions via communication with the contractor and staff and the ECO
- Liaise with the ECO with regard to audit reports to be provided to EDTEA.

3. THE ENVIRONMENTAL MANAGEMENT PLAN

The focus of the environmental management plan is to allow construction of the new pedestrian bridges whilst still protecting the environment. Particular reference is given to the following key aims:

- Ensure general protection of the receiving environment via compliance with all applicable laws, protocols and guidelines,
- Ensure that water courses and wetlands are protected,
- Prevent or minimise pollution of the receiving environment,
- Minimise disturbance of the environment and aim to protect flora and fauna,
- Prevent soil erosion and soil degradation
- Facilitate the rehabilitation of disturbed areas
- Restrict the nuisance factor by providing protocols for staff and/or vehicles

Damage to water courses, vegetation, animal life, surroundings roads (by construction vehicles), etc. may result from the proposed construction activities. Chemicals such as paints, sealants, coatings, adhesives and solvents may contaminate the soils, groundwater and watercourses should proper procedure not be followed.

3.1. Objectives of the EMP

The objectives of the EMP are to:

- Ensure compliance with local, provincial, national and/or international regulations, standards and guidelines, relating to the protection of the environment.
- Clarify roles and responsibilities of the team members
- Identify measures of mitigating any potential negative impacts thereby reducing or eliminating them
- Provide detail on specific actions required for minimising negative impacts and provide tools or methods for monitoring the effectiveness of mitigation measures
- Optimise positive impacts to maximise the benefit thereof
- Provide management of concerns/complaints from I&AP's
- Provide monitoring and auditing processes during all phases of the development.
- Provide methods of compliance monitoring and reporting of the monitoring
- Provide waste management, recycling and re-use strategies

3.2. Environmental Monitoring

A monitoring program to ensure compliance with the EMP will be implemented for the duration of the proposed construction which is estimated to last approximately 4 months. The program will include the following:

- Monthly site visits and audits (subject to the conditions of any environmental authorisation or license) which will be conducted by the Environmental Control Officer (ECO) to ensure compliance to the final EMP
- Provide corrective recommendations to rectify any non-compliance
- Compilation and submission of audit reports to EDTEA providing rating of compliance with the EMP. Any evidence of damage to areas outside the construction zone will be recorded via photographs as well as a record of the date and time of damage, type of damage and reason for damage. The contractor will be liable for damages should it have resulted from non-compliance to the EMP.
- A register of complaints from I&AP's will be opened and maintained. Complaints and concerns must be responded to immediately.

Note – The EMP has been prepared during pre-construction and must be regarded as a working document that may be updated if and when necessary. Any amendments made to the proposed construction must be submitted to the Competent Authority as an amendment to the authorisation for approval before being implemented.

3.3. Compliance with the EMP

The EMP specifies the requirements to be implemented by the developer in order to minimise and manage any potential environmental impacts. The provisions of this EMP will be legally binding to the Authorisation Holder or any authority to whom responsibility has been delegated to, for the proposed development, for the duration of the construction phase.

The EMP is legally binding to the contractors/sub-contractor(s) and must be included in the Contractual Clauses. A copy of the approved EMP must be kept on site during construction and operation. In terms of the Environmental Conservation Act and the National Environmental Management Act, those parties responsible for damage to the environment must pay the costs to repair and compensate for environmental and/or human health as well as for preventative measures to avoid or reduce further damage. The Contractor must make provisions in the budget for implementation of the EMP.

Non-compliances may result in the application of penalty(ies) following non-compliance after a written warning by the ECO. Failure to rectify non-compliances within one (1) week of the issue OR a repeat offense will result in a fine issued by the ECO.

The following rates will apply for issuing of fines:

Table 2: Fine Rates to be Applied

Offense	Fine Amount
Failure to demarcate working areas	R 1 000
Working or trespassing outside of the demarcated areas	R 3 000
Failure to strip topsoil with intact vegetation	R 5 000
Failure to stockpile topsoil correctly	R 3 000
Failure to stockpile materials in designated areas	R 1 000

Failure to implement dust suppression actions	R 1 000
Washing of vehicles on site	R 1 000
Pollution of surface or ground water	R 5 000
Failure to implement stormwater management plans	R 10 000
Failure to control stormwater runoff	R 10 000
Soil erosion	R 20 000
Failure to provide adequate sanitation	R 5 000
Failure to erect temporary fencing around trenches	R 5 000
Failure to provide adequate waste disposal facilities and services	R 5 000
Failure to re-instate disturbed areas within a specified time frame	R 5 000
Removal of protected flora without a permit to do so	Specified by DAFF
Any non-compliance of the project specifications	R 10 000

The fines will be paid by the Contractor to the Developer to be utilised in the landscaping and/or rehabilitation of the site.

3.4. Layout of the EMP

The EMP is presented in two phases namely, the construction phase and the rehabilitation phase of the project. Each phase has specific mitigation measures that address potential impacts which may be unique to that phase.

- Design and Construction Phase – This phase includes pre-construction activities including the site handover, site establishment, environmental training and access routing. The specifications of all mitigation measures, the responsibilities and the procedures for this phase must form part of the contract documentation. Hence, the relevant personnel will be required to comply with this phase of the EMP.
- Rehabilitation Phase – This phase of the EMP provides for the removal of the contractors camp, rehabilitation of the site and any disturbed areas and handover to the Client.

3.5. Training

Contractors and workers must receive basic training in environmental awareness i.e. minimisation of impacts to sensitive elements, waste management, water pollution and the requirements of the EMP.

3.6. Implementation of EMP by Contractor

The contractor must ensure that the EMP is implemented and complied with at all times. Should clarity be required the contractor must contact the ECO for advice. The ECO must provide the contractor with contact details.

3.7. Environmental File

The Environmental File comprises the following documents and must be kept on site in order to record compliance:

- Copy of any Environmental Authorisation, licenses, permits, Stormwater Management Plan, and the approved Final EMP
- Method statement for complying to the EMP,
- Record of complaints from I&AP's capturing the time, date, location and nature of complaint as well as the actions taken and by whom. The complaints register must have carbon copy pages and numbered pages.
- Emergency Response Plan and Record of emergencies and incidents
- Spill Contingency Plans
- Proof of Training
- Emergency contacts and numbers
- Material Safety Data Sheets for any hazardous substances
- Dust suppression records
- Written corrective action instructions provided by the ECO (including emails)
- Any Non-Conformance Reports (NCR) that have been issued to the contractor and/or sub-contractor(s). A Non-Conformance follows non-compliance to rectifying a problem area and must be reported to the Competent Authorities. A Non-Conformance Report typically contains the following information:
    - Details on the non-conformance,
    - Any plant or equipment involved,
    - Any chemicals or hazardous substances involved,
    - Details on the non-conforming action,
    - Nature of associated risk(s),
    - Corrective actions to rectify non-conformance, as agreed by all parties concerned,
    - Timeframes for corrective measures to be implemented,
    - Record of compliance by corrective actions, as verified by the ECO

3.8. Environmental Emergency Response Plan

The Contractor is responsible for preparing an Environmental Emergency Response Plan. This is to exhibit the Contractors ability to respond appropriately to incidents that may have detrimental impacts on the environment. Such incidents include the following among others:

- Accidental spillage of hazardous substances (oil, fuels, sewage, etc),
- Accidental toxic air emissions,
- Accidental discharges to watercourses and onto land,
- Specific impacts from accidental incidents, e.g. mass death of fish, etc

The emergency response plan must include for the following:

- Provide actions to be taken in the event of an emergency, in the appropriate logical sequence of events.
- Emergency contact numbers,
- Roles of designated emergency response team members from the contractors team,
- Incident recording
- Remediation measures to be implemented,
- Information on hazardous substances, plant and equipment, including warnings and potential risks,
- Proof of emergency response training, including proof of emergency preparedness, as per legal requirements.

3.9. Method Statements

Beside the emergency response plan, the Contractor must provide the following method statements in the environmental file:

- Construction site establishment,
- Dust suppression;
- Cement mixing/concrete batching,
- Contaminated/used water,
- Erosion control and stormwater management,
- Storage, handling and decanting of fuel (diesel) and other hazardous substances,
- Bunding
- Project management including training,
- Personnel and public safety,
- Protection of fauna and flora,
- Rehabilitation of disturbed areas,
- Solid and liquid waste management,
- Top soil management including storage and re-use,
- Sourcing and Storage of materials,
- Rest and Wash areas, including toilets
- Interaction with public and stakeholders

4. RELEVANT LEGISLATION

In terms of the 2014 NEMA EIA regulations (GNR 983, 984 and 985, December 2014), a basic assessment has been conducted by an independent environmental assessment practitioner (EAP), 1World Consultants. According to the BA requirements, an environmental management plan (EMP) was formulated to address the impacts identified. The EMP endeavours to monitor, minimise and mitigate impacts identified and concerns raised by interested and affected parties and/or stakeholders.

The EMP presented covers activities authorised by the competent authority (EDTEA) only. Activities not approved must be submitted for environmental authorisation, before commencement. Should the impacts identified in the BAR be more significant than assessed, the environmental management plan must be reviewed; and updated if necessary. The EMP is not independent of the BAR, therefore both must be read in conjunction with each other.

According to Listing Notices 1, 2 and 3 (GNR 983, GNR 984 and GNR 985, of the National Environmental Management Act, NEMA – December 2014) the following activities are noted thus far:

Listing Notice 1 (GNR 983, December 2014):
Activity 19 (i) : The excavation, moving of 23.34 cubic metres, i.e.more than 5 cubic metres soil and rock from a watercourse.

Listing Notice 3 (GNR 985, December 2014):
Activity 14 (iii) (xi), (d) (vii): The development of bridges exceeding 10sqm and boardwalks exceeding 10sqm, in Kwa-Zulu Natal,) in a Critical Biodiversity Area.

Thus, a basic assessment process was necessary.

The draft environmental management plan is submitted and is subject to approval by the Department of Economic Development, Tourism and Environmental Affairs. The environmental management plan is formulated to include only those aspects pertaining to the environmental authorisation. It may not have taken all the necessary legislation and regulations, pertaining to the actual development activities. The appointed project manager and/or developer must ensure adherence to the necessary legal requirements.

Examples of such legislation or regulations, amongst others, include:

- The Constitution (1996)
- Labour Relations Act (1995)
- National Building Regulations and Building Standards Act (1977)
- Health Act (1977)
- National Water Act (1998)
- Occupational Health and Safety Act (1994)
- National public health and food hygiene regulations
- National Water Act 1998 (Act 36 of 1998)

The EMP covers legislative requirements derived from the following:

- National Environmental Management Act (2014)
- National Water Act
5. National Environment Management Act: Biodiversity Act

6. DESIGN AND PRE-CONSTRUCTION PHASES

The design and pre-construction phases include all activities that are required to render the project ready to begin construction.

6.1. Authorisations, Permits, Licenses:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
All legally required authorisations, permits and licenses must be obtained prior to commencement of construction.	Developer	Once
The Developer must appoint an EAP and/or ECO	Developer	Once
All I&AP's and stakeholders must be notified prior to commencement of construction	Developer/Contractor	Once

6.2. Appointment of Contractor:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
An experience and suitably qualified contractor must be appointed	Developer/Engineer	
The EMP must form part of the contractual agreements with any Contractor which must include any Sub-Contractor(s). The Contractor must take cognisance of this when budgeting during the tender process.	Developer	Once
The Contractor must comply fully with the authorisations, permits and licenses pertaining to the construction phase of the project.	Developer/Contractor	Once
Tender documents must allow for the employment of local community members.	Developer/Contractor	Once

The Contractor must provide Method Statements pertaining to implementation of the EMP, emergency response plans, stormwater management, hazardous substance handling and storage, spill contingency plans, environmental incidents records file and complaints register.	Developer/Contractor	
The Method Statements must be submitted to the ECO for record keeping.	Developer/Contractor /ECO	

6.3. Appointment of ECO:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
An independent ECO must be appointed to monitor the implementation of the EMP	Developer	Once
The Appointed ECO must monitor the project from an environmental perspective, as per the conditions of any authorisations, permits and licenses and according to the EMP. The findings of each inspection must be documented in a monthly report.	ECO	Monthly or as specified in the Authorisation

6.4. Environmental Training:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
The Contractor must receive environmental training to adequately implement the EMP.	Developer/ECO	Once
The Contractor must relay training received to all staff and sub-contractors, in a language easily understandable to them. All contractors representatives, sub-contractors and staff must acknowledge receipt of training in writing.	Contractor/SHE Officer/ECO	Once
Toolbox sessions must be scheduled and must include refreshers on environmental responsibilities.	Contractor/SHE	Once

	Officer	

6.5. Environmental Planning and Design:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
The site and/or route must be confirmed to be within servitudes or not. If not within servitudes, the environment must be closely examined for sensitive elements in terms of flora and fauna.	Developer	Once
A suitably qualified Ecologist must be appointed to conduct a walk down of the entire route and/or site and remove sensitive elements to outside the route alignment and/or site. This may include geophytes, aloes, discovered animals, etc.	Developer/Ecologist	Once
Any erosion control measures must be incorporated, by the engineer, into the design of the water infrastructure. These may be sandbags, hessian sheets, retention or replacement of vegetation, gabion walls, etc.	Engineer	Once
Records of relocated flora and fauna must be kept.	Ecologist/ECO	Once
A set of "before" photographs must be captured for record keeping purposes and to monitor any degradation of the environment	ECO/Ecologist	Once
Ensure Stormwater Management Measures are in place	Contractor	Ongoing

6.6. Environmental Education and Training

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
All site personnel must have a basic level environmental awareness training session. Topics covered must include: o What is meant by "The Environment"	ECO	Once

o Why the environment needs to be protected and conserved o How construction activities can impact on the environment o What can be done to mitigate against such impacts o Awareness of emergency and spill response provisions. o Social responsibility during construction of the shopping centre e.g. being considerate of the local community who share the roads		
The ECO must provide training to the Contractor's representatives. It is the Contractors responsibility to provide the site foremen with environmental training and to ensure that the foremen have sufficient understanding to pass this information onto the construction staff. Translators may be used to ensure training is thorough	ECO	Once
Training by the contractor must be provided to the staff members in the use of the appropriate firefighting equipment	Contractor	Once
Environmental awareness posters on site may be used to further facilitate compliance to the EMP	Contractor	Once
The need for a clean site policy must be explained to the workers. This includes prohibiting sanitation activities outside of the ablution facilities and toilets provided by the Contractor.	Contractor	Ongoing
Staff operating equipment (e.g. loaders, excavators, etc) must be adequately trained and sensitised to any potential hazards associated with their tasks	Contractor	
Although the Contractor is responsible for ensuring that the environmental awareness training of staff members is put in place, it must be the direct responsibility of the appointed ECO to carry out the training. Each staff member sign a register confirming their attendance at this training. This register must be included in the site Environmental file	ECO	
The contractor must monitor the performance of the workers to ensure that the training was properly understood and is being followed	Contractor	

The ECO must monitor the construction phase periodically to ascertain if training was effective	ECO	

7. CONSTRUCTION PHASE

The construction phase includes all activities on the site that are required to render the pipeline operational. Environmental training must be provided to the contractor before commencement of construction activities.

7.1. Clearing of Vegetation and Earthworks:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
The location of all underground services and servitudes must be identified and confirmed before construction commences. Choice of vehicle access routes must be recommended by the Engineer/ Project Manager.	Engineer/Contractor	Once
Limit clearing of vegetation to area specified in environmental authorisation. Clearing and excavation must be phased to avoid unnecessary soil exposure and erosion. Vegetation must not be removed until necessary.	Contractor	Ongoing
Rocks and excess soil to be reused as building material if/where possible. Any work undertaken must follow good civil engineering practices. Topsoil must be stripped and and stockpiled for later re-use. All stock piles must be covered with suitable material to prevent loss of sediment via wind / water. Stockpiling of soil etc must not be on or near slopes and water courses		
~~Unless otherwise permitted in writing by the Engineer, not more than 200m of trench in any one place and not more than 500m in total shall be opened in advance of the pipe laying operation~~		
All trenching/excavations are to be adequately barricaded to protect vehicles, pedestrians, pets and livestock		
No excavations may be left open over weekends and public holidays unless properly protected		

Only orange barricade netting will be allowed to barricade open ditches/trenches. Open ditches/trenches are to be barricaded and maintained at all times.		
Ensure that all removed vegetation is completely cleared from the site. Vegetation and/or vegetation waste must not be burned		
Employees, contractors, etc must be made aware of no-go areas (which would include neighbouring properties), and boundaries of the activity site. Chevron tape must be used to aid in this regard.		
Although not directly related to overall stability, slumping and erosion of some areas of the cut and fill banks can be expected during wet weather, particularly during the first few seasons after construction. This must be minimised by specific treatment of the finishing of the bank slopes		

7.2. Stormwater Management:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Storm water, during construction, must be controlled. All recommendations submitted by the engineers must be strictly adhered to for adequate Storm Water Management. A Storm Water Management Plan must be approved by the relevant authority. Contractors are required to follow the plan.	Engineer/Contractor	Once
Construction site must be contoured to ensure free flow of runoff and to prevent ponding of water. Runoff from the camp must be directed via temporary channels into existing municipal stormwater management infrastructure so that entry of runoff from the camp to any watercourses is avoided. Hazardous chemicals must be stored in bunded areas within the camp site to control contamination of runoff.	Contractor	Ongoing
Stream/River bank stabilisation may be employed using a variety of methods including riprap, gabion walls, reinforced concrete on river banks, asphalt paving, etc		

7.3. Reference Marks, Site Establishment and Contractor's Camp

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
The Contractor will have the responsibility of referencing each and every setting out peg on the Contract, in a position such that the reference pegs will not be disturbed by his operations on the site, and to safeguard and maintain such reference pegs until the completion of the Works.	Engineer/Contractor	Once
The Contractor shall provide the Engineer with a record of the position of the reference pegs and he shall assist the Engineer throughout the Contract in the checking of the setting out of the Works, using these reference pegs	Contractor	Once
Choice of site for Contractors Camp requires authorisation by ECO and must take into account the location of local residents and/or ecologically sensitive areas, including the watercourse, flood plains and slip/unstable zones.		
• The camp must not be situated within any flood plains/wetlands. • The route/site construction servitude must be demarcated with chevron tape or similar measures. • Visually the site must be as compact as the required equipment and personnel allows. Suitable control measures over the contractor's area, plant and material storage to mitigate any visual impact must be implemented. • Excess materials, equipment etc must not be stored at site but rather brought in only as and when required. • Equipment and materials must be stacked in a compact and safe manner. • The site must have the contractors name signage including contact details. • The site must have signage indicating that safety attire is required. • The site must have "no unauthorised entry" signs at the boundary of the camp site		
The contractor must make his own arrangements concerning the supply of electrical power, water, telephone and other services. All required amenities, including ablution facilities must be moved to the site before the main workforce arrives		
The toilets must be situated more than 50m from any watercourse edge (Section 1(24 and 29) National Water Act (36 of 1998))		
The Contractor must inform all site staff to make use of the supplied ablution facilities and under no circumstances must sanitary		

activities be allowed elsewhere, including the floodplains and watercourse. Washing of laundry is prohibited at the site		
No open fires for cooking, etc are allowed within the contractor's camp		
Progressive and systematic finishing and tidying will form an essential part of this Contract. On no account must spoil, rubble, materials, equipment or unfinished operations be allowed to accumulate in such a manner as to unnecessarily impede the activities of others, and in the event of this occurring, the Employer shall have the right to withhold payment for as long as may be necessary in respect of the relevant Works in the area(s) concerned without thereby prejudicing the rights of others to institute claims against the Contractor on the ground of unnecessary obstruction. All finishing and tidying shall be carried out to the best advantage of the project as a whole.		

7.4. Traffic impacts

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Routes and times of construction activities must be carefully planned. Signage indicating construction activities and vehicles must be put in place.	Engineer/Contractor	Once
Access of all construction and material delivery vehicles must be controlled, especially during wet weather	Contractor	Ongoing
Wheel washing and damping down of the unsurfaced site must be implemented to reduce dust		
Vehicles must be maintained regularly to avoid the contamination of soil from oil and hydraulic leaks etc. Maintenance must be done off site or in cases of emergency with the aid of drip trays		
Soils compacted by construction must be deep ripped to loosen compacted layers and re-graded to even running levels		
Position entry and exit points to the camp site strategically to ensure minimal impact to any traffic flow		
All equipment transported to the site must be labelled as to their potential hazards. All the required safety labelling on the		

containers and trucks used must be in place		
The Contractor must ensure that all the necessary precautions against damage to the environment and injury to persons are taken in the event of a vehicle accident. • All staff operating vehicles to, from and within the site are required to attend a safety training session and to highlight the sensitivity of the environment on site. • Safety personnel must have functional emergency first aid kits readily available and must have emergency numbers on hand in the case of an accident		

7.5. Storage of Materials (including hazardous materials)

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Storage areas must be designated and demarcated. Clear signage of storage facilities containing hazardous materials must be placed. Storage areas must be secure to minimise risk of crime. Entry to storage areas must be authorised	Contractor	Ongoing
Only designated areas must be used for storage of construction materials, soil stockpiles, machinery and other equipment		
Fire prevention measures must be provided at all storage facilities		
Choice of location for storage areas must take into account the prevailing winds, distances to the river, general on site topography and water erosion of the soil		
Adequate storage facilities for the storage of oils, paints, grease, fuels, chemicals and any hazardous materials to be used must be provided to prevent the migration of spillage into the ground and groundwater		
The storage facilities (including tanks) must be on an impermeable surface that is protected from the ingress of storm water from		

the surrounding areas in order to ensure that accidental spillage does not pollute the local soil or water resources		
Protocol for Significant Spillages (of chemicals, fuels, etc): • The incident must be recorded and reported to Department of Water Affairs, the ECO and any other relevant authorities. • In the event of a spill, the following steps can be taken: o Stop the source of the spill; o Contain the spill; o Report the spill; o Remove the spilled product for treatment or authorised disposal; o Determine if there is any soil, groundwater or other environmental impact; o If necessary, remedial action must be taken in consultation with the relevant government departments. o The incident must be documented and recorded. • Mitigation measures to prevent recurrences must immediately be devised and implemented		
Staff handling these materials/substances must be aware of their potential impacts to themselves and the environment and follow appropriate safety measures. The contractor must ensure its staff is made aware of the health risks associated with any hazardous substances used and have been provided with the appropriate protective clothing/equipment in case of spillages or accidents and have received the necessary training.		

7.6. Soils

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Construction vehicles must only be allowed to utilise pre-planned access routes	Contractor	Ongoing
Cement, concrete and chemicals must be mixed on an impermeable surface and provisions should be made to contain spillages or overflows into the soil		

Contaminated soils must be contained and disposed of off-site at an approved land fill site		
After the construction phase any disturbed banks must be returned to their original profiles as far as possible		

7.7. Groundwater Pollution

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Adequate sanitary facilities and ablutions must be provided for the construction workers. The facilities must be serviced regularly and emptied to reduce the risk of pollution. The toilets etc must be sufficient in number for the number of personnel on site	Contractor	Ongoing
Use and/or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled		
Contaminated waste water must be managed by the Contractor to ensure that the river is not contaminated		
No washing or servicing of vehicles on site is allowed		
Vehicles must be well maintained to prevent leakages on site. Vehicle maintenance on site is prohibited unless unavoidable, in which case drip trays must be used to prevent soil contamination		
Site staff are not permitted to use watercourses for the purposes of bathing, laundry or for any construction or related activities. Municipal water (or another source approved by the ECO) must be used for activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting, etc		
Spills that result in the contamination of ground and/or surface water must be reported immediately to DW&S and the ECO		
Specific areas must be designated for cement mixing. Care to protect the soil from contamination must be taken		

Emergency contact numbers provided by the Municipality, should be contacted in order to deal with spillages and contamination of the river		

7.8. Surface Water Pollution

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Comments from Governmental Departments and Stakeholders must be kept in consideration in order to protect the watercourse on the site. A no-go area to protect the watercourses must be demarcated. No personnel may enter this area for any reason	Contractor	Ongoing
Any hazardous substances must be stored at least 50 m from any watercourses		
Contaminated waste water must be managed by the Contractor to ensure that watercourses are not contaminated		
Site staff are not permitted to use the river for the purposes of bathing, laundry or for any construction or related activities. Municipal water (or another source approved by the ECO) must be used for activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting, etc		
The contractor is responsible for taking steps to ensure that littering by construction workers does not occur and persons must be employed on site to collect litter from the site and immediate surroundings		
Spills that result in the contamination of ground and/or surface water must be reported immediately to DW&S and the ECO		
Emergency contact numbers provided by the Municipality, should be contacted in order to deal with spillages and contamination of the watercourses.		

7.9. Air Pollution

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Dust must be controlled by wheel washing and damping down of un-surfaced areas. The contractor must use all possible measures to keep dust to a minimum to ensure no nuisance to the local community is caused.	Contractor	Ongoing
Retain vegetation as much as possible to keep dust to a minimum		
A speed limit of 20km/hr must not be exceeded on unsurfaced areas by construction vehicles		
Any complaints arising from dust control must be attended to immediately by the contractor		
Odours from the chemicals and paints being used must be minimised by not leaving unused/empty vessels open unnecessarily		
The contractor must have operational fire-fighting equipment on hand to stop any errant fires especially in the dry winter months		

7.10. Noise

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
As per Regulations provided in the National Building Regulations and Building Standards Act (Act No. 103 of 1977) No. R574 of 2008, no person shall during the course of any construction use any machinery, machine, engine, apparatus, tool or contrivance, which in the opinion of the local authority may unreasonably disturb or interfere with the amenity of the neighbourhood: o On a public holiday or after 17:00 on any Saturday; and o Before 06:00 or after 18:00 on any day	Contractor	Ongoing

Noisy operations are not to be conducted at night		
Noisy operations must be scheduled with each other to limit the duration of noise		
All complaints against noise must be recorded and dealt with immediately by the contractor by adjusting schedules and/or noisy equipment or workers		
Where necessary, according to the Occupational Health and Safety Act, workers must be provided with ear protection gear		
Noise from labourers must be controlled. No loud music may be played		
Workers must not loiter around after work hours should their shift be complete. Where possible labour must be transported to and from the site by the contractor		
All vehicles and equipment must be regularly serviced to prevent the presence of noisy devices		

7.11. Flora on Site

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Alien vegetation is to be removed, should other species require removal the ECO and Biodiversity Specialist must be consulted prior to removal. A Permit from DAFF may be required. The ECO is to ensure that a list is provided of all indigenous trees / shrubs which are to be removed; this list must include the tree / shrub species and the number of each species	Contractor/ECO	Ongoing
Any removed vegetation must be suitably disposed as soon as possible. Burning of removed vegetation on site is prohibited		
During construction, workers must be limited to areas of need only and access to the surrounding areas must be strictly regulated and authorised. The no-go areas must be demarcated prior to construction in order to protect the watercourses and vegetation. Signposts must be erected in areas which are no-go. These areas must be demarcated with branded tape to limit		

access beyond.		
Collection of firewood, traditional medicinal plants and / or edible plants / fruit / seeds / vegetables is prohibited		
A designated rest area for workers must be allocated to minimise clearing of vegetation for such purposes. The contractor must ensure workers are made aware of this and that workers are not transgressing		
Disturbances of vegetation cover as well as rocky outcrops, logs, stumps, insect mounds must also be controlled by the contractor.		
All 'rescued trees / shrubs' must be utilised in the rehabilitation of areas affected by the project; this must be over seen by the ECO and the Biodiversity Specialist.	Contractor/ECO	
Prior to the clearing of sites, the ECO and the Biodiversity Specialist must ensure that all plants of conservation significance are removed; these plants may be planted in nature reserves in the eThekwini area. This may be done in consultation with the Local Municipality Environmental Management Unit.	Contractor/ECO	
Alien Invasive Plant Species found within the proposed developmental footprint, and areas which have been disturbed due to construction activities are to be removed, and areas which have been cleared / disrupted should be re-vegetated (with indigenous species) post construction.	Contractor/ECO	

7.12. Fauna on Site

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Sealant, coatings, adhesives and glazing's, can be toxic to flora and fauna, if released in to the environment. Therefore, the products used should be stored and used carefully, to save resources as well as protect the environment	Contractor	Ongoing
The contractor must ensure that no animals including monkeys, snakes, scorpions, spiders are disturbed, trapped, hunted or killed during the construction phase. Fishing and/or trapping of fish is strictly prohibited.		

Safety measures, regarding workers during the construction, against venomous snakes must be taken. The snake expert's number must be easily accessible and displayed.		

7.13. Floodplains

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Access to floodplain must be strictly controlled	Contractor	Ongoing
Empty vessels must not be left behind and must be removed as soon as possible to minimise pollution of the soils and water		
Mixing of cement must not be done in the flood plain		
Water from the river must not be used for mixing and mixing must be done on an impervious structure e.g. in a wheelbarrow. Any spillage of concrete must be cleaned immediately and care must be taken to avoid spillage		

7.14. Waste Management Plan - Litter

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Personnel must be trained in etiquette regarding littering and waste management.	Contractor	Ongoing
Closed refuse bins must be provided at strategic points to prevent accumulation of litter on-site and should be stored in sealed refuse bins which must be removed from site on a regular basis. The contractor must supply waste collection bins and skips for all manner of solid waste which must be disposed of at a registered landfill site. A certificate of disposal must be obtained by the contractor and kept on file for audit purposes.		
The contractor is responsible for taking steps to ensure that littering by construction workers does not occur and persons must be employed on site to collect litter from the site and immediate surroundings. A housekeeping team must be appointed to		

ensure that bins are regularly emptied and other litter is disposed of in the correct manner.		
Burning of solid waste on site is prohibited.		
The ECO will be monitoring the neatness of the work site and the camp site		

6.15 Waste Management Plan - Construction Rubble

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Rubble must be disposed of in a pre-agreed demarcated site in a sufficiently sized skip or vessel	Contractor	Ongoing
If debris is too large to fit in a vessel then use of an impervious mat must be made		
All debris and rubble must be regularly disposed of at a registered disposal site		
No indiscriminate spoiling of material will be allowed. All surplus or unsuitable material shall be spoiled in the local landfill site or designated areas as directed by the Engineer		

6.16 Waste Management Plan – Hazardous Waste

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
All hazardous waste materials must be carefully stored as advised by the ECO i.e. on impervious surfaces etc and then disposed of at a licensed landfill site	Contractor	Ongoing
Spills must be handled immediately following spill protocols		

A waste disposal contractor must be employed to remove any waste oil. However, maintenance of vehicles must not be conducted on site. Oil wastes should only be disposed of at licensed landfill sites designated to handle hazardous wastes. A disposal certificate must be obtained from the Waste Disposal Contractor		

6.17 Waste Management Plan – Sanitation

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
The contractor must install a sufficient number of chemical toilets on site	Contractor	Ongoing
Staff must be instructed to use the facilities provided instead of conducting indiscriminate sanitary activities on site		
Male and female toilets must be provided if necessary and possible		
Toilets must be 50m away from the watercourses		
Potable water must be provided for staff		

6.18 Remedial Actions

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. Excavation of contaminated soil must involve careful removal of soil using appropriate tools to storage containers until disposed of at a registered hazardous landfill site. The application of soil absorbent materials as well as oil-digestive powders to the contaminated soil may be required. Contaminated remediation materials must also be removed from spill area, stored and disposed of with due diligence	Contractor	Ongoing
Spill incidents must be recorded and reported to Department of Water Affairs (DW&S), the ECO and any other relevant		

authorities. In the event of a spill, the following steps can be taken: o Stop the source of the spill; o Contain the spill; o Report the spill; o Remove the spilled product for treatment or authorised disposal; o Determine if there is any soil, groundwater or other environmental impact; o If necessary, remedial action must be taken in consultation with the relevant government departments. o The incident must be documented and recorded. Mitigation measures to prevent recurrences must immediately be devised and implemented		

6.19 Health and Safety

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Unskilled labour must be trained relevantly including environmental training. Workers must receive thorough training in using potentially dangerous equipment or chemicals	Contractor	Ongoing
The ECO is not responsible for the health and safety policies of workers on site. The EMP briefly addresses this issue since the main aim of the EMP is protection of the environment and surrounds.		
Safety measures, work procedures and first aid must be implemented on site. First aid facilities must be available on site at all times. Compliance with the Occupational Health and Safety Act is the responsibility of the contractor.		
The contractor is responsible for ensuring that all equipment is maintained in a safe operating condition		
A safety officer must be appointed and keep records of health and safety incidents on site. Any incidents must be reported to the project manager immediately		
Protective gear such as safety harnesses, hard hats, safety shoes and other equipment must be provided by the contractor. Workers have the right to refuse work in unsafe conditions. No person may enter the site without training and appropriate		

protective gear		
A record of drugs administered or precautions taken and the time and dates when this was done must be kept. This can be used in court if necessary for any claims		
The contractor must ensure that workers are educated about HIV/AIDS and its risks		
Material stockpiles or stacks, such as pipes must be stable and well secured to avoid collapse and possible injury to site workers		
Eating and resting areas must be regularly serviced and cleaned to ensure hygiene		
Hazardous working areas must be marked		
Emergency numbers for local police and emergency personnel/units must be placed in a prominent area		
Trespassing and/or utilising the site as a thorough fare is prohibiting by unauthorised persons. Contractor staff are prohibited from trespassing over the site boundaries		
Interaction with neighbours and objecting parties at the site must be well documented. A complaints register must be readily available on site. Interaction with external parties must be courteous		

6.20 Fire Management

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Fire-fighting equipment must be provided at strategic points, including fire blankets as per OHSA.	Contractor	Ongoing
All staff must be trained in fire hazard control and firefighting techniques		
All flammable substances must be stored in dry areas which do not pose an ignition risk		

No open fires are allowed on site		

6.21 Security

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Access to the equipment and facilities on site must be strictly controlled and authorised only by the contractor. 24-hour security on site for the construction could aid in theft control.	Contractor	Ongoing
Trespassing on adjoining properties by workers is prohibited		
All houses, walls, fences, gardens, trees and livestock situated within the site are private property. No encroachment is to be made onto these properties by the contractor or his employees, without the owner's consent		
The Contractor shall advise the community liaison officer to notify property owners at least two days in advance of the activities to be carried out inside their properties. Property owners consent should be obtained prior to excavation through crops and properties, etc.		
Movement and access to properties are to be maintained for all current residents at all times during the contract		
Existing services to individual properties within the site, e.g water reticulation, electrical reticulation and telephone lines shall be kept operational as much as possible.		

6.22 Social Impacts

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
All contact with any affected parties must be courteous at all times. The objections and rights of an affected party must be	Contractor	Ongoing

respected at all times. Measures to address the objections must be dealt with in an organised manner		
A complaints register must be kept on site together with a copy of the final EMP. Details of complaints must be recorded and incorporated into the monthly audit reports. This complaints register must be maintained by the contractor and available for inspection by the ECO		
Damage to infrastructure must be rectified immediately by the contractor. A record of all damage and the remedial actions must be kept on site by the contractor and available for inspection by the ECO		
Construction workers must be clearly identifiable by wearing the contractor's uniforms. Workers must also be issued with identifications tags		
Payment of workers must comply with the applicable Labour Law Legislation in terms of minimum wages		

6.23 Cultural and Heritage Aspect

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Any finds must be reported to the ECO who will report to Amafa and the Local Authorities. The contractor must ensure that the workforce is aware of the necessity of reporting any historical finds to the ECO so that appropriate action can be taken	Contractor	Ongoing
Any discovered artefacts must not be disturbed or removed before a permit is obtained in certain instances		

6.24 Incident Reporting

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Incidents regarding complaints of noise and disturbances must be recorded by the contractor and/or his representative	Contractor	Ongoing

immediately with details of time of incident, time of complaint and nature of complaint		
Incidents regarding minor injuries must be recorded in an incidents and injuries file detailing time of incident, nature of incident and any medication and/or medical supplies provided from the first aid kit that must be available on site at all times		
Incidents regarding safety breaches including non-compliance to the safety guidelines must be recorded detailing the time of the incident, the persons involved/responsible and the nature of the incident		
Incidents regarding major spills of more than 5L of a hazardous material must be dealt with in the manner described previously and recorded and reported within two days of the spill. The incident must be reported to the ECO who will relay it to the DW&S and EDTEA		
Any other incidents of concern that are covered in the various sections of this EMP must be recorded appropriately in an incident records file and reported to the ECO during the monthly audit		
The records file and other paperwork including the EMP, Emergency Protocols and waybills for appropriate disposals must be available in the site office for inspection at any given time		

6.25 Scope of Work

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
Contractor must provide method statements and adhere to the agreed scope of works.	Contractor	Ongoing
Contractors must provide project schedules that will enforce penalties for delays		

6.26 Closure of Construction Camp Site

- Once installation of the pipeline has been completed and all excess material has been removed, the camp site must be rehabilitated.
- Any spilled concrete must be removed and any soil compacted during the construction phase must be ripped, levelled and re-vegetated or surfaced.

- After all construction work is complete, the contractor is required to dismantle/detach/demolish and remove the temporary facility from site and make good all damage, to the satisfaction of the engineer and ECO.
- All structures comprising the camp site must be removed from the site.
- The camp, storage and waste storage areas must be inspected for spills of substances such as paint, oil, etc and these must be cleaned up.
- All temporary worker facilities must be removed or decommissioned.
- Copies of all certificates from any waste disposals are to be provided to the ECO.
- Burying of any waste on site is prohibited. All waste must be disposed of at the appropriate facilities.
- The contractor must repair any damage that the construction works may have caused to neighbouring sites.
- The ECO must be notified of the complete decommissioning of the site camp after which the ECO will perform a final audit of the site.

7 REHABILITATION AND OPERATIONAL PHASE

The Rehabilitation Phase refers to the closing of the camp site and site handover to the Developer. The Operational Phase is briefly addressed and refers to the Management and Maintenance of the Pipeline.

7.1. Rehabilitation:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
The Developer is responsible for compliance with the provisions for Duty of Care and Remediation of Damage in accordance with Section 28 of National Environmental Management Act (NEMA), Act No. 107 of 1998	Developer/Contractor	Ongoing
All remaining maintenance materials, building rubble and waste are to be removed from the site. Remove all construction material from the area where construction has been completed. To be undertaken by hand.		
All disturbed surfaces compacted by maintenance activities including ablutions and storage areas must be deep ripped to a minimum depth of 30 cm to allow organic contaminants to breakdown and promote vegetation establishment		
Final rehabilitation must be completed within a period specified by the Engineer		
Topsoil that has been stockpiled during construction must be applied to the area to undergo rehabilitation. The depth of the topsoil layer to be applied depends on the natural depth of topsoil in the area, and the amount of topsoil that may have been lost during construction.		Once
The naked ground may be seeded with a stabilising grass mix, suited to the conditions. The quantity of seed used will depend on the slope, with a steeper slope requiring a heavier application of seed. For slopes: • >15º: 25-50 kg/ha • <15º: 15-25 kg/ha		Once

7.2. Employees:

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE	MONITORING

	PERSON(S)	FREQUENCY
Staff of EWS must take cognisance of this EMP as well as any local Municipality Standard EMP for construction, maintenance and management.	Developer	Ongoing
Staff must abide by the mitigation measures that apply to waste management, sanitation, surface water pollution, traffic, access, soil erosion, stormwater management, protection of flora and fauna, public safety & health and the noise and disturbance factor.		
Employees must receive necessary training with regard to environmental management.		
Employees must wear uniforms, supplied by the employer		

7.3. Management and Maintenance

ACTIONS AND MITIGATION MEASURES	RESPONSIBLE PERSON(S)	MONITORING FREQUENCY
~~Pipeline monitoring will be the most effective measure in identifying possible leakages. Laying the pipes in soils that are not conducive to lateral flow may prevent excessive erosive action should a leakage occur~~	Developer	Ongoing
Immediate repair operation for any damaged portion of the new infrastructure must be taken		
Buffer zones, gabion walls, ripraps etc., must be implemented to prevent stormwater from pooling and to direct stormwater to existing stormwater infrastructure on the surrounding roads and residential area		

8. PROPOSED MONITORING AND AUDITING

8.1. Site Audits

- The route and construction activities must be inspected during the construction and operational phases, according to the conditions of the environmental authorisation, which is generally once a month during construction.
- The date and time of the inspection may not be available to the contractor and/or developer.
- The audit must be executed by an independent environmental control officer (ECO).

8.2. Audit Methodology

- The inspection will cover all aspects stipulated in the proposed management plan.
- Each action will be assigned according to "Adequately done", "Inadequately done" and "Not done".
- The ECO may adjust actions should they not be effective in protecting sensitive elements or mitigating threats. This may require an amendment to the EMP and EDTEA must be consulted prior to any changes.
- Audits will be well documented in Monthly Audit Reports and submitted to the Competent Authority and the Project Manager.

8.3. Responsibility

- Ultimately, the client (eThekwini Water and Sanitation) is responsible for the implementation of the environmental management plan.
- Should a concern be raised by an interested and affected party and/or stakeholder, EDTEA will refer to the monthly audit reports from the ECO.
- The ECO is not responsible for the implementation of the EMP but is responsible for auditing the developer's and contractor's compliance to the EMP.
- Following the rehabilitation of the affected site and the final ECO inspection and report, a site handover to the developer must be scheduled.

CLOSING COMMENTS

- This Draft EMP will be submitted to KZN EDTEA for approval.
- The Client's/Contractor's Environmental Code of Conduct, the stormwater management plan and specialist study reports must be provided as Appendices to this EMP in the Environmental File during construction.