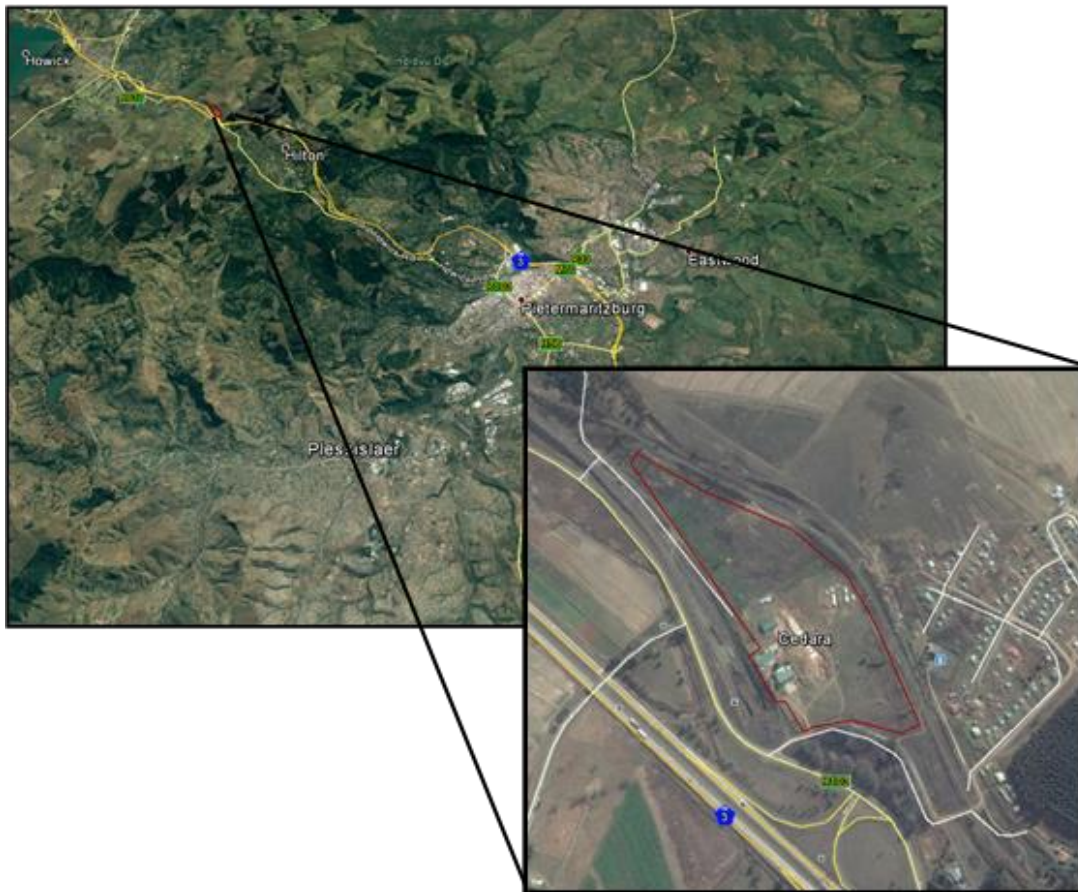


# Draft Basic Assessment Report

## FOR MADRASSA AN-NOOR FOR THE BLIND IN CEDARA, UMNGENI LOCAL MUNICIPALITY, UMGUNGUNDLOVU DISTRICT, KWAZULU-NATAL

EIA REFERENCE NUMBER: DC22//0020/2017

April 2017



Prepared by:

1World Consultants (Pty) Ltd  
P. O. Box 2311, Westville, 3630  
Tel: 031 262 8327  
Contact: Fatima Peer  
Email: fatima@1wc.co.za






مدرسة النور للمكفوفين  
MADRASSA AN-NOOR FOR THE BLIND

1world  
consultants

## DRAFT BASIC ASSESSMENT REPORT

For Madrassa An-Noor for the Blind in Cedara, Umngeni Local Municipality,  
Umgungundlovu District, KwaZulu-Natal

**EIA Ref No.: DC22//0020/2017**

Verification Page				Rev 1.1
Report No. ENV15026	April 2017	Status	Draft	
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Verification	Capacity	Name	Signature	Date
Author/s	EAP	Roschel Maharaj Bryan Paul	 	18 April 2017
Reviewed by	Project Manager	Fatima Peer		18 April 2017

## **Executive Summary**

1World Consultants (Pty) Ltd has been appointed by the developer Madrassa An-Noor as the independent Environmental Assessment Practitioner (EAP), to undertake the Basic Assessment for the construction of The Madrassa An-Noor for the Blind Facility, which is located in Cedara, Umngeni Municipality, KwaZulu-Natal. The scope and extent of the Madrassa An-Noor for the Blind facility in Cedara will comprise of bulk earthworks, concrete works, the excavation of foundations and installation of piping to connect to existing municipalities infrastructure in the area. The proposed development triggers the need for a Basic Assessment since buildings and structures will be exceeding 100 square metres in size; the area that the proposed development is in falls within 5km of Hilton College, Midmar Dam and Doreen Clark Nature Reserve which are all identified in terms of NEMPAA.

The preferred route alternative is one that is found within an area that is already disturbed and vacant areas that is not identified as a place of environmental importance, as confirmed in the Biodiversity Assessment. The construction site has been chosen relative to its surroundings. Although there is a small wetland found on site, the construction activities are found outside the 25m buffer as per the Wetland Delineation and Functional Assessment Report. The development area has already been transformed by human impact and is of little environmental value. The preferred site will be located on these disturbed areas in order not to further degrade the selected property and allow for ecological enhancements through the control of alien invasive plant species, while encouraging indigenous vegetation.

The Public Participation Process involved consultation with the relevant authorities, the landowners affected along the way, community leaders and other identified Interested and Affected Parties (I&APs). Newspaper advertisements were published and site notices were erected on site to inform the general public of the Basic Assessment Process. A public meeting was not requested or held prior to the distribution of the Draft BAR.

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 Assessment was conducted by 1World Consultants

The Draft BAR and EMP are hereby circulated to registered I&AP's for a **30-day review and comment period**. The comments and responses provided to 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.

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**BASIC ASSESSMENT REPORT (REF NO. DC22//0020/2017)**

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## INTRODUCTION

1World Consultants (Pty) Ltd has been appointed by the developer Madrassa An-Noor as the independent Environmental Assessment Practitioner (EAP), to undertake the Basic Assessment for the construction of Madrassa An-Noor for the Blind Facility, which is located in Cedara, Umngeni Municipality, KwaZulu-Natal.

Table 1 details the proposed development and specifications.

**Table 1: Madrassa An-Noor Blind Facility Project Specifications**

Madrassa An-Noor for the Blind Facility Project	
Ward	06
Property Description	<ul style="list-style-type: none"> <li>• Property Type – ERF</li> <li>• Erf Number – 2</li> <li>• Portion Number – 0</li> <li>• Township – CEDARA</li> <li>• Registration Division – FT</li> <li>• Deeds Office - Pietermaritzburg</li> </ul>
Development Specifications	Construction of the following: <ul style="list-style-type: none"> <li>• Dormitory</li> <li>• Multi-purpose area</li> <li>• Library &amp; Offices</li> <li>• Musjid</li> <li>• Hall</li> <li>• Residential units</li> <li>• Shed</li> <li>• Pool</li> <li>• Change room</li> <li>• Storage</li> <li>• Servants Quarters</li> <li>• Commercial area</li> <li>• Hilltop Residents</li> </ul>
Development Final Footprint	Approximately 2.2034ha

It was confirmed in the EIA enquiry, Appendix C, that because of the realignment of the old layout plan submitted to the EDTEA it would trigger new additional activities and therefore an amendment application would not be applicable. Although the most recent layout plan does not fall within the 32m buffer of the wetland the EIA Enquiry response did mention concerns that the construction would infringe on the buffer during construction and operation. Similarly, excavation within the wetland is not envisaged as part of the plans, but the possibility does exist and this activity is therefore included in this report. It was further noted that orientation of the road from the parking could, in the future impact on the buffer of the wetland, thus increasing its extent. The full response to the EIA Enquiry can be found in Appendix C.

As per GNR 982 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 GNR 983 and GNR 985 of the EIA Regulations, 2014, are applicable to this proposed project with regards to both the construction phase and operational phase activities. Hence, this BA Report will focus on both the construction and operational 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.

### (a) ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Business name of EAP: **1World Consultants (Pty) Ltd**  
 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@1wc.co.za](mailto:fatima@1wc.co.za)

**Table 2: Names and Expertise of Representatives of the EAP**

Name and Title	Qualifications and Affiliations	Role	Experience at Environmental Assessments
Fatima Peer	B.Sc (Hons) Pr. Sci. Nat., IAIAsa	Project Manger/ Senior EAP	6 years
Adila Gafoor	B.Soc. Sci. (Geog and Env Management) IAIAsa	Junior EAP	2 years
Roschel Maharaj	B.Sc. (Geography and Env. Science) IAIAsa	Junior EAP	1 year
Bryan Paul	B.Sc. (Zoology and Botany with Geography Stream) IAIAsa	Biodiversity Officer	1 year

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
Naeem Agjee (Aeon Nexus Consulting)	MSc (Environmental Science)	Wetland and Freshwater Studies	Wetland Delineation and Freshwater Study (Section k)	Specialist Wetland Delineation & Functional Assessment for the Madrassa An-Noor Blind Facility

Jean Beater (JLB Consulting)	MA (Archeology)	Heritage Impact Assessment	Phase 1 Heritage Impact Assessment (Section k)	Madrassa An-Noor Facility for the Blind, Cedara, Ward 6, Umngeni Municipality Kwazulu-Natal
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## (b) LOCATION OF THE ACTIVITY

The Madrassa An-Noor for the Blind Facility (29° 32' 2.32" S and 30° 16' 27.94" E) is located approximately 12km from Pietermaritzburg in close proximity to the N2 highway on Cedara road, Umngeni Municipality, KwaZulu-Natal. Prominent towns in the area include Hilton and Howick. Land uses in the general area include large-scale livestock and crop farming. The proposed development involves the construction of multipurpose buildings to meet the needs and education of the visually impaired within the greater KwaZulu-Natal area.

The proposed development is located within Ward 06 of the Umngeni Municipality. The 21-digit Surveyor General (SG) number for the property affected is provided below. The coordinates for the development is also provided in Table 4.

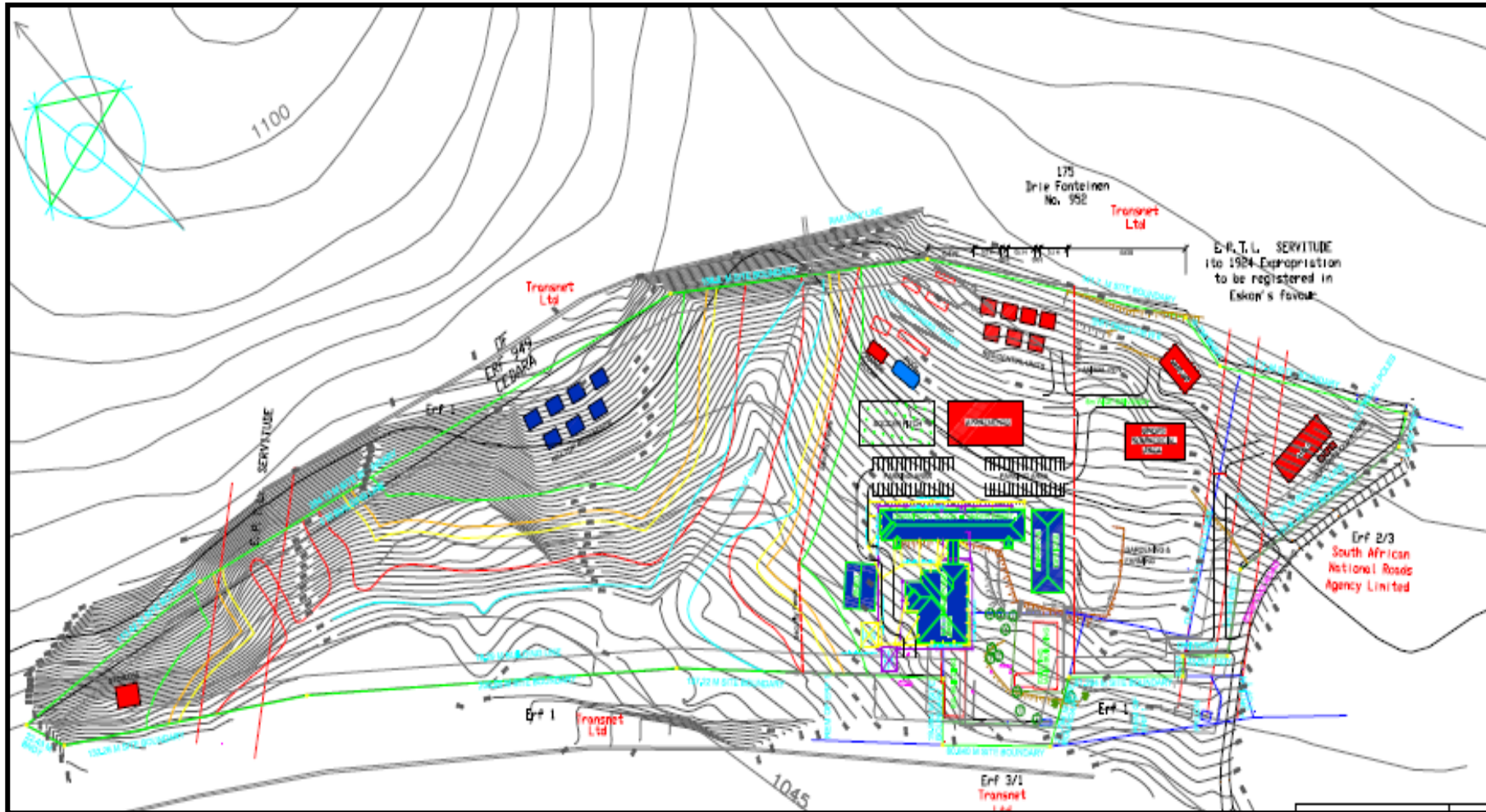
**Table 4: Site Details**

Property Description	Township CEDARA, Erf 2/0
SG Number	N0FT0047000000020000
Entire Property Size	8.3673Ha
GPS Coordinates of the proposed development	29° 32' 2.32" S and 30° 16' 27.94" E

## (c) PROPOSED PLANS

Proposed plans of the development are provided in Appendix B and in Figure 1 below. The plans depict the development area and the alignment of the individual building components. On the property size of approximately 8.3673ha the proposed development is approximately 2.2034ha in total. Proposed plans include the development of a Dormitory, Multi-purpose Area, Library and Offices, Masjid, Hall, Residential Units, Shed, Pool, Change Room, Storage, Servants Quarters, Commercial Area, and Hilltop Residents.





**Figure 1: Plans for Proposed Madrasa An-Noor for the Blind Facility (see Appendix B)**



## (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) and Government Notice (GN) R 985 (Listing Notice 3), requiring a Basic Assessment (BA) Process are applicable to the proposed construction of the facilities:

**Table 5: Relevant Activities from EIA Regulations 2014**

Activity Number	Description	Applicability
GNR 983, Item 12 (x) (xii) (c)	The development of- (x) buildings exceeding 100 square metres in size; (xii) infrastructure or structures with a physical footprint of 100 square metres or more;  where such development occurs- (c) within 32 metres of a watercourse, measured from the edge of a watercourse;	As per the layout plan, all buildings and structures proposed will be exceeding 100 square metres in size and may not be within 32m of the watercourse, but as provided in the EIA Enquiry response, the wetland buffers may expand and render these structures as being within 32m of a watercourse.
GNR 983, Item 19 (i)	The excavation or moving of soil, sand, pebbles or rock of more than 5 cubic metres from-  (i) a watercourse;	Although the layout plan does not indicate the excavation of material for the proposed structures, the possibility of doing so cannot be excluded since the wetland buffers may expand. Therefore, in the interests of providing and obtaining a complete authorisation, Item 19 is to be regarded as an applicable activity.
GNR 985, Item 14 (vi)(x)(xii), (a)(c), (x)(aa)	The development of- (vi) bulk storm water outlet structures exceeding 10 square metres in size; (x) buildings exceeding 10 square metres in size; (xii) infrastructure or structures with a physical footprint of 10 square metres or more;  where such development occurs- (a) within a watercourse; (c) within 32 metres of a watercourse, measured from the edge of a watercourse; in KwaZulu-Natal:  (x) Outside urban areas:	Following the EIA Enquiry, it was identified that the area that the proposed development of more than 10 square metres is in, falls within 5km of Hilton College, Midmar Dam and Doreen Clark Nature Reserve which are all identified in terms of NEMPAA.

	(aa) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.	
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Hence, a BA Process is required. The Application for Environmental Authorisation document is attached to this report as Appendix C.

## (ii) Project Description

The scope and extent of the Madrasa An-Noor for the Blind Facility in Cedara will comprise of bulk earthworks, concrete works, the excavation of foundations and installation of piping to connect to existing municipalities infrastructure in the area. This facility will consist of the following elements:

**Table 6: Proposed Building Dimensions**

Proposed Facilities	Meters
Dormitory	15 x 78
Multi-Purpose Area	36 x 34
Library & Offices	17 x 38
Musjid	12 x 20
Hall	12 x 32
Residential Units	8 x 7
Shed	21 x 17
Pool	7 x 15
Change Room	6 x 10
Storage	10 x 12
Servants Quarters	3 x 3
Commercial Area	16 x 32
Hilltop Residents	8 x 7

## (e) POLICY AND LEGISLATIVE CONTEXT

Table 7 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 7: 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	Department of	1998

pollution of water resources defined under the Act (Section 19).	Water Affairs and Forestry	
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

## (f) NEED AND DESIRABILITY

In South Africa, the government provides secular education through its special schools for the disabled. However, there has always been a general shortage of facilities that cater specifically for the Muslim community and their religious requirements. Although at many of the government funded facilities there are copies of the Qur’ân available, there is often a shortage of time and resources such as teachers who can guide children along their religious paths.

Once constructed and in operation the Madrassa An-Noor Blind facility will help attend to disabled children’s special needs through smaller classes and less time constraints that normal Madrassas would entail. This facility would use the opportunity to also cater for other needs while educating such as to encourage its students to participate in sports, growing of crops and interact with farm animals that will be kept on site. The contribution of crops grow at the school to the midlands meander will install a sense of accomplishment which some may have not had an opportunity to have at another institution.

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

The proposed development triggers Listing Notice GNR 983 Item 12 (x) (xii) (c), GNR 983 Item 19 (i), and GNR 985 Item 14 (vi)(x)(xii), (a)(c), (x)(aa) 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 and expansion of An-Noor.

(i) Preferred Site Alternative

The preferred site alternative is one that is found within an area that is already disturbed and although mostly undeveloped and vacant, is not identified as a place of environmental importance, as confirmed in the Biodiversity Assessment provided in Appendix E. The construction site has been chosen relative to its surroundings. Although there is a small wetland found on site, the construction activities are found outside the **25m buffer** allocated in Wetland Delineation Assessment Report found in Appendix E. The proposed development covers areas of the property that have already been transformed by human impact and are of little environmental value. The preferred site will be located on these disturbed areas in order not to further degrade the selected property and to allow opportunities for ecological enhancements, through the control of alien invasive plant species, whilst encouraging indigenous vegetation.

Figure 1 above provides the development plan. The images are provided as A3 drawings in Appendix B. Figure 2 below provides the general locality of the site for Madrassa An-Noor for the Blind facility.



**Figure 2: General locality of the site for Madrassa An-Noor for the Blind facility**



### Site Photographs



*Plate 1: Northern View of the site*



*Plate 2: North East View of the site*



*Plate 3: Eastern View of the site*



*Plate 4: South East View of the site*



*Plate 5: Southern View of the site*



*Plate 6: South West View of the site*



*Plate 7: Western View of the site*



*Plate 8: North West View of the site*

(ii) Preferred Technology Alternative

There is no technological alternative to the one that will be implemented on this site during the construction of this facility, since the development was previously authorized and work was commenced.

At the time of the Draft BAR there were no alternative sites available for the development of this facility. An alternative site will not be feasible or reasonable since the preferred site is in an area that will not be greatly impacted upon by the development nor will this facility pose any serious environmental impacts to the surrounding areas.

(iii) No-Go Alternative

The No-Go Alternative is to not continue with the construction of this facility. Both the students of the area and the greater part of KwaZulu-Natal would continue to have insufficient facilities to cater for the visually impaired and rely on the basic special facilities and mainstream Madrassa which does not sufficiently meet the needs of the visually impaired.

## (h) THE PROPOSED PREFERRED ALTERNATIVE

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

- **Newspaper Advertisement**

Newspaper advertisements were published early in the project to inform the public of the BA Process. An advertisement will be published in English on 25/04/2017 in the Drakonteur newspaper. This Newspaper is distributed throughout the Hilton and Cedara areas. A copy of the advertisement will be provided in Appendix D of the Final BAR.

- **Site Notice Boards**

A site notice board was strategically placed at the site on 20/04/2017. The notice board was provided in English. Appendix D contains a copy of the notice board and pictures of the notice board on site. The purpose of the notice boards was to inform any interested parties of the proposed BA Application and Proposed Development. Contact details of the EAP was 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 is provided in Appendix D.

- **Public Meeting**

A public meeting was not requested by the Interested and Affected Parties, nor held prior to the distribution of the Draft BAR.

**(i) Issues Raised by the I&APs**

Copies of the Background Information Document were sent to the following I&APs for review and invitation to register on the I&AP database:

- Ezemvelo KZN Wildlife
- Department of Water and Sanitation
- Department of Transport
- Umngeni Municipality
- UMgungundlovu District Municipality
- AMAFA Heritage
- Department of Corporative Governance and Traditional Affairs
- Eskom
- Transnet Rail
- Office of the Regional Land Claims Commission (KZN)
- Cllr Craig Millar of Ward 06 (Umngeni)

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.

Comments following distribution of the BID:

No concerns were provided. The full report is provided as the Comments and Responses Report in Appendix D.

Comments following distribution of the Draft BAR:

All comments received on the Draft BA Report will be summarised and provided in the Final BAR.

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

The surrounding area of the proposed development is home to an array of different land-uses and environmental assets. The site is located directly alongside Cedara Road and within close proximity to the N3 Highway which makes accessibility to site both easy and convenient. Much of the surrounding area is used for agriculture, like that of the local agricultural college and a mixture of residential areas and reserves such as Midmar Dam, Doreen Clark Nature Reserve, Queen Elizabeth Park Nature Reserve and Hilton College Nature Reserve within a 5km radius of the development.

The study area falls within the sub-tropical summer rainfall region of South Africa. Summers are hot and humid while winters are warm and dry, with occasional frost (Cooper, 1993). Generally, June and July are the coldest months, while December to February are the warmest months. The average maximum temperature for Cedara is 22.5°C with a minimum of 9.9°C (RDS, 2012). These readings show that there are periods during which the area experiences excessive cold,

usually during winter. There are on average 32 days that Cedara experiences frost. In addition, the area is characterized by mist which is an important source of moisture during dry periods which has a particular beneficial effect on pastures (RDS, 2012).

A **Wetland Delineation and Riparian Assessment** has been completed and is provided in Appendix E. The proposed development site falls within the Mvoti to Umzimkulu WMA in the Mdloti Region, Quaternary Catchment U20E. The key catchment scale impacts include irrigated agriculture and settlements. There are no major hydrological features (i.e. dam and/or rivers) within close proximity to the development site. Several watercourses traverse through the development site (western portion). The natural hydrology of the area and the development site in particular has been modified owing to the installation of roads and railway lines. In addition, the natural hydrological regime of the wetland environments has been altered owing to the presence of invasive alien plant (IAP) species within the wetland environments.

The general topography of the area is characterised by gentle undulating hills with moderate to steep slopes. Beyond the northern boundary of the proposed development site, the area is characterised by a steep hillslope. Several watercourses traverse through the development site forming several shallow valleys on the footslope of the hill. The elevation profile of the development site ranges from 1046m above mean sea level (amsl) to 1063m amsl, with an average of 1051m.

The geology of the area is of the Karroo system of sedimentary rocks with predominantly mudstone and sandstone of the Escourt formation. However, these sedimentary rocks have been extensively altered by dolerite intrusions. The soils of the Mistbelt areas are soils which have formed under high rainfall, except on steep slopes where there is rapid erosion, weathering of the underlying rock is at its advanced stage. For these reasons, the soils tend to be deep, strongly leached, friable and rapidly permeable without any well-developed structure (RDS, 2012).

The proposed development site is located within the Midlands Mistbelt Grassland (Gs 9) vegetation unit (Mucina and Rutherford, 2006). According to Acocks (1975) the natural vegetation of the Cedara area is Mistbelt Ngongoni veld. This veld type had originally been Podocarpus (Yellow Wood Forest) before anthropogenic influences. This veld is now largely dominated by the unpalatable grass species, *Aristida junciformis* (Ngongoni grass). Some natural facultative wetland vegetation has been observed in wetland environments. These facultative species include *Typha capensis*. However, most of the proposed site is grassland with the presence of a few alien plant species. Invasive alien plant species scattered throughout the site included *Solanum mauritianum* and *Chromolaena odorata*.

Both the Umngeni Municipality and uMgungundlovu District Municipality have been contacted and included in the Basic Assessment Process. 1World Consultants (Pty) Ltd have only been appointed to facilitate the Basic Assessment process, should a Water Use Licence (WULA) be required the Department of Water and Sanitation must be contacted by the appointed consultant.

A **Heritage Impact Assessment** was undertaken to assess the impact of the proposed development on the development footprint and its surroundings as the area is considered sensitive in terms of heritage values. Although AMAFA identified the development to be a threat to structures, archaeological material and the historical components of the general area the HIA concluded differently. According to the HIA conducted by Jean Beater the site inspection revealed **no heritage resources** and this was attributed to the large-scale disturbance of the project area including the area having been an informal settlement. The existing construction work and construction camp have added to the disturbance of the area.

The proposed developments may collectively trigger Section 38 (1) (c) (i) of the National Heritage Resources Act (NHRA), 1999 (Act No 25 of 1999). The relevant section of the NHRA states that:

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

(c) any development or other activity which will change the character of a site —

(i) exceeding 5 000m<sup>2</sup> in extent;

must notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

The South African Heritage Resources Agency's (SAHRA) Fossil Sensitivity Map indicated that the project area is situated in an area of high palaeontological/ fossil sensitivity. This level of sensitivity generally requires that a desktop palaeontological assessment be undertaken. However, due to the disturbed nature of the project area, there is a low probability of finding intact and significant fossils therefore it was recommended by SAHRA that no further studies should be undertaken in this regard. The project area has been disturbed by various man-made features including existing buildings, dams and power lines and the remains of previous habitation. No visible heritage sites/ resources were found in the project area therefore it was recommended that the proposed expansion of the facility could proceed with the provision that the mitigation measures provided were adhered to.

A **Biodiversity Study** has been completed for the site and is included as Appendix E. The flora aspect of this report was compiled using the SANBI BGIS Maps which make use of The Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford 2006) as well as the National Red List of Threatened Plants of South Africa (Raimondo *et al.* 2009). Mammal names are those used by Stuart (2005), bird names Sasol (2015), reptile names by Branch (1998) and amphibian names by Du Preez and Carruthers (2009).

The site environment has undergone 100% transformation and the natural species expected to be in this area have been removed by previous activities on site. The limited vegetation that currently exists has either been planted (*Prunus avium*) for aesthetic purposes or has been dispersed onto site by surrounding areas as exotic species (*Lantana camara*). This site falls within a Critical Biodiversity Area but after the ground study was conducted, it was concluded that this development should not cause a significant impact to the area provided the development follows suggested mitigation techniques in the Environmental Management Plan (EMP). At the time of the study there were no species protected by the KwaZulu-Natal Province observed on site nor were there any species recorded that are protected by the National Forest Act.

Regarding the fauna component, there were no fauna recorded during the ground study and the literature study revealed that no species of great conservation importance should occur on site, mainly due to the local disturbances and lack of preferred habitat found directly on site. However, it would be advised that the developer limits the access to the nearby wetland during both the construction and operational phases of the developmental lifespan to further prevent degradation of the only notable habitat on site. The wetland is however recorded to be far from pristine but could supply habitat to a limited amount of reptile and amphibian species, although none were recorded at the time of the study.

*Net-habitat loss on site will range from low to very low, as there is already a limited amount present on site and in addition to the clearing of vegetation the operational activities should not be substantially higher given that the mitigation techniques are followed by the developer. Therefore, there is an opportunity for the developer to enhance the PES by efficiently implementing a rehabilitation plan on site ensuring that more habitat is created for locally occurring organisms within the area. This will aid in improving the site and the surrounding areas and enhance the objectives of this facility.*

Regarding **Social Aspects**, the site itself is located in an area that is predominately agricultural grounds, with a small residential area in close proximity to the Aradec Railway Station.

## (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.

**(ii) Impacts Identified**

The impacts of the construction of the proposed pipeline are summarised in Table 9.

**Table 9: Construction and Operational Phase - Impacts Identified and Associated Mitigation Measures**

Nature of Impact	Frequency		Severity		Duration	Spatial Scope	Impact Score with Mitigation	Significance
	Unmitigated	Mitigated	Unmitigated	Mitigated				
<b>CONSTRUCTION PHASE OF THE PREFERRED ALTERNATIVE</b>								
Motor vehicle Traffic, and Access	5	4	2	1	4	3	12	Medium
Soil erosion and stormwater management	4	3	4	2	3	2	10	Medium
Ground and Surface water pollution (river)	5	3	4	2	4	3	12	Medium
Noise and disturbance	5	3	2	1	3	2	10	Medium
Destruction of flora and fauna	5	3	3	2	3	3	11	Medium
Waste and litter	5	3	3	2	3	2	10	Medium
Visual impacts	5	4	3	2	2	2	9	Low
Public safety and health	5	3	3	1	3	2	9	Low
Existing Infrastructure Disturbance	4	2	2	1	3	2	8	Low
Socio-Economic Impacts	5	5	3	2	3	3	13	Medium
<b>OPERATIONAL PHASE OF THE PREFERRED ALTERNATIVE</b>								
Traffic and Access	3	2	3	2	4	2	10	Medium
Erosion Management	3	2	3	2	4	2	10	Medium
Groundwater Management	2	1	3	1	4	3	9	Low
Hydrology and Stormwater Management	3	2	3	2	4	3	11	Medium
Noise and Disturbance	2	1	2	1	4	1	7	Low
Air Quality	2	2	1	1	3	3	9	Low
Visual Impacts	3	2	2	1	4	2	9	Low
Waste Management	5	2	3	1	4	2	9	Low

**(iii) Significance of Impacts**

Based on the outcome of the impact assessment matrix noted in Table 9 above, the overall significance impact with mitigation measures, is considered to be MEDIUM i.e. the impact is considerable and requires adequate mitigation to reduce potential damage to the environment.

The highest impact of significance is the socio-economic impact in particular which is linked to the provision of specialised education for the visually impaired and is a positive impact. Owing to the presence of a wetland on site, ground and



surface water contamination is a major impact that is predicted and requires mitigation. Other highlighted impacts are associated with motor vehicle traffic and access with special emphasis to increased traffic caused by construction vehicles as this site which is within close proximity to the N3 Highway.

## (j) MITIGATION MEASURES

CONSTRUCTION PHASE
<p><b>Motor Vehicle Traffic and Access – presence of construction vehicles and personnel leading to traffic congestion, dust, noise and threat of accident</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Pointsmen to guide traffic for entry and exit of construction vehicles must be used. Signage for presence of construction vehicles must be erected.</li> <li>• Construction phase must be as short as possible. Reliable building contractors must be employed.</li> <li>• The site must be wet regularly to minimise dust. Vegetation must be removed as and where required only.</li> <li>• Vehicles must park on demarcated site only.</li> <li>• The construction zone should be fenced off and clearly demarcated to prevent access to the wetland.</li> </ul>
<p><b>Soil erosion and stormwater management – heavy rains may cause damage to the wetland 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.</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Soil erosion measures must be placed on sensitive areas like banks and slopes.</li> <li>• All stock piles must be covered with suitable material to prevent loss of sediment via wind/ water.</li> <li>• 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.</li> <li>• Top soil must not be used as fill material for backfilling of excavations on site</li> <li>• Minimize the amount of area that needs to be disturbed and the amount of time spent on sensitive areas</li> <li>• 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.</li> <li>• A storm water management plan must be devised and implemented for the construction phase to prevent stormwater from pooling and to direct stormwater to existing stormwater infrastructure on the surrounding roads and areas. This plan can include the following mitigation methods; <ul style="list-style-type: none"> <li>▪ Interceptor Ditches/Dikes</li> <li>▪ Stream bank stabilisation: riprap, gabion, reinforced concrete, asphalt paving etc.</li> <li>▪ Silt fencing</li> </ul> </li> <li>• Upon completion of construction, top soil will be replaced in bare ground areas.</li> <li>• 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.</li> </ul>
<p><b>Groundwater pollution – Pollution of ground surfaces and water may result from chemical substance spills and sewage spills</b></p> <ul style="list-style-type: none"> <li>• Chemical substances must be mixed or emptied on impervious surfaces. Concrete must be mixed on impervious surfaces. There should be a contained area for washing out and cleaning of concrete mixing</li> </ul>

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 with 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 DWA and eThekweni Water and Sanitation.
  - 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 (Wetland) – protection of the wetland 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. Water must be brought in for use by the contractors.
- Concrete and cement mixing wash areas should be sited 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.
- All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms/bunds to avoid the spread of any contamination into wetland areas.
- Proactive measures should be enforced to ensure that work vehicles are up to standard regarding maintenance and function. These measures should include routine leak checks prior to construction and decommissioning of vehicles and machinery not up to par.
- Dripping during the aforementioned leak checks and maintenance must be accommodated for by the provision of drip trays.
- Handling of hazardous substances should be kept to a minimum within the construction site. Additionally thorough training should be administered to site personnel regarding handling of the aforementioned substances.
- Regarding sanitation, portable chemical toilets should be made available to site personal and should be located +- 30m away from wetlands. Waste from the toilets should be collected and disposed of appropriately by a waste contractor.
- An emergency “clean up kit” containing spillage clean up materials should be readily available on site to be used in event of a spill.
- Fuels, chemicals and other hazardous substances should be stored in the appropriate, marked containers with closed lids.
- All spillages or contaminations are to be immediately reported to the Site Manager and Environmental Officer so that appropriate clean up measures may be enacted.
- Temporary noise should be kept to a minimum with equipment, machinery and vehicles, especially in sensitive

areas.

**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 as much as possible.
- 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.
- 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.
- 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 and where possible this must be undertaken by hand; this may include alien species. The removed vegetation must be disposed of as soon as possible. Burning of removed vegetation is prohibited.
- All NEMBA category 1a and 1b invasive plant species should be removed and disposed of appropriately prior to construction to identify and remove emerging IAP species.
- 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.
- All 'rescued trees/ shrubs' must be utilised in the rehabilitation of areas affected by the project; this must be overseen by the 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 can be replanted in nature reserves, etc.

**Waste and litter – may affect neighbours as well as cause damage to the watercourse**

- 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

<p>provided when requested.</p> <ul style="list-style-type: none"> <li>• Staff must have a system of housekeeping to ensure litter is minimised.</li> </ul>
<p><b>Visual impacts – the site is visible from the highway and neatness is a requirement</b></p> <ul style="list-style-type: none"> <li>• The site must be well maintained and neat</li> <li>• The contractor must adhere to project schedule in order to minimise the length of the construction period.</li> <li>• Inspections of the site by an Environmental Control Officer are required.</li> </ul>
<p><b>Public safety and health –occupational safety, security and health of staff and public in general</b></p> <ul style="list-style-type: none"> <li>• Specialist studies and tasks must be conducted by trained and relevant consultants.</li> <li>• Skilled contractors must be utilised for specialised tasks.</li> <li>• Unskilled labour must be trained relevantly including environmental training.</li> <li>• Buildings and/or steel structures must be constructed according to engineers' specifications.</li> <li>• Fire safety measures must be included in the design of the facility. Fire safety equipment must be provided on site during construction.</li> <li>• First aid kits are required on site as well as an incident records file.</li> <li>• Construction related vehicles must adhere to speed limits of the surrounding roads and a limit of 20km/hr on site.</li> <li>• Safety gear including hard hats and safety shoes must be provided and worn at all times while on site.</li> <li>• Emergency numbers must be clearly visible on site.</li> <li>• Trespassing and/or utilising the site as a thorough fare is prohibited by unauthorised persons.</li> <li>• Contractor staff are prohibited from trespassing over the site boundaries.</li> <li>• 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.</li> <li>• 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.</li> </ul>
<p><b>Disturbance to Existing Infrastructure – Water, electricity, telecommunications, roads and railway infrastructure must be considered.</b></p> <ul style="list-style-type: none"> <li>• Stakeholders must be notified as soon as possible. This includes the community, the municipalities, the service providers and ward councillor.</li> <li>• Servitudes of infrastructure must be confirmed prior to design of the development and permission granted.</li> <li>• No-Go areas must be demarcated. This would include any known existing grave sites.</li> <li>• The recommendations of the Heritage Impact Assessment must be adhered to.</li> </ul>
<p><b>Socio Economic Impacts – Job creation and possible economic benefit to construction material suppliers in the area. The establishment of water supply benefits the greater community.</b></p> <ul style="list-style-type: none"> <li>• Community members and leaders must be notified as soon as possible by posting notice boards with illustrations on site.</li> <li>• Local people should be employed if/where possible</li> <li>• Traditional leaders and/or ward councillors must be involved in the public participation and they will aid in appeasing the community.</li> </ul>

## OPERATIONAL PHASE

### **Traffic and Access - Impact of cars, traffic and access has on the site and surrounds**

- Access for vehicles will be limited to residents and approved visitors.
- All residents and approved visitors shall be made aware of the directions and speed limits through road signage.
- Access roads to the site that are within protected areas shall have reasonable maximum speed limits to reduce the risk of accidents involving animals.
- The developer Investments should ensure that access roads are maintained in good condition by attending to potholes, corrugations and stormwater damage as soon as these develop.
- The Developer shall ensure that all the necessary precautions against damage to the environment and injury to persons from traffic on site are taken in the event of an accident.

### **Erosion Management - impact the Madrassa activities will have with regards to potential erosion**

- Madrassa rules shall include measures to ensure residents do not unnecessarily clear land of vegetation or dispose of large volumes of water, which could cause erosion at any time.
- The developer will be required to re-vegetate any disturbed surfaces around their properties.
- Madrassa rules must state that no residents or visitors are to traverse the banks of the wetland on steep sections susceptible to erosion.
- Residents must not be allowed to create new paths, roads or potential erosion hazards without written permission of the Madrassa/ Developer.
- Stormwater control (i.e. gabions, sandbags, etc.) should be undertaken timeously to prevent soil loss from the where erosion is identified.

### **Groundwater Management – Impacts the Madrassa activities will have on the groundwater and surface water pollution**

- Use and or storage of materials, fuels and chemicals which could potentially leak into the ground must be controlled.
- Any hazardous substances must be stored at least 100m from the wetland on site.
- The developer/ management should be responsible for ensuring that potentially harmful materials are properly stored in a dry, secure, ventilated environment, with concrete or sealed flooring and a means of preventing unauthorised entry.
- Residents, visitors and staff shall not be permitted to use any other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing or for any related activities.
- Road surfaces are recognised as a source of various pollutants which can originate from a wide variety of sources. The pollutant concentration in road runoff can be highly variable and dependant on a wide variety of factors including location, traffic volumes, extent of dry period before a rainfall event, and nature of the road surface.
- Proper management and disposal of waste must occur during the lifespan of the project, including during the operational phase. The applicant must ensure regular maintenance of all drainage systems within the road upgrade as they help in improving site drainage, and reduce pollutants entering surface waters and groundwater.
- Grass filter stripes can also be used as they function by slowing runoff velocities, trapping sediment and other pollutants and providing a modest infiltration.

### **Hydrology and Stormwater Management - impact the Madrassa's activities could have on hydrology and stormwater**

- The site must be managed in order to prevent pollution of drains, downstream watercourses or groundwater,

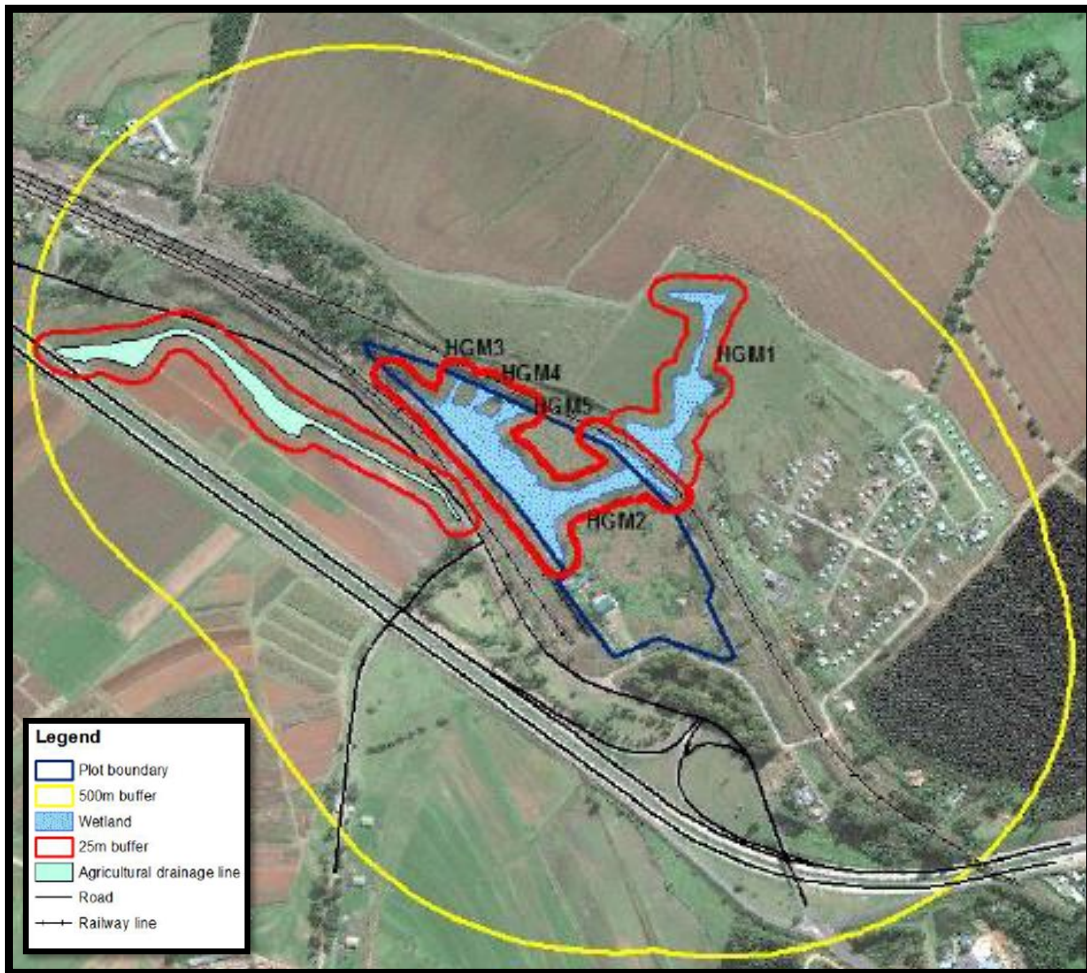
<p>due to suspended solids, silt or chemical pollutants.</p> <ul style="list-style-type: none"> <li>• Earth, stone and rubble is to be properly disposed of so as not to obstruct natural water path ways over the site. These materials must not be placed in stormwater channels, drainage lines or rivers unless part of an approved anti erosion program.</li> <li>• There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.</li> </ul>
<p><b>Noise and Disturbance - impact increased noise will have on surrounding areas</b></p> <ul style="list-style-type: none"> <li>• All noise generating plant such as air conditioning, refrigeration, fans, etc. are to comply with noise standards.</li> <li>• Residents must aim to adhere to the relevant noise regulations and limit noise on site to reduce disturbance of neighbors.</li> </ul>
<p><b>Air Quality – impact from air pollution</b></p> <ul style="list-style-type: none"> <li>• Retention of vegetation where possible will reduce dust travel.</li> <li>• A speed limit of 20km/h must not be exceeded on dirt roads around the site.</li> <li>• The Madrassa shall attend to any complaints or claims emanating from the lack of dust control immediately.</li> <li>• The effect on air quality is expected to be very localised and minor.</li> </ul>
<p><b>Visual impacts</b></p> <ul style="list-style-type: none"> <li>• All flood lighting to comply with relevant standards.</li> <li>• Visual impacts are considered to be low.</li> </ul>
<p><b>Waste Management - impact from waste produced by the Madrassa's activities</b></p> <ul style="list-style-type: none"> <li>• All wastewater from general activities in the Madrassa shall be collected and removed from the site for appropriate disposal at a licensed commercial facility. This is the responsibility of the developer.</li> <li>• A waste collection point must be             <ul style="list-style-type: none"> <li>- established away from the 1:100 year flood line</li> <li>- built on a hardstand surface (e.g. concrete)</li> <li>- Enclosed to prevent access by scavengers/vermin which may result dispersal of waste.</li> </ul> </li> </ul>

## (k) SUMMARY OF SPECIALIST STUDY FINDINGS AND IMPACTS

### Freshwater Delineation

Five HGM units were identified within 500m buffer of the proposed development. HGM1 – hillslope seepage; HGM2 – unchanneled valley bottom; HGM3 – hillslope seepage; HGM4 - hillslope seepage and HGM5 - hillslope seepage. A watercourse screening was undertaken to identify wetland environments that were likely to incur direct or indirect impacts from the proposed development. Four HGM units (HGM2, HGM3, HGM4 and HGM5) were identified as being potentially at risk from the proposed development as shown in Figure 3 below:





**Figure 3: HGM Units Delineated and the Buffers**

Buffer zones are areas of vegetation around the wetland boundaries, which are implemented to protect the wetland from developmental or land use changes. In terms of the guidelines presented by DWAF, an appropriate buffer strip surrounding the wetland/riparian habitat is required to protect the habitat and the water resource. The buffer strip is dependent on the following (Kotze, et al., 2002):

- The type of adjacent land use;
- The sensitivity of the wetland; and
- The scarcity and quality of the water resource.

In this study, a **25m buffer** around the delineated HGM units is required. A general 25m buffer around the HGM units will maintain the integrity of the wetland environments in its current state. This is provided that the recommendations and mitigation measures outlined in the Wetland Delineation and Functional Assessment report and the environmental management plan are adhered to. It is of the specialist's professional opinion that the Cedara Blind Facility expansion project will cause low detrimental effects to the wetland environments. The Wetland Delineation and Functional Assessment Report can be reviewed under Appendix E.

### **Heritage Impact Assessment**

It was found that before the area was occupied by the facility, the area had been occupied by the inhabitants of an informal settlement. Remnants of this settlement are still visible in the project area where terraced areas are still visible where

structures were built as well as refuse (litter) including bottles left by the inhabitants. The terraced areas are visible throughout the project area. Power lines also cross the Northern boundary of the project area.

The site inspection and investigation by the Heritage Specialist revealed no heritage resources. No graves nor intact structures were found and the remains of such structures left on site are of no heritage significance. No visible archaeological sites or material were found. The large scale disturbance of the project area could be the reason for this as the site has been occupied that could have led to the destruction of heritage resources if any. The existing construction work and construction camp have added to the disturbance of the project area.

The existing structures exhibit no characteristics of historic significance or importance. The buildings are depicted below in Figures 4,5 and 6.



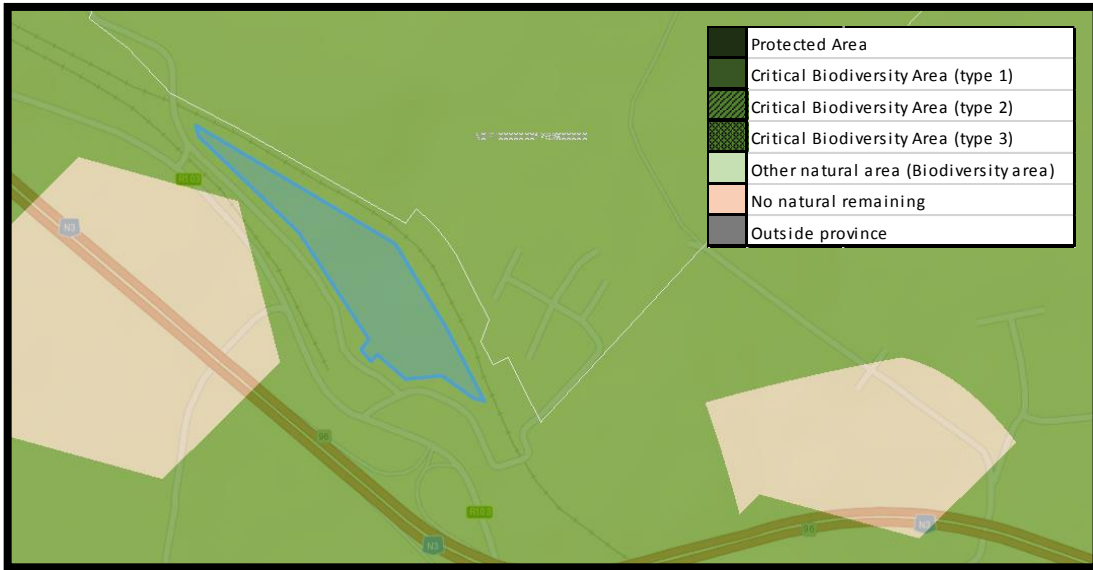
**Figure 4,5 and 6: Showing structures and/or find of no historical significance or importance.**

### **Biodiversity Study**

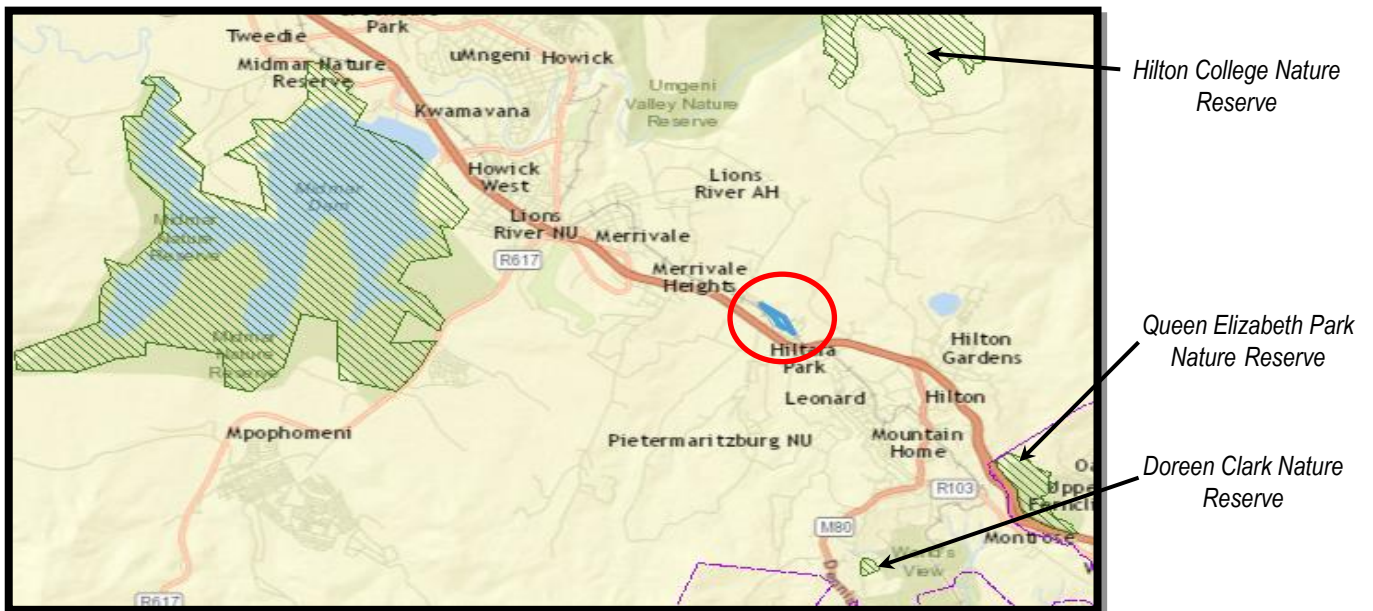
The construction site was found to be in a habitat that is considered as a Type 1, Critical Biodiversity Area (CBA 1) as demarcated in **Figure 7**. As demonstrating in **Figure 8** the construction site was found to be within five kilometres of four Formal Protected Areas, namely Midmar Dam (4.96km), Doreen Clark Nature Reserve (4.98km), Queen Elizabeth Park Nature Reserve (4.72km) and Hilton College Nature Reserve (4.78km). It was therefore important for the biodiversity assessment report to consider both the species of vegetation and available habitat on site to assess the impact to these areas.

Throughout the development area there is a low diversity of trees and other types of indigenous vegetation. The general lack of naturally occurring vegetation is due to the human activity subjected to this property over a long period of time. As it was stated above, during the ground study it was confirmed that this area was entirely devoid of its original vegetation and now plays host to Ngongoni grass which despite its invasive nature to take over a site, it does have an ability to prevent erosion and enhance water seepage. It can be said that this area is almost entirely occupied by ruderal plant species which are defined as “plant species growing where the natural vegetational cover has been disturbed by humans”. It is expected that the proposed development may enhance this area via the application of landscaping using indigenous plants.





**Figure 7: eKZNW C-Plan Impacts (Terrestrial) of the Study Area (eKZNW 2010)**



**Figure 8: Formal Protected Areas within 5km of the Construction Site**

## (I) ENVIRONMENTAL IMPACT STATEMENT

Through this Basic Assessment, and all associated specialist studies it has 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 religious education for the visually impaired;
- Short term skills development and job creation
- Possible rehabilitation of degraded areas on the site.

The positive impacts will be long term and will greatly contribute to the Muslim community, not only in this area but also for the whole of South Africa.

The construction phase has already started and depending upon the outcome of the environmental authorisation will continue as directed by the process and conditions of the EA. The operational phase of this activity is not anticipated to cause any further detrimental effect to the environment, rather the post construction rehabilitation and landscaping will in fact aid in the rehabilitation of the immediate vicinity of the construction area and the surrounding areas, including the wetland. 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**

- Disturbances in and around construction site must be kept to an absolute minimum.
- Removal or harvesting of vegetation by staff must be prohibited on site.
- Hunting and catching of any animals must be prevented. This includes reptiles which must be handled by a professional.
- Noise levels, including vibrations caused by any ground drilling must be kept to a minimum to prevent animals abandoning nearby habitats.
- Due the already degraded condition of the site, strict soil maintenance and topsoil management must be implemented to restrict further soil degradation.
- Special attention must be given to alien invasive plant species within the area and the possibility of an alien invasive management program must be considered.
- If the contractor envisions using or storing hazardous substances on site (oil, cement etc.) caution must be taken to prevent spills and contamination of both vegetation and soils on site.
- If any species of conservation importance is found on site during construction, it must be report to the ECO and the relevant procedures must be adhered to.

### **Heritage Impact Study**

- For any chance finds, such as grave sites, all work will cease in the area affected and the Contractor will 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.

- Written permission must be obtained from AMAFA if heritage resources, including graves, are to be removed, destroyed or altered.
- All heritage resources found in close proximity to the construction area to be protected by a 3m 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.
- Where foundations go to depths more than 1.5m or more and where bedrock is exposed the services of a palaeontologist should be engaged to assess for fossils.
- If there are chance finds of fossils during construction, work in the area of the find must be stopped and 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.

### **Wetland Delineation and Functional Assessment**

#### ***Access control***

- Schedule construction activities in the dry season to prevent increased surface runoff, erosion and sedimentation as well as to avoid disturbance to resources during critical periods i.e. periods of courtship, breeding, nesting etc.
- As part of the induction process, all construction staff should be educated about the importance and sensitivity of the wetland in the vicinity of the construction site. Frequent inspection of the site must be done to ensure that the integrity of the wetlands is maintained at all times.
- The construction zone should be fenced off and clearly demarcated to prevent access to the wetland.

#### ***Vegetation***

- All NEMBA category 1a and 1b invasive alien plant species should be removed and disposed of appropriately prior to construction. The construction site should be inspected regularly during construction to identify and remove emerging IAP species.
- The removal of vegetation should be undertaken manually by hand. The use of heavy machinery should be kept to minimum near wetland environments.
- Fauna found within the construction zone should be moved to the closest natural or semi-natural habitat zone away from the construction site.
- Erosion and sedimentation control
- Sandbags should be utilized as a temporary diverting barrier downslope of excavation areas. The sandbags should be placed in order to minimize surface runoff ensuring the wetland situated downslope does not incur any impacts as a result of sedimentation and erosion. Sandbags used to temporarily divert water should always be in good condition and inspected regularly.
- Soil excavated during construction should not be piled onto sensitive wetland areas or in their associated buffer. The soil should be kept in stock piles and must be situated upslope or conveniently placed to prevent sedimentation of the sensitive environments.
- Soil stockpiles must be protected from erosion, surrounded by suitable earthen buns and covered by erosion control blanket to prevent the transfer of sediment into the wetland.
- Site engineers should regularly inspect the erosion control measures to confirm their appropriateness and integrity.

#### ***Pollution control***

- No dumping of any materials or storage of any equipment should be allowed within the wetland areas.

- During all phases of the construction, all waste should be removed to an appropriate waste facility and under no circumstance should waste materials or contaminants be discharged into the environment or buried.
- Washing and cleaning of equipment should also be done within berms or bunds, in order to trap any cement/sediment and prevent excessive soil erosion. These sites must be re-vegetated after construction has been completed.

#### **Surface water quality**

- All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms/bunds to avoid the spread of any contamination into wetland areas.
- Proactive measures should be enforced to ensure that work vehicles are up to standard regarding maintenance and function. These measures should include routine leak checks prior to construction and decommissioning of vehicles and machinery not up to par.
- Dripping during the aforementioned leak checks and maintenance must be accommodated for by the provision of drip trays.
- Handling of hazardous substances should be kept to a minimum within the construction site. Additionally, thorough training should be administered to site personnel regarding handling of the aforementioned substances.
- Regarding sanitation – portable chemical toilets should be made available to site personal and should be located +- 30m away from wetlands. Waste from the toilets should be collected and disposed of appropriately by a waste contractor.
- An emergency “clean up kit” containing spillage clean up materials should be readily available on site to be used in event of a spill.
- Fuels, chemicals and other hazardous substances should be stored in the appropriate, marked containers with closed lids.
- All spillages or contaminations are to be immediately reported to the Site Manager and Environmental Officer so that appropriate clean up measures may be enacted.
- Temporary noise should be kept to a minimum with equipment, machinery and vehicles, especially in sensitive areas.

## **(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, since it provides all the technical background and information on the proposed project and the construction site. All information on predicted impacts and mitigation measures have been detailed in the EMP and has been accordingly prepared.

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.

The project does not intersect any wetland(s) areas on site but four HGM units have been said to be **potentially** at risk from the development. However, as per the Wetland Delineation and Functional Assessment Report (found in Appendix E) it is the wetland specialist's opinion that the development will not harm the integrity of the wetland if a 25m buffer around the HGM units are implemented and given that the developer and/or contractor follows the specified recommendations and mitigation measures outlined in the EMP and the report. All possible impacts may arise from the contractor not adhering to the EMP during the construction phase of the project which must be monitored by a dedicated ECO. The EMP together with the concerns raised in the specialist studies (Appendix E and F) must be understood by both the developer and contractor to ensure that no further degradation takes place on this property and the nearby wetland. The wetland found on the property is said to be of low ecological importance and would not be greatly affected by the development given that both the suggested mitigation techniques and EMP are followed by the developer and/or contractor. Finally, it must be kept in mind that the proposed facility follows the same land use function as the current uses at Madrassa An-Noor for the Blind but on a larger scale, with more facilities for the visually impaired.

It is thus the recommendation of the EAP that the environmental authorisation be granted with conditions of adhering to the EMP and implementing the Rehabilitation Plan.

## (q) TIMEFRAMES

The anticipated construction phase is on a long-term basis. 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.



## (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*

## 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	EIA Enquiry Response 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 I&AP 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