

Final Basic Assessment Report

CLEWER FILLING STATION

Portion 16 of the Farm Schoongezicht 308



BOKAMOSO

LANDSCAPE ARCHITECTS &
ENVIRONMENTAL CONSULTANTS CC

P.O. BOX 11375

MAROELANA

0161

TEL: (012) 346 3810

Fax: 086 570 5659

Email: Lizelleg@mweb.co.za

June 2016

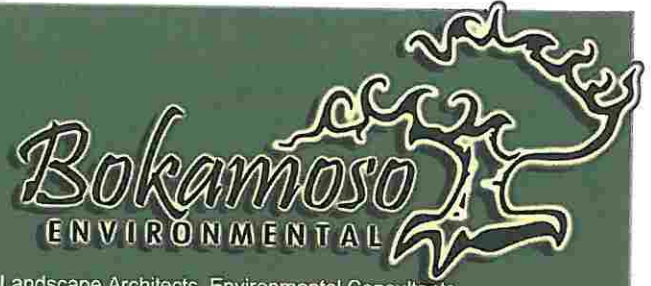
Gaut reference: 17/2/3N-411

APPLICATION FORM

LEBOMBO GARDENS BUILDING
36 LEBOMBO ROAD
ASHLEA GARDENS

P.O. BOX 11375
MAROELANA
0181

Tel: (012) 346 3810
Fax: 086 570 5659
E-mail: lizelleg@mweb.co.za
Website: www.Bokamoso.net



Landscape Architects, Environmental Consultants,
Environmental Auditing, Water License Applications

Department of Economic Development
Environment and Tourism (MDEDET)
Building No.4
No. 7 Government Boulevard
Riverside Park Extension 2
Nelspruit
1200

Tel: 013 766 4826

ATTENTION: MS. R. LUYT

22 OCTOBER 2014

**RE: APPLICATION FORM FOR THE PROPOSED SCHOONGEZICHT SITUATED ON THE
REMAINDER OF PORTION 16 OF THE FARM SCHOONGEZICHT 308 JS,
MPUMALANGA**

Please find attached **3x original hard copies** of the Application form for the proposed **Schoongezicht**.

Trust you find the above in order. Please do not hesitate to contact our office should you have any other questions in this regard.

Kind regards,

P.P. Beyneke
Ané Agenbacht

**Bokamoso Landscape Architects
and Environmental Consultants CC**

REG NO: CK 2010/087490/23
VAT REG NO: 4080260872

BOKAMOSO LANDSCAPE ARCHITECTS AND ENVIRONMENTAL CONSULTING CC

MEMBER: Lizelle Gregory



the dedet

Department:
Economic Development, Environment and Tourism
MPUMALANGA PROVINCIAL GOVERNMENT

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010

File Reference Number:

NEAS Reference Number:

Date Received:

Responsible Official:

(For official use only)

PROJECT TITLE

PROPOSED FILLING STATION ON THE REMINDER OF PORTION 16 OF THE FARM SCHOONGEZICHT 308 JS, MPUMALANGA

Kindly note that:

1. This application form is current as of 1 April 2014. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
2. The required information must be typed within the spaces provided in the form. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. Spaces are provided in tabular format and will extend automatically when each space is filled with typing.
3. Where applicable **black out** the boxes that are not applicable in the form.
4. Incomplete applications may be rejected or 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.
6. **This form must be submitted to the Department at the relevant DISTRICT OFFICE given below.** Should the application form not be submitted at the relevant district office, it will not be considered.
7. No faxed or e-mailed applications will be accepted.
8. If the applicant is not the owner or person in control of the land on which the activity is to be undertaken, the written notice of the proposed activity as referred to in Regulation 15, as well as proof of serving such notice on the owner or person in control of the land, must be attached to this form. Should the application form not be accompanied by such notice, it will be rejected.
9. If permission has been granted in terms of Regulation 20(3) to apply S&EIR instead of basic assessment to the application, or if permission has been granted in terms of 20(4) to apply basic assessment instead of S&EIR to the application, a copy of such authorisation must be attached to this application form.
10. **Proof of payment of the applicable fee for consideration and processing of applications must accompany the submission of this form, unless an exclusion applies.**
11. Unless protected by law, all information filled in on this application will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this application on request, during any stage of the application process.

EHLANZENI DISTRICT (Nedbank Building, 30 Brown Street, Nelspruit)	NKANGALA DISTRICT (Cnr Rosemead and Ryan Road, Witbank)	GERT SIBANDE DISTRICT (13 De Jager Street, Ermelo)
Environmental Impact Management Nedbank Building (6 th floor) 30 Brown Street Nelspruit 1200 Tel: 013 766 4802	Environmental Impact Management P. O. Box 7255 Witbank 1035 Tel: 013 692 5843	Environmental Impact Management P. O. Box 2777 Ermelo 2351 Tel: 017 811 3954

PROOF OF PAYMENT

Tick the appropriate box below to indicate that either proof of payment is attached or that, in the applicant's view, an exclusion applies. Proof and motivations for exclusions must be attached to this application form.

Proof of payment attached:

Exclusion applies:

An applicant is excluded from paying fees if:

- The activity is a community based project funded by a government grant; or
- The applicant is an organ of state

TYPE OF EXCLUSION	Tick which is applicable and attach proof / motivation
The activity is a community based project funded by a government grant	
The applicant is an organ of state	

FEE AMOUNT	
APPLICATION TYPE	FEE
Application for an environmental authorisation for which basic assessment is required	R2000
Application for an environmental authorisation for which S&EIR is required	R10 000

Details for the payment of application fees

Payment Enquiries: Contact person: Siphon Mabuza Tel: 013 766 4589 Email: ssmabuza@mpg.gov.za			
Banking Details: Standard Bank Branch Code: 052852 (Nelspruit) Account number: 0328 93132 Reference number: The following reference number must be used depending on the type of application and the district within which the proposed project is to be located:			
	EHLANZENI	GERT SIBANDE	NKANGALA
Basic Assessment	BAE	BAG	BAN
S&EIR	EIRE	EIRG	EIRN
Proof of payment must be attached to this application form. "Proof of payment" includes a receipt, a stamped deposit slip, electronic fund transfer copy or a payment advice.			
Tax exemption status: Status: Tax exempted			

PROJECT TITLE

Proposed filling station on the remainder of portion 16 of the farm Schoongezicht 308 JS, Mpumalanga

Provide a detailed description of the development project and associated infrastructure.

The decommissioning of a filling station that is situated on the remainder of portion 16 of The Farm Schoongezicht 308 JS, Mpumalanga

1. GENERAL INFORMATION

2.

Project applicant:	CFS Petroleum cc		
Trading name (if any):	Clewer Service Station		
Contact person:	Khatija		
Physical address:	41 Ascot street, Clewer, Witbank (Emalahleni).		
Postal address:			
Postal code:	1036	Cell:	076 326 1628
Telephone:		Fax:	
E-mail:	cfspetroleum@gmail.com		

Environmental Assessment Practitioner:	Bokamoso Landscape Architects & Environmental Consultants		
Contact person:	Lizelle Gregory		
Postal address:	P.O. Box 11375, Maroelana		
Postal code:	0161	Cell:	(083) 255 8384
Telephone:	(012) 346 3810	Fax:	(086) 570 5659
E-mail:	lizelleg@mweb.co.za		

Qualifications & relevant experience

Registered Landscape Architect & Environmental Consultant
(degree obtained from the University of Pretoria) , with more than 18 years experience in:

- The compilation of Environmental Evaluation Reports,
- Environmental Management Plans,
- Strategic Environmental Assessments;
- All stages of Environmental Input;
- EIA under the ECA and the new and amended NEMA Regulations; and

Various other Environmental Reports and documents.

Professional affiliation(s) (if any)

The South African Council of the Landscape Architects Profession (SACLAP); Institute for Landscape Architects in South Africa (ILASA); and Institute for Environmental Management and Assessment (IEMAS)

Landowner:	Clewer Filling Station cc		
Contact person:	Khatija		
Postal address:	41 Ascot Street, Clewer, Witbank		
Postal code:	1036	Cell:	076 326 1628

Telephone:

Fax:

E-mail:

cfspetroleum@gmail.com

In instances where there is more than one landowner, please attach a list of landowners with their contact details to this application.

District Municipality in whose jurisdiction the proposed activity will fall (Delete which is not applicable):

Nkangala

Local authority in whose jurisdiction the proposed activity will fall:

Emalahleni Local Municipality

Nearest town:

Ogies

Contact person:

Presilda Senyane

Postal address:

P.O. Box 17987, Witbank

Postal code:

1035

Cell:

0833207429

Telephone:

013 690 6911

Fax:

013 690 6207

E-mail:

Health2@webmail.co.za

In instances where there is more than one local authority involved, please attach a list of local authorities with their contact details to this application.

2. SITE DESCRIPTION

Property description:

Potion 16 of The Farm Schoongezicht 308 JS, Mpumalanga

(Farm name, portion, number and registration division or Erf number etc.) Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application.

Current land-use zoning:

Business 3

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Locality map:

A project map must be attached to this document. The map must accurately provide an indication of the project site position as well as the positions of the alternative sites, if any, and

- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- a north arrow;
- any sensitive geographic features (eg. watercourses)

Site co-ordinates:

Indicate the position of the activity using the latitude and longitude of the centre point of the preferred site alternative. The co-ordinates should be in degrees, decimal minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Latitude (S):

Longitude (E):

25	°	52	'	29		13	"	S		29	°	7	'	48		9	"	E
----	---	----	---	----	--	----	---	---	--	----	---	---	---	----	--	---	---	---

In the case of linear activities:

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S):

Longitude (E):

°	'	"	°	'	"
°	'	"	°	'	"
°	'	"	°	'	"

Indicate all the Surveyor-General 21 digit codes for all sites (including portions of sites) that are part of the application. If there are more than 4, attach a list with the rest of the codes.

SG 21 Digit Code(s):

T	0	J	S	0	0	0	0	0	0	0	0	0	0	3	8	0	0	0	1	6

3. TYPE OF APPLICATION

3.1 Application for Basic Assessment

Is this an application for conducting a basic assessment (as defined in the Regulations)?

YES	NO
-----	----

Please indicate when the basic assessment report will be submitted:

Approximately within the next 6 months.

3.2 Application for Scoping and Environmental Impact Assessment (S&EIR)

Is this an application for Scoping and EIR (as defined in the Regulations)?

YES	NO
-----	----

Please indicate when the Scoping Report (including the Plan of Study for EIA) will be submitted:

--

4. ACTIVITIES APPLIED FOR TO BE AUTHORISED

For an application for authorisation 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.

Government Notice R544 Activity No.	Describe the relevant Basic Assessment Activity(ies) in writing as per Listing Notice 1 (GN No. R544)	Describe the portion of the development as per the project description that relates to the applicable listed activity
Listing Notice 1, R544, 18 June 2010	Activity 27	The decommissioning of existing facilities or infrastructure, for- (v) storage, or storage and handling, of dangerous goods of more than 80 cubic meters.
<p>Please note: Only those activities for which the applicant applies will be considered for authorisation. The onus is on the applicant to ensure that all the applicable listed activities are included in the application. Any authorisation that may result from this application will only cover activities specifically applied for.</p>		

5. OTHER AUTHORISATIONS

5.1 Do you need any authorisations in terms of the following laws ?

National Environmental Management: Waste Act (NEMWA)
National Environmental Management: Air Quality Act (NEMAQA)

YES	NO
YES	NO
YES	NO

Have such applications been lodged already ?

If Yes, please attach proof of submission and provide a status update below:

--

6. SECTOR

Please indicate, by marking the appropriate boxes below, the sector and sub-sector applicable to the main development which forms the subject of this application:

Sector 1: Energy infrastructure		
Subsector 1.1: Green economy + 'green' and energy saving industries		Subsector 1.5: Nuclear
Subsector 1.2: Infrastructure – electricity (generation, transmission & distribution)		Subsector 1.6: Basic services (local government) - electricity and electrification
Subsector 1.3: Oil and gas		Subsector 1.7: Basic services (local government) - area lighting
Subsector 1.4: Biofuels		
Sector 2: Transport infrastructure		
Subsector 2.1: Infrastructure-transport (ports, rail and road)		
Subsector 2.2: Basic services (local government) access roads)		
Subsector 2.3: Basic services (local government) - public transport		
Sector 3: Bulk services infrastructure		
Subsector 3.1:Infrastructure - water (bulk and reticulation)		
Subsector 3.2: Basic services (local government) - sanitation		
Subsector 3.3: Basic services (local government) -waste management		
Sector 4: Water impoundments		
Subsector 4.1.: Basic services (Local Government) water		
Sector 5: Agriculture and forestry (including agri-industry, etc)		
Subsector 5.1: Agricultural value chain + agro-processing (linked to food security and food pricing imperatives)		
Subsector 5.2: Forestry, paper, pulp and furniture		
Sector 6: Communication infrastructure		
Subsector 6.1: 1 Infrastructure - information and communication technology		
Sector 7: Recreation and hospitality industry related infrastructure		
Subsector 7.1: Tourism+ strengthening linkages between cultural industries & tourist		
Subsector 7.2: Basic services (local government) - public open spaces and recreational facilities		
Sector 8: Greenfield transformation to urban or industrial form(including mining)		
Sector 9: Biodiversity or sensitive area related activities		
Sector 10: Other services		
Subsector 10.1: Mining value chain		Subsector 10.8: Business process servicing
Subsector 10.2: Potential of metal fabrication capital & transport equipment - arising from large public investments		Subsector 10.9: Advanced materials
Subsector 10.3: Boat building		Subsector 10.10: Aerospace
Subsector 10.4: Manufacturing - automotive products and components, and medium and heavy commercial vehicles		Subsector 10.11: Basic services(Local Government) Education
Subsector 10.5: Manufacturing- plastics, pharmaceuticals & chemicals		Subsector 10.12: Basic services(Local Government)- health

Subsector 10.6: Manufacturing – clothing textiles, footwear & leather		Subsector 10.13: Basic services(Local Government) Housing	
Subsector 10.7: Forestry, paper , pulp & furniture		Subsector 10.14:Basic services (Local Government) security of tenure	
		Subsector 10.15: Other	X

7. CAPITAL VALUE AND JOB CREATION ESTIMATES (if applicable)

Capital value	Job estimates

CHECK LIST – For official use only


1. Proof of payment (or where not applicable, notification and motivation for exclusion)	
2. Land owner notification	
3. Project map	
4. Sector identification	
5. Applicant declaration	
6. EAP declaration	

8. DECLARATIONS

8.1 The Applicant

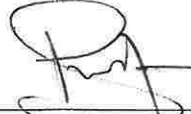
I, MR. TARIQ SHEHZAD declare that I -

- am, or represent¹, the applicant in this application;
- have appointed / will appoint (delete that which is not applicable) an environmental assessment practitioner to act as the independent environmental assessment practitioner for this application / will obtain exemption from the requirement to obtain an environmental assessment practitioner²;
- will provide the environmental assessment practitioner and the competent authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the Environmental Impact Assessment Regulations, 2010, including but not limited to –
 - costs incurred in connection with the appointment of the environmental assessment practitioner or any person contracted by 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 authorisation, should it be required by the competent authority;
- will ensure that the environmental assessment practitioner is competent to comply with the requirements of these Regulations 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 competent authority in this regard;
- am responsible for complying with the conditions of any environmental authorisation issued by the competent authority;
- hereby indemnify the Government of the Republic, the competent authority 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 these Regulations;
- will not hold the competent authority responsible for any costs that may be incurred by the applicant in proceeding with an activity prior to obtaining an environmental authorisation or prior to an appeal being decided in terms of these Regulations;
- will perform all other obligations as expected from an applicant in terms of the Regulations;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.


Signature of the applicant³/ Signature on behalf of the applicant:

CLEWER FILLING STATION CC
Name of company (if applicable):

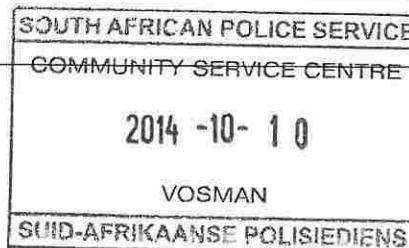
10 OCTOBER 2014
Date:


Signature of Commissioner of Oaths

10 OCTOBER 2014
Date:

CAPTAIN
Designation:

Official stamp (below)



¹ If this is signed on behalf of the applicant, proof of such authority from the applicant must be attached.

² If exemption is obtained from appointing an EAP, the responsibilities of an EAP will automatically apply to the person conducting the environmental impact assessment in terms of the Regulations.

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

8.2 The Environmental Assessment Practitioner

I, Lizelle Gregory declare that -

- I act as the independent environmental practitioner in this application
- I act independently
- I 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
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act; and
- I will adhere to and comply with all responsibilities as indicated in the National Environmental Management Act and Environmental Impact Assessment.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010;
- I have a vested interest in the proposed activity proceeding, such vested interest being:

Signature of the environmental assessment practitioner:

Bokamoso Landscape Architects and Environmental Consultants

Name of company:

2014-10-22

Date:

Signature of Commissioner of Oaths

Date:

Designation:

Official stamp (below)

LEONARD THEO GREGORY
COMMISSIONER OF OATHS
36 LEBOMBO ROAD
ASHLEA GARDENS
PRETORIA 0081

CHARTERED ACCOUNTANT OF SOUTH AFRICA
MPUMALANGA
A Pioneering Spirit

Annexure 1: Proof of payment of a fee for this application

Payment Receipt



Beneficiary name:	Mpumalanga Govern
Bank name:	STANDARD BANK
Beneficiary account number:	032893132
Branch code:	00051001
Branch name:	ALL BRANCHES
My reference:	Nkangala Pro
Beneficiary reference:	BAN
Payment date:	2014-07-15
Amount:	R 2,000.00

[Print](#) [Close](#)

Annexure 2: Proof of notice to the landowner or person in control of the land on which the activity is to be undertake

Deeds Office Property



SCHOONGEZICHT, 308, 16 (REMAINING EXTENT) (MPUMALANGA)

GENERAL INFORMATION

Deeds Office MPUMALANGA
 Date Requested 2014/07/01 16:15
 Information Source DEEDS OFFICE
 Reference -

PROPERTY INFORMATION

Property Type FARM
 Farm Name SCHOONGEZICHT
 Farm Number 308
 Portion Number 16 (REMAINING EXTENT)
 Local Authority MBOMBELA LOCAL MUNICIPALITY
 Registration Division JS
 Province MPUMALANGA
 Diagram Deed T719/1966
 Extent 5.2494H
 Previous Description LG650/1969
 LPI Code T0JS00000000030800016

OWNER INFORMATION

Owner 1 of 1

Person Type CLOSE CORPORATION
 Name CLEWER FILLING STATION CC
 Registration Number 200208508923
 Title Deed T156932/2006
 Registration Date 2006/11/23
 Purchase Price (R) 2,800,000
 Purchase Date 2006/08/08
 Share
 Microfilm Reference
 Multiple Properties NO
 Multiple Owners NO

ENDORSEMENTS (15)

#	Document	Institution	Amount (R)	Microfilm
1	B195694/2006	FIRSTRAND BANK LTD	2,100,000	-
2	B5864/2009	FIRSTRAND BANK LTD	900,000	-
3	K109/1980S	-	UNKNOWN	2006 0500 2895
4	K141/1974S	-	UNKNOWN	-
5	K165/1978S	-	UNKNOWN	-
6	K2041/1992S	-	UNKNOWN	1992 0286 3055
7	K21/1966RM	-	UNKNOWN	1992 0286 2894
8	K45/1966S	-	UNKNOWN	1992 0286 3051
9	K4800/2003RM	DE BEERS CONSOLIDATED MINES PTY LTD	UNKNOWN	2003 0852 4224
10	K6497/1998S	-	UNKNOWN	1999 0059 1889
11	K7324/2005S	-	UNKNOWN	2007 0110 2928
12	CL-WITBANK CC	-	UNKNOWN	-
13	DEVELOPMENT AREA-P10	99/87	UNKNOWN	-
14	INFO FROM PRETORIA DEEDS REGIS	-	UNKNOWN	-
15	JS,308,16	-	UNKNOWN	1988 1080 1739

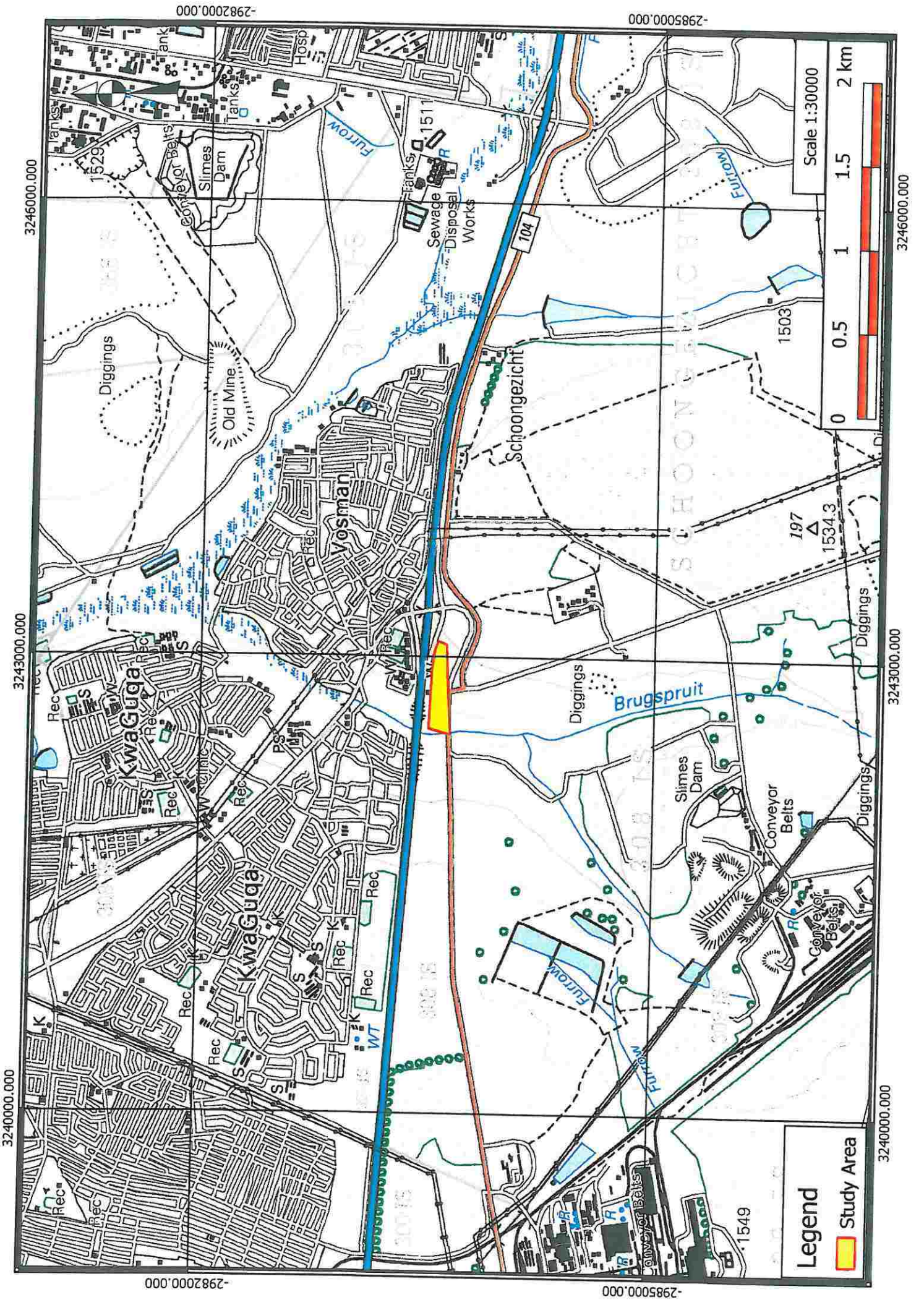
HISTORIC DOCUMENTS (9)

#	Document	Owner	Amount (R)	Microfilm
1	B89870/1991	STANDARD	350,000	1999 1087 0524
2	B65424/1999	-	UNKNOWN	2002 0698 2568
3	K2040/1992RM	-	UNKNOWN	2003 0852 4162
4	T12351/1981	SINCLAIR THOMAS HENRY	UNKNOWN	1985 0108 0454
5	T58392/1984	TROLLIP WILLIAM J & C J M/I	150,000	1991 0900 3955
6	T58392/1984	TROLLIP WILLIAM J T65437/1991	END45BIS	1991 0900 3955
7	T65438/1991	W J TROLLIP & SONS CC	450,000	1999 1087 0526
8	T136341/1999	LELATRA PTY LTD	600,000	2002 0698 2537
9	T73375/2002	BUSINESS PARTNERS LTD	750,000	2005 0171 2685

DISCLAIMER

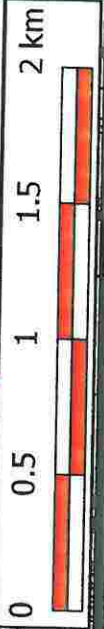
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Annexure 3: Locality Map



Legend
Study Area

Scale 1:30000



3240000.000 3243000.000 3246000.000

-2982000.000 -2985000.000

MDEDET CORRESPONDENCE

MPUMALANGA PROVINCIAL GOVERNMENT

Building No. 4
No. 7 Government Boulevard
Riverside Park Extension 2
Nelspruit
1200
South Africa



Private Bag X 11215
Nelspruit, 1200
Tel: 013 766 4004
Fax: 013 766 4614
Int: +27 13 766 4004
Int: +27 13 766 4614

Department of Economic Development, Environment and Tourism

Litiko Letekutufufukiswa
Kwitemnolfo, Simondzwo netekuVakasha

Umngango WezokuThuthukiswa
KoMnotho, iBhoduluko nezamaVakaljho

Departement van Ekonomiese
Ontwikkeling, Omgewing en Toerisme

Enquiries: Okwethu-Kuhle Fakude, Cnr Rosemead & Ryan Str, Klipfontein Witbank, 1035, Tel: 013 692 7934/6300/5848
Email: okfakude@mpg.gov.za
Reference: 17/2/3N-411

Attn: **Ms. Lizelle Gregory**
Bokamoso Landscape Architects and Environmental Consultants
PO Box 11375
Maroelana
0161

Fax no: 086 570 5659

Dear Madam,

APPLICATION FOR ENVIRONMENTAL AUTHORISATION: THE PROPOSED CONSTRUCTION OF A FILLING STATION ON THE REMAINDER OF PORTION 16 OF THE FARM SCHOONGEZICHT 308 JS, WITHIN EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE.

The Department confirms having received the application form for environmental authorisation of the abovementioned project on 13th November 2014. The application is hereby accepted, and you may proceed with the Basic Assessment process required in terms of the Environmental Impact Assessment Regulations, 2010.

The application has been assigned the reference number **17/2/3N-411**. Kindly quote this reference number in any future correspondence in respect of the application and in all methods of notification used during the public participation process.

The responsible officer is **Okwethu-Kuhle Fakude** and all correspondence must be directed to: The Deputy Director, Environmental Impact Management, Nkangala District Office, marked for the attention of the responsible officer.

Please note that in terms of the provisions of Regulation 67, this application will lapse if the applicant fails for a period of 6 months to comply with a requirement of the EIA Regulations, 2010, or if reasons for failure to comply are not communicated in writing to and accepted by this Department.

Please draw the applicant's attention to the fact that the activity may not commence prior to an environmental authorisation being granted by the Department.

Yours faithfully,

Ms. Dineo Tswai
Deputy Director

Date: 2014/11/27



MPUMALANGA PROVINCIAL GOVERNMENT

Building No. 4
No. 7 Government Boulevard
Riverside Park Extension 2
Nelspruit
1200
South Africa



Private Bag X 11215
Nelspruit, 1200
Tel: 013 766 4004
Fax: 013 766 4614
Int: +27 13 766 4004
Int: +27 13 766 4614

Department of Economic Development, Environment and Tourism

Litiko Letekutfutukiswa
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References: 17/2/3N-411

ATT: Lizelle Gregory
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PO Box 11375
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0161

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Dear Sir/Madam

EXTENSION OF TIMEFRAME: FOR THE PROPOSED CONSTRUCTION OF A FILLING STATION ON THE REMAINDER OF PORTION 16 OF THE FARM SCHOONGEZICHT 308 JS, WITHIN EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE.

The department hereby confirms having received the letter requesting an extension of time frame submitted by you on the 17th April 2015.

Your communication with the Department has been considered and an extension of time for a period of 3 months (i.e. until 17th July 2015) is therefore granted to you for the completion and the submission of the Draft Scoping Report.

Yours faithfully


Ms. Dineo Tswai
Deputy Director

2015/04/21
Date



agriculture, rural development,
land & environmental affairs

MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

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Ane` Agenbacht
Bokamoso
P.O Box 11375
Maroelana
0161

Fax: 086 570 5659

Dear Sir,

TIME FRAME EXTENSION: FOR THE PROPOSED FILLING STATION ON THE REMAINDER OF PORTION 16 OF THE FARM SCHOOGZICHT 308 JS, EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE.

The Department hereby confirms having received the letter requesting an extension of the time frame submitted by you on the 7th June 2015 to complete the Draft Basic Assessment Report.

The request for the extension of time for a period of another 6 months is therefore granted, and it will lapse in December 2015.

Yours faithfully,

Dineo Tswai
Deputy Director
Environmental Impact Management

2015/07/08
Date

FINAL BASIC ASSESSMENT REPORT

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FINAL BASIC ASSESSMENT REPORT

1. INTRODUCTION AND BACKGROUND

Clewer Filling Station CC is planning to decommission the current filling station located on the Remainder of Portion 16 of the Farm Schoongezicht 308 JS and construct a new filling station and associated infrastructure on the existing footprint. The study area is located in Clewer, Witbank (Emalahleni) just south of the N1 – Matthews Phosa/R104 off-ramp and to the north of Collins Avenue. **Refer to Figure 1: Locality Map and Figure 2: Aerial Map of proposed Filling Station.**

The study area is approximately **0.6 ha** in extent and is situated within the municipal area of **Emalahleni** and within the **Nkangala District Municipality, Mpumalanga Province.**

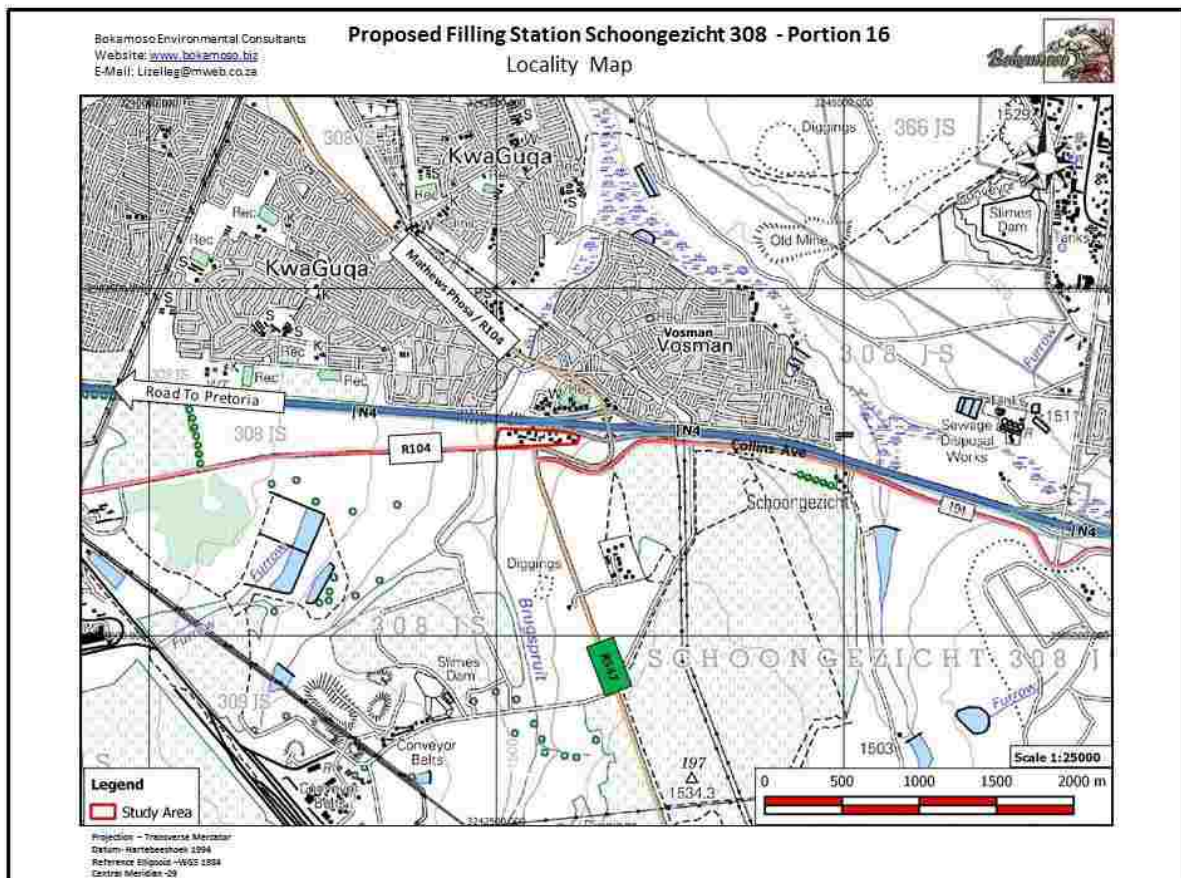


Figure 1: Locality Map

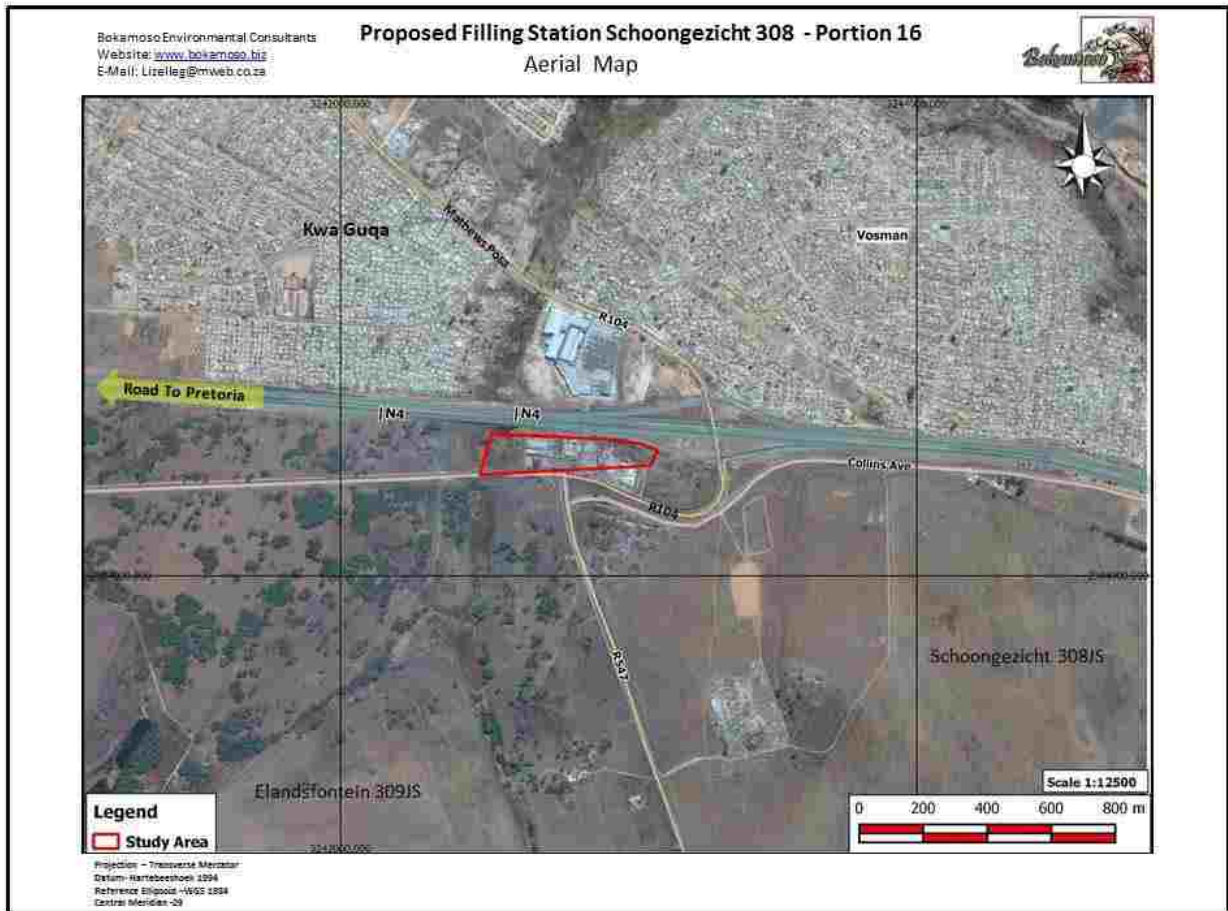


Figure 2: Aerial Map

Refer to Appendix A for enlargements of Figures

The property description of the application site is presented in **Table 1**.

Table 1: Property Description of the application site

Property Description:	Surveyor-General 21 Digit Site Reference Number	Title Number	Deed Number
Remainder of Portion 16 of the Farm Schoongezicht 308 JS	TOJS0000000003800016	T 156932/06	

The study area is strategically situated just south of the N1 – Matthews Phosa/R104 off-ramp and to the north of Collins Avenue. The immediate surrounding area consists of small scale holdings and agricultural ventures. *Evrax Highveld Steel and Vanadium* is located approximately 3 km south-west of the site. The Kwa Guqa settlement is located to the north and the Kwa Guqa Mall directly adjacent to the site across the N4 highway. Environmental Authorisation was granted for the proposed Kwa Guqa Filling Station situated adjacent to the Kwa Guqa Mall (**Refer to Figure 3: Location of the approved proposed Kwa Guqa Filling Station**).

A pedestrian bridge traverses the N4 connecting the site directly with the Kwa Guqa settlement (**See Figure 4 and photographs below**).

The proposed project will entail the decommissioning of the existing filling station and the construction of a new filling station, consisting of five Pump Islands (steel canopy covered) and five underground tanks each with a 23 000 litre capacity, as well as a convenience store 200 m² in size. The existing filling station, although still in use, is dilapidated and in need of repair.



Figure 3: Location of the approved Kwa Guqa Filling Station

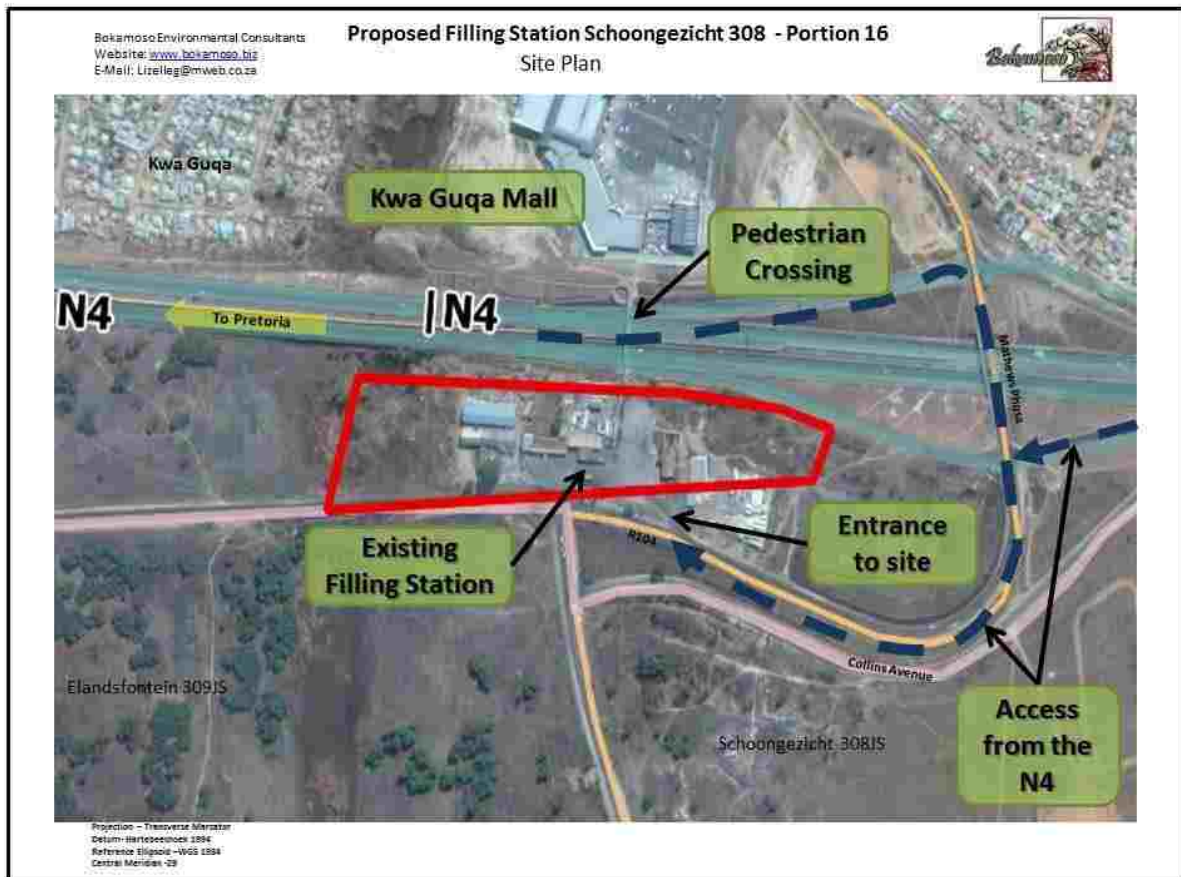


Figure 4: Site Plan



Photo 1: Existing Filling Station on site.



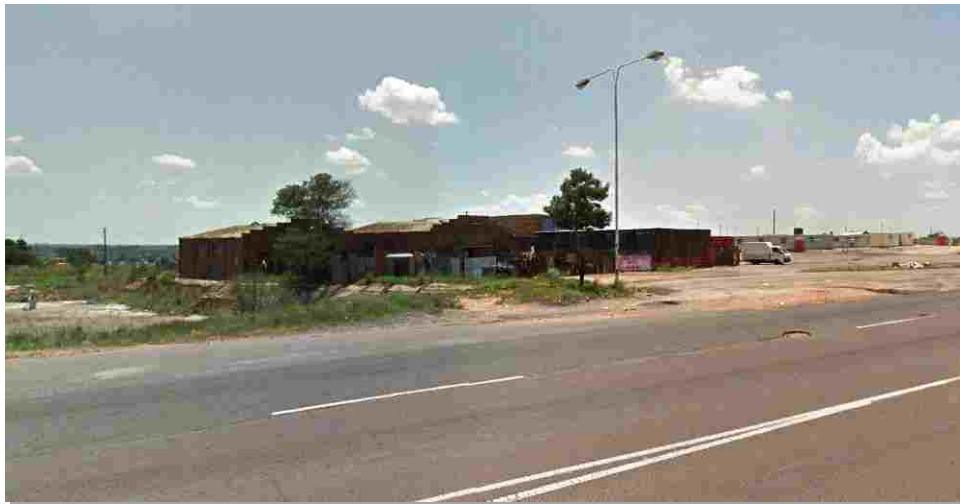
Photo 2: Access to site



**Photo 3: View of the land use
West of the site**



**Photo 4: View of the N4 looking west towards
the pedestrian bridge connecting the site to
the Kwa Guqa settlement and Mall**



**Photo 5: View of land use to the east of the site
(disused/dilapidated buildings)**

2. DESCRIPTION OF THE ENVIRONMENT

2.1 Geographic Aspects

2.1.1 Geographical Location

The position of the activity has been indicated below, using the latitude and longitude of the centre point of the site. The projection that is used is the WGS 84 spheroid projection.

Latitude (S):			Longitude (E):		
25°	52'	28.54"	29°	7'	50.69" E

2.2 Biophysical Aspects

2.2.1 Geology and Soils

(Refer to Appendix B1 for a copy of the Geotechnical Investigation by Johann van der Merwe, 2014)

According to available geological maps the study area is underlain by sandstone and siltstone of the Vryheid Formation, Ecca Group, Karoo Supergroup. This was confirmed during the investigation by Johann van der Merwe. The investigation also indicated that the site is covered by colluvial sandy and gravelly soils. No outcrops were observed in the vicinity of the site during the investigation.

Geotechnical Considerations and implications for the development:

- **Expansive soils**

The site soils are sandy and gravelly and are potentially “low” in the degree of expansiveness. A total surface heave value of less than 7 mm is predicted across the site should the moisture condition of the soils change from desiccate to saturated.

- **Compressive soils**

The upper in situ sandy and gravelly horizons materials are considered to be potentially compressible.

- **Excavation characteristics**

No problems should be experienced in excavating the site soils down to a depth of at least 3.0 m below surface across the property. The sidewalls of excavations in the coarse sandy soils will tend to become unstable after a while, upon drying out, causing a loss of cohesion and shear strength.

- **Foundations**

The site is underlain by potentially collapsible and compressible soils.

Ground Water and Soil chemistry - Considerations and implications for the development:

- **Ground water seepage**

Ground water seepage was encountered during the investigation and thus proper damp proofing precautions should be taken underneath structures, a subsurface drainage system should be considered in the forecourt area. The design of underground containers should take cognisance of the presence of a shallow water table which will hamper construction activities, causing sidewall instabilities of deep excavations.

- **Soil chemistry**

The site soils are considered to be potentially **highly chemically aggressive** with regards to underground ferrous metal pipes. Tanks and non-ferrous metal or plastic pipes or containers are therefore recommended for underground services.

The investigation shows that the groundwater is potentially **highly corrosive** towards steel and concrete.

- **Fuel Contamination**

Severe visual and olfactory evidence of **subsoil fuel contamination** was detected during the investigation. The design of the proposed underground tanks should take cognisance of the possible presence of a **perched water table** during the wet season. Any surface or subsurface contamination could cause serious damage to the underground water regime. A competent person should inspect the site during the "tank yank" and any contaminated soil should either be discarded in a proper fashion or be re-mediated on site. It is recommended that a **hydrogeological investigation** be carried out prior to the installation of new fuel tanks.

Environmental Legal Liability:

The owner of the property/existing filling station located on Portion 16 of the Farm Schoongezicht 308 JS should take note of provisions implemented in terms of the National Environmental Management Act, in terms whereof officials, directors and employees of companies can be **held liable for damages caused to the environment** or non-compliances with the environmental legislation.

- **Earthworks**

It is evident that the blanketing fill and in situ sandy and gravelly soils should be suitable for use as fill underneath surface beds and for use as selected layers and lower subbase material. The quality of the imported fill is somewhat variable and caution should be exercised during the selection and placement of construction material. Material for the construction of upper subbase layers will have to be imported and cognisance should be taken of the potentially collapsible nature of the upper soil horizons in the design of paved areas.

It is recommended that the excavations for foundations be inspected by a competent person during construction in order to verify that the exposed materials are not at variance with those described in the report. The placement of the fill must be controlled with suitable field tests to confirm that the required densities are achieved during compaction and that the quality of fill material is within specification.

2.2.2 Climate

The study area lies in a summer rainfall area. The site has a relatively high seasonal rainfall of more than 600 mm.

The Weinerts N-value is close to 2, indicating that chemical weathering dominates the physical weathering. This results in a specific soil profile to be expected to occur over the entire site.

Implications for the development:

- The climatic character of the region will not have a significant impact on the development potential of the study area;
- Should the construction phase be scheduled for the summer months, frequent rain could cause very wet conditions, which makes construction and environmental rehabilitation works extremely difficult;
- Such wet conditions often cause delays to building projects and the draining of water away from the construction works (in the case of high water tables) into the nearby water bodies, could (if not planned and managed correctly) have an impact on the water quality of these water bodies; and
- If dry and windy conditions occur during the construction phase, dust pollution could become a problem. Recommendations to mitigate dust pollution will be made in the Environmental Management Programme (EMPr) **(Please refer to Appendix D for the attached EMPr).**

2.2.3 Topography

The study area is relatively flat with less than 1% fall.

Implications for the development:

Not significant. The current topographical character of the study area will have no detrimental effect on the development potential of the site.

2.2.4 Hydrology

Surface Hydrology

The Brugspruit is located to the west of the study area **(see Photo 6 and 7)** which drains the area in a north-north-westerly direction. The site drains towards the far north-western boundary of the property. **Refer to Figure 5, Hydrology Map.**

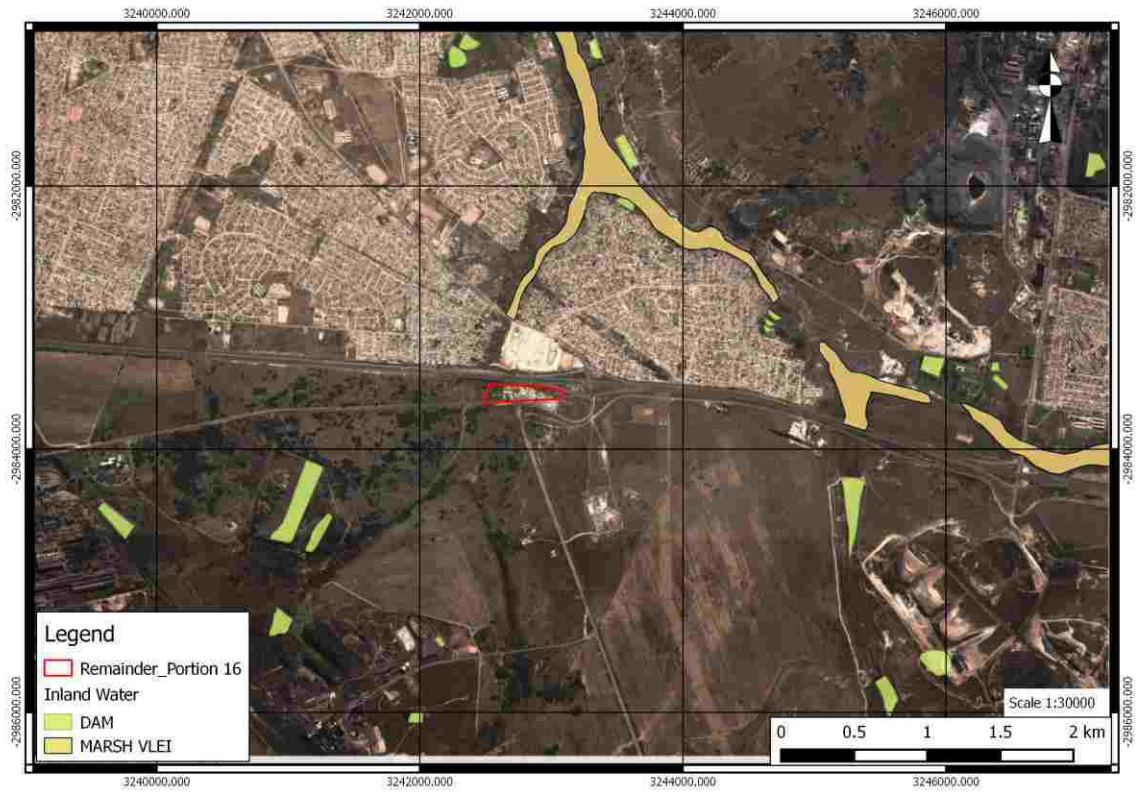


Figure 5: Surface Hydrology Map

There are no defined waterways on the study area and therefore the study area is not affected by any 1:100 year flood lines.



Photo 6: View of Brugspruit looking north



Photo 7: View of Brugspruit looking south

Sub-Surface Hydrology

A Water Quality Pollution Risk Assessment was conducted for the proposed development. **(Refer to Appendix B4 for the Water Test Results).**

It was concluded from the water test results that the corrosivity indices indicates that the water is highly corrosive towards concrete and metals. The Basson Index indicates that the water is very highly corrosive towards concrete.

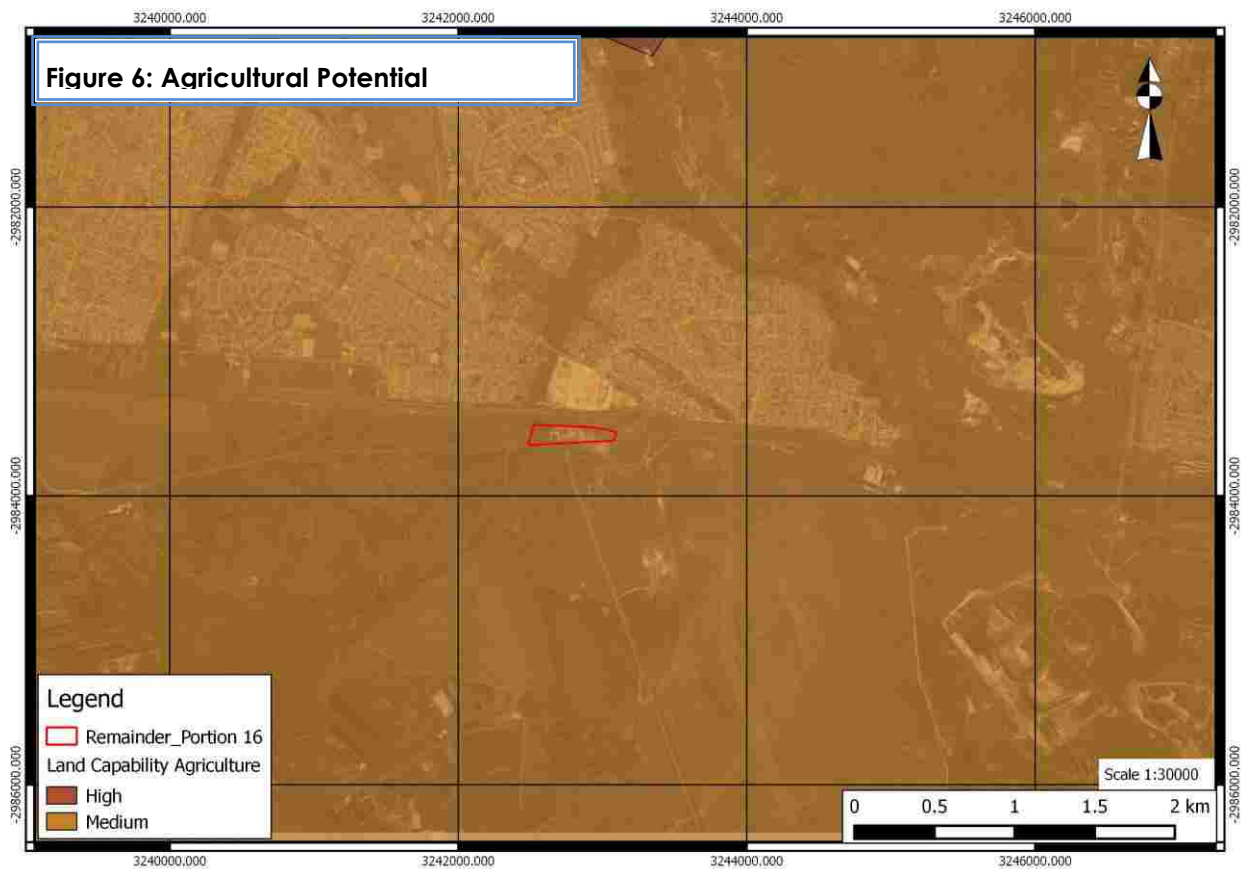
It is therefore recommended that the water should not be use in contact with unprotected concrete.

2.2.5 Agricultural Potential

(Refer to Figure 6: Agricultural Potential Map)(Appendix A)

According to a GIS Desktop study, the application site has a **medium** agricultural potential.

Bokamoso is however of the opinion that due to the current size of the subject property, it will not be possible for the study area to function as a viable economical agricultural unit. Furthermore, the study area is located across the N4 from the Kwa Guqa Shopping Centre and the site's accessibility and ideal location contributes to the site's very high development potential. If one compares the medium agricultural potential of the site with the high development potential, the development potential outweighs the agricultural potential, especially from an economical point of view.



Implications for the development:

Not significant.

2.2.6 Flora and Fauna

The larger study area is covered by natural veld grass. According to the MDARDLEA Biodiversity Plan the study area falls within a Grassland Biome and an area where no

natural habitat remains. The development footprint will not expand beyond the existing filling station's footprint (**Refer to Figure 7**).

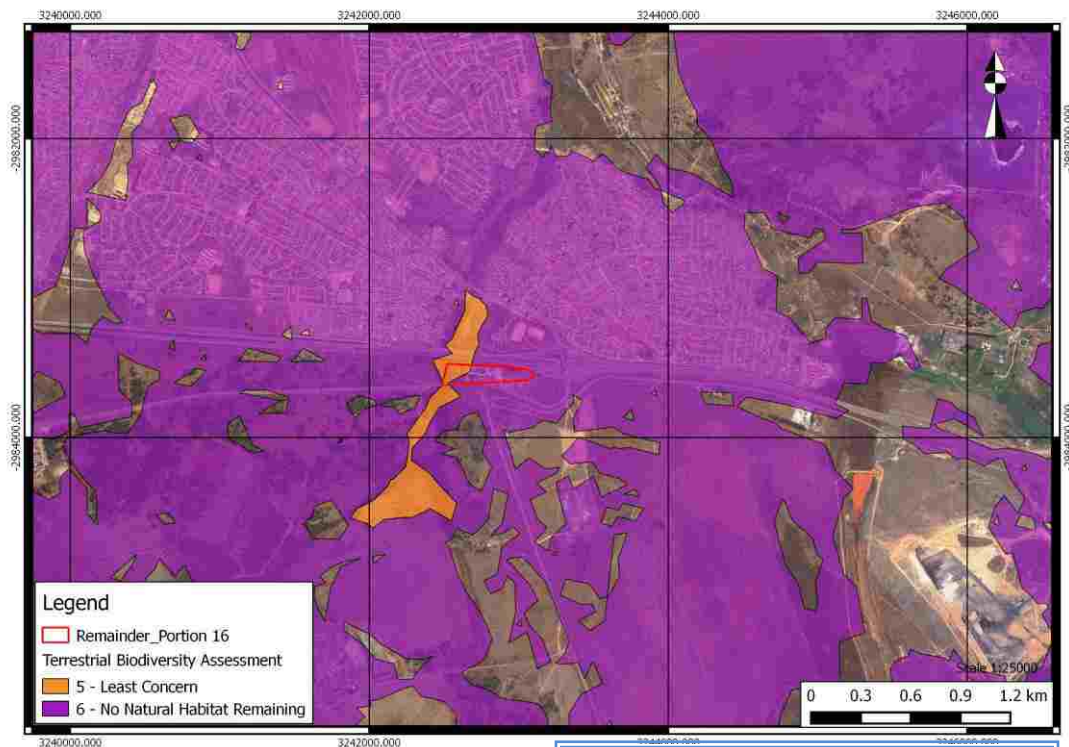


Figure 7: Terrestrial Biodiversity Map

Implications for development:

Not significant as the site is already built up.

Social Aspects

2.3.1 Archaeology

In terms of Section 38 of the National Heritage Resources Act, 1999, SAHRA must be notified of developments on areas that are larger than 5000 m². SAHRA has been informed of the proposed development during the notification process, which formed part of the public participation process. We are still awaiting comments from SAHRA regarding the application.

Due to the current state of the proposed study area it was not deemed necessary to conduct a Heritage Impact Assessment in terms of the requirements as provided for in Section 38 of the National Heritage Resources Act (NHRA) (Act 25 of 1999).

No significant cultural and historical features were thus identified on the study area and therefore the anticipated impact on any cultural/heritage resources are regarded as low to neutral.

Implications for development:

- Should any human remains be disturbed, exposed or uncovered during excavations for the proposed project (unlikely), these should immediately be reported to the South African Heritage Resource Agency (SAHRA) and/or museum. Burial remains should not be disturbed or removed until inspected by an archaeologist;
- Site preparation activities must be monitored for the occurrence of any other archaeological material (historic waste disposal sites etc) and similar hidden/buried chance finds and an archaeologist should be asked to inspect the area when this has reached an advanced stage in order to verify the presence or absence of any such materials;
- The above recommendations must be included in the Environment Management Programme (EMPr) for the proposed project; and
- Should any finds be made or artefacts uncovered during future developments on the study area, an archaeologist and/or the South African Heritage Resources Agency (SAHRA) and/or a museum have to be informed immediately, to conduct an investigation and evaluation of the finds. The developer should note that failing to inform the appropriate person or authority of any such finds, is a legal offence in terms of the National Monuments Act.

2.3.2 Existing and Proposed Zoning and Land-use

Existing and Surrounding Zoning and Land Use:

The study area is zoned as “**Business 3**” and is currently built up. The new Kwa Guqa Mall (see **Photo 8**) has been constructed directly to the north. The area to the east is occupied by dilapidated buildings (see **Photo 9**). Commercial activities are located directly to the west (see **Photos 10 and 11**) and the properties to the south are currently vacant (see **Photo 12**).



Photo 8: Kwa Guqa Mall located to the north of the site



**Photo 9: Land use activities to the east of the site
(Storage/commercial)**



Photo 10: Commercial activities adjacent to the existing filling station



Photo 11: Land use activities to the west of the site - (Disused buildings)



Photo 12: Vacant land to the south of the site

Implications for the development:

Not significant. The proposed filling station is in line with adjacent land uses in the area.

2.3.3 Proposed Land-use

The proposed development will entail a Filling Station, consisting of five Pump Islands (steel canopy covered) and five underground tanks each with a 23 000 litre capacity, as well as a convenience store of 200 m².

Implications for the development:

Not significant. The proposed development will be in line with the local authority planning.

2.4 Qualitative Environment

2.4.1 Visual Aspects

The following Visual Impact Assessment Criteria have been used to determine the impact of the proposed development on the state of the environment – the significance is indicated by the respective colour coding for each of the impacts, being high, medium and low:

Table 2: Visual Impact Assessment Criteria

CRITERIA	IMPACT		
	HIGH	MEDIUM	LOW
Visibility	A prominent place with an almost tangible theme or ambience.	A place with a loosely defined theme or ambience.	A place having little or no ambience with which it can be associated.
Visual quality	A very attractive setting with great variation and interest	A setting with some visual and aesthetic merit.	A setting with no or little aesthetic value.

	- no clutter.		
Compatibility with the surrounding landscape	Cannot accommodate proposed development without the development appearing totally out of place – not compatible with the existing theme.	Can accommodate the proposed development without it looking completely out of place.	The surrounding environment will ideally suit or match the proposed development.
Character	The site or surrounding area has a definite character/sense of place.	The site or surrounding environment has some character.	The site or surrounding environment exhibits little or no character/sense of place.
Visual Absorption Capacity	The ability of the landscape not to accept a proposed development because of a uniform texture, flat slope and limited vegetation cover.	The ability of the landscape to less easily accept visually a particular type of development because of less diverse landform, vegetation and texture.	The ability of the landscape to easily accept visually a particular type of development because of its diverse landform, vegetation and texture.
View distance	If uninterrupted view distances to the site are > 5 km.	If uninterrupted view distances to the site are < 5 km but > 1 km.	If uninterrupted view distances to the site are > 500 m and < 1000 m.
Critical Views	Views of the site seen by people from sensitive view sheds i.e. farms, nature areas, hiking trails etc.	Some views of the site from sensitive view sheds.	A limited or partial view of the site from sensitive view sheds.

Scale	A landscape with horizontal and vertical elements in high contrast to human scale.	A landscape with some horizontal and vertical elements in some contrast to human scale.	Where vertical variation is limited and most elements are related to the human & horizontal scale.
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- The application site will be visible from the N4 Freeway and surrounding view sheds predominantly due to the study area's current topographical character. From the visual analysis it is clear that the existing property can be regarded as a place with a loosely defined theme or ambiance but a setting with minimal aesthetic value due to its current land-use;
- The proposed development will be highly visible from the surrounding view sheds and the N4 which is ideal for a Filling Station development **(see Figure 8)**.

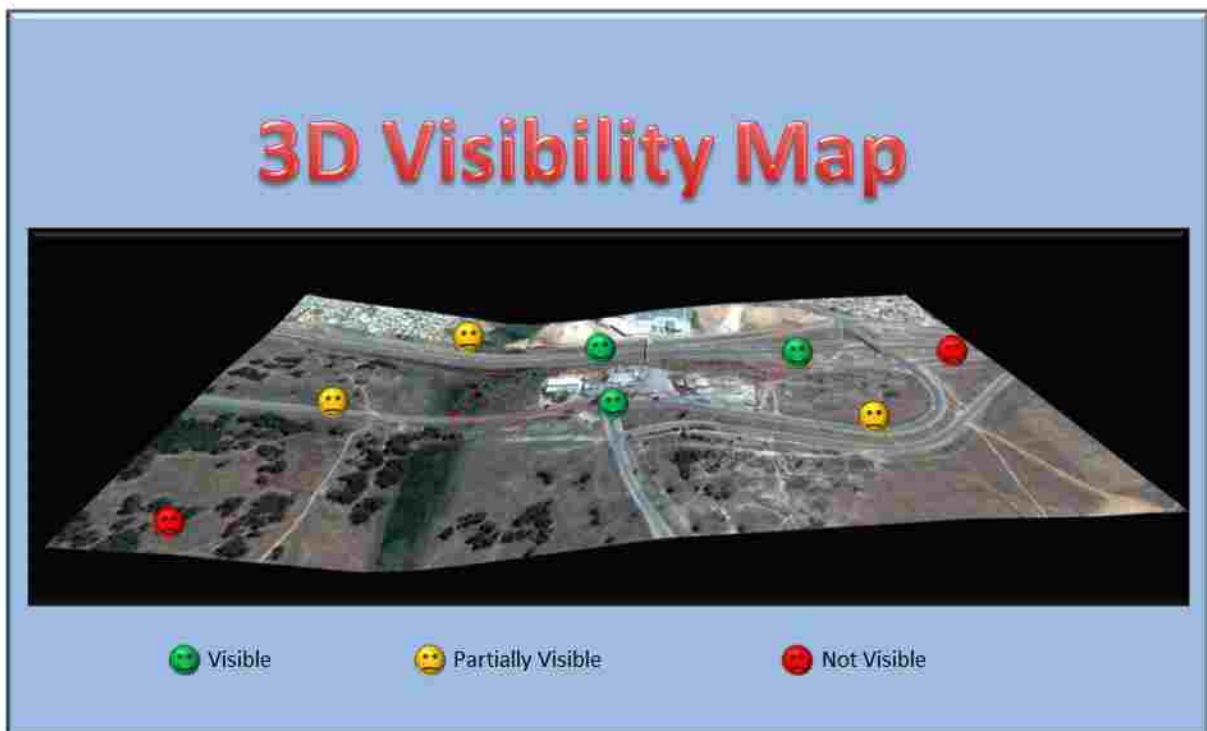


Figure 8: Visibility Map

Implications for development:

- The location of the study area is desirable in terms of accessibility and visibility from the N4 Freeway.
- Due to developments close by (the Kwa Guqa Shopping Centre Development), it is anticipated that the proposed development will be accommodated from a visual perspective. From the tabulated assessment above it can be concluded that the proposed development will make a significant contribution towards the character and enhanced sense of place of Kwa Guqa.
- The following measures are proposed to ensure that the proposed filling station development is accommodated by the surrounding view sheds from a visual perspective:
 - o The architectural styles, colours, textures and construction materials will determine the visual impact of the proposed development on the surrounding areas;
 - o The proposed development will be seen from a distance and therefore the roofs should not reflect the sun or be covered with roofing materials that have bright colours;
 - o Bokamoso is of the opinion that it would be possible to mitigate the anticipated visual impact through planning that takes the existing surrounding urban environment and aesthetical features of the site into consideration. The colour scheme for the proposed development must preferably blend in with the mosaic of colours from the surrounding urban environment;
 - o Existing trees should be retained as far as possible. The trees will soften the visual impact of the proposed permanent structures and they will bring the scale of the vertical structures in some contrast to human scale;
 - o The landscaping to be installed as part of the proposed development must be chosen to assist with the creation and sustaining of a pleasant micro-climate, to act as visual screening and enhancement mechanism, to accentuate important focal

points and movement and visual axis and to create a tranquil feeling;

- Landscaping should be done in concurrence with the building construction in order to create an instant visual enhancement of the development;
- Trees, shrubs and groundcovers that are prominent to the area and/or indigenous should preferably be used – landscaping that is in line with the natural vegetation of the area will not only help to reduce the visual impact of the development, but it will also create habitats for fauna and flora species;
- Where legally required, separate signage applications will also have to be submitted to the relevant authorities for approval;
- The lighting for the proposed development as well as all the billboards should be effectively designed so as not to spill unnecessary outward into the oncoming traffic, or into the yards of the neighbouring properties or open spaces;
- The exterior and interior lighting design should be sensitively designed to:
 - Prevent the lighting-up of the evening sky and the skyline;
 - Prevent any unnecessary spillage of lighting into the eyes of oncoming traffic;
 - Prevent the usage of flickering signage and advertising boards, especially where such boards will be visible from busy roads and surrounding residential areas; and
- It is recommended that movement activated lights are installed and that only some of the lights are on during the night in order to save energy. It is also recommended that the use of solar energy for external lighting and signage lighting be investigated.

Sense of Place

The Sense of Place is a subjective feeling a person gets about a place by experiencing the place visually, physically, socially and emotionally. The "Sense of Place" of an area is one of the major contributors to the "Image of an area".

The image of an area consists of two main components, namely **place structure** and **sense of place**. These could be defined as the following:

- Place structure refers to the arrangement of the physical place making elements within a unique structure that can be easily legible and remembered; and
- The Sense of Place is the subjective meaning attached to a certain area by individuals or groups and is linked to its history, culture, activities, ambience and the emotions the place creates.

The study area can be regarded as a place with a loosely defined ambience but a setting with minimal aesthetic value due to its current land-use. The surrounding developed landscape- and urban area with views typically associated with a typical dormitory settlement that is removed from the urban area of Emalahleni and the majority of inhabitants consist of low income households.

Noise Pollution

Some noise will be generated during the construction phase and such uneven construction associated noise may become a nuisance to the surrounding land owners, residents and businesses.

Noise generated during the operational phase will mainly be the noise generated by the increased traffic and noise generated by the decommissioning of the old filling station and the construction of a new proposed filling station and associated facilities and activities (i.e. air conditioners, places of refreshment, compressors etc.)

Implications for the development:

- It is anticipated that a certain amount of noise will be generated during the construction phase. The contractors should take care, and manage construction works to such an extent to comply with minimum ambient noise levels as defined in Local, Provincial, and National policies and frameworks. Construction activities must also be restricted to hours as specified in the National Building Regulations and if specific construction activities require that work continue after hours (i.e. the pouring of concrete slabs which cannot be interrupted), the surrounding residents must be notified of such potential disturbing activities;
- The contractor should notify the local/surrounding land-owners well in advance of any works that will generate noise (i.e. blasting operations);
- Construction site yards, workshops, concrete batching plants, and other noisy fixed facilities should be located well away from noise sensitive areas. All construction vehicles, plant and equipment are to be kept in good repair;
- Blasting operations, if required are to be strictly controlled with regard to the size of explosive charge in order to minimize noise and air blast and timings of explosions. The number of blasts per day should be limited;
- Construction activities are to be contained to reasonable hours during the day. No construction should be allowed on weekends from 14h00 on Saturday afternoons to 06h00 the following Monday morning;
- Working hours during weekdays must be limited from 06h00 until 18h00;
- With regard to unavoidable very noisy construction activities in the vicinity of noise sensitive areas, the contractor should liaise with local residents and be kept informed of the nature and duration of intended activities; and
- As construction workers operate in a very noisy environment, it must be ensured that their working conditions comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993). Where necessary ear protection gear should be worn.

Air/Dust Pollution

It is not foreseen that the proposed development would contribute significantly in terms of pollution by smoke, as the decommissioning of the old filling station will be done in phases, and the new filling station is not regarded as industrial land-use. It can however be expected that a certain amount of dust will be generated due to earthmoving activities and construction works. One should note that the impact of dust pollution is short term, lasting for the duration of construction only.

Dust suppression techniques such as sprinkling the construction site regularly with water and by putting up dust nets will mitigate this impact to an acceptable level.

Refer to Annexure D, EMPr.

Implications for the development:

- If dry and windy conditions occur during the construction phase, dust pollution could become a problem. The regular and effective damping of working areas must therefore be carried out on a continuous basis, to ensure that the generation of dust due to involved construction works are kept under control.
- Due to the site's location close to the N4 Highway, regular inspections of areas would have to be done to ensure dust control on the site remains effective at all times.

Light Pollution

The N4 is located north of the site. Most of the light from the site will be seen from the Highway side the most. Light from the site will not be an issue as the surrounding uses of the site is mainly agricultural.

Implications for the development:

Street and security lighting must be designed in order not to spread light into the eyes of oncoming traffic on adjacent N4. Internal streets and security lighting should

also be designed not to disturb residents at night. Light beams must face downwards and not higher than a 45 degree angle from the ground. **Refer to Appendix D, EMPr.**

2.5 Services

No Service Confirmation will be needed as the proposed site consists of an existing filling station. Therefore services are already available and will just be utilized as it is currently.

- **Water**

From previous experience with similar projects it is anticipated that the average daily water demand at the filling station will be 4 m³/day (0.166 l/s) and instantaneous water demand is expected to be between 0.833 and 1.33 l/s. Water will be extracted from an existing borehole on site.

- **Sanitation Services**

Sewage production will be less than the average daily water demand due to food preparation activities, irrigation, forecourt washing and a car wash facility. A conservative average daily sewage production rate is 2 m³/day, with an expected instantaneous production rate of between 0.5 and 0.8 l/s. The facility will not feed into the municipal sewer system, but will make use of a french drain and septic tank system.

Implications for the development:

Not significant as the development will not require a connection to existing municipal water and sanitation services.

- **Road Access**

Refer to Appendix B3 for the Access Evaluation Report conducted by WSP.

Proposed Site Access

Access will be from the existing road just off the R104. No upgrading of the access road is required. The existing western access is part of a 4-way stop intersection with two other district roads and from the Traffic Engineer's point of view it does not seem to be in question.

- **Storm Water**

It is recommended that a Storm Water Management Plan for the proposed filling station development be implemented a condition of the Environmental Authorisation. **Refer to Appendix E for the Storm Water Layout Plan indicating and illustrating the flow/structure of the storm water of the proposed filling station.**

Implications for the development:

Not Significant as no access upgrades is required for the proposed development.

- **Waste Removal**

The Local Authority will be responsible for the solid waste removal. The waste will be disposed of at a registered landfill site and the landfill site has the capacity to accommodate the additional waste generated by the proposed development.

Implications for the development:

The Local Authority must confirm that they will remove the solid waste and that the existing registered landfill site has the capacity to accommodate the waste to be generated by the development.

- **Electricity**

The existing electrical connection will be utilized to service the entire development. Electricity will be obtained from Eskom as Eskom is already supplying the existing filling station with electricity.

Implications for the development:

Not significant as the existing infrastructure will be utilized.

3. APPLICABLE LEGISLATION AND GUIDELINES

3.1 Activities applied for in terms of NEMA

Apart from the fact that the applicant has to apply to Council for consent for a public garage in terms of Clause 26 of the Emalaheni Land Use Management Scheme 2010, it will also be necessary for the applicant to apply for Environmental Authorisation in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA).

In December 2014 the Minister of Environmental Affairs passed the Amended Environmental Impact Assessment Regulations¹ (The Regulations) in terms of Chapter 5 of the National Environmental Management Act, 1998² (NEMA). The Amended Regulations replaced the 2010 Environmental Impact Assessment (EIA) Regulations, which were also promulgated in terms of the National Environment Management Act, 1998 (Act No. 107 of 1998). The new regulations came into effect on 4 December 2014 and, therefore, all new applications must be made in terms of the New NEMA Regulations and not in terms of the 2010 EIA Regulations. The purpose of this process is to determine the possible negative and positive impacts of the proposed development on the surrounding environment and to provide measures for the mitigation of negative impacts and to enhance positive impacts.

¹ Environmental Impact Regulations, 2014

² Act No. 107 of 1998

An application for Environmental Authorization for the proposed filling station was submitted to the approving authority, **Mpumalanga Department of Agriculture, Rural Development, Land & Environmental Affairs (MDARDLEA) on 01/10/2013** and the application has been assigned the reference number **17/2/3/N-411**.

Notwithstanding the promulgation of the 2014 Regulations, the 2010 Regulations still apply to this application due to the initial application being submitted in 2013. The initial application was made for the decommissioning of the existing filling station on site. Due to factors outside of the project team's control, the project was delayed and subsequent to the extension of time granted by the MDARDLEA, it was decided to re-construct the filling station – an activity not included in the initial application. The 2014 Regulations thus apply to the re-construction of the filling station.

Bokamoso commenced with the public participation process on 13 November 2015 which has been included as part of this report.

Note: The Public Participation Section of this report (Section 4) supplies more detail regarding the entire public participation process that was followed.

In the environmental application process (to be compiled in terms of NEMA) the applicant is applying for the following listed activities.

Table 3: Listed Activities in terms of Notice R544

Government Notice R544	Activity Number	Description
Listing Notice 1, R544, 18 June 2010	27	The decommissioning of existing facilities or infrastructure, for- (v) storage, or storage and handling, of dangerous goods of more than 80 cubic meters.
<p>Reason for Inclusion: The decommissioning of the existing filling station which is currently not in use due to its delapidated condition.</p>		

Table 4: listed Activities in terms of Notice R983

Government Notice R983	Activity Number	Description
R983, 4 December 2014	Activity 14	The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.
<p>Reason for Inclusion:</p> <p>The re-construction of a filling station including five underground tanks each with a 23 000 litre storage capacity (115 cubic metres in total)</p>		
R983, 4 December 2014	Activity 31	<p>The decommissioning of existing facilities, structures or infrastructure for-</p> <p>(i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;</p> <p>(ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;</p> <p>(iii) any development and related operation activity or activities and expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;</p> <p>(iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014;</p> <p>or</p> <p>(v) any activity regardless the time the activity was commenced with, where such activity:</p> <p>(a) is similarly listed to an activity in (i), (ii), (iii), or (iv) above; and</p> <p>(b) is still in operation or development is still in progress;</p> <p>excluding where-</p> <p>(aa) activity 22 of this notice applies; or</p> <p>(bb) the decommissioning is covered by part 8 of the National Environmental Management:</p>

	Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies.
<p>Reason for Inclusion: The decommissioning of the existing filling station.</p>	

3.2 Relevant Legislations and Regulations

3.2.1 International Legislations and Regulations

Relevant International Conventions to which South Africa is party:

- Convention relative to the Preservation of Fauna and Flora in their natural state, 8 November 1993 (London);
- Convention on Biological Diversity, 1995
(Provided, and added stimulus for a re-examining and harmonization of its activities relating to biodiversity conservation. This convention also allows for the in-situ and ex-situ propagation of gene material);
- Agenda 21 adopted at the United Nations Conference on Environment and Development (UNCED) in 1992.
(An action plan and blueprint for sustainable development)

3.2.2 National Legislations and Regulations

The Development Facilitation Act, 1995 (Act No. 67 of 1995)

This Act formulates a set of general principles to serve as guidelines for land development *inter alia* revolving around:

- The promotion of integration of the social, economic, institutional and physical aspects of land development;
- The promotion of integrated land development in rural and urban areas in support of each other;

- The promotions of the availability of residential land and employment opportunities in close proximity to or integrated with each other;
- The promotion of a combination of diverse land-uses, with each proposed Land Development Area to be judged on its own merit and no specific use, whether residential, commercial, conservation etc., to be regarded as less important;
- Discouraging urban sprawl to promote more compact towns/cities;
- Encouraging environmentally sound land development practices; and
- Promoting sustained protection of the environment.

Principles Contained in NEMA and the DFA

Principles of NEMA and the DFA, which give effect to sustainable development, were followed:

- Development must be socially, environmentally and economically sustainable; and
- Promotion, of integrated land development in rural and urban areas in support of each other.

Implications for the development

The proposed development is in line with the principles of NEMA and the DFA and will be economically and environmentally sustainable.

National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations

The Environmental Impact Assessment (EIA) process followed is in compliance with the National Environmental Management Act: NEMA, 1998 (Act No. 107) of 1998), as amended and the Environmental Impact Assessment Regulations of 2010 (Government Notice No's R544, 545 & 546) and 2014 (Government Notice No's R982, R983, R984 and R985). The proposed development involves 'listed activities', as

defined by the NEMA, 1998. Listed activities are activities, which may potentially have detrimental impacts on the environment and therefore require environmental authorisation from the relevant authority, before such activities are implemented.

NEMA provide for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state and to provide for matters connected therewith.

This Act formulates a set of general principles to serve as guidelines for land development and it is desirable that:

- The law develops a framework for integrating good environmental management into all development activities;
- The law should promote certainty with regard to decision-making by organs of state on matters affecting the environment;
- The law should establish principles guiding the exercise of functions affecting the environment;
- The law should ensure that organs of state maintain the principles guiding the exercise of functions affecting the environment;
- The law should establish procedures and institutions to facilitate and promote co-operative government and inter-governmental relations;
- The law should establish procedures and institutions to facilitate and promote public participation in environmental governance; and
- The law should be enforced by the State and that the law should facilitate the enforcement of environmental laws by civil society.

Integrated Environmental Management

Integrated Environmental Management (IEM) is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated

into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development (Department of Environmental Affairs, 1992). The IEM guidelines intend endearing a pro-active approach to sourcing, collating and presenting information at a level that can be interpreted at all levels.

The Environmental Impact Assessment Regulations (EIA)

The Minister of Environmental Affairs, promulgated and passed in (April 2006) Environmental Impact Assessment Regulations (the new regulations) in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). When these regulations came into effect on 3 July 2006 they replaced the Environmental Impact Assessment Regulations that were promulgated in terms of the Environmental Conservation Act, 1989 (Act No. 73 of 1989) (ECA) in 1997, and introduced new provisions for EIAs.

The National Environmental Management Amendment Act, 2008 (Act 62 of 2008) (NEMAA), that was promulgated on 9 January 2009 (came into effect on 1 May 2009), made a number of significant amendments to the general provisions applicable to EIA's. On 2 August 2010 the Amended EIA Regulations came into effect and replaced the previous EIA Regulations that were promulgated on 21 April 2006. Subsequent to this, the EIA Regulations were once again amended and the amended EIA Regulations were promulgated on 4 December 2014.

Notices R 544 R 545, & R 546 of the 2010 Regulations and Notices R 982, R 983, R 984 & R 985 of the 2014 Regulations list activities that indicate the application for environmental authorization process to be followed. The Activities listed in Notices R. 544 & R 546 (2010 Regulations) and R983 and R985 (2014 Regulations) require that a Basic Assessment process be followed and the activities listed in Notice No. R 545 (2010 Regulations) and R984 (2014 Regulations) requires that the Scoping and EIA process be followed.

Implications for the development:

Significant- The application for the proposed development consists only of activities listed under Notices **No. R544 and R983**, therefore a Basic Assessment Report will be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (MDARDLEA) for consideration.

The National Water Act, 1998 (Act No. 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Reducing and preventing pollution and degradation of water resources;
- Facilitating social and economic development; and
- Providing for the growing demand for water use.

In terms of Section 21 of the National Water Act, the developer must obtain water use licenses if the following activities are taking place:

- a) Taking water from a resource;
- b) Storing water;
- c) Impeding or diverting the flow of water in a water course;
- d) Engaging in a stream flow reduction activity contemplated in Section 36;
- e) Engaging in a controlled activity identified as such in Section 37(1) or declared under Section 38(1);
- f) Discharging waste or water containing waste into a water resource through a pipeline, canal, sewer, sea outfall or other conduit;
- g) Disposing of waste in manner which may detrimentally impact on a water resource;

- h) Disposing in any manner which contains waste from or which has been heated in any industrial or power generation process;
- i) Altering the beds, banks, course or disposing of water found underground if it is necessary for the safety of people;
- j) Removing, discharging, or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
- k) Using water for recreational purposes.

The National Water Act (Section 144) also requires that (where applicable) the 1:50 and 1:100 year flood line be indicated on all the development drawings that are submitted for approval.

Implications for the development:

Not Significant. The study area is not affected by any natural drainage line, rivers or wetland.

National Environmental Management: Air Quality Act (Act No. 39 of 2004)

The NEMA: Air Quality Act, 2004 serves to repeal the Atmospheric Pollution Prevention Act, 1965 (Act 45 of 1965). The Air Quality Act regulates air quality in order to protect the environment. It provides reasonable measures for the prevention of pollution and ecological degradation and for securing ecological sustainable development while promoting justification economic and social development.

The purpose of the Act is to set norms and standards that relate to:

- Institutional frameworks, roles and responsibilities;
- Air Quality management planning;
- Air Quality monitoring and information management;
- Air Quality management measures; and
- General Compliance and enforcement.

Amongst other things, it is intended that the setting of norms and standards will achieve the following:

- The protection, restoration and enhancement of air quality in South Africa;
- Increased public participation in the protection of air quality and improved public access to relevant and meaningful information about air quality; and
- The reduction of risks to human health and the prevention of the degradation of air quality.

The Act describes various regulatory tools that should be developed to ensure the implementation and enforcement of air quality management plans. These include:

- Priority Areas, which are air pollution "hot spots";
- Listed activities, which are 'problem' processes that require an Atmospheric Emission License;
- Controlled emitters, which includes the setting of emission standards for 'classes' of emitters, such as motor vehicles, incinerators, etc.;
- Control of noise; and
- Control of odours.

Implications for the development:

Not Significant- It is not foreseen that the proposed development would contribute significantly in terms of smoke and noise as it is a filling station development and not an industrial activity. It can however be expected that a certain amount of dust will be generated, due to earthmoving activities and demolition works. One should note that the impact of dust pollution is short term and lasting for the duration of construction only.

The National Heritage Resources Act, 1999 (Act 25 of 1999) (NHRA)

The NHRA requires Heritage Resources Impact Assessments for various categories of development stipulated in Section 38 of the Act. It also provides for the grading of heritage resources and the implementation of a three-tier level of responsibilities and functions for heritage resources to be undertaken by the State, Provincial Authorities, depending on the grade of the heritage resource. The Act defines cultural significance, archaeological and paleontological sites and materials (section 35), historical sites and structures (section 34), and graves and burial sites (section 36) that fall under its jurisdiction. Archaeological sites and material are generally those resources older than a hundred years, including gravestones and grave dressing. Procedures for managing graves and burial grounds are set out in Section 36 of the NHRA. Graves older than 100 years are legislated as archaeological sites and must be dealt with accordingly.

Section 38 of the NHRA makes provision for application by developers for permits before any heritage resource may be damaged or destroyed.

Implications for the development:

Not Significant- Due to the totally transformed state of the study area, it was not deemed necessary to conduct a Heritage Impact Assessment in terms of the requirements as provided for in Section 38 of the NHRA, 1999.

No significant cultural/historical resources/features were identified on the study area and therefore it is subsequently anticipated that the impact on any cultural resources are regarded as low to neutral.

If any remains/cultural resources are exposed or uncovered during the construction phase, it should immediately be reported to the South African Heritage Resources Agency (SAHRA). Burial remains should not be disturbed or removed until inspected by an archaeologist.

The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)

The Act provides for the control over the utilisation of Natural Agricultural resources of South Africa, in order to promote the conservation of soil, water sources and vegetation, as well as combating of weeds and invader plants and for matters connecting therewith.

Implications for the development:

Not Significant- According to a GIS desktop study, the study area has medium agricultural potential. In addition the development site is considered to be very small, developed and located within an urban environment.

National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003)

The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes, for the management of those areas in accordance to national norms and standards, as well as for the intergovernmental co-operation and public consultation in matters concerning protected areas. Protected areas are to be conserved for their biodiversity and ecological integrity.

Implications for the development:

Not Significant- From the GIS desktop study it is evident that the application site is not located within **any conservancy or protected area.**

National Environmental Management: Waste Act, 2008 (Act 59 of 2008)

The Waste Management Act which was finally Gazetted on 10 March 2009, is to give effect to the White Paper on Integrated Pollution and Waste Management and the National Waste Management Strategy (NWMS).

Purpose:

To reform the law regulating waste management in order to protect the health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development to provide for institutional arrangements and planning matters national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.

Objectives:

- To ensure sound environmental management of waste;
- To provide for utilisation of environmentally-sound methods that maximise the utilisation of valuable resources and encourage resource conservation and recovery;
- To reduce risk to human health and prevent the degradation of the environment through usage of mechanisms that promote the following:
 - Pollution prevention and cleaner production;
 - Volume reduction at source;
 - Recycling, recovery and reuse;
- Set guidelines and targets for waste avoidance and volume reduction through source reduction and waste minimisation measures, including composting, recycling, re-use, recovery, green charcoal process, and others, before collection, treatment and disposal in appropriate and environmentally sound waste management facilities in accordance with this act;
- To ensure the proper segregation, collection, transportation, storage, treatment and disposal of waste through the formulation and adoption of the best environmental practice in ecological waste management;
- To promote national research and development programs for improved waste management and resource conservation techniques, more effective institutional arrangement and indigenous and improved methods of cleaner production, waste reduction, reuse, collection, treatment, separation and

recovery;

- To encourage greater private sector participation in waste management;
- To encourage cooperation and self-regulation among waste generators through the application of market-based instruments;
- To institutionalize public participation in the development and implementation of national, provincial and local integrated, comprehensive, and ecological waste management programs;
- To strengthen the integration of ecological waste management and resource conservation and recovery topics into the academic curricula of formal and non-formal education in order to promote environmental awareness and action among the citizenry; and
- To control the export, import, transit, re-use, recovery, treatment and disposal of waste to ensure that all operations relating to export, import, transit, re-use, recovery, treatment and disposal will be undertaken in an environmentally sound manner.

Implications for the development:

Not significant. The construction and operation of the proposed development are not subjected to any activity as listed in Category A and B of NEM: WA, 2008.

4. DETAILS OF THE PUBLIC PARTICIPATION PROCESS

(Refer to Appendix C for the public participation details)

The principles of the National Environmental Management Act, 1998 (Act No 107 of 1998) and the Environmental Impact Assessment Regulations, December 2014 govern many aspects of Environmental Impact Assessments, including Public Participation. These include provision of sufficient and transparent information on an ongoing basis to stakeholders to allow them to comment and ensuring the participation of previously disadvantaged people, women and youth.

Effective public involvement is an essential component of many decision-making structures, and effective community involvement is the only way in which the power

given to communities can be used efficiently. The Public Participation Process is designed to provide sufficient and accessible information to interested and affected parties (I&AP's) in an objective manner to assist them to:

- Raise issues of concern and suggestions for enhanced benefits;
- Verify that their issues have been captured;
- Verify that their issues have been considered by the technical investigations; and
- Comment on the findings of the Basic Assessment Report.

In terms of the Guideline Document for Environmental Impact Assessment (EIA) Regulations promulgated in terms NEMA, stakeholders (I&AP's) were notified of the Environmental Evaluation Process through:

- 1) A site notice that was erected (at prominent points on and around the study area) on **13 November 2015 (Refer to Appendix C (i))**;
- 2) Notices regarding the project were **further e-mailed, faxed and sent via registered mail to a list of interested and affected parties and the councillors** in the area that registered for other projects in the area **(Refer to Appendix C (ii))**;
- 3) An advertisement was placed in the **Daily Sun Newspaper on 13 November 2015 (Refer to Appendix C (iii))**;
- 4) A list of all persons, organisations and organs of state that were registered as interested and affected parties in relation to the application are attached **(Refer to Appendix C (iv))**; and
- 5) No issues were raised by the interested and affected parties and no objections were received. **Refer to Appendix C (v) for correspondence to and from I & APs.**

5. LONGTERM SUSTAINABILITY, NEED AND DESIRABILITY

(Please refer to Appendix B2, for the Feasibility Study).

A Feasibility Study was conducted by means of an investigation to evaluate a site for a retail development within Kwa-Guqa and Emalahleni in May 2011. The Kwa-Guqa is predominantly characterized by, middle to lower income residents.

The purpose of the study was to determine if the proposed site is feasible for a retail development and the operation of a filling station.

Study Area

The proposed filling station is located across the Kwa Guqa Shopping Centre which is newly development.

Kwa-Guqa is a periphery township established west of Emalahleni. The economic activity in the area is driven by mining activities. Kwa-Guqa has the layout of a typical dormitory settlement that is removed from the urban area of Emalahleni and the majority of inhabitants consist of low income households that are employed by mining related activities.

Feasibility

A full feasibility study for construction and site feasibility was not conducted however, an assessment can be made based on the following:

- The land cost, building and other fixed costs will be similar to that of a new filling station;
- The cost of the road and civil engineering works will be average to below average when compared to other similar new sites;
- The site is **feasible** from a fuel sales viewpoint, based on the expected fuel- and convenience store sales. The sales from other amenities have not been taken into account (i.e. car wash, fast food restaurants, etc.)

Many of the people living in Kwa-Guga works at Highveld Steel to the South of the N4. The majority pass the site on their way to work and from work. The R104 leading past the site is a major road within the context of the area. A pedestrian walkway over the N4 is present just west of the site. This is to avoid pedestrians' accidents on the highway. Many of the people living in Kwa-Guga make use of this walkway on a daily basis.

The site enjoys good visibility from all directions. High awareness will exist of an development taking place.

It has been concluded that the site will be feasible from a filling station development point of view.

6. IDENTIFIED ALTERNATIVES

6.1 No-Go Alternative

The "No-Go" option entails that the study area remains in its current state. If no development takes place, the existing infrastructure on site will remain neglected and unmaintained which could create a safety and security threat. The geotechnical investigation found that soil contamination has taken place which could have a detrimental effect on the underground water regime. The site will not be utilised to its fullest potential and it will not contribute to the commercial theme of the area.

Based on the above, the "No-Go" option is not regarded as the preferred alternative for the study area.

6.2 Locality Alternatives

No other properties were investigated for the proposed development seeing that it will not be viable for the applicant to consider other properties as locality alternatives. The applicant is the owner of the existing filling station to be decommissioned and re-constructed.

6.3 Land-use Alternative

6.3.1 Agricultural

The study area has medium agriculture potential. We are however of the opinion that the proposed development site is in the first instance too small to act as a viable and economical agricultural unit, the soils are very compacted and unfertile due to the loss of topsoil. In addition, it is situated in close proximity of the Kwa Guqa Township and agricultural activities are not regarded as compatible with township areas.

6.3.2 Residential

A residential development was not regarded as desirable for the study area due to the zoning of the property (**Business 3**).

6.3.3 The Development of a Filling Station (The Preferred Option)

The proposed filling station development as described in this report is regarded as the preferred land-use for the study area and to follow are some of the most important benefits associated with this filling station development:

- There is a current filling station on site;
- More rates and taxes payable to the involved local authority;
- Promote the optimisation of existing services;

- Increased jobs;
- Easy access;
- Maximum exposure; and
- Development on already disturbed areas.

6.4 Layout Alternatives

Due to the small extent of the study area and the fact that there is an existing filling station located on site, no layout alternatives were considered.

7. DESCRIPTION AND ASSESSMENT OF ENVIRONMENTAL IMPACTS

7.1 Anticipated Environmental Impacts

7.1.1 Environmental Impact Description, Environmental Management & Mitigation measures

The most significant anticipated environmental impacts associated with the development of the proposed application site are discussed in this section with reference to possible mitigation measures that will minimize negative impacts and enhance positive impacts.

7.2 Construction Related Impacts

Beneficial Impacts

7.2.1 Socio-economic

Creation of Job opportunities

The proposed development would create job opportunities during the construction phase. The value that the jobs created by the construction industry should not be

underestimated as it benefits a lot of people that have no other work and further transfer skills.

Adverse Impacts

7.2.2 Bio-Physical Environment

Geology and Soils

- Dust pollution;
- Degradation of soils;
- Unstable conditions;
- Dangerous excavations; and
- Subsoil fuel contamination is a possibility if disused tanks are not removed properly due to possible presence of a perched water table during the wet season. Any surface or subsurface contamination could cause serious damage to the underground water regime.

Proposed Mitigation measures-

- Implementation of temporary storm water management measures during construction;
- Appointing of a geotechnical engineer to assist with foundation designs and other stability and geotechnical issues;
- Implementation of dust suppression measures during the construction phase;
- Clear marking of dangerous excavations; and
- Appointing a competent person to be present at "tank yank".

Hydrology

- More exposed areas and increased erosion and siltation and water pollution;
- Construction during the rainy periods.

Proposed Mitigation measures-

- Implementation of temporary storm water management measures during construction; and

- Schedule (where possible) construction associated with earthworks for the dryer winter months.

Climate

- Should the construction phase be scheduled for the summer months, frequent Rain could cause very wet conditions, which makes it difficult to build in and rehabilitate disturbed areas on site;
- These wet conditions often cause delays to building projects; and
- The drainage of water away from the construction site into the surrounding open space areas could (if not planned and managed correctly) have an impact on the water quality of these water bodies.

Proposed mitigation measures-

- It is recommended that the construction phase be scheduled for the winter months, especially activities such as the installation of services, foundations, excavations and road construction;
- It is also recommended that precautionary measures be taken in order to prevent the extensive loss of soil during rainstorms. Large exposed areas should be protected against erosion by matting or cladding;
- Measures should be implemented during the rainy season to channel storm water away from open excavations and foundations; and
- Construction workers and construction vehicles and machinery must stay out of the soggy areas during the wet periods. Barrier tape should be used to demarcate the areas that are drenched with water it should only be removed when the appointed Environmental Control Officer (ECO)/ Site supervisor/ project manager /main contractor regard the conditions as favorable.

Flora & Fauna

The proposed development could have the following impacts on the biological and ecological environments:

- Change in water quality during construction phase, contaminated storm water.

Proposed Mitigation measures-

- All affected and exposed areas should be rehabilitated upon the completion of construction. In this regard, special reference is made to the use of indigenous vegetation as the first choice during landscaping; and
- The landscape architect should only specify the use of native and indigenous plant species in their plant design.

Veld fires may cause damage to infrastructure, vegetation and fauna-

Construction workers could start uncontrolled fires, which could damage infrastructure on site and the adjacent open space areas.

Proposed mitigation measures-

- One central cooking and fire area should be established on site. This should be located in a fire safe area where vegetation (especially Veld grass) has been removed;
- Cooking fires and smoking should strictly be limited to only this area. No smoking at the construction site should be permitted outside this area; and
- No fires or smoking should be allowed on windy days.

Air Pollution, Localised Vibration and Noise pollution

Nuisance to neighbours in terms of dust generation-

It can be expected that a certain amount of dust will be generated due to earthmoving activities and demolition works. One should take note that the impact of dust pollution is short-term and lasting for the duration of construction only.

Proposed Mitigation measures-

- The application site must be damped on a regular basis with water during dry and windy conditions.

Nuisance to neighbours in terms of noise generation, especially due to demolition works-

A certain amount of noise will be generated during the construction phase which may definitely become a nuisance to the surrounding land owners, residents and businesses.

Proposed Mitigation Measures-

- It is anticipated that a certain amount of noise will be generated during the construction phase. The contractors should take care, and manage construction/demolition works to such an extent to comply to minimum ambient noise levels as defined in local, provincial, and National policies and frameworks;
- The contractor should liaise with local residents on how best to minimise the impact. The local population should be kept informed of the nature and duration of intended activities;
- Construction yards, workshops, concrete batching plants and other noisy fixed facilities should be located well away from noise sensitive areas;
- All construction vehicles, plant and equipment are to be kept in good repair;
- Blasting operations (if required) are to be strictly controlled with regard to the size of explosive charges in order to minimise noise and air blast and timings of explosions;
- Construction activities should remain and take place during reasonable hours during the day and early evening. No construction should be allowed on weekends from 14h00 on Saturday afternoons to 06h00 the following Monday morning; and
- It must be ensured that the working conditions of construction workers comply with the requirements of the occupational Health and safety Act, 1993 (Act No 85 of 1993).

Heavy vehicle traffic and noise increase on the local roads-

Construction vehicles will have a negative impact on traffic volumes, road safety and noise levels during the construction period. Heavy construction vehicles will have an added negative impact on traffic flow during the peak hour traffic times.

Proposed mitigation measures-

- The heavy construction vehicles should avoid the local roads during peak traffic times and large deliveries should also be scheduled outside the peak traffic times;
- Signs should be erected in the vicinity of the site and on all major junctions that the construction vehicles will use; and
- The construction vehicles should obey all traffic rules and stay within the speed limits.

Visual Impact & Waste Management

If the site office and camp is not managed according to the EMPr-

The area where the site office, material stockyards, and workshops are to be erected should be located in an already disturbed part of the site.

Absence of proper sanitation facilities and good housekeeping could negatively impact the local community, surface/sub-surface hydrology and soils.

Proposed Mitigation measures-

- Identify a central waste storage area and establish suitable containers skips for the different waste streams;
- The wind direction and the proximity to neighbouring properties should be taken into account, when a central waste storage area is established;
- Rubble and waste should be removed from the construction site on a weekly basis by a service provider;
- The contractor should communicate with other trades and businesses in the area to establish waste exchange and recycling possibilities;
- Rubble and waste should be removed to registered dumping sites as is acceptable to the Local Authorities; and

- Chemical toilets, one for every ten workers, should be erected close to the area where construction works are taking place.

Dumping of builder's rubble on site-

The dumping of builder's rubble on site may cause visual pollution. Dumping of waste in open space areas adjacent to the site could have a detrimental effect on the fauna and flora of the open space areas. Builder's rubble can also pollute the hydrological system and soil of the open space area. It is therefore critical that no builder's rubble be dumped within the open space areas or vacant land within the surrounding area.

Proposed Mitigation measures-

- Identify a specific point for waste and rubble on site;
- The area should be located in an area that is already disturbed and which can be hidden from the surrounding residents to prevent visual pollution;
- All the rubble and waste materials should be transported and disposed at this central waste disposal site that should be established;
- Rubble should be removed from this area on a regular basis as to not cause a negative visual impact;
- Appropriate containers for different waste streams should be provided on site; and
- Barriers and screens should be erected around the waste storage area to mitigate and reduce its visual impact.

Vehicle maintenance on site could cause visual pollution-

Temporary maintenance and refuelling workshops may be required for construction vehicles. Soil and water pollution by oil, lubricants and fuel may occur at these facilities. The volume of lubricants and fuel expected to be on site should only cause localised pollution. However, any pollution of the soil and water is undesirable and should be prevented.

Proposed mitigation measures-

- One area in the site camp should be used for fuel or hazardous materials and lubricant storage;
- This area should be bounded to contain 1.5 times the storage volume of fuel and should have a concrete base;
- A working area should be established at the site camp with a concrete base on which all machinery repairs, vehicle services and such activities should take place; and
- After the construction works are completed this area should be rehabilitated and the soil quality should be restored.

Light Pollution-

Security and temporary lighting on site during the construction phase could have an adverse impact on the surrounding neighbours and driving conditions on the surrounding roads.

Proposed Mitigation measures:

- Security lighting should be directed to the ground;
- Only the needed lighting should be installed;
- Lighting should not shine into the neighbouring properties or onto the surrounding roads and oncoming traffic; and
- The design, placement and arrangement of exterior lighting should take the sensitive night views into consideration.

Construction Works could cause an adverse visual impact to the surrounding land owners/residents-

The infrastructure associated with the construction phase (Site camp and waste storage area) could cause an adverse visual impact.

Proposed mitigation measures-

- Waste and building material stockyards should at all times be cleaned and kept tidy;

- No litter, plastic package or cement bags should at any time be left on site. It is expected that the site be kept neat and tidy at all times. Waste items should be disposed of once a week by a contracted service provider;
- Screens should be erected to hide unsightly waste storage areas or any other temporary infrastructure that may cause an adverse visual impact; and
- Where possible, screens should be erected around the site, to mitigate the adverse visual impact that construction activities have on the surrounding urban environment.

Cultural & Historical

The potential occurrence of cultural and historical assets on site-

Archaeological sites/sites of cultural and historical importance can be disturbed and/or destroyed during construction works, if exposed.

Proposed Mitigation Measures-

- Archaeological sites that are exposed during construction work, should immediately be reported to a museum, preferably one at which an archaeologist are present, so that an investigation and evaluation of the findings can be made;
- It should be noted that in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999), Section 35(4) no person may without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or material; and
- Section 34 (1) also in addition states that no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit, issued by the relevant provincial heritage resources authority.

Safety and Security

The following safety and security problems can arise during the construction phase-

- Reckless operators of construction vehicles can cause dangerous conditions on the nearby roads as well as on the construction site;

- Deep excavations without warning signs can pose a health and safety risk to the construction personnel on site, as well as the public/surrounding residents/pedestrians; and
- Possible crime initiated due to an influx of people that are associated with construction.

Proposed mitigation measures-

- Although regarded as a normal practice, it is important to erect proper signs indicating the operation of heavy vehicles in the vicinity of dangerous crossings and access roads;
- Dangerous excavations where construction is not actively taking place, should be properly marked and demarcated with orange safety barrier tape;
- Construction must be completed in the shortest possible time. No construction worker or relative may reside on the application site during the construction phase. All construction workers must leave the site at the end of the day's work. A security company must be appointed to secure the site, and to ensure a safe and controlled environment;
- No construction worker, friend or relative may reside on site. Only security personnel may be present on site after construction hours; and
- No construction worker should be allowed to enter any adjacent private property for any reason without written consent.

7.3 Operational Related Impacts

➤ Beneficial Impacts

7.3.1 Socio-Economic

Economical and Institutional:

- More rates and taxes payable to the involved Local Authority;
- Promote the optimisation of existing services;
- Increased jobs;

- Maximum exposure; and
- The proposed expansion is in line with the planning frameworks for the area.

Social:

- Increased jobs; and
- Easy access to filling station.

7.3.2 Bio-Physical Environment

Geology and Soils:

- Prevention of any further erosion and siltation.

Hydrology:

- Promotion of surface drainage.

Fauna and Flora:

- Removal of exotic invaders.

➤ **Adverse Impacts**

Roads and Traffic

- The proposed filling station could have an impact on passing traffic volumes and the interception of traffic could cause minor disruptions.

Proposed mitigation measures:

- Care should be taken pertaining to the placing of signage in the proximity of access points to the proposed filling station.

7.3.3 Qualitative Environment

Lighting Pollution

- The proposed development could cause a significant level of light pollution due to security and advertisement lighting. These lighting could easily glare into the surrounding environment, especially surrounding residences if not designed appropriately.

Proposed mitigation measures:

It is recommended that all the lighting on site be designed to point downwards and the lighting system should be designed not to cause glare, dispersal or unnecessary flickering.

Air pollution-

The development will generate additional traffic on the local roads that will contribute to the air pollution levels in the immediate area.

Proposed mitigation measures:

- Air pollution levels will not exceed acceptable levels. No mitigation measures proposed.

Noise pollution-

Some additional noise will be generated during the operational phase of the proposed filling station due to:

- The interception of traffic on surrounding roads to the filling station; and
- Activities associated with the operation of the new filling station (Air conditioning, compressors, places of refreshment etc.)

Proposed mitigation measures-

- The design, placement and orientation of extractor fans for the ventilation of the buildings must take the noise impact aspect into consideration.

Equipment with the best noise rating should be used. Roof mounted fans may further require attenuators and need to be screened from noise sensitive areas;

- High quality air conditioning equipment should be installed. Equipment with the best noise rating should be used;
- Where required, high quality refrigeration compressors should be installed. Equipment with the best noise rating should be used. Exterior installations should be acoustically encapsulated; and
- All mechanical equipment should be well maintained.

Visual Impact-

The application site will be highly visible from the N4 Freeway and surrounding view sheds predominantly due to the study area's current topographical character.

Proposed mitigation measures-

- The architectural styles, colours and textures and construction materials will determine the visual impact of the proposed development on the surrounding areas.

Hydrology:

• Storm Water Management

Surface water run-off from the site has the potential to affect the surrounding open-space areas if not well managed.

Proposed mitigation measures

- Adequate storm water management must be incorporated in the design of the proposed development to ensure the effective management of surface water run-off from the site, and to prevent erosion and the associated sedimentation of the surrounding areas;
- The release points of storm water to the surrounding open space areas must be done carefully and the use of energy dissipation structures, reno-

mattresses and geo-textiles should be made to prevent erosion down gradient of the discharge points;

- Sheet run-off from paved surfaces and access roads need to be curtailed;
- All areas which have been affected by construction, which are to remain as open space should be rehabilitated upon the completion of the construction phase;
- Discharge of storm water runoff from site should be limited to pre-design development peak flows and volumes;
- Where practical, retention and detention storage systems should be used to manage peak storm water flows within the on-site storm water management system;
- Uncontaminated storm water run-off from roofs, parking bays and the landscape should not be allowed to mix with process effluent, stored chemicals or storm water runoff from areas susceptible to chemical/petroleum based spills; and
- Paved areas exposed to rainfall where dust, litter or spilled substances accumulate should be regularly cleaned using methods that prevent drainage or leaching of fluid into the surrounding environment. Gross pollutant (litter), oil and sand traps (appropriate to the site) are recommended at drain entry or discharge points. These traps require regular inspection and residue removal. First-flush water diversion for dusty outdoor areas should be considered to capture initial storm water run-off after any extended dry period.

- **Surface and ground water pollution**

Surface and groundwater pollution could occur due to leaking equipment and spillages associated with the proposed filling station.

Proposed mitigation measures

- Leak detection facilities should be installed around the storage tanks and vapour samples must be taken according to a six monthly monitoring programme;

- Groundwater monitoring boreholes should be installed, during the construction phase of the filling stations;
- An Emergency Plan must be implemented. The Emergency Plan is incorporated in the EMPr (**refer to Appendix D**);
- A Spill response kit comprising of absorbent fibers and associated waste containers should be available on site. All materials for clearing of surface spillages should be stored in a container and moved on a regular basis by an approved contractor to a hazardous waste disposal site;
- Appropriate damp proofing and drainage precautions must be implemented beneath all fuel storage areas to prevent groundwater pollution during periods of sustained rainfall;
- All surface areas utilized for the proposed storage tanks and peripheral infrastructure must be appropriately paved to prevent ingress of contaminated water into the ground;
- All pipes and connections to the proposed tanks must be provided with flexible coupling to prevent spillages;
- To mitigate any expanding or shifting soils, the tank excavation should be backfilled with coarse grained river sand. The river sand will act as a stabilizer which will allow for expansion and contraction in the surrounding soils without affecting the tank;
- Storm water management on site and around all fuel/oil bearing infrastructure should aim the fast and efficient disposal of water into the surrounding and existing drainage systems;
- Paving must be provided around the perimeter of all structures. Joints between paved areas and the walls of the buildings should be sealed with a flexible sealant to prevent moisture reaching the foundations;
- A complete waste handling and separation procedure for the operational phase should be implemented due to the handling, storing and disposal of hazardous chemicals. An oil/water separator should be installed on site, which will allow for the processing and separation of insoluble fuel hydrocarbons and the storm and wash down water of the current dispensing area. Only processed water will be allowed and directed to the local sewage system. Under no circumstance may processed water be directed to the

storm water system or the surrounding wetland areas;

- All fuel dispensers must include a shut-off valve; and
- All materials and installations shall comply with the relevant standards and regulations as imposed by the South African Bureau of Standards (SABS) and the Occupational Health and Safety Act (Act 85 of 1993).

Social:

- **Risk for fires or explosion associated with the proposed filling station**

Due to the proposed facility for storage and handling of a dangerous and flammable good, an Emergency / Fire Response Plan approved by a risk consultant must be implemented and adhered to.

Proposed mitigation measures

- An Emergency Plan must be implemented. The Emergency Plan is incorporated in the EMPr (**refer to Appendix D**); and
- A general emergency fire system should be in place, including hose reels, fire main rings etc.

- **Economic impact on existing filling stations in the Emalahleni area.**

The proposed filling station will not have a significant impact on existing filling stations in the Emalahleni area.

7.4 Significance Description Methodology

The significance of Environmental Impacts was assessed in accordance with the following method:

Significance is the product of probability and severity. Probability describes the likelihood of the impact actually occurring, and is rated as follows:

- Improbable - Low possibility of impact to occur either, because of design or historic experience.
Rating = 2
- Probable - Distinct possibility that impact will occur.
Rating = 3
- Highly probable - Most likely that impact will occur.
Rating = 4
- Definite - Impact will occur, in the case of adverse impacts regardless of any prevention measures.
Rating = 5

The severity factor is calculated from the factors given to “intensity” and “duration”. Intensity and duration factors are awarded to each impact, as described below.

The Intensity factor is awarded to each impact according to the following method:

- Low intensity - natural and man-made functions not affected – Factor 1
- Medium intensity - environment affected but natural and man-made functions and processes continue - Factor 2
- High intensity - environment affected to the extent that natural or man-made functions are altered to the extent that it will temporarily or permanently cease or become dysfunctional - Factor 4

Duration is assessed and a factor awarded in accordance with the following:

Short term	-	<1 to 5 years - Factor 2
Medium term	-	5 to 15 years - Factor 3
Long term	-	impact will only cease after the operational life of the activity, either because of natural process or by human intervention - Factor 4.
Permanent		mitigation, either by natural process or By human intervention, will not occur in such a way or in such a time span that the impact can be considered transient - Factor 4.

The severity rating is obtained from calculating a severity factor, and comparing the severity factor to the rating in the table below. For example:

$$\begin{aligned}
 \text{The Severity factor} &= \text{Intensity factor X Duration factor} \\
 &= 2 \times 3 \\
 &= 6
 \end{aligned}$$

A Severity factor of six (6) equals a Severity Rating of Medium severity (Rating 3) as per table 16 below:

Table 5: Severity Ratings

RATING	FACTOR
--------	--------

Low Severity (Rating 2)	Calculated values 2 to 4
Medium Severity (Rating 3)	Calculated values 5 to 8
High Severity (Rating 4)	Calculated values 9 to 12
Very High severity (Rating 5)	Calculated values 13 to 16
Severity factors below 3 indicate no impact	

A Significance Rating is calculated by multiplying the Severity Rating with the Probability Rating.

The significance rating should influence the development project as described below:

Low significance (calculated Significance Rating 4 to 6)

- Positive impact and negative impacts of low significance should have no influence on the proposed development project.

Medium significance (calculated Significance Rating >6 to 15)

- Positive impact:
Should weigh towards a decision to continue
- Negative impact:
Should be mitigated to a level where the impact would be of low significance before project can be approved.

High significance (calculated Significance Rating 16 and more)

- Positive impact:
Should weigh towards a decision to continue, should be enhanced in final design.

- Negative impact:
Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to at least low significance rating.

7.5 Significance Assessment

Refer to **Table 6** for the Calculation and Result of the Significance Assessment of Impacts identified to be associated with the Proposed Development.

Note proposed mitigation measures are supplied in EMPr and in Item 5 above – no mitigation required for beneficial impacts

Table 6: Calculation and Result of the Significance Assessment of Impacts Identified to be Associated with the Proposed Development

Impact	Probability Rating	Severity Rating		Severity Factor	Severity Rating	Significance Rating- prior to mitigation and after mitigation
		Intensity	Duration			
<u>THE CONSTRUCTION PHASE</u>						
<i>BENEFICIAL IMPACTS (Note: Not necessary to mitigate because the impact are positive)</i>						
Socio-Economic						
Creation of Employment opportunities	4	4	2	8	3	12 Medium
Improved site security	5	2	3	6	3	15 Medium
Flora						

The eradication of exotic invades and weeds on the subject property	5	4	2	8	3	15 Medium
ADVERSE IMPACTS						
Geology and Soils						
The site clearance and leveling will cause some additional exposed areas and could trigger some additional erosion and siltation, especially during rainy periods	4 2	2 2	2 2	4 4	2 2	8 Medium 4 Low
Dust pollution	4 2	2 2	2 2	4 4	2 2	8 Medium 4 Low
Degradation of soils	4 2	2 2	2 2	4 4	2 2	8 Medium 4 Low
Unstable conditions	4 2	2 2	2 2	4 4	2 2	8 Medium 4 Low
Dangerous excavations	4 2	2 2	2 2	4 4	2 2	8 Medium 4 Low
Surface & Sub-surface Hydrology						
More exposed areas and increased erosion, siltation and water pollution	3 2	2 2	2 2	4 4	2 2	6 Medium 4 Low
Construction during the rainy periods	4 2	2 2	2 2	4 4	2 2	8 Medium 4 Low

Excavated materials that are stockpiled in wrong areas can interfere with the natural drainage, cause sedimentation and water pollution.	4 2	2 2	2 2	4 4	2 2	8 Medium 4 Low
Subsoil fuel contamination is a possibility if disused tanks are not removed properly due to possible presence of a perched water table during the wet season. Any surface or subsurface contamination could cause serious damage to the underground water regime.	4 2	2 1	4 2	8 2	3 2	8 Medium 4 Low
Climate						
Should the construction be phased for the summer months, frequent rain could cause very wet conditions, which makes it difficult to build in in and rehabilitate disturbed areas on the site	4 2	2 2	2 2	4 4	2 2	9 Medium 4 Low
The wet conditions often cause delays to building projects. The drainage of water away from the construction site into the surrounding open space areas could (if not planned and managed correctly) have an impact on the water quality of these water bodies	4 2	2 2	2 2	4 4	2 2	10 Medium 4 Low
Flora and Fauna						
The clearance of the site and the construction of the proposed structures and infrastructure will result in the eradication of the existing vegetation on site.	4 2	2 2	4 4	8 8	2 3	8 Medium 6 Medium

Accidental introduction of exotics and invaders.	2	1	4	4	2	4 Low
	2	1	2	2	2	4 Low
Veld fires may cause damage to infrastructure, vegetation and fauna.	2	1	2	2	2	4 Low
	2	1	2	2	2	4 Low
Areas where vegetation cleared for construction are not properly rehabilitated.	4	2	4	8	3	12 Medium
	2	1	2	2	2	4 Low
Increase in flow velocity around the development area in already fragmented environment	4	2	4	8	3	12 Medium
	2	1	4	4	2	4 Low
Increase in surface drainage to accommodate infrastructure and structures	4	2	4	8	3	13 Medium
	2	1	4	4	2	4 Low
Air pollution, Localized vibration & noise pollution						
Nuisance to neighbours in terms of dust generation.	4	2	2	4	2	8 Medium
	2	1	2	2	2	4 Low
Nuisance to neighbours in terms of noise generation during construction	4	2	2	4	2	8 Medium
	2	1	2	2	2	4 Low
Heavy vehicle traffic and noise increase on the local roads	4	2	2	4	2	8 Medium
	2	1	2	2	2	4 Low
Visual Impact & Waste Management						
If the site office and camp, and associated waste are not managed according to the EMPr	4	2	2	4	2	8 Medium
	2	1	2	2	2	4 Low

Builder's rubble is dumped during the construction phase on site, and the surrounding open space areas	4 2	2 1	2 2	4 2	2 2	8 Medium 4 Low
Vehicle maintenance on site could cause pollution	2 2	2 1	2 2	4 2	2 2	4 Low 4 Low
Lighting pollution	3 2	2 1	2 2	4 2	2 2	6 Low 4 Low
Construction works could have an adverse visual impact on the surrounding residents and landowners.	4 2	2 1	2 2	4 2	2 2	8 Medium 4 Low
Cultural & Historical						
The occurrence of cultural and historical assets on the proposed development site	2 2	2 1	4 2	8 2	3 2	6 Low 4 Low
Safety and Security						
The following safety and security problems are likely to occur during the construction phase: <ul style="list-style-type: none"> Reckless operators of construction vehicles can cause dangerous conditions on the subject property and surrounding roads; If ground works, especially deep excavations are not properly marked or demarcated for safety reasons; and Possible crime initiated by construction workers/friends/relatives during the construction phase 	3 2	2 1	2 2	4 2	2 2	6 Low 4 Low

OPERATIONAL PHASE						
<i>BENEFICIAL IMPACTS (Note: Not necessary to mitigate because the impact are positive)</i>						
Socio-Economic						
Economical and Institutional						
More rates and taxes payable to the local authority	5	4	4	16	5	25 High
Promote the optimum utilisation of services	5	4	4	16	5	25 High
Job opportunities in close proximity of residential areas	5	2	4	8	3	15 Medium
The proposed filling station is in line with the planning frameworks for the area	5	2	4	8	3	15 Medium
Social						
Increased jobs	4	2	4	8	3	12 Medium
Job opportunities in close proximity of residential areas	4	2	4	8	3	12 Medium
It is anticipated that the proposed filling station will enhance the "Sense of Place" of the study area and the surrounding environment	4	2	4	8	3	12 Medium
Services, Roads and Traffic						
The proposed new filling station will promote the optimum utilisation of services	4	2	4	8	3	12 Medium
Safety & Security						
Increase security in the immediate and surrounding urban environment	4	2	4	8	3	12 Medium

Bio-Physical Environment						
Geology and Soils						
Prevention of any further erosion and siltation	2	2	4	8	3	6 Low
Hydrology						
Promotion of surface drainage	2	2	4	8	3	6 Low
Fauna and Flora						
Implementation of a weed control programme	2	2	4	8	3	6 Low
Replacement of exotic species with indigenous species	4	2	4	8	3	12 Medium
Removal of exotic invaders	2	2	4	8	3	6 Low
Development of the already built up areas	4	4	4	16	5	20 High
ADVERSE IMPACTS						
Roads & Traffic						
The impact of additional vehicular traffic.	4	4	4	16	5	8 Medium
	2	2	4	8	3	6 Low
Qualitative Environment, Pollution & Visual Impact						
Light pollution	4	4	4	16	5	20 High
	2	2	4	8	3	6 Low

Air Pollution	2 2	2 1	4 4	8 4	3 2	6 Low 4 Low
Visual Impact	4 2	4 2	4 4	16 8	5 3	20 High 6 Low
Hydrology						
Surface run-off from the site has the potential to affect the surrounding open space areas of not well managed	4 2	2 1	4 4	8 4	3 2	12 Medium 4 Low
Surface and ground water pollution due to leaking equipment and spillages associated with the proposed filling station.	4 2	2 1	4 4	8 4	3 2	12 Medium 4 Low
Possible surface water pollution due to unaddressed spillages associated with the proposed filling station.	4 2	2 1	4 4	8 4	3 2	12 Medium 4 Low
Safety						
Risk for fires or explosion associated with the proposed filling station.	4 2	2 1	4 4	8 4	3 2	12 Medium 4 Low

7.6 Discussion of Significance Assessment

The above results can mainly be ascribed to the current developed and transformed state of the study area, and its immediate surrounding environment. In addition to this, no geotechnical condition exists to the extent of not allowing the proposed development to proceed.

It is evident from the results above that 76 % of all the adverse impacts, associated with the development of the filling station, are of a short term in nature, lasting for construction only and can be successfully mitigated.

It is clear that the socio-economic and institutional environment will benefit significantly from the proposed development.

In light of the above, it can be provisionally concluded that, no “fatal flaw” adverse impacts or impacts that cannot be adequately mitigated, are anticipated to be associated with the proposed new filling station. This is subjected to the condition that all recommended mitigation measures as stipulated in the Environmental Management Programme (EMPr) and as supplied in this report, be adhered to, in order to mitigate the adverse impacts and to achieve the maximum gain from the identified beneficial impacts **(Please refer to Appendix D for the attached report)**.

7.7 INPUTS AND RECOMMENDATIONS BY SPECIALISTS

The study area is currently built up thus no ecological or heritage studies are required.

No watercourses will be affected by the proposed development, thus no aquatic/wetland studies will be required.

8. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

Containing the aspects contemplated in Regulation 33

Please refer to Appendix D for the attached Environmental Management Programme (EMPr)

9. ASSUMPTIONS, UNCERTAINCIES AND GAPS IN KNOWLEDGE

The following assumptions and gaps in knowledge are implicit in this Basic Assessment Report (BAR)

9.1 Assumptions:

- The primary assumption underpinning this BAR and the individual specialist studies upon which this BAR is based is that all information received from the applicant, professional consultants, and other stakeholders including registered I & AP's was correct and valid at the time of the study; and
- The significance of impacts was not underestimated. The specialist assessed impacts under the worse-case scenario situation.

10. ENVIRONMENTAL IMPACT STATEMENT

Environmental Impact Statement that summarizes the impacts that the proposed development may have on the environment after the management and mitigation of impacts that have been taken into account

The major impacts that are likely to occur during the construction and operational phases are the following:

10.1 The Physical and Biological Environment:

Construction Phase

- The natural environment will be affected by construction related activities. The study area is in a developed and transformed state with no important or significant faunal or floral species present; and
- The study area is not affected by any drainage line or sensitive wetland/riparian habitat. It must however be noted that runoff from the proposed development site has the potential to affect the surrounding open space areas if adequate storm water management measures are not implemented.

Operational Phase

- Increased storm water volumes due to an increase in impermeable surfaces; and
- Possible surface and ground water pollution due to spillages and leaking equipment.

10.2 The Socio-economic Environment

Construction Phase:

- Nuisance to neighbours due to dust pollution that are associated with construction activities;
- Nuisance to neighbours due to noise that is generated by construction activities;
- Nuisance to neighbours due to the undesirable visual impact that is associated with construction activities;
- Damage to local roads by heavy vehicles; and
- Health, safety and security problems that is likely to occur during construction.

Operational Phase:

- Increased traffic volumes;

- Possible noise pollution and visual pollution caused by the signage, interior lighting, security lighting, exterior lighting, transformers, air conditioners, places of refreshments etc.; and
- The proposed filling station could have an economic impact on existing filling stations in the area. However, a feasibility study will confirm the proposed filling station's feasibility.

Finding:

None of the adverse impacts that were identified are regarded as impacts that cannot be mitigated to acceptable levels and therefore it is our opinion that there are no "fatal flaws" associated with the proposed development.

11. CONCLUSION AND RECOMMENDATIONS

As mentioned throughout the report, the subject property is in a transformed state with no significant or sensitive faunal or floral habitats. In addition the study area is not affected by any drainage line or the 1:100 year floodline.

The geotechnical engineers furthermore indicated that no geotechnical condition exist to the extent of not allowing the proposed development to proceed.

The significance assessment of the impacts that is associated with the development of the filling station indicates that almost 76% of the anticipated adverse impacts are of a short term nature lasting for construction only. In addition, it is important that one should take cognizance of the fact that the significance of these impacts is predominantly low to medium, with high mitigation levels.

The significance assessment further indicated that a great number of beneficial impacts are associated with the proposed filling station. These impacts are generally of a socio-economic nature with medium to high significance ratings.

Some of the key findings that have been made include:

- The proposed filling station is located adjacent to the Kwa Guqa Shopping Centre;
- The proposed filling station will increase the rates and taxes payable to the local authority; and
- The proposed filling station will be in line with the existing and future land-uses of the area.

Opinion and Recommendations by EAP:

It is believed that both beneficial and adverse impacts were thoroughly assessed, and the needs and benefits have been assessed so as to give the proposed filling station development the go-ahead. As a result Bokamoso is of the opinion that the proposed Clewer Filling Station will have a significant long-term beneficial socio-economic impact on the subject property and its immediate surroundings.

It is therefore recommended by Bokamoso that the proposed filling station be approved, subjected to the implementation of appropriate mitigation measures as stipulated in this report and the Environmental Management Programme (EMPr), to achieve maximum advantage from the beneficial impacts and the sufficient mitigation of adverse impacts.

It is recommended that, based on the findings of the BAR and supplemental specialist information that:

- Should the proposed Clewer Filling Station obtain the necessary Environmental Authorisation, an Environmental Management Programme (EMPr) must be implemented for the construction and operational phases of the development. The EMPr, as attached to this document, should be made part of the contractual documents of the contractors;
- The construction of all structures, roads and services must be in accordance with the specifications of the Geotechnical Investigation;
- The implementation of a Groundwater Monitoring Plan;

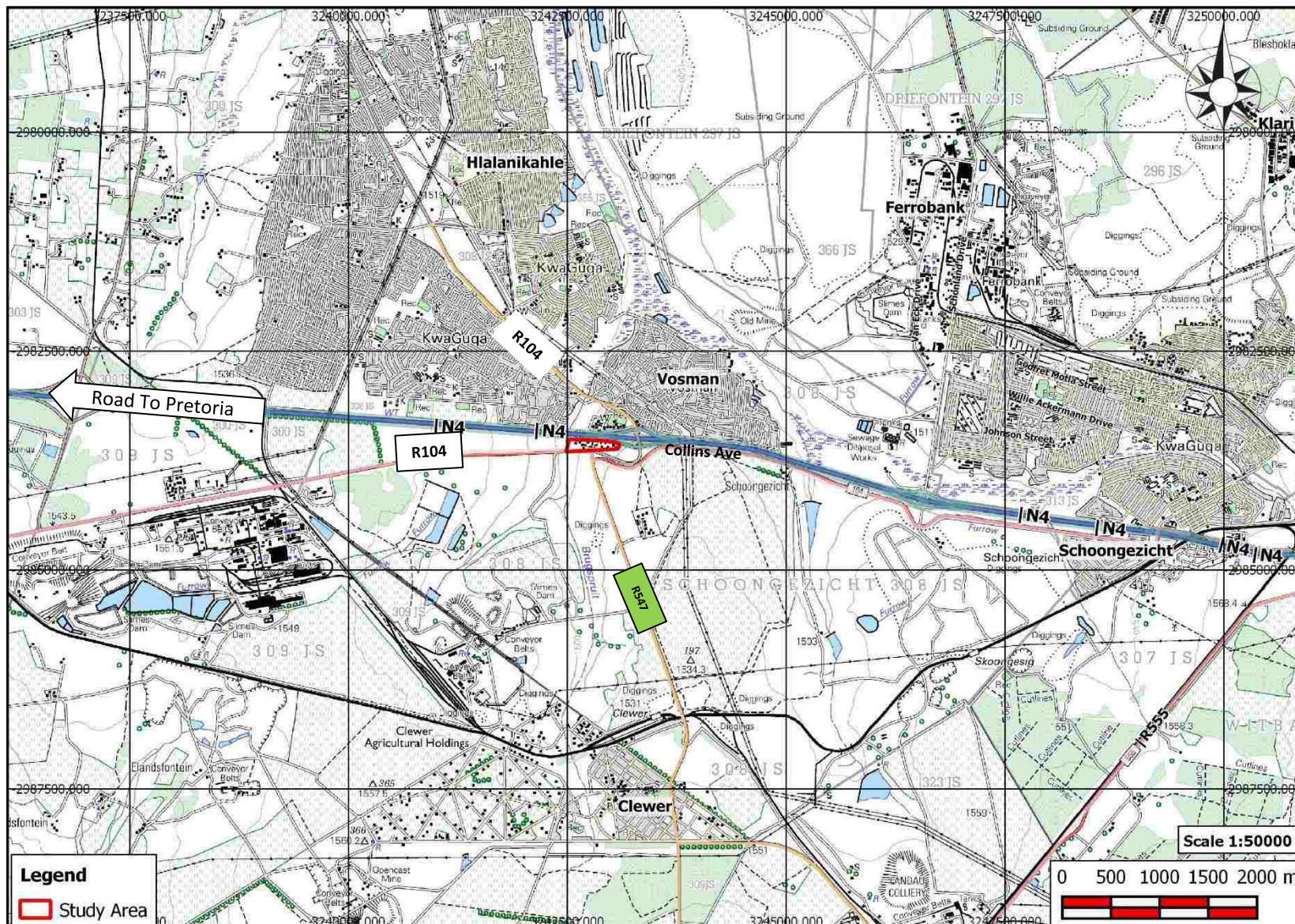
- The design and implementation of the infrastructure and services are to be done in accordance with engineering specifications so as to comply with the requirements, regulations and standards of the local controlling authority;
- Runoff from the proposed development site has the potential to affect the surrounding open space areas. It is therefore recommended that adequate storm water management be incorporated in the design of the proposed filling station in order to prevent erosion and the associated sedimentation of the surrounding areas;
- Oil traps are recommended to catch oil before entering the storm water stream;
- The implementation of a Service Station Emergency Plan;
- Signage/advertising board signage should comply with the relevant by-laws, regulations and standards of the Local Authority; and
- Should the developer at a later stage decide to include a carwash it is recommended that effluent pits must be constructed for used water.

ANNEXURE A:

MAPS

Proposed Filling Station Schoongezicht 308 - Portion 16

Locality Map

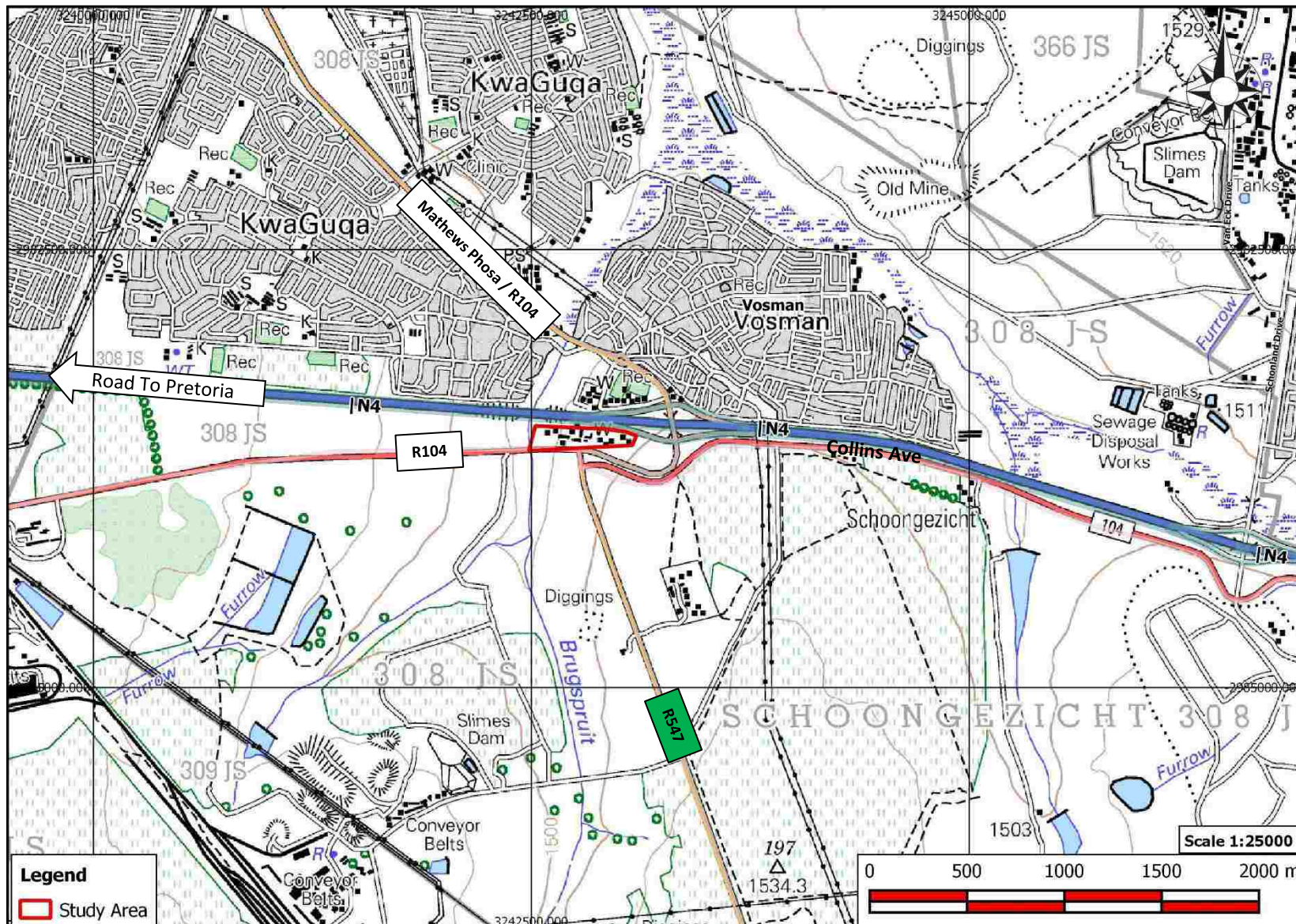


Legend
Study Area

Projection - Transverse Mercator
Datum - Hartebeeshoek 1994
Reference Ellipsoid - WGS 1984
Central Meridian -29

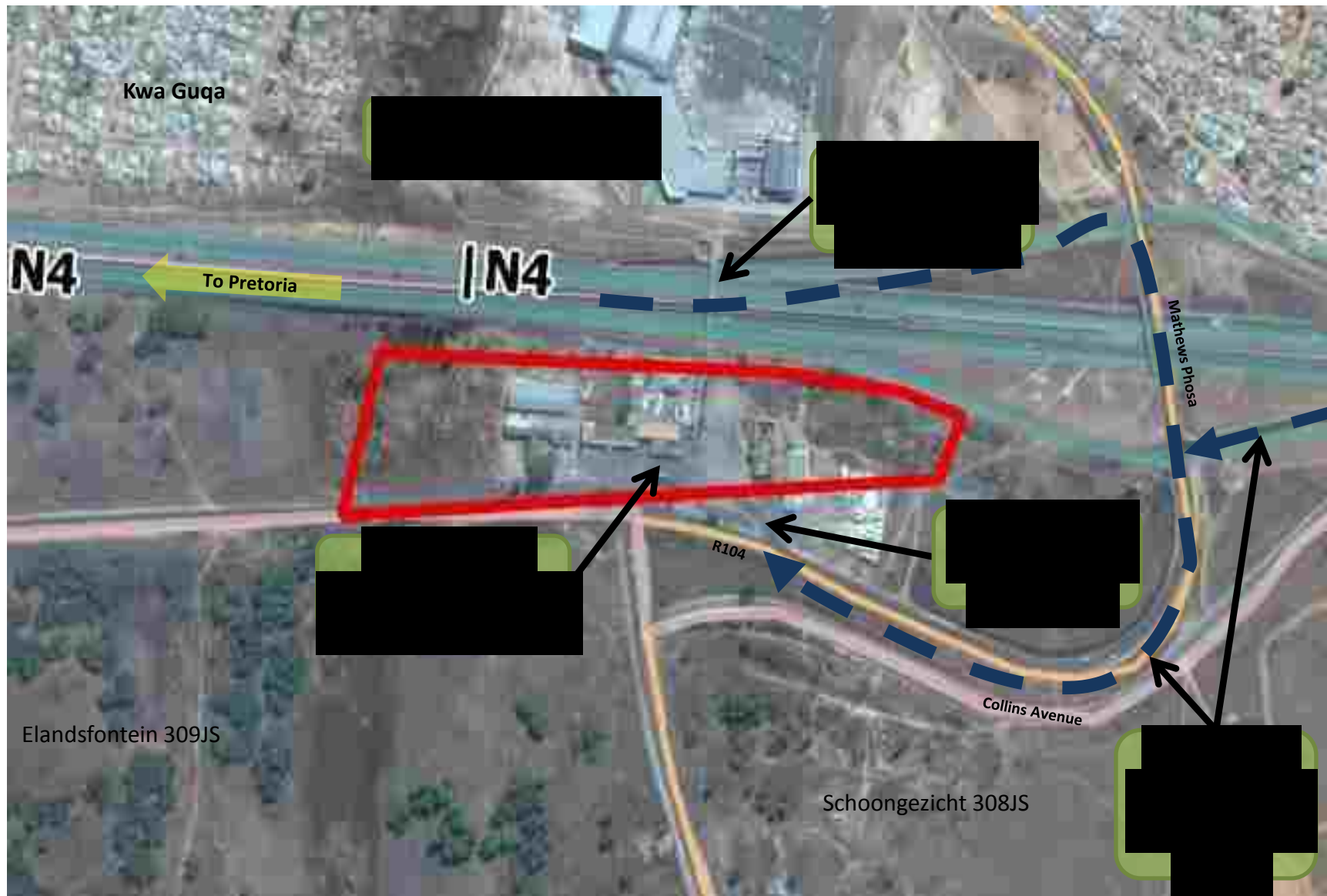
Proposed Filling Station Schoongezicht 308 - Portion 16

Locality Map



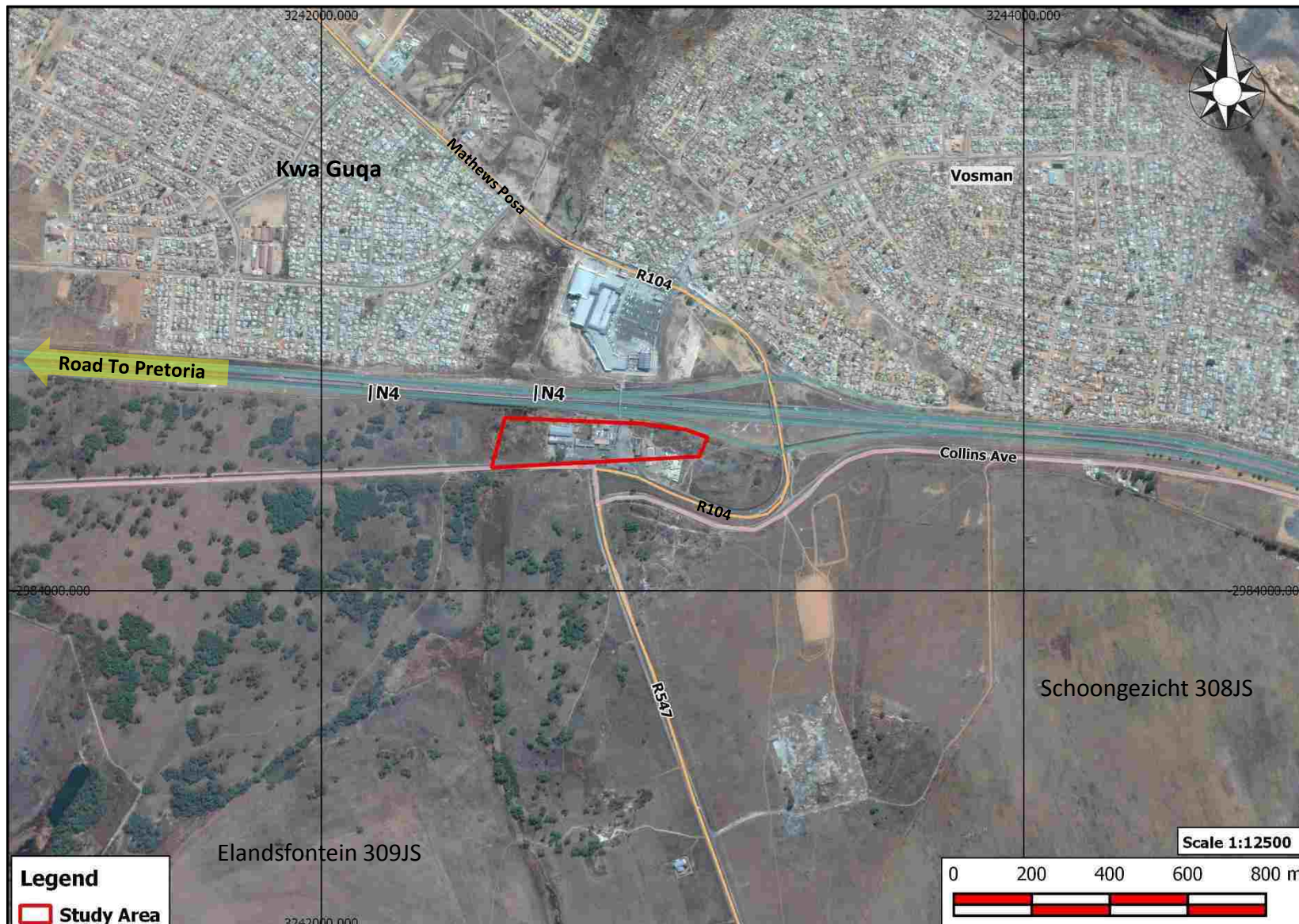
Proposed Filling Station Schoongezicht 308 - Portion 16

Site Plan



Proposed Filling Station Schoongezicht 308 - Portion 16

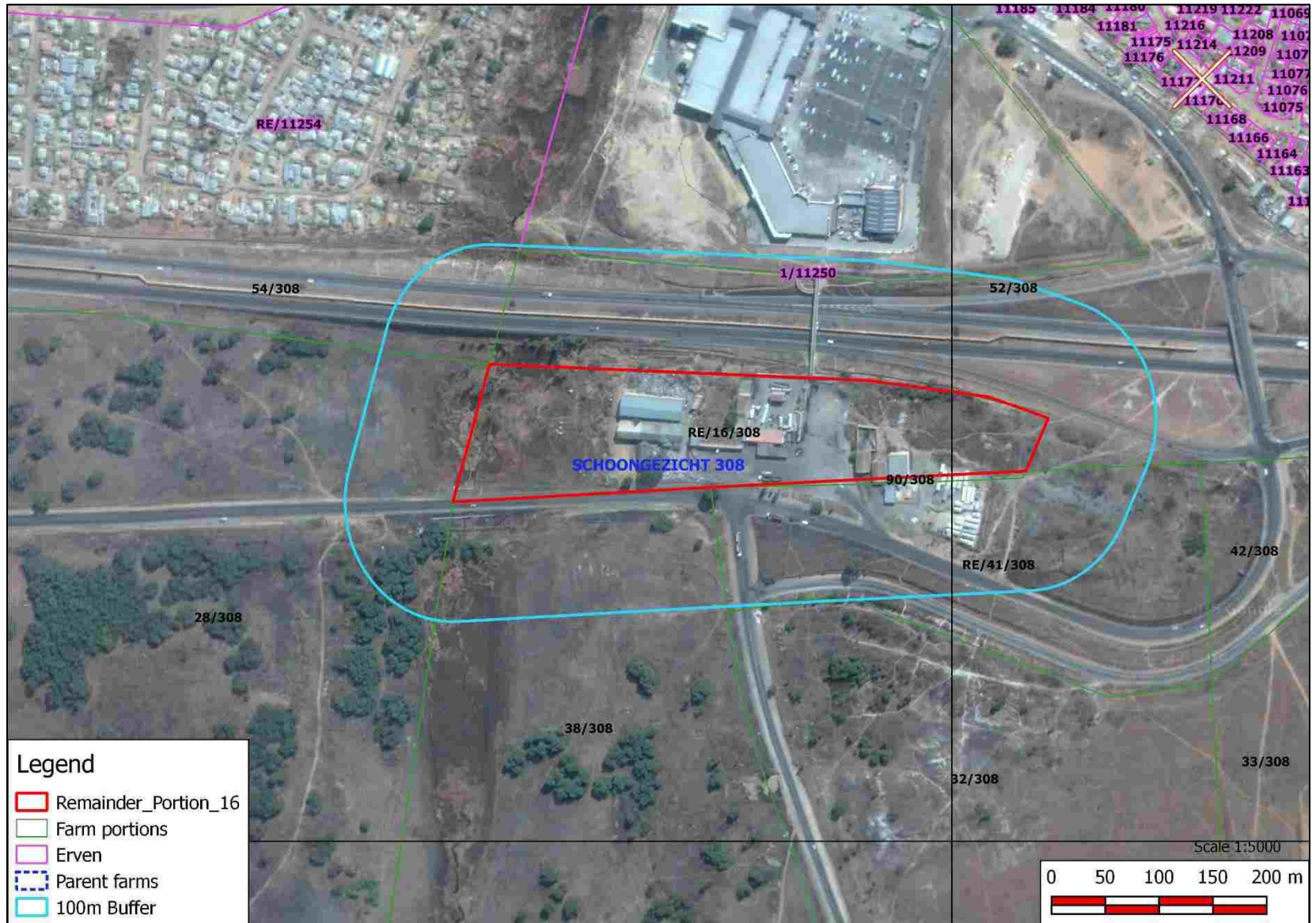
Aerial Map



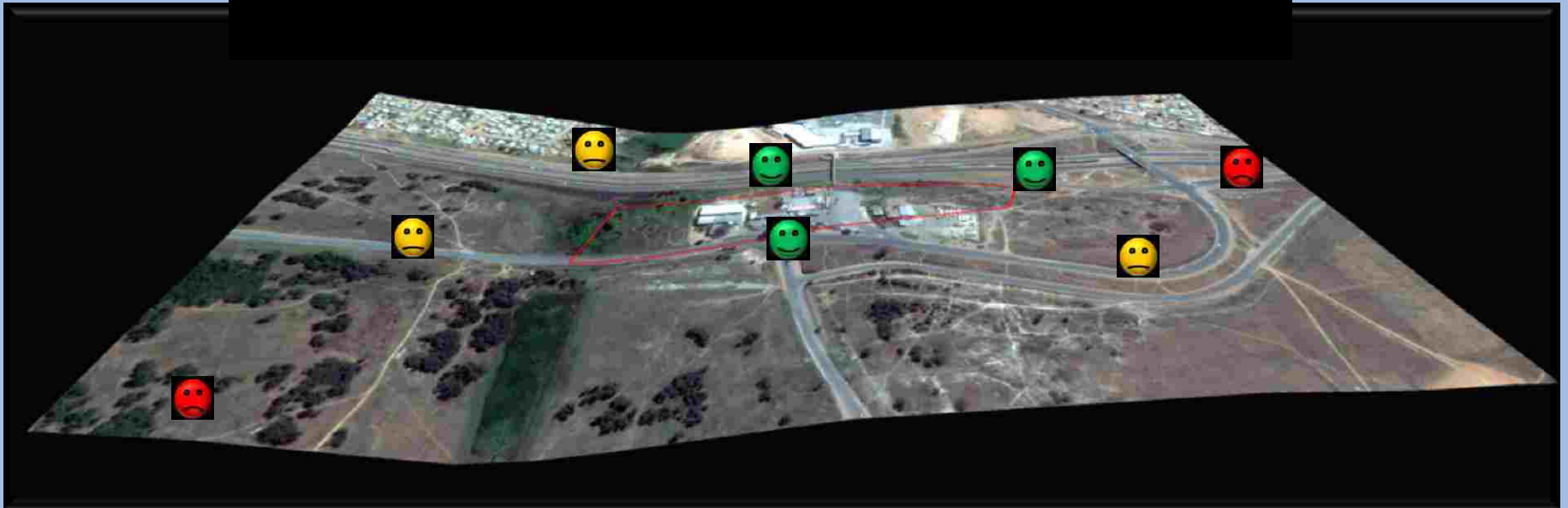
Legend
 Study Area

Projection – Transverse Mercator
Datum- Hartebeeshoek 1994
Reference Ellipsoid –WGS 1984
Central Meridian -29

Schoongezicht Windeed



3D Visibility Map



 Visible

 Partially Visible

 Not Visible

3240000.000

3242000.000

3244000.000

3246000.000

-2982000.000

-2982000.000

-2984000.000

-2984000.000

-2986000.000

-2986000.000



Legend

-  Remainder_Portion 16
- Land Capability Agriculture
 -  High
 -  Medium

Scale 1:30000



3240000.000

3242000.000

3244000.000

3246000.000

3242000.000

3243000.000

3244000.000

-2983000.000

-2983000.000

-2984000.000

-2984000.000



Legend

 Remainder_Portion_16

Vegetation-Biome

 Grassland Biome

Scale 1:12500

0 150 300 450 600 m



3242000.000

3243000.000

3244000.000

3240000.000

3242000.000

3244000.000

3246000.000

-2982000.000

-2982000.000

-2984000.000

-2984000.000

-2986000.000

-2986000.000



Legend

 Remainder_Portion 16

Soil Capability

 Grazing

Scale 1:30000

0 0.5 1 1.5 2 km



3240000.000

3242000.000

3244000.000

3246000.000



3240000.000

3242000.000

3244000.000

3246000.000

-2982000.000

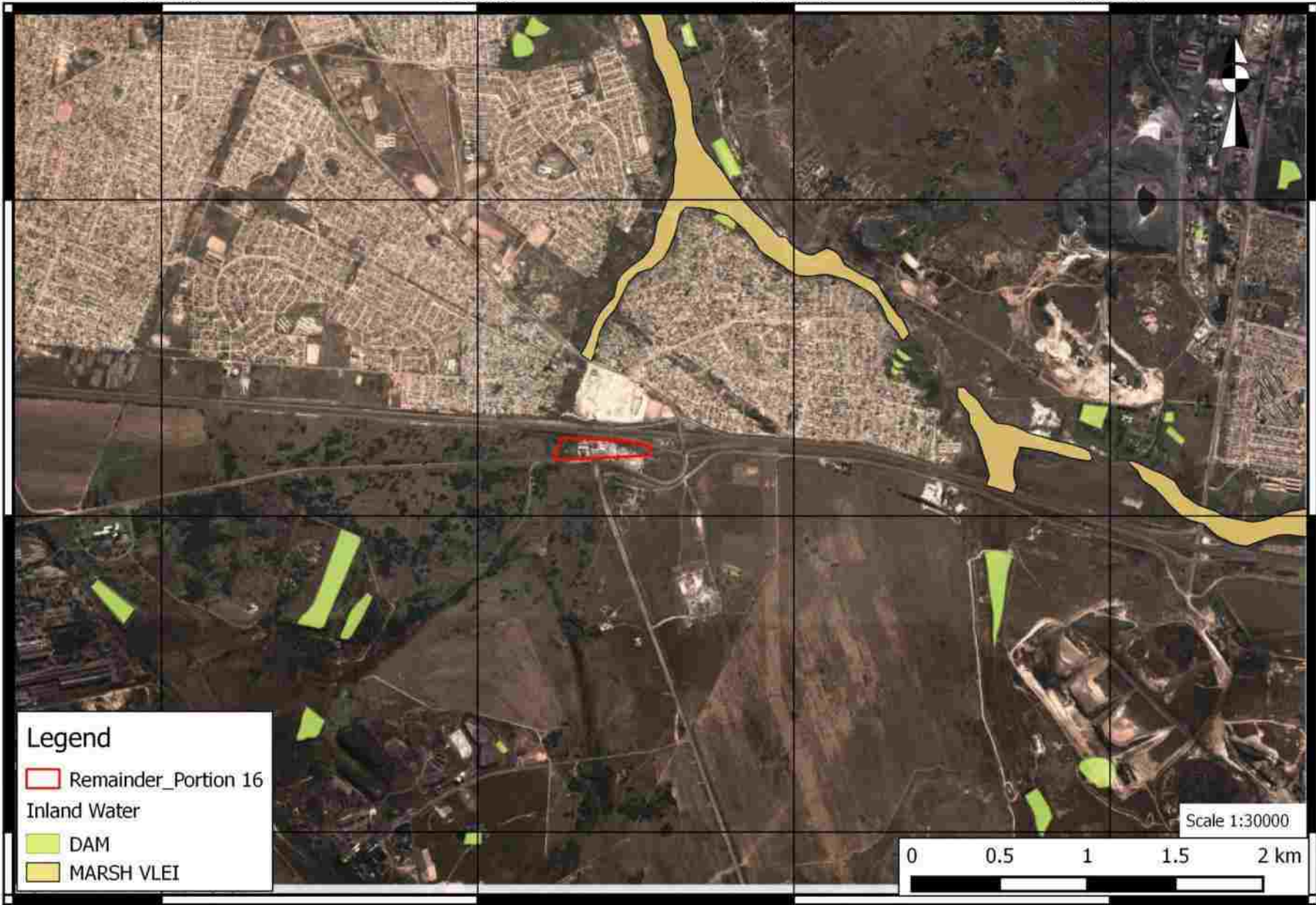
-2984000.000

-2986000.000

-2982000.000


-2984000.000

-2986000.000



Legend

 Remainder_Portion 16

 Inland Water

 DAM

 MARSH VLEI

Scale 1:30000

0 0.5 1 1.5 2 km

3240000.000

3242000.000

3244000.000

3246000.000

3240000.000

3242000.000

3244000.000

3246000.000

-2982000.000




-2982000.000

-2984000.000

-2984000.000



Legend

-  Remainder_Portion 16
- Terrestrial Biodiversity Assessment
-  5 - Least Concern
-  6 - No Natural Habitat Remaining

Scale 1:25000

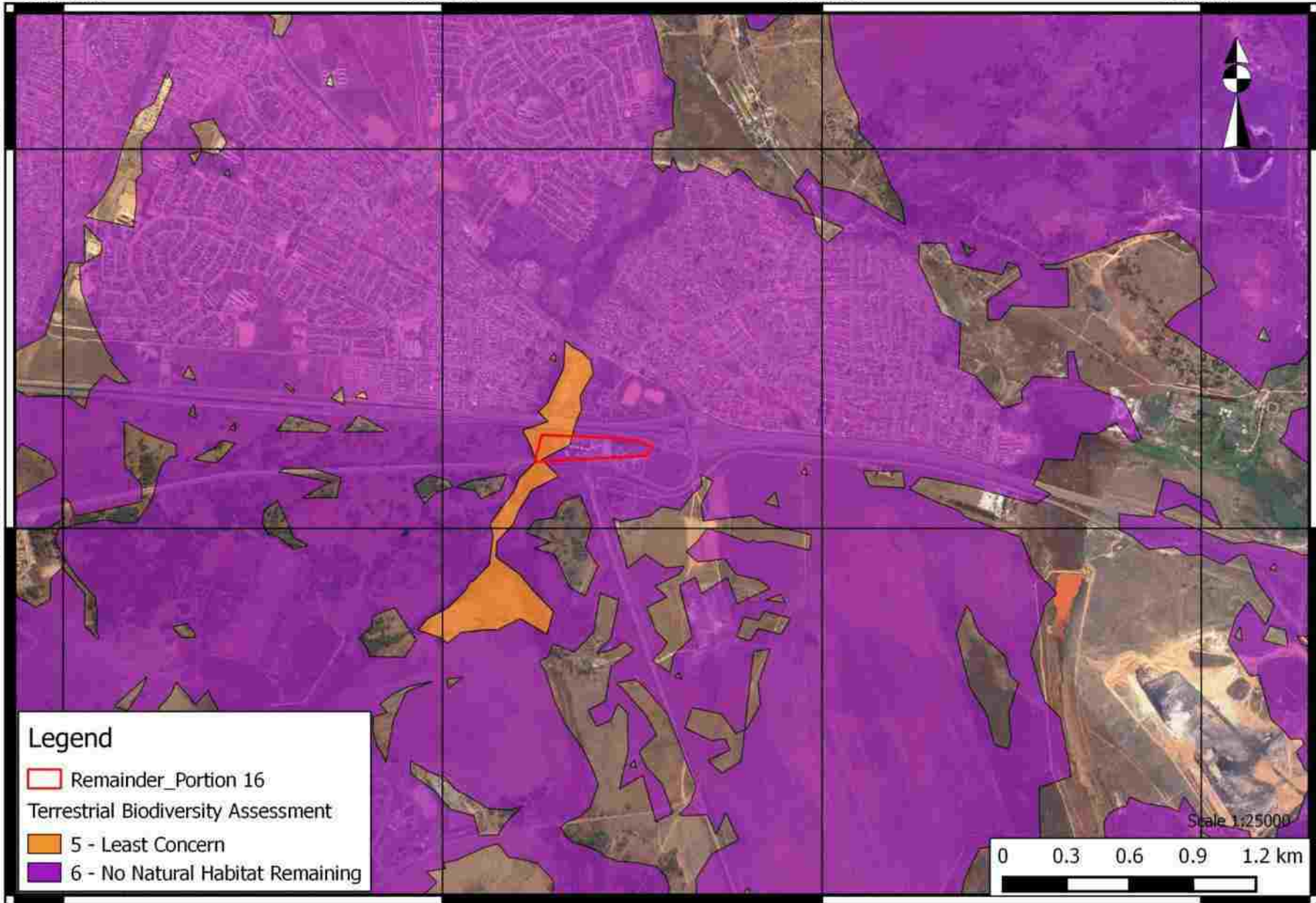
0 0.3 0.6 0.9 1.2 km

3240000.000

3242000.000

3244000.000

3246000.000



3242000.000

3243000.000

3244000.000

-2983000.000

-2983000.000

-2984000.000

-2984000.000



Legend

 Remainder_Portion_16

Land use

 HIGH URBAN DENSITY

 RECREATION AREA

 Commercial

 Educational

 Public Service

Scale 1:12500

0 150 300 450 600 m



3242000.000

3243000.000

3244000.000

ANNEXURE B:

SPECIALIST REPORT (S)

ANNEXURE B1:

**GEOTECHNICAL
INVESTIGATION**

289 Polaris Avenue
Waterkloof Ridge 0181
Pretoria GAUTENG
SOUTH AFRICA

TEL: 012-347 8467
MOBILE : 082 570 2222
FAX: 0866 858 369
Email: jovdm@iafrica.com

P.O. Box 95562
WATERKLOOF 0145
Pretoria, GAUTENG
SOUTH AFRICA

PROJECT No: M14/3404

1 May 2014

WSP CIVIL & STRUCTURAL ENGINEERS
Proffice Building
Route N4 Business Park
BENFLEUR 1035

Attention: Mr. Eben Kotze

Dear Sir,

**REPORT ON GEOTECHNICAL INVESTIGATION THAT WAS CARRIED OUT FOR:
PROPOSED REBUILD OF CFS FILLING STATION: RE PORTION 41 OF SCHOONGEZICHT
308-JS, WITBANK DISTRICT, MPUMALANGA PROVINCE**

1. INTRODUCTION

This report presents results and observations on a geotechnical investigation that was carried out during April 2014 on the Remaining Extent of Portion 41 of the farm Schoongezicht 308-JS, Witbank District, Mpumalanga Province. The purpose of the investigation was to determine geological conditions for the knock down and rebuild of the existing filling station into a new Engen filling station.

The investigation was carried out at the request of Mr. Eben Kotzé of WSP Consulting Engineers, who is acting on behalf of his client Mr. Tariq Shehzad of CFS Filling Station cc., who intends to refurbish the existing facility.

2. TERMS OF REFERENCE

The objective of the geotechnical investigation was to: -

- Determine the engineering properties of the site soils and bedrock including potentially expansive material, low bearing capacity soils, areas difficult to excavate, shallow ground water conditions and the quality of the in situ soils in terms of road construction.
- Present appropriate recommendations for service station design and precautionary measures in accordance with the requirements of the local authorities as well as the National Home Builders Registration Council's guidelines.

The investigation was carried out in terms of written instructions received from Mr. Eben Kotzé of WSP Consulting Engineers in his electronic mail dated 18 March 2014.

3. INFORMATION CONSULTED

The following available information was consulted: -

- The 1: 50 000 scale Topographical Map 2529CC Witbank.

- The 1: 125 000 scale Geological Map 2529C Witbank.
- The publication "National Home Builders Registration Council's Home Building Manual, Part 1 & 2, February 1999.
- A site layout plan prepared to a scale of 1: 250 by WSP Consulting Engineers, showing the boundaries of the property, existing roads and the proposed layout of the new facility.

4. SITE DESCRIPTION

The CFS filling station is situated due west of Witbank, opposite the intersection of the Clewer off-ramp to the N4 Highway. The property is bounded by Route R104 to the south and by adjacent commercial buildings on the remaining sides. The site is a fully operative filling station containing a forecourt and pumps in the southern and eastern portions of the facility. A large workshop where trucks are serviced and washed is located along the northern boundary of the property whilst the western portion is occupied by shops and commercial outlets. Surface drainage takes place via sheetwash towards the west at an average gradient of some 5%.

5. SITE INVESTIGATION

Five test pits were excavated across the site for the proposed refurbishment of the filling station by pick and shovel operations supplied by Profile Projects from Pretoria. The test pits were entered by an engineering geologist who described the soil and bedrock formations in terms of the methods advocated by Jennings *et al* (1973) namely, moisture condition, colour, soil consistency, soil structure, soil type and origin (MCCSSO). A small diameter hand auger was used to explore the soil profile below the base of the test pits. Disturbed soil samples and a water sample were taken for analysis in Messrs SNA and RHC's commercial soil and chemical laboratories in Pretoria for testing and analysis.

Detailed descriptions of the test pit profiles are provided on the Soil Profile Sheets in Appendix 1 of the report whilst the results of the laboratory soil and water tests appear in Appendix 2. The positions of the test pits are shown on the "Site Plan", Drawing Number M14/3404 at the back of the report.

6. OBSERVATIONS

The site is covered by colluvial sandy and gravelly soils that are underlain at depth by residual soils and presumably sandstone bedrock belonging to the Ecca Group, Karoo Supergroup. No rock outcrops were observed in the vicinity of the site during the investigation and a generalized description of the typical soil profile that may be encountered across the site, is as follows:-

- 0,0 - 0,8: *FILL: Paving bricks (60mm thick) over densely compacted dark orange, sandy GRAVELS.*
- 0,8 - 1,5: *Moist, khaki brown becoming dark orange, loose, gravelly silty coarse SAND; colluvium/residual sandstone. Extends to depths ranging from 0,9m to 2,3m below surface.*
- 1,5 - 2,0: *Moist, dark red blotched yellow, very dense, partially ferruginised, clayey sandy GRAVELS; residual sandstone.*
- 2,0 - 2,5: *Very moist, dark orange blotched yellow, firm, sandy SILT containing scattered gravels; residual sandstone.*
- 2,5 - 2,8: *Moist, light yellow blotched orange, dense, fine SAND; residual sandstone.*

Very slow hand excavation was experienced in one pit from below 1,5m only, elsewhere nor refusal of the hand tools or hand auger was encountered down to a depth of at least 2,8m below surface. Minor to moderate seepage of ground water was encountered in all but one of the five test pits from below a depth of 1,4m below surface. Severe visual and olfactory evidence of fuel contamination was observed in two test pits.

7. GEOTECHNICAL CONSIDERATIONS

7.1 Expansive Soils

The site soils are sandy and gravelly and are potentially "low" in the degree of expansiveness, based on the results of the laboratory tests and according to the Van der Merwe (1964) method. A total surface heave value of less than 7mm is predicted across the site, should the moisture condition of the soils change from desiccated to saturated.

7.2 Compressible Soils

The upper in situ sandy and gravelly horizons materials that extend down to depths ranging from 0,9m in the higher-lying eastern portion of the site down to a maximum of 2,8m below surface in the lower-lying western part of the site, are considered to be potentially compressible, based on a visual appraisal of the soil structure i.e. a loose consistency and a voided texture. These soils were unfortunately too friable in order to take undisturbed soil samples and the block samples that were submitted to the soils laboratory, had disintegrated during the transportation of the samples.

7.3 Excavation Characteristics

No problems should be experienced in excavating the site soils down to a depth of at least 3,0m below surface across the property, using either hand tools or conventional earth-moving machines. The sidewalls of excavations in the coarse sandy soils will tend to become unstable after a while upon drying out causing a loss of cohesion and shear strength.

7.4 Foundations

The site is underlain by potentially collapsible and compressible soils and in view thereof, one of the following foundation systems may be considered for the construction of rigid, masonry commercial structures: -

Deep Strip Foundations

- Normal construction with drainage precautions and with mesh reinforced floor slabs.
- Founding on the dense cemented horizon below the problem soils and adopting a safe allowable bearing pressure of 200 kPa.

Compaction of in situ soils below individual footings

- Remove in situ material below foundations to a depth and width of 1.5 times the foundation width or to a competent horizon and replace with material compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings.
- Light reinforcement in masonry.
- Site drainage and plumbing/service precautions to be taken.

Stiffened or Cellular Raft

- Stiffened or cellular raft with articulation joints or solid lightly reinforced masonry
- Site drainage and plumbing/service precautions to be taken.
- Foundation Pressure not to exceed 50 kPa.

Soil Raft

- Remove in situ material to 1m beyond perimeter of building to a depth of 1.5 times the widest foundation or to a competent horizon and replace with material compacted to 93% Mod AASHTO density at -1% to +2% of optimum moisture content.
- Normal construction with lightly reinforced strip footings.
- Light reinforcement in masonry.
- Site drainage and plumbing/service precautions to be taken.

Piled or Pier Foundation

- Piled or pier foundations taken down to a competent horizon
- Suspended floor slabs with or without ground beams
- Site drainage and plumbing/service precautions to be taken.

The design and construction of raft foundations (whether soil or concrete) should be done in accordance and under supervision of a civil or structural engineer. It is recommended that the excavations for foundations be carefully examined during construction in order to determine the possible presence of disturbed ground conditions which may not have been encountered during the investigation. The design of heavier structures such as double- or multi-storey structures, should take cognisance of the potentially compressible upper site soils.

7.5 Ground Water and Soil Chemistry

Ground water seepage was encountered in four of the five test pits during the investigation and proper damp proofing precautions should therefore be taken underneath structures, a subsurface drainage system should also be considered in the forecourt area. The design of underground containers should take cognisance of the presence of a shallow water table which will hamper construction activities, causing sidewall instabilities of deep excavations.

The site soils are considered to be potentially highly chemically aggressive with regards to underground ferrous metal pipes and tanks (pH values ranging from 4,78 to 6,58 and electrical conductivity values ranging from 0,003 to 0,010 S/m) and non-ferrous metal or plastic pipes or containers are therefore recommended for underground services.

The results of the chemical test conducted on the seepage water have shown the ground water to be potentially highly corrosive towards steel and concrete.

7.6 Environmental Constraints

Severe visual and olfactory evidence of subsoil fuel contamination was detected in two test pits located in the lower-lying western portion during the investigation. The design of proposed underground tanks should take cognisance of the possible presence of a perched water table during the wet season. Any surface or subsurface contamination could cause serious damage to the underground water regime. A competent person should inspect the site during the "tank yank" and any contaminated soil should either be discarded in a proper fashion or be re-mediated on site. It is recommended that a proper hydro geological investigation be carried out prior to the installation of new fuel tanks.

7.7 Earthworks

The site soils were tested to determine their compaction characteristics and a summary of the test results appears below in Table 7.1: -

TABLE 7.1: SUMMARY OF COMPACTION TESTS

HOLE NO	DEPTH (m)	SOIL TYPE	PI	GM	CBR	TRH 14	SWELL (%)
CF/1	0,1 - 0,8	Gravelly FILL	3	1,59	34,3	G8	0,02
CF/3	0,25 - 0,8	Sandy FILL	NP	1,40	11	G9	0,02
CF/3	0,8 - 1,5	Sandy GRAVELS	SP	1,90	61,7	G5	0,02
CF/4	0,1 - 0,9	Gravelly FILL	4	1,75	18	G8	0,01

Note: PI = Plasticity Index (SP = Slightly Plastic; NP = Non Plastic)
 GM = Grading Modulus
 CBR = California Bearing Ratio at 95% Mod AASHTO compaction

Based on the results of the compaction tests, it is evident that the blanketing fill and in situ sandy and gravelly soils should be suitable for use as fill underneath surface beds and for use as selected layers and lower subbase material (G5/G8 quality). The quality of the imported fill is somewhat variable and caution should be exercised during the selection and placement of construction material. Material for the construction of upper subbase and basecourse layers will have to be imported and cognizance should be taken of the potentially collapsible nature of the upper soil horizons in the design of paved areas.

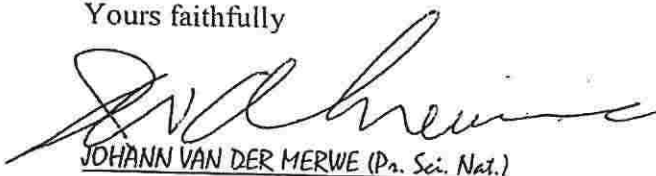
8. GENERAL

The above observations and recommendations are based on the project as described with the assumption that geological conditions will not vary drastically from those encountered during the investigation. It should be pointed out that the investigation was carried out using present day and the latest state-of-the-art techniques. Certain assumptions and extrapolations have had to be made and consequently, conditions at variance to those described may occur.

It is recommended that the excavations for foundations be inspected by a competent person during construction in order to verify that the materials thus exposed are not at variance with those described in the report. The placement of the fill must be controlled with suitable field tests to confirm that the required densities are achieved during compaction and that the quality of fill material is within specification.

Trusting that the above information will meet with your immediate requirements, please do not hesitate to contact this office, should additional information be required.

Yours faithfully



JOHANN VAN DER MERWE (Pa. Sci. Nat.)

Engineering Geologist

C:\WINDOWS\Desktop\data report: FUEL WSPCLEWER.doc



9. APPENDICES

Test Pit Profiles

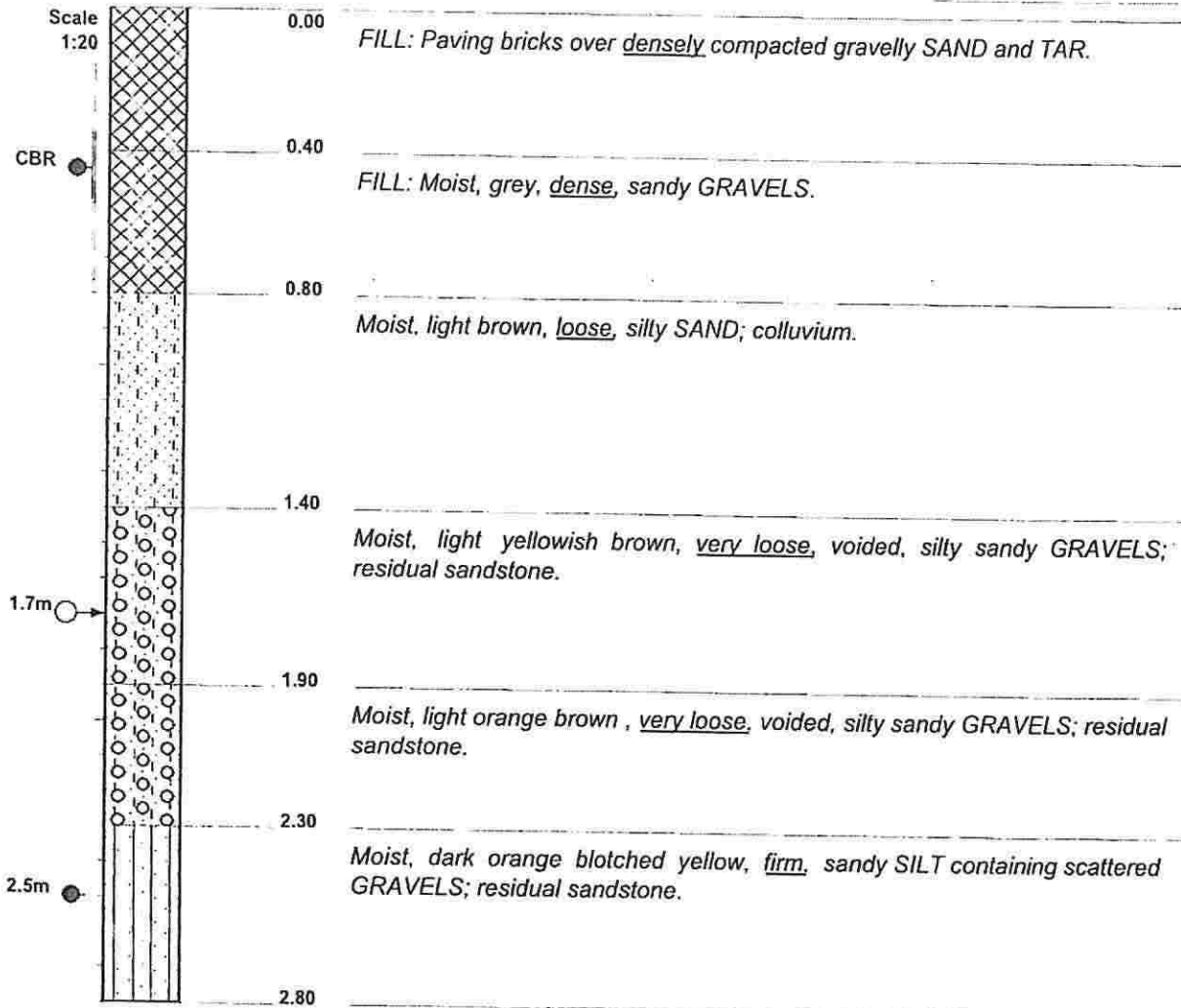
Laboratory Test Results

Site Plan

WSP CIVIL & STRUCTURAL ENGINEERS
 RE Ptn 41 of Schoongezicht 308-JS, Mpumalanga Province
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:
 PROPOSED REFURBISHMENT OF CFS FILLING STATION

HOLE No: CF/1
 Sheet 1 of 1

JOB NUMBER: M14/3404



NOTES

- 1) No refusal of pick and shovel at 1.7m.
- 2) No refusal of hand auger at 2,8m.
- 3) Oily water seepage encountered from below 1,7m.
- 4) Strong visual and olfactory evidence of fuel contamination from below 1,7m.
- 5) Disturbed bulk CBR sample taken from 0,1m--0,8m.
- 6) Disturbed indicator sample taken at 2,5m.

CONTRACTOR : Profile Projects
 MACHINE : Pick & shovel/hand auger
 DRILLED BY : Godfrey
 PROFILED BY : jvdm

INCLINATION : Vertical
 DIAM : Trench & 75mm
 DATE : 02/04/2014
 DATE : 02/04/2014
 DATE : 28/04/2014 07:50
 TEXT : ..dotplot\ARCHIVE\3404.txt

ELEVATION :
 X-COORD : 29 07 49.5
 Y-COORD : 25 52 29.6

TYPE SET BY : jovdm
 SETUP FILE : STANDARD.SET

HOLE No: CF/1

C00B Johann van der Merwe (Pty) Ltd

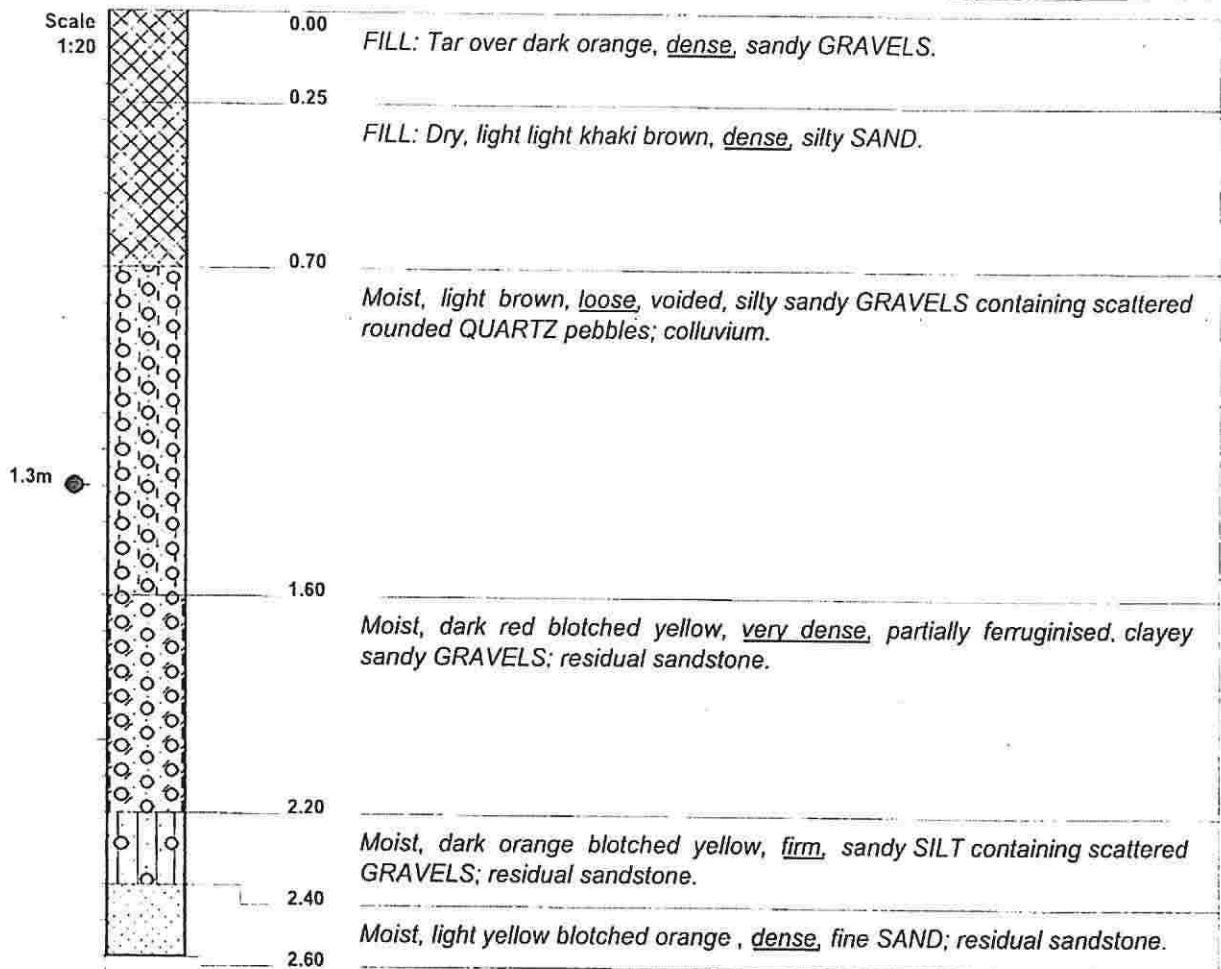
dotPLOT 7016 PBpH7

WSP CIVIL & STRUCTURAL ENGINEERS
 RE Ptn 41 of Schoongezicht 308-JS, Mpumalanga Province
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:
 PROPOSED REFURBISHMENT OF CFS FILLING STATION

HOLE No: CF/2

Sheet 1 of 1

JOB NUMBER: M14/3404



NOTES

- 1) No refusal of pick and shovel at 1,5m.
- 2) Slow drilling but no refusal of hand auger at 2,6m.
- 3) No water seepage encountered.
- 4) Disturbed indicator sample taken at 1,3m.

CONTRACTOR : Profile Projects
 MACHINE : Pick & shovel/hand auger
 DRILLED BY : Godfrey
 PROFILED BY : jvdm

INCLINATION :
 DIAM : Trench & 75mm
 DATE : 02/04/2014
 DATE : 02/04/2014
 DATE : 28/04/2014 07:50
 TEXT : ..dotplot\ARCHIVE\3404.txt

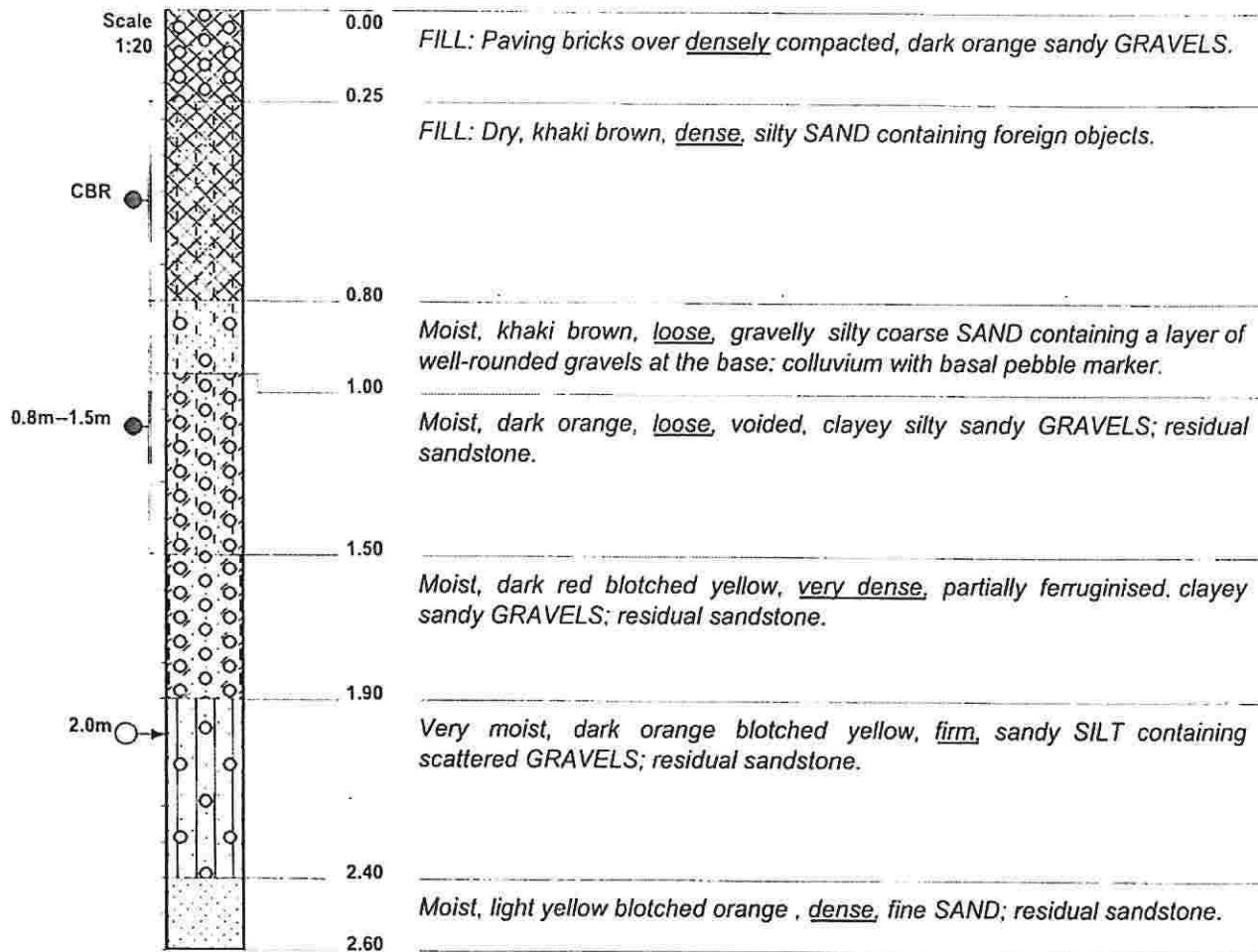
ELEVATION :
 X-COORD : 29 07 50.1
 Y-COORD : 25 52 29.8

HOLE No: CF/2

WSP CIVIL & STRUCTURAL ENGINEERS
 RE Ptn 41 of Schoongezicht 308-JS, Mpumalanga Province
 GEOTECHNICAL INVESTIGATION CARRIED OUT FOR:
 PROPOSED REFURBISHMENT OF CFS FILLING STATION

HOLE No: CF/3
 Sheet 1 of 1

JOB NUMBER: M14/3404



NOTES

- 1) No refusal of pick and shovel at 1.5m.
- 2) Slow drilling but no refusal of hand auger at 2,6m.
- 3) Point water seepage encountered from below 2,0m.
- 4) Disturbed bulk CBR samples taken from 0,25m--0,8m and from 0,8m--1,5m.

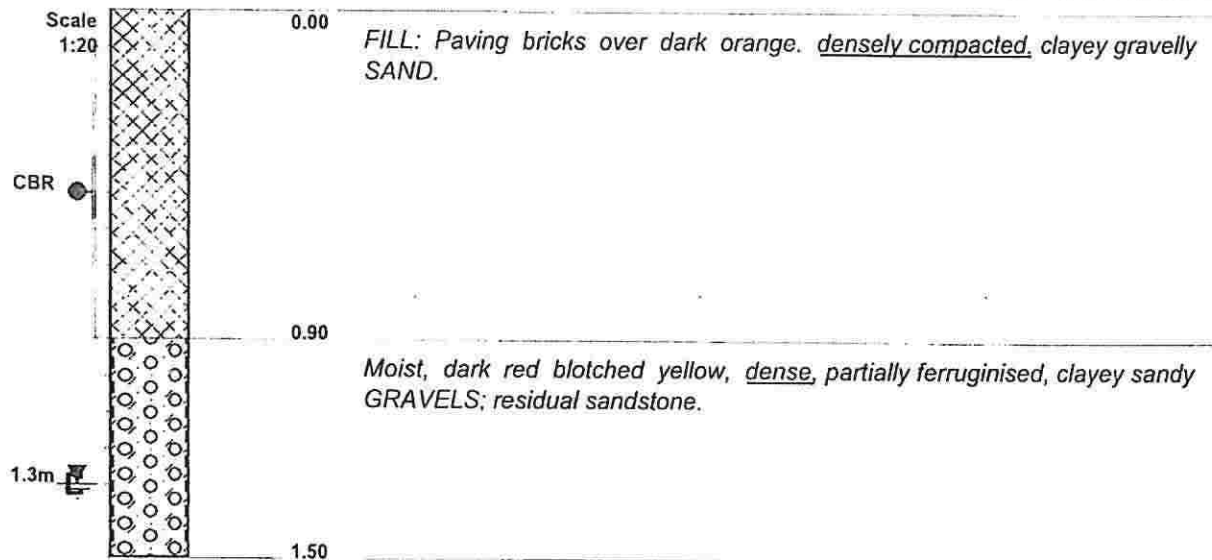
CONTRACTOR : Profile Projects
 MACHINE : Pick & shovel/hand auger
 DRILLED BY : Godfrey
 PROFILED BY : jvdm

INCLINATION :
 DIAM : Trench & 75mm
 DATE : 02/04/2014
 DATE : 02/04/2014
 DATE : 28/04/2014 07:50
 TEXT : ..dotplot\ARCHIVE\3404.txt

ELEVATION :
 X-COORD : 29 07 50.8
 Y-COORD : 25 52 29.4

TYPE SET BY : jovdm
 SETUP FILE : STANDARD.SET

HOLE No: CF/3



NOTES

- 1) No refusal of pick and shovel at 1,3m.
- 2) Slow drilling but no refusal of hand auger at 1,5m.
- 3) Water table standing at 1,3m after two hours.
- 4) Disturbed bulk CBR sample taken from 0,1m--0,9m.
- 5) Water sample taken for chemical analysis at 1,3m.

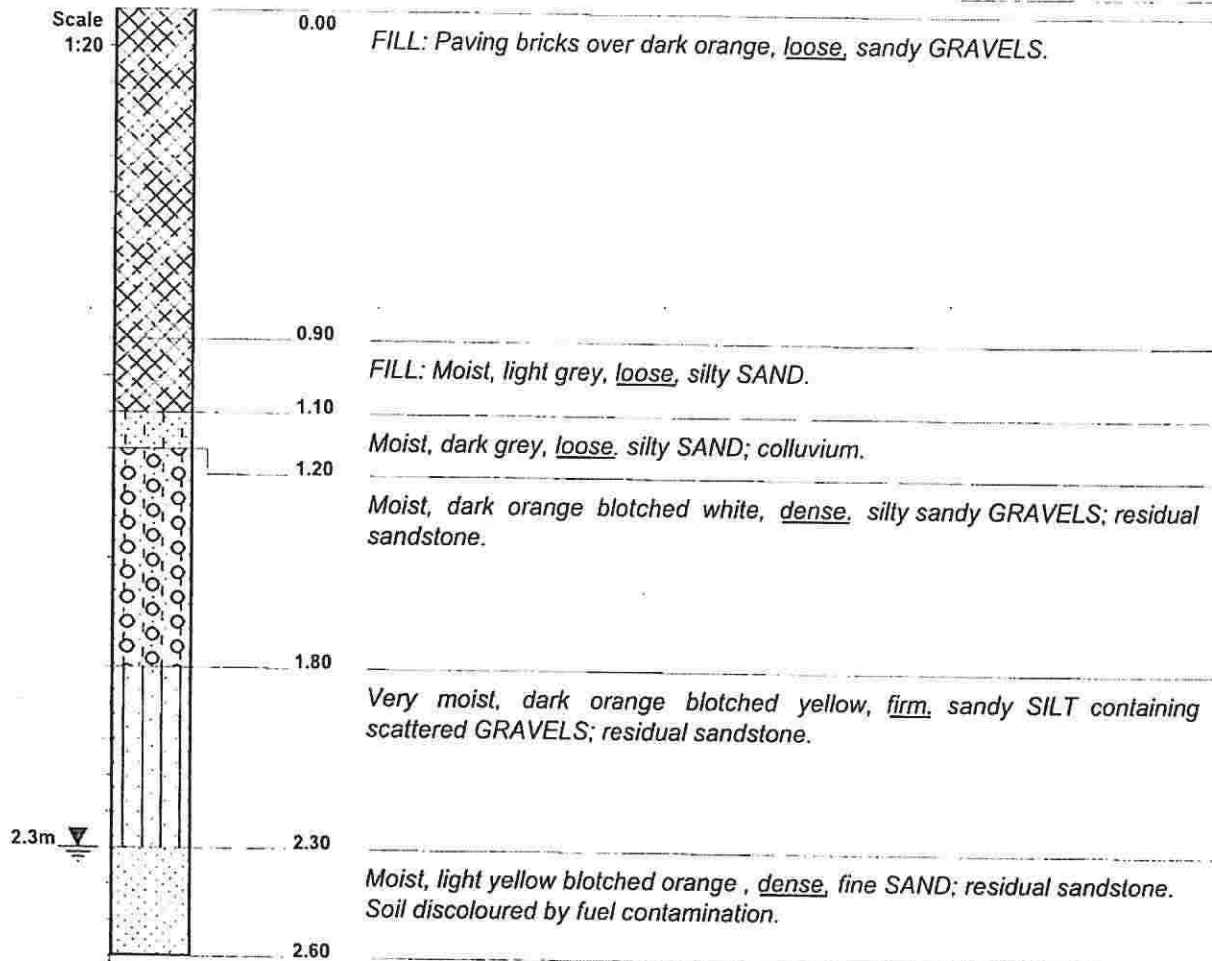
CONTRACTOR : Profile Projects
 MACHINE : Pick & shovel/hand auger
 DRILLED BY : Godfrey
 PROFILED BY : jvdm

INCLINATION :
 DIAM : Trench & 75mm
 DATE : 02/04/2014
 DATE : 02/04/2014
 DATE : 28/04/2014 07:50
 TEXT : ..dotplot\ARCHIVE\3404.txt

ELEVATION :
 X-COORD : 29 07 51.4
 Y-COORD : 25 52 29.7

TYPE SET BY : jovdm
 SETUP FILE : STANDARD.SET

HOLE No: CF/4



NOTES

- 1) No refusal of pick and shovel at 1,3m.
- 2) Slow drilling but no refusal of hand auger at 2,6m.
- 3) Water table standing at 2,3m.
- 4) Strong visual and olfactory evidence of fuel contamination from below 1,3m.

CONTRACTOR : Profile Projects
 MACHINE : Pick & shovel/hand auger
 DRILLED BY : Godfrey
 PROFILED BY : jvdm

INCLINATION :
 DIAM : Trench & 75mm
 DATE : 02/04/2014
 DATE : 02/04/2014
 DATE : 28/04/2014 07:50
 TEXT : ..dotplot\ARCHIVE\3404.txt

ELEVATION :
 X-COORD : 29 07 50.4
 Y-COORD : 25 52 28.7

TYPE SET BY : jvdm
 SETUP FILE : STANDARD.SET

HOLE No: CF/5



CIVIL ENGINEERING LABORATORY



SNA CIVIL AND STRUCTURAL ENGINEERS (PTY) LTD

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PO Box 72727 Lynnwood Ridge '0040

Tel (012) 842-0060 Fax (012) 803-4630

E-MAIL : snalabpta@mweb.co.za

REG. NO. 2005/006128/07

"a SANAS Accredited Testing
Laboratory, No. T0345"

TEST REPORT

REPORT NUMBER

14762

Client : JVM

Address: P.O.BOX 95562
WATERKLOOF
0145

Cell : 082 570 2222
Tel:
Fax: 012 347 9064

ATTENTION: JOHAN v/d MERWE

Project/Order: SASOL CLEWER

Brief : GRAD,PI,HYRDO,PH,COND,MDD,CBR

Date requested	03/04/2014
Date sampled	03/04/2014
Date received	03/04/2014
Test date/dates	17/04/2014
Location of sampling	SASOL CLEWER
Sampling method/methods	SAMPLED BY CLIENT
Sampled by	SAMPLED BY CLIENT
Sample number/numbers	CF/1 - CF/4
Sample Condition/Description	REFER TO TEST SHEET
Sampling Environmental condition	SAMPLED BY CLIENT
Test Method/Methods used	REFER TO TEST SHEET
Test done at	SNALAB

Deviation to test methods : Deviation will be noted on test result sheet

Tests marked # Not SANAS Accredited

The results relate only to the items tested. Any opinions, classifications, comments and interpretations do not fall within the scope of our SANAS accreditation.

Test/Tests marked # Not SANAS Accredited in this report are not included in the SANAS Schedule of Accreditation for this laboratory.

Test report/reports shall not be reproduced except in full, without written approval of the Laboratory.

This test report relates only to samples received.

If the report is referred to as an INTERIM REPORT it is not fit for publication.

Terms and conditions of business are contained on the reverse side of the report.

Douglas Edwards

Doug Edwards
Assistant Laboratory Manager

23/04/2014

DATE:



Project: BASOL CLEWER
 Rd/Section: Layer/Holes

Lab No: 14762
 Client No: 1300
 Date: 03/04/2014

INDICATORS

Methods: TMH 1: Method A1 - A5

HOLE & / SAMPLE No. MATERIALS DESCRIPTION	DEPTH (m)	% PASSING											SOIL MORTAR ANAL vs # (mm)			ATTERBERG LIMITS (%)			PH	ELEC-TRIC CONDUCT. (S/m)	AASHTO Classification #							
		106.0	90.0	75.0	63.0	53.0	37.5	26.5	19.0	13.2	4.75	2.0	0.425	0.075	0.425	0.250	0.350	0.150				0.075	40.075	GM	LL	LS	PI	
CF/1 DARK BROWN GRAVEL	0.1-0.8	100	97	88	69	50	23	28	11	14	14	33	1.59	19	1.6	3												A-1-b (0) (1)
CF/1 DARK BROWN GRAVEL	1.4-2.3	100	100	94	54	41	19	23	10	16	17	35	1.86	23	3.5	6	6.58	0.008										A-1-b (0) (2)
CF/1 LIGHT BROWN CLAYEY GRAVEL	2.3-2.8	100	98	79	67	32	16	7	18	19	40	1.22	20	3.5	5	5.33	0.006											A-2-4 (0) (3)
CF/2 RED ORANGE BROWN CLAY	0.7-1.6	100	92	53	39	21	27	7	13	14	39	1.87	22	2.8	5	4.78	0.010											A-1-b (0) (4)
CF/3 RED BROWN GRAVEL	0.25-0.8	100	98	95	82	61	18	26	13	23	16	22	1.40															A-2-4 (0) (5)
CF/3 DARK BROWN GRAVEL	0.8-1.5	100	99	89	54	40	15	26	12	17	18	27	1.90															A-1-b (0) (6)
CF/3 DARK BROWN GRAVEL	1.5-1.9	100	95	54	41	23	25	6	13	14	42	1.82	23	5.5	11	4.85	0.003											A-2-6 (0) (7)
CF/3 RED BROWN GRAVEL	1.9-2.4	100	99	86	71	38	17	6	13	19	45	1.04	26	5.2	10													A-4 (1) (8)
CF/4 ORANGE BROWN CLAYEY GRAVEL	0.1-0.9	100	99	88	58	42	25	27	7	11	12	43	1.75	19	2.7	4												A-1-b (0) (9)
CF/4 RED BROWN GRAVEL																												() (10)

REMARKS: TECH: [Signature] DATE: 23/4/14



CIVIL ENGINEERING & ARCHITECTURE

Project : SASOL CLEVER
 Rd name / No :
 Section from :

Lab No: 14762
 Client No: 1300
 Date: 03/04/2014

MDD / OMC
 TMH 1: METHOD A7


CBR / UCS / ITS
 TMH 1: METHODS A8 / A13T, A14, A16T

Sample No.	Description	Stabilising agent % and type	MDD / OMC (MOD.AASHTO.)		MC %	Compaction						Summary			G- Classification CODE TO SERIES 300- Table 3A071#								
			Wet kg/m ³	Dry kg/m ³		Swell %	Comp MC %	Dry dens kg/m ³	Rel Comp %	CBR % (UCS ITS (kPa))	Cor. Factor % (UCS ITS (kPa))	CBR % (UCS ITS (kPa))	Rel comp %	CBR KPa		UCS KPa	ITS KPa						
CF/1	DARK BROWN GRAVEL	0.1-0.8	5.3	2238	2125	2283	0.02	6.9	2189	101.2	86.0	-0.46	85.5	100	71.2	53.2	45.9	34.3	27.8	20.8	G6		
			7.1	2315	2162	2150	0.05	7.3	2048	94.7	33.0	-0.09	32.9	95	34.3								
			8.0	2263	2095	2100	PROC	7.0	1940	89.7	20.0	0.24	20.2	93	27.8								
						2050	0.01	7.1					20.2	90	20.8								
			7.1	MDD	2162	5.3	AV.MC	7.1						1	Curing regime								
CF/3	DARK BROWN GRAVEL	0.25-0.8	4.8	2194	2098	2150	MOD	6.9	2101	99.2	13.0	0.34	13.3	100	13.8								
			5.7	2236	2115	2100	0.02	6.9	2101	99.2	13.0	0.34	13.3	98	12.6								
			6.8	2258	2114	2050	NRB	7.1	2022	96.5	11.0	0.26	11.3	97	12.1								
			7.6	2259	2099	2030	0.02	7.1	2022	96.5	11.0	0.26	11.3	95	11.0								
			0.5	2209	2036	1950	PROC	7.4	1895	89.5	8.0	0.19	8.2	93	9.9								
						1950	0.02	7.4	1895	89.5	8.0	0.19	8.2	90	8.4								
			6.4	MDD	2118	4.6	AV.MC	7.1						1	Curing regime								
CF/3	DARK BROWN GRAVEL	0.8-1.5	4.9	2260	2154	2208	MOD	6.0	2185	99.9	97.0	-0.33	96.7	100	97.5								
			5.6	2311	2188	2150	0.02	6.0	2185	99.9	97.0	-0.33	96.7	98	86.3								
			6.9	2313	2164	2100	NRB	6.3	2110	96.4	79.0	-0.56	78.5	97	81.2								
			7.7	2288	2124	2050	0.02	6.3	2110	96.4	79.0	-0.56	78.5	95	61.7								
			0.6	2238	2051	2000	PROC	6.3	1975	90.3	28.0	-0.03	28.0	93	44.2								
						1950	0.05	6.3	1975	90.3	28.0	-0.03	28.0	90	26.8								
			6.1	MDD	2188	4.9	AV.MC	6.2						1	Curing regime								
CF/4	RED BROWN GRAVEL	0.1-0.9	7.4	2182	2032	2050	MOD	9.5	2051	100.4	28.0	-0.03	28.0	100	27.0								
			8.3	2212	2042	2000	0.01	9.5	2051	100.4	28.0	-0.03	28.0	98	23.0								
			9.1	2225	2039	1950	NRB	9.1	1942	95.1	18.0	0.28	18.3	97	21.3								
			10.2	2195	1992	1950	0.04	9.1	1942	95.1	18.0	0.28	18.3	95	18.0								
			11.2	2179	1960	1900	PROC	8.8	1858	91.0	9.0	0.22	9.2	93	12.9								
						1900	0.06	8.8	1858	91.0	9.0	0.22	9.2	90	7.8								
			8.7	MDD	2042	7.4	AV.MC	9.1						1	Curing regime								

Water added weighed and not measured by volume

Remarks :
 TECH DATE 23/04/14

SNA LAB		Project	SASOL CLEWER			Lab No :	14762
		Rd/Sect/BP				Client No :	1300
		Layer/Holes				Date :	03/04/2014
HYDROMETER ANALYSIS #							
TMH 1: TM 6A (Modified) (Na₂P₂O₇)							
HOLE & / SAMPLE No		CF/1		CF/1		CF/2	
Description		DARK BROWN GRAVEL		LIGHT BROWN CLAYEY GRAVEL		RED ORANGE BROWN CLAY	
Depth		0.1-0.8		1.4-2.3		2.3-2.8	
		0.7-1.6		0.25-0.8			
GRADING ANALYSIS. (CUM % PASSING)							
SIEVE # (mm)		(01-1)		(01-2)		(02-3)	
		(02-4)		(03-5)			
	106.0						
	90.0						
	75.0						
	63.0						
	53.0						
	37.5						
	26.5						
	19.0	100		100			100
	13.2	97		100	100		100
	4.75	88		94	98		92
	2.00	69		54	79		53
	0.425	50		41	67		39
	0.075	23		19	32		21
							18
GRADING MODULUS GM		1.59		1.86	1.22		1.87
							1.40
ATTERBERG CONSTANTS.							
	LL	19		23	20		22
	PI	3		6	5		5
	LS	1.6		3.5	3.5		2.8
							N/P
(PI < 20, use 100 g. PI > 20 use 50 g)							
HYDROMETER ANALYSIS							
USED 50 / 100 g		100		100	100		100
SOIL FINES							
STARTING TIME							
FINE SAND	18 sek.			46.0	45.0		47.0
SILT	40 sek.			38.0	38.0		40.0
CLAY	1 hr			21.0	21.0		20.0
EXPANSIVE CLAY	6 hrs.			18.0	18.0		17.0
TEMPERATURE (18 - 22) (°C)				20.0	20.0		20.0
CORRECTION		NA					NA
CORRECTED HYDROMETER READINGS							
FINE SAND	18 sek.			46.0	45.0		47.0
SILT	40 sek.			38.0	38.0		40.0
CLAY	1 hrs.			21.0	21.0		20.0
EXPANSIVE CLAY	6 hrs.			18.0	18.0		17.0
SOIL FINES % OF	0.075			19.1	30.0		18.3
TOTAL SAMPLE	0.05			15.8	25.4		15.6
SOIL MORTAR ANALYSIS							
PERCENTAGE OF SOIL MORTAR							
C.SAND	2.0 TO 0.425			23.1	15.5		26.8
F.SAND	0.425 TO 0.05			47.7	52.4		43.9
SILT	0.05 TO 0.005			13.1	14.4		14.6
CLAY	0.005 TO 0.002			2.3	2.5		2.2
EXP. CLAY (C)	< 0.002			13.8	15.2		12.4
MORTAR CHECK SUM	= 100			100.0	100.0		100.0
SILT-CLAY FRACT.	< 0.05			29.2	32.1		29.3
SUPPLEMENTARY INFORMATION.							
ACTIVITY INDEX K							
EXP. CLAY FRACT % = 0.4x C				5.5	6.1		5.0
EFFECTIVE PI = % _{<0.075} x PI	(P)	1.4		2.4	3.3		1.9
K = 5((P-0.4C)/(C-10)) ^{0.5}							
ACTIVITY CLASSIFICATION*		LOW		LOW	LOW		LOW
* ACTIVITY CLASSIFICATION (<50) LOW, (50-120) MED., (120-200) HIGH, (>200) VERY HIGH & (where NUMER = neg. val) LOW							
ELECTRIC. CONDUCT. (S/m)				0.008	0.0055		0.010
pH				6.58	5.33		4.78
REMARKS:							
						TECH:	ASE
						DATE:	23/4/14

	Project	SASOL CLEWER				Lab No. : 14762
	Rd/Sec/BP					Client No. : 1300
						Date : 03/04/2014
HYDROMETER ANALYSIS # TMH 1: TM 6A (Modified) (Na₄P₂O₇)						
HOLE & / SAMPLE No	CF/3		CF/3	CF/3	CF/4	-
Description	DARK BROWN GRAVEL	RED BROWN GRAVEL	BROWN CLAYEY GRAVEL	ORANGE BROWN CLAYEY GRAVEL	RED BROWN GRAVEL	-
Depth	0.8-1.5	1.5-1.9	1.9-2.4	0.1-0.9		-
GRADING ANALYSIS. (CUM % PASSING)						
	SIEVE # (mm)	(03-6)	(04-7)	(04-8)	(05-9)	(05-10)
	63.0					
	53.0					
	37.5					
	26.6					
	19.0	100			100	
	13.2	99	100	100	99	
	4.75	89	95	99	88	
	2.0	54	54	86	58	
	0.425	40	41	71	42	
	0.075	15	23	38	25	
GRADING MODULUS GM		1.90	1.82	1.04	1.75	
ATTERBERG CONSTANTS.						
	LL	30	23	26	19	
	PI		11	10	4	
	LS	S/P	5.5	5.2	2.7	
(PI < 20, use 100 g. PI > 20 use 50 g)						
HYDROMETER ANALYSIS						
USED 50 / 100 g		100	100	100	100	
SOIL FINES						
STARTING TIME						
FINE SAND	18 sek.	39.0	50.0			
SILT	40 sek.	33.0	43.0			
CLAY	1 hr.	17.0	21.0			
EXPANSIVE CLAY	6 hrs.	14.0	18.0			
TEMPERATURE (18 - 22) (°C)		20.0	20.0			
CORRECTION				NA	NA	NA
CORRECTED HYDROMETER READINGS						
FINE SAND	18 sek.	39.0	50.0			
SILT	40 sek.	33.0	43.0			
CLAY	1 hrs.	17.0	21.0			
EXPANSIVE CLAY	6 hrs.	14.0	18.0			
SOIL FINES % OF TOTAL SAMPLE	0.075	15.7	20.5			
	0.05	13.3	17.6			
SOIL MORTAR ANALYSIS						
PERCENTAGE OF SOIL MORTAR						
C.SAND	2.0 TO 0.425	26.2	24.6			
F.SAND	0.425 TO 0.05	49.5	43.0			
SILT	0.05 TO 0.005	11.8	16.6			
CLAY	0.005 TO 0.002	2.2	2.3			
EXP. CLAY (C)	< 0.002	10.3	13.6			
MORTAR CHECK SUM	= 100	100.0	100.0			
SILT-CLAY FRACT.	< 0.05	24.4	32.4			
ACTIVITY INDEX K						
SUPPLEMENTARY INFORMATION.						
EXP. CLAY FRACT % = 0.4x C		4.1	5.4			
EFFECTIVE PI = % _{0.425} X PI	(P)		4.5	7.2	1.5	
K = 5((P-0.4C)/(C-10)) ^{0.5}						
ACTIVITY CLASSIFICATION*		LOW	LOW	LOW	LOW	
* ACTIVITY CLASSIFICATION (<50): LOW (50-120); MED (120-200); HIGH (>200) VERY HIGH & (where #NUM = neg. val.) LOW						
ELECTRIC. CONDUCT. (S/m)		0.0055	0.003			
pH		5.13	4.85			
REMARKS:						TECH: <i>DSZ</i>
						DATE: 23/4/14



RONEY HOFFMANN CONSULTANTS CC

4110 Leeward Road, Enderby, 2025, South Africa. Tel: 0181 804 6093 Fax: 0181 804 6511 Cell: 083 075 8636 Email: roney@rhc.co.za

DETERMINATION OF CORROSIIVITY OF WATER SAMPLES

LANGELIER SATURATION AND RYZNAR STABILITY INDICES, AGGRESSIVENESS INDEX AND CHLORIDE + SULPHATE TO ALKALINITY CORROSMITY RATIO

CLIENT	SNA
SAMPLE NO.	CF/4
REF NO	14762

RHC REF.	PM 2014-4/3b
ORDER NO.	4549
DATE RECEIVED	3 APRIL 2014

1.1 CHEMICAL ANALYSIS		1.2. CORROSIIVITY INDICES	
Results are in mg/l unless otherwise stated.			
DETERMINAND:		INDEX	VALUE
pH	5.0	Stability pH (pHs) at 20°C	9.5
Conductivity (mS/m)	35	Langelier Index at 20°C	-4.5
Total dissolved solids (Calculated)	228	Ryznar Stability Index at 20°C	14.0
Total Hardness as CaCO ₃	72	Aggressiveness Index	6.6
Calcium Hardness as CaCO ₃	36	Cl and SO ₄ Corrosivity Index (Corrosivity Ratio)	18.8
Calcium as Ca	14		
Magnesium as Mg	9.0		
Total Alkalinity as CaCO ₃	6		
Chloride as Cl	56		
Sulphate as SO ₄	21		

2. INTERPRETATION OF CORROSIIVITY INDICES

2.1 AGGRESSIVENESS TOWARDS CONCRETE AND FIBRE CEMENT PIPES

INDEX	AGGRESSIVE	NEUTRAL	NON-AGGRESSIVE	COMMENTS
a) STABILITY pH, pHs	< pH	= pH	> pH	The corrosivity indices indicates that the water is highly corrosive towards concrete and metals. The Basson Index indicates that the water is very highly corrosive towards concrete.
b) LANGELIER INDEX	NEG. VALUE	ZERO	POS. VALUE	
c) RYZNAR INDEX	> 7,5	6 - 7	< 6	
d) AGGRESSIVENESS INDEX, AI	< 10	10 - 12	> 12	

2.2 CORROSIVENESS TOWARDS METALS

CORROSIIVITY RATIO	CORROSIIVE
	> 0,2

PW DE BEER

8 APRIL 2014

DETERMINATION OF CORROSIVITY OF WATER SAMPLES

REF : PM 2014-4/3b

AGGRESSIVENESS TOWARDS CONCRETE : AGGRESSIVENESS INDEX
(PORTLAND CEMENT INSTITUTE - J.J. BASSON PUBLICATION)

CLIENT	SNA
SAMPLE IDENTIFICATION :	CF/4

DETERMINAND	VALUE	CONSTANT	INDEX
pH	5.0	200	900
Calcium Carbonate Saturated pH	9.5	-2000	9000
Calcium Hardness as CaCO ₃	36	2.2	1021
Total Ammonium as NH ₄	0.3	10	3
Magnesium as Mg	9	0.6	5
Sulphates as SO ₄	21	0.3	6.3
Chlorides as Cl	56	0.2	11.2
Total Dissolved Solids	228		
Leaching - corrosion sub-index , LCSi			3640
Spalling - corrosion sub-index , SCSi			5
Final aggressiveness index at 25 Degr. C, corrected for stagnant conditions, Nc			1825

GUIDELINES FOR ASSESSING FINAL INDEX

FINAL INDEX	AGGRESSIVENESS	RECOMMENDATION
Under 350	Non to mildly aggressive	Use concrete class as required for structural design
350 - 750	Mildly to fairly aggressive	Good concrete design and construction essential
750 - 1000	Highly aggressive	Identify dominant corrosion sub-index Follow recommendations
Over 1000	Very highly corrosive	Do not use in contact with unprotected concrete

ANNEXURE B2: FEASIBILITY STUDY

Note: This project should be regarded as confidential as it contains Data, Information and Intellectual Property of Fernridge Consulting - Copyright (Limited Distribution)
Copyright 2011: Fernridge Consulting.

**Feasibility Study:
Demographics &
Retail Potential**

Feasibility Study: Kwa-Guqa, Emalahleni Retail Development

May 2011

PLEASE NOTE: This is an objective, independent market report with the sole aim of limiting risk for our client and to optimize development potential. Similarly, Fernridge cannot be held responsible for the failure or under performance of any development, as many other aspects, apart from demographic potential, determine the ultimate success or failure of a scheme.

Client's Brief

The objective of this report is to determine the retail development potential for a proposed shopping centre just South of Kwa-Guqa, Emalahleni, Mpumalanga. The site area is $\pm 70,000\text{m}^2$ in extent and located on the N4, $\pm 10\text{km}$ from Emalahleni CBD.

We aim to achieve this through the analysis of:

- **Site Dynamics**
- **Site Evaluation Modeling**
- **Retail Survey**
- **Residential Growth**
- **Density Modeling**
- **Demographic Analysis**
- **Retail Potential Estimate**
- **SWOT Analysis**
- **Recommendations**

Table of Content

- **Orientation**
 - National Orientation
 - Macro Orientation

- **Catchment Area**

- **Site Overview**
 - Site Overview
 - Site Photos
 - Site Evaluation Model

- **Retail Supply**
 - Emalahleni Retail
 - Catchment Retail Supply

- **Demographic Overview**
 - Density Modeling
 - Demographic Breakdown
 - Catchment Demographics

- **Retail Potential Estimates**
 - Retail Potential Estimate

- **SWOT Analysis & Conclusion**

- **Contact Details**

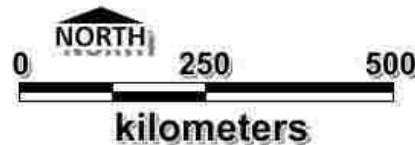
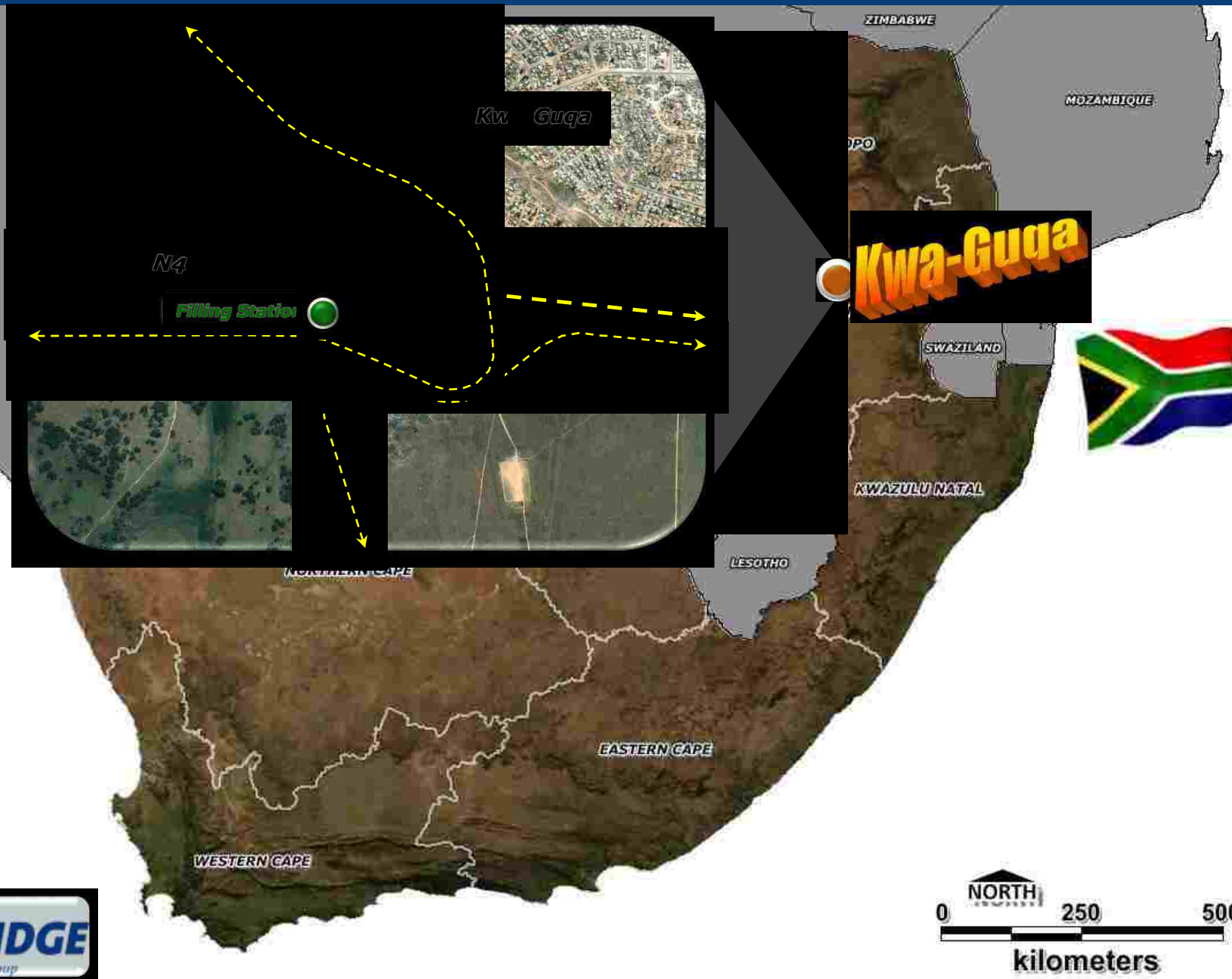
Acronyms:

GLA – Gross Letting Area
HSE – House / Household
SC – Shopping Centre

Orientation

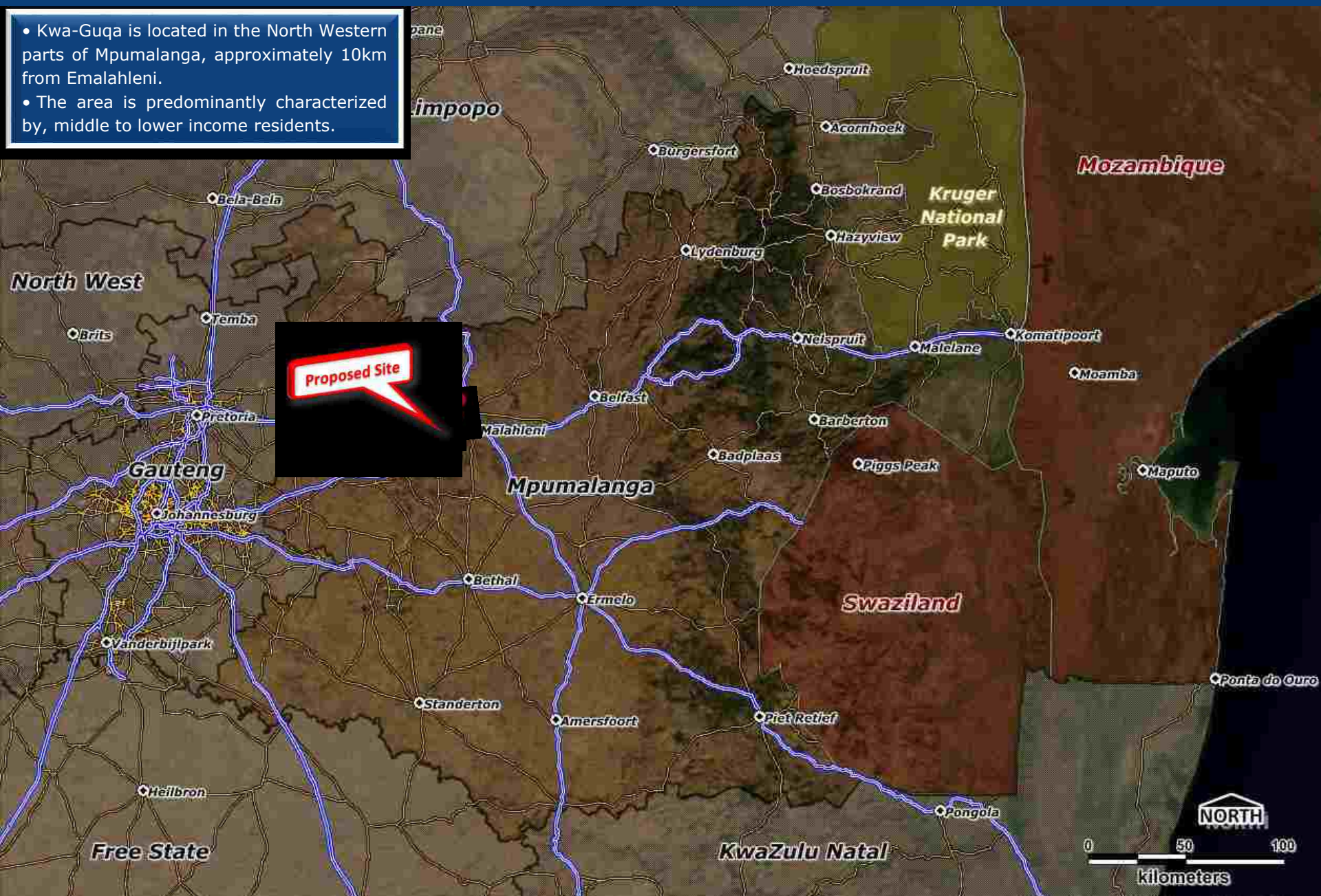
Kwa-Guqa is placed in context of the larger area in order to provide a regional overview/understanding of the area.

National Orientation



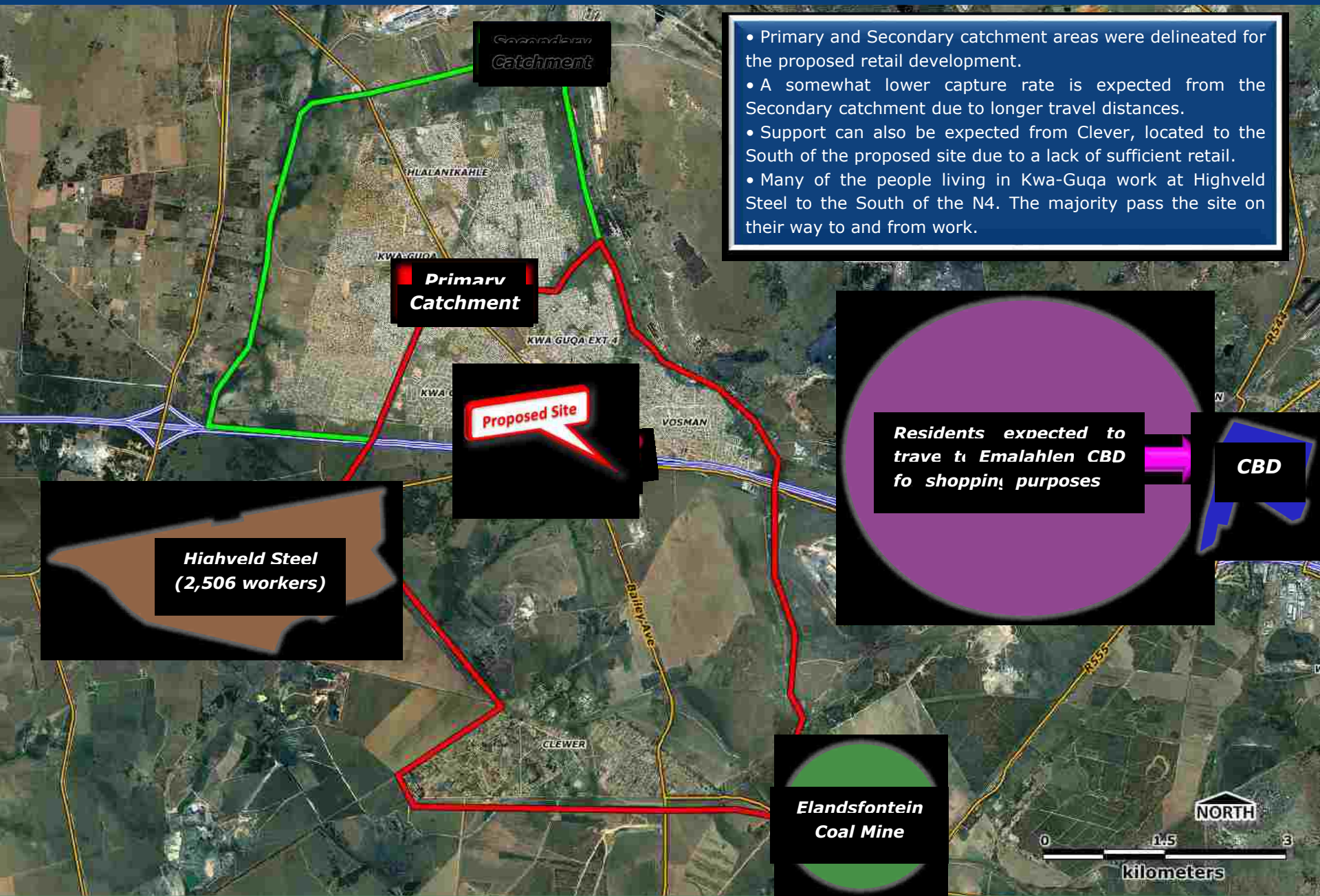
Macro Orientation

- Kwa-Guqa is located in the North Western parts of Mpumalanga, approximately 10km from Emalahleni.
- The area is predominantly characterized by, middle to lower income residents.



Catchment Area

The catchment area is indicative of the proposed retail centre's anticipated area(s) of support.



- Primary and Secondary catchment areas were delineated for the proposed retail development.
- A somewhat lower capture rate is expected from the Secondary catchment due to longer travel distances.
- Support can also be expected from Clever, located to the South of the proposed site due to a lack of sufficient retail.
- Many of the people living in Kwa-Guqa work at Highveld Steel to the South of the N4. The majority pass the site on their way to and from work.

Residents expected to travel to Emalahlen CBD for shopping purposes

Highveld Steel
(2,506 workers)

Elandsfontein
Coal Mine

Site Overview

Site dynamics are crucial elements that need to be assessed. A poor site could jeopardize the development of a retail centre.

- The proposed site is located just South of the N4 highway, approximately 10km West of Emalaheni CBD.
- The R104 leading past the site is a major road within the context of the area.
- A pedestrian walkway over the N4 is present just West of the site. This is to avoid pedestrians accidents on the highway. Many of the people living in Kwa-Guqa work South of the highway at Highveld Steel and make use of this walkway on a daily basis.
- Synergy is created in the vicinity of the site by the "node" located adjacent to the site. A number of independent shops and a filling station are present here.



← Bronkhorstspruit

Woodlands
Walkway

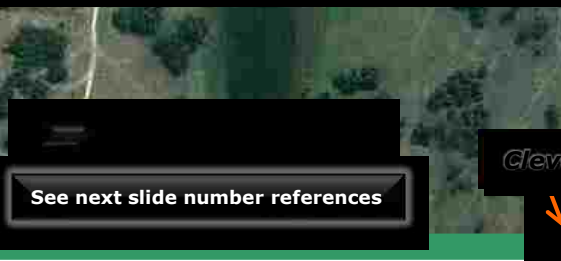
Gosta's Cafe
Highveld Meat
Highveld Liquor
GFS Filling Station

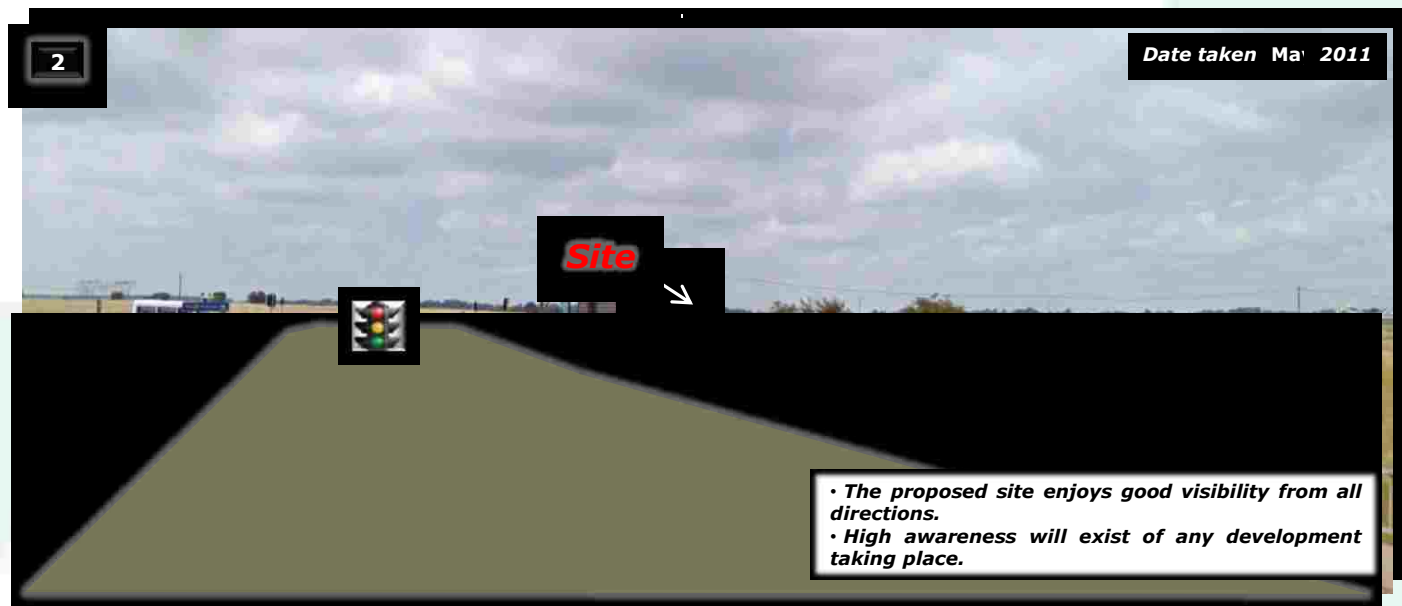
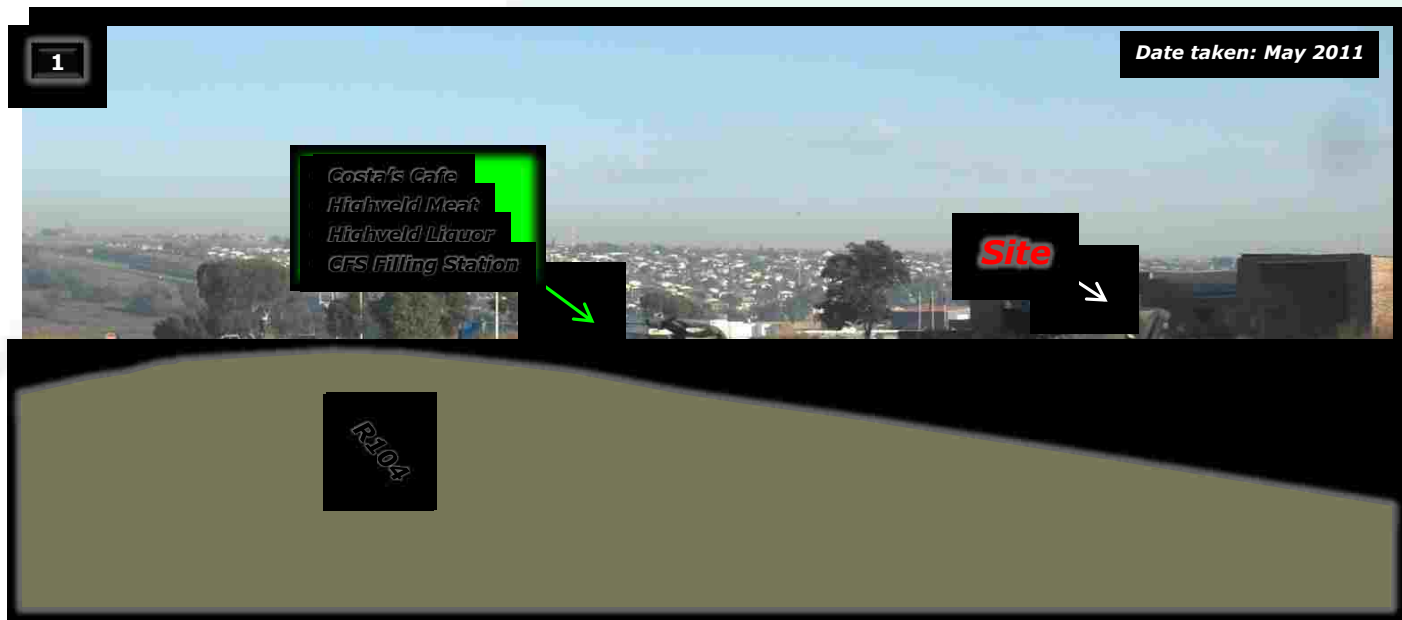
R104

1

2

→ Emalaheni





ANNEXURE B3:

**ACCESS EVALUATION
REPORT**



UNITED
BY OUR
DIFFERENCE



CLEWER FILLING STATION (EMALAHLENI)



ACCESS EVALUATION REPORT

PREPARED BY:



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Reg. No. 1973/009683/07

**CLEWER FILLING STATION (EMALAHLENI)
ACCESS EVALUATION REPORT**

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks	Issued for Information			
Date	April 2013			
Prepared by	E.D. Kotze / B.T.Bloxham			
Signature				
Checked by	E.D. Kotze Pr Tech Eng			
Signature				
Authorised by	E.D. Kotze Pr Tech Eng			
Signature				
Project number	16035.R			
File reference	V:\Projects Witbank\16035.R			

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FAX No. :+27 13 653-6336**



CONTENTS

1	Introduction	5
2	Cadastral Information & Accesses	6
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2.2	Accesses	6
3	Conclusions & Recommendations	7



DRAWING (See back of the Report)
(Drawing no 16035.R/AL/01 – Existing Access Evaluation)

p9

1 Introduction

WSP SA Civil and Structural Engineers (Pty) Ltd have been appointed to undertake an investigation and evaluation of the accesses to the Clewer Filling Station owned by CFS Petroleum.

From the title deed information received from the owner and the surveyor, the existing filling station site is located on the Remaining Extent of Portion 16 of the farm Schoongezicht 308 JS. From the information received it was found that the whole site (Rem of Portion 16) has an extent of 5,2494 ha in total, of which the filling station is located only on approx. a tenth of the whole site area.

From our site inspection it was determined that the existing filling station is a 'White Site' with a steel canopied forecourt area, a shop and offices. There are other businesses and buildings located on the same portion of land, which share the same accesses.



2 Cadastral Information & Accesses

2.1 Cadastral Information

- The information on the site boundaries of Remainder of Portion 16 Schoongezicht 308 JS was obtained from a general plan through a land surveyor and was therefore not surveyed or taken from the S.G Diagram. It is reasonably accurate (within a few metres) and acceptable for this type of investigation / evaluation.
- For design purposes in the future, a more accurate and full tachy survey (DTM) with co-ordinated boundaries and 0,5m contour intervals will be required.
- The farm portion in question is a long and narrow site, which measures 5,2494Ha and the northern boundary is common with the N4 Freeway
- The southern boundary is common with a portion of District road D328, but as can be seen on the enclosed **Drawing 16035.R/AL/01**, the boundary does not follow the road exactly.

2.2 Accesses

The existing main access (western access) is wide and part of an existing 4-way stop intersection between the D328 and the P154/2 district roads.

This main access is not in question and gives access directly from the road reserve into the property (Rem of Ptn 16).

The eastern access is narrow and long and have been re-surfaced recently, but this access goes over another portion of land (portion 41) not part of the site (Rem of Ptn 16) before it joins district road D328.

This narrow wedge of land (portion 41) over which the eastern access is built is therefore not owned by the land owner of Rem of Ptn 16 on which the Filling Station site is located.

The eastern access is therefore in question and in future, it could be closed, especially if the adjacent portion of land is developed or if the Remainder of Ptn 16 (the site) applies for additional rights or applies for rezoning (as such application will have to circulate to most local government departments including D.O.T and Sanral).

Special permission will then have to be obtained by the land owner (from D.O.T and SANRAL) to keep the access open in the future or the wedge of land in question might have to be obtained (purchased), if it is possible.

A discussion with the Chief Roads Superintendent confirmed that no records for approval of the western or eastern access is available.

3 Conclusions & Recommendations

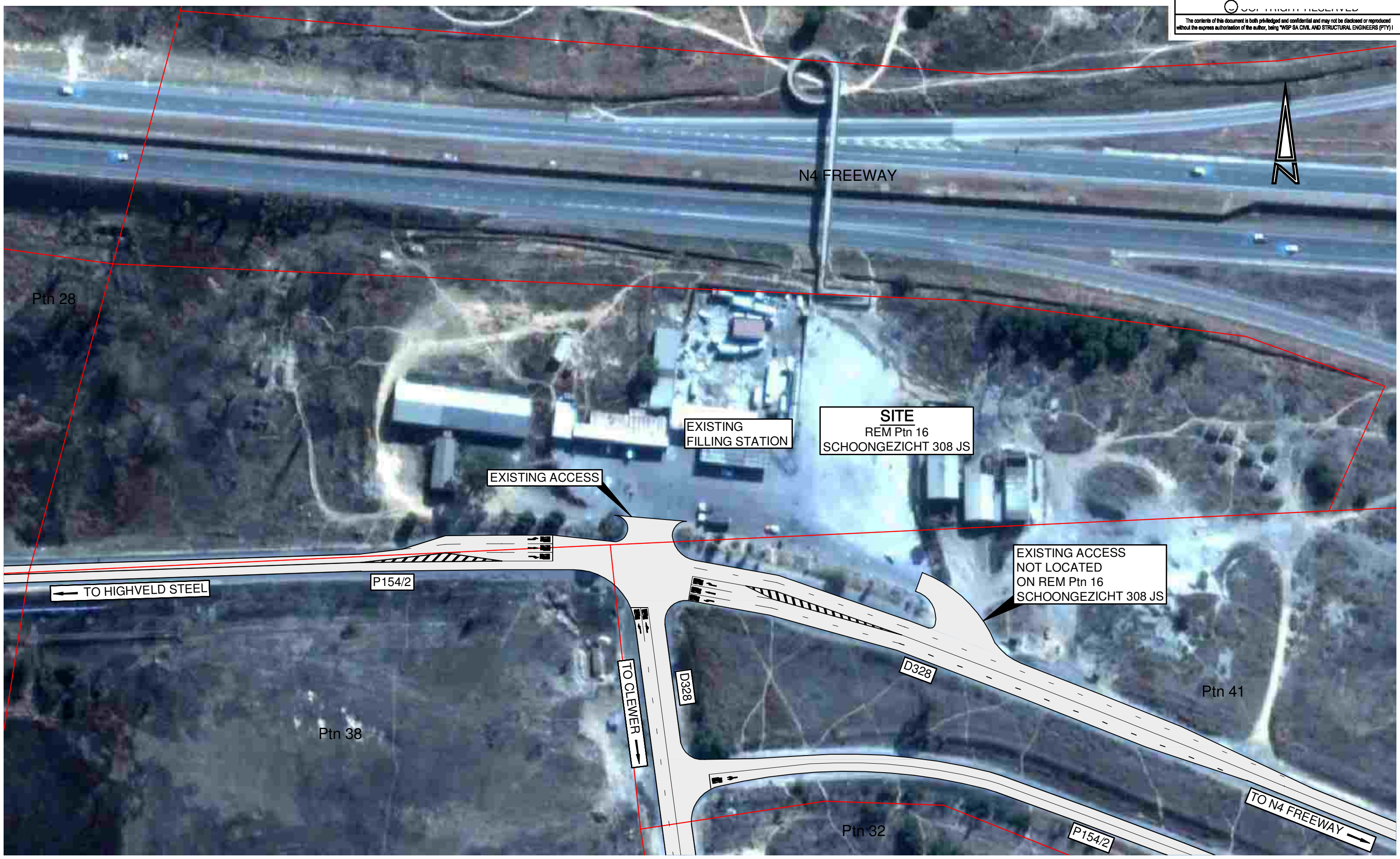
Based on our investigation, as set out in this document, the following key conclusions and recommendations are relevant:

- The existing western access is part of a 4-way stop intersection with two other district roads and from our investigation does not seem to be in question.
- The eastern access though goes over a wedge of the adjacent Portion 41 boundary and it does not seem to be legal (unless special permission is obtained that we are not aware of).
- If the adjacent land (portion 41) is developed in future or sold to a different land owner, the eastern access will be in question and will have to be closed. Similarly, if Rem of Ptn 16 (the site) applies for a different or increase in land use rights, the eastern access will most probably be in question, as it goes over a wedge of land that is part of the adjacent portion 41.
- This eastern access is not seen as critical to the successful running of the filling station, although some litres (a small percentage) will be lost if this eastern access is closed.
- If in the future the Clewer Filling Station site is upgraded to a Branded Filling Station Site, it is recommended that the Internal Layout of the existing 'White Site' Clewer Filling Station is re-designed around its main access to ensure better circulation and accommodate the Heavy Vehicles more easily with the one access point at the 4-way stop intersection.



DRAWING

(Drawing no 16035.R/AL/01 – Existing Access Evaluation)



REV	DATE	BY	DESCRIPTION	CHK	APD
A	24/04/2013	BTB	ISSUED FOR INFORMATION	EDK	-

DRAWING STATUS: **FOR INFORMATION**

CLIENT:
CFS Petroleum

WSP

34 Bouvardia Avenue
 Lynnwood Ridge Pretoria
 0081

PostNet Suite 113
 Private Bag X844
 Silverton 0127

Tel (012) 361-4141, Fax (012) 361-4142

PROJECT:
CLEWER FILLING STATION

TITLE:
EXISTING ACCESS EVALUATION

SCALE: 1:1400	CHECKED: E.D.KOTZE	APPROVED: -
DESIGN: -	DRAWN: B.T.BLOXHAM	DATE: 2013-04-24
PROJECT No: 16035.R	DRAWING No: 16035.R/AL/01	REV: A
© WSP Group plc		

ANNEXURE B4: WATER TEST RESULTS



RONEY HOFFMANN CONSULTANTS CC
WATER AND WASTE WATER PROCESS CONSULTANTS

141 Crosswell Road Silverton P.O. Box 11864 Queenswood 0121 Tel: (012) 804 8363 Fax: (012) 804 2212 Cell: 083 273 8638 E-mail: roney@rhc.co.za

DETERMINATION OF CORROSION OF WATER SAMPLES

LANGELIER SATURATION AND RYZNAR STABILITY INDICES, AGGRESSIVENESS INDEX AND CHLORIDE + SULPHATE TO ALKALINITY CORROSION RATIO

CLIENT	SNA
SAMPLE NO.	CF/4
REF NO	14762

RHC REF.	PM 2014-4/3b
ORDER NO.	4549
DATE RECEIVED	3 APRIL 2014

1.1 CHEMICAL ANALYSIS		1.2. CORROSION INDICES	
Results are in mg/l unless otherwise stated.			
DETERMINAND:		INDEX	VALUE
pH	5.0	Stability pH (pHs) at 20°C	9.5
Conductivity (mS/m)	35	Langlier Index at 20°C	-4.5
Total dissolved solids (Calculated)	228	Ryznar Stability Index at 20°C	14.0
Total Hardness as CaCO ₃	72	Aggressiveness Index	6.6
Calcium Hardness as CaCO ₃	36	Cl and SO ₄ Corrosivity Index (Corrosivity Ratio)	16.8
Calcium as Ca	14		
Magnesium as Mg	9.0		
Total Alkalinity as CaCO ₃	6		
Chloride as Cl	56		
Sulphate as SO ₄	21		

2. INTERPRETATION OF CORROSION INDICES

2.1 AGGRESSIVENESS TOWARDS CONCRETE AND FIBRE CEMENT PIPES

INDEX	AGGRESSIVE	NEUTRAL	NON-AGGRESSIVE	COMMENTS
a) STABILITY pH, pHs	< pH	= pH	> pH	The corrosion indices indicates that the water is highly corrosive towards concrete and metals. The Basson Index indicates that the water is very highly corrosive towards concrete.
b) LANGELIER INDEX	NEG. VALUE	ZERO	POS. VALUE	
c) RYZNAR INDEX	> 7,5	6 - 7	< 6	
d) AGGRESSIVENESS INDEX, AI	< 10	10 - 12	> 12	

2.2 CORROSION TOWARDS METALS

	CORROSIVE
CORROSION RATIO	> 0,2

PW DE BEER

8 APRIL 2014

DETERMINATION OF CORROSIVITY OF WATER SAMPLES

REF : PM 2014-4/3b

AGGRESSIVENESS TOWARDS CONCRETE : AGGRESSIVENESS INDEX
(PORTLAND CEMENT INSTITUTE - J.J. BASSON PUBLICATION)

CLIENT	SNA
SAMPLE IDENTIFICATION :	CF/4

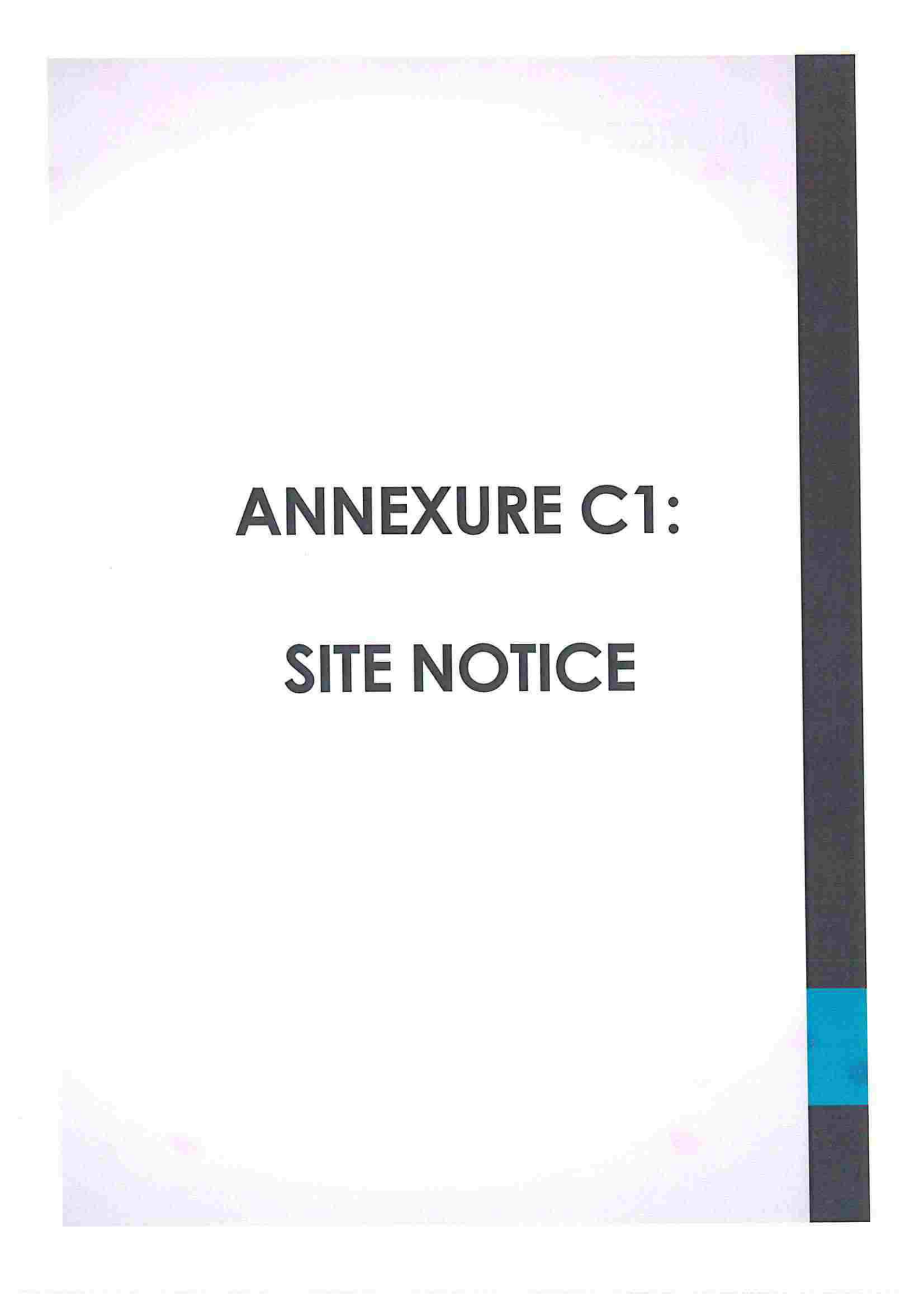
DETERMINAND	VALUE	CONSTANT	INDEX
pH	5.0	200	900
Calcium Carbonate Saturated pH	9.5	-2000	9000
Calcium Hardness as CaCO ₃	36	2.2	1021
Total Ammonium as NH ₄	0.3	10	3
Magnesium as Mg	9	0.6	5
Sulphates as SO ₄	21	0.3	6.3
Chlorides as Cl	56	0.2	11.2
Total Dissolved Solids	228		
Leaching - corrosion sub-index , LCSi			3640
Spalling - corrosion sub-index , SCSi			5
Final aggressiveness index at 25 Degr. C, corrected for stagnant conditions, Nc			1825

GUIDELINES FOR ASSESSING FINAL INDEX

FINAL INDEX	AGGRESSIVENESS	RECOMMENDATION
Under 350	Non to mildly aggressive	Use concrete class as required for structural design
350 - 750	Mildly to fairly aggressive	Good concrete design and construction essential
750 - 1000	Highly aggressive	Identify dominant corrosion sub-index Follow recommendations
Over 1000	Very highly corrosive	Do not use in contact with unprotected concrete

ANNEXURE C:

PUBLIC PARTICIPATION



ANNEXURE C1:

SITE NOTICE

NOTICE OF BASIC ASSESSMENT PROCESS

Notice is given of an application for a **Basic Assessment Process** that is to be submitted to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA), in terms of Regulation No. R982 published in the Government Notice No. 38282 of 4 December 2014 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing **Basic Assessment Procedures (Listing Notice: 1 – Government Notice R983)** for the following activity:

Project Name: Clewer Filling Station

Property Description: The decommissioning and establishment of a new filling station situated on the Remainder of Portion 16 of the Farm Schoongezicht 308 JS.

Listing Activities Applied for:

Relevant 2010 listing notice and activity:	Relevant 2014 listing notice and activity:
Activity 9, Listing Notice 1, R544, 18 June 2010	Activity 9 Listing Notice 1, R983, 4 December 2014
Activity 13, Listing Notice 1, R544, 18 June 2010	Activity 10 Listing Notice 1, R983, 4 December 2014
Activity 23, Listing Notice 1, R544, 18 June 2010	Activity 14 Listing Notice 1, R983, 4 December 2014
Activity 27, Listing Notice 1, R544, 18 June 2010	Activity 31 Listing Notice 1, R983, 4 December 2014

(Listed Activities triggered will be confirmed during the Application process)

Proponent Name: CFS Petroleum CC

Location: The site is situated just south of the N1 – Matthews Phosa/R104 offramp and to the north of Collins Avenue.

Date of Notice: 13 November 2015 – 14 December 2015

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants CC

Public Participation registration and Enquiries: **Juanita De Beer**

Project Enquiries: **Bianca Reyneke**

P.O. Box 11375

Maroelana 0161

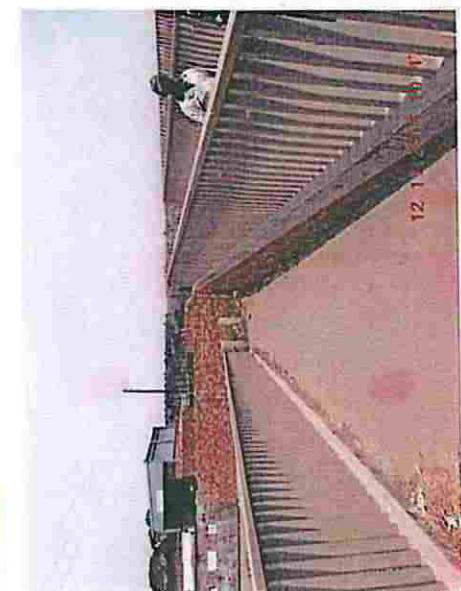
www.bokamoso.biz

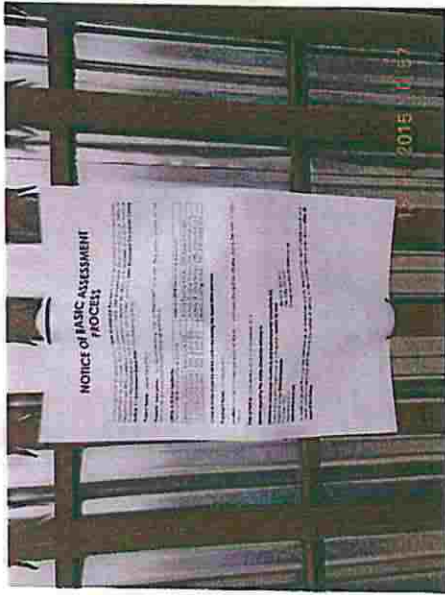
Tel: (012) 346 3810

Fax: (086) 570 5659

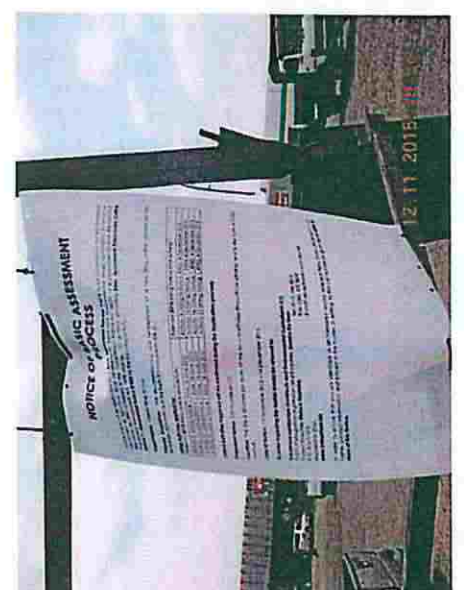
E-mail: reception@bokamoso.net

In order to ensure that you are identified as an Interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 30 days of this Notice**.

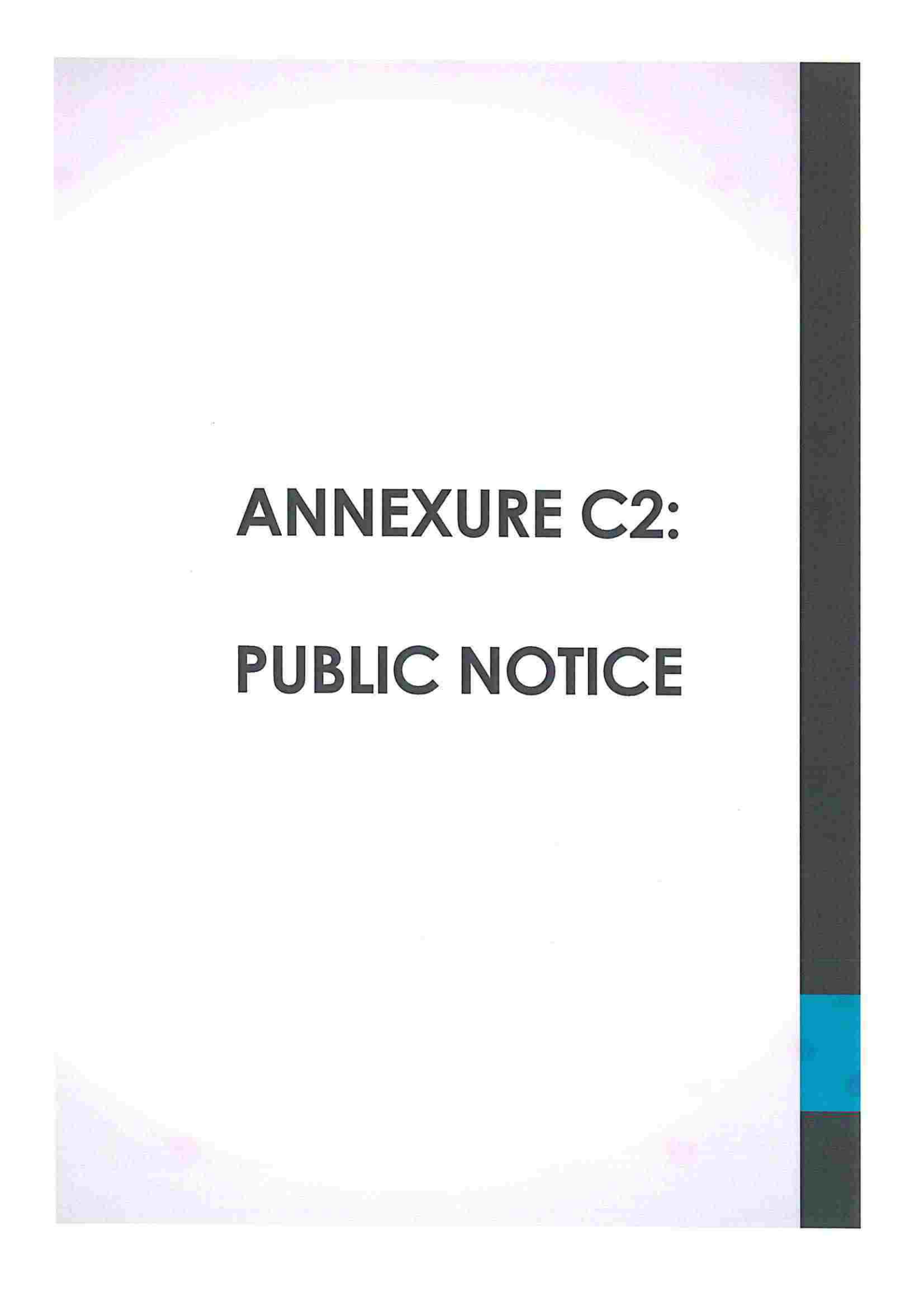












ANNEXURE C2:

PUBLIC NOTICE

CLEWER FILLING STATION

NOTICE OF BASIC ASSESSMENT PROCESS

Notice is given of an application for an **Basic Assessment Process** that is to be submitted to Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA), in terms of Regulation No. R982 published in the Government Notice No. 38282 of 4 December 2014 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing **Basic Assessment Procedures (Notice 1 – Government Notice R983)** for the following activity:

Project Name: Clewer Filling Station

Property Description: The decommissioning and establishment of a new filling station situated on the Remainder of Portion 16 of the Farm Schoongezicht 308 JS.

Proponent Name: CFS Petroleum CC

Listing Activities Applied: Relevant 2010 listing notice and activity: GNR 544 (Listing Notice 1) – Activity 9, 13, 23 & 27 and Relevant 2014 listing notice and activity: GNR 983 (Listing Notice 1) – Activity 9, 10, 14 & 31 (Listed Activities triggered will be confirmed during the Application process)

Location: The site is situated just south of the N1 – Matthews Phosa/R104 off-ramp and to the north of Collins Avenue.

Date of Notice: 13 November 2015 - 14 December 2015

Queries regarding this matter should be referred to:

Bokamoso Landscape Architects and Environmental Consultants CC

Public Participation registration and Enquiries: **Juanita De Beer**

Project Enquiries: **Bianca Reyneke**

P.O. Box 11375

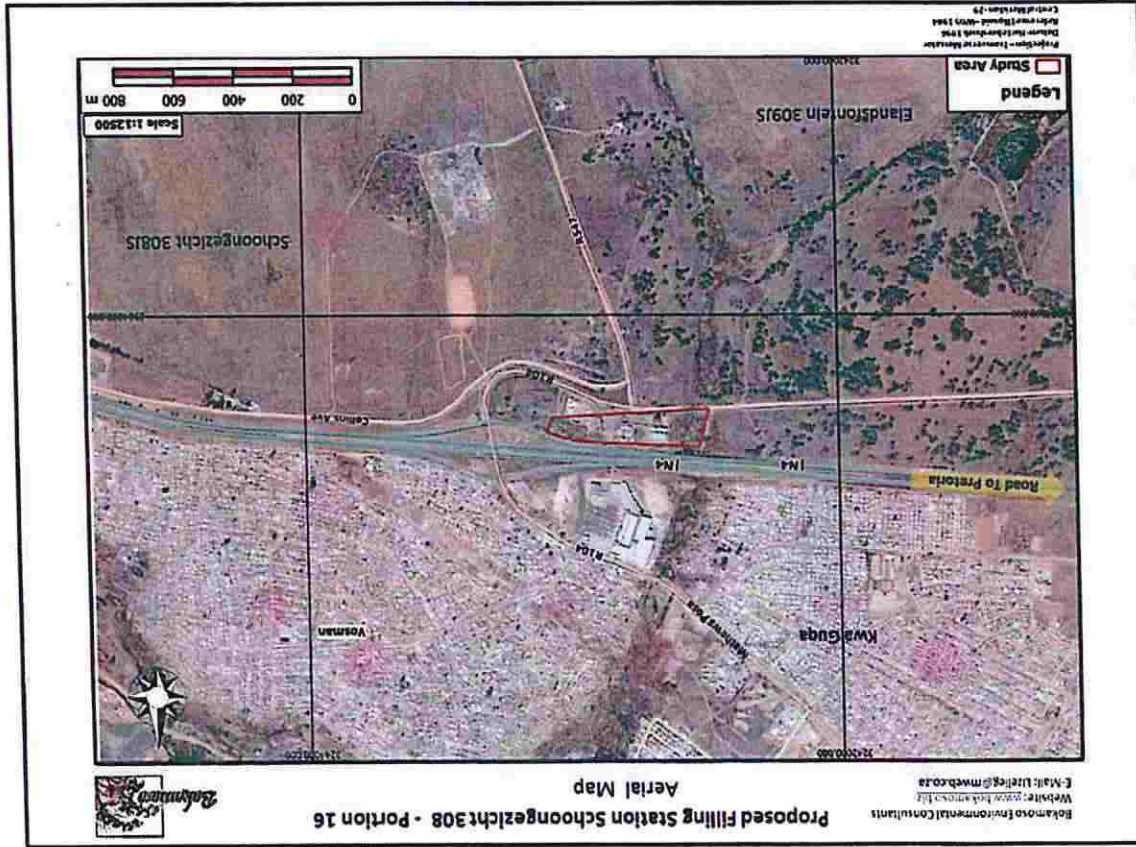
Maroelana 0161

www.bokamoso.biz

Tel: (012) 346 3810

Fax: (086) 570 5659

E-mail: reception@bokamoso.net



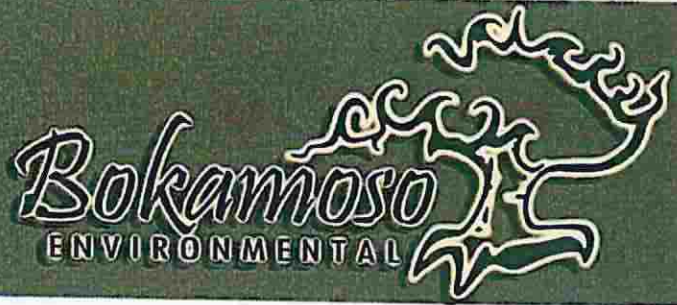
Locality Map

In order to ensure that you are identified as an interested and/or Affected Party (I&AP) please submit your name, contact information and interest in the matter, in writing, to the contact person given above **within 30 days of this Notice.**

LEBOMBO GARDEN BUILDING
38 LEBOMBO ROAD
ASHLEA GARDENS
0081

P.O. BOX 11375
MAROELANA
0161

Tel: (012) 346 3810
Fax: 086 570 5659
E-mail: lizelleg@mweb.co.za
Website: www.bokamoso.biz



Dear Landowner/Tenant

13 November 2015

You are hereby informed that Bokamoso Environmental Consultants were appointed (as EAP) by CFS Petroleum CC to conduct the Basic Assessment Process in terms of the amended 2014 NEMA EIA Regulations for the proposed Clewer Filling Station on the Remainder of Portion 16 of the Farm Schoongezicht 308 JS.

The proposed Land-uses for the study area are as follows:
Clewer Filling Station

In terms of Regulation No. R982 published in the Government Notice No. 38282 of 4 December 2014 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing Basic Assessment Procedures (Notice 1 – Governing Notice R983) of the 2014 amended NEMA Regulations, the EAP must inform all landowners and tenants within 100m from the study area of the proposed development.

This letter serves as notification to you, (landowner/tenant) of the property located within a 100m of the proposed activity and as notification letter and request that you supply the contact details of any tenants or other interested and affected parties that reside or work on the property to Bokamoso. Bokamoso will then also supply these parties with the necessary notification letters.

Alternatively, you are also welcome to distribute copies of your notification to these parties. We will however require proof that you supplied the notices to the tenants, landowners, workers etc. Another option is to act as representative on behalf of these parties.

Please confirm within 30 days (via email/fax) that you received the landowners/tenant notification and this letter. Also indicate in this confirmation letter whether you have tenants on your property and you're preferred method of tenant/worker notification.

Regards

.....
Lizelle Gregory/Juanita De Beer

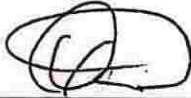
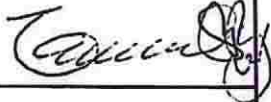


REG NO: CK 2010/087490/23
VAT REG NO: 4080260872

BOKAMOSO LANDSCAPE ARCHITECTS AND ENVIRONMENTAL CONSULTANTS CC TRADING AS BOKAMOSO ENVIRONMENTAL

MEMBER: Lizelle Gregory

Clewer Filling Station Landowner Notification

Acknowledgement of Receipt of land owner notification concerning the proposed Clewer Filling Station project.

	Name	Address	Contact Details	Signature
1	WELCOME MELLINGA.		Email: Fax: Tel: 0225617519	
2	TARIQ owner property		Email: Fax: Tel: 022-8194353	
3	ROSE	KG MALL	Email: Fax: Tel: 0726257599	
4	ABRAM	UOSMANI TAXI RANK	Email: Fax: Tel: 0727351469	
5			Email: Fax: Tel:	
6			Email: Fax: Tel:	
7			Email: Fax: Tel:	
8			Email: Fax: Tel:	
9			Email: Fax: Tel:	
10			Email: Fax: Tel:	
11			Email: Fax: Tel:	
12			Email: Fax: Tel:	
13			Email: Fax: Tel:	
14			Email: Fax: Tel:	
15			Email: Fax: Tel:	



ANNEXURE C3:

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Chase away evil spirits, bino business & Property
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Bring all unfinished jobs & get them done here with Sendwana Oil - PTA, Andries - cr Pretorius or call me **073 212 0092** Pay after the Job is done.

SHABWELA MKHULU 071 083 0130
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Pay After Job is Done. 071 083 0130 Small & Prichard JHB Bosman Street PTA/

THE REAL TESTIMONY OF HOPE FOR DR. BABA KAPITO
My name is Sinebamba. I'm from Eastern Cape but I'm staying in Limpopo. I didn't add my number for security reasons. I was once a victim of losing money from these so-called Doctors and Sanzamas that I was working so hard until I came across the testimony of MANDISA on the 22th of JUNE 2015 who was taking good news of **BABA KAPITO**. I called him and he explained everything to me. I then contacted **BABA KAPITO** to help me as he did to Mandisa. Such a wonderful man he explained to me his different methods like the **SHORT BOYS** to put money. **RATS** to bring money in the house every day, the **MAGIC WALLET** to put money in the house every day, **WINNING CASINO GAMES** and other **GAMBLING GAMES**. Now I am enjoying with my family, my children having better Education. I thank Mandisa for showing me the good Doctor as well as **DR BABA KAPITO** called me to open the bag which was full of money that I never seen in my entire life! I counted the money and went to him to pay him. This is a good advice to all South Africans, yes it's not easy to find a real Doctor but there is a real **BABA KAPITO** is here to change your life from Financial Love, and Domestic. Gambling. Don't hesitate to call **BABA KAPITO. CALL HIM NOW ON!! 078 881 3613**

Testimony For Baba Masondo
We are family of My/Mrs Hendricks. We are from Durban our number are **0845277450**. We had most difficult moment in our lives when our first born daughter divorced. My wife lost her job, my business finished. Luckily my friend told me about Baba Masondo that he helped him with bright stone. Then he referred us to Baba Masondo to help us. He told us that he got magic wallet, sikwama semhlope, bright stone, chose sikwama semhlope that brings money. My business is growing. I have two trucks and a shop. He also helped our daughter to bring back her husband. They remarried. They got their own business too. Thank you Baba Masondo for helping us now our family is happily united. If you want Magic wallet, Bright stone, Sikwama Semhlope Call **Baba Masondo 24HRS Delivery. Order NOW to Change your life. 073 887 7280**

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Call Alex 072-800-5198

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Data Capturers Needed
sms Data to 34389
SKILLS 3000
QUALIFIED DOG GROOMER
Need urgently. Contact Barendina/Hannele **012 333 6047**
WANTED 3001
WARNING!!!
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LEGAL & TENDERS 3002
BUSINESS LICENCES 3003
GENERAL NOTICES 3004
NOTICE OF BASIC ASSESSMENT 3005



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081 468 9688
PTA 012 323 4641
076 931 1028
Vaal 016 931 5451
081 404 0945
Polokwane 015 295 2070
081 411 1418
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BUSINESS LICENCES 3003
GENERAL NOTICES 3004
NOTICE OF BASIC ASSESSMENT 3005

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081 404 0945
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081 411 1418
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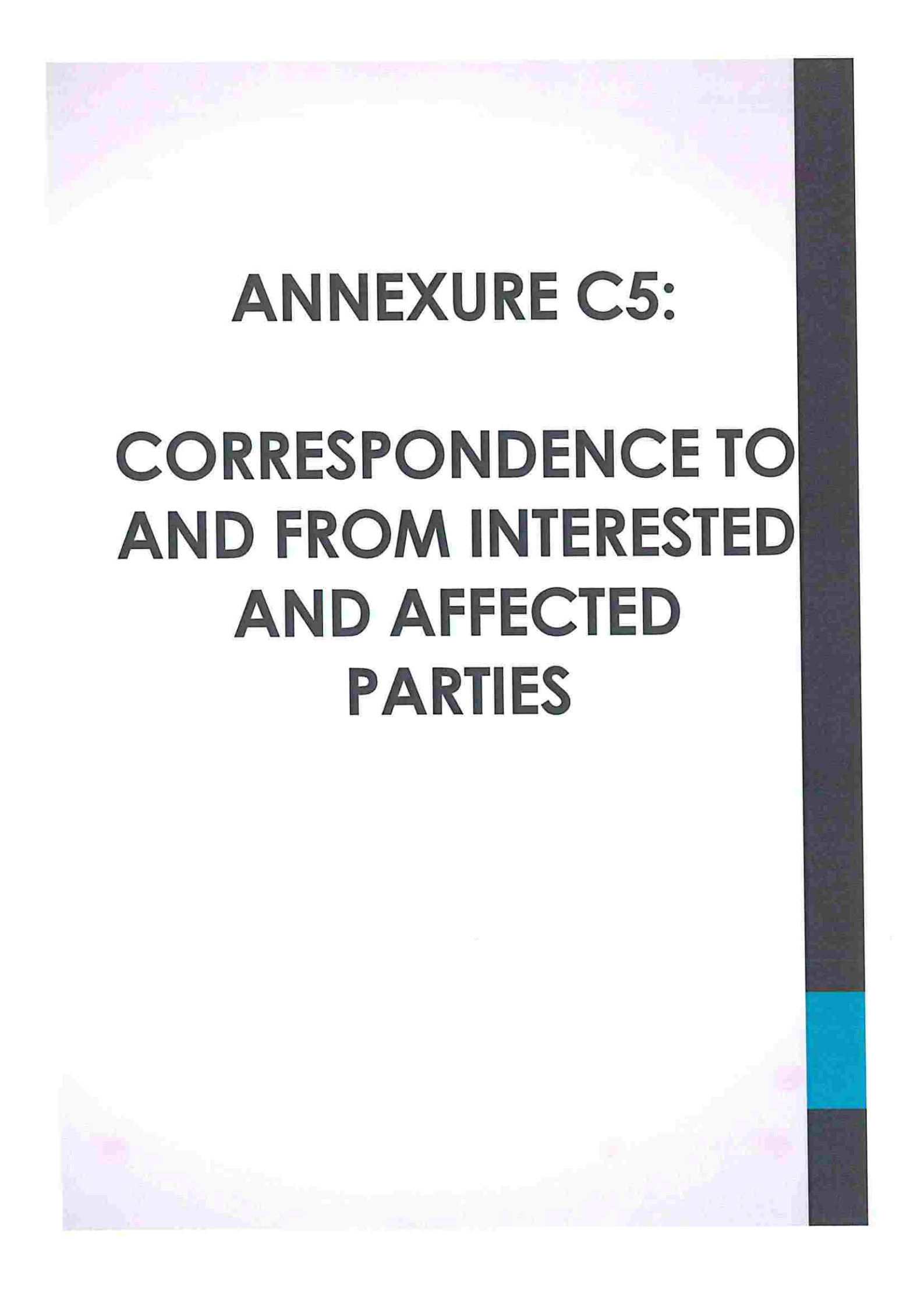


ANNEXURE C4:

**LIST OF INTERESTED
AND AFFECTED
PARTIES**

Nr	Registered Parties	Contact details
		Stakeholders
1	Council Geo-Science	igrobler@geoscience.org.za
2	SAHRA	asalomon@sahra.org.za nndobochani@sahra.org.za
3	MPHRA Benjamin Moduka	bmoduka@mpg.gov.za
4	DWA Sampie Shabangu	ShabanguS2@dwa.gov.za Cell: 082 857 4275 koleskym@lucma.co.za
5	Eskom	central@eskom.co.za paia@eskom.co.za
6	SANRAL	schmidk@nra.co.za
7	Johan van Aswegen The Olifants Water Management Area	vanAswegenJ@dws.gov.za
8	Mpumalanga Tourism and Parks Agency	info@mtpa.co.za ifrah@mtpa.co.za
9	Emalahleni Local Municipality Mr. E Nkabinde	nkabindeej@emalahleni.gov.za Tel: 013 690 6448
10	Nkangala District Municipality Manager Social Services Mrs L. Malatjie	MalatjieLM@nkangaladm.gov.za Tel:013 249 2000
11	Spoornet	daniel.ramokone@transnet.net loveous.tampane@transnet.net
12	Ward Councillor Constituency head Emalahleni Raesetja Jane Moloisi	jane@da-mpu.co.za
13	Kallie Erasmus Erasmus Attorneys	kallie@erasmuslaw.com Cell: 082 446 4424 Tel: 023 541 1900
14	Emalahleni Water Service Provider	

	Sipho	vumendlinisw@emalaheni.gov.za
		vsw@webmail.co.za
		Tel: 013 690 6424
Interested and Affected Parties		



ANNEXURE C5:

**CORRESPONDENCE TO
AND FROM INTERESTED
AND AFFECTED
PARTIES**

bianca@bokamoso.net

From: juanita@bokamoso.net
Sent: 11 December 2015 01:42 PM
To: 'jgrobler@geoscience.org.za'; 'asalomon@sahra.org.za'; bmoduka; ShabanguS2; koleskym; 'central@eskom.co.za'; 'paia@eskom.co.za'; schmidk; 'vanAswegenJ@dws.gov.za'; info; ifrah; nkabindeej@emalahleni.gov.za; Malatjielm@nkangaladm.gov.za; 'loveous.tampane@transnet.net'; jane@dampu.co.za; kallie@erasmuslaw.com; vumendlinisw@emalahleni.gov.za; vsw@webmail.co.za
Subject: Clewer Filling Station - Review Notice

Dear Interested and/or Affected Party Members,

Please note that the Draft Basic Assessment Report for the proposed **Clewer Filling Station** will be available for review on our website: www.bokamoso.biz from Today, 11 December 2015 – 1 February 2016 (Excluding 15 December 2015 – 5 January 2016).

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

bianca@bokamoso.net

From: Marius Kolesky <koleskym@iucma.co.za>
Sent: 18 November 2015 01:59 PM
To: juanita@bokamoso.net
Cc: Van Aswegen Johann (BHT); shabangus@iucma.co.za
Subject: RE: Schoongezicht - Clewer Filling Station - Public Participation Process
Attachments: image003.png; image004.jpg; image005.png

Hey Juanita

It is inside the Olifants Water Management Area and you should approach mr Johann van Aswegen at their Bronkhortspruit Office, cc'd herewith.

Regards

Marius Kolesky Pr Eng
Manager: Water Resource Planning & Coordination



INKOMATI-USUTHU CATCHMENT MANAGEMENT AGENCY
8th Floor, Maxsa Building, Streak Street
Mbombela.

Tel : +27 13 753 9022
Cell: +27 83 677 1806

#RAINMUSTFALL!!#

"Accept that some days you are the pigeon, other days the statue"

From: juanita@bokamoso.net [mailto:juanita@bokamoso.net]
Sent: Wednesday, November 18, 2015 1:31 PM
To: Marius Kolesky
Subject: RE: Schoongezicht - Clewer Filling Station - Public Participation Process

Hi Marius,

Baie dankie vir jou terugvoering, dit is net buite Witbank in die Kwa-Guqa area.

As jy nie die regte kontak persoon is nie, kan jy asseblief vir ons die regte kontak persoon se besonderhede vir my aanstuur.

Dankie vir jou moeite.

Lekker dag.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

From: Marius Kolesky [<mailto:koleskym@iucma.co.za>]

Sent: 18 November 2015 11:04 AM

To: juanita@bokamoso.net

Subject: RE: Schoongezicht - Clewer Filling Station - Public Participation Process

Ai Juanita, Mpumalanga is groot. Waar is die plek.?

Ons Gebied sluit nie die hele Mpumalanga in nie, so hierdie is dalk buite ons gebied, veral as by Emalahleni/Witbank is soos ek dink.

Marius Kolesky Pr Eng

Manager: Water Resource Planning & Coordination



INKOMATI-USUTHU CATCHMENT MANAGEMENT AGENCY

8th Floor, Maxsa Building, Streak Street
Mbombela.

Tel : +27 13 753 9022

Cell: +27 83 677 1806

#RAINMUSTFALL!!#

"Accept that some days you are the pigeon, other days the statue"

From: juanita@bokamoso.net [<mailto:juanita@bokamoso.net>]

Sent: Wednesday, November 18, 2015 10:36 AM

To: Marius Kolesky

Subject: RE: Schoongezicht - Clewer Filling Station - Public Participation Process

Dear Marius,

Please refer to the attached Public Notice, the study area is situated in the Mpumalanga area.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

From: Marius Kolesky [<mailto:koleskym@iucma.co.za>]

Sent: 11 November 2015 04:25 PM

To: juanita@bokamoso.net

Subject: RE: Schoongezicht - Clewer Filling Station - Public Participation Process

Where is this? Emalahleni?

Marius Kolesky Pr Eng

Manager: Water Resource Planning & Coordination



INKOMATI-USUTHU CATCHMENT MANAGEMENT AGENCY

8th Floor, Maxsa Building, Streak Street

Mbombela.

Tel : +27 13 753 9022

Cell: +27 83 677 1806

#RAINMUSTFALL!!#

"Accept that some days you are the pigeon, other days the statue"

From: juanita@bokamoso.net [<mailto:juanita@bokamoso.net>]

Sent: Wednesday, November 11, 2015 3:24 PM

To: jgrobler@geoscience.org.za; asalomon@sahra.org.za; bmoduka; ShabanguS2; koleskym; central@eskom.co.za; paia@eskom.co.za; schmidk; mmpshe@randwater.co.za; nkoneigh@randwater.co.za; MakhavhuM; MatsaneF@randwater.co.za; info; ifrah; hlatseno; joyzi; rntusi; ssaliwa; loveous.tampane@transnet.net; jane@dampu.co.za

Subject: Schoongezicht - Clewer Filling Station - Public Participation Process

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed *Clewer Filling Station* Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
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bianca@bokamoso.net

From: juanita@bokamoso.net
Sent: 23 November 2015 03:15 PM
To: 'vumendlinisw@emalahleni.gov.za'; 'vsw@webmail.co.za'
Subject: Schoongezicht - Clewer Filling Station - Public Participation Process
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed *Clewer Filling Station* Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

From: juanita@bokamoso.net
Sent: 25 January 2016 03:00 PM
To: 'jgrobler@geoscience.org.za'; 'asalomon@sahra.org.za';
'nndobochani@sahra.org.za'; 'bmoduka@mpg.gov.za'; 'ShabanguS2@dwa.gov.za';
'koleskym@iucma.co.za'; 'central@eskom.co.za'; 'paia@eskom.co.za';
'schmidk@nra.co.za'; 'vanAswegenJ@dws.gov.za'; 'info@mtpa.co.za';
'ifrah@mtpa.co.za'; 'nkabindeej@emalahleni.gov.za';
'MalatjieLM@nkangaladm.gov.za'; 'daniel.ramokone@transnet.net';
'loveous.tampane@transnet.net'; 'jane@da-mpu.co.za'; 'kallie@erasmuslaw.com';
'vumendlin@emalahleni.gov.za'; 'vsw@webmail.co.za'
Subject: Clewer Filling Station - extension of review process
Attachments: image001.jpg

Dear Clewer Filling Station I&AP's

Please take note that our e-mails were out of order from 19 January 2016 until mid-day 22 January 2016. The origin of the e-mail problems was not at the Bokamoso office, but at the e-mail host (this explanation is not technical, because we are not computer experts). Due to the fact that Bokamoso facilitate various public participation processes, we are exposed to thousands of e-mails from I&APs every month. External e-mails are often corrupt and distribute viruses that can destroy a company's entire computer system and all records regarding public participation. In order to protect the e-mails received from I&APs and the Bokamoso computer network, we are forced to store our e-mails off-site.

It recently came to our attention that the e-mail problems that were experienced were actually a world-wide problem and this problem was communicated with the public on news channels and through other suitable media. More detail regarding the e-mail problems that occurred during the Clewer Filling Station comment period will be forwarded to GDARD and it will also be made available to Clewer Filling Station I&APs on request. Opinions and Affidavits from two computer companies (the company that currently manages and maintains the Bokamoso computers systems and another external company that were approached to investigate the matter) will also be forwarded to GDARD in order to illustrate that the e-mail problems at Bokamoso was not an attempt to mislead the public or to manipulate the PP process.

Due to the fact that it was extremely difficult to find a solution at the time of the crisis, we decided to create an additional domain for our e-mails, which can be used by I&APs in the case of emergencies. The e-mail address for such emergency situations is lizelle@bokamoso.net.za. Our telephone number at the office is (012) 346-3810 and our fax number is 086 570 5659. You can also contact Bokamoso at the telephone number provided or you can send your comments via fax. Take note that the e-mails supplied on our public notices, invitations, e-mails etc. are now "up-and running" and it is preferred that you use the following e-mail address: juanita@bokamoso.net.

Due to the delays that could have been caused in cases where I&APs wanted to forward e-mails, we decided to grant all I&APs until 8 February 2016 for the submission of their comments. The original deadline date for the submission of the Clewer Filling Station comments was 1 February 2016.

We apologise for the inconvenience that was caused and hope that you understand that it was never the intention of Bokamoso to sabotage/corrupt the communication channels that were provided to the I&APs. You are also welcome to contact our offices if there are any other matters/ queries regarding the Clewer Filling Station comments that require clarity.

Lizelle Gregory

Bokamoso Landscape Architects and Environmental Consultants

BLArch (UP)

Professional Practice Number: 07078

Professional Member At: ILASA; LILA; SACLAP



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleq@mweb.co.za | www.bokamoso.biz

bianca@bokamoso.net

From: ben@bokamoso.net
Sent: 25 November 2015 05:30 PM
To: juanita; nico
Cc: info
Subject: FW: Clewer Filling Station Development
Attachments: image001.jpg; Landowner & Tenants Letter 1.pdf; Clewer Filling Station Notification Acknowledgement.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Juanita and Nico,

Please see below and attached FYI.

Also please assist with following up in this regard. Thank you

Kind Regards,

Ben Bhukwana

Landscape and Environmental Consultant



**Landscape Architects &
Environmental Consultants cc**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
36 Lebombo Road, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Please consider the environment before printing this email

From: ben@bokamoso.net [<mailto:ben@bokamoso.net>]
Sent: Wednesday, November 25, 2015 12:09 PM
To: 'cfspetroleum@gmail.com'
Cc: info
Subject: Clewer Filling Station Development

Good day Tariq,

On the 12th of November 2015 we conducted the Public Participation (PP) for the above mentioned project.

We explained to you the processes regarding the PP and the project details for the proposed development. In terms of Regulation No. R982 published in the Government Notice No. 38282 of 4 December 2014 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing Basic Assessment Procedures (Notice 1 –

Governing Notice R983) of the 2014 amended NEMA Regulations, the EAP must inform all landowners and tenants within a 100m radius from the study area of the proposed development. But you requested that we don't hand the attached Notices to your tenants and that you will do it yourself. We then handed you several copies of Notices in order for you to hand them to your tenants as requested by you. We will however require proof (similar to the attached acknowledgement of receipt) that you supplied the notices to the tenants of your property.

Do not hesitate to contact me for any queries in this regard. Thank you.

Kind Regards,

Ben Bhukwana

Landscape and Environmental Consultant



**Landscape Architects &
Environmental Consultants cc**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelleg@mweb.co.za | www.bokamoso.biz
36 Lebombo Road, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Please consider the environment before printing this email

bianca@bokamoso.net

From: juanita@bokamoso.net
Sent: 15 December 2015 11:07 AM
To: kallie@erasmuslaw.com
Subject: RE: Registration as I& AP: Clewer Filling Station

Dear Kallie Erasmus,

Thank you for your response, we have registered Erasmus Attorneys as Interested and/or Affected Party Member for the proposed Clewer Filling Station Project.

We will keep you updated regarding the process in the future.

Please note that the Draft Basic Assessment Report for the proposed Clewer Filling Station is available for review on our website: www.bokamoso.biz from 11 December 2015 – 1 February 2016 (Excluding 15 December 2015 – 5 January 2016).

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

From: Gideon (Kallie) Erasmus [<mailto:kallie@erasmuslaw.com>]
Sent: 14 December 2015 08:51 AM
To: reception@bokamoso.net
Subject: Registration as I& AP: Clewer Filling Station

For the attention of Juanita de Beer.

Please register Erasmus Attorneys as an I&AP in the aforementioned process.

Regards

G (Kallie) Erasmus

Erasmus

Environmental, Development and Property Law Attorneys

Tel: 023 5411 900 / 082 446 4424

Fax / Faks: 0866 855 979

E-Mail / E-Pos: kallie@erasmuslaw.com

<http://courteous.ly/IZI5v4>

Disclaimer

This transmission is confidential and intended for the sole attention of the addressee.

If you have received this transmission in error, please delete it and notify the sender.

bianca@bokamoso.net

From: juanita@bokamoso.net
Sent: 15 December 2015 11:51 AM
To: Gideon (Kallie) Erasmus
Subject: RE: Registration as I& AP: Clewer Filling Station

Dear Kallie Erasmus,

The Project name on the website for the Clewer Filling Station is known as Schoongezicht.

Hope this finds you well.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

T: (+27)12 346 3810 | F: (+27) 86 570 5659 | E: lizelle@mweb.co.za | www.bokamoso.biz
36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

From: Gideon (Kallie) Erasmus [<mailto:kallie@erasmuslaw.com>]
Sent: 15 December 2015 11:44 AM
To: juanita@bokamoso.net
Subject: Re: Registration as I& AP: Clewer Filling Station

Juanita

I can't find the BAR on your website. Is it under a different name?

Regards

G (Kallie) Erasmus

Erasmus

Environmental, Development and Property Law Attorneys

Tel: 023 5411 900 / 082 446 4424

Fax/Faks: 0866 855 979

E-Mail/E-Pos: kallie@erasmuslaw.com

<http://courteous.ly/IZI5v4>

Disclaimer

This transmission is confidential and intended for the sole attention of the addressee.

If you have received this transmission in error, please delete it and notify the sender.

On Tue, Dec 15, 2015 at 11:06 AM, <juanita@bokamoso.net> wrote:

Dear Kallie Erasmus,

Thank you for your response, we have registered Erasmus Attorneys as Interested and/or Affected Party Member for the proposed Clewer Filling Station Project.

We will keep you updated regarding the process in the future.

Please note that the Draft Basic Assessment Report for the proposed Clewer Filling Station is available for review on our website: www.bokamoso.biz from 11 December 2015 – 1 February 2016 (Excluding 15 December 2015 – 5 January 2016).

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



Landscape Architects &

Environmental Consultants

T: [\(+27\)12 346 3810](tel:+27123463810) | F: [\(+27\) 86 570 5659](tel:+27865705659) | E: lizelle@mweb.co.za | www.bokamoso.biz

From: Gideon (Kallie) Erasmus [mailto:kallie@erasmuslaw.com]
Sent: 14 December 2015 08:51 AM
To: reception@bokamoso.net
Subject: Registration as I& AP: Clewer Filling Station

For the attention of Juanita de Beer.

Please register Erasmus Attorneys as an I&AP in the aforementioned process.

Regards

G (Kallie) Erasmus

Erasmus

Environmental, Development and Property Law Attorneys

Tel: 023 5411 900 / [082 446 4424](tel:0824464424)

Fax / Faks: [0866 855 979](tel:0866855979)

E-Mail / E-Pos: kallie@erasmuslaw.com

<http://courteous.ly/IZI5v4>

Disclaimer

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bianca@bokamoso.net

From: juanita@bokamoso.net
Sent: 11 November 2015 03:24 PM
To: 'jgrobler@geoscience.org.za'; 'asalomon@sahra.org.za'; bmoduka; ShabanguS2; koleskym; 'central@eskom.co.za'; 'paia@eskom.co.za'; schmidk; 'mmpshe@randwater.co.za'; 'nkoneigh@randwater.co.za'; MakhavhuM; 'MatsaneF@randwater.co.za'; info; ifrah; hlatseno; joyzi; rntusi; ssaliwa; 'loveous.tampane@transnet.net'; 'jane@da-mpu.co.za'
Subject: Schoongezicht - Clewer Filling Station - Public Participation Process
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed **Clewer Filling Station** Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

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36 Lebombo Street, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

bianca@bokamoso.net

From: juanita@bokamoso.net
Sent: 11 November 2015 05:09 PM
To: 'kallie@erasmuslaw.com'
Subject: Schoongezicht - Clewer Filling Station - Public Participation Process
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed *Clewer Filling Station* Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

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bianca@bokamoso.net

From: juanita@bokamoso.net
Sent: 23 November 2015 02:27 PM
To: 'nkabindeej@emalahleni.gov.za'; 'Malatjielm@nkangaladm.gov.za'
Subject: Schoongezicht - Clewer Filling Station - Public Participation Process
Attachments: Public Notice BA.pdf; Landowner & Tenants Letter.pdf

Dear Interested and/or Affected Party Member,

Please refer to the attached Public Notice regarding the proposed *Clewer Filling Station* Project.

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

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an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
South African Heritage Resources Agency | 111 Harrington Street | Cape Town
P.O. Box 4637 | Cape Town | 8001
www.sahra.org.za

Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 8771

Date: Tuesday January 26, 2016
Page No: 1

Final Comment

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999)

Attention: CFS Petroleum CC

The decommissioning and establishment of a new filling station situated on the Remainder of Portion 16 of the Farm Schoongezicht 308 JS.

CFS Petroleum cc is proposing to decommission an existing filling station and construct a new filling station on larger footprint of land of the existing one. The filling station will have 5 pump areas and 5 tanks underground with a capacity of 23 000 l, and a store the total extent of the project is 0.6 ha. It is located on the remainder of Portion 16 of the farm Schoongezicht 308 JS, Emalahleni Local Municipality, Mpumalanga Province.

Under sections 34, 35 and 36 of the National Heritage Resources Act (25 of 1999) heritage resources are protected. These resources are for instance burial grounds, unmarked and marked graves that are older than 60 years, built structures that are older than 60 years old, archaeology (stone tools, stone walled sites, prehistoric and historic pottery sherds, ash grounds etc.) and palaeontology (fossils of plant and animal material).

Final Comment

The land in which the new filling station is proposed to be located has been disturbed and heritage resources and palaeontological resources located on the land will be of low significance. Thus SAHRA exempts this proposed filling station from conducting a Heritage Impact Assessment as well as a Palaeontological Impact Assessment.

- If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments and charcoal/ash concentrations), fossils or other categories of heritage resources are found during the proposed activities, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings.

- If the newly discovered heritage resources prove to be of archaeological or palaeontological significance a



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Department of Arts and Culture

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Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 8771

Date: Tuesday January 26, 2016
Page No: 2

Phase 2 rescue operation might be necessary, and a permit will be needed before mitigation. You may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/Phillip Hine 021 202 8652),

- and if any unmarked human burials are uncovered then please contact the SAHRA Burial Grounds and Graves Unit (Mimi Seetelo 012 320 8490).

All the recommendations and conditions within this comment should be incorporated into the Environmental Management Program report (EMPr) for implementation.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Nokukhanya Khumalo
Heritage Officer
South African Heritage Resources Agency

ADMIN:

Direct URL to case: <http://www.sahra.org.za/node/344341>
(MDARDLA, Ref:)

Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.



an agency of the
Department of Arts and Culture

T: +27 21 462 4502 | F: +27 21 462 4509 | E: info@sahra.org.za
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Enquiries: Nokukhanya Khumalo
Tel: 021 462 4502
Email: nkhumalo@sahra.org.za
CaseID: 8771

Date: Tuesday January 26, 2016
Page No: 3

-
2. If any heritage resources, including graves or human remains, are encountered they must be reported to SAHRA immediately.
3. SAHRA reserves the right to request additional information as required.

From: ben@bokamoso.net
Sent: 25 November 2015 05:30 PM
To: juanita; nico
Cc: info
Subject: FW: Clewer Filling Station Development
Attachments: Landowner & Tenants Letter 1.pdf; Clewer Filling Station Notification Acknowledgement.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Juanita and Nico,

Please see below and attached FYI.

Also please assist with following up in this regard. Thank you

Kind Regards,

Ben Bhukwana

Landscape and Environmental Consultant



**Landscape Architects &
Environmental Consultants cc**

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Please consider the environment before printing this email

From: ben@bokamoso.net [mailto:ben@bokamoso.net]
Sent: Wednesday, November 25, 2015 12:09 PM
To: 'cfspetroleum@gmail.com'
Cc: info
Subject: Clewer Filling Station Development

Good day Tariq,

On the 12th of November 2015 we conducted the Public Participation (PP) for the above mentioned project.

We explained to you the processes regarding the PP and the project details for the proposed development. In terms of Regulation No. R982 published in the Government Notice No. 38282 of 4 December 2014 of the National Environment Management Act, 1998 (Act No. 107 of 1998) governing Basic Assessment Procedures (Notice 1 –

Governing Notice R983) of the 2014 amended NEMA Regulations, the EAP must inform all landowners and tenants within a 100m radius from the study area of the proposed development. But you requested that we don't hand the attached Notices to your tenants and that you will do it yourself. We then handed you several copies of Notices in order for you to hand them to your tenants as requested by you. We will however require proof (similar to the attached acknowledgement of receipt) that you supplied the notices to the tenants of your property.

Do not hesitate to contact me for any queries in this regard. Thank you.

Kind Regards,

Ben Bhukwana

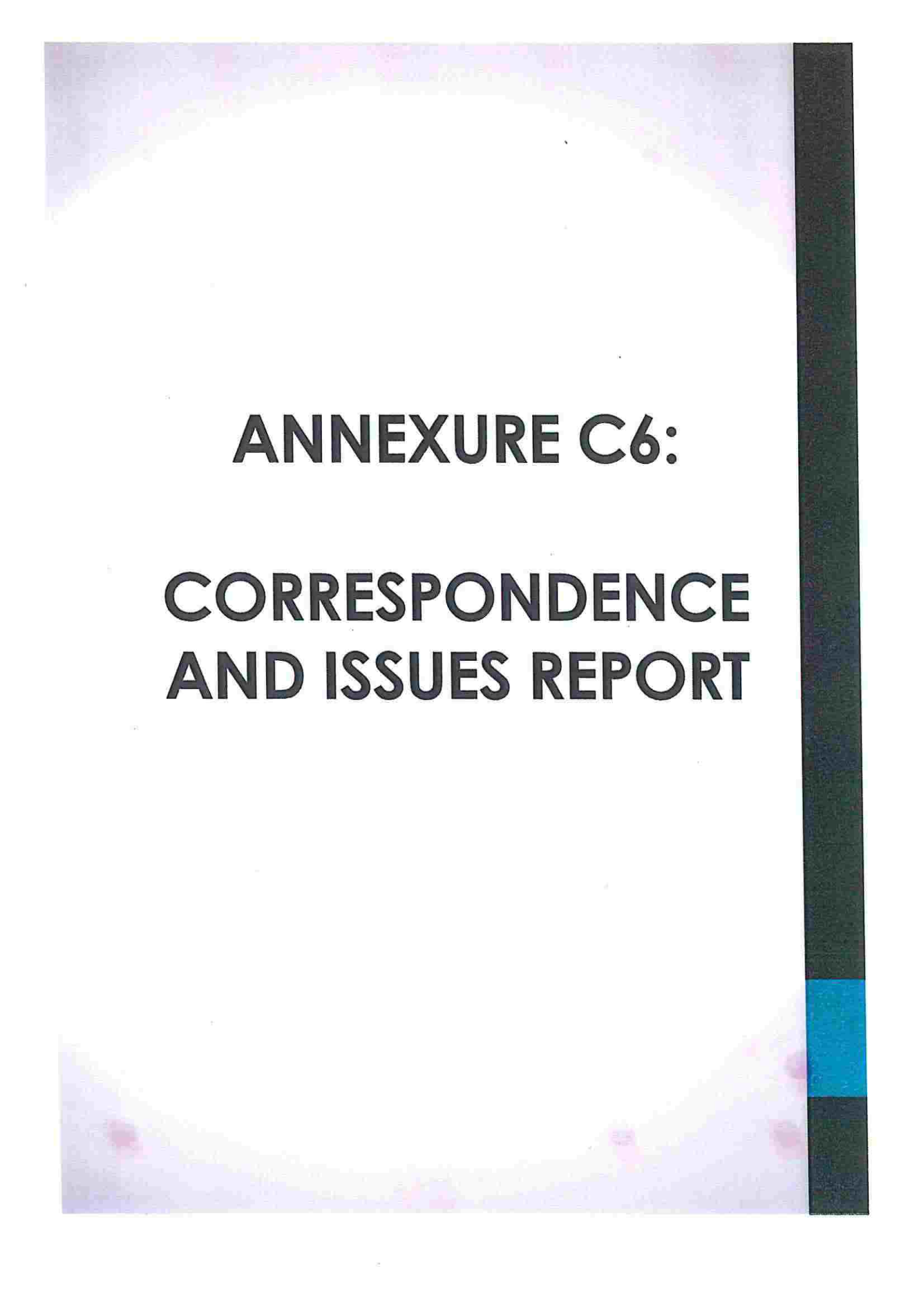
Landscape and Environmental Consultant



**Landscape Architects &
Environmental Consultants cc**

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36 Lebombo Road, Ashlea Gardens, Pretoria | P.O. Box 11375 Maroelana 0161

Please consider the environment before printing this email



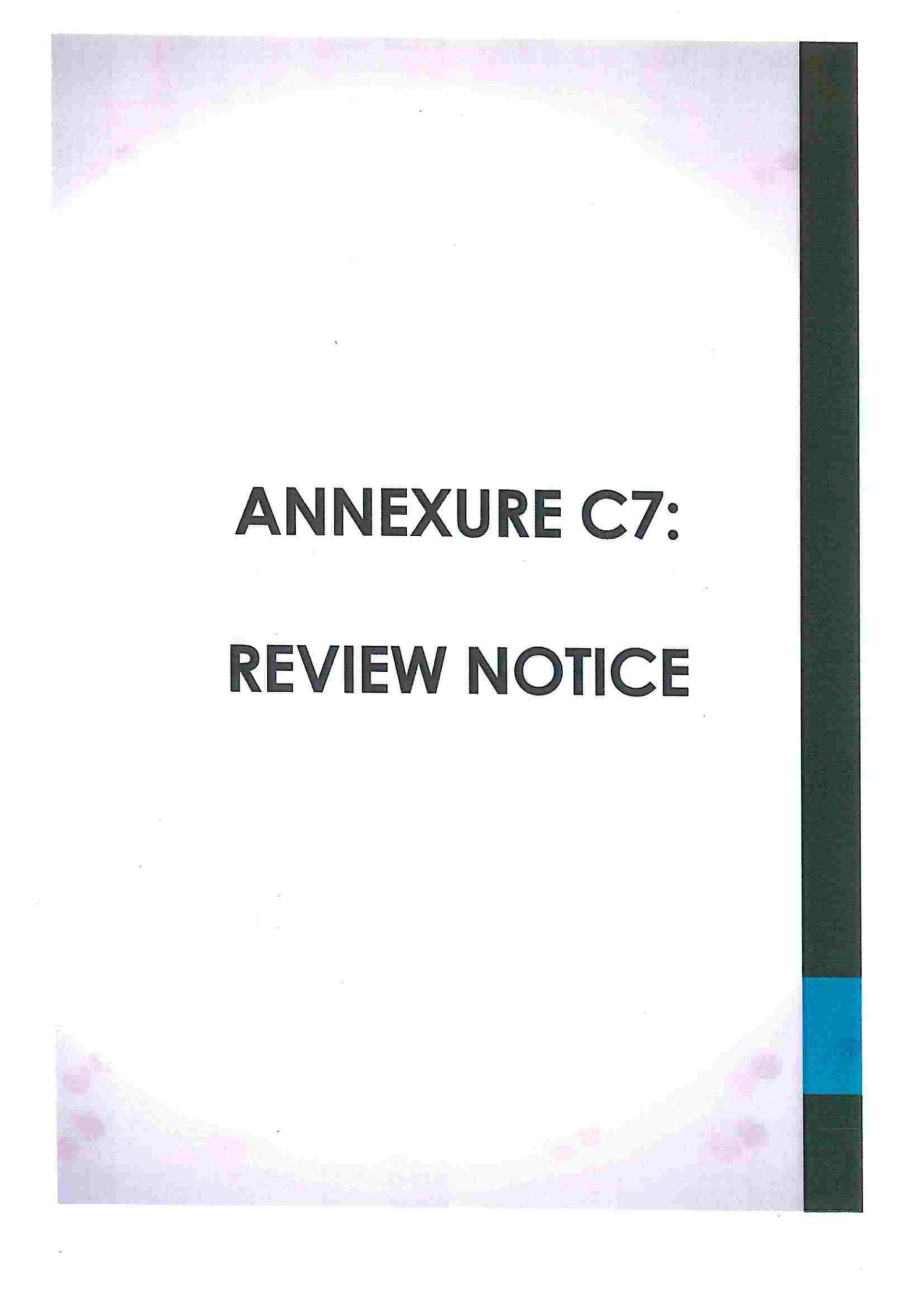
ANNEXURE C6:

**CORRESPONDENCE
AND ISSUES REPORT**

**COMMENT AND RESPONSE REPORT-
FOR THE PROPOSED SCHOONGEZICHT – CLEWER FILLING STATION PROJECT.**

Issue	Commentator	Response
After Draft Basic Assessment Review Process		
<p>Please register Erasmus Attorneys as an I&AP in the aforementioned process.</p> <p>CFS Petroleum cc is proposing to decommission an existing filling station and construct a new filling station on larger footprint of land of the existing one. The filling station will have 5 pump areas and 5 tanks underground with a capacity of 23 000 l, and a store the total extent of the project is .6 ha. It is located on the remainder of Portion 16 of the farm Schoongezicht 308 JS, Emalahleni Local Municipality, Mpumalanga Province.</p> <p>Under sections 34, 35 and 36 of the National Heritage Resources Act (25 of 1999) heritage resources are protected. These resources are for instance burial grounds, unmarked and marked graves that are older than 60 years, built structures that are older than 60 years old, archaeology (stone tools, stone walled sites, prehistoric and historic pottery sherds, ash grounds etc.) and palaeontology (fossils of plant and animal material).</p>	<p>Kallie Erasmus kallie@erasmuslaw.com Erasmus Attorneys</p>	<p>Thank you for your response, we have registered you as Interested and/or Affected Party Member for the proposed Clewer Filling Station Project.</p> <p>We will keep you updated regarding the process in the future.</p> <p>Please note that the Draft Basic Assessment Report for the proposed Clewer Filling Station is available for review on our website: www.bokamoso.biz from 11 December 2015 – 1 February 2016 (Excluding 15 December 2015 – 5 January 2016).</p>
	<p>Nokukhanya Khumalo nkhumalo@sahra.org.za Sahra</p>	<p>Thank you for your comments.</p> <p>If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments and charcoal/ash concentrations), fossils or other categories of heritage resources are found during the proposed activities, a professional archaeologist or palaeontologist, depending on the nature of the finds. Will be contacted as soon as possible to inspect the</p>

<p>Final Comment The land in which the new filling station is proposed to be located has been disturbed and heritage resources and palaeontological resources located on the land will be of low significance. Thus SAHRA exempts this proposed filling station from conducting a Heritage Impact Assessment as well as a Palaeontological Impact Assessment.</p> <ul style="list-style-type: none"> - If any evidence of archaeological sites or remains (e.g., remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments and charcoal/ash concentrations), fossils or other categories of heritage resources are found during the proposed activities, a professional archaeologist or palaeontologist, depending on the nature of the finds. Must be contacted as soon as possible to inspect the findings. - If the newly discovered heritage resources prove to be of archaeological or palaeontological significance a Phase 2 rescue operation might be necessary, and a permit will be needed before mitigation. You may contact SAHRA APM Unit for further details: (Nokukhanya Khumalo/Phillip Hine 021 202 8652). - And if any unmarked human burials are uncovered then please contact the SAHRA Burial Grounds and Graves Unit (Mimi Seetelo 012 320 8490). <p>All the recommendations and conditions within this comment should be incorporated into the Environmental Management Program report (EMPr) for implementation.</p> <p>Should you have any further queries, please contact the designated official using the case number quoted above in the case header.</p>	<p>findings.</p> <p>Should any unmarked human burials be uncovered SAHRA will be notified immediately.</p> <p>All the recommendations and conditions are incorporated into the Environmental Management Program.</p>



ANNEXURE C7: REVIEW NOTICE

juanita@bokamoso.net

From: juanita@bokamoso.net
Sent: 11 December 2015 01:42 PM
To: 'jgrobler@geoscience.org.za'; 'asalomon@sahra.org.za'; bmoduka; ShabanguS2; koleskym; 'central@eskom.co.za'; 'paia@eskom.co.za'; schmidk; 'vanAswegenJ@dws.gov.za'; info; ifrah; nkabindeej@emalahleni.gov.za; Malatjielm@nkangaladm.gov.za; 'loveous.tampane@transnet.net'; jane@dampu.co.za; kallie@erasmuslaw.com; vumendlinisw@emalahleni.gov.za; vsw@webmail.co.za
Subject: Clewer Filling Station - Review Notice

Dear Interested and/or Affected Party Members,

Please note that the Draft Basic Assessment Report for the proposed **Clewer Filling Station** will be available for review on our website: www.bokamoso.biz from Today, 11 December 2015 – 1 February 2016 (Excluding 15 December 2015 – 5 January 2016).

Kind Regards/Vriendelike Groete

Juanita De Beer

Junior Environmental Consultant & Public Participation Consultant



**Landscape Architects &
Environmental Consultants**

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ANNEXURE D:

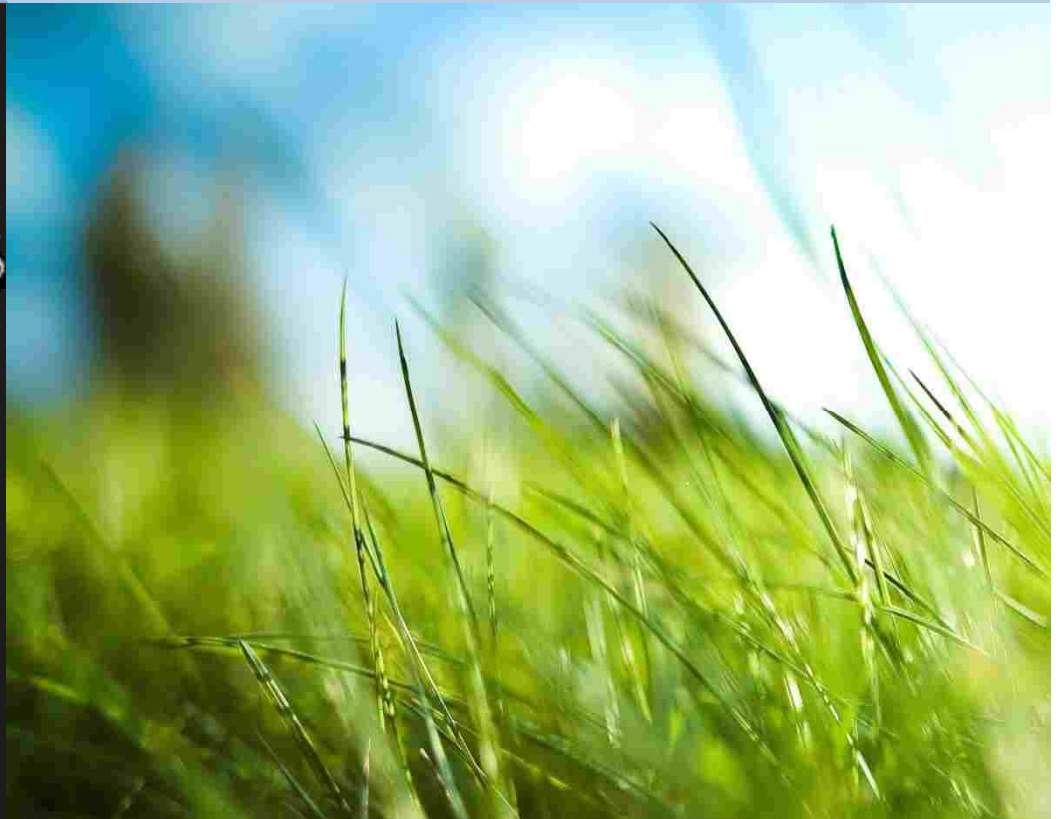
**ENVIRONMENTAL
MANAGEMENT
PROGRAMME**

FINAL ENVIRONMENTAL MANAGEMENT PROGRAMME

CLEWER FILLING STATION

Portion 16 of the Farm

Schoongezicht 308 JS



BOKAMOSO

LANDSCAPE ARCHITECTS &
ENVIRONMENTAL CONSULTANTS CC

P.O. BOX 11375

MAROELANA

0161

TEL: (012) 346 3810

Fax: 086 570 5659

Email: Lizelle@mweb.co.za

June 2016

Gaut reference: 17/2/3N-411

Final Environmental Management Programme

**Proposed Decommissioning and re-construction of the Clewer
filling station on Portion 16 of the Farm Schoongezicht 308 JS**

June 2016

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1. Project Outline

Clewer Filling Station CC is planning to decommission the current filling station located on the Remainder of Portion 16 of the Farm Schoongezicht 308 JS and construct a new filling station and associated infrastructure on the existing footprint. The study area is located in Clewer, Witbank (Emalahleni) just south of the N1 – Matthews Phosa/R104 off-ramp and to the north of Collins Avenue. **Refer to Figure 1: Locality Map and Figure 2: Aerial Map of proposed Filling Station.**

The study area is approximately **0.6 ha** in extent and is situated within the municipal area of **Emalahleni** and within the **Nkangala District Municipality, Mpumalanga Province.**

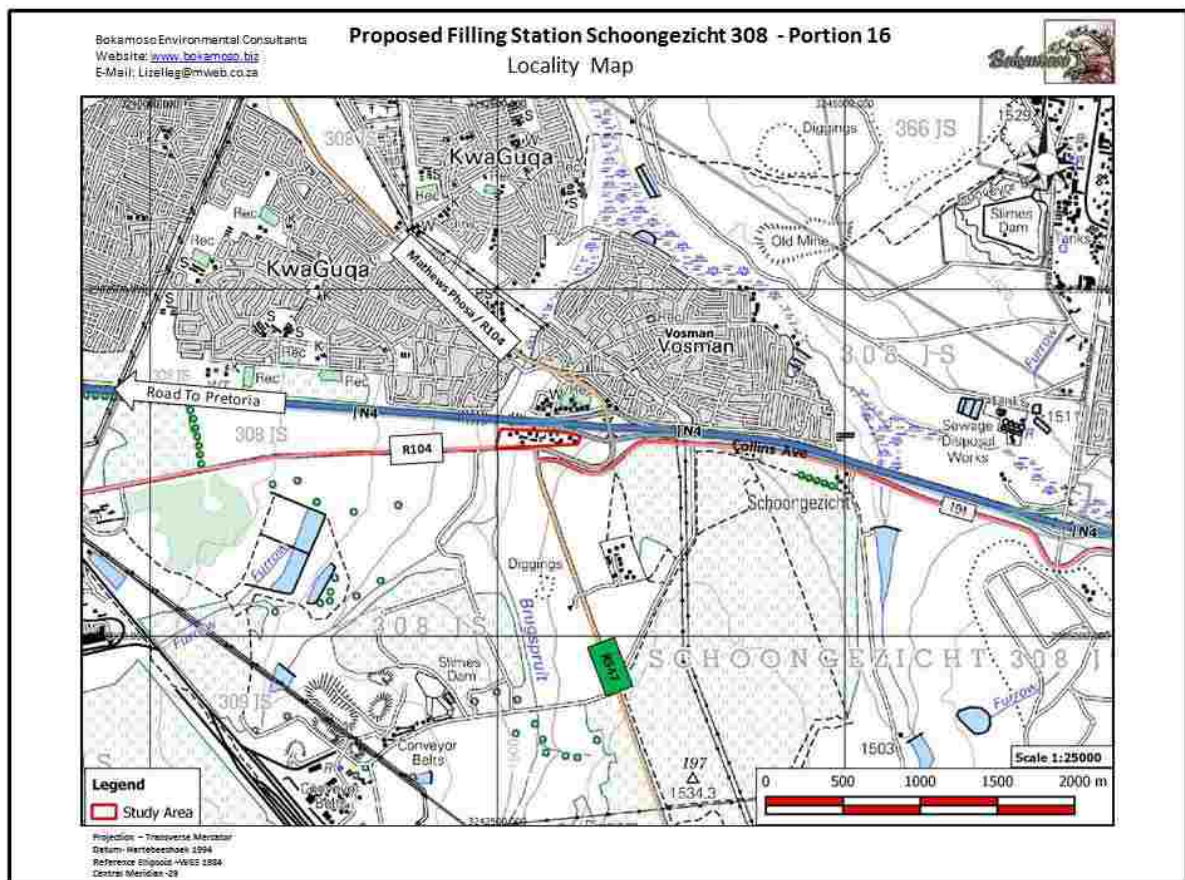


Figure 1: Locality Map

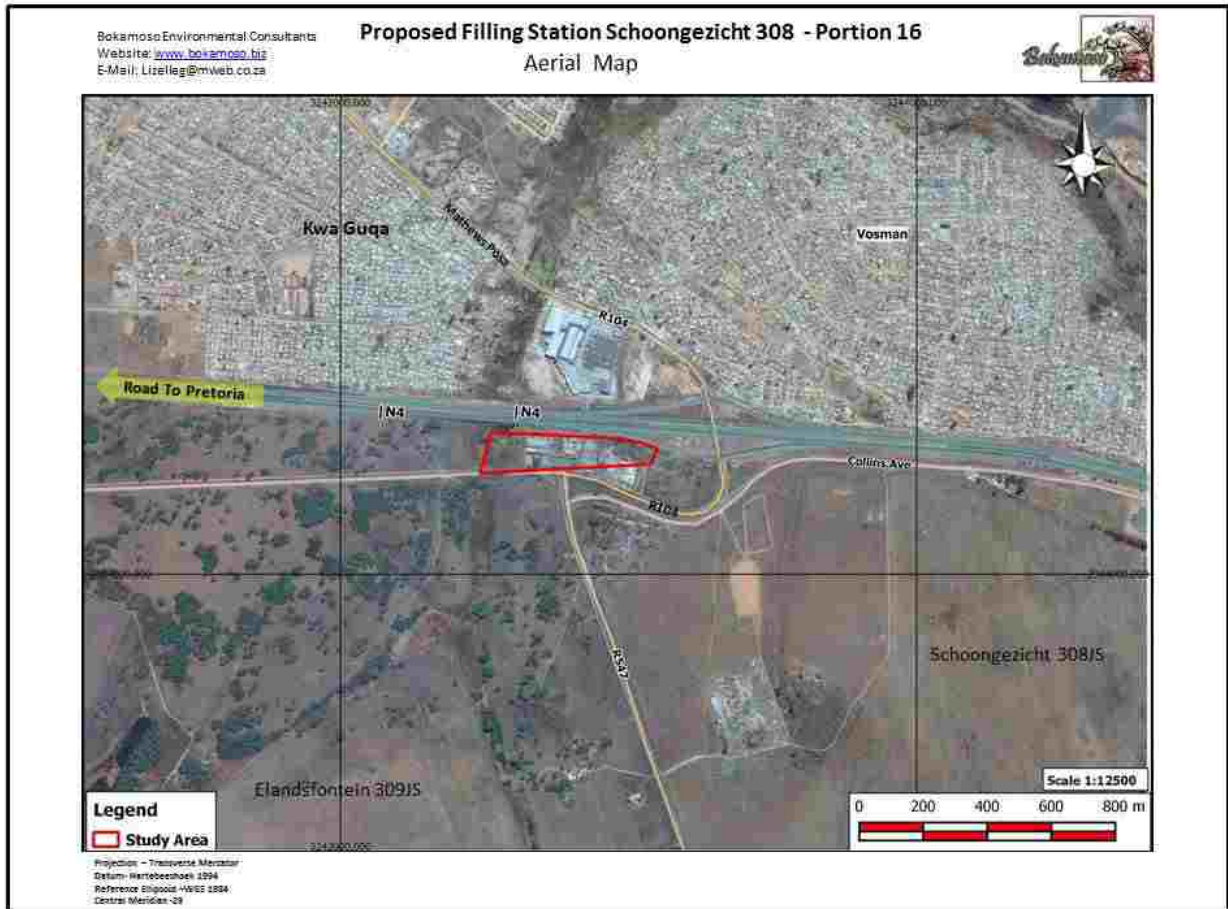


Figure 2: Aerial Map

The study area is strategically situated just south of the N1 – Matthews Phosa/R104 off-ramp and to the north of Collins Avenue. The immediate surrounding area consists of small scale holdings and agricultural ventures. Evraz Highveld Steel and Vanadium is located approximately 3 km south-west of the site. The Kwa Guqa settlement is located to the north and the Kwa Guqa Mall directly adjacent to the site across the N4 highway. A pedestrian bridge traverses the N4 connecting the site directly with the Kwa Guqa settlement (See Figure 3 and photographs below).

The proposed project will entail the decommissioning of the existing filling station and the construction of a new filling station, consisting of five Pump Islands (steel canopy covered) and five underground tanks each with a 23 000 litre capacity, as

well as a convenience store 200 m² in size. The existing filling station is dilapidated and no longer in use.

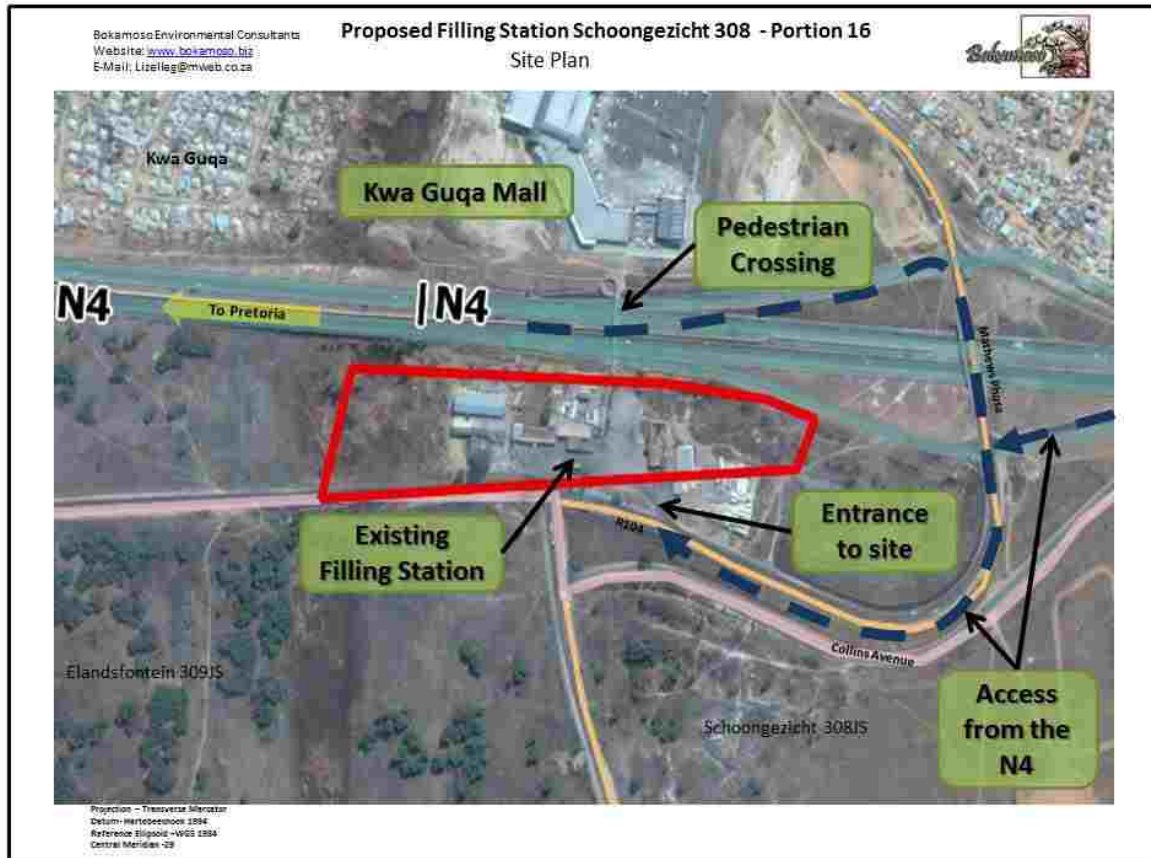


Figure 3: Site Plan

Timeframe for construction:

The proposed development will commence as soon as approval for the proposed development has been secured from the relevant authorities.

The EMPr will be a binding document for purposes of compliance.

2. Receiving Environment

Geology:

According to available geological maps the study area is underlain by sandstone and siltstone of the Vryheid Formation, Ecca Group, Karoo Supergroup. This was confirmed during the investigation by Johann van der Merwe. The investigation also indicated that the site is covered by colluvial sandy and gravelly soils. No outcrops were observed in the vicinity of the site during the investigation. **Refer to Appendix B of the Final Basic Assessment Report.**

Geotechnical Considerations and implications for the development:

- **Expansive soils**

The site soils are sandy and gravelly and are potentially "low" in the degree of expansiveness. A total surface heave value of less than 7 mm is predicted across the site should the moisture condition of the soils change from desiccate to saturated.

- **Compressive soils**

The upper in situ sandy and gravelly horizons materials are considered to be potentially compressible.

- **Excavation characteristics**

No problems should be experienced in excavating the site soils down to a depth of at least 3.0 m below surface across the property. The sidewalls of excavations in the coarse sandy soils will tend to become unstable after a while, upon drying out, causing a loss of cohesion and shear strength.

- **Foundations**

The site is underlain by potentially collapsible and compressible soils.

Ground Water and Soil chemistry - Considerations and implications for the development:

- **Ground water seepage**

Ground water seepage was encountered during the investigation and thus proper damp proofing precautions should be taken underneath structures, a subsurface drainage system should be considered in the forecourt area. The design of underground containers should take cognisance of the presence of a shallow water table which will hamper construction activities, causing sidewall instabilities of deep excavations.

- **Soil chemistry**

The site soils are considered to be potentially **highly chemically aggressive** with regards to underground ferrous metal pipes. Tanks and non-ferrous metal or plastic pipes or containers are therefore recommended for underground services.

The investigation shows that the groundwater is potentially **highly corrosive** towards steel and concrete.

- **Fuel Contamination**

Severe visual and olfactory evidence of **subsoil fuel contamination** was detected during the investigation. The design of the proposed underground tanks should take cognisance of the possible presence of a **perched water table** during the wet season. Any surface or subsurface contamination could cause serious damage to the underground water regime. A competent person should inspect the site during the “tank yank” and any contaminated soil should either be discarded in a proper fashion or be re-mediated on site. It is recommended that a **hydrogeological investigation** be carried out prior to the installation of new fuel tanks.

- **Earthworks**

It is evident that the blanketing fill and in situ sandy and gravelly soils should be suitable for use as fill underneath surface beds and for use as selected layers and lower subbase material. The quality of the imported fill is somewhat

variable and caution should be exercised during the selection and placement of construction material. Material for the construction of upper subbase layers will have to be imported and cognisance should be taken of the potentially collapsible nature of the upper soil horizons in the design of paved areas.

It is recommended that the excavations for foundations be inspected by a competent person during construction in order to verify that the exposed materials are not at variance with those described in the report. The placement of the fill must be controlled with suitable field tests to confirm that the required densities are achieved during compaction and that the quality of fill material is within specification.

Hydrology:

The study area is not affected by any rivers or wetlands

Fauna and flora:

The site is currently built up and the proposed filling station development will not exceed the current footprint. No sensitive fauna and flora were thus identified and the study area is not regarded as sensitive.

Cultural /Historical:

No cultural and historical features were identified on the study area.

Visual:

Due to the topography the proposed development will have some visual impact and it will be visible from the N4 Highway.

Noise:

- Noise impacts from normal construction works.
- The operational phase will not have a significant noise impact on the surrounding properties.

Dust:

- Dust could have an impact on the surrounding residences if the construction takes place during the dry and windy months. It is proposed that regular damping down of the study area be done if construction takes place during dry and windy months.

Light:

- The lights from the proposed development could have an impact on the surrounding residents.

3. EMPr Objectives and context

Objectives

The objectives of this programme are to:

- Identify the possible environmental impacts of the proposed activity;
- Develop measures to minimise, mitigate and manage these impacts;
- Meet the requirements of the Record of Decision of MDARDLEA and other Authorities; and
- Monitor the project.

EMPr context

This EMPr fits into the overall planning process of the project by carrying out the conditions of consent set out by the MDARDLEA. In addition, all mitigation measures recommended in the Basic Assessment Report are included in the EMPr.

This EMPr addresses the following four phases of the development:

- Pre-construction planning phase;
- Construction phase;
- Operational phase; and
- Decommissioning phase.

4. Monitoring

In order for the EMPr to be successfully implemented all the role players involved must have a clear understanding of their roles and responsibilities in the project.

These role players may include the Authorities (A), other Authorities (OA), Developer/proponent (D), Environmental Control Officer (ECO), Project Manager (PM), Contractors (C), Environmental Assessment Practitioner (EAP) and Environmental Site Officer (ESO). Landowners, Interested and Affected Parties and the relevant environmental and project specialists are also important role players.

4.1 Roles and responsibilities

Developer (D)

The developer is ultimately accountable for ensuring compliance with the EMPr and conditions contained in the RoD. The developer must appoint an independent Environmental Control Officer (ECO), for the duration of the pre-construction and construction phases, to ensure compliance with the requirements of this EMPr. The developer must ensure that the ECO is integrated as part of the project team.

Project Manager (PM)

The project Manager is responsible for the coordination of various activities and ensures compliance with this EMPr through delegation of the EMPr to the contractors and monitoring of performance as per the Environmental Control Officer's monthly reports.

Environmental Control Officer (ECO)

An independent Environmental Control Officer (ECO) shall be appointed, for the duration of the pre-construction and construction phase of the services and bulk infrastructure, by the developer to ensure compliance with the requirements of this EMPr.

Contact details of appointed ECO

ECO details will be available as soon as developer appointed a company.

- The Environmental Control Officer shall ensure that the contractor is aware of all the specifications pertaining to the project.
- Any damage to the environment must be repaired as soon as possible after consultation between the Environmental Control Officer, Consulting Engineer and Contractor.
- The Environmental Control Officer shall ensure that the developer staff and/or contractor are adhering to all stipulations of the EMPr.
- The Environmental Control Officer shall be responsible for monitoring the EMPr throughout the project by means of site visits and meetings. This should be documented as part of the site meeting minutes.
- The Environmental Control Officer shall be responsible for the environmental training program.

- The Environmental Control Officer shall ensure that all clean up and rehabilitation or any remedial action required, are completed prior to transfer of properties.
- A post construction environmental audit is to be conducted to ensure that all conditions in the EMPr have been adhered to.

Contractor (C):

The contractors shall be responsible for ensuring that all activities on site are undertaken in accordance with the environmental provisions detailed in this document and that sub-contractor and laborers are duly informed of their roles and responsibilities in this regard.

The contractor will be required, where specified to provide Method Statements setting out in detail how the management actions contained in the EMPr will be implemented.

The contractors will be responsible for the cost of rehabilitation of any environmental damage that may result from non-compliance with the environmental regulations.

Environmental Site Officer (ESO):

The ESO is appointed by the developer as his/her environmental representative to monitor, review and verify compliance with the EMPr by the contractor. The ESO is not an independent appointment but must be a member of the contractor's management team. The ESO must ensure that he/she is involved at all phases of the construction (from site clearance to rehabilitation).

Authority (A):

The authorities are the relevant environmental department that has issued the Environmental Authorisation. The authorities are responsible for ensuring that the

monitoring of the EMPr and other authorization documentation is carried out by means of reviewing audit reports submitted by the ECO and conducting regular site visits.

Other Authorities (OA):

Other authorities are those that may be involved in the approval process of the EMPr.

Environmental Assessment Practitioner (EAP):

According to section 1 of NEMA the definition of an Environmental Assessment Practitioner is "the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instruments through regulations".

4.2 Lines of Communication

The Environmental Control Officer in writing should immediately report any breach of the EMPr to the Project Manager. The Project Manager should then be responsible for rectifying the problem on-site after discussion with the contractor. Should this require additional cost, then the developer should be notified immediately before any additional steps are taken.

4.3 Reporting Procedures to the Developer

Any pollution incidents must be reported to the Environmental Control Officer immediately (within 12 hours). The Environmental Control Officer shall report to the Developer on a regular basis (site meetings).

4.4 Site Instruction Entries

The site instruction book entries will be used for the recording of general site instructions as they relate to the works on site. There should be issuing of stop work order for the purposes of immediately halting any activities of the contractor that may pose environmental risk.

4.5 ESA/ESO (Environmental Site Officer) Diary Entries

Each of these books must be available in duplicate, with copies for the Engineer and Environmental Site Officer. These books should be available to the authorities for inspection or on request. All spills are to be recorded in the ESA/Environmental Site Officer's diary.

4.6 Methods Statements

Methods Statements from the contractor will be required for specific sensitive actions on request of the authorities or ESA/ESO (Environmental Site Officer). All Method Statements will form part of the EMPr documentation and are subject to all terms and conditions contained within the EMPr document. For each instance wherein it is requested that the contractor submit a method statement to the satisfaction of ESA/ESO, the format should clearly indicate the following:

- What? – a brief description of the work to be undertaken;
- How?- a detailed description of the process of work, methods and materials;
- Where?- a description / sketch map of the locality of work; and
- When?- the sequencing of actions with due commencement dates and completion date estimate.

The contractor must submit the Method Statement before any particular construction activity is due to start. Work may not commence until the method statement has been approved by the ESA/ESO.

4.7 Record Keeping

All records related to the implementation of this Management Programme (e.g. site instruction book, ESA/ESO diary, Methods Statements etc.) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for two years at any time be available for scrutiny by any relevant authorities.

5. Legislation

5.1 The National Water Act, 1998 (Act No: 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- ❑ Meeting the basic human needs of present and future generations;
- ❑ Promoting equitable access to water;
- ❑ Promoting the efficient, sustainable and beneficial use of water in the public interest;
- ❑ Reducing and preventing pollution and degradation of water resources;
- ❑ Facilitating social and economic development; and
- ❑ Providing for the growing demand for water use.

Impact on proposed Development:

Not Significant – The study area is not affected by a 1:50 and 1:100 year flood line. A Section 21 WULA is not required.

5.2 Atmospheric Pollution Prevention Act (Act 45 of 1965)

The purpose of the Act is “To provide for the prevention of the pollution of the atmosphere, for the establishment of a National Air Pollution Advisory Committee, and for matters incidental thereto”.

The Atmospheric Pollution Prevention Act was traditionally administered by the Department of Health until 1995, when it was transferred to the jurisdiction of the Department of Environmental Affairs and Tourism. The Act controls four forms of air pollution:

- ❑ Part II Noxious or Offensive gases
- ❑ Part III Atmospheric Pollution by Smoke
- ❑ Part IV Dust Control
- ❑ Part V Air Pollution by Fumes Emitted by Vehicles

Impact on proposed Development:

Significant – Parts IV and V of the Act have relevance to the proposed development. It is not foreseen that the proposed filling station would contribute significantly in terms of pollution by smoke. Dust pollution could be a concern primarily during the construction phase of the proposed project. Dust control would be adequately minimised during this phase by way of water spraying and possible dust-nets, when working close to existing residential dwellings.

5.3 National Environmental Management Act (Act 107 of 1998)

The NEMA is primarily an enabling Act in that it provides for the development of environmental implementation plans and environmental management plans. The principles listed in the act serve as a general framework within which environmental management and implementation plans must be formulated.

The principles in essence state that environmental management must place people and their needs at the forefront of its concern and that development must be socially, environmentally and economically sustainable.

Impact on proposed Development:

Significant – The proposed filling station development is listed under the activities as regulated under NEMA.

5.4 The Municipal Systems Act (Act 32 of 2000)

This Act was introduced to provide for the core principles, mechanisms and processes that are necessary to enable municipalities to move progressively towards the social and economic upliftment of local communities, and ensure universal access to essential services that are affordable to all.

Impact on proposed Development:

Not Significant – The local municipality will provide the necessary services for the proposed development.

5.5 National Veld and Forest Fire Act, 1998 (Act No. 101, 1998)

The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout the Republic. Furthermore the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

Impact on proposed Development:

Significant – Fires of construction workers may only be lit in the designated site camp as indicated in assistance with the ECO. It is important that a site development camp be located on a part of the application site that is already disturbed. The camp should not be located in close proximity of natural veld grass areas or the drainage channel which connects to the surrounding open spaces in the direct vicinity.

5.6 National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004)

The purpose of the Biodiversity Act is to provide for the management of South Africa's biodiversity within the Framework of the NEMA and the protection of species and ecosystems that warrant National protection. As part of the implementation strategy, the National Spatial Biodiversity Assessment was developed.

Impact on proposed Development:

Not significant – No red listed plant species were identified. The site is currently built up.

5.7 National Spatial Biodiversity assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

Impact on proposed Development:

Not significant – No red listed plant species were identified. The site is currently built up.

5.8 National Road Traffic Act, 1996 (Act No. 93 of 1996)

This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

Not Significant – the proposed filling station development will comply with the National Road Traffic Act

5.9 Environmental Conservation Act: Noise Regulations, 1989 (Act no.73 of 1989)

The purpose of this Act is to provide measures and management relating Noise levels. This Act enables Noise levels to be acceptable to standards within a specific area and community.

Impact on proposed Development:

Significant – The proposed development may include some noisy activities.

6. Project activities

6.1 Pre-Construction Phase

Table 1: Impacts and Mitigation measures – Pre-construction Phase

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
General	Project contract	To make the EMPr enforceable under the general conditions of the contract.	The EMPr document must be included as part of the tender documentation for all contractor appointments	The EMPr is included as part of the tender documentation.	Developer	-
	Storm water design	To prevent and restrict erosion, siltation and groundwater pollution.	<p>1) A detailed Storm Water Management Plan must be approved by the Local Authority prior to commencement of construction activities. Must be implemented according to guidelines provided by the relevant Local Authority Departments.</p> <p>2) The storm water design for the proposed development must be designed to: Reduce and/ or prevent siltation, erosion and water pollution.</p> <p>3) Storm water runoff should not be concentrated as far as possible and sheet flow should be implemented.</p> <p>5) Energy dissipaters must be installed</p>	Compilation and approval of Storm water Management Plan.	Engineer Individual Developer	-

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>on the study area to break the speed of the water.</p> <p>6) Surface storm water generated as a result of the development must not be channeled directly into any natural drainage system or wetland.</p> <p>7) The Storm Water Management Plan should be designed in a way that aims to ensure that post development runoff does not exceed predevelopment values in:</p> <ul style="list-style-type: none"> - Peak discharge for any given storm; - Total volume of runoff for any given storm; - Frequency of runoff; and - Pollutant and debris concentrations reaching water courses. 			
			<p>Stormwater management on site and around all fuel/oil bearing infrastructure should aim the fast and efficient disposal of water into the surrounding and existing drainage systems.</p>	<p>Compilation and approval of Storm Water Management Plan.</p>	<p>Engineer Individual Developer</p>	
	<p>Light pollution</p>	<p>To minimise light pollution</p>	<p>Street and security lighting must be designed in order not to spread light into the eyes of oncoming traffic on adjacent the N4 Platinum Highway.</p>	<p>Lightning effectively designed.</p>	<p>Architect</p>	<p>-</p>

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			Internal streets and security lighting should also be designed not to disturb residents at night. Light beams must face downwards and not higher than a 45 degree angle from the ground.			
Climate	Extreme change in micro climate temperatures	To prevent the extreme change in micro climate temperatures.	Where open parking bays are involved, at least one indigenous tree for every two open parking bays shall be indicated on the Site Development Plan which shall be approved by the Local Authority and Design Review Committee, if any.	Landscape Development Plan complies	Landscape Architect	-
Fauna and flora	Floral biodiversity and ecological health	To ensure that the species introduced to the area, are compatible with the current and future quality of the ecological processes.	1) The Landscape Development Plan (LDP) for the proposed development shall be submitted to the local authority for approval. 2) The LDP should include all formal landscaping including proposed plant species, quantities, sizes and densities. At least 80% of the plant species on site should be indigenous or endemic species.	The Landscape Development Plan submitted to the local authority for approval.	Landscape Architect	-
Preparing Site Access	Environmental integrity	To avoid erosion and disturbance to	Designated routes shall be determined for the construction vehicles and designated areas for storage of equipment.	Access to site is erosion free. Minimum	Contractor	Continuous

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
		indigenous vegetation.	Clearly mark the site access point and routes on site to be used by construction vehicles and pedestrians. Provide an access map to all contractors whom in turn must provide copies to the construction workers. Instruct all drivers to use access point and determined route.	disturbance to surrounding vegetation. Vehicles make use of established access routes.		
	Waste storage	To control the temporary storage of waste.	Temporary waste storage points on site shall be determined. These storage points shall be accessible by waste removal trucks and these points should not be located in sensitive areas/areas highly visible from the properties of the surrounding land-owners/tenants/in areas where the wind direction will carry bad odours across the properties of adjacent tenants or landowners.		Contractor ESO	-
		Ensure waste storage area does not generate pollution.	Build a bund around waste storage area to stop overflow into storm water.		Contractor	-

6.2 Decommissioning Phase

Table 2: Impacts and Mitigation measures – Decommissioning Phase

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
Contractor's Camp	Loss of Vegetation and Topsoil.	To minimize damage to and loss of vegetation and retain quality of Topsoil.	1) Site to be established under supervision of ECO/ESO.	Minimal vegetation removed/damaged during site activities.	Contractor	Before any construction activity commences and as and when required
	Surface and ground water pollution.	To minimize pollution of surface and groundwater resources.	1) Sufficient and temporary facilities including ablution facilities must be provided for construction workers operating on the site. 2) A minimum of one chemical toilet shall be provided per 10 construction workers. The contractor shall keep the toilets in a clean, neat and hygienic condition. Toilets provided by the contractor must be easily accessible and a maximum of 50 m from the works area to ensure they are utilized. The contractor (who must use reputable toilet-servicing	Effluents managed Effectively. No pollution of water resources from site. Workforce use toilets provided.	Contractor ESO	As and when required

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>company) shall be responsible for the cleaning, maintenance and servicing of the toilets. The contractor (using reputable toilet-servicing company) shall ensure that all toilets are cleaned and emptied before the builders' or other public holidays.</p> <p>3) No person is allowed to use any other area than chemical toilets.</p> <p>5) No chemical or waste water must be allowed to contaminate the run-off on site. This could possibly contaminate the drainage channel.</p> <p>6) Avoid the clearing of the site camp (of specific phase) or paved surfaces with soap. This could drain into the drainage channel on site and contaminate to open space system in the area.</p>			
		To minimize pollution of surface and groundwater resources due to spilling of materials.	<p>1) Drip trays and/ or lined earth bunds must be provided under vehicles and equipment, to contain spills of hazardous materials such as fuel, oil and cement.</p> <p>2) Repair and storage of vehicles</p>	No pollution of the environment	Contractor ESO	Daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>only within the demarcated site area.</p> <p>3) Spill kits must be available on site.</p> <p>4) Oils and chemicals must be confined to specific secured areas within the site camp. These areas must be bunded with adequate containment (at least 1.5 times the volume of the fuel) for potential spills or leaks.</p> <p>5) All spilled hazardous substances must be contained in impermeable containers for removal to a licensed hazardous waste site.</p> <p>6) No leaking vehicle shall be allowed on site. The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof.</p> <p>7) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site.</p>			

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
		To minimize pollution of surface and Groundwater resources due to effluent.	No effluent (including effluent from any storage areas) may be discharged into any water surface or ground water resource.	No evidence of contaminated water resources.	Contractor ESO	Daily
			Groundwater monitoring boreholes should be installed on the groundwater down side.	Groundwater monitoring boreholes installed	Engineer Contractor	
		To minimize pollution of surface and Groundwater resources due leaking equipment.	Leak detection facilities must be installed around the storage tanks and vapour samples must be taken according to a six monthly monitoring programme.	Leak detection facilities installed	Engineer Contractor	
		To prevent ingress of contaminated water into the ground.	All surface areas utilized for the proposed storage tanks and peripheral infrastructure must be appropriately paved.	Areas paved	Contractor	
		To prevent spillages.	All pipes and connections to the proposed tanks must be provided with flexible coupling.	Flexible couplings provided	Contractor	
		To prevent spillages.	All fuel dispensers must include a shut-off valve.	Shut-off valve in fuel	Developer Contractor	

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
				dispensers.		
	Pollution of the environment	To prevent unhygienic usage on the site and pollution of the natural assets.	<p>1) Weather proof waste bins must be provided and emptied regularly.</p> <p>2) The contractor shall provide laborers to clean up the contractor's camp and construction site on a daily basis.</p> <p>3) Temporary waste storage points on the site should be determined. THESE AREAS SHALL BE PREDETERMINED AND LOCATED IN AREAS THAT IS ALREADY DISTURBED. These storage points should be accessible by waste removal trucks and these points should be located in already disturbed areas /areas not highly visible from the properties of the surrounding land-owners/ in areas where the wind direction will not carry bad odours across the properties of adjacent landowners. This site should comply with the following:</p> <ul style="list-style-type: none"> • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, 	<p>No waste bins overflowing</p> <p>No litter or building waste lying in or around the site.</p>	Contractor ESO	Daily Weekly

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			lubricants, etc.;; <ul style="list-style-type: none"> • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • Bunded areas for containment and holding of dry building waste. 4) No solid waste may be disposed of on the site. 5) No waste materials shall at any stage be disposed of in the open veld of adjacent properties. 6) The storage of solid waste on the site, until such time as it may be disposed of, must be in a manner acceptable to the local authority and DWA. 7) Cover any wastes that are likely to wash away or contaminate storm water.			
		Recycle material where possible and correctly dispose of unusable wastes.	1) Waste shall be separated into recyclable and non-recyclable waste, and shall be separated as follows: <ul style="list-style-type: none"> • General waste: including (but not limited to) construction rubble, • Reusable construction 	Sufficient containers available on site No visible signs of pollution	Contractor ESO	Daily Weekly

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>material.</p> <p>2) Recyclable waste shall preferably be deposited in separate bins.</p> <p>3) All solid waste including excess spoil (soil, rock, rubble etc) must be removed to a permitted waste disposal site on a weekly basis.</p> <p>4) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site.</p> <p>5) Keep records of waste reuse, recycling and disposal for future reference. Provide information to ESO.</p>			
	Fauna and Flora	To ensure protection of existing fauna and flora.	<ul style="list-style-type: none"> ▪ Dumping of builder's rubble and other waste in the areas earmarked for exclusion must be prevented through fencing or other management measures. These areas must be properly managed throughout the lifespan of the project in terms of fire, eradication of exotics, entrance of vehicles, etc. to ensure continuous 	Existing fauna and flora protected	Contractor ESO	Continuously

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>biodiversity. All alien species must be eradicated from the study area.</p> <p>The removal of Category 1 Declared invaders from the property is mandatory and Category 2 Declared invaders must be controlled in terms of the Conservation of Agricultural Resources Act, 1983 and Section 28 of NEMA, 1998.</p> <p>An invasive control plan should be implemented every 3 months after construction.</p>			
		<p>To protect the existing fauna and flora.</p>	<p>1) Snaring and hunting of fauna by construction workers on or adjacent to the study area are strictly prohibited and offenders shall be prosecuted.</p> <p>2) Where possible, work should be restricted to one area at a time.</p> <p>3) Noise should be kept to a minimum and the development should be done in phases to allow faunal species to temporarily migrate into the conservation areas in the vicinity.</p>	<p>No measurable signs of habitat destruction.</p>	<p>Contractor ESO</p>	<p>As and when required</p>

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			4) The integrity of remaining wildlife should be upheld, and no trapping or hunting by construction personnel should be allowed on clumps and natural grassland areas to be retained and incorporated within the proposed development formal landscaping, must be marked and demarcated before any commencement of construction activities.			
	Increased fire risk to site and surrounding areas.	To decrease fire risk.	1) Fires shall only be permitted in specifically designated areas and under controlled circumstances. 2) Food vendors shall be allowed within specified areas. 3) Fire extinguishers to be provided in all vehicles and fire beaters must be available on site. 4) Emergency numbers/ contact details must be available on site, where applicable.	No open fires on site that have been left unattended.	Contractor	Monitor daily
Construction site	Geology and soils	To prevent the damaging of the existing soils and geology.	1) The top layer of all areas to be excavated for the purposes of construction shall be stripped and stockpiled in areas where this material will not be damaged, removed or compacted.	Excavated materials correctly stockpiled No signs of	Contractor	Monitor daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			2) All surfaces that are susceptible to erosion, shall be protected either by cladding with biodegradable material or with the top layer of soil being seeded with grass seed/planted with a suitable groundcover.	erosion		
		To prevent the loss of topsoil To prevent siltation & water pollution.	1) Stockpiling will only be done in designated places where it will not interfere with the natural drainage paths of the environment. 2) In order to minimize erosion and siltation and disturbance to existing vegetation, it is recommended that stockpiling be done/ equipment is stored in already disturbed/exposed areas. 3) Cover stockpiles and surround downhill sides with a sediment fence to stop materials washing away. 4) Remove vegetation only in areas designated during the planning stage and for the purpose of construction. 5) Rehabilitation/ landscaping to be done immediately after the involved works are completed	Excavated materials correctly stockpiled No visible signs of erosion and sedimentation Minimal invasive weed growth Vegetation only removed in designated areas	Contractor of Developer	Monitor daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>(will prevent erosion of the topsoil layer on site).</p> <p>6) All compacted areas should be ripped prior to them being rehabilitated/landscaped by the contractor.</p> <p>7) The top layer of all areas to be excavated must be stripped and stockpiled in areas where this material will not be damaged, removed or compacted. This stockpiled material should be used for the rehabilitation of the site and for landscaping purposes.</p> <p>8) Strip topsoil at start of works and store in stockpiles no more than 1,5 m high in designated materials storage area.</p> <p>9) During the laying of any cables, pipelines or infrastructure (on or adjacent to the site) topsoil shall be kept aside to cover the disturbed areas immediately after such activities are completed. Rehabilitation of these areas shall be done directly after infill of the trenches. No rocks shall be placed on the topsoil after re-</p>			

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			filling.			
	Erosion and siltation	To prevent erosion and siltation.	1) Mark out the areas to be excavated. 2) Large exposed areas during the decommissioning phase should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas. 3) Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided. 4) The eradication of alien vegetation should be followed up as soon as possible by replacement with indigenous vegetation to ensure quick and sufficient coverage of exposed areas. 5) Storm water outlets shall be correctly designed to prevent any possible soil erosion. 9) All surface run-offs shall be managed in such a way so as to	No erosion scars. No loss of topsoil. All damaged areas successfully rehabilitated.	Contractor ESO	Monitor daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>ensure erosion of soil does not occur. 10) Implementation of temporary storm water management measures that will help to reduce the speed of surface water.</p>			
		<p>To minimise pollution of soil, surface and groundwater.</p>	<p>1) Increased run-off during decommissioning must be managed using berms and other suitable structures as required to ensure flow velocities are reduced. 2) The contractor shall ensure that excessive quantities of sand, silt and silted water do not enter the storm water system.</p>	<p>No visible signs of erosion. No visible signs of pollution.</p>	<p>Contractor</p>	<p>Monitor daily</p>
		<p>To minimise damage to environment during wet periods.</p>	<p>Construction workers and construction vehicles and machinery must stay out of the soggy areas during the wet periods. Barrier tape should be used to demarcate the areas that are drenched with water and it should only be removed when the appointed Environmental Control Officer (ECO)/ site supervisor/ project manager/ main contractor regard the conditions in the affected areas as</p>		<p>Contractor</p>	

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			favourable.			
	Fauna and flora	To protect the existing fauna and flora.	1) All exotic invaders and weeds must be eradicated on a continuous basis.		Contractor ESO / Design Review Committee	As and when required Every 6 months
Social	Noise impact		<ul style="list-style-type: none"> Site workers must comply with the Provincial noise requirements as outlined. Construction site yards, workshops, concrete batching plants, and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. All construction vehicles, plant and equipment are to be kept in good repair. Truck traffic should be routed away from noise sensitive areas, where possible. Noisy operations should be 	No complaints from surrounding residents and I & AP.	Contractor	Monitored daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>combined so that they occur where possible at the same time.</p> <ul style="list-style-type: none"> • Decommissioning activities are to be contained to reasonable hours during the day and early evening. Night-time activities near noise sensitive areas should not be allowed. No construction should be allowed on weekends from 14h00 on Saturday afternoons to 06h00 the following Monday morning. • With regard to unavoidable very noisy decommissioning activities in the vicinity of noise sensitive areas, the contractor should liaise with local residents on how best to minimise impact, and the local population should be kept informed of the nature and duration of intended activities. Very noisy activities will need to be screened off specifically for those in the office and 			

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>apartment buildings before the structures are cladded.</p> <ul style="list-style-type: none"> As construction workers operate in a very noisy environment, it must be ensured that their working conditions comply with the requirements of the Occupational Health and Safety Act (Act No 85 of 1993). Where necessary ear protection gear should be worn. 			
	Dust impact	Minimise dust from the site.	<p>1) Dust pollution could occur during the decommissioning works, especially during the dry months. Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment.</p> <p>2) When necessary, these working areas should be damped down in the mornings and afternoons.</p>	<p>No visible signs of dust pollution.</p> <p>No complaints from surrounding residents and I & AP.</p>	Contractor ESO	Monitored daily
	Heritage	To ensure	If decommissioning takes place	Archaeological	Contractor	Continuously

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
	Sites	protection of possible heritage sites.	and any archaeological sites are exposed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.	site protected if occurs.	Developer ESO	
	Safety and security	To ensure the safety and security of the public.	<p>1) Although regarded as a normal practice, it is important to erect proper signs indicating the operations of heavy vehicles in the vicinity of dangerous crossings and access roads or even in the development site if necessary.</p> <p>2) With the exception of the appointed security personnel, no other workers, friend or relatives will be allowed to sleep on the construction site (weekends included).</p> <p>3) Construction vehicles and activities to avoid peak hour traffic times.</p> <p>4) Presence of law enforcement officials at strategic places must be ensured.</p> <p>5) Following actions would assist in management of safety along the road</p>	No incidences reported	Contractor ECO	Monitored daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<ul style="list-style-type: none"> ▪ Adequate road marking ▪ Adequate roadside recovery areas ▪ Allowance for pedestrians and cyclists where necessary. ▪ Although regarded as a normal practice, it is important to erect proper signs indicating the danger of the excavation in and around the development site. Putting temporary fencing around excavations where possible. 			
	Influx of people from other areas	In order to limit the influx of people from other areas.	It is recommended that (where possible) only people from the local communities in and around the application site are employed.	People from local community employed.	Contractor	When required
		Installation of services.	Determine areas where services will be affected. Discuss possible disruptions with affected parties to determine most convenient times for service disruptions and warn affected parties well in advance (48 hours before the disruption) of dates	No complaints from I & AP	Contractor ESO	When required

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			that service disruptions will take place.			
	Visual impact	In order to minimise the visual impact.	1) The disturbed areas shall be rehabilitated immediately after the involved construction works are completed. 2) Shade cloth must be used to conceal and minimise the visual impact of the site camps and storage areas.	Visual impacts minimized	Contractor ESO	Monitor daily
			Advertisements and/or sign boards shall not be erected or displayed on the property without the approval of the municipality and SANRAL first being obtained in terms of municipal by-laws for outdoor advertising.	Visual impacts minimized	Contractor Manager	

Mitigation measures – Decommissioning:

- A Decommissioning Plan must be prepared for the decommissioning phase, stipulating the necessary management and monitoring for the specific decommissioning activity.
- Abandoned or broken underground tanks must be removed by experienced contractors.
- The likelihood of contaminated soil around the tanks is often high and this must be correctly removed and disposed of.

- Groundwater is at risk from contamination by defunct tanks and it is advised that monitoring of the groundwater should be undertaken if large quantities of fuel have been lost.
- The forecourt underground area as well as the area surrounding the USTs will be bunded / encased with an impermeable material. With decommissioning, soil contamination will be restricted to these two contained areas.
- Careful removal and proper disposal of any petroleum products, USTs and pipework will be necessary to avoid unnecessary contamination. Any hazardous waste must be disposed of at a recognized hazardous waste disposal facility.
- With closure of the site, it is recommended that a **contamination assessment** be undertaken to determine if any contamination has taken place, which will indicate whether any rectification and site rehabilitation will be needed. Considering the design of the facility (underground encasings) it will possible to restrict the contamination assessment to the two described areas.
- Any other legislative requirements at the time of decommissioning should be complied with.

6.3 Construction Phase

Table 3: Impacts and Mitigation measures – Construction Phase

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
Contractor's Camp	Loss of Vegetation and topsoil	To minimize damage to and loss of vegetation and retain	1) Site to be established under supervision of ECO/ESO.	Minimal vegetation removed/damaged during site	Contractor	Before any construction activity commences and as and when

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
		quality of Topsoil.		activities.		required
	Surface and ground water pollution	To minimize pollution of surface and groundwater resources.	<p>1) Sufficient and temporary facilities including ablation facilities must be provided for construction workers operating on the site.</p> <p>2) A minimum of one chemical toilet shall be provided per 10 construction workers. The contractor shall keep the toilets in a clean, neat and hygienic condition. Toilets provided by the contractor must be easily accessible and a maximum of 50m from the works area to ensure they are utilized. The contractor (who must use reputable toilet-servicing company) shall be responsible for the cleaning, maintenance and servicing of the toilets. The contractor (using reputable toilet-servicing company) shall ensure that all toilets are cleaned and emptied before the builders' or other public holidays.</p> <p>3) No person is allowed to use any</p>	<p>Effluents managed Effectively.</p> <p>No pollution of water resources from site.</p> <p>Workforce use toilets provided.</p>	Contractor ESO	As and when required

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			other area than chemical toilets. 4) No French drain systems may be installed. 5) No chemical or waste water must be allowed to contaminate the run-off on site. This could possibly contaminate the drainage channel. 6) Avoid the clearing of the site camp (of specific phase) or paved surfaces with soap. This could drain into the drainage channel on site and contaminate to open space system in the area.			
		To minimize pollution of surface and groundwater resources due to spilling of materials.	1) Drip trays and/ or lined earth bunds must be provided under vehicles and equipment, to contain spills of hazardous materials such as fuel, oil and cement. 2) Repair and storage of vehicles only within the demarcated site area. 3) Spill kits must be available on site. 4) Oils and chemicals must be confined to specific secured areas within the site camp. These	No pollution of the environment	Contractor ESO	Daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>areas must be bunded with adequate containment (at least 1.5 times the volume of the fuel) for potential spills or leaks.</p> <p>5) All spilled hazardous substances must be contained in impermeable containers for removal to a licensed hazardous waste site.</p> <p>6) No leaking vehicle shall be allowed on site. The mechanic/ the mechanic of the appointed contractor must supply the environmental officer with a letter of confirmation that the vehicles and equipment are leak proof.</p> <p>7) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site.</p>			
		To minimize pollution of surface and groundwater resources by cement.	The mixing of concrete shall only be done at specifically selected sites, as close as possible to the entrance, on mortar boards or similar structures to prevent run-off into drainage line, streams and natural vegetation.	No evidence of contaminated soil on the construction site.	Contractor ESO	Daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
		To minimize pollution of surface and Groundwater resources due to effluent.	No effluent (including effluent from any storage areas) may be discharged into any water surface or ground water resource.	No evidence of contaminated water resources.	Contractor ESO	Daily
			Groundwater monitoring boreholes should be installed on the groundwater down side.	Groundwater monitoring boreholes installed	Engineer Contractor	
		To minimize pollution of surface and Groundwater resources due leaking equipment.	Leak detection facilities must be installed around the storage tanks and vapour samples must be taken according to a six monthly monitoring programme.	Leak detection facilities installed	Engineer Contractor	
		To prevent ingress of contaminated water into the ground.	All surface areas utilized for the proposed storage tanks and peripheral infrastructure must be appropriately paved.	Areas paved	Contractor	
		To prevent spillages.	All pipes and connections to the proposed tanks must be provided with flexible coupling.	Flexible couplings provided	Contractor	
		To prevent spillages.	All fuel dispensers must include a shut-off valve.	Shut-off valve in fuel dispensers.	Developer Contractor	

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
	Pollution of the environment	To prevent unhygienic usage on the site and pollution of the natural assets.	<p>1) Weather proof waste bins must be provided and emptied regularly.</p> <p>2) The contractor shall provide laborers to clean up the contractor's camp and construction site on a daily basis.</p> <p>3) Temporary waste storage points on the site should be determined. THESE AREAS SHALL BE PREDETERMINED AND LOCATED IN AREAS THAT IS ALREADY DISTURBED. These storage points should be accessible by waste removal trucks and these points should be located in already disturbed areas /areas not highly visible from the properties of the surrounding land-owners/ in areas where the wind direction will not carry bad odours across the properties of adjacent landowners. This site should comply with the following:</p> <ul style="list-style-type: none"> • Skips for the containment and disposal of waste that could cause soil and water pollution, i.e. paint, lubricants, etc.; 	<p>No waste bins overflowing</p> <p>No litter or building waste lying in or around the site.</p>	Contractor ESO	Daily Weekly

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<ul style="list-style-type: none"> • Small lightweight waste items should be contained in skips with lids to prevent wind littering; • Bunded areas for containment and holding of dry building waste. <p>4) No solid waste may be disposed of on the site. 5) No waste materials shall at any stage be disposed of in the open veld of adjacent properties. 6) The storage of solid waste on the site, until such time as it may be disposed of, must be in a manner acceptable to the local authority and DWA. 7) Cover any wastes that are likely to wash away or contaminate storm water.</p>			
		<p>Recycle material where possible and correctly dispose of unusable wastes.</p>	<p>1) Waste shall be separated into recyclable and non-recyclable waste, and shall be separated as follows:</p> <ul style="list-style-type: none"> • General waste: including (but not limited to) construction rubble, • Reusable construction material. 	<p>Sufficient containers available on site</p> <p>No visible signs of pollution</p>	<p>Contractor ESO</p>	<p>Daily Weekly</p>

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			2) Recyclable waste shall preferably be deposited in separate bins. 3) All solid waste including excess spoil (soil, rock, rubble etc) must be removed to a permitted waste disposal site on a weekly basis. 4) No bins containing organic solvents such as paints and thinners shall be cleaned on site, unless containers for liquid waste disposal are placed for this purpose on site. 5) Keep records of waste reuse, recycling and disposal for future reference. Provide information to ESO.			
	Fauna and Flora	To ensure protection of existing fauna and flora.	<ul style="list-style-type: none"> ▪ Dumping of builder's rubble and other waste in the areas earmarked for exclusion must be prevented through fencing or other management measures. These areas must be properly managed throughout the lifespan of the project in terms of fire, eradication of exotics, entrance of vehicles, etc. to ensure continuous biodiversity. All alien species 	Existing fauna and flora protected	Contractor ESO	Continuously

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>must be eradicated from the study area.</p> <p>The removal of Category 1 Declared invaders from the property is mandatory and Category 2 Declared invaders must be controlled in terms of the Conservation of Agricultural Resources Act, 1983 and Section 28 of NEMA, 1998.</p> <p>An invasive control plan should be implemented every 3 months after construction.</p>			
		To protect the existing fauna and flora.	<p>1) Snaring and hunting of fauna by construction workers on or adjacent to the study area are strictly prohibited and offenders shall be prosecuted.</p> <p>2) Where possible, work should be restricted to one area at a time.</p> <p>3) Noise should be kept to a minimum and the development should be done in phases to allow faunal species to temporarily migrate into the conservation areas in the vicinity.</p> <p>4) The integrity of remaining</p>	No measurable signs of habitat destruction.	Contractor ESO	As and when required

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			wildlife should be upheld, and no trapping or hunting by construction personnel should be allowed on clumps and natural grassland areas to be retained and incorporated within the proposed development formal landscaping, must be marked and demarcated before any commencement of construction activities.			
	Increased fire risk to site and surrounding areas	To decrease fire risk.	<ol style="list-style-type: none"> 1) Fires shall only be permitted in specifically designated areas and under controlled circumstances. 2) Food vendors shall be allowed within specified areas. 3) Fire extinguishers to be provided in all vehicles and fire beaters must be available on site. 4) Emergency numbers/ contact details must be available on site, where applicable. 	No open fires on site that have been left unattended.	Contractor	Monitor daily
Construction site	Geology and soils	To prevent the damaging of the existing soils and geology.	<ol style="list-style-type: none"> 1) The top layer of all areas to be excavated for the purposes of construction shall be stripped and stockpiled in areas where this material will not be damaged, removed or compacted. 2) All surfaces that are susceptible 	<p>Excavated materials correctly stockpiled</p> <p>No signs of erosion</p>	Contractor	Monitor daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			to erosion, shall be protected either by cladding with biodegradable material or with the top layer of soil being seeded with grass seed/planted with a suitable groundcover.			
		To prevent the loss of topsoil To prevent siltation & water pollution.	<p>1) Stockpiling will only be done in designated places where it will not interfere with the natural drainage paths of the environment.</p> <p>2) In order to minimize erosion and siltation and disturbance to existing vegetation, it is recommended that stockpiling be done/ equipment is stored in already disturbed/exposed areas.</p> <p>3) Cover stockpiles and surround downhill sides with a sediment fence to stop materials washing away.</p> <p>4) Remove vegetation only in areas designated during the planning stage and for the purpose of construction.</p> <p>5) Rehabilitation/ landscaping to be done immediately after the involved works are completed (will prevent erosion of the topsoil</p>	<p>Excavated materials correctly stockpiled</p> <p>No visible signs of erosion and sedimentation</p> <p>Minimal invasive weed growth</p> <p>Vegetation only removed in designated areas</p>	Contractor of Developer	Monitor daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>layer on site).</p> <p>6) All compacted areas should be ripped prior to them being rehabilitated/landscaped by the contractor.</p> <p>7) The top layer of all areas to be excavated must be stripped and stockpiled in areas where this material will not be damaged, removed or compacted. This stockpiled material should be used for the rehabilitation of the site and for landscaping purposes.</p> <p>8) Strip topsoil at start of works and store in stockpiles no more than 1,5 m high in designated materials storage area.</p> <p>9) During the laying of any cables, pipelines or infrastructure (on or adjacent to the site) topsoil shall be kept aside to cover the disturbed areas immediately after such activities are completed. Rehabilitation of these areas shall be done directly after infill of the trenches. No rocks shall be placed on the topsoil after re-filling.</p>			

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
		To ensure stability of structures.	<ul style="list-style-type: none"> • The foundation recommendations supplied by the involved Geotechnical Engineers must be implemented; ▪ All foundations excavations should be inspected by an experienced engineer prior to casting of concrete. 			
		To ensure safety during blasting activities (if required).	<ul style="list-style-type: none"> • Blasting may only be done by specialists in the field and should be limited to localised areas. • Surrounding land-owners of properties in close proximity of blasting exercises must be informed/ warned (at least one week in advance) of blasting exercises that will take place on the study area. • Warning signs to warn site workers and members of the public of blasting exercises must be erected at strategic points on the study area and the area 	Mitigation measures in place Surrounding residents notified	Contractor Engineers ESO	When required

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>where the blasting exercises will take place must be fenced off with barrier tape The necessary precautions must be in place when blasting takes place.</p> <ul style="list-style-type: none"> Surrounding residents must be notified of any blasting activities. 			
	Erosion and siltation	To prevent erosion and siltation.	<p>6) Mark out the areas to be excavated.</p> <p>7) Large exposed areas during the construction phases should be limited. Where possible areas earmarked for construction during later phases should remain covered with vegetation coverage until the actual construction phase. This will prevent unnecessary erosion and siltation in these areas.</p> <p>8) Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions should be avoided.</p> <p>9) The eradication of alien vegetation should be followed up as soon as possible by</p>	<p>No erosion scars.</p> <p>No loss of topsoil.</p> <p>All damaged areas successfully rehabilitated.</p>	Contractor ESO	Monitor daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			replacement with indigenous vegetation to ensure quick and sufficient coverage of exposed areas. 10) Storm water outlets shall be correctly designed to prevent any possible soil erosion. 9) All surface run-offs shall be managed in such a way so as to ensure erosion of soil does not occur. 10) Implementation of temporary storm water management measures that will help to reduce the speed of surface water.			
		To minimise pollution of soil, surface and groundwater.	1) Increased run-off during construction must be managed using berms and other suitable structures as required to ensure flow velocities are reduced. 2) The contractor shall ensure that excessive quantities of sand, silt and silted water do not enter the storm water system.	No visible signs of erosion. No visible signs of pollution.	Contractor	Monitor daily
		To minimise damage to environment during wet periods.	Construction workers and construction vehicles and machinery must stay out of the soggy areas during the wet periods. Barrier tape should be		Contractor	

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			used to demarcate the areas that are drenched with water and it should only be removed when the appointed Environmental Control Officer (ECO)/ site supervisor/ project manager/ main contractor regard the conditions in the affected areas as favourable.			
	Fauna and flora	To protect the existing fauna and flora.	1) All exotic invaders and weeds must be eradicated on a continuous basis.		Contractor ESO / Design Review Committee	As and when required Every 6 months
Social	Noise impact		<ul style="list-style-type: none"> Site workers must comply with the Provincial noise requirements as outlined. Construction site yards, workshops, concrete batching plants, and other noisy fixed facilities should be located well away from noise sensitive areas. Once the proposed final layouts are made available by the contractor(s), the sites must be evaluated in detail and specific measures designed in to the system. 	No complaints from surrounding residents and I & AP	Contractor	Monitored daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<ul style="list-style-type: none"> • All construction vehicles, plant and equipment are to be kept in good repair. • Truck traffic should be routed away from noise sensitive areas, where possible. • Noisy operations should be combined so that they occur where possible at the same time. • Blasting operations (if required) are to be strictly controlled with regard to the size of explosive charge in order to minimise noise and air blast, and timings of explosions. The number of blasts per day should be limited, blasting should be undertaken at the same times each day and no blasting should be allowed at night. • Construction activities are to be contained to reasonable hours during the day and early evening. Night-time activities near noise sensitive 			

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>areas should not be allowed. No construction should be allowed on weekends from 14h00 on Saturday afternoons to 06h00 the following Monday morning.</p> <ul style="list-style-type: none"> • With regard to unavoidable very noisy construction activities in the vicinity of noise sensitive areas, the contractor should liaise with local residents on how best to minimise impact, and the local population should be kept informed of the nature and duration of intended activities. Very noisy activities will need to be screened off specifically for those in the office and apartment buildings before the structures are cladded. • As construction workers operate in a very noisy environment, it must be ensured that their working conditions comply with the requirements of the 			

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			Occupational Health and Safety Act (Act No 85 of 1993). Where necessary ear protection gear should be worn.			
	Dust impact	Minimise dust from the site.	1) Dust pollution could occur during the construction works, especially during the dry months. Regular and effective damping down of working areas (especially during the dry and windy periods) must be carried out to avoid dust pollution that will have a negative impact on the surrounding environment. 2) When necessary, these working areas should be damped down in the mornings and afternoons.	No visible signs of dust pollution. No complaints from surrounding residents and I & AP.	Contractor ESO	Monitored daily
	Heritage Sites	To ensure protection of possible heritage sites.	If construction takes place and any archaeological sites are exposed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.	Archaeological site protected if occurs.	Contractor Developer ESO	Continuously

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
	Safety and security	To ensure the safety and security of the public.	<p>1) Although regarded as a normal practice, it is important to erect proper signs indicating the operations of heavy vehicles in the vicinity of dangerous crossings and access roads or even in the development site if necessary.</p> <p>2) With the exception of the appointed security personnel, no other workers, friend or relatives will be allowed to sleep on the construction site (weekends included).</p> <p>3) Construction vehicles and activities to avoid peak hour traffic times.</p> <p>4) Presence of law enforcement officials at strategic places must be ensured.</p> <p>5) Following actions would assist in management of safety along the road</p> <ul style="list-style-type: none"> ▪ Adequate road marking ▪ Adequate roadside recovery areas ▪ Allowance for pedestrians and cyclists where necessary. ▪ Although regarded as a 	No incidences reported	Contractor ECO	Monitored daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			normal practice, it is important to erect proper signs indicating the danger of the excavation in and around the development site. Putting temporary fencing around excavations where possible.			
	Influx of people from other areas	In order to limit the influx of people from other areas.	It is recommended that (where possible) only people from the local communities in and around the application site are employed.	People from local community employed.	Contractor	When required
		Installation of services.	Determine areas where services will be upgraded and relocated well in advance. Discuss possible disruptions with affected parties to determine most convenient times for service disruptions and warn affected parties well in advance (48 hours before the disruption) of dates that service disruptions will take place.	No complaints from I & AP	Contractor ESO	When required
	Visual impact	In order to minimise the visual impact.	1) The disturbed areas shall be rehabilitated immediately after the involved construction works are completed.	Visual impacts minimized	Contractor ESO	Monitor daily

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			2) Shade cloth must be used to conceal and minimise the visual impact of the site camps and storage areas.			
			Advertisements and/or sign boards shall not be erected or displayed on the property without the approval of the municipality and SANRAL first being obtained in terms of municipal by-laws for outdoor advertising.	Visual impacts minimized	Contractor Manager	
	Vegetation	Landscaping	<p>1) When planting trees, care should be taken to avoid the incorrect positioning of trees and other plants, to prevent the roots of trees planted in close proximity to the line of water-bearing services from causing leaking in, or malfunctioning of the services.</p> <p>2) The proposed planting materials for the areas to be landscaped should preferably be endemic and indigenous.</p> <p>3) All new trees and shrubs to be planted on the study area shall be inspected for pests and diseases prior to them being planted.</p>	Landscaping done according to Landscape Development Plan	Landscape architect Contractor	When required

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			<p>4) The inspection shall be carried out by the maintenance contractor at the property of the supplier and not on the study area.</p> <p>5) All trees to be planted shall be in 20L containers with a height of approximately 1,8 metres and a main stem diameter of approximately 300 mm.</p>			
		Loss of plants	<p>1) Aerate compacted soil and check and correct pH for soils affected by construction activities.</p> <p>2) Make sure plant material will be matured enough and hardened off ready for planting. Water in plants immediately as planting proceeds.</p> <p>3) Apply mulch to conserve moisture</p> <p>4) Plant according to the layout and planting techniques specified by the Landscape Architect in the Landscape Development plans for the site.</p>	Landscaping done according to Landscape Development Plan	Landscape architect Contractor	When required
		Spread of weeds	Ensure that materials used for mulching and topsoil/ fertilisers	Weed growth controlled	Landscape architect	When required

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Performance indicator	Responsibility	Frequency of Action
			are certified weed free. Collect certifications where available. Control weed growth that appears during construction.		Contractor	
		To ensure rehabilitation of the site.	1) Compacted soils shall be ripped at least 200mm. 2) All clumps and rocks larger than 30mm diameter shall be removed from the soil to be rehabilitated. 3) The soil shall be leveled before seeding. 4) Hydro-seed the soil with Potch mixture or plant with suitable indigenous ground covering as specified). 5) Watering shall take place at least once per day for the first 14 days until germination of seeds have taken place. 6) Thereafter watering should take place at least for 20 minutes every 4 days until grass have hardened off.	Grass have hardened off	Landscape architect Contractor	Once a day Then every 4 days

6.4 Operational Phase

Table 4: Impacts and Mitigation measures – Operational Phase

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
SITE CLEAN UP AND PREPARED FOR USE	Storm water pollution	Do not allow any materials to wash into the storm water system.	Remove erosion and sediment controls only if all bare soil is sealed, covered or re-vegetated. Sweep roadways clean and remove all debris from kerb and gutter areas. Do not wash into drains.	Contractor	-
		Minimise waste	Decontaminate and collect waste in storage area ready for off-site recycling or disposal. Arrange for final collection and removal of excess and waste materials.	Contractor	-
ESTABLISHIN G PLANTS	Slow or no re- vegetation to stabilise soil; loss or degradation of habitat	To ensure re-vegetation to stabilize soil.	Agreed schedule for regular follow-up watering, weed control, mulch supplements and amenity pruning, if needed. Replace all plant failures within three month period after planting.	Contractor	To be agreed
MATERIALS FAILURE	Structural damage. Loss of site materials.		Inspect all structures monthly to detect any cracking or structural problems. Confirm with designer if there are design problems. Rectify with materials to match, or other agreed solution.	Contractor	-
DRAINAGE FAILURE	On-site and downstream drainage pollution or	Storm Water Management Plan	Inspect all site drainage works and repair any failures. Confer with design engineer and to correct site problems.	Contractor	-

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
	flooding				
SITE AUDIT	Eventual project failure	Successful project establishment.	Routinely audit the works and adjust maintenance schedule accordingly.	Contractor	-
GENERAL			Open fires and smoking during maintenance works are strictly prohibited.	Contractor	-
GEOLOGY	Erosion of topsoil	Prevent topsoil erosion.	Due to loose topsoil, the soil must be covered by means of re-seeding and vegetation with suitable ground covering.	Engineer / Contractor /	Once off
		To ensure effective stormwater management.	<ul style="list-style-type: none"> Stormwater throughout the site should be managed to accommodate the higher quantities of run off; Sheet flow should be encouraged as far as possible, and channels should be designed to sufficiently address the problem of erosion; and Bio-swale system could be implemented to filter water from paved areas and especially from roads and parking areas to sufficiently clean water of heavy metals and other hazardous materials in stormwater on a natural manner. This will further provide an opportunity for water to infiltrate the soil, break the energy of stormwater and keep the water on site for longer. 	Owner / Manager	
	Fauna and Flora	To ensure protection of	An invasive control plan should be implemented every 3 months after	Owner/ Manager	Every 3 months

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Responsibility	Frequency of Action
		existing fauna and flora.	construction.		
		Visual impact	Advertisements and/or sign boards shall not be erected or displayed on the property without the approval of the municipality and SANRAL first being obtained in terms of municipal by-laws for outdoor advertising.		
Social	Job opportunities	To limit influx of people and ensure job opportunities for local community.	In order to limit the influx of people from other areas, it is recommended that 70 – 80 % of job opportunities be offered to the local communities in and around Kwa Guqa.		
	Noise		<ul style="list-style-type: none"> • In general the design process of the new Development is to consider, <i>inter alia</i>, the following aspects: <ol style="list-style-type: none"> a) The position and orientation of buildings on the site. b) The enclosure of noisy plant activities in buildings where possible and practical. c) The design of the buildings to minimise the transmission of noise from the inside to the outdoors. d) The insulation of particularly noisy plant and equipment. • Buildings should be placed and orientated in such a manner that, as far as is 		

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Responsibility	Frequency of Action
			<p>practicable, noise sensitive areas are shielded from and/or that noise is not channelled towards these areas.</p> <ul style="list-style-type: none"> • Where possible, certain component buildings planned for the Development should be used as noise barriers. • The design, placement and orientation of the extractor fans for the ventilation of the buildings must take the noise impact aspect into consideration. Equipment with the best noise rating should be used. Roof mounted fans may further require attenuators and need to be screened from noise sensitive areas. • High quality air-conditioning equipment should be installed. Equipment with the best noise rating should be used. • Where required, high quality refrigeration compressors should be installed. Equipment with the best noise rating should be used. Outside building installation should be acoustically encapsulated. • All mechanical equipment is to be well maintained. • Music sound emission levels from speakers planned in the Place of Refreshment facility of the proposed development are to be maintained at reasonable levels. The setting of the levels and quality of sound is 		

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
			<p>subject to the design and size of the room/space involved and needs to be established when the design of the proposed development is finalised.(only if applicable).</p> <ul style="list-style-type: none"> The delivery times for trucks should be limited to the hours of between 07h00 and 20h00 on weekdays and between 08h00 and 14h00 on Saturdays (only if applicable). 		
	<p>Safety Water pollution</p>	<p>To ensure safety and minimise water pollution.</p>	<p>An Emergency Plan must be implemented:</p> <p><u>Insert the site plan showing the following:</u></p> <ul style="list-style-type: none"> - All petroleum pump and tank positions with product identification - All petroleum filler points and vents - Position of tanker during petroleum deliveries showing nearest drain(s) down slope of activity - Position of LPG cylinder delivery vehicle when offloading cylinders - All LPG installations and storage facilities - Position and type of fire fighting equipment - Position of emergency stop - Location of sand buckets/container - Evacuation routes - Safe assembly area 		

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
			<ul style="list-style-type: none"> • Emergency Telephone Numbers • Fire <u>Guide – Fire (forecourt)</u> <ul style="list-style-type: none"> - Stop all refuelling - Activate the emergency shut-off switch - Notify site manager or supervisor - Manager/supervisor to alert the fire emergency services - Evacuate the forecourt & building of customers & staff to the safe assembly area - Attempt to extinguish the fire using the dry chemical powder fire extinguishers if it's safe to do so - Prevent access to forecourt by closing driveways - If required, manager to appoint staff member to notify adjacent property owners - Clear vehicles from the forecourt if it's safe to do so - If at night, leave the canopy lights on - Assist the fire emergency services when they arrive - Manager/Supervisor to notify the Engen Customer Service Centre 		

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
			<p><u>Guide – Fire (building general)</u></p> <ul style="list-style-type: none"> - Stop all refuelling - Activate the emergency shut-off switch - Notify site manager or supervisor - Manager/supervisor to alert the fire emergency services - Attempt to extinguish the fire using fire extinguishers or hose reel if it's safe to do so - Isolate electrical supply at the distribution board to all equipment in the immediate area - Evacuate the building of customers & staff to the safe assembly area - Close all doors and windows in the immediate vicinity of the fire - Alert the fire emergency services if the fire is too large to handle - If necessary, clear vehicles from the forecourt if it's safe to do so - Assist the fire emergency services when they arrive <p>• <i>Petroleum Spill</i></p> <p><u>Guide – Minor spill (less than 35 litres)</u></p> <ul style="list-style-type: none"> - Switch off pumps either at the distribution board or the emergency stop button depending on the product & the quantity - Ensure that customers whose vehicles are 		

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
			<p>in the vicinity of the spill do not start their vehicles</p> <ul style="list-style-type: none"> - Eliminate any source of ignition in the immediate area - Keep customers away from the area - Contain the spill by throwing sand around the product to create a barrier to prevent movement towards drains. Do not hose the fuel off the forecourt & down any drain - If persons have been splashed with fuel, spray water onto them & then remove clothing - Apply spill adsorbent material to the spill to recover product - Place the saturated adsorbent & any soil that may have been contaminated into an empty container such as a drum - Notify the Customer Service Centre <p><u>Guide – Major spill (more than 35 litres)</u></p> <ul style="list-style-type: none"> - Switch off all pumps on the forecourt using the emergency stop button or trip the mains switch (especially if a large spill of petrol is involved or flowing towards the building with a lot of vapours in the air). If at night leave the canopy lights on. - Try to stop the flow of product by closing valves on the installation or by assisting the tanker driver to close the outlet valve on 		

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
			<p>his trailer</p> <ul style="list-style-type: none"> - Notify the fire emergency services & the traffic department - Evacuate all persons from the forecourt as well as the buildings to the safe assembly area - No vehicles may be allowed to enter or leave the site. - Prevent customers from starting their vehicles - Stop all workshop activities - Eliminate all sources of ignition in the immediate area - Try to contain the spill by using sand or create barriers around drains that are down slope of the spill. Use neoprene gloves for protection - Place fire extinguishers so that they may be accessible in the event the spill catches fire - Assist emergency services personnel as may be required - Notify the authorities such as municipal water pollution officers, Department of Water and Sanitation or local water catchment management agencies as appropriate <p>• LPG</p>		

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
			<p>Guide – LPG leak</p> <ul style="list-style-type: none"> - Evacuate persons to a safe area upwind of the immediate area - Isolate all electrics in the vicinity of the leak taking into account wind direction & possible vapour cloud drift - Eliminate all sources of ignition in the immediate area - Contact the fire emergency services - If the source of the leak has been identified as a cylinder valve, try to turn off the valve or carry it to a safe, well-ventilated outdoor location. Wear gloves as PPE when doing this so as to prevent freeze burns - Using the fire hose, water spray the leak to disperse the gas until no more vapour is escaping - If the source of the leak is at the filling installation, contact the supplier immediately - Report any incident classified as reportable (section 24, OHS Act) to the statutory authority <p>Guide – LPG fire</p> <ul style="list-style-type: none"> - Evacuate persons to a safe area upwind of the immediate area - Isolate all electricity in the vicinity 		

TYPE	Environment al risk or issue	Objective or requirement	Mitigation measure	Responsibil ity	Frequency of Action
			<ul style="list-style-type: none"> - In the case of a valve fire, only extinguish fire using a dry chemical powder fire extinguisher if the valve can be closed (take care as valve may be hot) - Contact the fire emergency services - Cool all cylinders that the fire could affect if the initial fire cannot be extinguished. - Await assistance from the fire emergency services <p>• Serious Injury</p> <p>Guide – Injured persons</p> <ul style="list-style-type: none"> - Move the injured only if they are in danger of further injury - Switch off any equipment/machinery that caused the injury - First Aider to render assistance and stabilise injured - Contact the medical services for assistance if required - Report any injury classified as reportable (section 24, OHS Act) or fatality to the statutory authority <p>• Robbery</p> <p>Guide – Robbery</p> <ul style="list-style-type: none"> - Remain calm 		

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Responsibility	Frequency of Action
			<ul style="list-style-type: none"> - Obey instructions and co-operate with assailants - Activate the security alarm (silent) - Lock the doors so that the assailants cannot return - Contact the SA Police Services, Murder & Robbery Unit - Write down any details of the assailant, mode & direction of travel - Keep witnesses on the premises or obtain their contact details 		
		To prevent water pollution.	A Spill response kit comprising of absorbent fibres and associated waste containers should be available on site. All materials for clearing of surface spillages should be stored in a container and moved on a regular basis by an approved contractor to a hazardous waste disposal site.		
		To prevent water pollution.	All surface areas utilized for the proposed storage tanks and peripheral infrastructure must be appropriately paved to prevent ingress of contaminated water into the ground.	Contractor Manager	
		To prevent water pollution	A complete waste handling and separation procedure for the operational phase should be implemented due to the handling, storing and disposal of hazardous chemicals. An oil/water separator should be installed on site, which will allow for the processing and separation of	Contractor Manager	

TYPE	Environmental risk or issue	Objective or requirement	Mitigation measure	Responsibility	Frequency of Action
			insoluble fuel hydrocarbons and the storm and wash down water of the current dispensing area. Only processed water will be allowed and directed to the local sewage system. Under no circumstances may processed water be directed to the stormwater system.		
		To prevent pollution and ensure safety.	All fuel dispensers must include a shut-off valve. All materials and installations shall comply with the relevant standards and regulations as imposed by the South African Bureau of Standards (SABS) and the Occupational Health and Safety Act (Act 85 of 1993).	Contractor Manager	

7. Procedures for environmental incidents

7.1 Leakages & spills

- Identify source of problem.
- Stop goods leaking, if safe to do so.
- Contain spilt material, using spills kit or sand.
- Notify Environmental Control Officer.
- Remove spilt material and place in sealed container for disposal (if possible).
- Environmental Control Officer to follow Incident Management Plan.

7.2 Failure of erosion/sediment control devices

- Prevent further escape of sediment.
- Contain escaped material using silt fence, hay bales, pipes, etc.
- Notify ECO.
- Repair or replace failed device as appropriate.
- Dig/scrape up escaped material; take care not to damage vegetation.
- Remove escaped material from site.
- ECO to follow Incident Management Plan.
- Monitor for effectiveness until re-establishment.

7.3 Bank/slope failure

- Stabilize toe of slope to prevent sediment escape using aggregate bags, silt fence, logs, hay bales, pipes, etc.
- Notify ECO.
- ECO to follow Incident Management Plan.
- Divert water upslope from failed fence.
- Protect area from further collapse as appropriate.
- Restore as advised by ECO.
- Monitor for effectiveness until stabilized.

7.4 Discovery of rare or endangered species

- Stop work.
- Notify ECO.
- If a plant is found, mark location of plants.
- If an animal, mark location where sighted.
- ECO to identify or arrange for identification of species and or the relocation of the species if possible.
- If confirmed significant, ECO to liaise with Endangered Wildlife Trust.
- Recommence work when cleared by ECO.

7.5 Discovery of archeological or heritage items

- Stop work.
- Do not further disturb the area.
- Notify ECO.
- ECO to arrange appraisal of specimen.
- If confirmed significant, ECO to liaise with National, Cultural and History Museum.
- Recommence work when cleared by ECO.

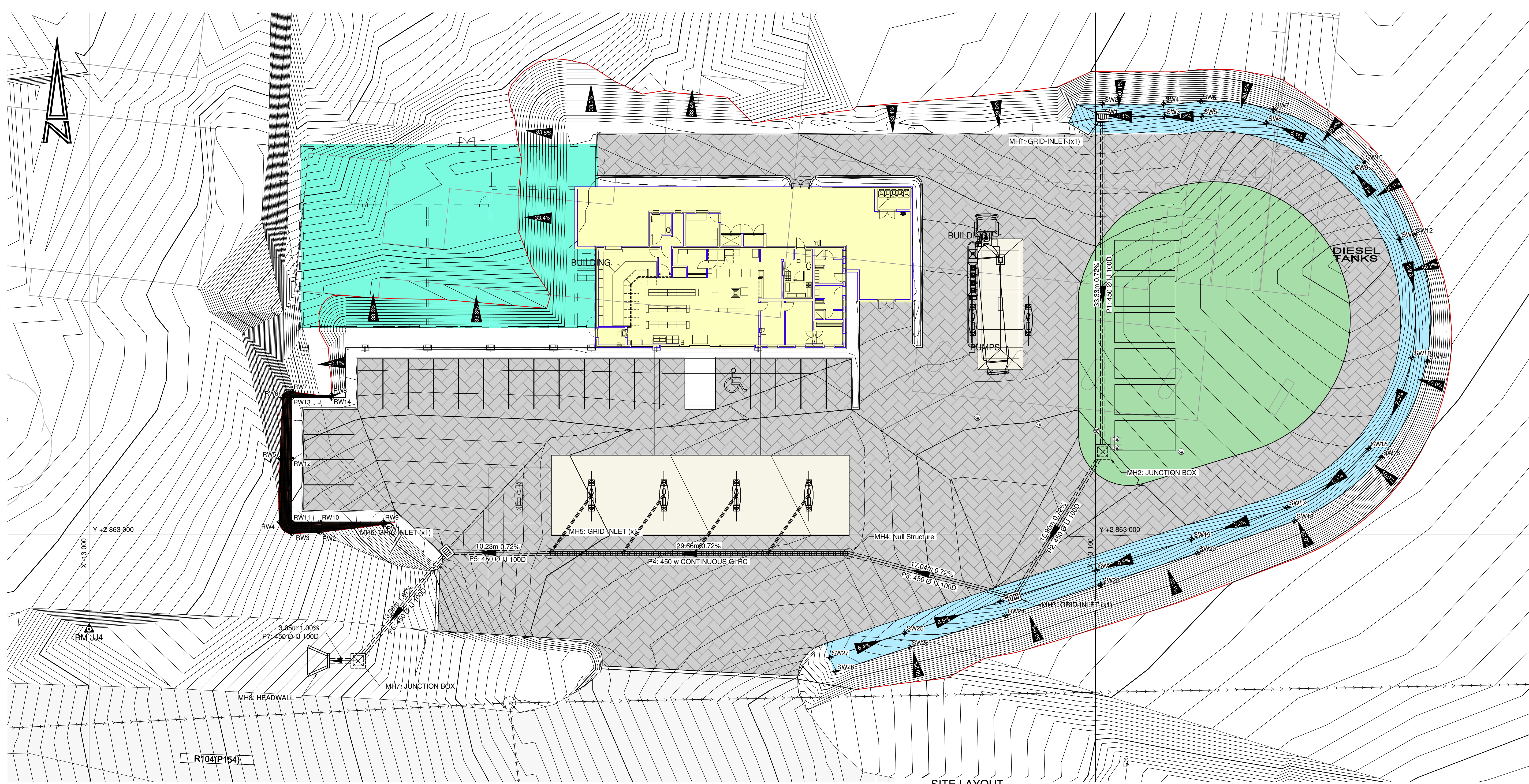
8 EMPr review

The Site supervisor is responsible for ensuring the work crew is complying with procedures, and for informing the work crew of any changes. The site supervisor is responsible for ensuring the work crew is aware of changes that may have been implemented by MDAEDLEA before starting any works.

If the contractor cannot comply with any of the activities as described above, they should inform the ECO with reasons within 7 working days.

ANNEXURE E:

STORM WATER LAYOUT



SITE LAYOUT
SCALE 1:200

NOTE:
ALL STORMWATER PIPES TO BE SPIGOT AND SOCKET.
CONCRETE SPIGOT & SOCKET WITH RUBBER RING JOINT TO SABS 677

FIRST INSPECTION:
ONCE THE PIPING AND THE BENCHING HAVE BEEN INSTALLED, BACKFILLED AND COMPACTED TO 90% OF THE DIAMETER OF PIPE.
SECOND INSPECTION:
ONCE THE BACKFILLING HAS BEEN COMPLETED TO APPROXIMATELY 200mm ABOVE THE PIPES.
THIRD INSPECTION:
THE FINAL TAKE-OVER INSPECTION A PRESSURE TEST WILL BE DONE AT THIS STAGE. THE WORKS MUST BE COMPLETE.

STORMWATER NOTES:

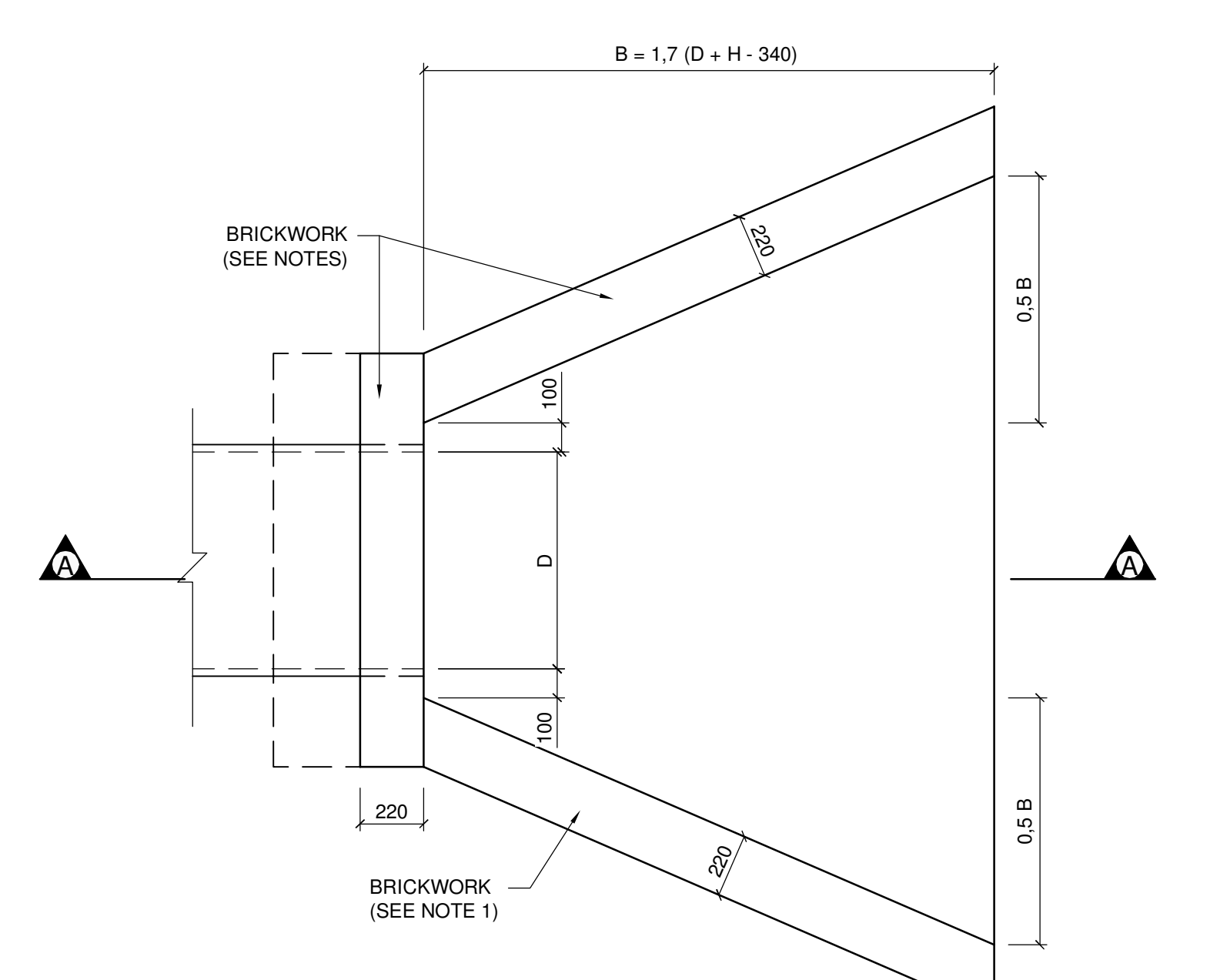
- CONSTRUCTION**
 - 1.1 ALL CONSTRUCTION, TESTING AND MATERIALS AS PER SABS 1200 SERIES OF SPECIFICATIONS.
 - 1.2 PIPE BEDDING TO BE CLASS B BED AS PER SABS 1200 LB WITH BEDDING CRADLE OF SELECTED FILL MATERIAL. QUALITY (SEE CLASS B BEDDING DETAILS ELSEWHERE).
 - 1.3 PIPE SIZES AND CLASS AS INDICATED ON LAYOUT.
 - 1.4 WHERE STORMWATER PIPES CROSS THE SEWER LINE A CLASS 'A' BED MUST BE PROVIDED 2.0m EACH WAY UNDER THE STORMWATER PIPE.
 - 1.5 ALL RW/PS AND FILLBORE OUTLETS TO BE FILLED WITH WATER, LEFT FOR 24 HOURS AND CHECKED FOR LEAKAGES PRIOR TO BACKFILLING AND POURING OF SURFACE BEDS.
- MATERIALS**
 - 2.1 ALL BRICKS TO BE ENGINEERING UNITS TYPE NFXE-14 AS PER SABS 227 & 285.
 - 2.2 ALL MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 558 - TYPE AS INDICATED ON DETAIL DRAWINGS.
 - 2.3 STEP IRONS TO COMPLY WITH BS 1247.
 - 2.4 ALL CONCRETE PIPES MUST COMPLY WITH SABS 677 WITH OGEE JOINTS.
 - 2.5 ALL PIPES WHICH ARE EXPOSED IN THE BASEMENT MUST BE uPVC CLASS 12 TO SABS 791.
 - 2.6 ALL PIPES INSIDE COLUMNS MUST BE uPVC CLASS 34 HD TO SABS 791.
 - 2.7 ALL HDPE PIPES TO COMPLY WITH SABS 533 TYPE IV CLASS 12 WITH FLASSON COMPRESSION FITTINGS.
 - 2.8 ALL uPVC PIPES AND FITTINGS UNDERNEATH SURFACE BED TO BE CLASS 34 HEAVY DUTY AS PER SABS 791 (110mm TO 250mm Ø).
 - 2.9 ALL CONCRETE PIPES TO BE IN ACCORDANCE WITH SABS 677 WITH OGEE JOINTS (300mm TO 450mm Ø).

PIPE MATERIAL SPECIFICATION

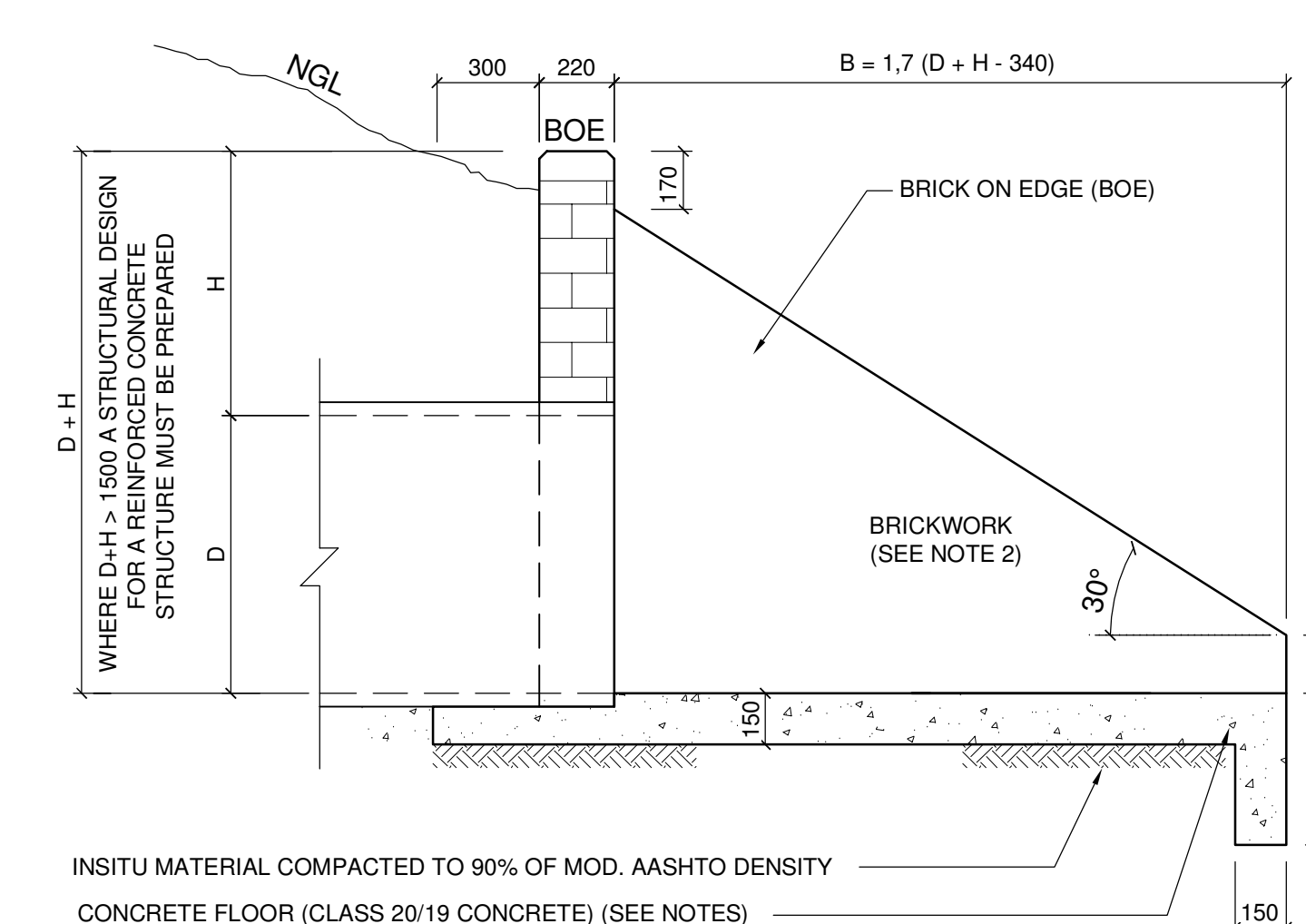
- 160mm DIA. TO 250mm DIA. : uPVC CLASS 34 HD AS PER SABS 791 OR uPVC MAINCORE 400kPa OR uPVC CLASS 9 AS PER SABS 966.
- 300mm DIA. TO 450mm DIA. : CONCRETE CLASS 100'D WITH OGEE JOINTS AS PER SABS 677.

NOTE: ALL PIPE SLOPES ARE 1:100 (1.0%) UNLESS OTHERWISE NOTED.

LEGEND	
	NEW ROAD SURFACE - 60mm PAVERS
	NEW ROAD SURFACE - 80mm PAVERS
	BUILDING PLATFORM AREAS
	EXISTING ROAD AREAS
	LANDSCAPED AREAS
	POSSIBLE FUTURE EXTENSION OF BUILDING
	CONCRETE SURFACE BEDS
	NATURAL STORMWATER CHANNEL
	ERF BOUNDARIES / ROAD RESERVE
	BENCHMARKS / REFERENCE POINTS
	EXISTING GROUND ELEVATIONS
	EXISTING FENCE-LINE
	EXISTING WALL
	EXISTING GUARDRAIL
	EXISTING ROAD SIGN
	EXISTING SIGN BOARD
	EXISTING DISTANCE MARKER
	EXISTING REFUSE BIN
	EXISTING TRAFFIC SIGNAL
	EXISTING STREET LIGHT POLE
	EXISTING ELECTRICAL MAST/POLE
	EXISTING ELEC. LINE
	EXISTING ELEC. OVERHEAD LINE
	EXISTING ELEC. MANHOLE
	EXISTING ELEC. BOX/TRANSFORMER
	EXISTING SEWER PIPE
	EXISTING SEWER MANHOLE
	EXISTING SEWER CLEANING EYE
	EXISTING STORMWATER PIPE
	EXISTING STORMWATER MANHOLE
	EXISTING WATER PIPE
	EXISTING WATER END CAP
	EXISTING WATER VALVE
	EXISTING WATER METER
	EXISTING TELKOM CABLE
	EXISTING TELKOM MANHOLE
	EXISTING TELEPHONE POLE



PLAN
SCALE 1:20



SECTION A-A
SCALE 1:20

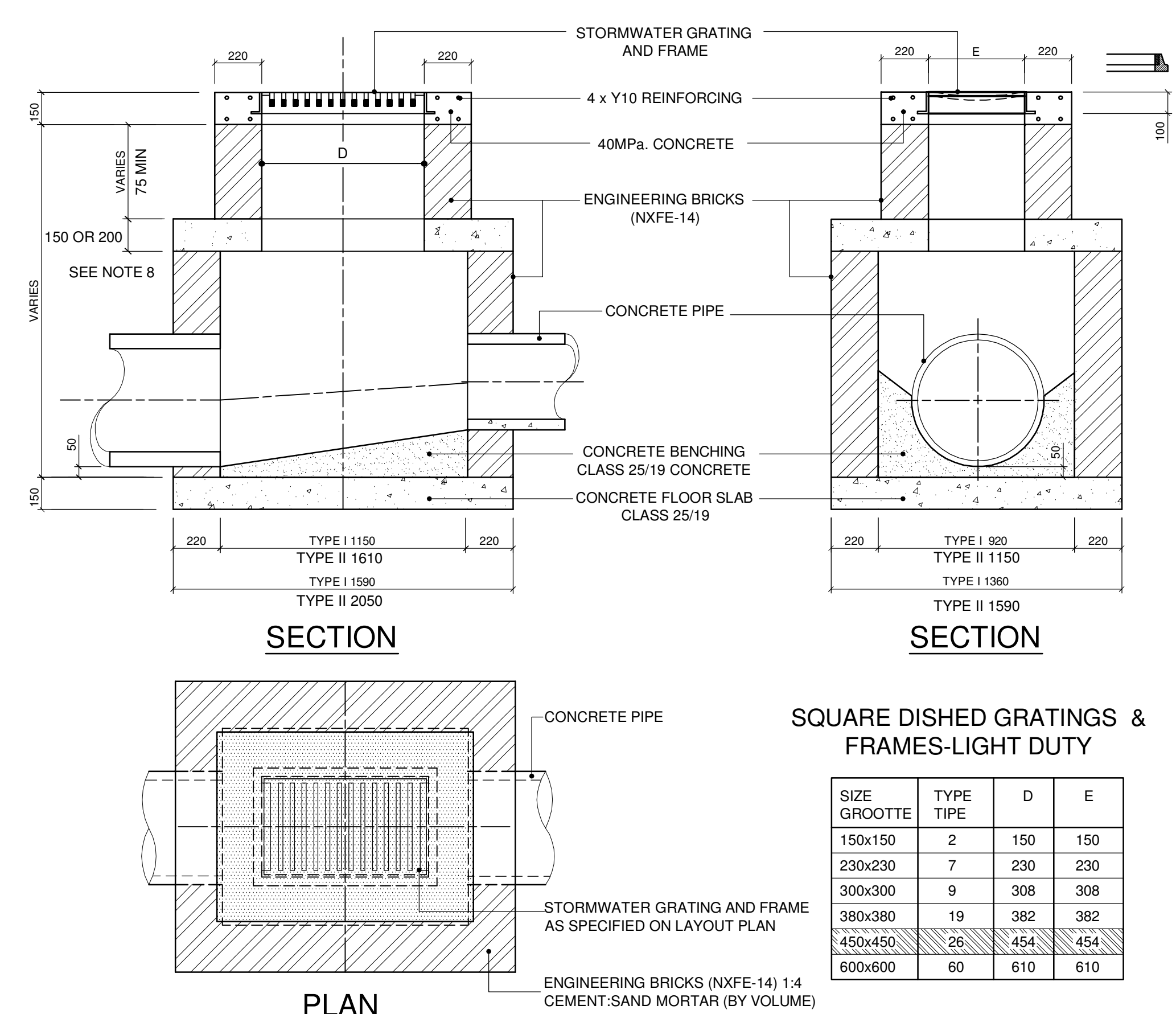
PIPE DATA: SW_01				
NAME	SIZE	MATERIAL & CLASS	LENGTH	SPAN
P1	450 Ø	INTERLOCKING 1000 SANS 677	33.3 m	MH1 - MH2
P2	450 Ø	INTERLOCKING 1000 SANS 677	16.9 m	MH2 - MH3
P3	450 Ø	INTERLOCKING 1000 SANS 677	17.0 m	MH3 - MH4
P4	450 Ø	INTERLOCKING 1000 SANS 677	10.2 m	MH4 - MH5
P5	450 Ø	INTERLOCKING 1000 SANS 677	14.0 m	MH5 - MH7
P6	450 Ø	INTERLOCKING 1000 SANS 677	3.0 m	MH7 - MH8
P7	450 Ø	CONTINUOUS GI	29.7 m	MH4 - MH5

NOTES:

1. BRICKS TO BE ENGINEERING UNITS (NFXE-14) AS PER SABS 227.
2. ALL GRATES AND FRAMES TO COMPLY WITH SABS 558.
3. TYPE AND CLASS OF PIPE AS SPECIFIED ON LAYOUT DRAWING.
4. SIZE OF GRID AS SPECIFIED ON LAYOUT DRAWING.
5. FOR PIPES UP TO 675mm DIAMETER USE TYPE I MANHOLE.
6. FOR PIPES 750 TO 900mm DIAMETER USE TYPE II MANHOLE.
7. FOR PIPES 1050 TO 1350mm DIAMETER USE TYPE III MANHOLE TURNED THROUGH 90°.
8. ROOF SLAB THICKNESS FOR TYPE I MANHOLE TO BE 150mm. TYPE II MANHOLE TO BE 200mm.

- NOTES:**
1. MASONRY WALLS OF OUTLET STRUCTURE
 - 1.1 MASONRY WALLING SHALL CONFORM IN ALL RESPECTS TO THE REQUIREMENTS OF SABS 0164 PART 1 - 1980.
 - 1.2 MORTAR SHALL BE CLASS II (COMPRESSIVE STRENGTH OF 7 MPa AT 28 DAYS).
 - 1.3 THE REQUIREMENTS SET OUT IN APPENDIX B OF SABS 0164 PART 1 SHALL BE ADHERED TO UNLESS OTHERWISE APPROVED OR DIRECTED BY THE ENGINEER.
 2. ALL BRICKS SHALL COMPLY WITH SABS 227 AND SHALL BE ENGINEERING UNITS OF CLASS FBS (FACE BRICK STANDARD) WITH A NOMINAL COMPRESSIVE STRENGTH OF 12 MPa.
 - 2.1 ALL CONCRETE TO BE CURED FOR A MINIMUM PERIOD OF 7 DAYS.
 - 2.2 PRECAST CONCRETE BLOCKS IN ENERGY DISSIPATING OUTLETS TO BE CHAMFERED ON EXPOSED EDGES.

TYPICAL OUTLET STRUCTURE DETAILS



SECTION

SECTION

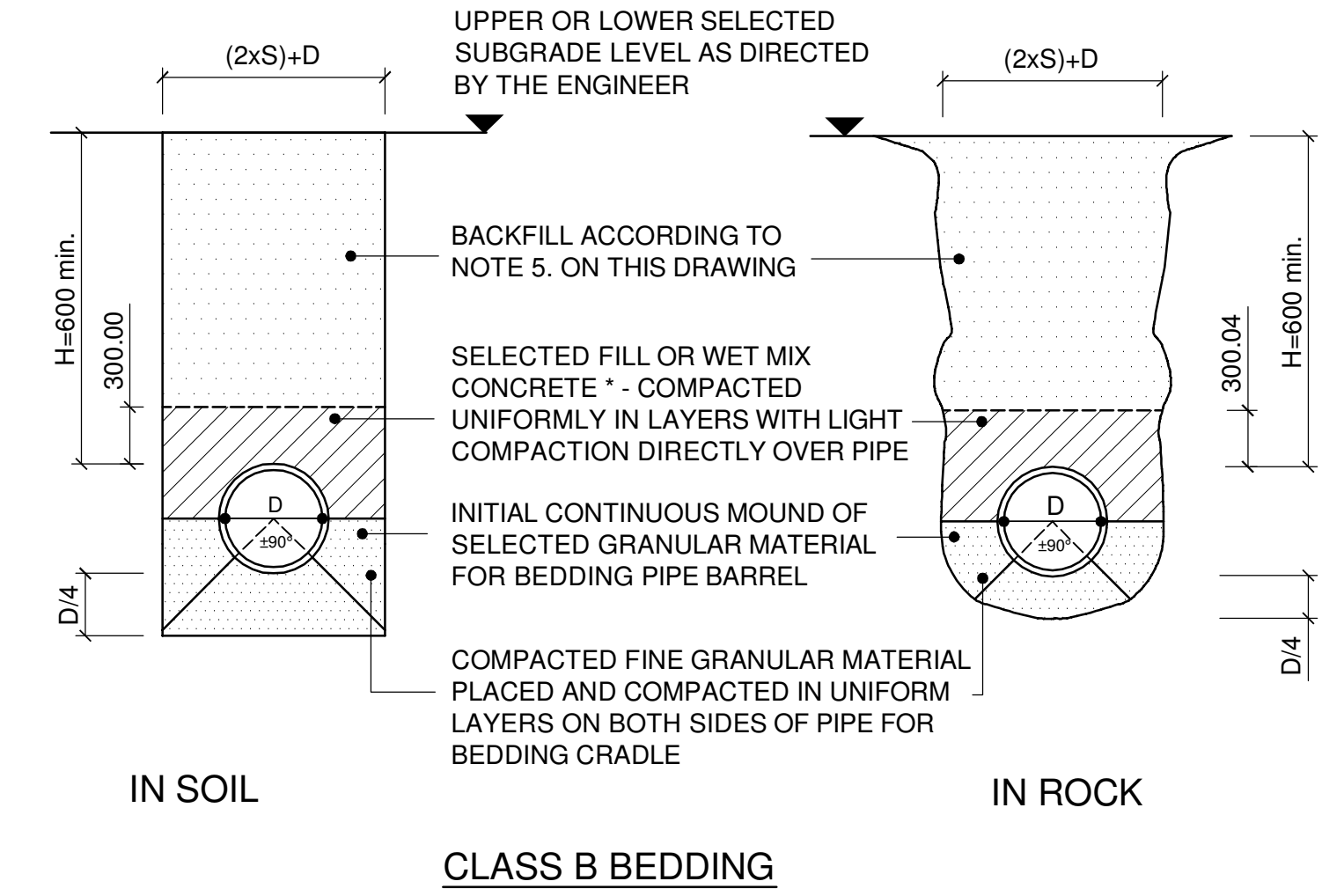
PLAN

SQUARE DISHED GRATINGS & FRAMES - LIGHT DUTY

SIZE	GROOTEE	TYPE	D	E
150x150	2	150	150	
230x230	7	230	230	
300x300	9	300	300	
380x380	19	382	382	
450x450	20	454	454	
600x600	60	610	610	

TYPICAL STORMWATER GRID INLET DETAILS

STRUCTURE DATA: SW_01					
NAME	DESCRIPTION	SIZE	Y-COORD	X-COORD	DETAILS
MH1	GRID INLET (x1)	450 x 600	-13100.709	2862958.493	DEPTH = 0.736m P1 INV OUT = 1487.167
MH2	JUNCTION BOX TO DETAIL	-13100.709	2862991.825		DEPTH = 2.045m P1 INV IN = 1488.928 P2 INV OUT = 1486.928
MH3	GRID INLET (x1)	450 x 600	-13091.911	2863006.258	DEPTH = 1.562m P1 INV IN = 1488.928 P3 INV OUT = 1486.927
MH4	Null Structure	???	-13075.430	2863001.006	DEPTH = 5.314m P1 INV IN = 1488.684 P4 INV OUT = 1486.684
MH5	GRID INLET (x1)	450 x 600	-13045.748	2863001.006	DEPTH = 2.497m P1 INV IN = 1488.471 P5 INV OUT = 1486.471
MH6	GRID INLET (x1)	450 x 600	-13035.542	2863001.770	DEPTH = 2.022m P1 INV IN = 1488.398 P6 INV OUT = 1486.398
MH7	JUNCTION BOX TO DETAIL	-13028.725	2863012.591		DEPTH = 0.825m P1 INV IN = 1488.164 P7 INV OUT = 1486.152
MH8	HEADWALL	TO DETAIL	-13023.679	2863012.591	DEPTH = 1.086m P7 INV IN = 1488.101



CLASS B BEDDING
x=D/4 SUBJECT TO x BEING NOT LESS THAN 100mm AND NOT MORE THAN 200mm

BENCHMARK DATA (WGS84)			
NAME	Y COORD	X COORD	ELEVATION
BM J4	-12993.993	2863008.443	1485.778
BM J5	-13022.334	2862911.951	1484.257

SETTING OUT COORDINATES WGS84 ELEVATIONS: TOP-OF-FINAL			
POINT	Y COORD	X COORD	ELEVATION
SW1	-13100.709	2862958.493	1487.803
SW2	-13100.706	2862967.293	1488.416
SW3	-13106.851	2862958.493	1488.157
SW4	-13106.753	2862967.273	1488.605
SW5	-13101.555	2862958.493	1488.310
SW6	-13101.472	2862967.016	1488.754
SW7	-13117.697	2862957.834	1488.000
SW8	-13116.986	2862959.175	1488.658
SW9	-13125.559	2862964.014	1489.177
SW10	-13126.663	2862963.005	1489.598
SW11	-13130.203	2862970.709	1489.590
SW12	-13131.641	2862970.203	1490.040
SW13	-13131.441	2862982.473	1489.314
SW14	-13132.986	2862982.422	1489.800
SW15	-13127.145	2862991.504	1489.081
SW16	-13128.383	2862992.368	1489.526
SW17	-13119.027	2862997.356	1488.848
SW18	-13119.792	2862998.475	1488.205
SW19	-13109.542	2863000.494	1488.555
SW20	-13110.093	2863001.892	1488.020
SW21	-13100.027	2863003.602	1488.416
SW22	-13100.503	2863005.027	1488.854
SW23	-13090.532	2863006.709	1488.360
SW24	-13091.084	2863008.107	1488.792
SW25	-13081.027	2863009.817	1488.992
SW26	-13081.540	2863011.228	1489.192
SW27	-13073.585	2863012.251	1489.496
SW28	-13074.137	2863013.648	1489.506

PIPE BEDDING DETAILS

REV	DATE	BY	DESCRIPTION	CHK	APP
A			INITIAL ISSUE		

INFORMATION



CLIENT: HOWARD ROBINSON ARCHITECTS

PROJECT: CLEWER FILLING STATION

TITLE: STORMWATER LAYOUT AND DETAILS

SCALE @ AS	CHECKED	APPROVED
AS SHOWN	E KOTZE	E KOTZE

DESIGN: R BENCE
DRAWING NO: 17793
DATE: 2014/04/28
PROJECT NO: C1400
REV: A