Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Dear Interested and Affected Party / Stakeholder,

RE: Distribution and Public Review of the Draft Basic Assessment Report for the Proposed Grimsby Road Fuel Filling Station with Associated Infrastructure and Multiple Fast Food Outlets in Mobeni, Ward 64 within eThekwini Municipality, KwaZulu-Natal

As per EIA Regulation GNR 326, April 2017 the Draft BAR is provided for public review and comment for a 30-day period. ***Kindly note that when a State Department is requested to comment in terms of the EIA Regulations, 2017, such a State department must submit its comments in writing within 30 days from the date on which it was requested to submit comments and if such a State department fails to submit comments within such 30 days, it will be regarded that such a State department has no comments.*** All comments received will be responded to and included in the Final version of the Basic Assessment Report, which will be submitted to the KZN DEDTEA for review and decision-making.

Closing Date – 20 January 2019

Enclosed please find a copy of the Draft Basic Assessment with appendices that include the specialist studies completed and the Environmental Management Programme (EMPr) prepared.

Should there be any further enquiries please contact Wasila Vorajee on wasila@1wc.co.za or by using the numbers provided above.

Yours faithfully,

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

Director (Environmental Services), Senior EAP

EIA REF. NO.: DM/0033/2019

DRAFT BASIC ASSESSMENT REPORT (DBAR)

PROPOSED GRIMSBY ROAD FUEL FILLING STATION WITH ASSOCIATED INFRASTRUCTURE AND MULTIPLE FAST FOOD OUTLETS IN MOBENI, WARD 64 WITHIN ETHEKWINI MUNICIPALITY, KWAZULU-NATAL

[November 2019]

Prepared by:

1World Consultants (Pty) Ltd

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Tel: 031 262 8327

Contact: Fatima Peer

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Commissioned by:

Aniston Investments (Pty) Ltd

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1world consultants

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DRAFT BASIC ASSESSMENT REPORT

For the Proposed Grimsby Road Fuel Filling Station with associated Infrastructure and Multiple Fast Food Outlets in Mobeni, Ward 64, within eThekwini Municipality, KwaZulu-Natal

EIA Reference Number: DM/0033/2019

Verification Page				Rev 01
Report No. ENV19008	November 2019		Status	Draft
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Verification	**Capacity**	**Name**	**Signature**	**Date**
Author	Junior EAP	Wasila Vorajee		20 November 2019
Reviewed by	EAP	Roschel Maharaj		20 November 2019
Reviewed by	EAP	Adila Gafoor		21 November 2019
Approved by	Senior EAP	Fatima Peer		21 November 2019

EXECUTIVE SUMMARY

1World Consultants (Pty) Ltd has been appointed by Aniston Investments (Pty) Ltd, to undertake the required environmental services for the proposed construction of a fuel filling station, associated infrastructure and multiple fast food outlets. The proposed development will be situated at 02 Grimsby Road, Mobeni, Durban, eThekwini Municipality.

The proposed development comprises of the construction of a fuel filling station with associated buildings, infrastructure and various fast food outlets. The development will occur over a single plot of land on Grimsby Road (Portion 2 of Erf 821). The current use of the property is a home and décor discount shop called *'Mayfair Home & Décor'*. Access to the site will be from Grimsby Road and South Coast Road. The development area is a known industrial area consisting mainly of other retail and commercial/industrial buildings. The heavily industrialised area is zoned accordingly to its use.

The design of the proposed fuel station is based on a standard urban petrol filling station, of forecourt with canopy, five dispensing islands, pumps with cut-off valves, subsurface piping between storage tanks and pumps, and a separate building structure housing an office, convenience shop as well as toilets.

The current use is aligned to the general area which is characterised by factories, motor related businesses, warehouses and other industrial facilities. However, the proposed development is predicted to be a more viable and expanded use of the site. The site area is surrounded by approximately 12000 households, with one car per household. The socio-economic study of the development, for the subject site confirms this prediction. Furthermore, the location of site is preferred for this type of development as it is centrally located within the Mobeni market.

In terms of the land use, the proposed layout better utilises the site since it has been designed to optimally occupy the site and host more than only one business, as is the current use. This implies more generation of income and also provision of more employment opportunities. Whilst this location is surrounded by approximately 10 existing fuel stations, the rationale hinges on the corner location of the site which enables it to capture traffic from three directions, viz:

- From the N2 entering the Mobeni area, i.e. along Grimsby Road,
- From the North East direction feeding from Clairwood,
- From the South West direction feeding from the Merebank area towards Clairwood.

The traffic is expected to be captured from the three directions without causing excessive traffic impacts, since the site will be accessed via two driveways and provides adequate parking as well.

According to the socio-economic study, the construction phase will create 70 employment opportunities. It is likely that of the people employed in the construction phase, majority will be unskilled. The fact that there exists in the surrounding communities a large pool of unskilled, unemployed labour, it can be anticipated that the majority of this 75% may be made up of local residents. Though the skilled labour may be sourced from further afield, there is enough unemployed skilled labour living in surrounding communities to meet the construction needs of the development. Thus, it can be assumed that a large portion of the direct jobs created (70) in the construction phase will be filled by members of the local community. The operational phase is similarly projected to create 85 employment opportunities. Lastly, the development is expected to improve the visual appeal of what may be regarded as a landmark corner of the area. This will generally improve the value of properties in close proximity to the proposed fuel filling station.

The proposed fuel filling station triggers the need for a Basic Assessment Report. The impacts associated with the proposed development are focused on both the construction and operational phases. Additionally, impacts on Major Hazards Installations, Socio-Economic, Traffic and Geotechnical aspects were also deliberated, and this report now provides all required information to advise on the applied environmental authorisation from EDTEA. Some key impacts were:

- General Construction Activities
- Clearance of Site
- Increased Traffic Frequency on Road Infrastructure
- Dust
- Erosion

- Installation and Use of Ablution Facilities
- Cleaning of Vehicles, Equipment and Construction Areas
- Storage and Handling of Hazardous Chemicals
- Generation of Hazardous Waste
- Production of General Waste and Building Rubble
- Storage, Mixing and Disposal of Cement and Concrete
- Fire Risk
- Generation of Noise from Construction Vehicles and Machinery
- Visual Impacts
- Use of Resources such as Electricity, Water, Oil, Grease, Fuel and Construction Material
- Community health and safety
- Worker health and safety
- Disturbance on Heritage Resources
- Socio Economic Impacts

Specialist studies were conducted to aid in a thorough investigation of the impacts and included:

- A **Geotechnical Study** by Geotechnical Solutions (Pty) Ltd
- A **Storm Water Management Plan** by Bramin Consulting Engineers
- A **Traffic Impact Assessment** by ARUP (Pty) Ltd
- A **Socio-economic Impact Assessment** by Urban Studies.
- A **Major Hazard Installation Risk Assessment** by MHI Risk Engineers

Mitigation measures to minimise or eliminate impacts were identified by the specialists and Environmental Assessment Practitioner (EAP) and were utilised towards the preparation of the Environmental Management Programme (EMPr). The EMPr must be read in conjunction with this BAR and is essential towards the protection of the environmental elements whilst establishing the fuel filling station

A Public Participation Process (PPP) to review the BAR and EMP involved consultation with the relevant authorities, the landowners affected along the way, community leaders and other identified Interested and Affected Parties (I&APs). Newspaper advertisements were published to inform the general public of the Basic Assessment Process. An advertisement was published in English on 19 November 2019 in the Chatsworth Rising Sun Newspaper. Site notices were erected at the site on 19 November 2019. A public meeting was not requested or held prior to the distribution of the Draft BAR.

This BAR has been prepared in Accordance with the EIA Regulations, 2017 and follows the requirements for a BAR in Appendix 1 of GNR 326.

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DRAFT BASIC ASSESSMENT REPORT (REF NO. DM/0033/2019: KZN/EIA/0001262/2019)

1. INTRODUCTION

1World Consultants (Pty) Ltd has been appointed by Aniston Investments (Pty) Ltd, to undertake the required environmental services for the proposed construction of a fuel filling station, associated infrastructure and multiple fast food outlets. The proposed development will be situated at 02 Grimsby Road, Mobeni, Durban, eThekwini Municipality. The site for the proposed activity has been assessed based on a development footprint of approximately 6000 m^2 for the construction phase to allow for all related activities.

The specifications of the fuel filling station, associated infrastructure and multiple fast food outlets are provided in Table 1 below.

Table 1: Proposed Project Specifications

	Fuel Filling Station and Associated Buildings
Ward	Ward 64 eThekwini Municipality
Property Description	Portions 02 Erf 821
Site Size	13 204 m^2
MacDonalds Fastfood Outlet	250.60 m^2
Fuel Station	476.19 m^2
Fueling Garage Shop	326.14 m^2
Line Shop 1	257.14 m^2
Line Shop 2	918.70 m^2
Stairwell	7.98 m^2
Refuse Area	7.92 m^2
First Storey Offices	330.21 m^2
Final Development Footprint (including walkways, etc)	±5384.82 m^2

1.1. Terms of Reference

As per GNR 327 and 324 of the EIA Regulations, 2017, a Basic Assessment (BA) Process has been undertaken. All the environmental outcomes; identified impacts and residual risks of the proposed Listed Activity being applied for have been noted in this BA Report and assessed accordingly by the Environmental Assessment Practitioner (EAP). The requirements of the BA Process have been followed as per Appendix 1 of GNR 326 (2017) and are consequently adhered to in this report.

It must be noted that the Listed Activities in terms of GNR 327 of the 2017 EIA Regulations are applicable to this proposed project and will trigger activities in both the construction and operational phases. This BA Report focuses on the potential impacts that may arise during the demolition, construction and operational phases and provides recommended mitigation measures.

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

1.2. Pre-Application Meeting

A pre-application meeting was held at the KZN EDTEA on 05 April 2019. Minutes from the pre-application meeting and Acknowledgement of Application for EA are provided in Appendix A.

During the pre-application meeting, the EAP introduced the project and presented background information. The Draft Application for EA was reviewed by the Department officials present. Based on the discussions held, Table 2 highlights key points that required attention

Table 2: Comments Received from KZN EDTEA During Pre-Application Meeting

Item	Details
Listed Activities	• Based on the nature and description of the project, it is advised that Listing Notice 1, Activity 14 will be the only applicable trigger. • The site historically falls under a protected critically endangered biodiversity area. However, the entire area has been cleared and is used as industrial presently. • Hence, Listing Notice 3 activities, specifically pertaining to the threshold of storage of dangerous goods, does not apply to this project.
Public Participation Process (PPP)	• The South Durban Community Environmental Alliance (SDCEA) must be included as an I&AP.
Basic Assessment Report (BAR) / Environmental Management Programme (EMPr)	• In terms of health impacts, general impacts can be considered in the impact section of the BAR. Consider fuel emissions from vehicles at petrol stations, etc. However, no "Health Study" needs to be done. The Food Licensing for the outlets must be handled independently of the environmental authorisation by the developer. • Include risk to surrounding buildings • Include zoning information to show that the zoning allows for such development • Include fire risks and mitigation in the EMPr
Specialist Studies	• Stormwater Management Plan must make reference to the oil and grease traps for the food outlets.

1.3. Project Approach

Apply for Environmental Authorisation to the Department regarding the proposed demolition of existing infrastructure (Mayfair Home & Décor) to make way for the proposed fuel filling station with associated buildings, infrastructure and various fast food outlets at Grimsby Road (Portion 2 of Erf 821), eThekwini Municipality.

The overall approach to this Basic Assessment Report included the following activities:

- Desktop Screening of the site in question, to identify environmental sensitivities and constraints;
- Specialist studies, as required per site, to further identify environmental constraints and elements of concern;
- Preparation of Basic Assessment Reports, that: -
    - Provide relevant background of the project,
    - Summarise key findings,
    - Identify and assess impacts of the project during demolition, construction and during operational phase,
    - Provide recommendations and mitigation measures for the responsible demolition, construction and operation of the facility,
    - Provide need and desirability, motivation and impact statement from an environmental perspective, and
    - Preparation of an Environmental Management Program (EMPr) for service providers and the Applicant to utilise as a guideline to allow and prohibit tasks, in keeping with the provided Environmental Authorisation that is granted.

- Public and Stakeholder Participation Process, which allows review of the afore-mentioned BAR, studies and EMPr, for positive engagement which allows holistic, legal and complete processes for the installation and operation of the facility,
- Application for Environmental Authorisation to the Department, which provides all the relevant information for the Competent Authority to make a decision regarding the development.

The Desktop Screening Report that was undertaken for the proposed Grimsby Road Filling Station can be reviewed under Appendix A.

The following sections are the Basic Assessment Report for review and acceptance.

2. BASIC ASSESSMENT REPORT

2.1. Environmental Assessment Practitioner

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

Table 3: Names and Expertise of Representatives of the EAP

Name and Title	Qualifications and Affiliations	Role	Experience at Environmental Assessments
Fatima Peer	B.Sc (Hons) Pr. Sci. Nat., IAIAsa	Senior EAP	10 years
Adila Gafoor	B.Soc. Sci. (Geog) IAIAsa	EAP	5 years
Wasila Vorajee	B.Sc (Hons) Cand. Sci. Nat., IAIAsa	Junior EAP	2 Years

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

2.2. Project Specialists

Table 4: Names and Expertise of Specialists

Name of specialist	Education qualifications	Field of expertise	Section/s contributed to in this basic assessment report	Title of specialist report/s as attached in Appendix E
Yashvir Bramin	B.Sc. Eng. (Civil)	Civil and Structural Engineer	Summary of Specialist Study Findings and Impacts (Section 11)	Stormwater Management Report Proposed Fueling Station, Garage Shop and Fast Food Outlet, 2 Grimsby Road, Mobeni, Durban, Lot 821 Pnt 2.
James Harvey Ewusi III	Pr. Tech Eng.	Geology	Summary of Specialist Study Findings and Impacts (Section 11)	Geo-Technical Investigation and Soil Report Dataset (for) Mayfair Discount City (January 2019)
Dr Dirk A. Prinsloo	PhD	Socio-economic Impact Assessment	Summary of Specialist Study Findings and Impacts (Section 11)	Durban Mobeni Retail and Filling Station Study for Aniston Investments (April 2019)
Mohamed Kajee	B.Sc. Eng. (Civil)	Traffic Impact Assessment	Summary of Specialist Study Findings and Impacts (Section 11)	Traffic Impact Assessment, Application made in support of Environmental Assessment, Rezoning and Special Consent Application
Terrence Moothusamy	B.Eng (Chemical Engineering)	MHI Risk Engineers	Summary of Specialist Study Findings and Impacts (Section 11)	Major Hazard Installation Risk Assessment for the Proposed Petrol Station at 2 Grimsby Road, Mobeni, Durban

3. OBJECTIVES OF THE BASIC ASSESSMENT PROCESS

According to the EIA Regulations (2017), Appendix 1 of GNR 326, the objective of the basic assessment process is to, through a consultative process:

"The objective of the basic assessment process is to, through a consultative process

(a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;

(b) identify the alternatives considered, including the activity, location, and technology alternatives;

(c) describe the need and desirability of the proposed alternatives;

(d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine—

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be avoided, managed or mitigated; and

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

(i) identify and motivate a preferred site, activity and technology alternative;

(ii) identify suitable measures to avoid, manage or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored"

4. LOCATION OF THE ACTIVITY

The site is located at 2 Grimsby Road, Mobeni, Durban, within the eThekwini Municipality, KwaZulu-Natal. The development will include the demolition of existing infrastructure (Mayfair Home & Décor) to make way for the proposed new infrastructure. The proposed activity is located in the south of Durban, within Ward 64 of the eThekwini Municipality. The 21-digit Surveyor General (SG) number for the properties affected are provided below. The coordinates for the activity are also provided in table 5 below.

Table 5: Site Details

	Fuel Filling Station and Associated Infrastructure and Multiple Fast Food outlets
Property Description	Portions 2 of Erf 821
SG Number	NOFT00840000282100002
Property Size	13 204 m^2
Zoning	Currently undertaking a rezoning process
GPS Coordinates	29˚ 56' 12.52" S; 30˚ 57' 44.21" E

The southern and western limits of the corner situated site are bound by South Coast Road and Grimsby Road, respectively. The site and the surrounds are generally developed with predominantly commercial building developments.

Figure 1: Locality Map of the Proposed Development (DEA Screening Tool, 2017)

5. PROPOSED PLANS

Proposed plan of the development is provided in Appendix C. The plan depicts the positioning and scale of the:

- filling station including forecourt and tanks;
- convenience store; and
- various fast food outlets.
- Access points, driveways and parking areas,

all on the property size of approximately 1.3204Ha.

The area schedule is as follows:

Site Size	**1.32 Ha**
Fast-food Outlet	**676.02 m²**
• Proposed McDonald's	250.80 m²
• Proposed Open Refuse Yard	15.21 m²
• Proposed Uncovered Outdoor Seating	62.55 m²
• Proposed Uncovered Drive Thru	237.12 m²
• Proposed Covered Drive Thru	30.00 m²
• Proposed Uncovered Walkway and Curbs	80.34 m²
Fuel Station	**476.19 m²**
Fueling Garage Shop	**326.14 m²**
Line Shop 1	**257.14 m²**
Line Shop 2	**918.70 m²**
Stairwell	**7.98**
Refuse Area	**7.92**
First Storey Offices	**330.21**
Final Development Footprint (including walkways, etc)	**±5 2384.62 m²**

5.1. Project Description

The proposed development comprises the construction of a fuel filling station with associated buildings, infrastructure and various fast food outlets. The development will occur over a single plot of land on Grimsby Road (Portion 2 of Erf 821). The current use of the property is a home and décor discount shop called *'Mayfair Home & Décor'*. Access to the site will be from Grimsby Road and South Coast Road. The development area is a known industrial area consisting mainly of other retail and commercial/industrial buildings. The heavily industrialised area is zoned accordingly to its use.

The design of the proposed fuel station is based on a standard urban petrol filling station design, of forecourt with canopy, five dispensing islands, pumps with cut-off valves, subsurface piping between storage tanks and pumps, and a separate building structure housing an office, convenience shop as well as toilets.

5.2. The Proposed Layout Alternative

Two layout alternatives were generated by the architect, for the proposed construction of the filling station and food outlets. Both alternatives fall well within the proposed site boundary.

Appendix C provides A3 drawings of the Layout Plans.

1. Preferred Alternative

This layout represents the preferred layout of the development and can be seen in Figure 2 below. This layout includes the proposed fuel filling station, convenience store and McDonalds Fast Food Outlet. This layout was chosen as the preferred alternative on the criteria of being the best suited for the purpose of the proposed development. The traffic impact study was updated and the configuration of the proposed infrastructure/ buildings in the preferred layout is best suited to allow for easy access and exit into the development.

2. Alternative 1

This layout represents an alternative layout of the development that was proposed in the initial stages of the development and can be seen in Figure 3 below. This layout includes the proposed fuel filling station, associated infrastructure and multiple fast food outlets. This alternative was not chosen by the applicant but was posed as a possible alternative. This layout was not preferred due to the configuration of the proposed infrastructure/ buildings from a traffic perspective.

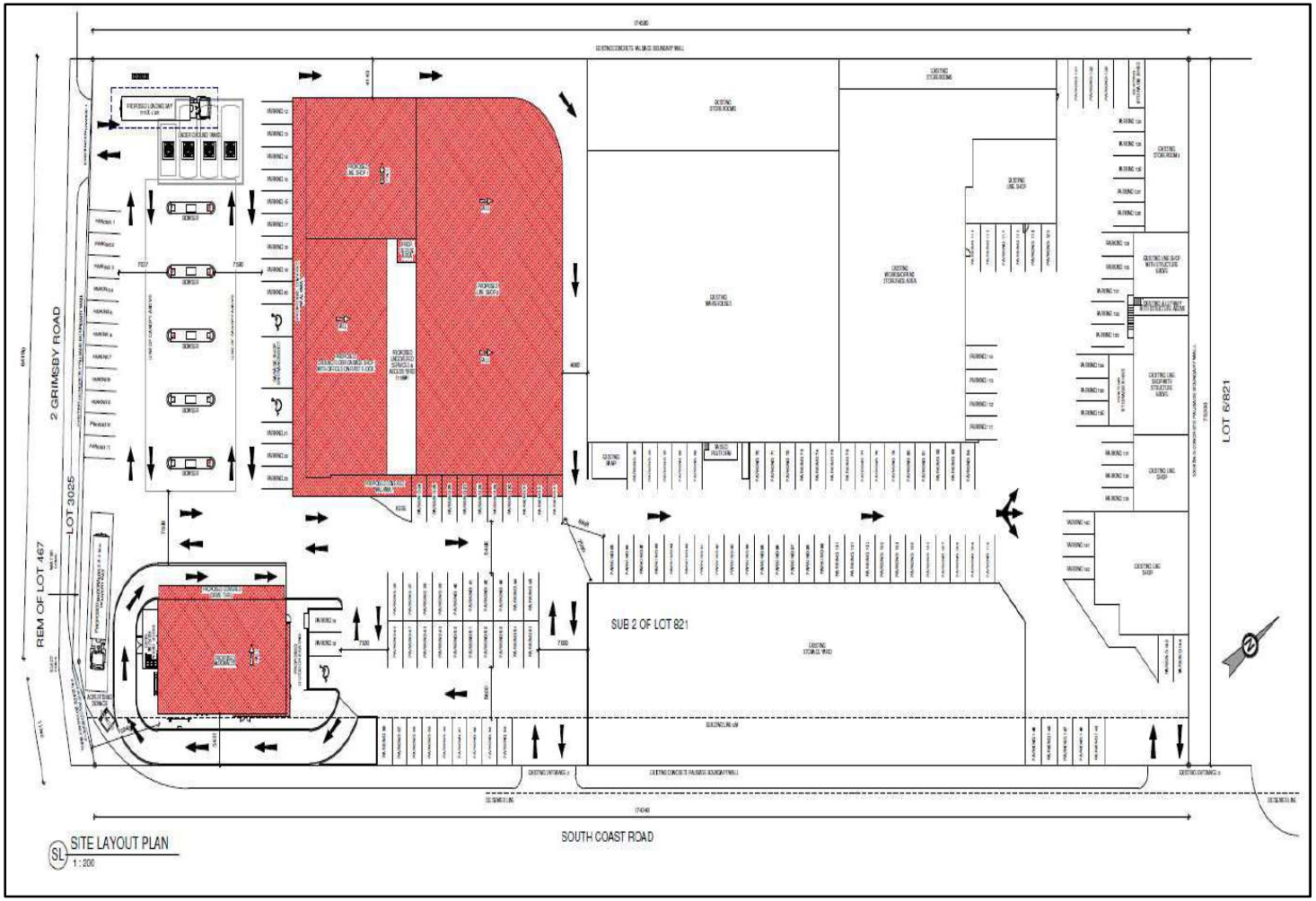

Figure 2: Preferred Layout showing positions of the various components of the developmen

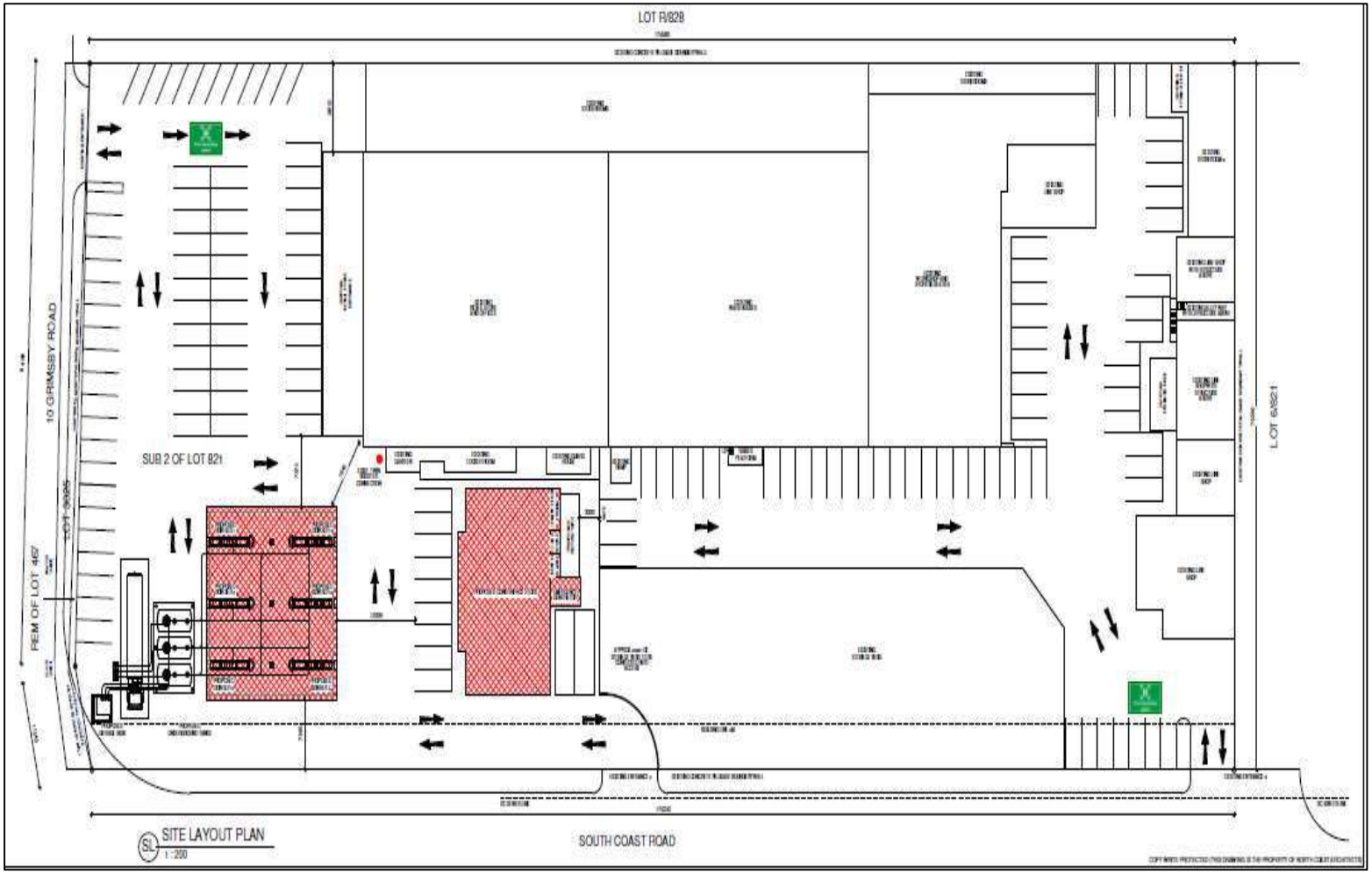

Figure 3: Alternative 1 Showing the Alternative Plan that was Considered and Rejected

6. LEGISLATION AND GUIDELINES APPLICABLE

6.1. Applicable Listed Activities

In terms of the Environmental Impact Assessment (EIA) Regulations (2017), promulgated in terms of the National Environmental Management Act, 1998 (NEMA), certain Listed Activities are specified for which either a Basic Assessment (GNR 327 and 324) or a full Scoping and EIA (GNR 325) is required. The following Listed Activity in Government Notice (GN) R 327 (Listing Notice 1) are triggered, requiring a Basic Assessment (BA) Process for the proposed construction of the petrol filling station (Table 6).

Table 6: Relevant Activities from EIA Regulations, 2017

Activity Number	Description	Applicability
Listing Notice 1: Activity 14	The development and related operation 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.	Developers, Aniston Investments (Pty) Ltd, proposes to construct a filling station which includes the installation of Underground Storage Tanks to store fuel, with a combined capacity of more than 80m^3 (249m^3).

Table 7: Capacities of Underground Storage Tanks (UST's)

Tank	Capacity (m^3)
Unleaded Petrol Tank 1	83m^3
Unleaded Petrol Tank 2	83m^3
Diesel	83m^3
TOTAL VOLUME OF UTS's	**249m^3**

Hence, a BA Process is required. The applicable listed activities, as per Table 7 above, have been identified as triggers for the proposed development. The development triggers this activity as the proposed development includes the installation of Underground Storage Tanks with a combined capacity of more than 80m^3.

6.2. Policy and Legislative Context

Table 8 provides a list of all applicable legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations.

Table 8: Applicable Legislation, Policies and/or Guidelines

Title of Legislation, Policy or Guideline	*Administering authority*	*Date*
National Environmental Management Act (Act 107 of 1998) – for its potential to cause degradation of the environment (Section 28).	Department of Environmental Affairs	1998
EIA Regulations GNR 327 and 324 – for identifying the triggers for a basic assessment.	Department of Economic Development, Tourism and Environmental Affairs	2017
Environmental Conservation Act (Act 73) – for potential environmental degradation.	Department of Environmental Affairs	1989
National Water Act (Act 36 of 1998) – for potential to cause pollution of water resources defined under the Act (Section 19).	Department of Water Affairs and Forestry	1998
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) – for protection of agricultural resources and for control and removal of alien invasive plants.	National Department of Agriculture	1983
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) – for protection of biodiversity.	Department of Agriculture and Environmental Affairs and Ezemvelo KZN Wildlife	2004
The National Heritage Resources Act (Act No 25 of 1999 as amended) – for the identification and preservation of items of heritage importance.	South African Heritage Resources Agency	1999
KwaZulu-Nata Amafa and Research Institute Act, 2018 (Act No. 5 of 2018)	KwaZulu-Natal Amafa and Research Institute.	2018
Guideline 4: Public Participation in support of the EIA Regulations (2005) and EIA Regulations GNR 982 for Public Participation Guidelines.	Department of Economic Development, Tourism and Environmental Affairs	2006 and 2014
EIA Regulations GNR 326 – for guidelines on the process to be followed and the format of the BAR.	Department of Economic Development, Tourism and Environmental Affairs	2017
Public Participation guideline in terms of NEMA EIA Regulations	Department of Economic Development, Tourism and Environmental Affairs	2017
Spatial Development Framework	eThekwini Municipality	2016-2017
Integrated Development Plan	eThekwini Municipality	2013/12 to 2019/20
eThekwini Municipality By-Laws	eThekwini Municipality	Current
National Climate Change Response Plan White Paper	Department of Environmental Affairs	2011
National Environmental Management: Waste Act	Department of Environmental Affairs	2008
National Environmental Management: Air Quality Act	Department of Environmental Affairs	2004

7. NEED AND DESIRABILITY

The proposed development is situated on a single plot of land at the corner of Grimsby Road and South Coast Road. The current use is aligned to the general area which is characterised by factories, motor related businesses, warehouses and other industrial facilities. However, the proposed development is predicted to be a more viable and expanded use of the site. The site area is surrounded by approximately 12000 households, with one car per household. The socio-economic study of the development, for the subject site confirms this prediction. Furthermore, the location of site is preferred for this type of development as it is centrally located within the Mobeni market.

In terms of the land use, the proposed layout better utilises the site since it has been designed to optimally occupy the site and host more than only one business, as is the current use. This implies more generation of income and also provision of more employment opportunities. Whilst this location is surrounded by approximately 10 existing fuel stations, the rationale hinges on the corner location of the site which enables it to capture traffic from three directions, viz:

- From the N2 entering the Mobeni area, i.e. along Grimsby Road,
- From the North East direction feeding from Clairwood,
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The traffic is expected to be captured from the three directions without causing excessive traffic impacts, since the site will be accessed via two driveways and provides adequate parking as well.

According to the socio-economic study, the construction phase will create 70 employment opportunities. It is likely that of the people employed in the construction phase, majority will be unskilled. The fact that there exists in the surrounding communities a large pool of unskilled, unemployed labour, it can be anticipated that the majority of this 75% may be made up of local residents. Though the skilled labour may be sourced from further afield, there is enough unemployed skilled labour living in surrounding communities to meet the construction needs of the development. Thus, it can be assumed that a large portion of the direct jobs created (70) in the construction phase will be filled by members of the local community. The operational phase is similarly projected to create 85 employment opportunities.

Lastly, the development is expected to improve the visual appeal of what may be regarded as a landmark corner of the area. This will generally improve the value of properties in close proximity.

8. CONSIDERATION OF ALTERNATIVES

Ideally, alternatives are considered to evaluate the proposed plans against the No-Go option. Alternatives to the project site selection; layout plans as well as alternatives to construction methodologies and/ or materials used for the development are evaluated. The potential impacts of the preferred alternative are then evaluated in section 12 below.

8.1. MOTIVATION FOR THE PREFERRED SITE, ACTIVITY AND TECHNOLOGY ALTERNATIVE

As per GNR 326 (2017), Appendix 1(2)(b) and 1(3)(g); alternatives for the proposed development to be identified and considered. Chapter 1 of the EIA Regulations provides an interpretation of the word "alternatives", which are options "in relation to a proposed activity, mean(ing) different means of meeting the general purpose and requirements of the activity, which may include alternatives to the-

a) Property on which or location where the activity is proposed to be undertaken;

b) Type of activity to be undertaken;

c) Design or layout of the activity;

d) Technology to be in the activity; or

e) Operational aspects of the activity;

And includes the option of not implementing the activity."

Based on the above, the following alternatives are presented for the proposed development.

8.2. Preferred Site Alternative

The proposed fuel filling station will be situated on a single plot of land situated, in an urban area, at the corner of Grimsby Rd and South Coast Rd, owned by the Developer. The proposed development will be limited to the boundary of the property. The location, size, topography and positioning along the roads in question support the development.

All existing buildings found on proposed site will need to be demolished to make way for the proposed development. Since the site is disturbed, heritage resources of an archaeological nature are not likely to be impacted upon and a Heritage Impact Assessment was not required. The architect has applied for an exemption from AMAFA for demolishing of the existing structure, as the building was not found to have any aesthetical or architectural significance by the Architect. This exemption letter can be found in Appendix E.

Current site access is via Grimsby Road and via South Coast Road. The property is owned by the developer therefore alternate sites were not considered since the development is strongly linked to the site itself. It is therefore more feasible for the proposed development to take place within this property.

Figure 4 below provides an aerial view of the current state of the preferred site alternative, its existing structures and access points.

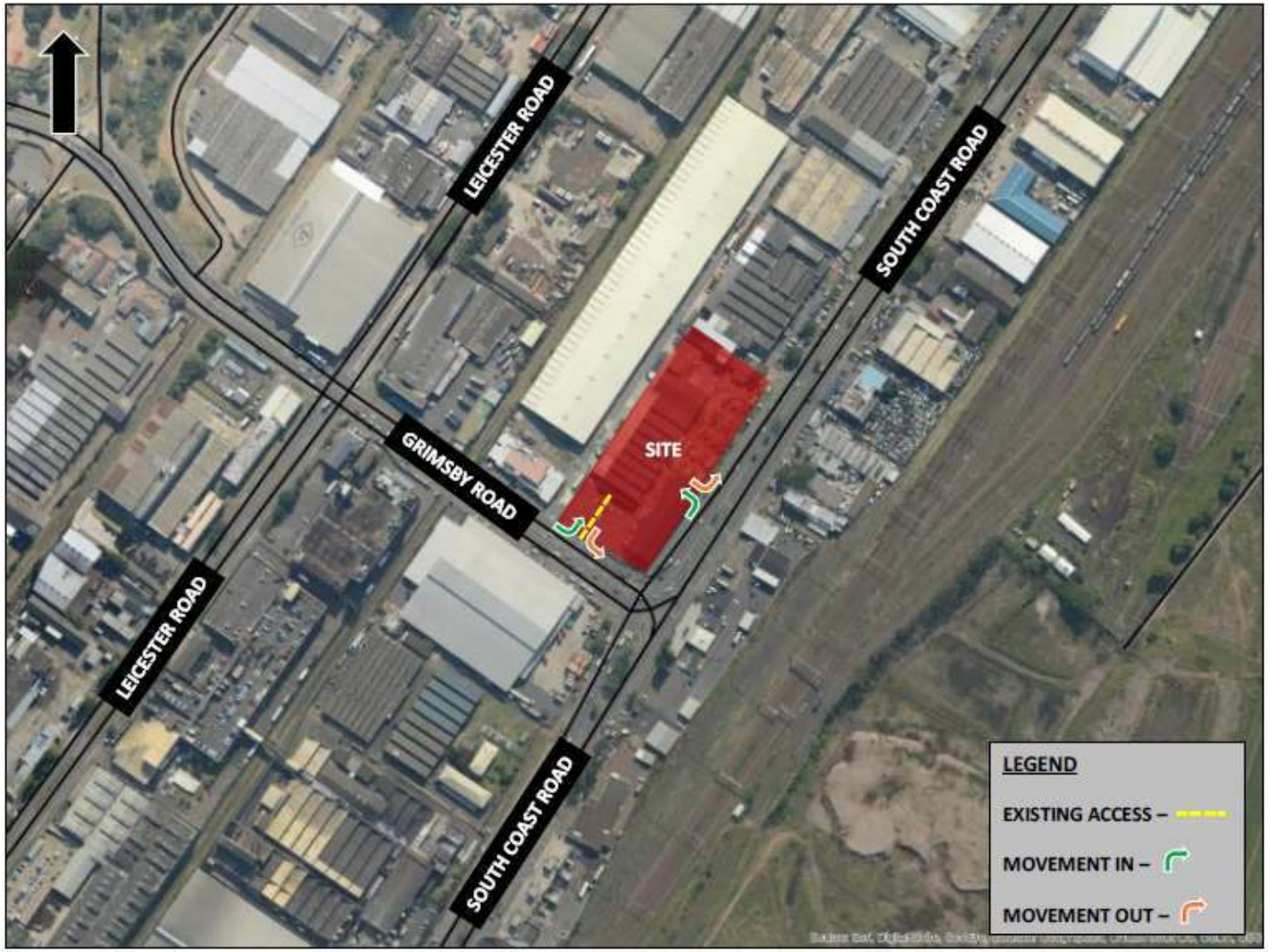

Figure 4: Aerial View of the Preferred Site Alternative

Site Photographs

Plate 1: Existing Building Mayfair home & décor shop

Plate 2: Existing Building Mayfair home & décor warehouse

Plate 3: Existing parking lot in front of Mayfair's warehouse

Plate 4: Existing parking lot in front of Mayfair shop

Plate 5: Existing parking lot

Plate 6: Grimsby Road Entrance into Mayfair

8.3. Preferred Technology Alternative

The Construction of the proposed Fuel Filling Station will be in accordance to applicable SANS standards, and the proposed food outlets and shops.

BP standard designs and drawings are provided in Appendix C.

8.4. No-Go Alternative

The No-Go Alternative is the option of not undertaking the proposed fuel filling station and fast food outlets. There would be no negative environmental implications that may have resulted from the construction and operational phase. Based on the current and projected developments in the Mobeni area, a no-go alternative does not seem necessary. The No-Go Alternative also takes away the potential of an investor, which in turn provides financial aid to the locals (people, shops and other).

The No-Go Alternative is to not construct the fuel filling station, convenience store and food outlets. By not commencing with the development, there will not be a net increase in employment and commercial opportunities in this area.

9. PUBLIC PARTICIPATION

The Public Participation Process (PPP) is a requirement in terms of the 2017 EIA Regulations of the National Environmental Management Act, 1998 (Act 107 of 1998) and it forms an integral part of any EIA process. This section provides information pertaining to the PPP that was conducted by 1World Consultants during this Basic Assessment Process. The purpose of this process is to gather information from the community and relevant Stakeholders that could ultimately affect the decision-making process concerning the planning, construction and operational phases of the proposed development. The community and public have been identified as I&APs and have been given the opportunity to participate in this process. Their comments, whether positive or negative, will influence the decision of the Authorities and the developer's final actions.

9.1. Objectives of the PPP

The PPP has the following objectives:

- To inform I&APs as well as all Stakeholders of the proposed development;
- To provide an opportunity for I&APs and Stakeholders to raise concerns and make suggestions;
- To promote transparency and an understanding of the project and its consequences;
- To serve as a structure for liaison and communication with I&APs and Stakeholders.

Any conclusions agreed upon must be socially, financially and technically acceptable and feasible in order to meet the requirements of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), and the vision of the proposed development.

9.2. Public Participation Process Followed

The following PPP was conducted for the proposed development:

9.2.1. Written Notifications

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

9.2.2. Newspaper Advertisement

A newspaper advertisement was published to inform the public of the BA Process. The advertisement was published in English in the Chatsworth Rising Sun (19/11/2019). A copy of the advertisement is provided in Appendix D.

9.2.3. Site Notice Boards

Site notice boards were erected on the site and in close proximity to the development site on 19 November 2019. As per Chapter 6, Regulation 41(4)(a) of 2017, the size of the notice boards was approximately 60cm by 42cm (size A2). The notice boards have been provided in English with illustrations of the property. A copy of the site notice board and pictures are provided in Appendix D of this BAR. The purpose of the notice board is to inform the community members of the proposed BA Application and the proposed development.

Details of the EAP were also provided to facilitate public participation.

9.2.4. Landowner Notifications

Interested and Affected Parties (I&APs) were identified and notified of the proposed demolition and construction of the filling station and multiple fast food outlets. The BID together with Notification letters were hand delivered to neighbouring land users of the

preferred site on 19 November 2019. The BID provided information on the development and the environmental authorisation application as well as the process to be followed by the EAP. Signed landowner notification letters are included under Appendix D. All landowners/ managers received the BID and were pleased to be informed about the proposed development.

Figure 5 below indicates the landowner notification letter distribution. Table 9 below lists the physical addresses of those identified properties within proximity of the development site. The outcome of distributing the BID during the site visit is stated in Table 9.

Figure 5: Landowner Notification Distribution Map

Table 9: Physical Addresses of Landowners within the Vicinity of 02 Grimsby Road as per Figure 5 Above.

Key	Physical Address	BID Delivery	EAP Comment
☐	2 Grimsby Road, Mobeni	N/A	Client and Development Site
1	3 Grimsby Road, Mobeni	Yes	BID was hand delivered and received by Mr Brendin Naidoo
2	8 Grimsby Road, Mobeni	Yes	BID was hand delivered and received by Ms Balungile Gumede
3	8 Grimsby Road, Mobeni	Yes	The property was inaccessible. A copy of the BID was left with security.
4	1322 South Coast Road, Mobeni	Yes	BID was hand delivered and received by Ms Sharmila Naicker
5	1322 South Coast Road, Mobeni	Yes	BID was hand delivered and received by Mr Mohamed Setar
6	1322 South Coast Road, Mobeni	Yes	BID was hand delivered and received by Mr Vassie
7	1355 South Coast Road, Mobeni	No	The property was inaccessible.
8	1341 South Coast Road, Mobeni	No	The property was inaccessible.

9.2.5. Public Meeting

No public meetings were requested nor required following distribution of the BID, publication of the advertisement and erection of the site notice boards up to date of distribution of this draft BAR.

9.3. Issues Raised by the I&APs

Copies of the Draft BAR will be circulated to the following I&APs for review and comment:

- Department of Transport;
- Ezemvelo KZN Wildlife;
- eThekwini Municipality (all departments are given the opportunity to comment);
- KwaZulu-Natal AMAFA and Research Institute;
- Department of Corporative Governance and Traditional Affairs;
- Department of Water and Sanitation;
- Department of Economic Development, Tourism and Environmental Affairs;
- Ward Councillor (Gavin Hegter);
- Ingonyama Trust Board (Mr PJ Warner);
- South Durban Community Environmental Alliance (SDCEA); and
- Neighbouring properties

All registered I&APs were notified on the availability of the Draft BAR. All I&APs were reminded that in terms of the EIA Regulations (2017), GNR 326 43(2), all State Departments that administer a law relating to a matter affecting the environment, specific to the Application, must submit comments within 30 days to the Environmental Assessment Practitioner (1World Consultants (Pty) Ltd). Should no comment be received within the 30-day commenting period, it is to be assumed that the relevant State Department has no comment to provide.

Comments received on the BID and Draft BAR are summarized below.

Issues Raised Following Review of the BID:

Comment received from various Municipal Departments. Refer to Appendix D for Comments and Responses Report.

Should there be any comments received from I&APs after the distribution of this Draft BAR, these comments will be noted and responded to in the Final BAR.

10. ENVIRONMENTAL ATTRIBUTES (GEOGRAPHIC, PHYSICAL, BIOLOGICAL, SOCIAL, ECONOMIC, HERITAGE AND CULTURAL ASPECTS)

The eThekwini Municipality is located on the east coast of South Africa in the Province of KwaZulu-Natal. KZN is bordered by three district municipalities, namely, iLembe in the north, Ugu in the south and uMgungundlovu in the west. The eThekwini Municipal Area (EMA) spans an area of approximately 2297km^2, extending from Tongaat in the North to Umkomaas in the South and from the coastline in the East to Cato Ridge in the West and is characterized by coastal plains and steep and dissected topography (eThekwini Municipality SDF, 2016-2017).

The eThekwini Municipality (EM) is situated at the centre of the Maputaland-Pondoland-Albany Region, an area described as a "Biodiversity Hotspot", one of only 34 in the world. Over 50% of the world's plant species and 42% of all terrestrial vertebrate species are endemic to the 34 global biodiversity hotspots, despite these areas covering only 2.3% of Earth's land surface. The Maputaland-Pondoland-Albany biodiversity hotspot region is home to more than 7, 000 species of vascular plants, 25% of which are restricted (endemic) to this area (Conservation International, 2013).

The proposed site area is situated within a heavily commercialized and industrialised zone. Historically, the topography of the site was a natural moderately steep gradient which was modified by means of "cut to fill" earthworks in order to form relatively level platforms/terraces for construction of the existing structures. However, this was decades ago and the site now displays a relatively flat aspect although it may receive stormwater from the westerly direction along Grimsby Road.

No significant biodiversity or natural water environmental in and around the area. Although there is D'MOSS located approximately 186m from the site, the site is devoid of D'MOSS. There will be no clearing of vegetation on site as the site is classified as brownfield. As a result, no **Biodiversity** or **biodiversity** Specialist studies were required.

Since the site is disturbed, **heritage resources** of an archaeological nature are not likely to be impacted upon and a Heritage Impact Assessment was not required. The architect has applied for an exemption from AMAFA for demolishing of the existing structure, as the building was not found to have any aesthetical or architectural significance by the Architect. This exemption letter can be found in Appendix E.

With regard to **Social Aspects**, the site is currently occupied and used for commercial purposes. The areas in the immediate vicinity of the proposed activity are used primarily for commercial purposes (Post Office, warehousing and Corobrik).

11. SUMMARY OF SPECIALIST STUDY FINDINGS AND IMPACTS

11.1. Storm Water Management Plan

A stormwater management plan report was compiled in March 2019 by Bramin Consulting Engineers. The purpose of the report is to manage the stormwater runoff of the site in such a manner as to negate the effects of the additional flows into the municipal system, thereby preventing detrimental downstream effects.

In accordance with the National Building Regulations, the eThekwini Municipality policy requires that owners of privately owned sites make provision for and manage their own stormwater runoff. The general level of stormwater management required is that of controlling all runoff emanating from a site, in excess of that which would have occurred if the site was in its natural or original virgin state. Such management may be the provision of soakpits or structures such as attenuation ponds or Tanks (with controlled outlets where necessary), all to ensure that the rate of runoff is reduced to pre-development states and that runoff is not concentrated onto any adjacent or otherwise neighbouring sites.

An attenuation tank with a capacity of 93m^3 will be established to attenuate the difference between the post and pre-development runoff.

Allowances have been made for an overflow pipe in the event of a storm which exceeds a 1:50year return period. Additionally, an access manhole will be established, at the top of the attenuation chamber, for maintenance purposes. Stormwater will be discharged from the attenuation tank to the manhole via the following methods:

1. 1:50 year return period –via a 110 diameter pipe
2. 1:10 year return period – via a 250mm orifice plate.

Please refer to Figure 5 below for a diagrammatic representation of the above-mentioned discharge methods.

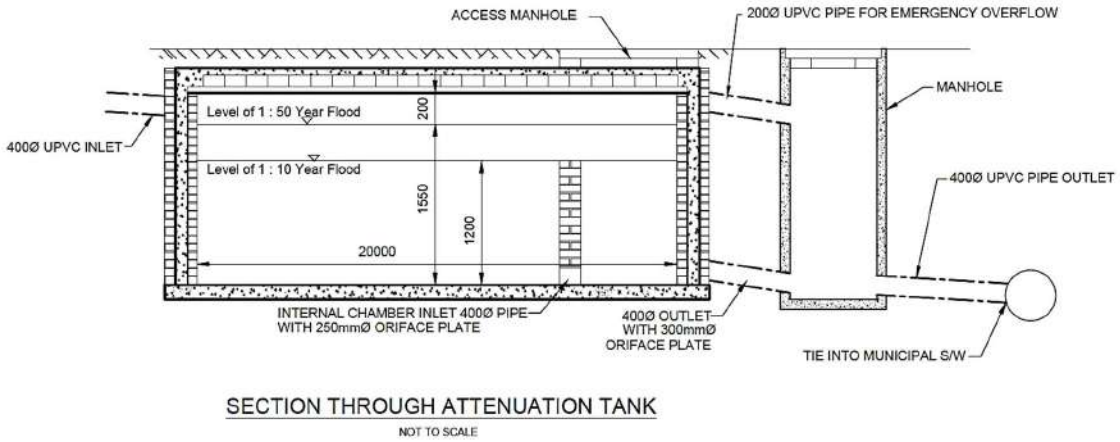

Figure 6: Attenuation Tank

Discharge has been calculated using the Rational method. Results are depicted below.

Area	=	1,320 ha	
Flow Path Length	=	175 m	
Height Of Fall	=	2,00 m	
Average Grade	=	1,15 %	(2 x 100 / 175)
Flow Velocity	=	1,62 m/s	(from Appendix 1)
Flow Time	=	1,81 mins	(175 / 1,615 / 60)
Time Of Entry	=	15 mins	(from Appendix 1)
Time Of Flow In Pipes	=	0,00 mins	
Time Of Concentration	=	16,81 mins	(15 + 1,8 + 0)
Runoff Factor (C)	=	0,87	(from item 3.0 above)

Using the eThekwini Municipal rainfall data for the latitude of 29° 56' 15" and longitude of 30° 57' 42" the following values were extracted:

	M15	M16,8	M30	INTENSITY		
1 in 10 Year Return Period	34,1	35,56	46,2	**126,95**	**mm/h**	(35,56 x 60 / 16,8)
1 in 50 Year Return Period	53,2	55,49	72,2	**198,11**	**mm/h**	(55,49 x 60 / 16,8)

Pre Development Runoff			
1 in 10 Year Return Period	=	**0,4060 m^3/s**	(0,87 x 126,95 x 1,3204 / 360)
1 in 50 Year Return Period	=	**0,6336 m^3/s**	(0,87 x 198,11 x 1,3204 / 360)

The outflow will discharge at a flow rate that does not exceed the predevelopment flow rate, as calculated above. The outflow will discharge into the municipal stormwater system on the lower South Western End of the property.

This development will occur on a brownfields site hence existing infrastructure will be utilised as far as possible. Therefore, returning the site to it pre-development state will not result in any intensive corrective measures. The development will not have any increase in stormwater runoff to the municipal system or to the property down slope of the development site.

Necessary precautions shall be in place to ensure that no petroleum or any other oil particles enter the main municipal stormwater line. The areas under the forecourt, where the filling stations are located, shall have a separate line to catch the run-off and flow into a sand, oil & grease trap, ultimately flowing into the main sewer line. Refer to Figure 6 below for a diagrammatic representation of the a typical grease interceptor to be placed by the specialist where applicable.

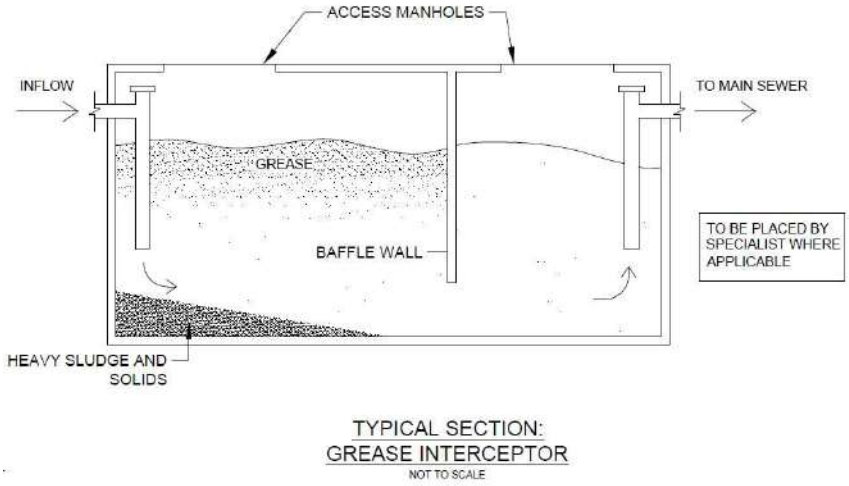

Figure 7: Grease Interceptor

The effluent loading generated by the new floor area of the proposed development will not have a major impact on the municipal system as the existing sewer infrastructure will be removed and replaced. Therefore, no additional effluent will be generated from the proposed development. Refer to Appendix E for letter from engineers.

11.2. Geotechnical Study

A Geotechnical field investigation was carried out on 16 January 2019. The following investigations were conducted on samples taken:

12. Soil Grading Analysis
13. Dynamic Cone Penetrometer (DCP) Testing
14. Percolation Test

On analysis, the samples were found to indicate a soil of Brown to Light Brown moist silty sand underlain with Brown to Pale Brown silty sand. Ground water was found to be present at all the sample points (indicated in the Appendix attached maps of the report). On Maximum Allowable Bearing at all the sample points, the allowable bearing pressures ranged between 90KN/m^2 to 150KN/m^2. The areas designated for parking indicated an allowable bearing pressure of 135KN/m^2 to 150KN/m^2. Areas which results indicate a lack of bearing pressure due to non-refusal would ideally require importing of G7-G5 material and compacting to 95%-98% MOD AASHTO upon which foundations can be founded.

With regard to site stability, the site was noted to be flat however excavations into the overlying sands have a potential for collapse. This must be taken into account for the earthworks and construction phase of developments.

With regard to seepage and drainage, the area is predominantly silty sands. Water permeability through the soils is high and drainage is to the East.

A hydrogeological investigation is not required for the following reasons:

- The current proposed site has warehouses and built existing structures with tarred parking.
- The area of Mobeni s largely industrial and well developed comprising of numerous factories and main access roads.
- Current footprints and operations of the site do not interfere or affect the current groundwater conditions.
- No groundwater resources will be used at any point before, during or after the construction phases.
- No groundwater resources will be utilized for drinking purposes. Water will be accessed through the main municipal supply water line.
- No groundwater resources will be utilized or is required for industrial purposes.
- There are currently no boreholes on site that are affecting the water table level or influencing any current ground water conditions.
- All current and future stormwater drainage will direct into the municipal stormwater system.

According to the geotechnical investigation and the fieldwork conducted, it is considered that the site, in the most part, is generally stable and suitable for development, provided that earthworks are carried out along the guidelines provided in SANS1200. However, the recommendations below and the Geotechnical report under Appendix E must be adhered too. No adverse flaw of a geotechnical nature has been detected and stable development is considered feasible provided that the recommendations set out in the Geotech report are adopted and certified by the professional team including Geotechnical Solutions (Pty) Ltd.

The Geotechnical Investigation Report can be reviewed under Appendix E.

Geotechnical Report Recommendations (as per report)

Methods of construction
All earthworks should be carried out in a manner to promote stable development of the site. It is recommended that earthworks be carried out along the guidelines given in SANS 1200 (current version). A raft type foundation H2 is recommended due to no refusal

or bedrock excavated. The results from the laboratory tests indicate that the Colluvial soils derived from weathering and transportation are loose gravelly silty sands with no manual refusal.

The project consists of the construction of new building structures. The site classification has been established in terms of the NHBRC system and the following foundation solutions are recommended.

Site Class	Foundation Solution
R	Normal – Standard strip footings
H	Normal – Standard strip footings
H2	1. Stiffened Raft Foundation 2. Piled Construction. 3. Modified – strip footings on soil raft or engineered fill

Areas which results indicate a lack of bearing pressure due to non-refusal would ideally **require importing of G7-G5 material and compacting to 95%-98% MOD AASHTO upon which foundations can be founded.** Placement of fill layers should be undertaken in layers not exceeding 200mm thick when placed loose and compacted using suitable compaction plant to achieve at least 93% Modified AASHTO maximum dry density within 1-2% (wet/dry) of optimum moisture. Density control of placed fill material should be undertaken at regular intervals during fill construction. One needs to inspect cut and fill heights greater than 2.0m would and approved by a geotechnical practitioner for stability. **Geotechnical Solutions can carry out compaction test inspections of foundations prior to any concrete poured.**

Excavation stability requirements and batter slopes
As a guide, Temporary side slopes of trenches or excavations to a maximum depth of 2m should be restricted to the following:

- Fill, transported soils and sandy residual soils (Topsoil and Colluvial) – 1v:h (vertical:horizontal) up to a depth of 2m. For deeper depths to 3m batters should be formed to 1v:2h provided there is no groundwater seepage. If ground water seepage is observed, then trenches will need to be shored;
- Residual Clay Soils – 1v:0.5h; for deeper excavations up to 3m batter to 1v:2h;
- Highly to Moderately Weathered Bedrock – Vertical (Provided, no daylighting bedding planes or clay gouge is visible);
- Competent tightly/jointed bedrock – Vertical (Provided, no daylighting bedding planes or clay gouge is visible).

Possible risks associated with the construction of the proposed structures
It is recommended that excavations be carried out in the dry season as far as possible and completed/backfilled with a minimum of delay.

Lateral support should be used in all situations where ground water is encountered or instability is observed. Workers should not enter or work below any excavation cuts deeper than 1.5m that is not shored or battered back as described above. It remains the responsibility of the contractor however to fully comply with the requirements of the current Occupational Health and Safety Act.

Drainage and runoff
The Colluvial subsoils are of a clayey nature such that erosion is not considered a high risk. However, the pediment areas where bedrock is shallow, erosion should be kept as low as possible by limiting the flow and velocity of stormwater runoff and by lining drainage channels where necessary.

Stormwater from all roof and paved areas should be piped and collected in surface drains and discharged into a suitably designed stormwater retention system. It is therefore necessary to provide adequate stormwater surface drainage as part of the infrastructure development of the area.

The most important factor in the stable development of the site is the control and removal of drainage surface and ground water from the site. In controlling the erosional effects of surface runoff, it is necessary to limit the distance travelled by the runoff water. Greater distances mean greater volume accumulation and generally more severe erosion.

Earthworks and drainage measure should be designed in such a way as to prevent ponding, or high concentrations, of stormwater or groundwater anywhere on the site, both during and after development. The terraces should be shaped to a gradient to prevent water ponding on the surface and should be graded to direct water away from the fill edges and foundations.

A marked increase in water content at foundation level could result in collapse settlement/heave. Runoff from roofs should be piped from gutters through downpipes and ground pipes into the stormwater system.

At the first stage of site clearance prior to construction, topsoil should be cleared across the area and stockpiled separately for use in later rehabilitation. Once construction is completed then the disturbed areas must be levelled, scarified and topsoiled. Vegetation can then take place by either planting grass sods or by seeding, with a follow up water programme.

11.3. Socio-economic Impact Study

The Socio-economic Impact Study was conducted by Urban Studies in April 2019. The main focus of the research was to understand the dynamic nature of the market and to quantify the retail and filling station development potential for the site. The research also focussed on the socio-economic impact of the development since the market research adds strategic value for the proposed retail and filling station development in Mobeni. The Socio-economic impact study can be reviewed under Appendix E.

The following macro location variables were important to note:

- ➢ The highway road infrastructure is well established in the area. The Mobeni market has good access to both the N2 and M4 highways;
- ➢ The surrounding eThekwini market is well established in terms of residential communities and other supporting land use amenities;
- ➢ The Mobeni area links both the Durban Port and the old Durban Airport which will be utilised as industrial space in future;
- ➢ Mobeni East is experiencing good growth with the focus on large scale distribution and warehouse facilities;
- ➢ The formal shopping centre supply in the Mobeni market is limited and therefore creates a potential gap in the marketplace.

Site Evaluation

- The site received a location rating of 78%, which is regarded as “good”
- Regarded as a good site centrally located within the Mobeni market;
- Strong competition exists – however the existing facilities are not as well located as the proposed development;
- The additional facilities (including building materials/ hardware) will further enhance the attractiveness of the site in future.

Demand Model

The demand model section is broken up into: fuel demand, convenience retail and hardware/ building materials demand.

Fuel Demand – traffic volumes are expected to grow at 3% per annum over the next 5 years. The study was done with only considering traffic volume running east on Grimsby Road and the traffic running north on South Coast Road, but still showed a significant increase in estimated liters that will be demanded.

Convenience retail demand – based on 2019 traffic volumes, hence fuel demand, the retail potential ranges to R800 000 at its highest. The market potential for a hardware store at the site shows a significant turnover sufficient to warrant a store of size 2500m^2.

Job Opportunities
Table 9 below shows the number of job opportunities that will be created as a result of the Mobeni development. Note that the table shows both the development phase and the operational phase job opportunities.

Table 10: Job Opportunities created due to the Proposed Development

Land Use	Job Opportunities	
	Development Phase	Operational Phase
Filling Station	35	40
Fast Food	10	15
Hardware/ Building Supplies	25	30
Total	**70**	**85**

- The total number of job opportunities created will be ±155. This includes both the development/construction phase and the operational phase;
- The impact of the development on other filling stations is estimated at 2%-3%. This correlates with the expected interception rate for the proposed Mobeni filling station. There are a number of existing filling stations that are not well located nor do they provide an attractive offering;
- The proposed facility will improve the overall attractiveness of the Mobeni area.
- The proposed site is well located within the Mobeni industrial market;
- The surrounding road network is well established and provide good access to the proposed site;

11.4. Traffic Impact Assessment

A Traffic Impact Assessment was conducted by Arup (Pty) Ltd in October 2019. The Traffic Impact Assessment report can be reviewed under Appendix E.

The proposed development will take access off Grimsby Road as well as off South Coast Road (Figure 7). Both accesses to the site will be restricted to left in and left out only. The access on South Road is located in an existing PT lay-bye area and it is recommended that road markings be installed to differentiate the lay-bye from the vehicle access scoop (Figure 8). This road marking plan must be approved by the eThekwini Transport Authority and implemented by the developer.

Figure 8: Access Arrangement

Figure 9: Proposed Lay-bye Marking

Based on the ETA Manual for Traffic Impact Assessments and Site Traffic Assessments recommended rates, the proposed developments is expected to generate 368 trips during the AM peak hour, 511 trips during the PM peak hour and 483 trips during the Saturday peak hour. These trips were then assigned to the road network and added to the background and forecasted years to generate scenarios.

Several scenarios of the proposed development were tested in SIDRA v8.0 to obtain a Level of service for the intersections of significance, namely:

- 2019 Background
- 2019 Background Plus Development
- 2024 Forecast Background
- 2024 Forecast Background Plus Development

It is evident that the analysed intersections are expected to operate at an acceptable overall LOS for all the above-mentioned scenarios.

It is further noted that there is some pedestrian activity that was observed along Grimsby Road in the vicinity of the site. However, adequate sidewalks are already provided along this road. The relatively low pedestrian activity generated by the development may be adequately accommodated by the existing infrastructure.

In addition, public transport vehicles were observed travelling along Grimsby Road and along South Coast Road. However, the proposed development is not expected to generate a significant amount of public transport trips thus the existing PT operations will suffice.

Therefore, after analysis, from a traffic and transportation point of view, the proposed development does not impede on the operation of the existing road network and thus the current road infrastructure is sufficient to accommodate the said development.

11.5. Major Hazard Installation (MHI) Risk Assessment

A MHI risk assessment was conducted by MHI Risk Engineers (Pty) Ltd in October 2019. The MHI risk assessment report can be reviewed under Appendix E. The aim of the risk assessment is to comply with the MHI Regulations as stated in the Occupational Health and Safety Regulations. The outcome of this risk assessment is to determine an incident would pose to the employees and to the public. The risk assessment will guide the facility on how to plan for an emergency situation.

A Quantitative Risk Assessment (QRA) was conducted according to the SANS 1461 Standard for Quantitative Risk Assessments for Major Hazardous Installations.

The following equipment was assessed:

1. Petrol Tanker (43m^3); and
2. Diesel Tanker (43m^3)

The following analysis was conducted:

a. Consequence Analysis

The following scenarios were analysed for each of the above equipment

- Catastrophic Rupture,
- Leak of entire vessel contents in 10minutes, and
- Leak in vessel for 10 minutes.

The hazardous events analysed were:

- Pool fire,
- Flash fire, and
- Explosion.

The consequential effects for each release was modelled. The worst-case scenarios for each release was plotted on a map. A graph for the effect's distances were also developed. The graph shows the distance from the point of source to the 1% lethality contour and the limits for toxic gas exposure, over pressure and heat radiation. Details can be found with the report.

b. Frequency Analysis

Belvi failure was used to estimate the failure rates in order to determine the failure frequencies. It is assumed that the establishment has all the necessary process safety management systems in place.

c. Risk Analysis

The risk acceptance criteria used is in accordance to SANS1461:

Population Group	Tolerable (deaths/ person/ year)	Intolerable (deaths/ person/ year)
Public	$1x10^{-6}$	$1x10^{-4}$
Employee	$1x10^{-5}$	$1x10^{-3}$

From the above analysis, the following conclusions were derived:

The consequence modelling for both diesel and petrol have similar consequence effects. The worst-case scenario is the catastrophic rupture of the fuel tanker offloading hose which results in the entire contents of the tanker being discharged to the ground. Although the results show that the radiation effects extend outside the site boundary, the presence of a double brick wall, coupled with the fact that the 1% lethality extends into an unoccupied building will reduce the effects of the heat radiation to the neighboring facilities. The maximum extent of the 1% lethality due to the heat radiation covers an area of 430 m^2 or a diameter of 25m around the offloading tanker.

The petrol station becomes a MHI during the offloading of a diesel or petrol tanker. The area on which the heat radiation extends is not an occupied area, in addition there is a 2m double brick wall which will protect people in the heat radiation zone. Since the filling station is located in an industrial area, there is no risk to people within society. Furthermore, the filling station does not pose a threat to the people who may be present in the restaurants. There are no restrictions on the developments within the property. The risk to their employees onsite is within the acceptable range of 1x10-3 and 1x10-4. There are no other hazardous installations on site. If the company is to store LPG on site then the location of the storage area is to be reviewed and the risk profile determined

The petrol station is not classified as a MHI.

The following recommendations must be adhered to:

- A hazard and operability study (HAZOP) is to be conducted at the design phase of the petrol station.
- All aspects of the construction regulations and the occupational health and safety act are to be adhered to.
- All critical tasks to have written procedures.
- A process safety management plan must be implemented to reduce the risk of an accident.
- All recommendations as per Hazard Analysis (Table) must be adhered to

Table 11: Hazard Analysis for proposed petrol station

Plant /Section	Event Incident	Causes	Consequences	Preventative measures in place	Recommended Protective Measures
Petrol/Diesel Truck	Catastrophic rupture of vessel	Accident damage Actions by unauthorised personnel Reversing of tanker Hot work Vapour release Static electricity	Fuel spill – land pollution Pool Fire/ BLEVE Fire	Proposed installation none in place . HAZOP to be conducted before at the design phase	Deliveries to be received in off-peak time Barriers to be installed to prevent accidental collision with paper trucks turning into the neighbour's property Earthing to be installed Speed calm devices to be installed at the entrance and exit of fuel station Drainage of tanker fill points to a retention system Procedure to ensure that the forecourt is closed during deliveries Overfill protection on tanks to prevent spills Stock management system to be implemented to ensure that correct amount of fuel is ordered. Driver controlled delivery equipment Adequate lighting to allow for visibility of the tank truck Provision of firefighting equipment and absorbent material Vent pipe to be located in a safe area Surface must be impervious to prevent fuel seepage into ground water system Warning signs – when truck is being offloaded to make public aware of the hazard. Emergency Response Planning guide to be developed and tested Training of staff Provision of correct PPE Procedures to ensure safe offloading is done
	Large leak on pipe or vessel	Damage by accident Poor maintenance	Fuel spill – land pollution Pool fire BLEVE	None in place new installation. HAZOP to be conducted before at the design phase	Ensure there is a maintenance program in place to check offloading hoses pipes and the tanker , ensure Earthing system to be installed Ensure that offloading hoses are out of the way of moving vehicles when offloading Ensure that the driver or operator is always present during offloading petrol/diesel
	Small leak on a pipe/vessel	Damage by accident Poor maintenance	Fuel spill – land pollution Pool fire BLEVE	None in place new installation. HAZOP to be conducted before at the design phase	Ensure there is a maintenance program in place to check offloading hoses pipes and the tanker , ensure Ensure that offloading hoses are out of the way of moving vehicles when offloading Ensure that the driver or operator is always present during offloading petrol/diesel

Storage tanks	Catastrophic rupture of vessel/piping	Ignition of vapour space Over pressure of vessel Poor engineering design	Fuel spill – land pollution Fire Explosion	None in place, new installation. HAZOP to be conducted before at the design phase	Ensure design of underground storage tanks is done according to internal standards. Ensure that vent valves allow release of pressure inside tank Earthing system to be installed Install flame arrestors on vent lines Ensure leak detection systems are installed to detect underground pipe leaks
	Large leak on pipe or vessel		Fuel spill – land pollution Explosion		Ensure leak detection systems are installed to detect underground pipe leaks Ensure a maintenance plan is developed and followed. Records of maintenance done is to be kept. Ensure maintenance procedures will ensure that the quality of work done is verified. Earthing system to be installed
	Small leak on a pipe/vessel		Fuel spill – land pollution Explosion		Ensure leak detection systems are installed to detect underground pipe leaks Earthing system to be installed Ensure a maintenance plan is developed and followed. Records of maintenance done is to be kept. Staff training Audits on maintenance systems Ensure maintenance procedures will ensure that the quality of work done is verified
Petrol /diesel pump	Catastrophic rupture of vessel/piping	Accident damage	Fuel spill – land pollution Pool fire	None-in place, new installation. HAZOP to be conducted	Install speed calming devices at entrance and exit of fuel station Install fuel pump protection barriers
			Flash fire	before at the design phase	Install emergency shut off valves to limit fuel loss in the event of an accident Earthing system to be installed
	Large leak on pipe or vessel	Poor hose quality Poor maintenance	Fuel spill – Air /land pollution Pool fire Flash fire	None in place, new installation. HAZOP to be conducted before at the design phase	Ensure that internal standards for petrol/hose standards are adhered during design phase Ensure maintenance programs are developed to check hose for regular wear and tear Ensure that operators are trained on the use of the hose pipes and defects are reported immediately to the supervisor Earthing system to be installed
	Small leak on a pipe/vessel	Poor hose quality Poor maintenance	Fuel spill – Air /land pollution Pool fire Flash fire	None in place, new installation. HAZOP to be conducted before at the design phase	Ensure that internal standards for petrol/hose standards are adhered during design phase Ensure maintenance programs are developed to check hose for regular wear and tear Ensure that operators are trained on the use of the hose pipes and defects are reported immediately to the supervisor Earthing system to be installed

12. IMPACT ASSESSMENT

Impact assessment takes into account the nature, scale and duration of positive and negative effects on the environment. All activities that are related to the proposed construction and operation of the proposed development that could have some impact on the environment were identified. These impacts can be environmental, socio-economic or cultural in nature. Impacts are often not only confined within the direct scope of the proposed activity and can accumulate as a network of indirect impacts on the surrounding area. Different impacts are associated with the construction and operational phases of the proposed activity.

The following potential impacts were identified for the construction phase:

- Traffic pressures and access
- Soil erosion
- Stormwater management
- Ground water pollution
- Waste management
- Noise disturbance
- Air quality
- Visual quality
- Public health and safety
- Heritage impacts
- Socio-economic impacts

The following potential impacts were identified for the operational phase:

- Stormwater Management
- Surface runoff
- Noise and disturbance
- Visual quality

The project is likely to induce only site-specific environmental and/or social impacts. The project is proposed to be implemented at relatively contained areas.

12.1. Methodology

EIA Regulation and GNR 326 (2017) prescribes the requirements and aims of environmental impact assessments. In terms of the regulations, the following objectives are specified:

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

The impacts of any development including the construction and operational phases are identified, using the following definitions (Table 12):

Table 12: Impact Description

Term	Description
Significant Impact	*an impact that may have a notable effect on one or more of the aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.*
Cumulative impact	*In relation to an activity, means the past, present and reasonably foreseeable future impact of an*

	activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

The potential impacts are listed and assessed for significance. Significance is assessed by scoring each impact based on four variables viz. probability, severity, duration and spatial impact. The four variables, with their score criteria are detailed below in Table 13 and 14:

Table 13: Impact Significance

Score	Frequency/ Probability (FR) (Frequency or likelihood of activities impacting on the environment)	Severity (SV) (Degree of change to the baseline environment in terms of reversibility of impact; Sensitivity of receptor, duration of impact and threat to environment and health standards)	Duration (DR) (Length of time over which activities will cause change to the environment)	Spatial Scope (SS) (Geographic overage)
1	Almost Never / impossible	Insignificant / not harmful / totally reversible	One day to a month	Activity Specific
2	Very seldom / highly unlikely	Small / potentially harmful / reversible within 05 years	One month to a year	Site specific
3	Infrequent / seldom	Significant / slightly harmful / needs specific mitigation to reverse in a time span of between 05 and 15 years	One year to ten years	Area
4	Often / regular	Great / harmful / irreversible	Life of project	Regional
5	Daily / Highly regular	Disastrous / extremely harmful / totally irreversible and damaging	Post closure	National

The impacts are also scored taking any mitigation into consideration. The impacts are scored and scaled for significance in Table 13 as follows:

Table 14: Impact Rating and Description

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

12.2.Impacts Identified

The impacts of the demolition, construction and operation phases for the proposed construction of the proposed development are summarised in Tables 15-28 below.

The duration of the construction phase is estimated to take 18-24 months.

Table 15: General Construction Activities Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Construction	**General Construction Activities** Potential harm to the environment due to workers or contractors being unaware of how their activities may impact the environment or due to unauthorised access to the site.	Direct	**Without**	4	3	4	2	13	**Medium**
			With	3	2	1	1	7	**Low**
			Mitigation measures: • The contractor is to ensure that all employees, including sub-contractors and their employees, are required to attend on-site Environmental Awareness Training prior to commencing work on site. • Follow-up Environmental Awareness Training may be required from time to time as new subcontractors or crews commence work or for specific activities that may potentially impact the environment, or if work is being undertaken in sensitive environments. • The contractor is to maintain accurate records of any training undertaken. • Training is to cover all aspects of the EMPr, procedures to be followed, the sensitivity of the site and importance of adhering to "no-go" areas. • The ECO must monitor the contractor's compliance with the requirement to provide sufficient environmental awareness training to all site staff. • Environmental signage is to be displayed on the site including – "no smoking", "fire hazards", etc. • Emergency numbers are to be clearly displayed. • Access to fuel and other equipment stores is to be strictly controlled. •						
Construction	**Storage, mixing, and disposal of cement and concrete** Potential water pollution and damage to stormwater infrastructure	Direct	**Without**	4	3	4	2	13	**Medium**
			With	3	2	1	1	7	**Low**
			Mitigation measures: • No mixing of concrete or cement directly on the ground is permitted. The mixing of concrete will only be done on a mixing tray or on impermeable sheeting. This is to avoid damage to existing infrastructure and built environment. • Ready-mix trucks are not permitted to clean chutes on site. Cleaning into foundations or a dedicated cleaning pit is permitted.						

	(i.e. drains) due to incorrect management of concrete and cement.		• Bricklayers and plasterers are to minimise any cement spill or runoff in their work area and are to ensure that the work area is cleaned of all cement spillage at the end of each workday. • Both used and unused cement bags are to be stored in weatherproof containers so as not to be affected by rain or runoff. • Contaminated soil resulting from concrete or cement spills, including residue produced by the washing of cavities, is to be removed immediately after the spillage has occurred and placed on the appropriate rubble stockpile. • Clean stormwater must be kept away from areas where it could be contaminated and must be directed to the stormwater drainage system.

Table 16: Groundwater and Soil Contamination

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Construction	**Clearing of areas for infrastructure:** Excavations for foundations and underground tanks; construction of infrastructure; site stormwater management; operation of vehicles on site; stockpiling of soils; and storage area.	Direct	**Without**	4	3	4	2	13	**Medium**
			With	3	2	1	1	7	**Low**
			Mitigation measures: • The stormwater management design for the area must be evaluated to ensure that dirty water does not flow from the site into the stormwater drainage channels. • Sediment trapping berms and temporary erosion control measures must be implemented during the construction phase. • During the construction phase vehicles and machinery must make use of existing access routes, before adjacent areas are considered for access. • Storage areas must be clearly demarcated and located away from open drainage infrastructure. • During construction contractors used for the project must have spill kits available to ensure that any fuel or oil spills are cleaned-up and discarded correctly. • All machinery and equipment must be inspected regularly for faults and possible leaks, these must be serviced off-site. • All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials must be supported. • All earthworks should be carried out in a manner to promote stable development of the site. It is recommended that earthworks be carried out along the guidelines given in SANS 1200 (current version). • A raft type foundation H2 is recommended due to no refusal or bedrock excavated. • Placement of fill layers should be undertaken in layers not exceeding 200mm thick when placed loose and compacted using suitable compaction plant to achieve at least 93% Modified AASHTO maximum dry density within 1-2% (wet/dry) of optimum moisture. • Density control of placed fill material must be undertaken at regular intervals during fill construction. One needs to						

			inspect cut and fill heights greater than 2.0m would and approved by a geotechnical practitioner for stability. **Geotechnical Solutions or a qualified geotechnical engineer must carry out compaction test inspections of foundations prior to any concrete poured.** • *Excavation stability requirements and batter slopes* As a guide, Temporary side slopes of trenches or excavations to a maximum depth of 2m should be restricted to the following: o Fill, transported soils and sandy residual soils (Topsoil and Colluvial) – 1v:h (vertical:horizontal) up to a depth of 2m. For deeper depths to 3m batters should be formed to 1v:2h provided there is no groundwater seepage. If ground water seepage is observed, then trenches will need to be shored; o Residual Clay Soils – 1v:0.5h; for deeper excavations up to 3m batter to 1v:2h; o Highly to Moderately Weathered Bedrock – Vertical (Provided, no daylighting bedding planes or clay gouge is visible); o Competent tightly/jointed bedrock – Vertical (Provided, no daylighting bedding planes or clay gouge is visible). • *Possible risks associated with the construction of the proposed structures:* • It is recommended that excavations be carried out in the dry season as far as possible and completed/backfilled with a minimum of delay. • Lateral support must be used in all situations where ground water is encountered or instability is observed. Workers must not enter or work below any excavation cuts deeper than 1.5m that is not shored or battered back as described above. It remains the responsibility of the contractor however to fully comply with the requirements of the current Occupational Health and Safety Act. • *Drainage and runoff* The Colluvial subsoils are of a clayey nature such that erosion is not considered a high risk. However, the pediment areas where bedrock is shallow, erosion must be kept as low as possible by limiting the flow and velocity of stormwater runoff and by lining drainage channels where necessary. • Stormwater from all roof and paved areas must be piped and collected in surface drains and discharged into a suitably designed stormwater retention system. It is therefore necessary to provide adequate stormwater surface drainage as part of the infrastructure development of the area. • The most important factor in the stable development of the site is the control and removal of drainage surface and ground water from the site. In controlling the erosional effects of surface runoff, it is necessary to limit the distance travelled by the runoff water. Greater distances mean greater volume accumulation and generally more severe erosion.						
Construction		Direct	**Without**	4	3	4	2	13	**Medium**

	The cleaning of vehicles, equipment and construction areas.		**With**	2	1	1	1	5	**Low**
			Mitigation measures: • No washing of vehicles or equipment is permitted on site. • Cleaning of equipment is to take place within designated areas. • A dedicated cleaning area is to be demarcated to facilitate washing of all cement and painting equipment. • No wastewater may be disposed on site, onto soil or into any water body. • Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site. • Clean stormwater must be kept away from areas where it could be contaminated and must be directed to the stormwater drainage system.						
Construction	Groundwater and surface water pollution due to underground tank leakage.	Direct	**Without**	4	3	4	3	14	**High**
			With	2	2	1	1	6	**Low**

			Mitigation measures:
			• Fuel tanks must be thoroughly inspected before installation for any apparent fractures or damage to the tank and ensure that the protective coating of the tank is intact. Should there be any obvious or suspected damage to the tank it is the contractors responsibility to inform the fuel company before continuing with the installation of the tank.
			• Tanks should be located towards the lower levels of the site as this provides a natural gradient for the pipelines up to the dispensers.
			• Where two or more tanks are placed in a common excavation, a minimum spacing of 500 mm between tanks must be allowed.
			• The excavation must be protected against the ingress of surface runoff water, and is to be kept reasonably free of sub-surface water by pumping out if necessary.
			• Where a Contractor finds a high water table on an installation, he must contact the Engineer before installing the tank.
			• Type II, double wall steel, underground storage tanks will be used to lessen the likelihood of leaks
			• Leak detection monitoring device mounted into tank to detect any leaks before significant contamination occurs.
			• External corrosion protection coating has been built into the tank design to reduce corrosion and ultimately lessen the likelihood of leaks.
			• Spills that result in the contamination of ground and/or surface water must be reported immediately to the ECO
			• Spills must be managed in the following manner:
			  ○ Stop the spill
			  ○ Contain the spill
			  ○ Report significant spills to DWS and the Local Municipality Water and Sanitation Department.						

			○ Remove spilled material for treatment/disposal. ○ Determine any possible impact to soils, groundwater, storm water, etc. ○ Undertake any necessary remedial actions ○ Document the spill						
Operational	Groundwater and soil contamination due to operation of the filling station and food outlets.	Direct	**Without**	4	3	4	3	14	**Medium**
			With	2	2	2	1	7	**Low**
			Mitigation measures: • Sewerage and stormwater infrastructure must be protected against contamination by grease and flammable substances utilised or sold on the site. Grease, oil and solid traps with suitable grease removal facilities must be installed. • Regular inspection programs to ensure that the tanks are in optimal condition and all related infrastructure is intact. • Signs must be posted at the pump instructing customers not to top off fuel tanks and to notify an employee in the event of a spill. • Emergency shutoff switches must be plainly labelled. • A spill contingency plan must be available on site and staff must be appropriately trained to contain and dispose off contaminated materials. • A notification list, including the names and phone numbers of local management, fire and police and spill response contractors. • Routine spot cleaning of small spills at fueling areas with dry methods. Dry methods include using rags or absorbents. • An adequate supply of absorbent materials must be readily available • The EMPr must be strictly adhered to.						

Table 17: Soil Erosion and Stormwater Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Construction	**Stormwater management** Increase run-off as a result of construction activities and bare, exposed ground.	Cumulative	**Without**	4	3	4	2	13	**Medium**
			With	3	2	2	1	8	**Low**
			Mitigation measures: • The contractor is to adhere to and implement the SWMP. • The earthworks operation must be carried out by a suitably qualified contractor. • Clean storm water must be kept away from ablution facilities where it could be contaminated and must be directed to the storm water drainage system. • The designs have allowed for sufficient stormwater drainage. Drainage channels must be lined to reduce the flow and						

			velocity of stormwater runoff (where necessary). • The terraces will be shaped to a gradient to prevent water ponding on the surface.						
Operational	**Stormwater management** Runoff will lead to pollution of stormwater	Cumulative	**Without**	4	3	4	2	13	**Medium**
			With	3	2	1	1	7	**Low**
			Mitigation measures: • Stormwater from all roof and paved areas will be piped from gutters through downpipes and ground pipes into the stormwater system. Thereafter, discharged into the attenuation tank before entering the municipal system. • Clean storm water must be kept away from areas where it could be contaminated and must be directed to a storm water drainage system. • The storm water drainage system must be maintained and not contaminated by other waste sources.						

Table 18: Traffic Pressures and Access Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Construction	**Increased Traffic Frequency on Road Infrastructure**: Potential wear of access roads, potential accidents on access roads, potential unpermitted transport of materials and potential loss of materials being transported on the access roads.	Direct	**Without**	4	3	4	3	14	**Medium**
			With	3	2	2	2	9	**Low**
			Mitigation measures: • Ensure that all construction vehicles are roadworthy. • All loads are to be securely fastened when being transported. • All speed limits and other traffic regulations on the public roadways must be adhered to. • Seatbelts are always to be worn. • Construction vehicles and personnel must adhere to business hours. This may be relaxed to accommodate abnormal vehicles, so they may not hinder daily life and/or regular traffic. • Construction vehicles to use predetermined and agreed routes to and from site. • Pointsmen to guide traffic for entry and exit of construction vehicles must be used where required. • Safety measures such as appropriate pavements, speed humps, signage boards for construction site and vehicles and for workmen will be implemented to slow down traffic within the development. • Construction phase must be as short as possible. Reliable building contractors must be employed to avoid delays. • Vehicles must park on demarcated site only.						
Operational		Cumulative	**Without**	3	2	3	3	11	**Medium**
			With	2	1	2	2	7	**Low**

	Increased Traffic Frequency on Road Infrastructure: Potential wear of access roads and potential accidents on access roads		**Mitigation measures:** • All speed limits and other traffic regulations must be adhered to. • Vehicles must park on demarcated site only. • The access on South Road is located in an existing PT lay-bye area and it is recommended that road markings be installed to differentiate the lay-bye from the vehicle access scoop. This road marking plan must be approved by the eThekwini Transport Authority and implemented by the developer.

Table 19: Air Quality Impacts (i.e. dust emission)

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Demolition Phase	**Dust emissions** The release of heavy metals, cladding, timber etc. or the on-site crushing.	Direct	**Without**	4	3	4	3	14	**Medium**
			With	3	2	2	2	9	**Low**
			Mitigation measures: • Soft strip (of all retaining walls and windows) before demolition to act as a screen against dust. • Water suppression methods can be utilized such as; hand-held sprays or hoses • Avoid explosive blasting and rather use appropriate manual or mechanical alternatives • Bag and remove any biological debris or damp down such material before demolition • Re-vegetate earthworks and exposed areas/soils stockpiles to stabilize surfaces • Use hessian where re-vegetation is not possible to cover topsoil.						
Construction	**Dust emissions**	Direct	**Without**	4	3	4	3	14	**Medium**
			With	3	2	2	2	9	**Low**

	• Construction vehicles travelling to and from the site will result in the generation of dust and fumes. • Construction activities will result in dust emissions from debris piles, mobile plant/ machinery and clearance of vegetation.		**Mitigation measures:** • All areas impacted by construction shall be regularly maintained including roads and pavements. • Dusty roads on dry windy days must be watered to prevent excessive dust generation. • Dust dispersion from construction activities, roads and soil stockpiles will be limited and suppressed to the maximum extent practical. • Stockpiles must be situated away from the site boundary, watercourses and nearby receptors. • Speed bumps or traffic speed signs need to be erected to reduce speeding onsite, which could result in the generation of dust. • All machinery, plant and equipment must be in good working order. • Regular maintenance of vehicles to address wear of tires and breaks. Optimal engine combustion will allow for 'cleaner' exhaust emissions.						
Construction	**Installation and use of ablution facilities** Release of odours as a result of the chemical toilets on-site	Direct	**Without**	4	3	4	2	13	**Medium**
			With	3	2	1	1	7	**Low**
			Mitigation measures: • Chemical toilets must be cleaned on a regular weekly basis. • Servicing receipts must be maintained and kept on site within the site environmental file. • Sufficient ablution facilities shall be provided – minimum of 1 toilet per 20 workers. • Toilets must have properly closing doors and supplied with toilet paper. • The location of toilets must be approved by the ECO prior to site establishment but shall be located within 100m of any work front. • Chemical toilets are to be serviced weekly. The contractor is to ensure that no spillage occurs and that the contents are removed from site according to approved methods. • Chemical toilets are to be emptied prior to temporary site closure for a period longer than 4 days.						
Operation	Air quality from fuel	Cumulative	**Without**	4	3	4	3	14	**Medium**
			With	2	2	2	2	8	**Low**
			Mitigation measures: • The impact of vent gases from vent pipes and the interceptor chamber is minimised through positioning of the vent pipes at a point remote form all buildings and neighbouring property boundaries.						

Table 20: Resource Utilisation Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Construction	**Utilisation of resources such as electricity, water, oil, grease, fuel and construction materials** Potential wastage of valuable resources due to inefficient or redundant usage. Potential wastage of water and depletion of water resource as a result of poor management.	Indirect	**Without**	4	3	4	2	13	**Medium**
			With	3	2	1	1	7	**Low**
			Mitigation measures: • Regular maintenance and inspection of equipment, such as water pipes, to prevent leaks. • Regular site inspection by supervisors. • Proper environmental training and awareness. • Leaking water taps and hosepipes are to be repaired immediately. • Running water taps and hosepipes are not to be left unattended. • Unused water standpipes are to be buried to prevent damage and resultant water leaks. • Taps are to be attached to secured supports and used in preference to standpipes with no valve mechanism to open and close water supply. All hose and tap connections are to be fitted with correct and appropriate plumbing fittings.						
Operational	**Resource use during operational** Potential wastage of valuable resources due to inefficient or redundant use.	Cumulative	**Without**	4	3	4	2	13	**Medium**
			With	1	1	1	1	4	**Low**
			Mitigation measures: • Regular maintenance and inspection of equipment, such as hose pipes, to prevent leaks. • Regular site inspection by supervisors. • Proper environmental training and awareness. • Monitoring of resource consumption. • Implementation of technologies which can reduce resource consumption. • Contaminated water must be efficiently treated and re-used where possible. • Clean storm water must be kept away from areas where it could be contaminated and must be directed to the storm water drainage system. • All chemical storage areas must be situated on impermeable concrete floors with bunding capable of containing 100% of any spillage.						

			• Leaking taps and hose pipes are to be repaired immediately. • Running water taps and hosepipes are not to be left unattended.

Table 21: Waste Management Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Demolition	Littering and Improper storage/ disposal of waste and/or debris accumulated during demolition may affect neighbors as well as contaminate/ pollute the sea. It must be noted that even though there will be excavations, majority will be re-used on site so there should be minimal construction spoilt/ waste generated.	Direct	**Without**	4	3	4	2	13	**Medium**
			With	2	1	2	1	6	**Low**
			Mitigation measures: • Personnel must be trained in etiquette regarding littering and waste management. • Demolition debris must be stockpiled and disposed of at an appropriate and licensed disposal facility. Debris can also be re-used in the construction of the dwelling. • Hazardous waste bins must be clearly marked, stored in a contained area (or have a drip tray) and covered (either stored under a roof or the top of the container must be covered with a lid). • A hazardous waste disposal certificate must be obtained from the waste removal company as evidence of correct disposal. • In the case of a spill of hydrocarbons, chemicals or bituminous, the spill should be contained and cleaned up and the material together with any contaminated soil collected and disposed of as hazardous waste to minimize pollution risk. • On-site chemical toilets will be provided for domestic purposes during construction phase. These should be screened from the neighbours as far as is practically possible. • The contractors will be responsible for the maintenance of the chemical toilets. • Waste will be collected by an accredited waste company and disposed of at an appropriate and licensed waste disposal facility. • Littering is prohibited and general housekeeping must be enforced. All liquid fuels (petrol and diesel) are to be stored in tanks or containers with lids.						
Construction		Direct	**Without**	4	3	4	2	13	**Medium**
			With	2	1	2	1	6	**Low**
			Mitigation measures: • Personnel must be trained in etiquette regarding littering and waste management. • Hazardous waste bins must be clearly marked, stored in a contained area (or have a drip tray) and covered (either stored under a roof or the top of the container must be covered with a lid). • A hazardous waste disposal certificate must be obtained from the waste removal company as evidence of correct						

			disposal. • On-site chemical toilets will be provided for domestic purposes during construction phase. • The contractors will be responsible for the maintenance of the chemical toilets. • Waste will be collected by an accredited waste company and disposed of at an appropriate and licensed waste disposal facility. • Littering is prohibited and general housekeeping must be enforced.							
Construction	**Production of general waste and building rubble Impact:** Soil, surface water and ground water contamination due to general waste generated.	Direct	**Without**	4	3	4	2	13	**Medium**
			With	2	1	2	1	6	**Low**
			Mitigation measures: • Refuse skips can be used but also need to be covered with shade cloth to ensure the containment of waste. • Refuse bins shall be provided for domestic waste (lunch litter) and placed in designated eating areas and any other areas where deemed necessary to control littering. • Refuse bins are not to overflow and are to be emptied regularly. No littering is permitted on site. • Building rubble is to be kept separate from other construction waste. Rubble is to be kept clean of brick ties, plastics, papers and cement bags at all times. • Rubble stockpiles and refuse structures shall be positioned to permit easy access by removal trucks. • Accumulation of large stockpiles of rubble and waste is not permitted. Waste is to be removed at regular intervals at a minimum frequency of once a week. • All waste is to be disposed of at approved landfill sites, no burning or burying is permitted.						
Operational	**Generation of general and domestic waste** Potential pollution of soil, surface water and/ or groundwater by waste generated onsite.	Direct	**Without**	4	3	4	2	13	**Medium**
			With	2	1	1	1	5	**Low**
			Mitigation measures: • The Service Manager must ensure that waste containers are provided for the collection of general waste at various points on the premises. • Installation of sufficient waste bins and skips where necessary. • All containers shall be kept in a clean and hygienic manner. • Storage containers shall be stored in a manner that prevents the harboring of pests. • Training of staff in proper hygiene.						
Operational	**Accidental spillage of hazardous**	Indirect	**Without**	4	3	4	3	14	**Medium**
			With	2	2	1	2	7	**Low**

	chemicals or materials, such as fuel and chlorine Potential pollution o soil, surface water and/ or groundwater by waste generated onsite.		**Mitigation measures:** • Proper storage of chemicals in a lockable, well ventilated building. • Storage areas for hazardous chemicals are to comply with standard fire safety regulations. • Safety signage including "No Smoking", "No Naked Lights" and "Danger", and product identification signs, are to be clearly displayed in areas housing chemicals. • Adequate fire-fighting equipment shall be available close at hand and no smoking is permitted within the vicinity of storage areas. • Chemicals are to be properly labeled and handled in a safety conscious manner. • Bunded walls to retain possible spillages. • The removal of only the daily-required amount of chemicals to be used. • If refueling on site or from drums, the ground must be protected, and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel. • Use of drip trays during filling of machinery or equipment. Drip trays must be emptied into secondary containers on a regular basis. • Spill kits must be readily available.

Table 22: Noise Impact

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Demolition	**Potential disturbance or nuisance to neighbours** the presence of personnel and machinery will present a nuisance to the area.	Direct	**Without**	5	3	2	3	13	**Medium**
			With	4	2	2	2	10	**Medium**
			Mitigation measures: • Personnel must be trained in etiquette regarding noise and trespassing, as well as in health issues and occupational safety. • Construction activities must be limited to normal construction industry working hours. • A registered contractor providing a project schedule must be employed. Penalties for extending the timeline could be enforced to try and minimise the period of impact. • In addition, construction vehicles and machinery should be fitted with the appropriate noise muffling devices and must be appropriately maintained to ensure that the machines and vehicles do not produce excessive noise disturbance. • No loud music is allowed on site and workers must always be aware of disturbance to neighbours. • The contractor will inform the surrounding offices and community in advance or prior to operations that bear the risk of nuisance and accidents.					

			• The contractor will be responsible for compensating if the vibration during demolition will damage any structures.						
Construction	**Potential disturbance or nuisance to neighbours** as a result of the increase in ambient noise from construction vehicles and machinery.	Direct	**Without**	5	3	2	3	13	**Medium**
			With	4	2	2	2	10	**Medium**
			Mitigation measures: • The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). • Personnel must be trained in etiquette regarding noise and trespassing, as well as in health issues and occupational safety. • Regular maintenance of vehicles and equipment. • All plant and machinery are to be fitted with adequate silencers. • Working hours must be restricted to daylight hours. • Working procedures must be structured so as to avoid the unnecessary generation of noise. • No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. • No loud music is allowed on site and workers must always be aware of disturbance to neighbours. • If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the garage manager. • No noisy work is to be conducted over the weekends or on religious public holidays. • Route construction related traffic along roadways that will cause least disturbance. • A registered contractor providing a project schedule must be employed. Penalties for extending the timeline could be enforced to try and minimise the period of impact.						
Operational	**Increase in ambient noise level** as a result of operating machinery and vehicles used during operation-	Direct	**Without**	4	3	4	2	13	**Medium**
			With	2	2	1	1	6	**Low**
			Mitigation measures: • Ensure that machinery on site is in proper working condition, fitted with the necessary silencing equipment. • Make sure that the workers on site stick to the prescribed working hours. • Keep equipment in good repair and attend to lose or rattling covers, worn bearings and broken equipment.						

Table 23: Visual Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Demolition	**Visual Impacts** the area is urban and surrounding neighbors may not appreciate the presence of a rubble formed and dust emissions that can alter the visual aesthetics.	Direct	**Without**	5	3	2	3	13	**Medium**
			With	4	2	1	2	9	**Low**
			Mitigation measures: • The site must be well maintained and neat. The use of screening during this phase is recommended. • The contractor must adhere to project schedule in order to minimise the length of the demolition period. • Debris and/or rubble from demolition must be neatly stockpiled.						
Construction	**Visual Impacts** An untidy site is visually unappealing. There aren't many, if any, sensitive receptors close by for visual impact to be considered high significance.	Direct	**Without**	5	3	2	3	13	**Medium**
			With	4	2	2	2	10	**Medium**
			Mitigation measures: • The site must be well maintained and neat. • The contractor must adhere to project schedule in order to minimise the length of the construction period. • Inspections of the site by an Environmental Control Officer are required. • Upon completion of the repair and maintenance activities undertaken during the operational phase, the site must be well maintained and neat.						
Operational		Direct	**Without**	4	2	1	2	9	**Low**
			With	2	1	1	1	5	**Low**
			Mitigation measures: • Cleaning staff must ensure that the site is well maintained and neat. • Regular Inspections of the site by supervisors are required						

Table 24: Health and Safety Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Demolition	**Health risk:** Respiratory impacts – illnesses and breathing impairment due to unprotected exposure to dust	Direct	**Without**	5	3	3	3	14	**Medium**
			With	3	2	1	2	8	**Low**
			Mitigation measures: • Neighbors are to be notified prior to demolition phase can commence. • Notice of demolition must be erected prior to demolition works. • Necessary planning and safety approach will be made for rescue during emergency. • Workers will be provided with first aid and health facilities at the site. • Soft strip (of all retaining walls) before demolition to act as a screen against dust. • Water suppression methods can be utilized such as; hand-held sprays or hoses.						
Demolition	**Injury to construction workers and the general public** Workers are at risk and are prone to injury should they not have adequate training, gear and knowledge of the processes on site.	Direct	**Without**	5	3	2	2	12	**Medium**
			With	3	2	1	2	8	**Low**
			Mitigation measures: • Make mandatory the use of safety gears (helmets, safety belts, masks, gloves and boot) by workers depending on the nature of the work. • Necessary planning and safety approach will be made for rescue during emergency. • Workers will be provided with first aid and health facilities at the site.						
Construction	**Injury to construction workers and the general public** Occupational safety, security and health for	Direct	**Without**	5	3	3	2	13	**Medium**
			With	3	2	2	2	9	**Low**
			Mitigation measures: • Nearby residents must be made aware of the works. • Trenches must not be left open and unmarked. • Appropriate barricades and signs must be used where necessary. • First aid kits are required on site as well as an incident records file.						

	construction workers and the general public. Although construction will be undertaken by a qualified contractor, the following mitigation measures apply:		• Construction related vehicles must adhere to speed limits of the surrounding roads and a limit of 20km/hr on site. • Safety gear including hard hats and safety shoes must be provided and worn at all times while on site. • Trespassing and/or utilising the site as a thorough fare is prohibited by unauthorised persons. • Contractor staff are prohibited from trespassing over the site boundaries. • Equipment is to be maintained in good working order to the satisfaction of local fire authorities. • No open fires are permitted. A dedicated braai facility may be permitted in an area approved by the ECO, if the campsite is in close proximity to firefighting equipment. At no time is a braai fire to be left unattended. • Smoking is prohibited near places where any readily combustible or flammable materials are present. Notices are to be prominently displayed prohibiting smoking in such areas. • Welding, flame cutting and other hot work is only to be undertaken in places where the necessary safety precautions are in place (i.e. not near potential sources of combustion and with a fire extinguisher immediately accessible). • All flammable materials are to be stored in a suitable, lockable storage area. • Combustible materials may not accumulate on the construction site. • Interaction with neighbors and objecting parties at the site must be well documented. A complaints register must be readily available on site. Interaction with external parties must be courteous. • Although the Contractor is responsible for ensuring that the environmental awareness training of staff members is put in place, it must be the direct responsibility of the appointed ECO to carry out the training. Each staff member is to sign a register confirming their attendance at this training. This register must be included in the site Environmental file.						
Operational	**High standards of hygiene:** are necessary to prevent contamination of food products and to reduce risks to the eventual consumers of the product.	Direct	**Without**	4	3	2	2	11	**Medium**
			With	2	1	1	1	5	**Low**
			Mitigation Measures: • The fast food outlets will be registered with the Department of Health before the operational phase commences. This process entails an inspection of the fast food outlets, and also will ensure that the outlet meets the required health and safety standards. • The Department of Health must conduct regular inspections to ensure that all the requisite precautions are being taken.						
	Employees, surrounding land users and occupiers may be affected by the		**Without**	4	3	3	3	13	**Medium**
			With	2	2	2	2	8	**Low**
			Mitigation Measures:						

	operation of the filling station-		• Relevant operation staff must receive training on the correct operation of the storage tanks, as well as maintenance and repair procedures when leaks are detected. • An emergency response plan must be available on site and employees must be familiar with the plan. • The correct PPE should be used on the site. • Appropriate Health and Safety signage must be placed on and around the tank. • Fire extinguishers and sand bags must be readily available on site and easily accessible. • Firefighting equipment must comply with SANS 1151 (Portable rechargeable fire extinguishers- halogenated hydrocarbon type extinguishers) and be inspected regularly. • No smoking may be permitted on site. • No cell phones may be used during fuel dispensing. • Overfill and spillages during tanker refueling and fuel dispensing should be prevented by the installation of automatic cut off devices. • Tank delivery drivers must be present during delivery of fuel with the emergency cut off switch and a fire extinguisher. • A closed coupling must be used when fuel is being transferred from the bulk delivery vehicle to the underground storage tanks to prevent fugitive emissions.

Table 25: Disturbance to Local Businesses

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Demolition	**Disturbance to the local businesses and pedestrians:** local population and pedestrians run the risk of injury from demolition works on site.	Direct	**Without**	5	3	2	3	13	**Medium**
			With	4	2	1	2	9	**Low**
			Mitigation measures: • Hoardings and barricades to be installed around building sites both to protect the public and to secure the site when unattended. • Install barriers (GI sheets, geo-net) especially at the western side of the building facing the road, to shield from dust and aggregates.						
Construction	**Existing Infrastructure Disturbance:**	Direct	**Without**	5	3	3	2	14	**Medium**
			With	3	2	3	2	10	**Low**
			Mitigation measures: • Stakeholders must be notified as soon as possible. This includes the community, the municipalities, the service providers						

	the roads, footpaths and crossings are infrastructure that are utilised by the community. Water, electricity, telecommunications, roads and railway infrastructure must also be considered.		and ward councillor. • Servitudes of infrastructure must be confirmed prior to design of the development and permission granted. • No-Go areas must be demarcated. • Contractors staff are to stay within the site boundary and not wonder onto neighbouring sites.

Table 26: Socio Economic Impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Construction	Job creation and possible economic benefit to construction material suppliers in the area.	Cumulative	**Without**	2	2	2	2	8	**Low**
			With	2	1	1	1	5	**Low**
			Mitigation measures: • Community members and leaders must be notified as soon as possible by posting notice boards with illustrations on site. • Local people should be employed where possible • Ward councillors must be involved in the public participation.						
Construction	**Crime:** Theft and security impact	Cumulative	**Without**	5	3	4	2	14	**Medium**
			With	3	2	1	2	8	**Low**
			Mitigation measures: • Strict penalties must be built into tenders to deal with issues such as petty crime, fence cutting, trespassing etc. • The security guard will be appointed as a security measure. • A security fence will be erected around the property boundary to prevent the possibility of theft.						
Operational	Additional employment opportunities	Cumulative	**Without**	4	2	4	2	12	**Medium**
			With	2	1	1	1	5	**Low**
			Mitigation measures: • Increased opportunities during the operation phase of the fuel station, convenience store and food outlets. The project will employ a total of 40 people for the operation phase.						

			• All recruitment must be in-line with Employment Equity Policy. • The policy will also promote the employment of women to ensure that gender equality is attained as per the Employment Equity Act No 55 of 1998. • Where possible, priority must be given to job seekers from the local area. The operator must build the capacity of employees through development plans, technical, health and safety training and provide them with relevant training certificates.						
Operational	**Crime:** Theft and security impact	Cumulative	**Without**	4	3	3	2	11	**Medium**
			With	2	2	2	2	8	**Low**
			Mitigation Measures: • The security guard will be appointed as a security measure. • A security fence will be erected around the property boundary to prevent the possibility of theft.. • An emergency response plan must be developed and adhered to.						

Table 27: Fuel leakage impacts

Phase	Potential Impact	Impact Type	Mitigation	Frequency	Severity	Duration	Spatial Scope	Impact Score	Significance
Operational	**Catastrophic rupture of vessel of**	Direct	**Without**	5	5	2	2	14	**Medium**
			With	3	3	1	1	8	**Low**

	petrol/diesel truck- caused by accident damage, actions by unauthorised personnel, reversing of tanker, hot work, vapour release and static electricity: may cause fuel spill and fires.		**Mitigation measures:** • Deliveries to be received in off-peak time. • Barriers to be installed to prevent accidental collision with paper trucks turning into the neighbour's property. • Speed calm devices to be installed at the entrance and exit of fuel station. • Drainage of tanker fill points to a retention system. • Procedures to ensure that the forecourt is closed during deliveries. • Overfill protection on tanks to prevent spills. • Stock management system to be implemented to ensure that correct amount of fuel is ordered. • Driver controlled delivery equipment. • Adequate lighting to allow for visibility of the tank truck. • Provision of firefighting equipment and absorbent material. • Vent pipe to be located in a safe area. • Surface must be impervious to prevent fuel seepage into ground water system. • Warning signs- when truck is being offloaded to make public aware of the hazard. • Emergency response planning guide to be developed and tested. • Training of staff. • Provision of correct PPE. • A maintenance program must be in place to check offloading hose pipes and tanker. • Earthing system must be installed. • Offloading hose pipes must be out of the way of moving vehicles when offloading. • The driver or operator must always be present during offloading of petrol/ diesel.					
Operational	**Storage tanks-** Catastrophic rupture of vessel/ piping, caused by ignition of vapour space, over pressure of vessel and poor engineering design.	Direct	**Without**	5	4	2	3	14	**Medium**
			With	3	3	1	2	9	**Low**
			Mitigation measures: • The design of the underground storage tanks must be done according to international standards. • Vent valves must allow for release of pressure inside storage tanks. • Earthing system must be installed. • Vent lines must be installed with flame arrestors. • Leak detection systems must be installed to detect underground pipe leaks. • A maintenance plan must be developed and followed. Records of maintenance done and auditing of systems must be kept.						

			• Training of staff.					
Operational	**Catastrophic rupture of vessel/ piping of petrol/diesel pump**- caused by accident damage	Direct	**Without**	5	3	2	2	12	**Medium**
			With	2	2	1	1	6	**Low**
			Mitigation measures: • Install speed calming devices at entrance and exit of fuel station • Install fuel pump protection barriers • Install emergency shut off valves to limit fuel loss in the event of an accident. • Earthing system must be install. • International standards must be adhered for petrol/ diesel hose design phase. • Maintenance programs must be developed to check hose pipes for regular wear and tear. • Operators must be trained to use hose pipes and defects must be reported immediately to the supervisor.					

12.3.Significance of Impacts

Demolition Phase:

Based on the outcome of the impact assessment matrix noted in Tables 15-28 above, the overall significance of the impacts with mitigation measures for the demolition phase, is noted to be **LOW** i.e. the impact is of little importance since it is easily and adequately mitigated.

Construction Phase:

Based on the outcome of the impact assessment matrix noted in Tables 15-28 above, the overall significance of the impacts with mitigation measures for the construction phase, is noted to be **LOW** i.e. the impact is reasonable but requires mitigation to reduce potential impacts to the environment.

According to the socio-economic study the cost of the construction phase for the fuel station and associated store will have a direct positive impact on the local economy. The South African economy will, due to the construction of the proposed fuel service station and convenience store, experience positive impacts comprising indirect impacts of R5.01 million and induced impacts of R8,35 million which together with the direct impacts of R10.44 million will total R23,8 million for the country as a whole. The extent to which this impact is felt within the Durban area will depend on the extent to which the construction goods and laborers are sourced from the surrounding communities. A breakdown of the construction costs has been included in the socio-economic study which can be reviewed under Appendix E.

The traffic impacts and health and safety impacts are noted to be MEDIUM and must therefore be deliberated in the EMPr. Mitigation measures are expected to be implemented to reduce these impacts.

Operational Phase:

Based on the outcome of the impact assessment matrix noted in Tables 15-28 above, the overall significance of the impacts with mitigation measures for the operational phase, is noted to be **LOW** i.e. The impact is reasonable but requires mitigation to reduce potential impacts to the environment.

The proposed service station's operational activities primarily involve selling fuel products to motorists, but also includes food outlets. Protection of water streams such as sewerage and stormwater infrastructure must be protected against contamination by grease and flammable substances utilised or sold on the site.

13. ENVIRONMENTAL IMPACT STATEMENT

- *Geotechnical impacts*

According to the geotechnical investigation and the fieldwork conducted, it is considered that the site, in the most part, is generally stable and suitable for development, provided that earthworks are carried out along the guidelines provided in SANS1200. However, the recommendations provided in the Geotechnical report under Appendix E must be adhered too. No adverse flaw of a geotechnical nature has been detected and stable development is considered feasible provided that the recommendations set out in the Geotech report are adopted and certified by the professional team including Geotechnical Solutions (Pty) Ltd.

- *Traffic Impacts and Nuisance Factor*

According to the Traffic Impact Assessment Report, impacts to traffic along Grimsby Rd and South Coast Rd will not be significant. Analysis revealed that the surrounding road network is currently operating at acceptable levels of service during both weekday PM and Saturday Midday peak hours and will continue to do so even if the development reaches full potential. There is therefore currently ample capacity available along the surrounding road links to accommodate the anticipated additional traffic to be generated by the development.

It is however, anticipated that there will be a lot of impact on pedestrian activity within the area surrounding the development and hence safety will be an issue. In this regard there is a sufficient provision of pedestrian sidewalks which must not be obstructed during construction.

Therefore, after analysis, from a traffic and transportation point of view, the proposed development does not impede on the operation of the existing road network and thus the current road infrastructure is sufficient to accommodate the said development.

- *Social Impacts*

The new station is not expected to negatively impact on the ability of neighbouring stations to operate profitably and there is therefore no justifiable reason to deny the developer the right to operate a fuel filling station. The net benefits of the proposed new station will be positive. At worst there may be a migration of existing jobs from the existing stations to the new station with an overall increase in the total number of jobs sustained in the fuel service station industry in the area and with absolutely no risk of a net loss of jobs.

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

- Increased employment and job creation;
- Added Services to the Mobeni area;
- Increase in commercial opportunities to Mobeni;

The construction phase is medium term (approximately 18 – 24 months) and is not anticipated to cause any detriment to the environment. The EMPr must be adhered to and will ensure that any negative impacts however minimal are not magnified.

An ECO will need to be appointed during the Construction phase to ensure compliance to the EMPr.

- Major Hazard Installation Impacts

The petrol station does not pose any risk to the society around them provided all the recommendations is undertaken. The risk to their employees is within the tolerable limits. The proposed restaurant falls in a safe zone, which will not be affected by any incidents evaluated in this risk assessment.The maximum extent of the 1% lethality due to the heat radiation covers an area of 430 m2 or a diameter of 25m around the offloading tanker.

It is the responsibility of the Management team of the propose Petrol Station to ensure that the site complies to all aspects of the occupational health and safety act 85 of 1993 and its regulations, with the National Building Regulations and Building Standard Act 10 of 1977 and the local bylaws.

13. CONDITIONS OF AUTHORISATION

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

- An ECO must monitor the construction site and activities on a monthly basis for the duration of the demolition and construction phases,
- An ECO must document the findings and submit a monthly report to the Competent Authority;
- The Project Manager and Contractor are responsible for the implementation of the EMPr and protection of the environment for the duration of the construction period.
- An ECO must monitor the facility on a bimonthly basis for the operational phase, for a period of 6 months following completion of construction to ensure that rehabilitation has been successful.

14. ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

- The layout plans and designs of the fuel filling station, convenience stores and food outlets have been completed and are included in this Draft BAR as Appendix C. However, these still require approval and Environmental Authorisation from the Competent Authority; the Department of Economic Development, Tourism and Environmental Affairs.

15. RECOMMENDATION OF THE EAP

The information contained in this report and the documentation attached hereto, in the view of the EAP, is sufficient for the Public Participation Process (PPP). Should the Competent Authority request additional studies to be conducted, this shall be conducted and obtained to assist the Competent Authority in making an informed decision.

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

16. TIMEFRAMES

An environmental authorisation valid for five (05) years is requested. Construction may commence at any time within this 5-year period.

17. UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP

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

II. 1World Consultants (Pty) Ltd confirms that all comments received from Stakeholder and I&APs have been included in this report. It is to be noted that in terms of the EIA Regulations (2017), GNR 326 43(2), all State Departments that administer a law relating to a matter affecting the environment, specific to the Application, must submit comments within 30 days to the EAP. Should no comment be received within the 30-day comment period, it will be assumed that the relevant State Department has no comment to provide.

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

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

For 1World Consultants (Pty) Ltd:

_____

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

18. APPENDICES

The following appendices must be attached as appropriate:

Appendix	Description of Contents
A	Minutes of Pre-Application Meeting Application for Environmental Authorisation Acknowledgement of Application for Environmental Authorisation Desktop Screening Report
B	Company Profile Project Experience of EAP Declaration of the EAP Curricula Vitae of EAP Team Declaration of Specialist Curricula Vitae of Specialists
C	Preferred Alternative Alternative 1 BP Standards and Designs
D	I&AP Distribution List Background Information Document Newspaper Advertisement Copy of Notice Board Photograph of Notice Boards on Site Landowner Notification Letters Comments and Responses Report Copies of Correspondence with I&AP's
E	Heritage Exemption Letter Storm Water Management Plan Geotechnical Investigation Socio-economic Impact Assessment Traffic Impact Assessment Major Hazard Installation Risk Assessment
F	Draft Environmental Management Programme

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Appendix A

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Minutes of the Pre-Application Meeting

edtea

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

Enquiries : Mr. Ntuthuko Mbewana
Imibuzo :
Navrae :

Telephone: 031 366 7351
Ucingo :
Telefoon :

Private Bag : X54321
Isikhwama Seposi: Durban
Privaat Sak : 4001

Reference : Proposed Grimsby Road Filling station
Inkomba :
Verwysing :

Fax : -
iFeksi :
Faks :

Date :
Usuku : 03 / 05 / 2019
Datum :

Directorate: Environmental Services

Attention : Miss. Adila Gafoor
Tel : 031 262 8327
E-mail : adila@1wc.co.za

RE: PROPOSED GRIMSBY ROAD FILLING STATION WITH ASSOCIATED INFRASTRUCTURE AND MULTIPLE FAST FOOD OUTLET, MOBENI, ETHEKWINI MUNICIPALITY, KWAZULU-NATAL

Date: 05 April 2019

Time: 09:30

Venue: EDTEA: 40 Dr. A.B Xuma Street, Durban, CBD

Attendees:

Natasha Brijlall	(NB)	EDTEA
Ntuthuko Mbewana	(NM)	EDTEA
Simphiwe Nxumalo	(SN)	EDTEA
Adila Gafoor	(AG)	1World Consultants (Pty) Ltd

Item	Discussion	Person Responsible
Introduction	• All present were welcomed and introduced	NB
	• Project details were presented	AG
1. CLIENT DETAILS		

Client Type	**Private**	AG
Client Name	Aniston Investments (Pty) Ltd.	
Contact Person	Zakir Mahomedy	
Email:	zmahomedy@gmail.com	
2. PROPERTY DETAILS		
Physical Address	2 Grimsby Road, Mobeni, Durban	AG
Ward	64	
Property Description	Portions 2 of Erf 821	
SG Number	NOFT00840000282100002	
Property Size	13 000m^2	
Zoning	Noxious Industrial	
PROPOSED DEVELOPMENT		
Current use	Retail – Mayfair Home and Décor (To be demolished and replaced by the proposed development)	AG
Proposed Development	• filling station - 3 tanks each at 83m^3 (i.e. approximately 249m^3), - Type ii, double wall steel underground storage tanks (buried by 1.5m) - All proposed filling station infrastructure to be constructed in line with the relevant SAB Standards and vendor standards (i.e. BPSA/ Shell/ Engen, etc.) • convenience store; • various fast food outlets (McDonalds/Chicken Licken); and • Spar; • Parking lot	

Site area = Industrial		AG
Bulk services	• Water – tie into municipal infrastructure • Sewage – tie into municipal infrastructure	AG
ENVIRONMENTAL ASPECTS		
Environmental sensitivities (screened using SANBI BGIS and Online DEA Screening Tool)	Wetlands – none within 500m Rivers/ streams/ drainage lines/ canals - none	AG
	CBA – provincial conservation status (2011) area historically a critically endangered biodiversity area. However, the entire site has been cleared and is devoid of any vegetation Aquatic biodiversity – low Terrestrial biodiversity - low	
	Heritage – within 500m of a heritage site (has not yet been identified by 1World). Architect has engaged with Amafa for an exemption.	
	Stormwater – currently there is existing channels that have been built to direct stormwater	
ENVIRONMENTAL ASPECTS		
NEMA TRIGGERS		

Activity number and description	Listing Notice 1: Activity 14 The development and related operation 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.	AG
Applicability	Developers, Aniston Investments (Pty) Ltd, proposes to construct a filling station which includes the installation of Underground Storage Tanks with a combined capacity of more than 80m³ (249m³).	AG
SPECIALIST STUDIES		
Studies done to date	Geotechnical Investigation – Geotechnical Solutions (Pty) Ltd. - January 2019 Traffic Impact – Mikros Traffic Monitoring KZN (Pty) Ltd. – September 2018	AG
Studies Pending	Stormwater Management Plan – Bramin Consulting Engineers Socio-Economic Impact Assessment	
Other studies suggested by EDTEA	Need to state that although no further studies required, EAP was advised to address health and risk impacts.	
QUESTIONS & ANSWERS		
AG: What is the acceptable overflow for Stormwater?	NB: Follow Municipal By-Laws	
NOTES		

- Health Impacts must briefly addressed in the BAR.
- South Durban Community Environmental Alliance (SDCEA) must be included as an I&AP.
- Traffic – show that increased traffic won't exacerbate pollution.
- Stormwater Management Plan – include operation of the food outlets (i.e. oil and grease traps).
- Heritage aspects – make sure to include Heritage exemption in BAR with letter from Amafa that will be sourced by the Architect.
- Make certain to include the following points in the BAR:
    - Zoning - that the zoning of the area allows for such a development.
    - Disaster management (risk to surrounding buildings, fire, etc.)
    - Heritage exemption.

Yours faithfully

For: *Acting* Head of Department:
KwaZulu-Natal Department of Economic Development Tourism and Environmental Affairs
Signed by: Ms. Natasha Brijlal
Assistant Manager: eThekwini District - Impact Assessment
03/05/2019

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Acknowledgement of Application for Environmental Authorisation

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

Enquiries: Ms Z Mbanjwa	**Telephone: 033 264 2898**	**Private Bag : X9152**
Imibuzo :	**Ucingo :**	**Isikhwama Seposi : Pietermaritzburg**
Navrae :	**Telefoon :**	**Privaat Sak : 3200**
Reference No: DM/0033/2019	**I Fax :**	**Date :**
Inkomba : KZN/EIA/0001262/2019	**iFeksi :**	**Usuku :**
Verwysing:	**Faks : 033 264 2672**	**Datum : 14 November 2019**

Email Transmission

1 world Consultants (Pty) Ltd
P.O. Box 2311
Westville
3630

Attention**: Mr. Fatima Peer**
Email: **Fatima@1wc.co.za**

Dear Sir

DM/0033/2019: KZN/EIA/0001262/2019: ACKNOWLEDGEMENT OF RECEIPT OF AN APPLICATION FOR ENVIRONMENTAL AUTHORIZATION SUBJECT TO A BASIC ASSESSMENT FOR **PROPOSED GRIMSBY ROAD FILLING STATION WITH ASSOCIATED INFRASTRUCTURE AND MULTIPLE FAST FOOD OUTLET.**

1. The application for environmental authorization for the abovementioned activity, submitted in terms of the requirements of regulation 6(1) of the EIA Regulations, 2014, was received by this Department on **07 November 2019** this application complies with the EIA Regulations 2014 and has been accepted.

2. Please note that this application has been registered on the National Environmental Authorization System (NEAS) and that the final Basic Assessment Report is due on **28 February 2020**. In terms of regulation 45 of the EIA Regulations 2014, an application lapses if the applicant fails to meet any of the prescribed timeframes (unless an extension has been granted in terms of regulation 3(7).

3. Please quote the above-mentioned reference number for this application in all future correspondence.

4. You are reminded that the activity/ies applied for may not commence prior to an environmental authorization being granted by this Department.

5. Enquiries regarding this application may be directed to the Acting District Manager: **Ms. Y Govender/ Ms. N. Brijlall: Tel No: 031 366 7317 at EThekwini District Office**.

Yours faithfully,

for: Head of Department:
KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs
Cc: Mr. Ashraf Mahomedy: Aniston Investments (Pty) Ltd: Email: amma@mayfairhome.co.za.

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Desktop Screening Report

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION OR FOR A PART TWO AMENDMENT OF AN ENVIRONMENTAL AUTHORISATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number:

Project name: Grimsby Road Filling Station

Project title: Basic Assessment for the Proposed Grimsby Road Filling Station and Multiple Fast Food Outlets

Date screening report generated: 29/03/2019 15:41:22

Applicant: Aniston Investments (Pty) Ltd

Compiler: 1World Consultants (Pty) Ltd.

Compiler signature:

.....

Table of Contents

Proposed Project Location

Orientation map 1: General location

General Orientation: Grimsby Road Filling Station

Map of proposed site and relevant area(s)

Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/Erf Number	Portion	Latitude	Longitude
1	DUNNS GRANT	821	00002	-29.9374	30.96174
2	DUNNS GRANT	828	00000	-29.93626	30.96169
3	MOBENI	1	00000	-29.93556	30.95806

Development footprint[1] details:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: Infrastructure|Localised infrastructure|Filling station or Tanks for dangerous goods|Filling station or Tanks for dangerous goods.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Strategic Transmission Corridor-Eastern corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/GNR_350_of_13_April_2017.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones

Project Location: Grimsby Road Filling Station

Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Aquatic Biodiversity Theme				X
Archaeological and Cultural Heritage Theme		X		

Civil Aviation Theme		X		
Defence Theme			X	
Terrestrial Biodiversity Theme				X

Specialist assessments identified

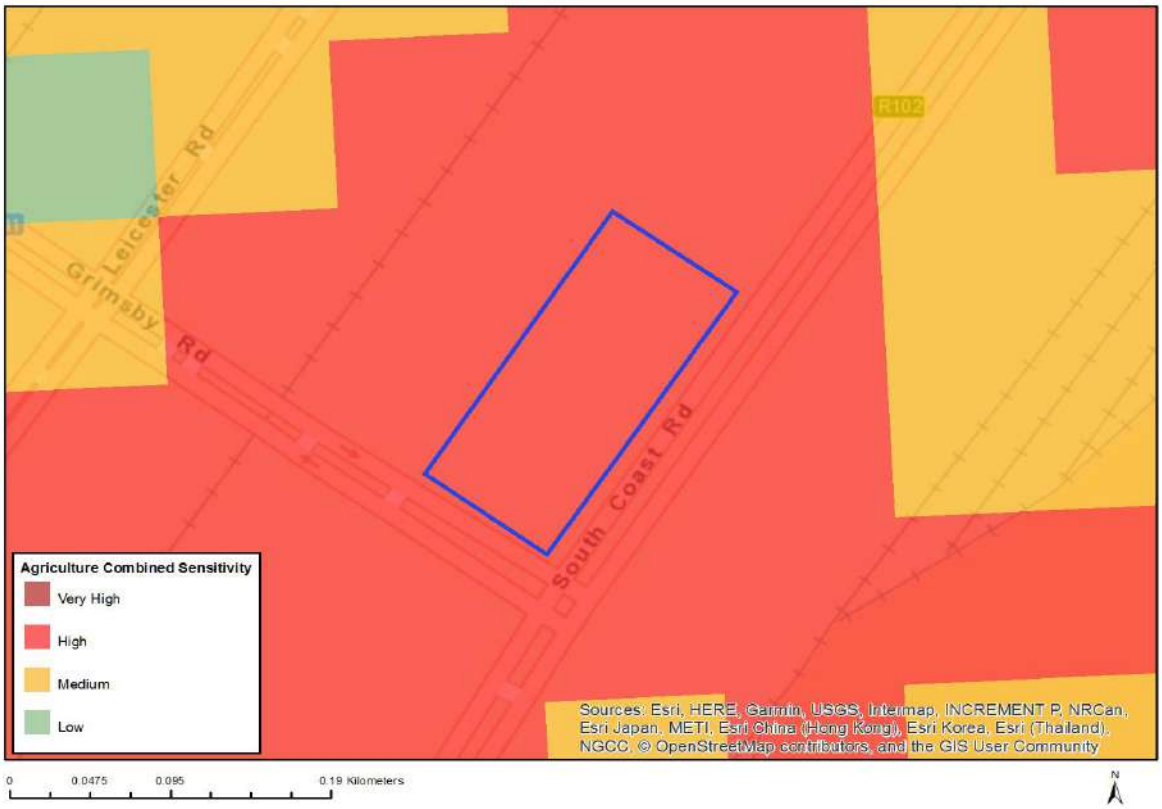
Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/DraftAgricultureProtocol.pdf
2	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
3	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
4	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
5	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
6	Hydrology Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
7	Noise Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
8	Geotechnical Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf
9	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/Assessment/General/Appendix6.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High

MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity Areas

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 500 m of a heritage site

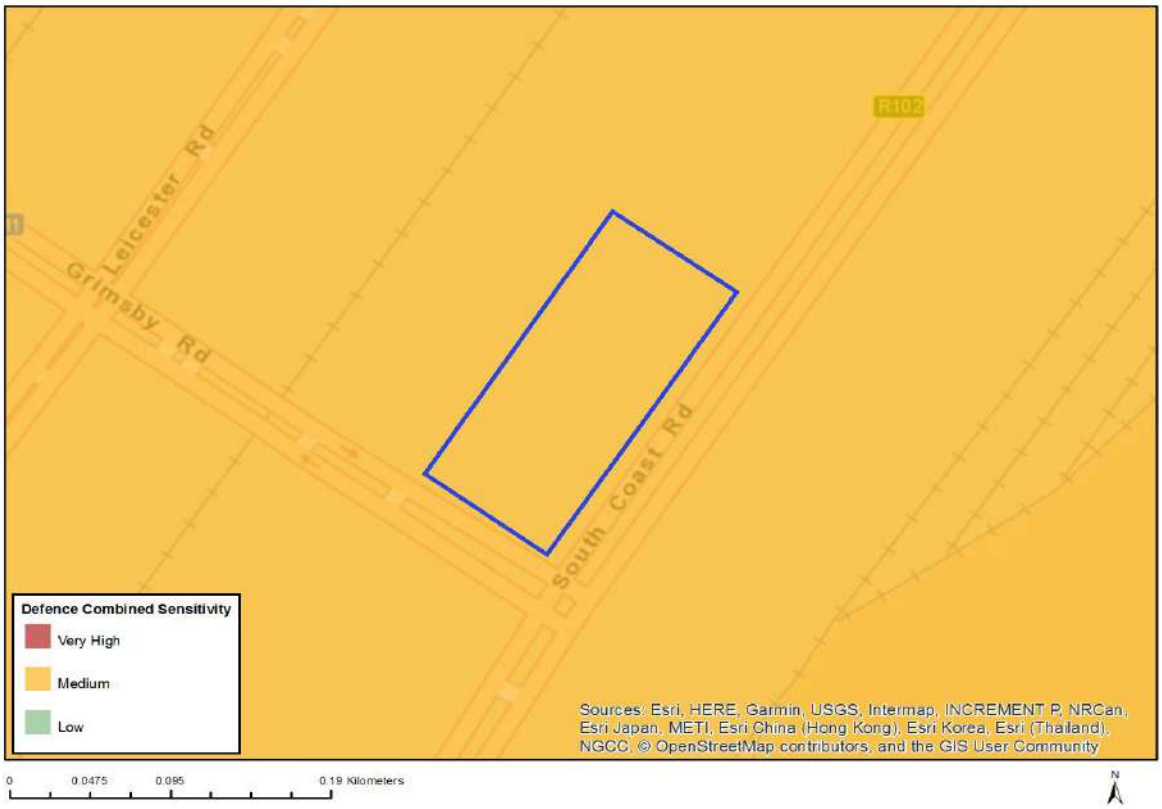
MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Within 15 km of a civil aviation radar
High	Within 8 km of other civil aviation aerodrome
Medium	Within 5 km of an air traffic control or navigation site

MAP OF RELATIVE DEFENCE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Defence Site

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	None

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Appendix B

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1World Consultants Company Profile

1WORLD CONSULTANTS (PTY) LTD

COMPANY PROFILE

1world consultants

P.O. BOX 2311
WESTVILLE, 3630
TEL: 031 262 8327
FAX: 086 726 3619

INTRODUCTION

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

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

VISION

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

MISSION

We aim to deliver a quality and efficient service by:

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

FIELDS OF EXPERTISE

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

- Environmental Services
- Electrical Engineering
- Control and Instrumentation Engineering
- Mechanical Engineering
- Land Surveying Services

ENVIRONMENTAL SERVICES

Drawing on our extensive experience with private and public sector clients, we are able to offer our clients the following services:

- Environmental Planning/Risk Assessments/Screenings/ Due Diligence
- Basic Assessments
- Full scoping and Environmental Impact Assessments (EIA's) and reporting
- Strategic Environmental Assessments
- Facilitation of the Public Participation process
- Water Use License Applications (NWA)
- Waste Management License Applications (NEM:WA)
- Section 24G Rectification Applications
- Environmental Auditing and Site Compliance
- Environmental Control Officer (ECO)
- Environmental Management Plans, recommendations and advice
- Biodiversity/Vegetation Assessments

ELECTRICAL ENGINEERING EXPERTISE AND SERVICES

Our past involvement and ongoing engagements with Eskom, especially in KZN, allow us to afford our clients the comfort of knowing that, on matters involving Eskom, the correct people are being addressed to resolve issues quickly and completely.

We offer the following professional services:

Building Services

- Supply alternatives – whether municipal power, backup or power-wheeling agreements.
- Electrical reticulation & distribution design,

- Lighting Design
- Security, Access Control,
- Standby Power generation
- Energy Efficiency Analysis – base line establishment, projects scoping, ROI analysis and roll out co-ordination.
- Building Information Management (BIM) Systems.

Reticulation & Electrification design

- Rural and urban electrification design;
- Building reticulation and refurbishment;
- Highway and Street Lighting Designs;
- Cathodic Protection Design

Substation & Line design

- High and medium voltage substation design;
- High and medium voltage line design;
- High and medium voltage cable design;

Demand Side Management / Energy Audits

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

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

Power System modelling and simulation

1World has expertise in the following simulation software; PSS/e, DigSILENT, Reticmaster and PowaMaster providing the following broad services:

- Master planning;
- Network development planning (NDP);
- Long term load forecasting.
- System analysis and optimisation

Project management

1World offers project management and on-site supervision capabilities for any type of electrical project, especially where we are responsible for detail design of such projects. This allows our engineers to ensure that required standards and quality is maintained during the construction/implementation phases of the project, given the budget and schedule constraints.

CONTROL AND INSTRUMENTATION ENGINEERING

Our exposure to the mining and chemical processing industries provide in-depth understanding of the C&I function within a production plant. We offer the following services:

- Process Engineering
- P & ID generation
- Communication Architecture specification
- Equipment specification

MECHANICAL ENGINEERING EXPERTISE AND SERVICES

Engineering Project Management

Inspection and Evaluation; Status Quo Reports; Repair & Maintenance Programs; Facilities Management; Engineering Construction Management

HVAC Engineering

Design of a Wide Variety of HVAC Systems; Retail; Commercial; Special Process; Chilled water; Air/Water cooled; VRV Ventilation; Smoke extract; Fume/Dust extract

Rational Fire Design

Rational Fire Design, Firefighting Equipment; Fire detection, Public address, Gas Suppression; SCADA Monitoring systems; Fire Department Consultation; And National Building Regulation Fire assessments

Lifts and Escalators

Traffic study; Design of Lifts

Winches and Cranes

Design of Escalators; Winches and Cranes; Weighbridges

Occupational Health & Safety

Risk assessments, HASOP Study; Guidelines to Occupational Health & Safety; Compliance to Construction Regulations; Health & Safety Inspections & reporting

Green Building Design

Analysis of Heat transmission into Building Structures; Solar/Heat pump Hot Water Generation systems; Grey water recycling, Rain water harvesting, boreholes; Energy efficient Electrical systems; Analysis of Electrical and water usage; Compliance SANS204-2011 Energy efficiency in buildings; SANS 10400:XA calculations.

LAND SURVEYING SERVICES

Topographic Surveys

We combine the latest in surveying technology with highly skilled and experienced personnel to deliver cost-effective, high accuracy surveys in both hardcopy and digital mediums, tailored to meet your requirements.

Our Contour Surveys also known as Detail Surveys, Tache /Topographic Surveys, detail all noteworthy features relevant to a particular site. We include positions of buildings, trees, sewerage, draining, communication points, roads, driveways, municipal utilities / services, and levels across the property. This survey can be used as the base plan for your subdivision design/ Development plan.

The professionally drafted plans record:

- Property levels/ spots shots
- Contours at 0.5m intervals (or as required)
- Benchmark level on site
- Building footprint and floor levels
- Noteworthy physical / manmade features
- Utility services (drainage, gas, power, sewer, phone, water, etc)

Infrastructure Surveys

We are able to meet all your Infrastructure Surveying needs from project concept, through to completion. Benefits of our surveys include:

- Achieve optimal conformance of excavation, shotcrete and final lining layers
- Existing conditions or as-built can be captured rapidly using 3D laser scanning
- Location and survey of underground services prior to works commencing

- Accurate installation and erection of structural steel components on complex and high tolerance structures
- We can manage the entire survey package or work integrated with the main contractors survey team

Services we offer on Infrastructure Surveying projects are:

- Roads setting out
- Pipeline Surveys
- Setting out civils work for construction sites
- Setting out buildings
- Solar farms
- Powerline Surveys
- Underground utility detection
- Volumetric surveys

Cadastral Surveys

From simple property Subdivisions, New township establishments, Consolidations of stands, Beacon certificates and relocations and Sectional title surveys, the team can give you the best advice. By utilizing our range of specialized services such as site surveys and sectional title units development, we can partner with you through the entire 'survey to final sale' process.

We are equipped for every aspect of the job requirement, providing the complete solution. By using the latest technology we're able to be efficient and reactive, with the team available whenever you need them. From topographic and site surveys, through to site subdivisions, township pegging and sectional titles development projects. We also provide assistance on cadastral land advisory (Expropriations, Land reform and management) as well as arbitration on boundary disputes.

If you need advice on how best to utilize your land or assistance through the entire land development process, talk to us.

Building Construction Surveys

Benefits include:

- Efficient systems that ensure accuracy and precision without causing delays to construction of high-rise and low-rise buildings
- Calculate and set-out structures accurately and efficiently
- Rapidly capture precise 3D data to compare as-built to design
- Create 3D modeling of structural modules prior to their mobilization to site
- Unreachable or constricted places can be captured due to highly mobile measuring systems

- Ensure items are within fabrication tolerance specification, safeguarding against compliance issues
- Improved safety through precision monitoring of movement of structures

Services we offer on Building Construction Surveys projects are:

- Super High-rise construction
- Hospitals
- Residential complex and houses
- Schools
- Refurbishments
- Low to medium-rise

KEY PERSONNEL

Environmental:	Fatima Peer, BSc (Hons) Chemistry, Pr Sci Nat fatima@1wc.co.za
Electrical:	Mohamed Peer, BSc Electrical Eng, Pr Eng mohamed@1wc.co.za
C&I	Goolam Jajbhai, BSc Elec Eng goolam@1wc.co.za
Mechanical:	Mahomed Suhale Baksh, BSc Mechanical Eng, Pr Eng suhale@1wc.co.za
Land Survey:	Yusuf Kajee, BSc Land Surveying, GPrLS yusufk@1wc.co.za

SUPPORT PERSONNEL

Environmental:	Adila Gafoor, BSoc Sci Geography and Environmental Management Roschel Maharaj, BSc Environmental Sciences Wasila Votajee, BSc Hons Geological Sciences
Electrical:	Ubaidullah Pandor, BSc Electrical Eng Ashley Naidoo, BTech Electrical Eng Nikhil Ganas, BTech Electrical Eng Dave Schutte, Pr Techni Eng.
Mechanical:	Aasif Moosa, BEng Mechanical
Land Survey:	Congress Mafukele, GPrLS

Surveying

PROFESSIONAL REGISTRATION

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

- South African Council for Natural Scientific Professions (SACNASP)
- International Association for Impact Assessment South Africa (IAIAsa)
- Engineering Council of South Africa (ECSA)
- South African Federation of Hospital Engineering (SAFHE)
- South African Institute of Mechanical Engineers (SAIMechE)
- South African Institute of Electrical Engineers (SAIEE)
- South African Geomatics Council (SAGC), ex PLATO
- South African Geomatics Council (SAGC)

COMPANY DETAILS

Legal Name: 1World Consultants (PTY) Ltd.

Operational Years: 8 years (originally operated as a Sole Proprietor from 2011)

Company Reg No.: 2015/084540/07

VAT Registration No.: 445 0271 756

B-BBEE Level: 01

Environmental & Engineering Consultants
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1World Consultants Company Experience

Current & Previous Work Experience

Environmental & Engineering Consultants
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NAME OF CONTRACT/ NATURE OF WORK	DURATION		VALUE OF WORK		NAME, ADDRESS & TELEPHONE NO. OF CLIENT AND/ OR PROJECT LEADER
	FROM	TO	FEE	CONTRACT (RMILLIONS)	
CURRENT PROJECTS					
Basic Assessment Process for the proposed development of residential/ serviced apartments. Location: 49 Casuarina Road, Tongaat Beach	March 2019	Current	R 127 000	Undisclosed	Arup (Pty) Ltd Address: Postnet Suite No. 93, Private Bag X1 Melrose Arch 2076 Tel: 082 734 1168 Email: Yusuf.raja@arup.com
Basic Assessment and Water Use License Application for the Bhokwe Community Sanitation Project Location: Vryheid	June 2019	Current	R 250 000	R 4 000 000	UKUZA Consulting (Pty) Ltd Name: Chris Govender Address: 15 The Boulevard, Westway Office Park, 3630 Tel: 031 265 0444 Email: chris@ukuza.co.za
Basic Assessment Process for the proposed Klerksdorp filling station. Location: Klerksdorp	July 2019	Current	R 77 100	Undisclosed	DMC Holdings Name: Naeem Karim Tel: 018 462 9477
Basic Assessment Process for the proposed filling station and associated food outlets. Location: Grimsby Road, Mobeni	April 2019	Current	R 45 000	Undisclosed	Aniston Investments (Pty) Ltd Name: Zakir Mahomedy Address: 2 Grimsby Road, Mobeni Tel: 079 513 1025 Email: zmahomedy@gmail.com
Basic Assessment Report for the proposed Eskom Battery Energy Storage System (BESS) Elandskop and Pongola Substations. Location: Elandskop and Pongola	February 2019	Current	R 650 000	Undisclosed	Eskom Holdings SOC Ltd Name: Mhleli Vezi and Bruce Burger Address: 25 Valley Value Road, New Germany Tel: 031 710 5689/ 031 710 5386 Email: vezimm@eskom.co.za / burgerbj@eskom.co.za

Current & Previous Work Experience

Environmental & Engineering Consultants
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Water Use License Applications for the Grootvlei Power Station Location: Grootvlei, Gauteng	September 2018	Current	R 115 000	Undisclosed	Eskom Soc Ltd. Name: Hulisani Mutati Address: N3 South Between Heidelberg and Villiers Tel: 017 779 7146 Email: MutatiH@eskom.co.za
Water Use License for the construction of a proposed graveyard located in the Mandeni Municipality Location: Mandeni, KZN	October 2018	Current	R 167 000	Undisclosed	Mandeni Local Municipality Name: Masupha Mathenjwa Address: 2 Kingfisher Road, Mandeni, KwaZulu-Natal Tel: 082 218 4737 Email: Masupha.Mathenjwa@ilembe.gov.za
2 x EIA Enquiry for proposed new Bethlehem Graveyard Location: Bethlehem, Free State	October 2018	October 2018	R 10 000	Undisclosed	MSS Design Group Name: Mohamed Sayed Address: Unit 24, 53 Anthony Road, Durban North Tel: 031 563 3379 Email: mssarch@wol.co.za
Environmental Services to facilitate Wetland Delineation and Functional Assessment for the Orthman Road Shopping Centre Location: Orthman Road, PMB	October 2018	November 2018	R 32 000	Undisclosed	Royal Rice Company Name: Imraan Badrudin Address: 397 Victoria Road, PMB Tel: 033 345 9751 Email: imraan@royalrice.co.za
Biodiversity Assessment for the Lodge Uitval and Conference Centre with 26 accommodation chalets and associated infrastructure and related buildings Location: Uitval, KZN	September 2018	September 2018	R 30 000	Undisclosed	Mondli Consulting Name: Brian Mthembu Address: 66 Main Street, Howick Tel: 033 330 2513 Email: mondlib@webmail.co.za
Ecological Assessment for 2 Proposed Borrow Pits Associated with the Upgrade of the R61 National Route Location: Ray Nkonyeni Municipality, KZN	September 2018	September 2018	R 30 000	Undisclosed	Kerry Seppings Environmental Consulting Name: Nishkar Maharaj Address: 4 Woodville Lane, Summervelt, Assagay Tel: 063 684 9195

Current & Previous Work Experience

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					Email: nishkar@ksems.co.za
Vegetation Assessment and Environmental Screening for the Proposed Solevita Gardens Housing Development Location: Amanzimtoti, KZN	April 2018	April 2018	R 30 000	Undisclosed	ARUP Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
Basic Assessment for the construction of the Umdloti Beach far South sewage pump station, rising main, gravity sewer reticulation and access road. **Location:** Umdloti Beach, KZN	February 2018	Current	R 209 000	Undisclosed	eThekwini Municipality: Water & Sanitation Name: Vernon Ndlhozi Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8549 Email: Vernon.Ndlhozi@durban.gov.za
Environmental Screening for the Proposed Nodal Development Location: Umbumbulu, Kzn	December 2017	December 2017	R 20 000	Undisclosed	ARUP Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
Environmental Screening for the Proposed Cato Ridge Abattoir Location: Cato Ridge, KZN	December 2017	December 2017	R 20 000	Undisclosed	ARUP Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
ECO Monitoring for the Rehabilitation of the Jukskei River and refurbishment of the Jukskei Park **Location:** Jukskei, JHB	October 2017	June 2018	R 50 000	Undisclosed	VCAQS Name: Casandra Naidoo Address: 4 Rockdale Avenue, Westville Tel: 031 266 8615 Email: cas@vcaqs.co.za

Current & Previous Work Experience

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Section 24G application for the rectification of the unlawful commencement and Continuation of a listed Activity situated at 56 Ocean Terrace. **Location**: Isipingo Beach, KZN	October 2017	Current	R 85 000	Undisclosed	AKR Property Development (Pty) Ltd Name: Trivolan Govender Tel: 031 507 7473 Email: accounts@akrgroup.co.za
Environmental Impact Report for Proposed Residential Development Location: Pinetown, KZN	May 2017	May 2017	R 15 000	Undisclosed	ARUP Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
Environmental authorisation, EMP and WULA for the 52km, 300mm diameter Pipeline and associated reservoirs and pump stations for the Umshwathi Bulk Infrastructure Upgrade Project. **Location:** Ndwedwe Local Municipality, KZN	May 2017	Current	R683 000	R 75m	Umgeni Water Name: Zethu Jili Address: 310 Burger St, Pietermaritzburg, 3201 Tel: 033 341 1083/ 083 306 7435 Email: zethu.jili@umgeni.co.za
Biodiversity Assessment for the Proposed Port Edward Housing Development Location: Port Edward, KZN	April 2017	April 2017	R 20 000	Undisclosed	ARUP Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
Nonoti Abattoir - Basic Assessment, EMP and WULA for the establishment of a new bovine abattoir **Location:** Stanger, KZN	April 2017	Current	R80 000	R 12m	ARUP Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
ECO Monitoring for the Village Walk Shopping Centre (construction of a high rise, mixed-use, building) located on Rivonia Road, Sandton **Location:** Sandton, JHB	February 2017	October 2018	R 100 000	Undisclosed	ARUP Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com

Current & Previous Work Experience

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Tel: 031 262 8327

Eastmoor Crescent - Basic Assessment, EMP for the demolishing and re-building of a residential dwelling **Location:** Eastmoor Crescent, La Lucia	January 2017	Current	R80 000	R 5m	ARUP & Nxasana Sizwe Errol Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
Glebe Sewer Reticulation; Amendment of Environmental Authorisation **Location:** Inanda Glebe, Inanda, Durban	November 2016	Current	R172 000	R 25m	eThekwini Municipality: Water & Sanitation Name: Silondiwe Gumede Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8751 Email: Silondiwe.gumede@durban.gov.za
Lagoon Drive (Fleetwood on Sea) - Basic Assessment, EMP for the refurbishment and extension of a residential block **Location:** Umhlanga Rocks, Durban	November 2016	Current	R72 000	R 30m	ARUP & Dalmatian Duo Investments Name: Yusuf Raja Address: 167 Florida Road, Durban, 4001 Tel: 031 328 8700/ 082 734 1168 Email: yusuf.raja@arup.com
Vegetation Assessment, EMP, ECO Monitoring and Contractor Training **Location:** Donnelly Road, Wentworth	July 2016	Current	R60 693.60	R 8m	eThekwini Municipality: Department of Human Settlements & Infrastructure- Social Housing Name: Nokuthula Madondo Address: Shell House, 221 Anton Lembede Street, Durban, 4001 Tel: 031 311 - 3218 Email: nokuthula.madondo@durban.gov.za
ECO Monitoring for the Pipeline Projects, Wartburg to Bruynshill and South Coast Phases 2B & 2A and Amendment to Environmental Authorisation **Location:** Wartburg to Bruynshill and South Coast (Scottburg & Kelso)	June 2016	Current	R928 487.93	R 120m	Umgeni Water Name: Asha Ramjatan Address: 310 Burger St, Pietermaritzburg, 3201 Tel: 033 3411 335/ 083 679 4423 Email: Asha.Ramjatan@umgeni.co.za
Basic Assessment for the construction of a petrol station and associated infrastructure **Location:** Overport	June 2016	Current	R90 345	R 6m	Brickfield Investments (Pty) Ltd Name: E.C Vayej Address: 296 Jan Smuts Hwy, Durban, 4091 Tel: 031 207 5683/082 768 0700 Email: evayej@gmail.com

Current & Previous Work Experience

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327

SANRAL National Route 2 ECO Monitoring: Routine Road Maintenance Environmental Compliance Monitoring **Location:** Umdloti	February 2016	Current	R90 288	R 12m	Aurecon & SANRAL Name: Johan Calitz Address: 4 Daventry Street, Lynnwood manor, 0081 Tel: 012 427 2634 Email: Johan.Calitz@aurecongroup.com
EAP & ECO Monitoring, Environmental Training **Location:** Adams Mission	March 2016	Current	R124 650	R 30m	eThekwini Municipality Name: Nomagugu Ncemane Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8148 / 071 855 8124 Email: nomagugu.ncemane@durban.gov.za
Basic Assessment, Vegetation Assessment, Water Use License Application, Environmental Control Officer Monitoring and Environmental Training for a water pipeline. **Location:** Alverstone, Hillcrest, Durban	January 2016	Current	R325 500	R 47m	eThekwini Municipality: Water & Sanitation Name: Leisel Bowes Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8656/ 082 395 8195 Email: leiselbowes@durban.gov
Basic Assessment, Water Use License Application, Environmental Control Officer Monitoring and Environmental Training for a water pipeline. **Location:** Maphephetheni, Inanda, Durban	December 2015	Current	R355 000	R 68m	eThekwini Municipality Name: Nomagugu Ncemane Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8148 / 071 855 8124 Email: nomagugu.ncemane@durban.gov.za
Basic Assessment, Water Use License Application, Environmental Control Officer Monitoring and Environmental Training for the Mbhele Pedestrian Bridge **Location:** Margate	November 2015	Current	R260 000	R 4m	PGA Consulting Name: Marcus Sadhai Address: 53 Intersite Avenue, Umgeni Business Park Tel: 031 263 2583 Email: marcus.sadhai@pgaconsulting.co.za
Basic Assessment, Water Use License Application, Environmental Control Officer Monitoring and Environmental Training for a Dressing Pedestrian Bridge **Location:** Bhomela	November 2015	Current	R260 000	R 4m	PGA Consulting Name: Marcus Sadhai Address: 53 Intersite Avenue, Umgeni Business Park

Current & Previous Work Experience

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327

					Tel: 031 263 2583 Email: marcus.sadhai@pgaconsulting.co.za
Basic Assessment, Water Use License Application and ECO Monitoring for Burbreeze Reservoir and Pipeline **Location:** Tongaat	October 2015	Current	R280 000	R 70	eThekwini Municipality & RHDHV Name: Roxanne Mans Address: 3 Prior Road, Durban Central, 4001 Tel: 083 776 0626 Email: Roxanne.mans@rhdhv.com
Training and ECO Monitoring for Reforestation Hub within Buffelsdraai Landfill Site **Location:** Buffelsdraai	September 2015	Current	R112 176	+-R20m	eThekwini Municipality (EPCPD) Name: Errol Douwes Address: 166 K.E Masinga Road, Durban, 4001 Tel: 031 311 7952 Email: Errol.Douwes@durban.gov.za
Environmental Control Monitoring **Location:** Cedara, PMB	November 2015	Current	+-R20 000	R 2	Madrassa An-Noor for the Blind Name: Mohamed Timol Address: Lot 3 Cedara Road, Pietermaritzburg, 3201 Tel: 033 343 3301 Email: admin@mnblind.org
Basic Assessment, Water Use License Application and ECO Monitoring for Midnite Café Reservoir and Pipeline **Location:** Craigieburn	August 2015	Current	R420 889	R50m	Royal Haskoning DHV & Ethekwini Municipality Name: Roxanne Mans Address: 19 Park Lane. Umhlanga, 4319 Tel: 083 776 0626 Email: Roxanne.mans@rhdhv.com
ECO Monitoring for construction of Brookside Taxi Holding Area **Location:** Pietermaritzburg	May 2014	Current	R28 000	R10m	Msunduzi Municipality: Dept. of Transportation Name: Khethiwe Mvelase Address: 333 Church Street, AS Chetty Building, Pietermaritzburg Tel: 073 593 1885 Email: khethiwe.mvelase@msunduzi.gov.za

Current & Previous Work Experience

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327

Formulation of EMP for Rehabilitation of Pipeline Bridge. ECO Monitoring for Rehabilitation of Pipeline Bridge **Location:** Canelands, Verulam	May 2014	Current	R94 000	R10m	eThekwini Municipality & SMEC Name: Leisel Bowes Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8656/ 082 395 8195 Email: leiselbowes@durban.gov
PREVIOUS PROJECTS					
Environmental Screening for Strip Mall in Newlands West Inanda Square Basic Assessment **Location:** Newlands West	June 2014	June 2015	R52 500	R6.5m	Arup & SMFT Properties Name: Nadheem Sheik Address: 167 Florida Road, Durban, 4001 Tel: 072 437 8299 Email: nsa@vodamail.co.za
Environmental Screening for two sites for waste management facilities **Location:** Merebank and Verulam	May 2014	July 2014	R2 500	R5m	We're Recyclling Pty (Ltd) Name: Riaz Vanker Address: Myrtle Road, Green Office Building, New Germany, 3600 Tel: 082 080 9764 Email: vankersinternational@telkomsa.net
Environmental Screening for Warehousing. **Location:** Newlands West	May	2014	R2 500	R6m	Eminen Architects Name: Muhammed Naroth Address: 292 Grey Street, Durban, 4001 Tel: 078 573 9970 Email: muhammed@eminen.co.za
Halpin Avenue Muslim Cemetery – Environmental Screening **Location:** Halpin Avenue, Reservoir Hills	July 2014	August 2014	R5 000	R3m	PAR Quantity Surveyors Name: Rasheed Peer Address: 2 Chesham Pl, Westville, 3630 Tel: 082 876 5887 Email: arpqs@wol.co.za
Sewage Pipeline Basic Assessment, Public Participation and EMP Water Use License Application **Location:** Pietermaritzburg	August 2014	July 2016	R182 000	R10m	Msunduzi Municipality Water and Sanitation Name: Dhamendra Ragunanthan Address: 333 Church Street, AS Chetty Building, Pietermaritzburg

Current & Previous Work Experience

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327

					Tel: 033 392 2115 Email: Dhamendra.Ragoonandan@msunduzi.gov.za
EMP for Fuel Retail License **Location:** Marian Hill	July 2014	August 2014	R30 000	R5m	Woodford Motors cc Name: Owaiys Soleman Address: 41 Woodford Grove, Berea, 4001 Tel: 083 577 8600 Email: owaiys@woodford.co.za
Application of Water Use License and coordination of Specialist Study for Rehabilitation of Pipeline Bridge **Location:** Canelands, Verulam	May 2014	April 2015	R25 000	R10m	eThekwini Municipality: Water & Sanitation Name: Leisel Bowes Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8656/ 082 395 8195 Email: leiselbowes@durban.gov
Formulation of Vegetation Rehabilitation Plan for Pipeline Bridge. ECO Monitoring for Vegetation Rehabilitation **Location:** Umgeni	July 2014	October 2015	R47 000	R10m	eThekwini Municipality & SMEC Name: Leisel Bowes Address: 3 Prior Road, Durban Central, 4001 Tel: 031 311 8656/ 076 412 8575 Email: leiselbowes@durban.gov
Environmental screening for seven sites earmarked for places of worship. **Location:** Kwadukuza	May 2014	July 2014	R17 000	R7m	Kwadukuza Municipality Name: Nokubonga Kunene Address: 14 Chief Albert Luthuli Street, KwaDukuza, 4450 Tel: 071 897 9366 Email: nokubongak@kwadukuza.gov.za
Application for Waste Management License and related Environmental Authorisation (Basic Assessment) for sewage, contaminated stormwater and food grease storage facilities within the Proposed Drag Race Track and Entertainment Complex. **Location:** Eddie Hagen Drive, Cato Ridge, Kwazulu Natal	February 2012	May 2013	R22 000	R5m	Pilson Developers cc Name: Rajan Pillay Address: 198 Saunders Circle, Tongaat, 4400 Tel: 084 440 0887 Email: ranap@sanlamsky.co.za
Environmental Authorisation (Basic Assessment) for a Proposed Drag Race Track and Entertainment Complex. **Location**: Eddie Hagen Drive, Cato Ridge, Kwazulu Natal	January 2011	March 2013	R35 000	R5m	Pilson Developers cc Name: Rajan Pillay Address: 198 Saunders Circle, Tongaat, 4400

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327

					Tel: 084 440 0887 Email: ranap@sanlamsky.co.za
Appeals Process (S24G) for Diesel Storage facilities. **Location:** Erf 104, Cliffdale, Kwazulu Natal	November 2012	December 2012	R10 000	R5m	Trans Africa Farms Name: Rishi Sookoo Address: 20 Montague Drive, Umhlanga Ridge, 4320 Tel: 082 418 6599 Email: transafrica@mweb.co.za
Retrospective Environmental Authorisation (Basic Assessment) for unlawful clearing of vegetation and for proposed hydroponic tunnel farm and associated warehousing and facilities. **Location:** Erf 104, Cliffdale, Kwazulu Natal	January 2010	March 2011	R30 000	R5m	Trans Africa Farms Name: Rishi Sookoo Address: 20 Montague Drive, Umhlanga Ridge, 4320 Tel: 082 418 6599 Email: transafrica@mweb.co.za
Appeals Process (S24G) for unlawful clearing of vegetation in a D'MOSS protected area. **Location**: Erf 104, Cliffdale, Kwazulu Natal	March 2011	November 2011	R10 000	R5m	Trans Africa Farms Name: Rishi Sookoo Address: 20 Montague Drive, Umhlanga Ridge, 4320 Tel: 082 418 6599 Email: transafrica@mweb.co.za

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

EAP Team – Declaration and CV's

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

	(For official use only)
Provincial Reference Number:	
NEAS Reference Number:	KZN / EIA /
Waste Management Licence Number (if applicable):	
Date Received by Department:	

DETAILS OF EAP AND DECLARATION OF INTEREST

Submitted in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014.

KINDLY NOTE:

1. This form is current as of **October 2019**. It is the responsibility of the Applicant / Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the form have been released by the Department.

PROJECT TITLE

Proposed Grimsby Road Fuel Filling Station with Associated Infrastructure and Multiple Fast Food Outlets

DISTRICT MUNICIPALITY

eThekwini Municipality

IMPORTANT INFORMATION

PLEASE NOTE:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of **October 2019**. It is the responsibility of the Applicant / Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the form have been released by the Department.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the Department for consideration.
4. This form must be hand delivered or posted to the relevant District office. The Head Office Registry may be contacted on **033 - 264 2898 / 2572** for details of the relevant district.

5. All documentation delivered to Head Office must be delivered during the official Departmental Office Hours visible on the Departmental premises.

6. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box or Job Application Box will NOT be accepted, only hardcopy submissions are accepted.

1. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) INFORMATION

Environmental Assessment Practitioner (EAP):	Fatima Peer		
Contact person:	Fatima Peer		
Postal address:	P.O. Box 2311, Westville		
Postal code:	3630	Cell:	082 640 4900
Telephone:	031 262 8327	Fax:	086 726 3619
E-mail:	fatima@1wc.co.za		
Professional affiliation(s) (if any)	Professional Scientist with South African Council for Natural Scientific Professionals (SACNASP) International Association for Impact Assessments (IAIAsa)		

Project Consultant:	Adila Sheik Gafoor		
Contact person:	Adila Sheik Gafoor		
Postal address:	P.O. Box 2311, Westville		
Postal code:	3630	Cell:	073 236 6529
Telephone:	031 262 8327	Fax:	086 726 3619
E-mail:	adila@1wc.co.za		

2. DECLARATION BY EAP

I, **Fatima Peer** , declare that –

General declaration:

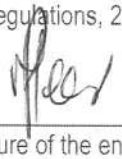
- I will comply with the requirements for EAPs as stipulated in Regulation 13(1) of the EIA Regulations, 2014;
- I act as the independent environmental practitioner in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings 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 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 ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- 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;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998)

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, 2014;



Signature of the environmental assessment practitioner:

1World Consultants (Pty) Ltd

Name of company:

25/11/2019

Date:

PROJECT ROLE: SENIOR ENVIRONMENTAL ASSESSMENT PRACTITIONER

Name:	Fatima Peer	
Telephone:	031 262 8327	
Fax:	086 726 3619	
Email:	fatima@1wc.co.za	
Professional Registration:	SACNASP – Membership No.: 400287/11 IAIAsa – Membership No.: 3974	

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

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

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

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

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

Date (from- to)	2008 – May 2010
Name and address of employer	PAR Quantity Surveyors
Type of business sector	Quantity Surveying
Occupation or position held	Environmental Consultant
Main activities and responsibilities	Environmental Screening Processes and general advice to clients

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

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

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

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

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

PERSONAL SKILLS AND COMPETENCES

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

MOTHER TONGUE	ENGLISH
OTHER LANGUAGES	AFRIKAANS (BASIC) ZULU (BASIC)

(specify Language)	English	Afrikaans	Zulu
Reading skills	Perfect	Good	Poor
Writing skills	Perfect	Good	Poor
Verbal skills	Perfect	Good	Fair

DRIVING LICENSE(S)	Code 8

ADDITIONAL INFORMATION	**SACNASP** Member **IAIAsa** Member **Environmental Law Course** **Environmental Impact Assessment : Theory and Practice (**by Vicki King of Metamorphosis Environmental Consultants) **Roles and Responsibilities of an ECO** (by IAIAsa- International Association for Impact Assessment South Africa) **Spatial Planning and Land Use Management Act (SPLUMA)** **(**by IAIAsa- International Association for Impact Assessment South Africa)

BRIEF PROJECT HISTORY: (SELECTED PROJECTS)	**CATO RIDGE RACETRACK & ENTERTAINMENT COMPLEX** ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED DEVELOPMENT OF A DRAG RACE TRACK, WITH RECREATIONAL AND ENTERTAINMENT FACILITIES IN CATO RIDGE, KWAZULU-NATAL. • BASIC ASSESSMENT • WASTE MANAGEMENT LICENSE • ENVIRONMENTAL MANAGEMENT PLAN • PUBLIC PARTICIPATION PROCESS
	CLIFFDALE HYDROPONIC FARM & ASSOCIATED WAREHOUSING ENVIRONMENTAL CONSULTING SERVICES FOR THE DEVELOPMENT OF A HYDROPONIC FARM AND RELATED WAREHOUSING FACILITIES, IN CLIFFDALE, OUTER WEST DURBAN, KWAZULU-NATAL. • BASIC ASSESSMENT • ENVIRONMENTAL MANAGEMENT PLAN • PUBLIC PARTICIPATION PROCESS • APPEALS PROCESS
	REHABILITATION OF A PIPELINE BRIDGE ENVIRONMENTAL CONSULTING SERVICES FOR THE REHABILITATION OF A PIPELINE BRIDGE, FOR ETHEKWINI MUNICIPALITY, DEPARTMENT OF WATER & SANITATION, IN VERULAM, DURBAN, KWAZULU- NATAL. • ENVIRONMENTAL MANAGEMENT PLAN • WATER USE LICENSE • ECO MONITORING • ENVIRONMENTAL TRAINING
	SEWAGE RETICULATION SYSTEM ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED SEWAGE RETICULATION SYSTEM, FOR THE MSUNDUZI MUNICIPALITY, DEPARTMENT OF WATER & SANITATION, IN WARD 20 EDENDALE, PIETERMARITZBURG. • BASIC ASSESSMENT • WATER USE LICENSE • PUBLIC PARTICIPATION • HERITAGE IMPACT ASSESSMENT
	UMGENI VEGETATION REHABILITATION ENVIRONMENTAL CONSULTING SERVICES FOR VEGETATION REHABILITATION PLAN FOR A PIPELINE BRIDGE, IN UMGENI. • VEGETATION REHABILITATION PLAN • ECO MONITORING
	ALVERSTONE WATER PIPELINE PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR A PROPOSED WATER PIPELINE FOR THE ETHEKWINI WATER & SANITATION, IN ALVERSTONE, HILLCREST, KWAZULU-NATAL. • BASIC ASSESSMENT • ECO MONITORING • WATER USE LICENSE • ECO MONITORING • ENVIRONMENTAL TRAINING
	BUFFELSDRAAI REFORESTATION HUB ENVIRONMENTAL CONSULTING SERVICES FOR A BUILDING UPGRADE PROJECT AT THE BUFFELSDRAAI LANDFILL SITE, BUFFER ZONE (COMMUNITY REFORESTATION PROJECT), BUFFELSDRAAI, VERULAM, DURBAN, KWAZULU-NATAL. • ECO MONITORING • ENVIRONMENTAL TRAINING
	FELIX DLAMINI PETROL FILLING STATION AND CONVENIENCE STORE ENVIRONMENTAL CONSULTING SERVICES FOR THE CONSTRUCTION OF A FILLING STATION AND CONVENIENCE STORE LOCATED IN OVERPORT, DURBAN, KWAZULU-NATAL. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATIONS
	UMGENI BULK WATER SUPPLY ENVIRONMENTAL CONSULTING SERVICES FOR UMGENI WATER BULK WATER PIPELINE PROJECT, FROM WARTBURG TO BRYUNSHILL AND SOUTH COAST. • ECO MONITORING • ENVIRONMENTAL TRAINING • PROJECT ENVIRONMENTAL EXPERT

	DONNELLY ROAD SOCIAL HOUSING PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR THE CONSTRUCTION OF SOCIAL HOUSING, IN WENTWORTH, DURBAN, KWAZULU-NATAL, FOR THE DEPARTMENT OF HUMAN SETTLEMENTS & INFRASTRUCTURE: SOCIAL HOUSING UNIT. • VEGETATION ASSESSMENT • ENVIRONMENTAL MANAGEMENT PLAN • ECO MONITORING • ENVIRONMENTAL TRAINING

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Fatima Peer

Registration Number: 400287/11

is registered as a

Professional Natural Scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Chemical Science
Environmental Science

Effective **31 August 2011** Expires **31 March 2020**

Chairperson

Chief Executive Officer

Scan this code to view online version of this certificate

University of Natal

We, the Vice-Chancellor, the Registrar,
and the Dean of the Faculty,
hereby certify
that

Fatima Peer

has this day been admitted to
the degree of

Bachelor of Science Honours (Chemistry)

Vice-Chancellor

Registrar

Dean

20 April 2001

UV PROTECTED – TAMPER EVIDENT UV

IAIAsa Secretariat
Tel +27(0)11 655 7183
Fax 086 662 9849
Address:
43 Birchwood Court, Montrose Street, Vorna Valley, Midrand, 1618
Postal address:
PO Box 11666, Vorna Valley, 1686
Email: operations@iaiasa.co.za
Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2019/2020
Fatima Peer Membership Number: 3974

13 February 2019

TO WHOM IT MAY CONCERN

Ms Fatima Peer, 1 World Consultants (Pty) Ltd (IAIAsa membership Number 5238) is a paid-up full member in good standing of the South African Affiliate of the International Association for Impact Assessment and has been a member of IAIAsa since 31 March 2015.
Membership has been continous from 31 March 2015 to date.

This membership is valid from 1 March 2019 to 28 February 2020.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours Sincerely

Robyn Luyt
IAIAsa President 2018/2019

PROJECT ROLE: ENVIRONMENTAL ASSESSMENT PRACTITIONER & WULA OFFICER

Name & Surname:	Adila Sheik Gafoor	
Telephone:	+2782 524 3367	
Email:	adila@1wc.co.za	
Professional Registration:	IAIAsa (membership no.: 5238)	

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

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

Date (from- to)	October 2014- Present
Name and address of employer	1World Consultants
Type of business sector	Engineering and Environmental Consultants
Occupation or position held	Environmental Assessment Practitioner, WULA Officer & Executive PA
Main activities and responsibilities	Project Manager Environmental Compliance Monitoring/Environmental Inspector/Environmental Officer GIS Water Use License Application Officer Basic Assessment Reports Environmental Impact Assessments Screening Public Participation Specialist Co-ordination Office Administrator Tender administrator Data capturing Report writing Minute taking

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

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

EDUCATION AND TRAINING

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

TERTIARY LEVEL EDUCATION	
Date (from – to)	February 2010 – June 2013
Name and type of organization providing education and training	UKZN – University of KwaZulu Natal
Principal subject/ occupational skills covered	Geography and Environmental Management Geographic Information Systems Political Ecology Political Science
Title of qualification awarded	BSc/B.Soc.Sci Geography and Environmental Management Science
Level in national classification (if appropriate)	NQF 6

SECONDARY LEVEL EDUCATION	
Date (from – to)	January 2004 – November 2008
Name and type of organization providing education and training	Dr. A.D Lazarus Secondary School
Principal subject/ occupational skills covered	Maths Accounting History Biology Afrikaans English Life Orientation
Title of qualification awarded	Bachelors Pass/Admission to Bachelor's Degree Distinctions in: History Biology English Life Orientation

PERSONAL SKILLS AND COMPETENCES

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

MOTHER TONGUE	ENGLISH

OTHER LANGUAGES	AFRIKAANS (BASIC) ZULU (BASIC)

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

DRIVING LICENSE(S)	CODE 8

ADDITIONAL INFORMATION	**PROFESSIONAL BUSINESS WRITING** **ENVIRONMENTAL IMPACT ASSESSMENT: THEORY AND PRACTICE** (BY VICKI KING OF METAMORPHOSIS ENVIRONMENTAL CONSULTANTS) **ROLES AND RESPONSIBILITIES OF AN ECO** (BY IAIASA- INTERNATIONAL ASSOCIATION FOR IMPACT ASSESSMENT SOUTH AFRICA) **SPATIAL PLANNING AND LAND USE MANAGEMENT ACT (SPLUMA)** (BY IAIASA- INTERNATIONAL ASSOCIATION FOR IMPACT ASSESSMENT SOUTH AFRICA)

BRIEF PROJECT HISTORY: (SELECTED PROJECTS)	**SEWAGE RETICULATION SYSTEM** ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED SEWAGE RETICULATION SYSTEM, FOR THE MSUNDUZI MUNICIPALITY, DEPARTMENT OF WATER & SANITATION, IN WARD 20 EDENDALE, PIETERMARITZBURG. • BASIC ASSESSMENT • WATER USE LICENSE • PUBLIC PARTICIPATION • HERITAGE IMPACT ASSESSMENT
	FELIX DLAMINI PETROL FILLING STATION AND CONVENIENCE STORE ENVIRONMENTAL CONSULTING SERVICES FOR THE CONSTRUCTION OF A FILLING STATION AND CONVENIENCE STORE LOCATED IN OVERPORT, DURBAN, KWAZULU-NATAL. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATIONS
	ALVERSTONE WATER PIPELINE PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR A PROPOSED WATER PIPELINE FOR THE ETHEKWINI WATER & SANITATION, IN ALVERSTONE, HILLCREST, KWAZULU-NATAL. • BASIC ASSESSMENT • WATER USE LICENSE • PUBLIC PARTICIPATION

	MAPHEPHETHENI WATER TREATMENT WORKS ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED WATER TREATMENT WORKS PROJECT, WHICH WILL INCLUDE THE INSTALLATION OF A WATER PIPELINE AND THE CONSTRUCTION OF RESERVOIRS AND PUMP STATIONS FOR THE DEPARTMENT OF WATER & SANITATION, IN MAPHEPHETHENI, INANDA, KWAZULU-NATAL. • BASIC ASSESSMENT • WATER USE LICENSE • PUBLIC PARTICIPATION
	BURBREEZE WATER PIPELINE AND ASSOCIATED INFRASTRUCTURE ENVIRONMENTAL CONSULTING SERVICES FOR A WATER PIPELINE, RESERVOIR AND PUMP STATION FOR ETHEKWINI WATER & SANITATION, IN TONGAAT, KWAZULU-NATAL. • BASIC ASSESSMENT • WATER USE LICENSE • PUBLIC PARTICIPATION
	BUFFELSDRAAI REFORESTATION HUB ENVIRONMENTAL CONSULTING SERVICES FOR A BUILDING UPGRADE PROJECT AT THE BUFFELSDRAAI LANDFILL SITE, BUFFER ZONE (COMMUNITY REFORESTATION PROJECT), BUFFELSDRAAI, VERULAM, DURBAN, KWAZULU-NATAL. • ECO MONITORING • ENVIRONMENTAL TRAINING
	UMGENI BULK WATER SUPPLY ENVIRONMENTAL CONSULTING SERVICES FOR UMGENI WATER BULK WATER PIPELINE PROJECT, FROM WARTBURG TO BRYUNSHILL AND SOUTH COAST. • ECO MONITORING • ENVIRONMENTAL TRAINING
	DONNELLY ROAD SOCIAL HOUSING PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR THE CONSTRUCTION OF SOCIAL HOUSING, IN WENTWORTH, DURBAN, KWAZULU-NATAL, FOR THE DEPARTMENT OF HUMAN SETTLEMENTS & INFRASTRUCTURE: SOCIAL HOUSING UNIT. • ECO MONITORING • VEGETATION ASSESSMENT • ENVIRONMENTAL MANAGEMENT PLAN

UNIVERSITY OF KWAZULU-NATAL™

INYUVESI YAKWAZULU-NATALI

This is to certify that

Adila Sheik Gafoor

was admitted this day
at a congregation of the University
to the degree of

Bachelor of Social Science

(Geography and Environmental Management)

having satisfied the conditions prescribed for the degree.

M W Makgoba
Vice-Chancellor

MC Baloyi
Registrar

SM Mutula
Acting Dean

7 April 2014

IAIAsa Secretariat
Tel +27(0)11 655 7183
Fax 086 662 9849
Address:
43 Birchwood Court, Montrose Street, Vorna Valley, Midrand, 1618
Postal address:
PO Box 11666, Vorna Valley, 1686
Email: operations@iaiasa.co.za
Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2019/2020
Adila Gafoor Membership Number: 5238

12 February 2019

TO WHOM IT MAY CONCERN

Ms Adila Gafoor, 1 World Consultants (IAIAsa membership Number 5238) is a paid-up full member in good standing of the South African Affiliate of the International Association for Impact Assessment and has been a member of IAIAsa since 1 July 2016.
Membership has been continous from 1 July 2016 to date.

This membership is valid from 1 March 2019 to 28 February 2020.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours Sincerely

Robyn Luyt
IAIAsa President 2018/2019

PROJECT ROLE: ENVIRONMENTAL ASSESSMENT PRACTITIONER & ECO

Name & Surname:	Roschel Maharaj	
Telephone:	+2763 062 7725	
Email:	roschel@1wc.co.za	
Professional Registration:	IAIAsa (membership no.: 5390)	

Nationally at birth	South African				
Present nationality	South African				
Date of birth (day,month,year)	04/06/1992				
Place of birth	Durban				
Sex	Male		Female	x	

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

TERTIARY LEVEL EDUCATION	
Date (from – to)	February 2011– November 2014
Name and type of organization providing education and training	UKZN – University of KwaZulu Natal
Principal subject/ occupational skills covered	Geography Environmental Science Geographic Information Systems
Title of qualification awarded	BSc Geography and Environmental Science
Level in national classification (if appropriate)	NQF 7

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

Date (from- to)	01 November 2016 - Current
Name of employer	1World Consultants (Pty) Ltd
Type of business sector	Environmental and Engineering Consultants
Occupation or position held	Environmental Consultant
Main activities and responsibilities	- Drafting Basic Assessment Reports, Scoping and EIA'S - Drafting Water Use License Applications and Technical Reports - Compliance & Monitoring (ECO Duties) - Environmental Audits - Drafting EMP'S - Lodging Applications with Government Authorities - Public Participation Facilitator
Date (from- to)	16 March 2015 – 30 October 2016
Name of employer	HANSLAB (Pty) Ltd
Type of business sector	Environmental and Ground Engineering Specialist
Occupation or position held	Environmental Consultant

Main activities and responsibilities	Drafting Basic Assessment Reports, Scoping and EIA'S - Drafting Water Use License Applications and Technical Reports - Compliance & Monitoring (ECO Duties) - Environmental Audits - Drafting EMP'S - Lodging Applications with Government Authorities - Public Participation Facilitator

Date (from- to)	13 June 2013 – 27 June 2013
Name of employer	Royal Haskoning DHV
Type of business sector	Consulting
Occupation or position held	Intern
Main activities and responsibilities	Assist mentor in all aspects of work

PERSONAL SKILLS AND COMPETENCES

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

MOTHER TONGUE	ENGLISH

OTHER LANGUAGES	AFRIKAANS (BASIC) ZULU (BASIC)

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

DRIVING LICENSE(S)	CODE 8

BRIEF PROJECT HISTORY: (SELECTED PROJECTS)	**EXTENSION AND REFURBISHMENT OF A MULTI-STORY RESIDENTIAL BLOCK** ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED REFURBISHMENT AND EXPANSION OF A MULTI-STORY RESIDENTIAL BLOCK SITUATED AT 50 LAGOON DRIVE, LOCATED WITHIN THE ETHEKWINI MUNICIPALITY. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • EVIRONMENTAL AUTHORISATIONS
	DEMOLISHING AND REBUILD OF A RESIDENTIAL DWELLING ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED DEMOLISHING AND RE-BUILD OF A RESIDENTIAL DWELLING SITUATED AT 18 EASTMOOR CRESCENT, LA LUCIA WITHIN THE ETHEKWINI MUNICIPALITY. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATIONS
	MADRASSA AN-NOOR FOR THE BLIND ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED EXPANSIONS TO THE MADRASSA AN-NOOR FOR THE BLIND ON ERF2 AND 3, CEDARA ROAD, UMNGENI MUNICIPALITY. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATIONS
	SEWER RETICULATION PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED CONSTRUCTION OF THE INANDA GLEBE SEWER RETICULATION WITHIN THE ETHEKWINI MUNICIPALITY. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATIONS
	KWA JUSTICE FOODS AGRI-PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED CONSTRUCTION OF THE NONOTI ABATTOIR WITHIN THE ILEMBE DISTRICT. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATIONS
	56 OCEAN TERRACE ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED RECTIFICATION AND CONTINUATION OF THE MULTI-STOREY RESIDENTIAL COMPLEX AT 56 OCEAN TERRACE, ISIPINGO BEACH, ETHEKWINI MUNICIPALITY • S24G APPLICATION • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATIONS

UNIVERSITY OF KWAZULU-NATAL™

INYUVESI YAKWAZULU-NATALI

This is to certify that

Roschel Maharaj

was admitted this day
at a congregation of the University
to the degree of

Bachelor of Science

having satisfied the conditions prescribed for the degree.

A S van Jaarsveld
Vice-Chancellor

B Poo
Acting Registrar

A Modi
Dean

15 April 2015

UV PROTECTED

IAIAsa Secretariat
Tel +27(0)11 655 7183
Fax 086 662 9849
Address:
43 Birchwood Court, Montrose Street, Vorna Valley, Midrand, 1618
Postal address:
PO Box 11666, Vorna Valley, 1686
Email: operations@iaiasa.co.za
Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2019/2020
Roschel Maharaj Membership Number: 5390

12 February 2019

TO WHOM IT MAY CONCERN

Ms Roschel Maharaj, 1 World Consultants (IAIAsa membership Number 5390) is a paid-up full member in good standing of the South African Affiliate of the International Association for Impact Assessment and has been a member of IAIAsa since 29 November 2016.
Membership has been continous from 29 November 2016 to date.

This membership is valid from 1 March 2019 to 28 February 2020.

IAIAsa is a voluntary organisation and is not a statutory body regulating the profession. Its members are however expected to abide by the organisation's code of ethics which is available on our website.

Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours Sincerely

Robyn Luyt
IAIAsa President 2018/2019

PROJECT ROLE: TRAINEE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Name & Surname:	Wasila Vorajee
Telephone:	+2760 395 8597
Email:	wasila@1wc.co.za

Nationally at birth	South African				
Present nationality	South African				
Date of birth (day,month,year)	26/09/1995				
Place of birth	Ladysmith				
Sex	Male		Female	x	

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

TERTIARY LEVEL EDUCATION	
Date (from – to)	February 2017 – November 2017
Name and type of organization providing education and training	UKZN – University of KwaZulu Natal
Principal subject/ occupational skills covered	Environmental and Engineering Geology Hydrogeology Geographic Information Systems
Title of qualification awarded	BSc HONS Geological Sciences
Level in national classification (if appropriate)	NQF 8

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

Date (from- to)	01 February 2018 - Current
Name of employer	1World Consultants (Pty) Ltd
Type of business sector	Environmental and Engineering Consultants
Occupation or position held	Trainee Environmental Consultant
Main activities and responsibilities	- Drafting Basic Assessment Reports, Scoping and EIA'S - Drafting EMP'S - Assisting with Public Participation - Assisting with Tender Documents - Administration

PERSONAL SKILLS AND COMPETENCES

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

MOTHER TONGUE	ENGLISH

OTHER LANGUAGES	AFRIKAANS (BASIC) ZULU (BASIC)

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

DRIVING LICENSE(S)	CODE 8

BRIEF PROJECT HISTORY: (SELECTED PROJECTS)	**SECTION 24G** ENVIRONMENTAL CONSULTING SERVICES FOR THE RECTIFICATION OF THE UNLAWFUL COMMENCEMENT AND CONTINUATION OF THE DEVELOPMENT SITUATED AT 56 OCEAN TERRACE, ISIPINGO BEACH LOCATED WITHIN THE ETHEKWINI MUNICIPALITY • SECTION 24G APPLIICATION • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATION
	SEWER RETICULATION PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED CONSTRUCTION OF THE INANDA GLEBE SEWER RETICULATION WITHIN THE ETHEKWINI MUNICIPALITY. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATION
	KWA JUSTICE FOODS AGRI-PROJECT ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED CONSTRUCTION OF THE NONOTI ABATTOIR WITHIN THE ILEMBE DISTRICT. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATION
	UMSHWATHI BULK WATER SUPPLY SCHEME: PHASE 4 ENVIRONMENTAL CONSULTING SERVICES FOR THE PROPOSED CONSTRUCTION OF THE 51KM PIPELINE AND VARIOUS RESERVOIRS WITHIN THE NDWEDWE LOCAL MUNICIPALITY. • BASIC ASSESSMENT • PUBLIC PARTICIPATION • ENVIRONMENTAL AUTHORISATION

UNIVERSITY OF KWAZULU-NATAL ™

INYUVESI YAKWAZULU-NATALI

This is to certify that

Wasila Vorajee

was admitted this day
at a congregation of the University
to the degree of

Bachelor of Science Honours

(Geology)

having satisfied the conditions prescribed for the degree

AS van Jaarsveld
Vice – Chancellor

SS Mokoena
Registrar

O Mutanga
Dean

214504461

18 April 2018
UV PROTECTED

34691

00003340

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Wasila Vorajee

Registration Number: 123009

is registered as a

Candidate Natural Scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following fields(s) of practice (Schedule 1 of the Act)

Geological Science

Effective **11 September 2019** Expires **31 March 2020**

Chairperson

Chief Executive Officer

Scan this code to view online version of this certificate

IAIAsa Secretariat
Tel +27(0)11 655 7183
Fax 086 662 9849
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43 Birchwood Court, Montrose Street, Vorna Valley, Midrand, 1618
Postal address:
PO Box 11666, Vorna Valley, 1686
Email: operations@iaiasa.co.za
Website: www.iaiasa.co.za

IAIAsa Confirmation of Membership: 2019/2020
Wasila Vorajee Membership Number: 5891

12 February 2019

TO WHOM IT MAY CONCERN

Ms Wasila Vorajee, 1 World Consultants (Pty) Ltd (IAIAsa membership Number 5891) is a paid-up full member in good standing of the South African Affiliate of the International Association for Impact Assessment and has been a member of IAIAsa since 27 March 2018.
Membership has been continous from 27 March 2018 to date.

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Any enquiries regarding this membership may be directed to the Secretariat at the above contact details.

Yours Sincerely

Robyn Luyt
IAIAsa President 2017/2018

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Specialist Team – Declaration and CV's

	(For official use only)
Provincial Reference Number:	
NEAS Reference Number:	KZN / EIA /
Waste Management Licence Number (if applicable):	
Date Received by Department:	

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

Submitted in terms of section 24(2) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) or for a waste management licence in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

KINDLY NOTE:

1. This form is current as of **October 2019**. It is the responsibility of the Applicant / Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the form have been released by the Department.

PROJECT TITLE

Lot 821- Portion 2- Mobeni: Geo-Technical Investigation Soil Report Dataset

DISTRICT MUNICIPALITY

eThekwini Municipality

1. SPECIALIST INFORMATION

Specialist name:	Geotechnical Solutions (Pty) Ltd		
Contact person:	James Harvey-Ewusi III		
Postal address:	P.O. BOX 303 Ladysmith		
Postal code:	3370	Cell:	079 910 0920
Telephone:	071 560 8058	Fax:	N/A
E-mail:	geosollab@gmail.com		
Professional affiliation(s) (if any)	Pr Tech Eng 2018300157		

JR

Project Consultant / EAP:	1World Consultants (Pty) Ltd		
Contact person:	Adila Sheik Gafoor		
Postal address:	P.O Box 2311, Westville		
Postal code:	3630	Cell:	073 236 6529
Telephone:	031 262 8327	Fax:	086 726 3619
E-mail:	adila@1wc.co.za		

2. DECLARATION BY THE SPECIALIST

I, **James Harvey-Ewusi III** are that --

General declaration:

- I act as the independent specialist in this application;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- 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 the specialist report relevant to this application, 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 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;
- all the particulars furnished by me in this form are true and correct; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Signature of the specialist:

Geotechnical Solutions (Pty) Ltd

Name of company:

07 - 11 - 2019

Date:

JR

GEO-SOL EARTH CIVIL TESTING
Licensed Authority
Reg.No.- K2011/115681/01 Tax.No.- 9127/374/18/0
Radiation Control – Authority No. 2962/16/1430
106 Francis Road – P.O. Box 303 - Ladysmith – KwaZulu Natal - 3370
Web – www.geo-sol.co.za – Tel – 0715608058 – 0799100920 - Email – geosollab@gmail.com

Curriculum Vitae – Professional Staff

Name	James Richard Harvey-Ewusi lll
Profession	Professional Engineering Technologist
Position in Company	Civil Engineering Projects - Director
Date of Birth	1984/10/13
Nationality	South African
Identity Number	8410135630088
Years in Company Service	7 Years
HDI Status	Black Male
Languages	Zulu - English - Afrikaans

Professional Society Memberships

Associate Member: South African Institute of Civil Engineering (No, 2008727)
Candidate Technologists: Engineering Council of South Africa (No 200920312)
Professional Engineering Technologist (PrTechEng) 2018300157

Professional Qualifications

Bcom: Financial Management. UNISA (2013-present)
B-Tech: Civil Engineering (Structural) Cape Peninsula University of Technology (2009)
National Diploma: Civil Engineering. Cape Peninsula University of Technology (2007)

Employment Record

2018	SiVEST SA (Pty) Ltd: Project Management Division: Project Scheduler
2012 - 2017	SiVEST SA (Pty) Ltd: Civil Engineering Division: Civil Engineering Technologist
2007 - 2012	Arcus Gibb Engineering: Structural Technologist – GeoSol Founder
2005-2006	Power Construction: Trainee Technologist
2004	Letshabile Consultants: Student Technologist

Language Proficiency

LANGUAGE	SPEAK	READ	WRITE
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Good
isiZulu	Good	Good	Good
isiXhosa	Good	Good	Good
Fante	Good	Good	Good

Key Experience

Key experiences include preparation of contract and construction drawings, site supervision and monitoring, general project management and interpretation of contract law documents. Preparation of documentation for all phases of projects from pretender phase to project handover.

Capabilities also include design and analysis of concrete structures, as well as water, sewer and storm water design.

Using of MS Project in drawing up project schedule of works, involving the use of resources and costs.

Skilled in the following Computer and Design Programmes: -

- Microsoft Office (Word, PowerPoint and Excel)
- AutoCAD
- Civil Designer
- Prokon
- Cast
- Microsoft Project (MS Project)

Training courses attended include**: -**

- Introduction to Ground and Soil Stabilisation
- Introduction to Geosynthetics
- Introduction to Maccaferri products
- Autodesk training
- SABS 1200
- General Conditions of Contract 2015
- Introduction to Microsoft Project 2016

Projects Experience

PROJECT SCHEDULER EXPERIENCE

- **NCP Feeds –** revising and updating of project programme for Project Manager.

- **KDM Lavoipierre Building Extensions Phase 1 –** Project Manager/Principal Agent role. Responsible for administration, management and communication co-ordination of the project. Co-ordination of the Professional Team, Contractors, Suppliers and associated parties. Programme, monitor and control the pre-construction and construction process as well as design and documentation process from inception to completion.

CIVIL ENGINEERING TECHNOLOGIST EXPERIENCE

- **Umbulwane Area H Housing Project –** responsible for the design revision of roads, storm water, water and sewer services. Responsible for the Principal Agent role within the project ensuring the correct administration of the project, monitoring of construction, compiling of progress payment certificates, liaison with various stakeholders for the project.

- **KwaMiya Primary School –** responsible for the civil and structural design of foundations, slabs, beams, water and sewer services. Responsible for the supervision of the civil and structural works during construction.

- **Fitty Park Bulk Water Project –** responsible for the supervision of the works in an Engineers Representative role. Project involved the laying of 98km of bulk water lines, together with pump station, concrete reservoir, standpipes.

- **CoGTA O&M Program –** responsible for the carrying out of fieldwork assessment on water and waste water treatment plants and the processes used at the plants across four district municipalities. Compiling of Operation and Maintenance reports for each individual plant, stating the process used and any issues encountered which affect the efficient functioning of the plants.

- **UThukela District Offices –** responsible for the preparation of civil and structural design drawings, construction monitoring of civil and structural works.

- **Dept. of Agriculture Offices Loskop –** responsible for producing of civil and structural construction drawings, carrying out of inspection for civil and structural works.

- **Pomeroy Housing Project –** responsible for producing of revised civil drawings, carrying out of site inspections, preparation of payment certificates, monthly progress report and general contract management.

- **Van Reenen SAPS** – responsible for ensuring that civil and structural works are carried out as per drawings and specifications by carrying out inspections on site, issue of revised details/drawings.

- **Besters SAPS –** responsible for civil and structural works on the project, monitoring of construction works relating to civil and structural. Prepare revised drawings, compile project close out report and as built drawings.

- **Lister Clarence Building –** responsible for design of reinforced concrete beams and staircases, producing of construction drawings and payment certificates. Carrying out of site inspections and approval of works, general contract management.

- **Steadville Area H B2 Intersection –** responsible for inspection of works and compile close out report.

- **Ezakheni & Isithebe Sprinklers** – responsible for producing of existing factory drawing details to be used in design of sprinkler system.

- **Colenso Pools** – responsible for site inspections of construction works, issuing of site instructions regarding works being carried out.

- **DOW Canteen Extensions** – responsible for civil and structural works on the project, carrying out inspection of works done on site.

- **Goedehoope Housing Projects** – assisting with preparation of designs, tender drawings and BOQ for tender phase.

- **39 De Waal str, House Khubeka & House van Niekerk** – responsible for preparation of foundation details and foundation underpinning.

- **Luxury Building** – responsible for the structural analysis of the existing structural steel parking structure for stability and advising client on findings and giving recommendations on solutions available.

- **Dannhauser Housing Project** – responsible for preparation of preliminary services report.

STRUCTURAL TECHNOLOGIST EXPERIENCE

Key responsibilities included the preparation of structural drawings for various stages of projects as well part designing and general project management. Projects included: -

- **Construction of Offices and Testing Area for Department Public Safety, Ladysmith.**
  Responsibilities included preparing of Tender documents, construction drawings. Responsibilities during construction include Engineers representative, keeping the Project Engineer informed on all matters of the contract, checking that the Contractor is constructing the Works in accordance with the specifications and drawings, preparing of payment certificates, chairing of site and technical meetings, maintaining of quality control system on site.

- **Construction of Roads & Stormwater in Ezakheni wards 3 & 5, Ladysmith.**
  Engineers Representative on site, responsibilities included keeping the Project Engineer informed on all matters of the contract, checking that the Contractor is constructing the Works in accordance with the specifications and drawings, preparing of payment certificates, chairing of site and technical meetings, maintaining of quality control system on site.

- **Constructions of Roads & Stormwater in Tsakane Steadville ward 9, Ladysmith.**
  Engineers Representative on site, responsibilities included keeping the Project Engineer informed on all matters of the contract, checking that the Contractor is constructing the Works in accordance with the specifications and drawings, preparing of payment certificates, chairing of site and technical meetings, maintaining of quality control system on site.

- **Livingstone Hospital Upgrade, Port Elizabeth.**
  Responsible for design and calculations related to ground beams. Doing major works of detailing, including foundation bases, beams, ground beams, coffer slabs and slabs. Documentation and updating of drawing registry.

- **Eden Island, Seychelles.**
  Detailing of concrete structures, and continually do so when required.

- **Greenpoint Soccer Stadium, Cape Town.**
  Detailing works on concrete foundations, pylons and staircases. Updating and documentation of office drawing register.

- **Gansbaai Landfill Site.**
  Responsible for part design and detailing of concrete retaining wall as well as checking of steel work before casting of concrete.

- **Gansbaai Secondary School.**
  Structural drawings layouts, detailing of foundations, beams, columns.

- **Hoxanne Water Works, Bushbuck Ridge.**
  Design and detailing of reinforcement in walls of flocculation channels.

- **Lenasia Flats.**
  Calculating and designing of staircases, basement tunnel, and elevator shaft.

TRAINEE TECHNOLOGIST AND STUDENT TECHNOLOGIST EXPERIENCE

Responsible for the laying of sewer, storm water and reticulation pipes as well as Telkom and electrical ducts. Layout of kerb lines along road edges and checking of as-built levels.

Assisting TA with measuring of quantities of work done, e.g. metres of saw cutting, volume of material used in road layers.

Calculation of stabilized sub base needed and general supervision of work done on site. These responsibilities were carried out at Pinnacle Point Golf Estate, Mossel Bay.

- **Roads:** calculation of base course dump spacing, supervision of laying of road kerbs, recording and supervising of road levels

- **Earthworks:** supervision of earthworks unit, calculating of quantities of materials moved around entire site. Responsible for the construction of all lower layers of road works, e.g. SSG. Hauling of topsoil to golf course for green areas.

- **Concrete works:** supervision and calculation of concrete quantities for cart paths along entire golf course, from outlining of route, preparing of base before casting of concrete and placing of concrete.

Duties performed on this low cost housing project in Motherwell, Port Elizabeth, included quality checks on building works, checking of foundation levels, supervision of work performed on site.

Documentation of works inspected, and updating of registry. Communicating site activities to office for progress checking.

References

Available on Request

Personal Contact Details

James Richard Harvey-Ewusi lll
Email Address – geosollab@gmail.com
Mobile Number - +2779 910 0920
Office Number - +2771 560 8058

Cape Peninsula
University of Technology

THE
NATIONAL DIPLOMA

ENGINEERING : CIVIL

is awarded to

JAMES RICHARD HARVEY-EWUSI

student number

203073509

with effect from

01 DECEMBER 2007

Registrar

Vice-Chancellor

202 060

Engineering Council of South Africa

This is to certify that ***James Richard Harvey-Ewusi III***

is registered as *Candidate Engineering Technician*

in terms of the Engineering Profession Act, 2000
(Act No. 46 of 2000)

Date *2 June 2009*

Registration Number *200920312*

President

Chief Executive Officer

Engineering Council of South Africa

ECSA

This is to certify that ***James Richard Harvey-Ewusi III***

is registered as ***Professional Engineering Technologist***

in terms of the Engineering Profession of South Africa Act 2000
(Act No. 46 of 2000)

Date ***2018-07-12***

Registration Number ***2018300157***

President

Chief Executive Officer

ECSA-00034125

CURRICULUM VITAE

DR DIRK A PRINSLOO

Born on 9 September 1952 in Vrede and matriculated at the Reitz Hoërskool in 1970.

Obtained BA, BA (Hons) and MA from the University of the Orange Free State, the latter two with distinction.

MA thesis title: *The Residential Patterns of Bethlehem: A Factor Ecological Study.*

Completed D.Litt et Phil in 1983 at Unisa with the title: *The spatial structure, the link between and mobility of office services in Pretoria.*

Completed property examination of the Board of Estate Agents (1984)

Completed Advanced Executive Programme (AEP) at Unisa's Business School (1988). The title of the script: *Abolition of the Group Areas Act and the influence on the residential environment: a lending strategy for financial institutions.* (with distinction).

From 1977 - 1985 lectured at Unisa in the Geography Department as a senior lecturer, focusing on urban market research.

From 1985 - 1991 employed by the United Bank as an Assistant General Manager, responsible for market research, site selection and development and maintenance of databases.

Since 1991 Managing Director of the company **URBAN STUDIES** (Pty) Ltd, Reg no: 2017/077434/07, specialising in market feasibility studies and property market research. During the last 28 years the company has completed more than 3 700 research projects. More than 1 300 **retail studies** have been conducted - amongst them primary research at more than 310 shopping centres throughout South Africa. More than 120 retail- and property market surveys have been completed in the Middle East and Africa.

Urban Studies is recognized as one of the best known urban market research companies in South Africa according to Mr. Raymond Ackerman in his book (2010).

The company has serviced more than 400 top clients. Most research focused on the following types of surveys: retail, office, industrial, residential, hotels, casinos, entertainment, medical, educational and mixed-use developments to calculate development potential or to develop marketing strategies.

Lecturer for various SAPOA and SACSC courses, Technikon SA, and a number of universities
External examiner for numerous M and D theses

Guest speaker/lecturer at various Universities, Technikons, conferences, newspaper editorials, radio talks and TV interviews.

More than 60 articles published (see website www.urbanstudies.co.za).

More than thirty study tours to Europe, USA, Canada, China, New Zealand, the Middle East, South America and Australia have been undertaken.
Member of:

- SAPOA
- SAMRA
- SAMRA Corporate
- International Council of Shopping Centres – Research Editorial Board
- British Council of Shopping Centres
- Vice President of the South African Council of Shopping Centres (2004/6)
- Chairman, Congress Organising Committee (2004-2006)
- Chairman, SCSC, Research Committee, 2009-2014
- Director of the South African Council of Shopping Centres, 2009-2012
- Chairman of Research Conference Organising Committee 2011-2014

Received a ***LIFETIME ACHIEVEMENT AWARD*** **FROM THE SOUTH AFRICAN COUNCIL OF SHOPPING CENTRES IN SEPTEMBER 2016** for the substantial contribution made to the shopping centre industry and to the South African Council of Shopping Centres as an organisation.

Dirk is married to Irma for over 44 years and have 4 married children with 12 grandchildren under the age of seven years.

(Updated 02/2019)

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

	(For official use only)
Provincial Reference Number:	
NEAS Reference Number:	KZN / EIA /
Waste Management Licence Number (if applicable):	
Date Received by Department:	

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

Submitted in terms of section 24(2) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) or for a waste management licence in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

KINDLY NOTE:

1. This form is current as of **October 2019**. It is the responsibility of the Applicant / Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the form have been released by the Department.

PROJECT TITLE

Durban Mobeni Retail and Filling Station Study

DISTRICT MUNICIPALITY

eThekwini Municipality

1. SPECIALIST INFORMATION

Specialist name:	Urban Studies		
Contact person:	Dirk Nico Prinsloo		
Postal address:	PO Box 1571 Roosevelt Park		
Postal code:	2129	Cell:	082 857 9074
Telephone:	011 888 2169	Fax:	011 888 2195
E-mail:	dirknico@urbanstudies.co.za		
Professional affiliation(s) (if any)	N/A		

DECLARATION OF INTEREST BY SPECIALIST

Project Consultant / EAP:	1World Consultants (Pty) Ltd		
Contact person:	Adila Sheik Gafoor		
Postal address:	P.O Box 2311, Westville		
Postal code:	3630	Cell:	073 236 6529
Telephone:	031 262 8327	Fax:	086 726 3619
E-mail:	adila@1wc.co.za		

2. DECLARATION BY THE SPECIALIST

I, **Dirk Nico Prinsloo** are that --

General declaration:

- I act as the independent specialist in this application;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- 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 the specialist report relevant to this application, 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 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;
- all the particulars furnished by me in this form are true and correct; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Signature of the specialist:

Urban Studies

Name of company:

2019/11/11

Date:

Universiteit van Suid-Afrika

SPES IN ARDUIS

SOUTH AFRICAN POLICE SERVICE
COMMUNITY SERVICE CENTRE
2019 -04- 04
C.S.C
LINDEN
SUID-AFRIKAANSE POLISIEDIENS

Ons verklaar dat

Dirk Arnoldus Prinsloo

op 9 Mei 1984

by 'n Kongregasie van die Universiteit

toegelaat is tot die graad

Doctor Litterarum et Philosophiae

aangesien aan die vereistes van die Wet

en die Statuut voldaen is

I CERTIFY THAT THIS DOCUMENT IS A TRUE REPRODUCTION (COPY) OF THE ORIGINAL DOCUMENT WHICH WAS HANDED TO ME FOR AUTHENTICATION. I FURTHER CERTIFY THAT, FROM MY OBSERVATIONS, NO AMENDMENT OR CHANGE WAS MADE TO THE ORIGINAL DOCUMENT.

MAGSNOMMER / FORCE NUMBER: 7216603

NAAM IN DRUKSKRIF / NAME IN PRINT: ZB Mavhungu

RANG / RANK: W/O

Vise-Kanselier

Dekaan

M H Alberts-Lochhoff

Registrateur

Pretoria

DECLARATION OF INTEREST BY SPECIALIST

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

	(For official use only)
Provincial Reference Number:	
NEAS Reference Number:	KZN / EIA /
Waste Management Licence Number (if applicable):	
Date Received by Department:	

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

Submitted in terms of section 24(2) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) or for a waste management licence in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

KINDLY NOTE:

1. This form is current as of **October 2019**. It is the responsibility of the Applicant / Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the form have been released by the Department.

PROJECT TITLE

Traffic Impact Assessment Application made in support of Environmental Assessment, Rezoning and Special Consent Application

DISTRICT MUNICIPALITY

eThekwini Municipality

1. SPECIALIST INFORMATION

Specialist name:	ARUP (Pty) Ltd		
Contact person:	Mohamed Kajee		
Postal address:	Private Bag X504 Northway		
Postal code:	4065	Cell:	083 639 9933
Telephone:	031 328 8700	Fax:	031 328 8701
E-mail:	Mohamed.kajee@arup.com		
Professional affiliation(s) (if any)	Pr Eng		

DECLARATION OF INTEREST BY SPECIALIST

Project Consultant / EAP:	1World Consultants (Pty) Ltd		
Contact person:	Adila Sheik Gafoor		
Postal address:	P.O Box 2311, Westville		
Postal code:	3630	Cell:	073 236 6529
Telephone:	031 262 8327	Fax:	086 726 3619
E-mail:	adila@1wc.co.za		

2. DECLARATION BY THE SPECIALIST

I, **Mohamed Kajee** are that --

General declaration:

- I act as the independent specialist in this application;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- 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 the specialist report relevant to this application, 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 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;
- all the particulars furnished by me in this form are true and correct; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Signature of the specialist:

ARUP (PTY) LTD

Name of company:

15/11/2019

Date:

Mohamed Kajee

Profession
Civil Engineer

Current Position
Senior Traffic and Transport Engineer

Joined Arup
2008

Years of Experience
13

Nationality
South African

Qualifications
BSc Eng (civil)

Professional Associations
ECSA – PrEng 20170283
SAICE

Experienced Gain In:

- Project Management
- Demand Forecasting
- MicroSimulation Modelling
- Public Transport planning (Road and Rail)
- Traffic Road Layout Level Design
- Freight Transport
- Road Safety
- Transport Master Planning
- Traffic Management for Events
- Road Signage
- Traffic Surveys
- GIS

Software

- Sidra
- HCS
- Aimsun
- ArcGIS
- Saturn (Working knowledge)

Courses

- Highway Capacity Manual Course 2007
- Aimsun Advance training (2018)

Mohamed is a Transport Planner with 13 years of experience. He has gained skills in demand forecasting, traffic modelling, traffic data collection, traffic management, freight transport, public transport, transportation planning and traffic management for major events.

Mohamed has played a key role in the delivery of two key transport related projects for the 2010 FIFA World Cup SA in Durban, South Africa viz. The Durban's Detailed Transport Operational Plan for 2010 FIFA World Cup SA and the Venue Transport Operational Plan (VTOP) for King Shaka International Airport.

He has been involved in a number of multi-disciplinary projects such as the Detailed Transport Operational Plan for 2010 FIFA World Cup SA, Pearls of Umhlanga, Mr Price DC, Hyde Park Country Estate etc. During these projects he has gained good communication skills interacting with other specialist.

His involvement in transport masterplanning projects is extensive and has worked on projects across Africa

Mohamed has unique experience in planning, designing, implementing and monitoring of traffic and transport related projects.

Transport Planning for Mega Events

Qatar 2022 FIFA World Cup Masterplan - 2012

Mohamed provided strategic transportation input into the masterplan for the Qatar 2022 FIFA World Cup.

COP17/CMP7 Transport Operational Plan - 2011

Mohamed was responsible for the demand forecast, planning of cycle facilities and supervision of transport services during the event.

Durban's Detailed Transport Operational Plan (TOP) for 2010 FIFA World Cup, Durban, South Africa 2008 - 2010

Mohamed was responsible for planning, design, implementation and monitoring of the Transport Plan for Durban's Transport Operational Plan. Some of the aspects which he was intimately involved in include the demand forecast, park and ride plan, special needs spectator plan, priority pedestrian network, park and walk plan, signage, road closure plan, permit system design and marketing. He was also assisted in developing the business model for the park and ride operators (with bus & taxi owners), developing the timetable for Park & Ride services and liaison with drivers & operators.

- Advanced Aimsun Course 2010
- Advanced Excel Course 2011
- Port Planning Course – Arup University - 2015

Committees

SAICE Transport Division

Public Transport Projects

Rail

Kings Park Rail Station –- 2006 to 2007

This project involved the estimation of patronage, sizing of the station elements and identifying potential location of a new rail station in the Kings Park Sports precinct in Durban. Mohamed was involved with the stakeholder liaison which included commissioning meetings and minute taking. He also assisted and undertook the sizing of station elements and the costing.

Passenger Rail Masterplan for South Africa – 2011

Mohamed was responsible for assisting in the status quo assessment for KZN and EC, where he looked at current passenger volumes along the corridors. He was also responsible for preparing a technical note which provided a review and assessment of different public transport modes and systems such as bus, BRT, LRT, Tram Train and Heavy Rail.

Durbans C2 Rail Corridor Study - 2015

The C2 Rail corridor study consisted of the development of rail feeder interchanges at key train stations along the C2 rail corridor in Durban (Umlazi to Kwa Mashu)

Mohamed was the Transport planner responsible for the demand forecast review and demand forecast determination for this study. The demand forecast considered the passenger demand on each feeder route that supplies the C2 Rail Corridor in Durban, the number of passengers transferring from feeder to rail and the number of passenger remaining in the station precinct.

Berea Station Pedestrian Modelling - 2014

Mohamed was the design engineer who developed a static pedestrian model for the design of a new concourse, staircases and escalators at Berea Station, Durban.

Road

Hammarsdale Urban Regeneration Assessment - 2010

Mohamed was the project manager and traffic engineer for this project. The project included a status quo assessment, identification of future road and transport network infrastructure, preparation of a Traffic Road Layout (TRL) and concept design for Taxi Rank upgrade.

uThungulu and uMkhanyakude Integrated Public Transport Network (IPTN) - 2012

Mohamed was responsible for the analysis of the CPTR information to determine the existing demand and utilisation.

Durban C1A Detail Design - 2014

Mohamed is currently involved in the development of preliminary layouts for the new Umgeni River Crossing along the C1A corridor. The concepts considers the integration of the C1, C2 and

C8 corridors at a single location. Mohamed also reviewed the conceptual layouts for the C1 and C3 integration station layouts.

DubeTradePort Internal Public Transport Service -2014

Mohamed was responsible for the review of the demand forecast analysis, the proposed internal PT service schedules and the operational cost estimates.

Harry Gwala District Municipality IPTN – 2017-2018

Mohamed was the Project Manager and Lead Transport Planner in the development of the Harry Gwala IPTN. His key task included oversight of the data gathering stage, engagement with local municipalities, assessment of passenger movement data, identification of key movement corridors and identification route phasing.

Transport Master Planning Projects

King Shaka International Airport TIA 2008

In 2008, Mohamed was seconded to the Ilembe JV as part of the Traffic and Transportation team that developed the Aimusn traffic model for the KSIA TIA. Mohamed was responsible for the network coding, demand forecasting, network analysis and preparation of the final TIA. The Aimsun model that was developed classified the vehicles into drop off, pick up, rental cars and short and long term parking.

Hibiscus Coast Traffic Study – 2008

This study involved the development of a SATURN Model for the Hibiscus Coast in KZN to test future development scenarios. Mohamed was responsible for the O-D Surveys, journey time surveys and development of the base matrices.

Selebi Phikwe Transport Master Plan - 2009

Selebi Phikwe is a mining town in northern Botswana. Arup was appointed to develop a transport masterplan for the town taking consideration of the existing issues and future growth plans. Mohamed was traffic engineer responsible for gathering of traffic data and input into the base year traffic model.

uShukela Drive Urban Renewal Study – 2011

Mohamed was the project manager and traffic engineer for this project. The project included a status quo assessment, identification of future road and transport network infrastructure and preparation of a Traffic Road Layout (TRL) for Ushukela Drive, Tongaat.

Richards Bay Port MasterPlan – 2012

Mohamed worked on this project as a traffic engineer providing input to the geometric upgrades of the internal road layout of the port and for the development of a traffic simulation model.

Garden City Business Park Development, Nairobi – 2019

Garden City Business park is a new commercial development proposed adjacent to the Garden City Mall in Nairobi. Mohamed

provided strategic input into the traffic modelling and transport planning aspects of the development.

Beauplan Mixed Use Development, Mauritius - 2018

The Beauplan mixed use development is a new commercial and residential node east of Port Louise. Mohamed provide strategic input into the transport master plan for the development with particular attention to access off the main freeways.

Ntshongweni Mixed Use Development – Current

Mohamed is the project manager and traffic engineer for a new mixed-use development on land owned by Tongaat Hullet in Durban. The study was undertaken using SATURN. He worked closely with the modellers, authorities and the client in defining the road and transport upgrade needs.

Numerous TIA for Various Developments

Port Related Projects: Island View Traffic Study, Bayhead Expansion Study , Richards Bay Tippler Project , Richards Bay IDZ Phase 1a TIA, Maydon Wharf Road Transportation Study

Filling Station – Umgeni Road Sasol, Marburg Filling station, N12 Sasol Filling station, Inanda Filling Station and Build It Development, Colesburg N1 Engen Garage, Gugulethu PFS and Retail Centre, Fairview Rd PFS, 154 Felix Dlamini PFS, Stafford Post Filling Station, Empangeni CBD PFS, Alrode Park Fuel Depot, Madadeni PFS and Retail Centre.

Retail - Blue Heights Shopping centre, Westville Mall, Umlazi Mega City Extension, Rushbrook Shopping Centre, Jozini Shopping Centre, Africa Cash and Carry, Hirsch North Coast Road, The Crest Centre (Hillcrest), Chicken Licken, KFCs, Port Shepstone Taxi Rank Shopping Centre, Richards Bay Boardwalk Parking Study, Mavundla Square Shopping Centre Greytown, Galleria Mall Extension

Residential - Pearls of Umhlanga, Bella Vista Apartments Umhlanga, Summer View Umhlanga, Summer Place Umhlanga, Vredehoek Residential Development

Offices – Chep Offices, LIPAM TIA (Lesotho), Abrey Road Office Block, Edstan Business park

Warehouse/Industrial - Mr Price DC, Richards Bay IDZ Phase 1a, Smiley Footwear Warehouse, Freedom Stationers warehouse, Pepkor DC

Medical/Hospitals - Parklands Hospital, Entabeni Hospital, New IMA Hospital, , Midmedic Hospital, Mt Edgecombe Hospital, eThekwini Hospital and Heart Centre, Kingsway Hospital

Schools – Umhlanga College, Al Falaah College, Sherwood Therapy Centre, Flodden Rd Day Care Centre, Alida Rd Day Care Centre, Thomas More College, Umhlanga College

Mines – Fuleni Anthracite Mine, Pentlands Granite Quarry

UNIVERSITY OF KWAZULU-NATAL

The Universities of Durban-Westville and Natal merged
to become the University of KwaZulu-Natal on 1 January 2004

This is to certify that

Mohamed Ismail Kajee

was admitted this day
at a congregation of the University
to the degree of

Bachelor of Science in Engineering
(Civil Engineering)

having satisfied the conditions prescribed for the degree.

M W Makgoba
Vice-Chancellor

E Mneney
Registrar

N M Ijumba
Dean

12 May 2006

Engineering Council of South Africa

This is to certify that ***Mohamed Ismail Kajee***

is registered as *Professional Engineer*

in terms of the Engineering Profession Act, 2000
(Act No. 46 of 2000)

Date *6 September 2017*

Registration Number *20170283*

President

Chief Executive Officer

ECSA

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

	(For official use only)
Provincial Reference Number:	
NEAS Reference Number:	KZN / EIA /
Waste Management Licence Number (if applicable):	
Date Received by Department:	

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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KINDLY NOTE:

1. This form is current as of **October 2019**. It is the responsibility of the Applicant / Environmental Assessment Practitioner ("EAP") to ascertain whether subsequent versions of the form have been released by the Department.

PROJECT TITLE

Major Hazard Installation Risk Assessment for the proposed Petrol Station at 2 Grimsby Road Mobeni, Durban

DISTRICT MUNICIPALITY

eThekwini Municipality

1. SPECIALIST INFORMATION

Specialist name:	MHI RISK ENGINEERS (PTY) LTD		
Contact person:	Mr R Moothusamy		
Postal address:	38 Elderberry Drive, Glen Hills, Durban North		
Postal code:	4051	Cell:	071 670 2114
Telephone:	031 563 3413	Fax:	N/A
E-mail:	terrence@mhiriskengineers.com		
Professional affiliation(s) (if any)	Pr Eng. Associate Process Safety Engineer		

21/11/2019

Project Consultant / EAP:	1World Consultants (Pty) Ltd		
Contact person:	Adila Sheik Gafoor		
Postal address:	P.O Box 2311, Westville		
Postal code:	3630	Cell:	073 236 6529
Telephone:	031 262 8327	Fax:	086 726 3619
E-mail:	adila@1wc.co.za		

2. DECLARATION BY THE SPECIALIST

I, **R. Moothusamy** are that --

General declaration:

- I act as the independent specialist in this application;
- do not have and will not have any vested interest (either business, financial, personal or other) in the undertaking of the proposed activity, other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014;
- 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 the specialist report relevant to this application, 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 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;
- all the particulars furnished by me in this form are true and correct; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014, if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Signature of the specialist:

MHI RISK ENGINEERS (PTY) LTD

Name of company:

Date:

21/11/2019

(Terrence) Rajendren Moothusamy Pr Eng, AMIChemE

PERSONAL DETAILS

Full name	: Terrence Rajendren Moothusamy
Postal Address	: 38 Elderberry Drive , Glen Hills , Durban North
Nationality	: South African
Cell	: 071 6702114
Home	: 031563 3413 / 0315634249
Email	: tmoothusamy84@gmail.com/terrence@mhiriskengineers.com

PROFESSIONAL AFFILIATIONS:

Organization	Member #	Membership
Engineering Council of South Africa	#2015000079	Pr. Eng.
South African Institute of Chemical Engineers	#00708	Associate Process Safety Engineer
Institute for Chemical Engineers, IChemE	#99907021	Associate Process Safety Engineer

COMPUTER SKILLS:

Package	Skill Level
MS Office; Excel, Word PowerPoint	Advanced
MS Projects	Advanced
SAP/R3	Advanced

EDUCATION & QUALIFICATIONS:

Qualification	Date Completed	Institution
SAMTRAC – Advanced	2018	NOSA
Introduction to SAMTRAC	2016	NOSA
Quantitative Risk Assessment	2015	ISHECON
Project Management	2014	University of Stellenbosch
Post Graduate Diploma in Business Administration	2007	GIBS(UP)
B.Tech Pulp and Paper	2003	DUT
B.Sc. Chemical Engineering	2001	UKZN

WORK EXPERIENCE:

MHI RISK ENGINEERS (Pty) Ltd – Director/Technical Manager (Approved Inspection Authority) - June 2018

Duties:

MHI Risk Assessment for the Durban fresh produce market in Clairwood – SANS 1461 methodology used. Developing Process Safety guidelines/ Developing guidelines for Emergency Planning/Developing methods for Quantitative Risk Assesments using TNO software/ Developing training material for process safety topics/ Developing Criteria for Major Hazardous Installation Compliance/ Developing Training Materials on the legislation around Major Hazardous Installations in South Africa, General Machinery Regulations in South Africa and OSCH Act/Implemented ISO 17020/2012 Management System Standard/Business networking/ Building customer relationships/Sales of services to clients /Marketing Products and Services/ Updating of company website/Developing monthly newsletter.

BUCKMAN South Africa

Technical Account Manager – July 2016 to June 2018

Duties :Conducting HAZOPS/Developing and reviewing safe work procedures/Training/Auditing safe work procedure use/Performing Safety Risk Assessments/Safety Audits on high risk installations and activities/Managing, Developing & Coaching Staff/Managing and developing relationships with Customers/Reconciliation of invoices and delivery notes/Managing contractors on site /Project Management for installation of new chemical plants/Managing Inventory on site /Managing site chemical budget/Writing technical reports, trial proposals and tender documentation/Sales of new products and technology to the customer

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Varsity College

Part Time Lecturer – January 2016 to September 2016

Duties: Preparation of Project Management Lecture Notes /Performing lectures at Varsity College

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DOW Chemical Company, Coatings Division – New Germany, SA

Improvement Engineer – August 2009 to September 2015

Process Safety Role – Risk Management e.g. Identification of Gaps in the Safety Systems, Process Audits e.g. Burner Management Risk Assessment, Loss Prevention Principals Risk Assessment, Process Field Risk Assessments, Process Safety Training for operators and staff e.g. Reactive Chemicals, Layers of Protection Analysis, Root Cause Analysis for Reactive Chemicals Incidents,, development of critical procedures e.g. Management of Change, Safety System Impairment policy, Development of emergency drills scenarios.

Project Management Role – Scope, Capex Applications, Project Risk Management, Project Planning, Cost Management, Contractor Management, Contract Management, Commissioning, Training of Staff, Factory acceptance testing.

Process Engineering Role - Troubleshooting mechanical, instrumentation, process control and production related problems on the plant e.g. faulty valves, flowmeters, pumps, control issues. Issuing Safe Work Permits, Coaching operators, Optimising batch recipe control and operating instructions, leading a team to identify opportunities on site and implement improvement projects using six sigma methodologies and product quality investigations

Product Development Role – Scale up of new products, Risk Assessments, feasibility studies, raw material availability, process development etc.

Occupational Hazards Management – Conducting field risk audits, On the job risk audits, BBP risk evaluations, writing safe work permits, developing confined space entry procedures , work at elevated heights safe work permits, coaching employees in the field.

Rohm & Haas – New Germany, South Africa

Technical Manager – February 2008 to July 2009

Duties : Troubleshooting Quality related problems in production/ Handling and responding to customer complaints / Customer visits/ Conducting RCIs for Quality using Apollo tool/Troubleshooting process related problems / Maintaining the plants Asset Utilization Improvement Plan/ Scale up of new products/Ensuring Management of Change system is followed/ Acting as Production Manager/Supervising Junior Process Engineers/ Collaboration with International team of experts to solve quality related challenges/Promotion of products with customers

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Sappi Fine Papers - Stanger Mill, Gledhow

Process Engineer – April 2004 to January 2008

Process Engineer Duties - Troubleshooting, Process Optimization and solution implementation on Paper, Coater Machine, Supercalender Machine, Vari-Roll winder & Coater Kitchen/ Budget forecasting/ Acting as Production Superintendent/Optimization of the coating formulations/Trials for new products/Facilitating End State Analysis Sessions/Conducting Hazop/Swift studies/Planning, implementation and reporting of trials on the Coater Machine and Paper Machine/Investigating customer complaints and providing recommendations/Drawing piping and instrumentation diagrams and writing process descriptions/Management of the Plant Modification System/Presentations to senior management

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Appendix C

Environmental & Engineering Consultants
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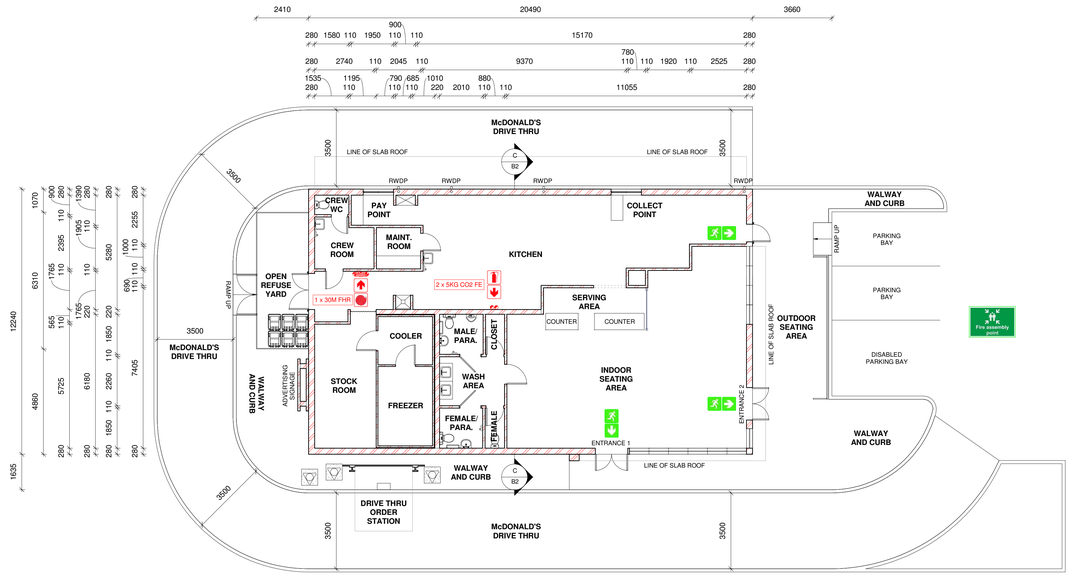
Preferred Alternative



GF. GROUND FLOOR LAYOUT - McDONALD'S

1 : 100

PARKING SCHEDULE

LINESHOPS (SINGLE SHOPS):

NOTE: PARKING BAYS REQUIRED FOR FLOOR SPACE EXCLUDING TOILETS, PASSAGE WAYS, STAIRWELLS AND STORAGE.

FLOOR SPACE : 5 BAYS / 100M²
PARKING BAYS REQUIRED @ 1603.89 = 80

TOTAL PARKINGS REQUIRED = 80
TOTAL PARKINGS PROVIDED = 80

WAREHOUSE:

FLOOR SPACE : 1 BAY / 100M²
PARKING BAYS REQUIRED @ 1205.96= 12

TOTAL PARKINGS REQUIRED = 12
TOTAL PARKINGS PROVIDED = 12

WORKSHOP:

FLOOR SPACE : 4 BAY / WORKING AREA
PARKING BAYS REQUIRED : 4 BAY @ 841.44 = 4

TOTAL PARKINGS REQUIRED = 4
TOTAL PARKINGS PROVIDED = 4

CONVENIENCE SHOP (GARAGE SHOP):

NOTE: PARKING BAYS REQUIRED FOR FLOOR SPACE EXCLUDING TOILETS, PASSAGE WAYS, STAIRWELLS AND STORAGE.

FLOOR SPACE : 6 BAY / 100M²
PARKING BAYS REQUIRED @ 148.39 = 9

TOTAL PARKINGS REQUIRED = 9
TOTAL PARKINGS PROVIDED = 9

PARKING SCHEDULE

OFFICES:

NOTE: PARKING BAYS REQUIRED FOR FLOOR SPACE EXCLUDING TOILETS, PASSAGE WAYS, STAIRWELLS AND STORAGE.

FLOOR SPACE : 6 BAYS / 100M²
PARKING BAYS REQUIRED @ 330.21 = 20

TOTAL PARKINGS REQUIRED = 20
TOTAL PARKINGS PROVIDED = 20

FUELLING STATION OFFICE & GARAGE SERVICE:

FLOOR SPACE : 2 BAYS / 100M²
PARKING BAYS REQUIRED @ 60.33 = 2

TOTAL PARKINGS REQUIRED = 2
TOTAL PARKINGS PROVIDED = 2

McDONALDS:

NOTE: PARKING BAYS REQUIRED FOR FLOOR SPACE EXCLUDING TOILETS, PASSAGE WAYS, STAIRWELLS, KITCHEN AND STORAGE.

FLOOR SPACE : 10 BAYS / 100M²
PARKING BAYS REQUIRED @ 142.10 = 14

TOTAL PARKINGS REQUIRED = 14
TOTAL PARKINGS PROVIDED = 14

STORAGE YARD

FLOOR SPACE : 1 BAY / 100M²
PARKING BAYS REQUIRED @ 1345.34 = 13

TOTAL PARKINGS REQUIRED = 13
TOTAL PARKINGS PROVIDED = 13

TOTAL REQUIRED : 154
TOTAL PROVIDED : 149 PARKING BAYS +
3 DISABLED PARKING BAYS

SCHEDULE OF AREAS

AREA OF SITE (GROSS)13204.00 M² (NETT)13204.00 M²

*NOTE: NETT IS THE SITE AREA EXCLUDING ANY ROAD SERVITUDES OR PUBLIC RIGHT OF WAY

EXISTING FLOOR AREA:	3333.26 M²
PROPOSED FLOOR AREA:	2006.41 M²
TOTAL FLOOR AREA:	5339.67 M²
EXISTING COVERAGE:	3139.75 M²
PROPOSED COVERAGE:	2244.87 M²
TOTAL COVERAGE:	5384.62 M²

SCHEDULE OF AREAS FOR McDONALD'S

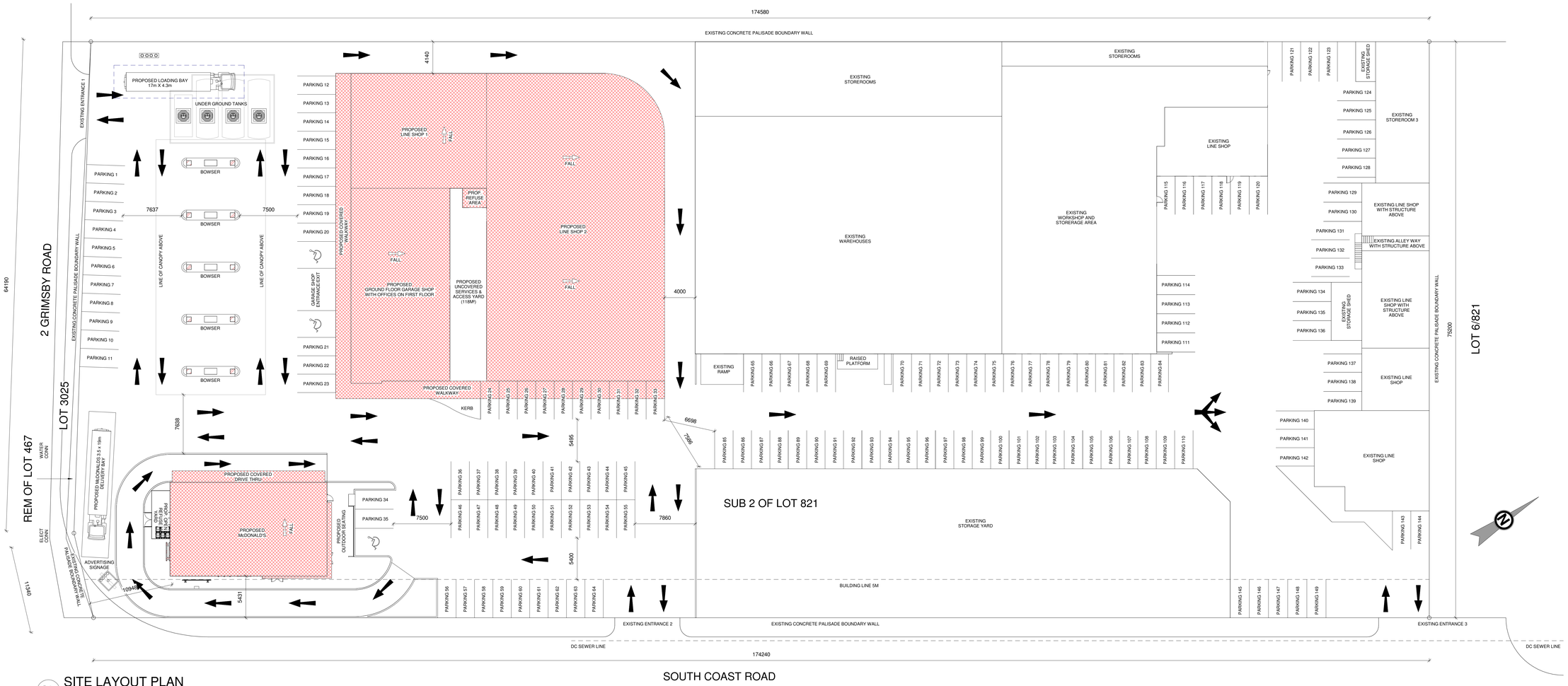
PROP. McDONALD'S:	250.80 M²
PROP. OPEN REFUSE YARD:	15.21 M²
PROP. UNCOVERED OUTDOOR SEATING :	62.55 M²
PROP. UNCOVERED DRIVE THRU :	237.12 M²
PROP. COVERED DRIVE THRU :	30.00 M²
PROP. UNCOVERED WALKWAY AND CURBS :	80.34 M²
TOTAL :	**676.02 M²**

BREAKDOWN OF SCHEDULE OF AREAS

PROP. McDONALD'S:	250.80 M²
PROP. FUEL STATION:	476.19 M²
PROP. FUELING GARAGE SHOP:	326.14 M²
PROP. LINE SHOP 1 :	257.14 M²
PROP. LINE SHOP 2 :	918.70 M²
PROP. STAIRWELL :	7.98 M²
PROP. REFUSE AREA :	7.92 M²
PROP. FIRST STOREY OFFICES :	330.21 M²

MUNICIPAL STAMPS

LOT R/828



SL SITE LAYOUT PLAN

1 : 200

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MAX GUADAGNINO
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EMAIL : info@gbc-architects.com
http://www.facebook.com/northcoastarchitects

REVISIONS

REV:	DATE:	DESCRIPTION	REV. BY:

PROJECT

PROPOSED FUELING STATION, GARAGE SHOP AND FAST FOOD OUTLET FOR LOT 821 PORTION 2.
2 GRIMSBY ROAD, MOBENI, DURBAN.
(CORNER OF GRIMSBY ROAD AND SOUTH COAST ROAD)

FOR

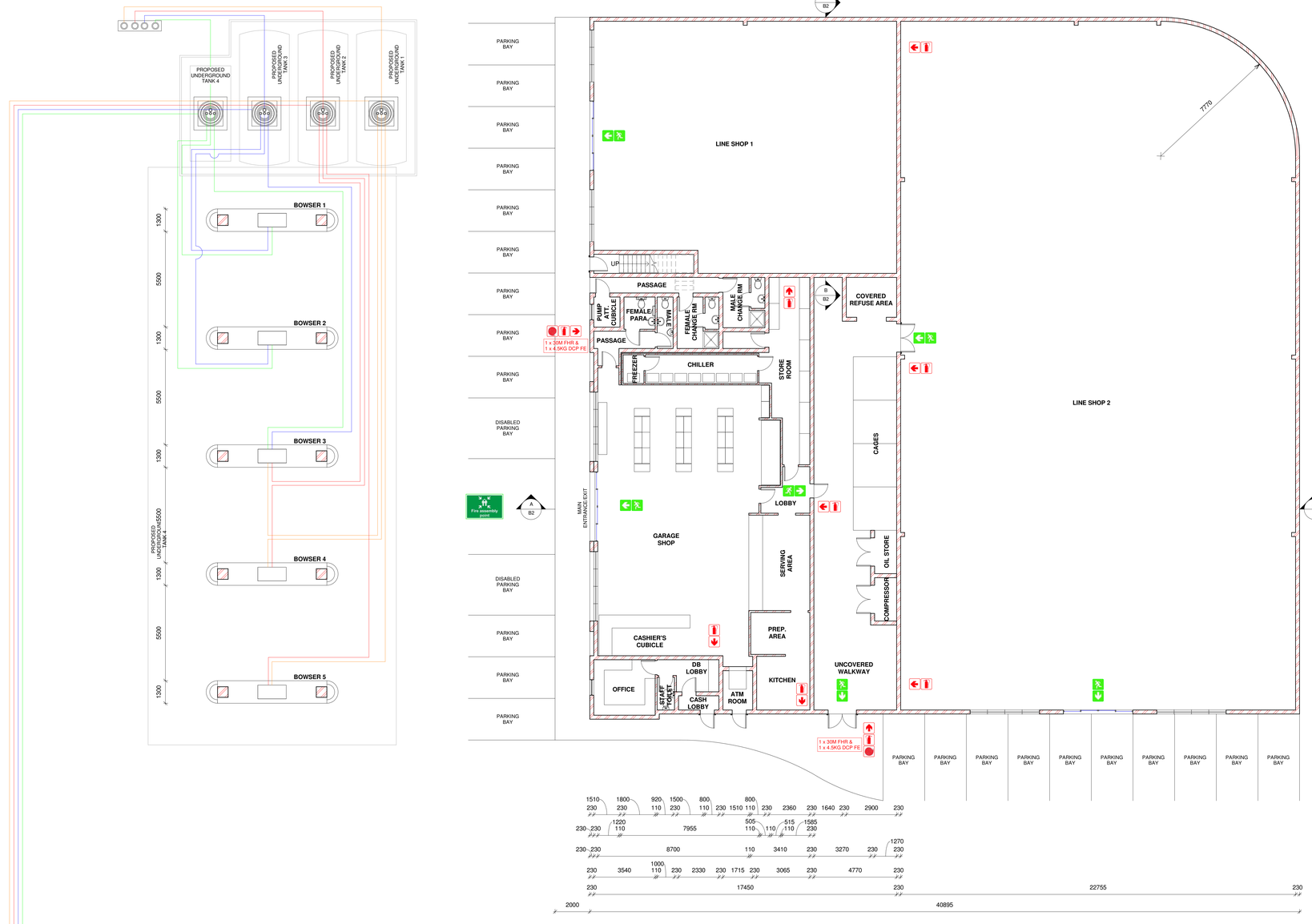
COUNCIL SUBMISSION

ARCHITECT | OWNER

TITLE

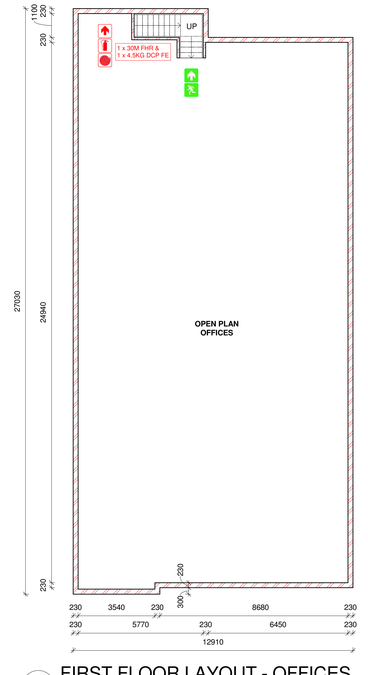
SITE PLAN AND McDONALDS FLOOR PLAN LAYOUT

DATE: 2019-03-01	SIZE: A0	DESIGNED: GUADAGNINO R.C.D REG. NO. CAD36684926
BUILDING CLASSIFICATION: B3		DRAWN: GUADAGNINO R.C.D REG. NO. CAD36684926
DRG. NO.: 02-821-DB		CHECKED: PJJ CALITZ P.R.D REG. NO. D2766



GF GROUND FLOOR LAYOUT - FUELING STATION AND LINE SHOPS

1 : 100



FF FIRST FLOOR LAYOUT - OFFICES

1 : 100

GENERAL NOTES
*DIMENSIONS TO BE USED IN PREFERENCE TO SCALING.
*ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORK.
*ALL BUILDING WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE NBR & STANDARDS ACT (ACT 103 OF 1977), SABS 0400 AND SANS 10400.
*ALL UNDERGROUND SERVICES TO BE IDENTIFIED PRIOR TO COMMENCEMENT OF ANY EXCAVATION.
*WHERE CERTAIN WORKS REQUIRE AN ENGL DESIGN & CERTIFICATION NO WORK MUST COMMENCE WITHOUT THE OF THE APPOINTED ENGINEER.
*DRAWINGS TO BE APPROVED BY LOCAL MUNICIPALITY BEFORE COMMENCEMENT OF ANY WORK.
*BOUNDARY BEACONS TO BE EXPOSED AND DEMARKED
*SOIL POISONING IN ACCORDANCE WITH SABS 0124 REQUIRED.
*ALL NEW WALLS, LINTELS AND ROOF STRUCTURES TO ENGINEERS DETAIL.
*FINISHED LEVELS ON RETAINING WALL THAT EXCEEDS 1.0M HIGH, TO BE FITTED WITH SAFETY RAILINGS OR BALUSTRADES (WHERE APPLICABLE).

DRAINAGE NOTES
*SEWER SYSTEM TO BE IN ACCORDANCE WITH NBR.
*DRAINAGE SHOWN IN SCHEMATIC IS PURELY FOR DIRECTIONAL PURPOSES.
*ASVP TO ANY FITTING OR APPLIANCE THAT HAS A VERTICAL DROP IN EXCESS OF 1200MM.
*ALL BENDS TO BE LONG RADIUS BENDS FITTED WITH AN ACCESS EYE.

WALL NOTES
*110MM AND 220MM SABS APPROVED BRICK WALLS WITH BRICK FORCE EVERY THIRD COURSE.
*PRE-STRESSED LINTELS OVER ALL OPENINGS.
*DPC TO ALL WALLS AT FLOOR LEVEL AND UNDER ALL WINDOW SILLS.
*VERTICAL DPC TO ANY CHANGES IN FLOOR LEVEL, DPC TO SABS 298.
*ALL BRICKWORK IN FOUNDATIONS AND PLINTH - UP TO FLOOR LEVEL - TO BE 220MM SABS APPROVED BRICKS ONLY.

ROOFING NOTES
*CONCRETE CEMENT TILES ON 38x38 BATTERNS @ 320 CRS. ON PDC UNDERLAY, ON 114x38 RAFTERS @ 760 CRS, ON 114x38 WALL PLATE WITH SISALATION (ACCORRDING TO SANS PART XA). ALL TRUSSES TO MANUFACTURERS SPECIFICATION @ MIN 17.5 DEG PITCH.
*SHEETING ROOF ON SISALATION (ACCORDING TO SANS PART XA) ON 75x50MM PURLINS @ 1200 CRS, ON RAFTERS TO MANUFACTURERS SPEC. @ MIN 5 DEG PITCH.
*100mm AEROLITE INSULATION - R-Value = 2.7

CEILING/PARTITIONING NOTES
*12SE FLAT GYPSUM CEILING BOARD COMPLYING WITH SANS 266, 6.5MM THICK, OR AS SPECIFIED.
*USE MINERAL FIBRE BLANKET INSULATION TO COMPLY WITH SANS 1381 AND SANS 10400 XA.

PLASTERING NOTES
*USE COMMON CEMENT COMPLYING WITH SANS 50197-1, STRENGTH CLASS 32.5N OR MASONRY CEMENT COMPLYING WITH SANS 50413-1.

ELECTRICAL INSTALLATION NOTES
*COMPLY WITH ALL REQUIREMENTS OF THE LOCAL AUTHORITY AND WITH SANS 10142.
*ALL WORK MUST BE DONE UNDER SUPERVISION OF A REGISTERED ELECTRICIAN.

ENERGY NOTES
*THE INSTALLATION, MAINTENANCE, REPAIR AND REPLACEMENT OF DOMESTIC SOLAR WATER HEATING SYSTEMS AND THERMAL INSULATION TO BE IN ACCORDANCE WITH PART XA SANS 10106.
*FENESTRATION (GLAZING) TO BE IN ACCORDANCE WITH PART XA SANS 10106.
*DIAMETER OF ALL NEW WATER FEEDS TO BE 15 TO 22MM DIA IN ACCORDANCE WITH SANS 10252-1.

ENERGY USAGE NOTES
*ROOF ASSEMBLIES TO RECEIVE INSULATION TO ACHIEVE THE R-VALUE AS INDICATED IN TABLE 7, THICKNESS GIVEN IN SANS 204 TABLE 10, SEE SANS 10400-WA CLAUSE 4, 4.5 AND SANS 204 TABLE 10.
*NON MASONRY WALLS WILL HAVE R-VALUES AS PROVIDED. SEE SANS 10400-XA CLAUSE 4.4.3.1.
*DOUBLE SKIN MASONRY WITH PLASTER INSIDE OR RENDER OUTSIDE COMPLIES. SINGLE LEAF: MINIMUM 140MM WITH PLASTER INSIDE OR RENDER OUTSIDE COMPLIES. SEE SANS 10400-XA CLAUSE 4.4.3.2.
*OTHER MASONRY WALLS WILL HAVE R-VALUE OF 0.35. SEE SANS 10400-XA CLAUSE 4.4.3.3.
*AIR LEAKAGE SHALL NOT EXCEED 2 L/S/M² FENESTRATION AREA; 0.30 6 L/S-M² FIXED GLAZING; AND 5 L/S-M² REVOLVING/SWING DOORS. SEE SANS 10400-XA CLAUSE 4.4.11 AND SANS 613 CLAUSE 4.4.
*FENESTRATION MORE THAN 15% AREA TO NET FLOOR AREA PER STOREY THEN THE SOLAR HEAT GAIN AND HEAT CONDUCTANCE SHOULD COMPLY WITH SANS 204 CLAUSE 4.3.4.
*FENESTRATION UP TO 15% AREA TO NET FLOOR AREA PER STOREY COMPLIES. SEE SANS 10400-XA CLAUSE 4.4.4.1.
*PROVIDE 50% OF HOT WATER REQUIRED BY VOLUME THROUGH NON-ELECTRICAL RESISTANCE SOURCES, I.E A HEAT PUMP. ALL EXPOSED HOT WATER PIPING TO BE INSULATED WITH R-VALUE OF 1. SEE SANS 10400-XA CLAUSE 4.1.

STAIRS & BALUSTRADES CONSTRUCTION NOTE:
*RISERS TO BE 190MM, TREADS TO BE 250MM.
*HANDRAILS TO BE 1000MM HIGH BOLTED TO WALL AND STAIRS WITH M8 RAWLBOLTS.
*BALUSTRADES TO BE 1000MM HIGH, SPACED NOT LESS THAN 100MM AND BOLTED TO WALL WITH M10 RAWLBOLTS.

SECTION CONSTRUCTION NOTE:
*ALL BRICKWORK IN FOUNDATIONS AND PLINTH UP TO FLOOR LEVEL WHICH IS MIN 150MM ABOVE GROUND LEVEL- TO BE 220MM SABS APPROVED BRICKS.
*NO BLOCKS WILL BE ALLOWED TO BE USED IN FOUNDATIONS UNDER ANY CIRCUMSTANCE.

CONCRETE and FORMWORK NOTE:
*USE CEMENT TO COMPLY WITH SANS 50197-1, STRENGTH CLASS 32.5N OR HIGHER.
*CEMENT MUST BE SABS-MARK BEARING.
*USE NATURAL CRUSHED OR BLENDED SAND FOR USE IN CONCRETE TO COMPLY WITH SANS 1083.
*STONE FOR USE IN CONCRETE TO COMPLY WITH SANS 1083.
*CAST CONCRETE TEST CUBES OF SIZE AND QUANTITY, AND AT INTERVALS OR OF BATCHES IN ACCORDANCE WITH SANS TEST METHOD 5861. HAVE THESE TEST CUBES TESTED FOR COMPRESSIVE STRENGTH BY AN APPROVED LABORATORY, ACCORDING TO SANS TEST METHOD 5863.
*USE STEEL BARS FOR CONCRETE REINFORCEMENT COMPLYING WITH SANS 920, OF TYPE AND NOMINAL SIZE AS SPECIFIED BY ENGINEER.
*PROVIDE SLIP JOINTS BETWEEN WALL AND IN SITU CONCRETE SLABS OR BEAMS BY TROWELLING SMOOTH THE BEARING SURFACES AND COVERING THE BEARING AREA WITH TWO LAYERS OF 0.25MM POLYOLEFIN SHEETING.
*ALL EXPANSION AND MOVEMENT JOINTS AS PER ENGINEERS DETAIL AND SPECIFICATION.
*ALL RETAINING WALLS TO ENGINEERS DETAIL AND SPECIFICATION.
*ALL CONCRETE WORK TO ENGINEERS DETAIL AND SPECIFICATION.

MUNICIPAL STAMPS

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REVISIONS

REV:	DATE:	DESCRIPTION	REV. BY:

PROJECT

PROPOSED FUELING STATION, GARAGE SHOP AND FAST FOOD OUTLET FOR LOT 821 PORTION 2.
2 GRIMSBY ROAD, MOBENI, DURBAN.
(CORNER OF GRIMSBY ROAD AND SOUTH COAST ROAD)

FOR

COUNCIL SUBMISSION

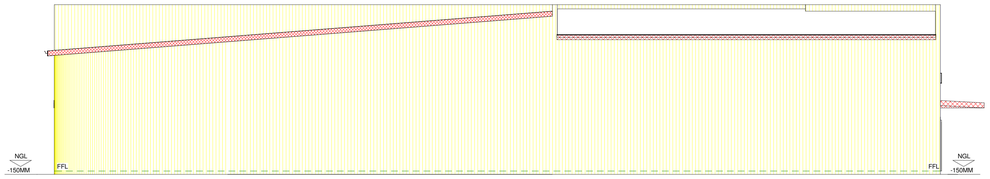
ARCHITECT | OWNER

TITLE

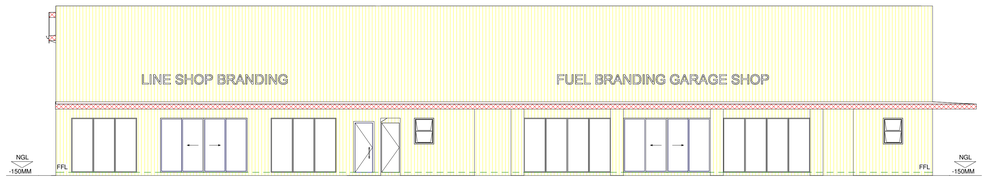
GROUND FLOOR LAYOUT - FUELING STATION, GARAGE SHOP AND LINE SHOPS

DATE: 2019-03-01	SIZE: A0	DESIGNED: GUADAGNINO R.C.D REG. NO. CAD36684926
BUILDING CLASSIFICATION: B3		DRAWN: GUADAGNINO R.C.D REG. NO. CAD36684926
DRG. NO.: 02-821-DB		CHECKED: PJJ CALITZ P.R.D REG. NO. D2766

.NE GARAGE SHOP - NORTH EAST ELEVATION
1 : 100

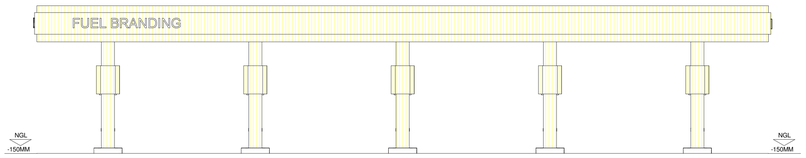


.NW GARAGE SHOP - NORTH WEST ELEVATION
1 : 100



.SW GARAGE SHOP - SOUTH WEST ELEVATION
1 : 100

.SE GARAGE SHOP - SOUTH EAST ELEVATION
1 : 100



NE. FUEL PUMPS - NORTH EAST ELEVATION
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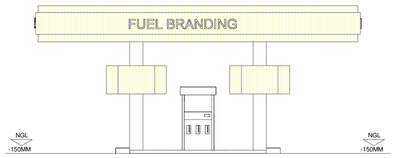
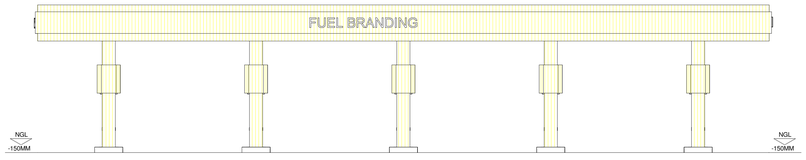
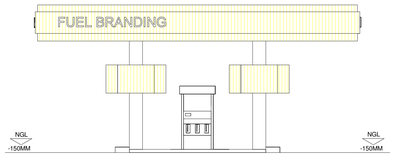


NW. FUEL PUMPS - NORTH WEST ELEVATION
1 : 100

NE McDONALD'S - NORTH EAST ELEVATION
1 : 100

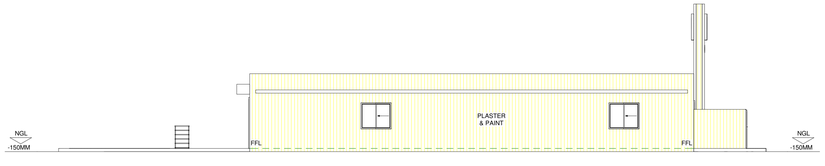


SW. FUEL PUMPS - SOUTH WEST ELEVATION
1 : 100

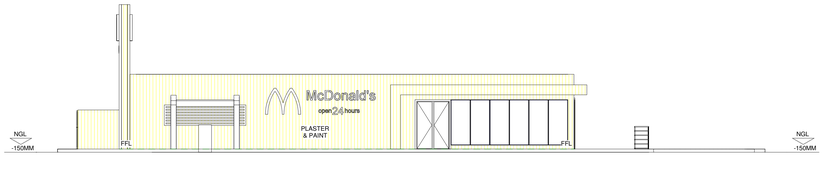


SE. FUEL PUMPS - SOUTH EAST ELEVATION
1 : 100

SW McDONALD'S - SOUTH WEST ELEVATION
1 : 100



NW McDONALD'S - NORTH WEST ELEVATION
1 : 100



SE McDONALD'S - SOUTH EAST ELEVATION
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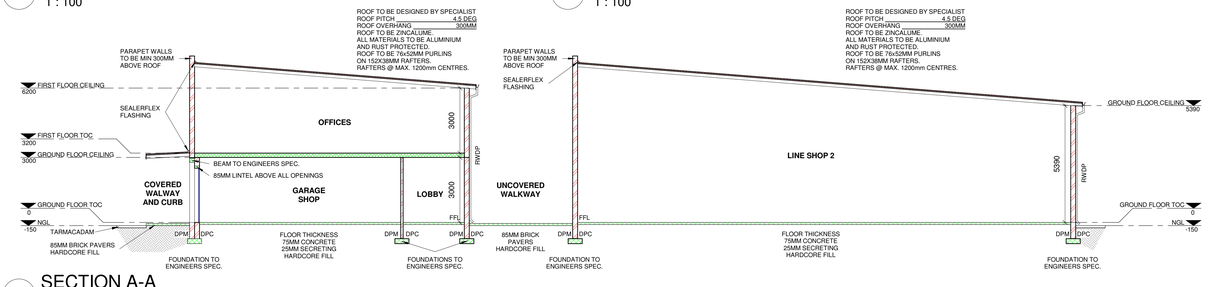

A SECTION A-A
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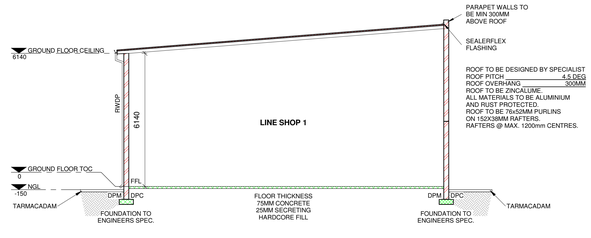

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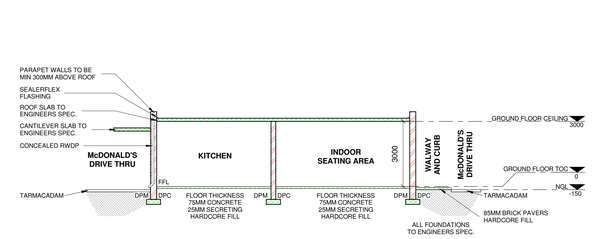

C SECTION C-C
1 : 100

MUNICIPAL STAMPS

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REVISIONS

REV:	DATE:	DESCRIPTION	REV. BY:

PROJECT

PROPOSED FUELING STATION, GARAGE SHOP AND FAST FOOD OUTLET FOR LOT 821 PORTION 2.
2 GRIMSBY ROAD, MOBENI, DURBAN.
(CORNER OF GRIMSBY ROAD AND SOUTH COAST ROAD)

FOR

COUNCIL SUBMISSION

ARCHITECT | OWNER

TITLE

ELEVATIONS AND SECTIONS

DATE: 2019-03-01	SIZE: A0	DESIGNED: GUADAGNINO R.C.D REG. NO. CAD36684926
BUILDING CLASSIFICATION: B3		DRAWN: GUADAGNINO R.C.D REG. NO. CAD36684926
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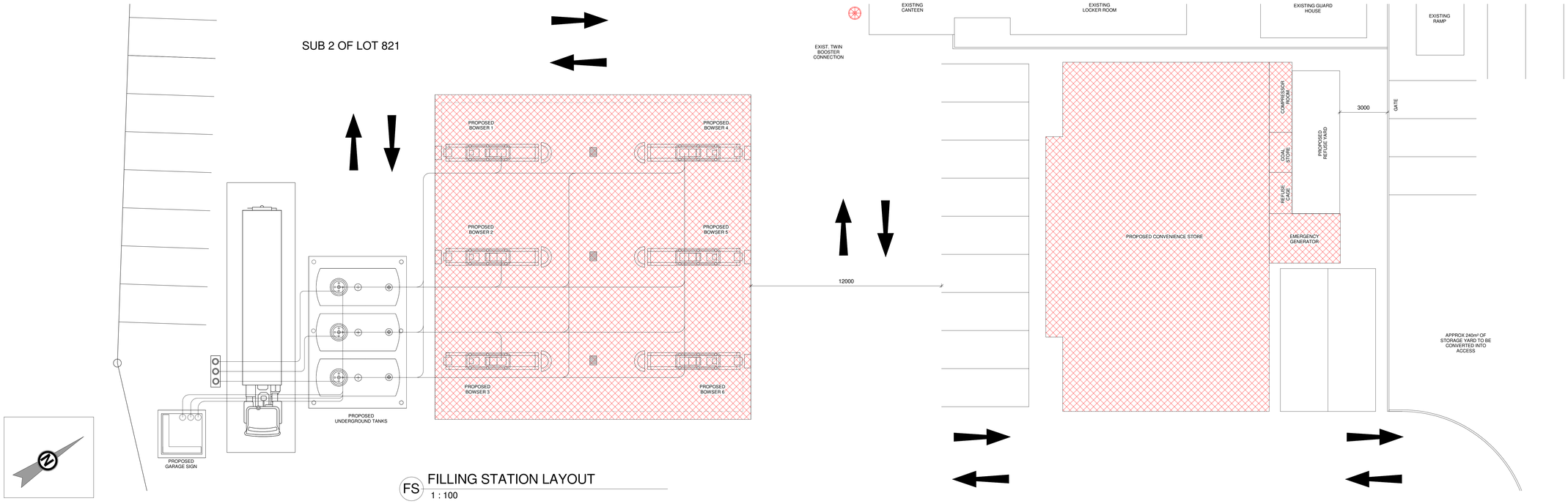
Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

Alternative 1



FS FILLING STATION LAYOUT
1 : 100

LOT R/828

174580

EXISTING CONCRETE PALISADE BOUNDARY WALL

64190

10 GRIMSBY ROAD

EXISTING ENTRANCE 1

EXISTING CONCRETE PALISADE BOUNDARY WALL

9510

EXISTING STOREROOMS

EXISTING STOREROOMS

EXISTING STOREROOM

EXISTING STOREROOM 3

EXISTING LINE SHOP

EXISTING RETAIL STORE ENTRANCE

EXISTING RETAIL STORE AND OFFICES

EXISTING WAREHOUSES

EXISTING WORKSHOP AND STOREAGE AREA

EXISTING LINE SHOP WITH STRUCTURE ABOVE

EXISTING ALLEY WAY WITH STRUCTURE ABOVE

EXISTING STORAGE SHED

EXISTING LINE SHOP WITH STRUCTURE ABOVE

EXISTING LINE SHOP

EXISTING LINE SHOP

EXISTING CONCRETE PALISADE BOUNDARY WALL

75200

LOT 6/821

SUB 2 OF LOT 821

7573

7643

EXIST. TWIN BOOSTER CONNECTION

EXISTING CANTEEN

EXISTING LOCKER ROOM

EXISTING GUARD HOUSE

EXISTING RAMP

UP

RAISED PLATFORM

PROPOSED BOWSER 1

PROPOSED BOWSER 4

PROPOSED BOWSER 2

PROPOSED BOWSER 5

PROPOSED BOWSER 3

PROPOSED BOWSER 6

12000

COMPRESSOR ROOM

COAL STORE

REFUSE CAGE

PROPOSED REFUSE YARD

3000

GATE

PROPOSED CONVENIENCE STORE

EMERGENCY GENERATOR

APPROX 240m² OF STORAGE YARD TO BE CONVERTED INTO ACCESS

EXISTING STORAGE YARD

LOT 3025

REM OF LOT 467

WATER CONN

ELECT CONN

EXISTING CONCRETE PALISADE BOUNDARY WALL

7500

PROPOSED GARAGE SIGN

PROPOSED UNDERGROUND TANKS

BUILDING LINE 5M

EXISTING ENTRANCE 2

EXISTING CONCRETE PALISADE BOUNDARY WALL

EXISTING ENTRANCE 3

DC SEWER LINE

174240

DC SEWER LINE

SOUTH COAST ROAD

SL SITE LAYOUT PLAN
1 : 200

MUNICIPAL STAMPS

north coast architects
proud members of the 'go green initiative'
A DIVISION OF GUADAGNINO BROTHERS CONSULTING
MAX GUADAGNINO
OFFICE : 084 087 3364
EMAIL : info@gbc-architects.com
http://www.facebook.com/northcoastarchitects

REVISIONS

REV:	DATE:	DESCRIPTION	REV. BY:

PROJECT

PROPOSED FILLING STATION FOR
LOT 821 PORTION 2,
CORNER OF GRIMSBY ROAD AND
SOUTH COAST ROAD, MOBENI, DURBAN.

FOR

DISCUSSION PURPOSES ONLY

ARCHITECT | OWNER

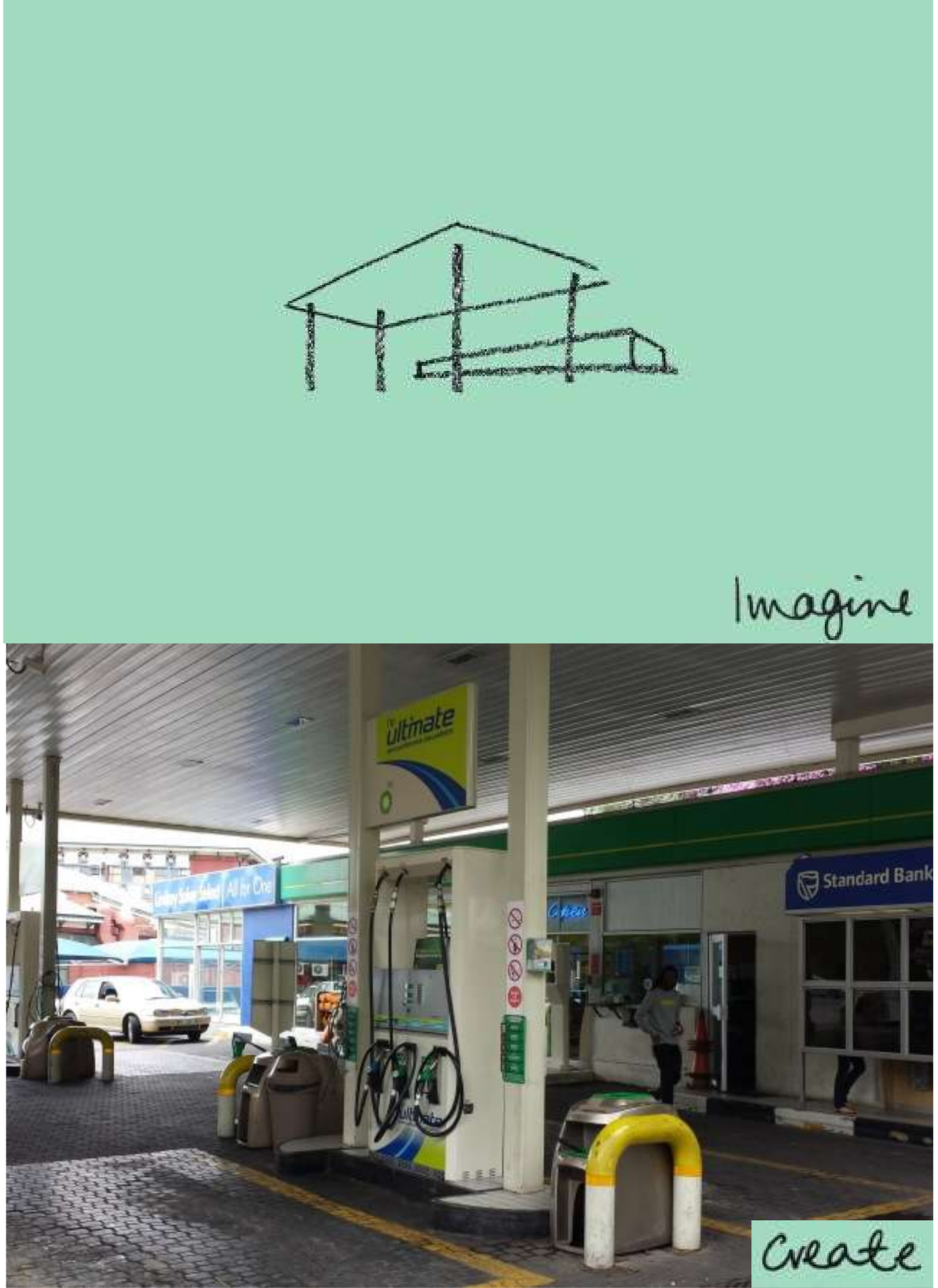
TITLE

SITE PLAN
PROPOSED FILLING STATION SITE

DATE: 2018-09-07	SIZE: A0	DESIGNED: GUADAGNINO R.C.D REG. NO. CAD36684926
BUILDING CLASSIFICATION: H3		DRAWN: GUADAGNINO R.C.D REG. NO. CAD36684926
DRG. NO.: 02-821-DB		CHECKED:

Environmental & Engineering Consultants
Postal Address: P.O Box 2311, Westville, 3630
Tel: 031 262 8327
Fax: 086 726 3619

BP Standards and Designs



BPSA – Standard Drawings

Section 6: FUEL SYSTEM

10-June 2014 - DRAFT

AECOM GlobalAlliance

Drawing No.	Current Revision	Description	Note	Issue Date				
				11/02/2014	18/03/2014	11/06/2014	24/07/2014	
FUE - Fuel System								
BPSA - FUE - DL	-	Drawing List				x		
BPSA - FUE - 01	-	Suction System principal section		x	x	x		
BPSA - FUE - 02	-	Pressure Systém principal section		x	x	x		
BPSA - FUE - 03	-	Fuel System Specification		x	x	x		
BPSA - FUE - 10	-	Suction Starting Gate Layouts		x	x	x		
BPSA - FUE - 1j1	-	Suction Domino Layouts		x	x	x		
BPSA - FUE - 12	-	Suction HGV Layouts		x	x	x		
BPSA - FUE - 15	-	Pressure Starting Gate Layouts		x	x	x		
BPSA - FUE - 16	-	Pressure Domino Layouts		x	x	x		
BPSA - FUE - 17	-	Pressure HGV Layouts		x	x	x		
BPSA - FUE - 20	-	Tank farm plan			x	x		
BPSA - FUE - 21	-	Tank farm section			x	x		
BPSA - FUE - 22	-	Monitoring well detail			x	x		
BPSA - FUE - 23		Tank lid detail			x	x		
BPSA - FUE - 24		23m3 tank details			x	x		
BPSA - FUE - 25		46m3 tank details				x		
BPSA - FUE - 30		Standard pump island details			x	x		
BPSA - FUE - 40	-	Underground offset fill details			x	x		
BPSA - FUE - 41	-	Filler line details			x	x		
BPSA - FUE - 50	-	Typical site hazard zones					x	
BPSA - FUE - 51a	-	Hazard zones customer refueling without stage 2VR					x	
BPSA - FUE - 51b	-	Hazard zones customer refueling with stage 2VR					x	
BPSA - FUE - 52a	-	Hazard zones - vents without stage 1b VR and interceptor					x	
BPSA - FUE - 52a	-	Hazard zones - vents with stage 1b VR and interceptor					x	
BPSA - FUE - 53	-	Hazard zones - tanker delivery and fillers					x	

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NO	DATE	REVISION DESCRIPTION
	11/02/2014	DRAFT 01
	18/03/2014	DRAFT 02
	11/06/2014	DRAFT 03

PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
FUEL SYSTEM DRAWING LIST

DRAWING NUMBER
BPSA-FUE-00

FORMAT A3 | SCALE

DO NOT SCALE FROM DRAWING

Site specific max varies distance varies dependent on levels

30m max at standard conditions

Site specific max distance varies with levels

Sub pump with leak detection

Gauge & Power ducts with mechanical seals

Vent tower

Twin walled fill line

Single walled suction line

400 offset

400

Overfill protection

Vent

Vapour lock valve

Stage 1b return connection & low level manifold

Vapour to tanker

TANK CHAMBER SECTION ENLARGED

Valves fitted to enable ease of line tests.

Single wall suction line

Stage 2 vapour return

Single wall vent line

Single wall suction line

Gauge probe

Overfill valve and float

Dip flange

Twin walled filler line

Twin walled steel tank with circular flange for chamber connection (bolted)

TYPICAL TANK LID PLAN

The direction of actual pipework will be site specific
Always to be taken square through chamber faces

Temporary support for fuel lines should be provided by only pea gravel filled sand bags & not bricks or other solid objects. These bags can remain insitu whilst pea gravel surround is placed & do not have to be removed
Pipework should not be allowed to cross touch or rub against adjacent pipes

Grade sequence on dispenser
Note below ground does not always align in same sequence

Diesel 50
Diesel 500

ULP93
ULP95

Hose Breaks fitted

Multi-product Dispenser

Display

Stage 2 return line (optional)

Pump & flow meter

Shear valve at island level
Underpump chamber is required

Traffic

Vapour

Fuel

100-150 average

650

Fuel

Vapour

Sealed elec & Data ducts

Electrical power cables to run in separate ducts from gauge & data cables

Fuel from tanker

Twin walled filler line

600

600

1 : 100 fall

900 to 1400 max

Containment manhole at supply or filler line joint (joints to be avoided if possible)

1 : 100 fall 30mm in 3000mm

Pump cradle with sump

Single walled suction lines & single walled stage 2 return

All duct & line openings into tank chambers are to be sealed with appropriate boots & mechanical seals inorder to prevent water entering the chamber. Tests according to SANS10089-3 and BP Underground Tank& Pump Installation manual must be applied on completion.

Suction riser within tank

Pipe fittings may vary between systems. Complete piping systems to be installed of either KPS, UPP or Nupigeco.

var.

var.

4250 practical lift check with equipment supplier

150

SUCTION FUEL SYSTEM TO BE USED UPON SPECIAL APPROVAL

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SAFETY STATEMENT
CONTRACTORS EXECUTING THE WORKS IDENTIFIED ON THIS DRAWING SHOULD BE FULLY CONVERSANT WITH AND ACT IN ACCORDANCE WITH BP'S CONTROL OF WORK (CoW) REQUIREMENTS, AS ADVISED BY THE PROJECT MANAGER ACTING FOR BP AND BP'S GOLDEN RULES OF SAFETY, INCLUDED AS PART OF CONTRACT DOCUMENTATION, WHICH COVERS:
- PERMITS TO WORK
- ENERGY ISOLATION
- GROUND DISTURBANCE
- CONFINED SPACE ENTRY
- WORKING AT HEIGHTS
- LIFTING OPERATIONS
- DRIVING SAFETY
- MANAGEMENT OF CHANGE

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A	..	FIRST ISSUE

PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

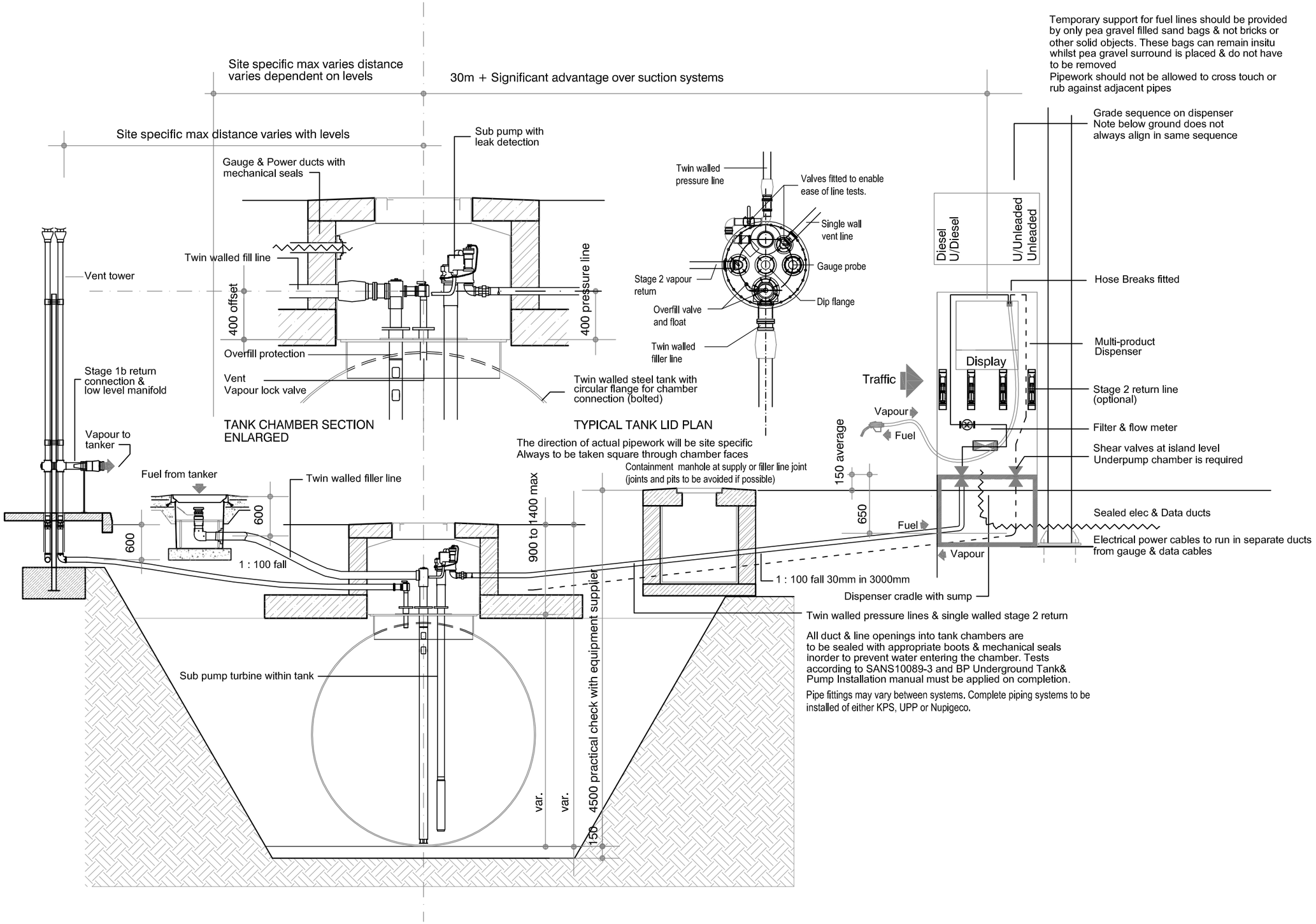
DRAWING TITLE
SUCTION SYSTEM PRINCIPAL SECTION

DRAWING NUMBER
SA-FUE-01

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING



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- PERMITS TO WORK
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NO	DATE	REVISION DESCRIPTION
A	..	FIRST ISSUE

PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
PRESSURE SYSTEM PRINCIPAL SECTION

DRAWING NUMBER
SA-FUE-02

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

Item	Description	Supplier / Model Spec
Underground Storage Tank	Double wall steel tank, To EN 12285 class A, To conform SABS 1535, Interstitial space monitored	Forgeweld Engineering
Tank fill Tube	100mm Aluminium tube gas tight at all connections, fitted with deflector plate at base to terminate with75mm clearance from bottom of vessel	Supplied with Tank
Overfill Prevention Device	Level actuated shut down valve with bleed bypass & automatic reset. Sealed to Tank fill tube	. .
Vapour lock valve	Valve connecting Fill pipe and tank ullage void. Allowing vapour to pass from fill tube to ullage but no liquid and no passage from ullage to fill tube.	. . .
Filler Pots Assembly	Tank lid tee for access to drop tube and OPD's, connected to double wall filler line with containment draining to monitored tank chamber. Connection to Fill adaptor camlock fitting in a fuel containment chamber Gas tight Cap to fill adaptor and all standard grade labels illustating tank number product and safe working capacity. All fill points fitted with padlocks	UPP or KPS or Nupigeco Ø110 inner with 125 or 160 secondary containment outer wall
Pressure Lines	Twin walled non corrosive system installed as manufacturers instructions laid to min fall of 1:100 back to tanks. To include isolation & drain down facility also to incorporate monitoring system	63 UPP or KPS or Nupigeco inner with 75 secondary containment outer wall
Vent Assembly for Petrol Tanks	Petrol tank vent system comprising a connection to tank ullage space, 63mm vent pipe to remote vent location. Connection to 75mm vent manifold together with connection from other petrol tanks. Connection from manifold to Stage 1b return pipe and road tanker adaptor Vertical vent stack in 50mm galvanised steel with pressure vacuum assembly Two vertical spirit stacks should be used when 3 or more tank chambers may be filled simultaneously.	63mm single walled UPP, KPS or Nupigeco below ground . .
Vent Assembly for Diesel tanks	Diesel tank vent system Must Not be Connected to the Petrol tank Vent System comprising a connection to tank ullage space, 63mm vent pipe to remote vent location. . Separate vertical vent stack in 50mm galvanised steel with rain cap assembly including flame trap	63mm single walled UPP, KPS or Nupigeco below ground .
Vapour collection adaptor	75mm connection adaptor with gas tight orange cap for stage 1b vapour return hose to the road tanker to EN13081. Automatic poppet valve actuated by the hose connection and flame arrestor	compatible to Civacon's 633LVB Vapor Recovery Adaptor
Pressure Vacuum valve	Combined valve fitted to vent column controlling vent release pressure to >35mbr and air intake pressure to <-2mbar. Rain water cap and flame arrestor on exit to atmosphere. Quick release model	.
Cap and Flame Arrestor	Vent cap to prevent rain entry and integral flame arrestor	.
Tank contents Probe	Liquid level probe for connection to Tank Gauging System with ability to detect fuel and water level within vessel	.
Sump Discriminating probe	Probe with ability to detect and differentiate between water and fuel liquid levels. Probe set at +10mm above sump base. Probe connected from alarm output to Tank Gauging System Controller.	.
Tank interstitial space monitor	System to monitor and check integrity of tank interstitial space. System may use vacuum or pressure switches	.
Observation wells	Cover & frame complete with circular chamber Internal cap for sealing to150 dia perforated vertical tube	.
Submersible Pump	Submersible pump unit sizes to suit site requirements. Unit incorporated an outlet check valve and an optional syphon check valve on the bypass line used for connection to syphon priming tubes	Red Jacket FE Petro See application table for sizes

Item	Description	Supplier / Model Spec
Stage 2 Vapour return	50mm dia pipe manifold to all dispensers to collect recovered vapour, one return per dispenser collects all petrol grades. Pipe is connected to the largest Unleaded grade tank .	UPP or KPS or Nupigeco
Dispensers	Dispensers with, inlet filter and meter together with hoses and nozzles for customer filling of vehicles and all associated electronic control valves and displays. Dispensers include connection via a double poppet shear valve to the site installed pipework complete with test point. Dispensers may also include the stage 2 return shear valve for connection to the site pipework All dispensers units installed on cradle with liquid tight sump at base.	Dresser Wayne - Global Vista and Global Century Dispensers.
Tank chamber & offset fill chambers	Liquid tight chamber bolted to vessel fitting ring with gasket. Multifaced fabrication to include under lid & adjustable length neck to suit variations in ground levels. designed to suit cover & frame assembly Mechanical seals are to be incorporated for all pipe & cable duct entries	Fibrelite or Fuelguard
Syphon assembly (Pressure) See detail drawing for suction syphon details	Optional Syphon for connection of a slave tank to a master containing the submersible pump. Comprises 50mm dia internal pipes in both tanks connected by 50mm dia external pipe falling at least 1 :100 from the sub pump tank to the slave tank. Syphon primed through Tee connection at highest end using venturri suction pipe (10mm dia) connected to the syphon check valve on the submersible pump. Syphon to be provided with an isolating valve for maintenance.	50mm UPP or KPS or Nupigeco
Pressure line Leak detection	Direct leak detection system monitoring pressure built up (at end of each delivery) in the fuel line and dispenser pipework up to meter connection ensure liquid tightness. Different period test are carried out to give different levels of leak detection assurance. Note leak detection controller can start the pump in order to carry out supplemental or check tests.	Sub pump supplier
Line drain down (Pressure) maintenance valve Suction system utilizes the underpump valves	Drain down line to allow draining of the fuel line into the tank without disconnection of the main supply pipe from the sub pump. Drain down is provided in 15mm dia pipe and ball valve. Main return to pump also fitted with full flow ball valve for safety isolating during maintenance.	
Tank Gauge controller	Located in sales building the controller with interface cards and reports on status and events for the contents probes and leak detection monitors. Contents probes to have four programmable fuel level alarms and water level alarm. All alarm conditions initiate warning at controller and print report High-High fuel level to sound audible external alarm. Tank interstitial monitor to initiate warning and print report at console. Discriminating sump probes at tank lid to initiate warning and shut down sub pump in affected tank. Leak detection system to initiate warnings for low level leak alarms and to shut down associated sub pump for medium and high level leak alarms.	.
Driver controlled delivery cabinet	Cabinet with emergency phone gauge readout & printer together with key switches for lighting etc. To provide storage for Lifting key spill kit & Fire extinguisher	.
Inspection chamber covers & frames	Composite resin & fibre Heavy Duty light weight covers with pressed galvanised steel frames & stainless steel fixing cramps. Circular for tanks square for offsets to BS EN 124 Loadng Class C	Fibrelite FL760&FL900
Suction line and pipework	Steel tank internal pipe, single wall non corrosive supply pipe. Manifolded single wall pipe to dispensers laid with min 1:100 fall back to tank. Do not manifold more than 6 hoses (3 dispensers). For HGV truck diesel islands check specific flow rates and pipe lengths. Max suction head loss (vertical head plus friction loss) for any application is 4.25m, bottom of suction pipe to pump inlet (See table).	63mm dia UPP or KPS or Nupigeco

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
EQUIPMENT SPECIFICATION

DRAWING NUMBER
SA-FUE-03

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

THE ACTUAL SUCTION LINE LENGTH IS LIMITED BY THE MAX LIFT PROVIDED BY THE PUMPING UNIT AT 4250MM THE FALLS & LEVELS ARE TO BE EVALUATED ON A SITE SPECIFIC BASIS.

THE SEQUENCE OF LINES BENEATH THE DISPENSER DOES NOT MATCH THE NOZZLES ABOVE ON THE UNIT ITSELF.

SUCTION LINES ARE BE SINGLE WALLED NON CORROSIVE PIPEWORK 63MM INTERNAL DIAMETER OR NEAREST DEPENDANT ON MANUFACTURER.

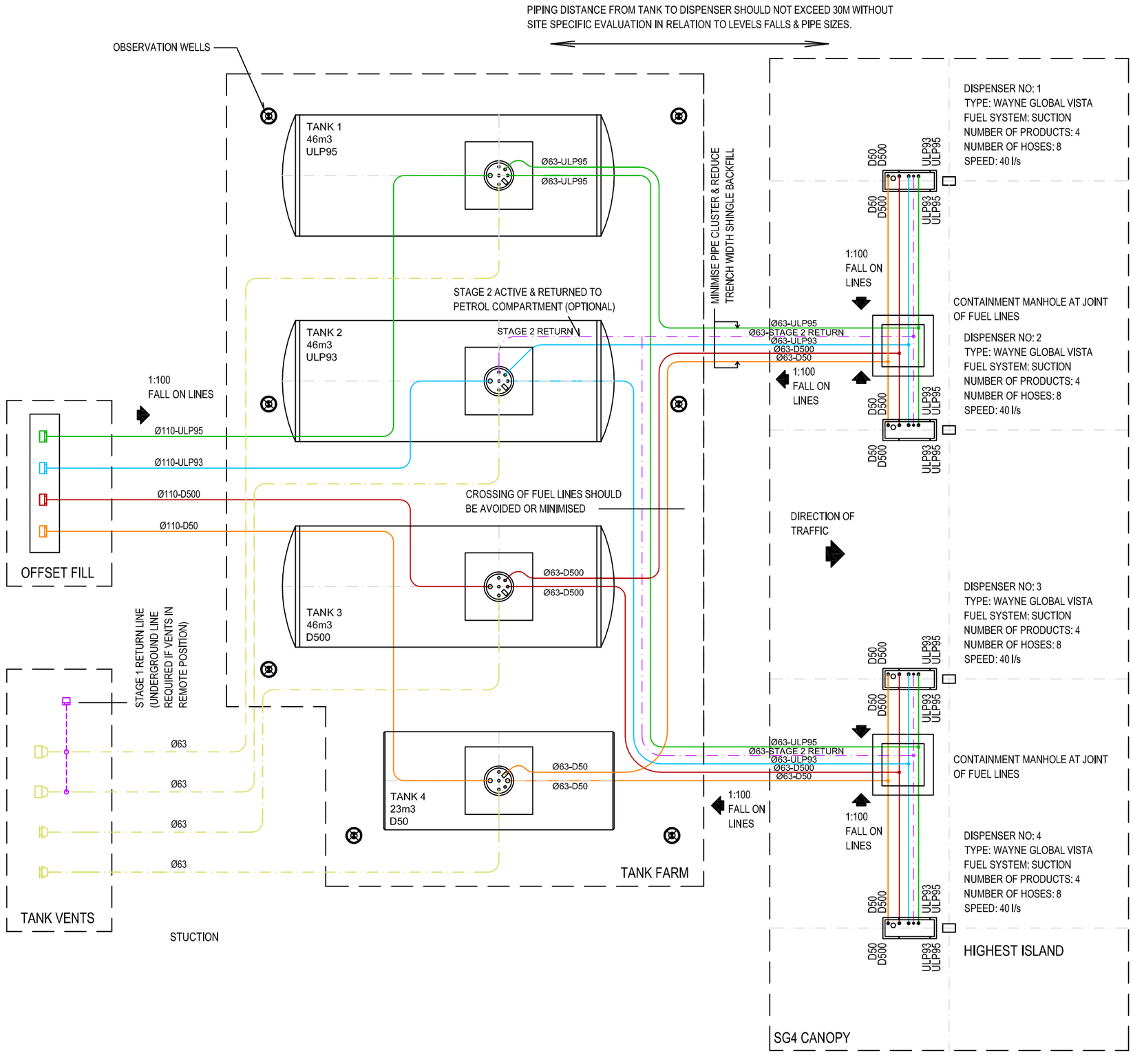
SEE PUMP MANUFACTURES OWN DRAWINGS FOR PIPEWORK TERMINATION BENEATH PUMP.

UNDER PUMP VALVES ARE TO BE FITTED TO SUCTIONS & THAT A SHEAR VALVE WITH A BALL VALVE BENEATH THE STAGE 2 LINE.

TEMPORARY SUPPORT FOR FUEL LINES SHOULD BE PROVIDED BY ONLY PEA GRAVEL FILLED SAND BAGS & NOT BRICKS OR OTHER SOLID OBJECTS. THESE BAGS DO NOT HAVE TO BEREMOVED PRIOR TO BACK FILLING & CAN REMAIN IN LOCATION.

PIPEWORK SHOULD NOT BE ALLOWED TO CROSS TOUCH OR RUB AGAINST ADJACENT LINES DUCTS OR CHAMBERS.

IN CASE OF SHORT DISTANCE BETWEEN DISPENSER AND TANK FARM, SUCTION LINES CAN BE DIRECTLY CONNECTED TO TANK CHAMBERS (NO T-CONFIGURATION)



STORAGE TANK VENTS
STAGE 1 VAPOUR RECOVERY
STAGE 2 VAPOUR RECOVERY
ULP95
ULP93
DIESEL 500 PPM
DIESEL 50 PPM

An LRP tank and associated pipework may be installed in addition to the four grades specified (ULP 93, ULP 95, D50 and D500) or it may be installed in the place of one of the other grades subject to site specific review conducted together with Retail OPS and Offer Development. All LRP installations must follow the vapour recovery conventions as specified for ULP 93. All LRP installations must be approved by Retail Design Engineer and BP Fuels Marketing prior to installation.

SUCTION FUEL SYSTEM TO BE USED UPON SPECIAL APPROVAL

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
SG4 SUCTION SYSTEM SCHEME

DRAWING NUMBER
BPSA-FUE-10

FORMAT
A3

SCALE
-

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SUCTION LINES ARE BE SINGLE WALLED NON CORROSIVE PIPEWORK 63MM INTERNAL DIAMETER OR NEAREST DEPENDANT ON MANUFACTURER.

SEE PUMP MANUFACTURES OWN DRAWINGS FOR PIPEWORK TERMINATION BENEATH PUMP.

UNDER PUMP VALVES ARE TO BE FITTED TO SUCTIONS & THAT A SHEAR VALVE WITH A BALL VALVE BENEATH THE STAGE 2 LINE.

TEMPORARY SUPPORT FOR FUEL LINES SHOULD BE PROVIDED BY ONLY PEA GRAVEL FILLED SAND BAGS & NOT BRICKS OR OTHER SOLID OBJECTS. THESE BAGS DO NOT HAVE TO BEREMOVED PRIOR TO BACK FILLING & CAN REMAIN IN LOCATION.

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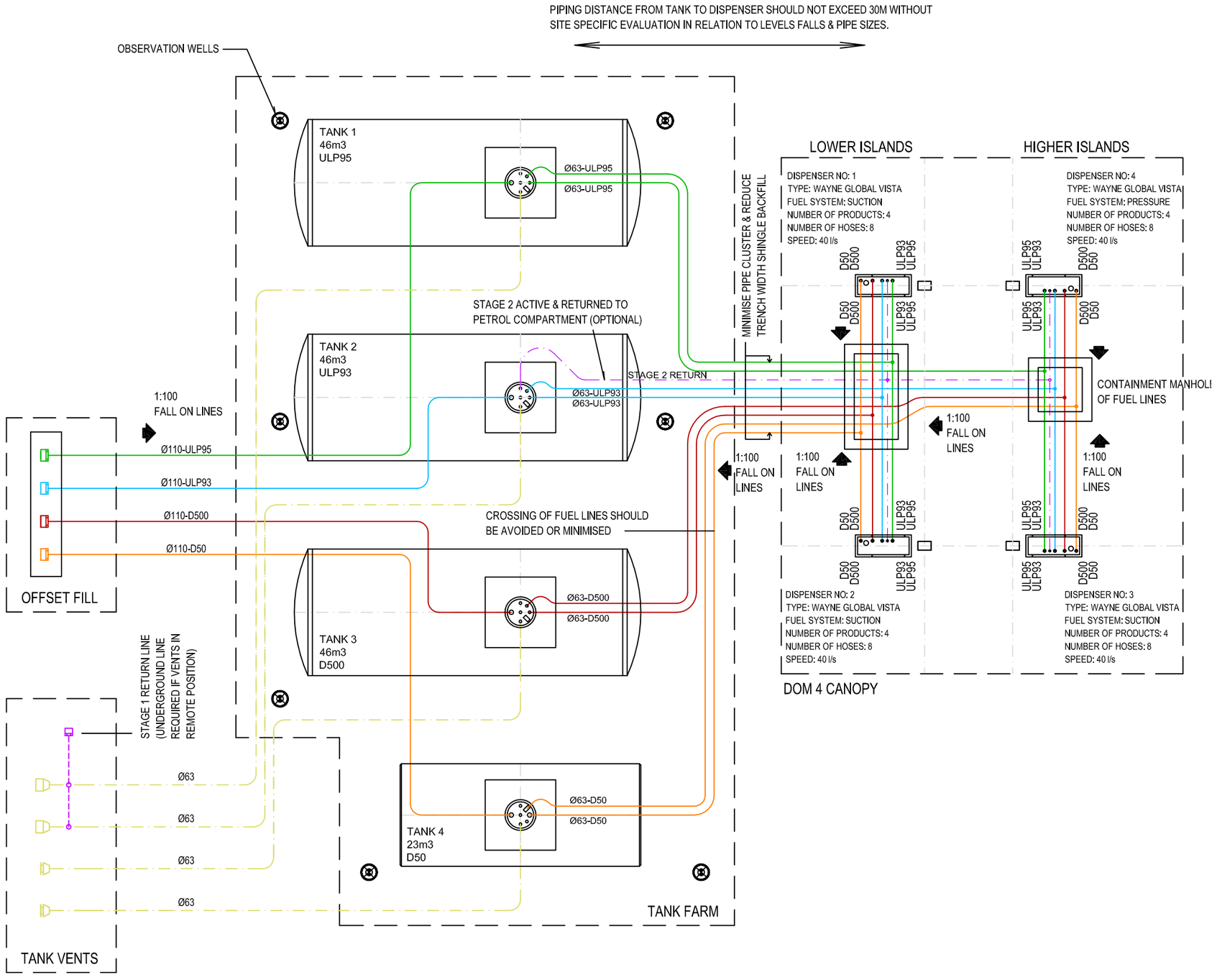
IN CASE OF SHORT DISTANCE BETWEEN DISPENSER AND TANK FARM, SUCTION LINES CAN BE DIRECTLY CONNECTED TO TANK CHAMBERS (NO T-CONFIGURATION)



- STORAGE TANK VENTS
- STAGE 1 VAPOUR RECOVERY
- STAGE 2 VAPOUR RECOVERY
- ULP95
- ULP93
- DIESEL 500 PPM
- DIESEL 50 PPM

An LRP tank and associated pipework may be installed in addition to the four grades specified (ULP 93, ULP 95, D50 and D500) or it may be installed in the place of one of the other grades subject to site specific review conducted together with Retail OPS and Offer Development. All LRP installations must follow the vapour recovery conventions as specified for ULP 93. All LRP installations must be approved by Retail Design Engineer and BP Fuels Marketing prior to installation.

SUCTION FUEL SYSTEM TO BE USED UPON SPECIAL APPROVAL

CLIENT

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SAFETY STATEMENT
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- PERMITS TO WORK
- ENERGY ISOLATION
- GROUND DISTURBANCE
- CONFINED SPACE ENTRY
- WORKING AT HEIGHTS
- LIFTING OPERATIONS
- DRIVING SAFETY
- MANAGEMENT OF CHANGE

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
DOM4 SUCTION SYSTEM SCHEME

DRAWING NUMBER
BPSA-FUE-11

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

THE ACTUAL SUCTION LINE LENGTH IS LIMITED BY THE MAX LIFT PROVIDED BY THE PUMPING UNIT AT 4250MM THE FALLS & LEVELS ARE TO BE EVALUATED ON A SITE SPECIFIC BASIS.

THE SEQUENCE OF LINES BENEATH THE DISPENSER DOES NOT MATCH THE NOZZLES ABOVE ON THE UNIT ITSELF.

SUCTION LINES ARE BE SINGLE WALLED NON CORROSIVE PIPEWORK 63MM INTERNAL DIAMETER OR NEAREST DEPENDANT ON MANUFACTURER.

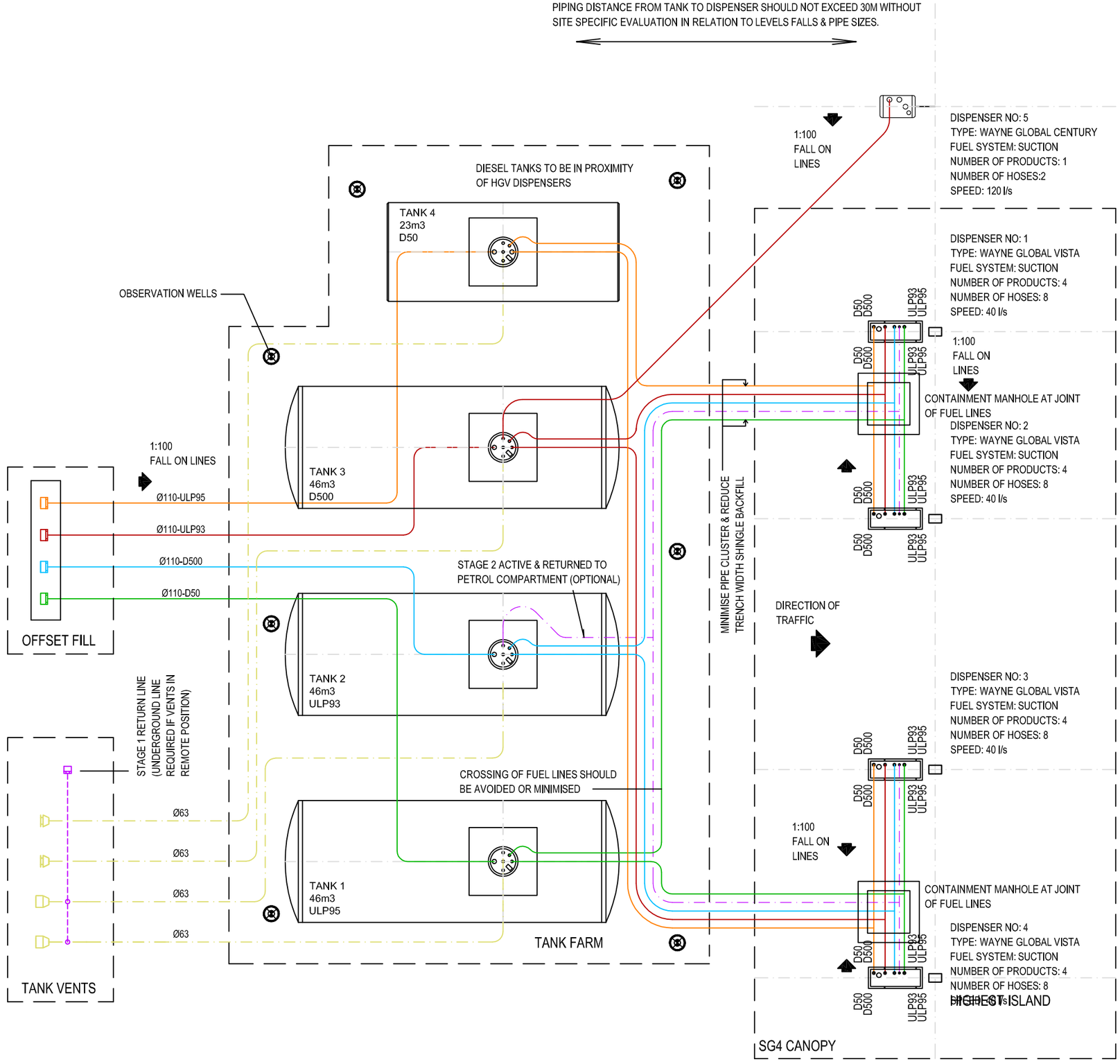
SEE PUMP MANUFACTURES OWN DRAWINGS FOR PIPEWORK TERMINATION BENEATH PUMP.

UNDER PUMP VALVES ARE TO BE FITTED TO SUCTIONS & THAT A SHEAR VALVE WITH A BALL VALVE BENEATH THE STAGE 2 LINE.

TEMPORARY SUPPORT FOR FUEL LINES SHOULD BE PROVIDED BY ONLY PEA GRAVEL FILLED SAND BAGS & NOT BRICKS OR OTHER SOLID OBJECTS. THESE BAGS DO NOT HAVE TO BEREMOVED PRIOR TO BACK FILLING & CAN REMAIN IN LOCATION.

PIPEWORK SHOULD NOT BE ALLOWED TO CROSS TOUCH OR RUB AGAINST ADJACENT LINES DUCTS OR CHAMBERS.

IN CASE OF SHORT DISTANCE BETWEEN DISPENSER AND TANK FARM, SUCTION LINES CAN BE DIRECTLY CONNECTED TO TANK CHAMBERS (NO T-CONFIGURATION)



- STORAGE TANK VENTS
- STAGE 1 VAPOUR RECOVERY
- STAGE 2 VAPOUR RECOVERY
- ULP95
- ULP93
- DIESEL 500 PPM
- DIESEL 50 PPM

An LRP tank and associated pipework may be installed in addition to the four grades specified (ULP 93, ULP 95, D50 and D500) or it may be installed in the place of one of the other grades subject to site specific review conducted together with Retail OPS and Offer Development. All LRP installations must follow the vapour recovery conventions as specified for ULP 93. All LRP installations must be approved by Retail Design Engineer and BP Fuels Marketing prior to installation.

SUCTION FUEL SYSTEM TO BE USED UPON SPECIAL APPROVAL

CLIENT

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
SG4+HGV SUCTION SYSTEM SCHEME

DRAWING NUMBER
BPSA-FUE-12

FORMAT A3 | SCALE -

DO NOT SCALE FROM DRAWING

PRESSURE SYSTEMS CAN BE CONSIDERED WHERE THE FORECOURTLAYOUT EXCEEDS THE NORMAL CAPACITY OF A SUCTION LAYOUT PARTICULARLY WHERE THE TANK FARM IS REMOTE OR SITE LARGE.

THE ACTUAL PRESSURE LINE LENGTH IS LIMITED BY THE MAX LIFT PROVIDED BY THE PUMPING UNIT AT APPROX 4500MM THE FALLS & LEVELS ARE TO BE EVALUATED ON ASITE SPECIFIC BASIS.
ADVERSE FALLS ON FORECOURT WILL NEED TO BE TAKEN INTO CONSIDERATION AT DESIGN STAGE TO ENSURE CORRECT FALLS CAN BE ACHIEVED AND MAX CHAMBER DEPTH WILL NOT BE EXCEEDED ADEQUATE COVER & PROTECTION OF LINES MUST ALSO BE TAKEN INTO ACCOUNT EARLY IN THE DESIGN.

THE SEQUENCE OF LINES BENEATH THE DISPENSER DOES NOT MATCH THE NOZZLES ABOVE ON THE UNIT ITSELF.

PRESSURE LINES ARE BE DOUBLE WALLED NON CORROSIVE PIPEWORK 63MM INTERNAL DIA OR NEAREST DEPENDANT ON MANUFACTURER.

SEE DISPENSER MANUFACTURES OWN DRAWINGS FOR PIPEWORK TERMINATION BENEATH UNIT SHEAR VALVES ARE TO BE FITTED TO ALL PRESSURE LINES AT ISLAND LEVEL. A SHEAR VALVE WITH A BALL VALVE BENEATH WILL BE REQUIRED FOR THE STAGE 2 RETURN LINE.THE BALL VALVE WILL BE LOST & ACKFILLED WITHIN SHINGLE SURROUND & WILL ONLY BE USED IF THE DISPENSER REQUIRES REMOVAL DUE TO DAMAGE ETC.

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PIPEWORK SHOULD NOT BE ALLOWED TO CROSS TOUCH OR RUB AGAINST ADJACENT LINES DUCTS OR CHAMBERS.

- STORAGE TANK VENTS
- STAGE 1 VAPOUR RECOVERY
- STAGE 2 VAPOUR RECOVERY
- ULP95
- ULP93
- DIESEL 500 PPM
- DIESEL 50 PPM

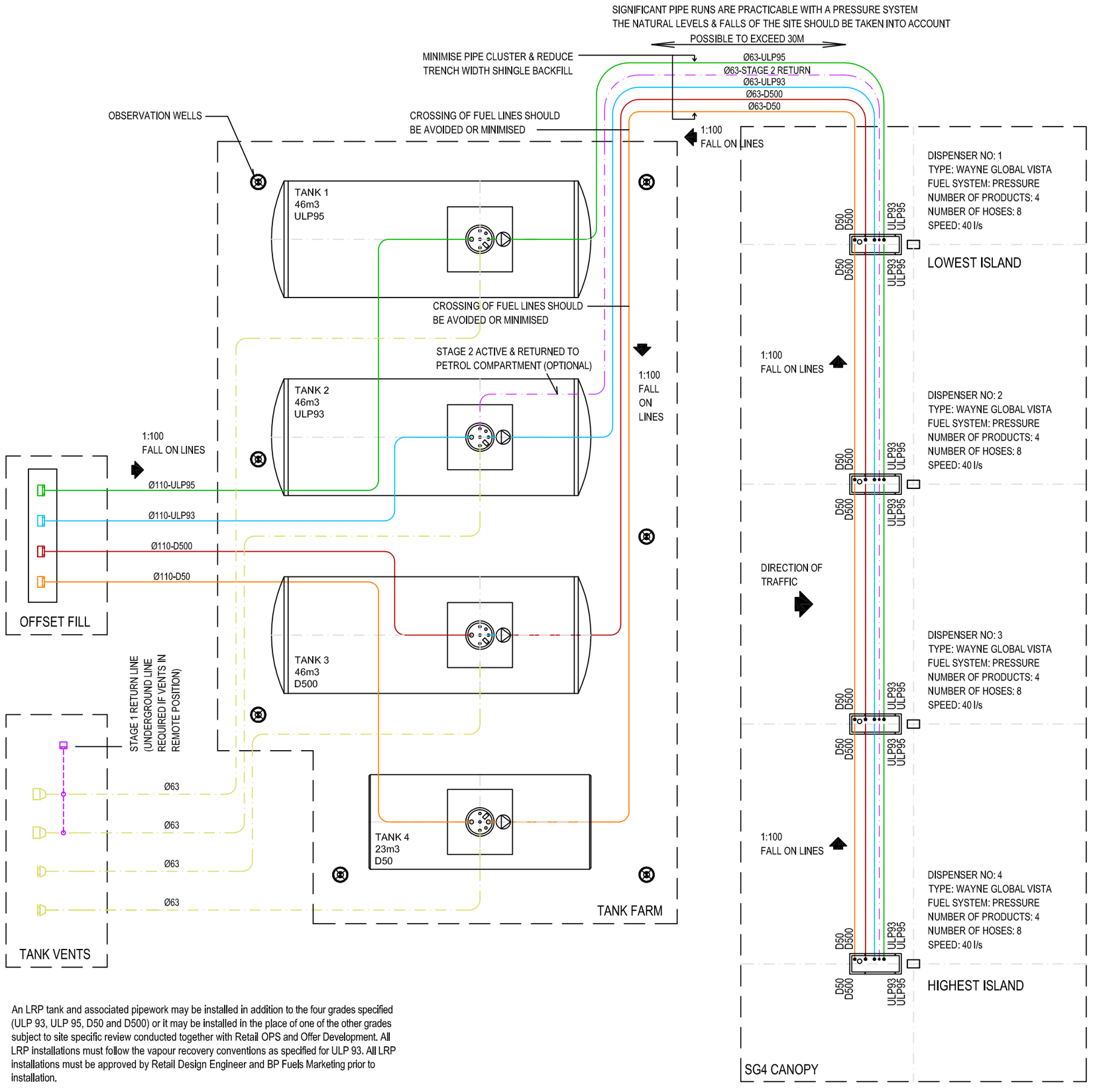
DESIGN DATA FOR SUB PUMPS

See layouts
These designs use both standard & Intellegent sub turbines dependant on the nunber of islands nozzles & options for HGV push buttons these diagrams cannot illustrate all combinations & sites must be evaluated individually.

Sub pump performance allowing for utilisation factor

	STD 1.5hp	IST 2hp	IST twin 2x1.5hp
ULG	8	9-12	13-24
SULG	16	17-24	24-48
Future grade	16	17-24	24-48
Diesel	8	9-14	15-28
Diesel HGV	N/A	9-12	15-24

Note HGV nozzles equate to 2 normal nozzles



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SAFETY STATEMENT
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- WORKING AT HEIGHTS
- LIFTING OPERATIONS
- DRIVING SAFETY
- MANAGEMENT OF CHANGE

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
SG4 PRESSURE SYSTEM SCHEME

DRAWING NUMBER
BPSA-FUE-15

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

PRESSURE SYSTEMS CAN BE CONSIDERED WHERE THE FORECOURTLAYOUT EXCEEDS THE NORMAL CAPACITY OF A SUCTION LAYOUT PARTICULARLY WHERE THE TANK FARM IS REMOTE OR SITE LARGE.

THE ACTUAL PRESSURE LINE LENGTH IS LIMITED BY THE MAX LIFT PROVIDED BY THE PUMPING UNIT AT APPROX 4500MM THE FALLS & LEVELS ARE TO BE EVALUATED ON ASITE SPECIFIC BASIS.
ADVERSE FALLS ON FORECOURT WILL NEED TO BE TAKEN INTO CONSIDERATION AT DESIGN STAGE TO ENSURE CORRECT FALLS CAN BE ACHIEVED AND MAX CHAMBER DEPTH WILL NOT BE EXCEEDED ADEQUATE COVER & PROTECTION OF LINES MUST ALSO BE TAKEN INTO ACCOUNT EARLY IN THE DESIGN.

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- DIESEL 500 PPM
- DIESEL 50 PPM

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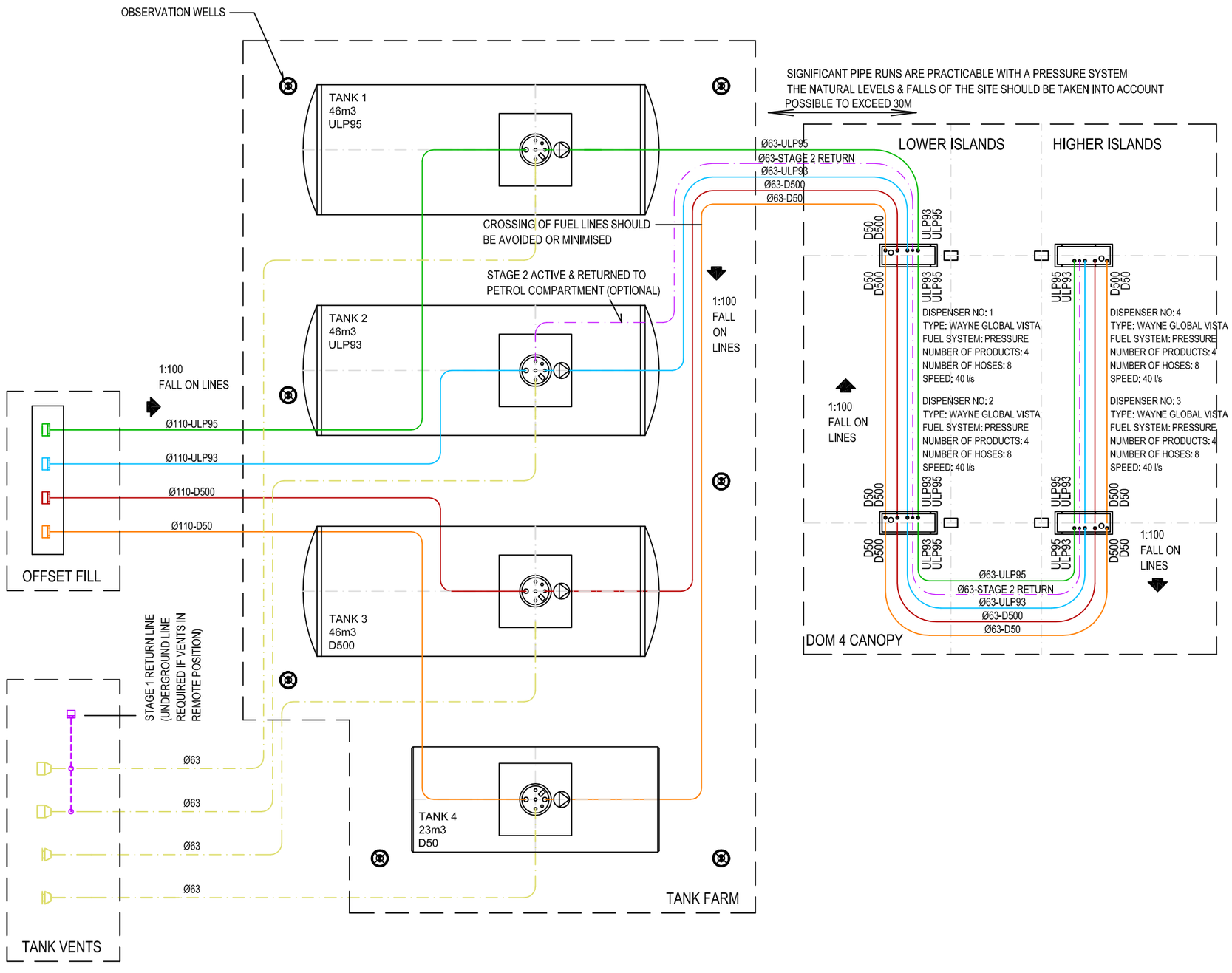

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
DOM4 PRESSURE SYSTEM SCHEME

DRAWING NUMBER
BPSA-FUE-16

FORMAT
A3

SCALE
-

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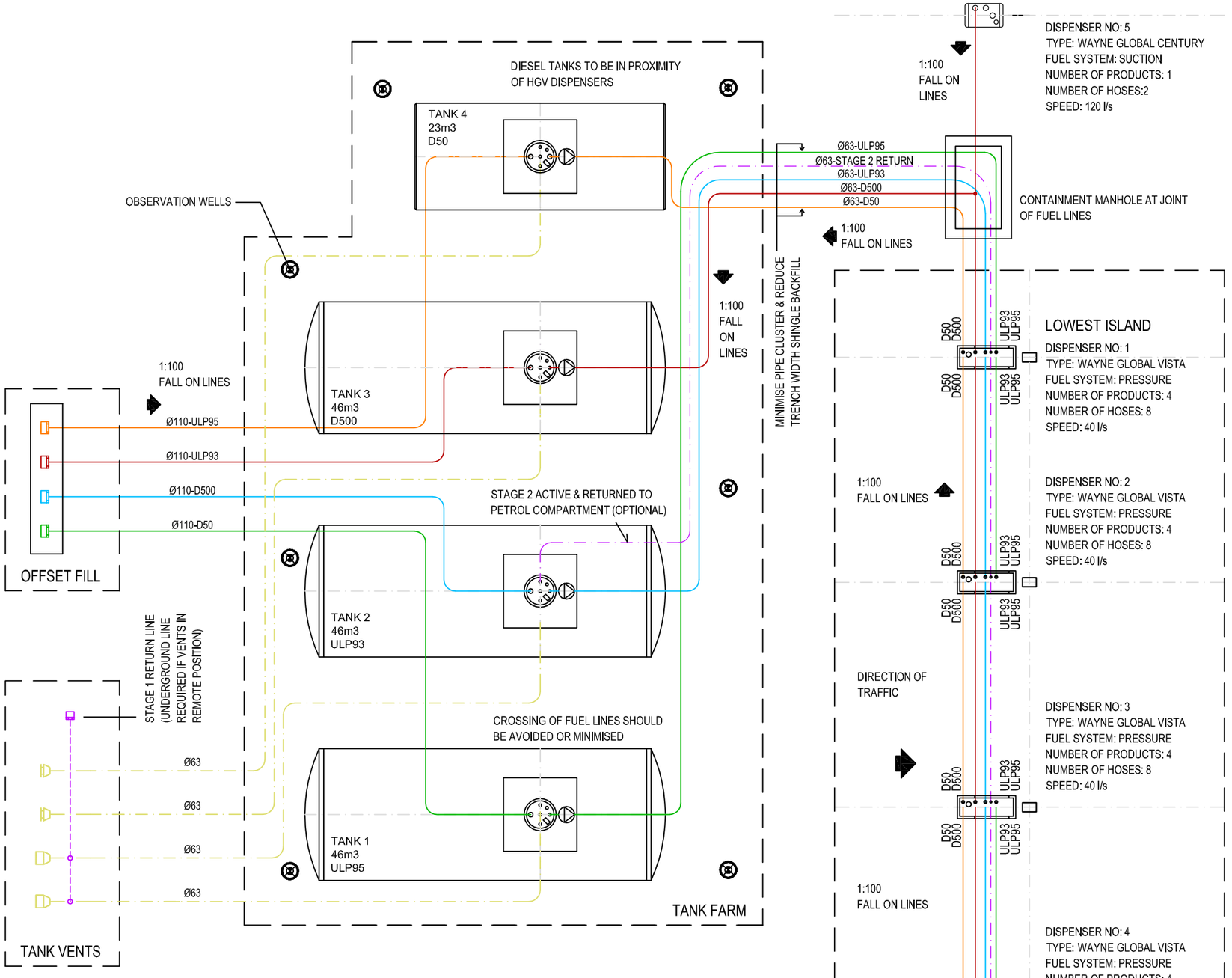

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

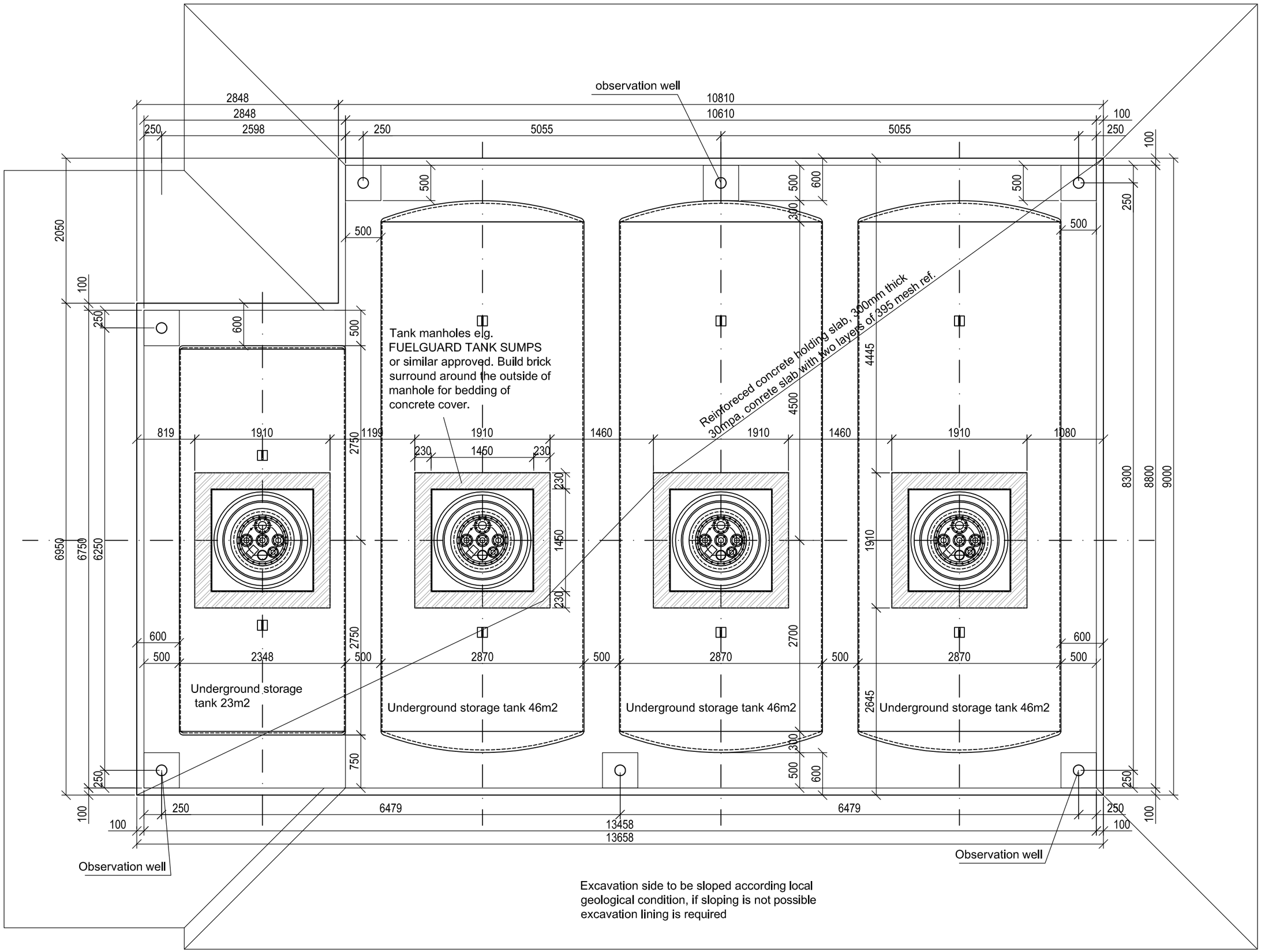
DRAWING TITLE
SG4+HGV PRESSURE SYSTEM SCHEME

DRAWING NUMBER
BPSA-FUE-17

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING



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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
TANK FARM

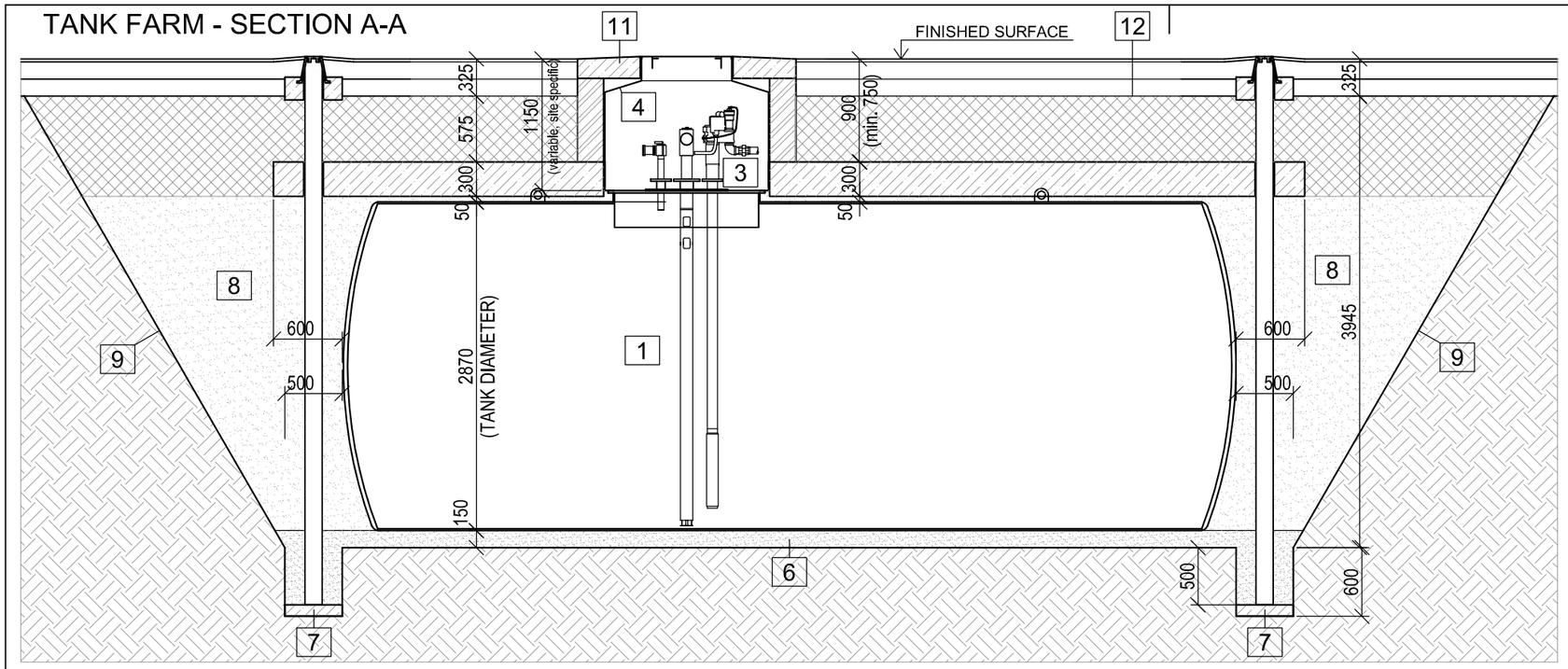
DRAWING NUMBER
SA-FUE-20

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

TANK FARM - SECTION A-A



REINFORECED CONCRETE

BACKFILL TO SANS10089-3-5.2, CLEAN WASHED RIVERSAND

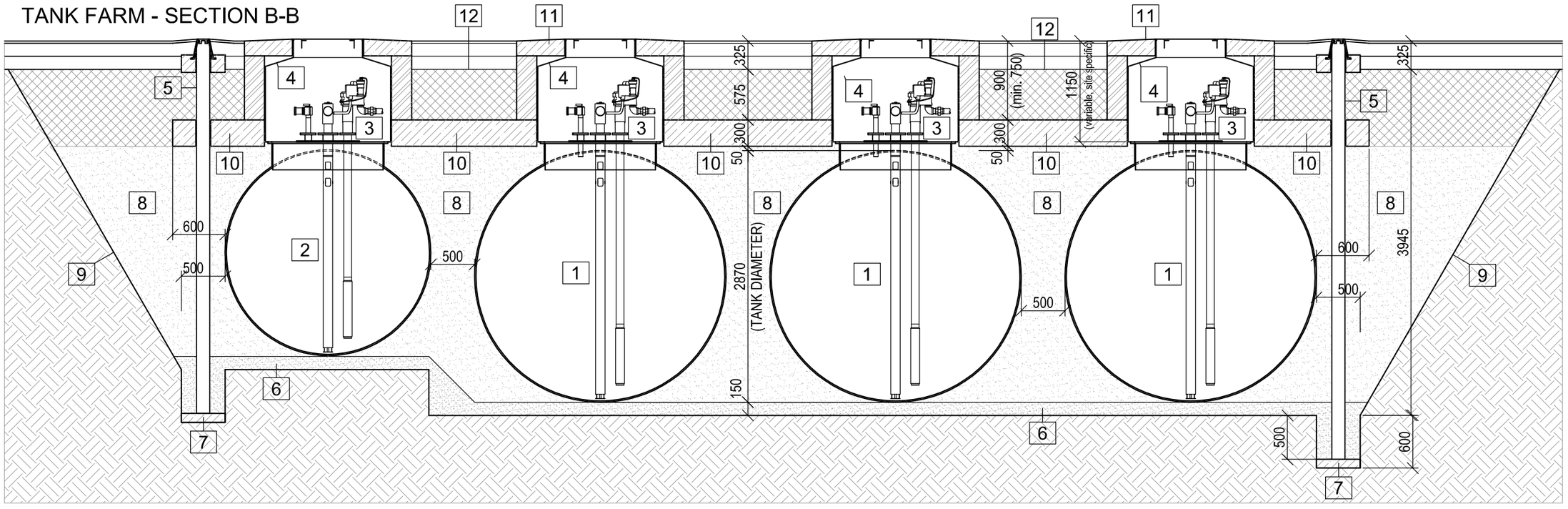
COMPACTED GRAVEL BACKFILL, STANDARD FORECOURT SUB-BASE

NATURAL GROUND

BRICK WALLS

NOTE: DOUBLE WALL TANKS REQUIRED, IN CASE OF SINGLE WALL TANKS ADDITIONAL TANK FARM LINING MUST BE PROVIDED

TANK FARM - SECTION B-B



1 Underground storage tank 46m2, double wall steel tank (see BPSA-FUE-25)

2 Underground storage tank 23m2, double wall steel tank (see BPSA-FUE-24)

3 Tank lid and equipment (see BPSA-FUE-22)

4 Tank manholes e.g. FUELGUARD TANK SUMPS or similar approved. Build brick surround around the outside of manhole for bedding of concrete cover.

5 Observation well (see BPSA-FUE-22), To conform with SANS 10089-3-5.1.2

6 Bedding layer - Clean washed riversand, clean and free-flowing naturally rounded cohesionless gravel of nominal diameter 6 mm and of particle size diameter in the range 3 mm to 10 mm

7 100mm of class 15/19 bellow the observation well so as to provide protection for the liner

8 Backfill to SANS10089-3-5.2 clean washed riversand - clean and free-flowing naturally rounded cohesionless gravel of nominal diameter 6 mm and of particle size diameter in the range 3 mm to 10 mm, shall be in layers not exceeding 150mm

9 Excavation side to be sloped according local geological condition, if sloping is not possible excavation lining is required

10 Reinforeced concrete holding slab, 300mm thick 30mpa, conrete slab with two layers of 395 mesh ref.

11 1910*1910mm reinforced concrete around manhole cover. min 200 thk. class 30/19 conc. wood float, shape upwards by 50mm max and 30mm min as to prevent ingress of watter

12 Surface layers to be done according to general forecourt design

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

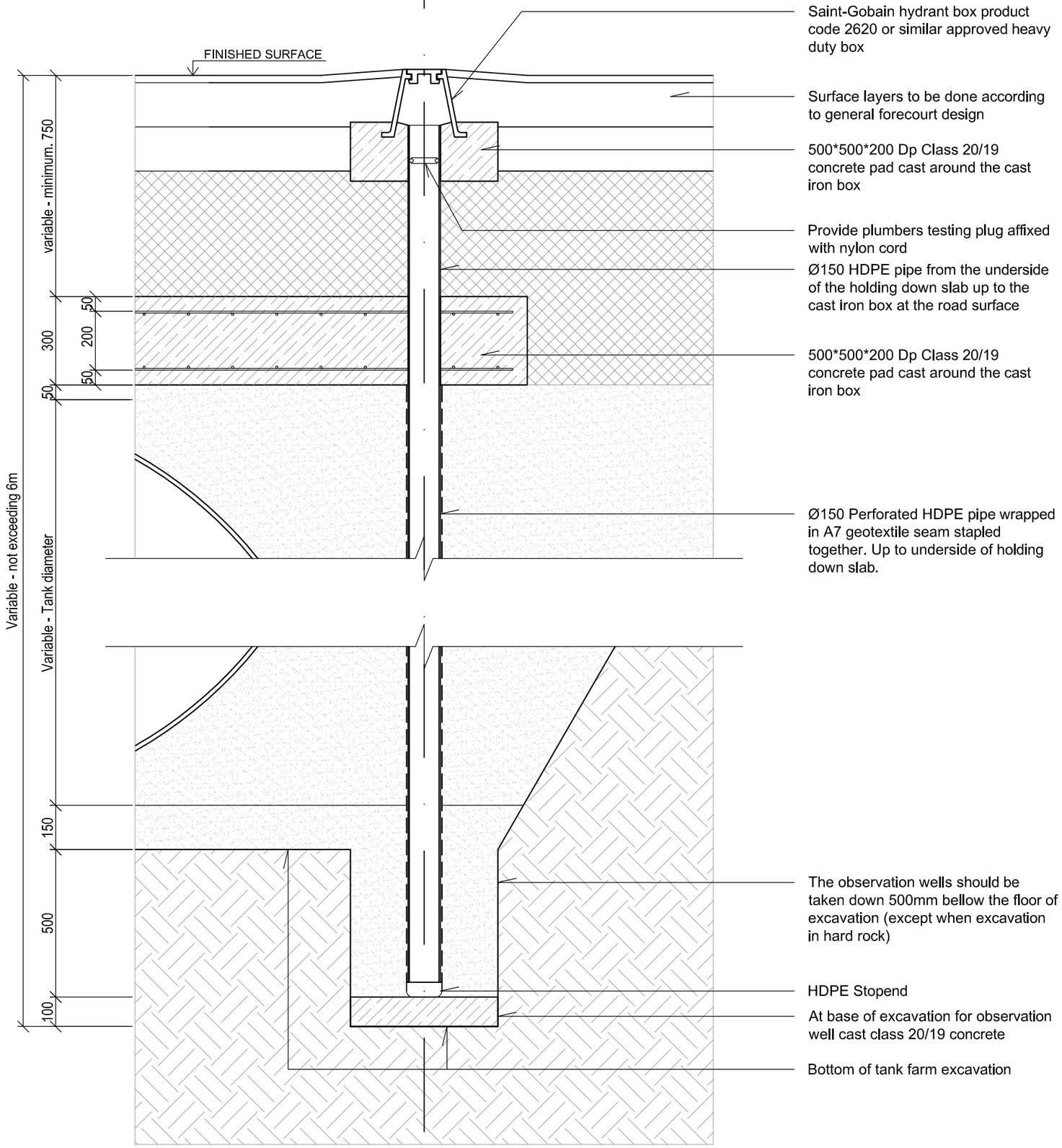
DRAWING TITLE
TANK FARM SECTIONS

DRAWING NUMBER
BPSA-FUE-21

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING



Saint-Gobain hydrant box product code 2620 or similar approved heavy duty box

Surface layers to be done according to general forecourt design

500*500*200 Dp Class 20/19 concrete pad cast around the cast iron box

Provide plumbers testing plug affixed with nylon cord

Ø150 HDPE pipe from the underside of the holding down slab up to the cast iron box at the road surface

500*500*200 Dp Class 20/19 concrete pad cast around the cast iron box

Ø150 Perforated HDPE pipe wrapped in A7 geotextile seam stapled together. Up to underside of holding down slab.

The observation wells should be taken down 500mm bellow the floor of excavation (except when excavation in hard rock)

HDPE Stopend

At base of excavation for observation well cast class 20/19 concrete

Bottom of tank farm excavation

REINFORECED CONCRETE

BACKFILL TO SANS10089-3-5.2, CLEAN WASHED RIVERSAND

COMPACTED GRAVEL BACKFILL, STANDARD FORECOURT SUB-BASE

NATURAL GROUND

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- MANAGEMENT OF CHANGE

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
OBSERVATION WELL DETAIL

DRAWING NUMBER
SA-FUE-22

FORMAT
A3

SCALE
-

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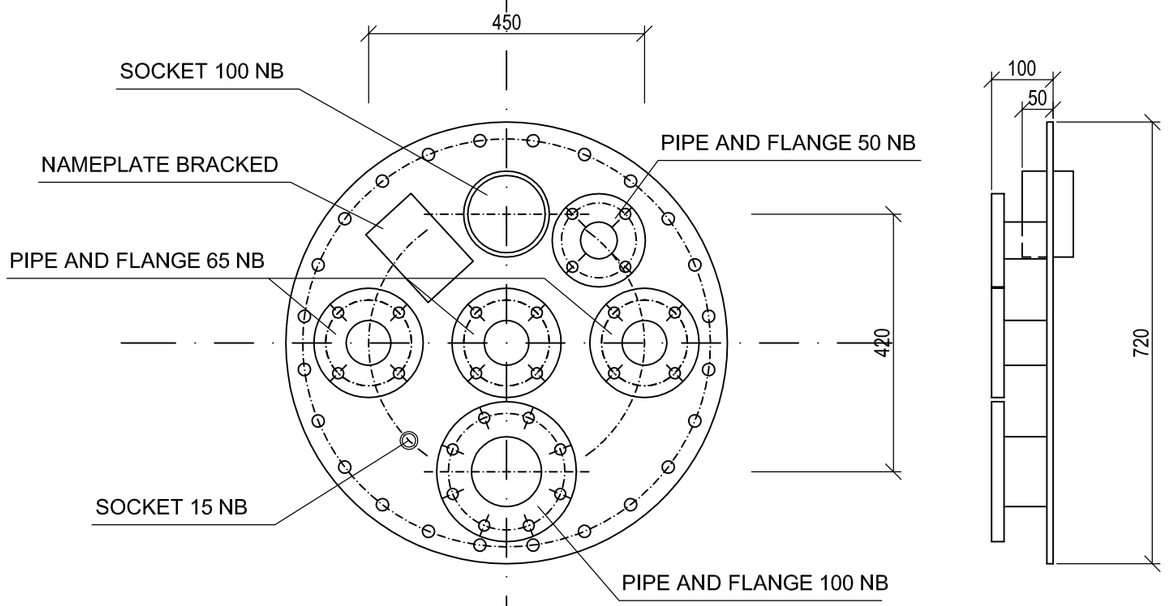
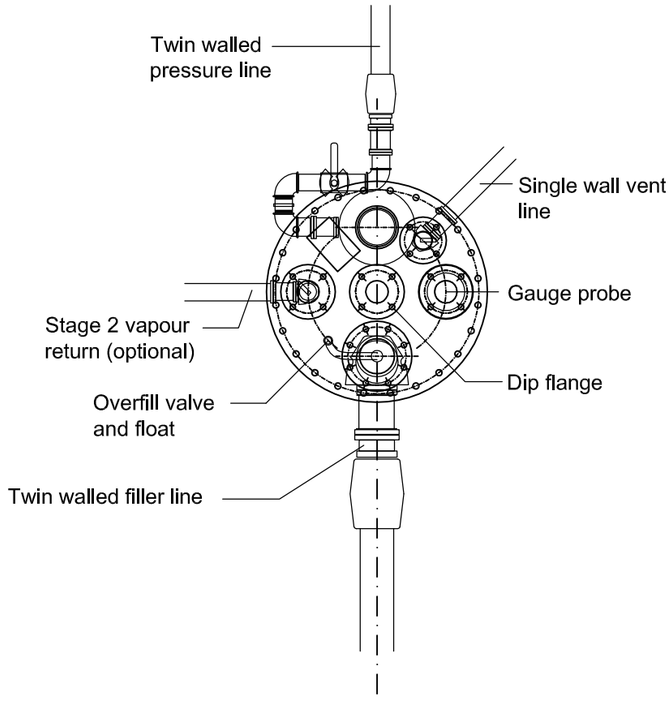
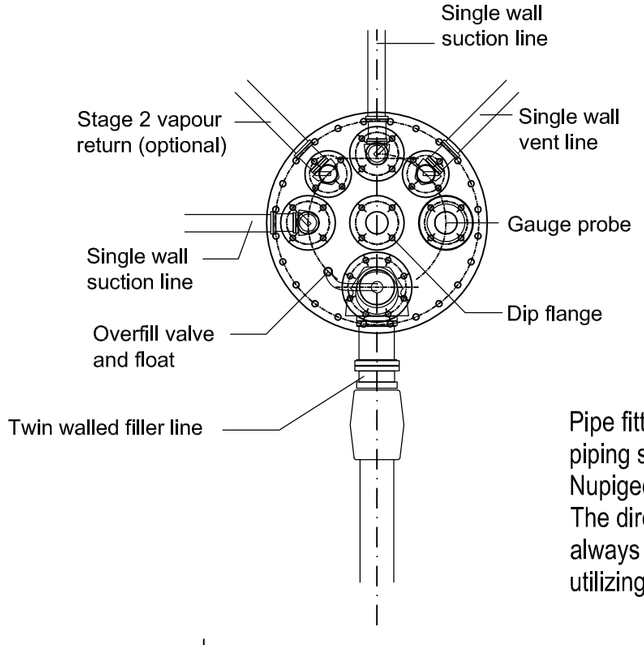
TANK LID WITH BOLTED CONNECTIONS M1:10



PRESSURE SYSTEM M1:20



SUCTION SYSTEM M1:20



Pipe fittings may vary between systems. Complete piping systems to be installed of either KPS, UPP or Nupigeco.
The direction of actual pipework will be site specific always to be taken square through chamber faces utilizing both 90 & 45 elbows as required.

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
TANK LID DETAIL

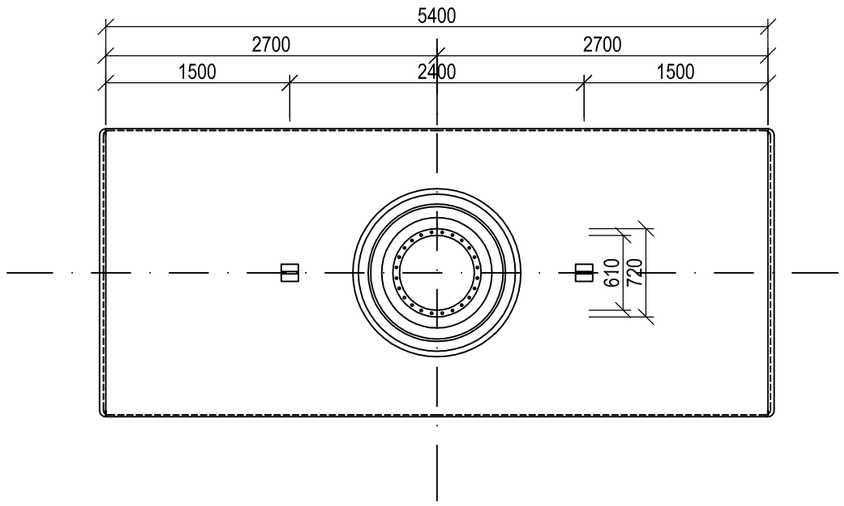
DRAWING NUMBER
BPSA-FUE-23

FORMAT
A3

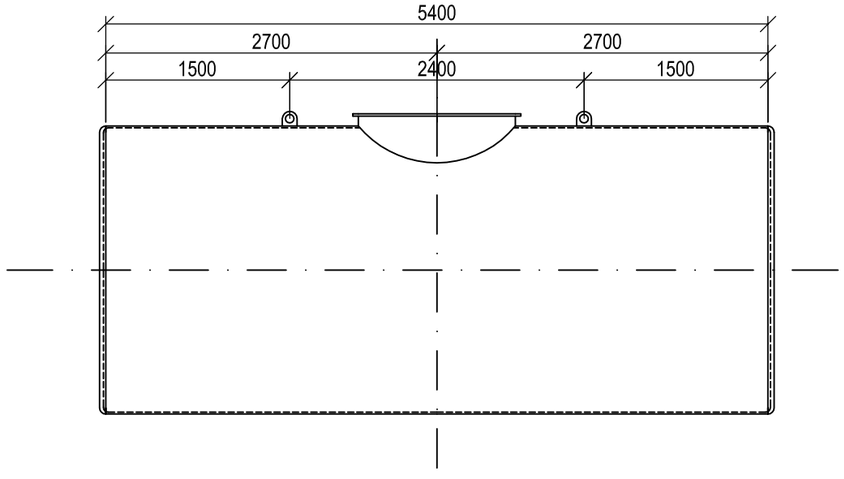
SCALE
1:5

DO NOT SCALE FROM DRAWING

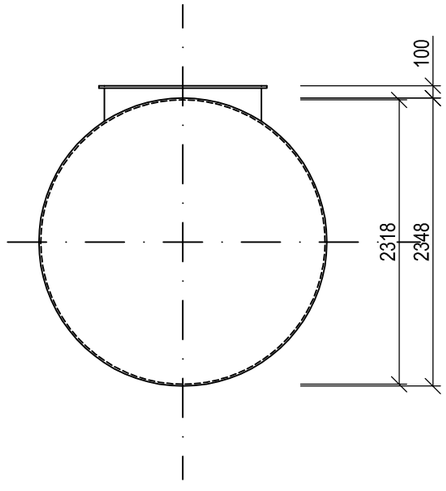
PLAN



SIDE ELEVATION



SECTION



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- NOMINAL TANK STORAGE CAPACITY 23-25M3
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- WELDING TO CONFORM WITH SANS 15614-1
- TANK TO BE WITH POLYURETHANE OR GLASS REINFORCED POLYESTER COATING FINISH
- A 35 000 V HOLIDAY SPARK TEST SHALL BE CARRIED OUT ON THE TANK COATING
- ACCEPTABLE LEAK TEST SHALL BE CARRIED OUT (SEE BP UNDERGROUND TANK & PUMP INSTALLATION MANUAL)
- ALL REQUIRED TEST CERTIFICATES MUST BE PROVIDED BY MANUFACTURERS
- IN-SITU TESTS SHALL BE CARRIED OUT IN THE PRESENCE OF BP/NOMINATED ENGINEER

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
23m3 TANK DETAILS

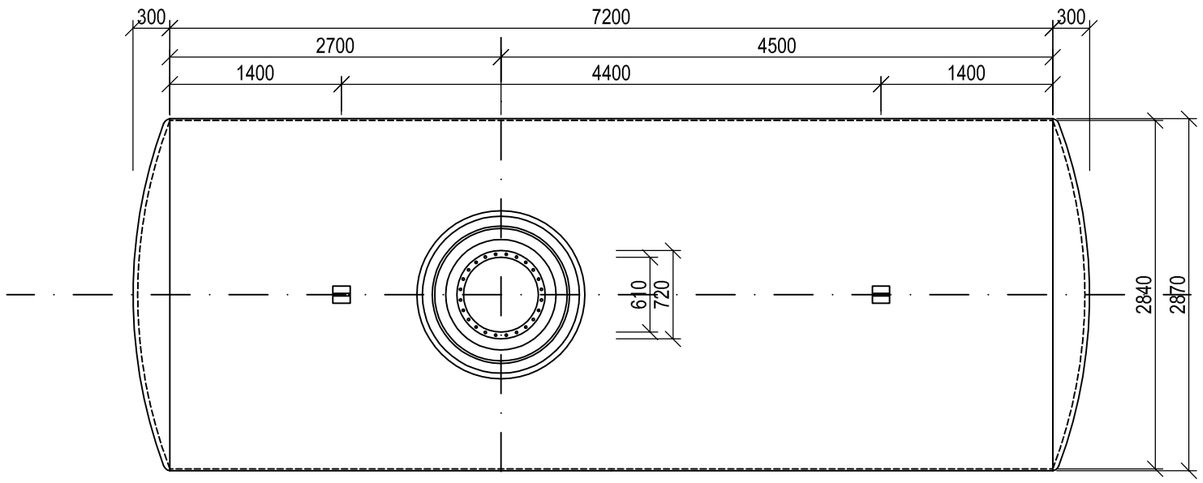
DRAWING NUMBER
BPSA-FUE-24

FORMAT
A3

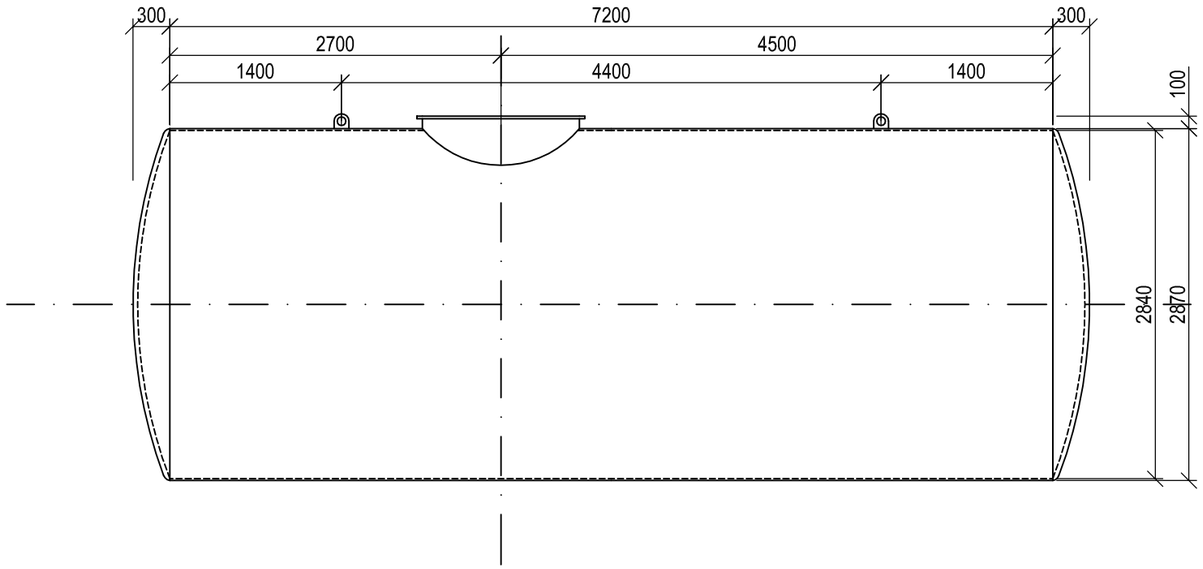
SCALE
1:40

DO NOT SCALE FROM DRAWING

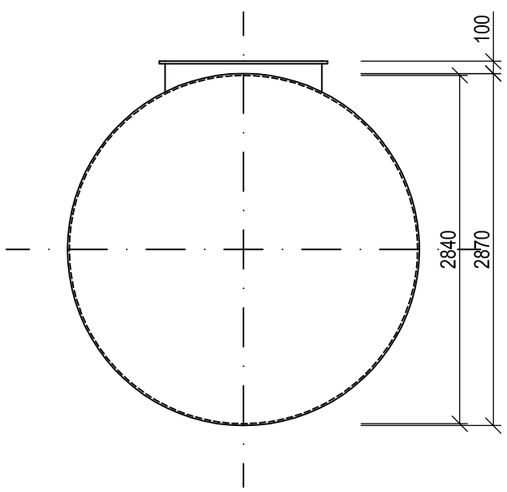
PLAN



SIDE ELEVATION



SECTION



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- TANK TO BE WITH POLYURETHANE OR GLASS REINFORCED POLYESTER COATING FINISH
- A 35 000 V HOLIDAY SPARK TEST SHALL BE CARRIED OUT ON THE TANK COATING
- ACCEPTABLE LEAK TEST SHALL BE CARRIED OUT (SEE BP UNDERGROUND TANK & PUMP INSTALLATION MANUAL)
- ALL REQUIRED TEST CERTIFICATES MUST BE PROVIDED BY MANUFACTURERS
- IN-SITU TESTS SHALL BE CARRIED OUT IN THE PRESENCE OF BP/NOMINATED ENGINEER

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SAFETY STATEMENT

CONTRACTORS EXECUTING THE WORKS IDENTIFIED ON THIS DRAWING SHOULD BE FULLY CONVERSANT WITH AND ACT IN ACCORDANCE WITH BP'S CONTROL OF WORK (CoW) REQUIREMENTS, AS ADVISED BY THE PROJECT MANAGER ACTING FOR BP AND BP'S GOLDEN RULES OF SAFETY, INCLUDED AS PART OF CONTRACT DOCUMENTATION, WHICH COVERS:

- PERMITS TO WORK
- ENERGY ISOLATION
- GROUND DISTURBANCE
- CONFINED SPACE ENTRY
- WORKING AT HEIGHTS
- LIFTING OPERATIONS
- DRIVING SAFETY
- MANAGEMENT OF CHANGE

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A	...	FIRST ISSUE

PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

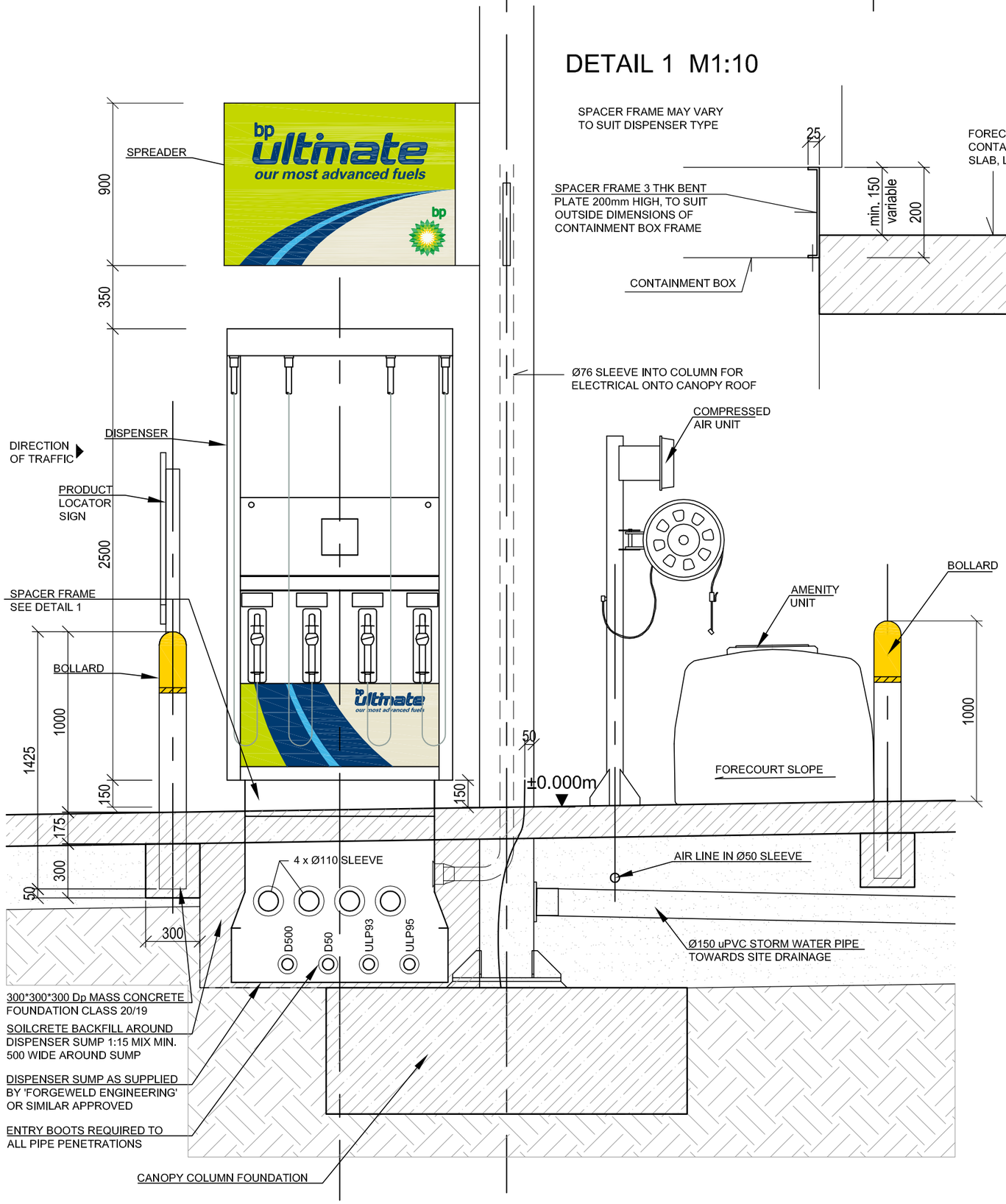
DRAWING TITLE
23m3 TANK DETAILS

DRAWING NUMBER
BPSA-FUE-25

FORMAT
A3

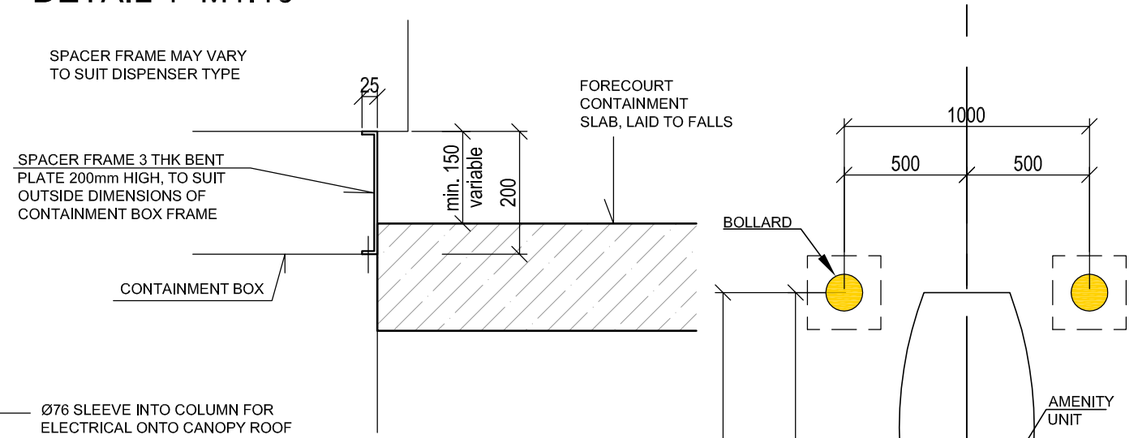
SCALE
1:40

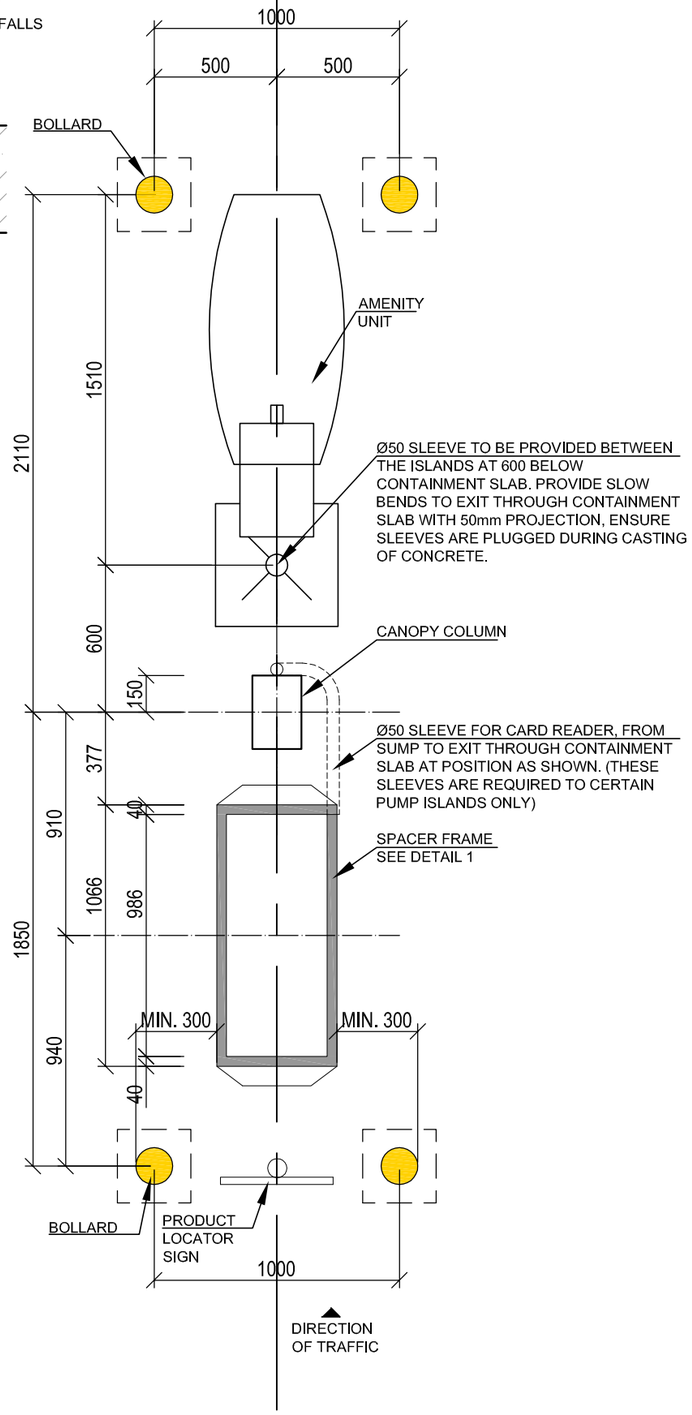
DO NOT SCALE FROM DRAWING



STANDARD DISPENSER AND PUMP ISLAND SECTION

DETAIL 1 M1:10





STANDARD DISPENSER AND PUMP ISLAND PLAN

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A	..	FIRST ISSUE

PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

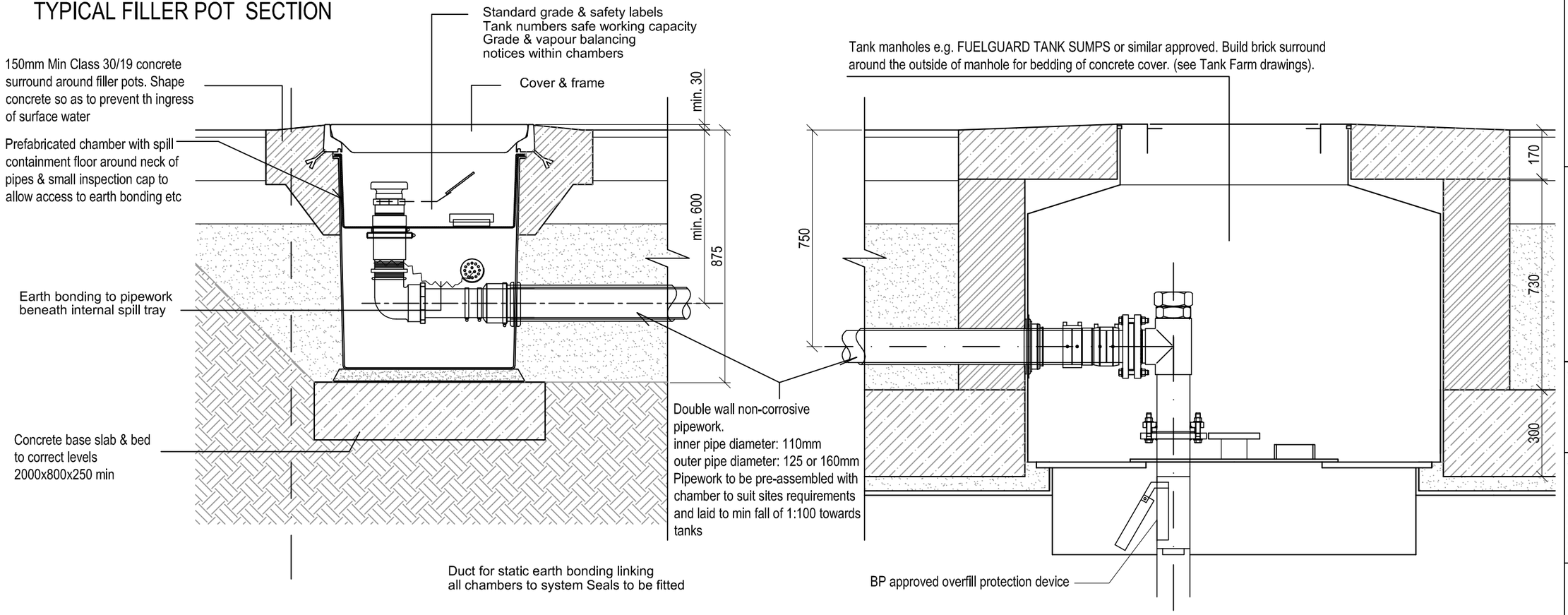
DRAWING TITLE
STANDARD PUMP ISLAND

DRAWING NUMBER
SA-FUE-30

FORMAT A3 | SCALE 1:25

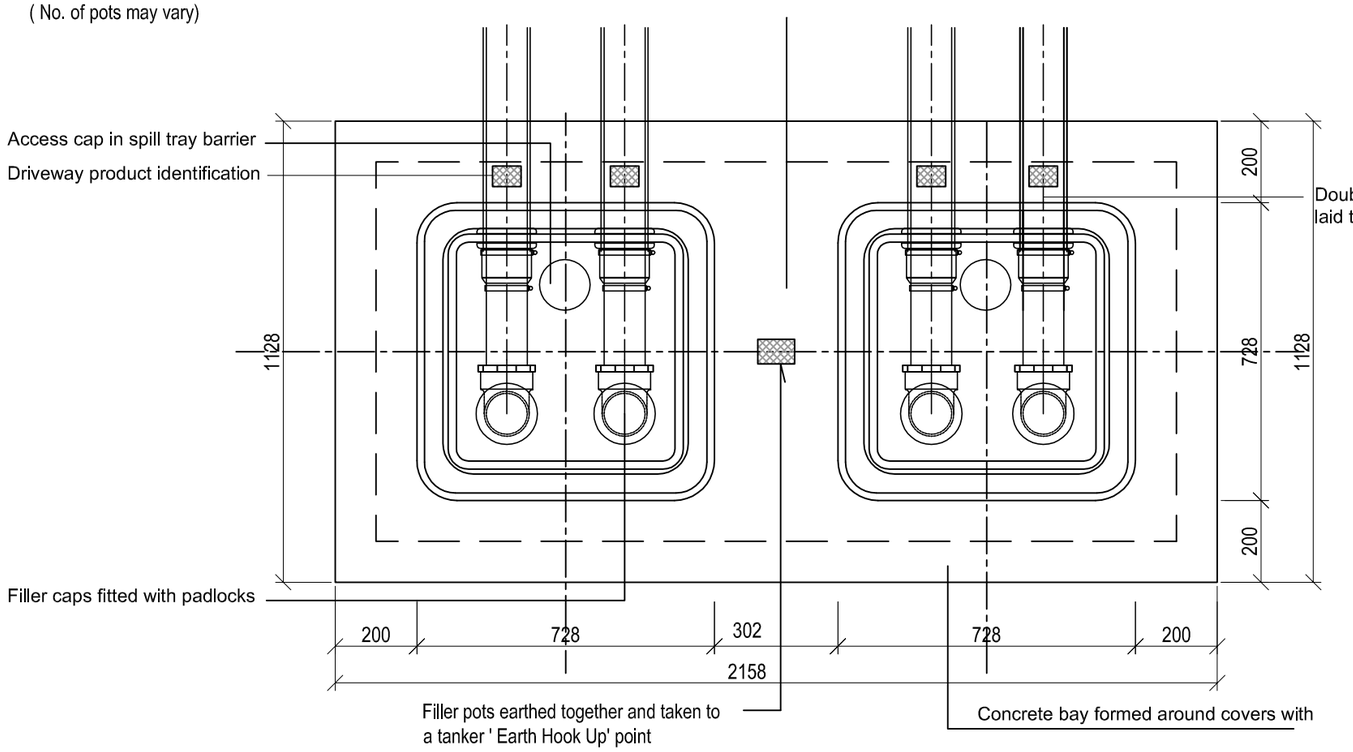
DO NOT SCALE FROM DRAWING

TYPICAL FILLER POT SECTION



TYPICAL FILLER POT ARRANGEMENT

(No. of pots may vary)



Pipe fittings may vary between systems. Complete piping systems to be installed of either KPS, UPP or Nupigeco.

Drainage must be provided around close or below tanker discharge point connected to dedicated Interceptor.

All steel pipe fittings to be compatible with the piping system and must be Denso wrapped.

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

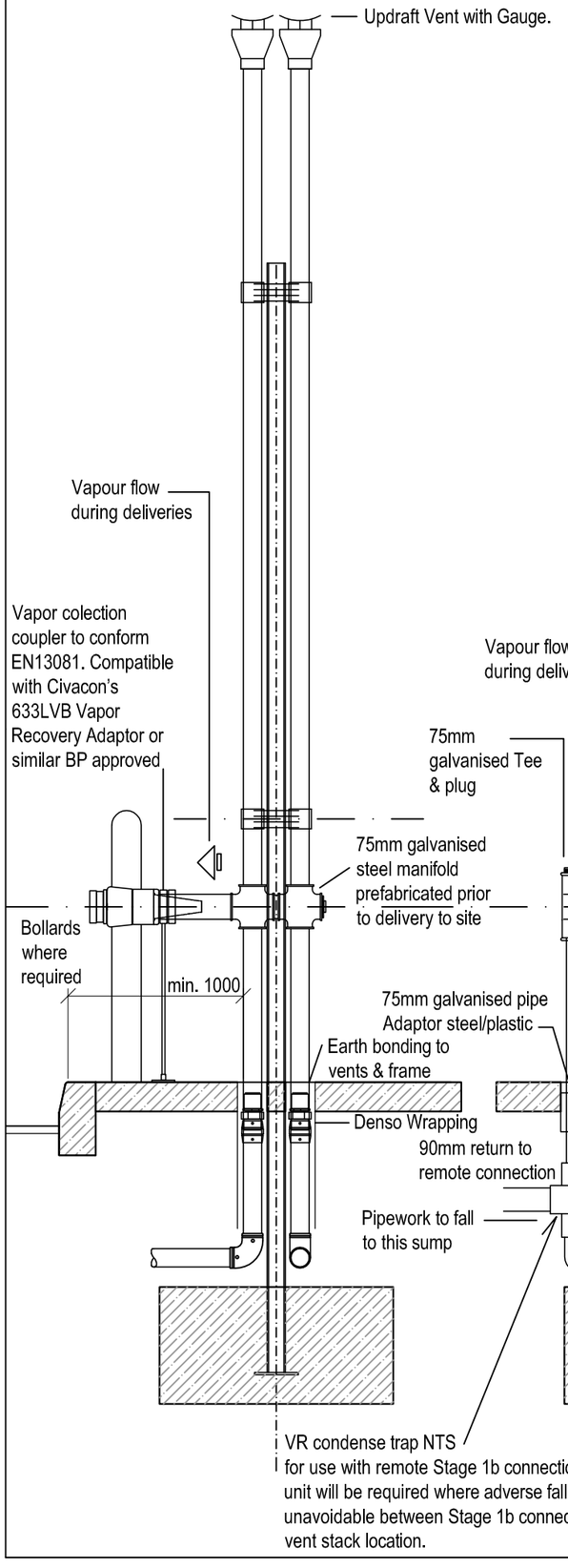
DRAWING TITLE
FILLER LINE DETAILS

DRAWING NUMBER
BPSA-FUE-40

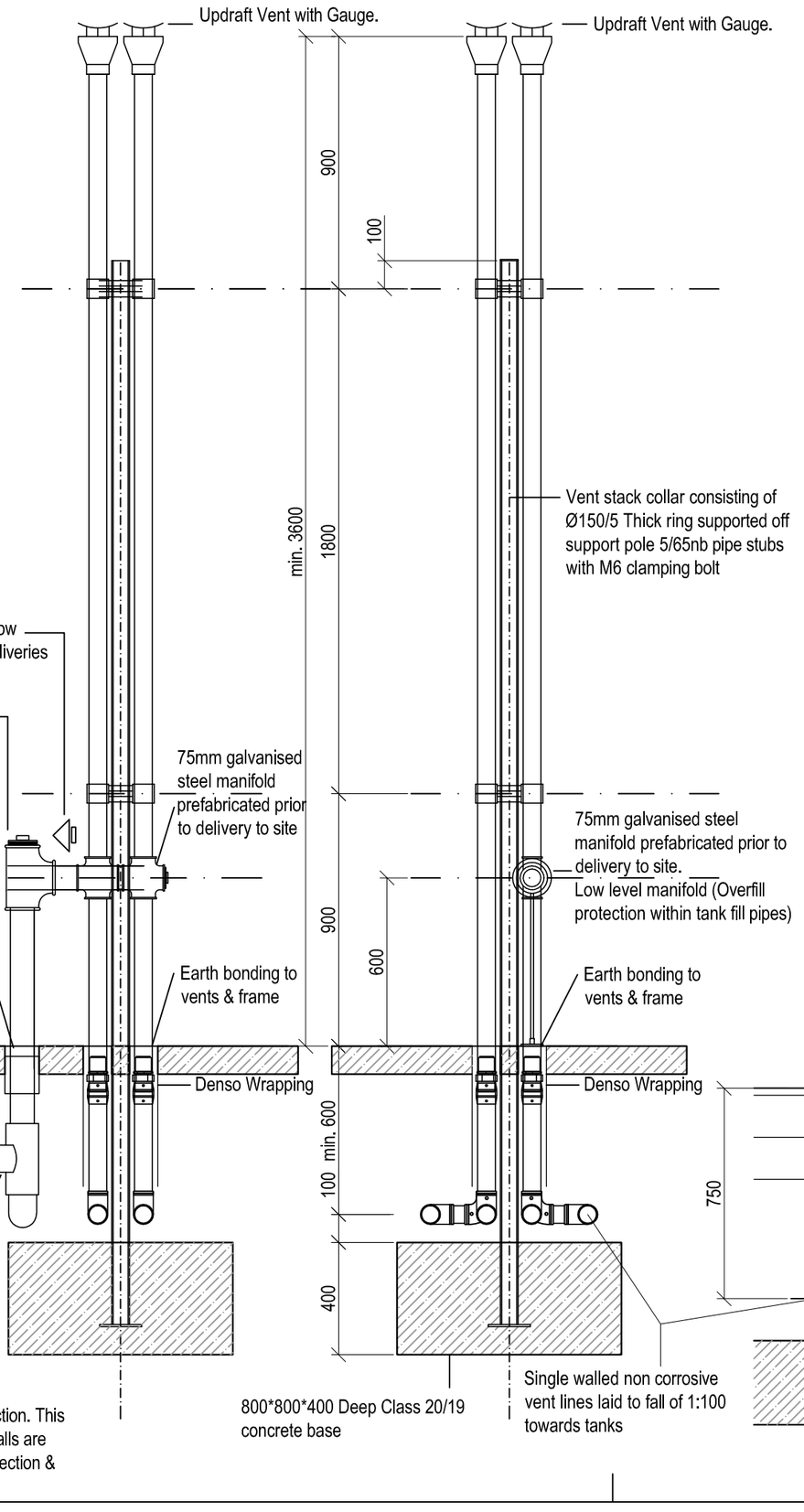
FORMAT A3 | SCALE -

DO NOT SCALE FROM DRAWING

ELEVATION B-B
(with attached Stage 1b return)

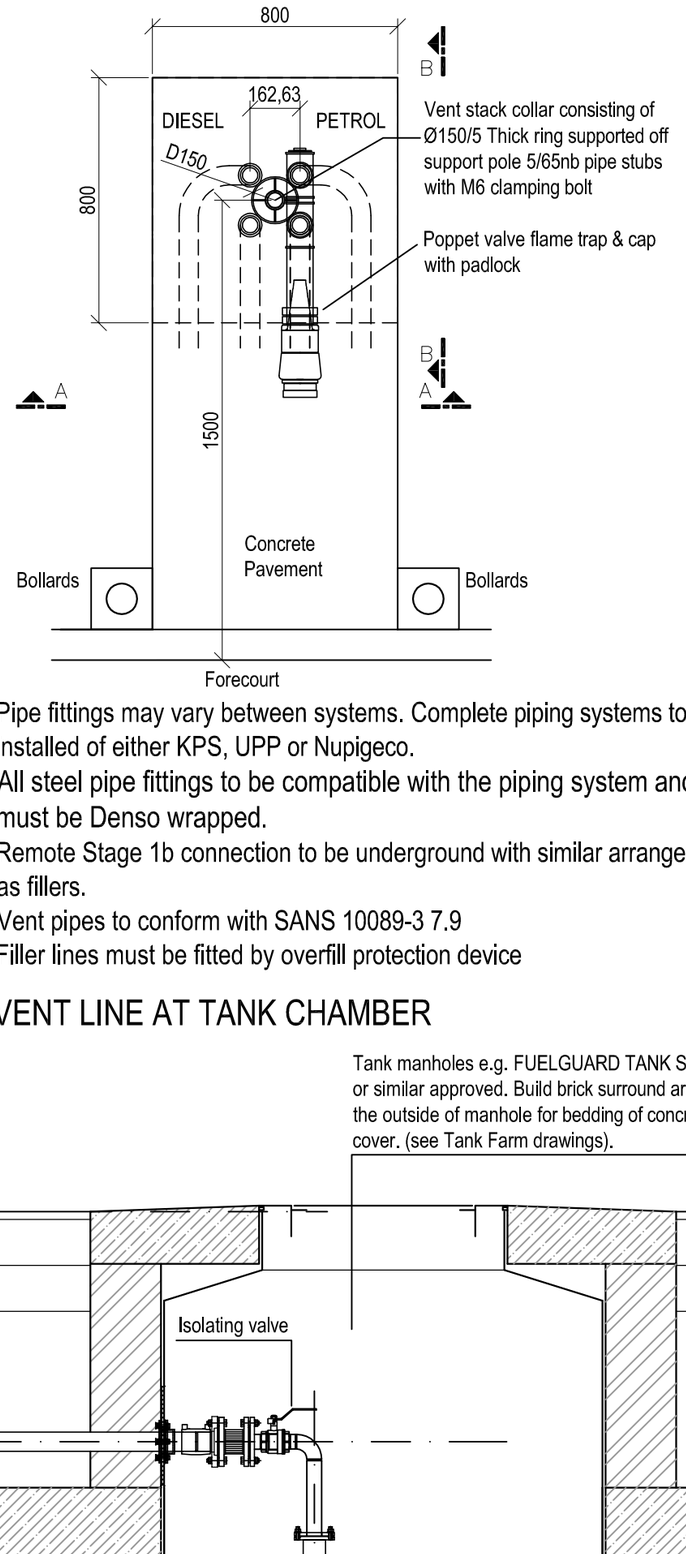


ELEVATION B-B
(with remote Stage 1b return)



ELEVATION A-A

VENT STACK PLAN



Pipe fittings may vary between systems. Complete piping systems to be installed of either KPS, UPP or Nupigeco.

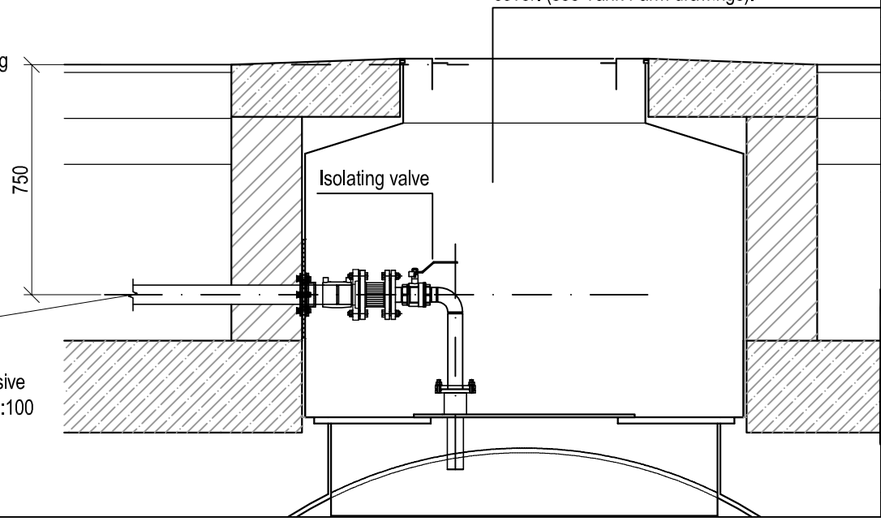
All steel pipe fittings to be compatible with the piping system and must be Denso wrapped.

Remote Stage 1b connection to be underground with similar arrangement as fillers.

Vent pipes to conform with SANS 10089-3 7.9

Filler lines must be fitted by overfill protection device

VENT LINE AT TANK CHAMBER



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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
VENT DETAILS

DRAWING NUMBER
BPSA-FUE-41

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

These diagrams have been prepared using the APEA blue book second edition March 2005

Zone 0
That part of a hazard area in which a flammable atmosphere is continuously present or for long periods

Zone 1
That part of a hazard area in which a flammable atmosphere is likely to occur in normal operation

Zone 2
That part of a hazard area in which a flammable atmosphere is not likely to occur in normal operation and if it occurs, will only exist for a short period

Hazard zones should not extend beyond site boundaries including highway

Drawing show typical site with installed stage 1b return, but without stage 2 return.

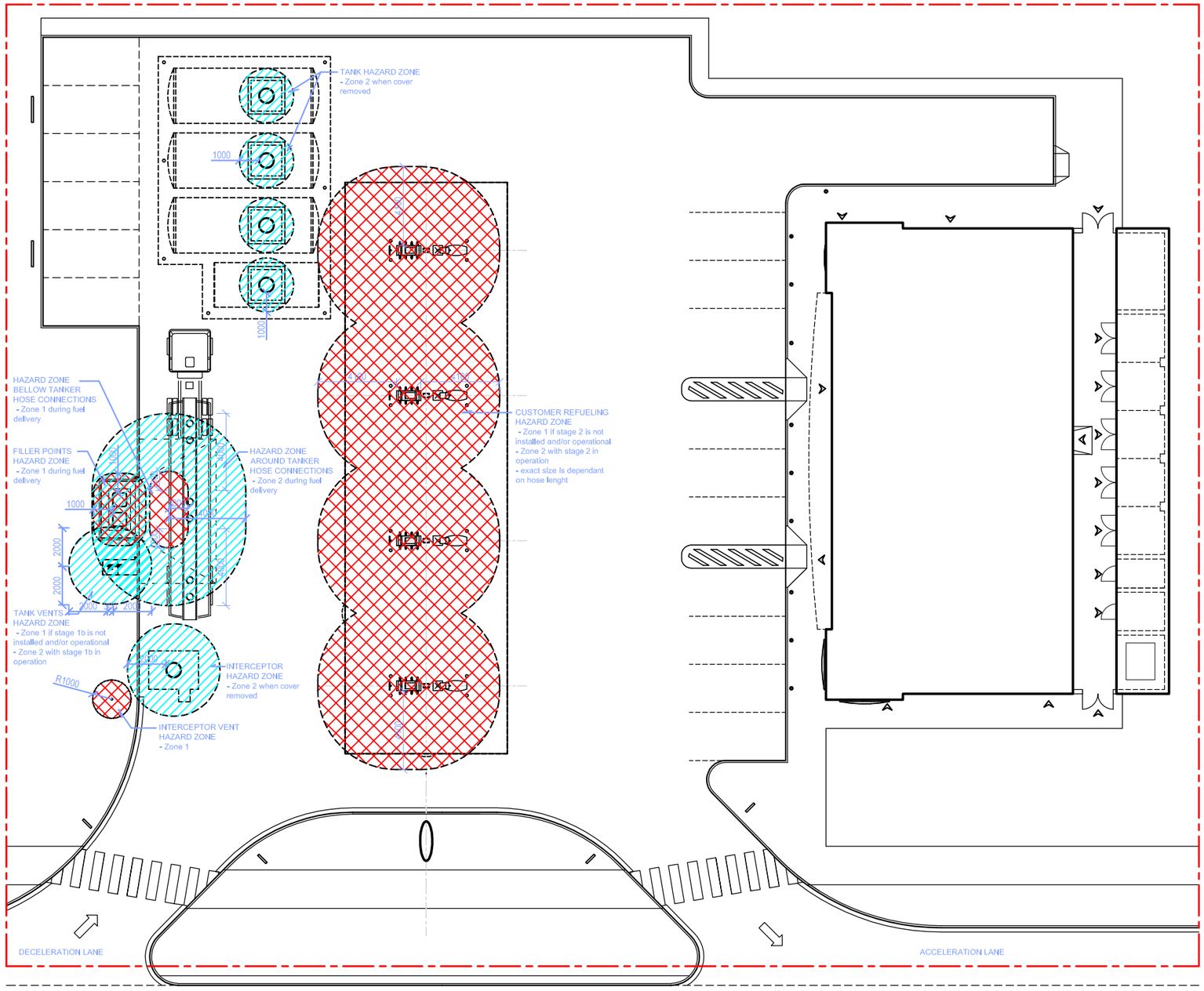
All parties are reminded of the Hazardous nature of petroleum vapour It is heavier than air & FLAMMABLE
It is an anaesthetic & must not be inhaled The vapour and liquid can damage the skin & cause cancer it will collect at low spots partically in drains & pits
Do not work unattended or head first in any chamber
It is also an explosive easily releasing considerable energy
Sources of ignition are not permitted within these zones

Damaged pumps must be taken out of service
Any damage to pumps either hoses or fuel lines beneath could result in a change to the hazard zone classification or its shape/size

Fuel spills create their own hazard zones

These zones do not exist around stand alone/remote diesel only dispensers or pumps

Any electrical equipment operated or stored in these zones must be intrinsically safe (ATEX Certificate)



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- LIFTING OPERATIONS
- DRIVING SAFETY
- MANAGEMENT OF CHANGE

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

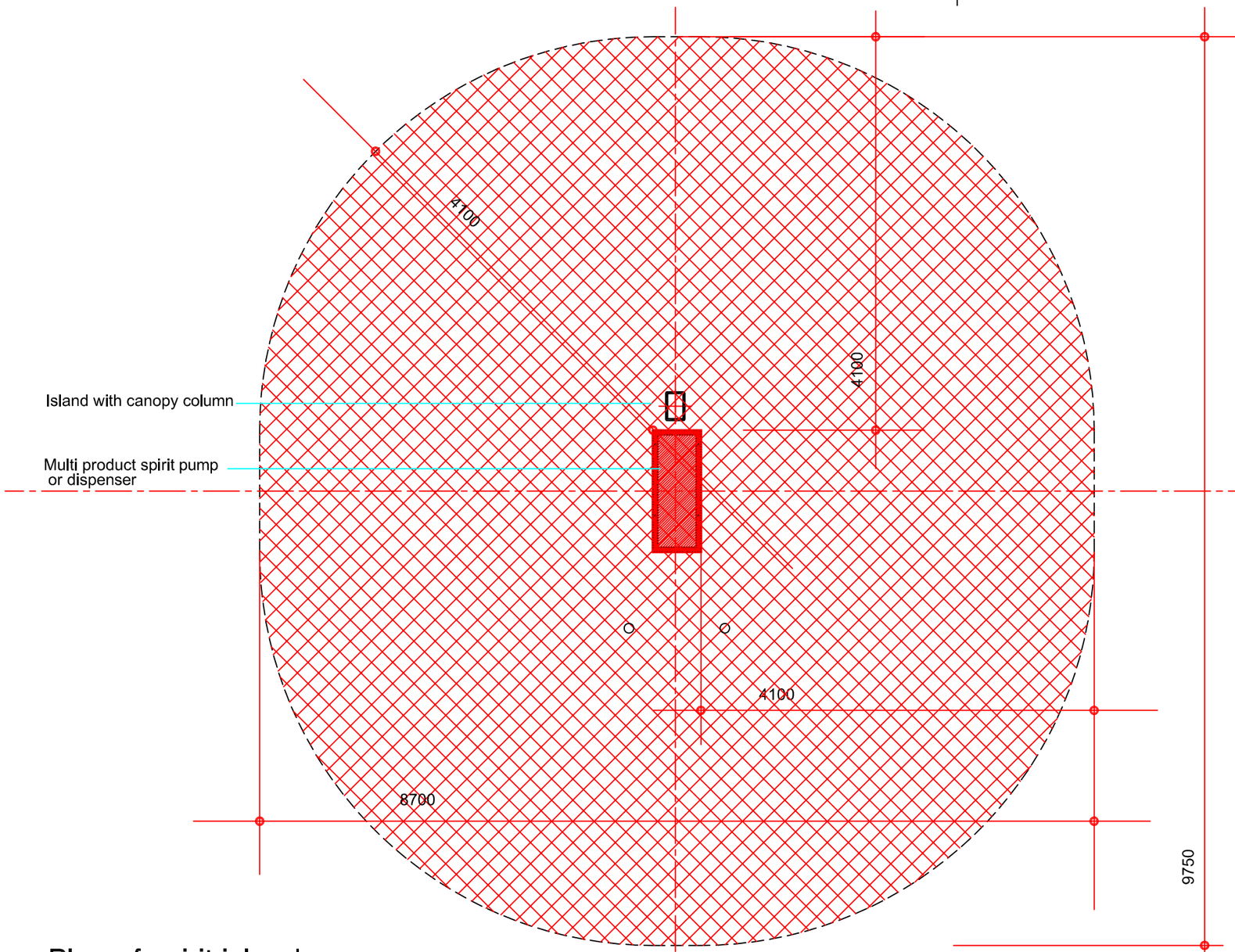
DESIGN PART
SITEPLANS

DRAWING TITLE
TYPICAL SITE HAZARD ZONES

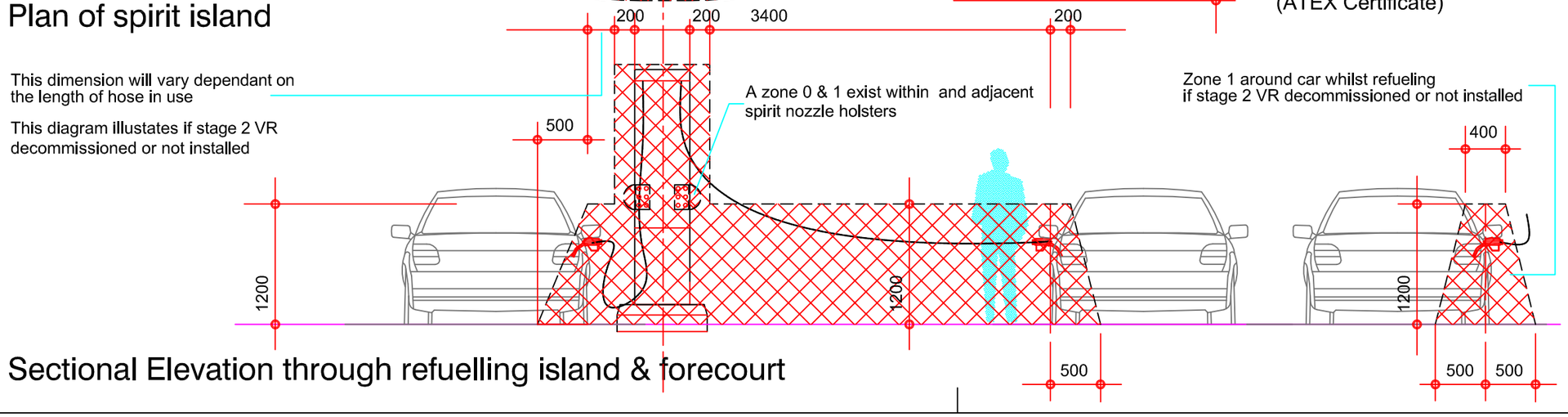
DRAWING NUMBER
BPSA-FUE-50

FORMAT A3 | SCALE 1:250

DO NOT SCALE FROM DRAWING



Plan of spirit island



Sectional Elevation through refuelling island & forecourt

These diagrams have been prepared using the APEA blue book second edition March 2005

Zone 0

That part of a hazard area in which a flammable atmosphere is continuously present or for long periods

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Hazard zones should not extend beyond site boundaries including highway

All parties are reminded of the Hazardous nature of petroleum vapour It is heavier than air & FLAMMABLE
It is an anaesthetic & must not be inhaled The vapour and liquid can damage the skin & cause cancer it will collect at low spots partically in drains & pits
Do not work unattended or head first in any chamber
It is also an explosive easily releasing considerable energy
Sources of ignition are not permitted within these zones

Damaged pumps must be taken out of service
Any damage to pumps either hoses or fuel lines beneath could result in a change to the hazard zone classification or its shape/size

Fuel spills create their own hazard zones

This diagram is for stage 2 live sites only

These zones do not exist around stand alone/remote diesel only dispensers or pumps

Any electrical equipment operated or stored in these zones must be intrinsically safe (ATEX Certificate)

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
HAZARD ZONES
CUSTOMER REFUELLING
WITHOUT STAGE 2 OPERATIONAL

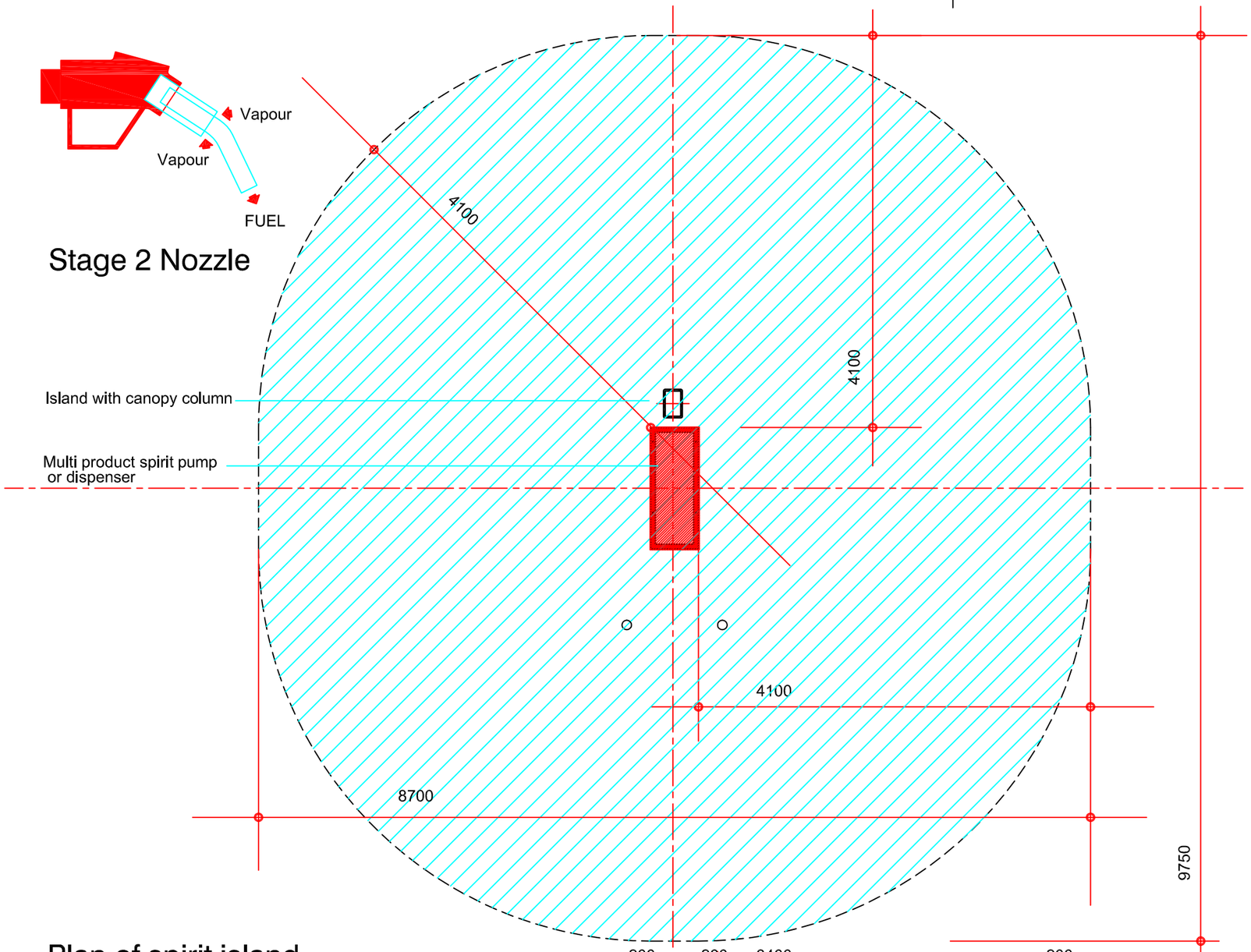
DRAWING NUMBER
BPSA-FUE-51a

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

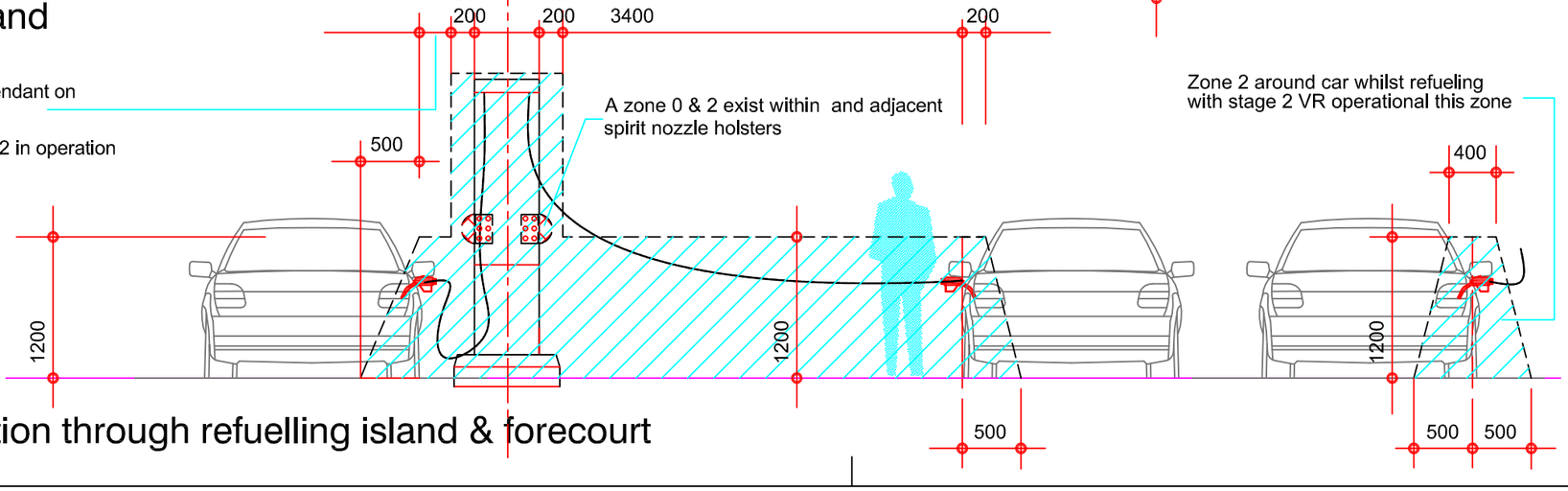
Stage 2 Nozzle



Plan of spirit island

This dimension will vary dependant on the length of hose in use

This diagram illustates stage 2 in operation & the resulting zone 2 area



Sectional Elevation through refuelling island & forecourt

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
HAZARD ZONES CUSTOMER REFUELLING WITH STAGE 2 OPERATIONAL

DRAWING NUMBER
BPSA-FUE-51b

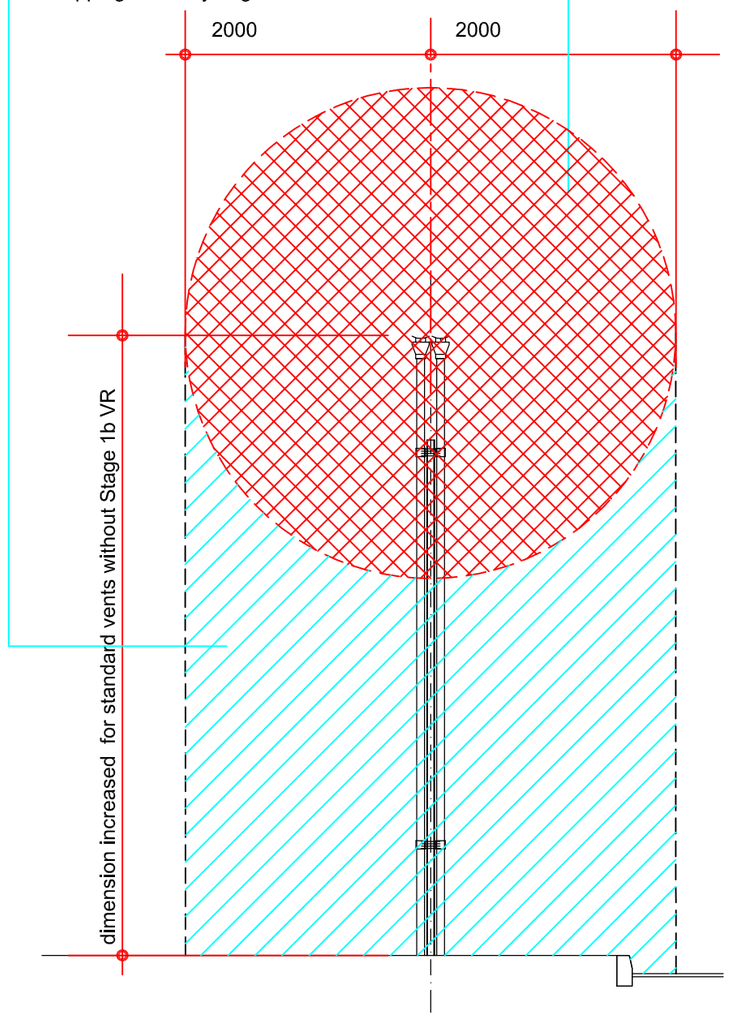
FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

Zone 1 hazard balloon around vent tower without stage 1b vapour recovery fitted

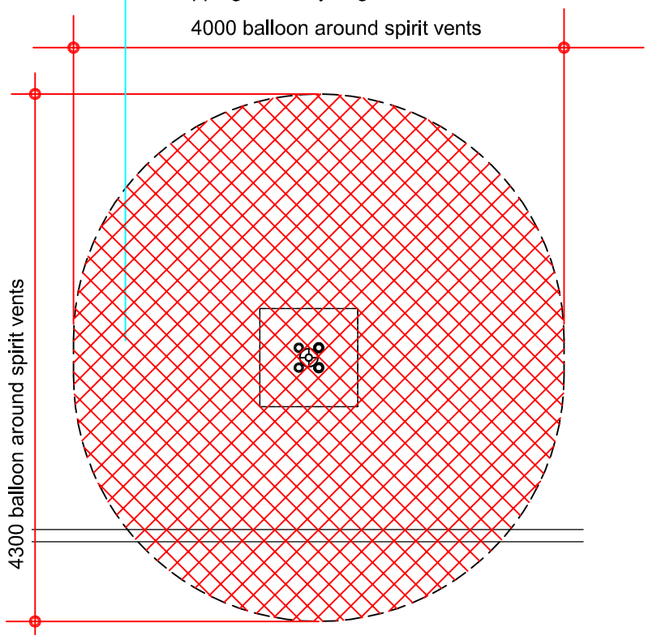
Zone 2 hazard area around vent tower dropping vertically to ground



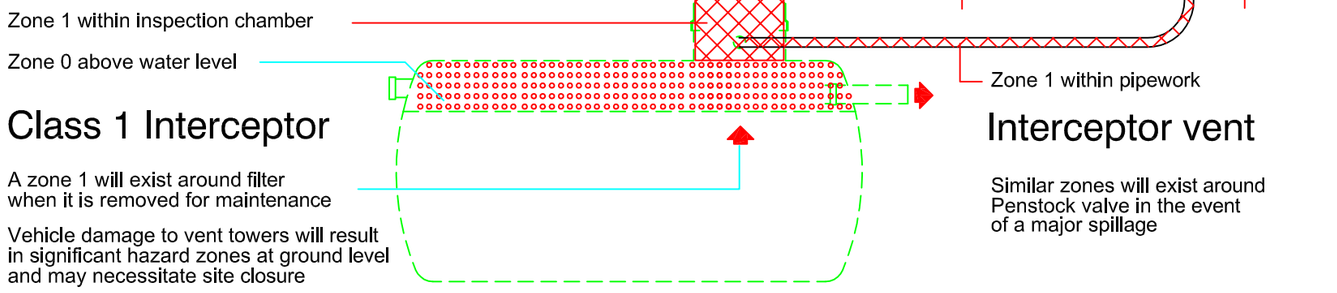
Tower without Stage 1b VR side view

Zone 1 hazard area around vents

Zone 2 hazard area around vent tower dropping vertically to ground



Plan of tank vents



Class 1 Interceptor

A zone 1 will exist around filter when it is removed for maintenance

Vehicle damage to vent towers will result in significant hazard zones at ground level and may necessitate site closure

Interceptor vent

Similar zones will exist around Penstock valve in the event of a major spillage

These diagrams have been prepared using the APEA blue book second edition March 2005

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Do not work unattended or head first in any chamber
It is also an explosive storing considerable energy
Sources of ignition are not permitted within these zones

Any electrical equipment operated or stored in these zones must be intrinsically safe (ATEX Certificate)

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

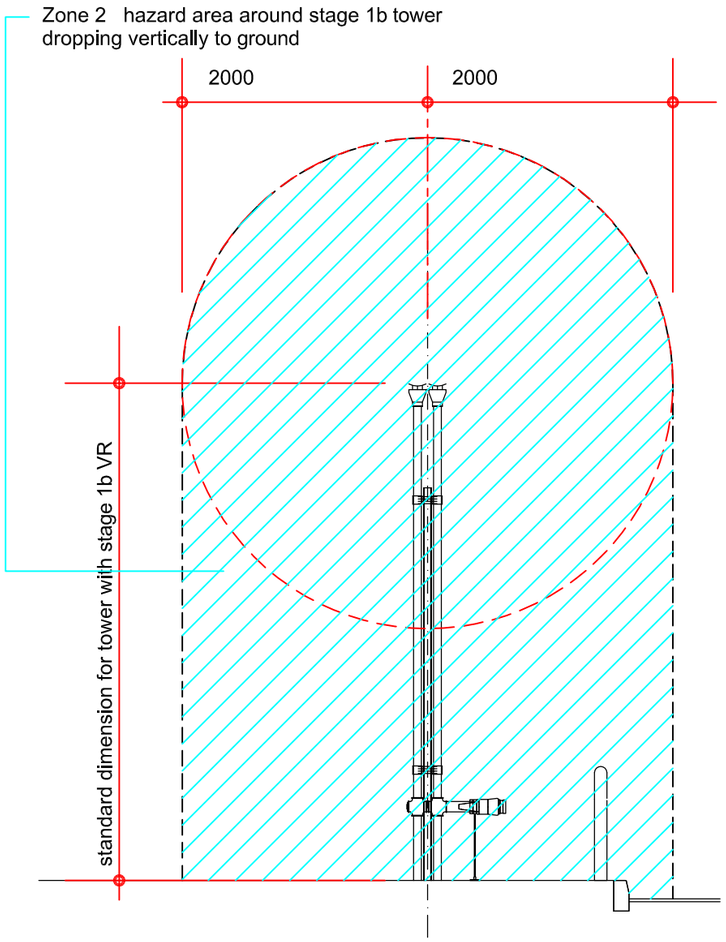
DRAWING TITLE
HAZARD ZONES WITHOUT STAGE 1b VENTS AND INTERCEPTOR

DRAWING NUMBER
BPSA-FUE-52a

FORMAT
A3

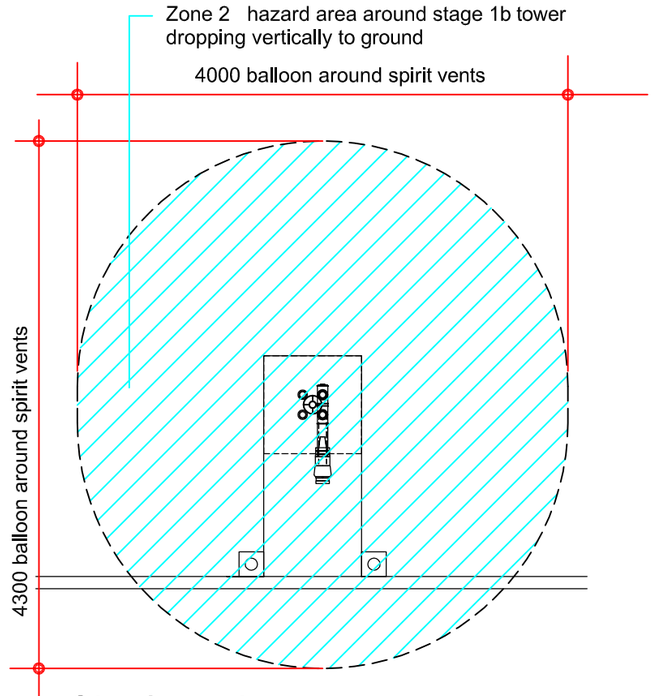
SCALE
1:50

DO NOT SCALE FROM DRAWING



Stage 1b vent Tower side view

Maintenance to vent tower may create zone 1 areas around open pipes plug/cap immediately



Plan of tank vents

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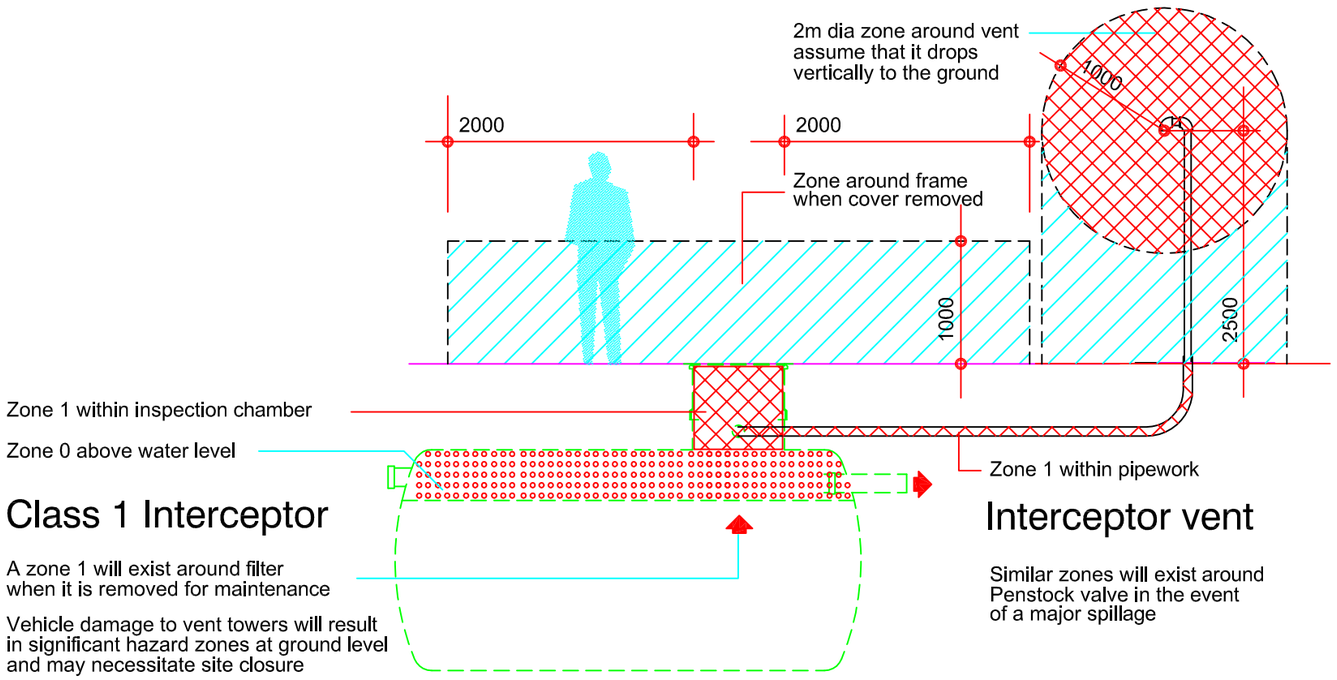

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

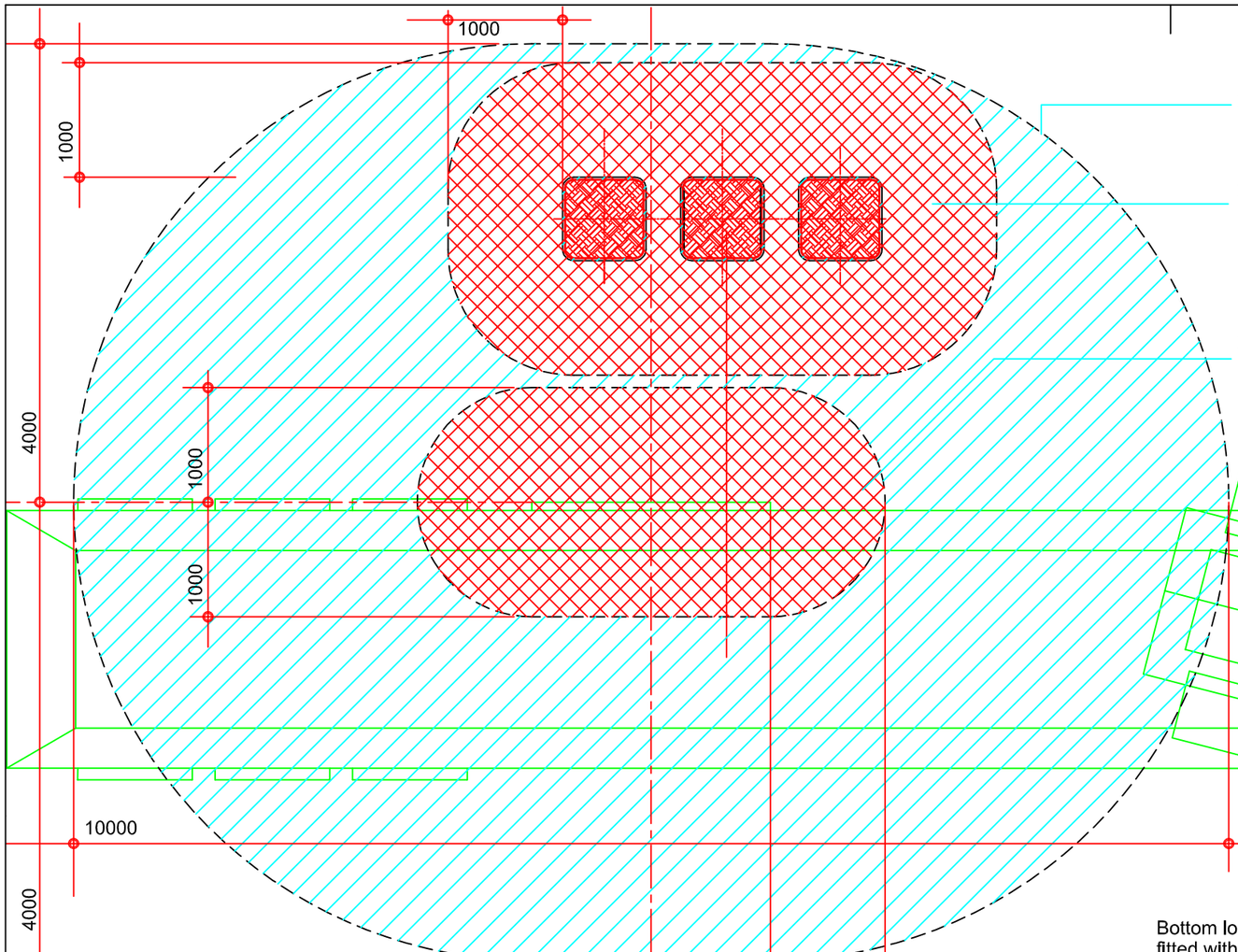
DESIGN PART
FUEL SYSTEM

DRAWING TITLE
HAZARD ZONES WITH STAGE 1b VENTS AND INTERCEPTOR

DRAWING NUMBER
BPSA-FUE-52b

FORMAT A3 | SCALE 1:50

DO NOT SCALE FROM DRAWING

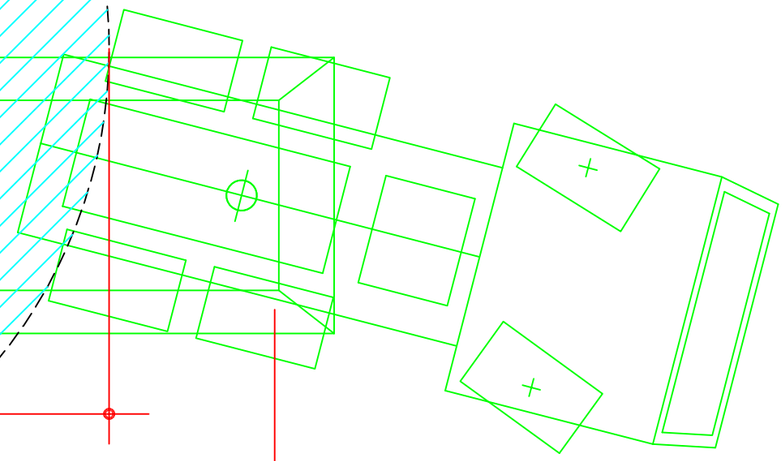


Zone 2 around tanker hose connection points

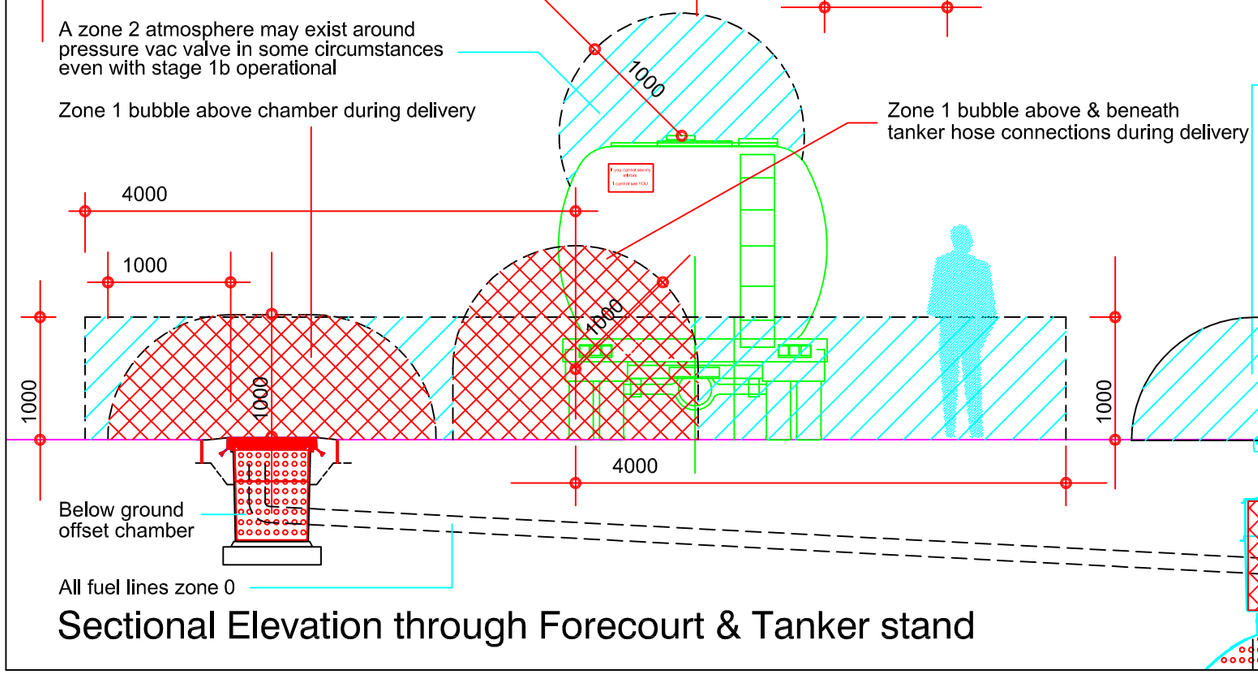
Zone 1 around below ground filler points during fuel delivery (ie disconnection)

Zone 1 around below tanker hose connections

Plan of Tanker standing bay



Bottom loading Vapour balanced road tanker fitted with pressure vac valves Pots not to be opened for dipping during delivery



Sectional Elevation through Forecourt & Tanker stand

These diagrams have been prepared using the APEA blue book second edition March 2005

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- MANAGEMENT OF CHANGE

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PROJECT
SOUTH AFRICA STANDARD

DESIGN STAGE
STAGE 1

DESIGN PART
FUEL SYSTEM

DRAWING TITLE
HAZARD ZONES
TANKER DELIVERY
FILLERS WITH STAGE 1

DRAWING NUMBER
BPSA-FUE-53

FORMAT
A3

SCALE
-

DO NOT SCALE FROM DRAWING

BP South Africa

Design data for: Type II, double wall steel, underground storage tank.

Design Code - Note that finished product must be certified in accordance with either SANS 1535 or EN12285, on documents and labelling	
Option 1	SANS 1535:2007, supplemented by: • Sound Engineering Practice (SEP) • UL58 - for design formulae • ASME Section VIII, Division 1, 2010 - for design formulae • SANS10089-3 - for installation practice
Option 2	EN 12285-1, supplemented by: • Sound Engineering Practice (SEP) • UL58-for design formulae • ASME Section VIII, Division 1, 2010 -design formulae • SANS10089-3 - for installation practice

Design Input Data	
Design Burial Depth	1,520mm
Design Temperature	50°C Maximum, 0°C Minimum.
Design Pressure	45 kPa (g)
Design Specific Gravity	1,000
Design Volume	Full
Operating Temperature	50°C Maximum, 0°C Minimum.
Operating Pressure	Atmospheric
Operating Volume	90%
Process Fluid	Oxygenated Solvents & Hydrocarbons
Orientation	Buried, Cylindrical, Horizontal, Static
Installation Standard	SANS 10089-3
Shop Test Pressure	Primary- 45 kPa (g)
	Secondary- 20 kPa (g)
Shop Test Medium	Compressed Air

Non-Destructive Examination	At minimum on primary tank: 1 x Spot radiograph (300mm) on longitudinal weld, including t-joint from circumferential weld, in accordance with EN 1435.
External Surface Preparation	Shot blast to IS0 8501-1 to SA2 ½
Internal Surface Preparation	Free from loose solid, dust and weld splatter.
Capacity Range	Up to 83m³
Material Cylindrical Shell	Primary- EN10025 S355JR - 6mm
	Secondary- EN10025 S355JR - 6mm
Material Dished & Flanged Bulkheads	Primary- EN10025 S355JR - 6mm
	Secondary- EN10025 S355JR - 6mm
Internal Support Stiffeners	Flange Rolled Flat Bar of Size determined through calculation formulae
Flanges (excluding manway)	ANSI B16.5 150ASA, Raised Face, Slip On - Material Mild Steel or ASTM AIOSN.
Pipes	SANS 62 Medium Class.
Threaded Pipe Fittings	SANS 62.
Weld able Pipe Fittings	ASTM A106 Grade B
Gaskets	Ring, 3mm Thickness, Non-Asbestos Fibre
Manway Flanges	Mild Steel - 10mm Thickness (Non-Machined)
Manway Neck	EN100 25 S355JR - 6mm
Striker Plate	EN10025 S355JR - 6mm, located directly below tank manway at the six o'clock position
Lifting Lugs	EN10025 S355JR - suit ably designed and placed for the intended dry lifting
Overfill Protection	Integrated Overfill Protection Device, set at 90% volume. EN13616
Welding Standard	, At minimum, in accordance with SANS 15614.
Layout Limitation	Storage tank length should not exceed 6 x tank diameter.
External Corrosion Protection Option 1	Glass Fibre Reinforced Plastic in accordance with UL1746@ 2,54mm minimum DFT. Holiday Spark Tested @ 35 kV. Note that this option requires the manufacturer to submit to UL, bi-annually test coupons for coating compliance verification certification. Supported and enforced by local specification SANS 15.35
External Corrosion Protection Option 2	Polyurethane in accordance with UL1746@ 1,8mm minimum DFT. Holiday Spark Tested @ 15 kV. Note that this option requires the manufacturer to submit to UL, bi-annually test coupons for coating compliance verification certification. Not supported and
External Corrosion Protection Option 3	Polyurethane in accordance with EN 12285@ 0,8mm minimum DFT. Holiday Spark Tested at 6 kV. Note that no compulsory coating testing or sampling inspection is required.
Interstitial Monitoring	Interstitial Space shall be designed in accordance to EN 13160 for Wet Leak Detection – actual volume of interstitial space to be indicated on nameplate. 100% Castrol's Radicool premix to be used a fluid for the intestinal space and reservoir
Leak Detection Monitoring Device Mounting	Carbon Steel, machine cut, plated.

Additional Equipment

Filler Drop Tube 1 off Required per Compartment	100NB, ANSI B16.5 150ASA RF SO Flanged and threaded section design, with integrated overfill protection device. Internal drop tube to terminate square at 50mm from tank bottom.
Suction Drop Tube 2 off Required per Compartment	50NB, ANSI B16.5 150ASA RF SO Flanged and threaded section design, with internal drop tube terminating square at 75mm from tank bottom.
Vent Connection 1 off Required per Compartment	50NB, ANSI B16.S 150ASA RF SO Flange, with integrated 50NB Threaded Pipe Socket.
Dip Riser 1 off Required per Compartment	50NB SANS 62 Medium Class Pipe of Length 700mm, male threaded both sides.
Wet Leak Detector	Afriso LAG 14ER Wet Leak Detection System, Complete with: • Control panel. • Reservoir, anodes and electrical connection. Contractor to ensure that he number of reservoirs provided is aligned to the interstitial space volume in accordance to the Afriso operating instructions. • Pipe, fittings and clamps for connection to tank. • Plated mounting bracket Installation to be done in accordance to the BPSA Filling procedure.

Dimensional Requirements

Manway (excluding cover)	To Protrude 100mm from the top of the tank to the top of the flange face.
Manway Cover with Fittings	Combined height of minimum 90mm & maximum 110mm, measured from cover bottom face to top of flange raised face.
Containment Sump Adaptor Flange	Flange, mild steel. ID - 1095mm OD-1255mm Thickness - 10mm PCD - 1145mm with 24 off 13mm Ø bolt holes Contoured Skirt, mild steel Centre line height of 80mm Thickness - 3mm