SCOPING REPORT:

PROPOSED PHAKWE RICHARDS BAY GAS POWER 3 2 000 MW COMBINED CYCLE GAS TO POWER PLANT, KWAZULU-NATAL PROVINCE

TRANSPORT IMPACT ASSESSMENT

NOVEMBER 2021
Final Issue

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SYNOPSIS

Preparation of a Transport Impact Assessment for the proposed the Phakwe Richards Bay Gas Power 3 (PRBGP3) 2 000 MW Combined Cycle Gas to be located within the Richards Bay Industrial Development Zone in the Kwazulu-Natal Province, pertaining to all relevant traffic and transportation engineering aspects.

KEY WORDS:

Scoping Report, Gas to Power Facility, Transport Impact Assessment

QUALITY VERIFICATION

This report has been prepared under the controls established by a quality management system that meets the requirements of ISO 9001: 2015 which has been independently certified by DEKRA Certification.

Verification	Capacity	Name	Signature	Date
By Author	Senior Technologist	Adrian Johnson		10/11/2021
Checked by:	Associate	Iris Wink		10/11/2021
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SPECIALIST EXPERTISE

IRIS SIGRID WINK

Profession	Civil Engineer (Traffic & Transportation)
Position in Firm	Associate
Area of Specialisation	Manager: Traffic & Transportation Engineering
Qualifications	PrEng, MSc Eng (Civil & Transportation)
Years of Experience	19 Years
Years with Firm	9 Years

SUMMARY OF EXPERIENCE

Iris is a Professional Engineer registered with ECSA (20110156). She joined JG Afrika (Pty) Ltd. in 2012. Iris obtained a Master of Science degree in Civil Engineering in Germany and has more than 15 years of experience in a wide field of traffic and transport engineering projects. Iris left Germany in 2003 and has worked as a traffic and transport engineer in South Africa and Germany. She has technical and professional skills in traffic impact studies, public transport planning, non-motorised transport planning and design, design and development of transport systems, project planning and implementation for residential, commercial and industrial projects and providing conceptual designs for the abovementioned. She has also been involved with transport assessments for renewable energy projects and traffic safety audits.

PROFESSIONAL REGISTRATIONS & INSTITUTE MEMBERSHIPS

PrEng -Registered with the Engineering Council of South Africa No. 20110156
-Registered Mentor with ECSA for the Cape Town Office of JG Afrika
MSAICE -Member of the South African Institution of Civil Engineers
ITSSA -Member of ITS SA (Intelligent Transport Systems South Africa)
SAWEA -Member of the South African Wind Energy Association
SARF -South African Road Federation: Committee Member of Council
SARF WR - SARF Western Region Committee Member
SARF RSC - Road Safety Committee Member
IRF - Global Road Safety Audit Team Leader with the International Road Federation (IRF)

EDUCATION

1996 - Matric – Matric (Abitur) – Carl Friedrich Gauss Schule, Hemmingen, Germany
1998 - Diploma as Draughtsperson – Lower Saxonian State Office for Road and Bridge Engineering
2003 - MSc Eng (Civil and Transportation) – Leibniz Technical University of Hanover, Germany

SPECIFIC EXPERIENCE

JG Afrika (Pty) Ltd (Previously Jeffares & Green (Pty) Ltd)
2016 – Date
Position – Associate

- **Rondekop Windfarm** – Transport study for the proposed Kudusberg Windfarm near Sutherland, Northern Cape – Client: G7 Renewable Energies

- **Kudusberg Windfarm** – Transport study for the proposed Kudusberg Windfarm near Sutherland, Northern Cape – Client: G7 Renewable Energies
- **Multiple Traffic Impact and Route Assessment** for the proposed Solar PV Facilities in the Northern Cape – Client: Private Developer
- **Kuruman Windfarm –** Transport study for the proposed Kuruman Windfarm in Kuruman, Northern Cape – Client: Mulilo Renewable Project Developments
- **Coega West Windfarm** – Transportation and Traffic Management Plan for the proposed Coega Windfarm in Coega, Port Elizabeth – Client: Electrawinds Coega
- **Traffic and Parking Audits** for the Suburb of Groenvallei in Cape Town – Client: City of Cape Town Department of Property Management.
- **Road Safety Audit** for the Upgrade of N1 Section 4 Monument River – Client: Aurecon on behalf of SANRAL
- **Sonop Windfarm** – Traffic Impact Assessment for the proposed Sonop Windfarm, Coega, Port Elizabeth – Client: Founders Engineering
- **Universal Windfarm** - Traffic Impact Assessment for the proposed Universal Windfarm, Coega, Port Elizabeth – Client: Founders Engineering
- **Road Safety Audit** for the Upgrade of N2 Section 8 Knysna to Wittedrift – Client: SMEC on behalf of SANRAL
- **Road Safety Audit** for the Upgrade of N1 Section 16 Zandkraal to Winburg South – Client: SMEC on behalf of SANRAL
- **Traffic and Road Safety Studies** for the Improvement of N7 Section 2 and Section 3 (Rooidraai and Piekenierskloof Pass) – Client: SANRAL
- **Road Safety Appraisal**s for Northern Region of Cape Town – Client: Aurecon on behalf of City of Cape Town (TCT)
- **Traffic Engineering Services** for the Enkanini Informal Settlement, Kayamandi - Client: Stellenbosch Municipality
- **Lead Traffic Engineer** for the Upgrade of a 150km Section of the National Route N2 from Kangela to Pongola in KwaZulu-Natal, Client: SANRAL
- **Traffic Engineering Services** for the Kosovo Informal Settlement (which is part of the Southern Corridor Upgrade Programme), Client: Western Cape Government
- **Traffic and Road Safety Studies** for the proposed Kosovo Informal Housing Development (part of the Southern Corridor Upgrade Program), Client: Western Cape Government.
- **Road Safety Audit Stage 3** – Upgrade of the R573 Section 2 between Mpumalanga/Gauteng and Mpumalanga/Limpopo, Client: AECOM on behalf of SANRAL
- **Road Safety Audit Stage 1 and 3** – Upgrade of the N2 Section 5 between Lizmore and Heidelberg, Client: Aurecon on behalf of SANRAL
- **Traffic Safety Studies** for Roads Upgrades in Cofimvaba, Eastern Cape – Client: Cofimvaba Municipality
- **Road Safety Audit Stage 1 and 3** – Improvement of Intersections between Olifantshoek and Kathu, Northern Cape, Client: Nadeson/Gibb on behalf of SANRAL
- **Road Safety Audit Stage 3** – Upgrade of the Beacon Way Intersection on the N2 at Plettenberg Bay, Client: AECOM on behalf of SANRAL

- **Traffic Impact Assessment** for a proposed Primary School at Die Bos in Strand, Somerset West, Client: Edifice Consulting Engineers
- **Road Safety Audit** Stage 1 and 3 – Improvement of R75 between Port Elizabeth and Uitenhage, Eastern Cape, Client: SMEC on behalf of SANRAL

TRANSPORT IMPACT ASSESSMENT

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1 INTRODUCTION AND METHODOLOGY

1.1 Scope and Objectives

Phakwe Richards Bay Gas Power 3 (Pty) Ltd. proposes to develop the Phakwe Richards Bay Gas Power 3 (PRBGP3) 2000 MW Combined Cycle Gas to Power Plant on various erven within the Richards Bay IDZ phase 1F, Richards Bay, KwaZulu Natal, as shown in **Figure 1-1** below.

The project site is situated in the City of uMhlathuze Local Municipality which falls within jurisdiction of the King Cetshwayo District Municipality, KwaZulu-Natal Province.

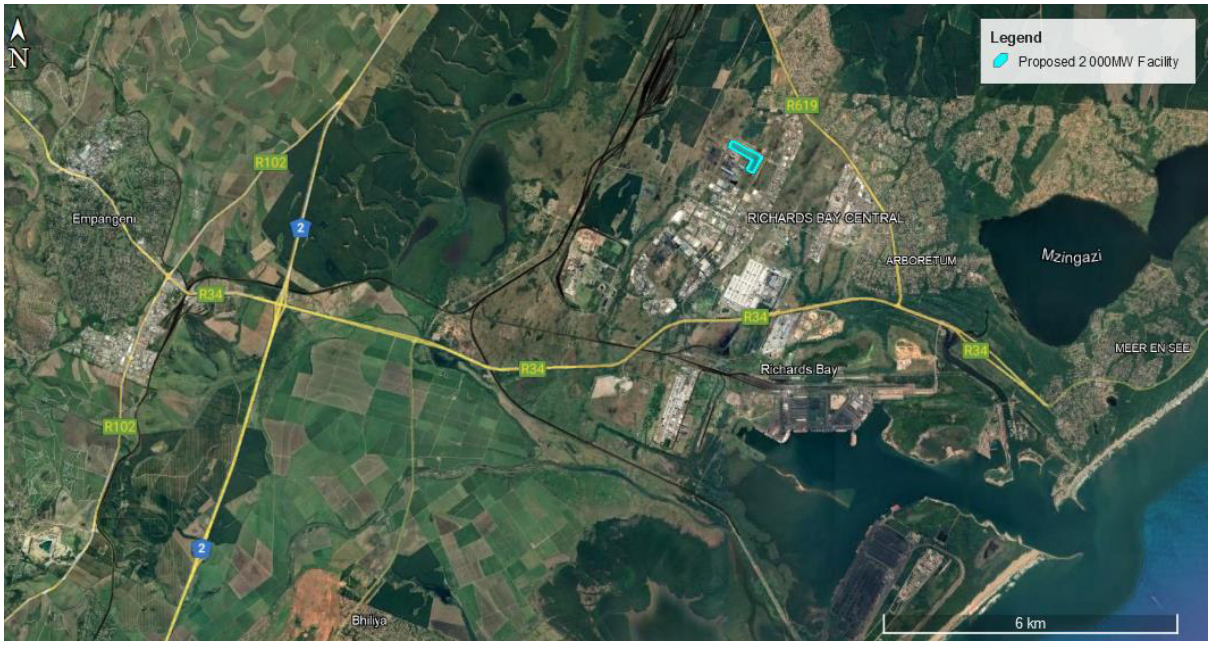

Figure 1-1: Location of the Proposed 2 000MW Facility

As part of the environmental impact processes, the services of a Transportation Specialist are required to conduct a Transport Impact Assessment for the proposed facility.

The following two main transportation activities will be investigated:

- Abnormal load vehicles transporting components to the site; and
- The transportation of construction materials, equipment and people to and from the site/facility.

The transport study will aim to provide the following objectives:

- Assess activities related to traffic movement for the construction and operation (maintenance) phases of the facility;
- Recommend a preliminary route for the transportation of the components to the proposed site;
- Recommend a preliminary transportation route for the transportation of materials, equipment and people to site; and
- Recommend alternative or secondary routes where possible.

1.2 Terms of Reference

The Terms of Reference for this Transport Impact Assessment include the following:

General:

- A description of the environment that may be affected by the activity and the manner in which the environment may be affected by the proposed project;
- A description and evaluation of environmental issues and potential impacts (including direct, indirect, cumulative impacts and residual risks) that have been identified;
- Direct, indirect, cumulative impacts and residual risks of the identified issues must be evaluated within the EIA Report in terms of the following criteria:
  - the nature, which shall include a description of what causes the effect, what will be affected and how it will be affected;
- A statement regarding the potential significance of the identified issues based on the evaluation of the issues/impacts;
- A comparative evaluation of the identified feasible alternatives and nomination of a preferred alternative;
- Any aspects conditional to the findings of the assessment which are to be included as conditions of the Environmental Authorisation;
- This must also include any gaps in knowledge at this point of the study. Consideration of areas that would constitute "acceptable and defendable loss" should be included in this discussion.
- A reasoned opinion as to whether the proposed project should be authorized;
- Summary of the positive and negative impacts and risks of the proposed project and identified alternatives; and
- Mitigation measures and management recommendations to be included in the Environmental Management Programme to be submitted with the FEIR.

Specific:

- Extent of the transport study and study area;
- The proposed development;
- Trip generation for the facility during construction and operation;
- Traffic impact on external road network;
- Accessibility and turning requirements;
- National and local haulage routes;
- Assessment of internal roads and site access;
- Assessment of freight requirements and permitting needed for abnormal loads; and
- Traffic accommodation during construction.

1.3 Approach and Methodology

The report deals with the traffic impact on the surrounding road network in the vicinity of the site during:

- The construction of the access roads;
- The construction of the facility;
- The operation and maintenance during the operational phase; and
- The decommissioning phase.

This study was informed by the following:

Project Assessment

- Overview of project background information including location maps, component specifications and any possible resulting abnormal loads to be transported; and
- Research of all available documentation and information relevant to the proposed facility.

The study considered and assessed the following:

Traffic and Haulage Route Assessment

- Estimation of trip generation;
- Discussion on potential traffic impacts;
- Assessment of possible haul routes; and
- Vehicle trips related to the construction, operational (maintenance) and decommissioning phases of the project.

Site layout, Access Points and Internal Roads Assessment per Site

- Description of the surrounding road network;
- Description of site layout;
- Assessment of the proposed access points; and
- Assessment of the proposed internal roads on site.

The findings of the transport assessment are detailed in this report, prepared as part of the environmental impact assessment process for the proposed facility.

1.4 Assumptions and Limitations

The following assumptions and limitations apply:

- This study is based on the project information provided by the Client;
- According to the Eskom Specifications for Power Transformers (Eskom Power Series, Volume 5: Theory, Design, Maintenance and Life Management of Power Transformers), the following dimensional limitations need to be kept when transporting the transformer – total maximum height 5 000mm, total maximum width 4 300 mm and total maximum length 10 500 mm;
- Maximum vertical height clearances along the haulage route is 5.2 m for abnormal loads;
- Imported elements will be transported from the most feasible port of entry, which is deemed to be Richards Bay;
- If any elements are manufactured within South Africa, these will be transported from their respective manufacturing centers, which would be either in the greater Johannesburg or Pinetown/Durban;
- All haulage trips will occur on either surfaced national and provincial roads or existing gravel roads; and
- Material for the construction of internal access roads will be sourced locally as far as possible.

1.5 Source of Information

Information used in a transport study includes:

- Project Information provided by the Client;
- Google Earth.kmz provided by the Client;
- Google Earth Satellite Imagery;
- Information gathered during the site visit; and
- Project research of all available information.

2 DESCRIPTION OF PROJECT ASPECTS RELEVANT TO THE STUDY

2.1 Port of Entry

Components imported to South Africa will be via the Richards Bay Port, as the proposed site is located within a 5km radius of this Port. A deep-sea water port and boasting 13 berths, the Richards Bay terminal handles dry bulk ores, minerals and break-bulk consignments with a draft that easily accommodates Cape size and Panamax vessels.

The terminal exports over 30 varied commodities from magnetite to ferrochrome, woodchips to aluminium and steel. A large percentage of dry bulk commodities are handled via a computer-controlled network of conveyor belts extending 40 km to seven harbour bound industries. These belts transport cargo between the quayside and the respective manufacturers. Break bulk cargo, on the other hand, is a skip-loading operation that due to the density of the commodities primarily relies on road motor transport (RMT) to and from the point of trade. The Richards Bay Port is operated by Transnet Port Terminals.

2.2 Abnormal Load Considerations

It is expected that the transformers will be transported with an abnormal load vehicle. Abnormal permits are required for vehicles exceeding the following permissible maximum dimensions on road freight transport in terms of the Road Traffic Act (Act No. 93 of 1996) and the National Road Traffic Regulations, 2000:

- Length of 22 m for an interlink, 18.5 m for truck and trailer and 13.5 m for a single unit truck;
- Width of 2.6 m;
- Height of 4.3 m measured from the ground;
- Possible height of load being 2.7 m;
- Weight of gross vehicle mass of 56 t resulting in a payload of approximately 30t;
- Axle unit limitations are 18 t for dual and 24 t for triple-axle units; and
- Axle load limitations are 7.7 t on the front axle and 9 t on the single or rear axles.

Any dimension / mass outside the above will be classified as an Abnormal Load and will necessitate an application to the Department of Transport and Public Works for a permit that will give authorisation for the conveyance of said load. A permit is required for each Province that the haulage route traverses.

2.3 Further Guideline Documentation

The Technical Recommendations for Highways (TRH 11): “Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads” outlines the rules and conditions that apply to the transport of abnormal loads and vehicles on public roads. Within the guidelines, the detailed procedures to be followed in applying for exemption permits are described and discussed. Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges and culverts.

The general conditions, limitations and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power / mass ratio, mass distribution and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the Road Traffic Act and the relevant regulations.

2.4 Permitting – General Rules

The limits recommended in TRH 11 are intended to serve as a guide to the Permit Issuing Authorities. It must be noted that each Administration has the right to refuse a permit application or to modify the conditions under which a permit is granted. It is understood that:

a) A permit is issued at the sole discretion of the Issuing Authority. The permit may be refused because of the condition of the road, the culverts and bridges, the nature of other traffic on the road, abnormally heavy traffic during certain periods or for any other reason.
b) A permit can be withdrawn if the vehicle upon inspection is found in any way not fit to be operated.
c) During certain periods, such as school holidays or long weekends an embargo may be placed on the issuing or permits. Embargo lists are compiled annually and are obtainable from the Issuing Authorities.

2.5 Load Limitations

The maximum load that a road vehicle or combination of vehicles will be allowed to carry legally under permit on a public road is limited by:

- the capacity of the vehicles as rated by the manufacturer;
- the load which may be carried by the tyres;
- the damaging effect on pavements;
- the structural capacity on bridges and culverts;
- the power of the prime mover(s);
- the load imposed by the driving axles; and
- the load imposed by the steering axles.

2.6 Dimensional Limitations

A load of abnormal dimensions may cause an obstruction and danger to other traffic. For this reason, all loads must, as far as possible, conform to the legal dimensions. Permits will only be considered for indivisible loads, i.e. loads that cannot, without disproportionate effort, expense or risk of damage, be divided into two or more loads for the purpose of transport on public roads. For each of the characteristics below there is a legally permissible limit and what is allowed under permit:

- Width;
- Height;
- Length;
- Front Overhang;
- Rear Overhang;
- Front Load Projection;
- Rear Load Projection;
- Wheelbase;
- Turning Radius; and
- Stability of Loaded Vehicles.

2.7 Transporting Other Plant, Material and Equipment

In addition to transporting the specialised equipment, the normal Civil Engineering construction materials, plant and equipment will need to be transported to the site (e.g. sand, stone, cement, gravel, water, compaction equipment, concrete mixers, etc.). Other components, such as electrical cables and substation transformers, will also be transported to site during construction. The transport of these items will generally be conducted with normal heavy loads vehicles, however, certain items might require an abnormal load vehicle due to the load or size limitations.

3 DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 Description of the site

The proposed site is located within the Richards Bay Industrial Development Zone, a fully serviced industrial estate with prime rail, road and port access. The proposed facility will be located on an access road off Alumina Alley. The site is bounded by the R619 to the east and the R34 to the west, as shown in **Figure 3-1**.

The R34 is a 4-lane dual carriageway carrying high volumes of heavy vehicles travelling to and from the Richards Bay Port, which accommodates one of the largest liquefied petroleum gas (LPG) import terminals in South Africa. The site is deemed well located and connected for its purpose.

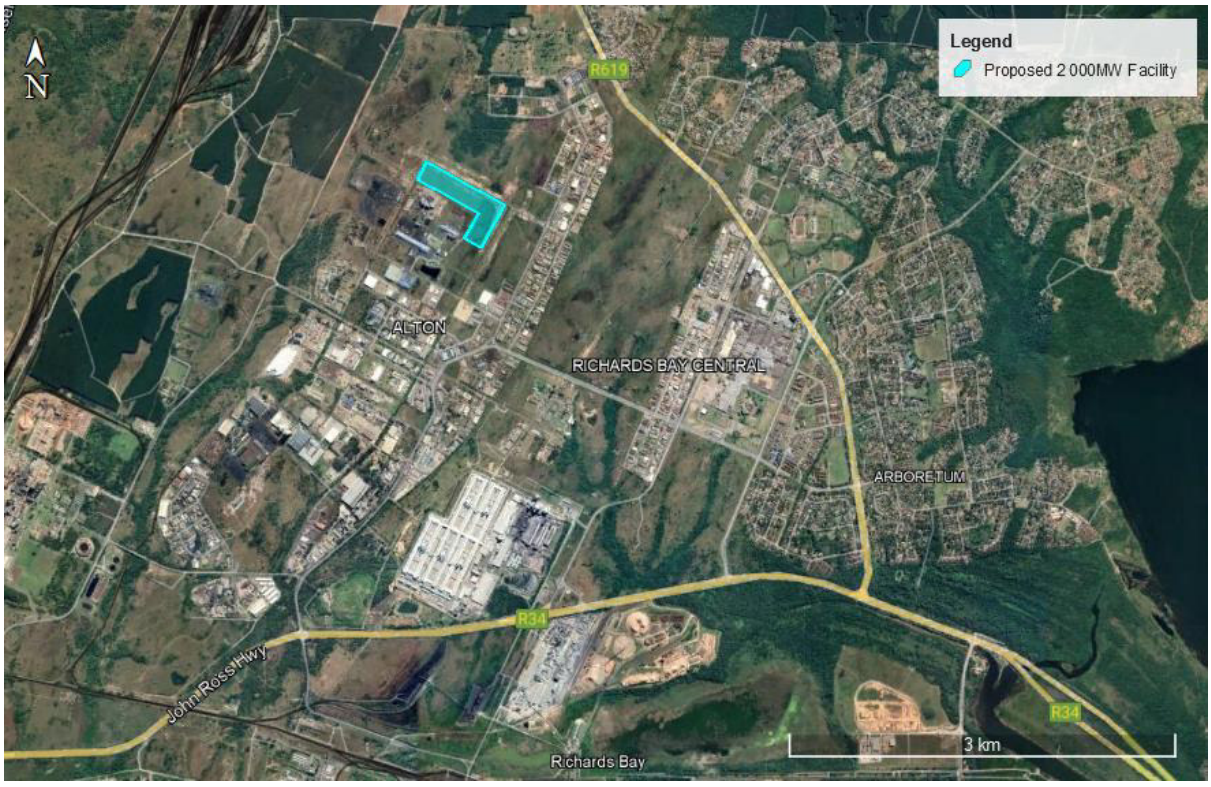

Figure 3-1: Aerial View of Proposed Site

The 2 000 MW power plant will operate at mid-merit to baseload duty and will include the following main infrastructure:

- A number of gas turbines for the generation of electricity through the use of natural gas (liquid or gas forms), or a mixture of Natural gas and Hydrogen (in a proportion scaling up from 20% H2) as fuel source, operating all turbines at mid-merit or baseload (estimated 16 to 24 hours daily operation).
- Exhaust stacks associated with each gas turbine.
- A number of Heat Recovery Steam Generator (HRSG to generate steam by capturing the heat from the turbine exhaust.
- A number of steam turbines to generate additional electricity by means of the steam generated by the HRSG.
- The water treatment plant will demineralise incoming water from municipal or similar supply, to the gas turbine and steam cycle requirements. The water treatment plant will produce two parts demineralised water and reject one-part brine, which will be discharged to the R IDZ stormwater system.

- Steam turbine water system will be a closed cycle with air cooled condensers. Make-up water will be required to replace blow down.
- Air cooled condensers to condensate used steam from the steam turbine.
- Compressed air station to supply service and process air.
- Water pipelines and water tanks for storage and distributing of process water. (Potential sourcing of alternative water outside RB IDZ supply (Municipality))
- Water retention pond
- Closed Fin-fan coolers to cool lubrication oil for the gas turbines
- Gas generator Lubrication Oil System.
- Gas pipeline supply conditioning process facility. Please note, gas supply will be via dedicated pipeline from the proposed Transnet supply pipeline network of Richards Bay (the location of this network has not yet been confirmed) or, alternatively directly from the Regasification facilities at RB Harbour. The gas pipeline will be separately authorized.
- Site water facilities including potable water, storm water, wastewater
- Fire water (FW) storage and FW system
- Diesel emergency generator for start-up operation.
- Onsite fuel conditioning including heating system.
- All underground services: This includes stormwater and wastewater.
- Ancillary infrastructure including:
  - Roads (access and internal);
  - Warehousing and buildings;
  - Workshop building;
  - Fire water pump building;
  - Administration and Control Building;
  - Ablution facilities;
  - Storage facilities;
  - Guard House;
  - Fencing;
  - Maintenance and cleaning area;
  - Operational and maintenance control centre;
- Electrical facilities including:
  - Power evacuation including GCBs, GSU transformers, MV busbar, HV cabling and 1x275kV or 400kV GIS Power Plant substation.
  - Generators and auxiliaries;
  - Eskom 275 or 400kV GIS interface Substation, underground 275 or 400kV power cabling connecting Power Plant GIS substation and Eskom GIS Interface substation and an overhead 275kV or 400kV power line connecting the Eskom interface substation to the selected Eskom grid connection point (all subject to a separate environmental authorisation application):
- Service infrastructure including:
  - Stormwater channels;
  - Water pipelines
  - Temporary work areas during the construction phase (laydown areas)

A dedicated pipeline to connect into an on-site gas receiving and conditioning station will provide the natural gas or the mixture of natural gas and Hydrogen. The pipeline will be connected to the proposed Transnet supply pipeline network of Richards Bay (the location of this network has not yet been confirmed), or it will extend directly to the Regasification facilities in the RB Harbour. A separate EIA process will be undertaken for the dedicated fuel-supply pipeline.

3.2 National Route to Site for Imported Components

Components imported to South Africa will be shipped to the Richards Bay Port. The site can be accessed using two routes (shown in **Figure 3-2**) that connect the Port to the R34 (from the east access of the Port) and Ferro Close (from the west access of the Port). From the R34, multiple route options to the site are available. These route options are discussed in section 3.4.

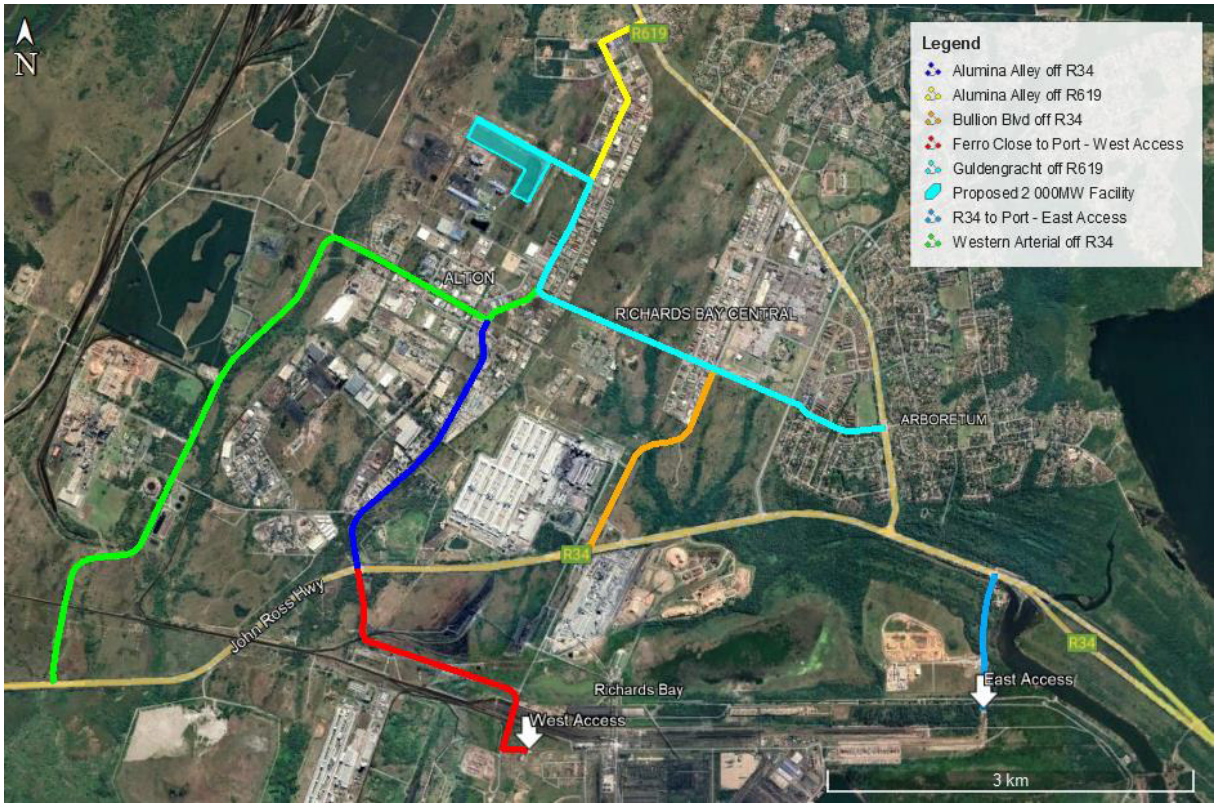

Figure 3-2: Haulage Routes from Port to the Proposed Site

3.3 Route for Components manufactured within South Africa

It is anticipated that elements manufactured within South Africa will be transported to the site from the Johannesburg and/or Pinetown/Durban areas. Components will be transported to site using appropriate National and Provincial routes. It is expected that the components will generally be transported to site with normal heavy load vehicles, with the exception of the storage tanks, transformers and gas engines/gas turbines, which require an abnormal load vehicle.

For any abnormal loads, it is critical to ensure that the vehicle will be able to move safely and without obstruction along the preferred route. The preferred route should be surveyed prior to construction to identify any problem areas, e.g. intersections with limited turning radii and sections of the road with sharp horizontal curves or steep gradients, that may require modification. After the road modifications have been implemented, it is recommended to undertake a “dry-run” with the largest abnormal load vehicle, prior to the transportation of any components, to ensure that the delivery will occur without disruptions. This process is to be undertaken by the haulage company transporting the components and the Contractor, who will modify the road and intersections to accommodate abnormal vehicles. It needs to be ensured that gravel sections (if any) of the haulage routes remain in good condition and will need to be maintained during the additional loading of the construction phase and reinstated after construction is completed.

There are several bridges and culverts along the National and Provincial routes, which need to be confirmed for load bearing capacity and height clearances. However, there are alternative routes which can be investigated if the selected route or sections of the route should not be feasible.

Any low hanging overhead lines (lower than 5.1m), e.g. Eskom and Telkom lines, along the proposed routes will have to be moved to accommodate the abnormal load vehicles.

3.3.1 Route from Johannesburg Area to Site – Normal Loads

Normal loads will transport elements via three potential routes from Johannesburg to the site, as shown in **Figure 3-3** below. No road limitations are envisaged along the route for normal load freight. The distance from Johannesburg to the site is 609km via R34, 605km via N17, N11 and R34 and 621km via N17 and N2.

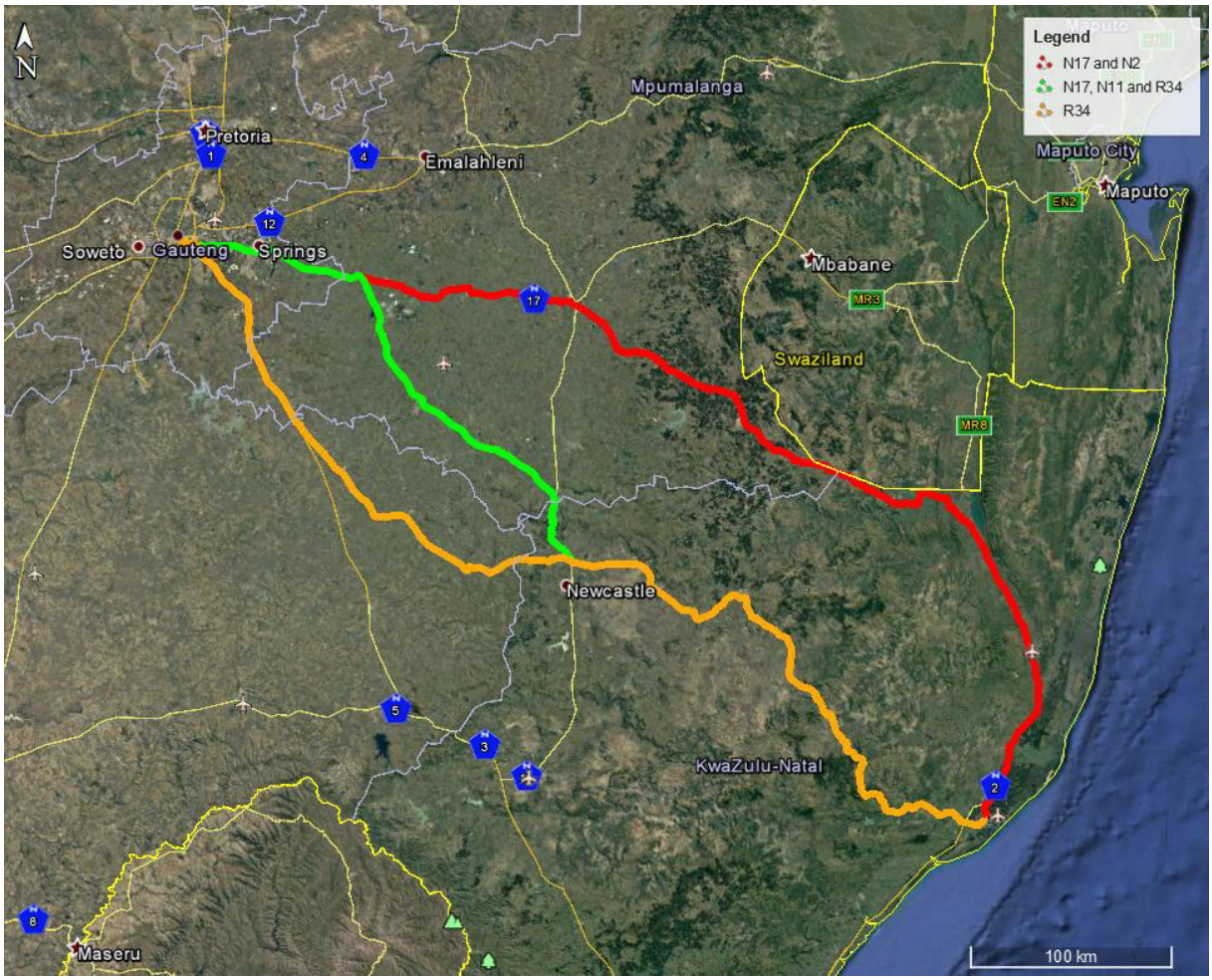

Figure 3-3: Route from Johannesburg to the Proposed Site

3.3.2 Route from Pinetown / Durban to Site - Normal load

Normal loads will transport elements via the N2 from Durban and Pinetown to the site. No road limitations are envisaged along the route for normal load freight. The distance from Durban to the site is approximately 180km.

Figure 3-4: Route from Durban to the Proposed Site

3.4 Proposed main access road to the Proposed Development

The main access road to the proposed development will be the R34, shown in **Figure 3-5** and **Figure 3-6**, a 4-lane dual carriageway road accommodating heavy vehicles traveling to and from the Port.

A desktop study was undertaken using the typical traffic data available on Google Maps**. Traffic delays are experienced along the R619, most likely resulting from traffic to and from the Boardwalk Mall and the surrounding residential areas. Traffic delays are also experienced on the R34 between Empangeni and the R619. These route sections should be avoided during peak periods (as far as possible) to minimise the impact on the surrounding road network.**

Figure 3-5: R34

Figure 3-6: Main Access Road to the Proposed Development

3.4.1 Proposed Access Route

The potential main access roads to the site are located off the R34 and R619 (shown in **Figure 3-7**). As traffic delays are experienced on the R619 during peak periods, the proposed access roads located off the R619 are to be avoided during peak periods. Since residential areas are located along the R619, the two proposed access roads located along the R619 viz. Alumina Alley and Gulden Gracht (shown

in yellow and cyan in **Figure 3-7**) should only be used when the other potential access roads are not accessible.

The potential access roads located off the R34 viz. Western Arterial, Alumina Alley and Bullion Road are deemed the preferred access roads to the site.

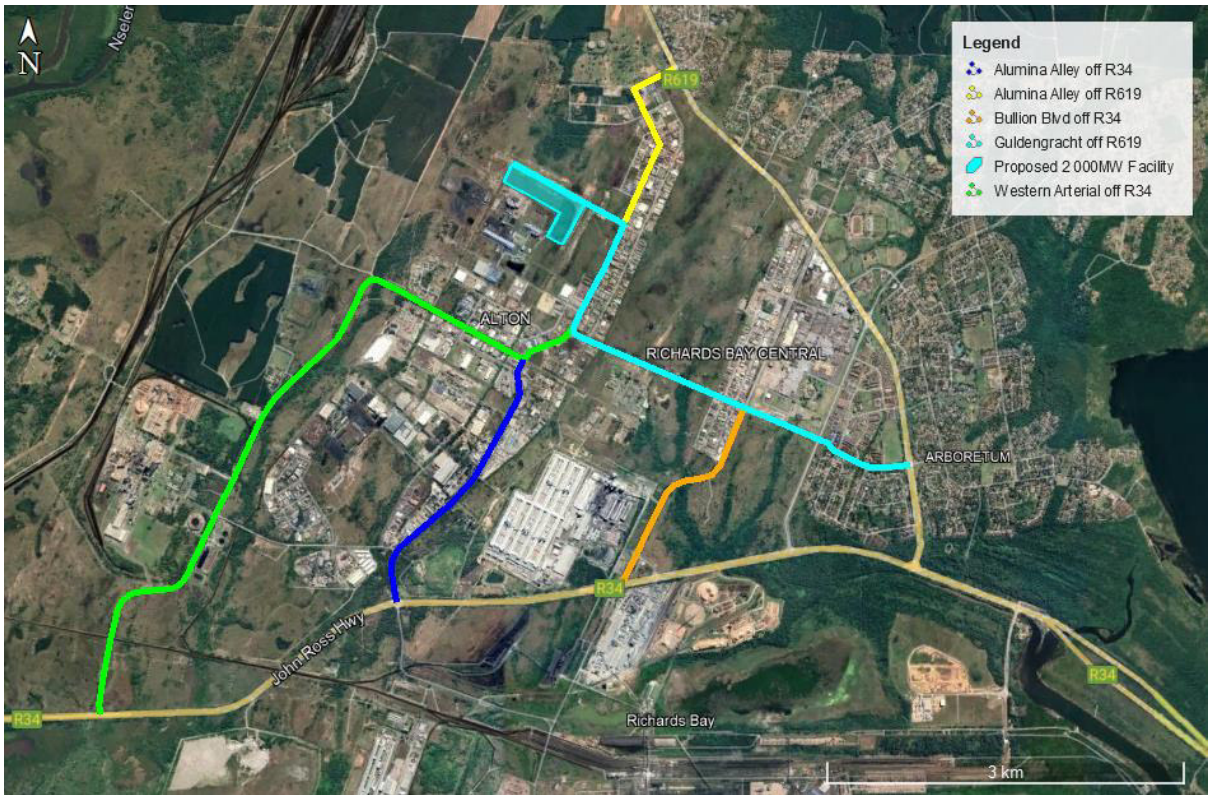

Figure 3-7: Potential Main Access Roads

The proposed access point, located on the access road located off Alumina Alley, will need to be upgraded to cater for the construction vehicles and abnormal load vehicles. Generally, the road width at the access point needs to be a minimum of 8m and the access roads on site a minimum of 5m. The radius at the access points needs to be large enough to allow for all construction vehicles to turn safely. It is recommended that the access point be surfaced and the internal access roads on site remain gravel.

It is recommended that the site access be controlled via a boom and gatehouse. It is also recommended that security staff be stationed on site at the access booms during construction. A minimum stacking distance of 25m should be provided between the road edge of the external road and the boom.

3.5 Main Route for the Transportation of Materials, Plant and People to the proposed site

It is envisaged that the majority of materials, plant and labour will be sourced from towns within a 50km radius of the proposed site and transported to the site via the N2, R34 and R619.

Should concrete batch plants (if required) or quarries not be available in the surrounding areas, mobile concrete batch plants and temporary construction material stockpile yards could be commissioned on vacant land near the proposed site. Delivery of materials to the mobile batch plant and the stockpile yard could be staggered to minimise traffic disruptions.

4 APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

Key legal requirements pertaining to the transport requirements for the proposed development are:

- Abnormal load permits, (Section 81 of the National Road Traffic Act (Act 93 of 1996) and the National Road Traffic Regulations, 2000)
- Port permit (Guidelines for Agreements, Licenses and Permits in terms of the National Ports Act No. 12 of 2005), and
- Authorisation from Road Authorities to modify the road reserve to accommodate turning movements of abnormal loads at intersections.

5 IDENTIFICATION OF KEY ISSUES

5.1 Identification of Potential Impacts

The potential transport related impacts are described below.

5.1.1 Construction Phase

Potential impact

- Construction related traffic
- The construction traffic would also lead to noise and dust pollution.
- This phase also includes the construction of roads, excavations, trenching and ancillary construction works that will temporarily generate the most traffic.

5.1.2 Operational Phase

During operation, it is expected that staff and security will visit the facility. Approximately 60 full-time employees will be stationed on site. The traffic generated during this phase will be minimal and will not have an impact on the surrounding road network.

5.1.3 Decommissioning Phase

This phase will result in the same impact as the Construction Phase as similar trips are expected.

5.1.4 Cumulative Impacts

- Traffic congestion/delays on the surrounding road network.
- Noise and dust pollution

6 NO-GO ALTERNATIVE

The no-go alternative implies that the proposed development does not proceed. This would mean that there will be no negative environmental impacts and no traffic impact on the surrounding network. However, this would also mean that there would be no socio-economic benefits to the surrounding communities, and it will not assist the government in meeting energy demands. **Hence, the no-go alternative is not a preferred alternative.**

7 POTENTIAL IMPACT ASSESSMENT SUMMARY

The assessment of potential impacts discussed above are collated in the tables below.

7.1 Construction Phase

Table 7-1: Potential Impact - Construction Phase – Traffic Congestion

Impact:
Traffic congestion due to an increase in traffic caused by the transportation of equipment, material and staff to site

Desktop Sensitivity Analysis of the Site:
Traffic congestion possible along the R34 and R619.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Traffic congestion	Potential traffic congestion and delays on the surrounding road network. The associated noise, dust and exhaust pollution due to the increase in traffic.	Local	None identified

Description of expected significance of impact
The significance of the transport impact during the construction phase can be rated as medium. However, considering that this is temporary and short term in nature, the impact can be mitigated to an acceptable level. Traffic will return to normal levels after construction is completed.

Noise and dust pollution during the construction phase cannot be completely mitigated but mitigation measures will significantly reduce the impact. These potential impacts will be limited to the construction period.

Gaps in knowledge & recommendations for further study
Gaps
The following items need to be clarified:

- Existing traffic volumes along the R34 and R619
- Local or imported components
- Number of components
- Number of abnormal loads
- Dimensions and weight of components
- Construction period
- Number of site staff
- Fleet size

Recommendations

- To clarify the items above, an additional site visit during the EIA phase is recommended.
- Transport Specialist requires the above information when it becomes available.

7.2 Operational Phase

Table 7-2: Potential Impact – Operational Phase

POTENTIAL IMPACT TABLE – OPERATION PHASE
The traffic generated during this phase will be negligible and will not have a significant impact on the surrounding road network. However, the Client/Facility Manager is to ensure that regular maintenance of gravel roads occurs during operation phase to minimise/mitigate dust pollution.
Gaps in knowledge - None

7.3 Decommissioning Phase

Table 7-3: Potential Impact - Decommissioning Phase

IMPACT TABLE – DECOMMISSIONING PHASE
This phase will have a similar impact as the Construction Phase i.e. traffic congestion, air pollution and noise pollution, as similar trips/movements are expected.

8 CUMULATIVE IMPACTS

The assessment of the potential cumulative impacts is shown in the table below.

Table 8-1: Potential Cumulative Impact

Impact:
Traffic congestion due to an increase in traffic.

Desktop Sensitivity Analysis of the Site:
Traffic congestion and associated noise and dust pollution possible along the R34 and R619.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Traffic congestion	Potential traffic congestion and delays on the surrounding road network and associated noise, dust and exhaust pollution.	Regional	None identified

Description of expected significance of impact
The significance of the transport impact can be rated as high. *The increase in traffic cannot be completely mitigated but mitigation measures will significantly reduce the impact. Noise and dust pollution are limited to the construction and decommissioning periods.*

It should be noted that even if all the facilities are constructed and decommissioned at the same time, the roads authority will consider all applications for abnormal loads and work with all project companies to ensure that loads on the public roads are staggered and staged to ensure that the impact will be acceptable.

Gaps in knowledge & recommendations for further study
- List of approved and planned renewable energy developments in the area/region.

9 CONCLUSION AND RECOMMENDATIONS

This scoping report addressed key issues and alternatives to be considered for the proposed Phakwe Richards Bay Gas Power 3 2 000 MW Combined Cycle Gas to Power Plant.

- The proposed site is deemed well located and connected for its purpose.
- The proposed access point, located on the access road located off Alumina Alley, will need to be upgraded to cater for the construction vehicles and abnormal load vehicles.
- As traffic delays are experienced along the R619, the access roads located off the R619 should be avoided or if necessary, used during off peak hours.
- The preferred access roads to the site are the roads located off the R34 viz. Western Arterial, Alumina Alley and Bullion Road.
- The construction phase traffic, although significant, will be temporary and can be mitigated to an acceptable level.
- During operation, it is expected that staff and security will periodically visit the facility. Approximately 60 full-time employees will be stationed on site. The traffic generated during this phase will be minimal and will not have a significant impact on the surrounding road network.
- The construction and decommissioning phases of a development are the only significant traffic generators and therefore noise and dust pollution will be higher during these phases. The duration of the phases is short term, i.e. the impact of the traffic on the surrounding road network is temporary and the facility, when operational, does not add any significant traffic to the road network.

The following will be assessed in the EIA phase:

- Confirmation of trip generation based on the activities related to traffic movement for the construction and operation (maintenance) phases of the facility.
- Access assessment based on the preferred access point.
- Impact assessment and mitigation measure
- Cumulative impact assessment

10 REFERENCES

- Google Earth Pro
- SANS 10280/NRS 041-1:2008 - Overhead Power Lines for Conditions Prevailing in South Africa
- Road Traffic Act (Act No. 93 of 1996)
- National Road Traffic Regulations, 2000
- The Technical Recommendations for Highways (TRH 11): “Draft Guidelines for Granting of Exemption Permits for the Conveyance of Abnormal Loads and for other Events on Public Roads