

SCOPE OF WORK

Project Title:

PROVISION OF AERIAL INSPECTION SERVICES OF THE PETROLEUM PIPELINE SERVITUDE FOR THE SOUTHERN PIPELINE ROUTE INCLUDING MPP PL1 AND GAS PIPELINE SERVITUDE FOR A PERIOD OF THREE YEARS.

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Table of Contents

1. ABBREVIATIONS	3
2. BACKGROUND	3
3. PROJECT OBJECTIVES.....	3
4. SCOPE OF WORK	4
4.1. Helicopter types and specifications.....	4
4.2 Availability of helicopters	4
4.3 HELIPORTS.....	4
4.4 PIPELINE ROUTES.....	4
4.5 CONTROL AND TRIP ARRANGEMENTS	6
5. CONDUCT OF FLIGHT	7
6. EXPERIENCE OF THE PILOT	8
7. COST OF OPERATIONS	8
8. SAFETY REQUIREMENTS.....	8
9. PILOT'S POST-FLIGHT REPORT	9

1. ABBREVIATIONS

The following abbreviations are used in this document:

Abbreviation	Meaning given to the abbreviation
DJP	Durban to Johannesburg Pipeline
TPL	Transnet Pipelines
DWP	Durban to Witwatersrand Pipeline
Avtur	Aviation Fuel
MPP	Multiproduct Pipeline
ASME	American Society of Mechanical Engineers
ETA	Estimated Time of Arrival
FAA	Federal Aviation Administration
TSO	Technical Standard Order

2. BACKGROUND

Transnet Pipelines (TPL) is the largest multi-product pipeline operator in Southern Africa, transporting hydrocarbons and methane-rich gas through a network of 3800km of petroleum products and gas pipeline infrastructure, of which 3116km is currently operational. The pipeline network traverses across five (5) different provinces in South Africa (KwaZulu-Natal, Free State, Gauteng, North-West, and Mpumalanga), ensuring security of supply to the inland market and methane-rich gas to KwaZulu-Natal.

3. PROJECT OBJECTIVES

Transnet Pipelines (TPL) conducts an aerial inspection of the servitudes at scheduled intervals to comply with the ASME codes and various other operational requirements; these intervals may change in accordance with the rate of development around our pipeline servitudes.

The lines are divided into sections and are inspected respectively by aircraft.

The general purpose of the inspection is to:

- Inspect servitudes for encroachments.
- Inspect servitudes for erosion.
- Inspect servitudes for exposed pipelines.
- Inspect any activity on or around the servitude that may affect the normal pipeline operation.
- Inspect the pipeline location indicators and distance markers for security, condition and legibility.

4. SCOPE OF WORK

4.1. Helicopter types and specifications

4.1.1. Helicopter type

- A turbine-powered helicopter shall be used and must be capable of accommodating the pilot and four passengers, with all their luggage.
- A turbine-powered helicopter that can accommodate a pilot and six passengers with all their luggage.

Transnet Pipelines currently use the **Bell Jet Ranger 206 or similar and the Bell Jet Ranger 407 or similar**.

Written confirmation of this requirement must be submitted as a returnable document.

4.1.2. Details of the helicopter

The service provider shall supply full details of the helicopter specification, not limited to:

- seating capacity
- cruising speed
- range , and
- general performance

Written confirmation of this requirement must be submitted as a returnable document.

4.2. Availability of helicopters

Scheduled trips for inspecting the pipelines will be arranged upfront, preceding the forthcoming twelve months. The planned dates are to be confirmed in each case seven days before the trips take place. Unscheduled/Ad hoc trips will be arranged at least 72 hours in advance unless an emergency occurs, whereas the Service Provider will be required to cooperate within 24 hours. Any delays caused by the service provider will be charged according to the delay penalty clause.

4.3. Heliports

The service provider shall state their base of operation and the service depots or airfields they propose to use. The heliports should be within 25km radius to Durban, since Transnet Pipelines operations are within the vicinity.

Written confirmation of this requirement must be submitted as a returnable document.

4.4. Pipeline Routes

Inspection trips for the pipelines will start from Bayhead, over sections of pipeline routes bounded approximately by the following points, and as indicated on **Figure G**.

Route1

Day1

Virginia – Durban – Mngeni - Hillcrest - Duzi – Howick – Mooi River – Ladysmith - Fort Mistake – Van Reenen – BV 35 – Ladysmith - Newcastle – Ingogo – Volksrust - BV50 - Quagga – Grey Goose – Secunda – Standerton – Ingogo – Grey Goose

Day 2

Grey Goose – Ingogo -Scheepersnek - Mahlabatini – Empangeni - Virginia Airport

Route 2

MPP

Day 1

Virginia Airport – Durban (TM1) – Twini (PS1) – Hilltop (PS 3) – Claridge (Duzi) - Howick – Mooi River – Ladysmith (PS 5) – Van Reenen – Vrede (PS 7) – Warden (PS 8) - Jameson Park (TM2) - Rand Airport

Day 2

Rand Airport – Vrede – Quagga – Grey Goose – Isithebe (BV14) - Virginia Airport – (BV3 Gas) – Mngeni – Hillcrest – Cato Ridge (BV10) – Virginia Airport

Route 3

Day 1

Virginia – Durban – Mngeni – Hillcrest – Duzi – Howick – Mooi River – Ladysmith - Van Reenen – Bethlehem – Kroonstad - Lavender Hills Estate.

Day 2

Lavender Hills Estate – Bethlehem – Ladysmith - Fort Mistake – Newcastle - Ingogo - Volksrust - BV 50 – (Secunda) - Standerton - Quagga -Ingogo – Scheepersnek

Day 3

Scheepersnek – Mahlabatini – Empangeni - Virginia Airport

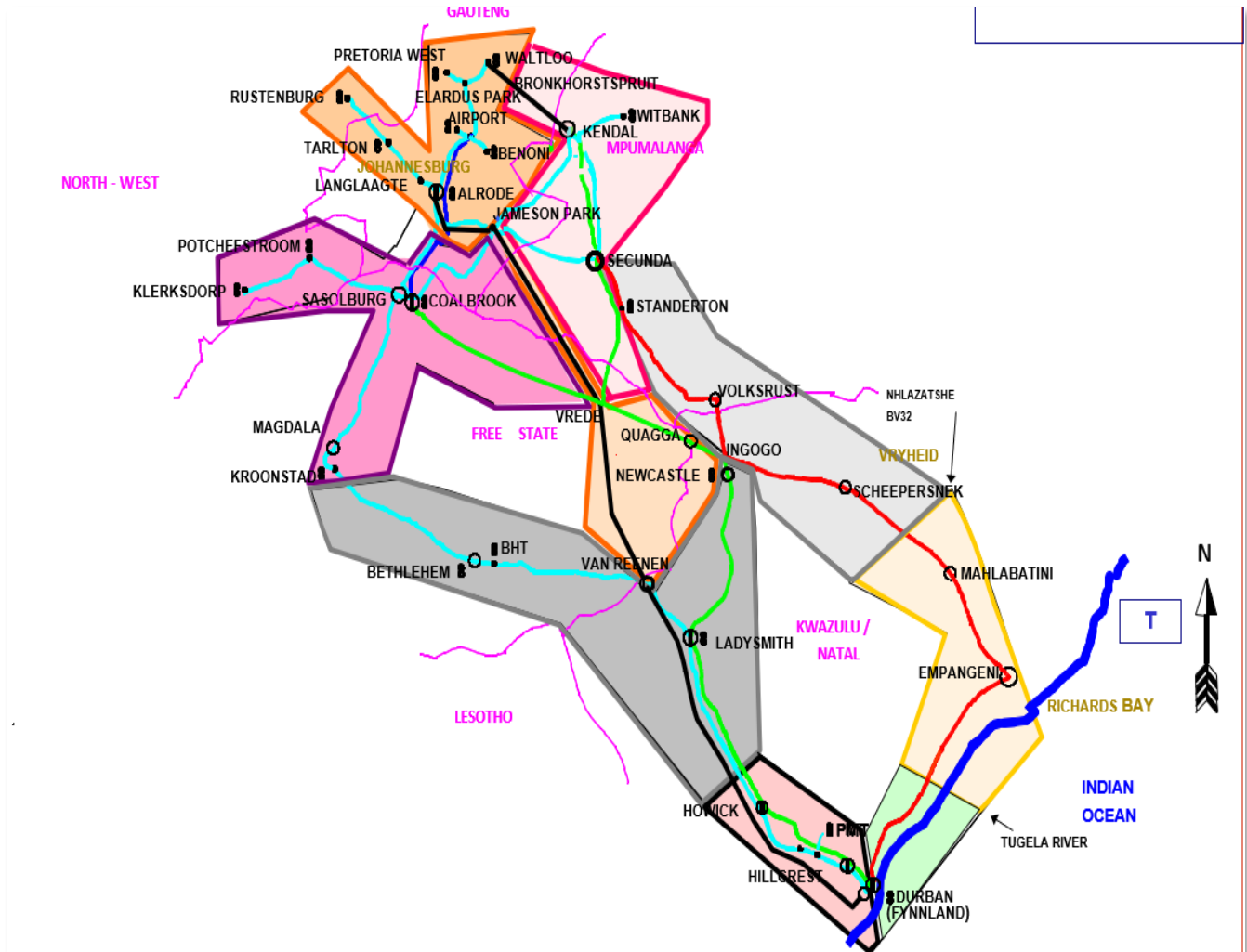


Figure G

4.5. Control and Trip Arrangements

- Inspection trips by helicopter are controlled by the Servitude Supervisor, who must be contacted timeously concerning trip requirements.
- No inspection trip by helicopter may be arranged or undertaken without prior authorisation of the Servitude Supervisor.
- The Servitude Supervisor responsible for arranging the trip must make arrangements for transport to and from the helicopter landing area prior to the commencement of the trip.
- The Servitude supervisor in charge of the party undertaking the trip must sign the pilot's log sheet for the trip, thereby acknowledging the correctness of the entries by the pilot in respect of the number of passengers and the point-to-point flying times.

5. CONDUCT OF FLIGHT

The conduct of all flights shall be the direct and sole responsibility of the pilot in command. The Transnet Pipeline inspections require special attention as follows:

5.1. Height for Inspection

The normal height for inspection is 80 to 150 feet (24 to 45 metres) above ground level. This may vary as terrain and obstacles dictate. At no time should an inspection be carried out at a height below which minor lines, such as domestic electricity and telephone, may be struck.

5.2. Speed

- The standard flight plan speed is 80 mph (130 km/h) ground speed.
- It is understood that this speed may be reduced where many changes in direction are required to facilitate adequate inspection, or where the servitude traverses' non-open ground, i.e., speed should be such that adequate inspection is possible.

5.3. Flight Profile Position

The aircraft should normally be flown on the starboard side of the pipeline servitude at such a distance as to allow both inspectors a clear view of the entire servitude. In some instances, such as traversing forest areas, it may require flying to the port of the servitude or even directly overhead.

5.4. Helicopter Crew Seating

- Pilot - Pilot's seat
- Inspectors - Left front and left back seats
- Additional passenger/s - Middle and Right back seat/s

5.5. Power Lines

The section inspector carries up-to-date line books of the pipeline route and will warn the pilot of the impending crossing of high-tension lines. This is done with a sweeping hand signal pointing out the lines. This should be done approximately 500 to 800 metres before the crossing.

NOTE: This signal should be categorical in its nature so as not to be confused with indications of the pipeline route if assisting the pilot in following the line in difficult areas, such as sugar cane fields where no visual servitude exists.

While inspectors of Transnet Pipelines will assist the pilot with the location of power lines, it remains the pilot's sole responsibility to avoid them. No responsibility shall accrue to Transnet Limited.

5.6. Visibility

Inspections should not be carried out in conditions of poor visibility. Any form of precipitation on the windshield should be avoided.

6. EXPERIENCE OF THE PILOT

The pilot shall be a fully licensed, experienced helicopter pilot and shall have a good knowledge of conducting Servitude Aerial inspection and shall be familiar with the conditions and hazards related to aerial inspection, such as power lines, inclement weather, traversing non-open ground etc.

The Service Provider must submit a list of all the pilots together with their experience as helicopter pilots, who will be employed on this contract. Pilots shall have a minimum of 1,000 hours of flying time on helicopters. The pilot must have conducted a minimum of three reconnaissance flights of the Servitude Aerial inspection before being permitted to undertake a scheduled inspection flight.

Written confirmation of these requirements must be submitted as a returnable document.

7. COST OF OPERATIONS

The service provider shall be responsible for all costs involved in the operation of the helicopter, including fuel supply and logistics, oil, maintenance, pilot's salary and disbursements, airport charges, and whatever other expenses necessarily incurred in providing the service required.

8. SAFETY REQUIREMENTS

The Service Provider shall always comply with Safety, Health, and Environmental requirements prescribed by the relevant legislation as well as all other rules and regulations relating to helicopter flight.

It is essential that the helicopters can communicate with control points from any point on the proposed routes. The service provider shall supply a working, audible two-way intercom headset system. Compliance certificates are required for the headsets and must be TSO (Technical Standard Order) certified by the FAA (Federal Aviation Administration) for each helicopter proposed to be used. Written confirmation of this requirement must be submitted as a returnable document.

Safety and survival equipment and procedures for the operation must comply with the regulations promulgated in terms of the Aviation Act (Act 74 of 1962 and any amendments thereto); the conditions imposed by the National Transport Commission in respect of the use of helicopters in the conditions pertaining to this type of operation; and the procedures prescribed in the Operations Manual as approved by the Commissioner for Civil Aviation.

The Service Provider offering helicopter services shall present helicopter safety records and certificates at the time of tendering and periodically as and when required by the client.

The Service Provider shall provide adequate Liability/Accident insurance for 3rd party claims and TPL employees and other passengers required to fly. The Service Provider shall comply with all other insurance clearances.

Safety rules regulating TPL's observers' duties and those adopted by the Service Provider will be included in the contract. Safety reporting will be detailed in the Helicopter Inspection Procedure. Standard Civil Aviation rules and regulations apply, except for the relaxation of height restrictions. Safety rules governing TPL's observers' duties and those adopted by the service provider will also form part of the contract. Safety reporting shall be outlined in the Helicopter Inspection Reporting Procedure Annexure B. A copy of the Civil Aviation Authority's regulations will be included in the contractual documents with the service provider.

The Service Provider offering helicopter services shall provide emergency search and rescue procedures for inclusion in the contract.

Inspectors of Transnet Pipelines will assist the pilot with the location of power lines; it remains the pilot's sole responsibility to avoid them. No responsibility shall accrue to Transnet Limited.

- Signed 37(2) Agreement.
- Valid letter of good standing with the Compensation Fund.
- Task-specific risk assessment, which must include the identification of fatigue risk.
- Method statement informed by the risk assessment.
- Applicable legal appointments.
- Valid medical certificates of fitness within the context of aviation.
- Certified copies of pilot license(s) in terms of the Civil Aviation Act.
- Proof of public liability insurance.
- Maintenance records/schedules of all aircraft.
- Applicable Standard Operating Procedures.

9. PILOT'S POST-FLIGHT REPORT

The pipeline inspection report should be filled out upon completion of each inspection. Anything of interest or more especially that which could affect the safety of the aircraft and its occupants should be noted, and a copy of this report sent to the Servitude Manager of Transnet Pipelines for his attention. Special note should be made of the erection of new power lines and the progress being made at each inspection.