
WILMAR VEGETABLE OIL PIPELINE KWAZULU-NATAL PROVINCE

INTEGRATED WATER AND WASTE MANAGEMENT PLAN (IWWMP) FOR THE WILMAR VEGETABLE OIL PIPELINE, KWAZULU-NATAL

February 2020

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PROJECT DETAILS

KZN EDTEA Ref	:	DC2800102019
Title	:	Integrated Water and Waste Management Plan: Wilmar Vegetable Oil Pipeline, KwaZulu-Natal Province
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Client	:	Wilmar Processing (Pty) Ltd
Report Status	:	Integrated Water and Waste Management Plan (IWMMP) for the water use authorisation process for the proposed Wilmar Vegetable Oil Pipeline, KwaZulu-Natal Province
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ABBREVIATIONS AND ACRONYMS

DEA	National Department of Environmental Affairs
DWS	Department of Water and Sanitation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EO	Environmental Office
GG	Government Gazette
GN	Government Notice
Ha	Hectare
I&AP	Interested and Affected Party
IDZ	Industrial Development Zone
m ²	Square meters
KZN EDTEA	KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs
NEMA	National Environmental Management Act (Act No 107 of 1998)
NWA	National Water Act (Act No 36 of 1998)
RB IDZ	Richards Bay Industrial Development Zone
RBNPT	Richards Bay National Port Terminal
SACNASP	South African Council for Natural Scientific Professions
SAHRA	South African Heritage Resources Agency
SHE	Safety, Health and Environment
TPNA	Transnet National Port Authority

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EXECUTIVE SUMMARY

Wilmar Processing (Pty) Ltd submitted an application for environmental authorisation to the KwaZulu-Natal Provincial Department of Economic Development, Tourism and Environmental Affairs (EDTEA) (KZN EDTEA Ref: DC2800102019) for the construction and operation of a vegetable oil pipeline near the Richards Bay Port. The proposed pipeline will transport raw material from the Richards Bay Port to the proposed Wilmar Processing Facility to be located within the Richards Bay Industrial Development Zone (RBIDZ). The pipeline development corridor is located approximately 3km south-west of Arboretum, 4km south-east of the Richard's Bay Central Business District (CBD), 16km east of Empangeni and within the Transnet National Port Authority (TPNA) precinct where it will route in a north-easterly direction towards the processing facility proposed within Phase 1A of the RB IDZ. A corridor of up to 50m wide and 2.8km long was assessed through a Basic Assessment process to allow for the optimisation of the pipeline to accommodate environmental sensitivities identified in the area. The Environmental Authorisation (EA) (**KZN EDTEA Ref No.: DC28/0010/2019**) was issued on 26 November 2019 (refer to **Appendix K**).

Savannah Environmental (Pty) was appointed by Wilmar Processing (Pty) Ltd to assist in the undertaking of the water use authorisation process and the compilation of this Integrated Water and Waste management Plan (IWMMP) for the Wilmar Vegetable Oil Pipeline.

The objective of the IWMMP is to comprehensively define the water use and waste management practices within the development corridor of the pipeline and assess the potential impacts on freshwater resources, as well as, highlight the water use related practices that require formal authorisation from the Department of Water and Sanitation (DWS). Furthermore, the IWMMP aims at identifying environmental management plans with regards to long-term water use and waste management during the project life-cycle of the vegetable oil pipeline to ensure set goals and objectives are achieved. These management plans are collated in the IWMMP which will serve as a technical based document that will guide the project life-cycle of the pipeline, as well as support the water use authorisation.

Regulatory Water and Waste Management Framework

The relevant water uses identified for the Wilmar Vegetable Oil Pipeline in terms of Section 21 of the National Water Act (Act No. 36 of 1998) include the following:

- » Section 21 (c): Impeding or diverting flow of water in a watercourse;
- » Section 21 (i): Altering the bed, banks, course or characteristic of a watercourse.

Surface Water

The proposed Wilmar Vegetable Oil Pipeline is located in the Pongola-Mtamvuna Water Management Area (WMA 4) and the quaternary catchment area W12P within the Pongola-Mtamvuna WMA. The nearest surface water resource indicated by the 2014 KwaZulu-Natal Biodiversity Section Plan is the Mzingazi Dam, located 2km to the north-east of the pipeline corridor; the Mhlathuze Lagoon, located 5km to the south-west of the pipeline corridor; and the Richards Bay which is located adjacent to the pipeline corridor.

A Wetland Delineation Assessment was undertaken by Savannah Environmental for the proposed pipeline corridor, which identified two (2) wetlands, as well as an unlined artificial drainage channel. The wetlands

identified and delineated included a depression wetland and an unchannelled valley-bottom wetland. The wetlands are located to the north and south of the project development corridor of the proposed vegetable oil pipeline. The depression wetland was assessed to be a **Class D** (largely modified) seasonal depression wetland system, being affected by a lot of change in the surface roughness; and due to anthropogenic activities undertaken in the western section of the wetland system. The un-channelled valley-bottom wetland was assessed to be a **Class B** (largely natural), having been minimally affected by numerous influences such as a reduction of flow as result of the presence invasive alien vegetation growth within the system; an increase in flood peaks; increase run-off due to an increase of hardened surfaces in the catchment; and the deposition of materials (dumping) in the system and invasive alien vegetation colonisation.

Groundwater

According to the 1: 50 000 scale hydrogeological map series (Vryheid, Map Sheet 2730) and from available hydrogeological information, it has been determined that Richards Bay groundwater occurs within the intergranular primary aquifer in the semi-consolidated and unconsolidated sediments deposited during the Tertiary and Quaternary periods. In addition, according to Golder (2014), the depths of the boreholes within the Richards Bay area varies from 30-45m below ground level (mbgl) and the aquifer testing conducted in the area indicated a hydraulic conductivity ranging from 0,5-5m/d.

The groundwater elevation map obtained from previous studies in the area concluded that the groundwater within the development corridor of the pipeline flows both easterly and westerly with a possible divide in the central areas. Generally, the groundwater flow mimics the topographic levels; therefore, the groundwater is likely to flow towards the Richards Bay and the Mzingazi Lagoon.

Assessment of Potential Impacts

The assessment of potential impacts posed by the development and operation of the pipeline within the regulated area was undertaken by Savannah Environmental as part of the BA process. The BA process concluded that the significance of the impacts was low following the implementation of the recommended mitigation measures.

The Environmental Management Programme (**Appendix G**) and the Stormwater management Plan (**Appendix H**) present impact management objectives along with recommended mitigation measures to ensure minimal impact to the environment. Relevant sections from the EMPr are presented within this IWWMP and provide the sources of impact, mitigation measures, performance indicators and monitoring recommendations as presented within the EMPr and SWMP, with particular emphasis on the efficient management of water resources and water use.

CHAPTER 1: INTRODUCTION

Wilmar Processing (Pty) Ltd obtained environmental authorisation for the Wilmar Richards Bay vegetable oil pipeline (KZN EDTEA Ref: DC28/0010/2019) on the 26th of November 2019. Due to the proximity of the project to natural watercourses on site (wetlands), a Water Use Authorisation (WUA) was requested in consultation with the Department of Water and Sanitation. This Integrated Water and Waste Management Plan has been compiled as part of the WUL application.

The project entails the development of a partially buried and partially over ground pipeline, for the transport of raw vegetable oil from the Richards Bay Port (RBT) to the proposed Wilmar Processing facility located within the Richards Bay Industrial Development Zone (RB IDZ). The pipeline corridor is located approximately 3km south-west of Arboretum, 4km south-east of the Richard's Bay Central Business District (CBD), 16km east of Empangeni and within the Transnet National Port Authority (TPNA) precinct where it will route in a north-easterly direction towards the processing facility proposed within Phase 1A of the RB IDZ in the KwaZulu-Natal Province. A corridor of up to 50m wide (25m metres on either side of the pipeline route) and 2.8km long was assessed through a Basic Assessment process to allow for the optimisation of the pipeline to accommodate environmental sensitivities identified.

This IWMMP has been developed by Savannah Environmental (Pty) Ltd in support of the water use authorisation process required by the competent authority, the Department of Water and Sanitation¹ for the construction and operation of the pipeline.

1.1 Water User Contact Details

Table 1.1: Contact Details of the Wilmar Processing (Pty) Ltd

Aspect	Description
Company Name	Wilmar Processing (Pty) Ltd
Type of Entity	Company
Company Registration Number	2017/389864/07
Registered Address	12 Bridle Close, Woodmead Office Park Cnr Van Reenens Ave & Woodmead Drive Woodmead 2191
Postal Address	PO Box 1990 Sunninghill 2157
Contact Person:	Carole Tatham
Telephone Number	011 519 1000
Industry Type / Nature of Trade	Manufacturing
Land Use Zoning	Industrial

A certified copy of the Company Registration Document and the contact person's identity document is included within **Appendix A**.

¹ The Department of Water and Sanitation is soon to be called the Department of Human Settlements, Water and Sanitation.

1.2 Regulatory Status of the Activity

Wilmar Processing (Pty) Ltd obtained environmental authorisation from the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (EDTEA) on the 26th of November 2019 for the 'Wilmar Vegetable Oil Pipeline'² on the Remainder of the Farm Lot 223 Umhlatuzi 16230 and Portion 21 of Erf 5333, Portion 153 of Erf 5333, Erf 16856, Erf 16181, Erf 16182, Erf 17424 and Erf 17422.

1.3 Regional Setting and Location of the Activity

The corridor proposed for the development of the vegetable oil pipeline is located approximately 3km south-west of Arboretum, 4km south-east of the Richard's Bay Central Business District (CBD), 16km east of Empangeni and within the Transnet National Port Authority (TPNA) precinct where it will route in a north-easterly direction towards the processing facility proposed within Phase 1A of the RB IDZ in the KwaZulu-Natal Province (**Figure 1.1** and **1.2**). The corridor proposed for the development of the vegetable oil pipeline is up to 50m wide and 2.8km long.

Table 1.2 provides information regarding the proposed corridor for the pipeline, and includes information regarding the properties to be affected by the development of the pipeline.

Table 1.2: A description of the study area identified for the corridor for the Wilmar Vegetable Oil Pipeline

Province	KwaZulu-Natal
District Municipality	King Cetshwayo District Municipality
Local Municipality	City of uMhlatuze Local Municipality
Ward number(s)	02
Nearest town(s)	The Wilmar Vegetable Oil pipeline will be located ~ 3km south-west of Arboretum, 4km south-east of the Richards Bay CBD, 6km south-west of Wilde en Wiede, and 16km south-east of Empangeni.
Farm Name(s) & Portion Number (s)	<ul style="list-style-type: none"> » Remainder of the Farm Lot 233 Umhlatuzi No. 16230 » Remainder of Portion 21 of Erf 5333 » Portion 157 of Erf 5333 » Erf 16856 » Erf 16181 » Erf 16182 » Erf 17424 » Erf 17422
SG 21 Digit Code (s)	<ul style="list-style-type: none"> » N0GV00000001623000000 » N0GV0421000053330021 » N0GV04210000533300157 » N0GV042100001685600000 » N0GV04210001618100000 » N0GV04210001618200000 » N0GV04210001742400000 » N0GV04210001742200000

² KZN EDTEA Reference Number: DC2800102019

Current zoning	Industrial Use - The affected properties are located within the Richards Bay Industrial Development Zone (RBIDZ), Phase 1A, which has been reserved for agro-processing facilities.		
Corridor width (m)	~50m		
Corridor length (m)	~2.8km		
Co-ordinates		Latitude	Longitude
	Start point	28°47'28.98"S	32° 3'2.28"E
	End point	28°46'42.80"S	32° 3'43.12"E

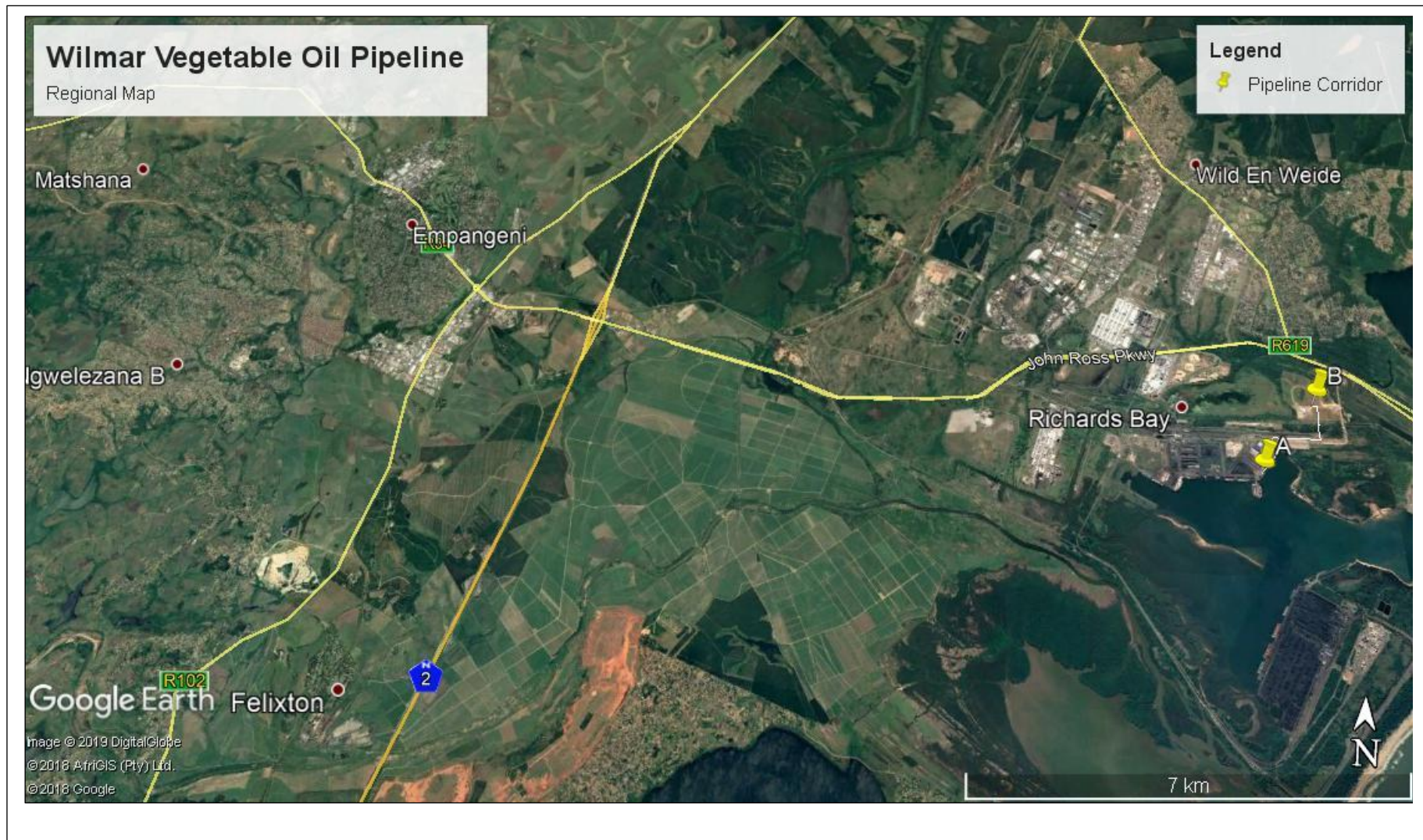


Figure 1.1: Regional Setting of the project development corridor (Pipeline corridor route – A and B placemarks).

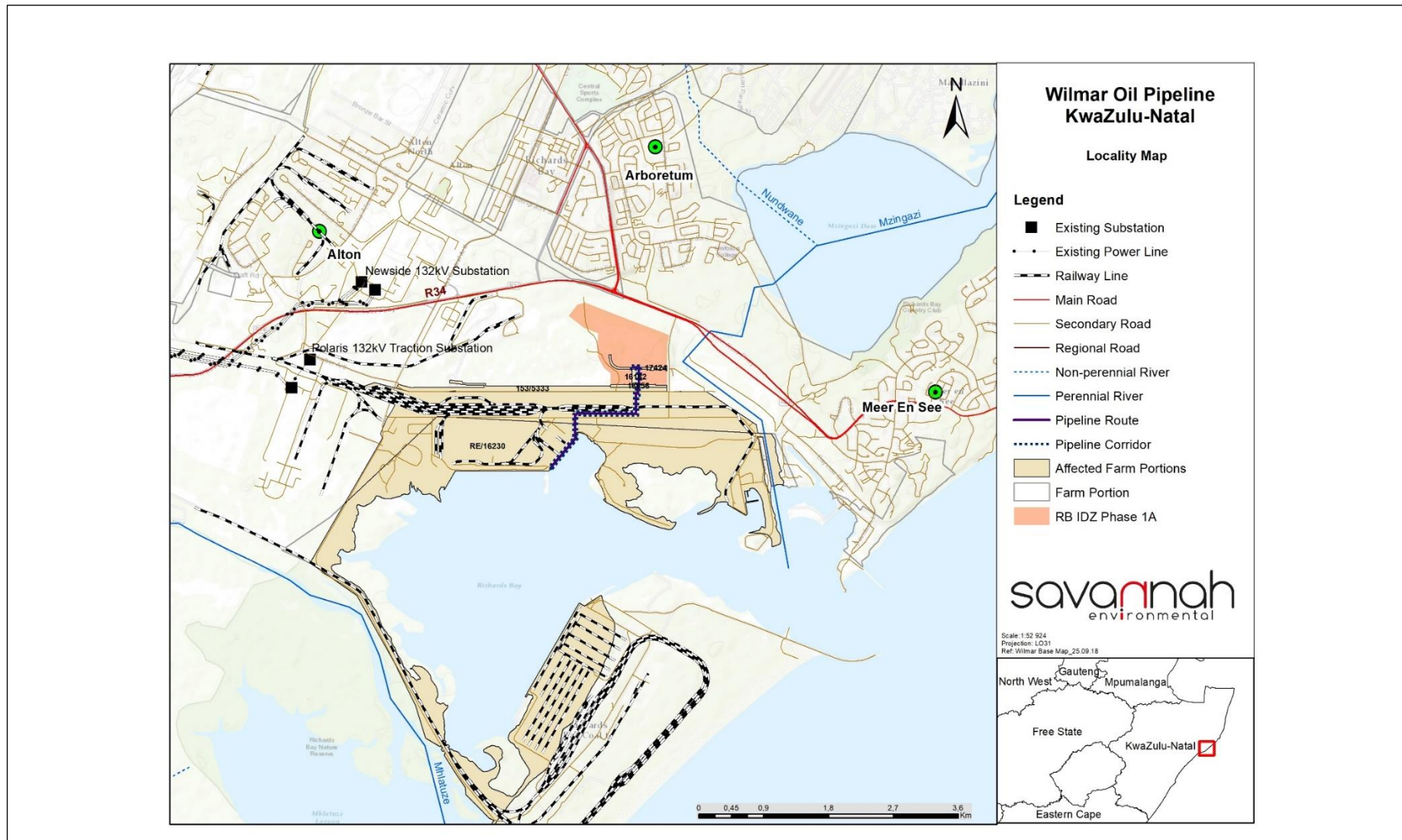


Figure 1.2: Locality Map showing the project development corridor for the Wilmar Vegetable Pipeline

1.4 Purpose of the Integrated Water and Waste Management Plan

The objective of the IWWMP is to comprehensively define the water use and water management practices for the vegetable oil pipeline development and appraise the potential impacts on regional water resources, as well as, highlight the water use related practices that require formal authorisation.

Furthermore, the IWWMP aims at identifying environmental management plans with regards to long-term water use and waste management for the project life-cycle of the vegetable oil pipeline, to ensure a set goal and objectives are achieved. These management plans are collated in the IWWMP, which will serve as a technical-based document that will guide the development, as well as support the water use authorisation to be issued by the DWS.

CHAPTER 2: PROJECT DESCRIPTION

2.1 Nature and Extent of the Wilmar Vegetable Oil Pipeline

The proposed Wilmar Vegetable Oil Pipeline will include the development of four (4) carbon steel pipes, with a diameter of 216mm each, and will extend from the Richards Bay Port to the proposed processing facility within Phase 1A of the RB IDZ. The pipes will be stacked vertically in double rows or arranged horizontally on mounting structures above-ground (**Figure 2.1**). Where required, the pipeline will route above-ground at an elevation of approximately 500mm. The mounting structures to be used, will approximately be 2.25m² in extent and 1.2m into the ground. Therefore, only 2.7m³ of soil will be excavated in order to place the mounting structures along the corridor for the pipeline placement. In addition, the pipeline support width and the support height will approximately be 1 100mm.

Therefore, the pipeline will consist of the following primary elements:

- » Four (4) x 216mm Steel Pipes; and
- » 12m overhead steel bridges existing linear infrastructure developments (i.e. railway line and roads, etc.)

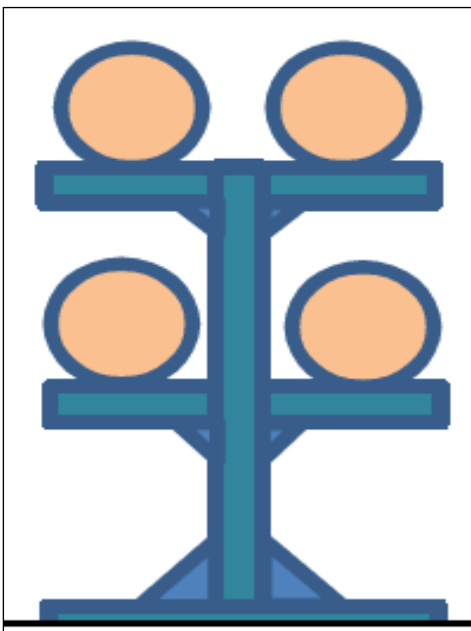


Figure 2.1: A conceptual illustration of the Wilmar Vegetable Oil Pipeline configuration.

The pipeline will route within a single servitude in a north easterly direction for approximately 500m from Berths 706, 707 and 708 Quayside at the Richards Bay Port, where a pipe manifold will be constructed into the concrete of the shipping dock for the flexible hose connection to the pipeline. The pipeline will run through an underground concrete tunnel before surfacing at the end of the tunnel, where it will route in a northward direction above-ground until reaching the Southern Access Road to Dry Bulk Slab. From here the pipeline will be routed above road infrastructure past the Asphalt surfaced parking area towards the Northern Access Road to the Dry Bulk Slab area. The approximate length of this section of the pipeline from the end of the tunnel void to the Northern Access Road Dry Bulk Slab is approximately 300m. From here, the pipeline then heads a short distance of approximately 50m in a north-easterly direction, spanning an open

drain channel as well as the single-track railway line further along the route. The pipeline will then continue to route in an easterly direction for approximately 850m before making a 90° turn northwards through the Transnet North Railyard, firstly crossing above Newark Road and then spanning the single-track railway line and an open unlined drainage channel. The approximate length of this section of the pipeline is 300m. The pipeline will then take another 90° turn eastwards for a short distance (~ 15m), before making a 90° turn once more northwards, routing above Silver Ocean Road for a further 400m within the RB IDZ area. At this point, the pipeline will take another 90° turn to the west and run for approximately 100m before making a final 90° turn northwards into the proposed oil facility site on Lot 17422 within Phase 1A of the Richards Bay IDZ (refer to **Figure 2.2**).

Table 2.1: A description of the study area identified for the corridor for the Wilmar Vegetable Oil Pipeline

Infrastructure	Footprint, dimensions and details
Corridor width	Up to 50m wide and 2.8km long
Pipeline Capacity	up to 250cm ³ of vegetable oil per hour, or 220Mt per hour (only when the operational vessel is discharging)
Road and Railway Crossings of the Wilmar Vegetable Oil Pipeline	» 6 crossings are envisaged within the existing railway and road infrastructure.
Support structure foundations	» Concrete pad foundations (approximately 1.5m x 1.5m and 1.2m below the ground)
Access roads/ tracks	Existing roads will be used to maintain and service the pipeline, as all parts of the proposed project development corridor are accessible by existing roads within the Port and RB IDZ.

Table 2.2: Details of the Wilmar Vegetable Oil Pipeline project life-cycle

<u>Construction Phase</u>	
	<ul style="list-style-type: none"> » Duration of the construction phase is expected to be up to 6 months. » Create direct construction employment opportunities. Up to 50 employment opportunities will be created during the construction phase. » No on-site labour camps. Employees to be accommodated in Richards Bay and the nearby towns and transported to and from site on a daily basis. » Overnight on-site worker presence would be limited to security staff. » Construction waste will be stored on site and waste removal and sanitation will be undertaken by a sub-contractor or the municipality. » Negligible water will be required for the construction phase and potable needs. If required, water will be sourced from the municipality or private sources.
Construction sequence	<p>The pipelines are to be constructed in the following simplified sequence:</p> <ul style="list-style-type: none"> » Step 1: Surveying of the development area and negotiating with affected landowners; » Step 2: Final design and micro-siting of the infrastructure based on geo-technical, topographical conditions and potential environmental sensitivities; obtain required environmental permits (such as biodiversity permits, heritage permits & WUL/GA); » Step 3: Vegetation clearance; » Step 4: Construction of concrete pad foundations; » Step 5: Assembly and erection of infrastructure on site; » Step 6: Rehabilitation of disturbed areas » Step 7: Continued maintenance. <p>The final definition of the centre line for the pipeline and co-ordinates of each bend in the line (if applicable) will be determined on receipt of an environmental authorisation of the assessed corridor by the competent authority and after negotiations with landowners and final environmental and technical surveys.</p>

Operation Phase

- » Duration will be ~20 years, or longer as needed for the operation of the processing facility.
- » Requirements for security and maintenance of the pipeline.
- » Employment opportunities relating mainly to operation activities and maintenance. Very limited employment opportunities will be available.

Activities to be undertaken

Operation and Maintenance	<ul style="list-style-type: none"> » Part-time security and maintenance staff, especially for the pipeline. » Disposal of waste products in accordance with relevant waste management legislation. » On-going rehabilitation of those areas which were disturbed during the construction phase. » The maintenance of the pipeline infrastructure will be the responsibility of the holder of the Environmental Authorisation.
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Decommissioning Phase

Requirements	<ul style="list-style-type: none"> » Decommissioning of the pipeline infrastructure at the end of its economic life. » Expected lifespan of approximately more than 20 years (with maintenance) before decommissioning is required. » Decommissioning activities to comply with the legislation relevant at the time.
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Activities to be undertaken

Site preparation	<ul style="list-style-type: none"> » Confirming the integrity of access to the pipeline to accommodate the required equipment. » Mobilisation of decommissioning equipment.
Disassemble components and rehabilitation	<ul style="list-style-type: none"> » The pipeline components will be disassembled and reused and recycled (where possible). » Where components cannot be reused or recycled these will be disposed of in accordance with the regulatory requirements at the time of decommissioning. » Disturbed areas, where infrastructure has been removed, will be rehabilitated, if required and depending on the future land-use of the affected areas and the relevant legislation applicable at the time of decommissioning.

2.2 Key Water Uses

The following activities involve water use throughout the various phases of the project:

- » Construction: water for construction will be obtained from municipal sources, with no natural resource being utilised or water being abstracted. Construction activities will however occur within 500m of two wetlands delineated on site.
- » Operation: no water consumption is necessary for the operation of the facility, as it is a vegetable oil pipeline which services primarily to transport oil from source to destination, which does not require water for operation. Operation activities will however occur within 500m of a two wetlands delineated on site.
- » Decommissioning: decommissioning activities will involve dismantling and removing the operational components such as pipeline segments, concrete bases and steel supports for the length of the pipeline. These material may be transported off-site and do not involve any use of water. Decommissioning activities will however occur within 500m of a two wetlands delineated on site.

2.3 Organisational Structure of Activity/Company

Formal responsibilities for the project will be necessary to ensure that key procedures are executed for the duration of the project lifecycle. Wilmar Processing (Pty) Ltd, will be responsible for the construction of the pipeline and for obtaining any additional permits that may be required for its operation. Following the completion of the construction phase, which is envisaged to take a period of 6 – 12 months, the pipeline will

be handed over to the Transnet National Ports Terminal (TNPA) for its operation. TPNA will oversee the operation and maintenance activities of the pipeline for the 20-year period.

Figure 2.2 provides an organogram indicating the organisational structure for the implementation of the IWMMP.

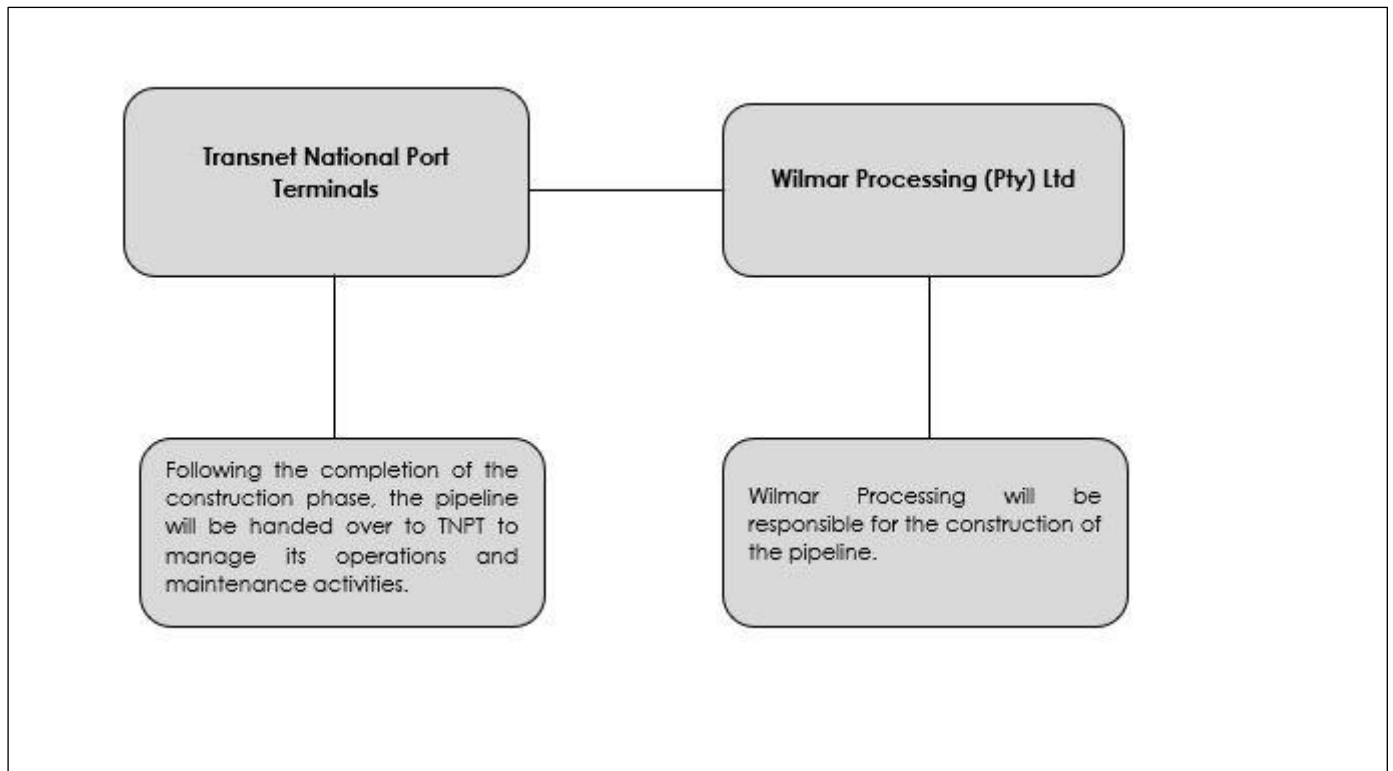


Figure 2.2: Organisational structure for the implementation of the IWMMP

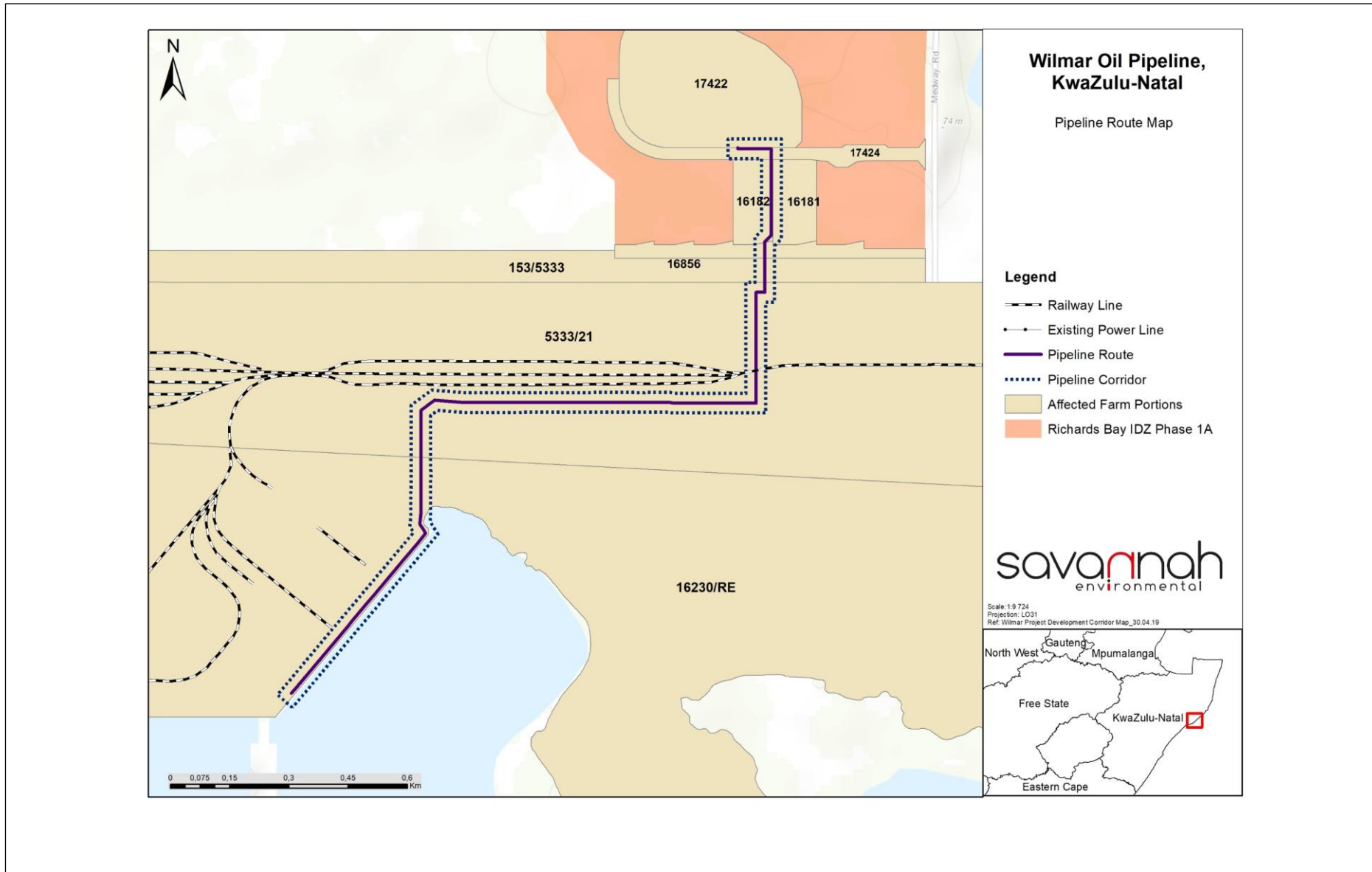


Figure 2.1: A layout map of the Wilmar Vegetable Oil Pipeline within the proposed project development corridor.

CHAPTER 3: REGULATORY WATER FRAMEWORK

3.1 Summary of Water Uses

Based on the activities envisaged, as described in Chapter 2 of this IWWMP, the water uses in terms of Section 21 of the National Water Act (Act No 36 of 1998) that have been identified and which are pertinent to the Wilmar Vegetable Oil Pipeline include the following, relating entirely to the construction, operation and decommissioning activities within the regulated area of a watercourse (two wetlands) on site:

- » Section 21 (c): Impeding or diverting flow of water in a watercourse;
- » Section 21 (i): Altering the bed, banks, course or characteristics of a watercourse.

3.2 Existing Lawful Uses

Section 32 of the NWA defines, 'existing lawful water use', as water use which has taken place in the two (2) year period preceding the commencement of the NWA (i.e. between 1 October 1996 and 30 September 1998). The Wilmar Vegetable Oil Pipeline **has no existing lawful water uses** as the project will commence post-1998.

3.3 Relevant Exemptions

No exemptions are applicable to the Wilmar Vegetable Oil Pipeline.

3.4 Generally Authorised Water Uses

General Authorisations (GAs) have been promulgated for a number of water uses (low to medium risk activities), considered in the NWA. The purpose of the GA is to lessen the administrative burden on water users and organs of state and to facilitate self-regulation of activities that do not require regulatory intervention due to the low impact of these activities. GAs, however, do not replace existing authorisations under the NWA including existing lawful water users and water use licences.

Therefore, in order to ascertain the relevance of the water use proposed for the Wilmar Vegetable Oil Pipeline, in line with the General Authorisation, the water uses as prescribed in Section 3.1 of this IWWMP have been reviewed in line with the following document:

- » Government Notice 509 of 2016: General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) for Water Uses as defined in Section 21 (c) or Section 21 (i).

Table 3.1: Details of the Wilmar Vegetable Oil Pipeline project life-cycle

Water Use	Government Notice	Description	Registration/Licencing Requirements
Section 21(c) and Section 21(i)	509	Two (2) wetlands are located within 500m of the development corridor for the Wilmar Vegetable Oil Pipeline.	GN 509 does not apply – » the use of water in terms of Section 21(c) or (i) of the Act for the rehabilitation of a wetland as contemplated in General Authorisation 1198;

			<ul style="list-style-type: none">» the use of water in terms of Section 21(c) or (i) of the Act within the regulated area of a watercourse where the Risk Class is medium or high as determined by the Risk Matrix;» in instances where an application must be made for a water use licence for the authorisation of any other water use as defined in section 21 of the Act that may be associated with a new activity;» where storage of water results from the impeding or diverting of flow or altering the bed, banks, course or characteristics of a watercourse; and» to any water use in terms of section 21(c) or (i) of the Act associated with construction, installation or maintenance of any sewage pipelines, pipelines carrying hazardous materials and to raw and wastewater treatment works.
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Figure 3.1 below illustrates the location of the depression and the unchanelled valley-bottom wetlands delineated within the vicinity of the development corridor identified for the construction and operation of the Wilmar Vegetable Oil Pipeline.

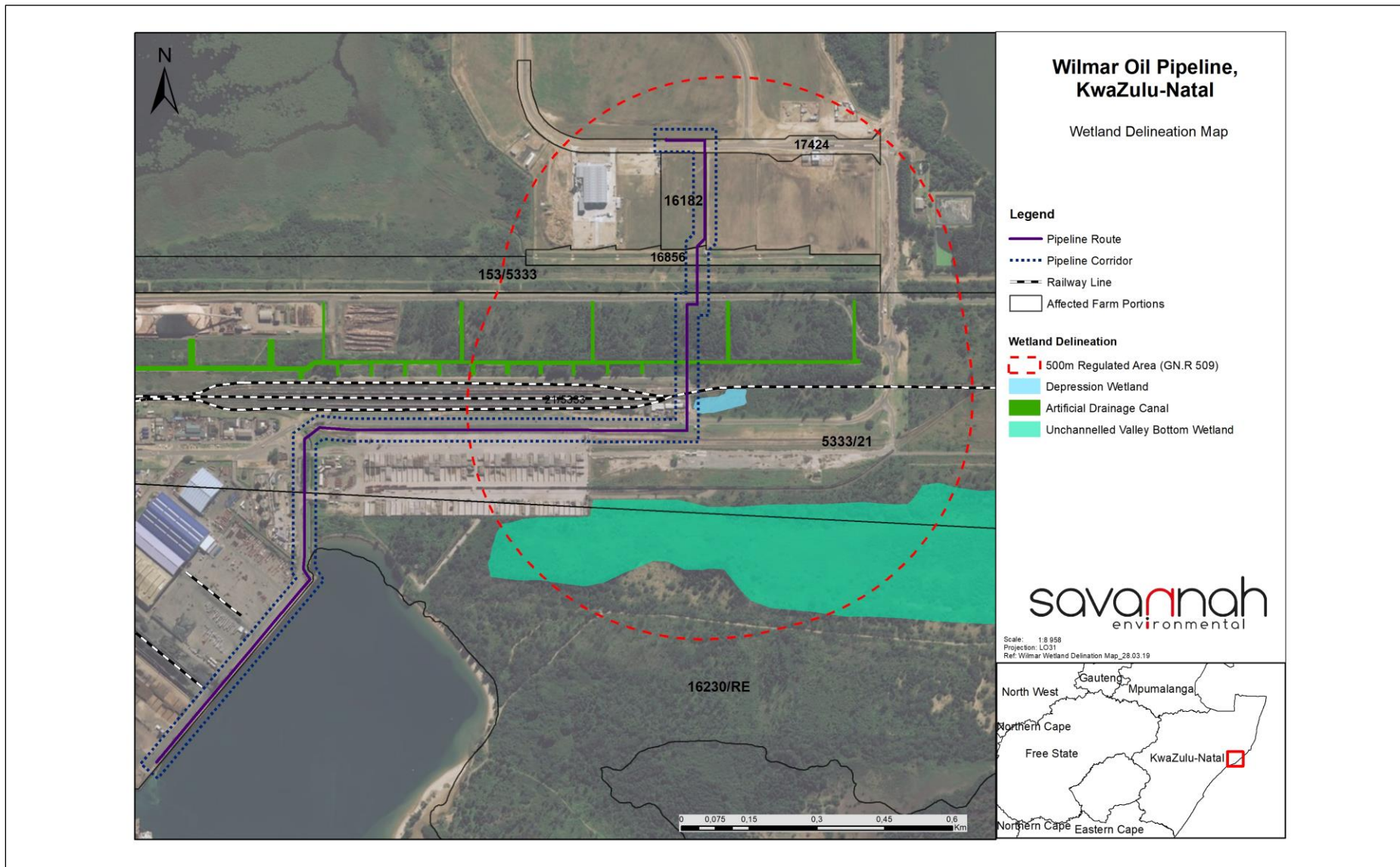


Figure 3.1: A Wetland Delineation Map illustrating the location of the delineated wetlands within the vicinity of the development corridor for the Wilmar Vegetable Oil Pipeline.

3.5 New Water Uses To Be Authorised

Referring to **Table 3.1** and **Figure 3.1**, water use authorisation for the Wilmar Vegetable Oil Pipeline will be required for the following:

- » Section 21(c) & (i): Construction and operation of the pipeline will occur within the regulated area of two delineated wetlands on site (refer **Figure 3.1**). While none of these features will be directly impacted by the activity (no construction or operational activities will occur within the wetland boundaries), earthworks and the presence of vehicles during the construction phase, in addition to the presence of maintenance crews or emergency incidents occurring during the operational phase, may all impact these wetlands by introducing silt or sediment and by impacting on the biota during a spill.

Using the eWULAAS system, the above-mentioned water uses have been captured and are submitted for authorisation.

3.6 Waste Management Activities

The project life-cycle of the Wilmar Vegetable Oil Pipeline does not trigger any of the Listed Activities listed under GN921 of 2013 of the National Environmental Management Act (Act No. 28 of 2009), as amended. As such, no waste management activities are involved.

3.7 Other Authorisations

The Wilmar Vegetable Oil Pipeline was granted environmental authorisation by KZN EDTEA (**Ref No.:DC28/0010/2019**) in accordance with the 2014 EIA Regulations, as amended and the National Environmental Management Act (Act No. 107 of 1998) on 26th November 2019.

CHAPTER 4: PRESENT ENVIRONMENTAL SITUATION

4.1 Climatic Conditions

The Richards Bay area is characterised by a warm to hot and humid subtropical climate, with warm moist winters. Average daily maximum temperatures range from 29° C in January to 23° C in August, and extremes can reach more than 40° C in summer. The average annual rainfall is 1 228 mm with most (~80 %) of the rainfall in summer (October to March).

Extreme rainfall and thundershowers have occurred on several occasions in the Zululand Region, resulting in extensive flooding with loss of life, property and infrastructure. An increasing trend in the frequency of cyclonic activity has been observed, which needs to be considered in future planning of the region. Annual climatic data has been summarised in the graph presented in **Figure 4.1**.

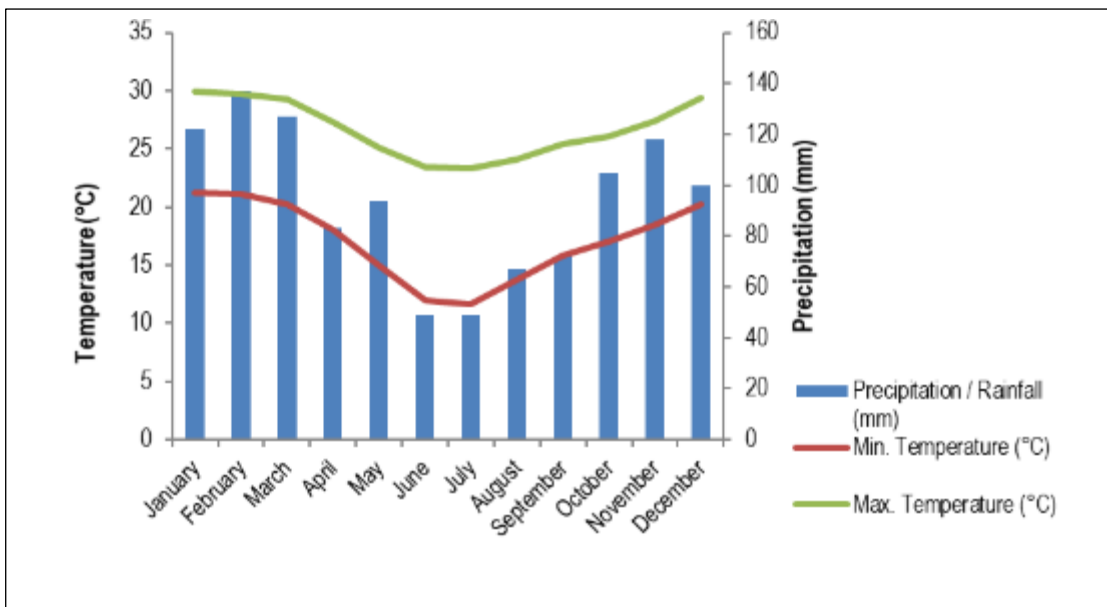


Figure 4.1: Average minimum and maximum temperatures and monthly rainfall for Richards Bay (adapted from <http://en/climate-data.org>).

4.2 Surface Water

4.2.1 Water Management Area

The proposed Wilmar Vegetable Oil Pipeline is located in the Pongola-Mtamvuna Water Management Area (WMA 4) and the quaternary catchment area W12P within the Pongola-Mtamvuna WMA. The nearest surface water resource indicated by the 2014 KwaZulu-Natal Biodiversity Section Plan is the Mzingazi Dam, located 2km to the north-east of the pipeline corridor; the Mhlathuze Lagoon, located 5km to the south-west of the pipeline corridor; and the Richards Bay which is located adjacent to the pipeline corridor.

4.2.2 Surface Water Hydrology

A Wetland Delineation Assessment was undertaken by Savannah Environmental for the proposed pipeline corridor, which identified two (2) wetlands (**Figure 4.2**), as well as, an unlined artificial drainage channel. The wetlands identified and delineated included a depression wetland and an unchannelled valley-bottom wetland. The wetlands are located to the north and south of the project development corridor of the proposed vegetable oil pipeline. The depression wetland was assessed to be a **Class D** (largely modified) seasonal depression wetland system; whereas the un-channelled valley-bottom wetland was assessed to be a **Class B** (largely natural) un-channelled valley-bottom system. The assessment concluded that the depression wetland system was affected by a lot of change in the surface roughness; and due to anthropogenic activities undertaken in the western section of the wetland system. However, for the un-channelled valley-bottom system, the assessment concluded that this system was minimally affected by numerous influences which included, a reduction of flow as result of the presence invasive alien vegetation growth within the system; an increase in flood peaks; increase run-off due to an increase of hardened surfaces in the catchment; and the deposition of materials (dumping) in the system and invasive alien vegetation colonisation (refer to **Figure 4.3**).

Therefore, the assessment concluded that no fatal flaws are associated with the development of the pipeline on the wetland systems, and all the potential impacts associated with the development of the pipeline can be mitigated to acceptable levels or enhanced through the implementation of the recommended mitigation or enhancement measures.

4.2.3 Surface Water Quality

Depression Wetland

The depression wetland was assessed on the basis of the hydrological and vegetation components of the wetland. The hydrological component was found to be affected most by the change in surface roughness in the current state when compared to the reference state of vegetation expected under natural conditions. The current state of the vegetation is mainly short grasses, whilst the reference stated is considered to consist of more robust vegetation species including reed, sedge and rush dominated wetlands, as can be typically expected for sub-tropical freshwater wetland types. In addition, another significant impact to the wetland hydrology is as a result of the excavation in the western area of the wetland. Excavation has exposed wetland soils, creating a deeper drainage area as could be expected for the wetland under natural conditions.

Overall, an impact score of 5,06 was assessed when combining the two components which resulted in the Class D rating. Importantly, the Class D rating is expected to slowly deteriorate over time increased transformation of the surrounding catchment and change in surface roughness.

Un-channelled Valley Bottom Wetland

The un-channelled valley bottom wetland was assessed on the basis of the hydrological, geomorphological and vegetation components of the wetland. The hydrological component score was found to be affected by both reduction of flows due to alien vegetation present in the wetland, and offset by a perceived

increase in flood peaks resulting in an overall small increase in water input characteristics. In terms of the geomorphological component, increased run-off due to the increase of hardened surfaces in the catchment, as well as deposition of materials (dumping) in the wetland was assessed to have affected the wetland, but also to a relatively minimal level. Lastly, the vegetation component scores reflected the knock-on effects of the impacts identified in the hydrological and geomorphological component of the wetland. Alien colonisation presumably due to disturbance and excavation were two factors to mainly influence the scoring of this component. There is was also small area of railway infrastructure present in the wetland detracting from the state of the vegetation of the wetland.

Overall, an impact score of 1,54 was assessed when combining the three components which resulted in the Class B rating. Importantly, the Class B rating for the wetland is **expected to slowly deteriorate** over time due to continued dumping and increased colonisation of alien vegetation.

4.2.4 Sensitive Area Survey

The potential wetland ecosystem services assessed which scored highest for the depression wetland included **sediment trapping, erosion control and flood attenuation**. The depression wetland therefore offers good potential for stormwater management in the area. In general, the depression wetland was not found to offer a high number of potential ecosystem services to a significant degree, owing mainly to the limited extent and degraded current state of the wetland. The potential wetland ecosystem services assessed to be provided by the un-channelled valley bottom wetland which scored highest included **biogeochemical cycling (phosphate and nitrate / toxicant removal), sediment trapping, erosion control, streamflow regulation and flood attenuation**. The wetland therefore offers good potential for water purification and stormwater control in the area. Overall, the wetland has a significant ecological role within the surrounding landscape.

The most important determinant that the depression wetland scored highest, in terms of ecological importance and sensitivity, was for being ecologically sensitive to change in the natural regime of the hydrology of the wetland. Despite the diminutive extent of the wetland, the vegetation species present are fairly diverse and some species have a chance of occurrence when the wetland is inundated. Overall, the ecological importance and sensitivity of the **depression wetland was assessed to be a Class C system** which is considered to be moderately ecologically important and sensitive on a provincial or local scale. With regards to the un-channelled valley bottom wetland, a number of the determinants scored high. The wetland provides a relatively sizeable area for habitat and exclusivity to sensitive species, and therefore has a greater chance of occurrence for these sensitive species. Overall, the ecological importance and sensitivity of the **un-channelled valley bottom wetland was assessed to be a Class B system** which is considered to be highly ecologically important and sensitive.

No buffer zone was recommended since the proposed development will include the construction of linear feature that can avoid the wetland and span the artificial drainage channel. A buffer zone was therefore deemed to be impractical and ineffective as the proposed pipeline can avoid the wetlands and span the artificial drainage channel without affecting it directly.

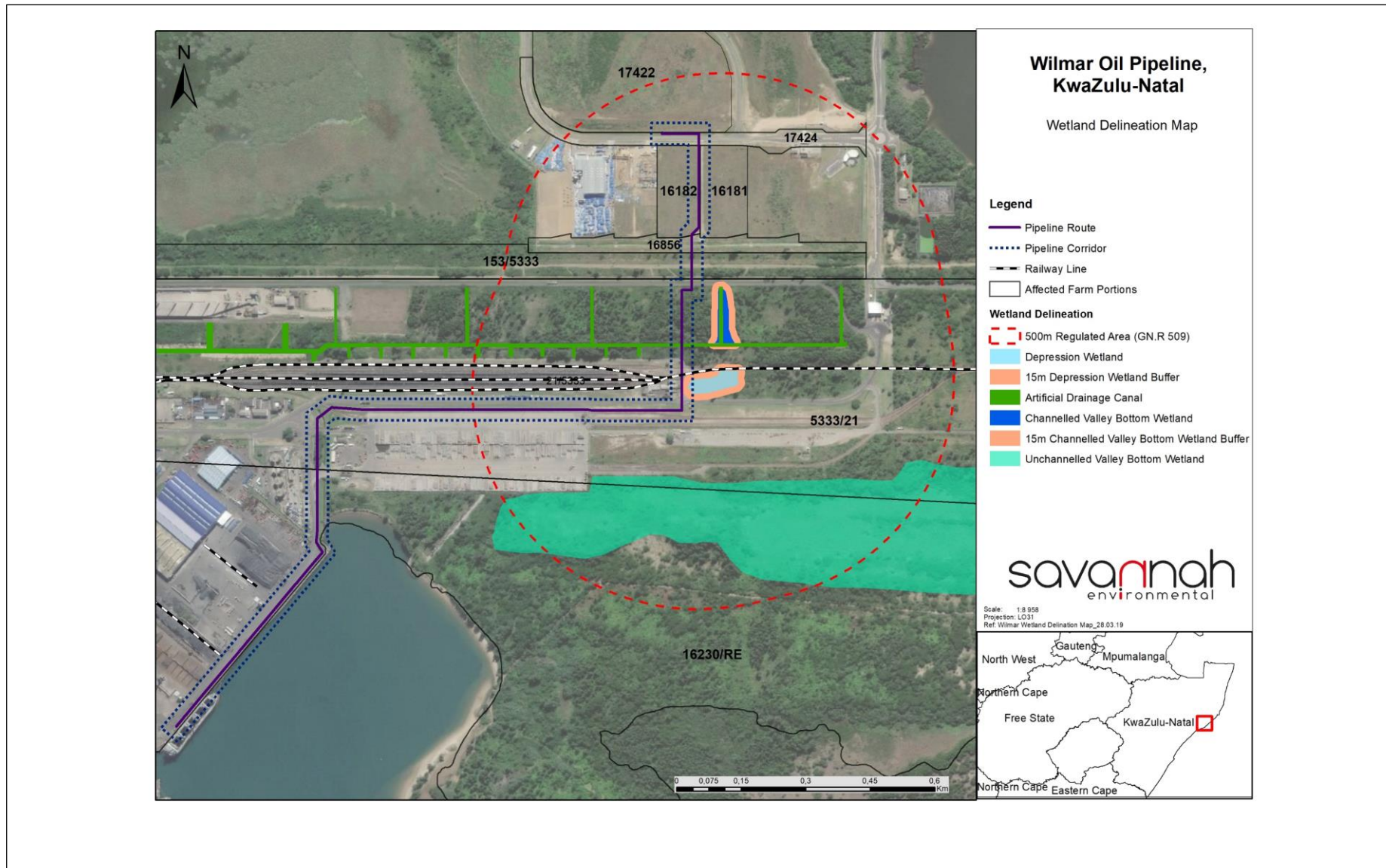


Figure 4.2: A map illustrating the wetlands delineated within the footprint of the Wilmar vegetable oil pipeline corridor.

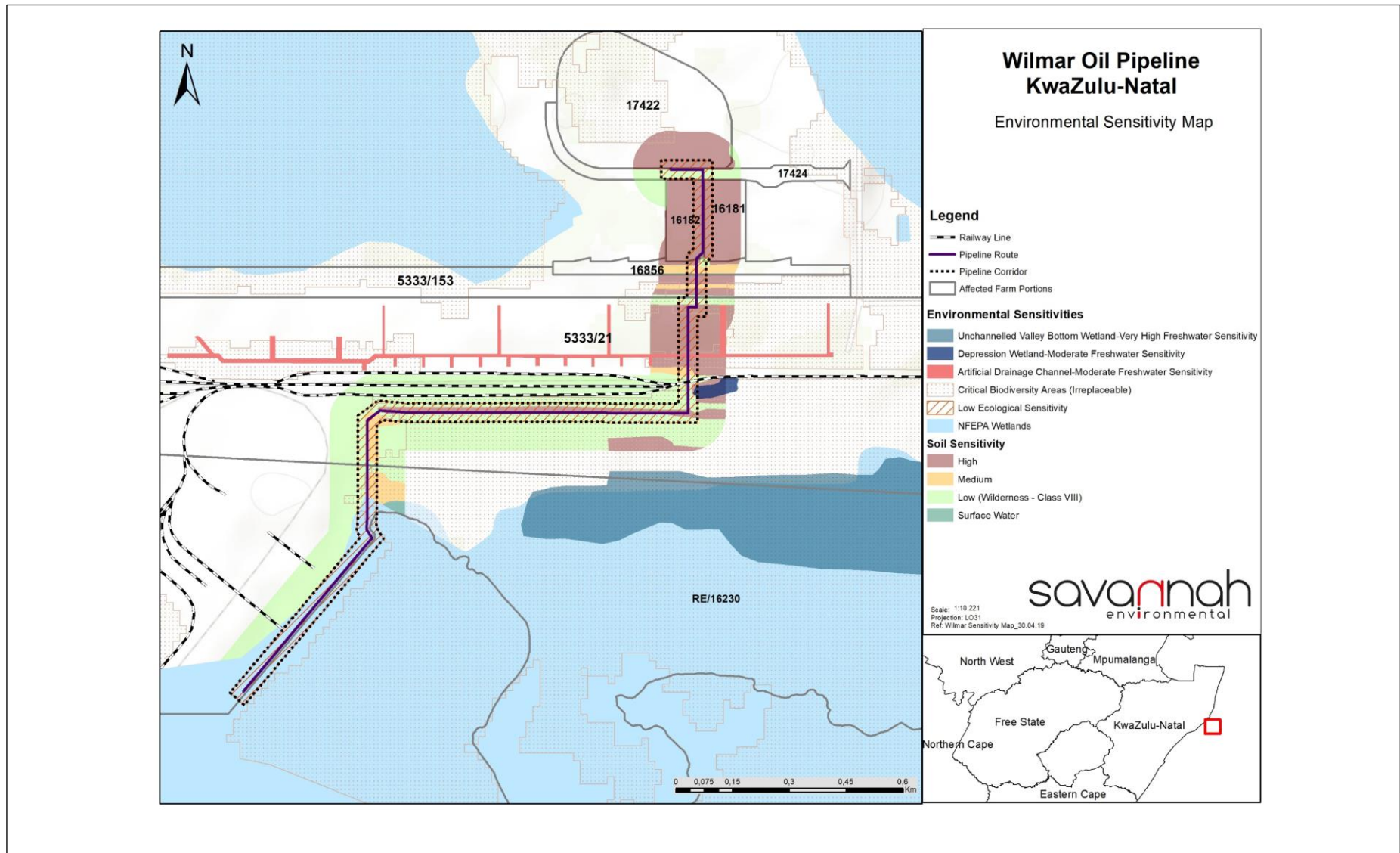


Figure 4.3: A sensitivity map illustrating the environmental sensitive features identified by the various specialists for the Wilmar Vegetable Oil Pipeline corridor.

4.3 Groundwater

According to the 1: 50 000 scale hydrogeological map series (Vryheid, Map Sheet 2730) and from available hydrogeological information, Richards Bay groundwater occurs within the intergranular primary aquifer in the semi-consolidated and unconsolidated sediments deposited during the Tertiary and Quaternary periods. In addition, according to Golder (2014), the depths of the boreholes within the Richards Bay area varies from 30-45m below ground level (mbgl) and the aquifer testing conducted in the area indicated a hydraulic conductivity ranging from 0,5-5m/d.

The groundwater elevation map obtained from previous studies in the area concluded that the groundwater within the development corridor of the pipeline flows both easterly and westerly with a possible divide in the central areas. Generally, the groundwater flow mimics the topographic levels; therefore, the groundwater is likely to flow towards the Richards Bay and the Mzingazi Lagoon.

4.4 Regional Groundwater Use

Germishuyse (1997) indicated that there were no groundwater extractions in the Richards Bay area, since private boreholes were prohibited by the uMhlathuze Municipality by-laws. The uMhlathuze Local Municipality Water Services By-laws 2010 allowed the sinking of abstraction boreholes only above the 50m mean sea level contour line.

4.5 Socio-Economic Environment

The corridor for the Wilmar Vegetable Oil Pipeline is located within Ward 2 of the City of uMhlathuze Local Municipality, which falls within the King Cetshwayo District Municipality in the KwaZulu-Natal Province. A Social Impact Assessment was undertaken as part of the BA process in order to generate an overview of the issues, claims and concerns that interested and affected parties might have with the development of the pipeline; determine and understand land use systems and practices of the people within the surrounding area; and to investigate the potential socio-economic impacts. The demographic data pertaining to the KwaZulu-Natal Province is included in **Table 4.1**.

The dependency ratio, which indicates the burden placed on the working population who support children under 15 years and people over 65 years, is highest across the District at 64.7 and lowest within the local municipal area at 48.2. Between 2001 and 2011 the King Cetshwayo DM had the highest population growth rate compared to both the District and Province with a population growth rate of 1.45%.

The unemployment rate in the area is highest across the province at 33% and lowest within the uMhlathuze LM at 23.7%. In 2011, the level of unemployment in the King Cetshwayo DM was 34.7%. The DM has the highest percentage of education of the population aged 20 and above with no formal schooling, while at 7.5% the uMhlathuze LM has the lowest percentage. The uMhlathuze LM has the lowest percentage of the population having a matric level education at 29.2% compared to the Province at 31.1% and the District at 30.4 %.

Table 4.1: Demographic data pertaining to the KwaZulu Natal Province

Geographic area	94 361.32 km ²	
Population	10 267 300	
Population density	108.81/km ²	
Households	2 539 429	
Household density	26.91/km ²	
Gender	People	Percentage
Male	4 879 020.96	47.52%
Female	5 388 279.04	52.48%
Population Group	People	Percentage
Black African	8 913 043.13	86.81%
Indian/Asian	756 700.01	7.37%
White	429 173.14	4.18%
Coloured	141 688.74	1.38%
Other	26 694.98	0.26%

The average household size is smallest within the uMhlatuze LM at 3.9 compared to 4.0 and 4.5 across the Province and District. There is a lower percentage of female headed households, at 40.7%, within the LM than there is across the Province and District. In terms of dwelling types, formal types of dwelling dominate the area with the LM having the highest percentage at 88.3 followed by the Province at 71.6% and the District at 70%.

4.5.1 Potential Socio-Economic Impacts

The Social Impact Assessment (refer to **Appendix H** of the BA Report) identified that most social impacts associated with the development of the Wilmar Vegetable Oil Pipeline will have a short-term duration associated with the construction phase, with some impacts expected during the operation phase of the pipeline. Positive and negative social impacts have been identified for the construction, whilst only positive impacts are identified for the operation phase of the pipeline.

Negative impacts associated with the construction phase include:

- » Annoyance, dust and noise;
- » Increase in crime;
- » Influx of construction workers;
- » Hazard exposure;
- » Disruption to daily living patterns; and
- » Disruptions to social and community infrastructure.

Positive impacts associated with the construction phase include:

- » Job creation; and
- » Socio-economic benefits.

Positive impacts associated with the operation phase includes:

- » Socio-economic stimulation

The significance of the positive impacts associated with the social aspects that will be affected by the development of the Wilmar Vegetable Oil Pipeline are of a medium significance following the implementation of the enhancement measures recommended by the specialist; whereas the significance of the negative impacts associated with the social aspects that will be affected by the Wilmar Vegetable Oil Pipeline are of a medium to low significance following the implementation of the mitigation measures recommended by the specialist.

CHAPTER 5: ANALYSIS AND CHARACTERISATION OF ACTIVITY

Refer to **Chapter 1,2** and **3** for a description of the project and the receiving environment. The identified water uses are described in section 3.5, and the potential impacts of the Wilmar Vegetable Oil Pipeline to the wetland systems identified within the surrounding area are described in detail below.

5.1 Site delineation for characterisation

Please refer to the Wetland Delineation and Impact Assessment (**Appendix C**) specialist report for a complete delineation and characterisation of the watercourses on site.

Based on the results of the risk assessment specialist study, and the wetland delineation and impact assessment specialist study, the following pollution sources may potentially impact on the wetland features present on site, :

Construction Phase

- » Silt and sediment introduced into the wetlands from the following activities in close proximity to the wetland features:
 - Vegetation clearing for site establishment and infrastructure;
 - Unsecured material stockpiles/stores;
 - Vehicle movements in close proximity to the depression wetland; and
 - Excavation, piling and foundation/support installation.
- » Improper maintenance of construction vehicles may lead to spillages and leaks of oil or other hazardous substances;
- » Improper bunding, storage and handling of hazardous materials during construction;
- »

Operational Phase

- » Inadequate operational controls, monitoring and maintenance of the pipeline

5.2 Water and Waste Management

5.2.1 Process Water

No process water will be required for during the operation phase of the pipeline, as the project will be for the development of a pipeline in order to transport vegetable oils from the Richards Bay Port to the proposed processing facility, and therefore does not employ water during operations.. The operations of the pipeline will not require water for the 20-year lifespan; however, water will be required during the 6-month construction phase of the project. Here, the applicant will enter into a service level agreement with Transnet National Port Authority or the uMhlatuze Local Municipality for the provision of water during the construction phase of the pipeline.

5.2.2 Waste Water

Waste water during the project life-cycles of the Wilmar Vegetable Oil Pipeline will be managed in accordance with the mitigation actions included in the EMP; and the conditions of the Environmental Authorisation (EA) and the water use authorisation.

Sanitary water (i.e. sewage) generated on site will be contained in portable toilets during the construction phase, which will be regularly emptied and removed to a registered WWTP in the Richards Bay area. No sewage will be generated on site during the operations phase of the project.

5.2.3 Stormwater Management

A Stormwater Management Plan (SWMP) has been developed for the construction phase of the Wilmar Vegetable Oil Pipeline (refer to **Appendix H**). It is, therefore, anticipated that the Plan will be formalised by the Engineering and Procurement Contractor (EPC) prior to the commencement of the construction phase. Therefore, the primary objective of the SWMP associated with the construction phase will be for the management and containment of dirty water generated in working areas along the development corridor for the pipeline (i.e. workshop area etc.)

5.2.4 Groundwater

Owing to the nature of the proposed development, the impact of the development on groundwater will be minimal provided the mitigation actions recommended within this IWWMP and the EMP are implemented, where applicable during the project life-cycles. Therefore, in the context of the Wilmar Vegetable Oil Pipeline, the impact of the development on groundwater is considered to be low.

5.3 Impact Assessment Methodology

An impact assessment process was undertaken by Savannah Environmental in accordance with the approach outlined in the Operational Guideline: Integrated Water and Waste Management Plan (DWA, 2010), to assess the potential impacts associated with the Wilmar Vegetable Oil Pipeline, particularly, on freshwater and/or surface water resources identified within the vicinity of the development corridor. The potential impacts were assessed in terms of the following criteria:

- » The **nature**, a description of what causes the effect, what will be affected, and how it will be affected;
- » The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional, national or international. A score of between 1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high);
- » The **duration**, wherein it is indicated whether:
 - * The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
 - * The lifetime of the impact will be of a short duration (2–5 years) - assigned a score of 2;
 - * Medium-term (5–15 years) – assigned a score of 3;
 - * Long term (> 15 years) - assigned a score of 4;
 - * Permanent - assigned a score of 5.
- » The **magnitude**, quantified on a scale from 0–10, where a score is assigned:
 - * 0 is small and will have no effect on the environment;
 - * 2 is minor and will not result in an impact on processes;
 - * 4 is low and will cause a slight impact on processes;
 - * 6 is moderate and will result in processes continuing but in a modified way;
 - * 8 is high (processes are altered to the extent that they temporarily cease);
 - * 10 is very high and results in complete destruction of patterns and permanent cessation of processes.

- » The **probability of occurrence**, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:
 - * Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
 - * Assigned a score of 2 is improbable (some possibility, but low likelihood);
 - * Assigned a score of 3 is probable (distinct possibility);
 - * Assigned a score of 4 is highly probable (most likely);
 - * Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- » The **status**, which is described as either positive, negative or neutral;

The **significance** is determined by combining the criteria in the following formula:

$S=(E+D+M)P$; where

S = Significance weighting.

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- » **< 30 points:** Low (i.e. where this impact would not have a direct influence on the decision to develop in the area);
- » **30-60 points:** Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated);
- » **> 60 points:** High (i.e. where the impact must have an influence on the decision process to develop in the area).

5.3.1 Potential Impacts on Wetlands

The majority of the impacts on wetlands associated with the development would occur during the construction phase as a result of the disturbance associated with construction activities and the impacts thereof on the wetlands present within the study area. Potential impacts and the relative significance of the impacts are summarised below (refer to **Appendix C**).

As the Wilmar Vegetable Oil Pipeline will be a linear feature which can avoid the footprint of the depression wetland, and span the artificial drainage channel, the impacts anticipated are expected to only be limited to indirect impacts on the system and the artificial drainage line.

5.3.2 Description of Wetland and Artificial Drainage Channel Impacts

Potential impacts on the wetland and artificial drainage channel features would result from a variety of activities and risk factors associated with the construction and operation phases of the project. Direct potential impacts to the depression wetland and artificial drainage channel are not expected as the proposed pipeline will span the channel and avoid the wetland, as advised with the mitigation measures

below, and no mounting or piling structures are to be placed directly within the depression wetland and artificial drainage channel. Furthermore, a very low risk impact is expected for the nearby un-channelled valley bottom wetland since there are a number of physical barriers (i.e. two (2) derelict tarred access roads and a railway line). The unchanneled valley bottom wetland is also located at a short distance from the road (~20m), with dense vegetation cover between the road and the wetland, thus shielding it from incidental human interference. The wetland does however experience impacts from the ongoing and **nearby operation of a storage and transfer facility**, which stores a wide variety of materials transported by the rail network (to and from the port). Chromium fines were evident during the site visit conducted for the wetland delineation impact assessment, with visible wind-blown fines found throughout the site. It is anticipated that other stored materials may also be introduced to the unchanneled valley bottom wetland during windy conditions, or rainfall events.

During the construction phase the following impacts are expected to occur:

- » *Impacts on hydrology and geomorphology of the depression wetland and artificial drainage channel*
Minimal potential impacts to the hydrology and geomorphology of the depression wetland and artificial drainage channel however, may occur due to the construction works adjacent the depression wetland. Minor excavation during construction for the mounting and piling structures of the proposed pipeline sections in the vicinity of the depression wetland and artificial drainage channel, may increase sediment availability and potential drainage via run-off into the natural and artificial wetland systems where rains occur.
- » *Impacts on the water quality of the depression wetland and the artificial drainage channel*
The potential for indirect impacts relate to impacts on the water quality of the wetlands, including the possible contamination of water quality as a result of leaks and spillages of oils and fuels directly from construction vehicles working nearby, or where hazardous substances and liquids are stored within or near the wetland and artificial drainage channel. There is also the possibility of chemical contamination from any temporary chemical toilets that are placed within or close to the wetland and artificial drainage channel during construction.

During the operation phase, the following impacts may be occur:

- » *Potential risk of impacts due to spillages, as a result of mechanical failure on the pipeline*
Possible leaks and spills from the pipeline can be caused by construction defects on the pipeline and the associated infrastructure (i.e. valves & clamps); cracking or corrosion of the carbon steel. In addition, spills can also occur if the valves and/or the joints of the pipeline are not properly sealed and maintained.

5.2.3 Impact tables summarising the significance of impacts on the wetland and artificial drainage channel during the construction and operation phase of the Wilmar Vegetable Oil Pipeline

Construction and Operation Phase Impacts

Construction Phase					
Nature of Impact	Probability		Significance		Mitigation
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation	
There is a small potential for additional sediment loads to enter the depression wetland and artificial drainage channel from the excavated soils taken from the areas where the mounting structures are proposed. The sediment can enter the wetlands via surface run-off after rain events.	Probable (3)	Improbable (2)	Low (21)	Low (8)	<ul style="list-style-type: none"> » No soil stockpiles are to be placed directly within, or within 15m of the depression wetland or the artificial drainage channel. » All soil stockpiles within 15m of the depression wetland and the artificial drainage channel are to be adequately bunded to ensure that no sediment enters the wetlands via surface run-off. Bunding can take the form of stacked bricks or wooden planks fixed with pegs surrounding the stockpiles. » Soil stockpiles are to be removed as soon as possible after construction in an area is completed to limit disturbance. Removed soils can be re-used (where appropriate) for levelling during the construction phase or rehabilitation post-construction or can be disposed of at a suitable and registered landfill site that has sufficient capacity to assimilate the waste. » No mounting or piling structures are to be placed directly in the wetland or drainage channels. » The proposed pipeline must avoid the depression wetland completely (as per the current updated layout). » Vegetation clearance in general must also be limited as far as possible. No clearance is to be undertaken in adjacent areas, particularly the wetland and drainage line channels. » No laydown of material, machinery, stockpiles or any other construction equipment may be allowed within the demarcated depression wetland footprint. » The existing access road and associated bare turning area is to be utilised as far as possible during construction of any support structures near the depression wetland. » The depression wetland must be demarcated with tape or other similar markers and no worker movement is allowed in the wetland for construction of the proposed pipeline. Worker movement in the drainage channel must be limited as far as possible to minimise disturbance. » In general, movement of workers must be limited to the servitude / right of way of the proposed pipeline. Workers are not allowed to wonder freely into the surrounding areas, particularly the wetland and drainage channel. » No vehicles or machinery are allowed in the depression wetland or artificial drainage channel. » Construction of the proposed pipeline must take place as far as possible in the winter months (April/May to August/September) as these are the drier months in which rainfall is likely to be limited. » An alien invasive eradication and control management programme must be compiled to manage encroachment of alien species within the wetland and along the entire proposed pipeline. However, it may be required that an alien invasive and control management programme is to be compiled to manage the greater Transnet Railyard North area, as encroachment is likely from the adjacent areas around the proposed pipeline route. It is likely that there is an existing management plan / programme being implemented by Transnet for the Railyard North Section that can be used and updated to include management of the alien invasive management in the wetland and drainage channel. Importantly, the alien invasive monitoring and control management programme is also to be implemented post-construction for approximately two to five years to ensure alien invasives do not encroach following construction. Should there be an existing management plan, this component should be added to this specifically. Post-construction alien invasive eradication and control management is to be advised by the relevant monitoring agent on a yearly basis, who will monitor the success of the programme and will either identify further management measures or advise whether the control programme has been successful.
Water contamination from temporary chemical toilets and due to vehicle oil and fuel leakages, spillages, storage of hazardous materials and liquids near the wetland and artificial drainage channel.	Probable (3)	Improbable (2)	Medium (30)	Low (8)	
Water contamination from temporary chemical toilets and due to vehicle oil and fuel leakages, spillages, storage of hazardous materials and liquids near the wetland and artificial drainage channel.	Probable (3)	Improbable (2)	Medium (30)	Low (8)	

					<ul style="list-style-type: none"> » Temporary chemical sanitation facilities must not be placed in the wetland and artificial drainage channel. Rather these will need to be placed at least 100m away. Temporary chemical sanitation facilities must also be checked regularly for maintenance purposes and cleaned often to prevent spills. » Spill kits must be available on site and should be appropriately serviced to ensure they are useable in the event of a spill. <p>In case of spillages of hazardous substances, the spill should be collected immediately, and the contaminated soil stored in a designated area until it can be safely disposed of at a registered hazardous chemical substance disposal facility.</p>
Operation Phase					
<p><u>Leaks of vegetable oil from the pipeline could be caused by construction defects of the pipeline, cracking or corrosion of carbon steel (the material making up the pipeline). In addition, leaks of vegetable oil could also potentially occur if the valves or joints of the pipeline are not properly maintained.</u></p>	Probable (3)	Improbable (2)	Low (24)	Low (8)	<ul style="list-style-type: none"> » Implement an inspection programme to maintain the mechanical integrity and operability of the pipeline, valves, and any other associated process equipment. » Prepare and implement Standard Operating Procedures (SOPs) for the pumping of vegetable oil from the vessels, as well as for activities associated with undertaking maintenance work and routine checks on the pipeline. » Monitor the pipeline, valves and joints for potential ruptures, failures and overfilling. These should be reported to the Technical or Operations Manager immediately and in the event of a significant spill, the following procedure should be followed: <ul style="list-style-type: none"> * Stop the spill or leak at the source. * Contain the spill. * Remove the spillage for authorised disposal. * Assess and determine if there was any impact to the natural environment following the spill. * Where necessary, undertake remedial actions in consultation with KZN DWS. * Record the incident and keep all records. » Should any significant spillages of the vegetable oil or any other hazardous substances occur, these should be reported to KZN DWS. » Ensure an Emergency Response Plan is compiled and implemented in the event of an accidental leakage or spill of vegetable oil. <p>Undertake non-destructive tests on the pipeline continuously to ensure its competency to handle the envisaged volume of raw material being transported from the Richards Bay Port to the proposed oil processing facility at Phase 1A of the RB IDZ.</p>

CHAPTER 6: PUBLIC PARTICIPATION

A 30-day Public Participation Process (refer to **Appendix F**) was undertaken in accordance with the 2014 EIA Regulations in fulfilment of the requirements for the application for an environmental authorisation. Therefore, in order to comply with Section 41(4)(ii) of the National Water Act (Act No. 36 of 1998) and Regulation 17(2)-(5) of GNR 267 of March 2017, a 30-day Public Participation Process will be undertaken for the water use authorisation for the Wilmar Vegetable Oil Pipeline. The overall Public Participation Process for the Wilmar Vegetable Oil Pipeline were achieved via the following:

- » Placement of site notices announcing the BA process at Phase 1A of the Richards Bay Industrial 13 December 2019, in accordance with the requirements of the 2014 EIA Regulations. Photographs and the GPS co-ordinates of the site notices are contained in **Appendix F1**.
- » Water Use Authorisation process notification letters announcing the water use authorisation process, notifying Organs of State, potentially affected and neighbouring landowners, as well as registered stakeholders/I&APs of the Wilmar Vegetable Oil Pipeline, providing background information of the project and inviting I&APs to register on the project's database, were distributed via email on **11 February 2020**. The evidence of the distribution of the process notification letters are contained in **Appendix F** of the IWMMP.
- » Placement of advertisement announcing the water use authorisation process and the availability of and inviting comment on the documents in the Zululand Observer Newspaper on **14 February 2020**. The details of the newspaper advert placement in **Appendix F2**.
- » The IWMMP will be made for review by I&APs for a 60-day review and comment period from **Friday, 14 February 2020 – Friday, 17 April 2020**. Documents submitted to the KwaZulu-Natal Department of Water and Sanitation has also been made available on Savannah Environmental's website (<https://www.savannahsa.com/public-documents/other/>).

In order to accommodate the varying needs of stakeholders and I&APs within the greater study area, as well as capture their views, comments, issues and concerns regarding the project, various opportunities have been and will continue to be provided to I&APs to note their comments and issues. I&APs are being consulted through the following means:

Table 6.1: Public involvement for the Wilmar Vegetable Oil Pipeline

Activity	Date
Distribution of the process notification and stakeholder reply form announcing the water use authorisation process and inviting I&APs to register on the project database.	11 February 2020
Placement of site notices on-site and in public places.	13 December 2019
Distribution of notification letters announcing the availability of the IWMMP and other documents required for the water use authorisation for a 60-day review and comment period. These letters were distributed to Organs of State, Government Departments, Ward Councillors, landowners within the greater study area (including neighbouring landowners) and key stakeholder groups.	11 February 2020
Advertising of the availability of the IWMMP for a 60-day review and comment period in the Zululand Observer Newspaper	14 February 2020

60-day review period for the IWWMP and other documents required for water use authorisation for comment.	14 February 2020 – 17 April 2020
On-going consultation (i.e. telephone liaison; e-mail communication) with all I&APs	Throughout the 60-day review and comment period.

The purpose of the abovementioned consultation was to engage with key stakeholders to ensure that key requirements/comments are noted and addressed as part of the water use authorisation process.

CHAPTER 7: WATER & WASTE MANAGEMENT

The Environmental Management Programme (EMPr) for the project compiled by Savannah Environmental (refer to **Appendix G**) provides specific environmental guidance for the construction and operation phases of the project, including measures to “manage and mitigate construction and operation activities so that unnecessary or preventable environmental impacts do not result”. This EMPr has been approved by the KZN EDTEA within the Authorisation issued for the project.

The specifications detailed in the EMPr include those associated with pre-construction phase impacts (i.e. site clearing and site establishment), impacts during the construction phase (i.e. erosion, noise, and dust), impacts during the rehabilitation of the site (i.e. soil stabilisation, re-vegetation) and impacts during the operation and decommissioning phase (similar to construction phase activities).

The development objectives for all phases of the Wilmar Vegetable Oil Pipeline, which correspond to those stipulated in the EMPr include:

- » ensuring that construction activities are properly managed in respect of environmental aspects and impacts;
- » minimising the impact on the indigenous natural vegetation, protected tree species, and habitats of ecological value (i.e. the depression wetland);
- » minimising impacts on fauna using the site; and
- » establishing an environmental baseline during construction activities on the site, where possible.

7.1 Roles and Responsibilities

As the applicant, Wilmar Processing (Pty) Ltd must ensure that the development and operation of the vegetable oil pipeline complies with the conditions and requirements of the environmental authorisation, permits and obligations emanating from other relevant environmental legislation. This obligation is partly met through the development and implementation of the EMPr, and through its integration into the contract documentation with the EPC Contractor. In addition, clear reporting, communication and responsibilities must be implemented in relation to the IWWMP, which summarises the water-related management strategies of the EMPr.

To ensure the implementation of fundamental procedures, formal responsibilities are required; therefore, the EMPr (**Appendix H**), prescribes specific responsibilities of the the Site Manager, Safety and Health Representative, Independent Environmental Control Officer (ECO) and Contractor for the construction phase of this project are as detailed below. Formal responsibilities are necessary to ensure that the key procedures are executed.

Site Manager (EPC Contractor's on-site Representative) will:

- » Be fully knowledgeable with the contents of the EMPr and IWWMP.
- » Be fully knowledgeable with the contents and conditions of the Water Use License or General Authorisation (once issued).
- » Be fully knowledgeable with the contents of all relevant environmental legislation, and ensure compliance with these
- » Have overall responsibility of the IWWMP and its implementation.
- » Conduct audits to ensure compliance to the EMPr.
- » Ensure there is communication with the Technical Director, the ECO, and relevant discipline engineers on matters concerning water resources.
- » Ensure that no actions are taken which will harm or may indirectly cause harm to water resources, and take steps to prevent pollution on the site.

An independent **Environmental Control Officer (ECO)** will be responsible for monitoring, reviewing, and verifying compliance by the Contractor. The ECO will:

- » Be fully knowledgeable with the contents with the IWWMP and EMPr.
- » Be fully knowledgeable with the contents and conditions of the Water Use Licence (once issued).
- » Be fully knowledgeable with the contents with all relevant environmental legislation, and ensure compliance with said legislation.
- » Ensure that the contents of this document are communicated to the Contractor site staff and that the Site Manager and Contractor are constantly made aware of the contents through discussion.
- » Ensure that the compliance of the IWWMP and EMPr is monitored through regular and comprehensive inspection of the site and surrounding areas.
- » Ensure that monitoring and verification are implemented to ensure that environmental impacts are kept to a minimum, as far as possible, and that mitigation measures are implemented.
- » Ensure that a removal is ordered of any person(s) and/or equipment responsible for any contravention of the specifications of the EMPr and the IWWMP.
- » Ensure that any non-compliance or remedial measures that need to be applied are reported.
- » Keep records of all activities on site, problems identified, transgressions noted and a task schedule of tasks undertaken by the ECO.

Contractors and Service Providers: the Contractor is responsible for informing employees and sub-contractors of their environmental obligations in terms of the environmental specifications outlined in the EMPr and the IWWMP. The contractor's responsibilities include the following:

- » Employees must have a basic understanding of the key environmental features of the construction site and the surrounding environment.
- » A copy of the IWWMP and EMPr must be easily accessible to all on-site staff members.
- » Employees must be familiar with the requirements of this IWWMP and EMPr, and the environmental specifications as they apply to the construction of the proposed facility.
- » Ensure adherence to the environmental management specifications.
- » Ensure that any instructions issued by the Site Manager on the advice of the ECO are adhered to.
- » Ensure that activities on site comply with all relevant environmental legislation.
- » Ensure that there is communication with the Site Manager regarding the monitoring of the site.

- » Ensure that any non-compliance or remedial measures that need to be applied are reported immediately.
- » Contractors must be required to adopt a certain Code of Conduct and commit to restricting construction activities to areas within the development footprint.

7.2 Action Plan

An action plan has been developed in accordance with the environmental and compliance-related aspects associated with water and waste management of the Wilmar Vegetable Oil Pipeline (refer to **Table 7.1**). The plan incorporates the objects set through the EMPr as well as key water management issues identified as part of the IWWMP process.

Table 7.1: Wilmar Vegetable Oil Pipeline IWWMP Action Plan

Strategy						
Aspects	Description	Objectives				
Water Resource Protection and Monitoring and compliance		Minimise impacts related to inappropriate site establishment	Limit the ecological footprint of the pipeline	Appropriate handling and management of waste	Appropriate handling and storage of chemicals, hazardous substances	Ensure rehabilitation of disturbed areas such that residual environmental impacts are remedied or curtailed.
	The depression wetland and other protected tree species located within and along the pipeline corridor should be clearly demarcated with fencing or orange mesh netting. The barricading measures should not restrict the movement of fauna in and out of the area.					
	Ablution or sanitation facilities must not be located within 100m from the identified wetlands or drainage channels.					
	Foundations and trenches must be backfilled to originally excavated materials as much as possible. Excess excavation materials must be disposed of only in approved areas, or, if suitable, stockpiled for use in reclamation activities.					
	All litter must be deposited in a clearly marked, closed, animal-proof disposal bin in the construction area. Particular attention needs to be paid to food waste.					

	Vegetation clearance must start in the dry season as far as possible.					
	All vehicles and machinery must be checked for leaks before being allowed to operate on the project site. Should leaks be detected, the relevant vehicles and machinery must be repaired before being allowed to operate on the project site.					
	Temporary sanitation facilities may not be placed directly or within 100m of the depression wetland or the artificial drainage channel.					
	Implement an integrated waste management approach that is based on waste minimisation and incorporates reduction, recycling, re-use and disposal where appropriate.					
	All temporary facilities, equipment, and waste materials must be removed from site as soon as construction is completed.					
	Develop and implement an environmental management system (EMS) for the vegetable oil pipeline and associated infrastructure.					
	Manage and report on the pipeline's environmental performance.					

	Conduct internal environmental audits and co-ordinate external environmental audits.					
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7.1 Management Objectives

The EMPr (**Appendix G**), the Wetland Delineation Assessment (**Appendix C**) and the Risk Matrix Assessment Report (**Appendix D**) present management objectives along with recommended actions to ensure minimal impacts to the environment. The following section details those objectives relevant to the management of the water resource as extracted from the project EMPr, and provides the sources of risk, mitigation measures, performance indicators and monitoring recommendations as presented in the above-mentioned documents, with particular emphasis on the efficient management of water resources and water use.

7.1.1 Construction Phase

OBJECTIVE: Minimise impacts related to inappropriate site establishment

Project Component/s	» Pipeline
Potential Impact	» Hazards to landowners and the public. » Visual impact of general construction activities.
Activities/Risk Sources	» Excavations. » Movement of construction vehicles in the area and on-site » Transport to and from the temporary construction area/s.
Mitigation: Target/Objective	» To secure the site against unauthorised entry. » To protect members of the public/landowners/residents. » Minimal visual intrusion by construction activities.

Mitigation: Action/Control	Responsibility	Timeframe
All personnel should undergo environmental induction with regards to fauna and, in particular, awareness about not harming or collecting species such as snakes, tortoises and owls, which are often persecuted out of superstition.	Developer Contractor	Site establishment and Construction
The depression wetland and other protected tree species located within and along the pipeline corridor should be clearly demarcated with fencing or orange mesh netting. The barricading measures should not restrict the movement of fauna in and out of the area.	Developer Contractor EO	Pre-construction and construction
Secure site, working areas and excavations in an appropriate manner.	Contractor	Site establishment, and Construction
Ensure access to adjacent areas is strictly controlled.	Contractor	Construction.
Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.	Contractor	Construction
Adequate protective measures must be implemented to prevent unauthorised access to the working area.	Contractor	Site establishment, and Construction

Mitigation: Action/Control	Responsibility	Timeframe
All open and unattended excavations must be adequately demarcated.	Contractor	Construction
Establish appropriately bunded areas for storage of hazardous materials (i.e. fuel to be required during construction).	Contractor	Site establishment
Visual impacts must be reduced during construction through minimising areas of surface disturbance, controlling erosion, using dust suppression techniques, and restoring exposed soil as closely as possible to their original contour and vegetation.	Contractor	Site establishment, and Construction
Provide adequate ablution and sanitation facilities and ablutions for construction workers so that the surrounding environment is not polluted (at least one sanitary facility for each sex and for every 30 workers as per the 2014 Construction Regulations; Section 30(1) (b)) at appropriate locations on site). The facilities must be placed within the construction area and along the road.	Contractor	Site establishment, and Construction
Ablution or sanitation facilities must not be located within 100m from the identified wetlands or drainage channels.	Contractor	Site establishment, and Construction
Supply adequate weather and vermin proof waste collection bins and skips (covered at minimum with secured netting or shade cloth) at the site where construction is being undertaken. Separate bins should be provided for general and hazardous waste. Provision should be made for separation of waste for recycling.	Contractor	Site establishment, and Construction
Foundations and trenches must be backfilled to originally excavated materials as much as possible. Excess excavation materials must be disposed of only in approved areas, or, if suitable, stockpiled for use in reclamation activities.	Contractor	Site establishment, and Construction and Rehabilitation

Performance Indicator	<ul style="list-style-type: none"> » No members of the public/ landowners injured. » Appropriate and adequate waste management and sanitation facilities provided at construction site.
Monitoring	<ul style="list-style-type: none"> » An incident reporting system is used to record non-conformances to the EMPr. » EO and ECO to monitor all construction areas on a continuous basis until all construction is completed. Non-conformances will be immediately reported to the Site Manager.

OBJECTIVE: Limit the ecological footprint of the pipeline

Project Component/s	» Pipeline
Potential Impact	<ul style="list-style-type: none"> » Loss of threatened flora and faunal species. » Removal of wetland habitat. » Erosion of soils surrounding wetland. » Potential proliferation of alien and invasive species within the wetland. » Contamination of wetland areas as a result of spillages
Activities/Risk Sources	<ul style="list-style-type: none"> » Vegetation clearance » Fuelling, usage and maintenance of construction vehicles. » Cement usage. » Labourer using ablution facilities. » Use of any chemicals or hazardous materials/dangerous goods during construction.

	<ul style="list-style-type: none"> » Movement of construction vehicles in the area and on-site » Transport to and from the temporary construction area/s.
Mitigation: Target/Objective	<ul style="list-style-type: none"> » Reduce potential loss of habitat and ecological structure » No incidents related to spills of chemicals and hazardous materials. » No release of contaminated water in watercourses including streams and pans. » No loss of or damage to vegetation in areas outside the immediate development footprint.

Mitigation: Action/Control	Responsibility	Timeframe
Any fauna threatened by the construction activities should be removed to safety by an appropriately qualified person.	Developer Contractor	Site establishment and Construction.
Vegetation clearance must start in the dry season as far as possible.	Developer Contractor	Site establishment and Construction.
Ensure that vegetation is not unnecessarily cleared or removed during the construction phase. Avoid clearing the vegetation cover all at once; the study area can be divided into subsections that will be progressively cleared only when required according to the construction schedule.	Contractor	Site establishment and Construction.
Ensure that no activities infringe on identified no-go, very high and high sensitivity areas.	Contractor	Construction
Where erosion takes place, the EO must inspect the degree of erosion and propose suitable mitigation measures to prevent further erosion.	Contractor EO	Site establishment and duration of contract.
If there are active nests near construction areas, these should be reported to the ECO and should be monitored until the birds have finished nesting and the fledglings have left the nest.	Contractor	Pre-construction and Construction
No killing and poaching of any wild animal is to be allowed. This should be clearly communicated to all employees and subcontractors by the EO.	EO Contractor	Pre-construction and duration of project.
EO to enforce a ban on hunting and collecting of avifauna or their products (e.g. eggs and nestlings).	EO	Pre-construction and Construction.
Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).	Contractor	Construction
No laydown areas, operation and maintenance buildings are to be established in the wetland areas and associated buffer zones.	Contractor	Pre-construction, construction
Vehicle movement within the wetlands must be prohibited, and existing service roads utilised where practical and feasible.	Contractor	Construction
Ensure strict management of potential sources of pollution (hydrocarbons from vehicles and machinery, cement during construction, etc.). General storage of fuels, oils and any other hazardous substances must be contained in bunded areas.	Contractor	Construction
All vehicles and machinery must be checked for leaks before being allowed to operate on the project site. Should leaks be detected, the relevant vehicles and machinery must be repaired before being allowed to operate on the project site.	Contractor	Construction
Temporary sanitation facilities may not be placed directly or within 100m of the depression wetland or the artificial drainage channel.	Contractor	Construction

Mitigation: Action/Control	Responsibility	Timeframe
Temporary sanitation facilities must be regularly checked for leaks and spillages, and repaired where any leakages are detected before being allowed for use on the project site.	Contractor	Construction
Cleared alien vegetation must not be dumped on adjacent intact vegetation during clearing but must be temporarily stored in a demarcated area.	Contractor	Site establishment, and Construction
Rehabilitate all disturbed areas, construction areas, servitudes, etc. immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.	Contractor	Upon completion of construction, or on an ongoing basis during construction

Performance Indicator	<ul style="list-style-type: none"> » No major preventable spillages are recorded. » No erosion recorded within the depression wetland adjacent to the development area. » No degradation of the water resources within the development area. » Vegetation cover on and in the vicinity of the site is intact (i.e. full cover as per natural vegetation within the environment) with no evidence of degradation or erosion. » Avifaunal microhabitat loss restricted to infrastructure footprint. » Low disturbance and impact on red-listed avifaunal species. » No disturbance of breeding raptors (i.e. no nest abandonment due to disturbance). » No poaching or collecting of avifauna or their products (e.g. eggs and nestlings) by construction personnel.
Monitoring	<ul style="list-style-type: none"> » Monitor management measures in place for potentially hazardous materials. » Monitoring occurrence of erosion and degradation within the depression wetland. » Monitoring of vegetation clearing during construction (by contractor as part of construction contract). » Vegetation is cleared only within footprint areas during construction.

OBJECTIVE: Appropriate handling and management of waste

The construction of the Wilmar Vegetable Oil Pipeline will involve the generation of various wastes. In order to manage the wastes effectively, guidelines for the assessment, classification, and management of wastes, along with industry principles for minimising construction wastes must be implemented. The main wastes expected to be generation by the construction activities include:

- » general solid waste
- » hazardous waste
- » liquid waste (including grey water and sewage)

Project Component/s	» Pipeline
Potential Impact	<ul style="list-style-type: none"> » Inefficient use of resources resulting in excessive waste generation. » Litter or contamination of the site or water through poor waste management practices.
Activity/Risk Source	<ul style="list-style-type: none"> » Hydrocarbon use and storage » Spoil material from excavation, earthworks and site preparation » Other construction wastes
Mitigation: Target/Objective	<ul style="list-style-type: none"> » To comply with waste management legislation. » To minimise production of waste.

- » To ensure appropriate waste storage and disposal.
- » To avoid environmental harm from waste disposal.
- » A waste manifests should be developed for the abluitions showing proof of disposal of sewage at appropriate water treatment works.

Mitigation: Action/Control	Responsibility	Timeframe
Construction method and materials should be carefully considered in view of waste reduction, re-use, and recycling opportunities.	Contractor	Duration of contract
Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.	Contractor	Construction
Construction contractors must provide specific detailed waste management plans to deal with all waste streams.	Contractor	Construction
Ensure no illegal dumping of waste.	Contractor	Duration of contract
Specific areas must be designated on-site for the temporary management of various waste streams. Location of such areas must minimise the potential for impact on the surrounding environment, including prevention of contaminated runoff, seepage, and vermin control.	Contractor	Duration of contract
Implement an integrated waste management approach that is based on waste minimisation and incorporates reduction, recycling, re-use and disposal where appropriate.	Contractor	Duration of construction
Disposal of waste must be in accordance with relevant legislative requirements, including the use of licensed contractors.	Contractor	Duration of contract
Hydrocarbon waste must be contained and stored in sealed containers within an appropriately bunded area and clearly labelled.	Contractor	Duration of contract
No liquid waste, including grey water, may be discharged into any water body or drainage line. All sewage disposal to take place at a registered and operational wastewater treatment works. Slips of disposal to be retained as proof of responsible disposal. These should be made available to the KZN Department of Water and Sanitation as and when required.	Contractor	Maintenance: duration of contract within a particular area
Ensure compliance with all national, regional and local legislation with regard to the storage, handling and disposal of waste.	Contractor	During and post construction.
Documentation (waste manifest) must be maintained detailing the quantity, nature, and fate of any regulated waste. Waste disposal records must be available for review at any time.	Contractor	Duration of contract
SABS approved spill kits to be available on site and easily accessible.	Contractor	Duration of contract
Daily inspection of all chemical toilets and septic tanks must be performed by environmental representatives on site.	Contractor	Duration of contract
Under no circumstances may waste be burnt on site.	Contractor	Duration of construction
Stockpiling of soil or any other materials during construction must not be allowed near steep slopes or watercourses.	Contractor	Duration of construction
Upon the completion of construction, the area must be cleared of potentially polluting materials. Spoil stockpiles must also be	Contractor	Completion of construction

Mitigation: Action/Control	Responsibility	Timeframe
removed and appropriately disposed of or the materials re-used for an appropriate purpose.		

Performance Indicator	<ul style="list-style-type: none"> » No complaints received regarding waste on site or indiscriminate dumping. » Appropriate waste management measures implemented. » Provision of all appropriate waste manifests for all waste streams.
Monitoring	<ul style="list-style-type: none"> » Observation and supervision of waste management practices throughout construction phase. » Waste collection will be monitored on a regular basis. » Waste documentation completed. » Proof of disposal of sewage at an appropriate wastewater treatment works. » A complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon. » An incident reporting system will be used to record non-conformances to the EMPr.

OBJECTIVE: Appropriate handling and storage of chemicals, hazardous substances

The construction phase may involve the storage and handling of a variety of chemicals including adhesives, abrasives, oils and lubricants, paints and solvents.

Project Component/s	<ul style="list-style-type: none"> » Temporary laydown area. » Temporary hydrocarbon and chemical storage areas.
Potential Impact	<ul style="list-style-type: none"> » Release of contaminated water from contact with spilled chemicals. » Generation of contaminated wastes from used chemical containers. » Soil pollution.
Activity/Risk Source	<ul style="list-style-type: none"> » Vehicles associated with site preparation and earthworks. » Construction activities of linear infrastructure. » Hydrocarbon spills by vehicles and machinery during vegetation clearance and transport of workers, materials and equipment and fuel storage tanks. » Accidental spills of hazardous chemicals. » Pollution from concrete mixing.
Mitigation: Target/Objective	<ul style="list-style-type: none"> » To ensure that the storage and handling of chemicals and hydrocarbons on-site does not cause pollution to the environment or harm to persons. » To ensure that the storage and maintenance of machinery on-site does not cause pollution of the environment or harm to persons. » Prevent and contain hydrocarbon leaks. » Store hazardous chemicals safely in a bunded area.

Mitigation: Action/Control	Responsibility	Timeframe
Spill kits must be made available on-site for the clean-up of spills and leaks of contaminants.	Contractor	Duration of contract
Establish an appropriate Hazardous Stores which is in accordance with the Hazardous Substance Amendment Act, No. 53 of 1992. This should include but not be limited to: <ul style="list-style-type: none"> » Designated area; » All applicable safety signage; » Firefighting equipment; » Enclosed by an impermeable bund; 	Contractor	Duration of Contract

Mitigation: Action/Control	Responsibility	Timeframe
<ul style="list-style-type: none"> » Protected from the elements, » Lockable; » Ventilated; and » Has adequate capacity to contain 110% of the largest container contents. 		
In the event of a major spill or leak of contaminants, the relevant administering authority must be immediately notified as per the notification of emergencies/incidents.	Contractor	Duration of contract
Accidental spillage of potentially contaminating liquids and solids must be cleaned up immediately in line with procedures by trained staff with the appropriate equipment.	Contractor	Duration of contract
Any contaminated/polluted soil removed from the site must be disposed of at a licensed hazardous waste disposal facility.	Contractor	Duration of contract
Routine servicing and maintenance of vehicles must not take place on-site (except for emergencies). If repairs of vehicles must take place, an appropriate drip tray must be used to contain any fuel or oils.	Contractor	Duration of contract
All stored fuels to be maintained within an appropriate bund and on a sealed surface as per the requirements of SABS 089:1999 Part 1 and any relevant by-laws.	Contractor	Duration of contract
Fuel storage areas must be inspected regularly to ensure bund stability, integrity, and function.	Contractor	Duration of contract
Construction machinery must be stored in an appropriately sealed area.	Contractor	Duration of contract
Any storage and disposal permits/approvals which may be required must be obtained, and the conditions attached to such permits and approvals will be compiled with.	Contractor	Duration of contract
Transport of all hazardous substances must be in accordance with the relevant legislation and regulations.	Contractor	Duration of contract
An effective monitoring system must be put in place to detect any leakage or spillage of all hazardous substances during their transportation, handling, installation and storage.	Contractor	Construction
Precautions must be in place to limit the possibility of oil and other toxic liquids from entering the soil or clean stormwater system.	Contractor	Construction
Minimise fuels and chemicals stored on site.	Contractor	Construction
Should any hazardous substances be stored on site, these should not pose a risk to the environment, and must be kept outside the 1:100 year flood line. A bund wall must be built around the storage areas and access must be restricted to authorized personnel only.	Contractor	Construction
Implement a Spillage Contingency Plan to handle spills, so that environmental damage is avoided.	Contractor	Construction
<p>In the event of a spillage, the following procedure should be followed:</p> <ul style="list-style-type: none"> » Stop the spill at the source. » Contain the spill. » Remove the spillage for authorised disposal. 	Contractor EO	Construction and duration of contract

Mitigation: Action/Control	Responsibility	Timeframe
<ul style="list-style-type: none"> » Assess and determine if there was any impact to the natural environment following the spill. » Where necessary, undertake remedial actions in consultation with KZN DWS. » Record the incident and keep all records. 		
<p>Should any significant spillages of fuels or chemicals occur during construction, these should be reported to the KwaZulu-Natal Provincial Department of Water and Sanitation:</p> <p>9th Floor, Southern Life Building 88 Joe Slovo Street Durban 4000 Tel: (035) 336 2700 Fax: (031) 336 2849</p>	Contractor EO	Construction
No refuelling, servicing of plant/equipment or chemical substance storage allowed outside of designated areas.	Contractor	Construction
Drip trays should be used during all fuel/chemical dispensing.	Contractor	Duration of contract

Performance Indicator	<ul style="list-style-type: none"> » No chemical spills outside of designated storage areas. » No water or soil contamination by spills. » No complaints received regarding waste on site or indiscriminate dumping. » Safe storage of hazardous chemicals.
Monitoring	<ul style="list-style-type: none"> » Observation and supervision of chemical storage and handling practices and vehicle maintenance throughout construction phase. » A complaints register must be maintained, in which any complaints from the community will be logged. » An incident reporting system will be used to record non-conformances to the EMPr. » On-going visual assessment to detect polluted areas and the application of clean-up and preventative procedures.

7.1.2 Rehabilitation Phase

OBJECTIVE: Ensure appropriate rehabilitation of disturbed areas such that residual environmental impacts are remediated or curtailed

Areas requiring rehabilitation will include all areas disturbed during the construction phase and that are not required for regular operation and maintenance operations. Rehabilitation should be undertaken in an area as soon as possible after the completion of construction activities within that area.

Project Component/s	» Pipeline corridor
Potential Impact	» Environmental integrity of the site undermined resulting in reduced visual aesthetics, erosion and increased runoff, and the requirement for on-going management intervention.
Activity/Risk Source	» Temporary construction areas

	» Other disturbed areas/footprints
Mitigation: Target/Objective	<ul style="list-style-type: none"> » Ensure and encourage site rehabilitation of disturbed areas. » Ensure that the site is appropriately rehabilitated following the execution of the works, such that residual environmental impacts (including erosion) are remediated or curtailed.

Mitigation: Action/Control	Responsibility	Timeframe
Compile and implement a revegetation and rehabilitation plan	Contractor	Following execution of the works
All temporary facilities, equipment, and waste materials must be removed from site as soon as construction is completed.	Contractor	Following execution of the works
Utilise indigenous perennial shrubs and grasses from the local area during rehabilitation of construction areas.	Contractor	Rehabilitation
Remove demarcation measures around protected plant trees species.	Contractor	Following completion of construction activities in an area
No planting or importing any listed invasive alien plant species (all Category 1a, 1b and 2 invasive species) to the site for landscaping, rehabilitation or any other purpose must be undertaken.	Contractor	Following completion of construction activities in an area
All hardened surfaces within the construction equipment camp area should be ripped, all imported materials removed. Where relevant, the area shall be top soiled and re-vegetated.	Contractor	Following completion of construction activities in an area
Necessary drainage works and anti-erosion measures must be installed, where required, to minimise loss of topsoil and control erosion.	Contractor	Following completion of construction activities in an area
Where disturbed areas are not to be used during the operation of the proposed pipeline, these areas must be rehabilitated/re-vegetated with appropriate natural indigenous vegetation and/or local seed mix.	Contractor in consultation with rehabilitation specialist	Following completion of construction activities in an area
Re-vegetated areas may need to be protected from wind erosion and maintained until an acceptable plant cover has been achieved.	Developer in consultation with rehabilitation specialist	Post-rehabilitation
On-going alien plant monitoring and removal must be undertaken on an annual basis.	Developer	Post-rehabilitation
A site rehabilitation programme should be implemented and this should be developed in collaboration with specialists following completion of construction	Contractor in consultation with Specialist	Duration of contract

Performance Indicator	<ul style="list-style-type: none"> » All portions of the site, including construction equipment camp and working areas, cleared of equipment and temporary facilities. » Topsoil replaced on all areas and stabilised where practicable or required after construction and temporally utilised areas. » Disturbed areas rehabilitated and acceptable plant cover achieved on rehabilitated sites. » Completed site free of erosion and alien invasive plants.
Monitoring	<ul style="list-style-type: none"> » On-going inspection of rehabilitated areas in order to determine effectiveness of rehabilitation measures implemented during the operational lifespan of the facility. » On-going alien plant monitoring and removal should be undertaken on an annual basis.

7.1.3 Operation Phase

To ensure that the operation of the pipeline does not have unforeseen impacts on the environment and to ensure that all impacts are monitored and the necessary corrective action taken in all cases. In order to address this goal, it is necessary to operate the pipeline in a way that:

- » Ensures that operation activities are properly managed in respect of environmental aspects and impacts.
- » Enables the operation activities to be undertaken without significant disruption to other land uses in Richards Bay Industrial Development Zone (RBIDZ)
- » Minimises impacts on fauna using the site.

An environmental manager must be appointed during operation whose duty it will be to ensure the implementation of the operational EMPr.

OBJECTIVE: Establish clear reporting, communication, and responsibilities in relation to overall implementation of the EMPr during the operation phase.

Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the Operations Manager, and Environmental Manager for the operation phase of this project are detailed below.

The **Operations Manager** will:

- » Ensure that adequate resources (human, financial, technology) are made available and appropriately managed for the successful implementation of the operational EMPr.
- » Conduct annual basis reviews of the EMPr to evaluate its effectiveness.
- » Take appropriate action as a result of findings and recommendations in management reviews and audits.
- » Provide forums to communicate matters regarding environmental management.

The **Technical/SHEQ Manager** will:

- » Develop and Implement an Environmental Management System (EMS) for the vegetable oil pipeline and associated infrastructure.
- » Manage and report on the pipeline's environmental performance.
- » Maintain a register of all known environmental impacts and manage the monitoring thereof.
- » Conduct internal environmental audits and co-ordinate external environmental audits.
- » Liaise with statutory bodies such as the Kwa-Zulu Natal Provincial Department of Economic Development, Tourism and Environmental Affairs (KZN EDTEA).
- » Conduct environmental training and awareness for the employees who operate and maintain the vegetable oil pipeline.
- » Compile environmental policies and procedures.
- » Liaise with interested and affected parties on environmental issues of common concern.
- » Track and control the lodging of any complaints regarding environmental matters.

OBJECTIVE : Limit the ecological footprint of the pipeline

Indirect impacts on vegetation and terrestrial fauna during operation could result from maintenance activities and the movement of people and vehicles on site. In order to ensure the long-term environmental integrity of the site following construction, maintenance of the areas rehabilitated, post-construction must be undertaken until these areas have successfully re-established.

Project Component/s	» Pipeline
Potential Impact	<ul style="list-style-type: none"> » Disturbance to or loss of vegetation and/or habitat. » Environmental integrity of the site undermined resulting in reduced visual aesthetics, erosion, compromised land capability and the requirement for on-going management intervention. » Mortality and disturbance of fauna and avifauna within and beyond the footprint of the pipeline due to the presence of personnel and the movement of vehicles in the area.
Activities/Risk Sources	<ul style="list-style-type: none"> » Movement of employee vehicles within and around the site. » Human presence
Mitigation: Target/Objective	<ul style="list-style-type: none"> » Maintain minimised footprints of disturbance of vegetation/habitats on-site. » Ensure and encourage plant regrowth in non-operational areas of post-construction rehabilitation.

Mitigation: Action/Control	Responsibility	Timeframe
Rehabilitate disturbed areas should the previous attempt be unsuccessful.	Developer	Operation
Any vegetation clearing that needs to take place as part of the maintenance activities must be done in an environmentally friendly manner, including avoiding the use of herbicides and using manual clearing methods wherever possible.	Developer	Operation and maintenance
Vehicle movements must be restricted to designated access roads.	Developer	Operation
Existing roads must be maintained to ensure limited erosion and impact on areas adjacent to roadways.	Developer	Operation
Maintain erosion control measures implemented during the construction phase.	Developer	Operation
Site access should be controlled and only authorised staff and contractors should be allowed on-site.	Developer	Operation
Any maintenance activities should avoid listed plant species and strive to keep the footprint as low as possible.	Developer	Operation
No herbicides should be used and if vegetation clearing needs to take place, this should be done by hand.	Developer	Operation
An on-going alien plant monitoring and eradication programme must be implemented, where necessary.	Developer	Operation
The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden.	Developer	Operation
Mounting structures are to be monitored post-construction for erosion and subsidence around the depression wetland and artificial drainage channel. This should be undertaken once	Developer	Operation

Mitigation: Action/Control	Responsibility	Timeframe
every year for a period of two (2) years post-construction by an appropriate agent to check on the structural integrity of the structures. If erosion is observed, appropriate measures should be implemented to manage this		
Any potentially dangerous fauna such as snakes or fauna threatened by the maintenance and operational activities must be removed to a safe location.	Developer	Operation

Performance Indicator	<ul style="list-style-type: none"> » Limited soil erosion around site. » No further disturbance to vegetation or terrestrial faunal habitats. » No poaching or collecting of avifauna or their products (e.g. eggs and nestlings) by maintenance personnel. » Continued improvement of rehabilitation efforts.
Monitoring	<ul style="list-style-type: none"> » Regular inspections to monitor plant regrowth/performance of rehabilitation efforts and weed infestation compared to natural/undisturbed areas.

OBJECTIVE: To ensure any vegetable oil spills, leaks and rupture of the pipeline are effectively contained

Taking into consideration that the pipeline is located within 32m of a depression wetland, there could be unforeseen and indirect impacts on the riparian habitat associated with the wetland in the event of a significant spill or a rupture of the pipeline as a result of mechanical faults. Therefore, in order to ensure long-term environmental integrity of the natural environment within which a portion of the pipeline will be located, the mechanical integrity and operability of the pipeline should be monitored at pre-determined periods by Wilmar Processing (Pty) Ltd.

Project Component/s	» Pipeline
Potential Impact	» Disturbance and alteration to ecological processes within the depression wetland.
Activities/Risk Sources	<ul style="list-style-type: none"> » Leaks on the pipeline. » Mechanical failure on the pipeline due to human error during the mechanical integrity inspection. » Potential rupture of the pipeline as a result of sudden pressure surge during pumping. » Corrosion of carbon steel.
Mitigation: Target/Objective	<ul style="list-style-type: none"> » Implement an inspection programme to ensure maintenance the mechanical integrity of the pipeline, valves and other associated process equipment. » Prepare and implement Standard Operating Procedures (SOPs) for the pumping of vegetable from the vessels, as well as for the activities associated with undertaking maintenance work and routine checks on the pipeline.

Mitigation: Action/Control	Responsibility	Timeframe
Monitor the pipeline, valves and joints for potential mechanical failure points. These should be reported to the Technical or Operations Manager immediately.	Developer	Operation
In the event of a significant spill or leak, the following procedure should be followed in addition to that provided by SOPs: * Stop the spill or leak at the source.	Developer	Operation

Mitigation: Action/Control	Responsibility	Timeframe
<ul style="list-style-type: none"> * Contain the spill. * Remove the spillage for authorised disposal. * Assess and determine if there was any impact to the natural environment following the spill. * Where necessary, undertake remedial actions in consultation with KZN DWS. 		
Undertake non-destructive tests on the pipeline continuously to ensure its competency to handle the envisaged volume of raw material (vegetable oil) being transported from the Richards Bay Port to the oil processing facility at Phase 1A of the RBIDZ.	Developer	Operation

7.1.4 Decommissioning Phase

The Wilmar Vegetable Oil Pipeline is expected to have a lifespan of at least 20 years (with routine maintenance). The infrastructure would only be decommissioned and rehabilitated once it has reached the end its economic life. It is most likely that decommissioning activities of the infrastructure of the pipeline considered in the BA process would comprise the disassembly and replacement of the individual components with more appropriate technology/infrastructure available at that time.

The relevant mitigation measures contained under the construction section of this IWWMP:

» **Site Preparation**

Site preparation activities will include confirming the integrity of the access to the site to accommodate required equipment, preparation of the site (e.g. lay down areas, construction platform) and the mobilisation of construction equipment.

» **Disassemble and Remove Infrastructure**

Disassembled components will be reused, recycled, or disposed of in accordance with regulatory requirements.

i. Objectives

Within a period of at least 12 months prior to the decommissioning of the site, a Decommissioning Method Statement must be prepared and submitted to the City of uMhlatuze Local Municipality, as well as the KZN EDTEA. This method statement must cover site restoration, soil replacement, landscaping, conservation, and a timeframe for implementation. Furthermore, this decommissioning must comply with all relevant legal requirements administered by any relevant and competent authority at that time.

The objectives of the decommissioning phase of the proposed project are to:

- » Follow a process of decommissioning that is progressive and integrated into the short- and long-term project plans that will assess the closure impacts proactively at regular intervals throughout project life.
- » Implement progressive rehabilitation measures, beginning during the construction phase.
- » Leave a safe and stable environment for both humans and animals and make their condition sustainable.
- » Return rehabilitated land-use to a standard that can be useful to the post-project land user.

- » Where applicable, prevent any further soil and surface water contamination by maintaining suitable storm water management systems.
- » Maintain and monitor all rehabilitated areas following re-vegetation, and if monitoring shows that the objectives have been met, apply for closure.

ii. Approach to the Decommissioning Phase

It is recommended that planning of the decommissioning of the project and rehabilitation of the site should take place well in advance (at least two years) of the planned decommissioning activities. Important factors that need to be taken into consideration are detailed below.

- » Remove the vast majority of the oil inside the pipeline, using specially designed cleaning instruments;
- » Clean the pipeline using a combination of cleaning instruments and chemicals to wipe and clean the pipeline.
- » Disconnect the pipeline, this will entail sealing off any active facilities like the pump station (at the proposed Wilmar Processing Facility), to prevent the oil, or any other material or organisms (i.e. fauna species like rodents) from re-entering the decommissioned pipeline;
- » Segment the pipeline with permanent physical barriers to prevent it from acting as a water conduit. Segmentation plugs are strategically placed along sections of the pipeline;
- » All concrete and imported foreign material must be removed along the pipeline route, i.e. Overhead Steel Bridges, and Access Duct Shafts;
- » Any foundations of the Access Duct Shafts and Overhead Steel Bridges must be removed, levelled and be covered with subsoil and topsoil;
- » Infrastructure that will not be required following the decommissioning of the pipeline must be removed along the pipeline route;
- » Access roads and servitudes not required for the post-decommissioning use of the site must be rehabilitated. If necessary, an ecologist should be consulted to give input into rehabilitation specifications;
- » Tracks that are to be utilised for the future land use operations should be left *in-situ*. The remainder of the tracks to be removed (ripped) and topsoil replaced;
- » All ancillary buildings and access points are to be removed unless they can be used for the future land use;
- » All material (pipeline, bolts, components used to the join the pipeline etc.) must be re-used or recycled wherever possible;
- » The competent authority may grant approval to the owner not to remove the landscaping and underground foundations;
- » The site must be seeded with locally sourced indigenous vegetation to allow revegetation of the site; and
- » Monitor rehabilitated areas quarterly for at least a year following decommissioning, and implement remedial action as and when required.

CHAPTER 8: REGULATORY CONSIDERATIONS

8.1 Regulatory Status of the Wilmar Vegetable Oil Pipeline

Wilmar Processing SA (Pty) Ltd obtained environmental authorisation for the Wilmar Richards Bay Vegetable Oil Pipeline (KZN EDTEA Ref: DC28/0010/2019) on the 26th of November 2019 for the Pipeline on the Remainder of the Farm Lot 223 Umhlatuzi 16230 and Portion 21 of Erf 5333, Portion 157 of Erf 5333, Erf 16856, Erf 16181, Erf 16182, Erf 17424 and Erf 17422. The Final Basic Assessment (BA) Report was submitted to the competent authority on 30 August 2019 for their consideration and decision making.

8.2 Statement of Water Use

The following water uses will require authorisation in terms of the National Water Act (Act No. 36 of 1998):

- » Section 21(c) – Impact to onsite wetlands as a result of construction and operation of the Wilmar Vegetable Oil Pipeline; and
- » Section 21(i) – Impact to onsite wetlands as a result of the construction and operation of the Wilmar Vegetable Oil Pipeline.

8.3 Section 27 Motivation

In terms of Section 27 of the National Water Act, "in issuing a general authorisation or licence a responsible authority must take into account all relevant factors, including:

- a) Existing lawful water uses;
- b) The need to address the results of past racial and gender discrimination;
- c) Efficient and beneficial use of water in the public interest;
- d) The socio-economic impact:
 - a) Of the water use or uses if authorised; or,
 - b) Of the failure to authorise the water use or uses
- e) Any catchment management strategy applicable to the relevant water resource;
- f) The likely effects of the water use to be authorised on the water resource and on other water users;
- g) The class and the resource quality objectives of the water resource;
- h) Investments already made and to be made by the water user in respect of the water use in question;
- i) The strategic importance of the water use to be authorised;
- j) The quality of water in the water resource which may be required for the Reserve and for meeting international obligations; and,
- k) The probable duration of any undertaking for which a water use is to be authorised.

Where possible, the relevant requirements listed as part of Section 27 Motivation are elaborated upon in the sections that follow.

8.3.1 Existing Lawful Water Uses

Section 32 of the NWA defines, 'existing lawful water use', as water use which has taken place in two (2) year preceding the commencement of the NWA (i.e. between 1 October 1996 and 30 September 1998). The Wilmar Vegetable Oil Pipeline **has no existing lawful water uses** as the project will commence post 1998.

8.3.2 Past Racial and Gender Discrimination

Wilmar Processing (Pty) Ltd is wholly owned by Wilmar International. Where possible, the procurement policies and procedures implemented by Wilmar Processing (Pty) Ltd will accommodate the six (6) elements associated with Broad-based Black Economic Empowerment (B-BEE), namely, management control, employment equity, skills development, preferential procurement, enterprise development and socio-economic development.

8.3.3 Efficient and the Beneficial Use of Water

Efficient and beneficial re-use strategies, specifically around stormwater run-off reduction during the construction phase of the pipeline and water conservation will be developed during the planning and design phase of the project.

8.3.4 Socio-Economic Impact

i. Authorisation Granted

The economic benefits of the construction and operation of the Wilmar Vegetable Oil Pipeline are specific to the improvement of the local, regional and national economy. The applicant, Wilmar Processing (Pty) Ltd has already invested R 500 000 in professional costs towards the undertaking of the project. In addition, the pipeline for which the applicant requires water use authorisation from DWS will transport raw materials (i.e. vegetable oil) from the Richards Bay Port to be processed at a proposed oil processing facility³ to be located within Phase 1A of the RB IDZ. The total project value of the processing facility (which will require the pipeline in order to be operational), upon completion will be R60 000 000, which would have created 50 employment opportunities within the City of uMhlathuze Local Municipality. Furthermore, the operational phase of the processing facility is anticipated to create at least 100 employment opportunities over the 20-year lifespan.

In addition, the authorisation from DWS will lead to a positive contribution to the local economy of the Richards Bay area, by generating employment and business opportunities, particularly for local SMMEs. However, the authorisation will increase the desirability to conduct business in the RB IDZ for other local and/or foreign investors, which will have a positive net benefit for the local, regional and national economies.

From an environmental perspective, the authorisation is unlikely to affect downstream water users as construction-related activities associated with the pipeline will not be undertaken within the immediate

³ The development of the processing facility was not subject to the undertaking of an EIA/BA process as no listed activities were triggered. Furthermore, the facility does not form part of the water use authorisation application process.

footprint of the pipeline. In addition, the larger un-channelled valley-bottom wetland system located within the vicinity of the pipeline corridor, is located at least 200m to the south of the corridor and is separated from the corridor by a tarred disused access road. Therefore, the development and operation of the pipeline will be of a low risk on the un-channelled valley bottom wetland as the proposed development will not have a direct impact on the ecological and hydrological services of this system (refer to **Appendix D** and **C** for more details).

ii. Authorisation Declined

Should the Department decline the issuance of the water use authorisation, this will result in the termination of the project. This will result in a significant loss of the local gross domestic product (GDP) of the local and regional economy in the KwaZulu-Natal Province, taking into consideration that the Province is amongst the poorest in South Africa. With the current high unemployment rate, the decision to not authorise the water uses required for the establishment of the pipeline will result in lost opportunity for economic development and job creation, due to the corridor proposed for the pipeline has taken into consideration the environmental sensitivities present within the area. Furthermore, the Risk Assessment Matrix (**Appendix D**) concluded that the impact of the pipeline to the wetlands delineated in the area (refer to **Appendix C**) would be low. Therefore, should the Department decline to authorise these water uses, this would be a lost opportunity for socio-economic development of the communities in Richards Bay and the Province.

8.3.5 Applicable Catchment Management Strategy

The Department of Water and Sanitation in accordance with the National Water Act (Act No. 36 of 1998)(NWA) recognises the past imbalances relating to water allocation and seeks to regulate water use by enforcing the equitable sharing of water and water-related benefits between historically advantaged individuals, who have been the 'high volume water users' and the historically disadvantaged individuals.

Catchment Management Agencies (CMAs) are recognised in the NWA as operational institutions that actively support the implementation of integrated catchment management policies and strategies at local level. The agencies are tasked with ensuring that the Republic's water resources are protected, used, developed, conserved, managed and controlled in an equitable manner. The CMA is responsible for; (i) developing and implementing a catchment management strategy that reflects the needs and concerns of all role-players, and coordinating the activities of water users and water.

The Wilmar Vegetable Oil Pipeline corridor is located within the Pongola-Mtumvana Water Management Area (WMA4) and the Usutu-Mhlathuze CMA in the KwaZulu-Natal Province. The corridor is also located within the tertiary catchment area, **W12P**. The Usutu-Mhlathuze CMA co-ordinates all water-related activities in the catchment area and provides an effective mechanism for stakeholder participation in water management.

8.3.6 Effects of Water Use on Water Users

The quantitative effects of the water uses proposed for the Wilmar Vegetable Oil Pipeline are currently unknown. However, based on the impact assessment outlined in Chapter 5 of this IWWMP, the impact of the pipeline to the wetlands delineated within the vicinity of the corridor would be of a low risk as determined through the risk assessment undertaken in fulfilment for the application for water use authorisation for the proposed development (refer to **Appendix D**).

8.3.7 Water-related Investment

The mitigation actions recommended for the project life-cycle of the pipeline will include inter alia, the prohibition of movement by vehicles and machinery within the depression wetland and artificial drainage channel; and the monitoring of the mounting structures post-construction for erosion and subsidence around the depression wetland and artificial drainage channel once every year for a period of two (2) years by a suitably qualified personnel to check on the structural integrity of the structures. Furthermore, no activities will be undertaken within the immediate footprint of the depression wetland and the artificial drainage channel.

Wilmar Processing (Pty) Ltd, the applicant has reached a lease agreement with the RBIDZ and TPNA for a period of 20-years and is therefore required through, Condition 2.7.1 and 2.7.2 not to undertake any activities within the depression wetland and artificial drainage channel. Therefore, the carrying out of activities in accordance with the conditions of the EA and the implementation of the mitigation actions included in the approved EMPr ensures the effective protection of these surface water features and the ecological and hydrological services provided by each of these systems in the area.

8.3.8 Duration of Water Use

The pre-construction and construction phase of the Wilmar Vegetable Oil Pipeline project is envisaged for a duration of 6 – 12 months; whereas the operation phase will be for 20 years. Therefore, the water uses applied for through this process are required to extend for the duration of the operation phase of the pipeline which will be equivalent to 20 years.

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**APPENDIX A:
COMPANY DOCUMENTS**

**APPENDIX B:
PROPERTY INFORMATION (TITLE DEED)**

**APPENDIX C:
WETLAND DELINEATION AND IMPACT
ASSESSMENT REPORT**

**APPENDIX D:
RISK ASSESSMENT MATRIX REPORT**

APPENDIX E:
BASIC ASSESSMENT REPORT

APPENDIX F:
PUBLIC PARTICIPATION INFORMATION

**APPENDIX G:
ENVIRONMENTAL MANAGEMENT
PROGRAMME**

**APPENDIX H:
STORMWATER MANAGEMENT PLAN**

**APPENDIX I:
ENGINEERING DRAWINGS**

APPENDIX J:
A3 MAPS

**APPENDIX K:
ENVIRONMENTAL AUTHORISATION**

