

CHAPTER TWO: PROJECT DESCRIPTION

2.1 INTRODUCTION

The project applicant, Scheepersvlakte Farms (Pty) Ltd, proposes to develop a portion of the Remainder of Portion 7 of the Farm Scheepers Vlakte 98 (~852.12ha), Sundays River Valley Municipality (SRVM), for the cultivation of annual crops (e.g. maize) and the establishment of a variety of citrus. The farm is currently zoned Agriculture I and located within the boundary of Scheepers Vlakte Farm, is Portion 10 of Farm 98 (~31ha), within which the Scheepersvlakte Dam, belonging to the Department of Water and Sanitation (DWS) for water supply to the Nelson Mandela Bay Municipality (NMBM), is situated. Portion 10 of Farm 98 **does not** form part of this assessment process.

The applicant proposes to clear a total of ~516ha to accommodate the proposed agricultural development, including associated infrastructure. The applicant has obtained a Water Use Licence from DWS for the taking of water from a water resource in terms of Section 21(a) of the National Water Act which entitles them to utilise 650ha (5 850 000m³ per annum) of water from the LSRWUA canal system. In order to irrigate the proposed agricultural development, the construction of a new irrigation water storage dam (140 000m³ storage capacity; 7ha footprint), as well as the installation of irrigation pipelines of varying diameters is required. In addition, to provide support services to the proposed development, a new logistical services area (~6ha footprint) is proposed to be constructed.

Scheepers Vlakte Farm is located ~6km north of Sunland, in the SRVM. Access to the farm is proposed via an existing gravel road on the southern boundary of the site which links the Farm with the gravel MN50077 road. The nearest boundary of the Addo Elephant National Park is located ~7km east of the farm.

As per the requirements of the NEMA EIA Regulations, 2014 (as amended), GN R326, Appendix 2, Section 2. (1) (b), (c) and (d), this chapter of the report provides the following information, where relevant:

2. (1) (b) *the location of the activity, including-*
 - (i) *the 21-digit Surveyor General code of each cadastral land parcel;*
 - (ii) *where available, the physical address and farm name;*
 - (iii) *where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;*
2. (1) (c) *a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is-*
 - (i) *a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or*
 - (ii) *on land where the property has not been defined, the coordinates within which the activity is to be undertaken;*
2. (1) (d) *a description of the scope of the proposed activity, including-*
 - (i) *all listed and specified activities triggered¹;*
 - (ii) *a description of the activities to be undertaken, including associated structures and infrastructure;*

¹ Listed activities requiring Environmental Authorisation in terms of the NEMA EIA Regulations, 2014 (as amended) are contained in Chapter 4 of this report.

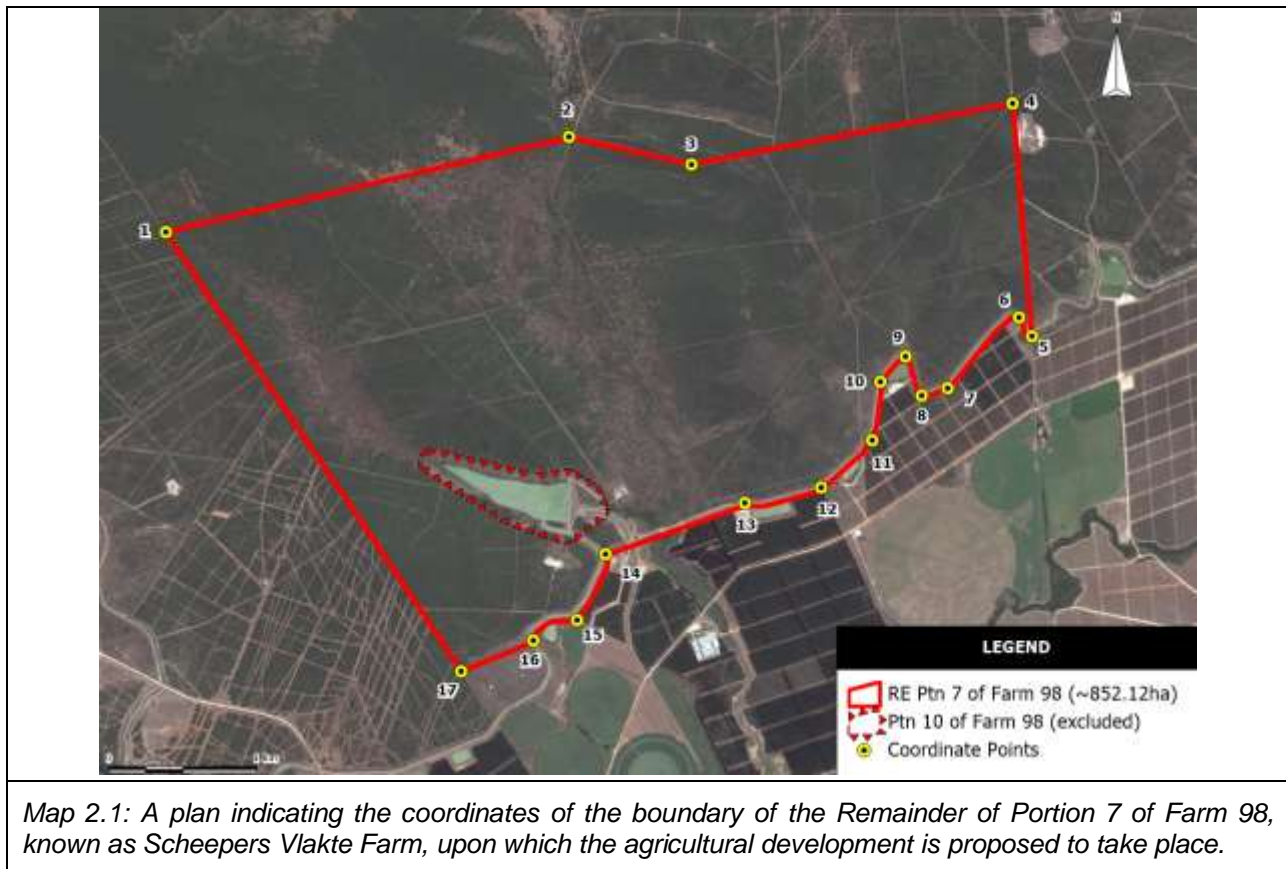
2.1.1 Proposed Project Location

Map 1.1 in Chapter One of this report, includes a locality map indicating the location of the farm portion under assessment in relation to the nearest town and main roads. The cadastral information listed in Table 2.1 below is relevant to the Remainder of Portion 7 of Farm 98, known as Scheepers Vlakte Farm.

Table 2.1: Project cadastral information.

| SURVEYOR GENERAL 21 DIGIT CODE | | | | | | | | | | | | | | | | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----|---------|------------------------|-----|---------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | 0 | 7 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 8 | 0 | 0 | 0 | 7 |
| PHYSICAL ADDRESS AND FARM NAME | | | | | | | | | | | | | | | | | | | | |
| <ul style="list-style-type: none"> Remainder of Portion 7 of Farm 98 Scheepers Vlakte, Uitenhage Registration Division, known as Scheepers Vlakte Farm | | | | | | | | | | | | | | | | | | | | |
| SITE COORDINATES | | | | | | | | | | | | | | | | | | | | |
| Point Number | Latitude (S) (DDMMSS) | | | Longitude (E) (DDMMSS) | | | | | | | | | | | | | | | | |
| 1 | 33° | 26' | 28.69"S | 25° | 35' | 58.35"E | | | | | | | | | | | | | | |
| 2 | 33° | 26' | 11.51"S | 25° | 37' | 25.72"E | | | | | | | | | | | | | | |
| 3 | 33° | 26' | 16.08"S | 25° | 37' | 52.64"E | | | | | | | | | | | | | | |
| 4 | 33° | 26' | 5.14"S | 25° | 39' | 3.04"E | | | | | | | | | | | | | | |
| 5 | 33° | 26' | 47.61"S | 25° | 39' | 6.69"E | | | | | | | | | | | | | | |
| 6 | 33° | 26' | 43.93"S | 25° | 39' | 4.22"E | | | | | | | | | | | | | | |
| 7 | 33° | 26' | 56.77"S | 25° | 38' | 48.62"E | | | | | | | | | | | | | | |
| 8 | 33° | 26' | 58.23"S | 25° | 38' | 43.09"E | | | | | | | | | | | | | | |
| 9 | 33° | 26' | 51.27"S | 25° | 38' | 39.27"E | | | | | | | | | | | | | | |
| 10 | 33° | 26' | 55.38"S | 25° | 38' | 34.24"E | | | | | | | | | | | | | | |
| 11 | 33° | 27' | 6.56"S | 25° | 38' | 31.42"E | | | | | | | | | | | | | | |
| 12 | 33° | 27' | 15.07"S | 25° | 38' | 20.58"E | | | | | | | | | | | | | | |
| 13 | 33° | 27' | 18.29"S | 25° | 38' | 4.16"E | | | | | | | | | | | | | | |
| 14 | 33° | 27' | 27.28"S | 25° | 37' | 33.96"E | | | | | | | | | | | | | | |
| 15 | 33° | 27' | 39.15"S | 25° | 37' | 27.17"E | | | | | | | | | | | | | | |
| 16 | 33° | 27' | 43.09"S | 25° | 37' | 17.54"E | | | | | | | | | | | | | | |
| 17 | 33° | 27' | 48.48"S | 25° | 37' | 2.38"E | | | | | | | | | | | | | | |

Map 2.1 below shows the boundary of Scheepers Vlakte Farm which forms part of this Scoping and EIA Process and upon which the agricultural development is proposed to take place.



The preferred development footprint for the proposed agricultural development and associated infrastructure has been determined through the assessment process, which included a consultation process, specialist assessments and technical input. The listed activities which require Environmental Authorisation are included in Chapter Four of this report. The specialist studies which have been undertaken for the proposed project are included in Chapters Six to Thirteen of this report and the assessment of alternatives is outlined in Chapter Five.

2.2 PROPOSED PROJECT SCOPE AND ACTIVITIES

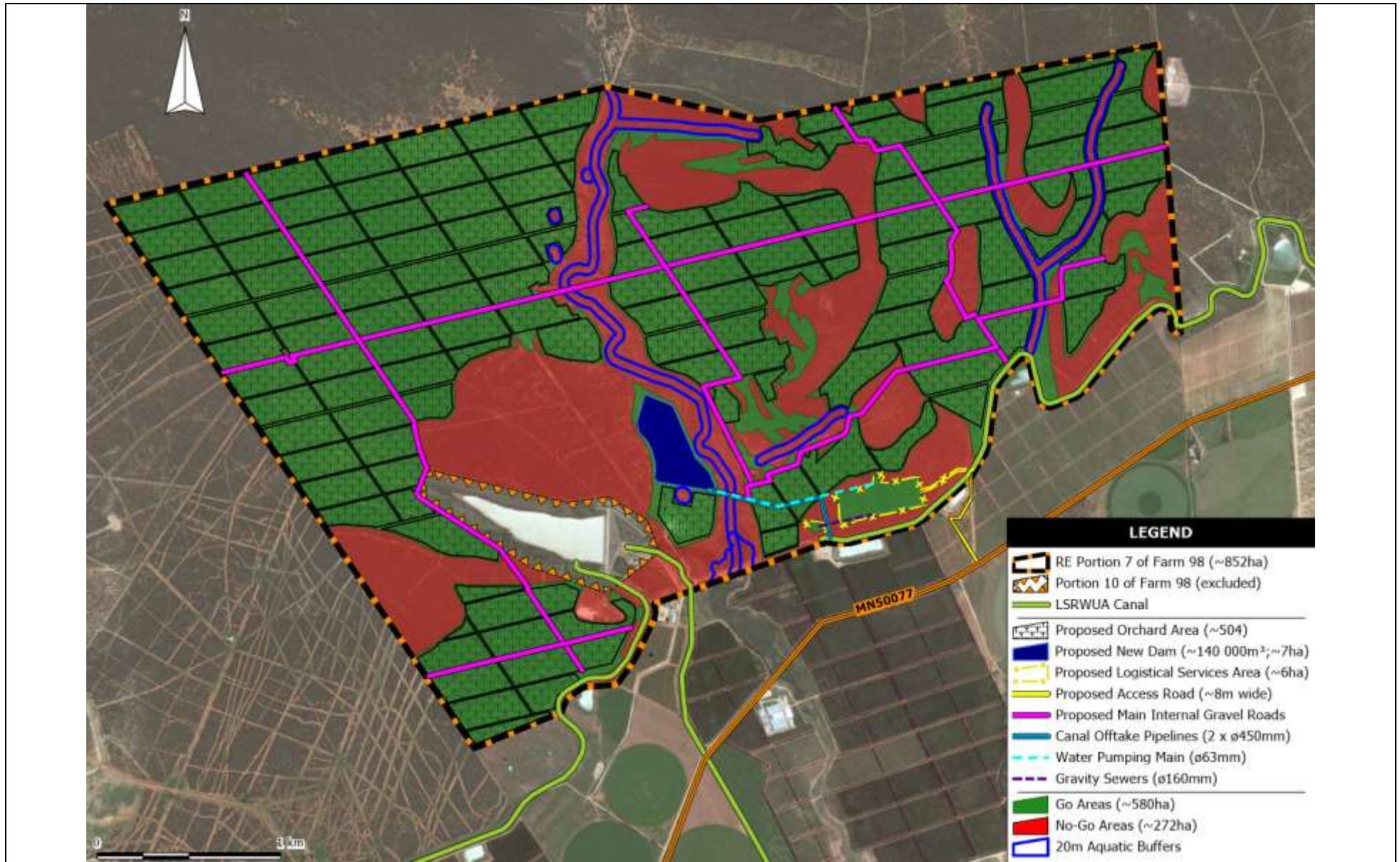
The Remainder of Portion 7 of Farm 98, known as Scheepers Vlakte Farm, measures ~852.12ha in extent. Based on the outcome of the assessment process, specialist studies, technical input and consultation process, the project applicant, Scheepersvlakte Farms (Pty) Ltd, intends to clear an area of ~516ha for the cultivation of annual crops (e.g. maize) and the establishment of a variety of citrus. The following components are proposed:

- Citrus orchards: ~504ha including -
 - Trees (~468ha effective irrigation area).
 - Windbreaks (if required).
 - Laydown areas.
 - Internal roads – widths varying between 4m and 6m.
 - Internal irrigation water reticulation – varying capacities \varnothing 10mm (dripper lines) to \varnothing 200mm (main lines); pivots for annual crops, covering 25ha.
 - Canal offtake pipelines – 2 x \varnothing 450mm; ~700m length.
- Logistical services area (~6ha) including:
 - New access road (8m width) and turning circles (~36m diameter).
 - Receiving and dispatch off-loading/ loading areas
 - Pre-sort packhouse (~6500 m²).
 - Workshop and storage area.
 - Fuel storage tank (~14 000L/ 14m³).

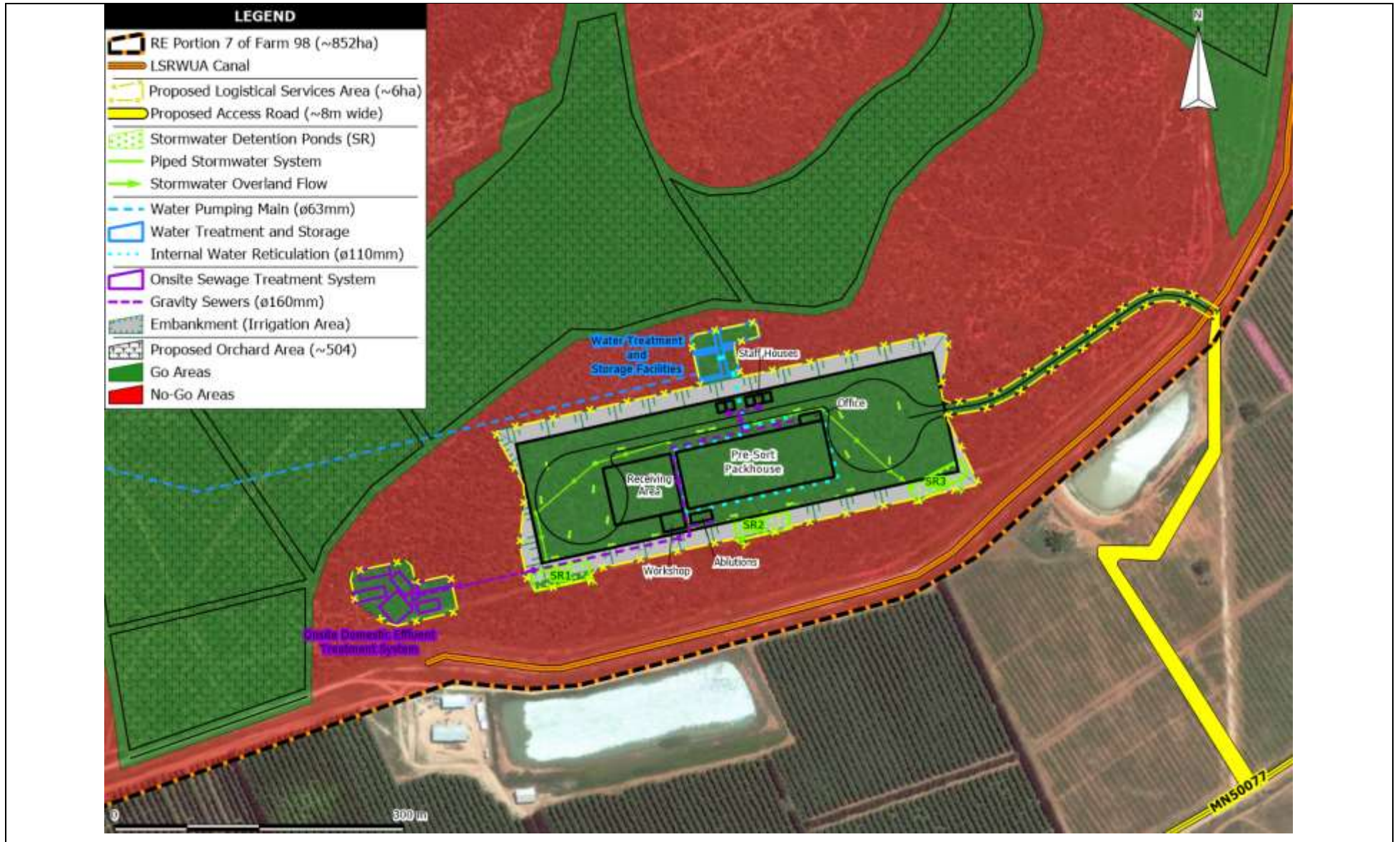
- Chemical store (~30m²).
- Office/ administration area.
- Staff housing (5 x 60m²)
- Onsite domestic effluent reticulation and treatment system (e.g. Clearedge system).
- Stormwater detention facilities.
- Domestic water reticulation, storage and treatment facilities.
- New irrigation water storage dam (~7ha; ~140 000m³).

The new logistical services area is proposed to be constructed near the southern boundary of the farm in order to provide administrative and logistical support for the development. See section 2.2.2.2 below for further details regarding the structures and infrastructure associated with the proposed logistical services area.

Map 2.2 and 2.3 below indicates the preferred development footprint, associated structures and infrastructure on Scheepers Vlakte Farm.



Map 2.2: The preferred development footprint, indicating the proposed orchard layout and associated infrastructure, on Scheepers Vlakte Farm.



Map 2.3: The preferred logistical services area, located near the southern boundary on Scheepers Vlakte Farm.

Maize is proposed to be harvested mechanically, with the use of a combine harvester. No plastic crates or wooden pallets will be required during harvesting. Maize will be harvested directly onto a tractor-trailer (Photo 2.1a), wherefrom it will be taken to the collection area at the logistical services area and directly transported by truck to silos for further processing (Photo 2.1b; e.g. maize silos in Paterson). Maize produced as a result of the proposed agricultural development will be sold to the local market for use in cattle fodder or further processing for human consumption (e.g. maize meal, flour).



Plastic crates and wooden pallets required during *citrus* harvesting seasons are proposed to be hired from an independent contractor and transported via truck to delivery and collection areas within the orchards (Photo 2.2). Once a crate is full it is directly transported via tractor-trailer to the proposed new pre-sort packhouse at the logistical services area. From the pre-sort packhouse, the fruit will be sorted into crates and transported to an existing packhouse for processing and packaging (e.g. Sunny Bank and San Miguel Packhouse).

The now, empty, plastic crates and wooden pallets are returned to the designated areas within the orchards, to be refilled with fruit for processing and packaging. At the end of the harvest season the crates and pallets that have been hired are returned to the respective service providers. The proposed new logistical services area will be designed to accommodate the temporary storage of plastic crates and wooden pallets during harvest season. The applicant intends to utilise the Sunny Bank packhouse, located ~15km north west of the farm (as the crow flies) for the processing of its product for both local and international markets as well as for juicing. Transport companies are hired on a needs basis to transport fruit. Based on market conditions, the fruit produced as a result of the proposed agricultural development will be sold as fresh fruit to local and international markets (export), as well as processed (juiced) at an independent processing facility (Venco).



During harvest season, portable toilets are placed within the cultivated fields to provide sanitation facilities for workers. In order to provide the necessary administrative and logistical support for the proposed agricultural development, a new logistical services area, comprising of office/ admin space, storage/ workshop area, as well as various staff facilities and accommodation, will be required.

The proposed agricultural development on the farm can be divided into the following phases, which are outlined in more detail in the sections below:

- Preconstruction;
- Construction; and
- Operational

At this stage of the assessment process decommissioning is not proposed and would be subject to the regulations applicable at the time.

2.2.1 Preconstruction

Prior to the commencement of construction activities on the site a preconstruction phase (planning) is required. The proposed crops and fruit to be produced on site will be for both the international, as well as local markets and juicing.

The cultivation of *maize* for the local market requires that the desired cultivar be booked in advance, to ensure that planting occurs at the desired time (September-October) of the year. For different *citrus* cultivars, this process varies. In order to meet the requirements of export stock, seed (the foundation block seed) is required to be booked and purchased from a certified agency, the Citrus Foundation. This is booked ~2 years in advance to secure the seed, which includes a financial deposit. The seed is provided to a certified nursery for a two-year grow-out period, during which the seeds are germinated and the seedlings grown to sapling stage. Meticulous coordination is required between the Citrus Foundation for the purchase of the seed, the nursery for grow-out, and the citrus producer, to meet contractual obligations for harvesting and export of the crop. This is an on-going process, which is carefully timed and coordinated to allow the development of the site to take place seamlessly over the development timeframe proposed by the applicant.

The preconstruction phase for securing of the maize and citrus cultivars occurs in parallel to site preparation which is outlined below. It is proposed that initially, only ~150ha of citrus (lemons and late mandarins) be planted along with ~100ha maize. Thereafter, citrus will only be planted once maize has first been cultivated for ~1-2 years. This process will continue for ~2-5 years, until ultimately an orchard area of ~504ha (includes associated infrastructure e.g. roads, laydown areas, windbreaks etc.) with ~468ha of citrus trees, is achieved.

2.2.2 Construction

The project will entail the clearing of vegetation, levelling of the site, and the installation of a pivot irrigation system for maize, as well as micro/ drip irrigation system for citrus. Both irrigation systems (pivot and drip/ micro) are proposed to be installed simultaneously. Once the site is prepared it is proposed that for Phase 1, initially only ~150ha of citrus (lemons and late mandarins) be planted along with ~100ha maize. For the subsequent phases of the development, citrus will only be planted once maize has first been cultivated for ~1-2 years.

The cultivation of maize will be done to prepare the soil for the establishment of a variety of citrus, whilst simultaneously eliminating a potentially harmful root system fungus which has recently been

identified in the Sundays River Valley area, and is prone to attacking a specific citrus cultivar. This process will continue for ~2–5 years, until ultimately an orchard area of ~504ha (includes associated infrastructure e.g. roads, laydown areas, windbreaks etc.) with ~468ha of citrus trees, is achieved. See section 2.4 below for the proposed project schedule.

It is anticipated that vegetation clearing, landscaping, site preparation and planting will be done both by hand and with the aid of suitable earth moving equipment (excavators, bulldozers, TLBs). No workers' accommodation will be provided on site during the construction phase. Site preparation will entail the following activities on site, not necessarily in this order:

- Clearing of indigenous vegetation.
- Landscaping and levelling the site.
- Construction of the new irrigation dam.
- Installation of internal water reticulation and irrigation infrastructure (pivot and drip/ micro) including canal offtake pipelines.
- Planting of crops (maize), as well as a variety of citrus and windbreaks (if required).
- Establishment of internal unpaved service roads and upgrading (widening) of the existing access road.
- Construction of the new logistical services area.
- Construction of permanent staff housing.

Site preparation needs to be completed to coincide with the planting of the maize, which occurs annually during spring (September – October).

2.2.2.1 *Vegetation Clearing and Landscaping*

Subject to the outcome of the detailed specialist assessments, technical input and consultation process, it is proposed that ~516ha of vegetation on Scheepers Vlakte Farm be cleared in order to facilitate the establishment of an orchard area of ~504ha, including ~468ha of trees and associated infrastructure (~36ha) e.g. irrigation infrastructure, roads, laydown areas, windbreaks etc. In addition, an area of ~6ha will be transformed to accommodate the proposed logistical services area, including a pre-sort packhouse, and a further ~7ha is required to be disturbed to facilitate the construction of the proposed new irrigation water storage dam.

Vegetation clearing will commence with the aid of both mechanised plant/ earth-moving equipment and by hand. Once vegetation has been removed from the development footprint, the area will be landscaped to provide for the establishment of unpaved internal service roads, upgrading of the existing access road, installation of irrigation infrastructure (pivot and drip/ micro) and laydown areas, a logistical services area including a pre-sort packhouse, permanent staff housing, the planting of crops and citrus, as well as the facilitation of stormwater management. Vegetation will also be required to be cleared to construct a new irrigation balancing dam (~7ha), as well as along the pipeline route for the proposed offtake pipelines (~2 100m²/0.21ha).

Portions of the area under assessment have been excluded from development due to certain constraints. Chapter Five of this report outlines the assessment of alternatives and provides more detail on the methodology adopted for the identification of the preferred area proposed for development, which has been assessed in full in the EIA Phase of the assessment.

The applicant does not own any other properties/ land. Therefore, the applicant's overall contribution to conservation of vegetation (as contained in Chapter Six) relates to the property that forms part of this assessment only (Remainder of Portion 7 of the Farm Scheepers Vlakte 98).

2.2.2.2 Construction of the Logistical Services Area and Staff Housing

A new logistical services area is proposed to be constructed near the southern boundary of the farm in order to provide administrative and logistical support for the development. The proposed logistical services area will measure ~6ha in extent and is proposed to consist of the following support infrastructure/ structures:

- Pre-sort packhouse (~6500 m²).
- Tractor/ trailer off-loading and receiving slab.
- Dispatch truck loading slab.
- Access road (~8m wide) including turning circles (~36m diameter).
- Workshop and storage area (300m²).
- Office/ administration area (150m²).
- Other staff facilities including ablution blocks (150m²).
- Staff housing (5 x 60m²).
- Onsite domestic effluent treatment system (e.g. Clearedge system) (641m²).
- Domestic water storage and treatment facilities (1 575m²).
- Stormwater detention facilities (2 260m²).

A Roads and Wet Services Report has been prepared in order to ensure that the proposed logistical services area and proposed staff housing are adequately serviced. The report is included as Chapter Twelve of this report and provides detailed information on the above services infrastructure. These details are summarised below:

Water Supply System

The Average Daily Demand (ADD) of personnel at the logistical services area during the packing season per working day will be 39 000L/ day (**39m³ per day**). The annual average daily demand during the packing season will be 30.2m³ per calendar day and 906m³ per calendar month. Treated canal irrigation water will serve as the primary source of domestic water. The applicant will be liable to treat the raw water on site to the required standards in order to be able to utilize the water for drinking purposes and domestic use. The following water reticulation, treatment and storage system is, therefore, proposed:

- Water will be pumped from the 140 000m³ new irrigation dam, to a dual chamber reservoir (effective storage capacity of 350kl (350m³), via a 63mm diameter HDPE pumping main.
- Reservoir will be designed to also act as a sedimentation facility.
- Water treatment plant with a capacity of 60kl to be designed and constructed, subject to the outcome of the test results on the raw irrigation water, to consist of a screen filter, sedimentation facility, filter system, chlorinator and storage tanks combined with a booster pump system.
- One should be able to accommodate the on-site water treatment plant including the 350m³ reservoir on a total footprint of 35m x 45m (1 575m²), depending on the type of storage reservoir.
- The main internal reticulation will mainly consist of a 110mm diameter PVC-U Class 12 piped connection to the site and a looped reticulation mainly consisting of 110mm diameter PVC-U pipelines Class 12.

Roof rainwater can act as a secondary domestic water supply subject to effective disinfectant treatment where necessary. It is recommended to install a 5 000L tank at each staff house and 18 x 10 000L tanks next to the pre-sort packhouse, which is proposed to have a roof area of 6500m².

Domestic Effluent System

The Average Dry Weather Flow (ADWF) of the logistical services area on the farm has been calculated to be **25.1m³ per working day** for the 330 factory workers (165 workers working a

double shift) and 24 permanent personnel during the packing season. The preferred option to treat the domestic effluent under post-development conditions is the Clearedge Sewage Onsite Treatment System or similar foul sewer treatment system, as approved by the Sundays River Valley Municipality. The treatment plant will have a daily throughput capacity of 25.1m³. The location to construct the foul sewer treatment plant is proposed to be ~200m west of the pre-sort packhouse. The following components will form part of the proposed foul sewer treatment system:

- Three chamber communal septic tank (26m³).
- Pump station.
- Treatment plant (200m²) consisting of:
 - Balancing tank
 - Bio-reactors
 - Clarifier
 - Contact Tank
- Maturation pond (441m² /377m³).
- Emergency pumping main.

Gravity sewers (160mm) will convey effluent to the communal septic tank. Effluent will then be pumped via a 110mm pipe to the treatment plant (balancing tank). Most of the bigger suspended solids will be contained and be broken down by anaerobic and aerobic action in the first chamber of the “communal” septic tank. The clearer effluent overflow from the third chamber will be pumped to the bioreactors. The sewage effluent will move through the media where aerobic bacteria in a submerged fixed-film will break down the organic matter to more stable levels with the addition of air (higher concentration of dissolved oxygen) supply under pressure.

The treated overflow from the bioreactor(s) will be discharged to the clarifier(s) where the sludge will be settled out, drained and be returned to the first chamber of the “communal” septic tank. The clear treated effluent from the top part in the clarifier will be conveyed to the chlorine contact tank to disinfect the clear treated effluent. The treated effluent will thereafter be directed to the maturation pond.

However, it is also recommended to design and construct a maturation pond which will also act as an *irrigation/ emergency retention ponding* system at the foul sewer batch plant. The irrigation/ emergency retention pond has to be designed and constructed to allow a minimum of 4 days retention time to ensure the *final effluent is free from any chlorine residual*, which could occur under isolated overdosing conditions. In case of extreme unforeseen package plant breakdowns, it is recommended that the irrigation/ emergency retention pond system be designed to accommodate the inflow up to **15 days x ADWF** that can be re-circulated to the “communal” septic tank to limit the risk of possible contamination of underground water sources. It is also recommended to supply the batch plant with a mobile independent diesel generator in case of power failures.

The grassed embankment areas which will be irrigated with the treated effluent, is more than 11 400m² (1.1ha) in extent.

Stormwater Management

The following practical stormwater control mechanisms have been proposed:

- Design and construct the proposed main access road from the LSRWUA canal crossing to the loading area so as not to concentrate stormwater but rather to accommodate stormwater sheet flow in accordance with the natural topography, as far as practically possible.

- Design and construct the roads within the logistical services area, as well as the loading and off-loading area to convey stormwater to the piped stormwater system which will drain to the three (3) proposed detention ponds SR1, SR2 and SR3, located along the southern boundary of the logistical services area. The stormwater pipe diameters will not exceed 375mm.
- In order to reduce the volume of stormwater, intercept stormwater from the roofed areas and convey it to rainwater storage tanks near the buildings. The surplus stormwater from the roofs will be conveyed by means of the proposed storm water system to the aforementioned detention ponds. It is recommended to install a 5 000L tank at each staff house and 18 x 10 000L tanks next to the pre-sort packhouse.
- Intercept and convey the stormwater from all the open hardstand areas associated with the logistical services area and convey it to the storm water detention ponds SR1, SR2 and SR3, as far as practically possible.
- Detain and/ or discharge the stormwater from the primary stormwater ponds in accordance with the applicable regulations and design guidelines.
- Subject to the detailed design of earthworks, operational areas/ roads and the stormwater system, the formed surface areas on and near the logistical services area shall be designed to also act as shallow stormwater channels under minor storms and emergency overland flow routes during or after major storm conditions, where necessary.
- The general resultant longitudinal gradients of the formed surface areas on and near the logistical services area shall be designed to direct the surface stormwater flow to the stormwater detention ponds, as far as practically possible.
- The stormwater detention ponds SR1, SR2 and SR3 will mainly detain the intercepted stormwater from the hardstand and roofed areas of the site in order to ensure that the post-development flow leaving the site will be similar or less than the pre-development flows and simultaneously replenish the underground water sources.
- The stormwater detention ponds SR1, SR2 and SR3 shall be designed to retain post-development major design storm intercepted flows up to a maximum 1 in 100-year recurrence intervals and release up to a maximum of a 1 in 5-year recurrence interval run-off near the southern edge of the logistical services area.
- In accordance with our design considerations and preliminary calculations, the stormwater detention ponds SR1, SR2 and SR3 will have effective storage capacities of 760m³, 640m³ and 682m³ respectively and approximate footprints of 800m², 700m² and 760m² respectively.
- Due to the partial sedimentation process that occurs under lower flow velocities in the detention ponds, as well as the biological breakdown of contaminants by sun energy and oxidation, the quality of the intercepted run-off can be improved prior to discharge.
- It is also recommended to establish indigenous drought-resistant ground cover in the detention pond areas, the disturbed cut and fill areas and the verges of the constructed hard stand and road areas to limit the transportation of sediment in these affected areas by water or wind (and associated erosion).
- The gradient of constructed embankments shall not be steeper than 1 in 3 (preferable 1 in 4) to enable the establishment of vegetation and soil stability under wet conditions, as far as practically possible.
- Rehabilitate all open areas with indigenous groundcover and vegetation, subject to the input of a specialist. First priority shall be given to areas adjacent to and near the proposed access road and hardstand area of the logistical services area.
- Erosion protection measures consisting of semi-rigid Gabion/ Reno mattress/ geo-textile structures and the establishment of effective groundcover should be used, subject to practical design considerations in areas where concentrated storm water could cause erosion.

Chemical Store

The proposed workshop and storage area will include a fully enclosed bunded, roofed facility with a capacity to store ~30m³ of chemicals required for the proposed agricultural development. Storage and handling of chemicals on site must comply with standard Material Safety Data Sheet control measures. It is recommended that any waste packaging must be disposed of at a suitably permitted landfill site and not buried or burnt on site. See Chapter Seven, Aquatic Specialist Assessment, for impacts related to the use and disposal of chemicals.

The chemical store should be designed in accordance with the following general design principles:

- a) The floor should be impervious.
- b) The store should be bunded to ensure that it can hold at least 110% of the liquid contents.
- c) The roof must not allow any moisture to enter the store.
- d) Flammables and oxidizers should be segregated.
- e) A means of ventilating the store should be installed (air bricks etc.)
- f) The store should be locked when not in use.
- g) The door and structure should have an appropriate fire rating.
- h) If decanting is conducted in the store, this should be done in a manner to prevent spillages.
- i) The signage inside the store should indicate what chemicals are being stored. If possible, a stock rotation system should also be used.

Further general guidance notes on chemical management are contained in Appendix G (Supporting Documentation) of this report.

In addition, it is proposed that an outdoor aboveground diesel tank, with the capacity to store ~14000L/ 14m³ of fuel, be constructed adjacent to the workshop area. In order to mitigate any potential risks associated with the fuel tank, due consideration must be given to appropriate design and construction. The following is recommended in order to ensure that the tanks are built to industry standard and are Global G.A.P. compliant:

- Fuel tank to be constructed within a roofed and bunded area and have a concrete base and sump to trap spillage.
- All pumps, valves etc to be located within the bunded area.
- Spill kits to be available and an emergency spill contingency plan to be adhered to.
- All spills to be appropriately disposed of at a suitably registered waste disposal site.
- A filling procedure is required.
- All equipment to be placed on a maintenance program.
- Fuel delivery vehicles to park on a hard surface that slopes toward a blind catchment drain to ensure that all spills are contained.



Photo 2.3: Example of an aboveground fuel tank within a roofed and bunded area at a Packhouse facility in the Sundays River Valley.

2.2.2.3 Internal Roads and Access

Access to the Farm is proposed via an ~6m wide private road onto the gravel MN50077 road, ~4km east of the surfaced DR01983 road; and which crosses a portion of the LSRWUA canal (via an existing bridge) on the southern boundary of the Farm. This existing access road is proposed to be upgraded and widened (~8m wide) to service the proposed agricultural development. A right of way servitude will need to be registered over the adjacent property in order to ensure access to the development in perpetuity. The internal radii of the circulation areas around and near the pre-sort packhouse shall preferably be 18m or wider, as far as practically possible, to accommodate the effective flow of heavy vehicle traffic.

A Traffic Impact Assessment has been undertaken during this assessment process in order to assess the suitability of the existing access point, as well as the impact that the additional trip generation may have on the public road network.

Based on current daily volumes along DR01983 and MN50077 the use of the road by interlink trucks during the harvest season will result in a 4% and 6% increase in traffic volumes per day, respectively during picking season. Additional interlink truck trips generated by the proposed development will have minimal impact in terms of road capacity and condition, given the daily volumes along the road links, and at the affected intersections and low number of additional trips generated by the proposed development.



Photo 2.4: Example of internal service roads on an existing citrus farm in the Sundays River Valley.

Shoulder sight distance (SSD) from the existing access road onto MN50077 to both the east and west are **in excess of the minimum requirements**. Map 2.3 above indicates the proposed access road.

Integral to the internal operations within the proposed agricultural development, are a number of new internal service roads (Photo 2.4). These internal service roads are anticipated to vary in width between 4m and 6m. It is anticipated the main internal roads will be provided with a gravel wearing course, while the vehicle tracks amongst the individual orchards will remain unpaved. All internal roads will be designed and constructed to accommodate stormwater runoff, e.g. avoid steep gradients, stormwater cut-off/ diversion berms, and judicious use of erosion protection measures.

See the Roads and Wet Services Report (Chapter Twelve of this report), for additional information regarding the design and construction of roads, as well as proposed stormwater management measures.

2.2.2.4 Installation of Irrigation Infrastructure and Dam Construction

The proposed agricultural development will be irrigated with water from the LSRWUA supply system. Irrigation water is extracted from the canal, under agreement with the LSRWUA. Individual farmers are permitted to extract water from the canal only at certain allocated pumping/ release times according to a predetermined schedule. Between the allocated pumping/ release times, the holder of water entitlements does not have access to the canal water. Therefore, since water is not continually available from the canal, the proposed agricultural development cannot be irrigated directly from the canal and irrigation water is required to be stored in a farm dam (balancing dam).

More detail regarding the applicant's water use entitlements is outlined below in the Operational Phase under section 2.2.3.2.

A portion of the LSRWUA canal is located along the southern boundary of the farm. The irrigation water required for the proposed agricultural development is proposed to be accessed via a new offtake point on the canal on the southern boundary of the site.

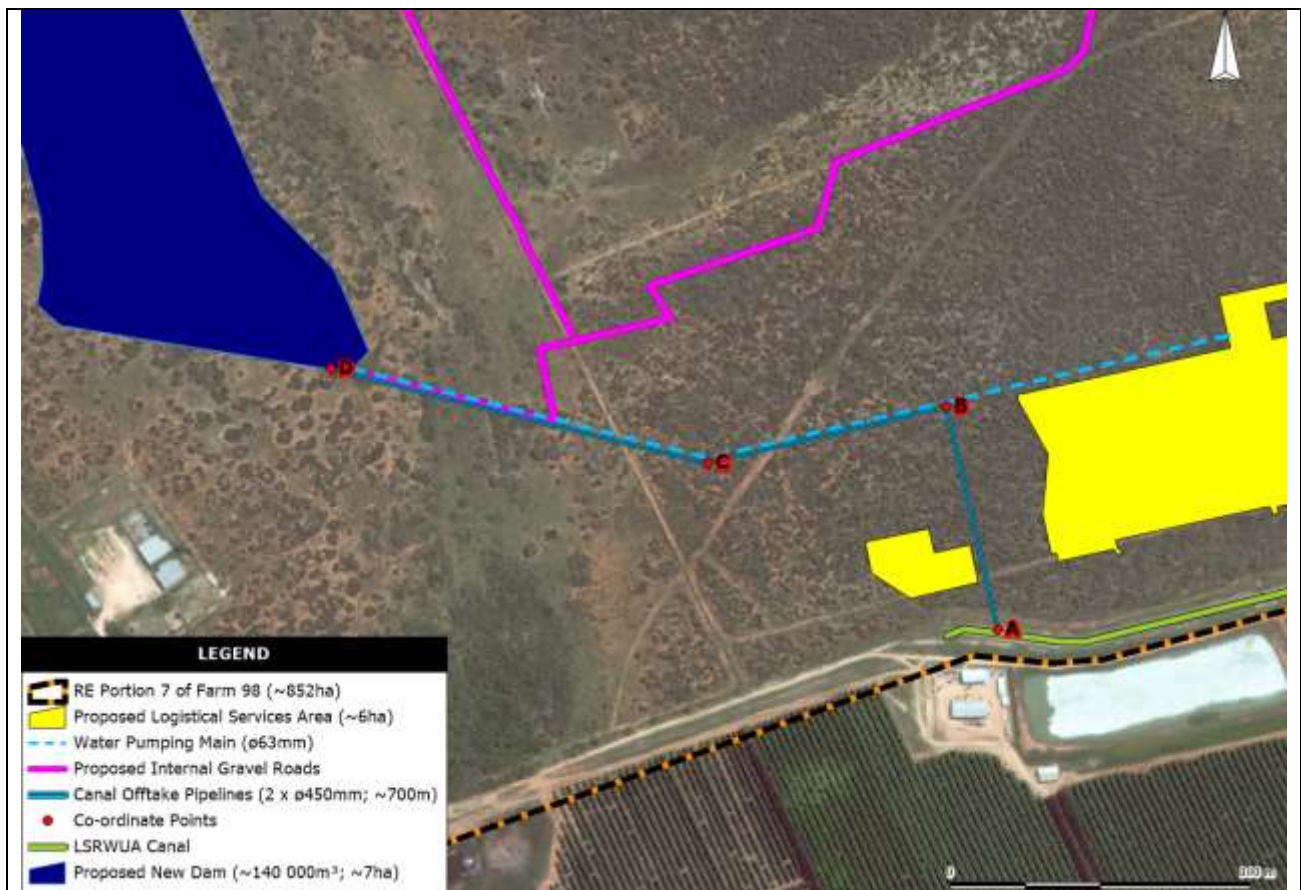
A new dam is proposed in order to store water from the canal and irrigate the proposed agricultural development. An irrigation specialist has recommended that the proposed dam should have an effective storage capacity of ~140 000m³ and a footprint of ~7ha, in order to supply sufficient irrigation water for the proposed agricultural development. The dam is proposed to be located just north of the existing structures situated in the centre of the farm, towards the southern boundary. The location of the dam has been informed by specialist input, as well as technical irrigation requirements. The following information has been provided by the applicant's preferred dam builder regarding the proposed dam construction methodology:

- Topsoil to be removed and stored separately for use in rehabilitation.
- Plough, moisten and compact foundation to maintain impermeability.
- Place earth-fill on foundation and embankment and compact.
- The following equipment will be utilised on site for the dam construction:
 - Grader or bulldozer
 - Compaction roller
 - Water cart
- Outlet pipe to be cast in concrete, also to be compacted and earth-filled.
- Spillway to be grassed / re-vegetated to ensure erosion is prevented.

In addition, in order to reduce the potential for overflow from the dam, the following precautionary measures have been proposed by the irrigation specialist (included in Appendix G: Supporting Documentation):

- The dam to be lined with a 200mm clay layer (33% more than usual).
- Freeboard height to be increased.
- The proposed dam overflow will link in with the existing overflow of the DWS Scheepersvlakte dam.
- Dam levels to be monitored with appropriate telemetry and warnings provided when certain water levels are exceeded so as to better manage 1:100 events.

Two supply pipelines are proposed to convey irrigation water from the offtake point on the canal to the proposed irrigation water storage dam. These will have an internal diameter of ø450mm each and will be installed over a distance of ~700 metres. A working area of ~3 metres is anticipated to be required for the installation of the 2 x ø450mm pipes over a length of ~700m. Thus, a total ~2 100m² (0.21ha) will be cleared in order to install the aforementioned offtake pipelines. The proposed pipeline will be installed within the boundary of Scheepersvlakte Farm and is indicated in map 2.4 below. Co-ordinates of the turning points of the proposed pipeline route are also provided in table 2.2 below.



Map 2.4 Co-ordinates of turning points of the proposed pipeline route from the canal offtake point (A) to the proposed new dam (D).

Table 2.2: Co-ordinates of turning points of the proposed pipeline route.

| Point Number | Latitude (S) (DDMMSS) | | | Longitude (E) (DDMMSS) | | |
|--------------|-----------------------|-----|---------|------------------------|-----|---------|
| | DD | MM | SS | DD | MM | SS |
| A | 33° | 27' | 17.67"S | 25° | 38' | 4.73"E |
| B | 33° | 27' | 11.66"S | 25° | 38' | 3.08"E |
| C | 33° | 27' | 13.18"S | 25° | 37' | 55.36"E |
| D | 33° | 27' | 10.64"S | 25° | 37' | 43.18"E |

The cultivation of maize will require the installation of a pivot irrigation system, whilst the citrus orchards are proposed to be irrigated by means of a drip/ micro irrigation system. Both irrigation systems will be installed at the same time, although only the pivot irrigation will be utilised for the maize.

Additionally, the proposed development will require the installation of irrigation pipelines of varying diameters. The internal irrigation reticulation required to irrigate the proposed cultivated areas will vary in internal diameter from 10mm (dripper lines) to 200mm (main lines). It is proposed that the irrigation infrastructure include pivot irrigation for maize, as well as pipes for drip/ micro irrigation of citrus. Each pivot will cover a maximum diameter of 25ha.

A new transformer will be installed near the packhouse in order to supply electricity to the dam, logistical services area and associated infrastructure. Eskom has been requested to provide confirmation that the existing network is capable of supplying the additional required load. Written confirmation will be included in Appendix G (Supporting Documentation) of this report, on receipt of such.

2.2.2.5 Windbreaks

The exotic *Cassuarina cunninghamiana* (Beefwood) is commonly used as a windbreak species in the Sundays River Valley. However, this tree is listed in Category 2 of CARA as well as NEMBA Alien and Invasive Species List (AIS, 2016) which requires that a permit be obtained prior to planting this species. There are also certain requirements/ conditions which need to be met in order to be able to plant Category 2 plants.

It is preferable that a tree species, which is not listed in terms of the CARA or the NEMBA AIS Regulations, is selected for planting as a windbreak. Hardly any information is available in the literature on indigenous species which would be potentially suitable as windbreaks. Indigenous Yellowwood trees (*Podocarpus* sp.) have been utilised by some farmers in the SRVM as windbreaks, however, they are known to be hosts to false codling moth (citrus pest). In addition, most of the indigenous species which have potential as windbreaks (e.g. *Ekebergia capensis*, *Pittosporum viridifolium*, *Ptaeroxylon obliquum*) tend to grow in moister regions and will likely require additional irrigation water to establish and reach the required height (~20m).

The applicant has indicated, however, that they do not propose to make use of windbreaks for the proposed agricultural development and windbreaks are not required for the cultivation of maize.

2.2.3 Operational

Once the site is suitably prepared, the area will be utilised for the cultivation of annual crops (e.g. maize) and the establishment of citrus orchards.

Equipment required for the new operations will be stored on site, in the proposed new storage facilities associated with the logistical services area. The following operational phase activities are associated with the project:

- Initial establishment (Phase 1) of ~150ha of citrus and ~100ha of maize.
- Thereafter (subsequent phases), cultivation of maize for a period of ~2-5 years, followed by the establishment of citrus orchards.
- Utilisation of the additional services and administration facilities, as well as accommodation.
- Water for the development will be supplied from the LSRWUA canal system which will be reticulated from the proposed new irrigation water storage dam into the orchards and to the water treatment and storage facilities associated with the logistical services area; and
- It is anticipated that a number of additional seasonal and permanent employment opportunities will be created by the project.

2.2.3.1 Cultivation of Maize and the Establishment of Citrus Orchards and Associated Services

The final size, layout and configuration of the cultivation area has been determined based on the following:

- Soil suitability analysis (for the cultivation of crops and citrus) and slope analysis, by a recognised soil specialist.
- Irrigation infrastructure and efficiency requirements to provide pivot and drip/ micro irrigation, as well as the size, location and storage capacity of the new dam.
- Technical requirements (runoff and stormwater management, accessibility, slope).
- Size and location of the support services infrastructure and staff housing, including recommendations for bulk services (domestic water, effluent management, stormwater management) by a qualified engineer.
- Biophysical constraints (e.g. sensitive areas, species of special concern, maintenance of ecological corridors).

The cultivation of maize is proposed over a period of between ~2-5 years. Maize will be planted during spring (September -October) and harvested annually (May). Plant material remaining in the harvested fields will be used as organic compost, while the fields lay fallow until the next planting season. The cultivation of maize will be done to prepare the soil for the establishment of a variety of citrus, whilst simultaneously eliminating a potentially harmful root system fungus which has recently been identified in the Sundays River Valley area and is prone to attacking a specific citrus cultivar.

The process of planting maize, followed by citrus is proposed to continue for ~2-5 years, until ultimately an orchard area of ~504ha (includes associated infrastructure e.g. roads, laydown areas, windbreaks etc.) with ~468ha of citrus trees, is achieved. See section 2.4 below for the proposed project schedule.

2.2.3.3 *Water Use Entitlements and Availability*

Water for the proposed agricultural expansion will be provided by the LSRWUA supply system. Water entitlements from the LSRWUA provide for 900mm/ha/yr (9000m³/ha/yr). The pivot irrigation system required for the irrigation of maize, as well as the drip/ micro irrigation water delivery system which will be utilised in the orchards, are anticipated to use ~600mm/ha/yr (6000m³/ha/yr). With an effective irrigation area (number of trees) of ~468ha, this translates to an annual water requirement of 2 808 000m³ for the proposed agricultural development.

The applicant has obtained a Water Use Licence from DWS for the taking of water from a water resource in terms of Section 21(a) of the National Water Act which entitles them to utilise 650ha (5 850 000m³ per annum) of water from the LSRWUA canal system. The applicant, therefore, has sufficient irrigation water for the proposed development of ~468ha of citrus. A copy of the water use license granted by DWS to Scheepersvlakte Farms (Pty) Ltd, is contained in Appendix G.

2.3 CAPITAL INVESTMENT AND EMPLOYMENT GENERATION

The anticipated capital investment of the agricultural development, upon completion of the construction phase, will be ~R185 million. It is estimated that the construction phase of the development will create ~60 new employment opportunities at a value of ~R10 million (over a five-year period).

Upon completion of construction and during the operational phase of the development, it is estimated that 200 new permanent employment opportunities will be created at a value of ~R13.5 million annually, and 1000 seasonal opportunities at an annual value of ~R31.4 million. Labour will be sourced locally from communities in the SRVM and Nelson Mandela Bay Municipality (NMBM). In addition to the direct employment opportunities that are created as part of the farming operations, a number of indirect jobs will also be created by the proposed development particularly within the packaging, processing and logistics industries, amongst others.

2.4 PROJECT SCHEDULE

The following table provides a preliminary overview of the proposed project schedule and an indication of the anticipated approvals process. Should Environmental Authorisation be positive, it is estimated that the project construction phase will take place over a period of 5 years (60 months) subsequent to the pre-construction period (~12 months).

Table 2.3: Proposed project schedule.

| PHASES | ACTIVITY | TIMEFRAME |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| PRE-CONSTRUCTION PERIOD | | |
| Detailed Planning and Design Phase | <ul style="list-style-type: none"> • Prepare final layouts • Relevant permit & licence applications • Pre-Construction audit | Completed within 12 months from date of Environmental Authorisation |
| CONSTRUCTION PERIOD | | |
| PHASES | ACTIVITY | TIMEFRAME |
| 1 | <ul style="list-style-type: none"> • Clearance of ~280ha vegetation • Construction of irrigation water storage dam • Installation of irrigation infrastructure • Planting of ~100ha maize and ~150ha citrus • Construction of logistical services area and staff housing | Completed within 36 months of Pre-Construction Period |
| 2 | <ul style="list-style-type: none"> • Clearance of ~120ha vegetation • Installation of irrigation infrastructure • Planting of ~110ha maize | Completed within 12 months of Phase 1 |
| 3 | <ul style="list-style-type: none"> • Clearance of ~116ha vegetation • Installation of irrigation infrastructure • Planting of ~108ha maize | Completed within 12 months of Phase 2 |
| OPERATIONAL PERIOD | | |
| Farming Phase | <ul style="list-style-type: none"> • Commence with farming activities • Citrus orchards to be established in place of the maize ~2-5 years after planting of maize for each phase | Commence upon completion of vegetation clearing and crop establishment |

2.5 CONCLUDING REMARKS

Alternatives and the assessment thereof, are outlined in Chapter Five of this report. The specialist studies forming part of the EIA Phase of the assessment, which have informed the preferred development footprint within the site, are included in Chapters Six to Thirteen of this report. Potential impacts associated with the proposed agricultural development and associated infrastructure are included in the respective specialist studies.