AFGRI Poultry (Pty) Ltd.

Draft Scoping Report

Locality: Sundra

Departmental Ref No:

12/9/11/L832/6

SHANGONI
Management Services (Pty) Ltd

DRAFT SCOPING REPORT

AFGRI Poultry (Pty) Ltd.

Draft Scoping Report

Locality: Sundra

Departmental Ref No: 12/9/11/L832/6

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PROJECT DETAILS

National Department of Environmental Affairs

Reference No.: 12/9/11/L832/6

Project Title: Proposed AFGRI Poultry Daybreak (Sundra) Abattoir Wastewater Treatment Works

Applicant: AFGRI Poultry (Pty) Ltd.

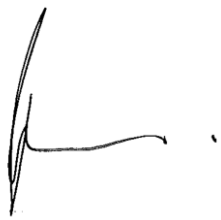
Project Number: AFG/sun/17-11-11

Compiled by: Ms. Patricia van der Walt

Date: 14 May 2012

Location: The remaining extent of portion 8 of the farm Modderfontein 236 IR, Mpumalanga.

Technical Reviewer: Mr. Brian Hayes



Approval: Brian Hayes (Pr Eng)

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DEFINITIONS

Environment

The surroundings (biophysical, social and economic) within which humans exist and that are made up of

i. the land, water and atmosphere of the earth;
ii. micro-organisms, plant and animal life;
iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and
iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Aspects

Elements of an organization's activities, products or services that can interact with the environment.

Environmental Degradation

Refers to pollution, disturbance, resource depletion, loss of biodiversity, and other kinds of environmental damage; usually refers to damage occurring accidentally or intentionally as a result of human activities.

Environmental Impacts

Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

Environmental Impact Assessment

A study of the environmental consequences of a proposed course of action.

Environmental Impact Report

A report assessing the potential significant impacts as identified during the environmental impact assessment.

Environmental impact

An environmental change caused by some human act.

Land use

The various ways in which land may be employed or occupied. Planners compile, classify, study and analyse land use data for many purposes, including the identification of trends, the forecasting of space and infrastructure requirements, the provision of adequate land area for necessary types of land use, and the development or revision of comprehensive plans and land use regulations.

Pollution Prevention

Any activity that reduces or eliminates pollutants prior to recycling, treatment, control or disposal.

Public Participation Process

A process of involving the public in order to identify needs, address concerns, in order to contribute to more informed decision making relating to a proposed project, programme or development.

Topography

Topography, a term in geography, refers to the "lay of the land" or the physio-geographic characteristics of land in terms of elevation, slope and orientation.

Vegetation

All of the plants growing in and characterizing a specific area or region; the combination of different plant communities found there.

Waste

Waste is unwanted or undesired material left over after the completion of a process. "Waste" is a human concept: in natural processes there is no waste, only inert end products.

Water Resource

- a river or a spring;
- a natural channel in which water flows regularly or intermittently;
- a wetland, lake or dam into which, or from which, water flows;
- any collection of water which the Minister may declare to be a watercourse; and
- surface water, estuaries and aquifers (underground water).

All water bodies in the hydrological cycle, including underground water, are regarded as water resources

Water Course

- a river or spring;
- a natural channel or depression in which water flows regularly or intermittently;
- a wetland, lake or dam into which, or from which. water flows; and
- any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998)

Water Use

Water use includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation.

Wastewater

Wastewater is water containing waste, or water that has been in contact with waste material.

- Wastewater includes
  - domestic wastewater
  - biodegradable industrial wastewater
  - industrial wastewater.

Domestic Wastewater

Domestic wastewater consists of 90% or more wastewater by volume that arises from domestic and commercial activities and premises, and may contain sewage. Domestic wastewater includes household waste from washing, bathing, toilets.

Biodegradable industrial wastewater

Wastewater that contains predominantly organic waste arising from industrial activities and premises including -

- milk processing;
- manufacture of fruit and vegetable products;
- sugar mills;
- manufacture and bottling of soft drinks;

- water bottling;
- production of alcohol and alcoholic beverages in breweries, wineries or malt houses;
- manufacture of animal feed from plant or animal products;
- manufacture of gelatine and glue from hides, skin and bones;
- abattoirs;
- fish processing; and
- feedlots;

Complex industrial wastewater

Wastewater arising from industrial activities and premises that contains

- a complex mixture of substances that are difficult or impractical to chemically characterise and quantify, or
- one or more substances, for which a wastewater limit value has not been specified, and which may be harmful or potentially harmful to human health, or to the water resource (identification of complex industrial wastewater will be provided by the Department upon written request);

Irrigation

It is the application of wastewater for the purpose of crop production, and includes the cultivation of pasture.

Diverting flow

This means a temporary or permanent structure causing the flow of water to be rerouted in a watercourse for any purpose.

Impeding flow

It is the temporary or permanent obstruction or hindrance to the flow of water in a watercourse by structures built either fully or partially in or across a watercourse.

Altering the bed, banks or characteristics of a watercourse

It means any change affecting the resource quality within the riparian habitat or 1:100 year flood line.

Wetland

Means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

ABBREVIATIONS

BID	Background Information Document
CRR	Comments Response Report
DEA	Department of Environmental Affairs
DWA	Department of Water Affairs
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act of 1989
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMF	Environmental Management Framework
EMP	Environmental Management Programme
GN	Government Notice
I&AP	Interested and Affected Party
NEMA	National Environmental Management Act, Act 107 of 1998 as amended Regulation

EXECUTIVE SUMMARY

The purpose of this document is to supply the National Department of Environmental Affairs with the requested information pertaining to the National Environmental Management Act (NEMA), as amended, and Regulation 28 of the Environmental Impact Assessment Regulations, 2010 and the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008). Contained in this document is a brief overview of the activity and site specific information of the proposed AFGRI Poultry Daybreak (Sundra) abattoir wastewater treatment works project (location, topography, surrounds, vegetation, etc.). The proposed approach to the Environmental Impact Assessment of the application is set out in a plan of study, included in this draft Scoping Report.

1. INTRODUCTION

This draft Scoping Report forms part of an application for environmental authorisation (waste management licence) and water use licence for the proposed AFGRI Poultry Daybreak (Sundra) abattoir wastewater treatment works on the remaining extent of portion 8 of the farm Modderfontein 236 IR, Mpumalanga. The application process is undertaken on behalf of the applicant, AFGRI Poultry (Pty) Ltd., by Shangoni Management Services (Pty) Ltd. Shangoni was appointed, as independent environmental practitioner, to assist the applicant in complying with the 2010 EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and the National Water Act, 1998 (Act No. 36 of 1998).

An application to undertake an Environmental Impact Assessment (Scoping and Environmental Impact Reporting) process was submitted to the identified competent authority, the National Department of Environmental Affairs (NDEA). The Department subsequently registered the project and the formal Scoping and Environmental Impact Reporting (S&EIR) process was thereby initiated.

All the findings from the draft Scoping process are included in this report.

1.1 Applicant

Name of Applicant	AFGRI Poultry (Pty) Ltd. Mr. Willem Breedt
Postal Address	PO Box 186 Sundra 2200
Telephone No.	013 661 1063
Cell phone No.	087 941 0526/079 528 5009
Fax No.	013 661 1797
Farm name and portion on which the activities take place	Remaining extent of portion 8 of the farm Modderfontein 236 IR, Mpumalanga
Co-ordinates of operation	26° 9'18.32"S 28°32'17.80"E

1.2 Appointed Environmental Assessment Practitioner

Name of firm	Shangoni Management Services (Pty) Ltd.	
Postal address	PO Box 74726 Lynwood Ridge Pretoria 0040	
Telephone No.	(012) 807 7036	
Fax	(012) 807 1014/086 643 5360	
E-mail	lizette@shangoni.co.za	
Team of Environmental Assessment Practitioners on project		
Name	Qualifications	Responsibility
Mr. H.L. de Villiers	Bsc. (Hons) (PU for CHE) MSc.(UP)	EIA Project Leader and Co-ordinator
Ms. Lizette Crous	Post Graduate Certificate Environmental Management (University of London)	EAP
Ms. Patricia van der Walt	B.Sc. (Hons) (Applied Science in Environmental Technology)	Junior EAP

Detailed CV's for the project team are appended (Appendix F).

1.3 Current situation

At present, 700 000 chickens are slaughtered at the AFGRI Poultry Daybreak abattoir per week. The abattoir operates 24 hours a day, 7 days a week.

The abattoir currently uses approximately 12l per Chicken, thus using approximately 1.2 Ml of water per day, which equates to 13.9 l/s. This is sustained by borehole water from three onsite boreholes. Each borehole abstracts groundwater at a rate of 4.6 l/s. Municipal water is supplied to the property for domestic purposes.

If the AFGRI Poultry Daybreak abattoir was to be expanded (REF: 17/2/3 N-113), the volume of water used per chicken will be less (11l/Chicken) due to better economies of scale.

Abattoir wastewater has a high organic content due to the waste materials (blood, fat, small pieces of meat, gizzard contents, manure) produced in the slaughtering process. The wastewater from the abattoir is mechanically screened to remove the solid organic material. The solids are then sent to the AFGRI owned rendering plant in Dryden. Dryden is a registered Sterilizing plant.

Abattoir wastewater produced at the AFGRI Daybreak abattoir is currently chemically treated in two concrete dams and then disposed of into a pan that is adjacent to the abattoir. This treatment method is inadequate and AFGRI Poultry is therefore proposing an integrated ponding and wetland system for the treatment of the abattoir wastewater.

1.4 Proposed Activity

The treatment system has been designed by Dekker Envirotech CC in conjunction with SKCMasakhizwe Engineers (Pty) Ltd. It will be capable of handling 2 500m^3 abattoir wastewater per day and will consist of a series of ponds together with a constructed wetland. The layout of the system is given in Figure 1:

The most important features of the treatment system are:

1. The system will provide excellent buffer capacity for handling organic and hydraulic shock loads;
2. By using algal ponds instead of conventional mechanical aerators, a substantial saving will be made in terms of the electrical demand.

The function of each component of the system is as follows:

1. Screening: These are existing structures and sufficiently remove the majority of large solids and floatable fats.

2. Anaerobic Pond: In this pond, 70% of the organic pollutants will be converted to biogas through the process of anaerobic fermentation. This will reduce the amount of mechanical aeration required.

3. Facultative Pond: The surface of this pond will be aerobic whilst the bottom will be anaerobic. A combination of algae and natural bacteria will cause the further removal of organic pollutants (COD) and also partially remove ammonium-nitrogen.

4. Algal Ponds: The function of these ponds will be the production of dissolved oxygen by promoting photosynthetic activity. These shallow ponds are specifically designed to allow for the optimal growth of a natural array of green algae and the ponds will be mixed by slow-rotating water paddles. The oxygen-rich water will be continually recycled to the surface of the Facultative Pond, which will also decrease the need for mechanical aeration.

5. Biofilter: The main function of the biofilter will be to achieve nitrification and denitrification. The filter will be filled with a fluidised plastic medium that provides an expanded surface area for microbial growth. Intermittent aeration will be provided.

6. Constructed Wetland: The wetland will also act as a biological filter and will consist of different reeds or water plants. The plants will assist in stripping the remaining nutrients from the wastewater. The constructed wetland is classified as a free water surface (FWS) wetland and is designed to remove suspended colloidal particles. This occurs as the vegetation promotes the flocculation of suspended algal and bacterial biomass. The wetland will be divided into individual cells and the inlet flow will be distributed equally among the cells so that they operate in parallel. The wetland will act as a passive biofilter for polishing the ponding outlet. The wetland will be stocked with indigenous reeds harvested from nearby farm dams as these plants will be best suited to the climate. The wetland will attract a number of bird species and will improve the overall aesthetics of the treatment works.

The final outlet from the treatment works will be in compliance with the Department of Water Affairs' General Limit values.

Table 1: Discharge Standards Regulated by Water Affairs (as set out in Table 3.1 of the GN 399 General Authorisations, dated March 2004)

Substance/Parameter	General limit
Faecal Coliforms (per 100ml)	1 000
Chemical Oxygen Demand (mg/l)	75 *
pH	5,5 – 9,5
Ammonia (ionised and un-ionised) as Nitrogen (mg/l)	6
Nitrate/Nitrite as Nitrogen (mg/l)	15
Chlorine as Free Chlorine (mg/l)	0,25
Suspended Solids (mg/l)	25
Electrical Conductivity (mS/m)	70 mS/m above intake to a maximum of 150 mS/s
Ortho-Phosphate as phosphorous (mg/l)	10
Fluoride (mg/l)	1
Soap, oil or grease (mg/l)	2,5
Dissolved Arsenic (mg/l)	0.02
Dissolved Cadmium (mg/l)	0.005
Dissolved Chromium (VI) (mg/l)	0.05
Dissolved Copper (mg/l)	0.01
Dissolved Cyanide (mg/l)	0.02
Dissolved Iron (mg/l)	0.3
Dissolved Lead (mg/l)	0.01
Dissolved Manganese (mg/l)	0.1
Mercury and its compounds (mg/l)	0.005
Dissolved Selenium (mg/l)	0.02
Dissolved Zinc (mg/l)	0.01
Boron (mg/l)	1

The abattoir wastewater will be treated to the general limit (Refer to Table 1). Depending on the salinity levels of the treated wastewater, an estimated 40 – 60 % of the volume of the treated water will be available for re-use. The remaining treated water will be used for irrigation of crops on the property or disposed of into the Daybreak pan. The layout of the system is given below.

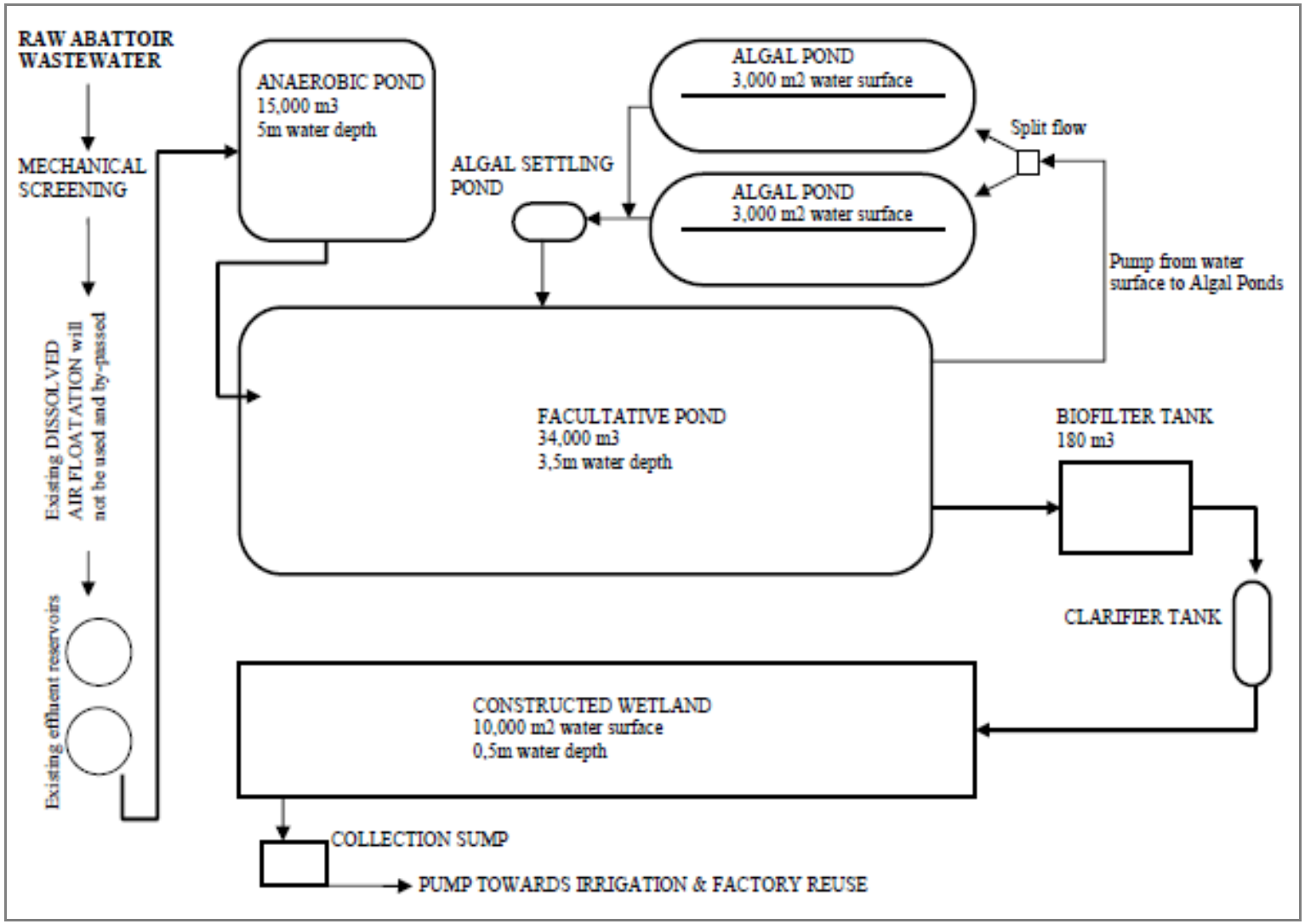


Figure 1: Layout of the proposed wastewater treatment plant (Integrated ponding and wetland system).

1.6 Proposed Locality

AFGRI Poultry Daybreak (Sundra) abattoir falls within the Victor Khanye Local Municipalities' jurisdiction. This local municipality forms part of the Nkangala District municipality, located within the Western Highveld of the Mpumalanga province.

The proposed wastewater treatment works (WWTW) will be located on the remaining extent of portion 8 of the farm Modderfontein 236 IR. The site lies approximately 14km due west from the town of Delmas.

The abattoir can be reached from the N12 (toward Witbank), by taking exit 461 towards R50/Eloff/Sundra/Bapsfontein, turning right onto Katboschfontein Road and continuing approximately 350m to take the second left toward Modderfontein Road. AFGRI's Daybreak abattoir is located on the right, approximately 700m along this road.

Table 2: Direction and distance to the nearest towns

Direction	Distance from site	Closest town
Sundra	4.3km	South
Delmas	14 km	East
Mandela park	5.4 km	North West

The site locality map is given below as Figure 3 the topography of the site is shown in Figure 51 and the site photographs are shown in Figure 4 to Figure 12.

Figure 2: Arial layout of Daybreak abattoir

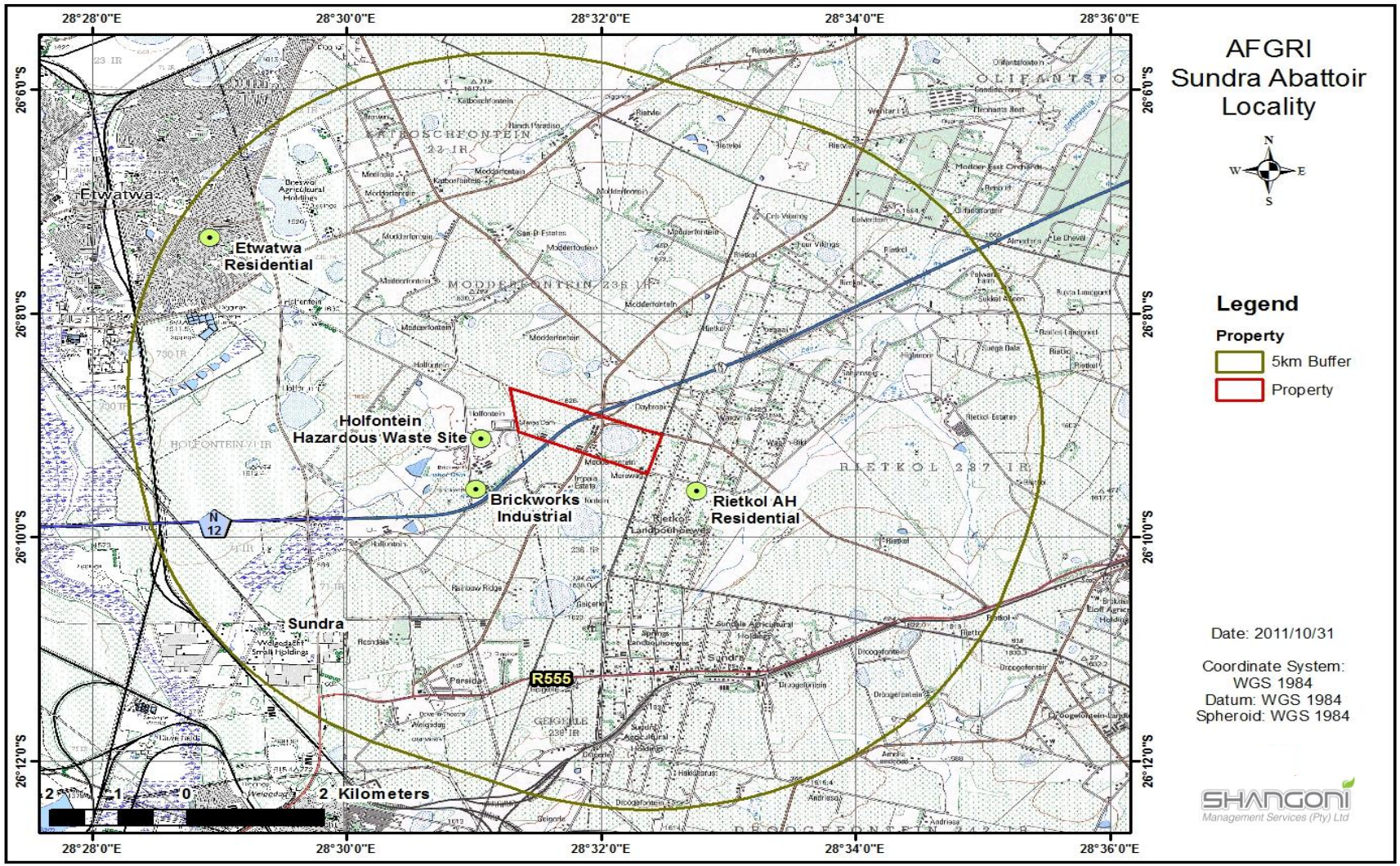


Figure 3: Site locality map

Figure 4: Site photograph 1

Figure 5: Site photograph 2

Figure 6: Site photograph 3

Figure 7: Site photograph 4

Figure 8: Site photograph 5

Figure 9: Site photograph 6

Figure 10: Site photograph 7

Figure 11: Site photograph 8

Figure 12: Site photograph 9

2. NATURE AND EXTENT OF THE ENVIRONMENT AFFECTED BY ACTIVITY

The following section provides a description of the baseline or status quo environment as well as the social-economic parameters that characterise the region and the study area, and is derived from various specialist studies as well as data sources including aerial photographs, topo-cadastral maps and national and provincial databases.

2.1 Biophysical aspects affected

2.1.1 Geology

The site is underlain by transported silty and residual soils presumably developed over mudrock bedrock belonging to the Vryheid Formation, Ecca Group, Karoo Supergroup and by dolomite and chert bedrock at depth belonging to the Malamani Subgroup, Transvaal Supergroup (Dekker, 2011).

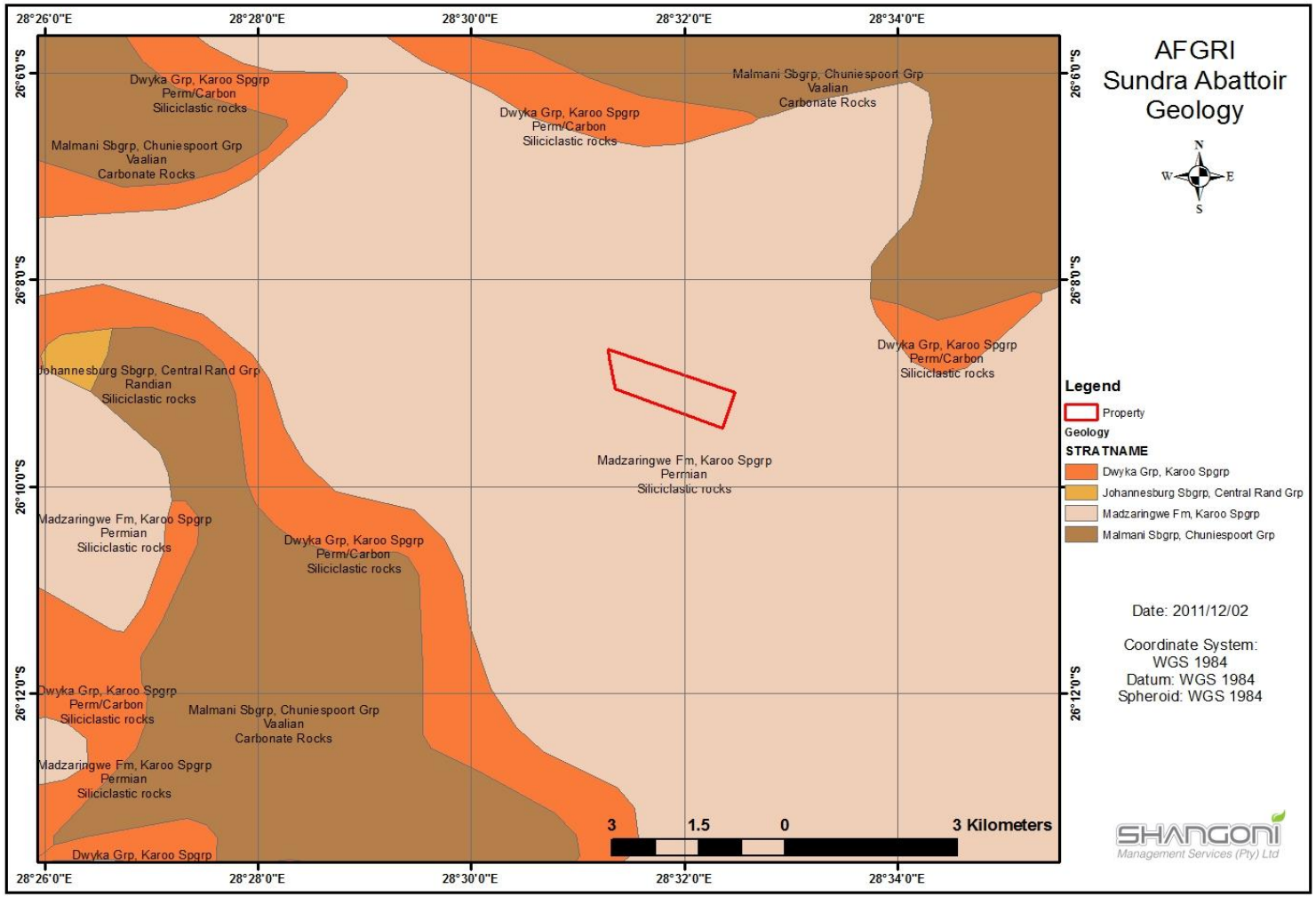


Figure 13: AFGRI Poultry Daybreak (Sundra) abattoir geology

A geotechnical investigation was carried out for the proposed AFGRI Poultry Daybreak (Sundra) wastewater treatment works.

During the geotechnical investigation, done by Mr. Johann van der Merwe, the study area was divided into two prominent material zones (Soil Zones “A” and “B”). As shown in Figure 14, Soil Zone ”A” covered the lower-lying, western portion of the study area, and the higher-lying, major eastern portion of the study area was covered by Soil Zone “B”.

Table 3: General description of the typical soil profile of zone A

Soil Zone A	
Depth (m)	**Description**
0,0 - 0,3	Moist, greyish brown, stiff, shattered, sandy silt containing fine roots; colluvium.
0,3 - 1,0	Moist, orange becoming dark yellow, firm becoming soft, voided, sandy silt containing soft ferruginous concretions toward the base; colluvium
0,3 - 1,0	Abundant medium and fine, hard nodular ferricrete, clast supported in a matrix of moist, dark red, sandy silt; ferruginised colluvium. Overall consistency is of medium density.
1,0 - 2,0	Moist, dark red and yellow blotched with light grey and black, partially to strongly ferruginised, clayey silt containing abundant coarse, hard nodular ferricrete; ferruginised colluvium. Overall consistency is dense becoming very dense.

Table 4: General description of the typical soil profile of zone B

Soil Zone B	
Depth (m)	**Description**
0,0 - 0,4	Moist, reddish dark brown, stiff, shattered, sandy silt containing fine roots; colluvium.
0,4 - 2,5	Moist, dark orange red and dark red, firm becoming soft, voided, sandy silt containing soft ferruginous concretions toward the base; colluvium
2,5 - 3,0	Abundant medium and fine, hard nodular ferricrete, clast supported in a matrix of moist, dark red, sandy silt, ferruginised colluvium. Overall consistency is medium dense becoming dense with increasing depth.

Very dense ferruginised material was found 2.0m below the soil surface of zone A. This slowed excavations to a gradual stop. With the exception of zone A, no difficulty was experienced elsewhere when digging (down to a depth of at least 3.0m).

In soil zone A, minor to moderate ground water seepage was experienced from below 0.7 m. The investigation did not find any ground water seepages in soil zone B, although the moisture condition of the material increased substantially from below 2,5m deep.

Shear Strength Characteristics:

Four undisturbed samples were taken from the study area and sent to a laboratory where saturated consolidated un-drained trial tests were performed. The parameters were measured under normal stresses of 50, 70 and 100kPa. The results are summarised in the table below. The results indicate low to moderate friction angles and correspondingly high cohesion values for the remolded sandy silt that blankets the site (v.d. Merwe, J., 2010).

Table 5: Measured Shear Strength Parameters

Hole No.	Depth (m)	Dry density (kg/m³)	Normal stress (kPa)	Cohesion (kPa)	Angle of friction (degrees)
DB/8	2,4	1 651	50, 70, 100	23	21
DB/9*	2,0	1 549	50, 70, 100	6	12
DB/10*	0,0 – 2,2	1 777	50, 70, 100	48	11
DB/19*	0,0 – 2,3	1 753	50, 70, 100	52	10

Note: * = remolded sample.

Groundwater and soil chemistry

Very dense ferruginised material was found 2.0m below the soil surface of zone A. Above this impermeable level, minor to moderate ground water seepage (a perched water table) was experienced at depths ranging from 0.7 m to 1.3 m. The investigation did not find any ground water seepages in soil zone B, although the moisture condition of the material increased substantially from below 2,5m to a depth of 3.0m.

Non-ferrous pipes or plastic pipes are recommended for underground use as the soil and groundwater are expected to be highly aggressive towards buried metals and concrete.

Soil permeability

Falling head permeability tests were carried out on undisturbed and remolded disturbed samples. The results of these tests, shown in the table below, indicate that the coefficient of permeability of the remoulded soil samples as well as the in situ samples have a relative permeability of “impervious” in its re-compacted and natural state.

Table 6: Summary of Permeability Tests

Hole No.	Depth (m)	Initial moisture (%)	Dry density (kg/m³)	95% proctor density (kg/m³)	Coefficient of permeability (cm/s)
DB/6	0,1 – 1,1	15,0	1 793	1 808	5,0E-08
DB/6	1,1 – 2,1	16,9	1 858	1 845	6,5E-08
DB/8	0,4 – 1,8	13,9	1 852	1 960	2,1E-07
DB/8	2,4*	24,3	1 622		9,1E-08
DB/9	2,0*	17,3	1 504		1,6E-06
DB/10	1,5*	16,9	1 454		5,5E-07
DB/10	0,3 – 2,2	13,2	1 804	1 881	1,9E-06
DB/16	1,3 – 2,0	16,0	1 780	1 869	1,9E-07
DB/19	2,1*	20,7	1 539		3,3E-06

Note: * = Undisturbed sample

Excavation Characteristics

With the exception of zone A, no difficulty was experienced elsewhere with diggings. No problems are therefore expected in using conventional earth-moving machines to a depth of at least 3.0m below surface.

Very dense ferruginised material was found 2.0m below the soil surface of zone A. Above this impermeable level, minor to moderate ground water seepage was experienced at depths ranging from 0.7 m-1.3 m. The presence of this high perched ground water table may cause a situation where sidewalls may become unstable at this depth across soil zone A.

The investigation did not find any ground water seepages in soil zone B, although the moisture condition of the material increased substantially from below 2,5m to a depth of 3.0 m. In the dry season, sidewalls of deep excavations should remain stable for the duration of construction, yet instabilities may occur during the rainy season.

Earthworks

Soils were tested for their compaction characteristics. Based on the results of the compaction tests (Table 7), it is evident that the dark red, orange and dark yellow sandy silt has a fairly low compacted strength and a fairly high predicted swell after compaction. The ferruginised

colluvium (silty gravels) has a moderate compacted strength and lower predicted swell than the finer-grained silt. Chemical stabilization or mechanical modification of these soils may improve the compacted strength thereof (Johan v.d. Merwe, 2010).

Table 7: A Summary of compaction tests

Hole No.	Depth (m)	Soil type	Plasticity Index	Grading Modulus	CBR	TRH14	Swell (%)
DB/6	0,0 – 1,1	Sandy SILT	12	0,54	8	G10	1,20
DB/6	1,1 – 2,1	Silty GRAVELS	7	1,27	12	G8	0,86
DB/8	0,4 – 1,8	Silty GRAVELS	15	2,06	16	G8	1,20
DB/10	0,0 – 2,2	Sandy SILT	10	1,65	19	G7	0,35
DB/16	1,3 – 2,0	Gravelly SILT	10	0,32	15	G8	0,26

Note: CBR = California Bearing Ration at 95% Mod AASHTO compaction

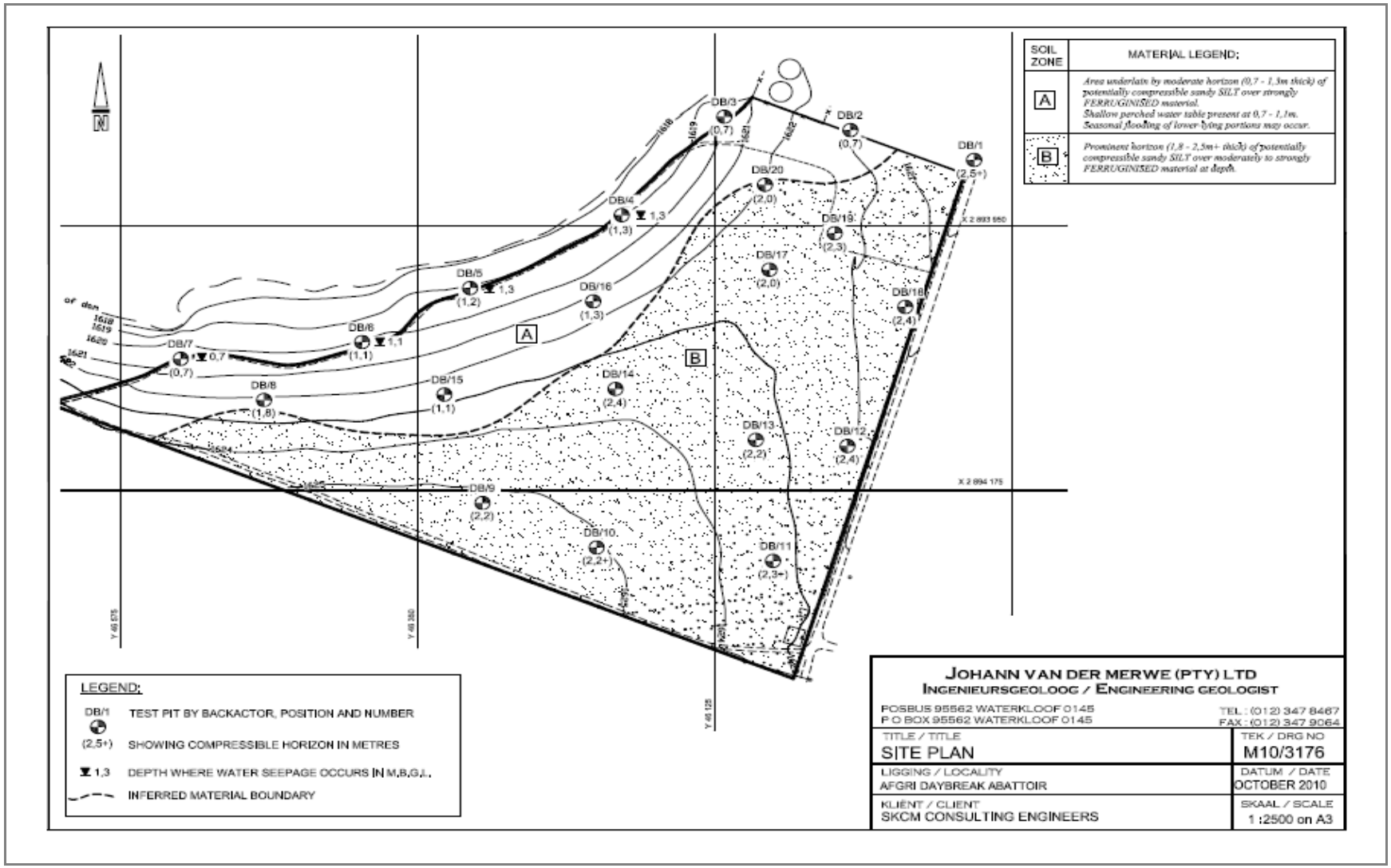


*Figure 14: Location of test pits, (*v.d. Merwe, J., 2010)

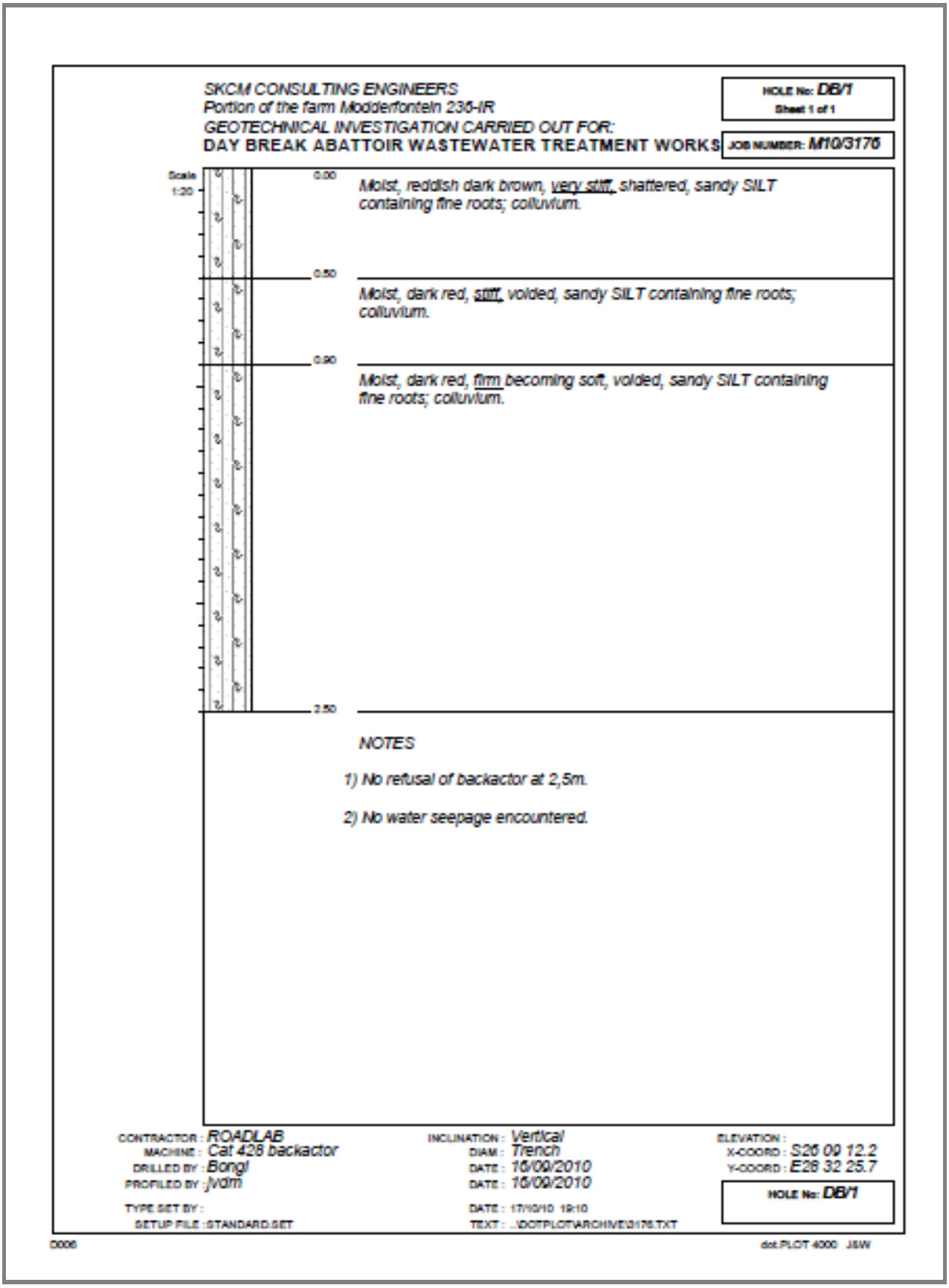


*Figure 15: Soil profile for hole DB/1 (*v.d. Merwe, J., 2010).

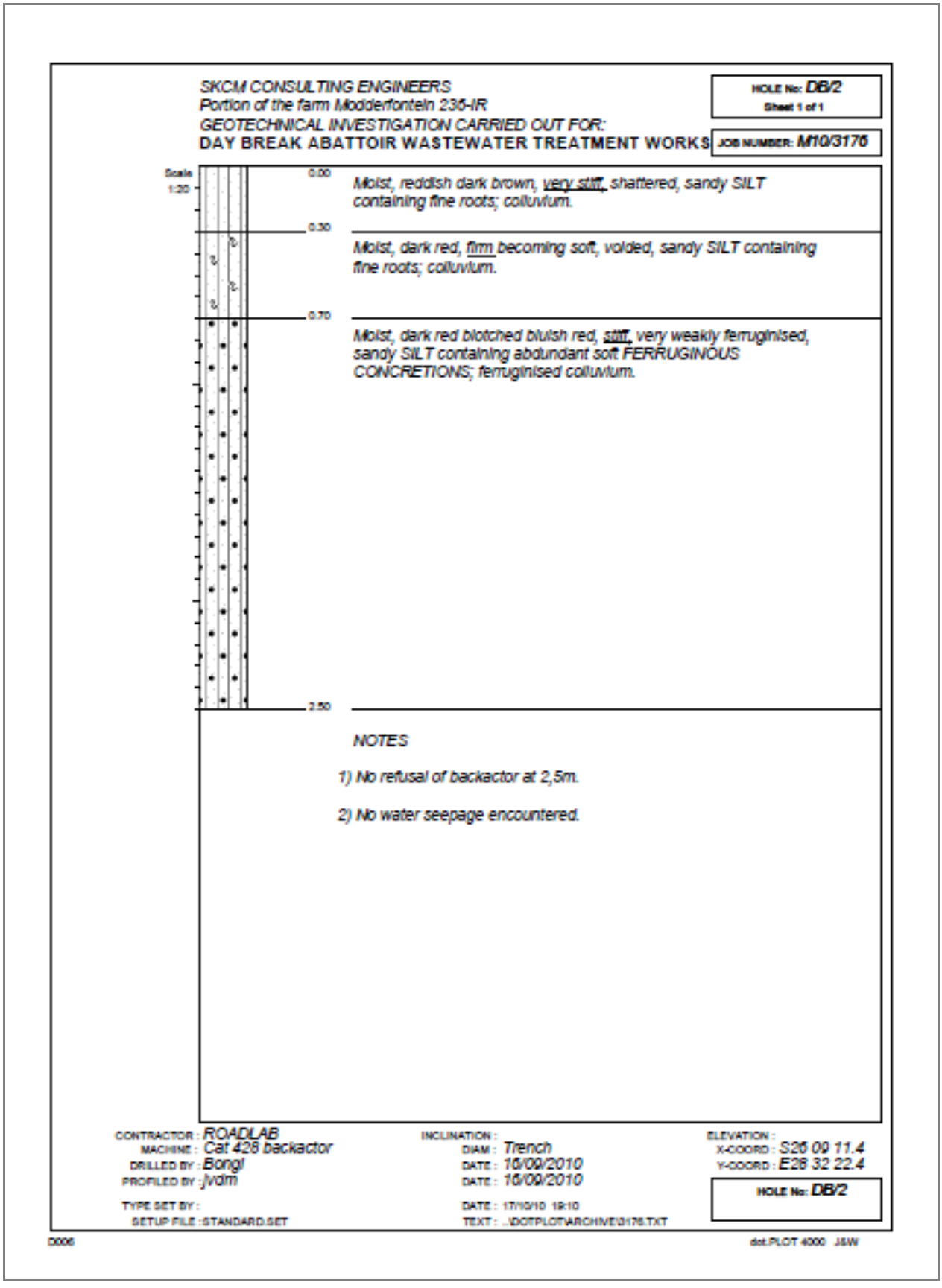


*Figure 16: Soil profile for hole DB/2 (*v.d. Merwe, J., 2010)

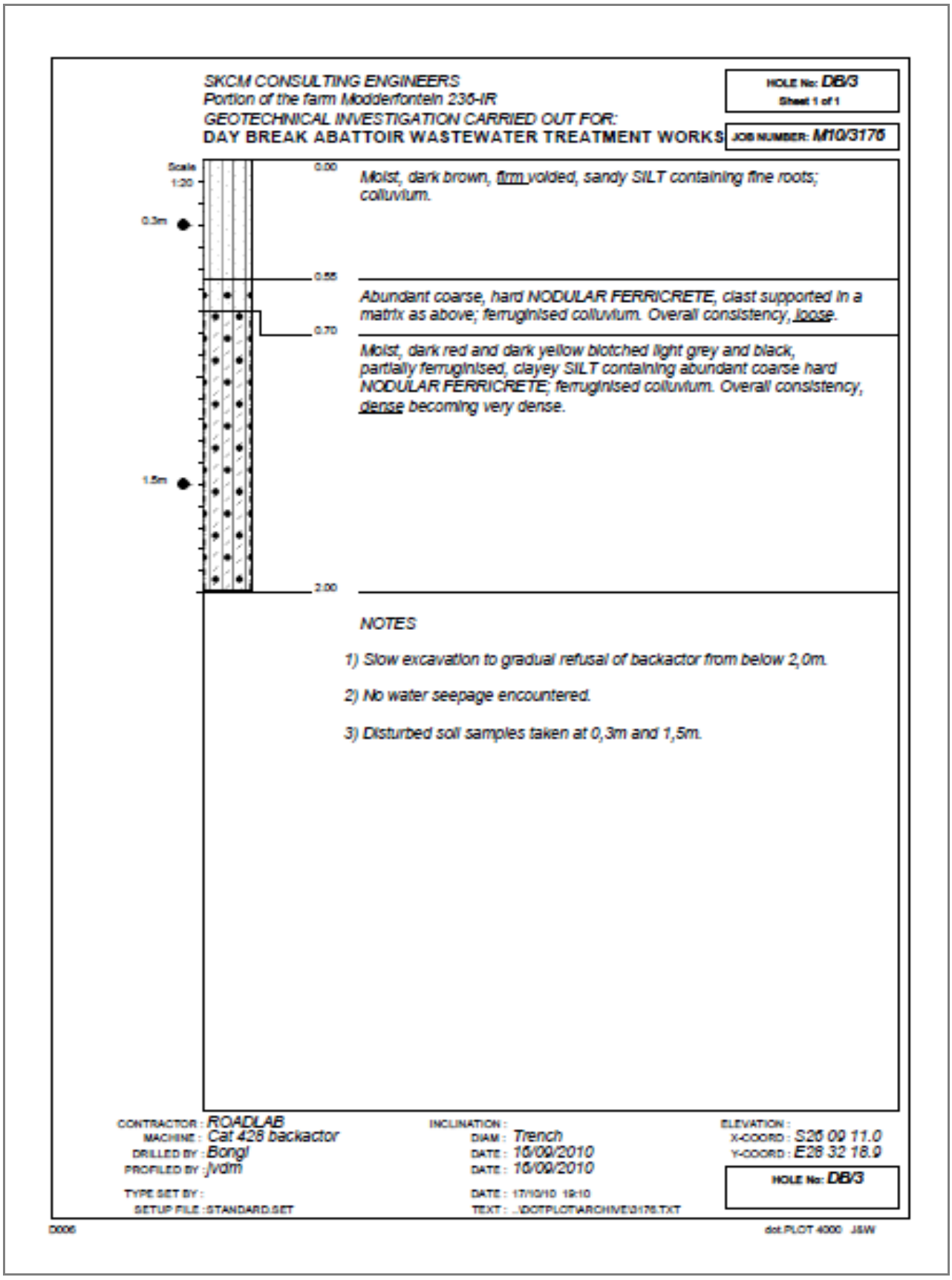


Figure 17: Soil profile for hole DB/3 (v.d. Merwe, J., 2010)

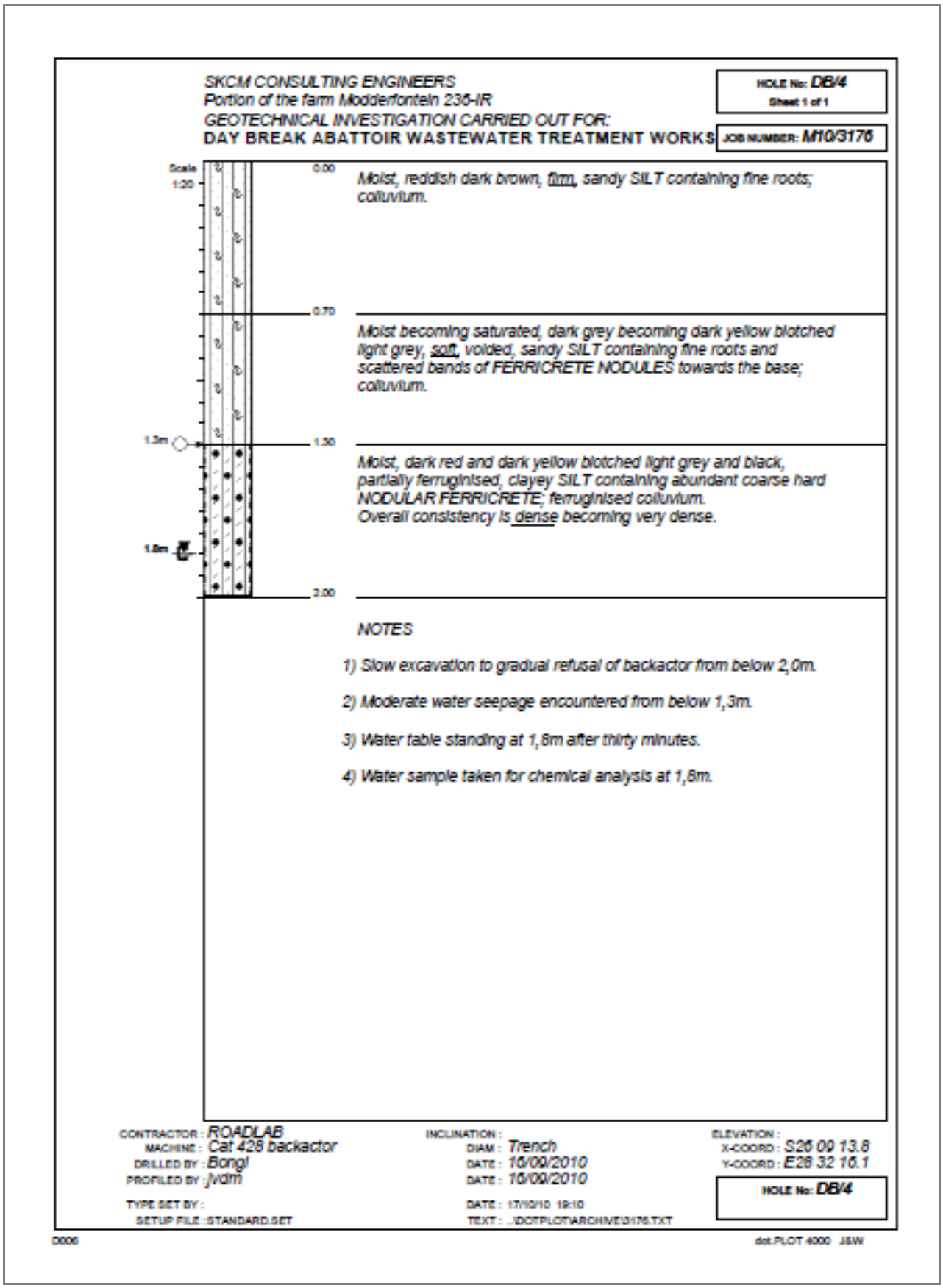


Figure 18: Soil profile for hole DB/4 (v.d. Merwe, J., 2010)

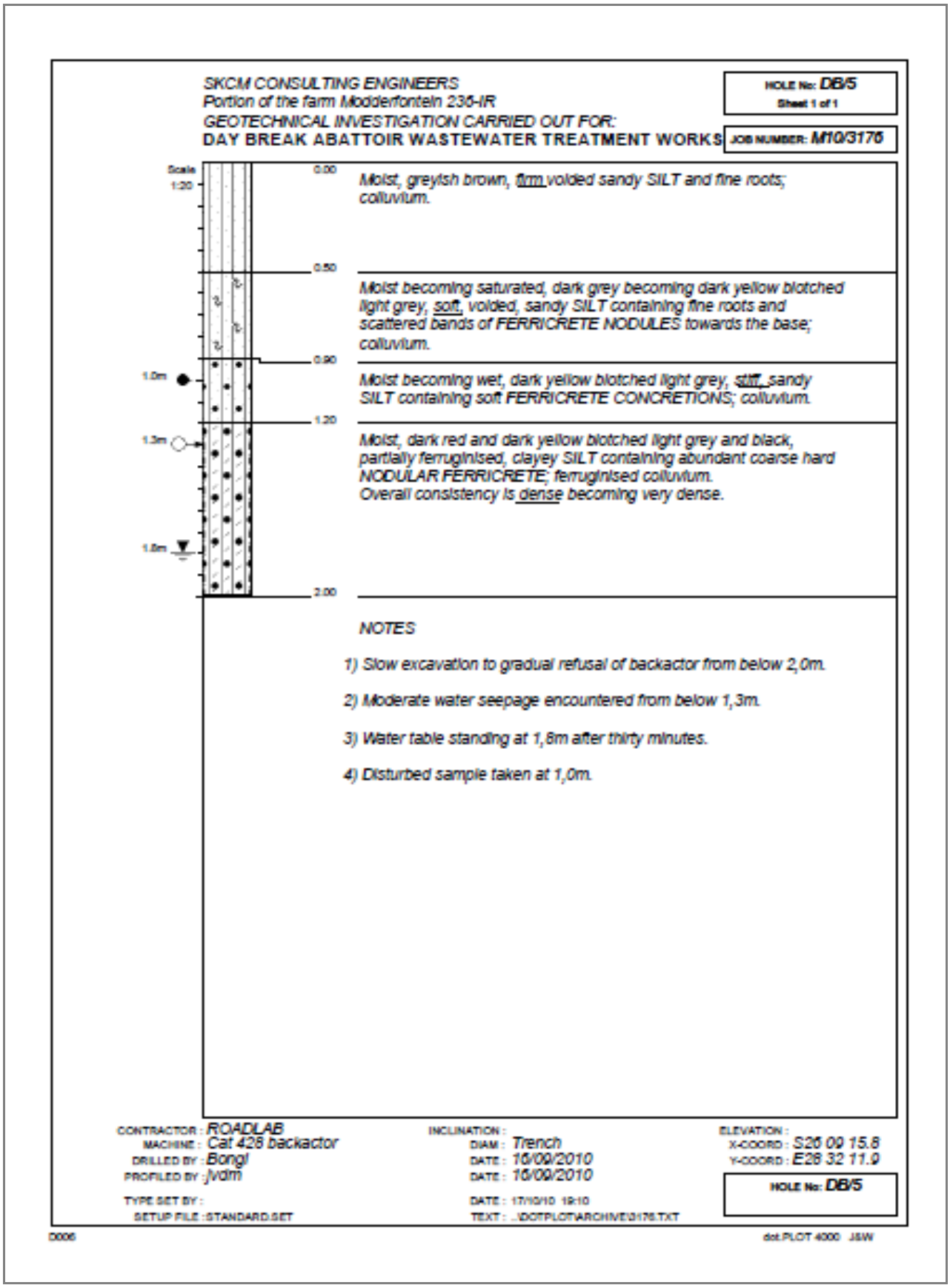


Figure 19: Soil profile for hole DB/5 (v.d. Merwe, J., 2010)

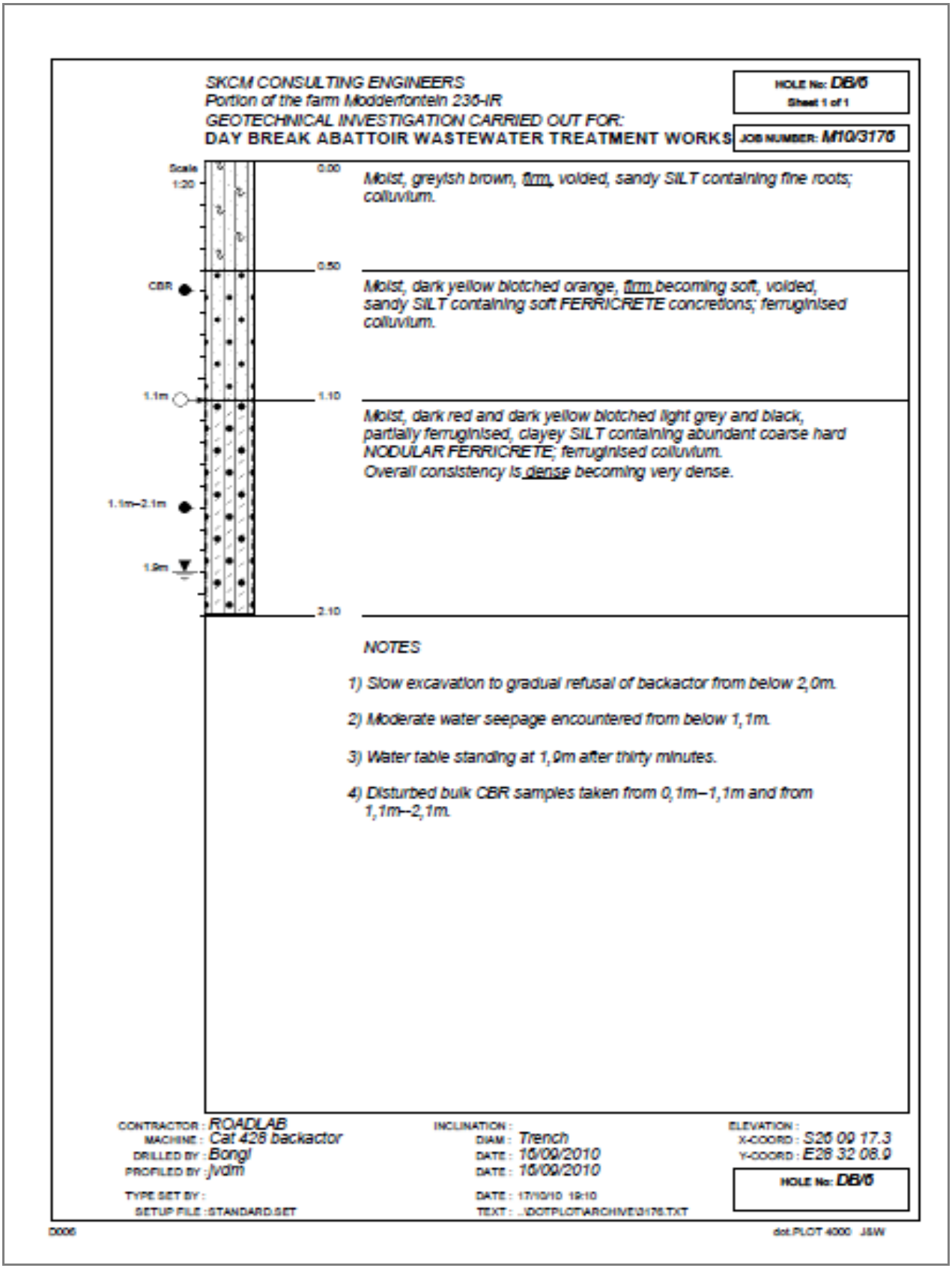


Figure 20: Soil profile for hole DB/6 (v.d. Merwe, J., 2010)

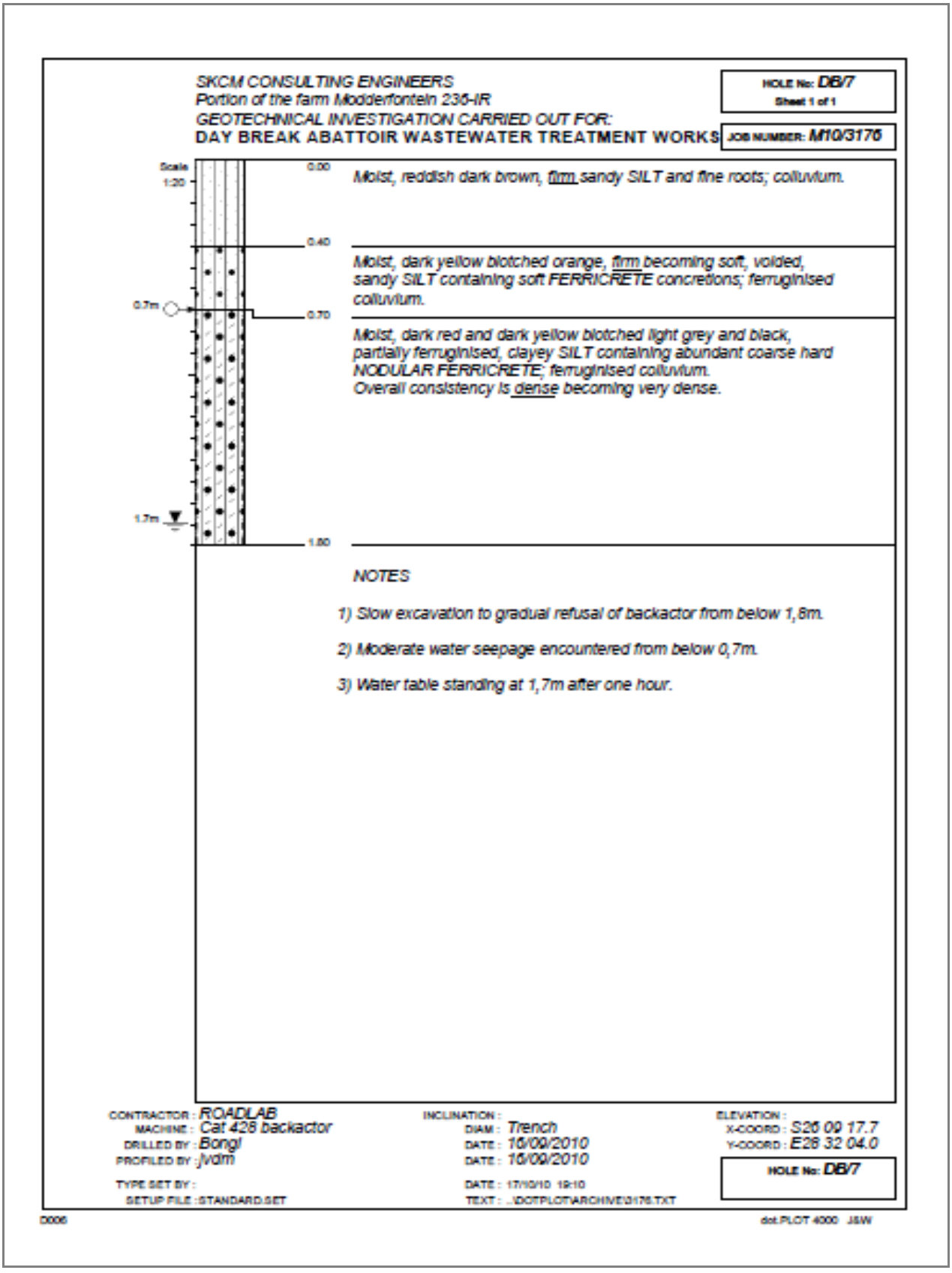


Figure 21: Soil profile for hole DB/7 (v.d. Merwe, J., 2010)

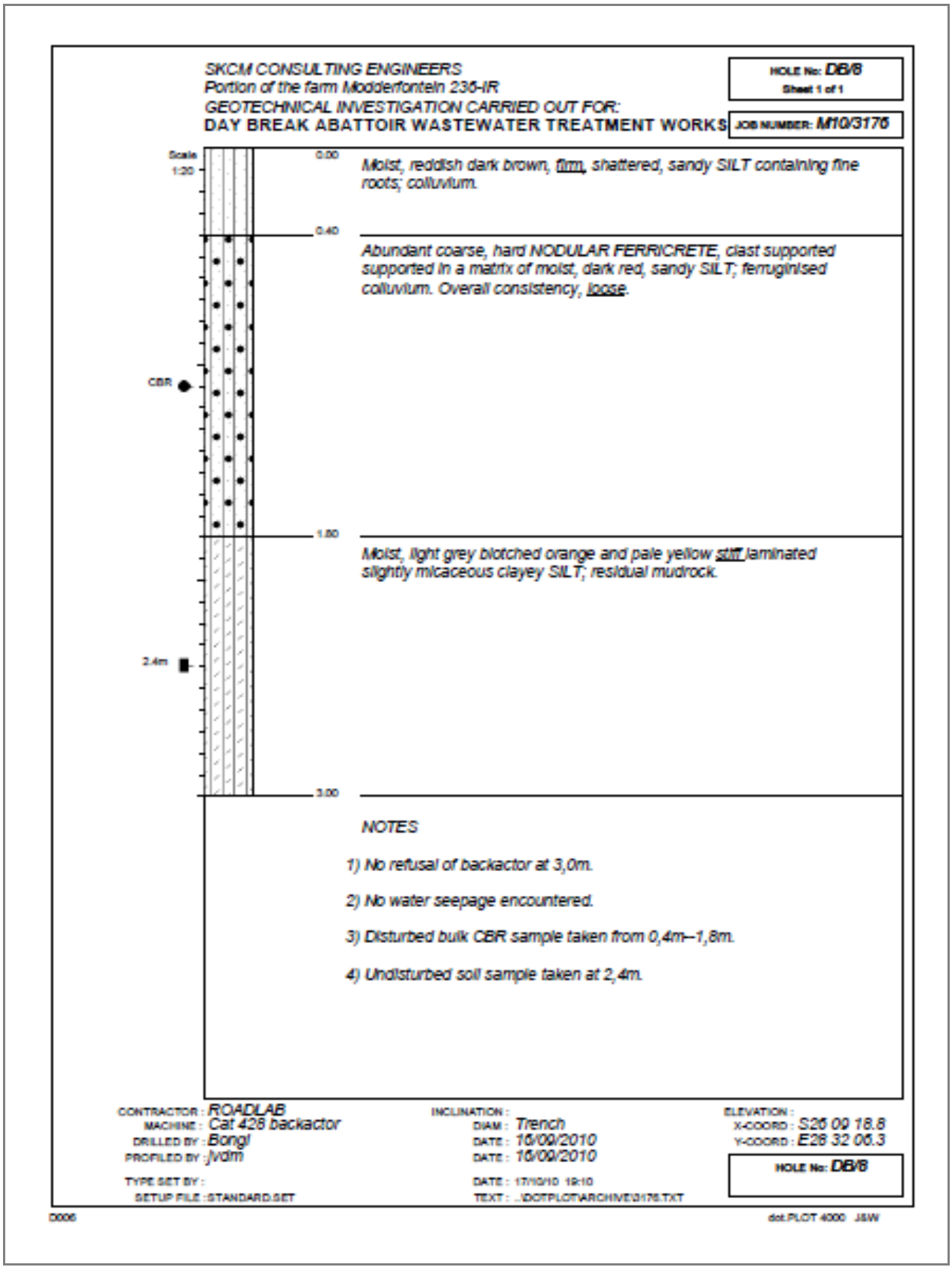


Figure 22: Soil profile for hole DB/8 (v.d. Merwe, J., 2010)

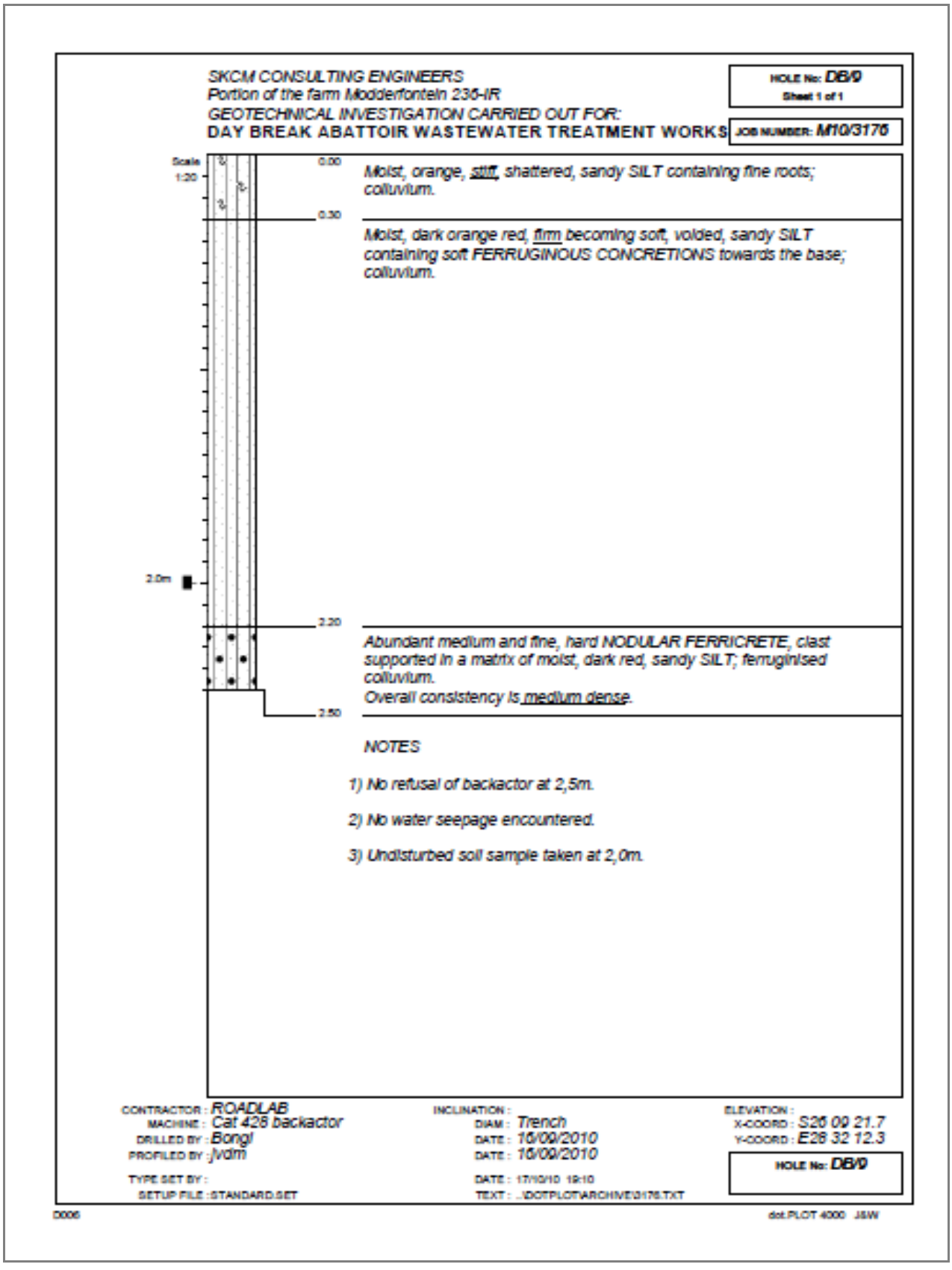


Figure 23: Soil profile for hole DB/9 (v.d. Merwe, J., 2010)

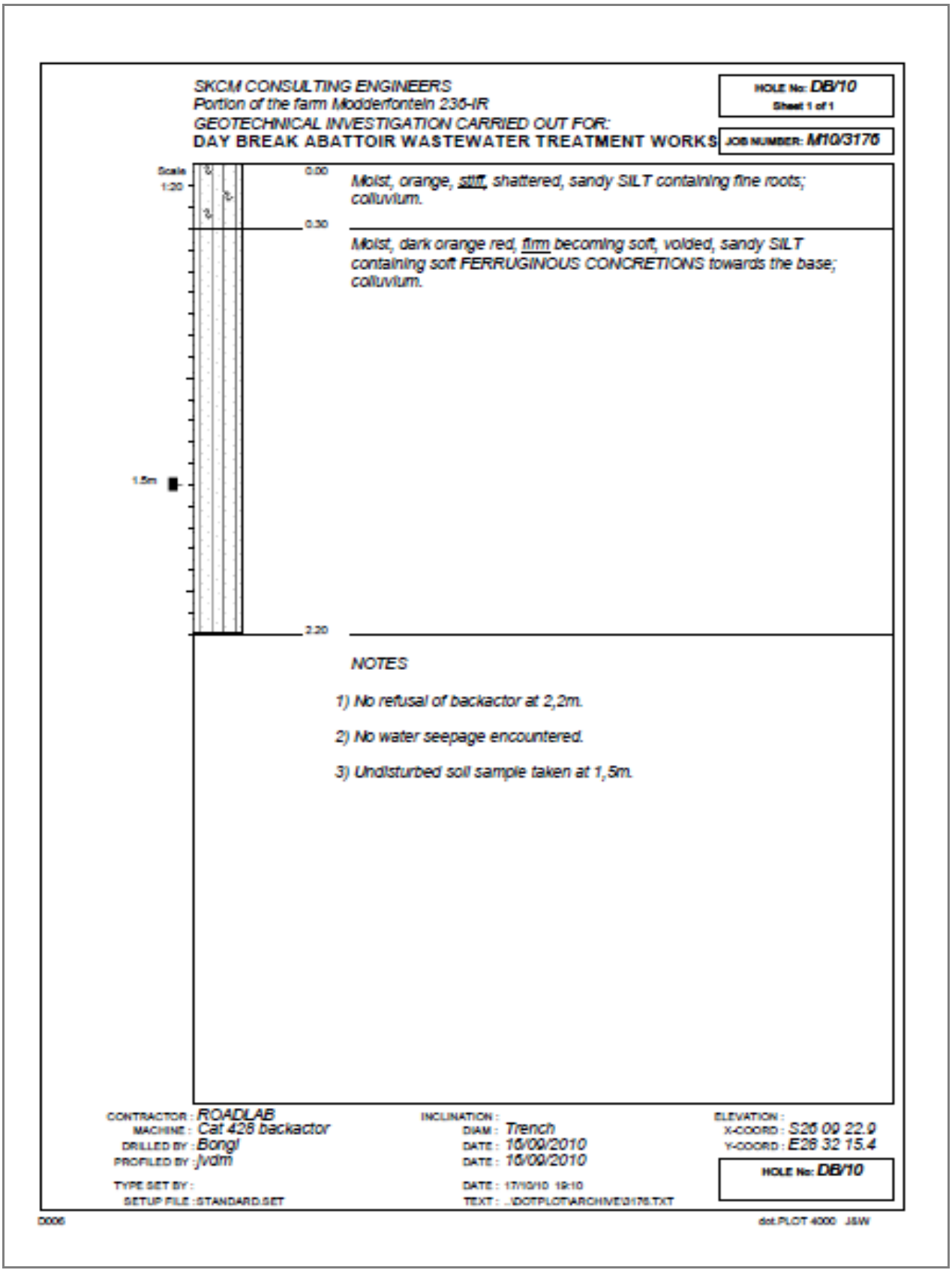


Figure 24: Soil profile for hole DB/10 (v.d. Merwe, J., 2010)

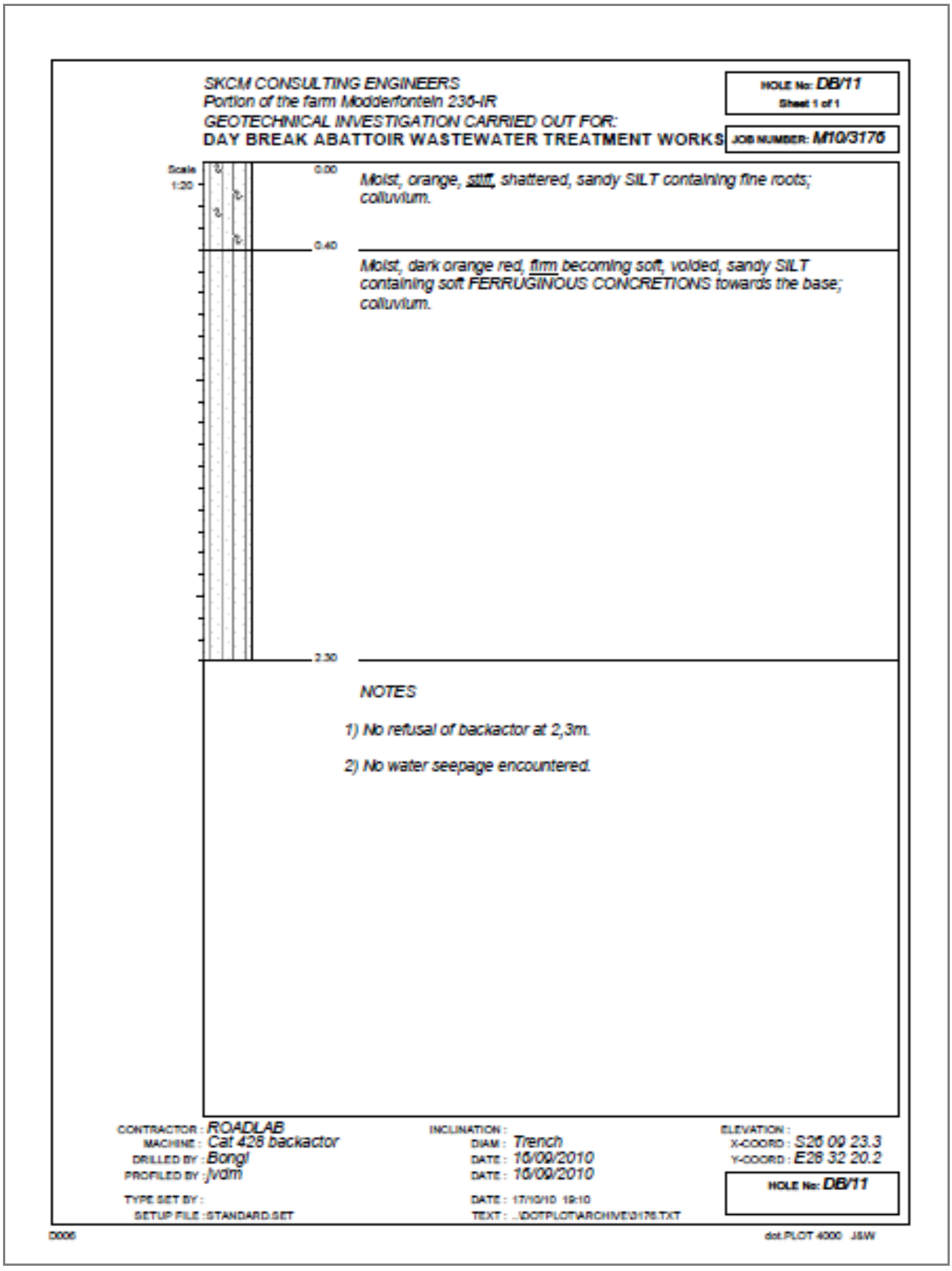


Figure 25: Soil profile for hole DB/11 (v.d. Merwe, J., 2010)

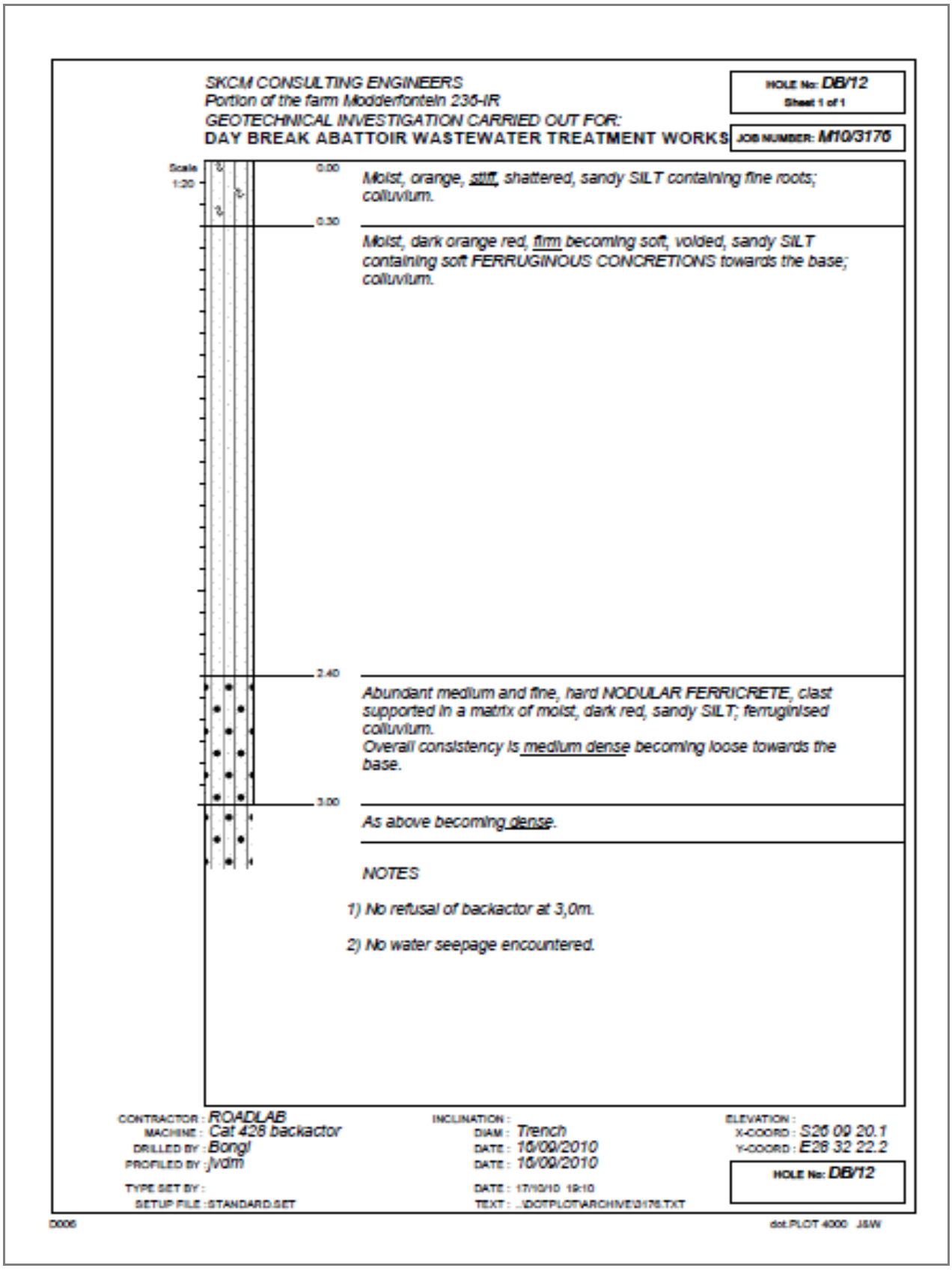


Figure 26: Soil profile for hole DB/12 (v.d. Merwe, J., 2010)

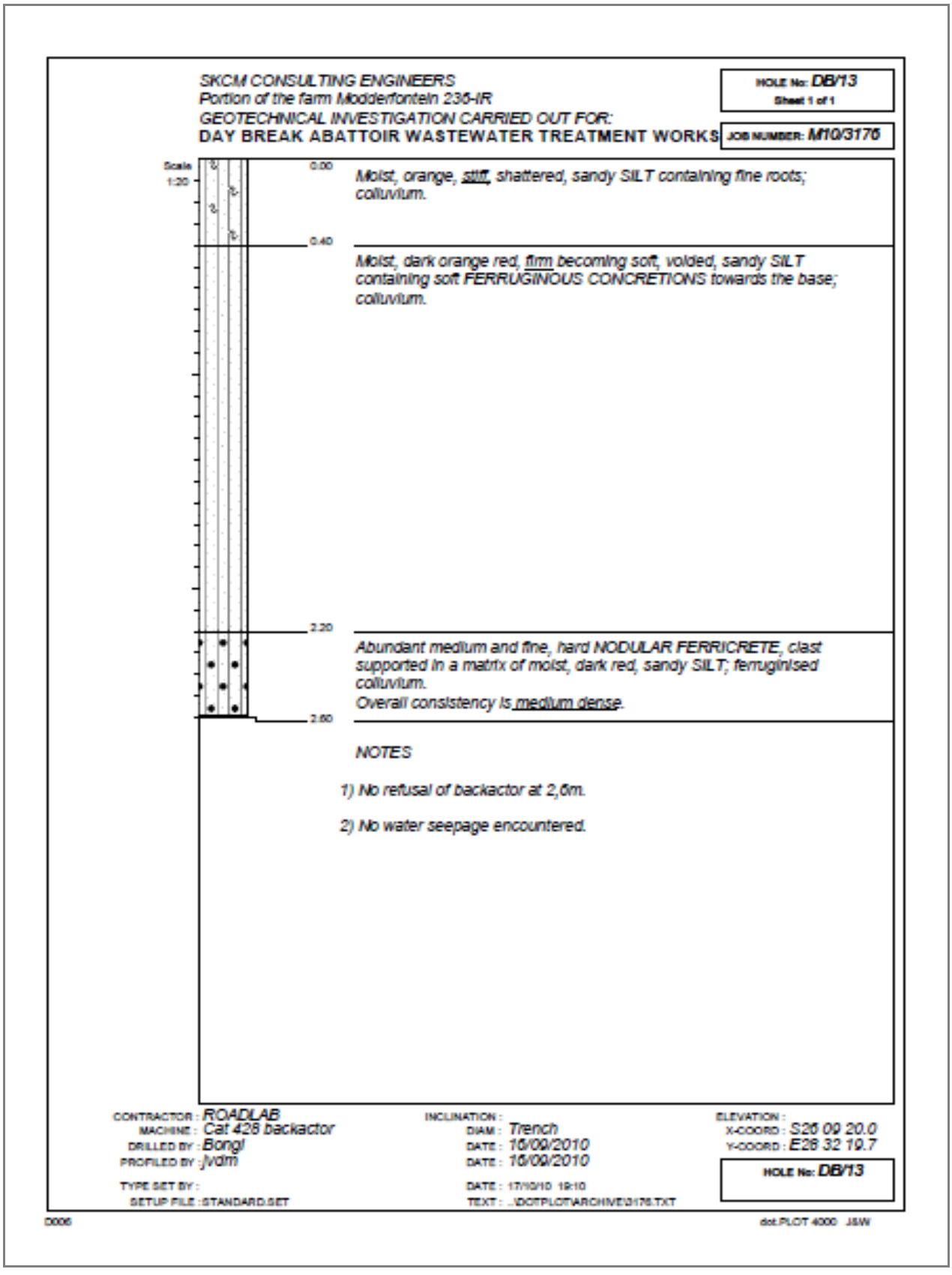


Figure 27: Soil profile for hole DB/13 (v.d. Merwe, J., 2010)

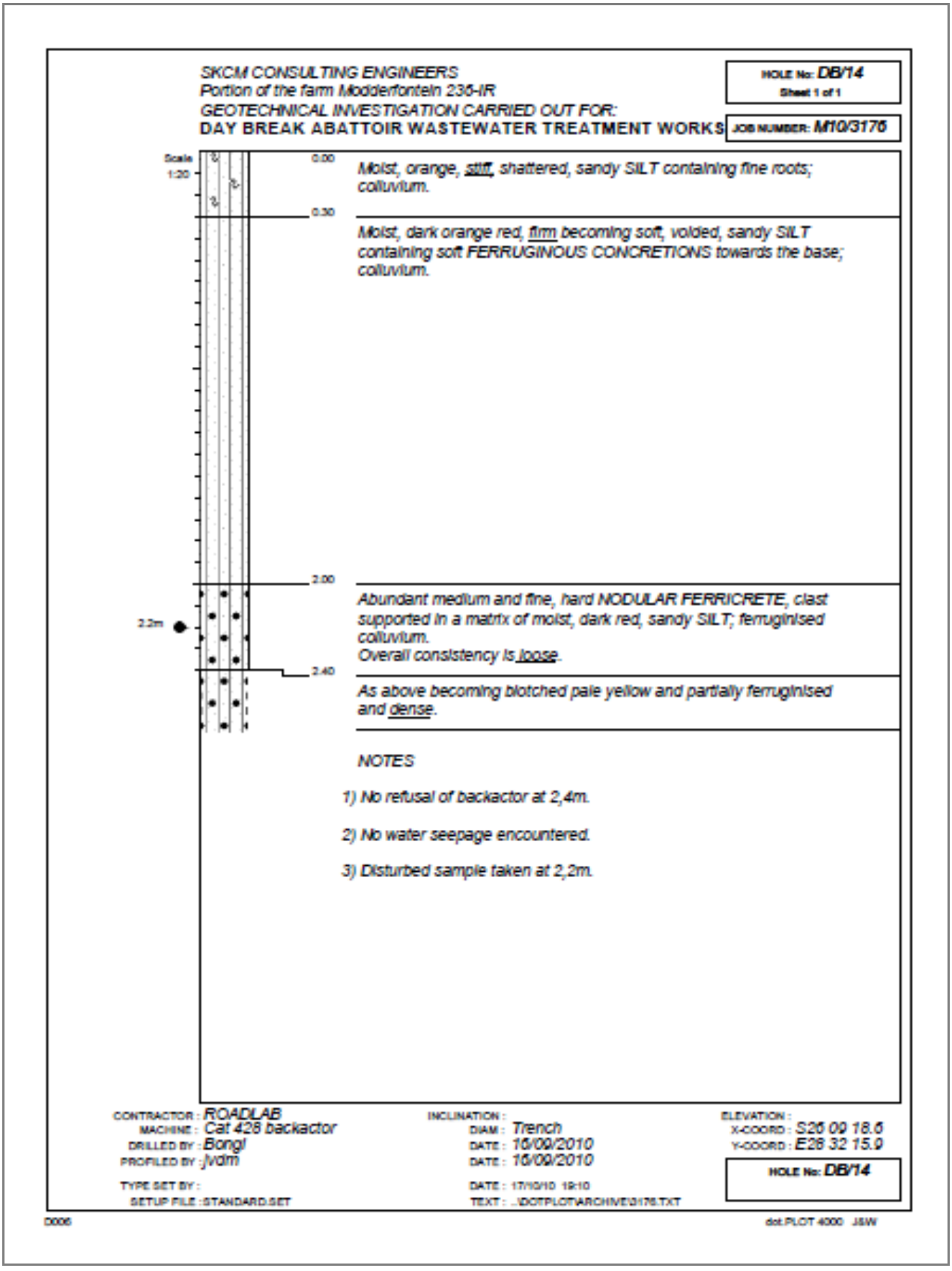


Figure 28: Soil profile for hole DB/14 (v.d. Merwe, J., 2010)

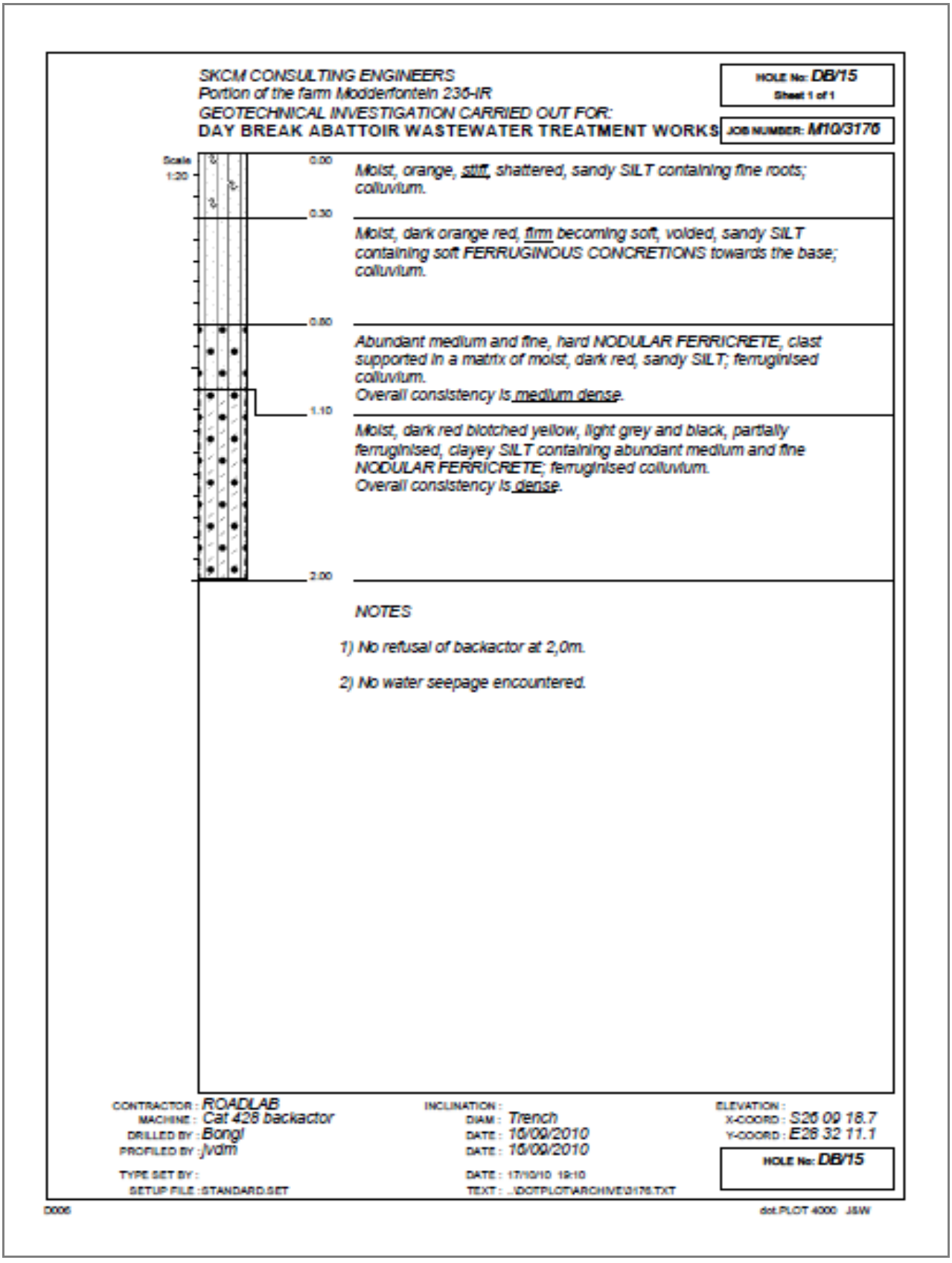


Figure 29: Soil profile for hole DB/15 (v.d. Merwe, J., 2010)

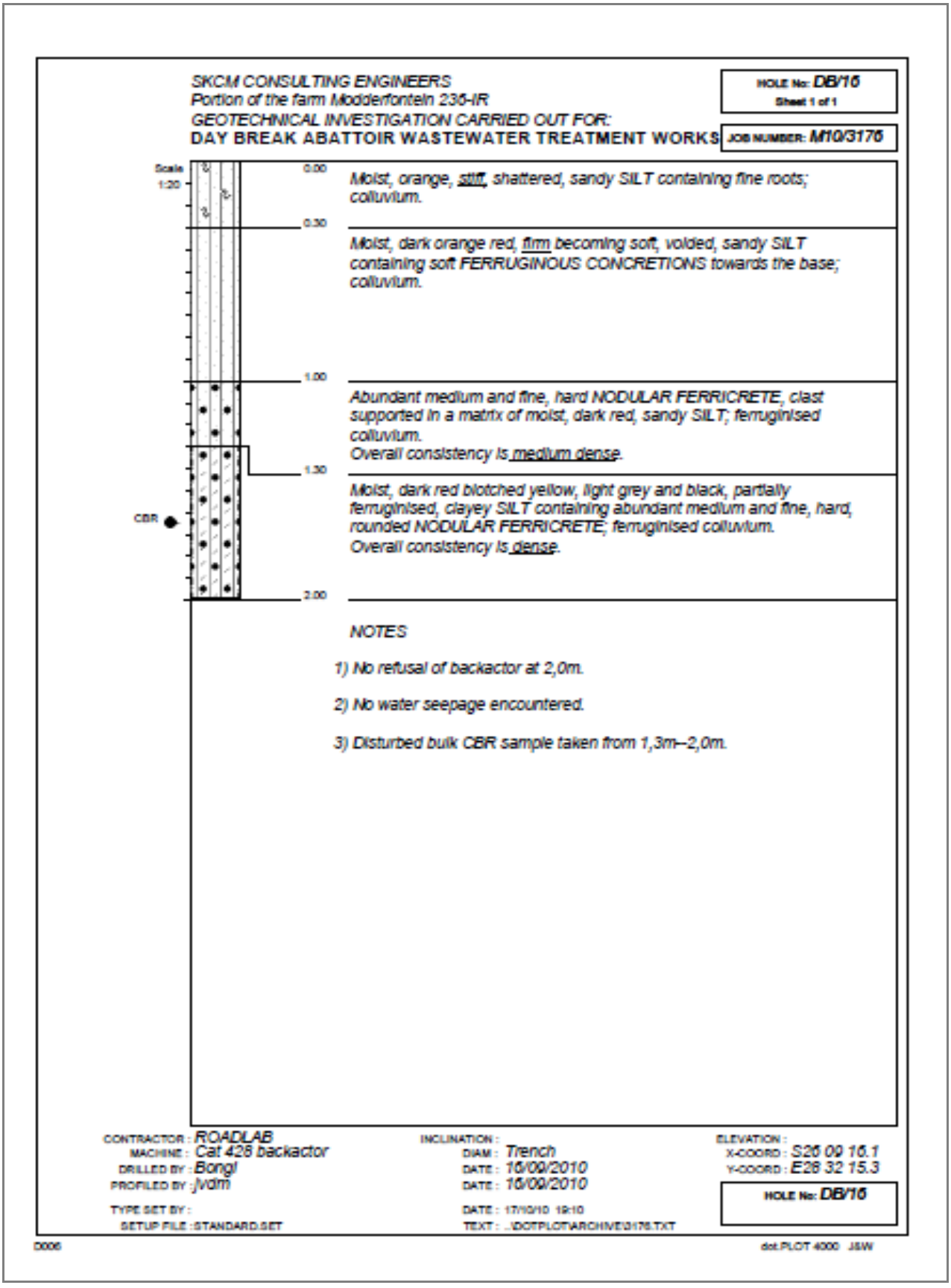


*Figure 30: Soil profile for hole DB/16 (*v.d. Merwe, J., 2010)

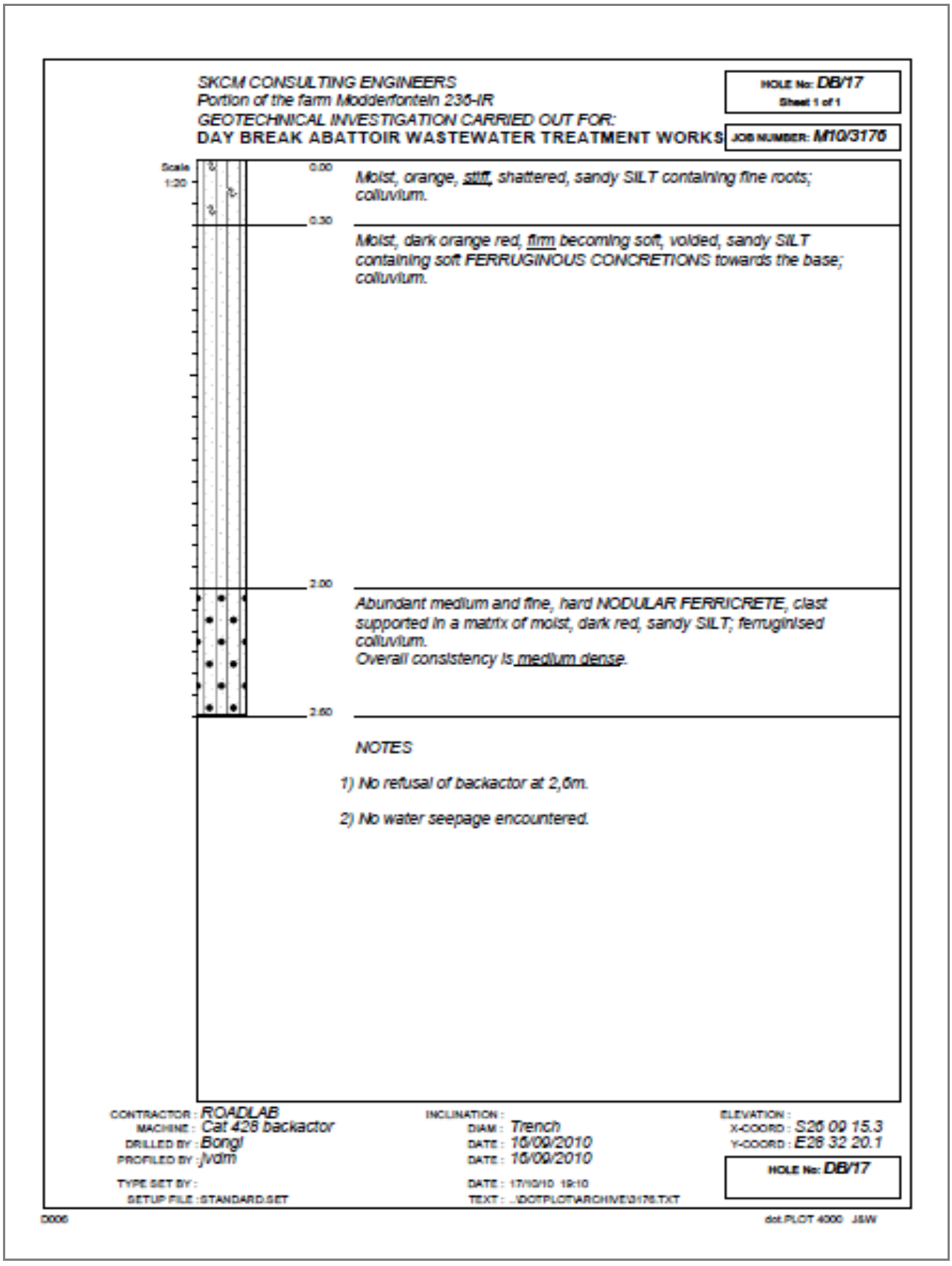


Figure 31: Soil profile for hole DB/17 (v.d. Merwe, J., 2010)

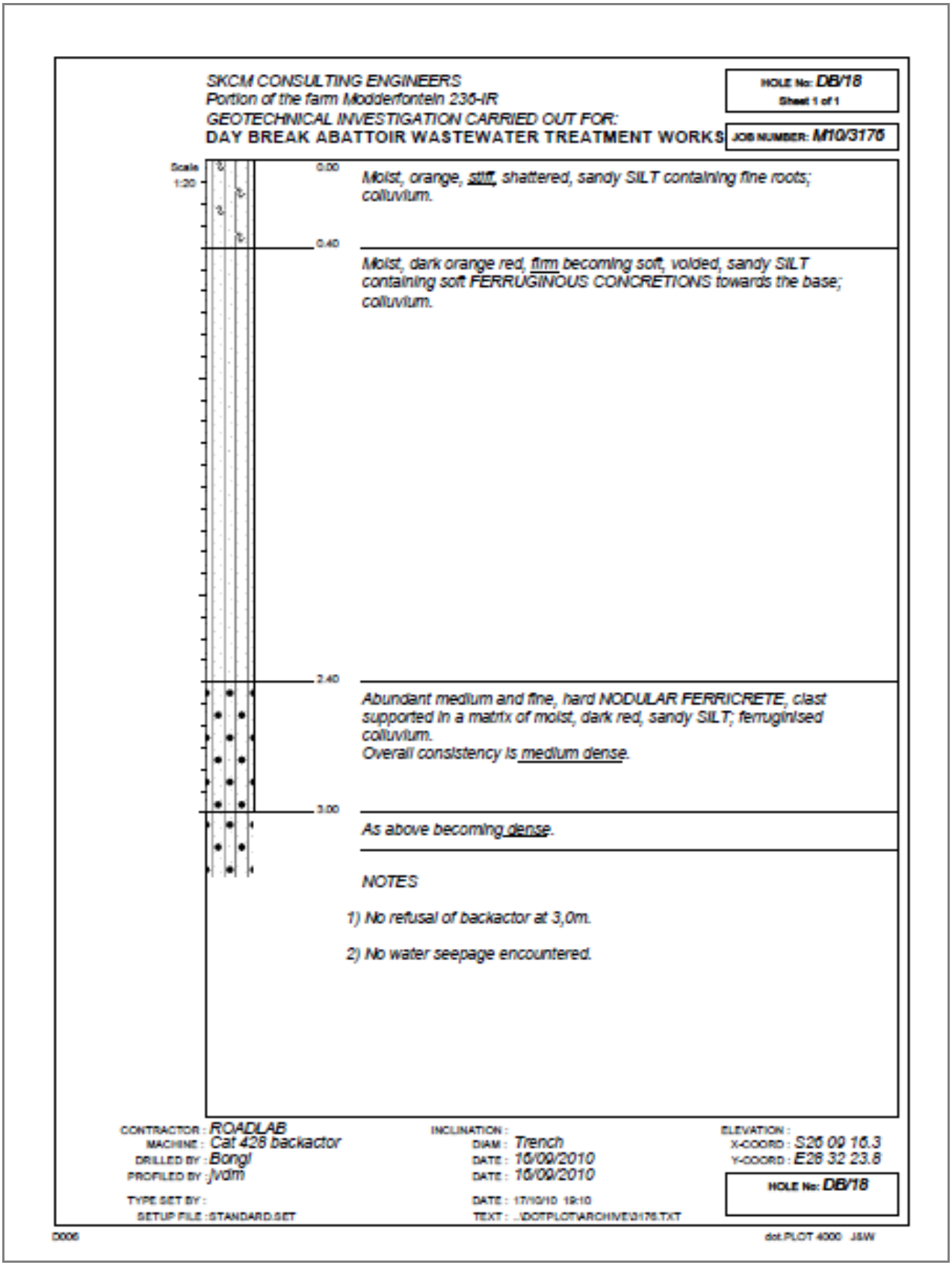


Figure 32: Soil profile for hole DB/18 (v.d. Merwe, J., 2010)

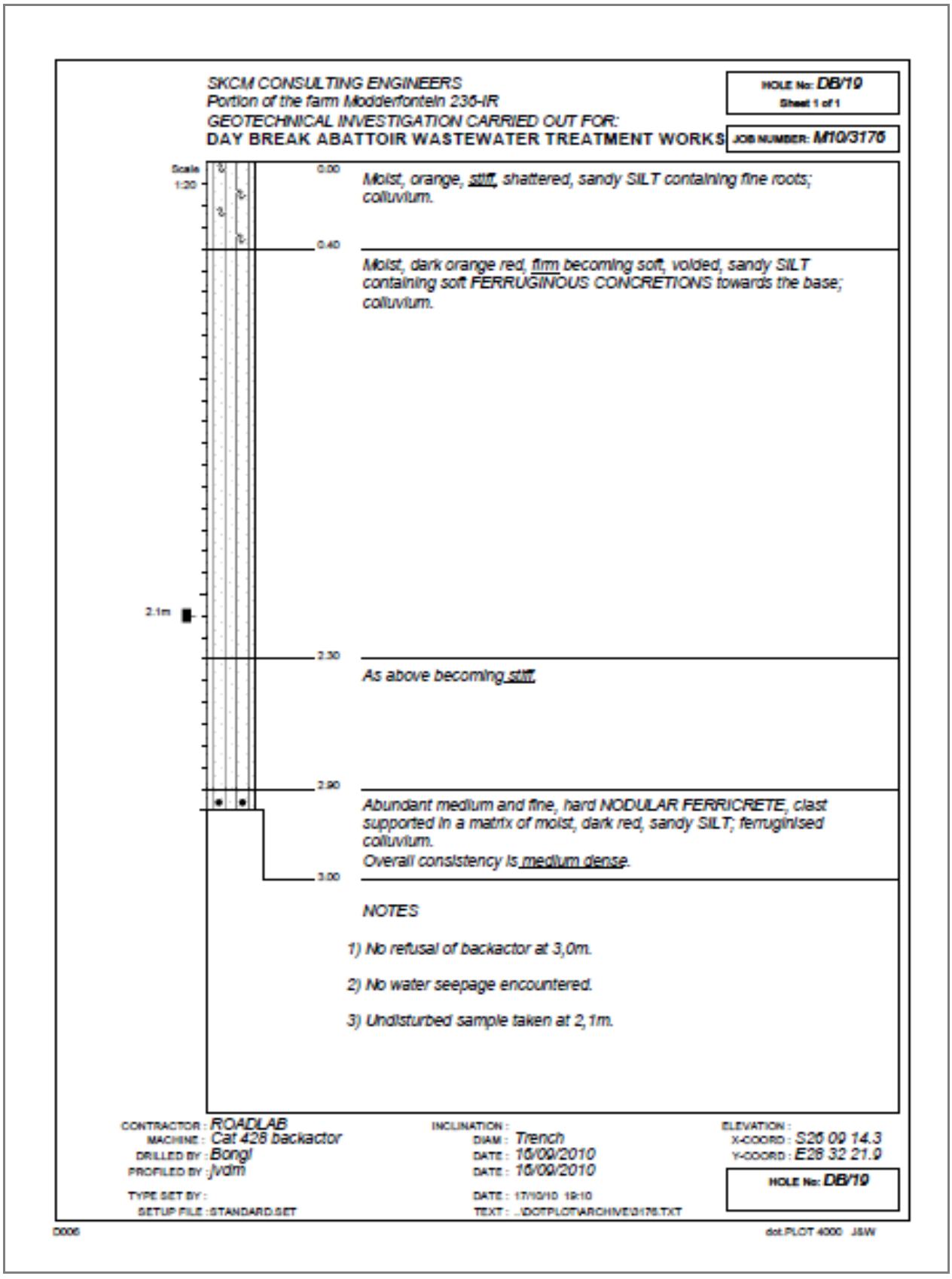


Figure 33: Soil profile for hole DB/19 (v.d. Merwe, J., 2010)

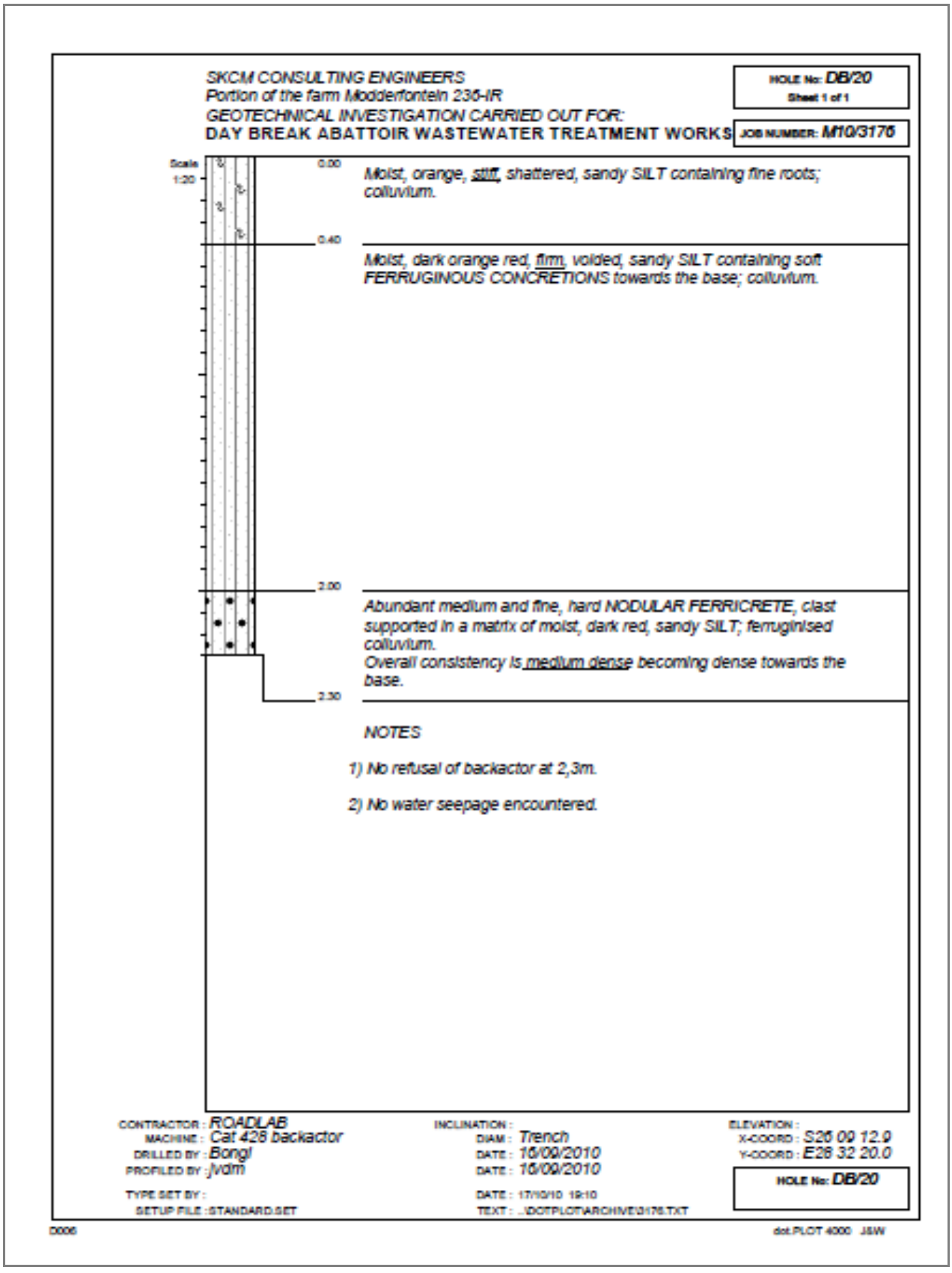


*Figure 34: Soil profile for hole DB/20 (*v.d. Merwe, J., 2010)

2.1.2 Regional climate

The climate of the site is typical of Highveld conditions, with relatively warm to hot summers and fairly high rainfall, and moderate to cool winters with little or no rain. Valleys and wetlands are much cooler at night and more prone to frost than higher lying areas. The area experiences thunderstorms during the summer months, which usually occur in the late afternoons.

Rainfall

The site occurs in a summer rainfall area receiving a mean average annual rainfall of between 621.42 – 752.36mm. The variability of rainfall as well as the high intensity events will affect the construction phase of the project. It could hinder construction activities with potential soaking of cement mixtures or foundation concrete during the early phases of the construction process.

Construction should preferably be planned for the winter months to avoid construction delays that might have a negative socio-economic impact on the development.

The potential impact of the rainfall should be low if mitigated properly.

The Average Monthly Rainfall (Figure 35) for the area was obtained from the Delmas weather station, as provided by www.weathersa.com. The Average Annual Rainfall for Delmas is also provided by www.weathersa.com (Figure ***36*** 36).

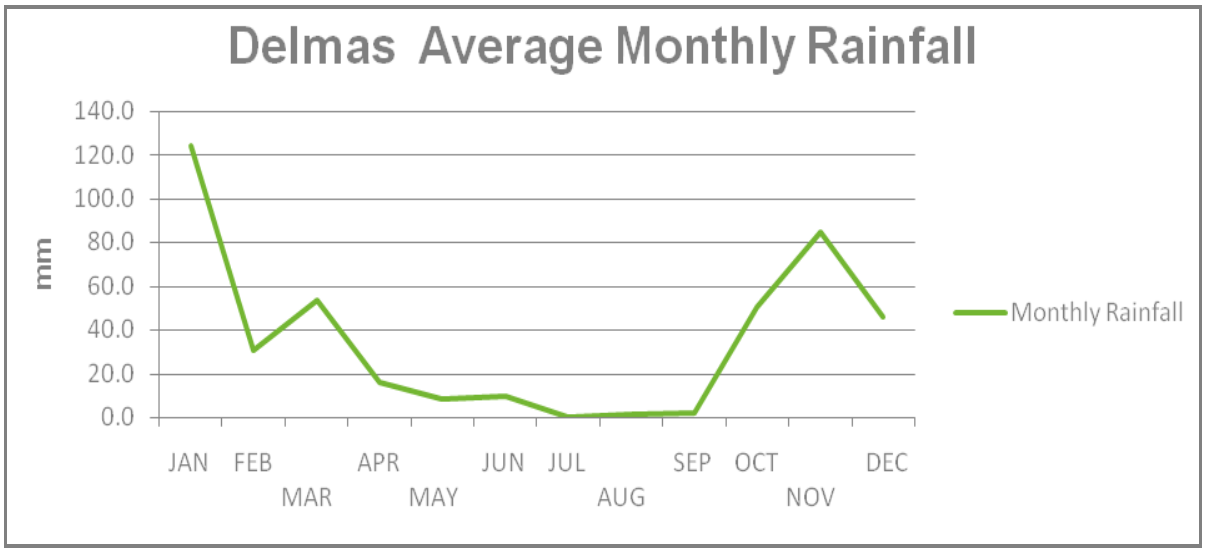


Figure 35: Delmas Average Monthly Rainfall

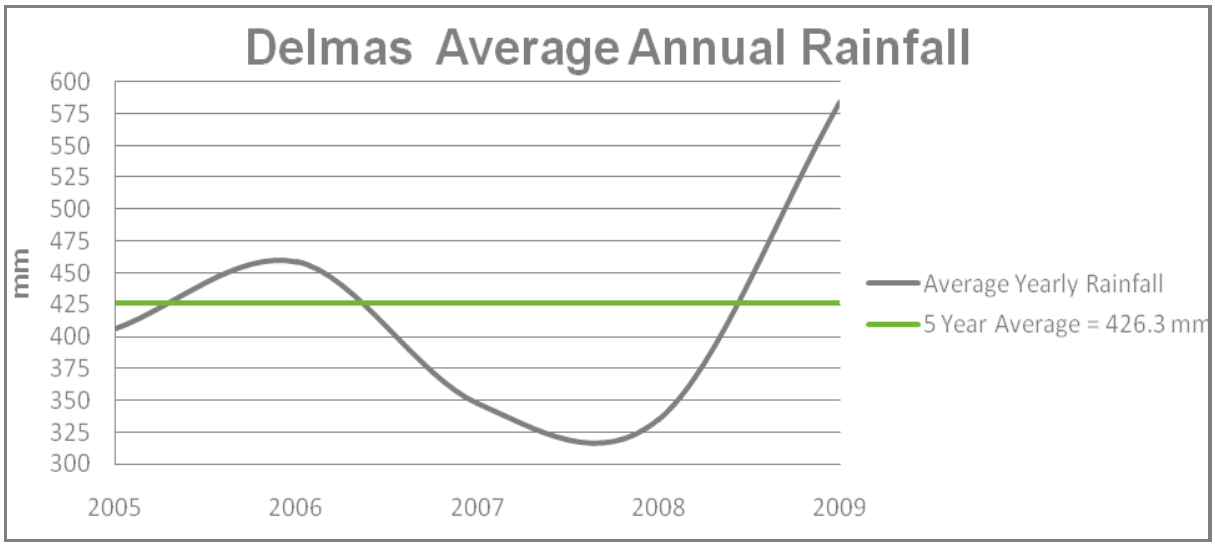


Figure 36: Delmas Average Annual Rainfall

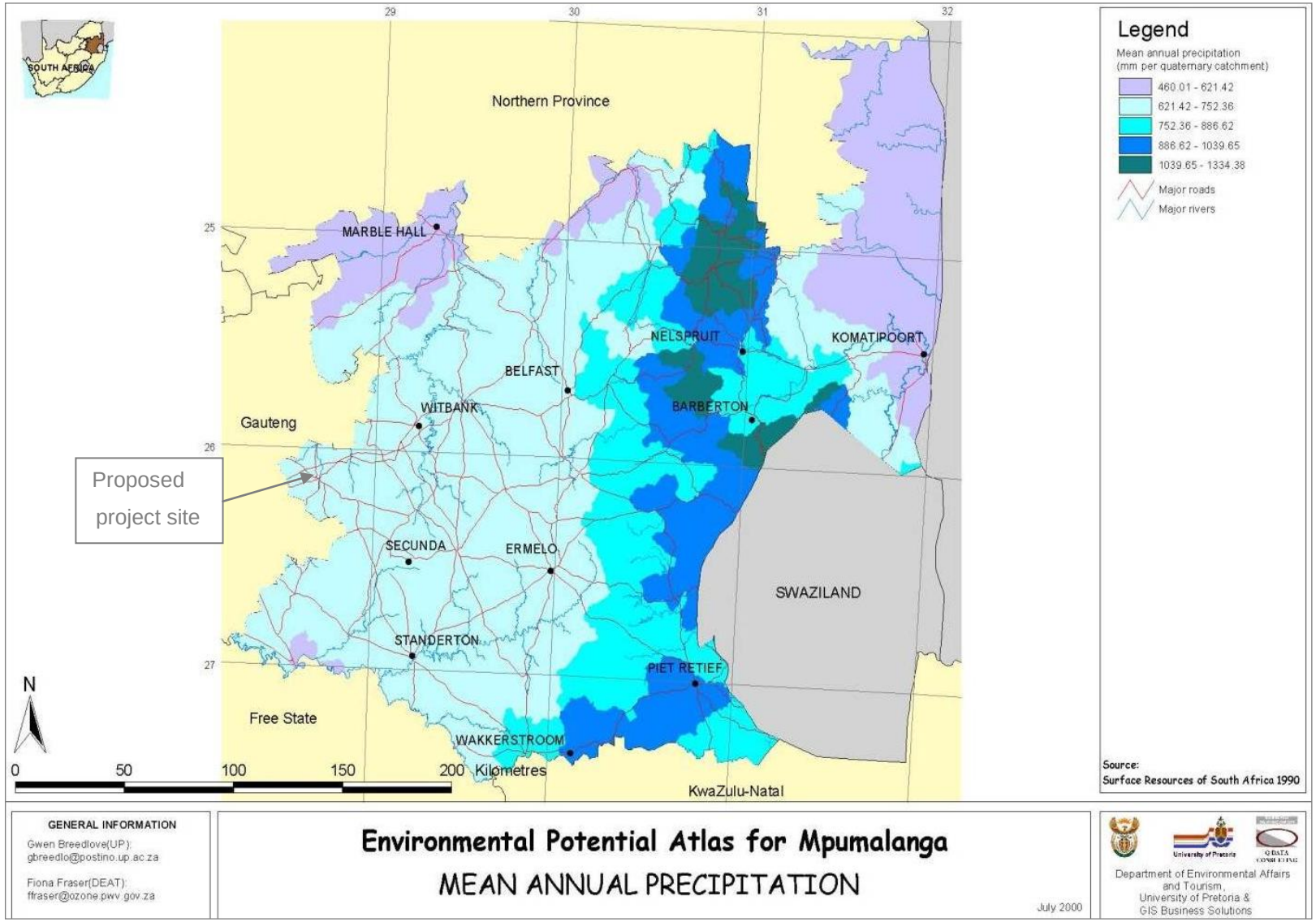


Figure 37: Mean annual precipitation in Mpumalanga

Temperature

The average mean maximum temperature of the Victor Khanye Municipal area, ranges between 25°C and 29°C, with a mean minimal temperature ranging between 1.9°C and 2.0°C. The occurrence of frost during winter months results in the grasslands being very dry, which contributes to veldt fires.

In order to obtain a more accurate representation of the temperatures at the abattoir, average daily temperatures were obtained from the Delmas weather station (www.weathersa.com). From the figure below it can be seen that during summer months, the maximum daily temperatures will range between 23°C and 27°C and during winter months the maximum daily temperatures will range between 18°C and 22°C.

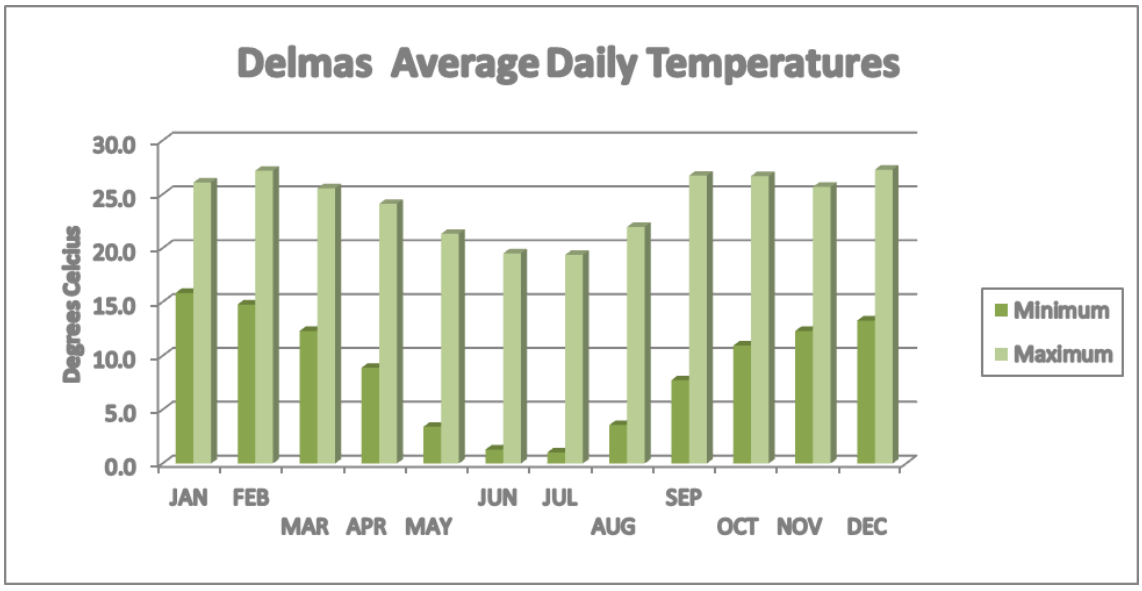


Figure 38: Maximum and Minimum Average Daily Temperatures in Delmas

Wind

The site lies approximately 14 km due West from the town Delmas. The wind roses below give an indication of wind direction distributions across the Delmas area.

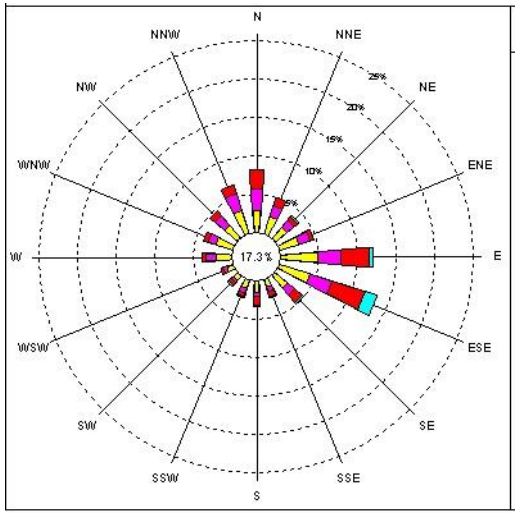


Figure 39: Wind Rose - January

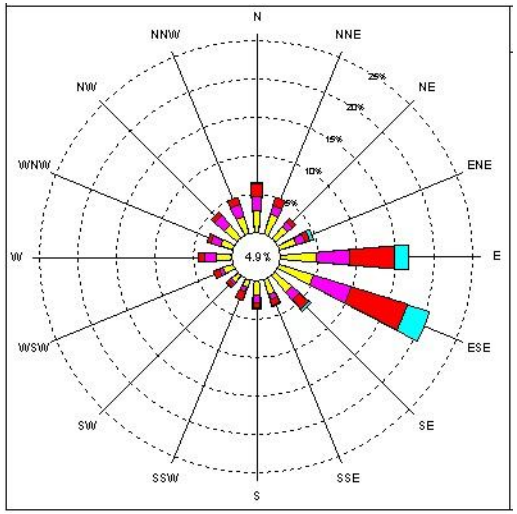


Figure 40: Wind Rose - February

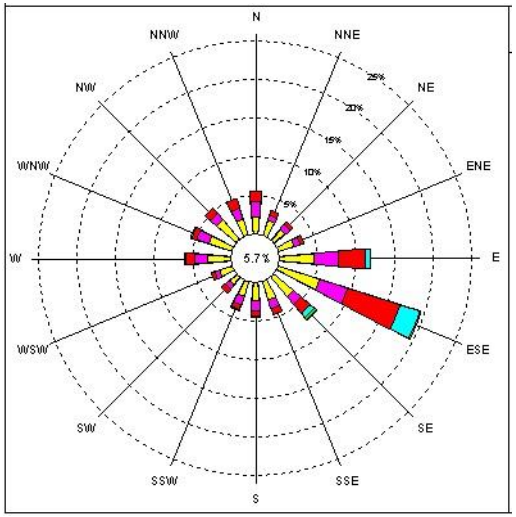


Figure 41: Wind Rose – March

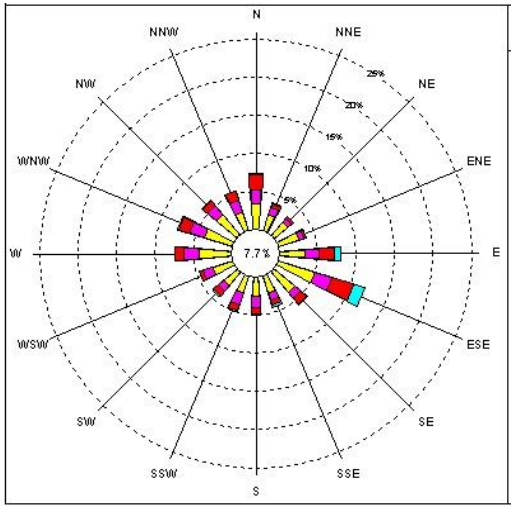


Figure 42: Wind Rose – April

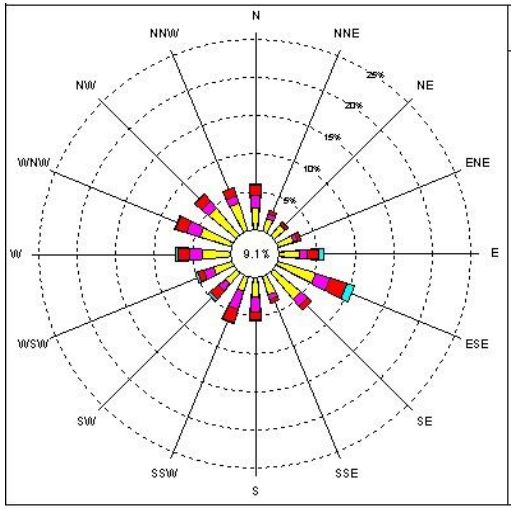


Figure 43: Wind Rose – May

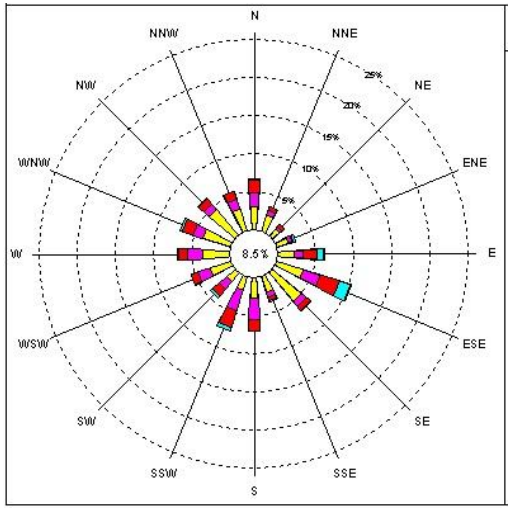


Figure 44: Wind Rose - June

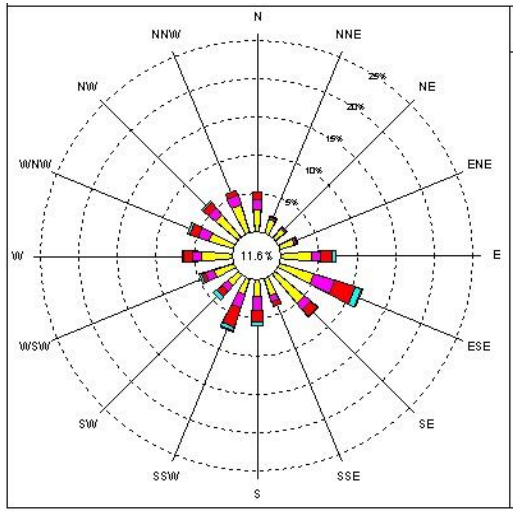


Figure 45: Wind Rose – July

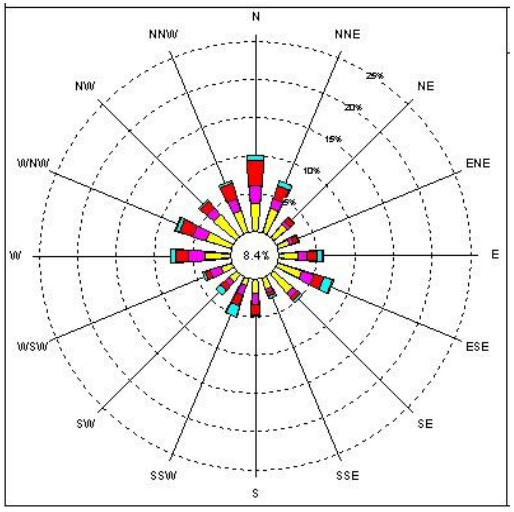


Figure 46: Wind Rose - August

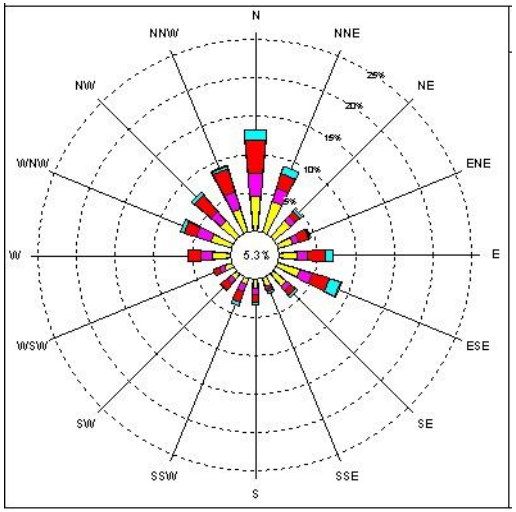


Figure 47: Wind Rose – September

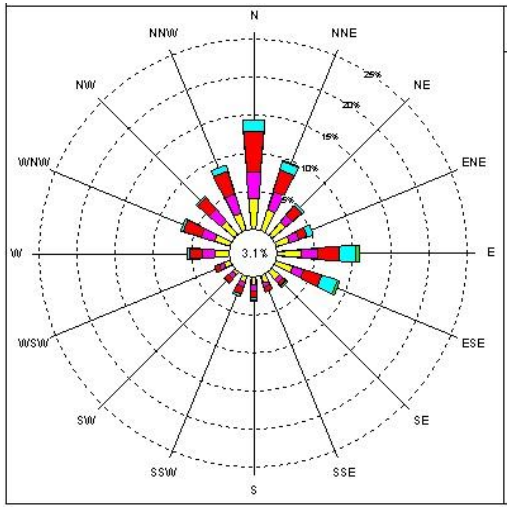


Figure 48: Wind Rose – October

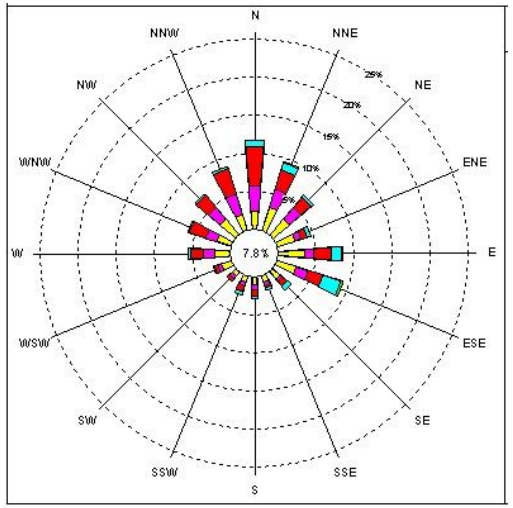


Figure 49: Wind Rose – November

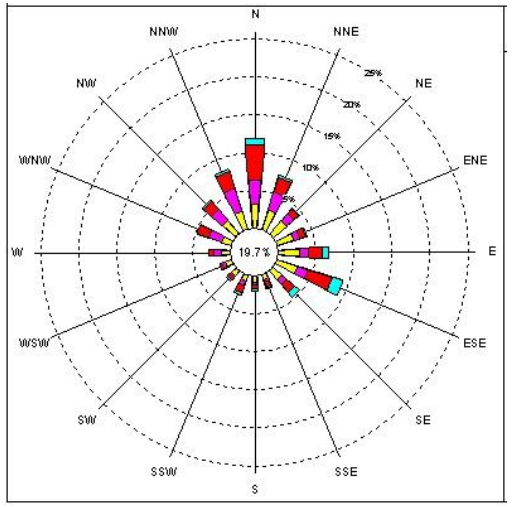


Figure 50: Wind Rose - December

2.1.3 Topography

The property covers a surface area of roughly 117 hectares. The site is located approximately 1 623 metres above mean sea level (Figure 51) and slopes towards a large pan located adjacent and to the west of the abattoir at an average gradient of less than 4%. The vegetation on site is highly disturbed and the surface area is of irregular shape. The bulk of the surrounding land is or was used for crop production.

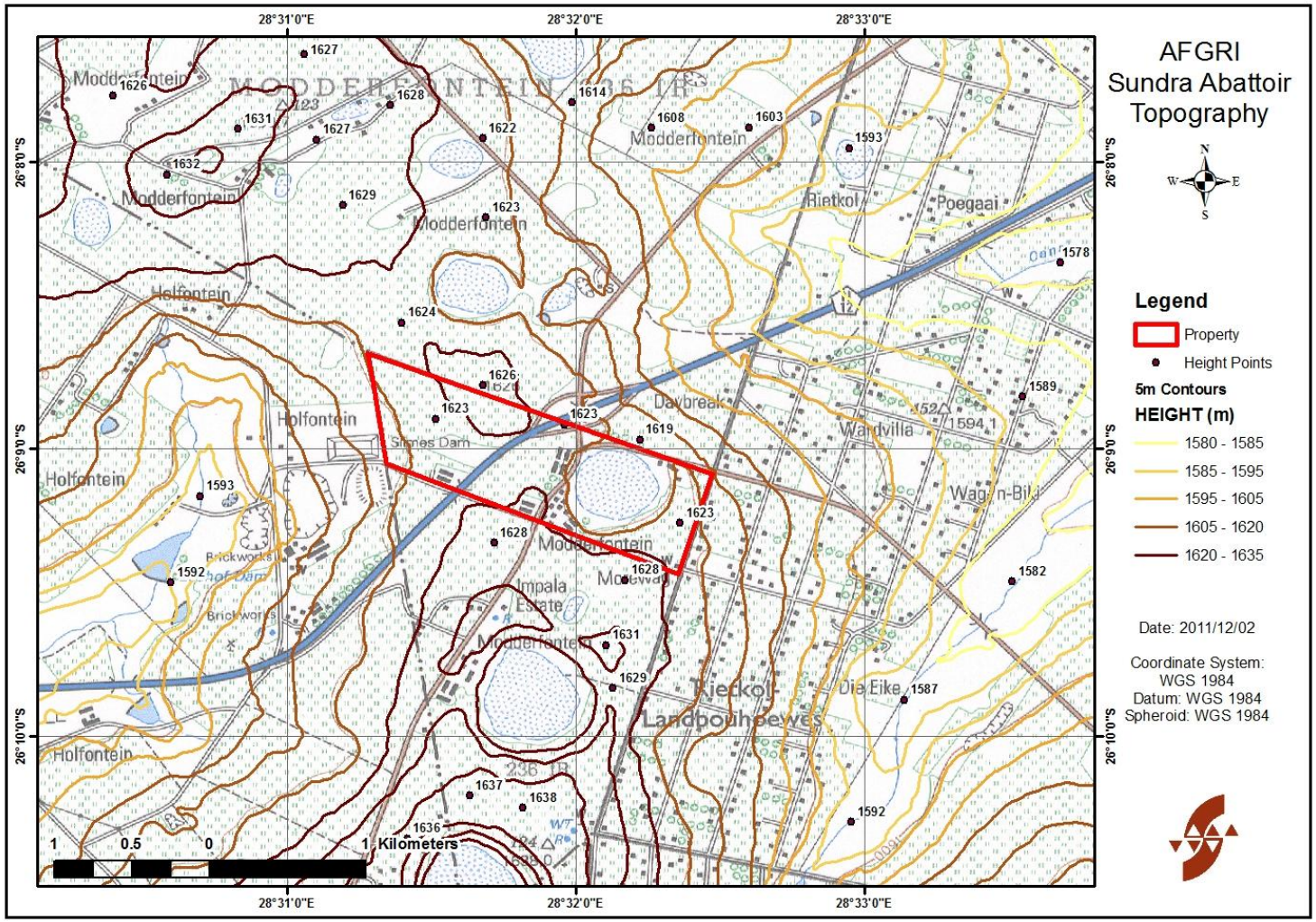


Figure 51: Topography Map of Site.

Figure 52: Google earth image of AFGRI Poultry Daybreak abattoir at 8.83 km eye altitude.

Figure 53: Google earth image of AFGRI Poultry Daybreak abattoir at 2.05 km eye altitude.

2.1.4 Soils

Generally red, yellow and greyish soils with a low to medium base status (soil fertility) are found at the site (Figure 55). Topsoil in the area ranges in depth from 450mm to 750mm (Figure 57) and mesotrophic soils (Figure 56 and Figure 58) with a moderate inherent fertility can be expected (≥15%<35% clay).

During the geotechnical investigation, done by Mr. Johann van der Merwe, the study area was divided into two prominent material zones (Soil Zones “A” and “B”). As shown in Figure 14, Soil Zone “A” covered the lower-lying western portion of the study area, and the higher-lying, major eastern portion of the study area was covered by Soil Zone “B”. A detailed soil description of the site was given in Table 3 and 4.

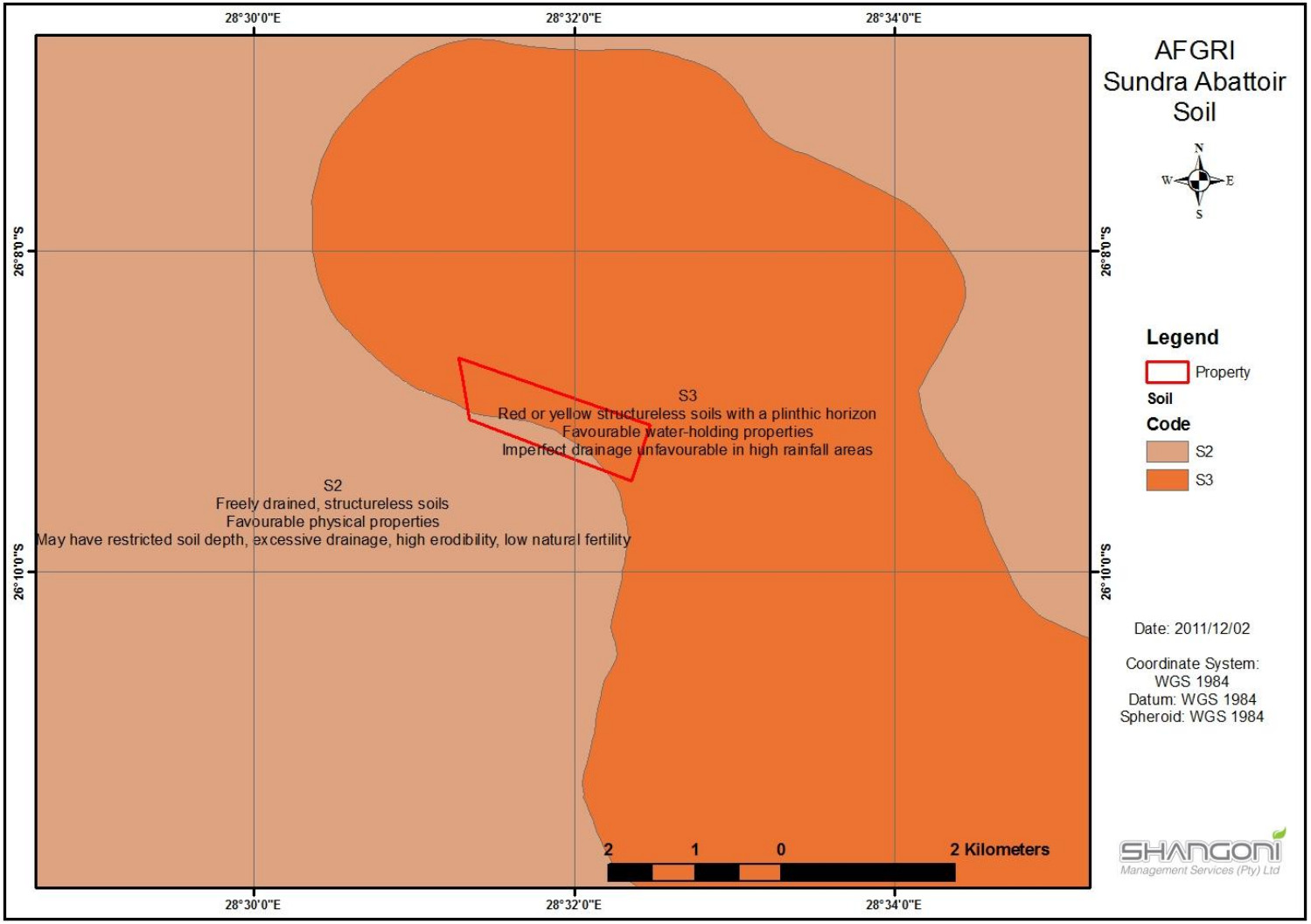


Figure 54: Soil map.

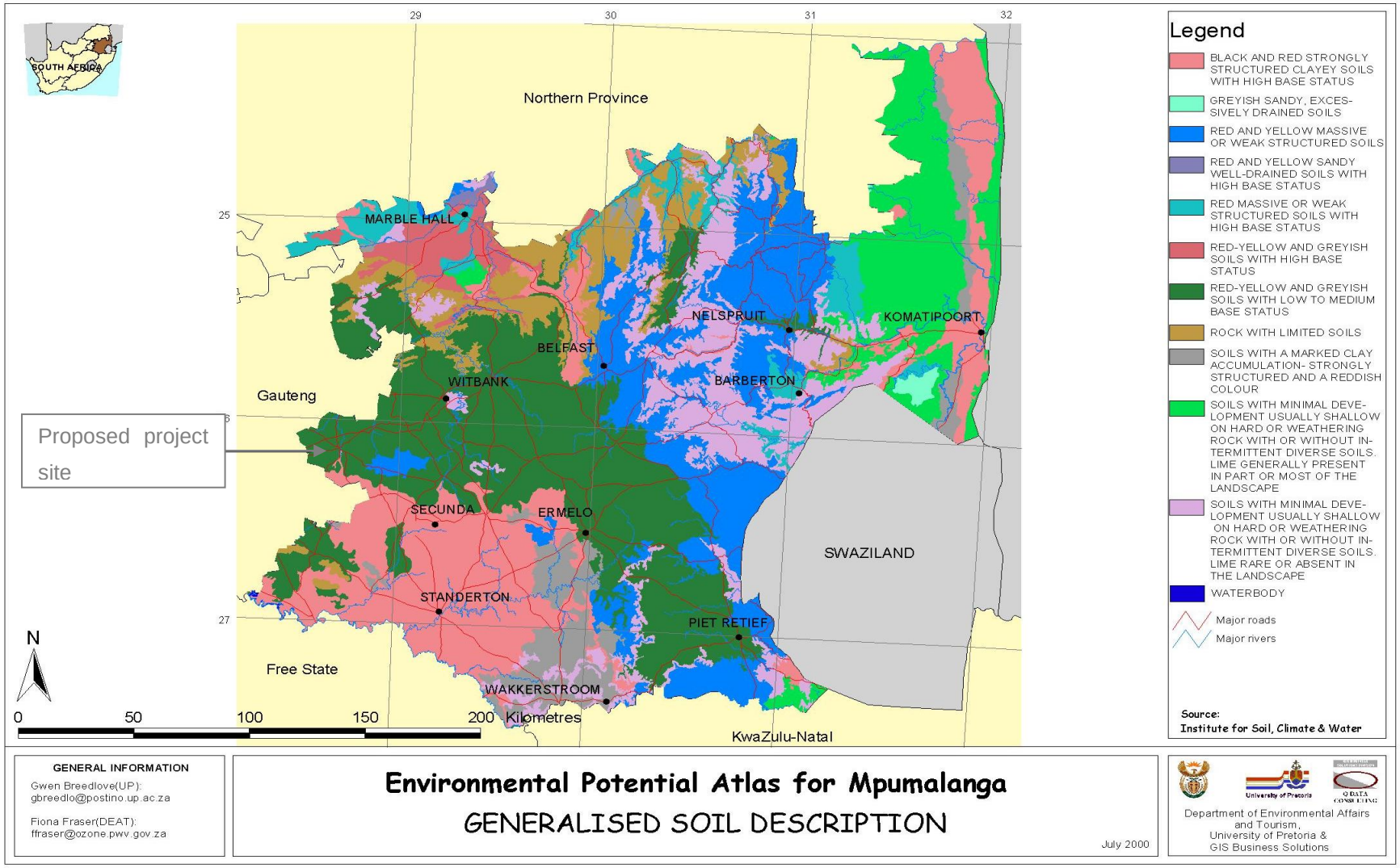


Figure 55: General soil description for Mpumalanga.

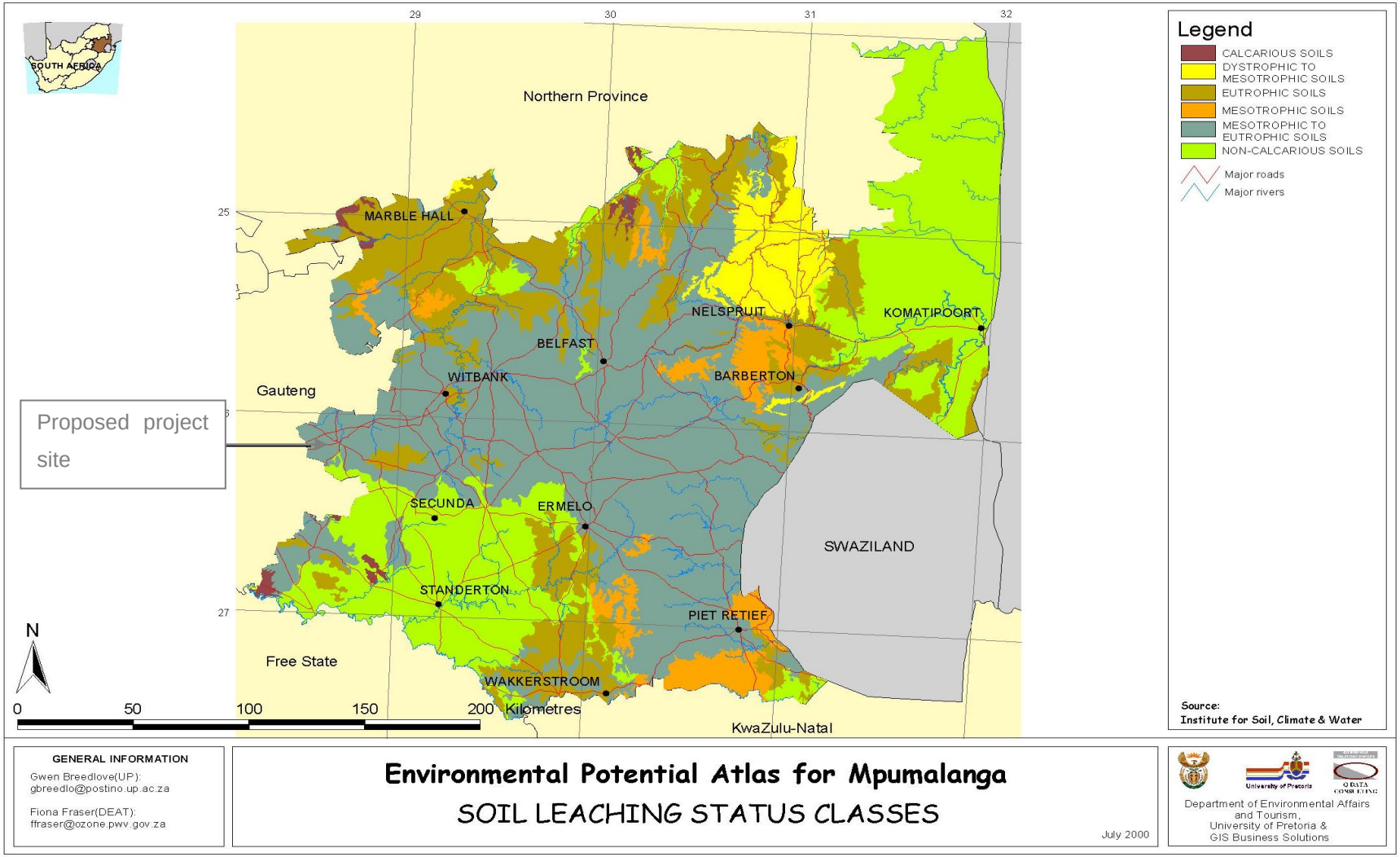


Figure 56: Soil leaching status classes for Mpumalanga.

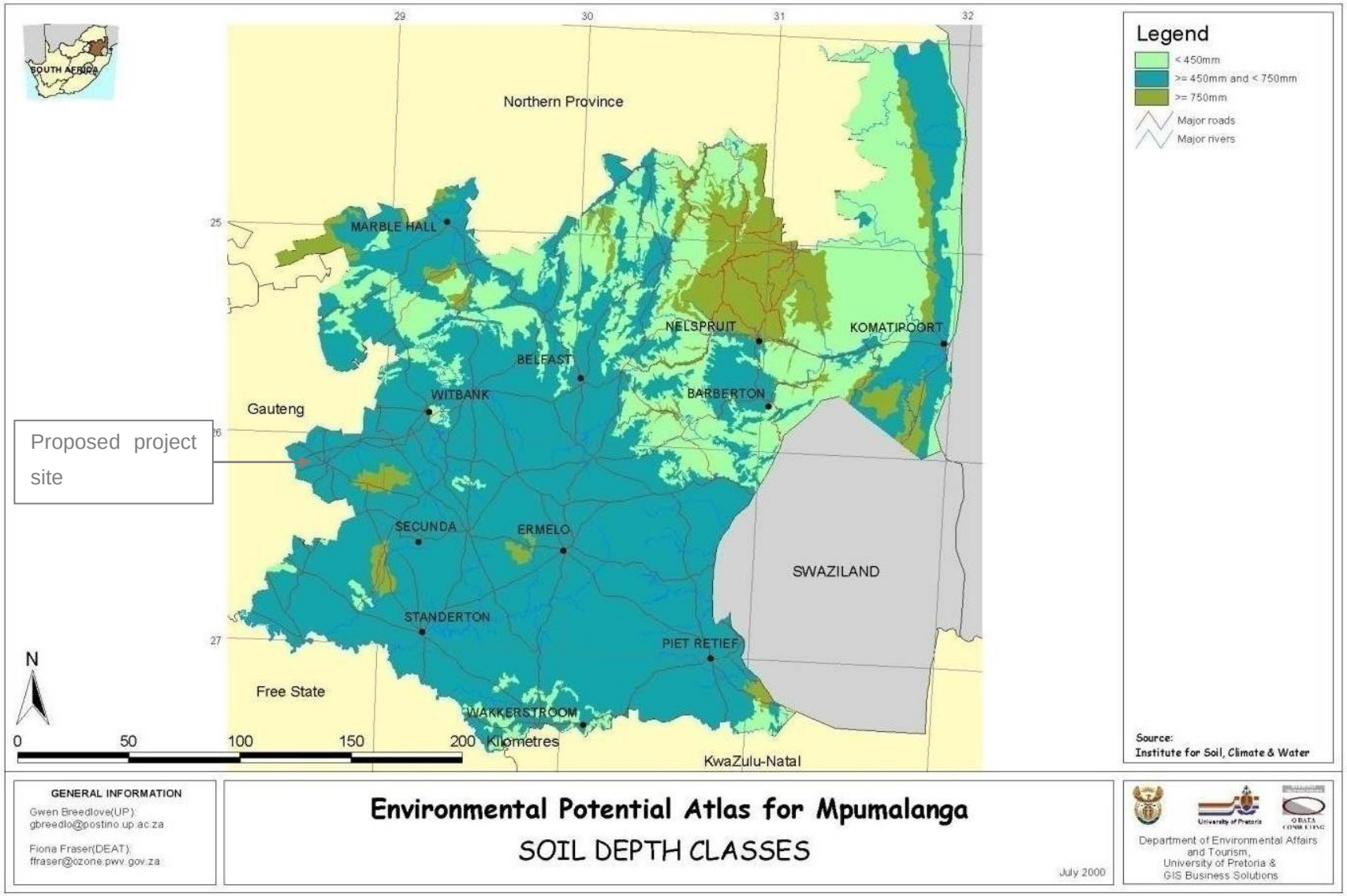


Figure 57: Soil depth in Mpumalanga.

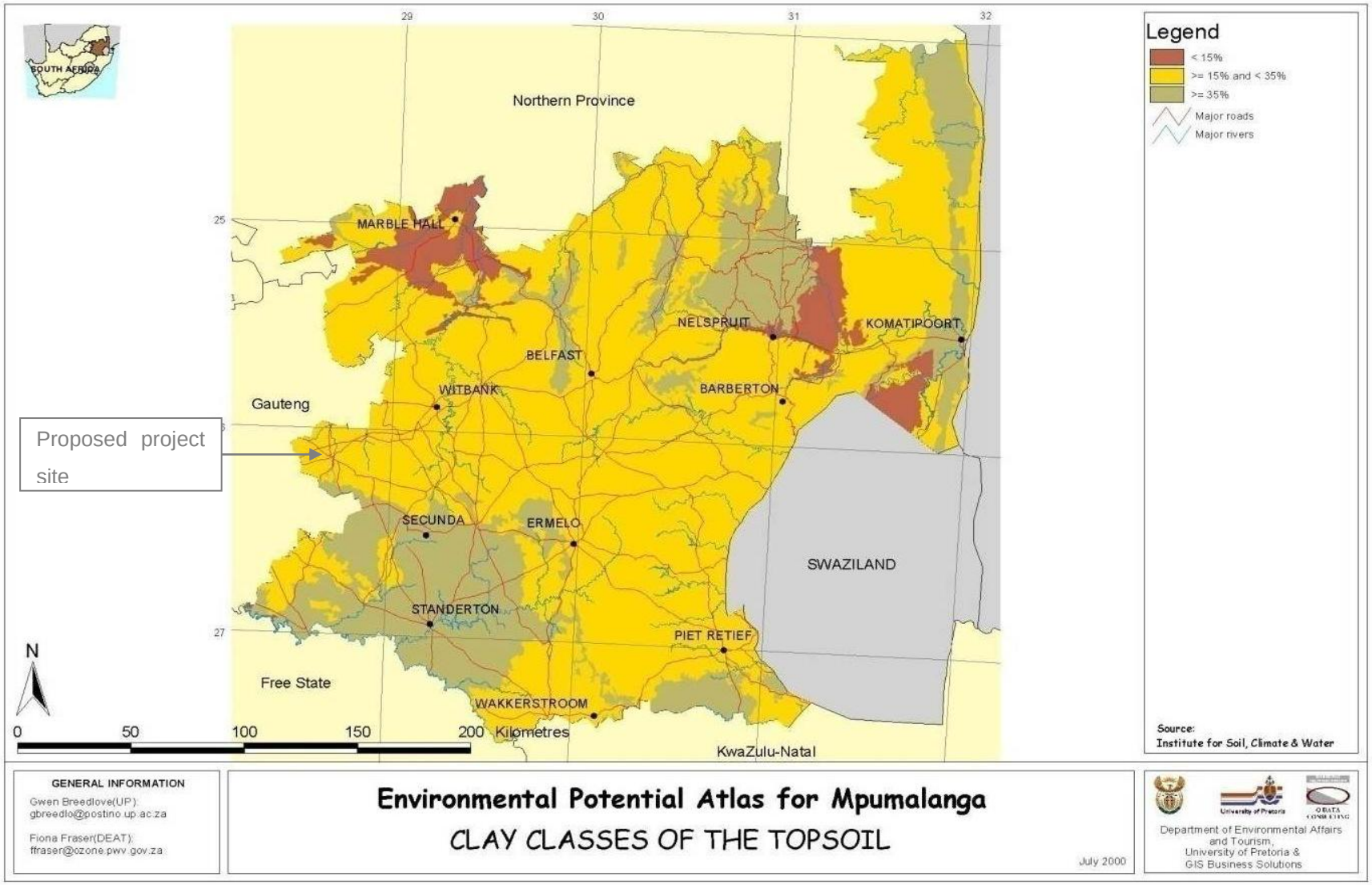


Figure 58: Clay classes of the topsoil in Mpumalanga.

2.1.5 Land use and land capability

The entire site (the remaining extent of portion 8 on the farm Modderfontein 236 IR) is approximately 117ha in size. AFGRI rear some of their own broiler chickens on the property. The N12 Highway runs through the farm, splitting it in two. A large pan, offices, staff quarters, broiler houses and the abattoir is located to the east of the N12. There are some broiler houses located to the west of the N12; however this land is mainly used for cultivation of crops.

The surrounding land uses comprise of residential development and agricultural use, together with the Enviroserve Holfontein disposal facility due west of the abattoir. According to the Environmental Potential Atlas for Mpumalanga, land capability of the site is classified as: cultivated land, vacant/unspecified and built-up land.

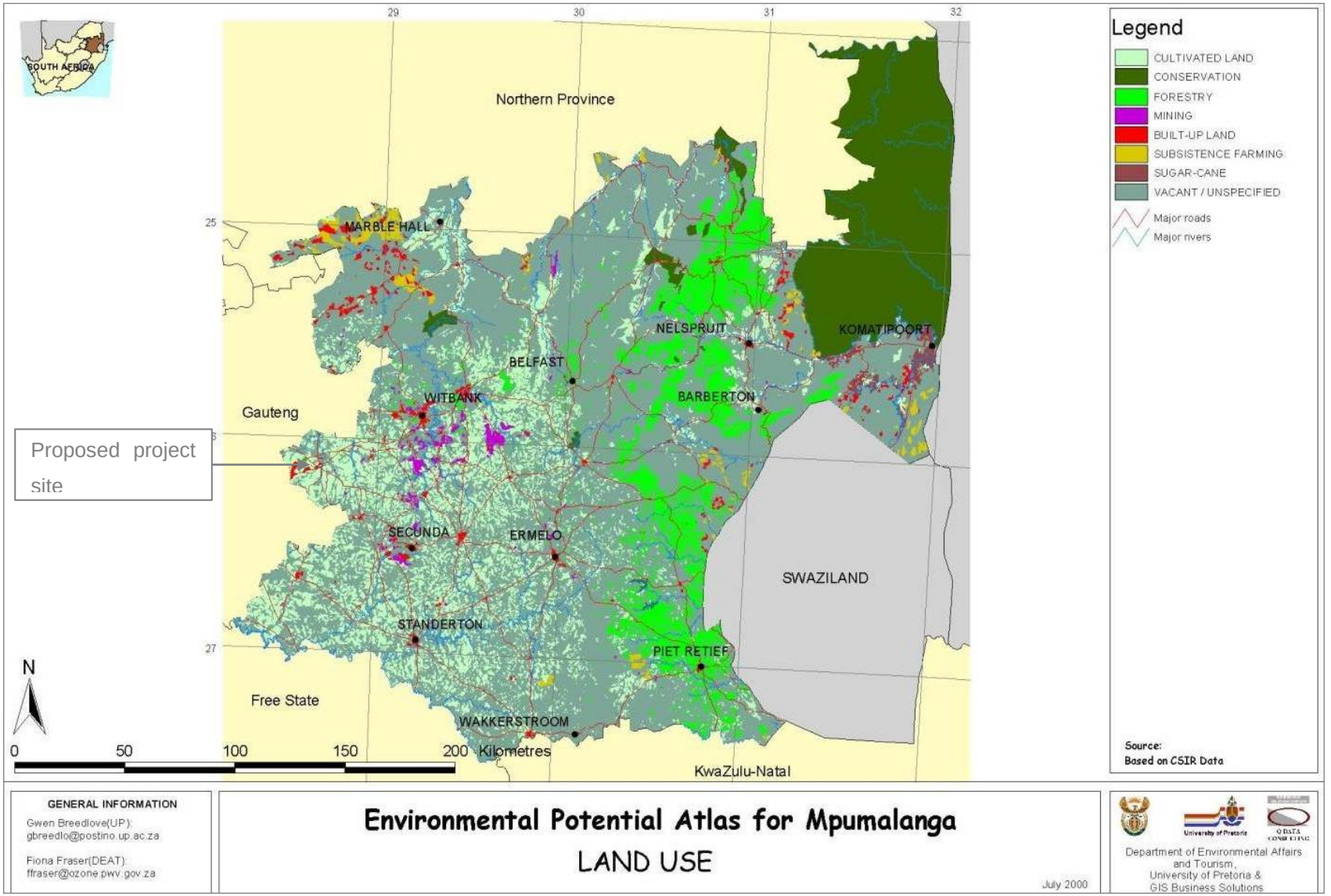


Figure 59: Land uses in Mpumalanga

2.1.6 Fauna and Flora

Vegetation

Due to the disturbed nature of the vegetation onsite, a desktop assessment was undertaken to describe the nature of any natural vegetation surrounding the site. Most of the surrounding land is or was used for crop production.

This farm falls within the Grass Land biome region and is specifically classified as Eastern Highveld Grassland (GM 12) (Figure 60). The Grassland Biome is found mainly on the high central plateau of South Africa and the inland regions of KwaZulu-Natal and the Eastern Cape.

Frost, fire and grazing maintain the dominance of grasses and prevent the establishment of trees. Fire is a natural factor caused by lightning and regular burning is essential for maintaining the structure and biodiversity of this biome. Grasslands are unique ecosystems with rich and often highly specialized animal life, both above and below ground. Formerly, native grasslands supported vast herds of ungulates such as Blesbok, Black wildebeest and Springbok. Bird densities range from 50 to 380 birds per 100 ha, and include a wide range of species.

South African grasslands essentially comprise of a simple, single-layered herbaceous community of tussocked (or bunch) grasses. It is not generally known that the majority of plant species in grasslands are non-grassy herbs, most of which are perennial plants with large underground storage structures that can live for several decades. The Grassland Biome has an extremely high biodiversity, second only to the Fynbos Biome. At a 1 000 square metre scale, the average species richness of the Grassland Biome is even higher than those of most Fynbos communities, being surpassed only by Renosterveld.

Eastern Highveld grasslands occur in the Gauteng and Mpumalanga Provinces at an altitude of 1 520 – 1 780 metres above mean sea level, but can occur as low as 1 300 metres above mean sea level. The short dense grassland is dominated by species commonly found in grasslands (*Aristida, Digitaria, Eragrostis, Tristachya* and *Themeda* among others). There are small rocky outcrops scattered throughout the grassland where some woody species and wiry, sour grasses occur (*Celtis africana, Acacia caffra, Parinari capensis, Diospyros lycioides* subsp. *lycioides, Protea caffra, P. welwitschii* and *Rhus magalismontanum).*

The natural grasslands are considered endangered with only a small percentage conserved in statutory and private reserves. The target for conservation is 24% (Mucina & Rutherford, 2006). However, the site cannot be classified as true Eastern Highveld grassland as a result of its disturbed state. For this reason, the impact of the proposed development on natural vegetation can be regarded as low.

Table 8: Dominant vegetation within the Eastern Highveld

Taxa	Species
Graminoids:	*Digitaria monodactyla, D. tricholaenoides, Brachiaria serrata, Aristida aequiglumis, A. junciformis* subsp. *galpinii, A. congesta, Cynodon dactylon, Eragrostis chloromelas, E. plana, E. sclerantha, E. curvula, E. racemosa, Heteropogon contortus, Microchloa caffra, Monocymbium ceresiiforme, Loudetia simplex, Setaria sphacelata, Themeda triandra, Sporobolus africanus, S. pectinatus, Alloteropsis semialata* subsp. *eckloniana, Andropogon appendiculatus, A. schirensis, Trachypogon spicatus, Bewsia biflora, Tristachya leucothrix, T. rehmannii, Diheteropogon amplectens, Ctenium concinnum, Eragrostis capensis, E. patentissima, E. gummiflua, Rendlia altera, Harpochloa falx, Schizachyrium sanguineum, Panicum natalens, Setaria nigrirostris* and *Urelytrum agropyroides.*
Herbs:	*Haplocarpha scaposa, Berkheya setifera, Justicia anagalloides, Acalypha angustata, Pelargonium luridum, Chamaecrista mimosoides, Euryops gilfillanii, E. transvaalensis* subsp. *setilobus, Dicoma anomala, Ipomoea crassipes, Senecio coronatus, Pentanisia prunelloides* subsp. *latifolia, Helichrysum aureonitens, H. callicomum, H. caespititium, H. rugulosum, H. oreophilum, Selago densiflora, Wahlebergia undulata* and *Vernonia oligocephala.*
Geophytic Herbs:	*Haemanthus humilis* subsp. *hirsutus, Ledebouria ovatifolia, Gladiolus crassifolius* and *Hypoxis rigidula* var. *pilosissima.*
Succulent Herbs:	*Aloe ecklonis.*
Low Shrubs:	*Stoebe plumosa* and *Anthospermum rigidum* subsp. *pumilum.*

Table 9: Dominant vegetation surrounding the Daybreak pan. Alien species are in bold (Tye, Bremmer & van Staden S., 2010).

Grasses		Permanent	Seasonal	Temporary
Brachiaria brizantha	Common signal grass			X
Eragrostis curvula	Weeping love grass	X	X	
Eragrostis plana	Tough love grass		X	X
Hyparrhenia hirta	Common thatching grass			X
Hyparrhenia tamba	Blue thatching grass			X
Imperata cylindrical	Cottonwool grass		X	
Leersia hexandra	Rice grass	X		
Leersia hexandra	Guinea grass			X
Pennisetum clandestinum	Kikuyu grass		X	
Setaria sphacelata var. sphacelata	Common bristle grass	X	X	
Sorghum bicolor	Common wild sorgum			X
Themeda triandra	Red grass			X
Typha capensis	Bulrush	X		

Herbaceous		Permanent	Seasonal	Temporary
Bidens Formosa	Cosmos			X
Bidens pilosa	Blackjack			X
Cyperus sexangularis	Six-angled sedge	X	X	
Datura ferox	Large thorn apple			X
Helichrysum kraussii	Straw everlasting	X		
Persicaria serrulata			X	
Tagetes minuta	Khakibos			X
Verbena bonariensis	Purple Top			X

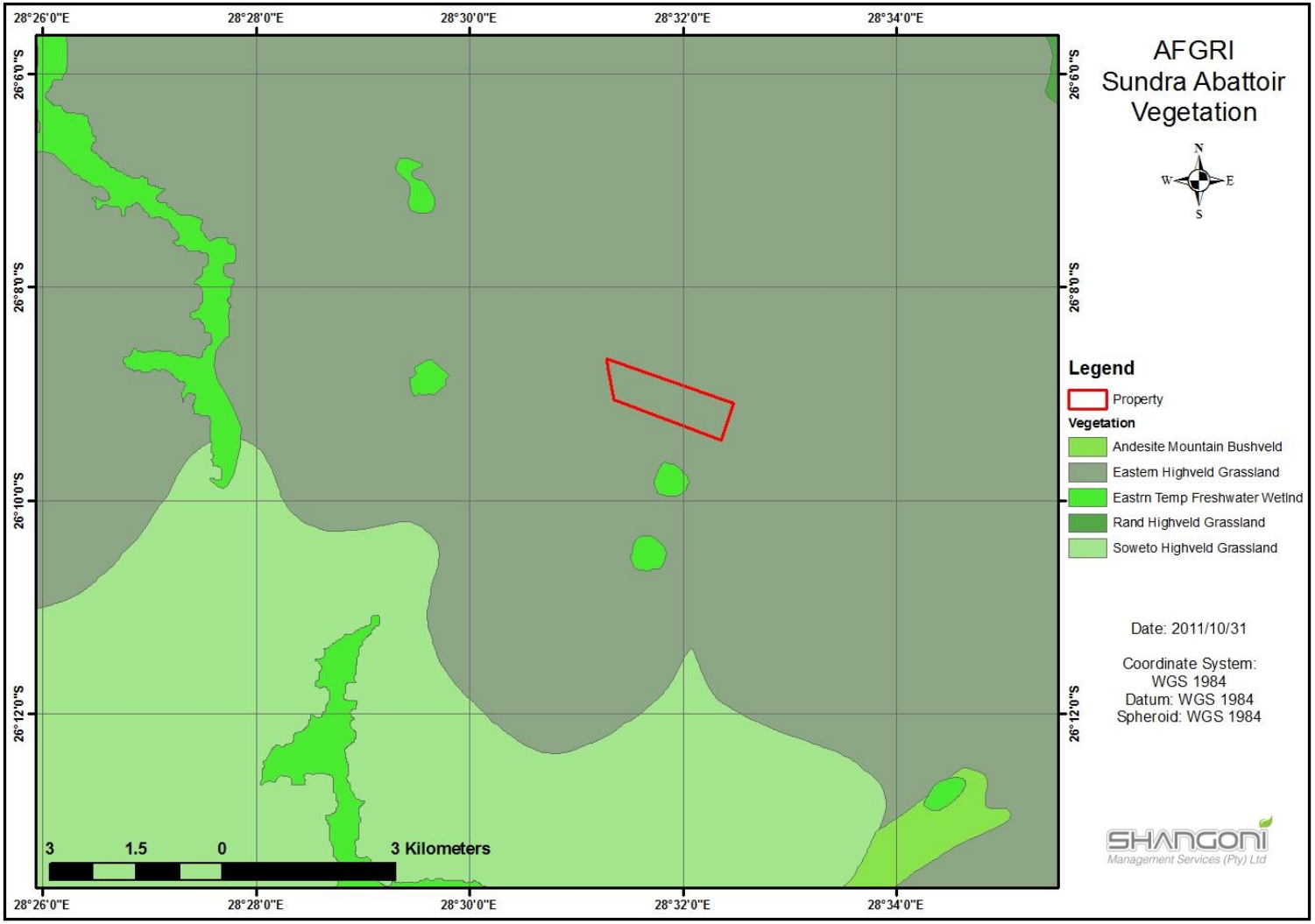


Figure 60: Vegetation map.

Macro invertebrates

Macro invertebrates are small animals that are dependent on water for all or part of their life cycle. Different species of macro invertebrates vary in sensitivity to water quality-, flow- and temperature pollution and are therefore used as bio-indicators to estimate the health of a water body.

Scientific Aquatic Services conducted an aquatic ecological assessment of the three pans in the vicinity of the Daybreak (Sundra) abattoir. The pans were numbered as in Figure 63. A generally diverse aquatic community was observed during the assessment; however the sensitivity ratings, observed at both the Daybreak Pan and Pan 2, were relatively low with the exception of the *Aeshinidae* species observed at the Daybreak Pan. Dragonflies are often found in reflecting water with lower dissolved oxygen levels.

The sensitivity rating in Pan 3 was found to be 41% higher than that of the Daybreak pan. This can be attributed to natural filtering processes, lower temperatures and the higher oxygen levels observed in Pan 3 (Tye, Bremmer & van Staden S., 2010).

Table 10: Aquatic Macro-Invertebrates noted during the assessment

Common Name	Scientific Name	Sensitivity/15
Leeches	*Hyrudinea*	3
Small minnow mayflies	*Baetidae (2sp)*	6
Dragonflies	*Aeshnidae*	8
Giant water bugs	*Belostomatidae*	3
Water boatmen	*Corixidae*	3
Backswimmers	*Notonectidae*	3
Ripple bugs	*Veliidae*	5
Predacious diving beetles	*Dytiscidae*	5
Midges	*Chironomidae*	2
Mosquitoes	*Culicidae*	1

Avifauna

During the aquatic ecological assessment of the three pans adjacent to the abattoir, all bird species seen or heard were recorded. A total of 45 bird species were observed. Daybreak Pan

housed the greatest avifaunal diversity, with 32 species recorded. None of the species recorded during the survey were of conservation concern.

Table 11: Bird species noted during the assessment (Tye, Bremmer & van Staden S., 2010).

Common Name	Scientific Name	Conservation Status
African Sacred Ibis	*Threskiornis aethiopicus*	Not Threatened
Black-crowned Nightheron	*Nycticorax nycticorax*	Not Threatened
Black-headed Heron	*Ardea melanocephala*	Not Threatened
Blacksmith Lapwing	*Vanellus armatus*	Not Threatened
Cape Shoveller	*Anas smithii*	Not Threatened
Cape Turtle-Dove	*Streptopelia capicola*	Not Threatened
Cape Wagtail	*Motacilla capensis*	Not Threatened
Cattle Egret	*Bubulcus ibis*	Not Threatened
Common Fiscal	*Lanius collaris*	Not Threatened
Common Myna	*Acridotheres tristis*	Not Threatened
Common Waxbill	*Estrilda astrild*	Not Threatened
Glossy Ibis	*Plegadis falcinellus*	Not Threatened
Grey Heron	*Ardea cinerea*	Not Threatened
Grey-headed Gull	*Larus cirrocephalus*	Not Threatened
House Sparrow	*Passer domesticus*	Not Threatened
Laughing Dove	*Streptopelia senegalensis*	Not Threatened
Lesser Swamp Warbler	*Acrocephalus gracilirostris*	Not Threatened
Levaillant's Cisticola	*Cisticola tinnies*	Not Threatened
Little Stint	*Calidris minuta*	Not Threatened
Moorhen	*Gallinula chloropus*	Not Threatened
Purple Swamphen	*Porphyrio porphyrio*	Not Threatened
Red-billed Teal	*Anas erythrorhyncha*	Not Threatened
Red-eyed Dove	*Streptopelia semitorquata*	Not Threatened

Red-knobbed Coot	*Fulica cristata*	Not Threatened
Rock Dove	*Columba livia*	Not Threatened
Ruff	*Philomachus pugnax*	Not Threatened
Southern Masked- Weaver	*Ploceus velatus*	Not Threatened
Southern Red Bishop	*Euplectes orix*	Not Threatened
Three-banded Plover	*Charadrius tricollaris*	Not Threatened
White-winged Tern	*Chilodonias leucopterus*	Not Threatened
White-faced Duck	*Dendrocygna viduata*	Not Threatened
Yellow-billed Duck	*Anas undulata*	Not Threatened

Fish

Assessing the status of the fish community at a site can provide an indication of the long-term biological integrity of an aquatic environment. The Fish Assemblage Integrity Index (FAII) according to the protocol of Kleynhans (2002) was applied to the aquatic ecological assessment of the three pans adjacent to the Daybreak (Sundra) abattoir.

Table 12: A summary of the results obtained from the application of the FAII index

Type of Result	Daybreak pan	Pan 2
Species present and number of individuals obtained	*None*	*Tilapia sparrmani 3*
Health and condition	Not applicable	Good
Expected FAII score	74.0	74.0
Observed FAII score	0	6.5
Relative FAII score	0	8.8
FAII classification (Kleynhans, 2002)	Class F (Critically modified)	Class F (Critically modified)

When compared to the reference score for pristine fish communities it can be deducted that the fish communities at Daybreak pan and Pan 2 have suffered severe loss in integrity.

2.1.7 Surface water

AFGRI Daybreak is located within the C21D and B20B quaternary catchments occurring in the Vaal and Northern Olifants Water Management Areas, respectively.

Regionally the site falls within the sub water management areas known as the Upper Olifants and the Upper Vaal.

The Vaal primary catchment area has a surface run-off of 3360.88- 4567.41 million m³ and the Olifants primary catchment a runoff of 2386.34-3360.88 million m³, as can be seen in Figure 65.

Surface water use

Located on site are three boreholes, from which ground water is abstracted to use in the AFGRI Daybreak abattoir. One of these boreholes falls within the C21D quaternary catchment area and the remaining two both fall within the B20B quaternary catchment area.

Figure 61: Distribution of relevant boreholes and pans across catchment boundaries.

The area surrounding the site is drained by three significant rivers namely the Koffiespruit, Wilge and Kromdraaispruit. Located onsite is the Daybreak pan, which currently receives wastewater from the AFGRI Daybreak abattoir. In future it is proposed that the abattoir wastewater be treated to the general limit (Refer to Table 1) by an integrated ponding and constructed wetland system. The treated water will be reused in the process, used for irrigational purposes and/or discharged into the Daybreak pan.

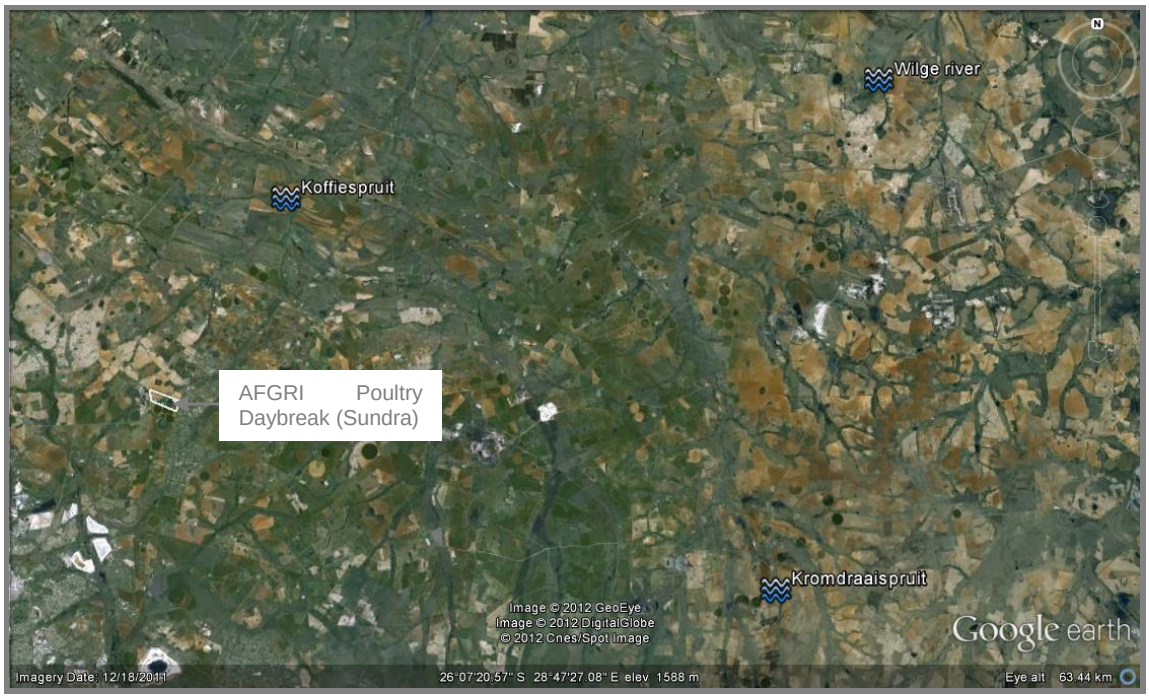


Figure 62: Google earth image of significant rivers in Victor Khanye area

Impact of the Daybreak Pan on surrounding surface water

Scientific Aquatic Services conducted an aquatic ecological assessment of the three pans in the vicinity of AFGRI Daybreak. The pans were numbered as in Figure 63. The wastewater from the abattoir is currently pumped into the Daybreak pan, which falls within the Upper Olifants Water Management area. This has an impact on surrounding water bodies, such as Pan 2 and Pan 3. Pan 2 and 3 fall in the Upper Vaal River Catchment. Impacts resulting from the abattoir activities thus have the potential to be expressed across catchment boundaries.

At the time of the ecological study, the three pans were considered to be in a poor ecological condition due to both present and past impacts, which include: significant alien vegetation encroachment; agricultural activities in the area; wastewater discharge from the abattoir; agricultural runoff; and rural urbanisation.

The riverine systems in the B20B quaternary catchment area have a moderate diversity of habitat types, with sponge areas and wetlands increasing their ecological sensitivity and importance. The site has a moderate importance in terms of the following: conservation, rare and endangered species and the aquatic resources. The riverine resources have a moderate sensitivity to flow requirements, with species such as *Chiloglanis pretoriae* being flow dependant. The area has a low importance in terms of migration of aquatic species. The ecology of the area is considered to be moderately sensitive to changes in water quality.

For site testing of biota, specific water quality variables were measured at each of the sampling sites. Parameters measured include pH, electrical conductivity (EC) and temperature. The results of on-site biota specific water quality analyses were used to aid in the interpretation of the data obtained during the ecological assessment. Water samples were also taken for physico-chemical analyses at all three sites. The concentrations of most trace metals were below the detection limits of the ICP MS scan (Tye, Bremmer & van Staden S., 2010).

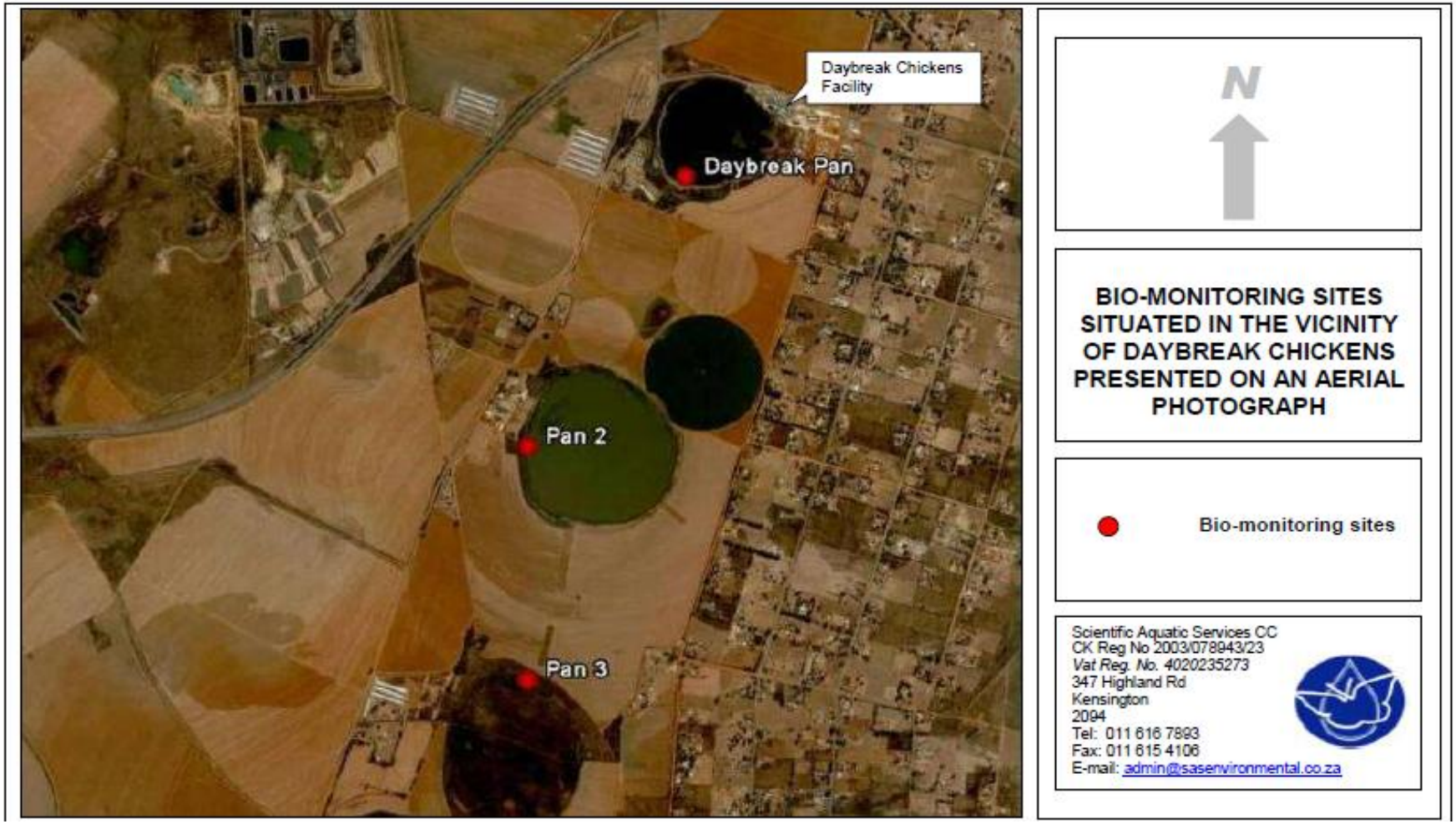


Figure 63: Three Pans used in the Aquatic Ecological Study done by Aquatic Scientific Services

Table 13: Summary of discussion, in aquatic ecological assessment, on water quality values found at the Daybreak pan, Pan 2 and Pan 3

Water Quality Parameter	Daybreak Pan	Pan 2	Pan 3	Results / Discussion
Suitability for supporting a diverse aquatic community	Unsuitable	Unsuitable	Suitable	Pan 3 was considered to contribute to the ecological importance of the area.
Total dissolved solids (TDS)		Approximately 18% higher than that of Daybreak pan.	Decreases slightly by 2.9 %	The increase in TDS, from the Daybreak pan, in Pan 2 exceeds the DWAF Transmission Wheeling Rate Guidelines (TWRG) for aquatic ecosystems and may negatively affect aquatic communities in the study area.
Chlorides	Elevated from natural sources	Elevated from natural sources - higher than at Daybreak pan	Elevated from natural sources	Chlorides present may accumulate to toxic levels in moderately tolerant crops such as maize, sunflowers, sorghum and barley, thus reducing crop yields and resulting in foliar injury and posing a threat to human consumption.
Fecal coliform concentrations	Elevated	None	None	No fecal coliforms were observed in Pan 2 and Pan 3 and therefore the water can be regarded as being suitable for recreational use and irrigation. The fecal coliform concentrations found in the Daybreak pan far exceed the target levels as considered necessary for the healthy functioning of natural aquatic ecosystems as well as those of the DWAF TWQR for irrigation purposes.
Fluoride	Elevated	Elevated	Elevated	All three sites are elevated, but fall within the DWAF TWQR for watering of animals.
Chemical oxygen demand (COD)	Elevated	Elevated	Elevated	This is indicative of large amounts of oxygen depleting processes taking place, which is considered natural for the marsh conditions observed at Pan 3.
Nitrate levels				Nitrate levels at the Daybreak pan, Pan 2 and Pan 3 fall within the levels required for the DWAF TWQR for human consumption, irrigation, as well as agriculture (livestock watering).
Phosphates	Hypertrophic	Hypertrophic	Hypertrophic	Increased algal blooms as a result of eutrophication can lead

	conditions	conditions	conditions	to a decrease in biodiversity as most sensitive species cannot survive in waters with low levels of oxygen.
Electrical Conductivity (EC)	Significantly altered	Significantly altered	Significantly altered	The high EC values measured in the Daybreak pan can be attributed to the abattoir wastewater. Daybreak is not the sole contributor to salt load in Pan 2 and Pan 3, as agricultural activities also play a role. This can be assumed because of the 77% increase in salt load at Pan 2. The EC at Pan 3 is slightly less than at Pan 2. It can be assumed that Pan 3 absorbs salts and nutrients into the soils, thus acting as a natural biological filter for the high salt concentrations observed in the area. Even though high salt level in these pans is not considered unusual because of centripetal drainage patterns, however high salt loads do place stress on the aquatic community.
pH	Almost Neutral	Elevated	Elevated	pH levels in Pan 2 and Pan 3 exceed DWAF TWQR for aquatic ecosystems. Daybreak pan however is not a contributing factor to the high pH measured in Pan 2 and Pan 3.
Temperature	Elevated			The high temperature measured is a contributing factor to the poor habitat in and around the pan.

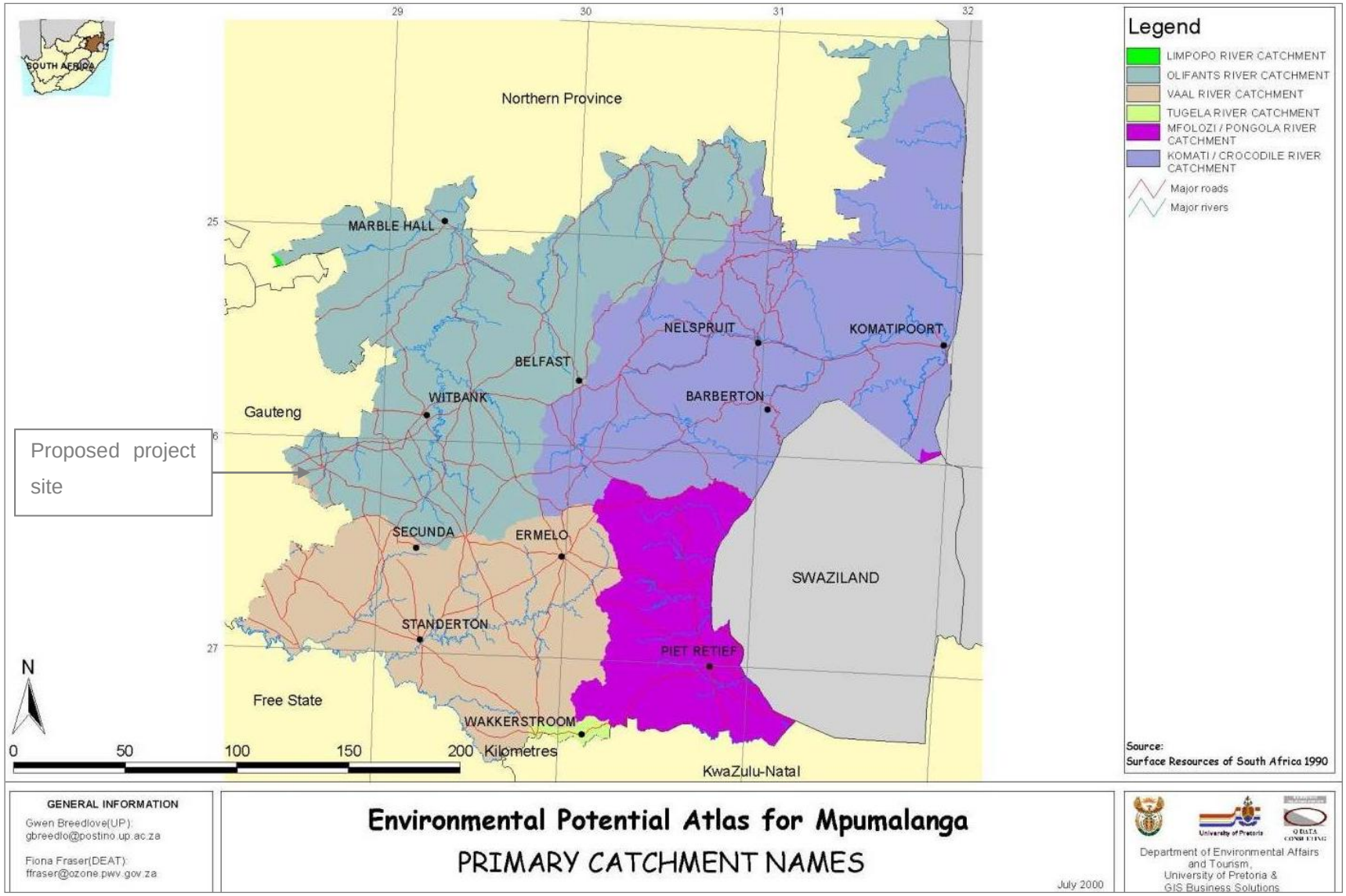


Figure 64: Primary catchments in Mpumalanga

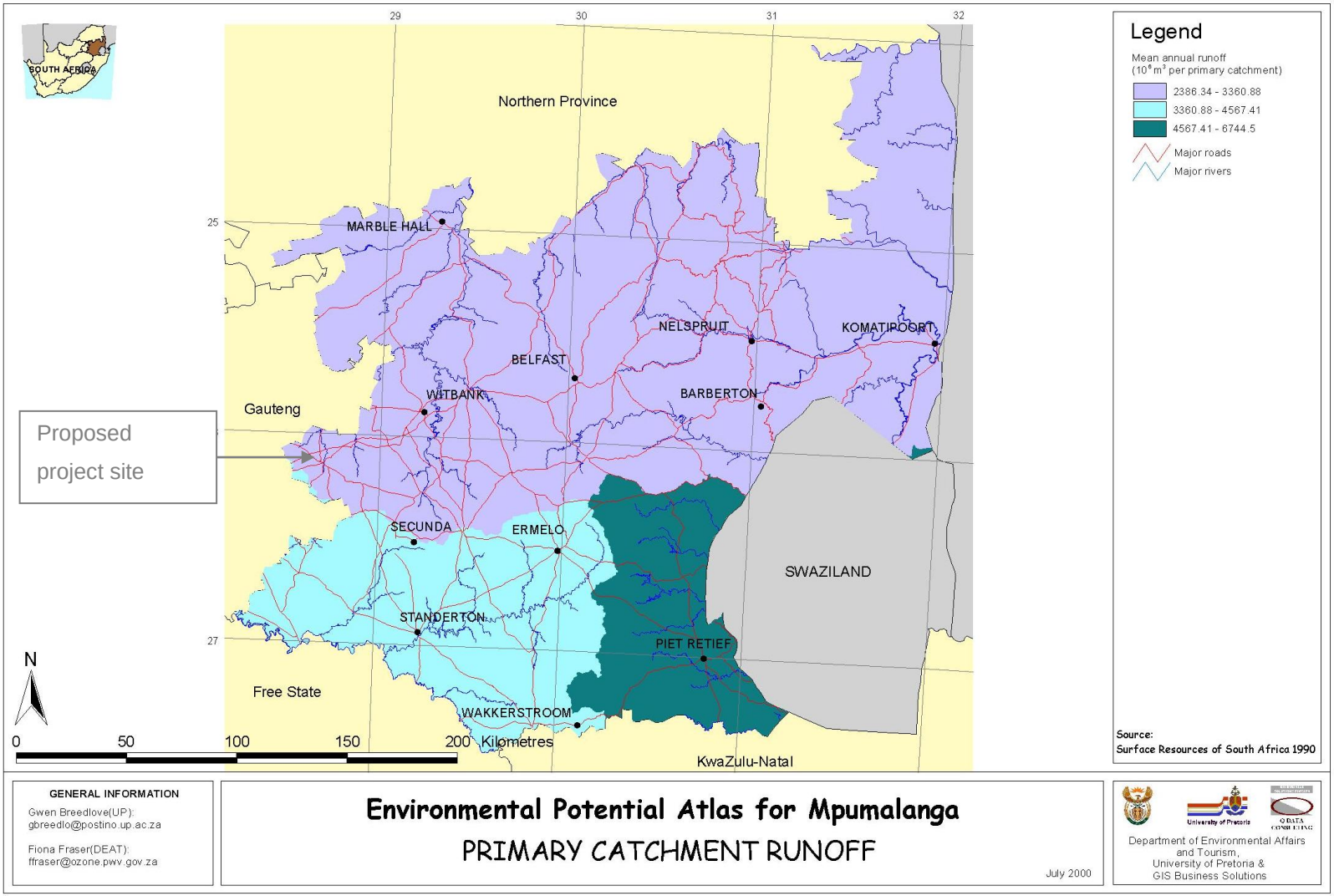


Figure 65: Primary Catchment Runoff for Mpumalanga

2.1.8 Water Authority

The relevant Water Authority is the Mpumalanga regional office of the Department of Water Affairs (DWA).

2.1.9 Groundwater

The abattoir currently uses approximately 12l per Chicken, thus using approximately 1.2 Ml of water per day, which equates to 13.9 l/s. This is sustained by borehole water, from three onsite boreholes. Each borehole abstracts groundwater at a rate of 4.6 l/s. Municipal water is supplied to the property for domestic purposes.

If the AFGRI Poultry Daybreak abattoir was to be expanded (REF: 17/2/3 N-113), the volume of water used per chicken will be less (11l/Chicken) due to better economies of scale.

A Water Use License Application will be submitted to the Department of Water Affairs for the water use activities occurring on the site.

Groundwater use

Rison Groundwater Consulting CC undertook a hydro census in the general area of the abattoir to determine the neighbouring groundwater users, their dependence on the local groundwater resource and to evaluate the importance of the aquifer/s as a future source of water supply.

It was found that the predominant groundwater use in the area included: domestic, irrigation and livestock watering.

Aquifer parameters

Boreholes DB1 and DB12 were selected for two short duration aquifer tests, to determine local aquifer parameters.

Table 14: Summary of Aquifer tests

BH	SWL	BH Depth	Abstraction Rate	Drawdown	Transmissivity			Hydraulic Conductivity
					CR (CJ)	Recovery	(Average)	
	mbc	mbc	l/s	m	m²/day	m²/day	m²/day	m/day
DB 1	10.39	110.00	1.10	78.22	0.20	0.20	0.20	0.002
DB 12	4.44	65.00	0.70	28.23	0.30	0.50	0.40	0.007

The water level at DB1 recovered to 91% within 150 minutes of turning the pump off while DB12 recovered 93% within 90 minutes. Table 14 shows that the aquifer has low transmissivity but has hydraulic conductivity values that are typical of Karoo aquifers (van Bart A., 2010).

Depth of Water Tables

The AFGRI Daybreak abattoir is located on a typical Karoo aquifer. The Karoo aquifer in turn is underlain by a deeper dolomite karst aquifer. All three boreholes, used for the abstraction of abattoir process water, are at a depth of approximately 250m.

The groundwater levels within the boreholes were measured as a first step to determine the groundwater flow directions. It is known that in similar geological terrains a relationship exists between the groundwater table and the topography.

Groundwater Flow direction

The groundwater flow direction is an important parameter in determining the abattoir's potential impact on the aquifer and other groundwater users. From the Figure below it can be seen that the abattoir lies on a central topographic high, experiencing topographic lows to the east and west of the site. Groundwater flow that is controlled by the topography migrates from the high topographic areas to low lying areas i.e. from the abattoir towards the east.

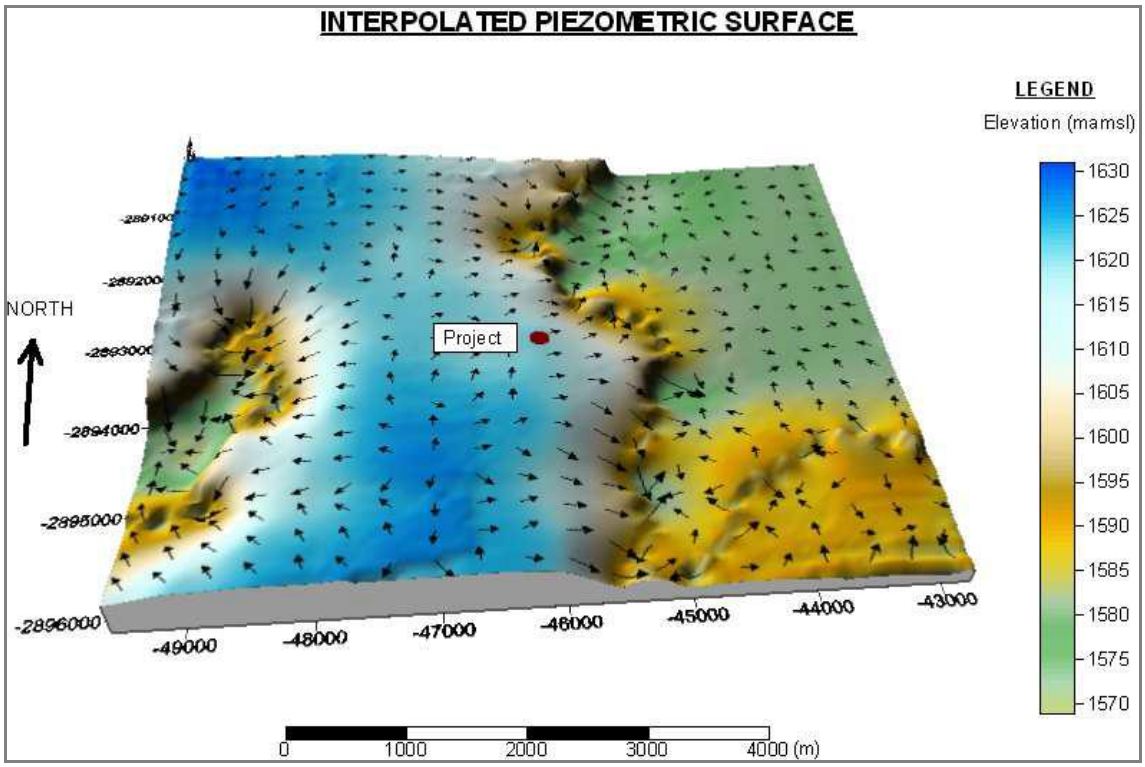


Figure 66: Interpolated 3-D piezometric surface (van Bart A., 2010).

Groundwater Flow rates

The rate of flow will indicate the risk that contaminants in the groundwater pose to neighbouring properties and surface water sources.

Using average aquifer parameters (k = 0.0045), average gradient of 1.8% and a porosity of 10%, a flow velocity of 0.00081m per day or 0.296m per annum was estimated. It must be noted that the assumptions include a homogeneous and isotropic aquifer i.e. the same aquifer parameters throughout the aquifer in all directions. Fractures within the hard rock matrix will have a significantly higher flow rate (van Bart A., 2010).

Due to the low aquifer parameters associated with the aquifer, the associated groundwater contamination risk is regarded as a slow process (van Bart A., 2010).

Groundwater Quality

The results of the groundwater quality tests were compared to recommended water quality for domestic use, as prescribed by the SANS 241 (2006) specification for drinking water. The overall groundwater samples indicate high quality water that can be classified as Class 0 (The groundwater chemistry results from the hydrocensus are presented in Table 3 of the Hydro-geological Assessment Report, attached to Annexure F of this draft Scoping Report.)

Sustainability of boreholes

The DWAF classifies the Vryheid Formation as a type d2 aquifer that typically yields between 0.1 and 0.5 L/s and is inter-granular and fractured. The Malmani Subgroup is classified as type c5 aquifer which is karst and typically yields in excess of 5 L/s. Groundwater, from the three boreholes, is abstracted from the deeper dolomite karst aquifer (van Bart A., 2010).

Presently, 700 000 chickens are slaughtered at the AFGRI Daybreak abattoir per week. The abattoir uses approximately 12l per chicken, thus using approximately 1.2 Ml of water per day, which equates to 13.9 l/s. Each borehole therefore abstracts groundwater at a rate of 4.6 l/s.

Based on the aquifer classification map of DWAF, boreholes in this aquifer yield in excess of 5 l/s, suggesting that abstraction is currently in line with predetermined sustainable yields (van Bart A., 2010).

700 000 chickens/week x 12 l/chicken	= 8 400 000 l/week
	= 8 400 000 l/week ÷ 7days/week
	= 1.2Ml/day ÷ 86 400 s/day
	=13.9 l/s
13.9 l/s ÷ 3 boreholes	= 4.6 l/s/borehole

If the AFGRI Poultry Daybreak abattoir were to be expanded, the total volume of groundwater abstracted will increase, however the volume of water used per chicken will be less (11l/Chicken) due to better economies of scale.

Should the proposed expansion of the abattoir be authorised, 1 500 000 chickens will be slaughtered per week. This would mean that approximately 16 500m^3 of water would be required per week (± 2.4 Ml/day = ± 27.3 l/s).

1 500 000 chickens/week x 11 l/chicken	= 16 500 000 l/week
	= 16 500 000 l/week ÷ 7days/week
	= 2.4Ml/day ÷ 86 400 s/day
	= 27.3 l/s
27.3 l/s ÷ 3 boreholes = 9.1 l/s/borehole	

The abattoir wastewater treatment works will treat all of the wastewater generated at the abattoir to a quality that will comply with the Department of Water Affairs' standards for discharging water into a natural water resource. Once the wastewater is treated, between 40 and 60% of the water can be re-used at the abattoir. Each borehole will thus abstract groundwater at a rate of 3.3 l/s to 5.2 l/s. Since the aquifer yield is in excess of 5 l/s, the abstraction is currently in line with predetermined sustainable yields.

16 500 000 l/week = 16 500 m³/week = 2 357 m³/day required in the abattoir.
The waste treatment plant will treat up to 2 500 m³/day, of which 40 – 60 % will be re-used.
2 500 m³ x 40% = 1 000 m³
2 500 m³ x 60% = 1 500 m³
Therefore 1 000 m³ to 1 500 m³ of treated wastewater will be re-used per day, which means only 857 to 1 357 m³/day will be abstracted from the three boreholes.

857 to 1 357 m³/day = 857 000 l/day to 1 357 000 l/day = 9.9 l/s to 15.7 l/s

9.9 l/s to 15.7 l/s ÷ 3 boreholes = 3.3 l/s to 5.2 l/s

2.1.10 Noise

Noise on and around the Daybreak abattoir is generated by traffic on the N12, abattoir activities, broiler rearing activities, farming activities and residential activities.

According to Jorgensen & Johnson (1981), the noise levels generated by general construction activities on a building site can reach levels of approximately 70 dB, caused by for instance heavy machinery. It can therefore be assumed that the proposed development will have a negative impact on the environmental noise of the area once construction starts.

Sound is inversely proportional to the distance from the source and can get absorbed by buildings and vegetation barriers. Noise intensities (dB) will be at their highest on site and will decrease as you move away from their sources.

The decline curve below (Figure 67) gives an indication of how noise generated at the site will decrease with distance. This gives a clear indication of the distance that the sound would have travelled upon reaching a level of 60 dB, prescribed by the SABS as being the acceptable limit for environmental noise.

According to Figure 67, at a distance of 27 metres from the construction site, the generated noise would have decreased to a level of 60 dB and at a distance of 45 metres it would have decreased to approximately 55dB. It can therefore be said that noise travelling further than 45 metres will have a low impact on neighbouring farms and residential areas. Distances to adjacent noise receptors are shown in Figure 68.

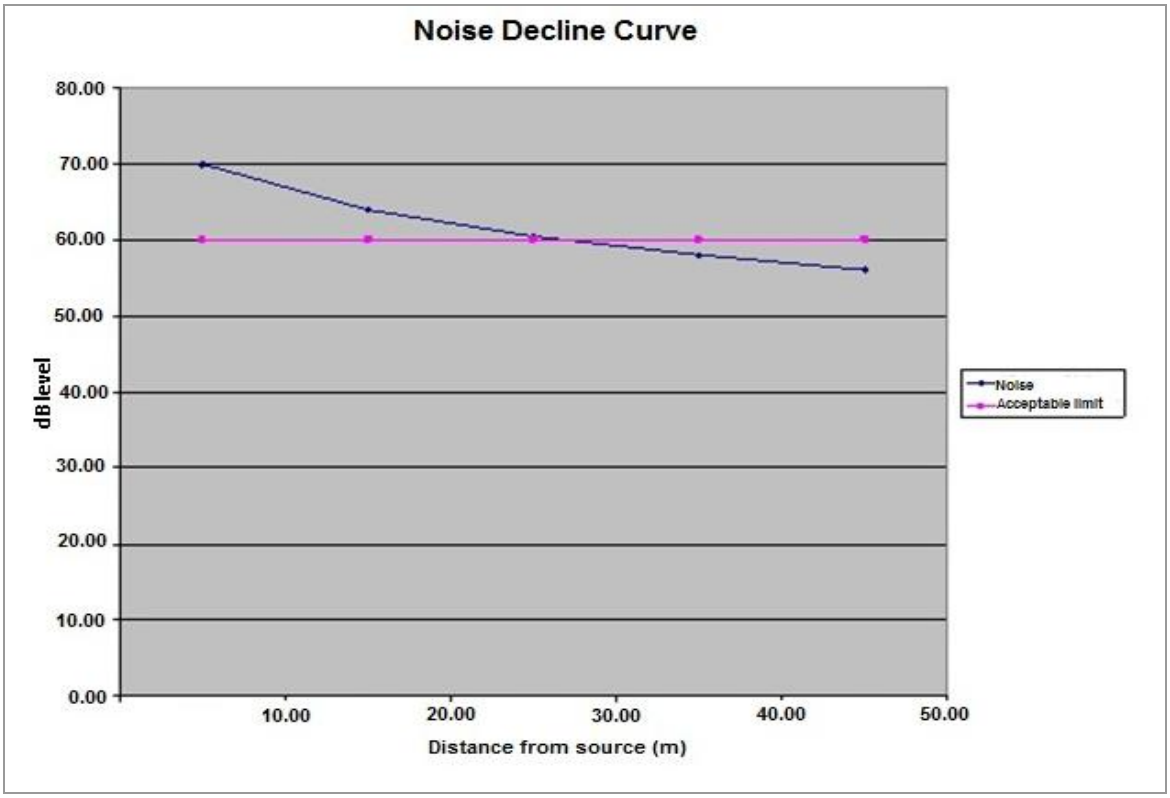


Figure 67: Noise decline curve

Figure 68: Distance from construction site to closest neighbours

Neighboring farms and residential areas are further than 45m from the proposed construction site, as a result the noise will have a low impact on neighbouring farms and residential areas.

2.1.11 Sites of archaeological and cultural interest

A site walk-through of the proposed development was undertaken. The objective of the study was to identify possible archaeological, cultural and historic sites within the proposed development areas.

No obvious features, sites, graves or artefacts of cultural significance that could be impacted on by the proposed development were found.

2.1.12 Visual aspects

The incidence of viewers driving on the on the N12, that runs approximately 700m from the proposed site, will be relatively high compared to that of Modderfontein road that runs adjacent to the proposed site. However as the visual impact is reduced over distance the proposed integrated ponding and constructed wetland system is not expected to have a significant impact on the N12 road users.

Negative public opinion can mainly be contributed to the contrast between the general natural environment and the infrastructure coupled with the proposed project. The proposed wastewater treatment works is to be constructed in an area where the natural vegetation is

disturbed, and the design of the integrated ponding and constructed wetland system will follow the existing topography. The proposed wastewater treatment works will therefore not have a significant visual impact on the surrounding environment.

2.1.13 Air Quality

Construction Phase

The proposed development will have a short-term and low, negative impact on the air quality of the property as a result of dust from excavation activities that will take place during the construction phase of the project. Construction equipment will primarily produce emissions of nitrogen oxides (NO_x), hydrocarbons, suspended particulates and small amounts of sulphur dioxide (SO_2) from the use of diesel fuel (PM Group, 2006). With the correct mitigation measures introduced the dust can be controlled by means of suppression techniques such as the watering of cleared areas and the introduction of speed limits for construction vehicles operating onsite.

Operational Phase

During the operational phase, odours will be released from the wastewater treatment works. These can include methane, ammonia and hydrogen sulphide. Odours will be significantly reduced through effective operation. The reduction in odour will have an overall positive impact on the current air quality.

2.2 Socio-economic aspects

The site is located within the Victor Khanye Local Municipality.

2.2.1 Demography

According to the census taken in 2001, it was found that 56 207 people formed part of 13 391 households in the Delmas Local Municipality. This means that there was an average of 4.2 people per household. The site falls within ward 8 of this local municipality and according to the census taken in 2001, there were approximately 4 808 people in ward 8.

The black population in this area is larger than all other races combined. This is clear from the table below together with the fact that isiNdebele and isiZulu are the dominant languages in this area.

Table 15: Population Distribution among Ethnic Groups (Ward 8)

Ethnic group	Ward 8
African	2 461
Coloured	34
Indian	10
White	2 303
Total population	4 808

The census taken in 2001 established that the total population was made up of 49% males and 51% females.

2.2.2 Major economic activities

The Victor Khanye Local Municipality is strategically located between Johannesburg in the Gauteng province and Nelspruit in the Mpumalanga province and forms part of the Nkangala District Municipality. The N12, which runs through the site, joins the N4 Maputo corridor, the main link between the Gauteng province, Mpumalanga province and Mozambique.

The area is used mainly for rural residential purposes and / or agriculture. Management of land use change in the area is of great importance as the lack of bulk services in this area could result in excessive pollution. According to the Environmental Potential Atlas for Mpumalanga, land capability of the site is classified as: cultivated land, vacant/unspecified and build-up land.

2.2.3 Unemployment and employment

Dependency and unemployment rates are very high in the Victor Khanye Municipal area. The census done in 2001 found that approximately 41% of the population was economically active, with 23.5% of the economically active population being employed and 75% unemployed.

Poor skill aptitude can be explained from the fact that 33% of the employment population works in elementary occupations (plant and machine operators), and 13% are professionals, of which only 16.6% are managers, technicians and clerks.

The relatively low income levels are an indication of high poverty level and result in an increased dependency on social aid e.g. housing subsidies and child grants.

Recent analysis shows that the unemployment rate has increased, as a result of agriculture degrading noticeably. The rate of employment opportunities lost is however stabilising as mining, manufacturing and finance have been growing.

3. LEGISLATION AND GUIDELINES APPLICABLE

3.1 Laws of general application

- Constitution of the RSA, 1996 (Act No. 108 of 1996)
- National Environmental Management Act, 1998 (Act No. 107 of 1998)
- Environment Conservation Act, 1989 (Act No. 73 of 1989 as amended)
- Promotion of Access to Information Act, 2000 (Act No. 2 of 2000 as amended)

3.2 Atmospheric emissions

- National Environmental Management: Air Quality Act (Act No. 39 of 2004)
- Environment Conservation Act, 1989 (Act No. 73 of 1989) – Noise Control
- Regulations in terms of Section 25 of the Environment Conservation Act, 1989

3.3 Water Management

- National Water Act, 1998 (Act No. 36 of 1998)

3.4 Waste management

- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

3.5 Planning of new activities

- National Environmental Management Act, 1998 (Act No. 107 of 1998)

3.7 Land and Soil Management

- National Environmental Management Act, 1998 (Act No. 107 of 1998)
- Environmental Conservation Act, 1989 (Act No. 73 of 1989)

3.8 Heritage resources

- National Heritage Resources Act No 25 of 1999 (Act No. 25 of 1999, as amended)

During the course of the development, the developer and contractors must comply with all other relevant legislation (including the bylaws of the Local Municipality).

4. DESCRIPTION OF POTENTIAL ENVIRONMENTAL IMPACTS

A number of potential impacts were identified within the draft Scoping study. These impacts are listed below.

4.1. Construction Phase

- Construction of waste water treatment plant, in close proximity to natural pan/wetland (less than 50 meters).
- Harm to the environment due to workers or contractors being unaware of how their activities may impact the environment or due to unauthorised access to the site.
- Change to the hydrology, water quality, biota, in- stream and riparian habitat of the Daybreak pan.
- Destruction and/or disturbance of natural vegetation surrounding the site during site clearance.
- Destruction of natural habitat for indigenous fauna, as a result of the destruction of natural vegetation surrounding the site.
- Destruction of a natural carbon dioxide sinks, as a result of the destruction of natural vegetation surrounding the site.
- Generation of dust by earth moving vehicles and other construction activities, during clearance of site and construction of the wastewater treatment works.
- Areas cleared of vegetation increase the likelihood of ambient dust emissions.
- Risk of a fire outbreak from stockpiled vegetation during site clearance.
- Areas cleared of vegetation have an increased likelihood of experiencing soil erosion.
- Loss of fertility of valuable topsoil, as a result of improper topsoil stock piling.
- Increased likelihood of topsoil erosion as a result of improper stock piling.
- Soil, surface water and ground water pollution due to contaminated wash water runoff.
- Soil, surface water and ground water pollution due to incorrect handling, storage and disposal of hazardous chemical.
- Soil, surface water and ground water pollution due to incorrect handling, storage and disposal of hazardous waste.
- Soil, surface water and ground water pollution due to incorrect handling, storage and disposal of general waste.
- Soil, surface water and ground water pollution due to unsanitary conditions on site.
- Nuisance conditions such as flies or mosquitoes, vermin or odour.
- Wastage and depletion of valuable resources such as water and electricity as a result of poor management and redundant use.

- Wear of access roads, accidents on access roads, unpermitted transport of materials and loss of materials being transported on the access roads.
- Potential disturbance or nuisance to neighbors as a result of the increase in ambient noise from construction vehicles and machinery.

4.2 Operational Phase

- Proximity of the waste water treatment site, to natural pan/wetland (less than 50 meters)
- Irrigation using treated waste water, potentially impacting on a water course (pan)
- Flooding of the wastewater treatment works and abattoir, which can result in property damage and mixing of clean and dirty water. This will in effect result in a decrease in productivity in both the abattoir and wastewater treatment works.
- Incorrect storm water management can result in soil and surface water contamination
- Incorrect storm water- and erosion management can cause siltation of the Daybreak pan.
- Soil, surface water and ground water pollution due to incorrect handling, storage and disposal of hazardous chemical.
- Soil, surface water and ground water pollution due to incorrect handling, storage and disposal of hazardous waste.
- Soil, surface water and ground water pollution due to incorrect handling, storage and disposal of general waste.
- Soil, surface water and ground water pollution due to unsanitary conditions on site.
- Nuisance conditions such as flies or mosquitoes, vermin or odour.
- Air quality degradation as a result of generation of dust by vehicles and other operational activities.
- Wastage and depletion of natural resources such as water and electricity as a result of poor management and excessive use.
- Potential noise pollution, causing nuisance to neighbors and, potential disturbance of feeding or breeding animals.

4.3 Specialist Studies

The following key specialist studies have been identified as part of the EIA

- Geotechnical investigation
- Biotechnological design
- Hydrogeological assessment
- Aquatic ecological study
- Sustainable borehole yield analyses
- Groundwater quality analyses of boreholes

5. PUBLIC PARTICIPATION PROCESS

5.1 Introduction

A Public Participation Process (PPP) is a requirement in terms of the 2010 EIA Regulations of the National Environmental Management Act,1998 (Act No. 107 of 1998) and it forms an integral part of any EIA process.

This section provides information pertaining to the PPP that was conducted by Shangoni Management Services during this particular assessment.

The purpose of this process is to gather information from the community and relevant Stakeholders that could ultimately affect the decision-making process concerning the Planning, Construction and Operational Phases of the proposed AFGRI Poultry Daybreak (Sundra) wastewater treatment works project. The community and public have been identified as I&APs and have been given the opportunity to participate in this process. Their comments, whether positive or negative, will influence the decision of the Authorities and the developer's final actions.

5.2 Objectives of the PPP

The PPP has the following objectives:

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

To summarise, the objective of the on-going PPP is to promote openness and transparency concerning the proposed wastewater treatment works for the duration of the project. The process should by no means be regarded as a vehicle to temper opposition or objections. Any conclusions agreed upon must be socially, financially and technically acceptable and feasible in order to meet the requirements of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), and the vision of AFGRI Poultry.

5.3 The Guidelines Followed for the PPP

The PPP for this project was conducted by Shangoni Management Services and undertaken strictly according to the guidelines in terms of the National Environmental Management Act (NEMA), No. 107 of 1998, Chapter 6:

5.4 Public Participation Process

54. (1) This regulation only applies in instances where adherence to the provisions of this regulation is specifically required.

(2) The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by-

(a) fixing a notice board at a place conspicuous to the public at the boundary or on the fence of -
  (i) the site where the activity to which the application relates is or is to be undertaken; and
  (ii) any alternative site mentioned in the application;

(b) giving written notice to -
  (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  (v) the municipality which has jurisdiction in the area;
  (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  (vii) any other party as required by the competent authority;

(c) placing an advertisement in –
  (i) one local newspaper; or
  (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;

(d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in sub regulation (c)(ii); and

(e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to
(i) illiteracy;
(ii) disability;
(iii) or any other disadvantage.

(3) A notice, notice board or advertisement referred to in sub regulation (2) must

(a) give details of the application which is subjected to public participation; and

(b) state-

(i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;

(ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;

(iii) the nature and location of the activity to which the application relates;

(iv) where further information on the application or activity can be obtained; and

(vi) the manner in which and the person to whom representations in respect of the application may be made.

(4) A notice board referred to in sub regulation (2) must-

(a) be of a size at least 60cm by 42cm; and

(b) display the required information in lettering and in a format as may be determined by the competent authority.

(5) Where deviation from sub regulation (2) may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub regulation to the extent and in the manner as may be agreed to by the competent authority.

(6) Where a basic assessment report, scoping report or environmental impact assessment report as contemplated in regulations 22, 28 and 31 respectively is amended because it has been rejected or because of a request for additional information by the competent authority, and such amended report contains new information, the amended basic assessment report, scoping report or environmental impact assessment report must be subjected to the processes contemplated in regulations 21, 27 and 31, as the case may be, on the understanding that the application form need not be resubmitted.

(7) When complying with this regulation, the person conducting, the public participation process must ensure that-

(a) information containing all relevant facts in respect of the application is made available to potential interested and affected parties; and

(b) participation by potential interested and affected parties is facilitated in such a manner that all potential interested and affected parties are provided with a reasonable opportunity to comment on the application.

(8)Unless justified by exceptional circumstances, as agreed to by the competent authority, the applicant and EAP managing the environmental assessment process must refrain from conducting any public participation process during the period of 15 December to 2 January.

Register of interested and affected parties

55.(1) An EAP managing an application must open and maintain a register which contains the names, contact details and addresses of -

(a) all persons who, as a consequence of the public participation process conducted in respect of that application in terms of regulation 54, have submitted written comments or attended meetings with the applicant or EAP;

(b) all persons who, after completion of the public participation process referred to in paragraph (a), have requested the applicant or the EAP managing the application, in writing, for their names to be placed on the register; and

(c) all organs of state which have jurisdiction in respect of the *activity* to which the application relates.

(2) An EAP managing an application must give access to the register to any person who submits a request for access to the register in writing.

Registered interested and affected parties entitled to comment on submissions

56.(1) A registered interested and affected party is entitled to comment, in writing, on all written submissions, including draft reports made to the competent authority by the applicant or the EAP managing an application, and to bring to the attention of the competent authority any issues which that party believes may be of significance to the consideration of the application, provided that-

(a) comments are submitted within-

(i) the timeframes that have been approved or set by the competent authority; or

(ii) any extension of a timeframe agreed to by the applicant or EAP;

(b) a copy of comments submitted directly to the competent authority is served on the EAP; and

(c) the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.

(2) Before the EAP managing an application for environmental authorisation submits a final report compiled in terms of these Regulations to the competent authority, the EAP must give registered interested and affected parties access to, and an opportunity to comment on the report in writing.

(3) The report referred to in sub regulation (2) include-

(a) basic assessment reports;

(b basic assessment reports amended and resubmitted in terms of regulation 24 (4);

(c) scoping reports;

(d) scoping reports amended and resubmitted in terms of regulation 30(3);

(e) specialist reports and reports on specialised processes compiled in terms of regulation 32;

(f) environmental impact assessment reports submitted in terms of regulation 31;

(g) environmental impact assessment reports amended and resubmitted in terms of regulation 34(4); and

(h) draft environmental management programmes compiled in terms of regulation 33.

(4) The draft versions of reports referred to in sub regulation (3) must be submitted to the competent authority prior to awarding registered interested and affected parties an opportunity to comment.

(5) Registered interested and affected parties must submit comments on draft reports contemplated in sub regulation (4) to the EAP, who should record it in accordance with regulations 21, 28 or 31.

(6) Registered interested and affected parties must submit comments on final reports contemplated in sub regulation (3) to the competent authority and provide a copy of such comments to the applicant or EAP.

(7) The competent authority must, in order to give effect to section 24O of the Act, on receipt of the draft reports contemplated in sub regulation (5), request any State department that administers a law relating to a matter affecting the environment to comment within 40 days.

(8) The timeframe of 40 days as contemplated in sub regulation (7) must be read as 60 days in the case of waste management activities as contemplated in the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), on which the Department of Water Affairs must concur and issue a record of decision in terms of section 49(2) of the National Environmental Management: Waste Management Act, 2008 (Act No. 59 of 2008).

(9)(a)When a State department is requested by the competent authority to comment, such State department must, within 40 days or in the case of Department of Water Affairs, 60 days for waste management activities, of being requested to comment by the competent authority, provide comments to the competent authority.

(b)If a State department fails to submit comments within 40, or 60 days for waste management activities, from the date on which the Minister, MEC, Minister of Mineral Resources or identified competent authority requests such State department in writing to submit comment, it will be regarded that there are no comments.

Comments of interested and affected parties to be recorded in reports submitted to competent authority

57. (1) The EAP managing an application for environmental authorisation must ensure that the comments of interested and affected parties are recorded in reports and that such written comments, including records of meetings, are attached to the report, submitted to the competent authority in terms of these Regulations.

(2) Where a person is desiring but unable to access written comments as contemplated in sub regulation (1) due to-

(i) a lack of skills to read or write;

(ii) disability; or

(iii) any other disadvantage,

reasonable alternative methods of recording comments must be provided for.

5.5 Public Participation Process Followed

The following PPP was conducted for the proposed AFGRI Poultry Daybreak (Sundra) wastewater treatment works project:

- Identification of key Interested and Affected Parties (all adjacent landowners);
- Identification of key Stakeholders;
- Informing the key Stakeholders of the process by means of correspondence;
- Placement of a press notice in the Beeld and Streek nuus newspaper, informing the public of the process;
- Placement of site notices at the site; and
- Correspondence with I&APs and Stakeholders and the addressing of their comments.

5.5.1 Identification & Registration of I&APs on a Database

Through networking and advertising, I&APs were registered on a database. Shangoni ensured that individuals or organisations from an institutional as well as a geographical point of view were identified.

Geographically, Shangoni focused on nearby or adjacent landowners, communities and structures that represent them. Institutionally, the focus was on those organisations or individuals that may influence policies and decisions or make a contribution to the project. Not all of these organisations were necessarily in the direct project sphere of impact.

5.5.2 Notification of key stakeholders and IAPs

Stakeholders are all the relevant Authorities and land owners which may possibly be affected by the proposed wastewater treatment works project. The following stakeholders were identified (Table16):

Table 16: Stakeholders identified during the PPP

Name	Organisation/Farm	Postal Address	Contact details
Ms. Nelisiwe Sithole	Department of Agriculture, Rural Development and Land Administration	Private Bag X11219 Nelspruit 1200	Tel: 013 766 6067/6068 Email: sitholenl@mpg.gov.za
Mr. David Mahlobo	Department of Co-operative Governance and Traditional Affairs	Private Bag X11304 Nelspruit 1200	Tel: 013 766 6087/6675 Cell: 082 338 9881 Fax: 013 766 8441/2 Email: ILSetlogelo@mpg.gov.za
Mr. Isaiah Khoza	Department of Safety, Security and Liaison	Private Bag X11269 Nelspruit 1200	Tel: 013 766 4062 Fax: 013 766 4615 Email: ANMahlalela@mpg.gov.za
Ms. Sibongile Nkosi	Department of Culture, Sport and Recreation	PO Box 1243 Nelspruit 1200	Tel: 013 766 5242 Fax: 013 766 5591/8253
Ms. Mahlasedi Mhlabane	Department of Education	Private Bag X11341 Nelspruit 1200	Tel:0800 203 116 Email: L.brits@education.mpu.gov.za
Mr. J. Mbatha	Department of Finance	Private Bag X11205 Nelspruit 1200	Tel: 013 766 4229 Cell: 082 331 4533 Fax: 013 766 9424 Email: jbmbatha@mpg.gov.za
Dr. Johnson Jerry Mahlangu	Department of Health and Social	Private Bag X11285	Tel: 013 766 3429/30/28 Fax: 013 766 3458

	Development	Nelspruit 1200	Email: pauleckm@social.mpu.gov.za
Mr. David Dube	Department of Human Settlements	Private Bag X11328 Nelspruit 1200	Tel: 013 766 6233 Fax: 013 766 8430 Email: apohl@mpg.gov.za
Mr. Kgopana Mathew Mohlasedi	Department of Public Works, Roads and Transport	Private Bag X11310 Nelspruit 1200	Tel: 013 766 6978/9 Fax: 013 766 8471/67
Mr M Mahunonyane	Department of Water Affairs, Mpumalanga Regional Office	Private Bag X11259 Nelspruit 1200	Tel: (013) 759 7310 Fax: (013) 759 7525 Email:MahunonyaneM@dwa.gov.za
Madi Moloto	Department of Water Affairs	Private Bag X10580 Bronkhorstspruit 1020	Tel: (013) 932 2061 Fax: (086) 6160 005 Cell: (082) 8874 332 mailto:MolotoM@dwa.gov.za
Mgolozeli Sinazo	Department of Water Affairs	Private Bag X10580 Bronkhorstspruit 1020	Tel: (013) 932 2061
Yolanda Segami	Vicktor Khanye Local Municipality	PO Box 6 Delmas Mpumalanga 2210	Tel: 013 665 6000 Email: envirohealth@delmasmunic.co.za
Mr. Sam Lekhuleni	Vicktor Khanye Local Municipality	PO Box 6 Delmas Mpumalanga 2210	Tel:013 665 6065 Cell: 072 834 3069 Fax: 013 665 6041 Email: envirohealth@delmasmunic.co.za
Mr. Phillip Hine	South African Heritage Resources Agency (SAHRA)	PO Box 4637 Cape Town 8000	Tel:021 462 4502 Fax: 021 462 4509 Email: phine@sahra.org.za
Mr. Tendo Ramagoma	National Heritage Council (NHC)	PO Box 74097 Lynnwood Ridge 0040	
Cllr. Diane Bath	Vicktor Khanye Local Municipality-Ward 8	PO Box 6 Delmas Mpumalanga 2210	
Mr T.C. Makola	Nkangala District Municipality	PO Box 437 Middelburg 1050	Tel: 013 249 2000
Ronél Risseeuw		PO Box 1089 Delmas 2210	Cell: 073 863 6418 Email: farming @hotmail.co.za

Mr. J. P. du Plessis		PO Box 562 Sundra 2200	Tel: 013 661 5051 Email: ersoftdrinks@absamail.co.za
K. Noeth		PO Box 759 Sundra 2200	Cell: 082 563 4818
Tony Rovani		PO Box 522 Sundra 2200	Tel: 013 661 2294, Cell: 082 893 5296 Email:Rovanit@vodamail.co.za
Mev. Johanna van Zyl		PO Box 74 Sundra 2200	Tel: 013 661 5047
Johan Ferreira		PO Box 654 Sundra 2200	Cell: 082 076 8713 Email: johferreira@deloitte.co.za
Marius Snyman		PO Box 211 Sundra 2200	Cell: 079 514 7383 Email: mc.snyman@vodamail.co.za
Elizabeth Smith		PO Box 557 Sundra, 2200	Cell: 079 976 5942
B. Reinders		PO Box 232 Bedfortview 2008	Tel: 013 661 9000 Email: britzr@enviroserv.co.za
Elsabe and Jan Swanepoel			Cell: 082 880 6999
Susan Muller		PO Box 731 Sundra 2200	Cell: 082 775 8692 Email: susanmullersa@yahoo.co.uk
Daan and Andri Duvenaghe		PO Box 194 Sundra 2200	Cell: 083 573 5046 Email: danresa@mweb.co.za
SM van Dyk		PO Box 64 Sundra 2200	Cell: 083 326 5432 Email: smboer@mweb.co.za
W D Emmett		PO Box 302 Sundra 2200	Cell: 083 298 7470

Shangoni sent registered letters to the Department and Organs of State containing a background information document (BID), map showing the location of the site, and a stakeholder registration form. The same letters were delivered, either by hand or registered mail, to all adjacent land owners. Figure 69 provides an example of the letters sent out to Departments, Organs of State and potential I&APs. Figure 70 to 73 provide proof that notification letters were sent to Departments, Organs of state and potential I&APs.

Table 17 provides a list of the I&APs who registered and were added to the database of I&APs during the PPP.

Table 17: Registered I&APs

Name	Farm/Association	Postal Address	Contact details
Jan Swanepoel	Adjacent land owner	PO Box 369 Sundra 2200	Tel: 013 661 1497 Cell: 083 675 1919 jans@nri.co.za
Tony Rovani	Adjacent land owner	PO Box 522 Sundra 2200	Tel: 013 661 2294 Cell: 082 893 5296 Email: rovanit@vodamail.co.za
Ms. Mahlasedi Mhlabane	Department of Education	Private Bag X11341 Nelspruit 1200	Tel:0800 203 116 Email: L.brits@education.mpu.gov.za
Mr. J. P. du Plessis		PO Box 562 Sundra 2200	Tel: 013 661 5051 Email: ersoftdrinks@absamail.co.za

SHANGONI
Management Services (Pty) Ltd

Shangoni Management Services Pty (Ltd)
Reg: 2002/000002/07 VAT: 469 019 1069

Tel +27(0)12 807 7036 Fax +27(0)12 807 1014
E-mail info@shangoni.co.za www.shangoni.co.za
Block C8, Block@Nature 472 Botterklapper Street The Willows 0081
PO Box 74726 Lynnwood Ridge 0040

19 March 2012

Attention: Mr. Jan Swanepoel

APPLICATION FOR ENVIRONMENTAL AUTHORISATION, WASTE MANAGEMENT LICENSE AND WATER USE LICENSE: AFGRI POULTRY DAYBREAK (SUNDRA) ABATTOIR WASTEWATER TREATMENT WORKS

EIA Ref: 12/9/11/L832/6; SMS Ref: AFG/sun/17-11-11

Shangoni Management Services (Pty) Ltd. has submitted an application for environmental authorization and a Waste Management License with the National Department of Environmental Affairs on behalf of AFGRI Poultry (Pty) Ltd. A Water Use License Application will also been lodged with the Department of Water Affairs. These applications have been submitted for the proposed AFGRI Poultry Daybreak (Sundra) Abattoir Wastewater Treatment Works on the remaining extent of portion 8 of the farm Modderfontein 236 IR.

The proposed abattoir wastewater treatment works will require environmental authorization subject to a Scoping and Environmental Impact Assessment Process as required by Sections 26 to 35 of Government Notice R. 543 of the EIA Regulations of 18 June 2010.

Shangoni Management Services (Pty) Ltd. was appointed as the Independent Environmental Assessment Practitioner (EAP) responsible for the Scoping and Environmental Impact Assessment Procedure.

Attached please find a background information document, locality map of the site, and a stakeholder registration form in respect of the application. Your written comments on this construction project will be appreciated. In order to process your inputs, all written comments must reach our offices by **9 May 2012** In the event of you not wishing to comment on this application it will be appreciated if we could receive a written confirmation thereof to enable us to continue with the application.

Please do not hesitate to contact the undersigned should you require any additional information.

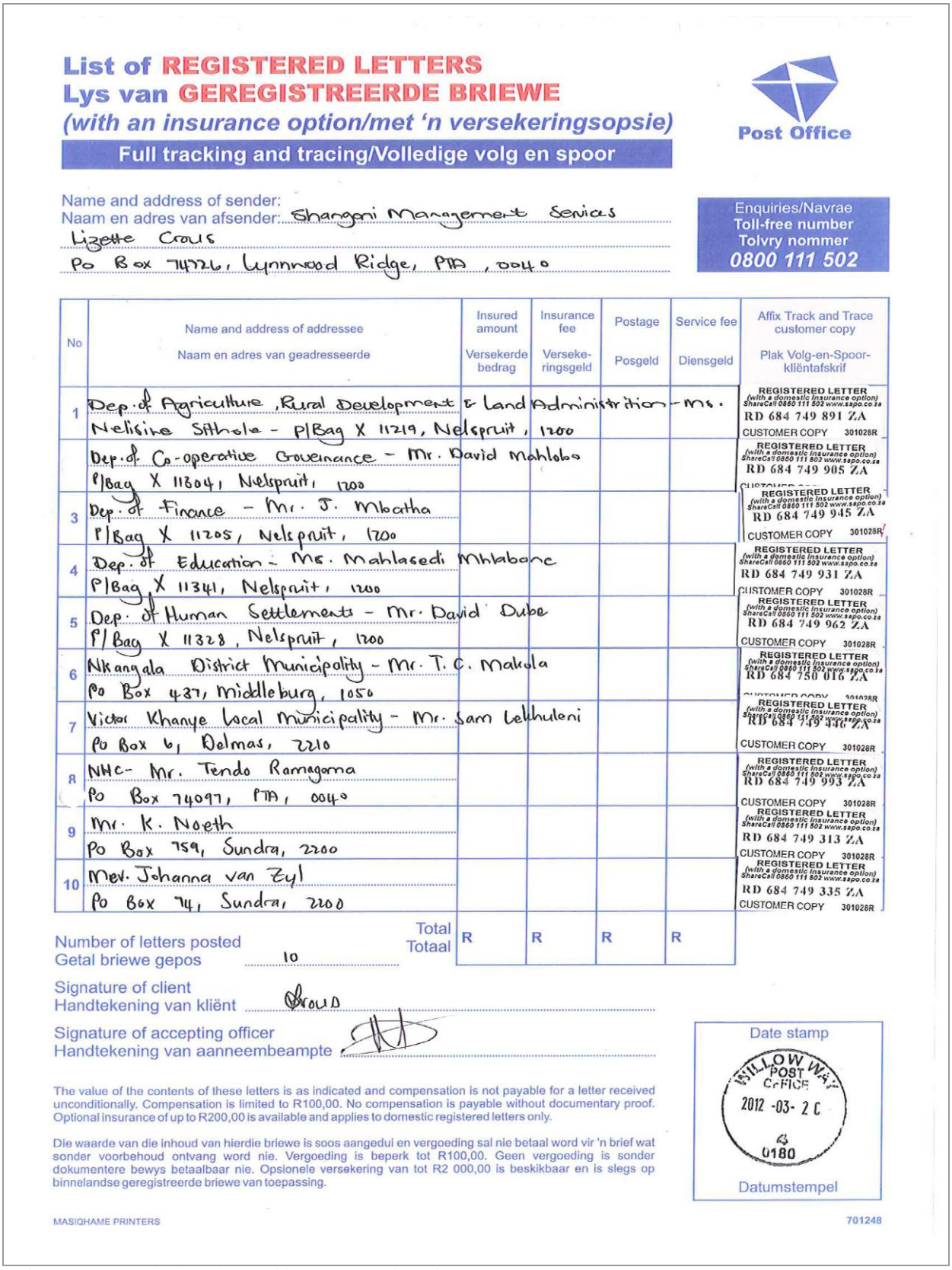
Contact Details: Shangoni Management Services
Miss Lizette Crous

E-mail: lizette@shangoni.co.za
Cell: 071 673 3355
Fax 2 E-mail: 086 643 5360
Fax: 012 807 1014
Online Participation: Go to www.shangoni.co.za and click on Public Participation.

Yours Faithfully,

Crous
Miss Lizette Crous
Environmental Assessment Practitioner

Figure 69: Example of letter to adjacent land owner



List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)
Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: Shangoni Management Services
Lizette Crous
Po Box 74726, Lynnwood Ridge, PTA, 0040

Enquiries/Navrae
Toll-free number
Tolvry nommer
0800 111 502

No	Name and address of addressee / Naam en adres van geadresseerde	Insured amount / Versekerde bedrag	Insurance fee / Verseke-ringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-kliëntafskrif
1	Dep. of Agriculture, Rural Development & Land Administration - Ms. Nelisiwe Sithole - P/Bag X 11219, Nelspruit, 1200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 891 ZA CUSTOMER COPY 301028R
	Dep. of Co-operative Governance - Mr. David Mahlobo P/Bag X 11304, Nelspruit, 1200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 905 ZA
3	Dep. of Finance - Mr. J. Mbatha P/Bag X 11205, Nelspruit, 1200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 945 ZA CUSTOMER COPY 301028R
4	Dep. of Education - Ms. Mahlasedi Mhlabane P/Bag X 11341, Nelspruit, 1200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 931 ZA CUSTOMER COPY 301028R
5	Dep. of Human Settlements - Mr. David Dube P/Bag X 11328, Nelspruit, 1200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 962 ZA CUSTOMER COPY 301028R
6	Nkangala District Municipality - Mr. T. C. Makola Po Box 437, Middleburg, 1050					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 016 ZA
7	Victor Khanye Local Municipality - Mr. Sam Lekhuleni Po Box 6, Delmas, 2210					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 446 ZA CUSTOMER COPY 301028R
8	NHC - Mr. Tendo Ramagoma Po Box 74097, PTA, 0040					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 993 ZA CUSTOMER COPY 301028R
9	Mr. K. Noeth Po Box 759, Sundra, 2200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 313 ZA CUSTOMER COPY 301028R
10	Mev. Johanna van Zyl Po Box 74, Sundra, 2200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 335 ZA CUSTOMER COPY 301028R
	Total / Totaal	R	R	R	R	

Number of letters posted / Getal briewe gepos: 10

Signature of client / Handtekening van kliënt: Lizette Crous

Signature of accepting officer / Handtekening van aanneembeampte:

Date stamp
WILLOW WAY POST OFFICE
2012 -03- 2 C
0180
Datumstempel

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R200,00 is available and applies to domestic registered letters only.

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MASIQHAME PRINTERS 701248

Figure 70: Proof of registered letters sent (pg 1)

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: Shangoni Management Services
Lizette Crous
P.O. Box 74726 Lynnwood Ridge PTA, 0040

Enquiries/Navrae
Toll-free number
Tolvry nommer
0800 111 502

No	Name and address of addressee / Naam en adres van geadresseerde	Insured amount / Versekerde bedrag	Insurance fee / Verseke-ringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-kliëntafskrif
1	Department of Culture, Sport & Recreation Ms. Sindi Mjwara (P.O. Box 1243 Nelspruit 1200)					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 914 ZA
2	Dept. of Health & Social Development Dr. Johnson Jerry Mahlangu (Private Bag X11285 Nelspruit 1200)					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 959 ZA CUSTOMER COPY 301028R
3	Victor Khanye Local Municipality P.O Box Delmas 2210 Ms Yolanda Segami					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 327 ZA CUSTOMER COPY 301028R
4	Victor Khanye Local Municipality P.O. Box 6 Delmas 2210 Ms Cllr. Diane Bath					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 295 ZA CUSTOMER COPY 301028R
5	South African Heritage Resources Agency P.O. Box 4637 Cape Town 8000 Mr. Phillip Hine					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 020 ZA CUSTOMER COPY 301028R
6	Department of Water Affairs, Mpumalanga Private Bag X11259 Nelspruit 1200 Mr. F. Mntambo					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 002 ZA CUSTOMER COPY 301028R
7	Department of Safety, Security & Liaison Private Bag X11269 Nelspruit 1200 Mr. Isaiah Khoza					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 980 ZA CUSTOMER COPY 301028R
8	Department of Public Works, Roads & transport Private Bag X11310 Nelspruit 1200 Mr. Kgopana Mathew Mohlasedi					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 976 ZA CUSTOMER COPY 301028R
9	P.O. Box 1089 Delmas 2210 Attention: Ms Ronél Rissecuw					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 055 ZA CUSTOMER COPY 301028R
10	P.O. Box S 22 Sundra 2200 Mr. Tony Rovani					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 081 ZA CUSTOMER COPY 301028R
	Total / Totaal	R	R	R	R	

Number of letters posted / Getal briewe gepos: 10

Signature of client / Handtekening van kliënt: Rudwaldt Brand

Signature of accepting officer / Handtekening van aanneembeampte:

Date stamp
WILLOW WAY POST OFFICE 2012 -03- 20 0180
Datumstempel

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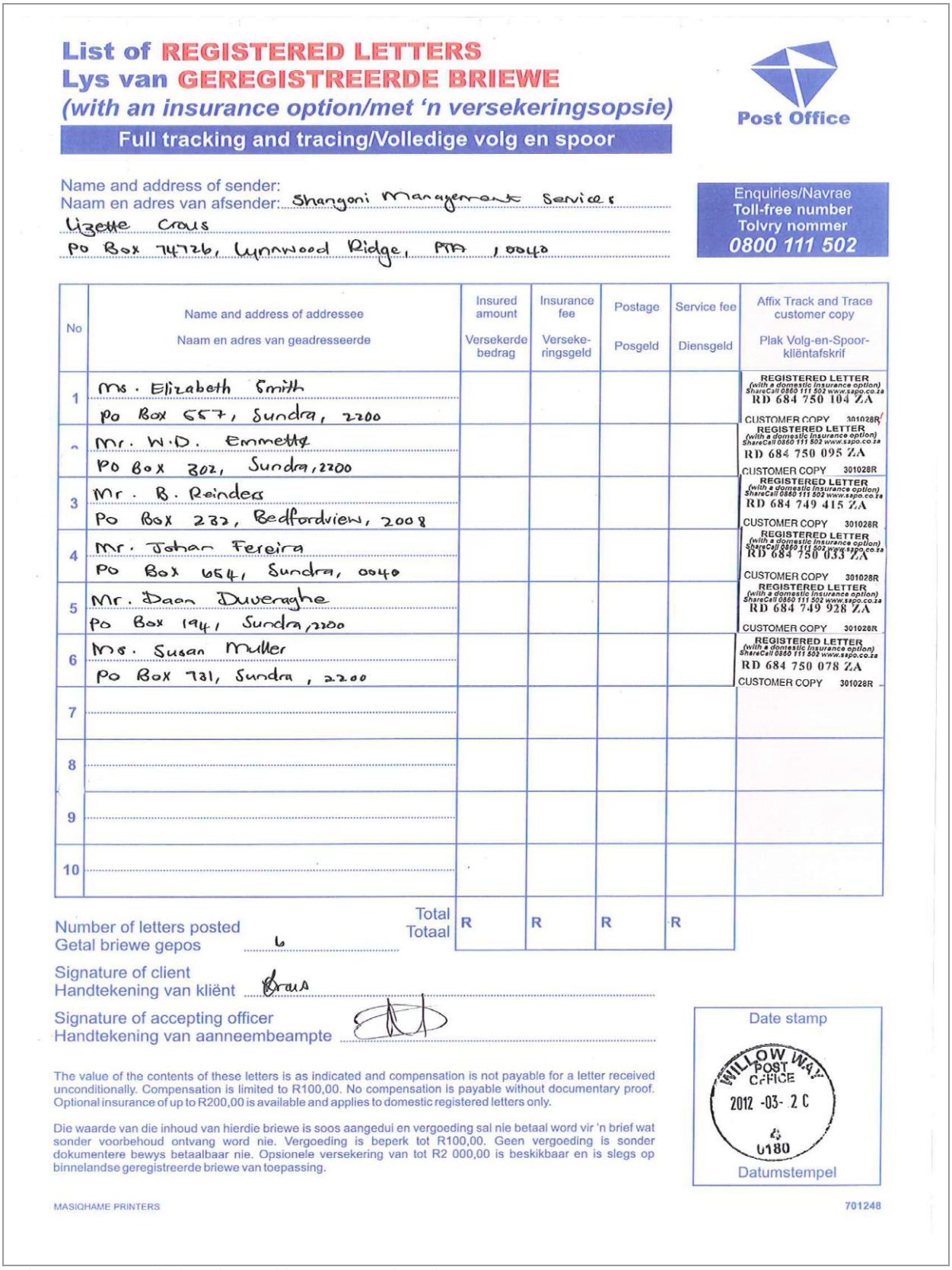
Figure 71: Proof of registered letters sent (pg 2)



List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: Shangoni Management Services
Lizette Crous
PO Box 74726, Lynnwood Ridge, PTA, 0040

Enquiries/Navrae
Toll-free number
Tolvry nommer
0800 111 502

No	Name and address of addressee / Naam en adres van geadresseerde	Insured amount / Versekerde bedrag	Insurance fee / Versekeringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-kliëntafskrif
1	Ms. Elizabeth Smith Po Box 557, Sundra, 2200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 104 ZA CUSTOMER COPY 301028R
2	Mr. W.D. Emmett PO Box 302, Sundra, 2200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 095 ZA CUSTOMER COPY 301028R
3	Mr. B. Reinders Po Box 282, Bedfordview, 2008					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 415 ZA CUSTOMER COPY 301028R
4	Mr. Johan Fereira Po Box 654, Sundra, 0040					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 033 ZA CUSTOMER COPY 301028R
5	Mr. Daan Duveraghe Po Box 194, Sundra, 2200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 928 ZA CUSTOMER COPY 301028R
6	Ms. Susan Muller Po Box 731, Sundra, 2200					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 078 ZA CUSTOMER COPY 301028R
7						
8						
9						
10						
	Total / Totaal	R	R	R	R	

Number of letters posted
Getal briewe gepos 6

Signature of client
Handtekening van kliënt Crous

Signature of accepting officer
Handtekening van aanneembeampte

Date stamp
WILLOW WAY POST OFFICE
2012 -03- 2 C
0180
Datumstempel

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Figure 72: Proof of registered letters sent (pg 3)

List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)
Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: Shangoni Management Services
Lizette Crous
P.O. Box 74726 Lynnwood Ridge PTA, 0040

Enquiries/Navrae
Toll-free number
Tolvry nommer
0800 111 502

No	Name and address of addressee / Naam en adres van geadresseerde	Insured amount / Versekerde bedrag	Insurance fee / Versekeringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-kliëntafskrif
1	P.O. Box 562, Sundra 2200 Mr. J.P. du Plessis					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 047 ZA CUSTOMER COPY 301028R
	P.O. Box 211 Sundra 2200 Mr. Mariwo Snyman					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 749 344 ZA CUSTOMER COPY 301028R
3	P.O. Box 64 Sundra 2200 Mr. S.M. van Dyk					REGISTERED LETTER (with a domestic insurance option) ShareCall 0860 111 502 www.sapo.co.za RD 684 750 064 ZA CUSTOMER COPY 301028R
4						
5						
6						
7						
8						
9						
10						
	Total / Totaal	R	R	R	R	

Number of letters posted
Getal briewe gepos 3

Signature of client
Handtekening van kliënt Crous

Signature of accepting officer
Handtekening van aanneembeampte

Date stamp
WILLOW WAY POST OFFICE 2012 -03- 26 0180
Datumstempel

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R200,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentere bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

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Figure 73: Proof of registered letters sent (pg 4)

5.5.3 Comments and Response Report

Comments and concerns received from I&APs were incorporated into a Comments and Responses Report, which is given below as Table 18 and Appendix E.

Table 18: Comments and response report

Raised by	Date received	Issue / Comment / Concern	Response
Mr. Jan Swanepoel	23-03-2012	I am staying on the corner of Eight street and Modderfontein road for the last 26 years and I am driving past Daybreak at least twice a day. Since the upgrade to the facility we have seen quite a deterioration of the environment. **Groundwater** Huge quantities of groundwater are pumped from bore holes on the premises of Daybreak and it is affecting other boreholes in the area. My bore hole was badly affected and I have now substantial less water than a few years ago. The proposed huge increase in activities will definitely result in a substantial increase in usage of underground water which will have a devastating effect on the underground water availability for all the property owners in the surrounding area. Even at the present levels of extraction of underground water, there are already signs that the water supply is deteriorating. If substantial	At present, 700 000 chickens are slaughtered at the AFGRI Daybreak abattoir per week. This requires approximately 8 400m³ of water. Should the proposed expansion of the abattoir be authorised, 1 500 000 chickens will be slaughtered per week. This would mean that approximately 18 000m^3 of water would be required per week. The abattoir is however also proposing the construction of an abattoir wastewater treatment works which will treat all of the wastewater generated at the abattoir to a quality that will comply with the Department of Water Affairs' standards for discharging water into a natural water resource. Once the wastewater is treated, between 40 and 60% of the water can be re-used at the abattoir. This means that the abattoir will abstract less water per week. If the AFGRI Poultry Daybreak abattoir is to be expanded, the total volume of groundwater abstracted will increase, however the volume of water used per chicken will be less due to better economies of scale. Water that cannot be re-used at the abattoir due to salinity levels will be available for irrigation of crops or will be

		more water is used, the effect could be devastating.	discharged into the Daybreak pan. The water quality of the Daybreak pan will be significantly improved by the treated water discharged into it, allowing the pan to rehabilitate itself over time. This will not only improve the water quality of the surrounding pans together but also the environment in the region of the Northern border of the pan. The re-use and irrigation of treated water will reduce the burden on the immediate groundwater system. The treated water will be made available to neighbouring farmers who would then not need to abstract as much groundwater to irrigate their crops. There is regional concern over sinkhole formation from over-abstraction in the area. The total reduction in groundwater usage which should result would have a positive impact as it will allow groundwater to recover, reducing the risk of sinkhole formation. The DWAF classifies the Vryheid Formation as a type d2 aquifer which typically yields between 0.1 and 0.5 L/s and is inter-granular and fractured. The Malmani Subgroup is classified as type c5 aquifer which is karst and typically yields in excess of 5 L/s. Groundwater, from the three boreholes, is abstracted from the deeper dolomite karst aquifer (van Bart A., 2010). Presently, 700 000 chickens are slaughtered at the AFGRI Daybreak abattoir per week. The abattoir uses approximately 12l per Chicken, thus using approximately 1.2 Ml of water per day, which equates to 13.9 l/s. Each borehole thus abstracts groundwater at a rate of 4.6 l/s.

			Based on the aquifer classification map of DWAF, boreholes in this aquifer yield in excess of 5 l/s thus suggesting that abstraction is currently in line with predetermined sustainable yields (van Bart A., 2010). 700 000 chickens/week x 12 l/chicken = 8 400 000 l/week = 8 400 000 l/week ÷ 7days/week = 1.2Ml/day ÷ 86 400 s/day =13.9 l/s 13.9 l/s ÷ 3 boreholes = 4.6 l/s/borehole If the AFGRI Poultry Daybreak abattoir were to be expanded, the total volume of groundwater abstracted will increase, however the volume of water used per chicken will be less (11l/Chicken) due to better economies of scale. Should the proposed expansion of the abattoir be authorised, 1 500 000 chickens will be slaughtered per week. This would mean that approximately 16 500m^3 of water would be required per week (± 2.4 Ml/day = ± 27.3 l/s). 1 500 000 chickens/week x 11l/chicken = 16 500 000 l/week = 16 500 000 l/week ÷ 7days/week = 2.4Ml/day ÷ 86 400 s/day

			= 27.3 l/s 27.3 l/s ÷ 3 boreholes = 9.1 l/s/borehole The construction of the abattoir wastewater treatment works which will treat all of the wastewater generated at the abattoir to a quality that will comply with the Department of Water Affairs' standards for discharging water into a natural water resource. Once the wastewater is treated, between 40 and 60% of the water can be re-used at the abattoir. Each borehole will thus abstract groundwater at a rate of 3.3 l/s to 5.2 l/s. Since the aquifer yield is in excess of 5 l/s, the abstraction is currently in line with predetermined sustainable yields. 16 500 000 l/week = 16 500 m³/week = 2 357 m³/day required in the abattoir. The waste treatment plant will treat up to 2 500 m³/day, of which 40 – 60 % will be re-used. 2 500 m³ x 40% = 1 000 m³ 2 500 m³ x 60% = 1 500 m³ Therefore 1 000 m³ to 1 500 m³ of treated wastewater will be re-used per day, which means only 857 to 1 357 m³/day will be abstracted from the three boreholes. 857 to 1 357 m³/day = 857 000 l/day to 1 357 000 l/day = 9.9 l/s to 15.7 l/s 9.9 l/s to 15.7 l/s ÷ 3 boreholes = 3.3 l/s to 5.2 l/s
		Daybreak Pan The Daybreak Pan is already an environmental disaster. The quality of water is visibly deteriorating. Green algae are now	The AFGRI Poultry Daybreak abattoir will reach its production limit if the proposed expansion was to occur. In order to operate sustainably, the abattoir cannot afford to put more pressure on its surrounding environment. Therefore, a

		always visible and the water really smells foul. Bird life around the Daybreak pan is already severely affected. In the past, large numbers of flamingos was a common sight, but lately it is a rare occurrence to see a single flamingo. The water level of the pan is constantly increasing and it is already very close to the adjacent main road. Any increase in flow to the pan could present a major disaster. The current level of water pollution is totally unacceptable and it poses a major health risk to people living in the vicinity. The activities of AFGRI/Daybreak should actually be scaled down instead of a dramatic increase. Every additional litre of water that will be used will eventually end up in the pan that is already under immense pressure.	second abattoir was purchased in the area where scope exists for future expansions and developments. Currently, groundwater is abstracted for use in the slaughtering process and the contaminated water is then discharged into the Daybreak pan. In future, wastewater from the abattoir will be treated by the proposed AFGRI Poultry Daybreak wastewater treatment works. 40-60% of the treated water will be re-used in the abattoir. The remaining water will then either be used for irrigational purposes or it will be discharged into the Daybreak pan. The volume of water discharged into the Daybreak pan should be less due to the re-use of water in the abattoir and the irrigation of crop fields using the treated water. The water quality of the Daybreak pan should be significantly improved through the clean water (the treated wastewater) that will be discharged into it. This will allow the pan to rehabilitate itself over time.
		Air pollution Air pollution is quite a regular occurrence at the plant. The processes employed are using hazardous chemical and frequent spillage of these chemicals, do occur. Large quantities of ammoniac gasses were released in the atmosphere in the past which can have devastating effects on humans in the surrounding areas. The air is also frequently polluted with odours that can be detected far from the site.	The AFGRI Poultry Daybreak abattoir has strict Health and Safety management systems and waste management procedures. These procedures ensure the proper handling, storage and disposal of Hazardous Chemicals and Waste. The management systems should ensure that ammonium gases are not released into the atmosphere. The proposed wastewater treatment works will decrease the accumulation of wastewater and as a result should decrease the odours released from the wastewater.

		Noise Pollution The facility is also responsible for severe noise pollution. Their operation is quite noisy and when the electricity supply is down, huge diesel generators are used that can be heard kilometres away. Power failures are a common occurrence on Sundra and therefore noise pollution is already a problem. Any increase in activity will lead to an increase in noise pollution.	In the event of a power failure, the same working hours will apply for power generators as for electricity. Mitigation measures for the noise generated by generators will be investigated. Alternative technologies, running times and the possibility of enclosing noise producing machines within buildings will be investigated. The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). The following are actions that will aid in mitigating the noise produced during the construction and operational phases of this project: (Please refer to the Environmental Management Plan in the draft Basic Assessment Report for the AFGRI Poultry Daybreak abattoir expansion (REF: 17/2/3 N-113) and the quantitative risk assessment in the AFGRI Poultry Daybreak IWULA (REF: 12/9/11/L832/6), both of which will be distributed in due course.) **Construction Phase** • All plant and machinery are to be fitted with adequate silencers and regular maintenance of vehicles and equipment. • Working hours should be restricted to daylight hours. • Working procedures should be structured so as to avoid the unnecessary generation of noise.

			• No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. • If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the abattoir manager. • No noisy work is to be conducted over the weekends or on religious public holidays. **Operational Phase** • Ensure that machinery on site is in proper working condition, fitted with the necessary silencing equipment. • Make sure that the workers on site stick to the prescribed working hours. • Maintain a dB reading of less than 50dB at the site boundary. • Keep equipment in good repair and attend to loose or rattling covers, worn bearings and broken equipment.
		General The track record of this facility to manage the water quality of the pan and the environment is very poor and any expansion of the facility should not be allowed and the current activities should actually be scaled down.	AFGRI Poultry Daybreak is obligated to undertake a habitat assessment study once a year for three years to ensure that the rehabilitation of the Daybreak pan is stable, failing which, corrective action must be taken to rectify any impacts. (Refer to the GN 1199 General Authorisations, dated 18 December 2009, in terms of Section 39 of the NWA, 1998 (Act 36 of 1998): **(9) Monitoring and reporting**)
Mr. Tony Rovani	11/04/2012	We would like to hereby lodge a complaint due to the unbearable odour that is caused everyday due to your factory, secondly we would also like to complain about the noise during the evening and early hours of the	The AFGRI Poultry Daybreak abattoir has strict Health and Safety management systems and waste management procedures. These procedures ensure the proper handling, storage and disposal of Hazardous Chemicals and Waste. The management systems should ensure that ammonium

		morning caused by the transportation of your employees, this includes Taxis as well as buses who cause noise by playing very loud music also complained by screaming and shouting which disturbs us a great deal and we would appreciate your co-operation in solving these problems. 1. Smelling terrible 2. Noise of Taxi's 3. Taxis range right in front of my gate. **4.** Messing a lot, which came into my yard.	gases are not released into the atmosphere. The proposed wastewater treatment works will decrease the accumulation of wastewater and as a result should decrease the odours released from the wastewater. The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). The following are actions that will aid in mitigating the noise produced during the construction and operational phases of this project: (Please refer to the Environmental Management Plan in the draft Basic Assessment Report for the AFGRI Poultry Daybreak abattoir expansion (REF: 17/2/3 N-113) and the quantitative risk assessment in the AFGRI Poultry Daybreak IWULA (REF: 12/9/11/L832/6), both of which will be distributed in due course.) **Construction Phase** • All plant and machinery are to be fitted with adequate silencers and regular maintenance of vehicles and equipment. • Working hours should be restricted to daylight hours. • Working procedures should be structured so as to avoid the unnecessary generation of noise. • No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site.

			• If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the abattoir manager. • No noisy work is to be conducted over the weekends or on religious public holidays. **Operational Phase** • Ensure that machinery on site is in proper working condition, fitted with the necessary silencing equipment. • Make sure that the workers on site stick to the prescribed working hours. • Maintain a dB reading of less than 50dB at the site boundary. • Keep equipment in good repair and attend to loose or rattling covers, worn bearings and broken equipment.
Mr. Johann du Plessis	07-05-2012	We have a few concerns regarding the development Daybreak (Sundra) Abattoir: 1. Will the value of our property decrease once the above mentioned development is completed? 2. What will the security measures be before, during and with completion of the development? 3. Will the make-shift taxi rank be in front of our property, as that poses a lot of security problems? There is still no toilet facility available at the taxi rank, which poses health concerns as well. 4. Will there be something to clearly show the border of the development e.g. palisades, concrete walling, brick	1. The proposed wastewater treatment works will be an improvement to the current wastewater management practices at the abattoir. Therefore the proposed project is expected to have a positive impact. 2. The current entrance point to the abattoir will be used to gain access to the wastewater treatment work site. Adequate security measures are in place and will remain so for the duration of the construction and operational phase of the wastewater treatment works. 3. We are aware of the fact that sufficient ablution facilities are available at the Daybreak abattoir for all abattoir staff. 4. A fence will be constructed around the wastewater treatment works.

		walling, wire fencing etc. That will decrease our security concerns.	
Department of Education. Mrs. M.O.C. Mhlabane	20-04-2012	Documentation regarding the application for Environmental Authorisation dated 19 March 2012 is acknowledged and referred to. The Department has no objection towards the Waste Management and Water Use Licenses as applied for. The Department is of the view that no further consultation may be necessary on the matter as the application does not impact on the need for school sites. It is hoped that you will find this in order.	Comment noted.

5.5.4 Registering Stakeholders

All key stakeholders were registered and will receive this draft Scoping Report.

5.5.5 Press Notices

In accordance with the National Environmental Management Act (NEMA) 1998, (Act No. 107 of 1998), a notice was placed in the Beeld and the Streek nuus newspaper, on the 7th of December 2011. The press notice is shown below as Figure 76 and Figure 77.

Press notices are crucial to create awareness of the project and to reach a broader range of I&APs.

AFGRI POULTRY (PTY) LTD

PUBLIC NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION, WASTE MANAGEMENT LICENSE AND WATER USE LICENSE

Notice is hereby given that an application for environmental authorisation in terms of the EIA Regulations of 2010 (Regulations in terms of Chapter 5 of the National Environmental Management Act of 1998, as amended) and a Waste License Application in terms of the National Environmental Management: Waste Act 2008 (No. 59 of 2008) has been lodged with the National Department of Environmental Affairs. Notice is also given of a Water Use Licence Application in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) submitted to the Department of Water Affairs.

Legislation:
The activity requires an application subject to a full Scoping and Environmental Impact Assessment Process as required by Sections 26 to 35 of Government Notice R. 543 of the EIA Regulations.

Waste Management Activities; Notice No. 32368 of 3 July 2009:

- Category B, No. 7: The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more; and
- Category B, No. 11: The construction of facilities for activities listed in Category B of this Schedule (not in isolation to associated activity).

Water Uses Applied for:

- Section 21(a): taking water from a water resource.
- Section 21(b): storing water.
- Section 21 (c): impeding or diverting the flow of water in a watercourse.
- Section 21 (e): engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1).
- Section 21 (f): discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit.
- Section 21(g): disposing of waste in a manner which may detrimentally impact on a water resource.
- Section 21 (i): altering the bed, banks, course or characteristics of a watercourse.

Activity Description:

- The construction of a wastewater treatment works for the treatment of abattoir wastewater.
- The treatment works will first treat all the wastewater generated by the abattoir per day to an acceptable discharge quality.
- Approximately 40 – 60% of the treated wastewater will be further treated to a quality that can be re-used by the abattoir facility.

Applicant: AFGRI Poultry (Pty) Ltd.
Project Name: AFGRI Poultry Daybreak (Sundra) Abattoir Wastewater Treatment Works.
Locations: The remaining extent of portion 8 of the farm Modderfontein 236 IR.
Reference number: 12/9/11/L832/6
Environmental Consultants:

Shangoni Management Services (Pty) Ltd

PO Box 74726	Tel: (012) 807 7036
Lynnwood Ridge	Fax: (012) 807 1014
Pretoria	Mobile: +27 71 673 3355
0040	E-mail: lizette@shangoni.co.za

Invitation to Participate:
Should you wish to be included in the register of Interested and Affected Parties or comment on this application, please submit your name, contact information, and interest in the matter in writing to the above address not later than 9 MAY 2012.

Figure 74: Wording of site notice in English

AFGRI POULTRY (PTY) LTD

PUBLIEKE KENNISGEWING TER AANSOEK VIR OMGEWINGSMAGTIGING,

AFVAL BESTUUR LISENSIE EN WATER GEBRUIK LISENSIE

Belanghebbende en Geaffekteerde partye word hiermee in kennis gestel dat 'n aansoek vir omgewingsmagtiging ingevolge die Omgewings Impak Studie Regulasies van 18 Junie 2010, in terme van Hoofstuk 5 van die Nasionale Omgewings Bestuur Wet van 1998, soos gewysig, ingedien is om 'n afvalbestuurlisensie volgens die Nasionale Omgewings Bestuur: Afval Wet, 2008 (Wet No. 59 van 2008), en 'n watergebruikslisensie aansoek volgens Artikel 21 van die Nasionale Waterwet, 1998 (Wet No. 36 van 1998) in proses is.

Wetgewing:

Die aktiwiteite vereis dat die volgende aansoeke geloots word: 'n volle Omgewings Impak Studie proses soos vereis deur Artikel 26 tot 35 van Staats Kennisgewing R.543 van die Omgewings Impak Studie regulasies.

Afvalbestuur Aktiwiteite, Kennisgewing No. 32368 van 3 Julie 2009

- Kategorie B, No 7: die behadeling van uitskotwater, afvalwater of riool met 'n jaarlikse deurset kapasiteit van 15 000m^3 of meer; en
- Kategorie B, No 11: die konstruksie van fasiliteite vir aktiwiteite gelys in Kategorie B van die skedule (nie in isolasie van geassosieerde aktiwiteite nie)

Water Gebruike waarvoor aansoek gedoen word

- Seksie 21 (a): onttrekking van water uit 'n waterbron.
- Seksie 21 (b): stoor van water.
- Seksie 21 (c): belemmer of verplaasing van vloei van water in 'n waterloop.
- Seksie 21 (e): om betrokke te raak in 'n beheerde aktiwitiet so geïdentifiseer in seksie 37(1) of verklaar onder seksie 38(1).
- Seksie 21 (f): ontslaan van afval of water wat afval bevat in 'n waterbron deur n pyp, kanaal, drein, see uitloop of ander watervoor.
- Seksie 21 (g): afset van water in 'n wyse wat 'n nadelige impak op 'n waterbron kan hê.
- Seksie 21 (i): wysiging van rivierbed, oewer, rivier of eienskappe van 'n waterafloop.

Beskrywing van aktiwiteit:

- Die konstruksie van n afvalwater behandeling werke, vir die behandeling van abattoir afvalwater.
- Die behandeling werke sal eerstens die afvalwater vanaf die abattoir behandel tot 'n aanvaarbare gehalte.
- Daarna sal ongeveer 40-60% van die behandelde water verder behandel word na 'n kwaliteit wat aanvaarbaar is vir die hergebruik daarvan in die abattoir.

Applikant: AFGRI Poultry (Pty) Ltd.

Projek naam: AFGRI Poultry Daybreak (Sundra) Abattoir Wastewater Treatment Works.

Ligging: Die restant van gedeelte 8 van die plaas Modderfontein 236 IR.

Verwysingsnommer: 12/9/11/L832/6

Omgewingskonsultante: Shangoni Management Services (Pty) Ltd.

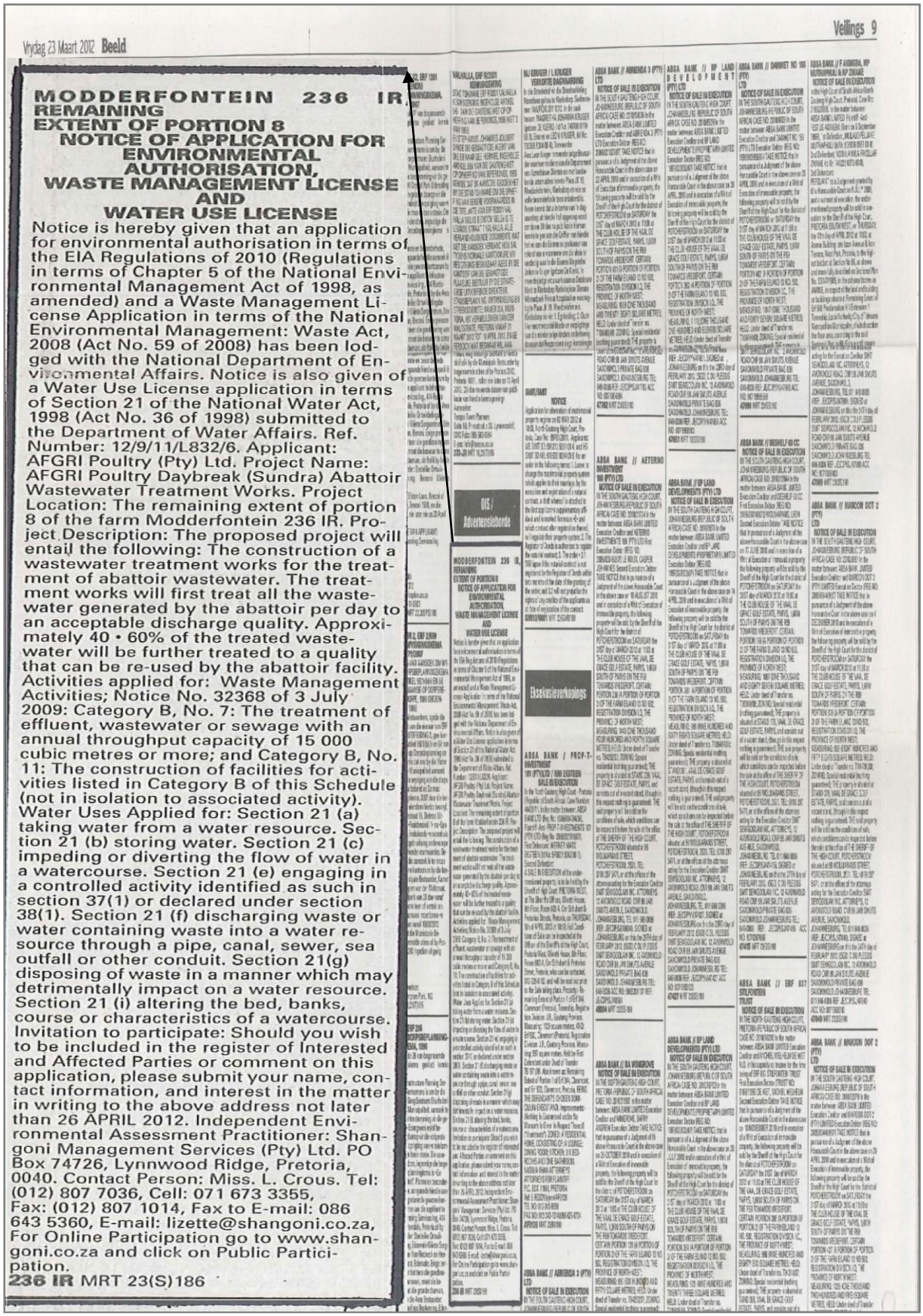
Shangoni Management Services (Pty) Ltd
PO Box 74726 Tel: (012) 807 7036
Lynnwood Ridge Faks: (012) 807 1014
Pretoria Sel: +27 71 673 3355
0040 E-pos: lizette@shangoni.co.za

Publieke Deelmane Uitnodiging:

Vir enige kommentaar en/of navrae, of indien u as belanghebbende en/of geaffekteerde party wil registreer of ons wil inlig van enige ander partye en/of organisasie en /of staatsinstelling wat in kennis gestel moet word, kan u gerus vir Lizette Crous kontak by die bogenoemde kontakbesonderhede, nie later as **9 MEI 2012** nie.

SHANGONI
Management Services (Pty) Ltd

Figure 75: Wording of site notice in Afrikaans



Vrydag 23 Maart 2012 **Beeld**

Vellings 9

MODDERFONTEIN 236 IR, REMAINING EXTENT OF PORTION 8
NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION, WASTE MANAGEMENT LICENSE AND WATER USE LICENSE

Notice is hereby given that an application for environmental authorisation in terms of the EIA Regulations of 2010 (Regulations in terms of Chapter 5 of the National Environmental Management Act of 1998, as amended) and a Waste Management License Application in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) has been lodged with the National Department of Environmental Affairs. Notice is also given of a Water Use License application in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) submitted to the Department of Water Affairs. Ref. Number: 12/9/11/L832/6. Applicant: AFGRI Poultry (Pty) Ltd. Project Name: AFGRI Poultry Daybreak (Sundra) Abattoir Wastewater Treatment Works. Project Location: The remaining extent of portion 8 of the farm Modderfontein 236 IR. Project Description: The proposed project will entail the following: The construction of a wastewater treatment works for the treatment of abattoir wastewater. The treatment works will first treat all the wastewater generated by the abattoir per day to an acceptable discharge quality. Approximately 40 • 60% of the treated wastewater will be further treated to a quality that can be re-used by the abattoir facility. Activities applied for: Waste Management Activities; Notice No. 32368 of 3 July 2009: Category B, No. 7: The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more; and Category B, No. 11: The construction of facilities for activities listed in Category B of this Schedule (not in isolation to associated activity). Water Uses Applied for: Section 21 (a) taking water from a water resource. Section 21 (b) storing water. Section 21 (c) impeding or diverting the flow of water in a watercourse. Section 21 (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1). Section 21 (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit. Section 21(g) disposing of waste in a manner which may detrimentally impact on a water resource. Section 21 (i) altering the bed, banks, course or characteristics of a watercourse. Invitation to participate: Should you wish to be included in the register of Interested and Affected Parties or comment on this application, please submit your name, contact information, and interest in the matter in writing to the above address not later than 26 APRIL 2012. Independent Environmental Assessment Practitioner: Shangoni Management Services (Pty) Ltd. PO Box 74726, Lynnwood Ridge, Pretoria, 0040. Contact Person: Miss. L. Crous. Tel: (012) 807 7036, Cell: 071 673 3355, Fax: (012) 807 1014, Fax to E-mail: 086 643 5360, E-mail: lizette@shangoni.co.za, For Online Participation go to www.shangoni.co.za and click on Public Participation.

236 IR MRT 23(S)186

Figure 76: Proof of newspaper advertisement in the Beeld.

12 Streeknuus : 30 Maart 2012

gemeenskapsnuus/community news

Sluit aan by AfriForum

OP Saterdag 17 Maart het 'n groep besorgde inwoners by die Kaia Manzi Oord buite Bronkhorstspruit byeengekom met die doel om 'n plaaslike tak van die AfriForum Burgerlike Regte Organisasie te stig.

Volgens AfriForum se mnr Julius Kleynhans, staan die organisasie vir die regte van minderheidsgroepe wat ook trotse Suid Afrikaners is. Die algemene man op straat wie se regte deur instellings soos die regering en/of groot maatskappye geskend word, het nou 'n standvastige apolities en nie rassistiese platform om op te staan indien dit nodig is.

Die saamroeper, kol Leon von Beneke het die vergadering herinner dat inwoners so 'n eenheidgesinde forum nodig om met die plaaslike regering te kan beding.

Probleemareas wat dringend aandag kort sluit die ambulansdienste in.

"Dit neem tot vier ure om 'n ambulans op 'n toneel te kry. Die fout lê nie by die diensdoenende personeel maar met bestuur," het die kolonel gesê.

Volgens mnr Kleynhans groei die organisasie juis weens die feit dat mense met sukses geassosieer wil word. Afriforum behou hulle integriteit en neutraliteit te alle tye en bedryf sake van nasionale tot plaaslike vlak.

Tydens hierdie loodsvergadering is daar besluit om 'n tak te stig en 'n beheerkomitee is verkies.

FOTO REGS:
Die beheerkomitee van die nuutgestigte Afriforum tak op Bronkhorstspruit bestaan uit (voor) Kobus Stolz (o/voorsitter) kol Leon von Beneke (voorsitter) en Sheilagh Marx (sekretaresse). Agter staan Manie Coetzee (penningmeester), Julius Kleynhans (AfriForum) en Phillip Kannemeyer (lid).

Die lewe word nie gemeet in die aantal asems wat ons neem nie Maar in daardie oomblikke wat ons asem wegslaan.

- Anon

NOTICE OF APPLICATION FOR ENVIRONMENTAL AUTHORISATION, WASTE MANAGEMENT LICENSE AND WATER USE LICENSE

Notice is hereby given that an application for environmental authorisation in terms of the EIA Regulations of 2010 (Regulations in terms of Chapter 5 of the National Environmental Management Act of 1998, as amended) and a Waste Management License Application in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) has been lodged with the National Department of Environmental Affairs. Notice is also given of a Water Use License application in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) submitted to the Department of Water Affairs. **Ref. Number:** 12/9/11/L832/6. **Applicant:** AFGRI Poultry (Pty) Ltd. **Project Name:** AFGRI Poultry Daybreak (Sundra) Abattoir Wastewater Treatment Works. **Project Location:** The remaining extent of portion 8 of the farm Modderfontein 236 IR. **Project Description:** The proposed project will entail the following: * The construction of a wastewater treatment works for the treatment of abattoir wastewater. * The treatment works will first treat all the wastewater generated by the abattoir per day to an acceptable discharge quality. * Approximately 40 – 60% of the treated wastewater will be further treated to a quality that can be reused by the abattoir facility. **Activities applied for: Waste Management Activities; Notice No. 32368 of 3 July 2009:** Category B, No. 7: The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more; and * Category B, No. 11: The construction of facilities for activities listed in Category B of this Schedule (not in isolation to associated activity). **Water Uses Applied for:** * Section 21 (a) taking water from a water resource. * Section 21 (b) storing water. * Section 21 (c) impeding or diverting the flow of water in a watercourse. * Section 21 (e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1). * Section 21 (f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit. * Section 21(g) disposing of waste in a manner which may detrimentally impact on a water resource. * Section 21 (i) altering the bed, banks, course or characteristics of a watercourse. **Invitation to participate:** Should you wish to be included in the register of Interested and Affected Parties or comment on this application, please submit your name, contact information, and interest in the matter in writing to the above address not later than 30 April 2012. **Independent Environmental Assessment Practitioner:** Shangoni Management Services (Pty) Ltd. PO Box 74726, Lynnwood Ridge, Pretoria, 0040. Contact Person: Miss. L. Crous. Tel: (012) 807 7036, Cell: 071 673 3355, Fax: (012) 807 1014, Fax to E-mail: 086 643 5360, E-mail: lizette@shangoni.co.za, For Online Participation go to www.shangoni.co.za and click on Public Participation.

Terwyl Ek nog als weet

Studentelewe

Annemé Duvenhage

EK wonder baie hoekom mense gaan swot. Ja, ons is hier om 'n graad te kry en slim te word, maar elke mens verskil.

Jy kry die *pliggies*, kenmerkend aan hoe groot die rugsak is en die hoeveelheid tyd wat jy hulle by kuierplekke sien en hoe goed hulle punte is. Hulle sit heel voor in die klas en het altyd notas, handboeke en hulle kennis oor toetsdatums en konsepte.

Mens sien dié wat net so nou en dan op kampus kom aan hoe mooi hulle aangetrek is, hoe geïrriteerd hulle lyk en die konstante "ek is so moeg, dude's" wat mens hoor.

Dan sien mens dié wat regtig net kampus toe kom vir toetse. Pen en studentekaart in die broeksak, loop hulle *'absentmindedly'* en speel op hulle fone. En dan kry mens ingeneurs-, bou- en regstudente. Hulle lyk moeg, het alledaagse klere aan en is bleek omdat hulle nooit in die son kom nie.

En dan kry mens BA- en drama studente. Dis die groepies wat by die eetplekke en kuierplekke op kampus sit. Hulle kom kampus toe vir een klas, en sit en kuier die dag om saam met hulle vriende. Hulle is ook kenmerkend *loud*, lag en rook baie, en vertel van gisteraand se kuier. Ironies genoeg is al hierdie karakters hier om 'n graad te kry ... sommige oor drie jaar en sommige oor agt of nege.

En eintlik is hierdie wêreld waarin ons almal loop, hierdie kampus vol kunswerke en studente wat op die gras lê, net die laaste *chill* periode voor die jare van werk, kinders en huiskoop. Van hulle doen dit vir hulle ouers, van hulle doen dit uit passie en van hulle doen dit bloot vir die verskoning om n student te wees, ma se geld te gebruik en laat te slaap.

Annemé Duvenage
- foto Plum Photography.

Soms besef mens hoekom, ander dae is dit net nog 'n dag om 'n broodjie te koop en klas toe te gaan, min gepla oor hoekom ons dit doen. Maar ek neem aan eendag gaan die pliggies spyt wees oor al die ure alleen voor die boeke, die kuiergatte gaan spyt wees hulle het nie meer opgelet nie, en die BA- en drama studente, wel ...hulle gaan eendag as hulle die graad het besef dit was die lekkerste paar jaar van hulle lewe, net soos almal se studente dae eintlik moet wees.

Donate blood and save a life!

Figure 77: Proof of newspaper advertisement in the Streeknuus.

5.5.6 Placement of Public Notices

The site notices (A2) were placed on the perimeter fence surrounding the Daybreakabattoir (as shown in Figure 78 to Figure 81).

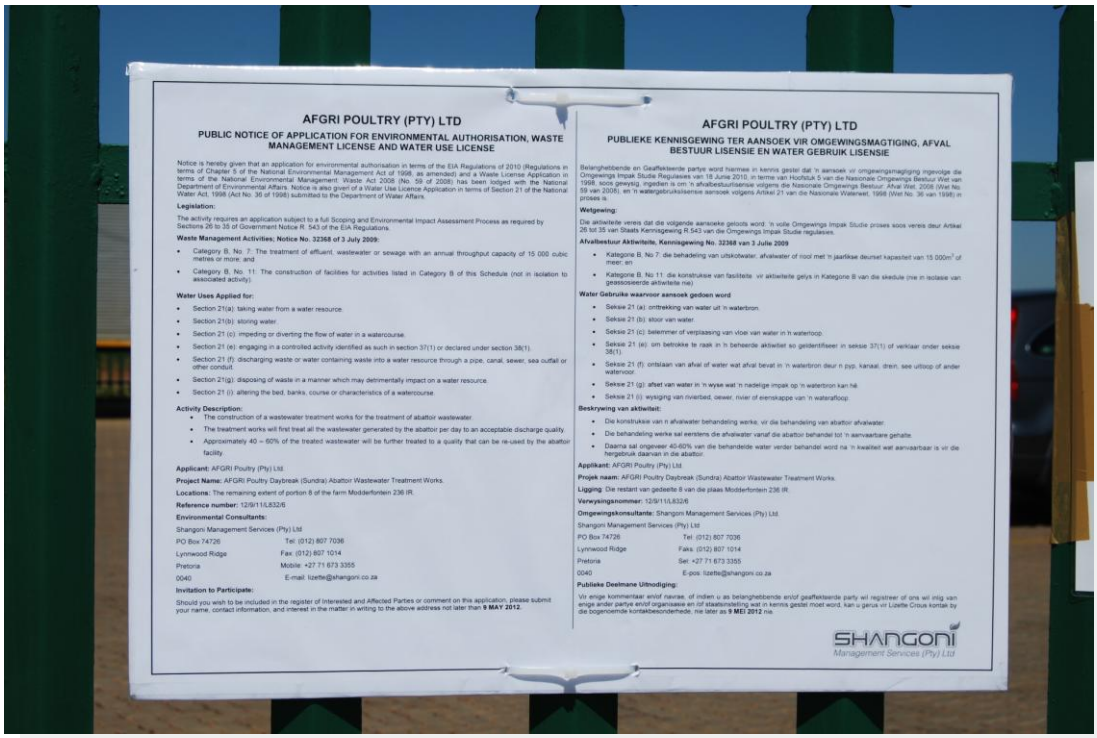


Figure 78: Photograph of first site notice (zoomed in).

Figure 79: Photograph of first site notice.

Figure 80: Photograph of the second site notice.

Figure 81: Photograph of third site notice.

5.5.7 Issuing I&APs and Stakeholders with a Draft Scoping Report

This draft Scoping Report will be sent to all Departments and Organs of State as well as all registered I&APs in order to obtain their comments and notices. The report will also be submitted to the National Department of Environmental affairs for review.

5.5.8 Conclusions of the Public Participation Exercise

In conclusion, the Public Participation exercise has provided adequate information to enable an understanding of what the proposed wastewater treatment works would entail and also to address the concerns and comments of this Environmental Assessment.

6. NEED AND DESIRABILITY FOR THE ACTIVITY

A need and desirability for this project is evident from the following perspectives:

6.1 Developer

Abattoir wastewater produced at the AFGRI Poultry Daybreak abattoir is currently chemically treated in two concrete dams and then disposed of into a pan that is adjacent to the abattoir. The pan is reaching its carrying capacity and the current treatment method is inadequate. AFGRI Poultry (Pty) Ltd. is therefore proposing an integrated ponding and wetland system for the treatment of the abattoir wastewater.

The proposed integrated ponding and wetland system will provide excellent buffer capacity for handling organic and hydraulic shock loads and by using algal ponds instead of conventional mechanical aerators, a substantial saving will be made in terms of the electrical demand.

6.2 Local Community

Dependency and unemployment rates are very high in the Victor Khanye Municipal area. The relatively low income levels are an indication of high poverty level and result in an increase dependency on social aid e.g. housing subsidies and child grants.

The proposed project will create employment opportunities for unskilled laborers during the construction phase and the proposed system will require two semi-skilled operators during its operational phase.

7. IDENTIFIED ALTERNATIVES

Typically, alternative assessments are conducted to assist in comparing various projects or attributes of projects that will occur. The most critical comparison is evaluating any proposed project against the No-Go option. The alternatives assessment then considers alternatives to project site selection for the proposed development; alternatives to layout of the development; and alternatives to construction methodologies and / or materials used for the development.

The alternatives assessment was conducted using a simple cost-benefit analysis of each proposed alternative, through assessing various environmental attributes. These attributes can include physical (geology and soils, surface water quality and quantity, groundwater quality and quantity); biophysical (flora and fauna, sensitive environments); and social (site of archaeological or cultural importance, land use issues, social health and welfare).

The impact of the each alternative was then evaluated in terms of whether it has a positive, negative, or no impact. In this instance, the impact is not evaluated in terms of significance but rather whether or not it will arise. Positive impacts are assigned a value of 1; no impact a value of 0; and a negative impact a value of -1.

By adding all of the attribute scores for each alternative, a suitability score is derived which indicates the preferred alternative. A total positive score indicates the project benefits outweigh the potential negative impacts, while a total negative score indicates the project environmental costs outweigh the potential benefits. Essentially, the highest scoring alternative is then carried forward for full impact evaluation.

7.1 No-Go Option

The potential impact of the preferred project option on environmental and socio-economic attributes – identified during the assessment phase – is evaluated against the potential impact of the no-go option on the same attributes. The summary of this assessment is provided in Table 19 hereafter.

Table 19: Development vs. No-Go Option

Attribute	Development Option	No-go Option 2
Physical environment		
Air Pollution	-1	-1
Noise Pollution	-1	-1
Water Quality	1	-1
Water Quantity	1	-1
Visual Aesthetics	0	0
Biophysical environment		
Fauna and Flora	1	-1
Sensitive Environments	0	0
Social environment		
Traffic	-1	-1
Impact on property values	0	0
Safety and security	0	0
National and regional economy	0	0
Infrastructure development	1	0
Total	1	-6

The no-go alternative is the option wherein the wastewater treatment works is not implemented.

The AFGRI Daybreak abattoir forms part of the primary economic sector in the Mpumalanga Province. Seen in context of the principle of local economic development, the following benefits were sited:

- The current production rate of 700 000 chickens per week is to be increased to 1.5 (one and a half) million chickens slaughtered per week, should the application for environmental authorisation be approved. The abattoir therefore contributes significantly to South Africa's food supply.
- The wastewater generated by the abattoir is currently treated inefficiently. In future, a new wastewater treatment works (WWTW) is to be implemented. This treatment system will be capable of treating 2,500m^3 of abattoir wastewater per day. The wastewater will be then be treated to the general limit (Refer to Table 1).
- After treatment of the wastewater, an estimate 40 – 60 % of the volume of the treated water will be reused in the abattoir process. The remaining treated water will be available for irrigation of crops or disposed of into the Daybreak pan.
- The water quality of the Daybreak pan will be significantly improved by the treated water discharged into it, allowing the pan to rehabilitate itself over time. This will improve the water

quality of the surrounding pans together with the environment in the region of the Northern border of the pan.

- Treated water will be made available to surrounding farmers for irrigation purposes. The use of treated water for irrigation will reduce the cost of water supply for the surrounding farmers, as Daybreak will provide the water free of charge.
- The re-use and irrigation of treated water will reduce the burden on the immediate groundwater system. There is regional concern over sinkhole risk from over abstraction in the area. The reduction in groundwater usage has a significant positive impact as it will allow groundwater to recover further reducing sink hole risks.
- The proposed WWTW will create employment opportunities for unskilled labourers during the construction phase and the proposed system will require two semi-skilled operators during its operational phase. The proposed abattoir expansion will also create employment opportunities for unskilled labourers during the construction phase. The abattoir operation currently employs 800 workers and will have 860 employees after expansion. The benefits of increased income will be realised in the local economy as there will be more money available for households to purchase essential and possible additional luxury items.

The negative environmental impacts expected by the proposed development can be mitigated to acceptable limits. The positive social impacts outweigh the negative impacts and the consideration of the “no-go” option can be justifiably dismissed as a sustainable alternative.

7.2 Alternatives to Site Selection

Firstly, it must be stated that the proposed development aims at utilizing the applied property to its full economic potential, taking the natural as well as socio-economic environment into consideration.

The property on which the proposed project will take place belongs to AFGRI Poultry. No site alternatives have been considered because by constructing the WWTW in close proximity to the abattoir, piping is reduced which;

- reduces the financial burden pertaining to materials required during the construction phase.
- reduces the amount of electricity required to pump the wastewater to the treatment works.
- by reducing the amount of electricity required to pump wastewater to the abattoir, AFGRI Poultry Daybreak would have a positive impact by reducing secondary air pollution and resource consumption, which results from using coal to generate electricity.
- reduces the exposure area and allows for easier inspection and maintenance.

The treated abattoir wastewater will also be close to the abattoir which will facilitate the re-use of treated water at the abattoir.

7.3 Construction Alternatives:

7.3.1 Alternative Design

The proposed technology, design and process of the proposed wastewater treatment works (WWTW) was determined by the applicant to be the most economic, social and environmental sustainable option for this specific venture.

The design was chosen for the following reasons:

- It makes use of gravity flow between the ponds where possible, thereby decreasing the electrical demand of the WWTW.
- The system will provide excellent buffer capacity for handling organic and hydraulic shock loads.
- By using algal ponds instead of conventional mechanical aerators, a substantial saving will be made in terms of the electrical demand.
- The final outlet from the treatment works will be in compliance with the Department of Water Affairs' General Limit values.

7.3.2 Activity Alternatives

The activity is the treatment of abattoir wastewater. The alternative would be the continued inefficient treatment of the wastewater. This alternative is not environmentally acceptable and therefore the construction of the WWTW is proposed as the preferred alternative.

7.3.3 Location Alternatives

No alternatives were considered because the property where the proposed project will take place is owned by the applicant.

7.3.4 Process Alternatives

The proposed technology, design and process of the project was determined by the applicant to be the most economic, social and environmental sustainable option for this specific venture. The same rationale was used as described under section 7.3.1.

7.3.5 Scheduling Alternatives

It is recommended that construction take place during the drier months to avoid any complications in wet weather. No detailed information regarding the proposed time frame for the project is available yet, however it is anticipated that construction will start as soon as possible after all the necessary approvals have been obtained.

7.3.6 Input Alternatives

Wastewater from the abattoir is the only input into the WWTW, therefore no input alternatives can be considered.

8. COMMENTS OBTAINED DURING THE PUBLIC PARTICIPATION PHASE

Raised by	Date received	Issue / Comment / Concern
Mr. Jan Swanepoel	23-03-2012	I am staying on the corner of Eight street and Modderfontein road for the last 26 years and I am driving past Daybreak at least twice a day. Since the upgrade to the facility we have seen quite a deterioration of the environment. **a) Groundwater** Huge quantities of groundwater are pumped from bore holes on the premises of Daybreak and it is affecting other boreholes in the area. My bore hole was badly affected and I have now substantial less water than a few years ago. The proposed huge increase in activities will definitely result in a substantial increase in usage of underground water which will have a devastating effect on the underground water availability for all the property owners in the surrounding area. Even at the present levels of extraction of underground water, there are already signs that the water supply is deteriorating. If substantial more water is used, the effect could be devastating.
		b) Daybreak Pan The Daybreak Pan is already an environmental disaster. The quality of water is visibly deteriorating. Green algae are now always visible and the water really smells foul. Bird life around the Daybreak pan is already severely affected. In the past, large numbers of flamingos was a common sight, but lately it is a rare occurrence to see a single flamingo. The water level of the pan is constantly increasing and it is already very close to the adjacent main road. Any increase in flow to the pan could present a major disaster. The current level of water pollution is totally unacceptable and it poses a major health risk to people living in the vicinity. The activities of AFGRI/Daybreak should actually be scaled down instead of a dramatic increase. Every additional litre of water that will be used will eventually end up in the pan that is already under immense pressure.
		c) Air pollution Air pollution is quite a regular occurrence at the plant. The processes employed are using hazardous chemical and frequent spillage of these chemicals, do occur. Large quantities of ammoniac gasses were released in the atmosphere in the past which can have devastating effects on humans in the surrounding areas. The air is also

		frequently polluted with odours that can be detected far from the site.
		d) Noise Pollution The facility is also responsible for severe noise pollution. Their operation is quite noisy and when the electricity supply is down, huge diesel generators are used that can be heard kilometres away. Power failures are a common occurrence on Sundra and therefore noise pollution is already a problem. Any increase in activity will lead to an increase in noise pollution.
		e) General The track record of this facility to manage the water quality of the pan and the environment is very poor and any expansion of the facility should not be allowed and the current activities should actually be scaled down.
Mr. Tony Rovani	11/04/2012	**f) Odour** We would like to hereby lodge a complaint due to the unbearable odour that is caused everyday due to your factory. **g) Noise** Secondly we would also like to complain about the noise during the evening and early hours of the morning caused by the transportation of your employees, this includes Taxis as well as buses who cause noise by playing very loud music also complained by screaming and shouting which disturbs us a great deal and we would appreciate your co-operation in solving these problems. 1. Smelling terrible 2. Noise of Taxi's 3. Taxis range right in front of my gate. **4.** Messing a lot, which came into my yard.
Mr. Johann du Plessis	07-05-2012	We have a few concerns regarding the development Daybreak (Sundra) Abattoir: 5. Will the value of our property decrease once the above mentioned development is completed? 6. What will the security measures be before, during and with completion of the development? 7. Will the make-shift taxi rank be in front of our property, as that poses a lot of security problems? There is still no toilet facility available at the taxi rank, which poses health concerns as well. 8. Will there be something to clearly show the border of the development e.g. palisades, concrete walling, brick walling, wire fencing etc. That will decrease our security concerns.

Department of Education. Mrs. M.O.C. Mhlabane	20-04-2012	Documentation regarding the application for Environmental Authorisation dated 19 March 2012 is acknowledged and referred to. The Department has no objection towards the Waste Management and Water Use Licenses as applied for. The Department is of the view that no further consultation may be necessary on the matter as the application does not impact on the need for school sites. It is hoped that you will find this in order.

9. MINUTES OF PUBLIC MEETINGS

No public meetings were held during the Public Participation Phase.

10. EAP's RESPONSES TO COMMENTS RECEIVED

Raised by	Date received	Response
Mr. Jan Swanepoel	23-03-2012	**a) Groundwater** At present, 700 000 chickens are slaughtered at the AFGRI Daybreak abattoir per week. This requires approximately 8 400m³ of water. Should the proposed expansion of the abattoir be authorised, 1 500 000 chickens will be slaughtered per week. This would mean that approximately 18 000m^3 of water would be required per week. The abattoir is however also proposing the construction of an abattoir wastewater treatment works which will treat all of the wastewater generated at the abattoir to a quality that will comply with the Department of Water Affairs' standards for discharging water into a natural water resource. Once the wastewater is treated, between 40 and 60% of the water can be re-used at the abattoir. This means that the abattoir will abstract less water per week. If the AFGRI Poultry Daybreak abattoir were to be expanded, the total volume of groundwater abstracted will increase, however the volume of water used per chicken will be less due to better economies of scale. Water that cannot be re-used at the abattoir due to salinity levels will be available for irrigation of crops or will be discharged into the Daybreak pan. The water quality of the Daybreak pan will be significantly improved by the treated water discharged into it, allowing the pan to rehabilitate itself over time. This will not only improve the water quality of the surrounding pans together but also the environment in the region of the Northern border of the pan. The re-use and irrigation of treated water will reduce the burden on the immediate groundwater system. The treated water will be made available to neighbouring farmers who would then not need to abstract as much groundwater to irrigate their crops. There is regional concern over sinkhole formation from over-abstraction in the area. The total reduction in groundwater usage which should result would have a positive impact as it will allow groundwater to recover, reducing the risk of sinkhole formation. The DWAF classifies the Vryheid Formation as a type d2 aquifer which typically yields between 0.1 and 0.5 L/s and is inter-granular and fractured. The Malmani Subgroup is classified as type c5 aquifer which is karst and typically yields in excess of 5 L/s. Groundwater, from the three boreholes, is abstracted from the deeper dolomite

karst aquifer (van Bart A., 2010).

Presently, 700 000 chickens are slaughtered at the AFGRI Daybreak abattoir per week. The abattoir uses approximately 12l per Chicken, thus using approximately 1.2 Ml of water per day, which equates to 13.9 l/s. Each borehole thus abstracts groundwater at a rate of 4.6 l/s.

Based on the aquifer classification map of DWAF, boreholes in this aquifer yield in excess of 5 l/s thus suggesting that abstraction is currently in line with predetermined sustainable yields (van Bart A., 2010).

700 000 chickens/week x 12 l/chicken	= 8 400 000 l/week = 8 400 000 l/week ÷ 7days/week = 1.2Ml/day ÷ 86 400 s/day =13.9 l/s
13.9 l/s ÷ 3 boreholes = 4.6 l/s/borehole	

If the AFGRI Poultry Daybreak abattoir were to be expanded, the total volume of groundwater abstracted will increase, however the volume of water used per chicken will be less (11l/Chicken) due to better economies of scale.

Should the proposed expansion of the abattoir be authorised, 1 500 000 chickens will be slaughtered per week. This would mean that approximately 16 500m^3 of water would be required per week (± 2.4 Ml/day = ± 27.3 l/s).

1 500 000 chickens/week x 11l/chicken	= 16 500 000 l/week = 16 500 000 l/week ÷ 7days/week = 2.4Ml/day ÷ 86 400 s/day = 27.3 l/s
27.3 l/s ÷ 3 boreholes = 9.1 l/s/borehole	

The construction of the abattoir wastewater treatment works which will treat all of the wastewater generated at the abattoir to a quality that will comply with the Department of Water Affairs' standards for discharging water into a natural water resource. Once the wastewater is treated, between 40 and 60% of the water can be re-used at the abattoir. Each borehole will thus abstract groundwater at a rate of 3.3 l/s to 5.2 l/s. Since the aquifer yield is in excess of 5 l/s, the abstraction is currently in line with predetermined sustainable yields.

		16 500 000 l/week = 16 500 m³/week = 2 357 m³/day required in the abattoir. The waste treatment plant will treat up to 2 500 m³/day, of which 40 – 60 % will be re-used. 2 500 m³ x 40% = 1 000 m³ 2 500 m³ x 60% = 1 500 m³ Therefore 1 000 m³ to 1 500 m³ of treated wastewater will be re-used per day, which means only 857 to 1 357 m³/day will be abstracted from the three boreholes. 857 to 1 357 m³/day = 857 000 l/day to 1 357 000 l/day = 9.9 l/s to 15.7 l/s 9.9 l/s to 15.7 l/s ÷ 3 boreholes = 3.3 l/s to 5.2 l/s
		The AFGRI Poultry Daybreak abattoir will reach its production limit if the proposed expansion was to occur. In order to operate sustainably, the abattoir cannot afford to put more pressure on its surrounding environment. Therefore, a second abattoir was purchased in the area where scope exists for future expansions and developments. Currently, groundwater is abstracted for use in the slaughtering process and the contaminated water is then discharged into the Daybreak pan. In future, wastewater from the abattoir will be treated by the proposed AFGRI Poultry Daybreak wastewater treatment works. 40-60% of the treated water will be re-used in the abattoir. The remaining water will then either be used for irrigational purposes or it will be discharged into the Daybreak pan. The volume of water discharged into the Daybreak pan should be less due to the re-use of water in the abattoir and the irrigation of crop fields using the treated water. The water quality of the Daybreak pan should be significantly improved through the clean water (the treated wastewater) that will be discharged into it. This will allow the pan to rehabilitate itself over time.
		b) Daybreak Pan Treated wastewater that cannot be re-used at the abattoir due to salinity levels will be available for irrigation of crops or will be discharged into the Daybreak pan. The water quality of the Daybreak pan will be significantly improved by the treated water discharged into it, allowing the pan to rehabilitate itself over time. This will not only improve the water quality of the surrounding pans together but also the environment in the region of the Northern border of the pan.
		c) Air Pollution The AFGRI Poultry Daybreak abattoir has strict Health and Safety management systems and waste management procedures. These procedures ensure the proper handling, storage and disposal of Hazardous Chemicals and Waste. The management systems should ensure that ammonium gases are not released into the atmosphere.

		The proposed wastewater treatment works will decrease the accumulation of wastewater and as a result should decrease the odours released from the wastewater.
		d) Noise Pollution In the event of a power failure, the same working hours will apply for power generators as for electricity. Mitigation measures for the noise generated by generators will be investigated. Alternative technologies, running times and the possibility of enclosing noise producing machines within buildings will be investigated. The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act 85 of 1993). The following are actions that will aid in mitigating the noise produced during the construction and operational phases of this project: (Please refer to the Environmental Management Plan in the draft Basic Assessment Report for the AFGRI Poultry Daybreak abattoir expansion (REF: 17/2/3 N-113) and the quantitative risk assessment in the AFGRI Poultry Daybreak IWULA (REF: 12/9/11/L832/6), both of which will be distributed in due course.) **Construction Phase** • All plant and machinery are to be fitted with adequate silencers and regular maintenance of vehicles and equipment. • Working hours should be restricted to daylight hours. • Working procedures should be structured so as to avoid the unnecessary generation of noise. • No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. • If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the abattoir manager. • No noisy work is to be conducted over the weekends or on religious public holidays. **Operational Phase** • Ensure that machinery on site is in proper working condition, fitted with the necessary silencing equipment. • Make sure that the workers on site stick to the prescribed working hours. • Maintain a dB reading of less than 50dB at the site boundary. • Keep equipment in good repair and attend to loose or rattling covers, worn bearings and broken equipment.
		e) General AFGRI Poultry Daybreak is obligated to undertake a habitat assessment study once a year for three years to

		ensure that the rehabilitation of the Daybreak pan is stable, failing which, corrective action must be taken to rectify any impacts. (Refer to the GN 1199 General Authorisations, dated 18 December 2009, in terms of Section 39 of the NWA, 1998 (Act 36 of 1998): **(9) Monitoring and reporting**)
Mr. Tony Rovani	11/04/2012	The AFGRI Poultry Daybreak abattoir has strict Health and Safety management systems and waste management procedures. These procedures ensure the proper handling, storage and disposal of Hazardous Chemicals and Waste. The management systems should ensure that ammonium gases are not released into the atmosphere. The proposed wastewater treatment works will decrease the accumulation of wastewater and as a result should decrease the odours released from the wastewater. The site workers and contractors will adhere to the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993). The following are actions that will aid in mitigating the noise produced during the construction and operational phases of this project: (Please refer to the Environmental Management Plan in the draft Basic Assessment Report for the AFGRI Poultry Daybreak abattoir expansion (REF: 17/2/3 N-113) and the quantitative risk assessment in the AFGRI Poultry Daybreak IWULA (REF: 12/9/11/L832/6), both of which will be distributed in due course.) **Construction Phase** • All plant and machinery should be fitted with adequate silencers and regular maintenance of vehicles and equipment must occur. • Working hours should be restricted to daylight hours. • Working procedures should be structured so as to avoid the unnecessary generation of noise. • No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. • If work is to be undertaken outside of normal work hours permission must be obtained from the Environmental Control Officer (ECO) and the abattoir manager. • No noisy work is to be conducted over the weekends or on religious public holidays. **Operational Phase** • Ensure that machinery on site is in proper working condition, fitted with the necessary silencing equipment. • Make sure that the workers on site stick to the prescribed working hours. • Maintain a dB reading of less than 50dB at the site boundary.

		• Keep equipment in good repair and attend to loose or rattling covers, worn bearings and broken equipment.
Mr. Johann du Plessis	07-05-2012	5. The proposed wastewater treatment works will be an improvement to the current wastewater management practices at the abattoir. Therefore the proposed project is expected to have a positive impact. 6. The current entrance point to the abattoir will be used to gain access to the wastewater treatment work site. Adequate security measures are in place and will remain so for the duration of the construction and operational phase of the wastewater treatment works. 7. We are aware of the fact that sufficient ablution facilities are available at the Daybreak abattoir for all abattoir staff. 8. A fence will be constructed around the wastewater treatment works.
Department of Education. Mrs. M.O.C. Mhlabane	20-04-2012	Comment noted.

11. SCOPE OF ENVIRONMENTAL IMPACT ASSESSMENT AND PLAN OF STUDY

11.1 Plan of Study for Environmental Impact Assessment

Potential environmental impacts (biophysical) associated with the proposed wastewater treatment works have been identified. All potentially significant impacts will be further investigated and assessed within the Environmental Impact Assessment (EIA) phase of the project. Mitigation measures will be proposed, where required, and these will be contained in the Environmental Management Plan (EMP) to be compiled during the EIA phase.

The EIA phase will aim to adequately investigate and address all potentially significant environmental issues in order to provide the National D) with sufficient information to make an informed decision regarding the proposed project.

11.2 Approach to undertaking the Environmental Impact Assessment Phase of the project

The following outlines the proposed approach to undertaking the EIA phase of the project. It is believed that the proposed approach will adequately fulfil the environmental authorities' requirements, the requirements of the EIA Regulations (2010) and the objectives of the environmental best practice, so as to ensure transparency and to allow an informed decision regarding the proposed project.

11.2.1 Application for Authorisation

An application for environmental authorisation in terms of the EIA Regulations of 2010 (Regulations in terms of chapter 5 of the National Environmental Management Act 1998, as amended) was lodged.

Authorisation

On receipt of authorisation (positive or negative) for the project, I&APs on the project database will be informed of this environmental authorisation and its associated terms and conditions by registered post.

11.2.2 Environmental Impact Assessment

Aims of the Environmental Impact Assessment

The EIA will aim to achieve the following:

- To provide a detailed assessment of the biophysical environments affected by the proposed project;
- To assess impacts on the study area in terms of environmental criteria;
- To identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
- To undertake a fully inclusive public participation process to ensure that I&APs issues and concerns are recorded and addressed

Environmental Impact Assessment Procedure

All activities that are related to the proposed wastewater treatment works that could have some impact on the environment will be identified. These impacts can be of environmental, socio-economic or cultural nature. Impacts are often not only confined within the direct scope of the proposed activity and can accumulate as a network of indirect impacts on the surrounding area.

Different impacts are associated with the construction and operational phases of the proposed activity. The significance will be determined by the extent, duration and intensity or reversibility of the impact.

The environmental risk of any aspect is determined by multiplying the significant of the impact by the probability of the impact occurring. Each parameter connects the physical characteristics of an impact to a quantifiable value to rate the environmental risk. A description of the parameters used in this impact assessment is listed in Table 20 below.

The suitability and feasibility of all proposed mitigation measures will be included in the assessment of significant impacts. This will be achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

Table 20: Environmental impact assessment parameters

Parameters	Description
Extent	Refers to the physical or geographical size that is affected by the impact. It can be categorised into the following ranges: • Onsite – Within specific site boundary (weight value – 1) • Local – Within municipal boundary (weight value – 2) • Regional – Outside municipal boundary (weight value – 3)
Duration	Time span associated with impact: • Short term – 1 Year or less (weight value – 1) • Medium term – 1-5 Years (weight value –2) • Long term – Longer than 5 Years (weight value – 3)
Intensity and reversibility	The severity of an impact on the receiving environment: • Low – Natural and/or cultural processes continue in a modified way and is reversible (weight value – 1) • Medium – Natural and/or cultural processes stop and is partially reversible (weight value – 2) • High – Natural and/or cultural processes disturbed to an irreversible state (weight value – 3)
Significance of Impact / Consequence	Adding the extent, duration and intensity together provides the significance of the impact (High, Medium or Low). **Extent + Duration + Intensity = High/Medium/Low Impact**
Probability	The likelihood of an impact occurring: • Unlikely – 0% - 45% chance of the potential impact occurring (weight value – 1) • Possible – 46% - 75% chance of the potential impact occurring (weight value – 2) • Likely - >75% chance of the potential impact occurring (weight value – 3)
Environmental Risk Refer to 21 below	Multiplication of the significance of the impact by the probability of the impact occurring produces a final conclusion of the overall risk that an impact poses to the surrounding environment. **High/Medium/Low Impact X Probability = High/Medium/Low Environmental Risk**

Table 21: Environmental Risk Matrix

Significance of Impact				
		Low Impact (3 → 5)	Medium Impact (6 → 8)	High Impact (9)
Probability	Definite / Very Likely 3	9 - 15 L - M	18 - 24 M - H	27 H
	Possible 2	6 - 10 L - M	12 – 16 M	18 M - H
	Unlikely 1	3 - 5 L	6 – 8 L	9 L

ENVIRONMENTAL RISK	Guidelines for Control Strategies
(H) - High	Proactively reduce risk level, short term response.
(M- H) Medium to High	Proactively reduce risk level, short term response.
(M) – Medium	Management strategies to reduce risk level, short to medium term response.
(L – M) Low to Medium	Management strategies to reduce risk level, short to medium term response, operational control and housekeeping.
(L) - Low	Operational control and housekeeping.

Table 22 provides an example of the environmental impact assessment that will be done for every issue and potential impact identified. This will be done for both the installation (construction) and operational phases of the proposed project. The tables also provide an environmental risk assessment of pre- and post- mitigation of identified activities.

Table 22: Environmental risk assessment: Fire establishment

Activity: Construction activities.	
Nature of Environmental Impact: Potential disturbance of natural vegetation surrounding the proposed site as a result of runaway veldt fires caused by workers or contractors.	
Before Mitigation	
Extent of the Impact	2
Duration of the Impact	1
Intensity of the Impact	2
Significance of Impact = Extent of Impact + Duration of Impact + Intensity of Impact	**5**
Probability	2
Environmental Risk = Significance of Impact X Probability	**10**
Objective of Mitigation Measures	
To prevent the occurrence of avoidable veldt fires.	
Proposed Mitigation	
• Basic fire-fighting equipment is to be placed at strategic locations on site (e.g. at the site office, flammable material store and watchman's container). • Equipment is to be maintained in good working order to the satisfaction of local fire authorities. • No open fires are permitted. A dedicated braai facility may be permitted in an area approved by the ECO, if the campsite in close proximity to firefighting equipment. At no time is a braai fire to be left unattended. • Smoking is prohibited near places where any readily combustible or flammable materials are present. Notices are to be prominently displayed prohibiting smoking in such areas. • Welding, flame cutting and other hot work is only to be undertaken in places where the necessary safety precautions are in place (i.e. not near potential sources of combustion and with a fire extinguisher immediately accessible). • All flammable materials are to be stored in a suitable, lockable storage area. • Combustible materials may not accumulate on the construction site. • Cooking is to be restricted to bottled gas facilities in designated areas approved by the ECO. This facility is to be supervised and strictly controlled. • Fire extinguishers must be readily available.	
After Mitigation	
Extent of the Impact	2
Duration of the Impact	1
Intensity of the Impact	1
Significance of Impact = Extent of Impact + Duration of Impact + Intensity of Impact	**4**
Probability	1
Environmental Risk = Significance of Impact X Probability	**4**

11.2.3 Compilation of the Environmental Impact Assessment Report

The EIA report will be compiled to address the following:

- A detailed description of the proposed project and recommended development site;
- Detailed assessment of the impacts identified which are determined to be potentially significant;
- Recommendations regarding the mitigation of significant impacts; and
- To meet the requirements and to comply with the necessary legislation and Acts.

Any specialist studies will be combined into a consolidated report will allow for easy assessment of the potential aspects.

11.2.4 Review of the Environmental Impact Assessment Report

Public Review of the draft Environmental Impact Assessment report

The draft EIA report will be made available to Departments, Organs of state and registered I&APs for public review and comment. A 40-day period will be allowed for this review process.

Authority review of the Environmental Impact Assessment report

After the public review period, all relevant comments received from the Departments, Organs of State and I&APs will be considered and included into the final EIA report. This final document will be submitted to the authorities for final review and decision-making.

Environmental Management Plan (EMP)

A draft EMP will be compiled for this project and submitted along with the draft EIA report to the relevant Departments, Organs of State and I&APs. The EMP will prioritise management principles for the installation (construction) and operational phases of the project. It will contain all the mitigation and management measures to which the project proponent must adhere during the life cycle of the project. The EMP will be finalised upon receipt of authorisation, so as to ensure that any specific conditions of approval are addressed in the EMP

12. CONCLUSION

Based on the above-mentioned information and the identification of the potential environmental impacts as a result of the proposed abattoir wastewater treatment works it is concluded that a full Environmental Impact Assessment may commence.

Major environmental concerns include surface and ground water contamination, soil erosion, loss of vegetation and nuisance due to noise and odours.

The appropriate mitigation measures will assist in minimizing the potential impacts on the surrounding environment during the construction and operational phases of the development.

The positive environmental and social impacts of the proposed development outweigh the negative impacts. This project may lead to job creation, skills development and an improvement of environmental conditions. Such development will alleviate poverty, not only among the employees but also within their families and the local community.