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City of Johannesburg

Civil Engineering Services Outline Scheme Report
PROPOSED DEVELOPMENT: NIETGEDACHT EXT 4-
Situated on Portion 39 of the Farm Nietgedacht
535-JQ

RELEVANT INFORMATION

Version Control:

- (0) = Original Report

November 2025

Town Planning Application No.: -

Total Area of Investigation Site: 14.587 Ha

Compiled by: Cornay Phillips

Approved by: Gawie Le Roux – Pr Tech (Eng)

200070105

signature

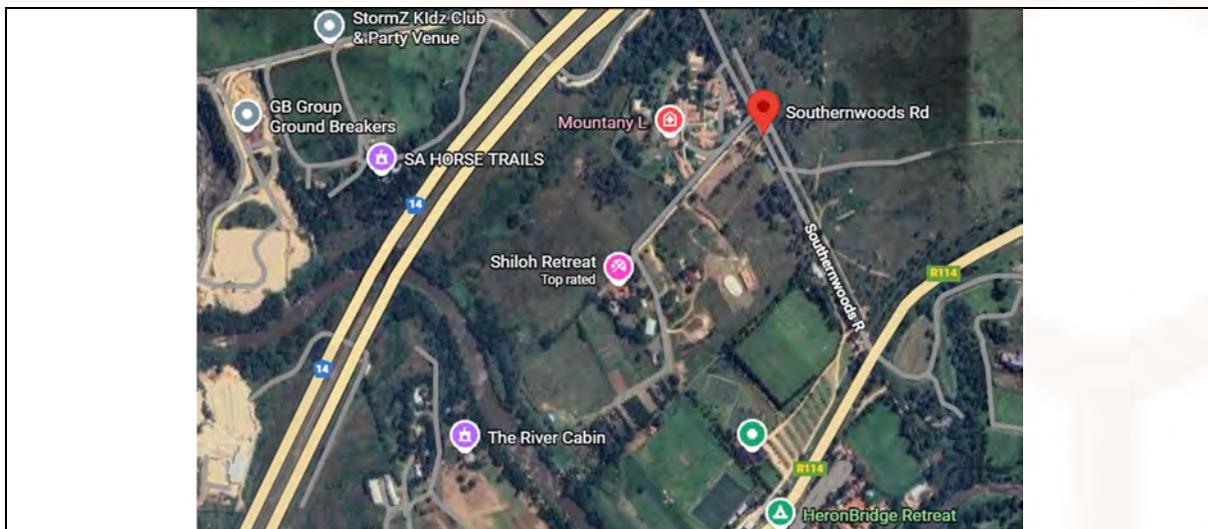


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1 INTRODUCTION

Triple 3 Engineering (Pty) Ltd has been appointed as consulting engineers by Impact for Christ Ministries to prepare the Outline Scheme Report for the proposed Nietgedacht Extension 4 development, situated on Portion 39 of the Farm Nietgedacht 535-JQ. This area falls within the jurisdiction of the City of Johannesburg in the Gauteng Province.

The purpose of this report is to provide information to the Municipality regarding the requirements of the new development in terms of the provision of roads, storm water drainage, sewer drainage, and domestic water reticulation for approval by the City of Johannesburg, Local Municipality.

2 RELEVANT INFORMATION

2.1 LOCATION OF PROPOSED DEVELOPMENT

The proposed development is situated on the north of the Heron Bridge Sports Complex, to the East of the Jukskei River and to the west of Southernwoods Road in Nietgedacht. The site is approximately 14.587 hectares in size, and the site co-ordinates are 25°56'59.4" S and 27°57'36.8" E.

-26.032 681, 27.880 657

Further reference should be made to: Annexure "A" (Locality Plan) and Annexure "B" (Aerial Photo).

2.2 EXTENT OF THE DEVELOPMENT AND PROPOSED LAND USE

The proposed development will consist of the following land use categories:

- Erf 1 Educational = 3.2378 ha
- Erf 2 Commercial 1 =0.514 ha
- Erf 3 Special =3.9065 ha
- Erf 4 Agricultural =5.4923 ha
- Erf 5 Private Open Space =1.2413 ha
- Roads, Railway & Air
Public Roads: - =0.1951 ha

Further reference should be made to: Annexure "C" the Landuse Diagram

It is envisaged that the township will be developed as a private property, with internal infrastructure i.e., roads, parking, stormwater, water reticulation and sewer drainage networks, etc. However, infrastructure outside the development as well as infrastructure that service more than one township, will be deemed as external municipal services. All private services will be maintained by the body corporate / NPC whilst external services will be maintained by the City of Johannesburg Municipality. Controlled access to the development will be provided.

2.3 TOPOGRAPHY OF THE SITE

The land slopes in a south westerly direction at a gradient of about 17.96% from the highest point 1353m MSL on the north-eastern side to the lowest 1304.5m MSL on the north-western side. Refer to the Land Use Diagram in Annexure "C".

2.4 GEOTECHNICAL CONDITIONS

A Geotechnical investigation of the site was conducted in July 2011 by Mshandukani Trading and Projects, only the cover page is attached as Annexure "D", however the full report is available on request.

The following key points, extracted from the abovementioned Geotechnical report, are considered pertinent to the current OSR report:

2.4.1 SITE GEOLOGY

Regional Geology: -

The area is manifested by relatively complex geology both lithologically and structurally. Lithologically, on a regional scale, the area is underlain by sedimentary and metamorphic rocks of the West Rand and Central Rand Groups, Witwatersrand Supergroup. This formation dates to the Randian Age. Overlaying these are rocks are Ventersdorp and Transvaal Supergroup of the Randian to Vaalian Age.

Local Geology: -

Bedrock

Locally, the site is underlain by read medium grained quartzite of the Government Formation, west Rand Group, Witwatersrand Supergroup. This formation dates to the Randian Period.

Residual Soils

Residual soils are composed of very moist, whitish brown, orange speckled, very dense, intact, silty sand Gravel with ferricrete nodules, residual whitish brown Quartzitic Sandstone. These soils are the weathering product of the underlying whitish brown, moderately weathered, medium jointing, medium to hard rock Quartzite.

Transported Soils

Overlaying the residual soils is the moist, light brown, dense, intact, sandy Gravel, Colluvial, tree roots which are in turn overlain by moist, light brown, dense, intact, silty fine Sand, Colluvial, roots.

2.4.2 HYDROLOGY

The topographical setting of the site in conjunction with anthropological activities encourages stagnation of water, following precipitation, giving rise to highly saturated ground especially at Test pit 01 which is closer to the river.

Perched water table resulting from the contact between various geologic zones occurs during rainy seasons in some of the areas.

This investigation was carried out in a rainy season. By the time of investigation, excavations were moist to wet, with some saturated due to high water table.

2.4.3 OBSERVATIONS

2.4.3.1 Activity, Expansiveness of Swelling Soils

Damage to structures erected on potentially active soils occurs where the expansiveness has not been determined and necessary remedial measures not employed. The potential expansiveness of a soil depends upon its clay content, the type of clay mineral present, its chemical composition and mechanical character. A material is potentially expansive if it exhibits the following properties:

- Clay content of more than 12%.
- Plasticity index of more than 12%.
- Liquid limit of more than 30%.
- Linear shrinkage of more than 8%.
-

The method of van der Merwe (1964) was used to determine the potential heave of soil samples. In addition to van der Merwe's method, the plasticity index and linear shrinkage of soil samples were used to indicate the soils potential expansiveness.

Where development is anticipated on areas with potential expansiveness, the following modified construction methods proposed by Williams *et al.* (1985) may need to be employed:

- Pre-wetting of expansive soil horizons
- Removal of the active layer
- Construction of moisture barriers and paving around the structures
- Stiffened raft foundations, sandwich raft foundations (two overlying raft foundations with a mattress of gravel or sand between the rafts)
- Split construction.

From the visual observations coupled with lab testing, the *potential expansiveness of the soils on the site is Low*. This is due soil texture and low percentage of clay content which result in low plasticity index and liquid limit. The possibility of structural distress resulting from cyclic drying shrinkage in dry seasons and swell after wetting is therefore minimum.

2.4.3.2 Settlement and Collapse Potential

Collapsible soils are soils that can withstand relatively large, imposed stresses with small settlements at low in situ moisture content but will decrease in volume causing relatively larger settlements when wetting occurs under a load. This volume change is associated with a change in the structure of the soil and can occur in any open textured clayey silty sandy soils with a high void ratio. Colluvial soils situated on straight slopes, plains and residual soils on well-drained hillslopes derived from weathered granite generally exhibit a collapsible fabric.

Site soils are not *prone to collapse potential* due to their thickness, presence of coarse material and absence of some notable voids. The site soils are consolidated to unconsolidated and immature.

Soil settlement is due to consolidation of soils resulting from imposed loads. These loads mobilise the soil particles into tight form by particle orientation rearrangement and closing of voids.

The compact nature and the limited thickness in the residual soils (Appendix III) manifest into low to medium settlement ratio.

The foundation designs should, however, be such that it takes settlement, especially differential settlement into account. This is due to variations in the site soils resulting from geology, geohydrology, reworked material by farming and construction activities, waste disposal pits, closed pit latrines, presence of pedogenic material etc. The site falls under **R, S1 (up to 20 mm movement) soil classification**

2.5 TRANSPORTATION ISSUES AND ACCESS TO THE SITE

A Traffic Impact Study was conducted by Hamatino Consulting Engineers in November 2025. Only the cover page is attached as Annexure “E”, however the full report is available on request.

The following key points, extracted from the abovementioned TIA, are considered pertinent to the current OSR report:

Access to the development will be provided at two localities as follow: -

- Access to the church within close proximity to the property southern boundary.
- Access to staff accommodation etc as well as Church within close proximity to the property northern boundary.

The above-mentioned access locality is depicted in figure 4 further below: -

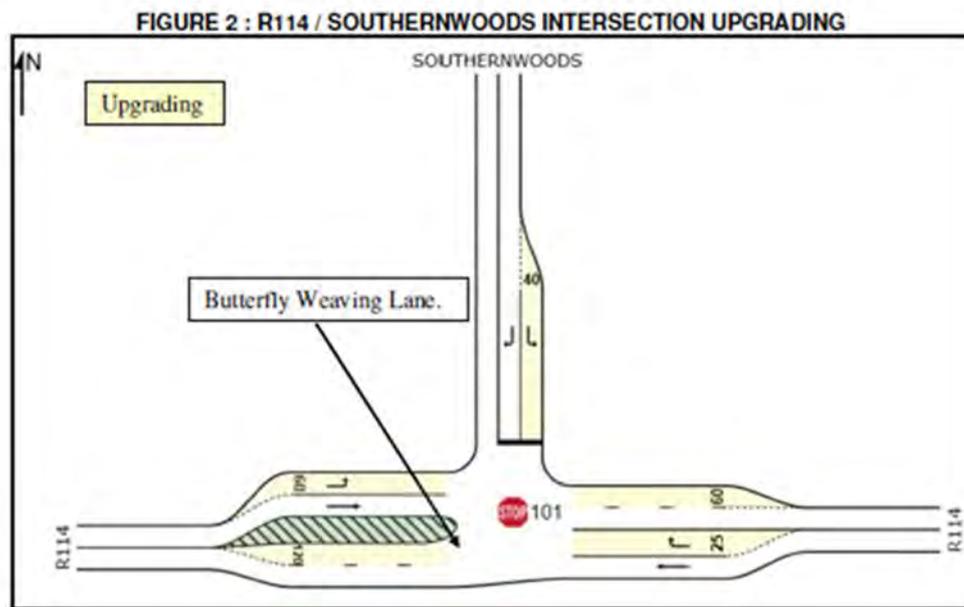
FIGURE 4 : DEVELOPMENT ACCESS LOCALITIES



Both access roads will be ingress as well as egress traffic flow an access road width of 7.0m wide is proposed accordingly.

2.5.1 Conclusions & Recommendations

- That the Southernwoods/R114 Intersection be upgraded in accordance with Section 8 of the report, please refer to Figure 2 below for the depicted upgrading of the intersection: -



- Access to the development will be provided in accordance with the relevant township layout plan
- The security gate/boom shall be opened and left in the open position for any event at the spiritual sanctuary until the event has started.
- At least 735 parking bays need to be indicated on the site development plan (currently 736 parking bays has been indicated which is sufficient)
- Apart from the above, the provision of at least three bus parking spaces is proposed
- Two accesses will be provided; both should be 7.0m wide.

3 EXTERNAL SERVICES

3.1 PROVISION OF DOMESTIC WATER (EXTERNAL)

3.1.1 Estimated Water Consumption and Demand

Table 1 provides a summary of the estimated water demand to be generated by this development. In terms of the land use proposals, the estimated daily water consumption figures were calculated as recommended by the “Guidelines for Human Settlement Planning and Design” (The Red Book), as published by the CSIR.

TABLE 1: ESTIMATED WATER CONSUMPTION PEAK FLOW

Item	Land use	Area	Average Daily Consumption	Total Demand
1a	Erf 1 - Educational	Development Potential 6 475.60 sqm	64.75 units @0.6kl/day	38.85 kl/day
1b	Erf 2 – Commercial 1	Development Potential 514 sqm	5.14 units @0.65kl/day	3.34 kl/day
1c	Erf 3 - Special	Development Potential 2734.55 sqm	27.34 units @0.4kl/day	10.93 kl/day
1d	Erf 4 - Agricultural	Development Potential 274.615 sqm	2.746 units @4.0kl/day	10.98 kl/day
1e	Erf 5 – Private Open Space	Development Potential 372.39 sqm	3.723 units @0.6kl/day	2.23 kl/day
1d	Total water demand for peak factor calculation			66.33 kl/day
1e	Peak water consumption at a peak factor of 3.0			2.30 l/s
1f	Fire Flow (Moderate Risk – 2)			25.00 l/s

3.1.2 Water Supply Connection

No bulk municipal water services are available in the vicinity of the development, find attached confirmation from Johannesburg Water, Annexure “F”. A new 110mm diameter Water Main will have to be constructed for about 1.350km to provide a water connection to this development, please refer to Annexure “G”.

The required water connections will be designed by - and constructed under supervision of - Triple 3 Engineering after approval had been obtained from The City of Johannesburg’s Municipality. The bulk connection to the proposed development will include a bulk water meter (with sluice valves on both sides) connected to a new reservoir as indicated on Annexure “G”.

The existing size of the tie-in water main, 75mm diameter necessitates that onsite water storage must be provided. Refer to Annexure “I” for details of the proposed Reservoir.

3.1.3 Reservoir Capacity

We will Supply 48 Hour Storage for domestic use as well as storage for a 2-hour firefighting supply.

- Domestic Storage: 66.33 kl/day x 2 days = 132.72 kl
- Fire Storage: 0.025 kl/s x 60s/min x 60 min/hr x 2 hours = 180.00 kl
- **Total Storage Required = 312.72 kl**

A booster pump will be provided to supply pressure to the network from the reservoir.

Both the reservoir and the booster pump will remain private together with all the internal water infrastructure.

3.1.4 Servitudes Required

The new external water main as described above will be constructed from 10th Road south of the development all along the boundary of 24/525/JQ crossing the river through 36/535/JQ and

underneath the K52 into Southernwoods Road reserve area, servitudes will need to be registered over 24/535/JQ and 36/535/JQ the rest of the water main will be in the road reserve area.

3.1.5 Existing Water Supply Capacity

In accordance with the information provided by the municipality, there is an existing 75mm dia uPVC Water Main in 10th Road. The existing 75mm dia line should have sufficient capacity to supply the proposed reservoir and should be confirmed by the Municipality.

3.2 PROVISION OF DOMESTIC SEWER (EXTERNAL)

3.2.1 Indicative Sewage Flow Calculations

With regards to the Medium Density development, it is estimated that the sewer flow will be 75% of the water demand of the development. Table 2 below provides a summary of the estimated sewer flow which will be generated by the development:

TABLE 2: ESTIMATED SEWER FLOW				
Item	Land use	Quantity	Average Daily Flow	Total Sewer Flow
2a	Erf 1 - Educational	Development Potential 6 475.60 sqm	64.75 units @0.39kl/day	25.25 kl/day
2b	Erf 2 – Commercial 1	Development Potential 514 sqm	5.14 units @0.52kl/day	2.67 kl/day
2c	Erf 3 - Special	Development Potential 2734.55 sqm	27.34 units @0.32kl/day	8.74 kl/day
2d	Erf 4 - Agricultural	Development Potential 274.615 sqm	2.746 units @1.6kl/day	4.39 kl/day
2e	Erf 5 – Private Open Space	Development Potential 372.39 sqm	Not Applicable	0.00 kl/day
2d	Total Sewer Flow			41.05 kl/day
2e	Peak sewer flow at a peak factor of 2.5			1.18 l/s

3.2.2 Sewer Drainage Connection

No bulk municipal sewerage services are available in the direct vicinity of the Proposed Development, it is therefore proposed to construct a sewer package plant for the development, in the north-western corner of the site, please refer to Annexure “G”.

The bulk of the internal sewer network for the development will drain via a gravitational sewer pipe system to this package plant. Please refer to Annexure “H” for details of the proposed sewer package plant.

3.2.3 Sewer Drainage Connection

As mentioned before no sewer connection exist in the vicinity of this development, as a result a sewage package treatment plant will be constructed. Please refer to Annexure “H”, for details of the proposed Sewage Package Treatment Plant. A maintenance manual will be submitted with the detail design drawings. The Package plant will remain private together with all the internal infrastructure.

3.2.4 Servitudes Required

The new sewer line system will be accommodated within the internal road reserve area so no new servitudes will be required, please refer to Annexure "G".

3.2.5 Existing Sewer Capacity

No Bulk municipal sewerage services are available in the direct vicinity of the Proposed Development. As a result, we are constructing a private sewage package treatment plant, hence this development will have zero impact on the City of Johannesburg Municipality's sewage network.

3.3 STORMWATER DRAINAGE (EXTERNAL)

The bulk of the stormwater emanating from the site will discharge into an attenuation pond which will be constructed on the north-western boundary on Erf 4. From the attenuation pond, stormwater will discharge through a ± 120 m long, 450mm diameter pipe system on the northern boundary of Erf 4, where it will discharge into an unconcentrated stilling basin which will then flow into the existing watercourse, as indicated on Annexure "J". The attenuation pond will have the capacity to attenuate the difference between the pre-development and post-development flows for both the 1:5-year and the 1:25-year stormwater scenarios. Refer to Annexure "K" for details of this attenuation pond.

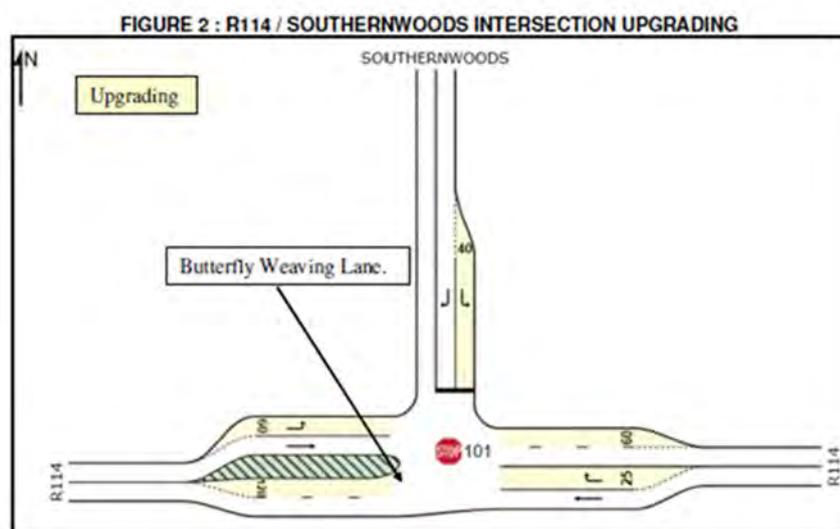
Please note that a separate Stormwater management plan will be submitted with the detailed construction drawings as well.

On completion the City of Johannesburg Municipality will take over the external storm water system. However, safety & security measures as well as maintenance of the attenuation ponds are to be provided by the Property Owners as both ponds will remain private.

3.4 ROAD CONSTRUCTION (EXTERNAL)

Access to the site will be provided as discussed in Section 2.5 of this report which has been allowed for in the proposed township layout along the eastern boundary as shown on Annexure "C & J".

According to the Traffic Impact Study discussed in Section 2.5 of this report in the Southernwoods/R114 Intersection must be upgraded in accordance with Section 8 of the traffic impact study, please refer to Figure 2 below for the depicted upgrading of the intersection: -



On completion of the project these external upgrades will be handed over to the Johannesburg Roads Agency.

4 INTERNAL SERVICES

The design of the internal township services for the proposed development will be based on the design principals contained in The Red Book for Engineering Services as published by the CSIR and in accordance with the local authority's requirements for engineering services where applicable.

All services will be installed under the direction of Triple 3 Engineering. The General Conditions of contract for work of Civil Engineering Construction, standard specifications SABS 1200 and relevant specifications will pertain to the contract.

4.1 WATER RETICULATION (INTERNAL)

4.1.1 Water Reticulation Design

The developer will be responsible for the installation of a new external 110mm diameter supply connection and new private reservoir as discussed earlier in this report. From this reservoir a booster pump will distribute water into the development, through a series of internal water pipes, varying in size, please refer to Annexure "F".

Pipes will be Class 12 mPVC water pipes and fire, and domestic water demand will be calculated in accordance with the requirements of the local authority. Fire Hydrants and valves will be installed in line with the minimum municipal requirements.

The development will be provided with a bulk water meter by the City of Johannesburg's Municipality, and this service will be maintained by the developer on completion.

4.1.2 Servitudes Required

The internal network is located within the internal road reserve area hence no new servitude is required.

4.2 SEWER RETICULATION (INTERNAL)

4.2.1 Sewer Reticulation Design

As discussed in item 3.2.2, there is no bulk municipal sewerage services available in the direct vicinity of the Proposed Development, it is therefore proposed to construct a sewer package plant for the development, in the north-western corner/boundary of the site. The internal sewer for the development will drain via a gravitational sewer pipe system to this package plant, please refer to Annexure "G".

All mains will be 160mm diameter Class 34 uPVC solid wall pipes (or similar approved). House connections will be 110mm dia Class 34 uPVC pipes. Manholes (sizes and spacing thereof) will comply with the relevant SABS 400 and/or 1200 specifications. On Completion the internal sewer system will be maintained by the developer.

4.2.2 Design considerations for residential sewers

Table 4 below provides guidance in terms of generally accepted minimum standards for normal residential sewer networks as described in the The Red Book. Where no minimum requirements or specific standards are provided by the Local Authority the design for these developments will aim to follow these recommendations for all services.

Item No	TABLE 3: GENERAL INFORMATION – RESIDENTIAL SEWER NETWORKS	
1	Minimum internal diameter (mm)	160
2	Minimum full-bore velocity (m/s)	0.7
3	Maximum full-bore velocity (m/s)	2.5
4	Minimum cover in servitudes (mm)	600
5	Minimum cover in sidewalks (mm)	1400 below final kerb level
6	Minimum cover in road carriageways (mm)	1400 below final constructed road level
MINIMUM SEWER GRADIENTS		
7	Sewer diameter (mm)	Minimum gradient
8	100	1 : 120
9	150	1 : 200
10	200	1 : 300
11	225	1 : 350
12	250	1 : 400
13	300	1 : 500

4.2.3 Servitudes Required

No new servitudes will be required.

4.3 STORMWATER DRAINAGE (INTERNAL)

Stormwater drainage will be managed on surface, where after an underground piped drainage system will be installed for the 1:5-year return period storm. Allowance has been made for the 1:100-year storm to traverse the site in defined channels (which includes the internal road system) without causing any damage to buildings.

Both the piped (for minor storm) and overland (for major storm) systems will discharge into the attenuation pond located on the north-western boundary of Erf 4 as indicated on Annexure “J”. A detailed stormwater management report will be supplied with the detailed construction drawings on approval of this report.

On completion, the owners of the development will take over and maintain the internal stormwater system and associated attenuation ponds.

4.3.1 Design considerations for stormwater systems

Table 5 below provides guidance in terms of generally accepted minimum standards for typical stormwater pipe networks as described in The Red Book. Where no minimum requirements or specific standards are provided by the City of Johannesburg's Local Municipality the design for this development will aim to follow these recommendations for internal services.

TABLE 4: GENERAL STORMWATER INFORMATION			
SUGGESTED MINIMUM GRADES FOR PIPES			
Item	Pipe diameter (mm)	Desirable minimum gradient (1 in ...)	Absolute minimum gradient (1 in ...)
1	300	80	230
	375	110	300
	450	140	400
	525	170	500
	600	200	600
	675	240	700
	750	280	800
	825	320	900
	900	350	1000
	1050	440	1250
	1200	520	1500
SUGGESTED SPACING FOR ANCHOR BLOCKS			
Item	Gradient (1 in...)	Spacing for 2.44m pipe lengths	
2	2	every joint	
	2 – 3.33	alternate joint	
	5	every 4 th joint	
	10	every 8 th joint	

4.4 ROAD CONSTRUCTION (INTERNAL)

All the Internal Roads will be Private and maintained by the Homeowners Association. Reference is made to Annexure "J", for the proposed road layout.

The General Conditions of Contract for work of Civil Engineering Construction, standard specifications SANS 1200 and relevant specifications will pertain to the contract. All internal roads will be designed and constructed to acceptable industry standards and to the satisfaction of the local authority.

5 COST ESTIMATES

5.1 EXTERNAL SERVICES

Below is a summary of estimated cost to provide Bulk External Municipal Engineering Services for the proposed development.

Item	Description	Unit	Quantity	Rate	Amount	Section Total
5.1.1	Water Reticulation					R 2 687 792.31
.a	110mm dia Pipework	m	1350	915.00	1 235 250.00	
.b	Valves	No.	1	7 500.00	7 500.00	
.c	Fire Hydrants	No.	1	8 500.00	8 500.00	
.d	House Connections	No.	-	1 750.00	1 750.00	
.e	Main Connection	No.	1	110 000.00	110 000.00	
.f	"Structa" Steel water storage tank incl. associated base slab	No.	1	450 000.00	450 000.00	
.g	Preliminary & General	%	10	1 363 000.00	136 300.00	
.h	Contingencies	%	10	1 949 300.00	194 930.00	
.i	Professional Fees	%	9	2 144 230.00	192 980.70	
.j	VAT	%	15	2 337 210.70	350 581.61	
5.1.2	Sewer Reticulation					R 1 933 605.73
.a	Sewerage Package Plant	m	1	1 196 953.84	1 196 953.84	
.c	Civils Estimate	No.	1	77 893.60	77 893.60	
.d	House Connections	No.	-	-	-	
.e	Main Connection	No.	0	25 000.00	-	
.f	Preliminary & General	%	10	1 274 847.44	127 484.74	
.g	Contingencies	%	10	1 402 332.18	140 233.22	
.h	Professional Fees	%	9	1 542 565.40	138 830.89	
.i	VAT	%	15	1 681 396.29	252 209.44	
5.1.3	Road Construction					R 2 719 505.86
.b	Road Earthworks & Subgrade L	m ²	2210	370.00	817 700.00	
.c	Subbase Layer	m ³	331.5	600.00	198 900.00	
.d	G5 stabilised Base Coarse	m ³	200	915.00	183 000.00	
.e	Asphalt Surfacing	m ²	2000	180.00	360 000.00	
.f	Kerbing & Chanelling	m	420	270.00	113 400.00	
.g	Ancillary Roadworks	Sum	1	120 000.00	120 000.00	
.h	Preliminary & General	%	10	1 793 000.00	179 300.00	
.i	Contingencies	%	10	1 972 300.00	197 230.00	
.j	Professional Fees	%	9	2 169 530.00	195 257.70	
.k	VAT	%	15	2 364 787.70	354 718.16	
5.1.4	TOTAL CONSTRUCTION COST FOR EXTERNAL SERVICES (Including VAT)					R 7 340 903.89

5.2 BULK CONTRIBUTIONS

The developer intends to apply for offsets against the developments Bulk Contributions for the construction cost of the External Bulk water main and the External Road intersection upgrade on Southernwoods Road & the R114.

6 LIST OF ANNEXURES

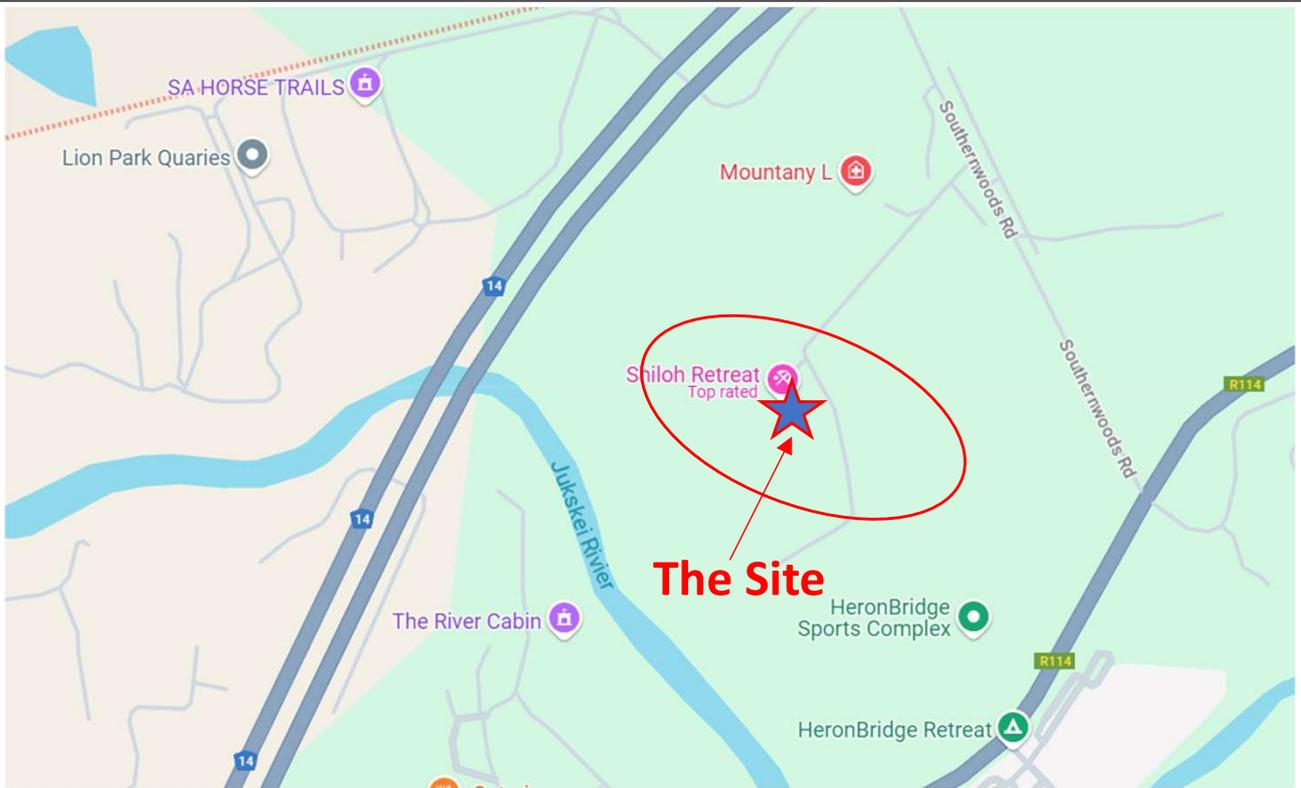
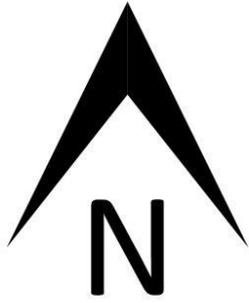
Annexure A	-	Locality Plan
Annexure B	-	Aerial Photo
Annexure C	-	Landuse Diagram
Annexure D	-	Geotechnical Investigation (Front Page)
Annexure E	-	Traffic Impact Assessment (Front Page)
Annexure F	-	Existing Water Infrastructure
Annexure G	-	Proposed External and Internal Sewer & Water Layout
Annexure H	-	Proposed Sewerage Package Plant
Annexure I	-	“Prestank” Water Storage Solution
Annexure J	-	Proposed Internal Roads & Stormwater
Annexure K	-	Proposed Attenuation Pond

7 CONCLUSION

The developer of the above property requires the support from the City of Johannesburg’s Municipality to establish this township. Any queries can be directed telephonically to Cornay Phillips at 082 770 6946 or via email at cornay@triple3.co.za.

Annexure A

- Locality Plan



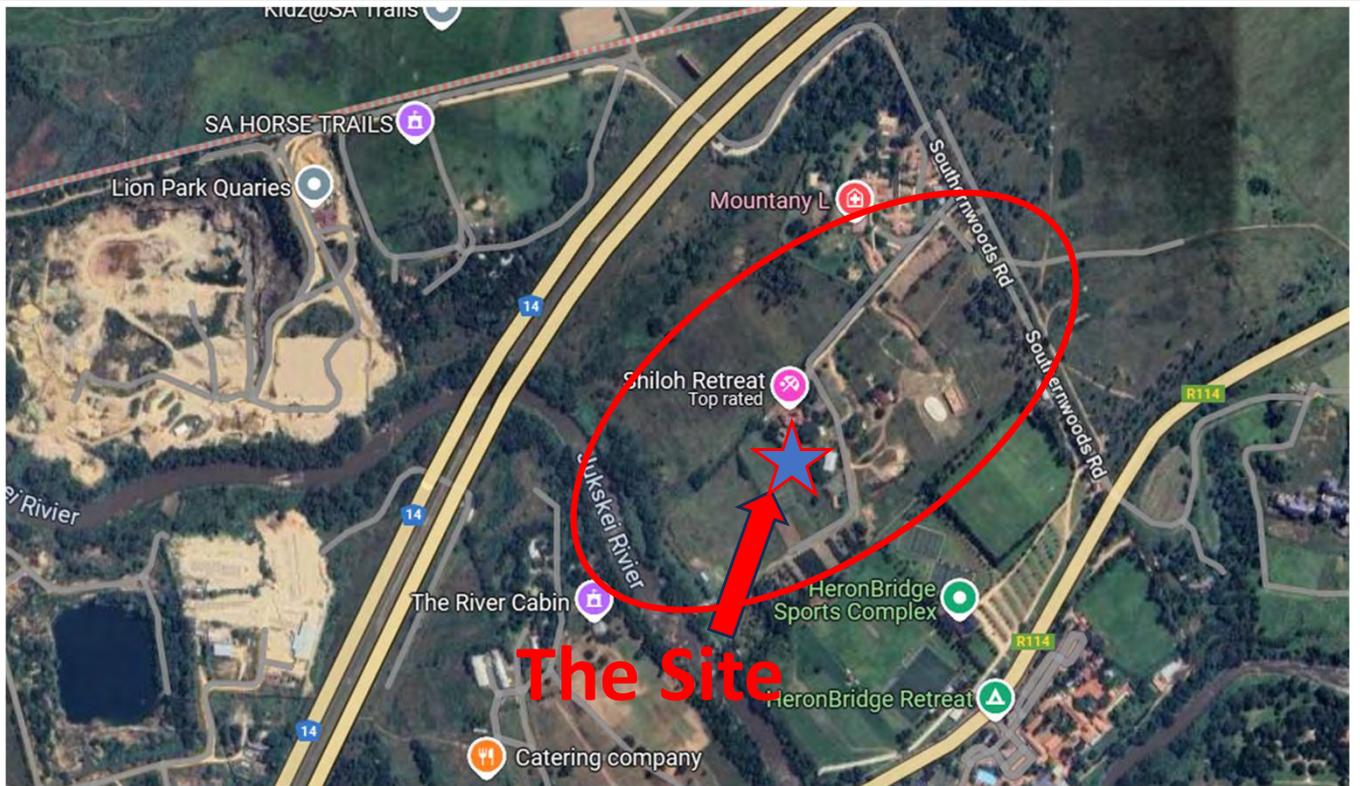
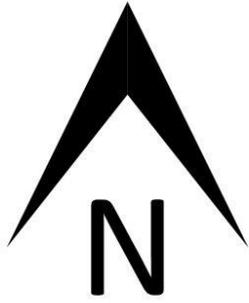
TRIPLE 3 GROUP

397 – 01
NIETGEDACHT X4

LOCALITY PLAN

Annexure B

- Aerial Photo

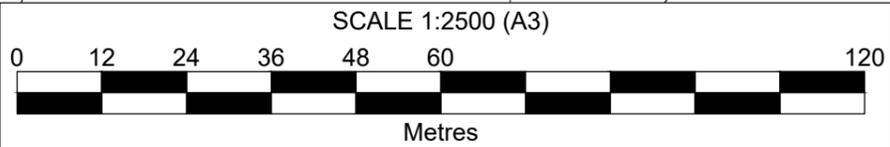


397 -01
NIETGEDACHT X4

Aerial Photo

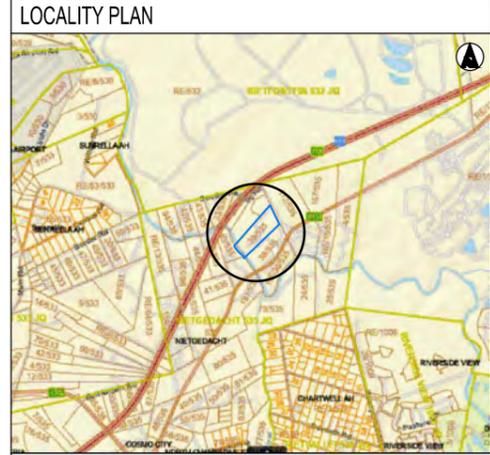
Annexure C

- Landuse Diagram



FLOOD LINE CERTIFICATION
 It is hereby certified that the proposed township as shown is AFFECTED / NOT AFFECTED by a 1:100 year flood line, as per the provisions of Section 144 of the National Water Act, 1998 (Act 36 of 1998).
 (Pr Eng) (Reg No)

LAYOUT PLAN
PROPOSED TOWNSHIP NIETGEDACHT EXTENSION 4
 SITUATED ON PORTION 39 OF THE FARM NIETGEDACHT 535-JQ
 Province : Gauteng



ZONING SCHEDULE

LAND USE TABLE				
PROPOSED ZONING	ERF No.	No. OF ERVEN	AREA (Ha)	% OF AREA
Educational	1	1	3,2378	22,20
Commercial 1	2	1	0,5140	3,52
Special	3	1	3,9065	26,78
Agricultural	4	1	5,4923	37,65
Private Open Space (Social)	5	1	1,2413	8,51
Roads, Railway & Air: Public Road			0,1951	1,34
TOTAL		5	14,5870	100

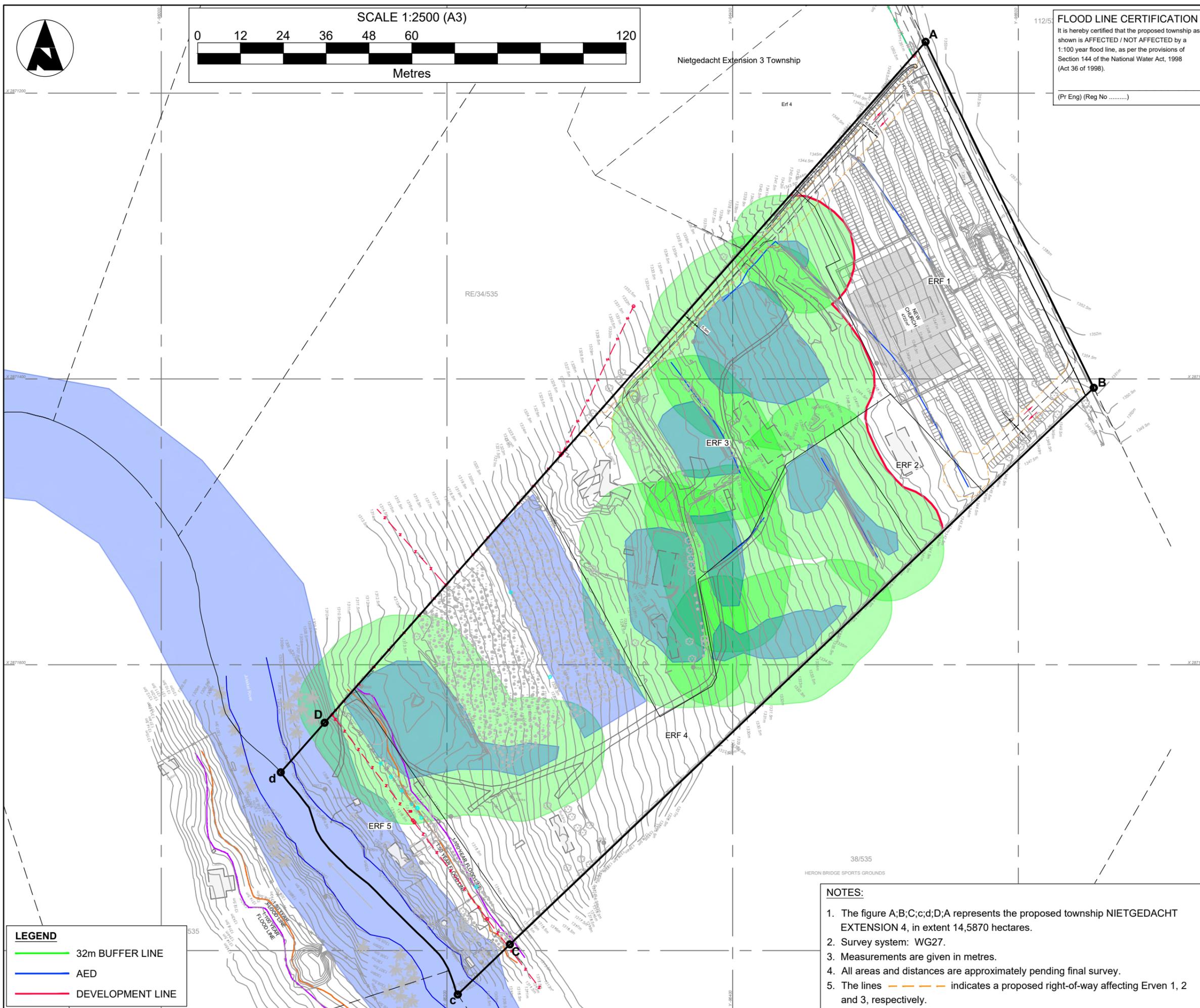
LOCAL AUTHORITY
CITY OF JOHANNESBURG

CONTOURS
 Contour Interval: 0,5m
 Datum (AHSL): Sea Level
 Surveyed by: Geometric Surveys
 Date of Survey: June 2025

CLIENT
Impact for Christ Ministries

SERVITUDE NOTES

LAYOUT PLAN No. : -
 DRAWING No. : S2506_4-8
 Date : October 2025
 Copyright : **Synchronicity DP**



LEGEND
 32m BUFFER LINE
 AED
 DEVELOPMENT LINE

NOTES:

- The figure A;B;C;c;d;A represents the proposed township NIETGEDACHT EXTENSION 4, in extent 14,5870 hectares.
- Survey system: WG27.
- Measurements are given in metres.
- All areas and distances are approximately pending final survey.
- The lines indicates a proposed right-of-way affecting Erven 1, 2 and 3, respectively.

Annexure D

- Geotechnical Investigation (Front Page)

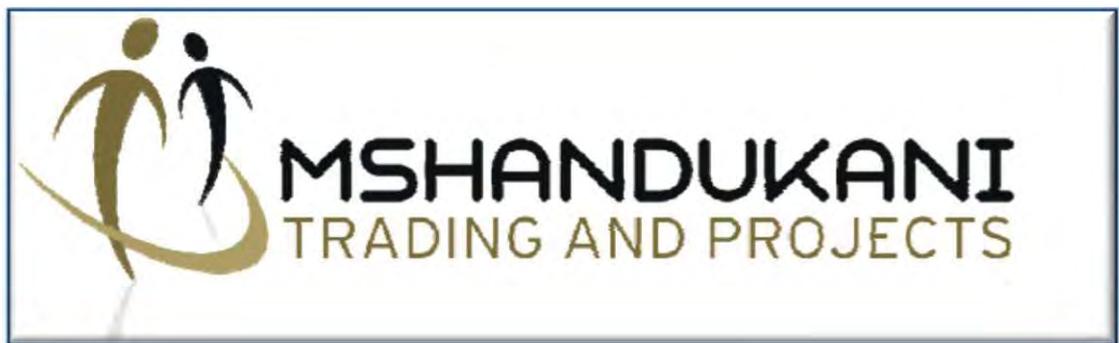
**CONSTRUCTION ENGINEERING GEOTECHNICAL
REPORT FOR IMPACT MINISTRY BUILDING
INFRASTRUCTURES IN JOHANNESBURG, SOUTH
AFRICA.**

Client: IMPACT MINISTRY

Report No.: 103-01-11 July 2011

Revision: 0

PREPARED BY: Mashudu Shandukani



Contact Details

Cell: 072 570 9181

Fax: 086 659 6238

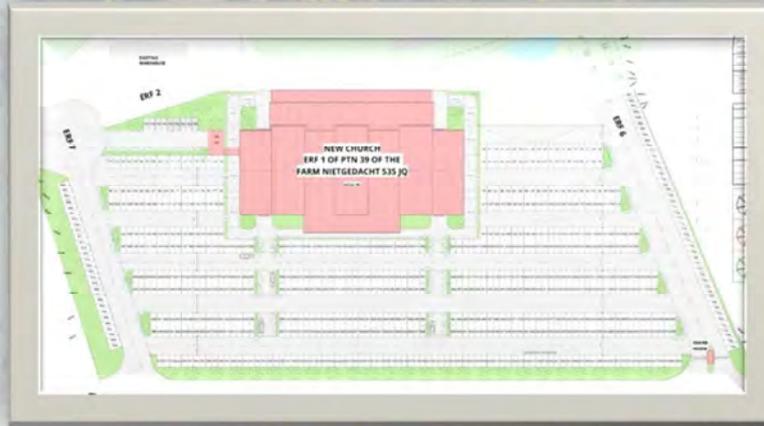
E-mail: mashudu@mshandukani.co.za

Website: www.mshandukani.co.za

Annexure E

- Traffic Impact Assessment (Front Page)

SYNCHRONOCITY DEVELOPMENT PLANNERS



TRAFFIC IMPACT STUDY – R3

JULY 2025- REV NOV 2025

PROPOSED NIETGEDACHT EXTENSION 4

PREPARED BY:
HAMATINO CONSULTING ENGINEERS
13 HOOGGELEGEN ROAD
WHITE RIVER
1240
(013) 750 1403 Cell 083 2766805
Email: hws@hswart.co.za

Image © 2025 Airbus



Annexure F

- Existing Water Infrastructure



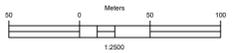
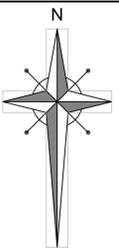
Water&Sewer: System Type

2025-07-14 10:34



Annexure G

- Proposed External & Internal Sewer & Water
Layout



GENERAL NOTES

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3. NOTE THAT NO OTHER BURIED SERVICES ARE INDICATED ON THIS DRG.
4. DIMENSIONS ARE NOT TO BE SCALED FROM THIS DRAWING.
5. THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION UNLESS SPECIFICALLY DIRECTED OR INDICATED.
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 - d. THE CONTRACTOR MUST BE IN POSSESSION OF ADEQUATE PUBLIC LIABILITY INSURANCE.

LEGEND:

- EXISTING SEWER MAINS
- EXISTING WATER MAINS
- NEW 110mmØ WATER SUPPLY 1.35km

REVISIONS

NO.	DRAWN	DATE	REVISION
A	RA	2025-07-16	CREATED FOR REPORT

REFERENCE DRAWINGS

--	--	--	--

BENCH MARKS

BM	Y	X	Z

PERSONS RESPONSIBLE	NAME	SIGNATURE	DATE
DESIGNED	SELECT DROP DOWN		
DRAWN	RICARDO ALHO Draftsman		2025-07-16
APPROVED	SELECT DROP DOWN		
CHECKED	SELECT DROP DOWN		

APPROVED FOR TRIPLE 3 ENGINEERING
 REGISTERED PERSON:
 GAWILE RHOJA
 PR TECH (ENG) 200070105
 SIGNED DATE 2025-07-16

IN ASSOCIATION WITH

LOCAL AUTHORITY

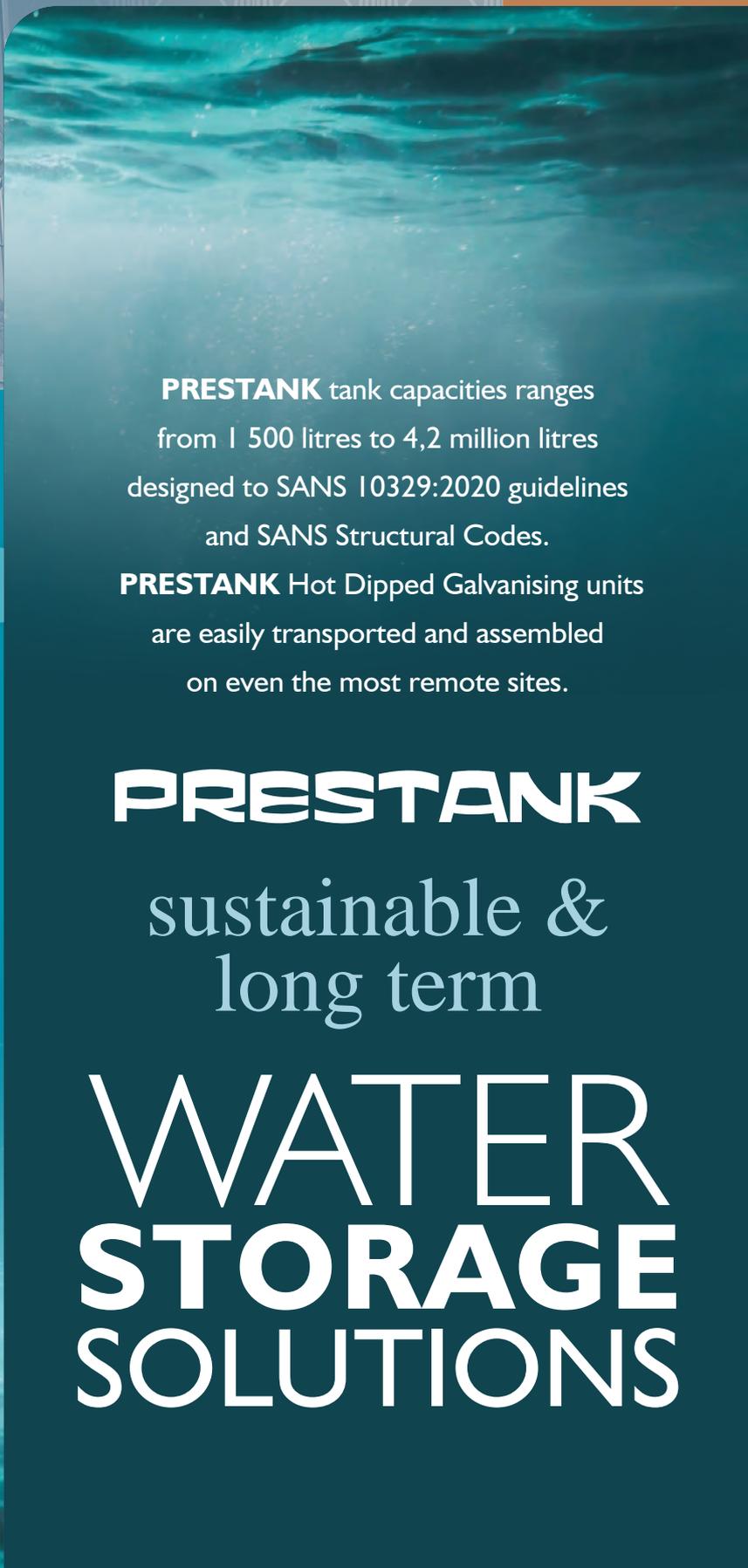
CLIENT

CONSULTANTS
TRIPLE 3 GROUP
 Construction · Engineering · Project Management
TRIPLE 3 ENGINEERING
 Tel: +27 (0) 10 745 1333
 Email: info@triple3.co.za
 Web: www.triple3.co.za

PROJECT DESCRIPTION
 TOWNSHIP NIETGEDACHT EXTENSION 4
 PROPOSED WATER AND SEWER CONNECTION LAYOUT

STATUS	SCALE	SIZE	DRAWING NUMBER	REV
Concept Drawing	1:5 000	A1	397 04 01	A

Annexure I - Proposed "Prestank" Water Storage Solution



PRESTANK tank capacities ranges from 1 500 litres to 4,2 million litres designed to SANS 10329:2020 guidelines and SANS Structural Codes.

PRESTANK Hot Dipped Galvanising units are easily transported and assembled on even the most remote sites.

PRESTANK

sustainable &
long term

**WATER
STORAGE
SOLUTIONS**



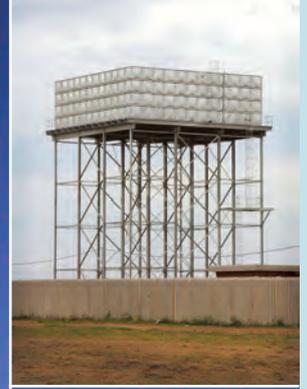
Pressed Steel Sectional Water Tanks

Structa Technology's **Prestanks** are **hygienically safe**, **cost effective** and a **reliable** way to store water for commercial sectors, private sectors and even for personalized storage. Choose from temporary or permanent erection at mines, powerstations, building sites, hospitals, water affairs, municipalities, rural communities and agriculture. There is a wealth of water storage applications, for which Prestanks are an answer.

Prestanks pride themselves on supplying fully customizable, high quality water storage solutions to **SANS** specifications and meet South African **Hot Dipped Galvanizing** requirements.

sustainable &
long term

WATER STORAGE SOLUTIONS



THERE ARE MANY **BENEFITS** TO CHOOSING **PRESTANKS**:

It facilitates construction of an infinite range of sizes and configurations to meet the specifications and needs of the client: **Handrails**, **walkways** and **lightning protection** are just a few examples of the features available to our clients.

The profile panel sections provide **excellent strength** properties and are structurally sound for storing water. The stand is designed strictly in accordance with **SANS 10160 for wind** and **SANS 10162 for Structural Steel work**.

Tanks mounted on steel towers above ground level have an **aesthetically pleasing** appearance.

Another major advantage of the sectional tank design, is that it facilitates **easier handling** and **transportation** over long distances to **remote areas**, regardless of the final dimensions of the assembled unit.

Assembly on site is **quickly achieved** without the need for sophisticated tooling methods.

Minimum maintenance is required because the galvanized steel panels **resist weathering** from the elements, while maintaining the integrity of the water within from contamination of most forms.

Access to the water tank can be restricted by means of a lockable, **ventilated access cover**, providing **safety** and peace of mind to our clients.

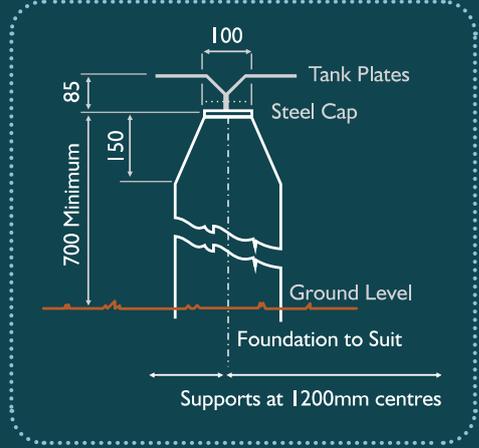
Our tank is designed to **SANS 10329:2020** guidelines.



In this way, pre-manufactured storage facilities having a capacity even in excess of 15 000 cubic meters, can be provided for a vast variety of applications, regardless of the location of the site. Reservoirs constructed from pressed steel sections are used extensively by the mining industry and municipal authorities. Large storage tanks to this design which are mounted on steel towers can also be seen at many of Eskom's power stations.

Structa's pressed steel sectional tanks are hot dip galvanized for corrosion control in accordance with the requirements of the **SANS 121 (ISO 1461)** galvanizing standard. The thickness of the hot dip galvanizing coat is applied within a range of 80 to 100µm. This is more than five times the thickness of zinc on pre-galvanized corrugated steel cylindrical tanks. The purpose is to ensure extended maintenance free life in situations where water with aggressively corrosive properties is required to be stored. Structa Technology Prestanks are water storage solutions of high standard and quality. For your customized quotation, contact us:

www.structatech.co.za



Recommended Dimensions for Support

PLANNING TABLE:

SIZE IN PLAN (Modules)	ONE module deep			TWO module deep			THREE module deep			FOUR module deep		
	No. of plates	Approx. capac. Litres	Approx. Mass Ton	No. of plates	Approx. capac. Litres	Approx. Mass Ton	No. of plates	Approx. capac. Litres	Approx. Mass Ton	No. of plates	Approx. capac. Litres	Approx. Mass Ton
1 x 1	5	1521	0.40	9	3240	0.69	13	4968	1.08	17	6696	1.51
2 x 1	8	3024	0.66	14	6840	1.12	20	9936	1.50	26	13392	2.14
2 x 2	12	6048	1.06	20	12960	1.71	28	19872	2.66	36	26754	3.50
3 x 2	16	9072	1.43	26	19440	2.95	36	29808	3.50	46	40176	4.57
3 x 3	21	13608	1.90	33	29160	3.28	45	44712	4.46	57	60264	5.74
4 x 3	26	18144	2.39	40	38880	3.65	54	59616	5.50	68	80352	7.00
4 x 4	30	24192	2.99	48	51840	4.56	64	79488	6.59	80	107136	8.30
5 x 4	38	30240	3.60	56	64800	5.21	74	99360	7.79	92	133920	9.72
5 x 5	45	37800	4.30	65	81000	6.07	85	124200	8.08	105	167400	10.22
6 x 5	52	45360	5.01	74	97200	6.98	96	149040	10.38	118	200880	12.73
6 x 6	60	54432	5.83	84	116640	8.00	108	178848	11.84	132	241056	14.41
7 x 6	68	63504	6.50	94	136080	9.36	120	208656	13.27	146	281232	16.05
7 x 7	77	74088	7.49	105	158760	10.14	133	243432	14.84	161	328104	17.84
8 x 7	86	84672	8.12	116	181440	11.04	146	278208	16.40	184	374976	19.61
8 x 8	96	96768	9.41	128	207360	12.49	160	317952	18.09	192	428544	21.15
9 x 8	106	108864	10.06	140	233280	13.16	174	357696	19.79	208	482112	23.43
9 x 9	117	122472	11.07	153	262440	15.39	189	402408	21.61	225	542376	25.29
10 x 9	128	136080	12.18	166	291600	16.39	204	447120	23.42	242	602640	27.49
10 x 10	140	151200	13.38	180	324000	17.50	220	496800	25.37	260	669600	29.65



Pressed Steel Sectional Water Tanks

STRUCTA TECHNOLOGY
is part of the STRUCTA GROUP of Companies



Structa Technology is a Level 1 BBBEE Contributor

sustainable & long term

WATER STORAGE SOLUTIONS

Prestank is manufactured by



STRUCTA TECHNOLOGY (PTY) LTD • PO Box 2538, Vereeniging, 1930
Tel: +27(0)16 362 9100 • Fax: +27(0)16 362 3608

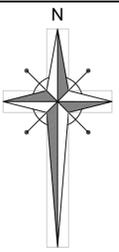
Sales and Marketing: Godfrey Mpotu • contracts@structatech.co.za • 079 035 6997

Estimator: Judy van der Walt • watertanks1@structatech.co.za

Director: Rodney Cory • rodney@structatech.co.za

www.prestank.co.za

Annexure J - Proposed Internal Roads & Stormwater



- GENERAL NOTES**
1. THE CONTRACTOR IS TO CONFIRM ALL DIMENSIONS ON SITE AND TO REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
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LEGEND:

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REVISIONS

NO.	DRAWN	DATE	REVISION
A	RA	2025-11-19	FOR REPORT STAGE

REFERENCE DRAWINGS

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BENCH MARKS

BM	Y	X	Z

PERSONS RESPONSIBLE

DESIGNED	NAME	SIGNATURE	DATE
	RICARDO ALHO Draftsman	<i>[Signature]</i>	2025-11-19
	RICARDO ALHO Draftsman	<i>[Signature]</i>	2025-11-19
	GAWIE LE ROUX PR Tech (Eng)	<i>[Signature]</i>	2025-11-19
	GAWIE LE ROUX PR Tech (Eng)	<i>[Signature]</i>	2025-11-19

APPROVED FOR TRIPLE 3 ENGINEERING
 REGISTERED PERSON:
 GAWIE LE ROUX
 PR TECH (ENG) 200070105
 SIGNED: *[Signature]*
 DATE: 2025-11-19

IN ASSOCIATION WITH

LOCAL AUTHORITY

CLIENT

CONSULTANTS

TRIPLE 3 GROUP
 Construction - Engineering - Project Management

TRIPLE 3 ENGINEERING
 Tel: +27 (0) 10 745 1333
 Email: info@triple3.co.za
 Web: www.triple3.co.za

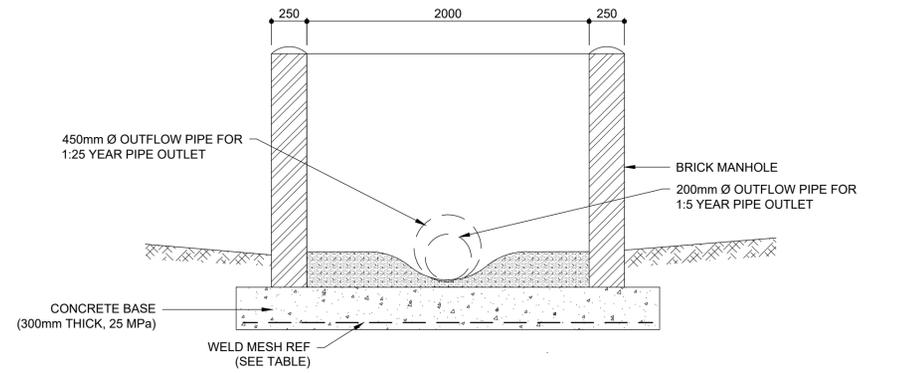
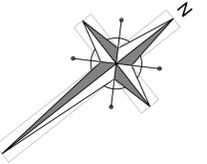
PROJECT DESCRIPTION

TOWNSHIP NIETGEDACHT EXTENSION 4
 PROPOSED STORMWATER LAYOUT

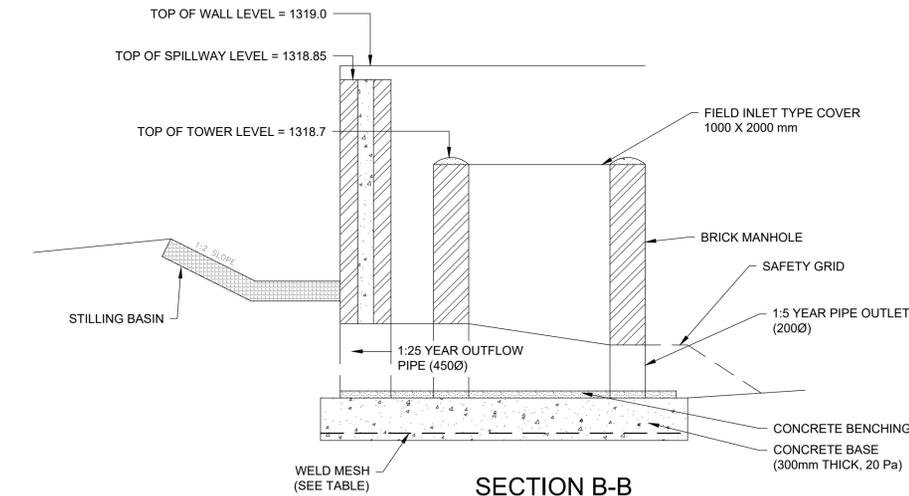
STATUS	SCALE	SIZE	DRAWING NUMBER	REV
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Annexure K

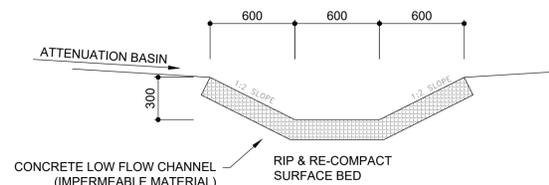
- Proposed Attenuation Pond



**SECTION A-A
(SPILLWAY)**
SCALE 1:25



**SECTION B-B
(SPILLWAY)**
SCALE 1:25



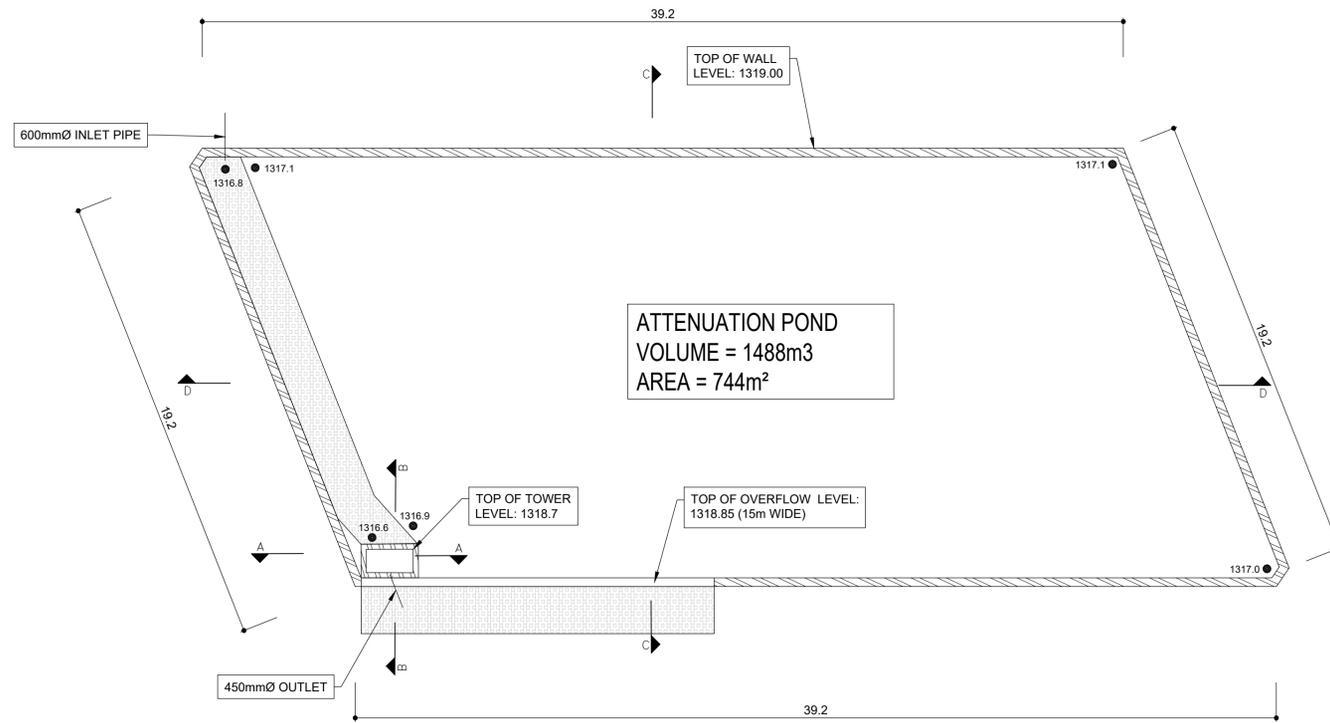
LOW FLOW CHANNEL
NTS



**SECTION C-C
(ATTENUATION BASIN)**
NTS

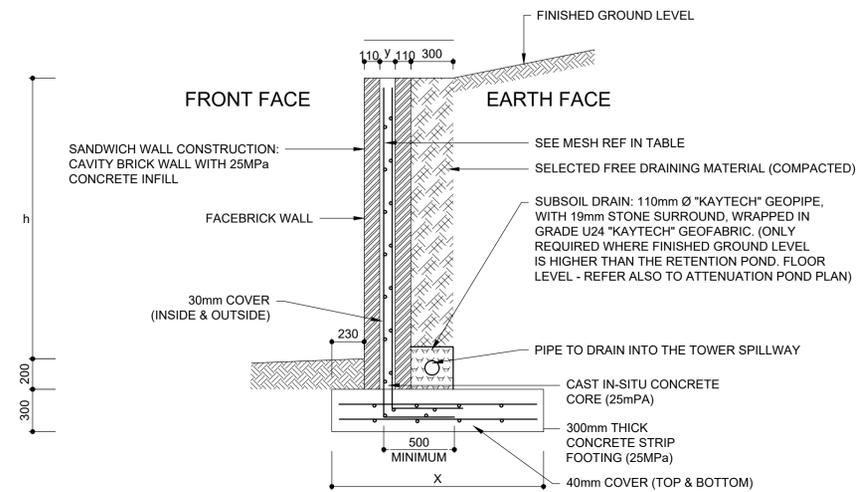


**SECTION D-D
(ATTENUATION BASIN)**
NTS



ATTENUATION POND
VOLUME = 1488m³
AREA = 744m²

**ATTENUATION POND
LAYOUT**



**RETAINING WALL DETAIL
(RETAINING SOIL)**
SCALE 1:25

h	x	y	BASE REINF. TOP	BASE REINF. BOTTOM	STARTER BARS		WALL REINF. EARTH FACE	WALL REINF. FRONT FACE
					EARTH FACE	FRONT FACE		
1.0	800	110	Y10/300 BOTH WAYS	Y10/300	MESH 245	-	MESH 245	-
1.5	900	110	Y10/300 BOTH WAYS	Y10/300	Y10/200	-	MESH 395	-
2.0	1 200	150	Y10/300 BOTH WAYS	Y10/300	Y10/200	-	MESH 617	-
2.5	1 500	200	Y10/200 BOTH WAYS	Y10/200	Y12/200	Y10/200	MESH 617	MESH 395
3.0	1 800	250	Y10/200 BOTH WAYS	Y10/200	Y12/200	Y10/200	MESH 617	MESH 617

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LEGEND:

REVISIONS

NO.	DRAWN	DATE	REVISION
A	RA	2025-11-19	FOR REPORT STAGE

REFERENCE DRAWINGS

BENCH MARKS

BM	Y	X	Z

PERSONS RESPONSIBLE	NAME	SIGNATURE	DATE
DESIGNED	RICARDO ALHO Draughtsman	<i>[Signature]</i>	2025-11-19
DRAWN	RICARDO ALHO Draughtsman	<i>[Signature]</i>	2025-11-19
APPROVED	GAWIE LE ROUX PR Tech (Eng)	<i>[Signature]</i>	2025-11-19
CHECKED	GAWIE LE ROUX PR Tech (Eng)	<i>[Signature]</i>	2025-11-19

APPROVED FOR TRIPLE 3 ENGINEERING
REGISTERED PERSON:
GAWIE LE ROUX PR TECH (ENG) 20070105
SIGNED: *[Signature]* DATE: 2025-11-19

IN ASSOCIATION WITH

LOCAL AUTHORITY

CLIENT

CONSULTANTS

TRIPLE 3 GROUP TRIPLE 3 ENGINEERING
Construction - Engineering - Project Management
Tel: +27 (0) 10 745 1333
Email: info@triple3.co.za
Web: www.triple3.co.za

PROJECT DESCRIPTION

TOWNSHIP NIETGEDACHT EXTENSION 4
STORMWATER ATTENUATION POND DETAIL

STATUS	SCALE	SIZE	DRAWING NUMBER			REV
Concept Drawing	SHOWN	A1	397	03	10	A