



# CIVIL CONCEPTS

Consulting Civil and Structural Engineers

**PORTION 426 & 679 OF THE FARM  
DERDEPOORT 326-JR  
(DERDEPOORTPARK X44)**

**WATER AND SEWER SERVICE REPORT**

**C3034/DPX44/W&S/REP  
DECEMBER 2022**

CIVIL CONCEPTS CONSULTING ENGINEERS, Civil Concepts (Pty) Ltd, 50 15th Street, Menlo Park, Pretoria, 0102 Tel: 012 460 0008, Fax 012 460 0005, Email: Mail@civilconcepts.co.za



# CIVILS

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## 1 GENERAL INFORMATION

### 1.1 Application Number

The township application for the proposed Derdepoortpark Ext. 44 on Portion 426 & 679 of the Farm Derdepoort 326-JR was submitted by The Town Planning Hub the reference number will be provided once received.

Application Number: TBC

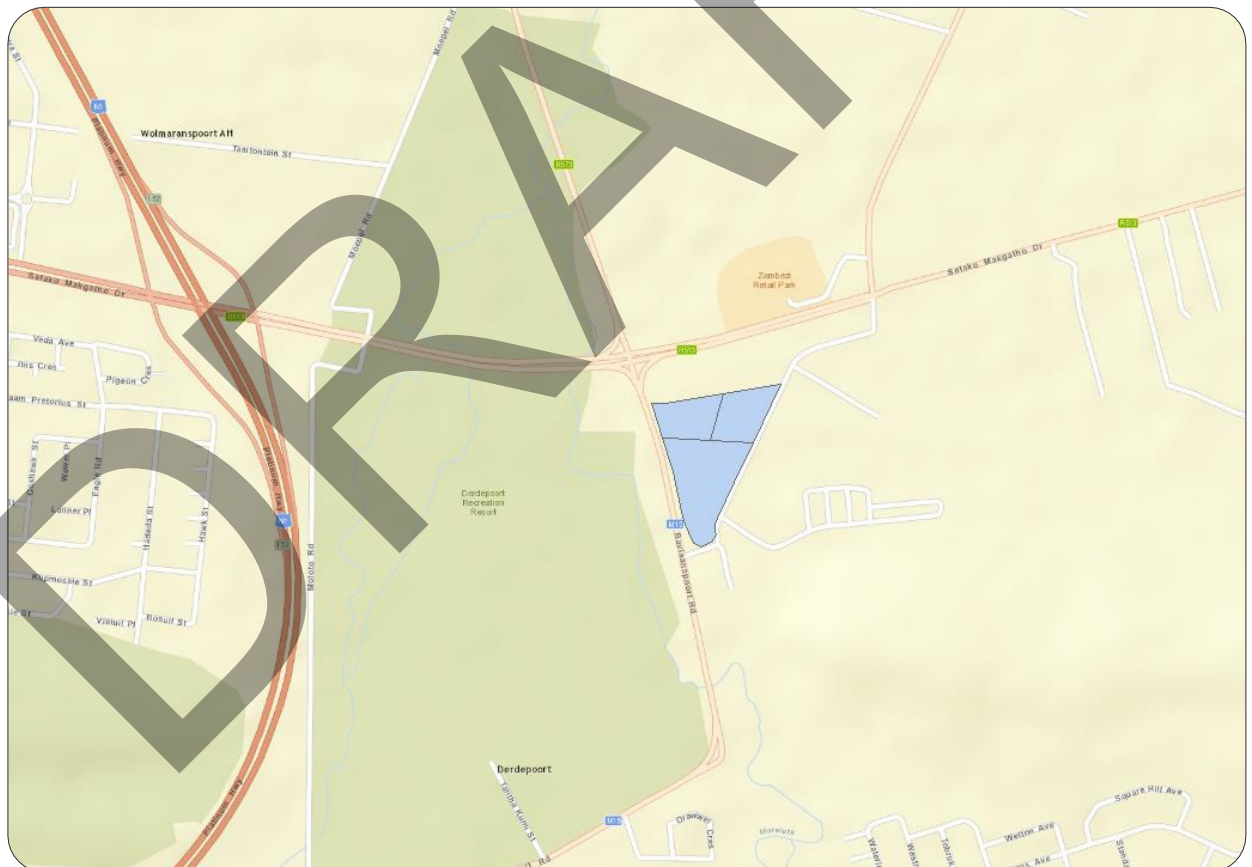
### 1.2 Location of the Area Concerned

The development to be known as Derdepoortpark Ext. 44 is situated on Portion 426 & 679 of the Farm Derdepoort 326-JR.

It is bounded by:

- Portion 20 of the Farm Derdepoort 326-JR to the North;
- Intaba Road to the East and South; and
- Baviaanspoort Street to the West.

The development is highlighted on the image below:



1-1: Locality

### 1.3 Property Owner / Developer Information

Zotec Development (Pty) Ltd  
 Reg No: 2003/023822/07  
 P.O Box 754  
 Auckland Park  
 2006

Physical Address:  
 Castle Gate Offices  
 478 Koedoesnek Avenue  
 Waterkloof  
 0181

Tel: 012 548 4114  
 Mail: [leon@centraldev.co.za](mailto:leon@centraldev.co.za)

Responsible person: Mr. Leon Botha

Refer to **Annexure A** for Title Deed.

### 1.4 Consulting Engineers

Civil Concepts (Pty) Ltd  
 Reg. No: 95/12428/07  
 P O Box 36148  
 Menlo Park  
 0102

Physical Address:  
 50, 15<sup>th</sup> Street  
 Menlo Park  
 0081

Tel: 012 460 0008  
 Fax: 012 460 0005  
 Mail: [werner@civilconcepts.co.za](mailto:werner@civilconcepts.co.za)

The responsible person is: Mr W Stander (Reg no 20060017).

### 1.5 Development Information

The property is currently zoned Agricultural. A township establishment application for Derdepoort X44 situated on Portion 426 & 679 of the Farm Derdepoort 326-JR was submitted by Town Planning Hub for the rights in the table below. Refer to **Annexure B** for the Conditions of Establishment.

Portion	Land Use	Area	Density	No of Units
426 & 679	Dwelling Units	7.935	120 units / ha	952
<b>Total</b>		7.935		<b>952</b>

**2 WATER DEMAND**

**2.1 Current Demand**

The property is currently zoned Agricultural.

The average daily water flow for the property's current rights is calculated as follows:

Portion	Land use	Area (ha)	Water demand per land use type	AADD (kℓ/day)
426	Agricultural	3.7410	4.0 kℓ / holding	4.0
679	Agricultural	4.194	4.0 kℓ / holding	4.0
<b>Total Demand (Current Zoning)</b>				<b>8.0</b>

**2.2 Future Demand**

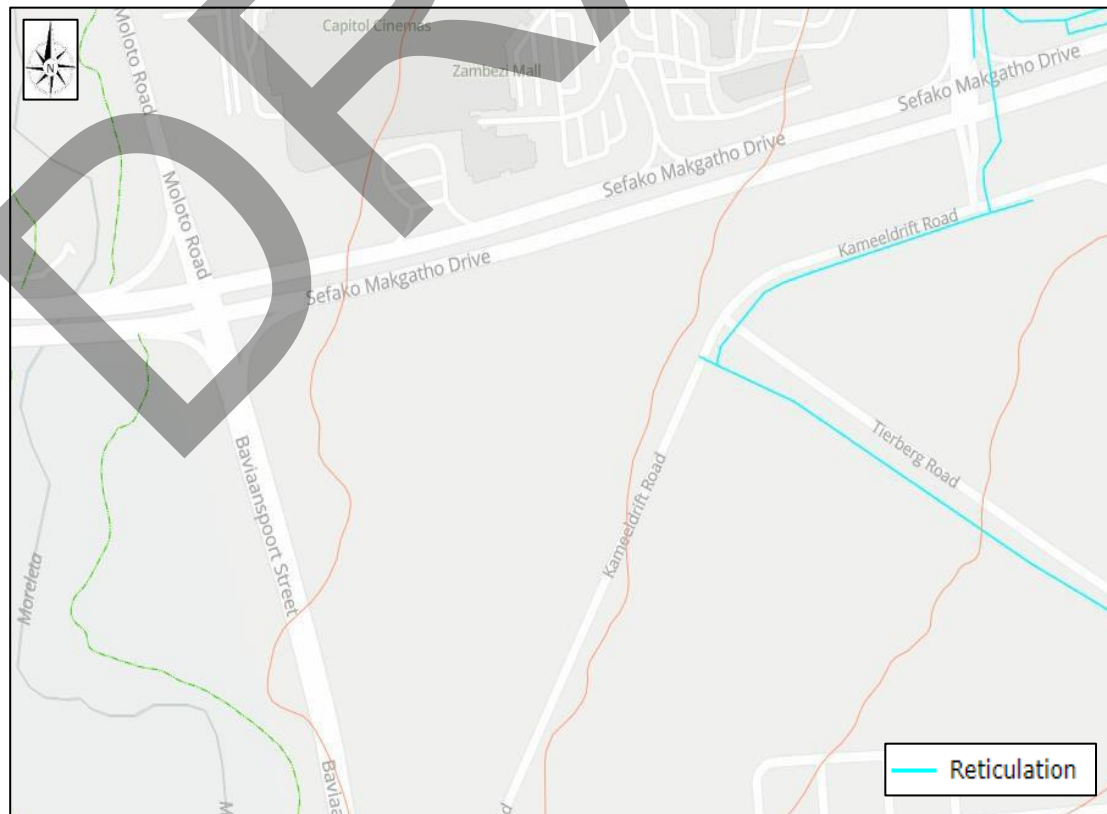
The average daily sewer flow for the property's proposed rights is calculated as follows:

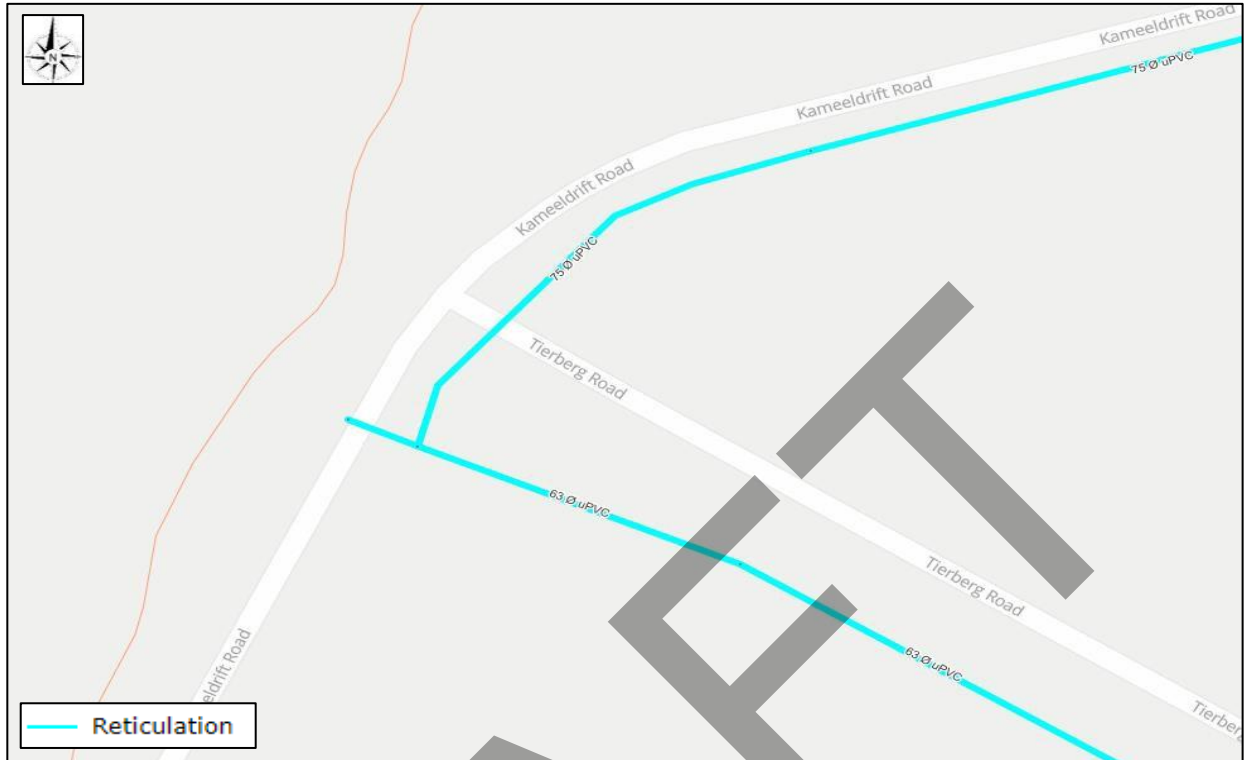
Portion	Land use	Area (ha)	Units	Water demand per land use type	AADD (kℓ/day)	Peak Flow	Peak Flow (ℓ/s)
426 & 679	Res 4	7.935	952	0.625 kℓ/unit	595 kℓ	4.6	31.68 ℓ/s

The fire flow demand for the proposed township will be 50 ℓ/s with a minimum pressure of 15 m at the position of the fire, and a minimum pressure of 5 m in the rest of the system during a fire event as per the *City of Tshwane Guidelines for the Design and Construction of Water and Sanitation Systems*.

**3 WATER NETWORK**

**3.1 Existing water network**





### 3.2 Proposed upgrades to the water network

The developer will be responsible for constructing a 250 mm  $\varnothing$  uPVC pipe from the southern boundary of the development up to the existing 250 mm  $\varnothing$  uPVC pipe in Intaba Road. Refer to **Annexure C** for drawing C3034-SR-004.

### 3.3 Design Standards

All work to be handed over to City of Tshwane will be constructed to the minimum standard of SANS1200, with amendments to the specification in order to comply with "*Standard Specification for Municipal Civil Engineering Works (CoT, 2005)*" and well as in accordance with the requirements of The CTMM Service Delivery Department Water and Sanitation Division, "*Principles and Standards for the design and construction of water and sanitation systems in the City of Tshwane Metropolitan Municipality*", latest edition.

All water pipes will be handed over to the City of Tshwane upon completion.

## 4 SEWER DEMAND

### 4.1 Current Demand

The property is currently zoned Agricultural.

The estimated sewer demand that will be generated by property's current rights is calculated as follows:

Portion	Land use	Area (ha)	Sewer demand per land use type	Daily sewer outflow (kℓ/day)
426	Agricultural	3.7410	4.0 kℓ / holding	1.4
679	Agricultural	4.194	4.0 kℓ / holding	1.4
<b>Total Demand (Current Zoning)</b>				<b>2.8</b>

### 4.2 Future Demand

The average daily sewer flow for the property's proposed rights is calculated as follows:

Portion	Land use	Area (ha)	Units	Sewer demand per land use type	Daily Sewer Outflow (kℓ/day)	Peak Flow	Peak Flow (ℓ/s)
426 & 679	Res 4	7.935	952	0.563 kℓ/unit	535.98 kℓ	2.5	15.51 ℓ/s

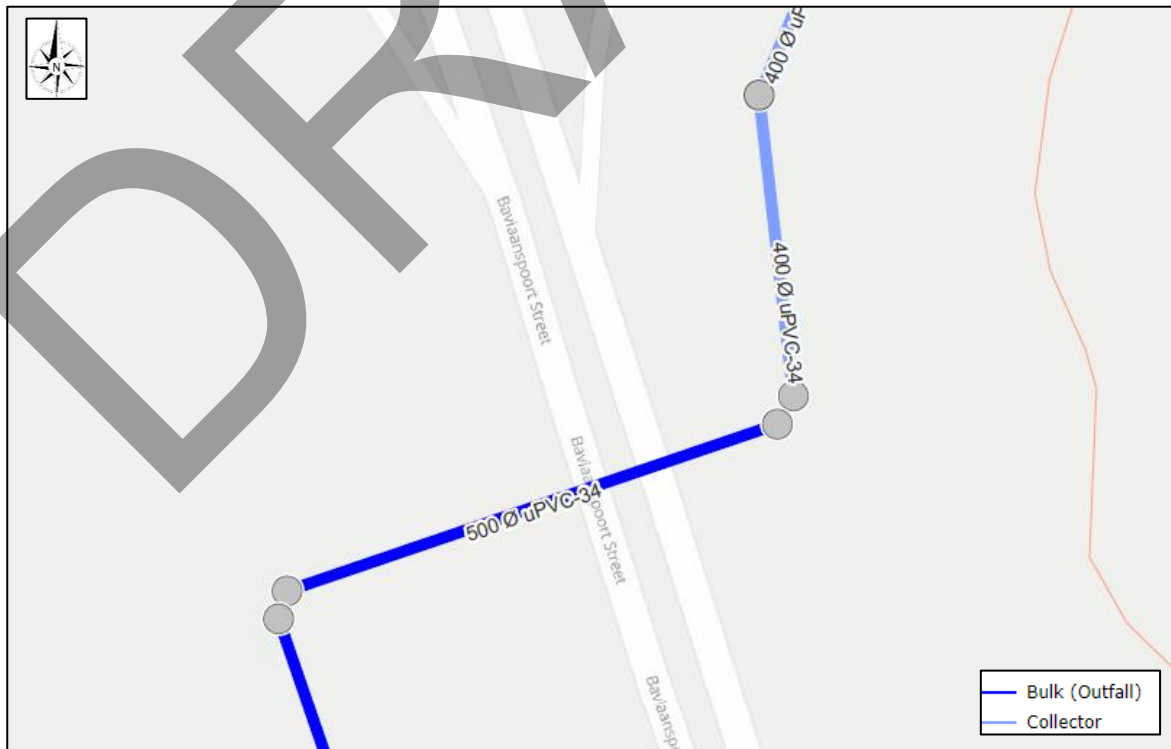
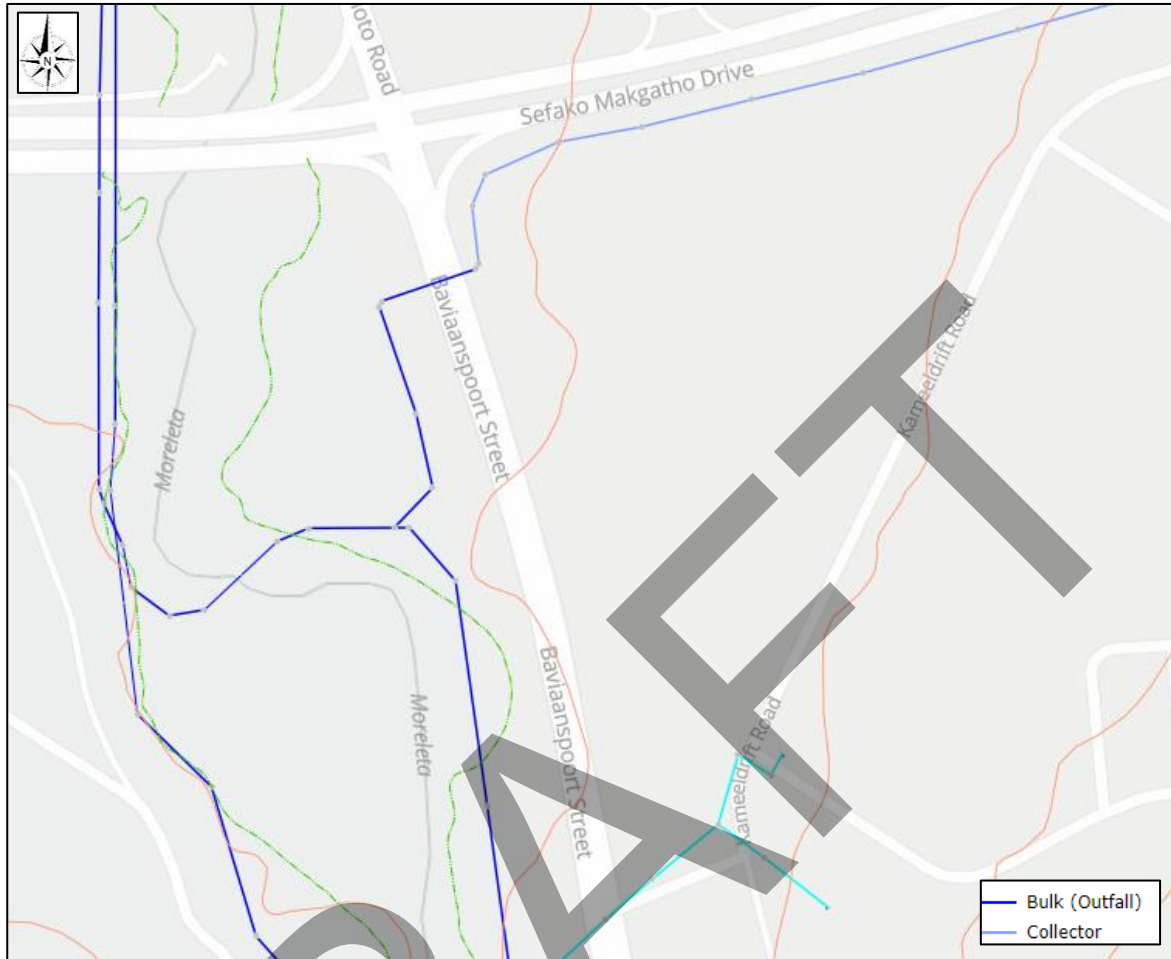
The proposed development will generate a sewer demand of 535.98 kℓ/day. This equates to an instantaneous peak dry weather flow of 15.51 ℓ/s, and an instantaneous peak wet weather flow of 17.84 ℓ/s.

## 5 SEWER NETWORK

### 5.1 Existing sewer network

The nearest Bulk Sewer or connection is approximately 250 m to the west of the development.

A 400 mm ø uPVC collector runs along to Sefako Makgatho Drive from there it turns south towards a 500 mm ø uPVC Bulk line which runs under Bavianspoort Street from the development to the outfall sewer.



**5.2 Proposed upgrades to the sewer network**

No upgrades are required to the sewer network. The developer will be responsible to break into the manhole on the 400 mm Ø pipe in order to obtain a connection. Refer to **Annexure D** for drawing C3034-



SR-003. A 3 m servitude will be registered over Portion 20 of the Farm Derdepoort in favour of municipal services.

**5.3 Design Standards**

All work to be handed over to City of Tshwane will be constructed to the minimum standard of SANS1200, with amendments to the specification in order to comply with “*Standard Specification for Municipal Civil Engineering Works (CoT, 2005)*” and well as in accordance with the requirements of The CTMM Service Delivery Department Water and Sanitation Division, “Principles and Standards for the design and construction of water and sanitation systems in the City of Tshwane Metropolitan Municipality”, latest edition.

All sewer pipes will be handed over to the City of Tshwane upon completion.

**6 COST ESTIMATES**

**6.1 Construction estimates for installing a new Water pipeline**

The estimate of the new external water pipeline is as follows:

250 mm ø uPVC – 490 m x R 2 380 / m	= R 1 166 200
Erf Connection	= R 20 558
<b>TOTAL</b>	<b>= R 1 186 758</b>

This amount includes Preliminary and General Charges, Professional Fees, Contingencies but excludes VAT.

**6.2 Construction estimates for installing a new Sewer pipeline**

The estimate of the new external sewer pipeline is as follows:

160 mm ø uPVC - 22 m @ R 2 215 / m	= R 48 730
Connection to Existing Manhole	= R 15 000
<b>TOTAL</b>	<b>R 63 730</b>

This amount includes Preliminary and General Charges, Professional Fees, Contingencies but excludes VAT.

**7 CONTRIBUTIONS BY CITY OF TSHWANE AND DEVELOPER**

**7.1 Zoning of properties and contributions to bulk services and pipe networks (Water)**

The table below details the contributions to bulk services and pipe networks to be paid by the Applicant and the City of Tshwane respectively.

<b>ZONING OF PROPERTIES AND CONTRIBUTIONS TO BULK SERVICES AND PIPE NETWORKS</b>					
<b>Item and Zoning</b>	<b>Measuring Unit / Day</b>	<b>Total Number of Units / Area</b>	<b>Water Consumption</b>	<b>Total Demand (kℓ/Day)</b>	<b>Total Contribution</b>
Portion 426 & 679 – Res 4	kℓ/unit	952	0.625 kℓ/100m <sup>2</sup>	595	R 2 826 845.00
Totals				<b>595</b>	R 2 826 845.00
CONTRIBUTION BY DEVELOPER TO CoT AT R 4 751 per kilolitre per day (Excluding VAT)					R 2 826 845.00
CONTRIBUTION TO NETWORK PIPES, BY CoT TO APPLICANT AT R 476 per kilolitre per day (Excluding VAT)					R 283 220.00

**7.2 Summary of Contributions and Costs - Water**

SUMMARY OF CONTRIBUTIONS						
Item	Contribution by					
	CoT to Applicant			Applicant to CoT		
	Nett total	VAT	Subtotal	Nett total	VAT	Subtotal
Bulk services				R 2 826 845.00	R 424 026.75	R 3 250 871.75
Network services	R 283 220.00	R 42 483.00	R 325 703.00			
Boundary services						
Enlargements / extensions						
Other						
<b>TOTALS</b>	<b>R 283 220.00</b>	<b>R 42 483.00</b>	<b>R 325 703.00</b>	<b>R 2 826 845.00</b>	<b>R 424 026.75</b>	<b>R 3 250 871.75</b>

**7.3 Zoning of properties and contributions to bulk services and pipe networks (Sewer)**

The table below details the contributions to bulk services and pipe networks to be paid by the Applicant and the City of Tshwane respectively.

ZONING OF PROPERTIES AND CONTRIBUTIONS TO BULK SERVICES AND PIPE NETWORKS					
Item and Zoning	Measuring Unit / Day	Total Number of Units / Area	Water Consumption	Total Demand (kℓ/Day)	Total Contribution
Portion 426 & 679 – Res 4	kℓ/unit	952	0.563 kℓ/100m <sup>2</sup>	535.98	R 6 282 221.58
Totals				<b>535.98</b>	R 6 282 221.58
CONTRIBUTION BY DEVELOPER TO CoT AT R 11 721 per kilolitre per day (Excluding VAT)					R 6 282 221.58
CONTRIBUTION TO NETWORK PIPES, BY CoT TO APPLICANT AT R 1 172 per kilolitre per day (Excluding VAT)					R 628 168.56

**7.4 Summary of Contributions and Costs - Sewer**

SUMMARY OF CONTRIBUTIONS						
Item	Contribution by					
	CoT to Applicant			Applicant to CoT		
	Nett total	VAT	Subtotal	Nett total	VAT	Subtotal
Bulk services				R 6 282 221.58	R 942 333.24	R 7 224 554.82
Network services	R 628 168.56	R 94 225.28	R 722 393.84			
Boundary services						
Enlargements / extensions						
Other						
<b>TOTALS</b>	<b>R 628 168.56</b>	<b>R 94 225.28</b>	<b>R 722 393.84</b>	<b>R 6 282 221.58</b>	<b>R 942 333.24</b>	<b>R 7 224 554.82</b>

## **8 GUARANTEES**

### **8.1 Performance and Maintenance Guarantee by the Developer**

The estimated cost of the scheme as per Section 6.1 of this report for Water is R 1 186 758 excluding VAT and R 1 364 771.70 including VAT.

The estimated cost of the scheme as per Section 6.2 of this report for Sewer is R 63 730 excluding VAT and R 73 289.50 including VAT.

The maintenance guarantee amount (10% as per the standard Condition 4.1 of typical services agreements of CoT) is R 136 477.17 for Water and R 7 328.95 for Sewer.

Performance and maintenance guarantees will be provided in terms of the current policies of City of Tshwane.

## **9 SERVITUDES**

A 3 m servitude will be registered over Portion 20 of the Farm Derdepoort in favour of municipal services.

**Compiled by:**



Werner Stander (PrEng 20060017)  
Civil Concepts (Pty) Ltd

**DRAFT**



*ANNEXURE A – TITLE DEED*



*ANNEXURE B – CONDITIONS OF ESTABLISHMENT*

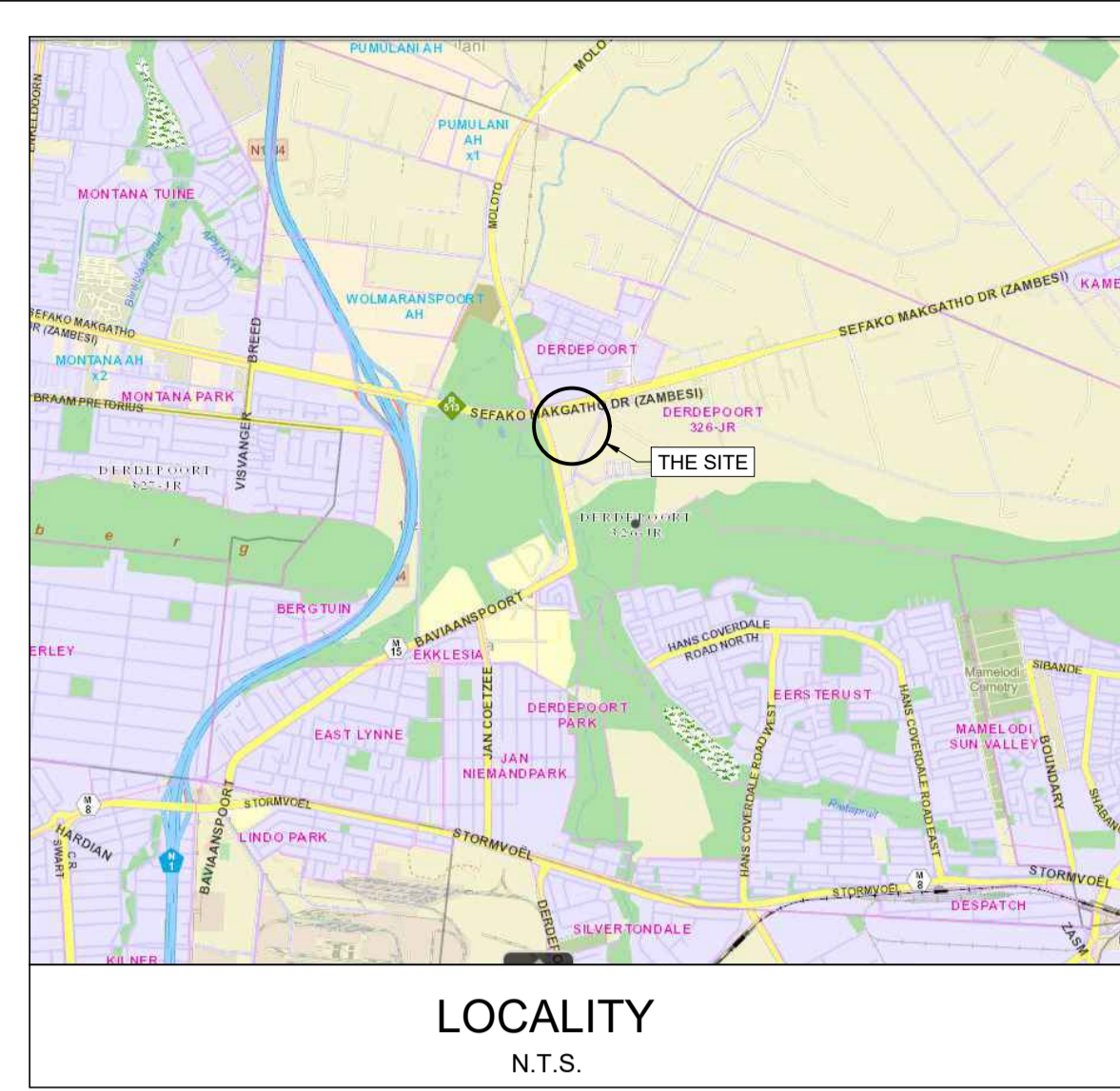
PREPARED BY:



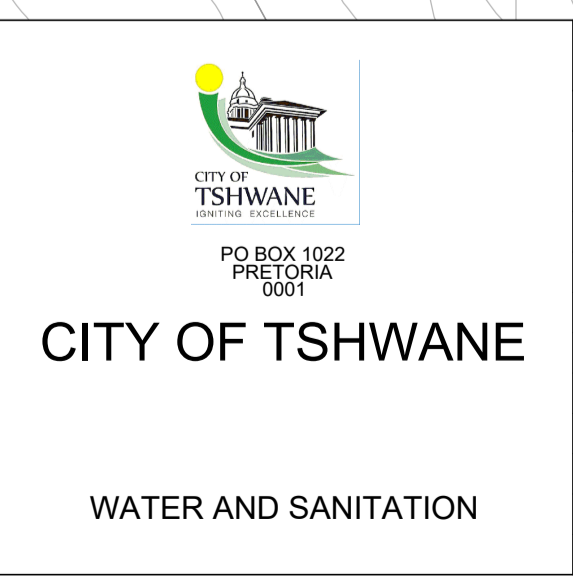
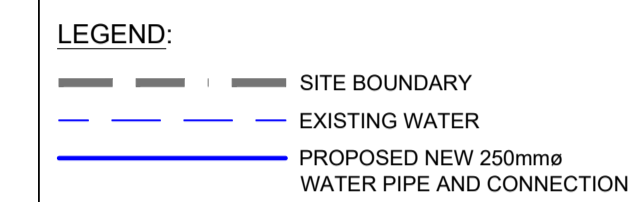
**DERDEPOORTPARK X44  
WATER AND SEWER  
SERVICE REPORT**

**ANNEXURES**

*ANNEXURE C – WATER LAYOUT PLAN*



- GENERAL:**
1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
  2. ALL DIMENSIONS ARE IN MILLIMETRES. (UNLESS OTHERWISE SPECIFIED)
  3. DO NOT SCALE FROM THESE DRAWINGS.
  4. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
  5. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD COT DETAIL DRAWINGS.
  6. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
  7. THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY DIRECTOR OF THE PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
  8. THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL THE GUIDELINES, STANDARD DRAWINGS, STANDARDS AND SPECIFICATIONS OF THE PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
  9. FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.



AMENDMENTS			
NR	DATE	APPROVED	DESCRIPTION
A	01-03-2022	W. STANDER	ISSUED FOR APPROVAL
B	02-12-2022	W. STANDER	UPDATED EXTENTS

WATER AND SANITATION			
FOR INTERNAL APPROVAL - RECEIVED SIGN WHEN APPLICABLE			
DIRECTOR: WATER AND SANITATION - PLANNING			
NAME	Prof. Reg. No.	SIGNATURE	DATE
REGIONAL DIRECTOR: (1,2,3,4,5,6 or 7)			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: SYSTEM DEVELOPMENT			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: BULK WATER			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: INFRASTRUCTURE PROVISION			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: WASTE WATER TREATMENT			
NAME	Prof. Reg. No.	SIGNATURE	DATE

**CONSULTANT DETAIL**

**CIVIL CONCEPTS**  
Consulting Civil and Structural Engineers  
P.O. BOX 36148 Menlo Park 0102  
Tel: (012) 460-0008  
Fax: (012) 460-0005  
E-Mail: mail@civilconcepts.co.za

I, **W. STANDER** Prof. Reg. No. 20060017  
HEREBY CERTIFY THAT THE SERVICES WILL HAVE BEEN INSTALLED ACCORDING TO NOTE 9 OF THE ABOVE NOTES AND TO THE DRAWING

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

CONSULTANT DRAWING NUMBER:  
**C3034-SR-004**

DESIGNED	
NAME: <b>W. STANDER</b>	Prof. Reg. No. 20060017
SIGNATURE: _____	DATE: 02-12-2022
DRAWN	
NAME: <b>R. WILLERS</b>	
SIGNATURE: _____	DATE: 02-12-2022
CHECKED	
NAME: <b>W. STANDER</b>	Prof. Reg. No. 20060017
SIGNATURE: _____	DATE: 02-12-2022
INFORMATION OFFICE CHECKED	
NAME: _____	Prof. Reg. No. _____
SIGNATURE: _____	DATE: _____
DESIGN OFFICE APPROVAL	
NAME: _____	Prof. Reg. No. _____
SIGNATURE: _____	DATE: _____

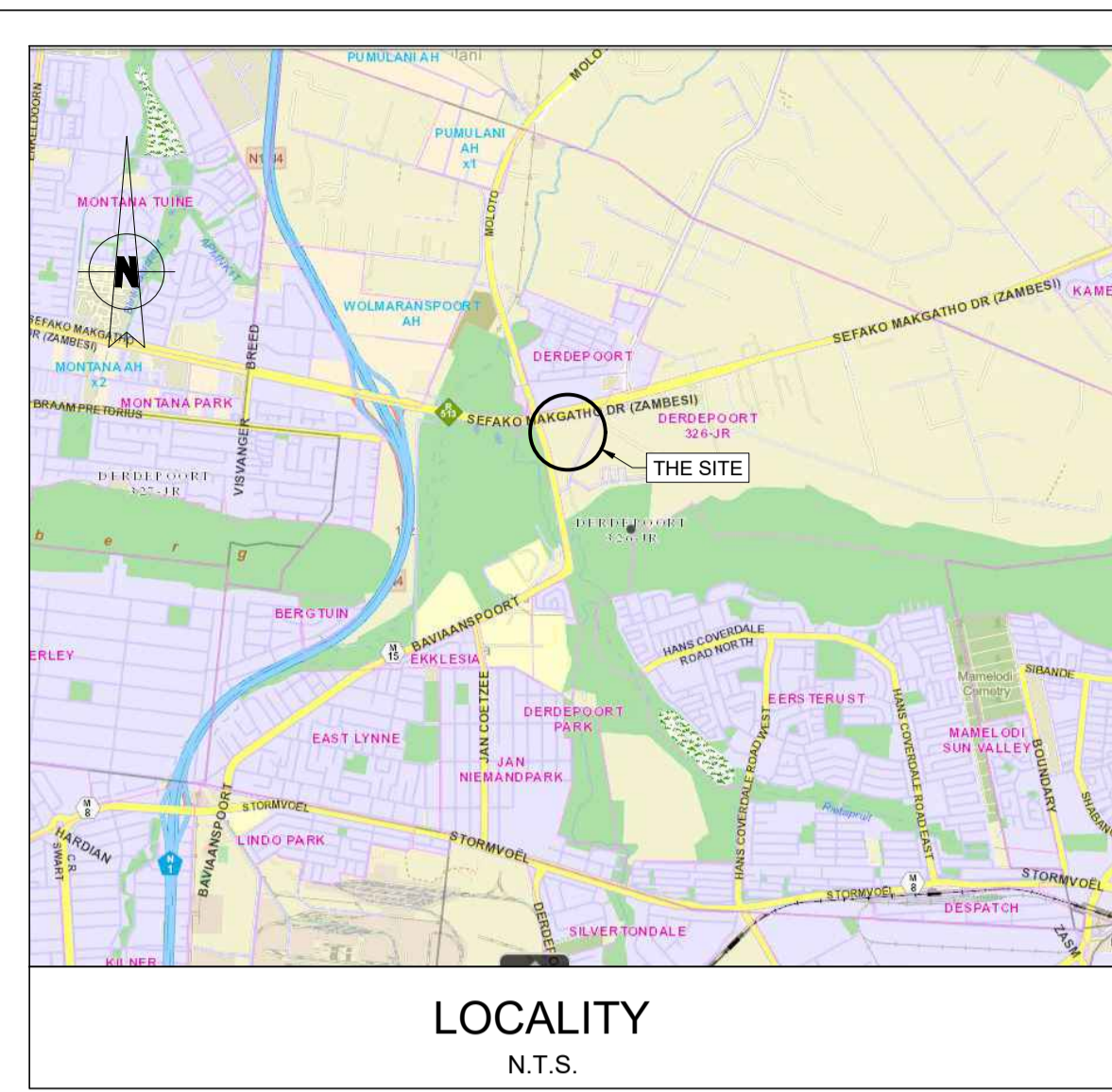
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PROJECT No:	C3034
SHEET No:	1 OF 1
PAPER SIZE:	A1
SCALE:	1:1500
DATE:	MARCH 2022

PROJECT STATUS	
RECEIVED SIGN WHEN APPLICABLE	
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<input type="radio"/> APPROVED CONSTRUCTION DRAWING	<input type="radio"/> AS BUILT DRAWING
PROJECT ENGINEER OF COT:	
NAME: _____	Prof. Reg. No. _____
SIGNATURE: _____	DATE: _____
INSPECTOR OF WORKS OF COT:	
NAME: _____	Prof. Reg. No. _____
SIGNATURE: _____	DATE: _____
LOCATION OF PROJECT: <b>DERDEPOORT PTN 426 &amp; 679 (DERDEPOORTPARK EXT.44)</b>	
DESCRIPTION OF PROJECT: <b>WATER LAYOUT (SERVICE REPORT)</b>	
WBS No.:	_____
COT DRAWING NUMBER:	_____



*ANNEXURE D – SEWER LAYOUT PLAN*





- GENERAL:**
1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
  2. ALL DIMENSIONS ARE IN MILLIMETRES. (UNLESS OTHERWISE SPECIFIED)
  3. DO NOT SCALE FROM THESE DRAWINGS.
  4. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
  5. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD COT DETAIL DRAWINGS.
  6. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
  7. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 4.
  8. THE SIGNATURE OR INITIALS ON THIS DRAWING, OF ANY DIRECTOR OF THE PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT DEPARTMENT, IN NO WAY REMOVES ANY RESPONSIBILITY WHATSOEVER FROM THE CONSULTANT.
  9. THE CONSULTANT REMAINS RESPONSIBLE TO ENSURE THAT ALL THE GUIDELINES, STANDARD DRAWINGS, STANDARDS AND SPECIFICATIONS OF THE PUBLIC WORKS AND INFRASTRUCTURE DEVELOPMENT DEPARTMENT HAVE BEEN MET AND ARE COMPLIED WITH.
  10. FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.

- LEGEND:**
- SITE BOUNDARY
  - - - EXISTING SEWER
  - PROPOSED NEW SEWER CONNECTION
  - - - PROPOSED NEW 3m SERVITUDE IN FAVOUR OF COT

**CITY OF TSHWANE**  
PO BOX 1022  
PRETORIA  
0001

**WATER AND SANITATION**

AMENDMENTS			
NR	DATE	APPROVED	DESCRIPTION
A	01-03-2022	W. STANDER	ISSUED FOR APPROVAL
B	02-12-2022	W. STANDER	ADDED PROPOSED SERVITUDE AND UPDATED EXTENTS

WATER AND SANITATION			
FOR INTERNAL APPROVAL - RECEIVED SIGN WHEN APPLICABLE			
DIRECTOR: WATER AND SANITATION - PLANNING			
NAME	Prof. Reg. No.	SIGNATURE	DATE
REGIONAL DIRECTOR: (1,2,3,4,5,6 or 7)			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: SYSTEM DEVELOPMENT			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: BULK WATER			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: INFRASTRUCTURE PROVISION			
NAME	Prof. Reg. No.	SIGNATURE	DATE
DIRECTOR: WASTE WATER TREATMENT			
NAME	Prof. Reg. No.	SIGNATURE	DATE

**CONSULTANT DETAIL**

**CIVIL CONCEPTS**  
Consulting Civil and Structural Engineers

CONSULTING CIVIL AND STRUCTURAL ENGINEERS  
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Fax: (012) 460-0005  
E-Mail: mail@civilconcepts.co.za

I, **W. STANDER** Prof. Reg. No. 20060017  
HEREBY CERTIFY THAT THE SERVICES WILL HAVE BEEN INSTALLED ACCORDING TO NOTE 9 OF THE ABOVE NOTES AND TO THE DRAWING

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

CONSULTANT DRAWING NUMBER:  
**C3034-SR-003**

DESIGNED	
NAME: <b>W. STANDER</b>	Prof. Reg. No.: 20060017
SIGNATURE: _____	DATE: 02-12-2022
DRAWN	
NAME: <b>R. WILLERS</b>	
SIGNATURE: _____	DATE: 02-12-2022
CHECKED	
NAME: <b>W. STANDER</b>	Prof. Reg. No.: 20060017
SIGNATURE: _____	DATE: 02-12-2022
INFORMATION OFFICE CHECKED	
NAME: _____	Prof. Reg. No.: _____
SIGNATURE: _____	DATE: _____
DESIGN OFFICE APPROVAL	
NAME: _____	Prof. Reg. No.: _____
SIGNATURE: _____	DATE: _____

CONTRACT No:	<b>C3034/1</b>
PROJECT No.	<b>C3034</b>
SHEET No.	<b>1 OF 1</b>
PAPER SIZE:	<b>A1</b>
SCALE:	<b>1:1000</b>
DATE:	<b>MARCH 2022</b>

**PROJECT STATUS**

RECEIVED SIGN WHEN APPLICABLE

CONCEPT DRAWING  
 TENDER DRAWING  
 APPROVED CONSTRUCTION DRAWING  
 AS BUILT DRAWING

**PROJECT ENGINEER OF COT:**

NAME: \_\_\_\_\_ Prof. Reg. No.: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**INSPECTOR OF WORKS OF COT:**

NAME: \_\_\_\_\_ Prof. Reg. No.: \_\_\_\_\_  
SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**LOCATION OF PROJECT:**  
**DERDEPOORT PTN 426 & 679 (DERDEPOORTPARK EXT.44)**

**DESCRIPTION OF PROJECT:**  
**SEWER LAYOUT (SERVICE REPORT)**

**WBS No.:** \_\_\_\_\_

**COT DRAWING NUMBER:** \_\_\_\_\_