Engineering Services Status Quo Report for Lethabo Settlement

DATE OF SUBMISSION: 06-05-2019

Tables and Annexures

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Table 1: Roodepan current water demand

Roodepan Settlement						
CURRENT AVERAGE ANNUAL DAILY DEMAND(AADD)						
		Total units		**4799**		
Reference	**Description**	**Unit**	**Quantity**	**Rate(l/day)**	**AADD(l/day)**	**Flow l/s**
Red Book	**Residential AADD**					
Table 3	Stands of 300mm^2	l/stand/day	2879	500	1439700,00	16,66
	Stands of 300mm2 to 600mm2	l/stand/day	1199,75	750	899812,50	10,41
	bigger than 600mm2	l/stand/day	719,85	1000	719850,00	8,33
	Sub Total 1				**3059362,50**	**35,41**
Appendix C	Add Summer peak factor			1,5	4589043,75	53,11
Appendix C	Add 15% water loss factor			1,15	5277400,313	61,08
	Sub Total 2				**5277400,31**	**61,08**
Dept. of Education	***Institutional Facilities***					
	Combined school*(primary school 620 pupils maximum, Secondary School 1000 max)*	l/c/day	1620	20	32400	0,38
	Crèche	l/c/day	500	20	10000	0,12
Redbook	Church	Erf	1	2000	2000	0,02
	Clinic	100 m2 gross floor area	1	500	500	0,01
	Police Station	l/c/day	50	20	1000	0,01
	Subtotal 3				**45900,00**	**0,53**
	STORAGE REQUIREMENTS					
Redbook table 9,18&9,19	***Allow 1 fire hydrant to discharge at 350l/min for 1 hour fire event(low risk group 3 Redbook)***		**1**	**21000**	**21000,00**	**0,24**
	Total(l/s)				**5344300,31**	**61,86**
1 day Storage requirement(Ml/day)						**5,34430031**
2 day storage requirement						**10,6886006**

Table 1.1: Water main pipe sizing

Main Pipe sizing		
Description	**unit**	**Quantity**
Average velocity	m/s	1,5
Generated flow	m3/s	0,06
Cross sectional area	m2	0,04
Pipe diameter	mm	229,14
Adjusted according to standard pipes	**mm**	**250**

Table 2: Sewer demand calculations

Roodepan Settlement						
AVERAGE ANNUAL WET WEATHER FLOW(AAWWF)						
		Total units		**4799**		
Reference	**Description**	**Unit**	**Qty**	**Rate**	**AADWF(l/day)**	**Flow l/s**
Red Book	**Residential AADWF**					
Table 3	Small Stands (less than 300mm^2)	l/stand/day	2879	500	1439700,00	16,66
	Medium Stands (more than 300mm^2 but smaller than 600mm2)	l/stand/day	1200	750	899812,50	10,41
	Small Stands (bigger than 600mm^2)	l/stand/day	720	1000	719850,00	8,33
	Sub Total 1				**3059362,50**	**35,41**
Appendix C	Add residential peak factor			2	6118725	70,82
	Sub Total 2				**6118725,00**	**70,82**
Dept. of Education	***Institutional Facilities***					
	Combined school*(primary school 620 pupils maximum, Secondary School 1000 max)*	l/c/day	1620	15	24300	0,28
	Crèche	l/c/day	500	15	7500	0,09
	Police Station	l/c/day	50	50	2500	0,03
	Subtotal 3				**34300,00**	**0,40**

	Total(l/day)				**6153025,00**	**71,22**
Red Book						
Appendix C	Add extraneous peak factor			1,15	**7075978,75**	**81,90**

Table 3: Sewer main pipe sizing

Pipe sizing		
Description	**unit**	**Quantity**
Average velocity	m/s	1,5
Generated flow	m3/s	0,07
Cross sectional area	m2	0,05
Pipe diameter	mm	245,87
Adjusted according to standard pipes	**mm**	**315**

Table 4: Roodepan electrical demand

Roodepan Settlement						
Estimate Average Load Demand Per Day						
		Total units		**4799**		
Reference	**Description**	**Unit**	**Quantity**	**kVA/unit**	**Demand kVA**	**MVA**
Sats SA	**Residential Home**	kVA	4799	5	23995,00	24,00
SANS 10142						0,00
SANS10142	Efficiency(SANS Table 6.17)		0,65			0,00
SANS 10142	Power factor (SANS Table 6.18)		0,8			
	Total					12,48
	Institutional Facilities					
	Schools(Primary Secondary)		1	55	55	0,06
	Crèche		1	5	5	0,01
	Church		1	5	5	0,01
	Clinic		1	55	55	0,06
						0,12
	Electrical Demand					**12,60**

Table 5: Jacksonville electrical demand

Jacksonville Settlement						
Estimate Average Load Demand Per Day						
		Total units		**1500**		
Reference	**Description**	**Unit**	**Quantity**	**kVA/unit**	**Demand kVA**	**MVA**
Sats SA	**Residential Home**	kVA	1500	5	7500,00	7,50
SANS 10142						0,00
SANS10142	Efficiency (SANS Table 6.17)		0,65			0,00
SANS 10142	Power factor (SANS Table 6.18)		0,8			
	Total					3,90
	Institutional Facilities					
	Schools(Primary Secondary)		2	55	110	0,06
	Crèche		2	5	10	0,01
	Church		2	5	10	0,01
	Clinic		2	55	110	0,06
	Electrical Demand					**4,02**

Table 6: Army camp electrical demand

Army Camp						
Estimate Average Load Demand Per Day						
		Total units		**500**		
Reference	**Description**	**Unit**	**Quantity**	**kVA/unit**	**Demand kVA**	**MVA**
Sats SA	**Residential Home**	kVA	500	5	2500,00	2,50
SANS 10142						0,00
SANS10142	Efficiency		0,65			0,00
SANS 10142	Power factor		0,8			
	Total					1,30
	Institutional Facilities					
	Schools(Primary Secondary)		2	55	110	0,06
	Crèche		2	5	10	0,01
	Church		2	5	10	0,01
	Clinic		2	55	110	0,06
	Total Electrical Demand					**1,42**

Table 7: Vooruitzight electrical demand

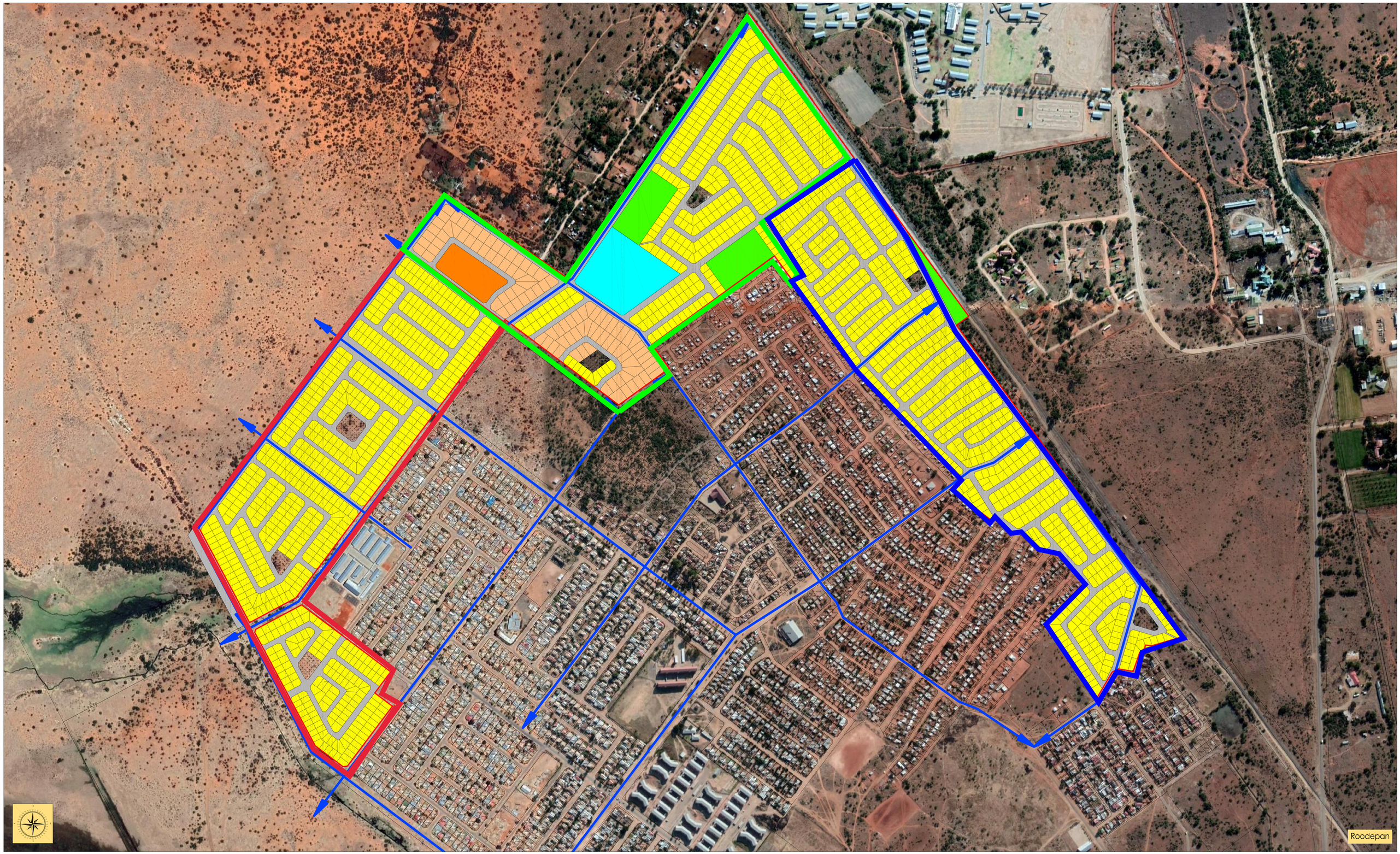
Vooruitzight Settlement- Farms						
Estimate Average Load Demand Per Day						
		Total units		**799**		
Reference	**Description**	**Unit**	**Quantity**	**kVA/unit**	**Demand kVA**	**MVA**
Sats SA	**Residential Home**	kVA	799	5	3995,00	4,00
SANS 10142						0,00
SANS10142	Efficiency (SANS Table 6.17)		0,65			0,00
SANS 10142	Power factor(SANS Table 6.18)		0,8			
	Total					2,08
	Institutional Facilities					
	Schools(Primary Secondary)		2	55	110	0,06
	Crèche		2	5	10	0,01
	Church		2	5	10	0,01
	Clinic		2	55	110	0,06
						0,12
	Electrical Demand					**2,20**

Table 8: Lerato park electrical demand

Lerato Park						
Estimate Average Load Demand Per Day						
		Total units		**2000**		
Reference	**Description**	**Unit**	**Quantity**	**kVA/unit**	**Demand kVA**	**MVA**
Sats SA	**Residential Home**	kVA	2000	5	10000,00	10,00
SANS 10142						0,00
SANS10142	Efficiency (SANS Table 6.17)		0,65			0,00
SANS 10142	Power factor (SANS Table 6.18)		0,8			
	Total					5,20
	Institutional Facilities					
	Schools(Primary Secondary)		2	55	110	0,06
	Crèche		2	5	10	0,01
	Church		2	5	10	0,01
	Clinic		2	55	110	0,06
	Electrical Demand					**5,32**

Table 9: Electrical demand summary

Summary Electrical Demand		
	Settlement	Demand(MVA)
	1. Roodepan	12,5974
	2.Jacksonville	4,02
	3.Army Camp	1,42
	4.Vooruitzight- Farms	2,1974
	5.Lerato Park	5,32
	Total Demand	**25,5548**
1,1	**Supply Capacity**	**30**
1,2	**Demand Capacity**	**25,5548**
1,3	**Excess Capacity**	**4,4452**



Lethabo Park Residential Expansion *(Extension of Ivory Park)*

Design:	JP Theron (A/2394/ 2016)
Land Use Change:	Macroplan Upington
Date:	05/02/2019
Scale:	1:2500

Plan no.

CONCEPT 1: (C1.CON.SUB.REZ.) LETHABO PARK

Map Description:

First Concept for Lethabo Park
with overlaying Road Network

Consultant:

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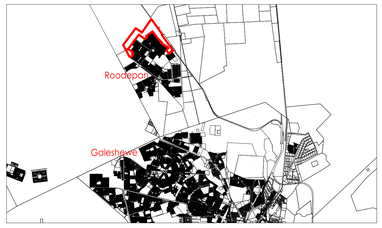


Zoning	Colour & Numbering	Amount
Residential 1 (higher density area)	1-1730	1730
Residential 1 (lower density areas)	1731-1830	100
Institutional	1831-1837	7
Public Open Space	1840-1842	3
Residential 3 (FLISP)	1838	1
Educational	1839	1
Government	0	0
Public Road	1843-1844	2
	Total:	**1844**

1844 Properties created
1830 Residential Properties created

Consent is hereby granted for the proposed subdivision, as indicated on this map, in terms of Article 41 & 42 of Act 16 of 2013 (The Spatial Planning and Land Use Management Act)

Signed:

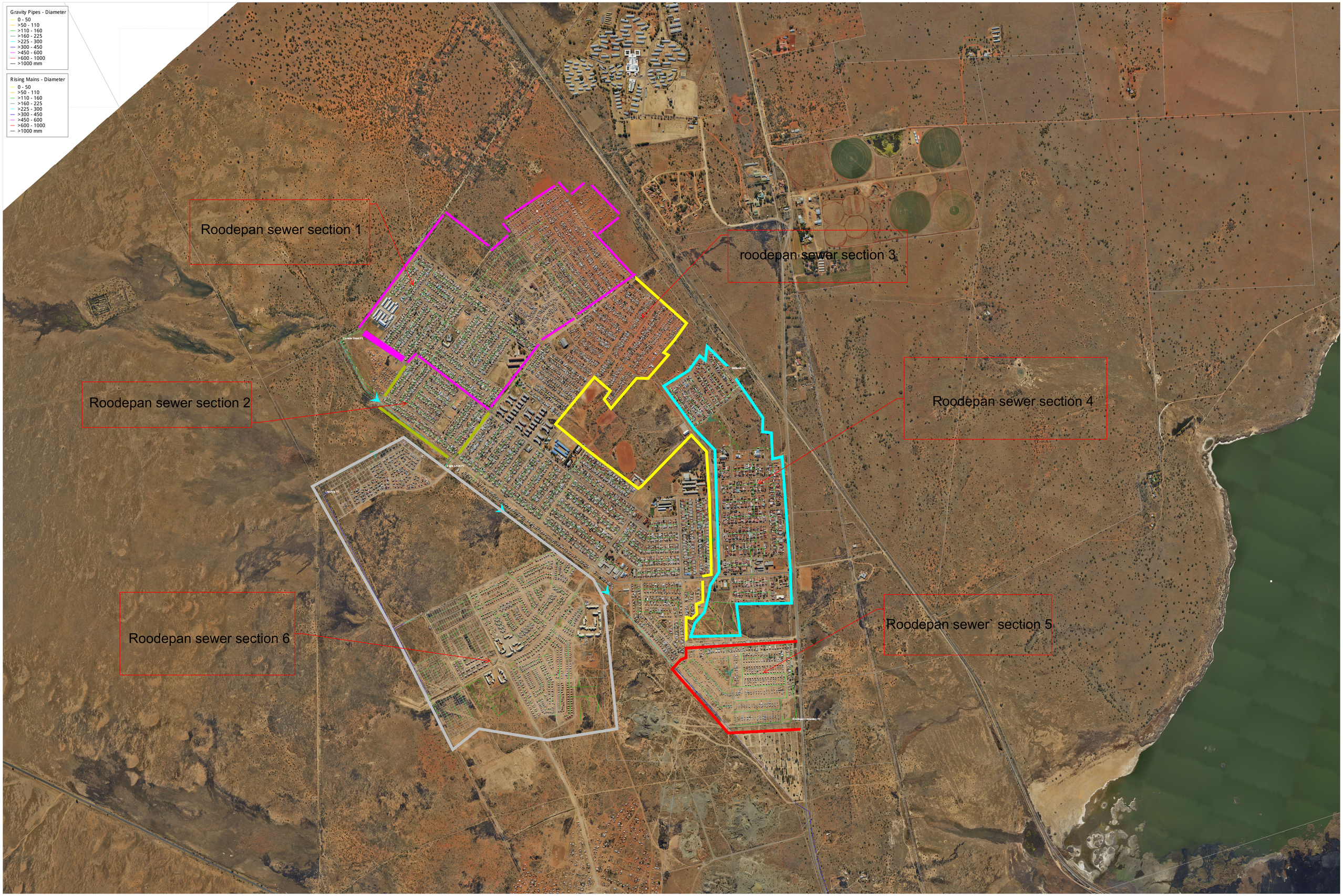
i. Municipal Manager _____

ii. Date _____

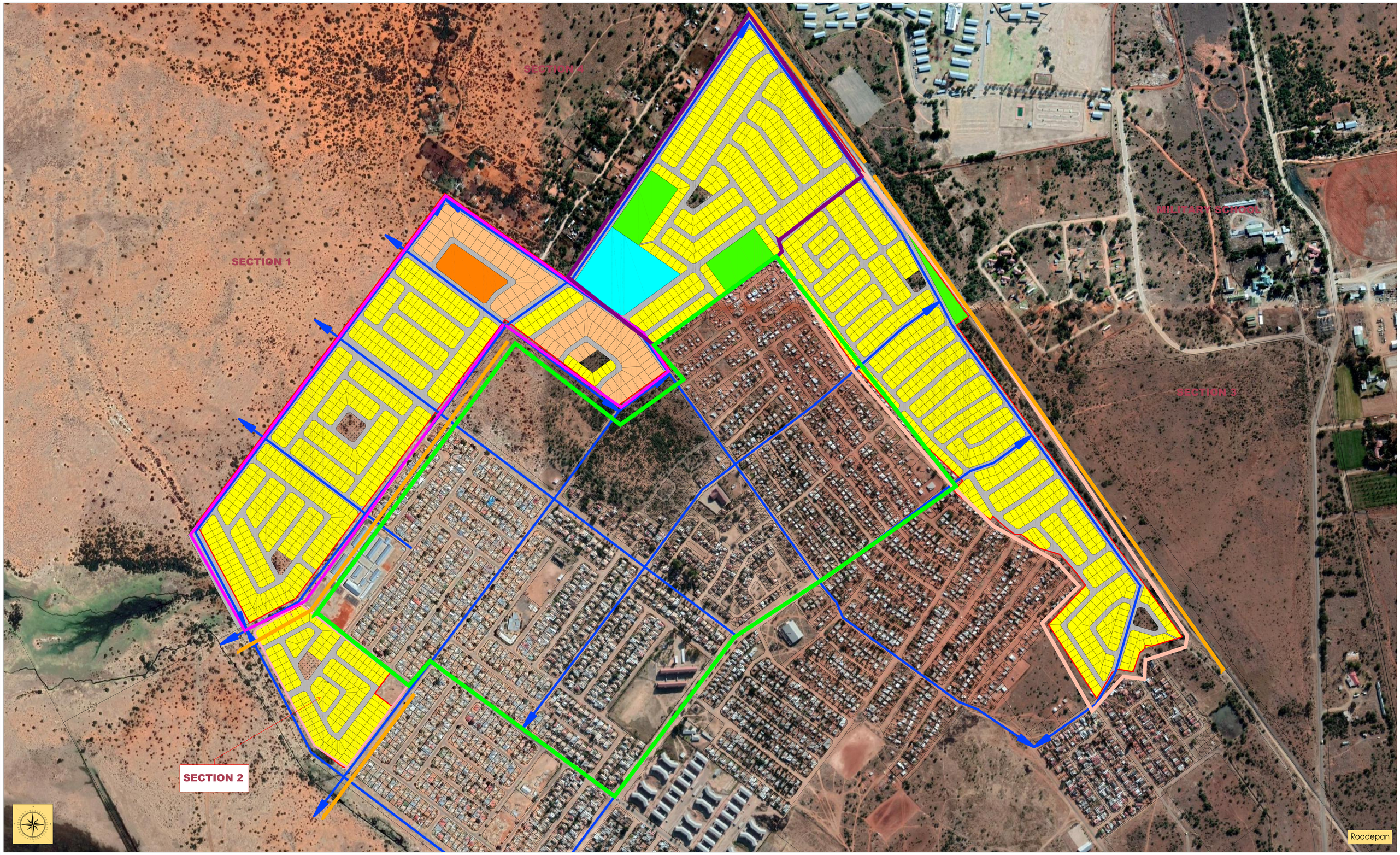
iii. Reference _____

CLIENT: Sol Plaatje Local Municipality

We Serve



Sewer: Diameter



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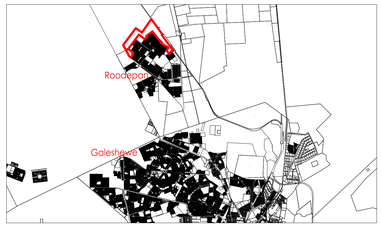

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