MOTIVATION REPORT

29 September 2020

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PROPOSED TOWNSHIP ESTABLISHMENT THROUGH SUBDIVISION, CONSOLIDATION AND REZONING OF:

- **Portion of the Remaining Extent of the Farm Churchill 211 and a portion of the Remaining Extent of Portion 2 of the Farm Nyra 213, Registration Division H.M., Northern Cape Province**

TO CREATE CHURCHILL EXTENSIONS 1 & 2

- Spatial Planning
- Development Management
- Economic Development
- Admin & Finance

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MOTIVATION REPORT

PROPOSED TOWNSHIP ESTABLISHMENT OF CHURCHILL EXTENSION 1 COMPRISING ERVEN 1 TO 1254, AND CHURCHILL EXTENSION 2 COMPRISING ERVEN 1 TO 1264 THROUGH CONSOLIDATION AND SUBDIVISION IN TERMS OF THE BY-LAW ON MUNICIPAL LAND USE PLANNING OF THE JOE MOROLONG LOCAL MUNICIPALITY (2015) READ WITH THE SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (ACT 16 OF 2013) ON A PORTION OF THE REMAINING EXTENT OF THE FARM CHURCHILL 211 AND A PORTION OF THE REMAINING EXTENT OF PORTION 2 OF THE FARM NYRA 213, REGISTRATION DISTRICT H.M., NORTHERN CAPE PROVINCE

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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Koot Raubenheimer (ID No. 700305 5192 089) of the company Maxim Planning Solutions (Pty) Ltd (2002/017393/07) was appointed to attend to the establishment of two (2) townships in Churchill, comprising a total of 2 518 erven as part of a Greenfields development to address the housing backlog and need for erven in the Municipality. The project constitutes a collaboration between the Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA) and the Joe Morolong Local Municipality to create vibrant and sustainable neighbourhoods through a proper township establishment process to allow for the co-ordinated installation of services and the transfer of erven to the beneficiaries thereof. Although residential in nature, the proposed development incorporates various complementary land uses (ranging between business use and social/educational facilities) to service the future communities. Upon completion the two townships will integrate well with the existing Churchill village.

In addition, application will be made in future for the development of Churchill Extension 3 on a portion of the Remaining Extent of the Farm Churchill 211, Registration Division H.M., comprising 1091 erven. The three proposed township areas were conceptualised as a whole and as such were planned in an integrated manner. From the motivation below (and specialist studies attached in the Comprehensive Land Development Application) it is clear that the cumulative impact of the three townships were considered (especially with regards to service provision) to ensure sustainable development.

The planning of the proposed new township areas at Churchill was conducted in an integrated manner and focussed on the entire designated development area. This integrated planning yielded a township area comprising 2 445 residential erven, together with an additional 22 erven earmarked for non-residential support functions (exclusive of streets). As per the procedural requirements of the Surveyor-General (Bloemfontein), it was indicated that the office of the Surveyor-General (Bloemfontein) restricts the number of erven included on a General Plan to a maximum of approximately 1200 erven to expedite the examination of the survey records and General Plans. Due to the fore-mentioned requirement, it was necessary to divide the proposed integrated human settlement into two (2) separate township areas namely:

- The proposed township Churchill Extension 1 comprising Erven 1 to 1254, as detailed below

Table 1: Proposed Churchill Extension 1

CHURCHILL EXTENSION 1					
Proposed Zoning	Proposed Land Use	Number of Erven	Erf Number	Area in Ha	% of Area
Residential zone I	Residential house (Minimum 300m²)	1216	*	38.1437ha	62.79%
Business zone II	Shop	1	*	0.2487ha	0.41%
Institutional zone I	Place of instruction (Creche)	1	*	0.1934ha	0.32%
Institutional zone II	Public place of worship (Church)	3	*	0.3905ha	0.64%
Institutional zone III	Institution (Thusong Centre/Community Hall)	1	*	0.1684ha	0.28%
Open space zone I	Public Open Space	5	*	4.8341ha	7.96%
Transport zone II	Public street	27	*	16.7656ha	27.60%
TOTAL		1254	*	60.7444ha	100%

- The proposed township Churchill Extension 2 comprising Erven 1 to 1264, as detailed below

Table 2: Proposed Churchill Extension 2

CHURCHILL EXTENSION 2					
Proposed Zoning	Proposed Land Use	Number of Erven	Erf Number	Area in Ha	% of Area
Residential zone I	Residential house (Minimum 300m²)	1229	*	38.7968ha	42.02%
Business zone II	Shop	2	*	0.3456ha	0.37%
Institutional zone I	Place of instruction (Primary school)	1	*	3.1746ha	3.44%
	Place of instruction (Creche)	2	*	0.1727ha	0.19%
Institutional zone II	Public place of worship (Church)	1	*	0.0803ha	0.09%
Institutional zone III	Institution (Thusong Centre/Community Hall)	1	*	0.3797ha	0.41%
Open space zone I	Public Open Space	3	*	25.5830ha	27.71%
Open space zone II	Private open space (Sportsfield)	1	*	6.8769ha	7.45%
Transport zone II	Public street	24	*	16.9102ha	18.32%
TOTAL		1264	*	92.3198ha	100%

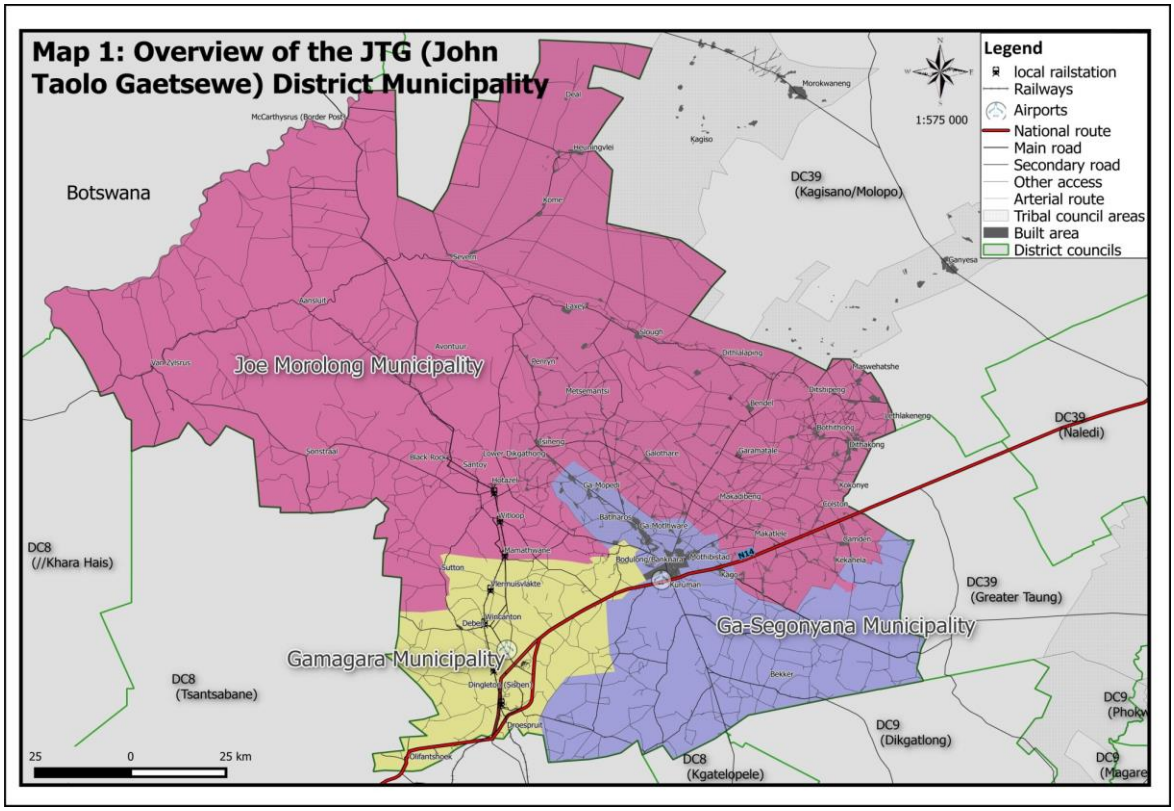
1.2 BACKGROUND OF JOE MOROLONG LOCAL MUNICIPALITY

1.2.1 REGIONAL LOCALITY

Joe Morolong is located in the Northern Cape Province based in the John Taolo Gaetsewe District, on the North eastern and western part of the District. The Municipality is accessible via the National infrastructure through the N14 which links North West and the Northern Cape Provinces.

Joe Morolong Local Municipality was established on the **6th December 2000** under the name of "Moshaweng" which is now called Joe Morolong named after Taolo Joseph Morolong who was born at Ditshipeng Village on July the 1st 1927. Joe Morolong is a rural area consisting of a traditional component where Traditional Leaders play a critical role in decision making. The area consists of approximately 198 traditional settlements. The Churchill village (the administrative hub of the Joe Morolong Local Municipality) is situated approximately 24km north-east of Kuruman.

Map 1: Locality of Joe Morolong Local Municipality in district context



Source: Joe Morolong IDP, 2019-2020

Churchill is classified as a First Order Settlement in terms of the Settlement hierarchy within the John Taolo Gaetsewe District Municipality (refer **Table 3**). First order settlements constitute areas of significant size, with the greatest range of

services and facilities in the JTGDM, and in principle, the most sustainable locations for major growth, e.g. Towns.

Table 3: Settlement hierarchy within the John Taolo Gaetsewe District Municipality

Municipality/ Description	Ga-Segonyana LM	Gamagara LM	Joe Morolong
First Order Settlement	Kuruman	Kathu	Hotazel and Churchill
Second Order Settlement	Mothibistat, Wrenchville, Bankhara-Bodulong, Seoding, Magobe, Batlharos, etc.	Olifantshoek, Sishen and Dibeng, Dingleton	Vanzylsrus and McCarthysrus
Third Order Settlement	Maruping, Seven Miles, Magojaneng, Kagung, etc.	None	Heuningvlei, Laxey, Bothitong, Dithakong, etc
Fourth Order Settlement	Gamopedi, Gantatelang, Pietbos, Gasehubane, Thamoyanche, etc.	None	Perth, Mahukhubung, Padstow, Eiffel, Ditshelabeleng, etc

1.2.2 DEMOGRAPHICS

The demographic profile detailed below provides an economic overview of the Joe Morolong Local Municipality (NC451) in respect of the sectoral composition (GVA) and employment trends, the population and households as well as household income. The information contained in sections 1.2.2.1 to 1.2.2.4 is based the John Taolo Gaetsewe District Development Profile (2020), the Joe Morolong Integrated Development Plan (2019 – 2020), the Joe Morolong Integrated Human Settlement Sector Plan (2014) and the Joe Morolong Spatial Development Framework, 2017.

1.2.2.1 Economic Overview

In 2018, the John Taolo District had 20 300 unemployed people, an unemployment rate of 23.5%. Since 2008, the John Taolo Gaetsewe District Municipality experienced an average annual increase of 3.04% in the number of unemployed people, which is worse than that of the Northern Cape Province which had an average annual increase in unemployment of 2.68%.

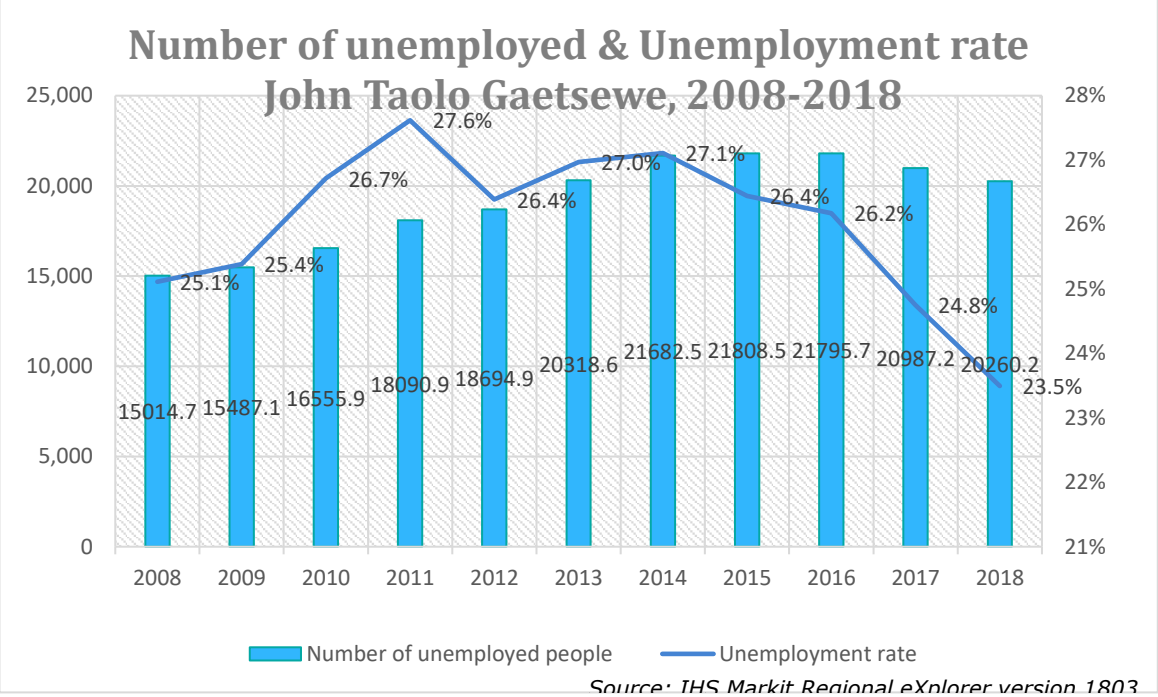


Figure 1: John Taolo Gaetsewe District Municipality Unemployment Figures

The Joe Morolong Municipality has the highest unemployment rate in the District of 33.9% in 2018 (increased from 30.2% in 2008). This may be as a result of the high percentage of subsistence farmers located within the municipality, who are not looking for work, but are able to provide for their households and low level of education.

Table 4: Unemployment rate of the John Gaetsewe District Municipality

Municipality	Employed			Unemployed			Unemployment Rate		
	1996	2001	2011	1996	2001	2011	1996	2001	2011
John Taolo Gaetsewe	26652	24230	42440	24766	17963	18309	48.2	42.6	30.1
Joe Morolong	**10497**	**7126**	**7737**	**13956**	**6875**	**4891**	**57.1**	**49.1**	**38.7**
Ga-Segonyana	9374	10175	19639	8571	8514	10095	47.8	45.6	34
Gamagara	6781	6929	15064	2239	2574	3323	24.8	27.1	18.1

Source: StatsSA, 2011

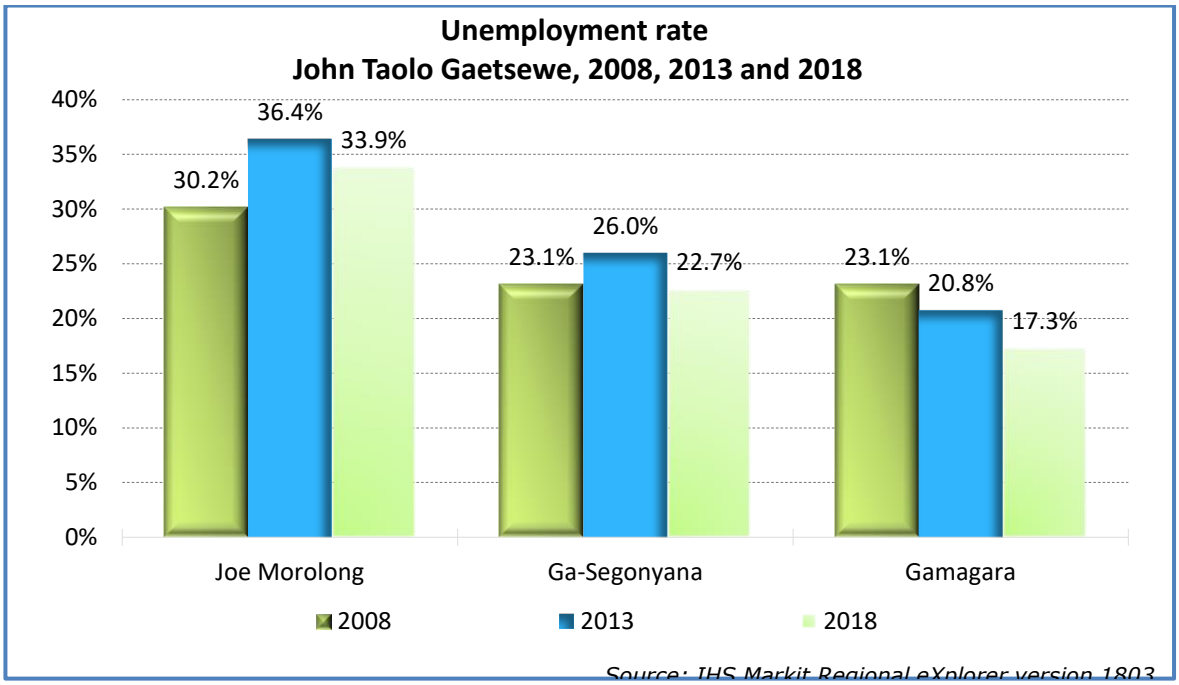


Figure 2: Unemployment figures in John Taolo Gaetsewe District Municipality

In 2018, there were 156 000 people living in poverty, using the upper poverty line definition, across John Taolo Gaetsewe District Municipality. This number is 18.38% higher than the 132 000 in 2008. The percentage of people living in poverty has decreased from 68.66% in 2008 to 61.96% in 2018, which indicates a decrease of 6.7 percentage points. In terms of the percentage of people living in poverty for each of the local municipalities within the John Taolo Gaetsewe District Municipality, Joe Morolong Local Municipality has the highest percentage of people living in poverty, using the upper poverty line definition, with a total of 78.4%. The lowest percentage of people living in poverty can be observed in the Gamagara Local Municipality with a total of 43.3% living in poverty, using the upper poverty line definition.

In 2011, StatsSA released information regarding the level of income within the economically active population. It is clear from the figure below that more that 60% of the population aged between 15 and 64 years within Joe Morolong LM has no income. Some of the population aged between 15 and 64 years categorised under “no income” are embarking in the informal business sector, either home based enterprises or hawkers. In the dualistic framework, the informal sector is often seen as a safety net for the unemployed. Consequently, the most appropriate policies are those that alleviate poverty or provide insurance during extended periods of unemployment. The “no income” status clearly shows poverty situation within the Joe Morolong LM.

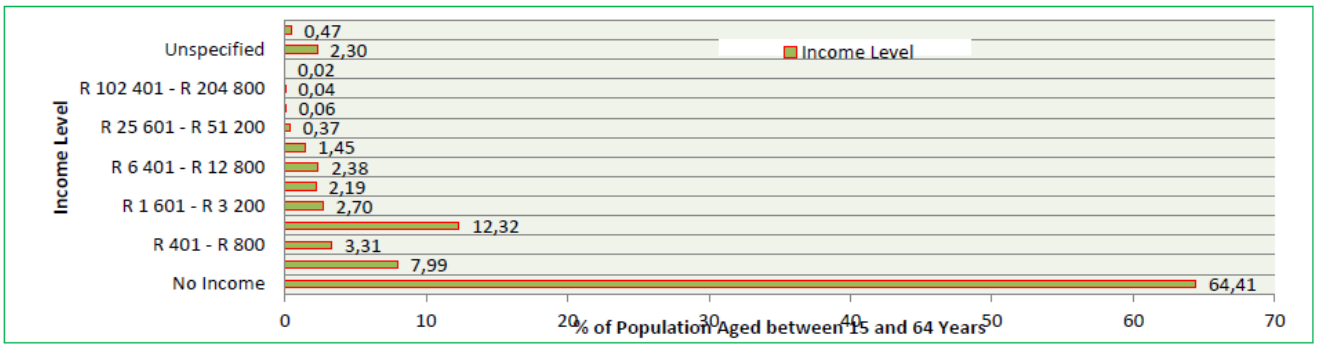


Figure 3: Income profile of the Joe Morolong Local Municipality

Source: StatsSA, 2011

The municipality's economy is mainly based on agriculture, mining activities and community services. Interestingly enough, although Joe Morolong and Ga-Segonyana LM"s main contributor to their GVA is mining, wholesale and retail is the biggest contributor towards employment including catering and accommodation. Joe Morolong LM employment figures indicate that although agriculture does not contribute largely to the local GVA, it does employ 11.4% of the local workforce.

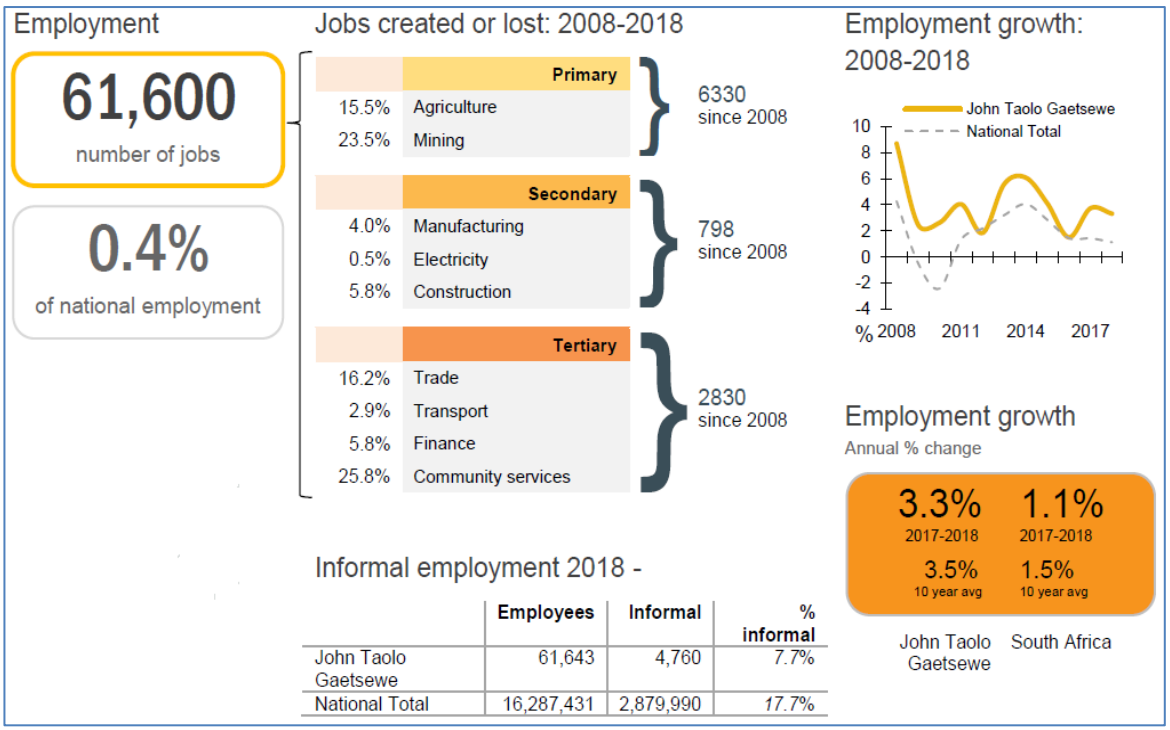
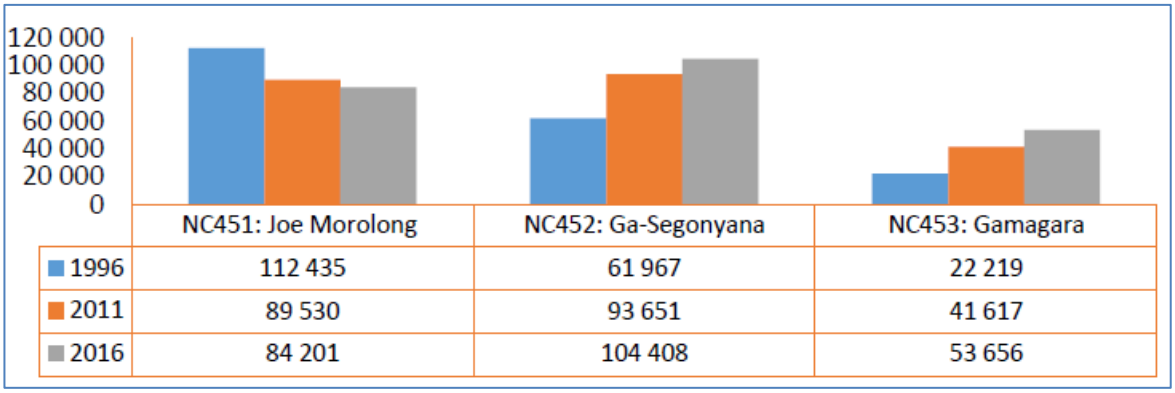


Figure 4: Labour market in John Taolo Gaetsewe District Municipality

1.2.2.2 Population Overview

The population of the John Taolo Gaetsewe District Municipality has had an increase of about 17 465; 224 799 in 2011 to 242 264 in 2016. The increase of the population in the District is evident in the local municipalities of Ga-Segonyana (11.49) and Gamagara (28.93). There has been a major decline of about 6.3% in

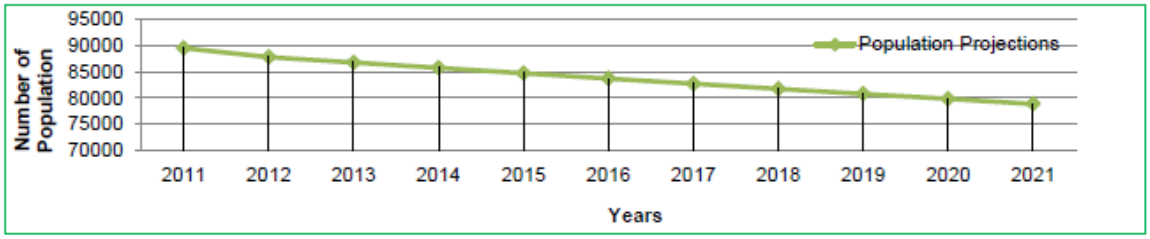
the population of Joe Morolong Local Municipality; this is mainly due to the out-migration from the municipality to the Ga-Segonyana and Gamagara Local Municipalities.



	NC451: Joe Morolong	NC452: Ga-Segonyana	NC453: Gamagara
1996	112 435	61 967	22 219
2011	89 530	93 651	41 617
2016	84 201	104 408	53 656

Figure 5: Population Composition of the John Taolo Gaetsewe District Municipality

The figure below is an illustration of population projections of the Joe Morolong LM growth rate of -1.19 which shows a decreasing population of 78 858 in 2021.



Source: JMLM SDF

Figure 6: Population Projections for Joe Morolong LM

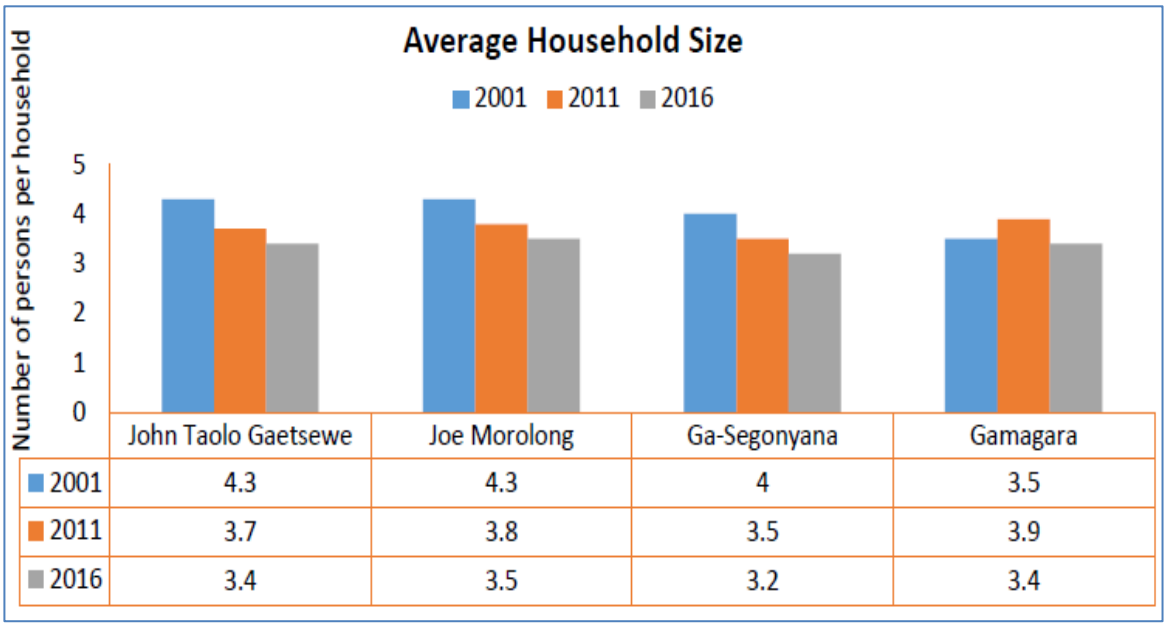
The local Spatial Development Framework for Joe Morolong Local Municipality synthesised the following with regards to the population projections above:

- Joe Morolong Local Municipality is experiencing a decrease in population at 1.19 per annum from 2011 to 2016, however the household size has experienced an increase in growth of 0.8% during the same period, therefore development trend in the municipal area should take note of these population dynamics
- Some population within Joe Morolong LM relocate from their original place based on a number of factors i.e. (1) new dwelling for household, (2) moving to live with or be closer to spouse (marriage), (3) moving as a household with a household member (for health), (4) job transfer/take up new job opportunity and (5) education (e.g. studying; schooling; training). This should be addressed by improving the living conditions in all settlements and provide access to services needed by the community.

- The land tenure system could also be contributing to migration of the youth. The working population has access to housing finance which is available only in urban areas as a result of the tenure system.
- The declining population growth between 2001 and 2016 does not mean that there would not be a need for access to basic services. The increasing number of households would still continue to put pressure on the existing services and backlogs.
- The high density and spatial integration of settlements should be encouraged to maximise the use of available services and resources.

According to the 2011 Census, Joe Morolong Local Municipality has a total population of 89 530 people. The population density is 4 persons per km². The municipality has 23 707 total number of households with an average household size of 3.5 (2016). It needs to be mentioned that 50.7% of the households are female headed (Stats SA, 2011).

The household sizes decreased from 2011 to 2016 in all local municipalities within the district. A huge decrease is experienced in Gamagara LM from 3.9 in 2011 to 3.4 in 2016, this may be due to the high number of rental accommodation status which includes the in-migration (within the district) and out-migration (from outside the district) arising from work opportunities in Gamagara LM. The low decrease in Joe Morolong LM and Ga-Segonyana LM is as a result of increase in number of households and high dependency due to level of poverty within the areas, especially in Joe Morolong LM where high number of outmigration is experienced.

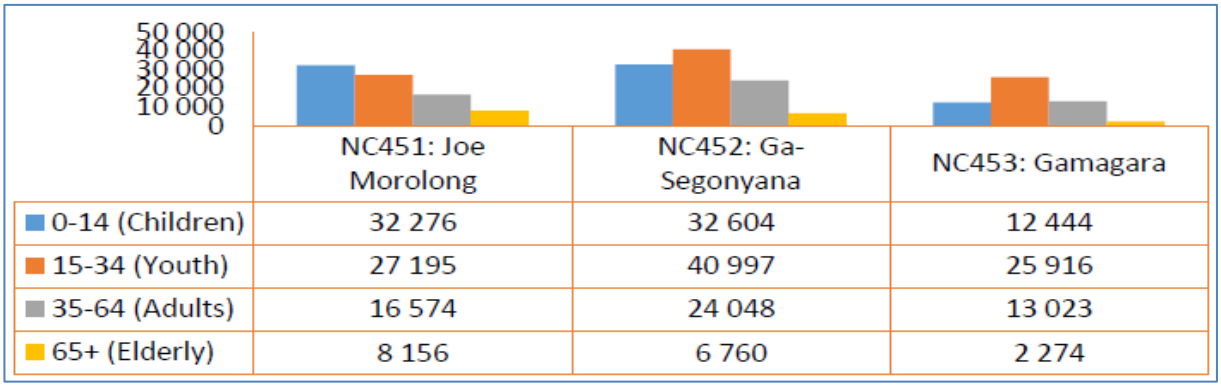


	John Taolo Gaetsewe	Joe Morolong	Ga-Segonyana	Gamagara
2001	4.3	4.3	4	3.5
2011	3.7	3.8	3.5	3.9
2016	3.4	3.5	3.2	3.4

Figure 7: Average household size in the John Taolo Gaetsewe District Municipality

The age profile of the JTGDM is as follows: 0 - 14 years: 31.92%; 15 - 64 years: 63.32%; and older than 65: 4.76%. It is not that different from the national profile on

Census 2011 (i.e. 0 - 14 years: 31.03%; 15 - 64 years: 63.59%; and older than 65: 5.39%). The figure below shows a generally youthful population between the age segment 15 – 36 of 100 973 people i.e. 41.68%.



	NC451: Joe Morolong	NC452: Ga-Segonyana	NC453: Gamagara
0-14 (Children)	32 276	32 604	12 444
15-34 (Youth)	27 195	40 997	25 916
35-64 (Adults)	16 574	24 048	13 023
65+ (Elderly)	8 156	6 760	2 274

Figure 8: Age Distribution within the John Taolo Gaetsewe District Municipality

The gender split in the JTGDM is 49.12% male and 50.88% female. There are generally more females than males in all municipalities with the exception of Gamagara; where there are more males than females, mainly because of the presence of job opportunities that attract men from other areas outside the district. According to the Joe Morolong LM Integrated Human Settlement Sector Plan (2014), approximately 54% of the Municipality's population is of working age (age 15 to 65 years). Males that are of working age constitute 24% of the population and females 31%. The male to female ratio is 1:1.2, which translates to the population being 46% male and 54% female.

Table 5: Gender Distribution within the John Taolo Gaetsewe District Municipality

	DC45: John Taolo Gaetsewe	NC451: Joe Morolong	NC452: Ga-Segonyana	NC453: Gamagara
Male	118 988	38 206	50 483	30 299
Female	123 276	45 995	53 925	23 356

1.2.2.3 Housing Profile

The Joe Morolong LM, the largest local municipality in the JTGDM area, covers about 73.9% of the geographical area of the district; but has the lowest density at 3.75 persons and 0.86 households per km². The Ga-Segonyana LM is the direct opposite of that; covering only 16.5% with the highest density of people, i.e. 15.54 persons and 3.81 households per km².

The majority of the households in the Ga-Segonyana LM and Joe Morolong LM own their properties. There are very high levels of renting in the Gamagara LM (at approximately 11 000 properties). The percentage distribution of households by tenure status and municipality is shown in **Table 6** below.

Table 6: Tenure Status in the John Taolo Gaetsewe District Municipality

	NC451: Joe Morolong	NC452: Ga-Segonyana	NC453: Gamagara
Rented from private individual	1 360	7 318	10 280
Rented from other (incl. municipality and social housing ins	792	623	707
Owned; but not yet paid off	4 206	2 346	5 385
Owned and fully paid off	67 877	88 396	30 007
Occupied rent-free	5 583	3 971	484
Other	4 111	1 490	6 506
Do not know	146	43	287
Unspecified	126	221	-

With regards to housing in the district, 67.99% of the households in the JTGDM live in a “House or brick structure on a separate stand” as shown in **Table 7.** This figure is 8.74% above that for South Africa as a whole at 59.25%, but 7.28% below the figure for the Northern Cape Province at 75.27%. In comparison to the four other DMs in the province, the JTGDM has the second lowest percentage of households living in a “House or brick structure on a separate stand”. Amongst the three LMs in the district, the Ga-Segonyana LM has the highest percentage of households living in a “House or brick structure on a separate stand” (76.39%). Nearly half (45.6%) of all households in the DM living in such a dwelling are located in this LM.

Table 7: Housing Types in the John Taolo Gaetsewe District Municipality

Type of main dwelling	Northern Cape	John Taolo Gaetsewe	Joe Morolong	Ga-Segonyana	Gamagara
Formal dwelling/house or brick/concrete block structure on a	920,702	184,071	60940.00	80,831	42,301
Traditional dwelling/hut/structure made of traditional mater	25,457	14,406	10083.00	4,322	-
Flat or apartment in a block of flats	7,754	743	45.00	337	361
Cluster house in complex	1,241	345	0	23	322
Townhouse (semi-detached house in a complex)	3,648	683	27.00	336	320
Semi-detached house	21,423	1,546	129.00	509	908
Formal dwelling/house/flat/room in backyard	58,229	15,567	7608.00	7,069	890
Informal dwelling/shack in backyard	45,013	7,177	2092.00	3,548	1,536
Informal dwelling/shack not in backyard (e.g. in an informal	92,146	11,870	2853.00	3,594	5,423
Room/flatlet on a property or larger dwelling/servants quart	2,875	700	-	655	45
Caravan/tent	862	238	39.00	17	183
Other	14,293	4,917	385.00	3,166	1,366
Unspecified	137	-	-	-	-
Total	**1,193,780**	**242,264**	**84,201**	**104,408**	**53,656**

With regards to the prevalence of informal dwellings in the DM, 8.47% of households live in an informal dwelling, which is significantly below the national figure of 14.43% and somewhat below the provincial figure of 10.49%. In terms of the spatial location of informal dwellings in the district, the bulk of the households living in (1) an "Informal dwelling/shack in a back yard" (82.63%) and (2) an "Informal dwelling/shack not in a back yard" (55.8%), are located in the Ga-Segonyana Local Municipality and to a lesser extent in the Gamagara Local Municipality. In the case of the latter, the percentage of households living in (1) an "Informal dwelling/shack in a back yard" is 16.58%; and (2) an "Informal dwelling/shack not in a back yard", 30.2%. This significant concentration in these two LMs is most likely a result of rapid in-migration to the towns of Kuruman and Kathu from especially the Joe Morolong Local Municipality.

According to the Joe Morolong Integrated Human Settlement Sector Plan (2014), there are currently 6352 households in need of inadequate housing.

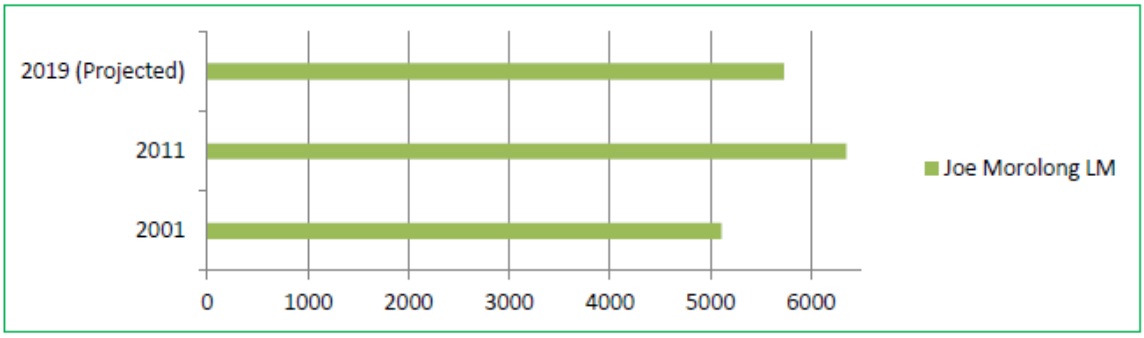


Figure 9: Housing need in Joe Morolong Local Municipality

Source: Joe Morolong Integrated Human Sector Plans 2014

The Joe Morolong Local Municipality is faced with the reality that the majority of the municipal area comprises farm portions and informal village areas which renders the Local Municipality with a non-existent income base in relation to rates and taxes. Due to the location of specifically the Churchill urban area in relation to the Kuruman urban area, renders the Churchill area ideal to tap in to the large housing need experienced in the Kuruman area. The Joe Morolong Local Municipality in this regard wishes to entice middle- and higher-income earners (specifically workers involved in the mining sector) to settle within the Churchill area whilst enjoying the benefits of being located in close proximity to the mining operations within the Joe Morolong and Ga-Segonyana Municipal areas.

1.3 INTEGRATED HUMAN SETTLEMENT PLANNING

As integral part of the township establishment process, the following studies were conducted as part of the pre-planning activities:

- Aerial survey of the development area conducted by Azur Aerial Work CC;
- Generation of contours based on aerial survey conducted by Azur Aerial Work CC;
- Floodline Delineation conducted by CWT Consulting;
- Feasibility Level Dolomite Stability Investigation conducted by the Council for Geoscience (October 2017);
- Phase 1 Heritage Impact Assessment conducted by A Pelser Archaeological Consulting CC;
- Detail civil engineering services investigation conducted by G3T Consult;
- Detail electrical engineering services investigation conducted by G3T Consult;
- Environmental Impact Assessment conducted by AB Enviro-Consult;
- Ecological Fauna and Flora Habitat Survey conducted by Reinier F Terblanche;
- Wetland Assessment conducted by Reinier F Terblanche; and
- Traffic Impact Study conducted by Route² Transport Strategies.

The results of the studies referred to above will be addressed in the respective sections of this Motivation Report.

During the Ministry of Human Settlements' Budget Vote in Parliament on 03 May 2016, the Minister of Human Settlements announced during her budget speech that MinMec has taken a decision to target the Northern Cape Province for the complete eradication of the housing backlog.

In terms of a presentation by the Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA) on Sustainable Human Settlements presented on 22 August, the following main objectives were set in respect of Sustainable Human Settlements:

- Accelerate housing delivery
- Improve the quality of housing products and environments to ensure asset creation
- Ensure a single efficient formal housing market
- Restructure and reintegrate human settlements
- *Key shift: Housing is an economic driver for the country and an economic asset for beneficiaries*

In terms of current policy directives, the main development strategy for residential development should be based on the objectives of the Breaking New Ground Principles (BNG) for sustainable human settlements which can be summarised as follows:

- To ensure that sustainable housing development takes place.
- To integrate housing with other municipal services in order to establish sustainable human settlements, in support of spatial restructuring.
- To coordinate municipal departments in order to work together in planning and implementing.
- To promote middle- and high-income housing which will in turn generate resources to improve low income areas.
- To promote environmental and energy efficient housing.

The approach to ensuring that sustainable human settlements are achieved should include:

- Spatial transformation and economic integration
- Viable infrastructure provisioning and life-cycle management
- Functional, responsive and innovative design
- Easy and close access to range of services and amenities
- Affordable urban living
- Financial viability
- Effective urban management and municipal financial sustainability
- Environmental sustainability
- Local job creation and empowerment

1.4 APPLICATION

Koot Raubenheimer (Id No. 700305 5192 089) of the company Maxim Planning Solutions (Pty) Ltd (2002/017393/07), being the authorised agent of the National Government of the Republic of South Africa, is hereby applying to the Joe Morolong Local Municipality in terms of:

- Section 13(2)(d) read with Section 18(1) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality, read with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the subdivision of the Remaining Extent of the farm Churchill 211, Registration Division H.M., Northern Cape Province to create the proposed Portion 12 and a remainder;
- Section 13(2)(d) read with Section 18(1) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality, read with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the subdivision of the Remaining Extent of Portion 2 of the farm Nyra 213, Registration Division H.M., Northern Cape Province to create the proposed Portion 5 and a remainder;
- Section 13(2)(e) read with Section 29(1) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality, read with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the consolidation of the proposed Portion 12 of the farm Churchill 211, Registration Division H.M., Northern Cape Province and the proposed Portion 5 (a portion of Portion 2) of the farm Nyra 213, Registration Division H.M., Northern Cape Province to create the proposed Farm No. 792, Registration Division H.M., Northern Cape Province;
- Section 13(2)(d) read with Section 18(1) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality, read with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) for the subdivision of the proposed Farm No. 792, Registration Division H.M., Northern Cape Province into two (2) portions;
- Application for the establishment of a new township area through a process of rezoning and subdivision in terms of Sections 13(2)(a) and 13(2)(d) read with Sections 15(2), 18(1), 18(2) and 18(3) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality, read with the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) on a portion of the Remaining Extent of the farm Churchill 211, Registration Division H.M., Northern Cape Province and a portion of the Remaining Extent of Portion 2 of the farm Nyra 213, Registration Division H.M., Northern Cape Province to create:
    - The proposed township Churchill Extension 1, comprising of Erven 1 to 1254 and providing for 1216 “Residential Zone I” erven, 1 “Business Zone II” erf, 1 “Institutional Zone I” erf, 3 “Institutional Zone II” erven, 1 “Institutional Zone III” erf, 5 “Open Space Zone I” erven and 27 “Transport Zone II” erven;
    - The proposed township Churchill Extension 2, comprising of Erven 1 to 1264 and providing for 1229 “Residential Zone I” erven, 2 “Business Zone II” erven, 3 “Institutional Zone I” erven, 1 “Institutional Zone II” erf, 1 “Institutional Zone III” erf,

3 “Open Space Zone I” erven, 1 “Open Space Zone II” erf and 24 “Transport Zone II” erven

1.5 PUBLIC PARTICIPATION

Public participation in respect of the land development application comprising the establishment of the two (2) proposed township areas of Churchill Extension 1 and Churchill Extension 2, as well as the subdivision and consolidation of the Remaining Extent of the Farm Churchill 211 and the Remaining Extent of Portion 2 of the Farm Nyra 213, Registration Division H.M., will include the following:

- Publishing notices of the application (as set out in **Annexure C1** of the comprehensive Land Development Application) in the Kalahari Bulletin as well as in the Northern Cape Provincial Gazette in Afrikaans & English for two consecutive weeks as contemplated in Section 45(3)(a) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015);
- Appending notices of the application (as set out in **Annexure C2** of the comprehensive Land Development Application) on the notice board situated at the library as contemplated in Section 45(3)(b) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015);
- Displaying a notice (as set out in **Annexure C3** of the Comprehensive Land Development Application) in a conspicuous place on the land to which the application applies as contemplated in Section 48(1)(a) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015);
- Notices to the following external departments / organizations (as set out in **Annexure C4** of the comprehensive Land Development Application) in order to obtain letters of consent / objection as contemplated in Section 48(1)(f) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015):
    - Department of Agriculture, Forestry and Fisheries (DAFF)
    - Transnet
    - South African Heritage Resources Agency (SAHRA)
    - Eskom
    - Department of Public Works and Roads
    - Department Water and Sanitation
    - Openserve (former Telkom SA Limited)
    - SA Post Office Limited (SAPO)
    - John Taolo Gaetsewe District Municipality
    - South African National Roads Agency Limited (SANRAL)
    - Department of Mineral Resources (DMR)
    - Department of Education
    - Department of Health
    - Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
    - National Department of Arts, Sport & Culture

- National Department of Environmental Affairs
- Department Agriculture, Land Reform and Rural Development
- Council for Geoscience

- Notices to adjacent property owners (as set out in **Annexure C5** of the comprehensive Land Development Application) as contemplated in Section 48(1)(g) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015):

The public will be afforded a period of 30 days to comment in this matter whereas the external organisations / departments that will be approached for comments will be afforded a period of 60 days to furnish us with their comments in respect of the application. Following receipt of the said comments we will forward same to your Municipality for your further attention and record purposes.

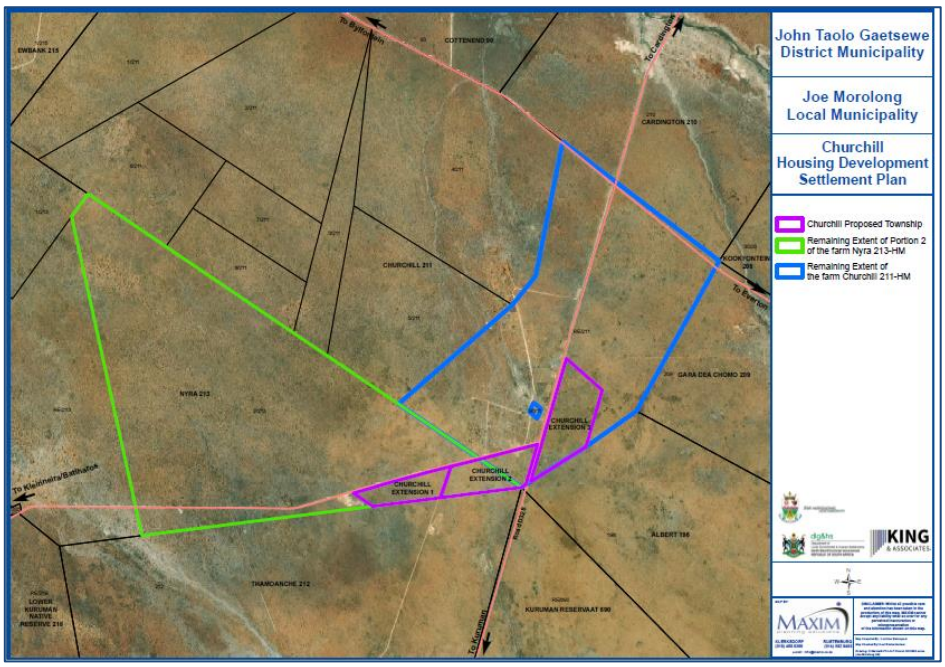
1.6 STUDY AREA DELINEATION

The proposed development area comprises the following properties:

- Portion of the Remaining Extent of the Farm Churchill 211, Registration Division H.M., Northern Cape Province; and
- Portion of the Remaining Extent of Portion 2 of the Farm Nyra 213, Registration Division H.M., Northern Cape Province.

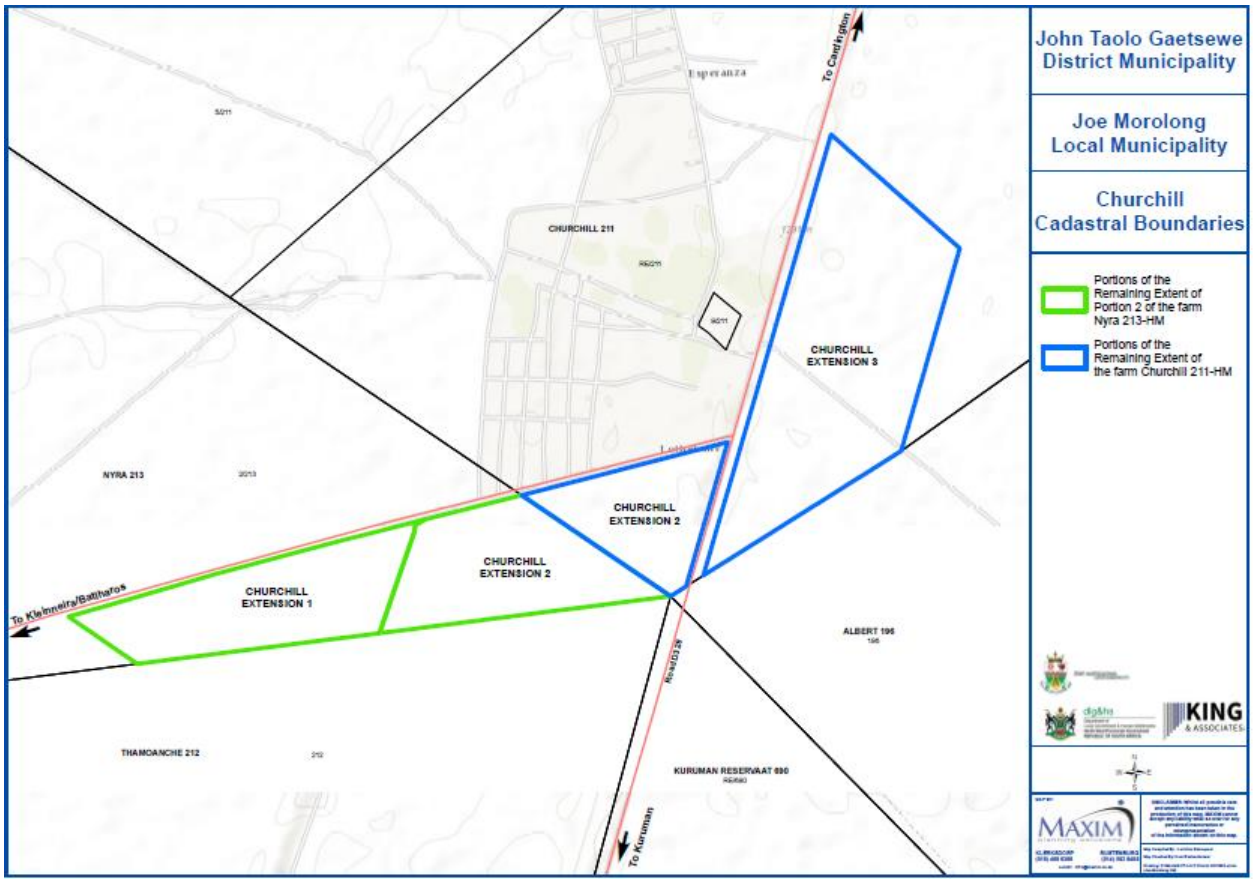
The locality of the parent properties is reflected on **Map 2** below whereas the specific portions of the parent properties to which the application applies are reflected on **Map 3** below.

Map 2: Locality of parent properties to which the land development application applies



**** Please note that Churchill Extension 3 is only indicated for reference purposes. The township does not form part of this application, but will be developed in future***

Map 3: Cadastral Boundaries of application sites



**** Please note that Churchill Extension 3 is only indicated for reference purposes. The township does not form part of this application, but will be developed in future***

1.7 REPORT OUTLINE

The remainder of the report is structured in terms of the following main headings:

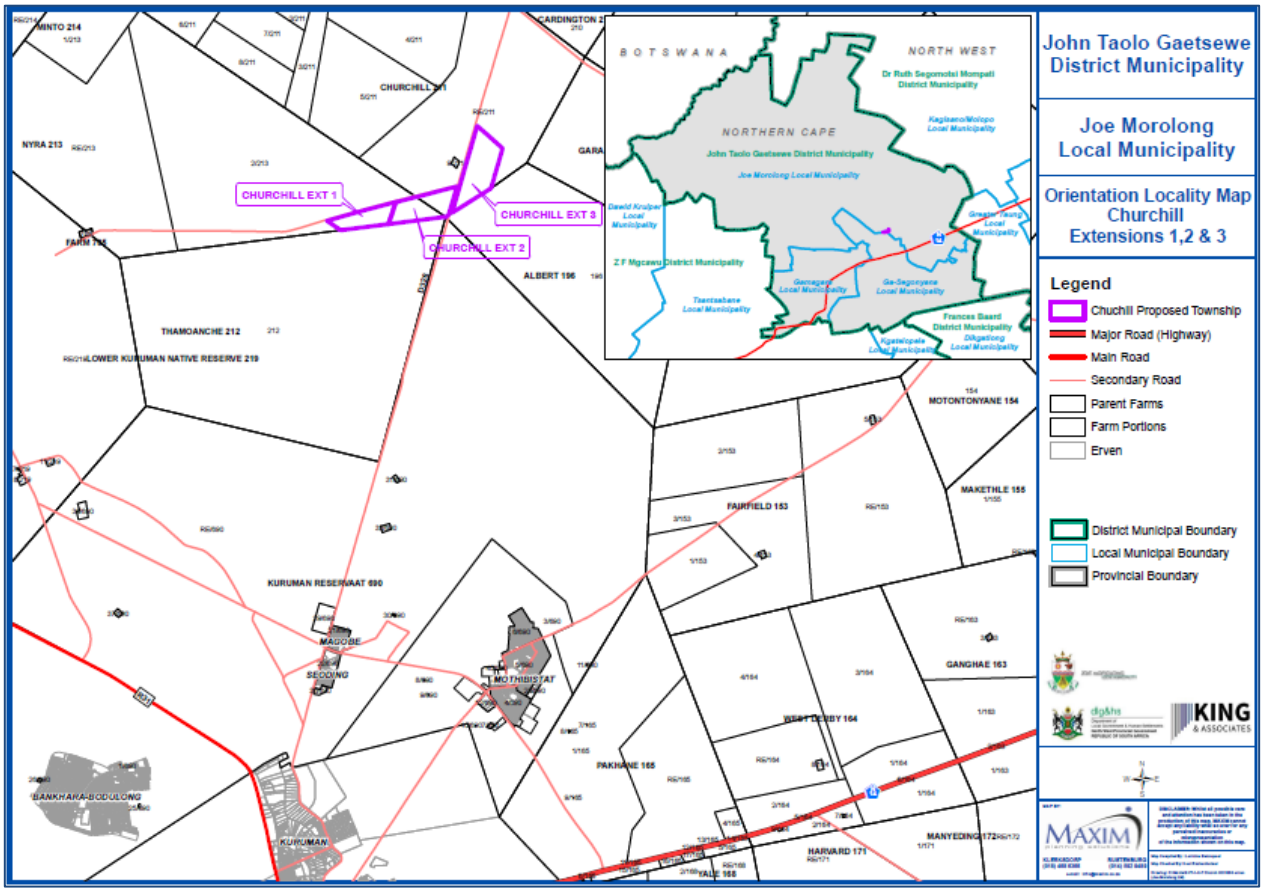
- Chapter 2: Particulars of the development area
- Chapter 3: Physical aspects
- Chapter 4: Proposed development
- Chapter 5: Provision of Engineering Services
- Chapter 6: Motivation

CHAPTER 2: PARTICULARS OF THE DEVELOPMENT AREAS

2.1 LOCALITY

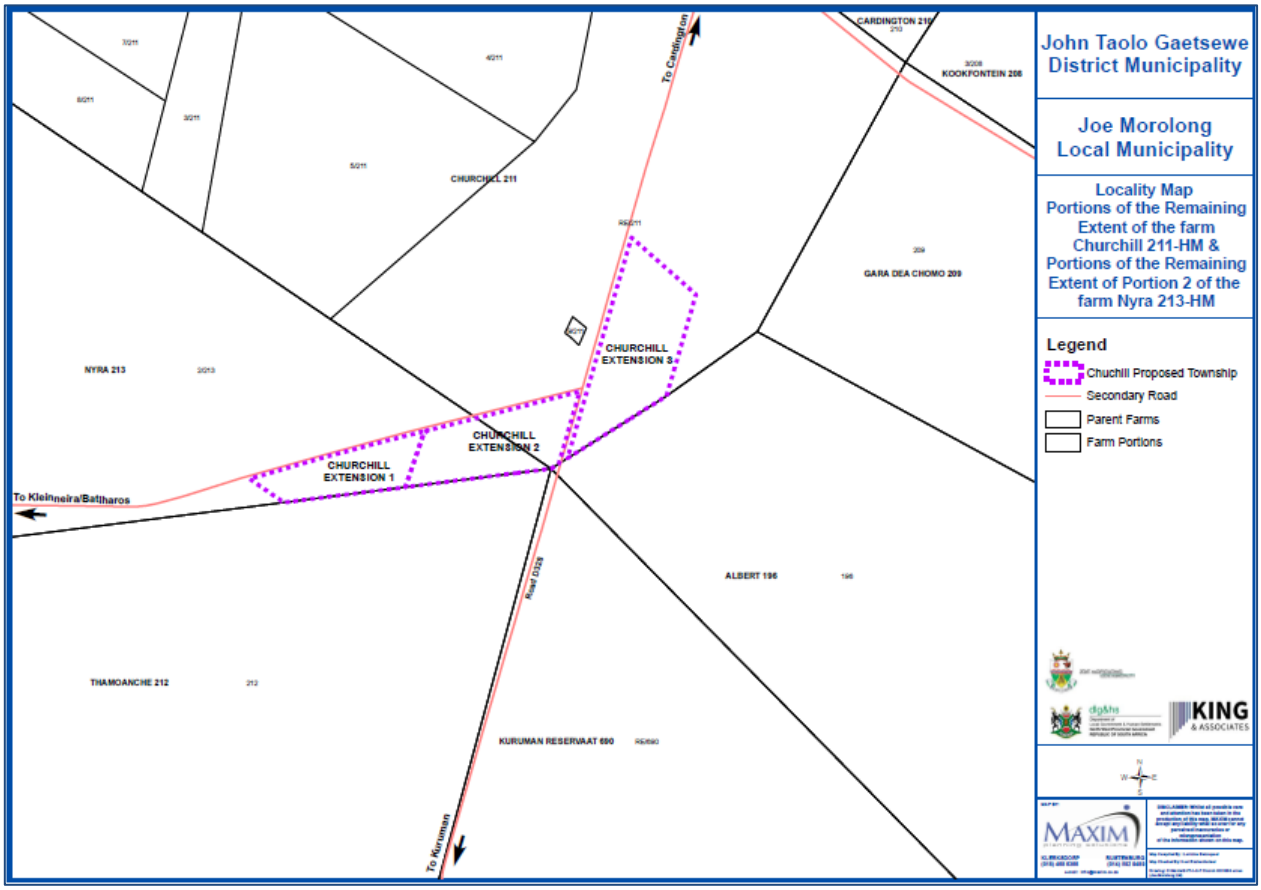
The site is located approximately 20 km northeast of Kuruman (Map 4 below); and is accessible via Seoding Road from Kuruman CBD. The village is named *Letlhokane* in most of the available maps e.g. GPS maps, topographical map and on Google Earth. The town is commonly known as Churchill.

Map 4: Orientation Locality Map



As detailed in the preceding sections and also described in greater detail in the sections below, the proposed development area will comprise two (2) individual township areas, the location whereof is indicated on **Map 5** below.

Map 5: Locality Map



**** Please note that Churchill Extension 3 is only indicated for reference purposes. The township does not form part of this application, but will be developed in future***

The proposed two (2) development / township areas of Churchill will be located on the respective properties listed in **Table 6** below:

Table 8: Township Areas property descriptions

Proposed township area	Property description
Churchill Extension 1 comprising Erven 1 to 1254	A Portion of the Remaining Extent of Portion 2 of the farm Nyra 213, H.M., Northern Cape Province
Churchill Extension 2 comprising Erven 1 to 1264	A Portion of the Remaining Extent of Portion 2 of the farm Nyra 213, H.M., Northern Cape and a Portion of the Remaining Extent of the Farm Churchill 211, H.M., Northern Cape Province

The proposed township areas detailed above are located within the area of jurisdiction of the Joe Morolong Local Municipality (NC451) which in turn falls within the area of jurisdiction of the John Taolo Gaetsewe District Municipality.

An orientation locality plan of the proposed township/development area is attached to the comprehensive land development application as **Annexure H1 – H4**.

2.2 SG DIAGRAM

The Remaining Extent of the farm Churchill 211, Registration Division H.M. is reflected on diagram CB 598/1914, together with the deduction sheets attached thereto (attached as **Annexure F1** to the comprehensive Land Development Application).

The Remaining Extent of Portion 2 of the farm Nyra 213, Registration Division H.M. is reflected on diagram CB 2195/1925 together with the deduction sheets attached thereto (attached as **Annexure F2** to the comprehensive land development application)

2.3 OWNER

The Remaining Extent of the farm Churchill 211 and the Remaining Extent of Portion 2 of the Farm Nyra 213, Registration Division H.M., Northern Cape Province are currently registered as follows:

Table 9: Ownership details

Property Description	Registered Owner	Deed of Transfer Number
Remaining Extent of the Farm Churchill 211, H.M., Northern Cape	National Republic of South Africa	T379/1940
Remaining Extent of Portion 2 of the Farm Nyra 213, H.M., Northern Cape	National Republic of South Africa	T333/1940

To secure the above-mentioned land for human settlement development purposes, the Joe Morolong Local Authority already approached the relevant Traditional Authority for permission in respect of the transfer of the subject property to the Joe Morolong Local Municipality and consent has already been granted in respect of the availability of the subject property for human settlement development purposes as well as the transfer thereof to the Joe Morolong Local Municipality.

(Refer **Annexures E1 to E2** of the comprehensive Land Development Application for copies of the Windeed Deed Office Enquiries conducted in respect of the various properties as well as **Annexures E3 to E4** for the relevant title deeds).

2.4 BONDHOLDER

Neither of the properties to which this application apply are currently subject to any bond (refer **Annexures E1 to E2** of the comprehensive Land Development Application for Windeed Deed Office Enquiries that confirm the absence of any bonds as well as **Annexure K** for the Conveyancer Certificate to the same effect).

2.5 AREA

The properties to which this land development application applies currently comprise the following areas:

Table 10: Property Areas

Property Description	Area
Remaining Extent of the farm Churchill 211, H.M., Northern Cape Province	214,1330 Hectares
Remaining Extent of Portion 2 of the farm Nyra 213, H.M., Northern Cape Province	2176,4471 Hectares
TOTAL	**2 390,5801 Hectares**

As detailed in the preceding sections, the proposed township areas will be restricted to only certain portions of the subject properties that will comprise the following areas:

Table 11: Areas of properties to which the application applies

Proposed Development	Property Description	Area
Churchill Extension 1	A Portion of the Remaining Extent of Portion 2 of the farm Nyra 213, H.M., Northern Cape	60.7444 Hectares
Churchill Extension 2	A Portion of the Remaining Extent of Portion 2 of the farm Nyra 213, H.M., Northern Cape and	92.3198 Hectares
	a Portion of the Remaining Extent of the farm Churchill 211, H.M., Northern Cape	
TOTAL		**153.0642 Hectares**

The proposed two (2) township areas of Churchill Extensions 1 & 2 will comprise a total area of **153.0642 Hectares**.

This land development application also seeks to obtain the necessary approval in respect of the subdivision of the subject properties in accordance with the outside figures of the two (2) individual township areas. Application is made for the subdivision of the properties as follows:

Table 12: Proposed subdivision details

Property Description	Proposed subdivided property description	Township area applicable	Area (Ha)
Remaining Extent of Portion 2 of the farm Nyra 213	Portion 5 of the farm Nyra 213	Churchill Extension 1 & Churchill Extension 2	115.9609 ha
Remaining Extent of the farm Churchill 211	Portion 12 of the farm Churchill 211	Churchill Extension 2	37.1034 ha
Proposed farm No. 792 (arising from consolidation discussed below)	Portion A of the farm 792	Churchill Extension 1	60.7444 ha
	Portion B of the farm 792	Churchill Extension 2	92.3198 ha

(Refer subdivision maps attached as **Annexures M1 to M3** of the comprehensive Land Development Application).

The land development application also seeks to obtain approval in respect of the consolidation of some of the above-mentioned subdivided portions where the proposed township area is located on more than one portion. The consolidation entails the following:

Table 13: Proposed consolidation details

Proposed subdivided property descriptions	Proposed consolidated property descriptions	Township area applicable	Consolidated Area (Ha)
Portion 5 of the farm Nyra 213 and Portion 12 of the farm Churchill 211	The farm No. 792	Churchill Extension 1 & Churchill Extension 2	153,0642 Hectares

(Refer consolidation maps attached as **Annexures N1** of the comprehensive Land Development Application).

2.6 EXISTING LAND USE AND ZONING

2.6.1 CURRENT LAND USES

A site visit was conducted by Maxim Planning Solutions on 19 June 2019, where it was found that the application sites are vacant and currently used for grazing

purposes. No structures (formal or informal) were found on site at the time of the inspection (or during subsequent site visits by sub consultants conducting specialist studies). The photographs below were taken during the site visit and indicate the land uses on site.

Photo 1: Land Use on Site

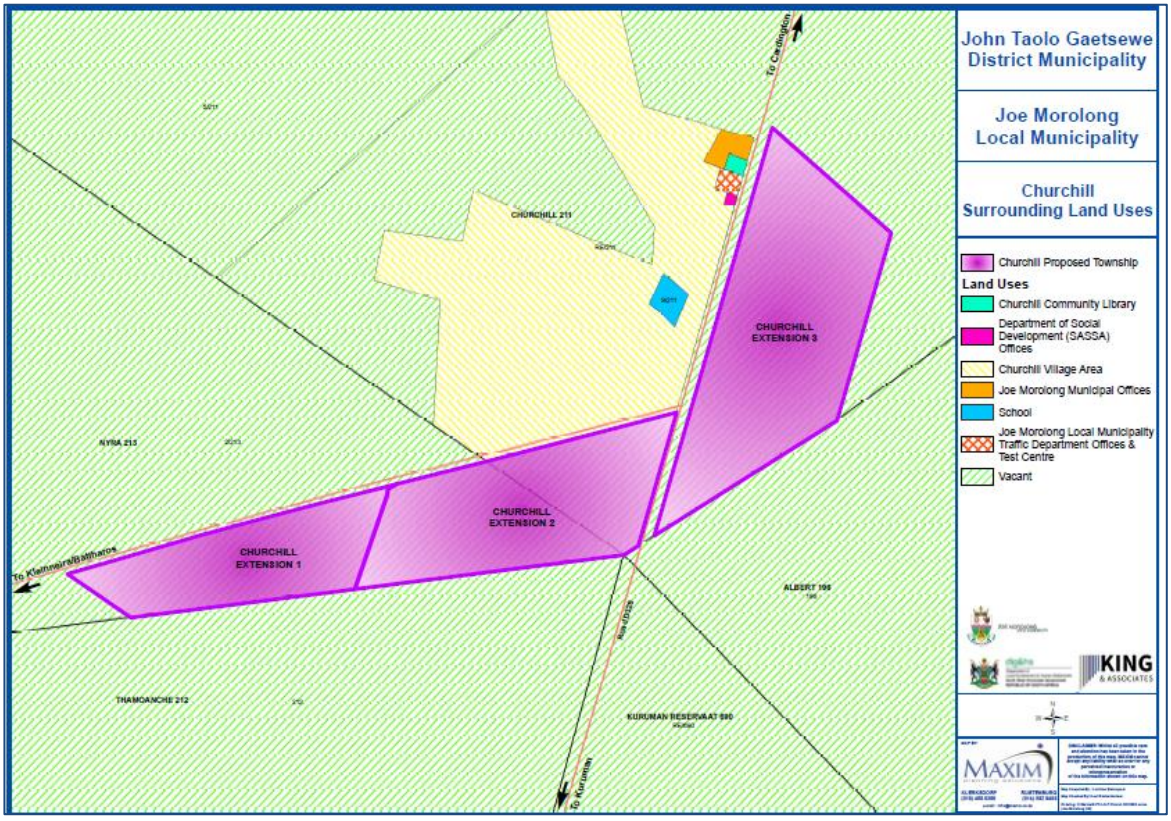
Photo 2: Land Use on Site (2)

2.6.2 SURROUNDING LAND USES

As indicated in the Map and photographs below (taken during the site visit on 19 June 2019), the application sites are situated adjacent to the existing Churchill village. The surrounding land uses are predominantly residential to the north of the Remaining Extent of Portion 2 of the Nyra 213 and west of the Remaining Extent of the Farm Churchill 211. Within the existing residential area of Churchill complementary land uses exist such as businesses, educational/institutional facilities (Koning Primary School and public library) and authority uses (vehicle testing centre). Churchill is the main seat of the Joe Morolong Local Municipality,

with the municipal offices located adjacent to the provincial road (across from the application site). Land uses to the south and east of the application sites are agricultural in nature, with Ga-Segonyana Local Municipality found to the south.

Map 6: Surrounding Land Uses



**** Please note that Churchill Extension 3 is only indicated for reference purposes. The township does not form part of this application, but will be developed in future***

Photo 3: Churchill Library

Photo 4: Churchill Traffic Offices

Photo 5: Koning Primary School

Photo 6: Churchill Municipal Offices

Photo 7: Churchill residential area

Photo 8: Churchill residential area (2)

The proposed development will expand these existing land uses. As discussed in this report the proposed township areas will integrate with the existing land uses in Churchill to form a vibrant, viable settlement at the heart of Joe Morolong Local Municipality.

2.6.3 CURRENT ZONING

The properties to which the land development application applies are currently all zoned "Agricultural Zone I" in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004.

(Refer to Zoning certificates attached as **Annexure T** of the comprehensive Land Development Application).

2.7 MINERAL RIGHTS

The following conditions are contained in Deed of Transfer T379/1940 in respect of the Remaining Extent of the farm Churchill 211, Registration Division H.M., Northern Cape Province and Deed of Transfer T333/1940 in respect of the Remaining Extent of Portion 2 of the farm Nyra 213, Registration Division H.M., Northern Cape Province.

- **Condition III**

"That this land is granted free from all mineral reservations in favour of the Crown, but subject to the condition that if under the provision of any existing Law, or of any law in future to be passed, any quartz-reef digging, any alluvial digging, or any mine be duly proclaimed upon the said land, then the owner of the land for the time being shall contribute and pay to the Government 10 per cent of any licence moneys, rents or royalties received by him in respect of such digging or mine for the purpose of defraying the public expenditure necessary for the maintenance of order and good Government and the protection of life and limb within the defined limits of such digging or mine or mining area; and shall keep proper books showing the amount of all such moneys received by him as aforesaid; and in case no such books be kept by such owner, or such books be irregularly kept, then and in that event such owner shall pay such sums as may be necessary to defray the public expenditure as aforesaid, whether such owner shall have received out of the Licence moneys, rents or royalties payable in respect of such claims sufficient to defray such expenditure or not: Provided always that if at any time there shall not be receivable by the Owner of the said land, any licence moneys, rent or royalties in respect of any such duly proclaimed quartz-reef, alluvial digging or mine, then , and in that case, there shall be payable by such owner to the Government for the purpose hereinbefore stated such sum of money yearly as may be agreed upon between the said owner and the Government, or failing such Agreement, as may be decided by an Arbitrator or Arbitrators appointed in manner, provided by the Land and Arbitrations Clauses Act, No: 6, 1882 (Cape of Good Hope".

The condition relates to the reservation of rights to minerals and will not be brought forward in the Certificate of Registered Title to be registered in respect of the land on which the township is to be established.

- **Mineral Rights reservation on page 3**

AND FURTHER SUBJECT to Certificate of Rights to Minerals No: 33/1927 registered in favour of THE RHODESIAN RAILWAYS LIMITED on the 25th November 1927"

The condition similarly relates to the reservation of rights to minerals and will not be brought forward in the Certificate of Registered Title to be registered in respect of the land on which the township is to be established.

The reservation of rights to minerals is however subject to the provisions of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) that came into force on 01 May 2004. The land development application will subsequently also be referred to the Department of Mineral Resources for its consent in terms of Section 53 of the fore-mentioned Act in respect of the proposed development.

2.8 RESTRICTIVE TITLE CONDITIONS

According to the Conveyancer Certificate compiled by Coetzer & Steyn Attorneys (attached as **Annexure K** to the comprehensive land development application), there are no restrictive title conditions in either T379/1940 or T333/1940 that prohibit the proposed development on a portion of the Remaining Extent of the farm Churchill 211 and a portion on the Remaining Extent of Portion 2 of the farm Nyra 213, Registration Division H.M., Northern Cape Province.

2.9 SERVITUDES

Neither application properties are burdened by servitudes (refer **Annexures E1 to E2** of the comprehensive Land Development Application for Windeed Deed Office Enquiries that confirms the absence of any servitudes as well as **Annexure K** for the Conveyancer Certificate to the same effect).

CHAPTER 3: PHYSICAL ASPECTS

3.1 TOPOGRAPHY & DRAINAGE

As part of the pre-planning studies that were conducted in respect of the development area, an aerial survey was conducted by Azur Aerial Work CC. This aerial survey included:

- High resolution aerial photography and the creation of digital aerial photo images (**Map 7 refers**) (refer also to **Annexure G1** of the comprehensive Land Development Application)
- Fieldwork and ground control points
- Line mapping (**Map 8** refers):
  - Cadastral information
  - Contour mapping (0,5m contour intervals)

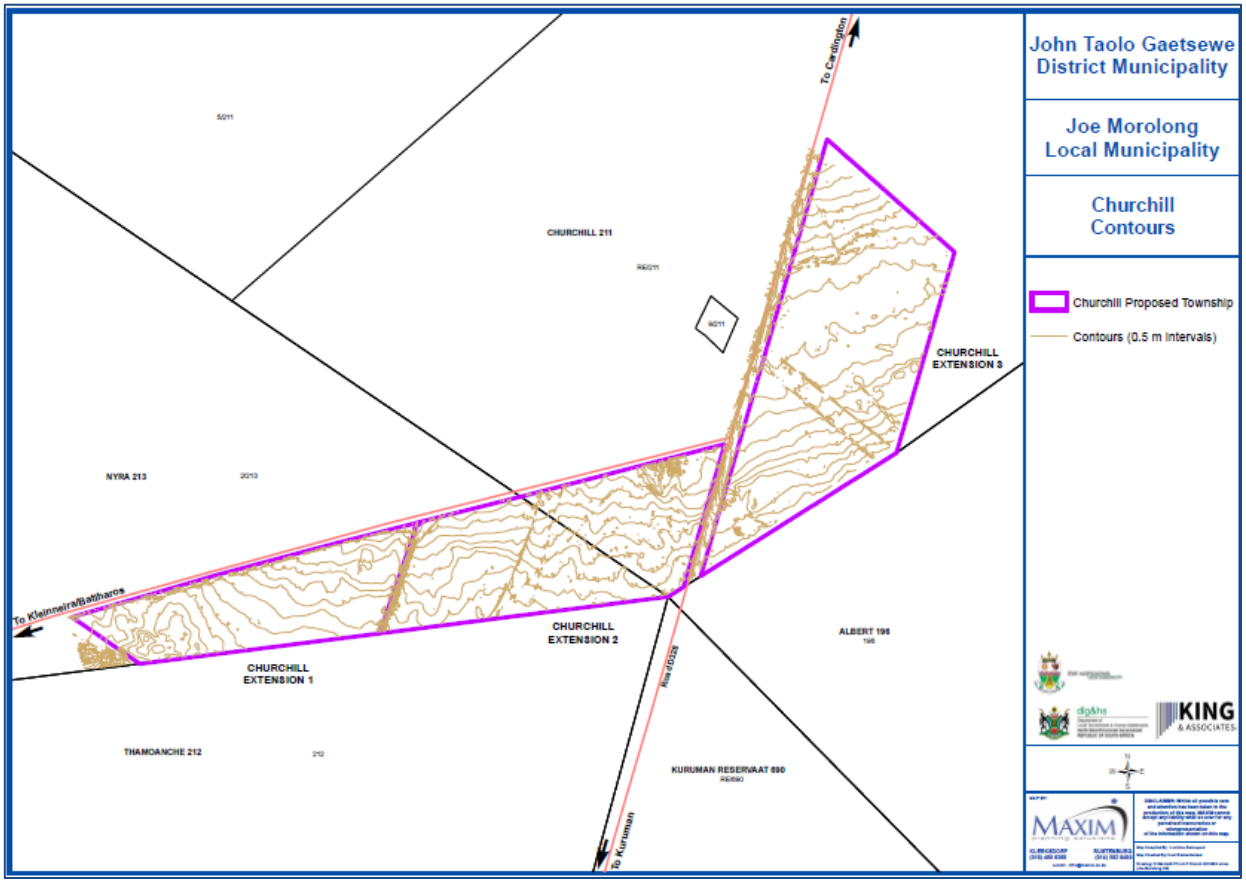
  (refer also to **Annexure G2** of the comprehensive Land Development Application).

Please note: As discussed in Section 1 of this report, specialist studies already include the proposed Churchill Extension 3

The results of the aerial survey and the subsequent line mapping are also reflected on Maps 7 and 8 below.

Map 7: Aerial photograph of application site

Map 8: Contour Map



Based on above-mentioned contour mapping, the topography and natural drainage of the area is characterised by a reasonable flat topography. The proposed site has a gradual slope from the west towards the north east of approximately 24.3m over a distance of 4.85kms, 1275 to 1286 meters above sea level. The site indicates an average slope of 0.7% to 0.8% across the entire site.

3.2 CLIMATE

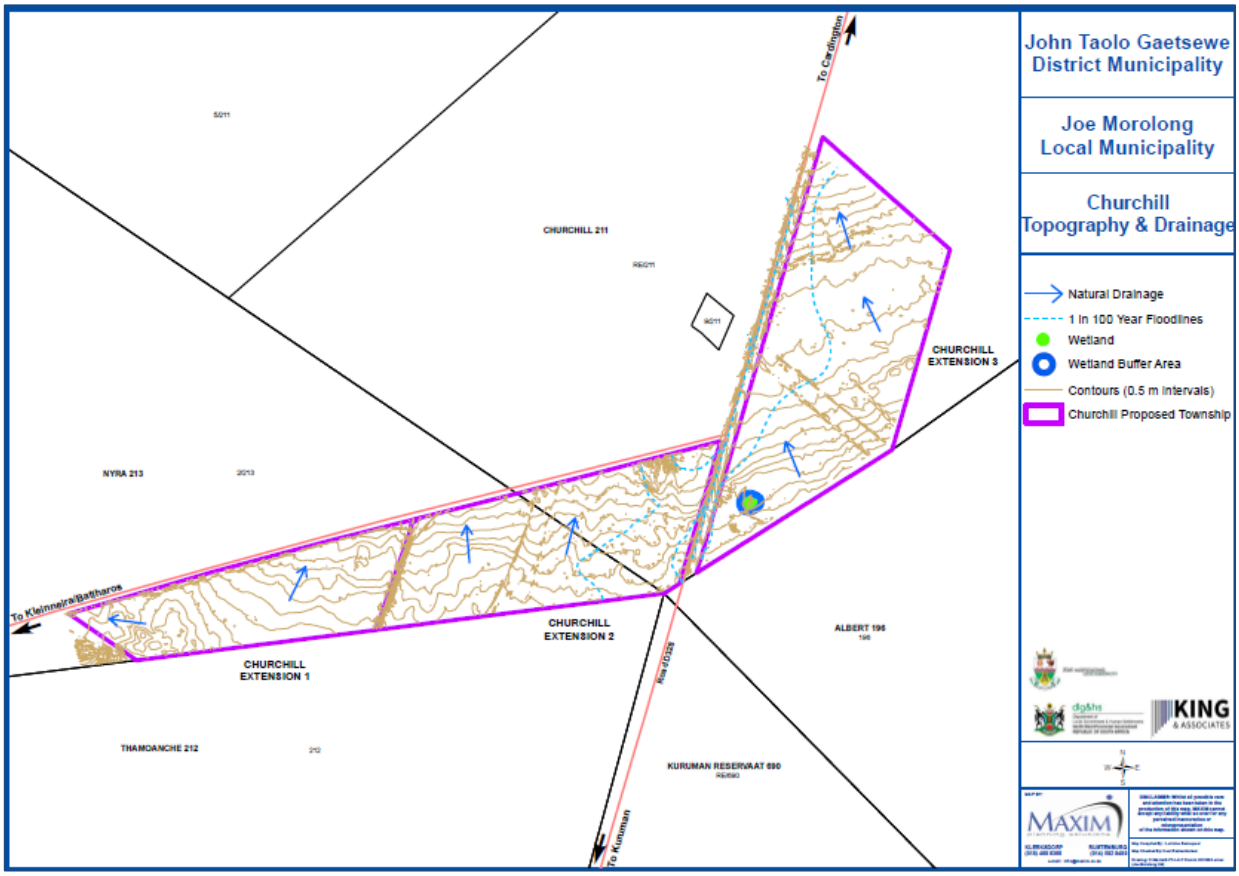
The region is characterised as a summer rainfall area with thunderstorms and very dry winters. Churchill receives about 300 – 450 mm of rain per year. Frost is frequent in winter. Mean monthly maximum and minimum temperatures ranging from 35.9°C and -3.3°C for January and June, respectively.

The Weinerts N value for this area is greater than 5, indicating that mechanical weathering takes place rather than chemical weathering.

3.3 FRESHWATER SYSTEM / DRAINAGE

The site topography is essential flat but slightly undulating in places. The highest and lowest elevations within the site boundary are 1 287 m and 1 271 m above minimum sea level in the eastern and western boundaries respectively. The site generally slopes from the west towards the north east with average slope of less than 2% (<1°). What appears to be a non-perennial and dry drainage course occurs in the eastern boundary and traverses the site from north to south. Site drainage is largely by sheet wash.

Map 9: Topography and Drainage



The study area is sparsely vegetated with grass in places and low thorny shrubs, with very few trees and rocky outcrops in the central area.

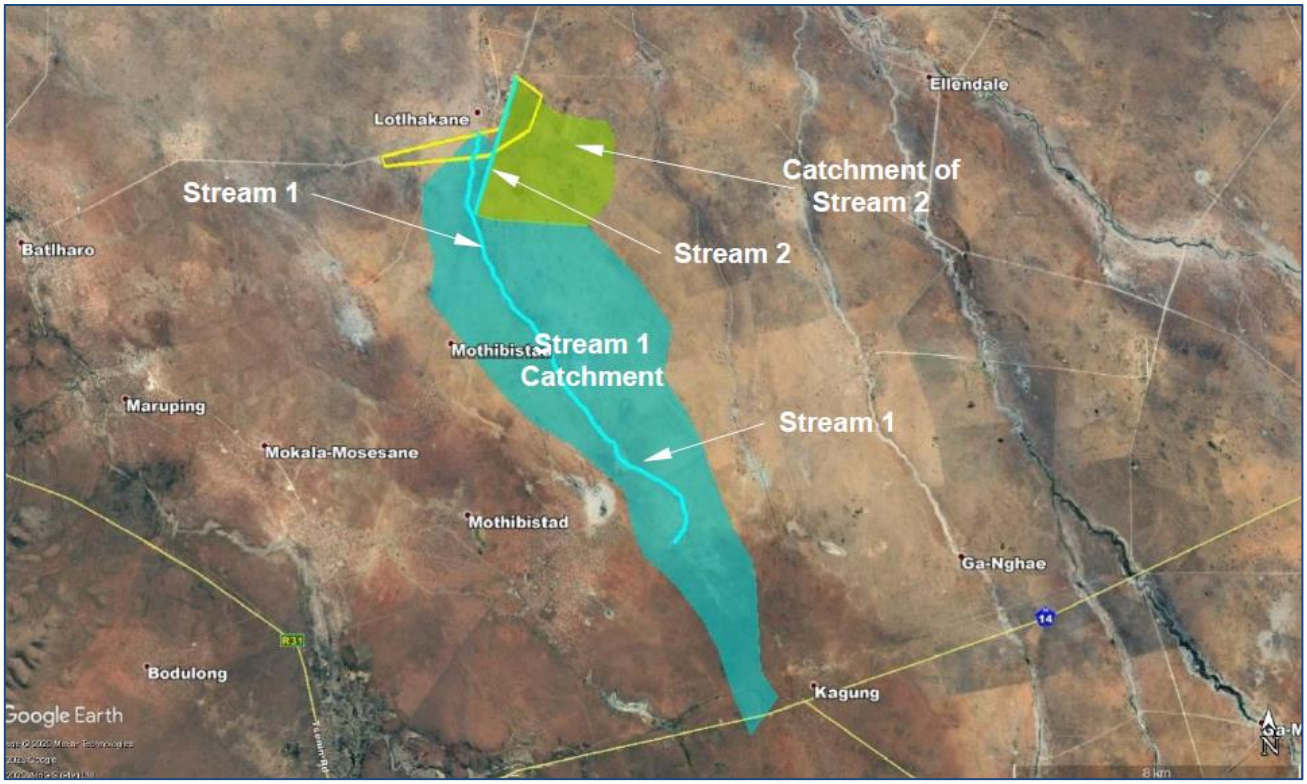
Photo 9: Vegetation on site

3.4 1:100 YEAR FLOODLINE

CWT Consulting was appointed to determine the 1:100 year flood levels for two streams identified on the application sites. The main stream in this study area is **Stream 1** with a catchment of **51,9 km2** at the study area. **Stream 2** will form along the tarred road (no

number) and will drain partially underneath the tarred road at an existing installed culvert approximately **1080 m** from the North Western corner of the proposed development area.

Map 10: Streams affecting the proposed development



The flow regime regarding Stream 1 will be channel flow. The flow regime for Stream 2 will be sheet flow. The channel for Stream 2 will be the formed by the damming effect caused by the existing tarred road.

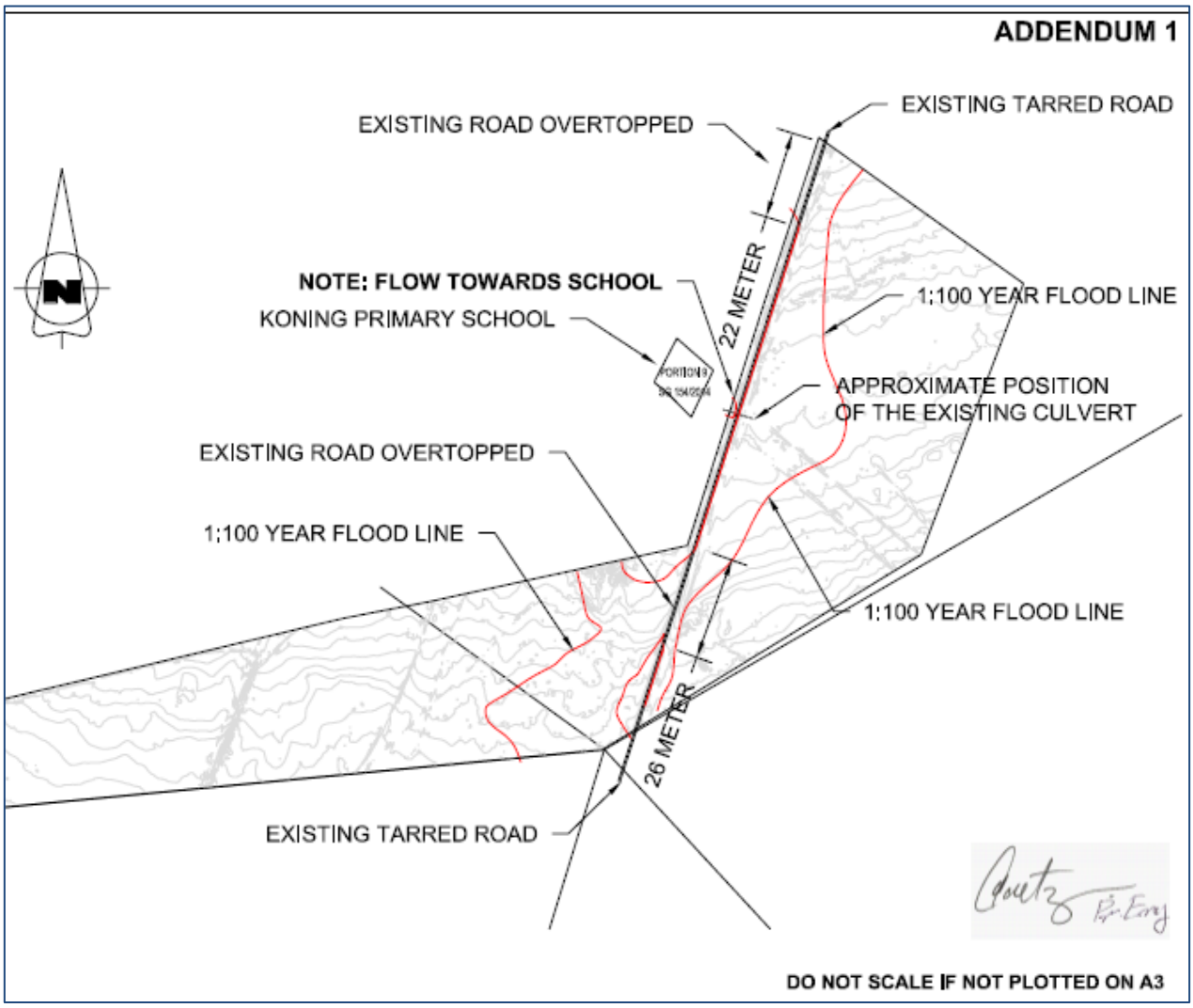


Figure 10: 1:100 year flood line

It must be noted that a flow of at least 12 m^3/s will flow through the existing road culvert in the direction of the Koning Primary School nearby.

The existing road will be overtopped at two locations as indicated in Figure 10 above.

The floodline depicted in Figure 10 above has been incorporated into the proposed layout plan.

3.5 WETLANDS AND PANS

Wetlands are defined by the National Water Act (Act 36 of 1998) as:

"land which is transitional between terrestrial and aquatic ecosystems 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".

Only a poorly defined non-perennial streambeds (river) was identified on the application site. Although a small wetland depression is present on a portion of the Remaining Extent of the Farm Churchill 211, it is not affected by the proposed Churchill Extension 1 & 2 and will be addressed during the application for Churchill Extension 3.

Refer to **Annexure O4** to the comprehensive Land Development Application for the wetland assessment survey conducted by Reinier F Terblanche.

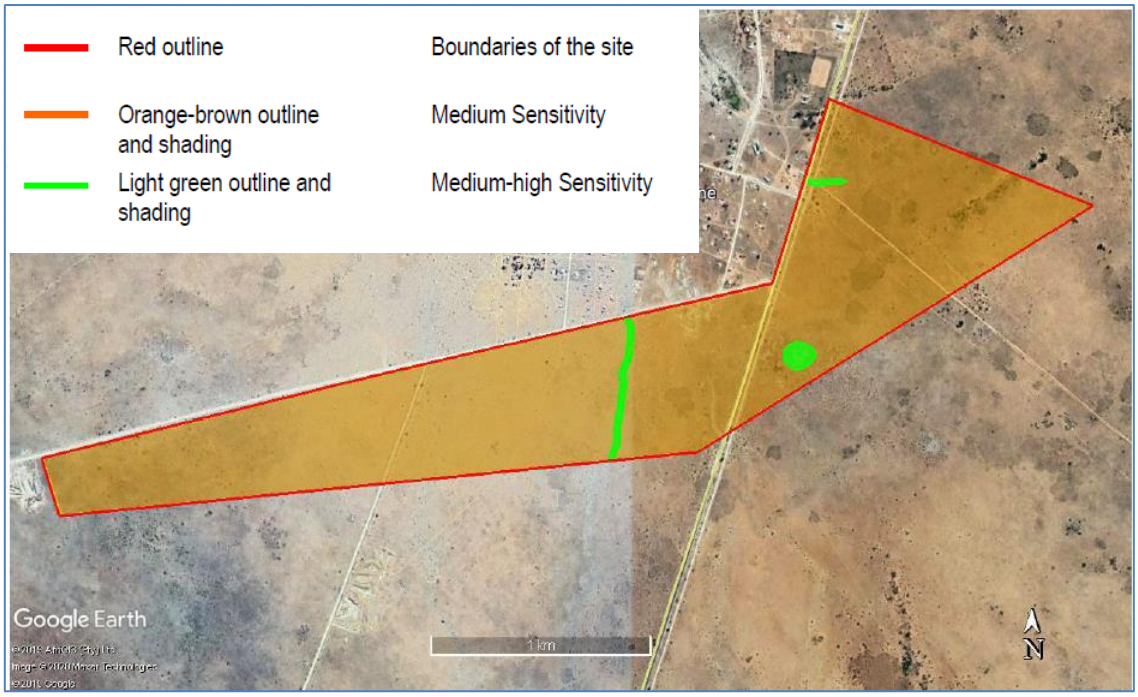
3.6 FAUNA AND FLORA ASSESSMENT

To establish the possibility that threatened flora and fauna known to occur in Northern Cape Province are likely to occur within the proposed development site (and the immediate surrounding area) or not, an Ecological Fauna and Flora Habitat Survey was commissioned and said survey was conducted by Reinier F Terblanche (refer **Annexure O3** to the comprehensive Land Development Application). Assessment Species which are not threatened but of conservation concern, for example near threatened, data deficient or declining species also received attention in the survey.

3.6.1 Ecological Sensitivity:

Ecological sensitivity at the terrestrial zone of the site is medium. Ecological sensitivity at the two poorly defined narrow non-perennial streambeds and their buffer zones are medium based on their importance to connectivity of watercourses in the larger area. Ecological sensitivity is medium-high at the pan (wetland depression) and its buffer zone (30 m), as seen in the figure below:

Map 11: Ecological Sensitivity



3.6.2 Conclusion:

The Ecological Fauna and Flora Habitat Survey concluded as follows:

- Terrestrial vegetation at the site is an open savanna with few trees that are taller than shrub-height. Patches of shrub-height *Diospyros lycioides* subsp. *lycioides* are present in some areas. Other indigenous tree species at the site include *Vachellia hebeclada* subsp. *hebeclada*, *Senegalia mellifera* subsp. *detinens*, *Ziziphus mucronata, Tarchonanthus camphoratus*, *Grewia flava* and *Searsia lancea*. Vachellia erioloba (Camel Thorn) is sparsely distributed across the site. Some indigenous shrublets, herbaceous plant species and grass species remain at the visibly degraded savanna.

- Alien invasive weed species are conspicuous are hirtherto bare ground or ecologically disturbed areas. Noticeable alien invasive tree species at the site are *Prosopis glandulosa* (Mesquite), *Agave americana* and *Opuntia ficus-indica* (Prickly Pear).

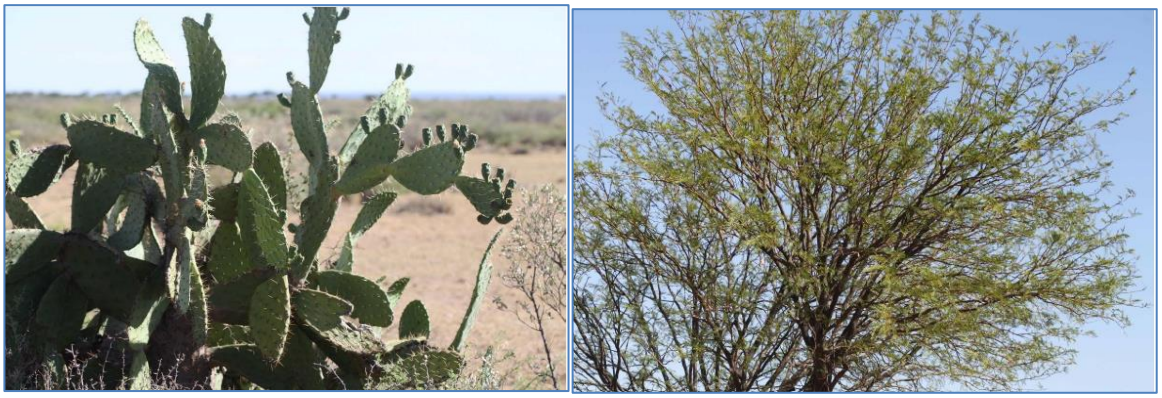


Photo 10: Alien Invasive Tree Species on site

- Typical wetland plant species appear to be sparse at a small pan (wetland depression), Pan 1, at the site. The grass species *Cynodon dactylon* (Couch Grass) and the sedge *Scirpoides dioecus* are found at the pan at the site. Encroachment by terrestrial plant species such as the exotic *Opuntia ficus-indica* and *Vachellia hebeclada* subsp. *hebeclada* occurs at the pan (wetland depression).

- Site appears trampled and overgrazed in many areas. Numerous tracks and some diggings are found at the site. Some old dirt roads at the site are deeply eroded. Numbers of free roaming goats, cattle and donkeys are likely cause of overgrazing. Site is, for large parts, surrounded by settlements, roads, scraped areas and fences. Informal dumping occurs at some parts.

Photo 11: Animals found on site

Photo 12: Piles at diggings on site

- Two poorly defined narrow non-perennial streambeds with rather indistinctive riparian zones are found at the northeastern part and the central-eastern part of the site respectively. One small pan, Pan 1, is present at the eastern part of the site.
- **No Threatened or Near Threatened plant or animal species appear to be present at site.**
- **None of the protected plant species according to Northern Cape Nature Conservation Act No. 9 of 2009 (Updated in Provincial Gazette No. 1566,**

Desember 2011 with date of commencement 1 January 2012) have been found at the site.

- One plant species that is not threatened but listed as Protected tree species (and also Declining species), Vachellia erioloba (Camel Thorn) occurs at the site. In terms of a part of section 15(1) of the National Forests Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

Photo 13: Camel Thorn Tree on site

- If avoidance of any *Vachellia erioloba* (Camel Thorn tree) at the site is not practical, application for a permit to remove the tree would be imperative because in terms of a part of section 15(1) of the National Forests Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

- The two poorly defined narrow non-perennial streambeds at the site are corridors of conservation importance based on their role in connectivity of watercourses in the area. The small Pan 1, a wetland depression, at the site is part of a stepping stone corridor system of conservation importance.

- The vegetation types representing the Savanna Biome at the site are Kuruman Vaalbosveld (SVk 8) Kuruman Thornveld (SVk 9). Kuruman Vaalbosveld and Kuruman Thornveld are not listed as threatened according to the National List of Threatened Ecosystems (2011).

- Ecological sensitivity at the terrestrial zone of the site is medium. Ecological sensitivity at the two poorly defined narrow non-perennial streambeds and their buffer zones are medium based on their importance to connectivity of watercourses in the larger area (Figure 4). Ecological sensitivity is medium-high at the pan (wetland depression) and its buffer zone (30 m). Kindly also see Wetland Assessment report which accompanies this Ecological Habitat Survey Report.

- Following the mitigations which will be upheld and planned footprint for development all the impact risks listed above are moderate or low.

- Establishment of exotic weeds should be monitored and exotic weeds at the site should be eradicated. A declared invader such as the mesquite tree (*Prosopis* species), should not be planted or allowed to spread from adjacent areas to the proposed footprint.

3.7 GROUNDWATER

According to the Feasibility Level Dolomite Stability Investigation Report compiled by the Council for Geoscience (October 2017) (attached as **Annexure R** to the comprehensive Land Development Application), the nature of dolomite bedrock is impervious with porosity of less than 0.3 %. However, due to the jointing, fractures and faulting; water is able to percolate and seeps through the rock (Brink, 1979). The dolomite of the study area is also considered as an aquifer, due to faulting, dolerite intrusions and fracturing.

The groundwater level is a key risk assessment factor in the engineering-geological characterisation of any dolomitic environments. According to the 1: 50 000 hydro-geological Map 2722 Kimberly, the principal groundwater occurrence system is a karst type.

According to the Department of Water Affairs Groundwater Assessment: Dolomite Aquifers Study conducted in December 2006, Kuruman is located on Kuruman Groundwater Compartment. The compartment is being dewatered. Kuruman and surrounding communities are almost entirely dependent on groundwater.

During drilling, groundwater (both water strike and groundwater rest level) was recorded in 69 boreholes of the 118 boreholes drilled. Groundwater measurements were taken using a dip meter as per SANS 1936-1(2012) requirements. Sixty five (65) boreholes recorded groundwater to be occurring on the blanketing material while in 53 boreholes it is occurring within bedrock. The water rest levels recorded varied between 6.7 m (BH 34) and 57.8 m (PLA 46) with an average of 24.7 m. (1300 m AMSL).

The results of the investigations show that the water table lies within the blanketing layer above bedrock in most cases. This indicates that fluctuations in the regional groundwater level could have an influence on the stability of the site. Significant lowering of the groundwater level could adversely affect the stability of the sites.

3.8 GEOLOGY

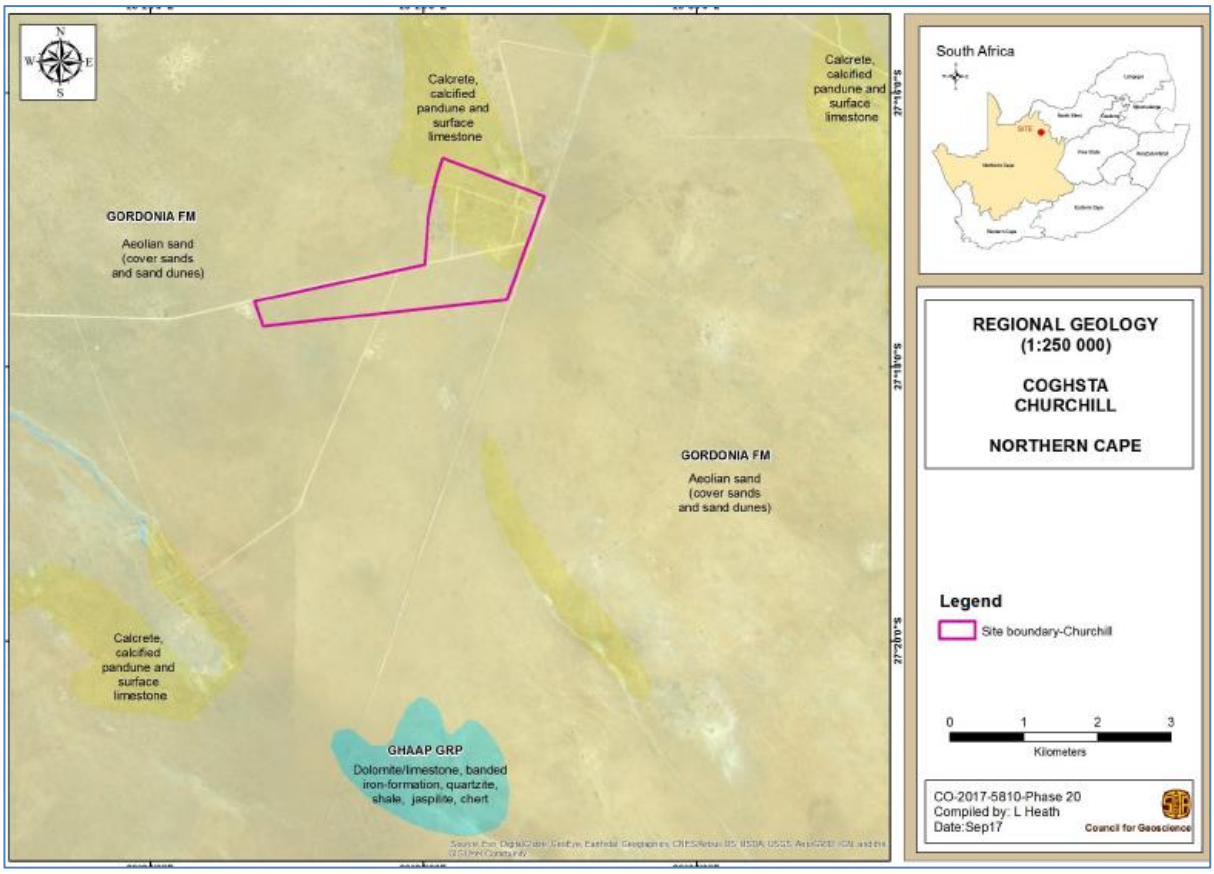
(Extract from Feasibility Level Dolomite Stability Investigation Report compiled by the Council for Geoscience attached as **Annexure R** to the comprehensive land development application)

3.8.1 REGIONAL GEOLOGY

According to the 1:250 000 scale, geological map, 2722 KURUMAN, the site is predominantly underlain by aeolian sands, calcrete and calcified pan dunes of Gordonia Formation. The area also hosts surface limestone of tertiary age.

The Ghaap Group outcrops are found within 10 kilometres from the study area. According to the Ghaap Group is subdivided into four subgroups of different depositional composition, namely; Schmidstdrift (siliclastic carbonates), Campbell Rand (dolomite and siliclastic mudstone), Asbestos Hill (banded and granular Banded Iron Formation) and Koegas (submarine fans) Subgroups (Kendal *et al*, 2012). The beds tend to dip 5° in a south westerly direction.

Map 12: Regional Geology Map



Dolomitic rock is composed mainly of the mineral dolomite, which is a carbonate of calcium and magnesium. Groundwater that is weakly acidic through enrichment with carbon dioxide, dissolves and removes the calcium and magnesium in the form of bicarbonates as it percolates through the network of joints, fractures and faults in the rock mass. This dissolution gives rise to karst features in the form of cave systems and voids. In many parts of South Africa, the karst landscape is buried beneath younger deposits and/or weathering products of the dolomitic

formation, and these materials can either collapse or be transported into voids or cave systems, resulting in catastrophic ground movement at surface.

Because of risks of sinkhole and subsidence development associated with the presence of these soluble dolomitic rocks, it is required that a dolomite stability assessment be conducted, in accordance with SANS 1936-2:2012. It is further stated that developments on such dolomitic land shall be in accordance with the Inherent Hazard Classes and the Dolomite Area Designations as determined by the geotechnical site investigations.

3.8.2 LOCAL GEOLOGY

The profile of the site generally consists of aeolian deposits, calcrete or calcified (pedogenic) deposits, weathered dolomite and hard rock dolomite. Other rocks types and most noticeably dolerite was intersected in some boreholes.

3.8.3 DOLOMITE INHERENT HAZARD SUMMARY AND ZONATION

The hazard zonation is based on geophysical surveys and drilling results from 62 boreholes. An assessment of all these based on the method of scenario supposition, Buttrick *et. al.* (2001) favours the site being zoned into one (1) Inherent Hazard Zone as dictated by geological conditions revealed by the drilling results.

Based on the percussion drilling results, geohydrological data and geological information, the dolomite stability of the site is described in terms of the following zones as:

ZONE A (covers the entire site boundary area)
Inherent Hazard Class: 3/4 (1) // 3(1)

This zone is largely characterised by a medium inherent hazard of a medium (2-5 m diameter) sinkhole and subsidence (with sub areas of medium inherent hazard of large [5-15 m diameter] sinkhole and subsidence) in a non-dewatering scenario. The inherent hazard for any size sinkhole and subsidence is medium with respect to a dewatering scenario.

The non-dolomitic overburden consists of aeolian deposits and pedogenic calcrete which is in a form of hardpan and calcified nodules in places. This zone occupies all gravity zones (i.e. highs, lows and gradients). Neither wad nor low density material was recorded in the boreholes drilled. The groundwater level rests within the blanketing layer.

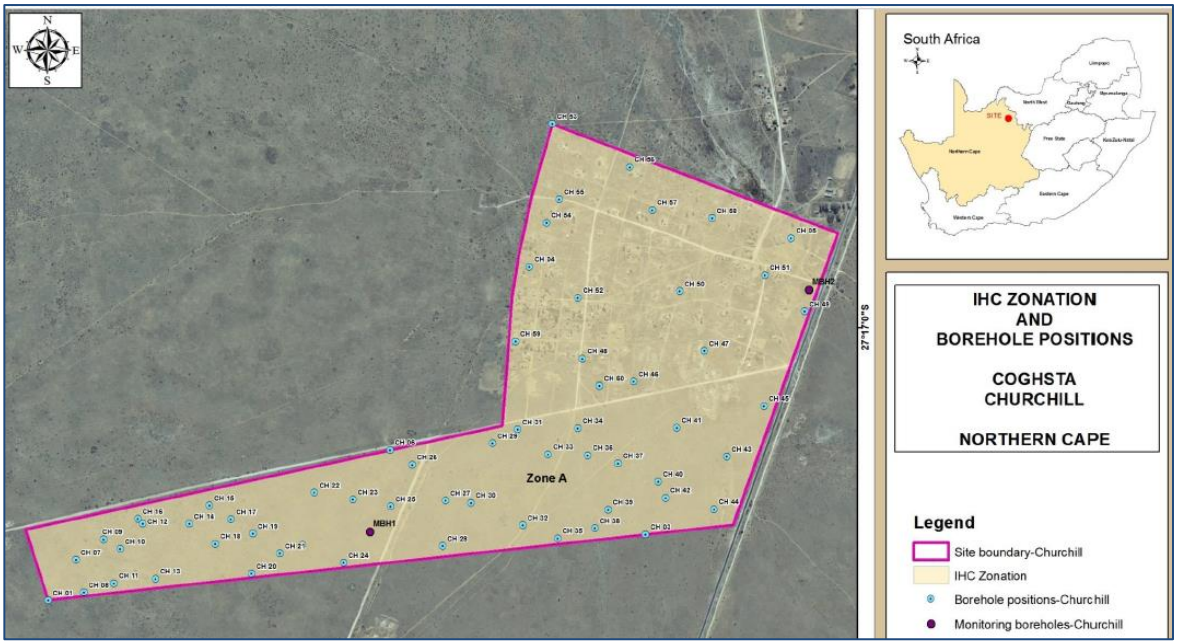
Dolomitic Area Designation

This zone is assessed as D3 and implies that extra precautionary measures in addition to those pertaining to the prevention of concentrated ingress of water into the ground, in accordance with the relevant requirements of SANS 1936-3, are required and must be adhered to.

Development Potential

Restrictions are placed on the types of residential development that may be considered on Class 3 land. Full title residential development (RN2-3) on stands of 300 m2 or greater is recommended or 10 – 25 dwelling houses per hectare and a population if ≤ 60 people per hectare is recommended. Any form of commercial, retail and/or light industrial development is permissible (C1 to C10) as in SANS 1936-1(2012) Table 1 with appropriate stringent precautionary measures. Footprint investigations are required for each commercial development.

Map 13: IHC zonation map



3.8.4 DRAINAGE, MONITORING AND GENERAL PRECAUTIONARY MEASURES

3.8.4.1 Drainage

The ingress of surface water can have dire implications for dolomite stability and strict drainage measures must be implemented. It is important that prospective developers of the township are made aware of the importance of the recommended precautionary measures as stipulated in SANS 1936-3 (2012) and these include:

- All pipes and channels must be watertight, with all wet services being tested for leakage on installation,
- Piping material should be appropriate to local subsurface conditions,
- No accumulation or ponding of surface water should occur adjacent to foundations both during and after construction.
- Storm water should be effectively captured and led away from all structures preferably by means of lined, surface canals.

3.8.4.2 Monitoring

Frequent monitoring and maintenance is recommended for the whole site for the purposes of identifying the effects of concentrated ingress of water or groundwater level drawdown. The generic activities considered appropriate are as follows:

- Visual inspection of ground, structures and above ground infrastructure (e.g. roads, storm water canals, ditches).
- Visual inspection of storm water systems crossing the site for blockages.
- Testing of wet-services for leaks
- Monitoring of structures and ground levels.
- Monitoring of the groundwater level.

3.8.4.3 Precautionary measures

The prevention of sinkhole and subsidence formation is largely related to the control and or removal of the triggering mechanism i.e. the prevention of ingress water/dewatering. NHBRC and SANS 1936-3 (2012) water precautionary measures must be implemented for the site. All water borne services must meet SANS 1936-3 (2012) requirements for water ingress prevention measures.

SANS 1936-1 requires the owners of the infrastructure on parcels of land categorized as dolomite area designation D2, D3 and D4 sites to implement appropriate dolomite risk management strategies in accordance with the principles and requirements of SANS 1936-4 in order to mitigate the risks associated with the development of such land. SANS 1936-1 also provides requirements for local authorities to establish implement and maintain a dolomite risk management strategy.

A Competent Person must be appointed to compile a site-specific Dolomite Risk Management Strategy (DMRS). Such a plan, which is considered beyond the scope of this investigation, should define ongoing processes to manage water ingress and assign responsibilities to particular persons.

Groundwater Monitoring should also form part of the DRMS.

3.8.5 RECOMMENDATIONS

- It is recommended that the municipality sets up at least two groundwater monitoring boreholes distributed across the current study area to establish trends.Any future developments must be investigated in accordance with SANS 1936-2 (2012).
- A high-density development, i.e. 150 m^2 stands or developed as group housing such as a block of flats, has a greater probability of inducing a sinkhole than a commercial development on the same property because of the higher density of wet services and greater chance of an undetected leak. Therefore, new development should take into cognizance the allowable land use densities shown in Appendix 3 as per SANS 1936-1 (2012) permissible land use Tables.
- Based on this feasibility study, the entire site is suitable for most planned low cost housing development.
- Any signs of ground instabilities or subsidence should be reported immediately to the municipality, and remediated in accordance with SANS 1936-4 (2012).

3.9 ENVIRONMENTAL IMPACT ASSESSMENT

AB Enviro-Consult was appointed to conduct an Environmental Impact Assessment in terms of sections 24 and 24(D) of the National Environmental Management Act, 1998 (Act 107 of 1998). The activity is listed in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014.

An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration. In addition to desktop studies and assessed alternatives and site inspections carried out to verify outcomes of the desktop studies, a full Public Participation Process will be followed to obtain inputs from interested and affected parties.

The Scoping Report compiled in March 2020 and submitted to the Department Environment and Nature Conservation did not identify any fatal flaws pertaining to the proposed development. The Final Environmental Impact Assessment Report will be submitted to DENC for approval by the Department (refer **Annexure O1** of the comprehensive Land Development Application). The Environmental Authorisation from the Department of Environment and Nature Conservation will be forwarded to the Municipality upon receipt thereof.

3.10 CULTURAL HERITAGE AREAS

A Pelser Archaeological Consulting was commissioned to conduct a Cultural Heritage Resources Impact Assessment in respect of the proposed development area. The fore-mentioned assessment indicated that a number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites on the specific land parcel and none was identified and recorded during the recent assessment. In general, the study area has been fairly undeveloped, with the largest portion used in the past for livestock grazing and limited agricultural activities.

Besides a few Stone Age objects identified in one area, no other sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the study area during the assessment. This includes graves and the ruins of earlier homesteads and related structures. In isolation the site and material recorded is not of high significance as the scatter of Stone Age material is not dense and not in situ. However, the possibility of in situ deposits and sites do exist and the following is therefore recommended:

- Once the final layout of the proposed township development has been determined and the installation of services (sewerage, water, roads) commences an archaeologist should be contracted to undertake a watching brief so that if any sites or material are exposed by the development activities that the finds can be investigated and recommendations on the way forward be provided.

The Heritage Resources Impact Assessment concluded that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass-cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

The Heritage Consultant concluded that "***from a cultural heritage point of view the development can therefore continue, taking cognizance of the above recommendations***".

CHAPTER 4: PROPOSED DEVELOPMENT

4.1 LAND USES

The intention of the township applicant is to utilize the concerned properties for a Greenfield development, aimed at creating residential townships for the Churchill community (and surrounding towns with a housing backlog). The aim of this township establishment process is not only to address the short-term need for erven but to also make provision for vacant erven to ensure organized future settlement takes place in this development area. In accordance with the policy guidelines contained in the Breaking New Ground (BNG) Principles it is indicated that new residential township areas should focus on the establishment of integrated human settlements focussing on the provision of erven not only for subsidized/low income households but also addressing the need for other housing typologies such as bonded housing and FLISP projects.

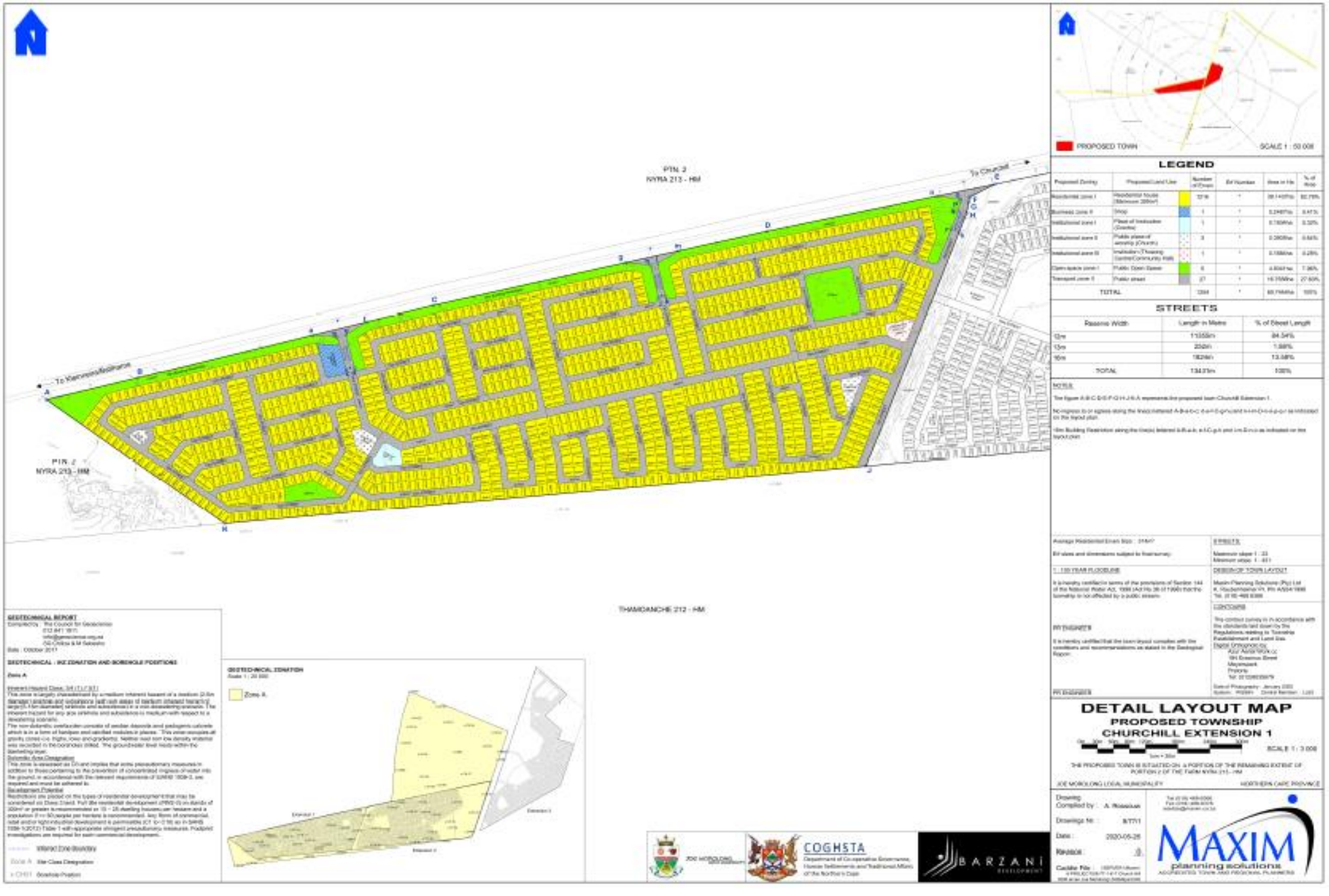
Although the proposed townships (Churchill Extensions 1 & 2) are aimed at subsidised housing provision, the future township area of Churchill Extension 3 will provide larger erven that can accommodate a variety of different housing typologies including inter alia GAP/FLISP housing, rental housing and bonded housing, in line with the above mentioned BNG principles. These three (3) townships will be well integrated with one another and create vibrant, sustainable developments for the local community.

In terms of establishing a truly integrated human settlement, the layout plan compiled in respect of the development area also makes provision for the required non-residential-, social, educational, institutional and business facilities.

As alluded to in Section 1.1, the planning of the proposed integrated human settlement area, was conducted in an integrated manner to integrated the proposed development with the existing Churchill village. This integrated planning yielded a township area comprising 2 445 residential erven together with an additional 73 erven earmarked for non-residential support functions (inclusive of streets). The layout plans of the proposed township areas are reflected on **Maps 14 & 15** below.

As per the procedural requirements of the Surveyor-General (Bloemfontein), it was indicated that the office of the Surveyor-General (Bloemfontein) restricts the number of erven included on a General Plan to a maximum of approximately 1200 erven to expedite the examination of the survey records and General Plans. Due to the fore-mentioned requirement, it was necessary to divide the proposed integrated human settlement into two (2) separate township areas. These will be known as Churchill Extension 1 and 2, respectively.

Map 14: Churchill Extension 1 Layout Plan



Map 15: Churchill Extension 1 Layout Plan

The integrated layout plan compiled in respect of the two (2) proposed township areas makes provision for the following erven/land uses:

Table 14: Proposed zonings and land uses - Churchill Extension 1

Proposed Zoning	Proposed Land Use	Number of Erven	Erf Number	Area in Ha	% of Area
Residential zone I	Residential house (Minimum 300m²)	1216	*	38.1437ha	62.79%
Business zone II	Shop	1	*	0.2487ha	0.41%
Institutional zone I	Place of instruction (Creche)	1	*	0.1934ha	0.32%
Institutional zone II	Public place of worship (Church)	3	*	0.3905ha	0.64%
Institutional zone III	Institution (Thusong Centre/Community Hall)	1	*	0.1684ha	0.28%
Open space zone I	Public Open Space	5	*	4.8341ha	7.96%
Transport zone II	Public street	27	*	16.7656ha	27.60%
TOTAL		1254	*	60.7444ha	100%

Table 15: Proposed zonings and land uses: Churchill Extension 2

Proposed Zoning	Proposed Land Use	Number of Erven	Erf Number	Area in Ha	% of Area
Residential zone I	Residential house (Minimum 300m²)	1229	*	38.7968ha	42.02%
Business zone II	Shop	2	*	0.3456ha	0.37%
Institutional zone I	Place of instruction (Primary school)	1	*	3.1746ha	3.44%
	Place of instruction (Creche)	2	*	0.1727ha	0.19%
Institutional zone II	Public place of worship (Church)	1	*	0.0803ha	0.09%
Institutional zone III	Institution (Thusong Centre/Community Hall)	1	*	0.3797ha	0.41%
Open space zone I	Public Open Space	3	*	25.5830ha	27.71%
Open space zone II	Private open space (Sportsfield)	1	*	6.8769ha	7.45%
Transport zone II	Public street	24	*	16.9102ha	18.32%
TOTAL		1264	*	92.3198ha	100%

The following should be noted in respect of the land uses mentioned above:

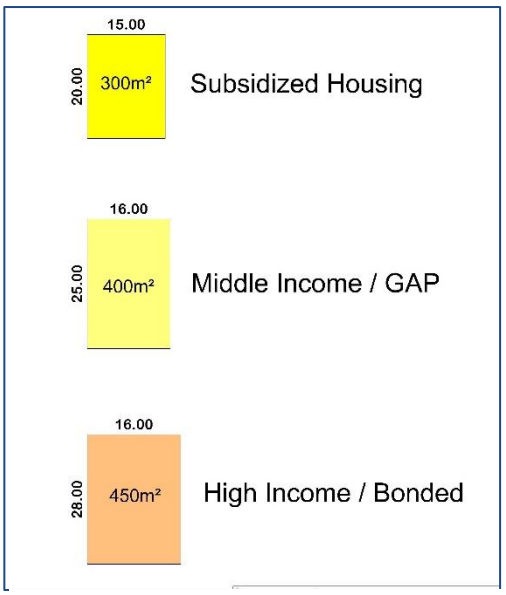


Figure 11: Residential stand sizes

4.1.1 Residential Zone I

The layout plans of the proposed township areas make provision for 2 445 "Residential Zone I" erven, averaging 300m² in size and earmarked for government housing schemes, as envisioned in Figure 11.

A housing subsidy is a grant by government to qualifying beneficiaries for housing purposes. This is one of the Department of Human Settlement's areas of responsibility in the delivery of human settlements to the bottom-most end of the market, where it provides housing subsidies to the poor. This is where the bulk of the housing backlog exists, affecting mainly those who earn below R3500 a month. The following subsidy programmes are available from the Department of Human Settlements:

- **Integrated Residential Development Programme**
  The Integrated Residential Development Programme replaced the Project Linked Subsidy Programme. The programme provides for planning and development of integrated housing projects. Projects can be planned and developed in phases and provides for holistic development orientation:
  - Phase 1: Land, Services and Township Proclamation
  - Phase 2: Housing Construction (this also includes the sale of stands to non-qualifying beneficiaries and to commercial interests)

- **Individual Subsidy**
  This programme provides access to state assistance where qualifying households wish to acquire an existing house or a vacant serviced residential stand, linked to a house construction contract through an approved mortgage loan. These properties are available in the normal secondary housing market or have been developed as part of a project not financed through one of the National Housing Programmes

- **Enhanced People's Housing Process**
  The Enhanced People's Housing Process aims to support households who wish to enhance their housing subsidies by funding their own homes. The Enhanced People's Housing process can be accessed through the Integrated Residential Development Programme, Project Linked Consolidation or Institutional Subsidies.

❖ **People's Housing Process**

This subsidy is given to people who want to build or manage the building of their own homes. Unlike the Project Linked Subsidy where a contractor builds houses for a number of people, the People's Housing Process allows people or beneficiaries to build or organize the building of their homes.

The proposed 2 445 erven will be aimed at subsidised housing provision to address the housing backlog in Joe Morolong Local Municipality. The creation of more dense settlements without raising the cost of land and housing for the poor is one of the operational principles in the National Development Plan.

Urban studies in South Africa identified low density development as one of the critical factors inhibiting the creation of sustainable settlements. Low density settlements are problematic in that they generate:

- Inadequate population thresholds which are unable to support viable public transport and social facilities.
- High costs for municipalities who must deliver service.
- Infrastructural inefficiencies.

Apart from abovementioned the disadvantages of large stands in comparison with smaller stands can be summarised as follows:

- More cost-effective provision of services

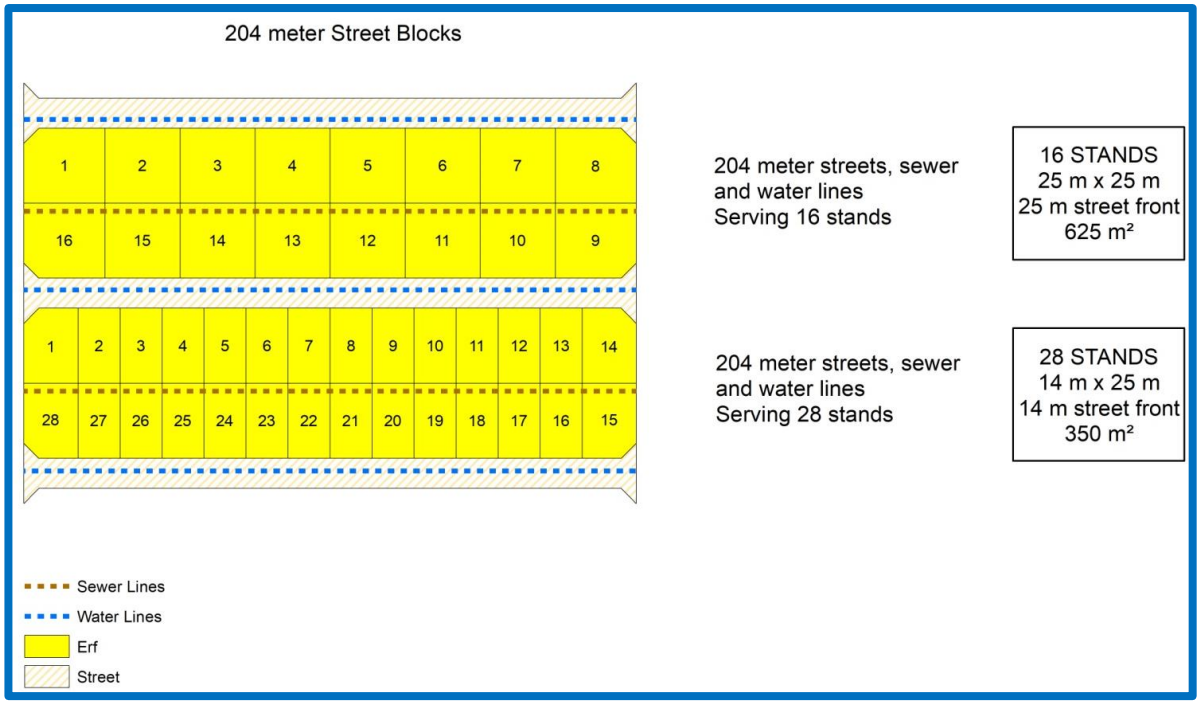


Figure 12: Comparative number of erven provided per fixed linear distance

- Cost breakdown of municipal engineering services (water, sewer and roads – According to National Department of Human Settlements, April 2018)

Table 16: Cost breakdown of Municipal Engineering Services - Direct Costs

COST BREAKDOWN OF MUNICIPAL ENGINEERING SERVICES - DIRECT COST IMPLEMENTATION DATE: 01 APRIL 2018								
A GRADE SERVICES: DIRECT COST								
Zoning	Size in m²	Street front	Cost of water	Cost of sewer	Cost of road	Cost of stormwater	Cost of high mast	Total cost per unit
Res1	243	9m	R4140.11	R7210.41	R23570.60	R4153.81	R0.00	**R 3904.94**
	294	10m	R4471.07	R7795.38	R26516.53	R5019.15	R0.00	**R 43802.13**
	122	5m	R2803.64	R4869.48	R11784.77	R2076.38	R0.00	**R 21534.27**
	236	10m	R4471.07	R7795.38	R26516.53	R4027.33	R0.00	**R 42810.32**

The cost comparison between large stands of 625m² (25m X 25m) and smaller stands of 350m² (14m X 25m) based on quantum amounts is set out in **Table 17** below.

Table 17: Cost comparison between larger and smaller stands

Street Front	Water	Sewer	Roads	Total
25 metre	R 11 177-00	R 27 283-00	R 66 291-00	R 104 751-00
14 metre	R 6 259-00	R 10 913-00	R 37 123-00	R 54 295-00

- Other disadvantages of large residential stands:
  - Higher municipal service tariffs for residents
  - Maintenance costs of outdoor living areas (example: gardens) and fencing

A stand of 300m² with a subsidised house of 40m² provides more than sufficient outdoor space as well as potential for additions over time.

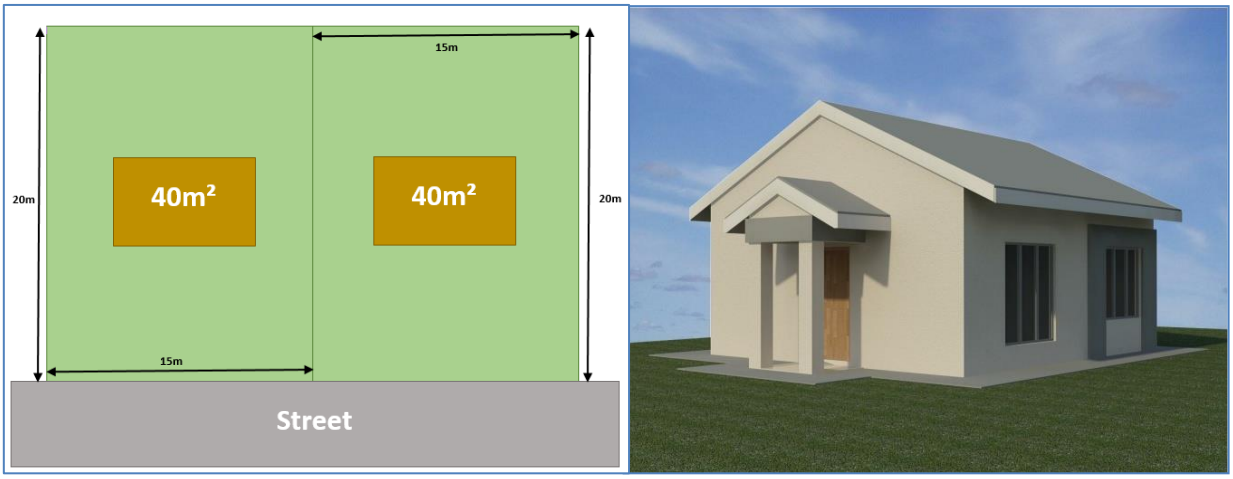


Figure 13: Schematic presentation of 40m² subsidised house on 300m² erf

As discussed in Section 1 of this report, future residential development (Churchill Extension 3) is also envisioned to the east of the District road connecting Churchill with Kuruman in the south. The proposed Churchill Extension 3 will include 542 Residential Zone I erven of approximately 400m² and 513 Residential Zone I erven of approximately 450m². These erven will be aimed at the middle to higher income groups (specifically miners at the nearby located mines) and will be suited to "Gap Housing".

The proposed "Residential Zone I" erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 18: "Residential Zone I" development parameters

Development parameter	Development Parameter Detail
Primary Use	Residential House defined as *a building containing only one residential unit B a self-contained, interlinking group of rooms for the living accommodation and housing of a single family only, or a maximum of four persons who do not satisfy the definition of a family, together with such outbuildings as are ordinarily used therewith.*
Consent Uses	Second residential unit Crèche Animal clinic Tuck shop Guesthouse Bird or animal cages
Coverage	Maximum 50%
Height	At most 8m above natural ground level directly beneath any particular point or portion of the building
Building lines	Street building line of 4m Rear building line of 3m Side building lines of 1m, provided that the total side space shall not be less than 3.5m and no doors or windows are permitted in any wall which is less than 1.5m from any side boundary

4.1.2 Business Zone II

The layout plans of the proposed township areas make provision for the following number of erven to be zoned as "Business Zone II":

Table 19: Number of "Business Zone II" erven per township area

Proposed township area	Number of "Business Zone II" erven
Churchill Extension 1	1
Churchill Extension 2	2
TOTAL	**3**

To ensure that a proper integrated human settlement is established, it is imperative that adequate provision also be made for commercial activities that will address the daily needs of the concerned community whilst similarly providing opportunities for job creation. The township areas make provision for the establishment of 3 suburban business nodes that are all located on the intersection of or adjacent to the 16m² collector roads that will serve as local business centres.

The "Business Zone II" erven were positioned in such a way to limit walking distances whilst ensuring easy accessibility to these facilities. The number of business erven provided aims at stimulating economic growth and providing opportunities for job creation.

The proposed "Business Zone II" erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 20: "Business Zone II" development parameters

Development parameter	Development Parameter Detail
Primary Use	Shop defined as *a site and/or building and/or structure used for carrying on a retail concern and may include a laundrette, offices, nursery, restaurant, a dry-cleaner, flats above ground floor and a retail concern where goods sold are manufactured and/or repaired in such a concern, provided that the floor area relating to such manufacture and/or repair shall not exceed one third of the floor area of the shop, but it does not include any industries, public garages, service stations, tavern,*

	supermarkets (with or without the selling of wine) or bottle stores.
Consent Uses	Residential House Flats
Coverage	At most 80 %
Height	At most 8m above natural ground level directly beneath any particular point or portion of the building
Building lines	Shops and flats on top of shop may be erected on the street boundary. All other buildings must maintain a building line of 4,5m from the street boundary With regard to rear and side boundaries, buildings in this zone may be erected on such boundaries provided that no windows, doors or ventilation openings are let into any wall on such boundary Notwithstanding these building line regulations for side and rear boundaries, in cases where these boundaries form the division between the business zone and any other zone, a building line on both sides of the communal boundary shall be applicable, which is equal to the relevant building line on the adjoining zone.
Parking	At least one parking bay for every 25m² of the total floor area of the building (excluding any section of the building that is used for residential purposes). One parking bay per two bedrooms in the case of hotels and residential buildings. Parking for visitors shall be provided in the following cases: 1 parking bay for every four residential units 1 parking bay for every five bedrooms in the case of residential buildings 20 parking bays in the case of a licenced hotel

4.1.3 Institutional Zone I

The layout plans of the proposed township areas make provision for the following number of erven to be zoned as “Institutional Zone I”:

Table 21: Number of "Institutional Zone I" erven per township area

Proposed township area	Number of “Institutional Zone I” erven
Churchill Extension 1	1
Churchill Extension 2	3
TOTAL	**4**

For this development area to function as a proper integrated human settlement, it is of critical importance to also address the needs of the community for education facilities in the form of early learning centres / crèches, primary schools and secondary schools.

In terms of the CSIR Guidelines for the Provision of Social Facilities in South African Settlements, the following norm is proposed in respect of educational facilities:

Table 22: CSIR Guideline for educational facilities

Proposed facility	CSIR Guideline	Number of erven required	Number of erven provided
Small Crèche / Early childhood development centre	1 per 2400 – 3000 inhabitants	3	3
Primary School	1 per 7000 inhabitants	1	1
Secondary School	1 per 12 500 inhabitants	0	0

(Based on estimated 2 445 households, 3.5 average household size and total estimated inhabitants of 8 558)

The erf earmarked for the use as primary school was positioned in such a manner to limit walking distance for learners whilst ensuring that the facilities are positioned in such a manner to ensure optimum accessibility.

The proposed "Institutional Zone I" erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 23: "Institutional Zone I" development parameters

Development parameter	Development Parameter Detail
Primary Use	Place of instruction defined as *a **school**, college, technical institute, academy, university, lecture hall or other centre of instruction, and includes a hostel appertaining thereto, and a convent, public library, art gallery, museum, gymnasium and **crèche**, but does not include a building used or intended to be used wholly or primarily as a certified reformatory or industrial school or as a school for the mentally handicapped.*
Consent Uses	Place of assembly

Coverage	At most 50 %
Building lines	8m on all boundaries
Parking	As determined by Council

4.1.4 Institutional Zone II

The layout plans of the proposed township areas make provision for the following number of erven to be zoned as "Institutional Zone II":

Table 24: Number of "Institutional Zone II" erven per township area

Proposed township area	Number of "Institutional Zone II" erven
Churchill Extension 1	3
Churchill Extension 2	1
TOTAL	**4**

For this development area to function as a proper integrated human settlement, it is of critical importance to also address the needs of the community for religious facilities.

In terms of the CSIR Guidelines for the Provision of Social Facilities in South African Settlements, the following norm is proposed in respect of educational facilities:

Table 25: CSIR Guideline for religious facilities

Proposed facility	CSIR Guideline	Number of erven required	Number of erven provided
Church	1 per 3000 – 6000 inhabitants	2	4

(Based on estimated 2 445 households, 3.5 average household size and total estimated inhabitants of 8 558)

The proposed "Institutional Zone II" erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 26: "Institutional Zone II" development parameters

Development parameter	Development Parameter Detail
Primary Use	Public place of worship defined as *a church, synagogue, mosque, temple, chapel or other place for practising religion. It also includes any building in connection therewith, for instance a hall,*

	Sunday school classes or parsonage, but does not include funeral parlours, including chapels forming part of such parlours.
Consent Uses	Place of assembly
Coverage	At most 60 %
Height	At most two storeys, provided that any storey shall not be limited to 4m and church towers shall not be considered as part of a storey in this case
Building lines	6m on all boundaries with regard to all buildings except a parsonage, which shall be subject to the same building lines as applicable to the "Residential Zone I"
Parking	On-site parking must be provided at a minimum requirement of one parking bay for every 20 seats provided in all buildings on the site, excluding the parsonage

4.1.5 Institutional Zone III

The layout plans of the proposed township areas make provision for two (2) erven to be zoned as "Institutional Zone II". These erven are intended to make provision for community facilities to service the surrounding communities.

The proposed "Institutional Zone III" erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 27: "Institutional Zone III" development parameters

Development parameter	Development Parameter Detail
Primary Use	Institution defined as *means a building or part thereof which is used or intended to be used as a charity, health or welfare institution and/or for the administration thereof, and includes community facilities, place of assembly, a hospital, a pharmacy linked to a hospital, clinic or reformatory, either private or public, but does not include a prison or place of detention.*
Consent Uses	None
Coverage	At most 60 %
Building lines	As determined by Council
Parking	As determined by Council

4.1.6 Open Space Zone I

The layout plans of the proposed township areas make provision for the following number of erven to be zoned as “Open Space Zone I”:

Table 28: Number of "Open Space Zone I" erven per township

Proposed township area	Number of “Open Space Zone I” erven
Churchill Extension 1	5
Churchill Extension 2	3
TOTAL	**14**

The areas designated for “Open Space Zone I” purposes coincide with the areas not suitable for development due to

- Building line restrictions alongside the district and provincial road
- 1:100 year flood line

In addition, easily accessible Open Space Zone I erven have also been scattered throughout the residential neighbourhoods in the layout for recreational purposes.

The proposed “Open Space Zone I” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 29: "Open Space Zone I" development parameters

Development parameter	Development Parameter Detail
Primary Use	Public open spaces defined as *any land which falls under, or is intended to come under the ownership of the local authority, which is not leased or intended to be leased on a long-term basis, and which is utilised by the public as an open space, park, garden, picnic site, square, playground or recreational site, whether it appears on an approved general plan or not.*
Consent Uses	None
Restrictions	No structure shall be erected or use practised other than those included in the definition of a public open space.

4.1.7 Open Space Zone II

The layout plans of the proposed township areas make provision for one (1) erf to be zoned as “Open Space Zone II” in Churchill Extension 2. This property is situated within the 1:100 year floodline and will be developed as a private sports field.

The proposed “Open Space Zone II” erf will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 30: "Open Space Zone II" development parameters

Development parameter	Development Parameter Detail
Primary Use	Private open spaces defined as *any land which has been set aside in this scheme for use as a private site for sport, playing, rest and recreation facilities or as an ornamental garden or pleasure garden, provided that the land is under the long term management of a private person or authority, and also a cemetery or show grounds, whether public or private.*
Consent Uses	Racecourse
Restrictions	No structure shall be erected or use practised other than those included in the definition of a public open space.

4.1.9 Transport Zone II

The layout plans of the proposed township areas make provision for the following number of erven to be zoned as “Transport Zone II”:

Table 31: Number of "Transport Zone II" erven per township area

Proposed township area	Number of “Transport Zone II” erven	Proposed land use	Combined area
Churchill Extension 1	27	Public Street	16.7656 hectares
Churchill Extension 2	24	Public Street	16.9102 hectares
TOTAL	**51**		**51.9732 hectares**

As per the operational requirements of the Surveyor-General (Bloemfontein), the public streets in the proposed township areas will be reflected as “erven” on the General Plans of the fore-mentioned township areas.

The proposed “Transport Zone II” erven will be subject to the following development parameters imposed in terms of the Scheme Regulations for Kgalagadi District Municipality, 2004:

Table 32: "Transport Zone II" development parameters

Development parameter	Development Parameter Detail
Primary Use	Public street defined as *any land indicated on a plan or diagram or is specified within this zoning scheme, reserved for street purposes and where the ownership as such vests in a competent authority and includes facilities for public transport*.
Consent Uses	none

4.2 FACTORS INFLUENCING THE LAYOUT PLAN

The layout plans of the proposed township areas were influenced by the following factors:

* The district and provincial roads that run alongside the property. Adequate provision has been made for building lines (16m) on either side of these roads;
* With regards to the above-mentioned roads, existing access roads and intersections were aligned with, where possible, to provide new access roads to the proposed development. The intersection spacing between these access points were also taken into consideration.
* The 1:100 year floodline present on site (as determined by a certified professional) due to the drainage features on site was accommodated in erven zoned as “Open Space Zone I”.
* The townships are residential in nature and adequate provision has been made for residential stands suited to government housing schemes. The size of the properties was carefully considered to ensure liveable but economic stands.
* Provision will be made for mixed housing typologies in future through the integration with the proposed Churchill Extension 3 that will include larger residential stands suited to GAP housing and bonded housing.
* Additional erven were provided that serve the socio-economic needs of the community and include educational and institutional facilities, business properties and authority uses.
* The municipal boundary to the south of the development which restricts development spatially.

- Inputs from the local municipal officials regarding lands uses and property sizes and were used to guide the layout plan and land use matrix.
- Increasing the density of the development though the reduction in the sizes of the erven to increase the economic development potential of the township area;
- The average stand size will be ±300m² (20m x 15m) for Residential Zone I properties. These stand sizes have been approved by the local authority and the relevant community;
- Providing a line of no access along the boundary of the erven bordering onto District Road D328
- As discussed, the proposed development has been grouped in two township layouts in accordance with the Surveyor General's requirements.

4.3 ACCESS

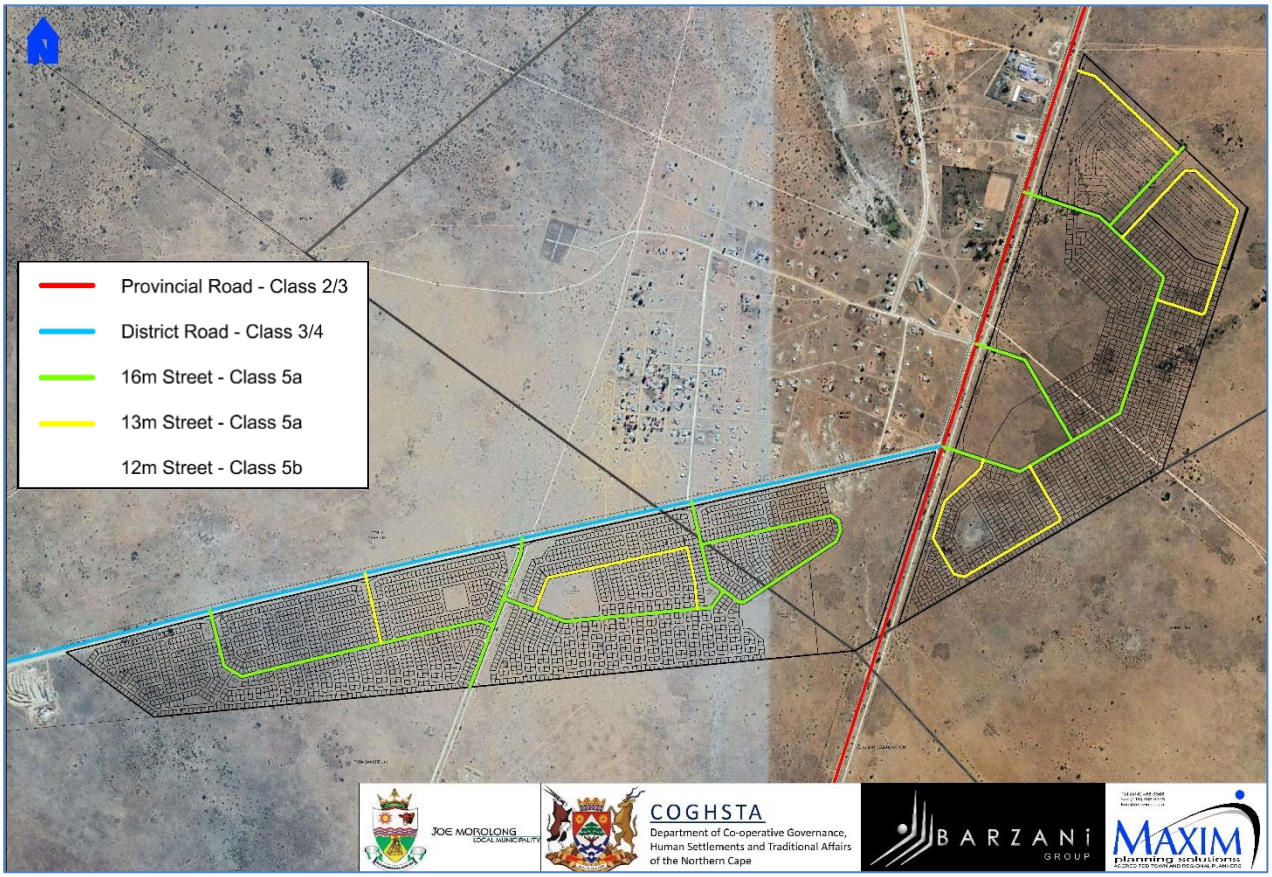
The street layout used in the proposed layout plan aims to create a functional road network that can accommodate public / private transport as well as pedestrian movement. Access to the proposed township area will primarily be provided from the existing district road (Churchill – Batlharo road) that runs on the northern boundary of the proposed township area site (indicated below in blue).

Access from this road will be provided at four (4) intersections, as indicated in Map 16 below. The main road network in the township area will consist of 16m primary collector roads (indicated in green below), 13m secondary collector roads (indicated in yellow below) and 12m internal roads.

A 16-metre building line adjacent to the District Road between Churchill and Kuruman and the District Road between Churchill and Batlharo is proposed as a public open space.

The internal street network to be implemented in the proposed township areas comprises of the following roads:

Map 16: Proposed township street classes and widths



**** Please note that Churchill Extension 3 is only indicated for reference purposes. The township does not form part of this application, but will be developed in future***

Where possible, access roads to the proposed development have been aligned with existing roads in order to integrate with the surrounding land uses. In addition, provision has also been made for a 16m wide street to link to the south of the proposed development, should expansion in this direction occur in future.

In order to assess the impact of the proposed township area on the surrounding road network, Route² Transport Strategies CC was commissioned to conduct a Traffic Impact Assessment in respect of the proposed township areas.

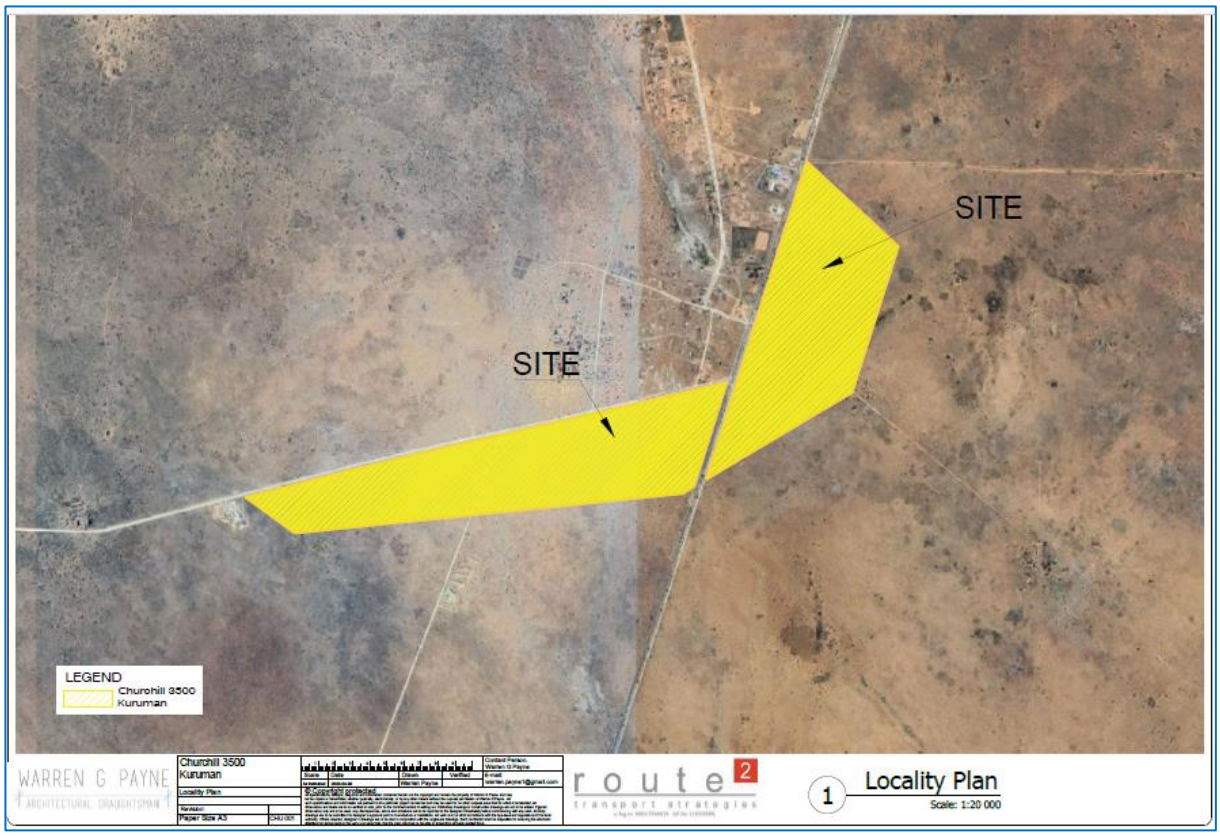
Please note: As discussed in Section 1, the proposed Churchill Extension 3 was included in the specialist studies to determine the cumulative effects of the total envisioned development.

The results of the Traffic Impact Study can be summarized as follows:

4.3.1 STUDY AREA

The extent of the study area is driven by an estimation of the traffic generated by the proposed development of Churchill Township and the intersections likely to be affected by the additional traffic. This study therefore assesses the worst-case scenario which will be the full extent of the Development. All other land uses and subservient uses will have internal traffic generation.

Map 17: Traffic Impact Assessment: Study Area



The study includes the following external intersections which is in line with the 1,5km study area as defined in the COTO Manual TMH16 and the study area for Churchill Township:

1. ***D328 and Road to Kleinneira & Batlharo – priority controlled.***

Photo 14: D238 - Provincial Class 2 road

2. D328 and Proposed Access Roads – proposed priority-controlled intersections (x2).
3. Road to Kleinneira & Batlharo and Proposed Access Roads – proposed priority-controlled intersections (x4).

Photo 15: Road to Kleinneira & Bathlaros

4.3.2 TRAFFIC FLOWS & TRIP GENERATION

4.3.2.1 Trip Generation (Private Trips)

The COTO Trip Generation Manual (September 2012 TMH 17 Volume 1) recommends a peak hour trip rate of 1,0 trips per unit for Residential 1 which is the primary land use although the following trip rates as per the EMM for low cost housing and what SANRAL allows countrywide was used. **A reduction of 10% for mixed use development was also applied.**

The predicted peak hour traffic to and from the site is summarised in the tables below:

Table 33: AM Peak Hour Trip Generation

Land use	Extend	Units	Trip Rate	Split	Split	Trips	Trips	External Total in & out
				In	Out	In	Out	
Residential	3 500	Stands	0.31	25%	75%	244	733	977
Shopping Centre	15 000	m^2	0.45	65%	35%	37	20	58

Table 34: PM Peak Hour Trip Generation

Land use	Extend	Units	Trip Rate	Split	Split	Trips	Trips	External Total in & out
				In	Out	In	Out	
Residential	3 500	Stands	0.31	70%	30%	684	293	977
Shopping Centre	15 000	m^2	2.56	50%	50%	164	164	328

4.3.2.2 Trip Generation (Public Transport Trips)

The expected number of vehicles per public transport and non-motorised transport modes to and from the development during the peak hours has been calculated and is presented in Table 36 below:

Table 35: Modal Split AM & PM Peak Hour*

Mode AM Peak	Modal Split	Occupancy	Number of Vehicle Trips
Minibus-taxi	50%	13	38
Bus	5%	48	2
Cycling & Walking	10%	N/A	N/A
Mode PM Peak	**Modal Split**	**Occupancy**	**Number of Vehicle Trips**
Minibus-taxi	50%	13	38
Bus	5%	48	2
Cycling & Walking	10%	N/A	N/A

** It should be noted that the trip generation as used in the analysis should still be seen as the worst-case scenario.*

4.3.3 CAPACITY ANALYSIS

For the purpose of the capacity analysis, the following intersections were assessed in terms of current and future traffic operations and capacity.

- D328 and the Road to Kleinneira & Bathlharos Access Intersection,
- D328 and Access Roads Intersection,
- Road to Kleinneira & Bathlharos and Access Roads Intersection

The affected intersections have been analysed for the full development potential using SIDRA traffic analysis software. SIDRA is a computer software program that provides several performance measures including v/c ratios, delays, level of service (LOS), etc.

When elements of a road network such as intersections are analyzed, their operating conditions are described in terms of LOS. The six letters from A to F are used to indicate different LOS. LOS A indicates very light traffic with correspondingly low delays. LOS E reflects capacity conditions, with high delays and unstable flow. LOS F reflects conditions where traffic demand exceeds capacity and traffic experiences congestion and delays. Generally, LOS A to D is considered acceptable in accordance with international standards. LOS E and F on the other hand are deemed unacceptable.

A further measure of the operating conditions prevailing at any one point in a road network is the volume to capacity ratio (v/c). As the name implies it is the traffic demand volume divided by the available capacity of the roadway element. Generally, ratios of up to approximately 0.9 are internationally deemed acceptable.

4.3.3.1 D328, Road to Kleinneira & Batlharos and Access Intersection (Intersection A)

For all of the scenarios the intersection operates at acceptable LOS with ample spare capacity, as can be seen in the table below:

Table 36: Capacity Analysis: Intersection A

Scenario	AM Peak Hour					PM Peak Hour				
	NB	WB	SB	EB	TOTAL	NB	WB	SB	EB	TOTAL
Existing 2020	N/A {0.04}		N/A {0.13}	A {0.02}	N/A {0.13}	N/A {0.11}		N/A {0.04}	A {0.01}	N/A {0.11}
Base 2020 + Development Traffic + Roundabout	A {0.23}	B {0.62}	A {0.39}	B {0.26}	A {0.62}	A {0.66}	A {0.27}	A {0.19}	B {0.24}	A {0.67}
Future 2025	A {0.27}	B {0.70}	A {0.48}	B {0.31}	B {0.70}	A {0.77}	A {0.32}	B {0.24}	B {0.31}	A {0.77}
Legend										
A	Level of Service									
{0.95}	Volume / Capacity									

** The 2020 traffic volumes were grown with a compound of 3% per annum to calculate the future traffic demand.*

Since traffic signals will not be warranted, a roundabout as shown below is proposed:

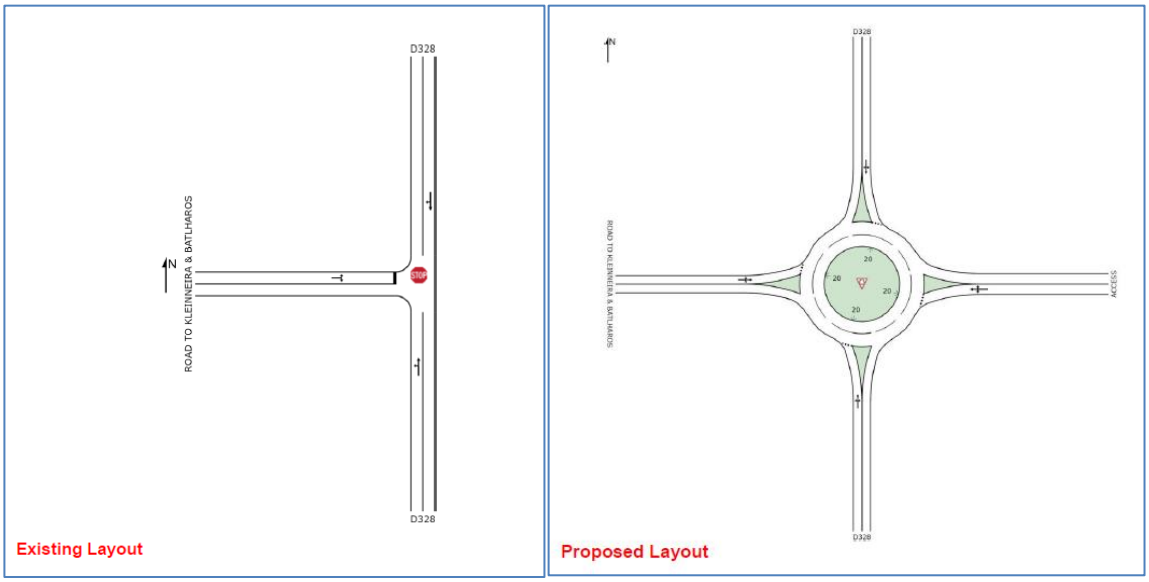


Figure 14: Existing and Proposed Layout: Intersection A

4.3.3.2 D328 and Access Roads Intersection (Proposed Intersections B)

For the **Future 2025** scenario the proposed intersections will operate at acceptable LOS with ample spare capacity, as seen in the table below:

Table 37: Capacity Analysis: Proposed Intersections B

Scenario	AM Peak Hour					PM Peak Hour				
	NB	WB	SB	EB	TOTAL	NB	WB	SB	EB	TOTAL
Existing 2020										
Base 2020 + Development										
Future 2025	N/A {0.08}	A {0.09}	N/A {0.13}		N/A {0.13}	N/A {0.22}	A {0.16}	N/A {0.04}		N/A {0.22}
Legend										
A	Level of Service									
{0.95}	Volume / Capacity									

** The 2020 traffic volumes were grown with a compound of 3% per annum to calculate the future traffic demand.*

4.3.3.3 Road to Kleinneira & Batlharos and Access Roads Intersections (Proposed Intersections C)

For the **Future 2025** scenario the proposed intersections will operate at acceptable LOS with ample spare capacity, as seen in the table below:

Table 38: Capacity Analysis: Proposed Intersections C

Scenario	AM Peak Hour					PM Peak Hour				
	NB	WB	SB	EB	TOTAL	NB	WB	SB	EB	TOTAL
Existing 2020										
Base 2020 + Development										
Future 2025	A {0.05}	N/A {0.01}		N/A {0.01}	N/A {0.05}	A {0.02}	N/A {0.05}		N/A {0.01}	N/A {0.05}
Legend										
A	Level of Service									
{0.95}	Volume / Capacity									

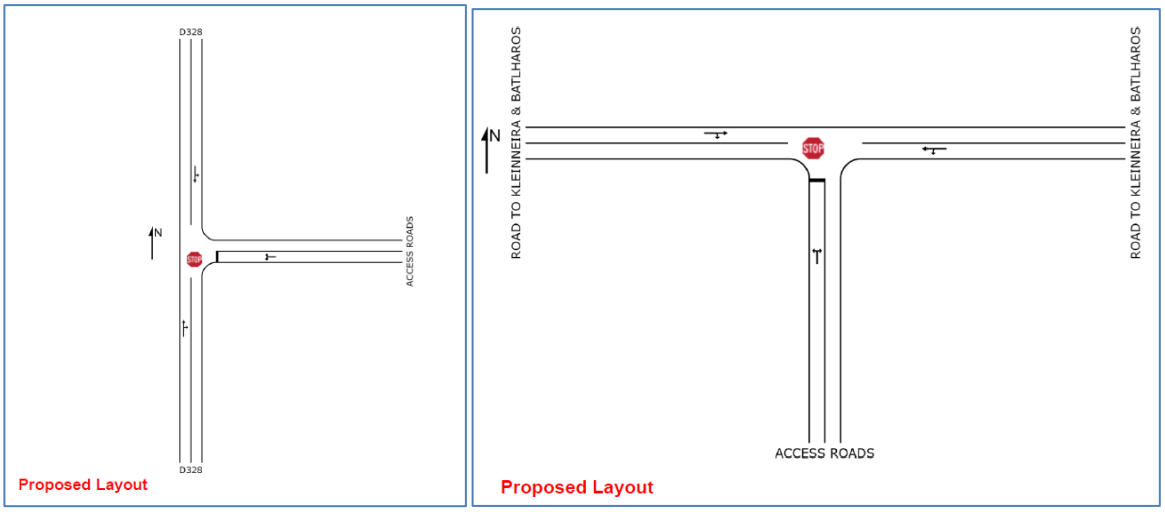


Figure 15: Proposed Intersections B & C

4.3.4 ROAD HIERARCHY

The following road hierarchy is proposed for all internal roads:

• **Class 5a:** 16m wide road reserves (providing access to Residential, Business, Primary School, Secondary School and Community Facilities).

• **Class 5b:** 13m wide road reserves (providing access to Residential, Crèches and Places of Worship).

4.3.5 CONCLUSION

In addition to the conclusions drawn in sections 4.3.1 to 4.3.4 above, the Traffic Impact Assessment concluded as follows:

"Based on our site observations, the existing and base traffic volumes shown in the figures, as well as the capacity analysis, it is concluded that the proposed development will have little impact on the external road network.
It is proposed and can be concluded:

- ***Upgrading of the D328 and Road to Kleinneira & Batlharos intersection into a large roundabout wince signals will not be warranted.***
- ***It is recommended that provision is made for sidewalks along the school site frontages.***
- ***It is recommended that provision is made for traffic calming along the school site frontages."***

CHAPTER 5: PROVISION OF ENGINEERING SERVICES

5.1 INTRODUCTION

G3T Consult was appointed to investigate and report on the provision of civil and electrical engineering services to the proposed township areas.

The provision of services to the proposed development areas will be addressed as follows:

- Section 5.2: Civil Engineering Services
- Section 5.3: Electrical Engineering Services

Please note: As discussed in Section 1, the proposed Churchill Extension 3 was included in the specialist studies to determine the cumulative effects of the total envisioned development and ensure sufficient service provision.

5.2 CIVIL ENGINEERING SERVICES

(Extract from the civil engineering services report compiled by G3T Consult (attached as Annexure P1 to the comprehensive land development application)

5.2.1 WATER – STATUS QUO

5.2.1.1 Water Services in Study Area

Churchill is supplied with ground water abstracted from 4 boreholes situated in the vicinity of the proposed development, as seen in Map 18 below. These four

boreholes abstract approximately 269 kl a day at a depth of between 80 and 86 metres underground.

Map 18: Borehole details

The permissible abstraction rate **(269kℓ/day)** is less than the required summer peak demand of **5,547.54kℓ/day (discussed in more detail in the following section)**.

Bearing in mind that the existing boreholes are used to provide domestic water to the current residents, the supply of the 4 boreholes will not suffice to accommodate the required supply of the proposed development.

5.2.2 DEVELOPMENT'S TOTAL WATER DEMAND

The Sustained Peak Demand was based on figures and peak factors as obtained from *Guidelines for Human Settlement Planning and Designs.*

The total annual average daily demand (AADD) for the proposed development is **3705.96m³/day**, as calculated in Table 39 below:

Table 39: Water Demand Table

Description	Unit factor(no of units)	Area in Hectares	Capacity	m³/day
Residential (300m²)	2445	-	600 ℓ/erf/day	1467
Residential (400m²)	513	-	700 ℓ/erf/day	359.1
Residential (450m²)	542	-	750 ℓ/ erf/day	406.5
Business (FSR=0.4)	Sum (5)	1.2586	0.65 kℓ/100m²/day	81.81
Institutional (Church) (FSR=0.4)	Sum (5)	0.6607	0.60 kℓ/100m²/day	39.64
Educational (Crèche) (FSR=0.4)	Sum (5)	0.6743	0.60 kℓ/100m²/day	40.46
Educational (Primary School) (FSR=0.4)	1	3.1746	0.60 kℓ/100m²/day	190.48
Educational (Secondary School) (FSR=0.4)	1	5.1516	0.60 kℓ/100m²/day	309.10
Open Space (Sports field)	1	6.8769	12 kℓ/ha/day	82.53
Institutional (Community Facility) (FSR=0.4)	Sum (2)	0.5481	0.60 kℓ/100m²/day	32.89
Open Space (Parks)	Sum (12)	58.0372	12 kℓ/ha/day	696.45
			TOTAL	**3705.96**

- The total peak summer demand is **5,547.54kℓ/day**
- The total daily peak demand is **8,876.06kℓ/day**
- The total instantaneous peak is **13,314.096kℓ/day**

5.2.2.1 Reservoir Storage

The sizing of the reservoir is calculated with the peak factors illustrated in the design criteria table and are compounded as follows:

Table 40: Reservoir Storage

Description	Amount (kℓ/day)	Accumulative Amount (kℓ/day)
Average Annual Daily Demand	3698.36	3698.36
Fire Water	108.00	2806.36

- Storage for 48 hours 2 x 3 698.36 = 7 612.72kℓ
- Reservoir storage required amounts = **7.7Mℓ**

5.2.2.2 Elevated Storage

The sizing of the elevated storage is calculated with the peak factors illustrated in the design criteria table and are compounded as follows:

Table 41: Elevated storage

Description	Amount (kℓ /day)	Accumulative Amount (kℓ/day)
Average Annual Daily Demand	3698.36	3698.36
Anticipated Water Loss 10%	369.84	4068.2

- The total instantaneous peak is = **13,314.096 kℓ/day**
- Peak flow = 154.09 ℓ/s
- Elevated storage (Peak Flow x 4 hrs) = 2219.01 kℓ (Without backup Power)
- Elevated storage (Peak Flow x 2 hrs) = 1109.508 k**ℓ** (With backup Power)

5.2.3 BULK SUPPLY: POTABLE WATER

As previously mentioned, the supply of the 4 boreholes will not suffice to accommodate the required supply of the proposed development. It is proposed that in depth specialised study is done to explore the option of using more boreholes in the area to supply the development with the required amount of domestic water. The water quality is therefore unknown which makes the possibility of the construction

of some form of water treatment infrastructure a reality. Further studies regarding this is also proposed.

However, in accordance with the attached dolomitic study, the dewatering of dolomitic area poses a risk for the formation of sink holes and as stated the water rest level has subsides from 3m in 2012 to more than 10m in 2017.

Taking into consideration that the yield of the existing boreholes are minimal and acquiring additional water sources could pose a challenge, the alternative would be to provide a bulk water pipeline from Kuruman which could serve as a water source to other villages in the vicinity.

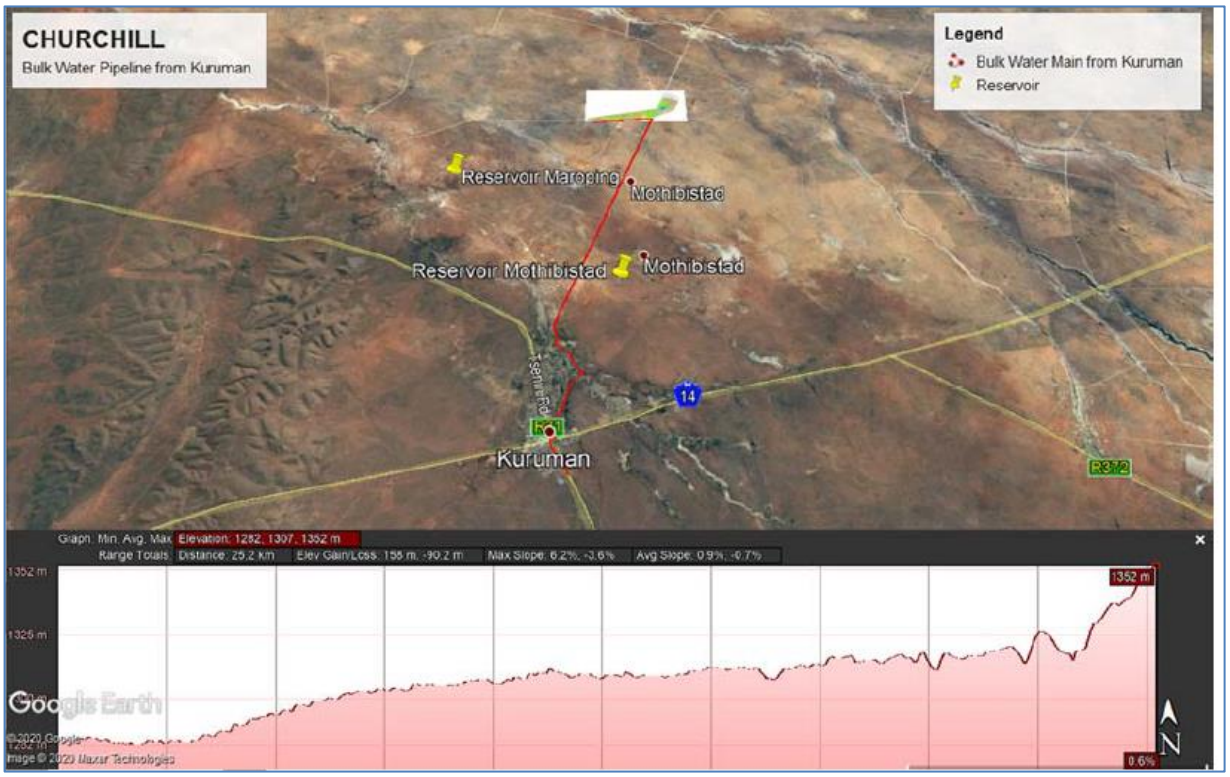


Figure 16: Bulk Water Pipeline

The proposed trunk main to serve the proposed Churchill development shall be installed from Kuruman to the proposed 7.7kℓ Reservoir approximately 25kms away. The new bulk main will be sized to provide the required demand of **5,547.54kℓ/day**.

- From the above, considering Q = V x A at maximum velocity (V) = 1.2 m/s
  - A = Q / v
  - ((Π/4) x Ø2) m2 = (0.0642m³/s)/(1.2 m/s)
  - 0.785 Ø2 = 0.0535 m
  - o Ø = √(0.0535 m / 0.785)
  - o Ø = 0.261m

Therefore, the required internal pipe diameter is minimum 261mmØ, however, considering the elevation difference between Kuruman and the proposed site a

Class PN20 should suffice. The standard pipe diameters for HDPe pipes, the most suitable diameter will be a 355 mm Ø pipe an internal diameter of 273mm.

Due to the high friction loses over a distance of 25kms, it is recommended that the proposed bulk main to the proposed development shall be a 450mmØ HDPe Class PN20 main with an internal diameter of 0.346m.

5.2.3.1 Proposed Storage and Distribution to 3500 Erven

With reference to the calculations above the following infrastructure is required:

- **450mmØ HDPe Class PN20** Bulk Water Supply to produce **5,547.54kℓ/day**

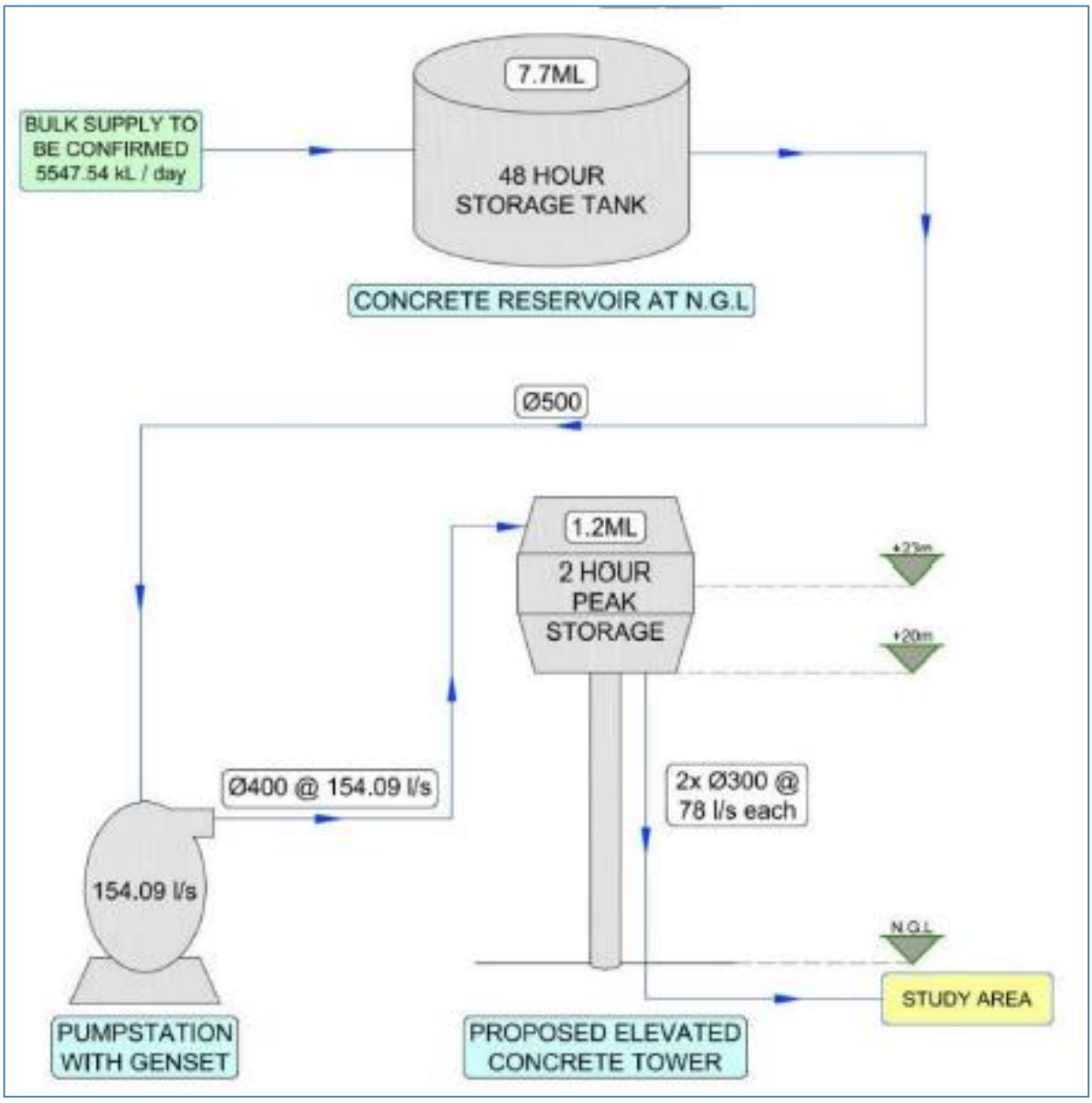


Figure 17: Schematic Layout of Bulk Water Infrastructure

- **7.7Mℓ** Concrete Reservoir (48 Hour Storage Capacity).

- **1.2Mℓ** Elevated Storage Tank (2 Hours Peak Storage Capacity), Height approximately 20m.
- Pump Station with duty and standby pumps with backup generator to produce **154.09ℓ/s** (Peak Flow). Height approximately 20m.
- Electrical Supply to the proposed Reservoir.

It is important to note that alternative water sources need to be investigated as the existing boreholes in the vicinity are hopelessly insufficient.

5.2.4 SANITATION – STATUS QUO

5.2.4.1 Sanitation Services in Study Area

According to the Department of Water and Sanitation (DWS) dry sanitation is commonly used in Joe Morolong Local Municipality due to the vast expanses of the municipality. Therefore, there is no formal bulk sewer infrastructure in the proximity of the proposed development.

Following discussions with Joe Morolong Local Municipality and the idea of developing Churchill as a nodal point, waterborne sanitation will be provided.

5.2.4.2 Proposed Design Criteria

A waterborne gravitational sewerage system is recommended to convey sewer effluent from all the areas of the proposed development to common low points. In order to keep excavations as shallow as possible a Pumpstation will have to be built. The Pumpstation will lift the sewage a second gravity network which will further convey the sewage to the proposed oxidation ponds.

Due to the dolomitic classification (D3) of the area it is essential that all requirements of SABS 1936-3:2012 is adhered to. An extract of selected items that needs to be considered as stipulated in SABS 1936-3:2012 is listed below.

- *(4.5.1)* - Sanitation systems on dolomite land other than land designated as D1 shall not incorporate evapo-transpirative beds, soakaways or french drains. Conservancy tanks linked to a low flush system that complies with the requirements of SANS 10400-P may be used where municipal water-borne sewerage connections are not available.
- *(4.5.3)* - Pit toilets shall not be provided on sites designated as D3 dolomite land.
- (6.2.3) - Sewers and gravity drainage systems
- (6.2.3.1) - All manholes shall be watertight and shall be tested for water tightness (zero leakage) during construction.

- (6.2.3.2) - Sewers and gravity drainage systems, inclusive of pipes, sleeves or conduits shall be subjected to hydraulic pipeline testing, after installation, in accordance with SANS 2001-DP2 for the selected pipe type, irrespective of application.
- (6.2.3.3) - Connections from multiple adjoining toilets or washbasins shall made above ground and shall feed into a single downpipe draining into the subsurface system.
- (6.2.3.4) - Toilet pans shall be provided with an external flexible connection at the junction point to the subsurface sewer system.
- (6.2.3.5) - The type, size and pressure rating of the pipe to be used shall be specified by the competent person (geo-professional or engineer).

The proposed gravitational system will consist of a network ranging from 160 mm Ø to 250mmØ HDPe PE100 PN10 pipes designed and installed in accordance to the standards and specifications as outlined by *Guidelines for Human Settlement Planning and Designs*.

The proposed network will be positioned in such a way as to maintain, as far as possible, the most efficient and cost-effective network for the conveyance of sewer effluent.

Precast concrete manhole chambers will be installed throughout the proposed network in the following positions:

- Intersections of two or more sewer mains.
- Change in flow direction of sewer mains.
- Change in longitudinal gradient of sewer mains
- On sections of sewer main not exceeding 80m apart

All precast concrete manhole chambers will be installed according to specifications regarding material and construction as outlined by SANS 1200 LD: Sewers Section 3.5 and 5.6 respectively.

5.2.5 DEVELOPMENT'S TOTAL EFFLUENT GENERATION

For the purpose of bulk services planning it was necessary to divide the entire development into 2 separate contributing areas.

Figure 18 shows the sewer contributing areas. Area 1 drains towards the proposed sewer lifting station. Area 2 will gravitate towards the proposed outfall. The Peak Design Flow will be based on figures and peak factors as obtained from *Guidelines for Human Settlement Planning and Designs.*

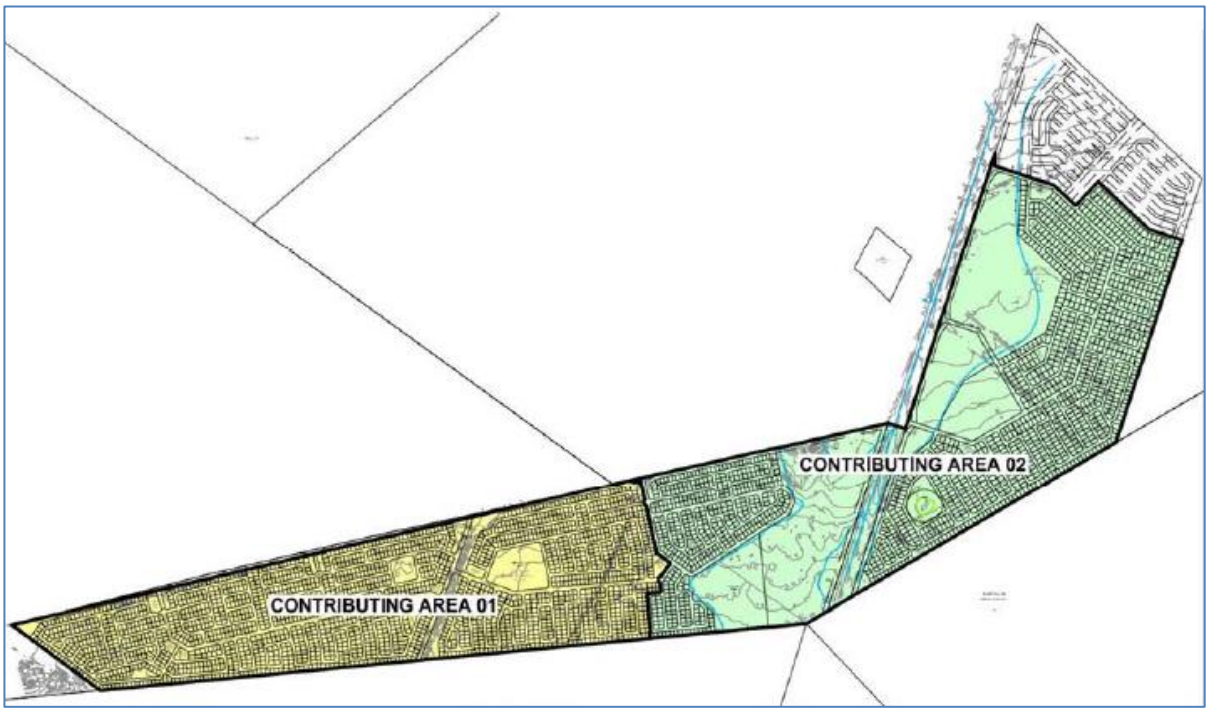


Figure 18: Sanitation Contributing Areas

EFFLUENT GENERATION TABLES

Table 42: Average Dry Weather Flow (Contributing Area 1)

Description	Capacity	Area (ha)	Unit factor (no of units)	m³/day
Residential (300m²)	0.480 kℓ/erf/day	-	353	169.44
Residential (400m²)	0.560 kℓ/erf/day	-	542	303.52
Residential (450m²)	0.60 kℓ/unit/day	-	513	307.80
Business (FSR=0.4)	0.52 kℓ/100m²/day	0.7459	Sum (3)	38.79
Institutional (Church) (FSR=0.4)	0.48 kℓ/100m²/day	0.2702	Sum (2)	12.97
Educational (Crèche) (FSR=0.4)	0.39 kℓ/100m²/day	0.4086	Sum (3)	15.94
Educational (Primary School) (FSR=0.4)	0.39 kℓ/100m²/day	0	0	0
Educational (Secondary School) (FSR=0.4)	0.39 kℓ/100m²/day	5.1516	1	200.92
Open Space (Sports field)	n.a	6.8769	0	0

Description	Capacity	Area (ha)	Unit factor (no of units)	m³/day
Institutional (Community Facility) (FSR=0.4)	0.48 kℓ/100m²/day	0	0	0
Open Space (Parks)	n.a	49.4856	0	0
TOTAL				1049.38

Table 43: Average Dry Weather Flow (Contributing Area 2)

Description	Capacity	Area (ha)	Unit factor (no of units)	m³/day
Residential (300m²)	0.480 kℓ/erf/day	-	2092	1004.16
Residential (400m²)	0.560 kℓ/erf/day	-	0	0
Residential (450m²)	0.60 kℓ/unit/day	-	0	0
Business (FSR=0.4)	0.52 kℓ/100m²/day	0.5127	Sum (2)	26.66
Institutional (Church) (FSR=0.4)	0.48 kℓ/100m²/day	0.3905	Sum (3)	15.23
Educational (Crèche) (FSR=0.4)	0.39 kℓ/100m²/day	0.2657	Sum (2)	10.36
Educational (Primary School) (FSR=0.4)	0.39 kℓ/100m²/day	3.1746	1	123.81
Educational (Secondary School) (FSR=0.4)	0.39 kℓ/100m²/day	0	0	0
Open Space (Sports field)	n.a	0	0	0
Institutional (Community Facility) (FSR=0.4)	0.48 kℓ/100m²/day	0.5481	Sum (2)	26.31
Open Space (Parks)	n.a	8.5516	0	0
TOTAL				1206.53

The total Average Dry Weather Flow (ADWF) for the 2 Contributing areas as depicted in the tables above amount to <u>2250.99m³/day.</u>

PEAK FLOWS

- **Peak Dry Weather Flow (PDWF):**
  - The residential erven served is 3500. With reference to Figure 19 below and based on a population of 17 500 (5 persons per erf) the peak factor will be **1.8**.

- The total peak dry weather flow for the proposed development is PWWF = (ADWF) 2250.99 x 1.8 = **4009.5 m³/day.**

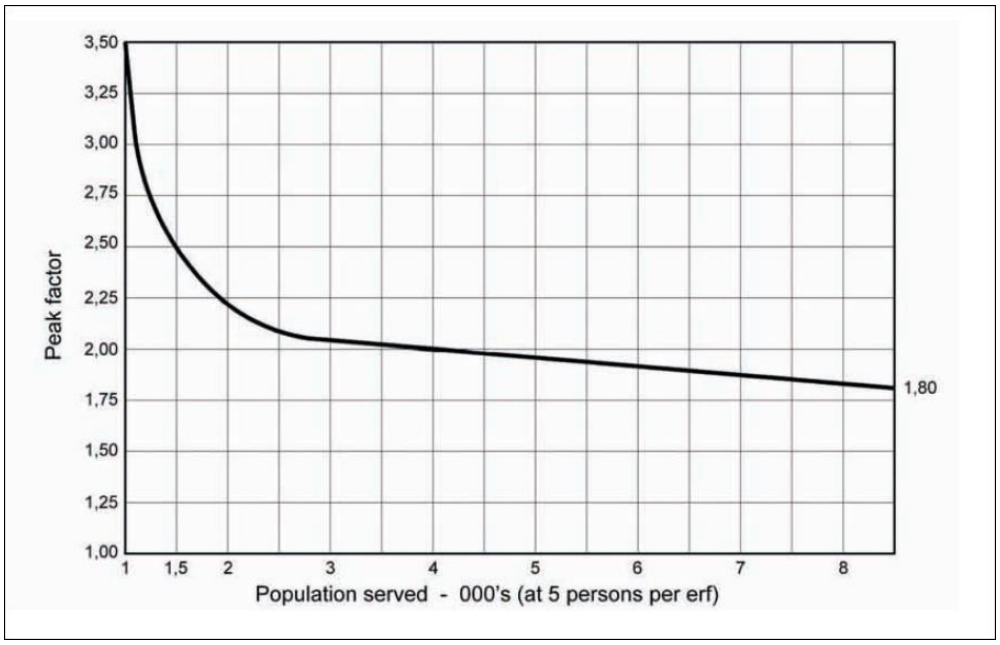


Figure 19: Peak Factors

- **Peak Wet Weather Flow (PWWF):**
  - Considering storm water infiltration rate of **15%** the peak wet weather flow amounts to (PDWF) 4009.5 x 1.15 = **4610.925 m³/day ≈ 53.367 ℓ/s**

- **Instantaneous Peak Pumping:**
  - A pumping factor of 25% has been added for the pump delivery rate, compounded as follows:
  - 53.367 x 1.25 = **66.71ℓ/s ≈ 67ℓ/s**

5.2.6 SANITATION – PROPOSED BULK INFRASTRUCTURE

The proposed bulk infrastructure will consist of the following components, namely:

• **BULK SEWER LINES**

The rising main will comprise of 160mm HDPe Class PN12 pipe to be constructed from the below mentioned pump station to an new manhole gravitating towards the proposed Wastewater Treatment Works (WTW) approximately 660m east of the proposed pump station.

The main sewer outfall pipeline will comprise of 250mm HDPe Class PN12 pipe to be constructed from the abovementioned rising main to the existing Wastewater Treatment Works (WTW) approximately 5 500m north of the proposed development.

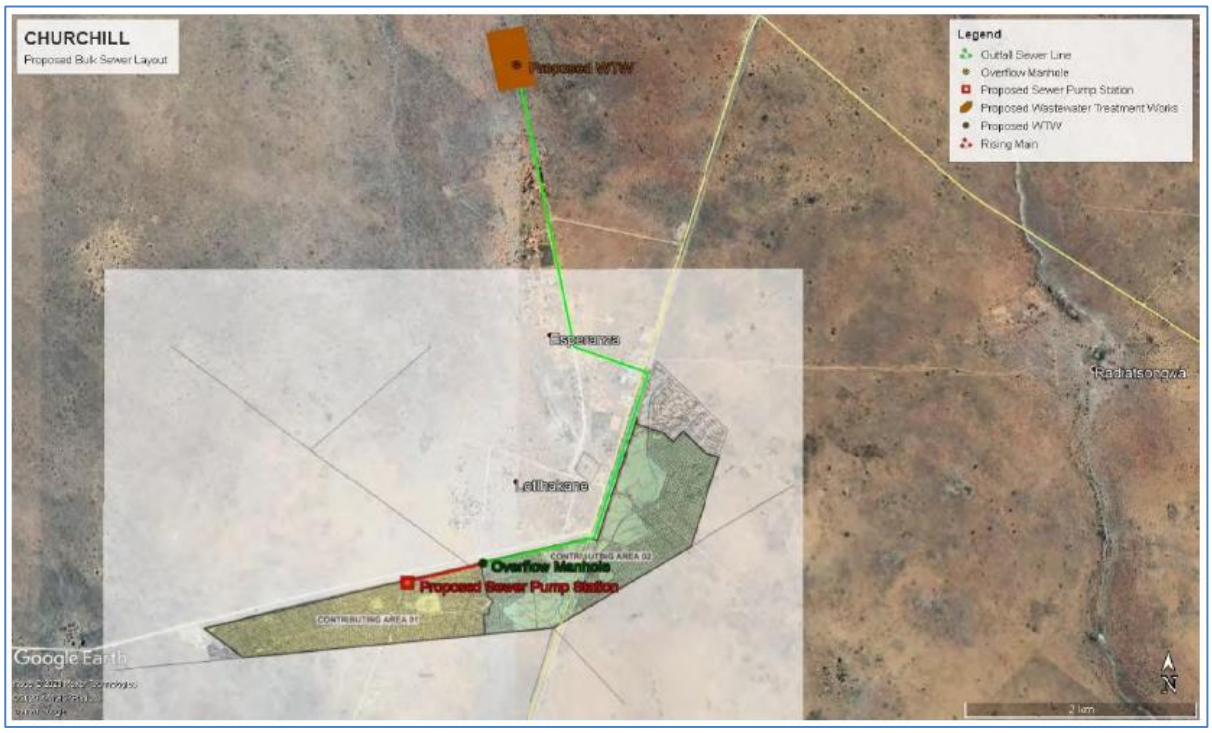


Figure 20: Schematic Layout of Bulk Sewer Infrastructure

- **BULK ELECTRICAL CONNECTION**
- **BULK SEWER PUMP STATION**

The proposed Bulk Sewer Pump Station will be designed to accommodate and inflow of 12.5ℓ/s. the Pump Station will be approximately 7.0m deep and be equipped with a dry sump installed sewer pump set complete.

The pumps will be complete with IE3 high efficiency motor, supplied as a unit. The pump should be able to pump 20 ℓ/s @ a head of 50 m. Minimum pump efficiency of 77.3% and minimum pump + motor efficiency of 67.9%.

The Pump station will also be fitted with a vertical pump station screen. The Pumping Stations Screen is connected directly to the sewer pipe by means of a flanged joint. The wastewater enters the screen through the optimized inflow chamber with integrated bottom step. As the water streams through the perforated plate into the pump sump, the screenings are retained. An auger, with a brush attached on its flights, rotates within the screen basket and cleans the screen. As the screenings are elevated by the auger, they are dewatered to a degree of up to 40 %. The compacted screenings are discharged into a container or skip.

Pumping Stations Screen units offer outstanding advantages, namely:

- Automatic screening, lifting and compaction in a single compact unit
- Optimal solids retention by means of two-dimensional screening (perforated plate)

• Prevent clogging and stressing in pump stations and manholes
• Integrated bottom step to prevent deposits in the incoming sewer
• Easy to install into existing structures
• Availability of completely submerging the screen.

• **CONSTRUCTION OF A NEW PROPOSED OXIDATION POND SYSTEM**.

Due to the stringent design standards of the Department of Water and Sanitation (DWS) the proposed oxidation ponds will be equivalent to the design of a *"Class B Landfill Site"* as requested by DWS. The design criteria are as follows:

Anaerobic Ponds:

• 100mm 25MPa/19mm Concrete lining with REF 193 Mesh reinforcing.
• In-Situ Material is to be imported **G5material** compacted to 98% Mod. AASHTO Density in layers of 150mm.

Facultative Pond:

• **1.5mm "Vitaline"** or Similar Approved Flexible HDPe Membrane installed by specialist.
• 1 x **Thermal Lock Geosynthetic Clay Liner** (GCL), needle punched reinforced composite which combines two durable geotextile outer layers with a uniform core of natural sodium Bentonite clay.
• **In-Situ** Material is to be imported **G5 material** compacted to 98% Mod. AASHTO Density in layers of 150mm.

Maturation Ponds:

• **1.5mm "Vitaline"** or Similar Approved Flexible HDPe Membrane installed by specialist.
• 1 x **Thermal Lock Geosynthetic Clay Liner** (GCL), needle punched reinforced composite which combines two durable geotextile outer layers with a uniform core of natural sodium Bentonite clay.
• **In-Situ** Material is to be imported **G5 material** compacted to 98% Mod. AASHTO Density in layers of 150mm.

5.3 STORMWATER – STATUS QUO

5.3.1 Storm water Management

The objective of a storm water management plan should be to manage the storm water resources of the collective watersheds to:
• Prevent flood damage.
• Preserve the natural and beneficial functions of the natural drainage system.
• Preserve and enhance storm water quality.

The collection and concentration of storm water will be kept to an absolute minimum so as not to impact negatively on any natural watercourse. The natural fall of the site is in a North-Eastern direction. The storm water on the Western side of the road, passing through the proposed development, will be collected and conveyed via a lined channel towards the natural watercourses to the Northern side of the proposed development. The balance of the storm water will also be conveyed via lined channel to the Northern side of the proposed development and into the natural watercourses.

Due to the dolomitic classification (D3) of the area it is essential that all requirements of SABS 1936-3:2012 is adhered to. An extract of selected items that needs to be considered as stipulated in SABS 1936-3:2012 is listed below.

***(4.4)* - Stormwater drainage**
(4.4.1) - Stormwater drainage systems shall discharge into a natural watercourse unless the land upon which it is discharged is
a) not dolomite land; or
b) dolomite land categorized as dolomite area designation D1 in accordance with SANS 1936-1.

6.2.4 - Storm water drainage
6.2.4.1 - Channels and canals which are constructed to reroute water from natural drainage paths shall be lined. Any joints in such channels shall be suitably sealed to be watertight.

6.2.4.2 - Unlined storm water cut-off or diversion trenches shall be avoided as far as possible.

6.2.4.3 - All concentrated storm water entering any parcel of land shall be diverted away from any building and structures by means of concrete-lined channels. Where necessary, earth berms and contouring shall be used to enhance site drainage.

6.2.4.4 - Storm water drainage systems shall incorporate measures to ensure watertightness (zero leakage) of conveyance systems, culverts and other compartments, including the sealing of all joints, and shall be designed to minimize the effects of settlement. All manholes, junction boxes and conveyance systems

shall be tested for watertightness during construction. Reinforced concrete manholes shall be designed as liquid-retaining structures.

6.2.4.5 - Storm water drainage conveyance systems shall be designed to gradients which are self-cleansing. Such systems shall have an internal diameter equal to or greater than 300 mm.

6.2.4.6 - For drainage purposes, surfaced roadways and parking areas should be constructed at a level below the surrounding buildings, developed or landscaped areas and gardens.

6.2.4.7 - All storm water from downpipes and gutters from buildings and structures shall discharge onto concrete-lined channels which, in turn, shall discharge the water at least 1,5 m away from structures onto areas permitting surface drainage away from buildings and structures. Joints between any open channel drains and buildings shall be suitably sealed.

6.2.4.8 - Small diameter storm water drainage pipes shall not be placed parallel to buildings unless they are at least 5 m (if stand size allows) from the structure. If this is not practical. A rational design shall be performed by a competent person (engineer).

6.2.4.9 - Buildings and structures without gutters shall be provided with impervious paving not less than 1,5 m wide with a minimum slope of 1:20 all around. Joints between such paving and the building or structure, as well as any joints to control shrinkage/expansion, shall be suitably sealed. The ground surface shall be shaped to fall away from the building at a minimum slope of 1:20 for a further 1 m from the edge of the slab and shall thereafter fall continuously towards the closest drainage point.

6.2.4.10 - Water shall not be permitted to accumulate against boundary walls. Suitable drainage ports shall be incorporated in boundary walls, particularly at the lowest point of the site, to permit the passage of surface runoff water. Such ports shall be provided (on both the inlet and outlet sides of the wall or fence) with a concrete slab 1,0 m wide, 100 mm thick, and extending 400 mm beyond the edges of the drainage port along the fence. The concrete slab shall have a minimum fall of 1:15 to ensure self-cleaning drainage characteristics. Any security outlet grids that are provided shall not impede the flow of water through the port.

6.2.4.11 - The type, size and pressure rating of the pipe to be used shall be specified by the competent person (engineer).

5.3.2 Storm water in Study Area

5.3.2.1 Existing Storm water Services

No formal storm water infrastructure exists in the study area. A natural storm water retention pond is located on the Eastern side of the main road crossing the site.

5.3.2.2 Proposed Storm Water Infrastructure

As stated above the natural flow of storm water is in a North Easterly direction within area earmarked for a park. The majority of the proposed development drains towards the North and the East However, a section of the proposed development channels water directly to the North where informal housing is situated, see Figure 24 below.

We therefore propose a formal storm water channel be constructed to facilitate storm water drainage to the natural watercourses to the Northern side of the proposed development. Provision has been made for a lined Trapezium Channel with a 3-meter-wide base and a 5-meter-wide opening on natural ground level with a depth of 550mm (including a 100mm freeboard). The Channel is approximately 2.6km long.

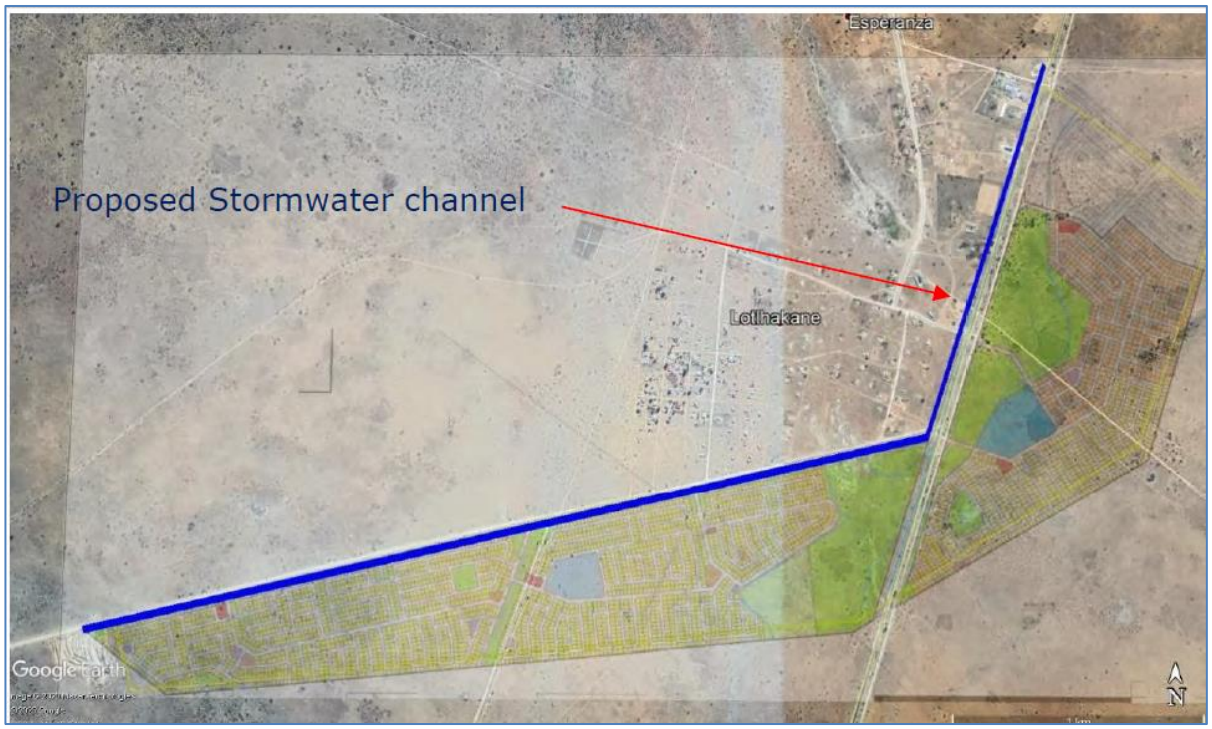


Figure 21: Proposed Stormwater Channel

5.4 ELECTRICAL ENGINEERING SERVICES

(Extract from the electrical engineering services report compiled by G3T Consult (attached as Annexure P2 to the comprehensive Land Development Application)

5.4.1 DEMAND ESTIMATION

The maximum demand for the proposed development is based on the draft layout plan and calculated in accordance with the requirements prescribed by Eskom for domestic consumers:

Table 44: Maximum Demand Estimation

PROPOSED LAND USE	QTY	kVA	TOTAL (kVA)	NOTE
Res House (Min 300m²)	2445	2,4	5868	
Res House (Min 400m²)	513	3,6	1847	
Res House (Min 450m²)	542	3,6	1951	
Business	6		447	70W/m² for 50% of erf size
Church	5	5	25	60A, single phase
Crèche	5	15	75	60A, three phase
Primary School	1	100	100	
Secondary School	1	150	150	
Sports field	1	15	15	60A, three phase
Community facility	2		192	70W/m² for 50% of erf size
Parks	14			
Public street	73	0	15,0	
Sewer Pumpstation	1	15	15	Running load
Water Reservoir	1	60	60	Running load
Total maximum demand (kVA)			**10790**	
Total maximum demand (MVA)			**10,79**	

5.4.2 BULK SUPPLY

5.4.2.1 General

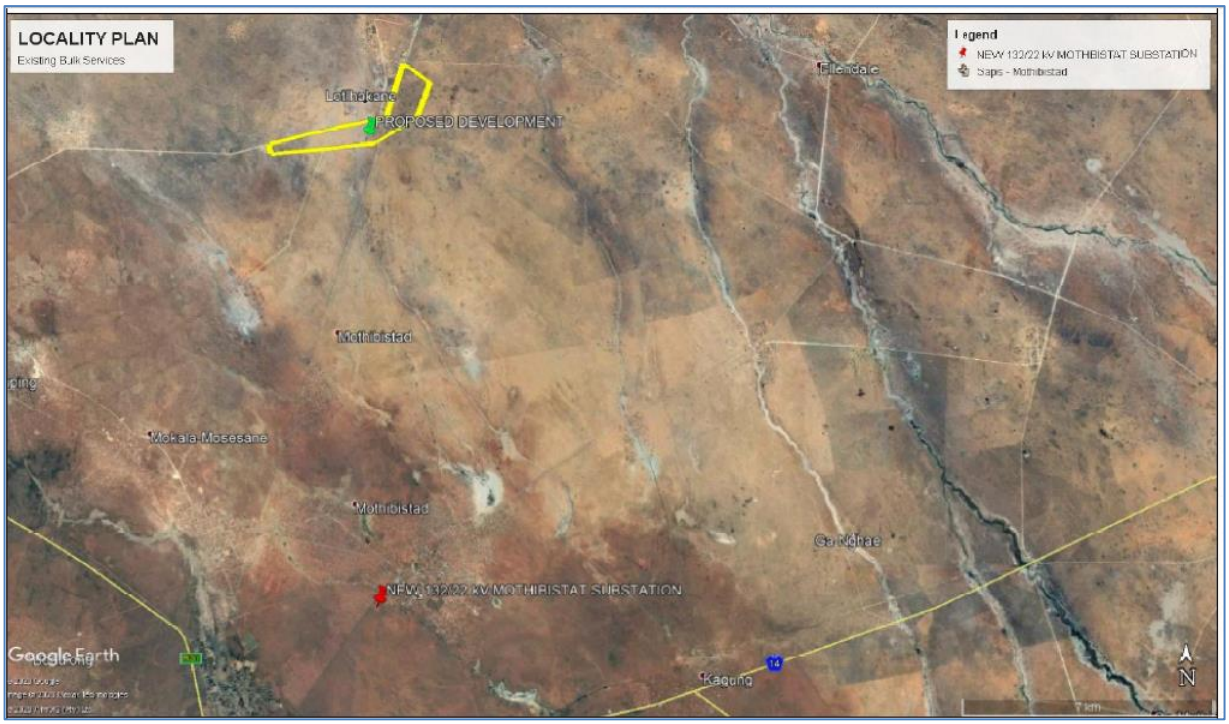
Preliminary negotiations were had with the Electrification Planning Division of Eskom Kimberley, and we are reasonably certain that the contents of this document will meet with their formal requirements. However, a formal application must be submitted to Eskom if the project proceeds.

5.4.2.2 Existing Network Analysis

Churchill is currently supplied from the existing 132kV/22kV, "Eldoret" Substation via a 22kV overhead-line known as the "Eldoret-Bendel" feeder which has a spare capacity of 1.6MVA. Thus, the existing network can accommodate only 667 low-income stands.

The proposed Mothibistat Substation is currently under construction and is expected to be in operation by December 2020, as seen below:

Map 19: Electrical Services Location



5.4.2.3 Bulk Supply Proposal

In order to accommodate the remaining 2833 households, a new 22kV overhead feeder line consisting of "Hare" conductor must be constructed from the proposed Mothibistat Substation (132kV/22kV). In order to proceed with the bulk supply, the following items will have to be implemented should the proposed development enjoy the council's approval:

- The proposed project must be recorded on the Integrated Development Plan (IDP) of Joe Morolong Municipality.
- Eskom or Joe Morolong Municipality must obtain the Electricity Distribution License from NERSA for the applicable area.
- The License Holder must apply to the DOE to fund the bulk supply services.

CHAPTER 6: MOTIVATION

6.1 INTRODUCTION

This need and desirability in respect of the application for the establishment of the two (2) proposed township areas of Churchill Extension 1 and Churchill Extension 2 through the subdivision and rezoning of portions of the Remaining Extent of the farm Churchill 211 and the Remaining Extent of Portion 2 of the farm Nyra 213, Registration Division H.M., Northern Cape Province will, in addition to the motivational statements already discussed in Sections 1 to 5 above, be motivated based on the following criteria:

- National Development Plan: Vision for 2030
- Constitution of the Republic of South Africa (Act 108 of 1996)
- National Housing Code, 2006
- A Comprehensive Plan for the Development of Sustainable Human Settlement (BNG)
- Urban (UDF) and Rural Development (RDF) Frameworks, 1997
- White Paper on Local Government, 1998
- Municipal Demarcation Act, 1998 (Act 27 of 1998)
- Municipal Systems Act, 2000 (Act 32 of 2000)
- National Housing Act, 1997 (Act 107 of 1997
- White Paper on Wise Land Use, 2001
- Millennium Development Goals (MDG)
- National Spatial Development Perspective, 2006
- Northern Cape Provincial Spatial Development Framework, 2012
- John Taolo Gaetsewe District Spatial Development Framework, 2017
- Joe Morolong Local Municipality Integrated Development Plan, 2019-2020
- Joe Morolong Spatial Development Framework, 2017
- Outcome 8 - 2014-2019 Medium Term Strategic Framework (MTSF)
- Spatial Planning and Land Use Management Act Development Principles
- General

In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing delivery goals, identifying suitable land for housing development and planning, facilitating, initiating and co-coordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approach to efforts aimed at providing housing. National Government

has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the Joe Morolong Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

The core legislation and policies guiding housing planning and development are set out in Sections 6.2 to 6.20 below.

6.2 NATIONAL DEVELOPMENT PLAN: VISION 2030

The National Planning Commission (NPC) (2011) published the NDP: Vision for 2030. Its contents will impact directly and indirectly on the provision of housing within the national spatial system.

Its core focuses include:

- The active efforts and participation of all South Africans in their own development
- Redressing the injustices of the past effectively
- Faster economic growth and higher investment and employment
- Rising standards of education, a healthy population and effective social protection
- Strengthening the links between economic and social strategies
- An effective and capable government
- Collaboration between the private and public sectors
- Leadership from all sectors in society.

Where we live and work matters. Apartheid planning consigned the majority of South Africans to places far away from work, where services could not be sustained, and where it was difficult to access the benefits of society and participate in the economy.

The physical and social environment in which we are born and grow up is one of the most important determinants of every person's wellbeing and life chances.

This environment has a bearing on access to opportunities, good schools, useful social networks, public services and safe environments. Separation between social groups, long distances between jobs and housing, and poor public services exacerbate poverty and inequality. Location affects communities, local economies, labour markets and infrastructure networks. Businesses are also affected by where they are situated. Access to markets and suppliers determines their survival and profitability. This is hugely significant for South Africa's society, economy and environment.

To fundamentally reshape human settlements by 2050 (with significant progress by 2030), South Africa needs:

- To address inequities in the land market that makes it difficult for the poor to access the benefits of life in towns and cities.
- Stronger measures to reconfigure towns and cities towards more efficient and equitable urban forms.
- Housing and land policies that accommodate diverse household types and circumstances.
- Municipalities that put economic development and jobs at the heart of what they do and how they function.

The establishment of the proposed two (2) Churchill township areas specifically aims at redressing the injustices of the past by ensuring proper integrated planning in respect of the location of new residential developments in well-located places that are conducive to the health and wellbeing of the community. Due to the mixed land use nature of the proposed development, ample opportunities will be created for the development of partnerships between the private and public sector to develop this area. In addition to the residential facilities that will be provided in the respective township areas, ample provision has also been made for properties that will stimulate economic growth and broaden the economic base of the area whilst similarly addressing the need for accelerated job creation. The proposed layout also makes the necessary provision for supporting land uses (such as institutional and educational sites) that will service the community needs of the residents.

6.3 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT 108 OF 1996)

The Constitution of the Republic of South Africa (Act 108 of 1996) is the supreme law of the country. The sections/schedules of the Constitution that are relevant with respect of the delivery of housing are the following:

- Sections 26, 27 and 29 of Chapter 2 – Bill of Rights states that everyone has the right to access to adequate housing, health care services, social security and education.
- Schedules 4 and 5, states that the Province has legislative competence in regard to (inter alia): Environment; Urban and Rural Development; Welfare; Housing; Health Services; Regional planning and development; (concurrent competence with national) and Provincial Planning and Provincial Roads and Traffic (exclusive competence)

In terms of the provisions (Schedule 4) of the Constitution, housing is a functional area of concurrent national and provincial competence. This provision of legislative and administrative powers necessitates alignment between all spheres of government in

terms of the IDP process and especially the preparation of the SDF and thus the Housing Chapter.

The development of the two (2) Churchill Townships constitutes a collaboration between the Department of Co-Operative Governance, Human Settlements and Traditional Affairs (COGHSTA) and the Joe Morolong Local Municipality to provide access to adequate housing, health care services, social security and education for the inhabitants of this community. It is further the objective of this project to provide opportunities for people to access proper housing through one of Government's subsidized housing programmes..

6.4 NATIONAL HOUSING CODE (2006)

The National Housing Code (2006) identified the primary role of the municipality as taking all reasonable and necessary steps, within the framework of national and provincial legislation and policy, to ensure that the inhabitants within its area of jurisdiction have access to adequate housing. This entails the following:

- Initiating, planning, facilitating and coordinating appropriate housing development.
- Promoting private sector development and playing the role of developer.
- Preparing a housing delivery strategy and setting up housing development goals.
- Setting aside, planning and managing land for housing.
- Creating a financially and socially viable environment for housing delivery.
- Facilitating the resolution of conflicts arising from housing delivery initiatives.
- Facilitating the provision of bulk services.
- Administrating national programmes.
- Exploring land for housing development.

The project under discussion specifically aims at providing access to housing for the inhabitants of the Joe Morolong Local Municipality and surrounding towns. The proposed Churchill Extension 1 & 2 specifically makes provision for the sector of the community who cannot access adequate housing due to financial circumstances. The proposed Churchill Extension 3 (to be developed as a separate application) however aims to provide adequate residential stands individuals requiring other forms of tenure e.g. bonded housing. One of the objectives of the National housing Code is for national and provincial legislation and policy to initiate, plan, facilitate and coordinate appropriate housing development. The proposed development directly aims at addressing this objective.

The Joe Morolong Local Municipality will also promote private sector development as the proposed township areas will also provide erven to households that wish to acquire a preferred stand from the Joe Morolong Local Municipality and erect their own home on the concerned site. In this manner the Joe Morolong Local Municipality will also be promoting private sector development. Private sector development is however not only

limited to housing but also incorporates private sector commercial and social facility development.

6.5 A COMPREHESIVE PLAN FOR THE DEVELOPMENT OF SUSTAINABLE HUMAN SETTLEMENT (BNG STRATEGY)

The new "Human Settlements Plan" promotes the achievement of a non-racial, integrated society through the development of sustainable human settlements and quality housing. Housing is to be utilized for the development of sustainable human settlements in support of spatial restructuring.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve this vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plan encourages the eradication of informal settlements through in-situ upgrading in desired locations coupled with the relocation of households where development is not possible or desirable.
- Promoting Densification and Integration: The aim is to integrate previously excluded groups into the city so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements.
  This requires more than mere co-ordination between departments but there needs to be a single overarching planning authority and/or instrument to provide macro-level guidance to support the development of sustainable human settlements.
- Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive intervention in land markets. The following interventions are envisaged viz. accessing well located state-owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives.
- Supporting Urban Renewal and Inner City Regeneration: Urban renewal and inner city regeneration often result in the current inhabitants being excluded as a result of the construction of dwelling units they cannot afford. Some municipalities are trying to avoid this by promoting affordable inner city housing. The "Human Settlements Plan" will support this by encouraging social housing.

- Developing Social and Economic Infrastructure: The need to move away from a housing-only approach towards a more holistic development of human settlements which includes the provision of social and economic infrastructure is emphasized.
- Enhancing the Housing Product: The aim is to develop more appropriate settlement layouts and housing products and to ensure appropriate housing quality.

This project from the onset aimed at providing a proper integrated human settlement that ascribes to the BNG Principles set out above. This was achieved as follows:

- As detailed in previous sections, the proposed development focusses on promoting densification through the creation of smaller economical erven to optimise the provision of services to this area. Due to the locality of this development, integration with the existing Churchill village will also be achieved
- The development of the proposed two (2) Churchill township areas is a definitive move away from providing housing-only township areas and towards the provision of a proper integrated human settlement that offers a magnitude of social, educational and commercial support facilities and infrastructure in close proximity to the inhabitants.
- The largest proportion of the township areas will however be aimed at the subsidized housing sector through the implementation of one of Government's subsidized housing programmes

6.6 URBAN (UDF) AND RURAL DEVELOPMENT (RDF) FRAMEWORKS (1997)

The UDF aims to promote a consistent urban development policy approach for effective urban reconstruction and development, to guide development policies, strategies and actions of all stakeholders in the urban development process and to steer them towards the achievement of a common vision. The UDF is engaged in four key programmes, namely integrating the city, improving housing and infrastructure, building habitable and safe communities and promoting urban economic development.

The RDF co-ordinates integration of government programmes in rural areas and is aimed at: poverty alleviation through institutional development; investment in basic infrastructure and social service; improving income and employment opportunities; restoration of basic economic rights to marginalized rural areas; and finally justice, equity and security.

6.7 WHITE PAPER ON LOCAL GOVERNMENT (1998)

The White Paper on Local Government adopts development policy guidelines and principles and advocates the developmental role of local government.

The guidelines and principles can be summarized as follows:

- Orientation towards people's needs;
- Poverty alleviation with special consideration of marginalized and disadvantaged groups and gender equity;
- Environmentally sustainable development and a safe and healthy environment;
- Economic growth with creation of income and employment opportunities;
- Involvement of residents, communities and stakeholders;
- Sustainability of services, municipalities and settlements.

The development of the proposed integrated human settlement comprising the proposed two (2) Churchill township areas addresses the majority of the guidelines and principles set forth in the White Paper on Local Government (1998) as:

- The proposed development is specifically aimed at addressing the needs of the people of Joe Morolong and neighbouring municipalities and specifically the most vulnerable of the community;
- In addition to addressing the safety concerns of the community through the provision of proper durable housing structures, this project will also ensure a sustainable healthy environment for the inhabitants though the provision and availability of proper engineering services offering safe drinking water, proper sanitary infrastructure and facilities and a safer environment to live in.
- This development will also give rise to economic growth through the creation of income and employment opportunities. This will not only be attained as a result of the provision of a large number of erven that can be utilized for commercial development purposes but also through the provision of erven that can be utilized for social- and educational purposes. These facilities also require staff to function properly and will lead to additional jobs being created.
- The development of the subject properties has been in the public domain since the compilation of the Joe Morolong Spatial Development Framework in 2017 when the properties were already earmarked for future residential development purposes. where the community was extensively briefed on the details of the development and was afforded the opportunity to voice their opinions and concerns in respect of this development. The feedback received from the public meetings was duly addressed in the investigations and studies that were conducted. Cognisance should further be taken of the fact that the residents, community and stakeholders will have a further opportunity to participate in this process during the prescribed public participation process. This process will include the publication of notices in a local newspaper and the Northern Cape Provincial Gazette, the posting of site notices on the subject properties, the notification of all adjacent property owners of the development as well as the involvement of a number of external organizations and departments as integral part of the township establishment process.

6.8 MUNICIPAL DEMARCATION ACT, 1998 (ACT 27 OF 1998)

Demarcation objectives: The Demarcation Board determines a Municipal boundary with the objective that it must be able to enable the municipality for that area to fulfil its constitutional obligations in line with the provision of a democratic and accountable government for communities within a specific geographic area inclusive of:

- The provision of services to the communities in an equitable and sustainable manner.
- The promotion of social and economic development.
- The promotion of a safe and healthy environment.
- Enable effective local governance.
- Enable integrated development.
- Have a tax base as inclusive as possible for the user of municipal services in the municipality.

6.9 MUNICIPAL SYSTEMS ACT, 2000 (ACT 32 OF 2000)

Chapter 5 of the Local Government Municipal Systems Act, 2000 calls upon municipalities to undertake developmentally-orientated planning so as to ensure that it:

- Strives to achieve the objectives of local government set out in Section 152 of the Constitution;
- Gives effect to its development duties as required by section 153 of the Constitution; and
- Together with other organs of state contribute to the progressive realisation of the fundamental rights in respect of, among others, housing.

In the spirit of our democratic dispensation no development can take place without the effective participation of the communities it affects. Section 29(1) (b) of the local Government: Municipal Systems Act 32 of 2000 requires municipalities to follow certain procedures to consult with communities and procure their participation in the planning process. As these structures have to be in place, they will be available and should be used to involve the relevant communities.

6.10 NATIONAL HOUSING ACT, 1997 (ACT 107 OF 1997)

The National Housing Act (NHA) sets out three general principles, namely: giving priority to the needs of the poor in respect of housing development; consultation with individuals and communities affected by housing development; and ensuring that housing development is economically, fiscally, socially and financially affordable and sustainable.

The NHA lays down general principles applicable to housing development in all spheres of government, defines the functions of national, provincial and local governments in

respect of housing development, and promotes the role of the state as a facilitator of housing development.

National government must establish and facilitate a sustainable national housing development process, provincial government must do everything in its power to promote and facilitate the provision of adequate housing in its province within the framework of national housing policy, while municipalities must take reasonable and necessary steps within the framework of national and provincial housing legislation and policy to ensure that the right of access to adequate housing is realised on a progressive basis.

This project will at its core aim at addressing the needs of the poor in respect of the provision of housing. When viewed in conjunction with the future development of Churchill Extension 3, the project will ensure that the right of access to adequate housing is realised on a progressive basis.

6.11 WHITE PAPER ON WISE LAND USE (2001)

This White Paper intends to show practical ways in which South Africa may move to this approach. The system should satisfy the following specific needs:

- The development of policies which will result in the best use and sustainable management of land.
- Improvement and strengthening planning, management, monitoring and evaluation.
- Strengthening institutions and coordinating mechanisms.
- Creation of mechanisms to facilitate satisfaction of the needs and objectives of communities and people at local level

Integrated planning for sustainable management of land resources should thus ensure:

- That development and developmental programmes are holistic and comprehensive so that all factors in relation to land resources and environmental conservation are addressed and included.
- In considering competing needs for land, and in selecting the "best" use for a given area of land, all possible land-use options must be considered.
- That all activities and inputs are integrated and coordinated with each other, combining the inputs of all disciplines and groups.
- That all actions are based on a clear understanding of the natural and legitimate objectives and needs of individual land users to obtain maximum consensus.
- That institutional structures are put in place to develop, debate and carry out proposals.

Of core importance in the planning and development of housing is the normative planning principles identified in the White Paper:

The basis of the system will be principles and norms aimed at achieving sustainability, equality, efficiency, fairness and good governance in spatial planning and land use management. The decisions of planning authorities, whether related to the formulation of plans such as IDPs or the consideration of land development applications such as rezoning, must all be consistent with these principles and norms. A failure by an authority to affect this enables the Minister to intervene in the decision, either to require that it is reconsidered or in extreme cases to take the decision him or herself.

6.12 MILLENNIUM DEVELOPMENT GOALS (MDG)

The MDG include the following: The eradication of informal settlements by 2014 as one of the policy imperatives of government (Goal 7, Target 11) implies that government and the private sector would have to implement the Social Contract (Social Contract for Rapid Housing Delivery, 2005) commitments to aid the removal of slums in South Africa.

The targets included in the Social Contract consist of:

- The removal or improvement of all slums in South Africa as rapidly as possible, but not later than 2014.
- The fast tracking of the provision of formal housing within human settlements for the poorest of the poor and those who are able to afford rent and/or mortgages.
- The creation of rental stock for a rapidly growing, mobile (migrant) and urban population within inner city and other locations close to employment opportunities.
- To remove administrative blockages that prevent speedy developments and to strive to reduce the time to grant various permissions relating to the built environment to 50% of the current time;
- To ensure consumer education and understanding in all housing development projects.

This project has at its core the provision of formal housing through the establishment of an integrated human settlement.

6.13 NATIONAL SPATIAL DEVELOPMENT PERSPECTIVE (2006)

The NSDP consists of a set of five normative principles for development:

- Principle 1: Rapid economic growth that is sustained and inclusive is a pre-requisite for the achievement of other policy objectives, among which poverty alleviation is key.
- Principle 2: Government has a constitutional obligation to provide basic services to all citizens wherever they reside.
- Principle 3: Government spending on fixed investment should be focused on localities of economic growth and/or economic activities and to create long-term employment opportunities.

- Principle 4: Efforts to address past and current social inequalities should focus on people, not places. In localities where there are both high levels of poverty and demonstrated economic potential, this could include fixed capital investment beyond basic services to exploit the potential of those localities. In localities with low demonstrated economic potential, government should beyond the provision of basic services, concentrate primarily on human development.
- Principle 5: In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or that link the main growth centres. Infrastructure investment should primarily support localities that will become major growth nodes in South Africa and the SADC region to create regional gateways to the global economy.

6.14 NORTHERN CAPE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK, 2012

The Northern Cape PGDS states that social and economic development is imperative in order to address the most significant challenge facing the Northern Cape, i.e. poverty, and that the only effective means by which poverty can be reduced is long-term sustainable economic growth and development.

Accordingly, the PSDF responds and gives practical effect to the overarching objective stipulated in the Northern Cape PGDS, i.e. to ensure integration of development processes and, in particular, to facilitate sustainable development throughout the province. Sustainable development is generally referred to as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. NEMA defines sustainable development as the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.

The alleviation of poverty is one of the key challenges for economic development. Higher levels of economic growth are a key challenge for poverty eradication. Investment in people is pivotal to the eradication of poverty and inequality. Investment in people is also, to a large extent, about delivering social and economic infrastructure for education, welfare, health, housing, as well as transport and bulk infrastructure.

Housing is one of the basic human needs that has a profound impact on health, welfare, social attitudes and economic productivity of the individual. It is also one of the best indicators of a person's standard of living and place in society. In achieving the Millennium Development Goals, the South African government is to ensure that its citizens live in good housing conditions. In order to achieve this goal, the government aims to eliminate all informal dwellings, bucket type toilets, and ensure that all citizens have access to electricity for lighting, and access to clean, safe water within a reasonable distance.

The settlement system in the Northern Cape is characterised by small and often isolated urban and quasi-urban settlements scattered across the vast area of the province. Many of these settlements find it hard to provide basic services and sufficient income generating-opportunities to their inhabitants.

Sustainable rural development is closely bound to a vibrant and functional urban settlement system. Villages, settlements and cities are the 'engine rooms' that drive regional development and economic growth. Unfortunately not all urban settlements have the same growth potential. Growth trends fluctuate over time due to many influencing factors. In a large province such as the Northern Cape such 'engine rooms' make a special contribution towards meeting the general needs in both the settlements and the surrounding rural hinterland. Such 'engine rooms' also affect global links, the national spatial economy and sustainable regional development in the province.

It is generally accepted that public funds should be applied for the improvement of a small town's structure and functioning (e.g. investment in market support, provision of water and electricity, development of housing and new industrial areas) only if the basic rural development conditions are suitable. The basic driving force behind a town's growth is provided by its specific economic activities, which generate job opportunities, capital, buildings and infrastructure.

In terms of facilitating development of urban areas, the Northern Cape Provincial Spatial Development Framework set forth the following objectives were set in respect of establishing sustainable settlements:

- Develop sustainable settlements that would promote the well-being of the people of the Northern Cape, i.e. where they can live with dignity and pride.
- End the apartheid structure of urban settlements.
  - Prohibit further outward expansion of urban settlements that entrenches the current spatial apartheid pattern and results in urban sprawl.
  - Ensure that public funds are not spent in perpetuating segregated and unsustainable settlement patterns.
  - Use socio-economic gradients based on walking distance to create a higher level of integration than currently exists while remaining sensitive to community social norms and levels of living.
  - Use publicly-owned land and premises to spatially integrate urban areas and to give access for second economy operators into first economy spaces.
- Promote sustainable urban activities and public and non-motorised transport.
  - Use walking distance as the primary measure of accessibility.
  - Develop walking and cycling routes.
  - Densify urban settlements, especially along main transport routes, at nodal interchanges etc.

- Identify areas of highest accessibility that can be designed to maximise safe social and economic activity, especially for participants in the second economy.
- Restructure road networks to promote economic activity in appropriate locations.
- Cluster community facilities together with commercial, transport, informal sector and other activities so as to maximise their convenience, safety and social economic potential.

The quality of subsidised settlements that could be achieved through innovative design and cross-subsidisation is visually represented in **Figure 22.**

Figure 22: Quality of subsidised settlement that could be achieved through innovative design and cross-subsidisation.

During the design of the integrated human settlement layout plan, specific attention was given to ensuring that the layout plan incorporates road reserves that will not only address vehicular access, but also allow for the creation of pedestrian walkways and bicycle routes.

6.15 JOHN TAOLO GAETSEWE DISTRICT SPATIAL DEVELOPMENT FRAMEWORK, 2017

Settlement hierarchy is a way of arranging settlements in order, i.e. according to the population or settlement, or the number of services and functions the settlements has, or

the area the settlement covers. The John Taolo Gaetsewe District Spatial Development Framework, 2017 set forth the following settlement hierarchy:

- First Order Settlement – Areas of significant size, with the greatest range of services and facilities in the JTGDM, and in principle, the most sustainable locations for major growth, e.g. Towns.
- Second Order Settlement – Areas of residential dominance with availability of services and facilities within settlements, where its resident directly rely on First Order Settlement and which consist of community facilities, healthcare and education provision indicators, e.g. Townships.
- Third Order Settlement - Large villages which act as key service centres for the surrounding rural area by virtue of the range of services and facilities they possess, and, in principle, suitable for growth.
- Fourth Order Settlement - Small villages with few, if any, services and facilities, suitable only for development of single dwellings or small groups.

In the case of Churchill, the settlement hierarchy classified Churchill as a First Order Settlement and development is encouraged. The proposed development is therefore in line with the District SDF.

6.16 JOE MOROLONG LOCAL MUNICIPALITY INTEGRATED DEVELOPMENT PLAN 2019-2020

The following are current issues in the Joe Morolong Municipality's IDP with regards to Ward 13 where the application sites are located:

- request for more RDP houses
- Request for ECD centres
- Need for water

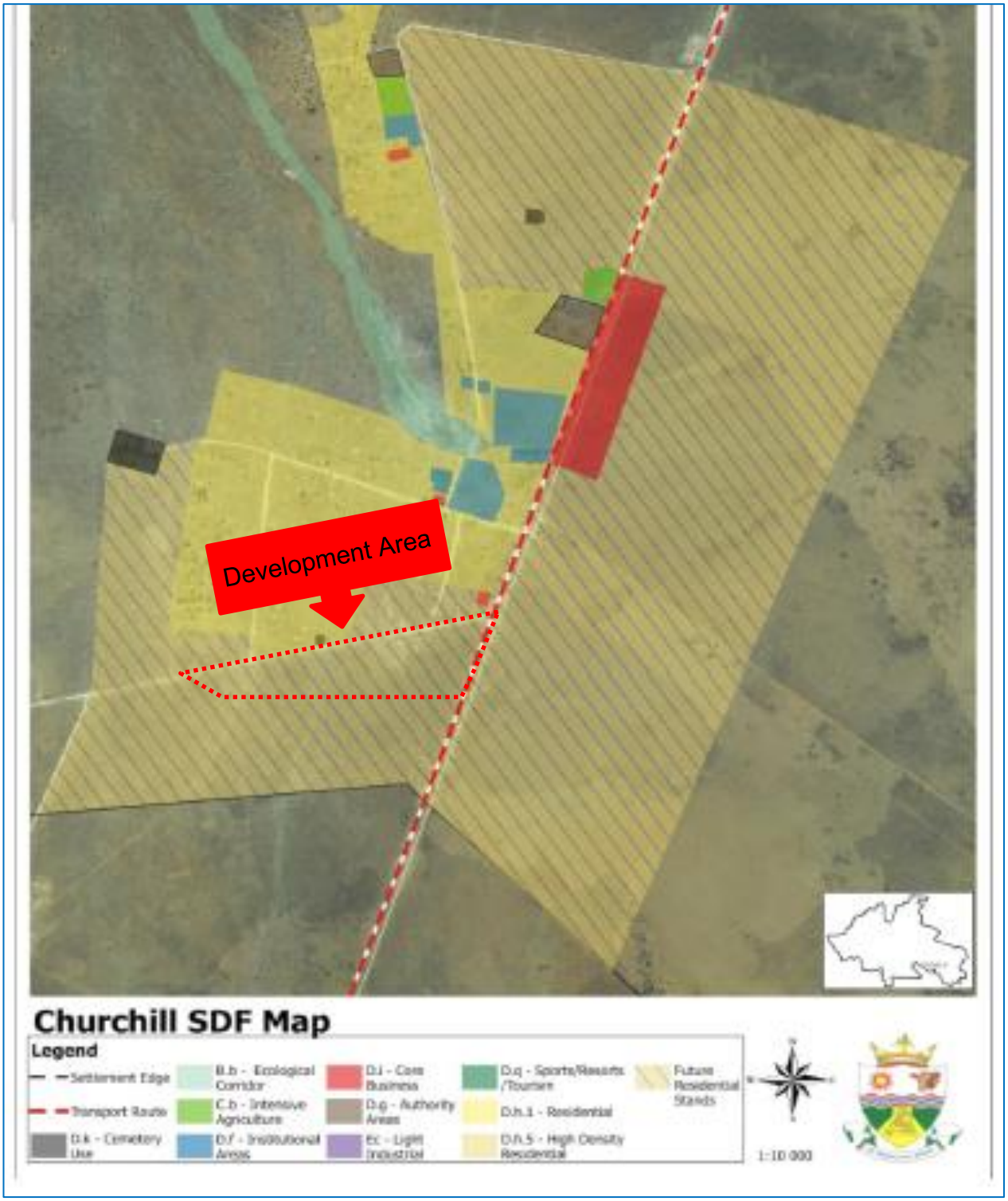
The document acknowledges the proposed development as follows:

"Churchill village also serve as one of the nodal point with potential for human settlement, and as a result of this, the Municipality has proposed a Mixed Land Use Development for 3500 (houses Low Income, Middle Income and High Income). This development will have a positive impact towards the economy of Churchill village and Joe Morolong Municipality as a whole."

6.17 JOE MOROLONG SPATIAL DEVELOPMENT FRAMEWORK, 2017

In terms of the Spatial Development Framework of the Joe Morolong Local Municipality, the subject properties to which this development apply are located inside the demarcated

Urban Edge. The subject properties were also earmarked for future residential development purposes, as reflected on **Map 20**.



Map 20: Joe Morolong Spatial Development Framework

6.18 OUTCOME 8 – 2014-2019 MEDIUM TERM STRATEGIC FRAMEWORK (MTSF)

Outcome 8 (sustainable human settlements and improved quality of household life) of government's 2014-2019 Medium Term Strategic Framework (MTSF) guides the Department of Human Settlement's work over the medium term towards ensuring that poor households have access to adequate housing in better living environments, and that institutional capacity and coordination is improved.

Outcome 8 determines that human settlements in future in South Africa must at least consist of:

- The development of suitable located and affordable housing (shelter) and decent human settlements;
- An understanding that human settlements are no longer about building houses;
- Transforming our cities and towns (moving towards efficiency, inclusion and sustainability); and
- Building cohesive, sustainable and caring communities with improved access to work and social amenities, including sports and recreation facilities.

In terms of Outcome 8, sustainable human settlements and improved quality of household life are defined by:

- Access to adequate accommodation that is suitable, relevant, appropriately located, affordable and fiscally sustainable;
- Access to basic services (water, sanitation, refuse removal and electricity);
- Security of tenure irrespective of ownership or rental, formal or informal structures; and
- Access to social services and economic opportunity within reasonable distance.

This outcome is of critical importance as it is a requirement of the Constitution and Bill of Rights. It is secondly core to human dignity and social stability and is a key enabler of health, education and social cohesion outcomes. With good planning it can also serve as a catalyst for economic development and job creation.

6.19 SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 2013 (SPLUMA) DEVELOPMENT PRINCIPLES

The act applies to spatial planning, land development and land use management. The following five (5) primary development principles referred to in the Spatial Planning and Land Use management Act, 2013 (Act 16 of 2013) (SPLUMA) and explained in SPLUMA: A Practical Guide compiled by Nic Laubscher, Lizette Hoffman, Ernst Drewes and Jan Nysschen, 2016, need to be taken into consideration:

"7. (a) the principle of spatial justice, whereby-

(i) past spatial and other development imbalances must be redressed through improved access to and use of land;

The focus of the principle would be on integration or development of rural and/or traditional settlements and urban integration strategies. This development specifically aims at redressing past spatial imbalances in combatting the past planning principles of providing low income residential areas on the periphery of urban areas. This development will provide residents access to land and the use of such land to better their living conditions whilst similarly providing the necessary security of tenure. This project aims at providing 2 445 residential erven with the necessary complementary land uses. The proposed development is uniquely positioned in that it can provide residential properties to people from other municipalities (surrounding mining towns) who experience land shortage, thereby adding to the socio-economic upliftment of the Churchill area.

(ii) spatial development frameworks and policies at all spheres of government must address the inclusion of persons and areas that were previously excluded, with an emphasis on informal settlements, former homeland areas and areas characterised by widespread poverty and deprivation;

In terms of the Joe Morolong Local Municipality Spatial Development Framework, the area to which this application applies was already earmarked for residential and mixed land use development purposes. This was specifically done to limit further urban sprawl and to enhance integration. The proposed development area is also within the demarcated urban edge as defined in terms of the SDF.

(iii) spatial planning mechanisms, including land use scheme, must incorporate provisions that enable redress in access to land by disadvantage communities and persons;

The local municipality identified portions of land within the local municipal area, through the Spatial Development Framework, that will redress access to land by previously disadvantaged people whilst also providing housing opportunities for people that wish to acquire land to build their own home.

(iv) land use management systems must include all areas of a municipality and specifically include provisions that are flexible and appropriate for the management of disadvantaged areas, informal settlements and former homeland areas;

Land uses within the Joe Morolong Local Municipality municipal area are governed by a functional land use management system. The proposed

land uses in the proposed township areas will be regulated by the Kgalagadi District Scheme Regulations, 2004. The opinion is held that the provisions of this scheme that will relate to this development will be totally appropriate for the management of the land uses to be provided within this development.

(v) land development procedures must include provisions that accommodate access to secure tenure and the incremental upgrading of informal areas; and

This project has at its core the provision of adequately zoned properties for future expansion of the Churchill village. This township establishment process will afford inhabitants of this area the opportunity to obtain access to secure tenure on the development area. The township establishment process aims to create residential erven that can, after proclamation of the township areas, be alienated to the beneficiaries thereof. This new township development will afford the community of Joe Morolong the opportunity to access land and secure tenure thereof.

(vi) A Municipal Planning Tribunal considering an application before it, may not be impeded or restricted in the exercise of its discretion solely on ground that the value of land or property is affected by the outcome of the application;

The proposed development will positively affect not only the value of this property but also those of the surrounding areas.

7. (b) the principle of spatial sustainability, whereby spatial planning and land use management systems must –

The principle of spatial sustainability should allow for flexibility in dealing with applications and proposals, which may not have been anticipated.

(i) promote land development that is within the fiscal, institutional and administrative means of the Republic;

In terms of the sub-principle, the opinion is held that the Joe Morolong Local Municipality has sufficient fiscal, institutional and administrative capacity and resources to administer the development. The Joe Morolong Local Municipality will ensure that the development complies with the requirements contained in the Kgalagadi District Scheme Regulations, 2004 and the Joe Morolong Local Municipality Spatial Development Framework. In this regard it is pertinent to also note that the fiscal capacity of the Joe Morolong Local Municipality is also enhanced through the assistance of the Department of Co-Operative Government, Human Settlements and Traditional Affairs (COGHSTA) who is currently funding this project

(ii) ensure that special consideration is given to the protection of prime and unique agricultural land;

The area where the concerned properties are situated is not regarded as prime or unique agricultural land.

(iii) uphold consistency of land use measures in accordance with environmental management instruments;

Environmental sustainability refers to the relationship between the settlement and the natural landscape.

The development is planned with a full level of infrastructure elements including sewer, water, electricity, access and refuse removal services, thereby reducing the effect that the development will have on the natural surrounding area. For an area to be environmentally sustainable, it should protect the unique amenity and character of the surrounding environment and also prevent degradation. The development will not be situated in an ecological sensitive area or in places of hazard or high risk, such as within the flood plain. The proposed development further excludes noxious activities.

In considering the environmental management instruments applicable to the proposed development, it is pertinent to note that the activity does indeed constitute a listed activity in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014.

The township applicant appointed a qualified independent Environmental Practitioner to conduct the necessary Environmental Impact Assessment and public participation process as prescribed in terms of the fore-mentioned Act.

The development of this township area as well as the activities conducted from the erven in the township area during the operational phase will be subject to the conditions imposed by the Department Environment and Nature Conservation and set out in the relevant Environmental Authorisation.

(iv) promote and stimulate the effective and equitable functioning of land markets;

The local municipality is in favour of on-going dialogue with private investors and relevant government departments, to promote integrated economic growth.

Principle 7 (b)(iv) recognizes the need for land development to be based on competition and the principle of a competitive economy. The development will contribute to the economic growth of the municipal area. The development represents a public sector initiative, planned and applied for in the context of open market competition. This development will further not be in competition with any other private sector development within the concerned area.

(v) consider all current and future costs to all parties for the provision of infrastructure and social services in land developments;

The local municipality needs to comply with the guidelines for the provision of emergency-, social-, education- and engineering services, in terms of the provision of infrastructure and social services.

The provision of services to the proposed development has been addressed in detail in Section 5 supra and it was indicated that the development can be provided with the necessary services subject to the bulk infrastructure upgrades proposed.

(vi) promote land development in locations that are sustainable and limit urban sprawl; and

The proposed development will take place within the demarcated urban edge as set out in the Joe Morolong Spatial Development Framework. This development will be sustainable and will limit further urban sprawl.

This development intends to promote a more compact city and to prevent the expansive provision of social and engineering services. The Spatial Development Framework addresses the scale or urban growth through planned extensions, infill and redevelopment strategies. The local municipality is aware of the need to integrate urban settlements, with a view to reduce travel distances to the areas of employment opportunities.

The planning practices of the past have resulted in sprawling urban areas that are un-economical. Today, planning policies transformed to mainly focus on infill development on vacant land within an urban environment, in order to combat urban sprawl. The principle also calls for a balance in land development processes. The development is in line with the sub-principle and will combat urban sprawl. The development will also ensure maximum utilization of the concerned property and will lead to the integration with the existing Churchill village.

(vii) result in communities that are viable;

For any development to be sustainable and viable to the community, land development and planning should ensure that communities are located

close to job opportunities, social facilities and basic services. This development aims specifically at providing residential development opportunities that are closer to the economic activities of Churchill and surrounding mining areas.

(c) the principle of efficiency, whereby -

(i) land development optimizes the use of existing resources and infrastructure;

The granting of development permissions should be coupled with the provision of adequate infrastructure. The efficient usage of existing resources can promote high density growth, alleviate urban sprawl and optimise the use of land.

The development will ensure the optimum utilization of one of the most valuable resources being land, if used to its full potential, and it was indicated in Section 5 that the development can be supplied with the full spectrum of infrastructure elements such as water, sewer, refuse removal, and access roads; thus reducing the effect of the development on the natural surrounding area.

(ii) decision-making procedures are designed to minimize negative financial, social, economic or environmental impacts; and

The opinion is held that the development will not have a negative financial, social, economic or environmental impact on the surrounding properties, as this development will be of a formal and non-noxious nature fitting in with the land uses surrounding the proposed development area.

(iii) development application procedures are efficient and streamlined and timeframes are adhered to by all parties;

This land development application in respect of the establishment of the proposed township areas through subdivision and rezoning, the consolidation of the land and the re-subdivision thereof will be processed in accordance with the prescriptions of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015). The processes prescribed in terms of this legislation make provision for the necessary community involvement through a public participation process.

(d) the principle of spatial resilience, whereby flexibility in spatial plans, policies and land use management systems are accommodated to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks; and -

Standards for the protection of natural resources, agricultural land, open spaces and ecosystems have been compiled on a national and regional level. The local municipality compiled a Spatial Development Framework to increase resilience

for human settlements, focusing on vulnerable and informal areas. The Spatial Development Framework needs to be flexible to adapt to social, economic and technological trends. This development is specifically aimed at providing opportunities for people that are currently devoid of land for proper housing purposes. In addition to addressing the need for subsidized housing, provision is also made for the provision of housing opportunities to bonded / FLISP / social and rental housing purposes. The provision of proper housing for the landless community of Churchill and surrounding towns will alleviate the plight of a community who is most vulnerable to suffer the impacts of environmental and economic shock.

(e) principle of good administration, whereby-;

(i) all spheres of government ensure an integrated approach to land use and land development that is guided by the spatial planning and land use management systems as embodied in this Act;

The Joe Morolong Local Municipality has a Spatial Development Framework and uses the Kgalagadi District Land Use Management Scheme and as part of their land use management system. In terms of the Spatial Development Framework the area to which this development applies was specifically earmarked for residential development which renders this proposed development in line with the Spatial Development Framework. The Kgalagadi District Scheme Regulations, 2004, will effectively regulate the land uses to be established within these township areas as well as the extent of development until the municipality adopts their own Land Use Scheme.

(ii) all government departments must provide their sector inputs and comply with any other prescribed requirements during the preparation or amendment of spatial development frameworks;

Integration between the different levels of government assists to create complimentary and mutually reinforcing policies, while integration between the different sectors will result in positive benefits. Government departments have been consulted during the compilation of the Spatial Development Framework of the local municipality. In addition to the fore-mentioned consultation, it should be noted that this application for township establishment will also be referred to the following government and non-government departments as integral part of the public participation process:

- Department of Agriculture, Forestry and Fisheries (DAFF)
- Transnet
- South African Heritage Resources Agency (SAHRA)
- Eskom
- Department of Public Works and Roads

- Department Water and Sanitation
- Openserve (former Telkom SA Limited)
- SA Post Office Limited (SAPO)
- John Taolo Gaetsewe District Municipality
- South African National Roads Agency Limited (SANRAL)
- Department of Mineral Resources (DMR)
- Department of Education
- Department of Health
- Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
- National Department of Arts, Sport & Culture
- National Department of Environmental Affairs
- Department Agriculture, Land Reform and Rural Development
- Council for Geoscience

(iii) the requirements of any law relating to land development and land use are met timeously;

The Minister of Rural Development and Land Reform has prescribed timeframes to which land development applicants and decision makers must adhere to.

(iv) the preparation and amendment of spatial plans, policies, land use schemes as well as procedures for development applications, include transparent processes of public participation that afford all parties the opportunity to province inputs on matters affecting them; and;

Effective procedures for public participation are in place, to afford the residents and other parties the opportunity to provide inputs on development applications and other matters affecting them.

The public participation process undertaken as part of this township establishment application includes the following:

- Publishing notices of the application (as set out in **Annexure C4** of the comprehensive Land Development Application) in the Kalahari Bulletin as well as in the Northern Cape Provincial Gazette in Afrikaans & English for two consecutive weeks as contemplated in Section 45(3)(a) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015);
- Appending notices of the application (as set out in **Annexure C5** of the comprehensive Land Development Application) on the notice board situated at the library as contemplated in Section 45(3)(b) of the By-Law

on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015);

- Displaying a notice (as set out in **Annexure C6** of the Comprehensive Land Development Application) in a conspicuous place on the land to which the application applies as contemplated in Section 48(1)(a) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015);
- Notices to the following external departments / organizations (as set out in **Annexure C7** of the comprehensive Land Development Application) in order to obtain letters of consent / objection as contemplated in Section 48(1)(f) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015):

  - Department of Agriculture, Forestry and Fisheries (DAFF)
  - Transnet
  - South African Heritage Resources Agency (SAHRA)
  - Eskom
  - Department of Public Works and Roads
  - Department Water and Sanitation
  - Openserve (former Telkom SA Limited)
  - SA Post Office Limited (SAPO)
  - John Taolo Gaetsewe District Municipality
  - South African National Roads Agency Limited (SANRAL)
  - Department of Mineral Resources (DMR)
  - Department of Education
  - Department of Health
  - Department of Co-operative Governance, Human Settlements and Traditional Affairs (COGHSTA)
  - National Department of Arts, Sport & Culture
  - National Department of Environmental Affairs
  - Department Agriculture, Land Reform and Rural Development
  - Council for Geoscience

- Notices to adjacent property owners (as set out in Annexure C8 of the comprehensive Land Development Application) as contemplated in Section 48(1)(g) of the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015).

  The fore-mentioned organizations / departments will be afforded a period of sixty (60) days to comment in this matter. The adjacent property owners and the general public will be afforded a period of thirty (30) days to lodge comments or objections in this matter.

(v) policies, legislation and procedures must be clearly set in order to inform and empower members of the public;

The procedures set out in the By-Law on Municipal Land Use Planning of the Joe Morolong Local Municipality (2015) afford members of the public the opportunity to not only participate in this process but also to scrutinize the documentation relating to the application. Members of the public will be afforded a period of 30 days to comment or object against this development.

6.20 GENERAL

From a land use and town planning point of view the proposed development area is ideally suited for residential purposes due to the following:

- The purpose of this land development application is to provide for the establishment of a proper integrated human settlement that will not only address the short-term need for residential erven to address the immediate housing backlog, but to also provide a sustainable, vibrant development going forward.

- The proposed development area is located directly adjacent to existing Churchill village and constitutes the logical extension of the existing built-up urban area of Churchill and constitutes infill planning within the delineated urban edge.

- The proposed township area is easily accessible due to its locality directly adjacent to the District Road linking the urban areas of Churchill and Batlharo which in turn links onto District Road D328 which links Churchill with the urban area of Kuruman.

- The layout plans that were compiled in respect of the township areas comprehensively address the issues identified during the pre-planning studies relating inter alia to the following:

    - Providing erven that comply with the requirements set out in the Dolomite Stability Investigation;
    - Providing adequate spacing and limiting the number of direct accesses to the proposed township area from the District Road and aligning the accesses to the existing accesses to the existing settlement area;
    - Incorporating the road network with that of the adjacent village/settlement areas;
    - Engineering services can be provided to the proposed township area; and
    - Traffic generated by the development can be accommodated within the existing road network subject to the necessary road and intersections upgrades proposed in terms of the Traffic Impact Study.

In view of the fore-mentioned, we trust that this application will be considered favorably.

K. RAUBENHEIMER
Pr. Pln A/924/1996