

MEMORANDUM
PROPOSED TOWNSHIP ESTABLISHMENTS:
WOLMARANSSTAD EXTENSION 17
ON
A PORTION OF THE REMAINING EXTENT OF
PORTION 2 OF THE FARM WOLMARANSSTAD TOWN
AND TOWNLANDS NO. 184-HO
AND
WOLMARANSSTAD EXTENSION 18
ON
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CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

Maxim Planning Solutions (Pty) Ltd (2002/017393/07) was appointed by the Department of Local Government and Human Settlements on 15 January 2015 through its project management unit i.e. Gobeng Consulting (Pty) Ltd to attend to the establishment of 2 500 integrated residential erven in Wolmaransstad to address the short term need for residential erven experienced in this urban complex and to alleviate the plight of landless people currently residing on vacant municipal and state owned land.

This appointment is in response to a Business Plan submitted to the Department of Local Government and Human Settlements by the Maquassi Hills Local Municipality during November 2014 for funding from the Conditional Grant Business Plan 2014/2015 for the proposed development of 2500 integrated residential erven in Wolmaransstad. The development of the fore-mentioned 2500 integrated residential erven will comprise the first phase of the development of a total of ± 4500 erven in Wolmaransstad of which 1500 will comprise the second phase and the remaining ± 500 erven will comprise the third phase of this development.

1.2 CORE CONTENT AND CONTEXT GUIDING HOUSING PLANNING AND DEVELOPMENT

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 Maquassi Hills 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 can be summarized as follows:

Core guiding framework	Core content and context
Constitution (2006) and Bill of Rights	<p>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:</p> <ul style="list-style-type: none"> • 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

	<p>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)</p> <p>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</p>
<p>National Housing Code (2006)</p>	<p>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:</p> <ul style="list-style-type: none"> • 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.
<p>A Comprehensive Plan for the Development of Sustainable Human Settlement (BNG Strategy)</p>	<p>The Comprehensive Plan for the Development of Sustainable Human Settlements and the Guidelines for the Implementation of labour-Intensive Infrastructure Projects under the Expanded Public Works Programme (EPWP) need to be taken into account. The Comprehensive Plan provides detailed information on the programmes identified by the National Department of Housing. It provides clear indicators of deliverables, time frames and estimated resource requirements. 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.</p> <p>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</p>

	<p>achieve this vision:</p> <ul style="list-style-type: none"> • 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.
<p>Urban (UDF) and Rural Development (RDF) Frameworks (1997)</p>	<p>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.</p>

	<p>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.</p> <p>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.</p>
<p>White Paper on Local Government (1998)</p>	<p>The White Paper on local Government adopts development policy guidelines and principles and advocates the developmental role of local government.</p> <p>The guidelines and principles can be summarized as follows:</p> <ul style="list-style-type: none"> • 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.
<p>Municipal Demarcation Act (Act 27 of 1998)</p>	<p>Demarcation objectives: The Demarcation Board determines a Municipal boundary with the objective that it must be to 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:</p> <ul style="list-style-type: none"> • 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.
<p>Municipal Systems Act (Act 32 of 2000)</p>	<p>A municipality must undertake developmentally-orientated planning so as to ensure that it:</p> <ul style="list-style-type: none"> • 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 153or the Constitution; and • Together with other organs of state contribute to the

	<p>progressive realisation of the fundamental rights In respect of, among others, housing.</p> <p>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 in the process of upgrading of informal settlements.</p>
<p>The National Housing Act (Act 107 of 1997)</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>Section 3(2) of the NHA provides that the Minister must monitor the performance of all spheres of government in relation to housing delivery goals and budgetary goals. Section 3(4) (i) of the NHA provides that the Minister must, in relation to the duties of government, evaluate performance of the housing sector against set goals and requirements, equitableness and effectiveness.</p>
<p>Rental Housing Act of 1999</p>	<p>The stated purpose of the RHA reveals that government regards rental housing as an available alternative to homeownership, especially for poor people and historically disadvantaged people.</p>
<p>The White Paper on Wise Land Use (2001)</p>	<p>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:</p>

	<ul style="list-style-type: none"> • 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 <p>Integrated planning for sustainable management of land resources should thus ensure:</p> <ul style="list-style-type: none"> • 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. <p>Of core importance in the planning and development of housing is the normative planning principles identified in the White Paper:</p> <p>Principles. 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.</p>
<p>The Millennium Development Goals (MDG)</p>	<p>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</p>

	<p>to aid the removal of slums in South Africa.</p> <p>The targets included in the Social Contract consist of:</p> <ul style="list-style-type: none"> • 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.
<p>National Spatial Development Perspective (2006)</p>	<p>The NSDP consists of a set of five normative principles for development:</p> <ul style="list-style-type: none"> • <u>Principle 1</u>: 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. • <u>Principle 2</u>: Government has a constitutional obligation to provide basic services to all citizens wherever they reside. • <u>Principle 3</u>: Government spending on fixed investment should be focused on localities of economic growth and/or economic activities and to create long-term employment opportunities. • <u>Principle 4</u>: 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. • <u>Principle 5</u>: 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.
<p>National Development Plan: Vision for 2030</p>	<p>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</p>

	<p>system. Its core focuses include:</p> <ul style="list-style-type: none"> • 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.
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1.3 **BACKGROUND OF MAQUASSI HILLS LOCAL MUNICIPALITY**

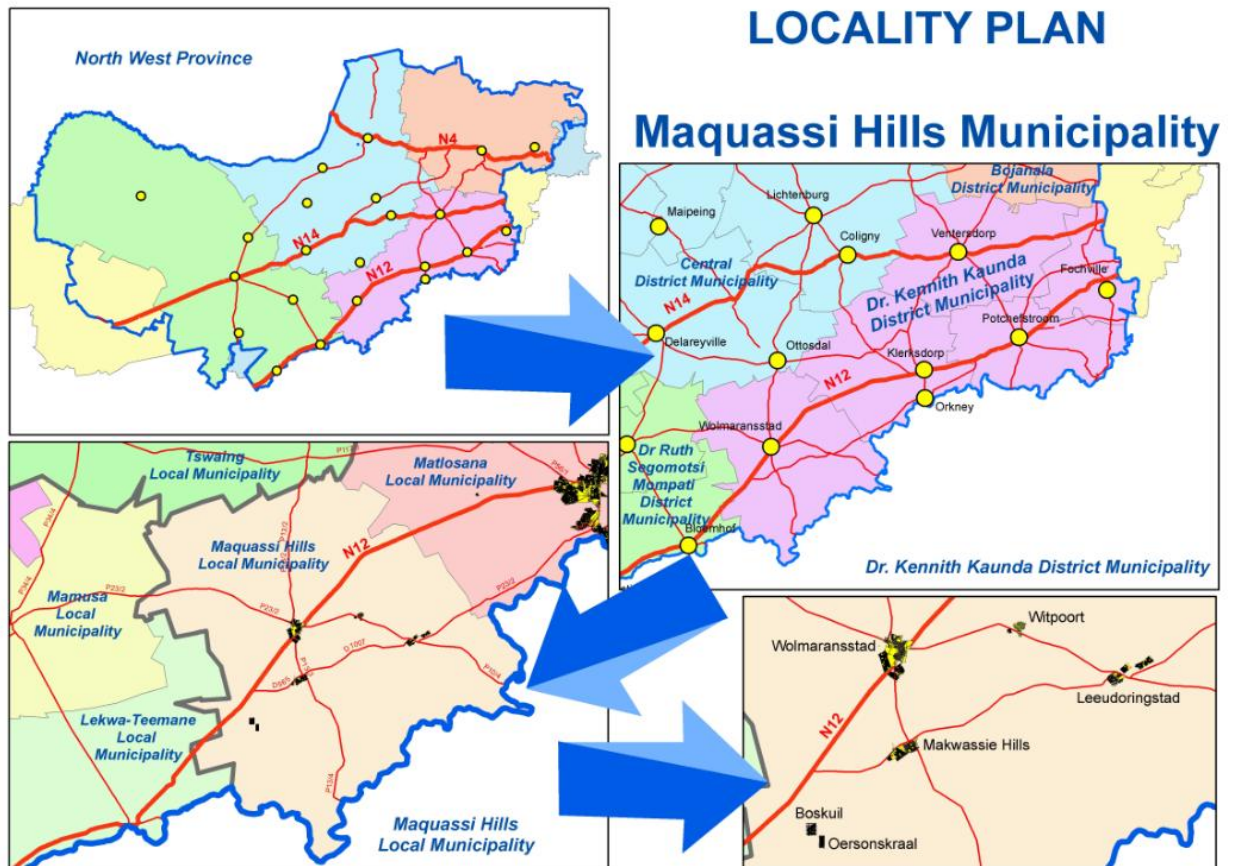
1.3.1 REGIONAL LOCALITY

Maquassi Hills Local Municipality is situated in the western part of the Kenneth Kaunda District Municipality and covers an area of 4644km². Maquassi Hills Local Municipality is home to between 70 000 and 90 000 people and consists of the urban areas of Wolmaransstad, Leeudoringstad, Makwassie and Witpoort as well as the rural villages of Boskuil, Oersonskraal and Kareepan. Of the total population 91, 6% are urbanised, indicating that most of the people are staying within the urban areas.

According to the North West Spatial Development Framework (NWSDF), Wolmaransstad was identified as a District Development Node and Leeudoringstad, Makwassie and Witpoort as Local Development Node. The attractiveness of Wolmaransstad should be enhanced through the improvement of basic infrastructure, the attractiveness of the area as well as the service function of the area to fulfil the basic needs of the urban and rural population within the municipal area. The local nodes should mainly concentrate on the local needs of the population within these nodes.

Maquassi Hills has the status of a Local Municipality (NW404) in terms of the Municipal Demarcation Act of 1998, and is located in the Dr. Kenneth Kaunda District Municipality (DC40) of the North West Province.

Map 1: Locality of Maquassi Hills in regional context



Wolmaransstad is situated on the N12 between Klerksdorp and Lekwa-Teemane. The Municipality forms the western portion of the Dr. Kenneth Kaunda District Municipality and consists of the disestablished municipalities of Wolmaransstad, Leeudoringstad, Makwassie and Witpoort.

From a housing development perspective the concentration of future development in the higher order nodes will ensure economy of scale advantages and urban sustainability. This strategic focus may enhance local service viability and availability of diversity and affordability in service rendering.

All of the primary nodes are integrated through the N12 & R34 Route and secondary routes.

The dominated urban form centres on several residential settlements that serve the local population and agricultural and mining sector. Linkages between the settlement nodes and the rural orientated hinterland exist.

1.3.2 DEMOGRAPHICS

The following core population demographics apply to the Maquassi Hills Local Municipality area:

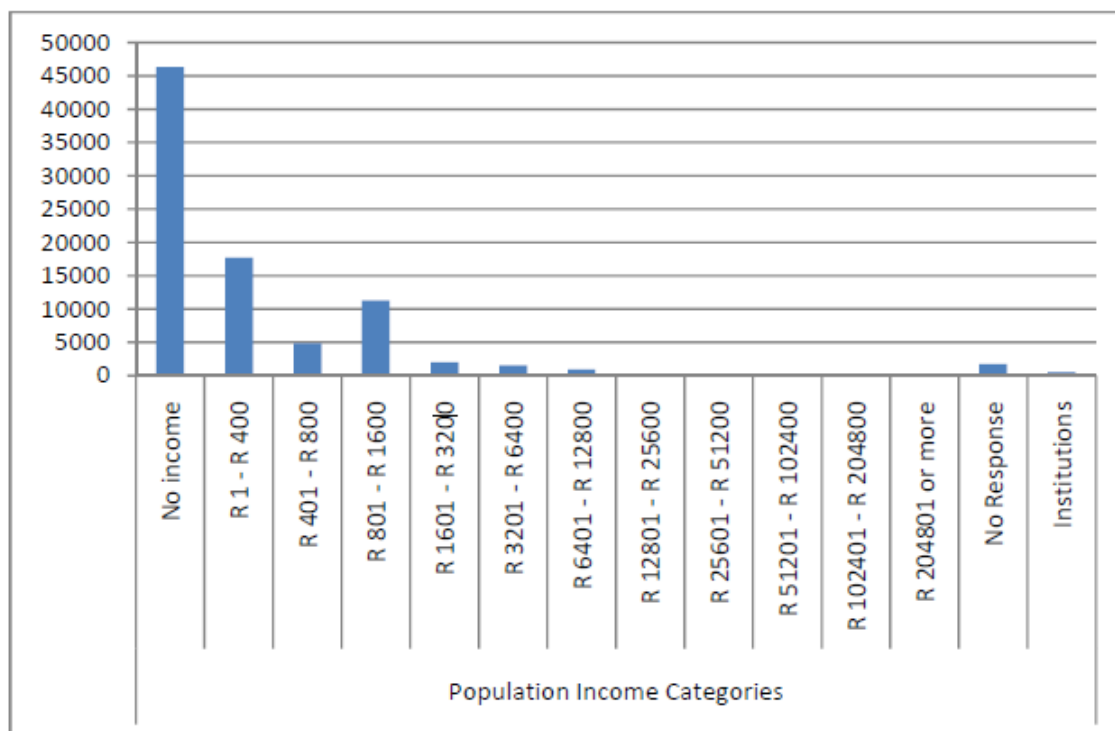
- Total Population (Community Survey 2007): 87 465 persons
- Total Households (Community Survey 2007): 20 330 households
- Gender and age composition:
 - Gender distribution is normal between males and females.
 - The largest age group within the municipality falls within the current labour force.
 - Some 44.63% of the population falls within the age group of 0 to 19 years.
 - 49.12% of the population is within the age categories that can be typified to be potentially economically active population. This group is important in terms of housing provision.
 - Some 6.25% of the population can be classified in the group of non-active population with little economic ability to provide housing for them other than the present structures they occupy.
- The number of households based on regression analysis as projection method (straight line) will grow from an estimated 20 798 households in 2011 to approximately 22 778 households in 2015.
- The economic sector is dominated by the agriculture sector inclusive of agri-tourism, small stock farming and irrigation.
- Some 44.49% of the population is economically active.
- The unemployment rate is 26.99%.
- Some 78.69% of the population earns less than R800-00 per month that equals \$3.28/day. This is higher than the subsistence norm of \$1.00/day of the UN.
- The income groups according to gender and race groups for the Maquassi Hills Local Municipality are reflected on the following table and graph:

Table 1: Income Groups according to gender and race

Income Groups	Male					Female					TOTAL	TOTAL %
	Black African	Coloured	Indian or Asian	White	Total	Black African	Coloured	Indian or Asian	White	Total		
No income	17697	211	17	1329	19254	25464	372	51	1171	27058	46312	52.95
R 1 - R 400	8632	27	61	0	8720	8729	192	0	83	9004	17724	20.26
R 401 - R 800	2761	64	26	0	2851	1834	30	0	79	1943	4794	5.48
R 801 - R 1600	5383	120	0	458	5961	4259	203	0	851	5313	11274	12.89
R 1601 - R 3200	1103	0	0	369	1472	239	0	0	254	493	1965	2.25
R 3201 - R 6400	533	0	31	469	1033	242	0	31	234	507	1540	1.76
R 6401 - R 12800	285	0	0	305	590	138	0	0	199	337	927	1.06
R 12801 - R 25600	70	0	0	132	202	42	0	0	40	82	284	0.32
R 25601 - R 51200	38	0	0	191	229	35	0	0	0	35	264	0.30
R 51201 - R 102400	75	0	0	0	75	0	0	0	0	0	75	0.09
R 102401 - R 204800	0	0	0	0	0	0	0	0	0	0	0	0.00
R 204801 or more	71	0	0	0	71	0	0	0	0	0	71	0.08
No Response	697	44	0	284	1025	628	0	0	96	724	1749	2.00
Institutions	229	8	0	60	297	97	22	0	75	194	491	0.56
TOTAL	37574	474	135	3597	41780	41707	819	82	3082	45690	87470	100
TOTAL %	42.96	0.54	0.15	4.11	47.76	47.68	0.94	0.09	3.52	52.24	100	

Data Source: Stats SA Community Survey 2007

Figure 1: Graph of population per income group



From the fore-mentioned table and graph, it is clear that from a housing or settlement development perspective, the majority of the population earned less than R1 600 per month.

1.3.3 HOUSING NEEDS

According to the North West – Multi Year Housing Development Plan (Review 2014), an estimated 34 803 new households will seek accommodation in the Dr. Kenneth Kaunda District Municipality area resulting in an annual growth in demand of approximately 6 961 units (across the full housing spectrum, including informal and subsidy) (refer Table 2 below). The MYHDP also states that under present market conditions, the finance-linked and bonded segment (35.9%) will yield a take-up rate of 2 496 units per annum.

Table 2: Dr. Kenneth Kaunda District Municipality 5 year Demand

Income bracket	Housing typology	Total demand (next 5 years)
R0 – R3 500	Subsidy	20 089
R800 – R3 500	CRU	2 232
R3 500 – R7 500	FLISP / GAP & Social	5 102
R7 500 – R15 000	FLISP / GAP & Affordable bonded	3 346
R15 000+	Bonded	4 034
TOTAL		34 803

Source: Table 2.55 – Status Quo Report – Multi Year Housing Development Plan (Review 2014)

The housing demand per housing typology, based on recent housing demand market analysis of the North West Multi Year Housing Development Plan, 2014 for the Dr. Kenneth Kaunda District Municipality, was calculated as follows:

Table 3: Dr. Kenneth Kaunda District Municipality Spatial Allocation of housing demand

Income bracket	Housing typology	Total demand (next 5 years)	% of NWP
R0 – R3 500	Subsidy	20 089	19.86
R800 – R3 500	CRU	2 232	19.86
R3 500 – R7 500	FLISP / GAP & Social	5 102	18.75
R7 500 – R15 000	FLISP / GAP & Affordable bonded	3 346	21.68
R15 000+	Bonded	4 034	25.20
TOTAL		34 803	

Source: Table 2.55 – Status Quo Report - Multi Year Housing Development Plan (Review 2014)

In terms of the Housing Sector Plans of the municipalities within the Dr. Kenneth Kaunda District Municipality, the following housing needs were identified:

Table 4: Housing demand of Municipalities within the Dr. Kenneth Kaunda District Municipality according to Housing Sector Plans

Municipalities	Number of People	Number of households	% of population in the NWP	5 year housing programme (for subsidised houses)	Backlog / Waiting List	Total of 5 year need & Backlog	% of each LM in the DM's
Maquassi Hills Local Municipality				12308	12782	25090	15.65 %
Matlosana Local Municipality				36595	55737	92332	57.60 %
Tlokwe Local Municipality				14500	14500	29000	18.09 %
Ventersdorp Local Municipality				10243	3636	13859	8.64%
SUB TOTAL	731 555	220 108	19.82%	73646	86635	160281	100%
GRAND TOTAL FOR NORTH WEST PROVINCE	3 691 082	1 143 263	100%	242500	318605	561105	100%

The housing status quo and needs within the primary human settlement nodes in the Maquassi Hills Local Municipality are reflected on the following table:

Table 5: Housing needs within primary human settlement nodes

Town	Housing Needs
Boskuil	330
Kgakala	1700
Lebaleng	1996
Leeudoringstad	1306
Makwassie	0
Oersonskraal	127
Rulaganyang	339
Trotsville	26
Tswelelang	3371
Witpoort	0
Wolmaransstad	3587
Total	12782

The estimated housing needs within Maquassi Hills Local Municipality are reflected in the following table:

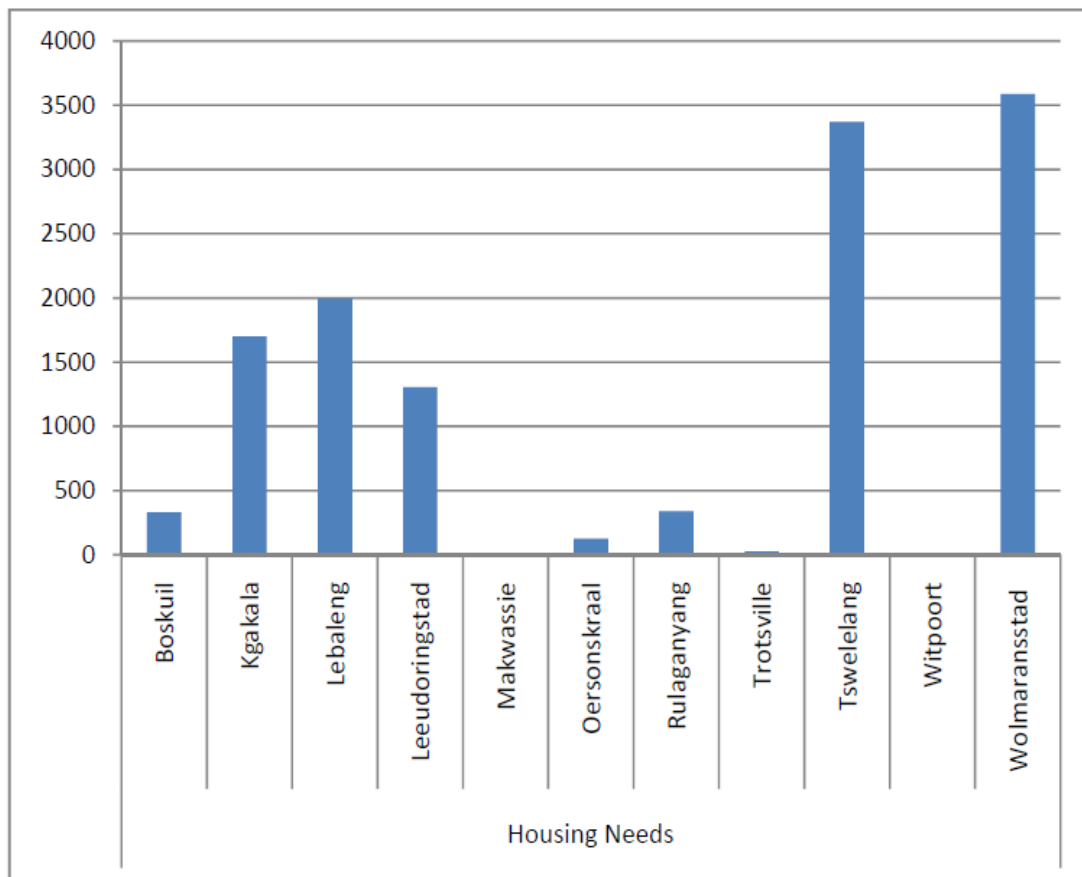
Table 6: Housing needs according to Housing Sector Plan

Municipality Maquassi Hills	Housing Needs	2012/13	2013/14	2014/15	2015/16	Total	Average growth %
Boskuil	330	8	8	8	8	362	2.3
Kgakala	1700	39	40	40	41	1860	2.3
Lebaleng	1996	46	47	48	49	2186	2.3
Leeudoringstad	1306	30	30	31	32	1429	2.3
Makwassie	0	0	0	0	0	0	2.3
Oersonskraal	127	2	2	3	3	137	2.3
Rulaganyang	339	8	8	8	8	371	2.3
Trotsville	26	.6	.6	.6	.6	28	2.3
Tswelelang	3371	76	79	81	82	3689	2.3
Witpoort	0	0	0	0	0	0	2.3
Wolmaransstad	3587	82	84	86	88	3927	2.3

From an assessment of the status quo housing provision position that was conducted as part of the Human Settlement Sector Plan (July 2012), some 16 598 housing units were classified as formal; 6 533 housing units as informal and 3 603 housing units as backyard informal. It was also indicated that an estimated 2 930 households resided in informal dwellings / shacks not in backyards e.g in an informal settlement/squatter settlement.

The following graph also clearly illustrates that the greatest demand for housing exists in the urban complexes of Wolmaransstad/Tswelelang and Lebaleng.

Figure 2: Demand for housing per urban complex



According to the Community Survey (2007), 65.2% of the population live in formal and 32.6% of the total population live in informal dwellings. According to service delivery data of this municipality, the number of informal settlements is growing overnight and the demand for service provision in these areas cannot be met.

Based on the information above, it is evident that the Maquassi Hills Local Municipality is faced with a vast problem in accommodating people currently residing within backyards or within informal settlements. These people reside in squalid conditions without access to basic services or proper shelter. The Wolmaransstad/Tsweleng urban area is one of the urban areas currently experiencing the greatest need for residential erven and is faced with the greatest extent of informal settlements and informal units that are not located on stands.

In the case of the Wolmaransstad urban complex, informal occupation of an area of land located directly between the urban areas of Wolmaransstad and Tsweleng has taken place. The area currently occupied by informal dwelling units is reflected on the following Google image:

Figure 3: Google image of primary area occupied by informal dwelling units

In studying the above Google image, cognisance should be taken of the fact that the concerned map relates to photography conducted in 2013. The extent of occupation has since increased dramatically and the concerned area currently houses approximately 1 600 informal dwelling units. The problem regarding the occupation of this land is further compounded by the fact that the majority of the area indicated on the Google image above, is currently registered in the name of the Department of Public Works as the land forms part of the Wolmaransstad Correctional Services Centre. A portion of the area currently occupied by informal dwelling units is registered in the name of the Maquassi Hills Local Municipality. This property was formerly alienated to a private developer and is earmarked for a commercial development. The development of the fore-mentioned commercial facility, which will give rise to numerous employment opportunities and stimulate the local economy of Wolmaransstad, is currently being hampered by the presence of informal dwelling units on the concerned property. In the absence of vacant residential erven, the Maquassi Hills Local Municipality is faced with the stark reality that it is not able to relocate the informal dwelling units to a proper integrated human settlement area and development of the proposed commercial facility is therefore impacted on negatively.

In terms of the Human Settlement Sector Plan (2012) of the Maquassi Hills Local Municipality, the following goals and objectives for housing development within the Maquassi Hills Local Municipality were set:

Table 7: Formulated goals and objectives for Housing

Formulated goal	Objectives
Spatial integration and consolidation	<ul style="list-style-type: none"> Housing development should be developed preferable in locations of settlements of higher order whilst development in lower order should be selective in order to address urgent needs Housing development should be used as an instrument to integrate the divided urban form. Preference should be given to infill development; development of existing vacant erven; consolidation and densification of urban form. Housing development should be based on integrated development planning. Promote higher density in respect of housing development to ensure the economical utilization of land and services Facilitate the active involvement of all relevant stakeholders in housing development.
Development of partnerships	<ul style="list-style-type: none"> Housing development should be implemented as a partnership between the local community; private sector; public sector and other stakeholders. Encourage and support individuals and community organizations to fulfill their housing needs.
Economic development	<ul style="list-style-type: none"> Housing should be provided in areas where the potential for job creation is the highest.
Access to engineering services and infrastructure	<ul style="list-style-type: none"> Areas with access to engineering services (spare capacity in terms of bulk services) should be considered as a priority. Level of services being provided should ensure that limited internal services backlogs area being built into the design and service provision.
Access to amenities and supporting services	<ul style="list-style-type: none"> The consolidated urban form should be supported by the provision of amenities and other community services such as schools, clinics, police stations, commercial facilities, sport fields, parks, community halls and churches. Provide community and recreational facilities in residential areas
Diversification in housing types	<ul style="list-style-type: none"> Housing provision should provide in line with the existing programmes with an applicable choice of type of housing, alternative building systems, location of new houses on an erf that future extensions will be able to be implemented.
Special housing needs	<ul style="list-style-type: none"> Special housing needs such as for the disabled and HIV/AIDS victims should be addressed through integration within the current residential units/neighborhoods. Houses should be designed in a manner that they could be enlarged.
Promotion of mixed housing	<ul style="list-style-type: none"> Housing provision should make provision for optimal mixed development in terms of the existing housing programmes of the Government and high and medium income groups within the community. Promote the establishment of socially and economically viable communities and safe and healthy conditions to ensure the elimination of slums.
Protection of the environment	<ul style="list-style-type: none"> Protection of the environment should receive priority in all housing developments.
Capacity building and empowerment	<ul style="list-style-type: none"> The role of woman in housing development should be recognized and promoted. Promote education and consumer protection in respect of housing development
Economic, financial and sustainable development	<ul style="list-style-type: none"> Housing development should be economically, fiscally, socially and financially affordable and sustainable Use public money available for housing development in a manner which stimulates private investment in, and the contribution of individuals to, housing development Promote the effective functioning of the housing market
Promotion of integrated development planning	<ul style="list-style-type: none"> Housing development should be based on integrated development planning Promote racial, social, economic and physical integration in urban and rural areas
Housing management and administration	<ul style="list-style-type: none"> Housing development should be administered in a transparent, accountable and equitable manner and uphold the practice of good governance.

It is against the background of the fore-mentioned goals and objectives that the Maquassi Hills Local Municipality intends establishing a new sustainable human settlement within the Integrated Residential Development Programme (IRDP) and Upgrading of Informal Settlements (UIS) Programme. In order to ensure a proper integrated human settlement, it is imperative to also address the need for social and economic facilities within the new settlement area. For this purpose,

consideration should also be given to the Provision of Social and Economic Facilities (PSEF) Programme. These housing programmes entail the following:

Table 8: Housing Programmes

Housing programme category	Description of the housing programme
INTEGRATED RESIDENTIAL DEVELOPMENT PROGRAMME (IRDP)	<p>One of the key lessons learnt in the review of the outcomes of housing programmes since 1994 is that, owing to a variety of reasons, low income settlements continued to be located on the urban periphery without the provision of social and economic amenities, as in the Apartheid era. Hence a new Programme has been introduced to facilitate the development of integrated human settlements in well-located areas that provide convenient access to urban amenities, including places of employment. The Programme also aims at creating social cohesion.</p> <p>The Integrated Residential Development Programme (IRDP) provides for the acquisition of land, servicing of stands for a variety of land uses including commercial, recreational, schools and clinics, as well as residential stands for low; middle and high income groups. The land use and income group mix will be based on local planning and needs assessment.</p> <p>The IRDP can be undertaken in phases or in a single phase. The first phase could provide serviced stands, whereas the second phase provides for housing construction for qualifying low income beneficiaries and the sale of stands to persons who for various reasons, don't qualify for subsidies, and for commercial uses.</p>
UPGRADING OF INFORMAL SETTLEMENTS (UIS)	<p>Informal Settlements are common to most developing countries which undergo a process of rapid urbanization and have limited resources to address the housing needs of all its citizens and in particular the poor, who flock to cities in search of a better life and future for their families.</p> <p>Hence the Informal Settlement Upgrading Programme is one of the most important programmes of government which seeks to upgrade the living conditions of millions of poor people by providing secure tenure and access to basic services and housing.</p> <p>Experience has shown that housing access to basic services, secure tenure and a house provides a springboard to households to improve their social and economic circumstances.</p> <p>To ensure that fragile community survival networks are not compromised and to empower communities to take charge of their own settlements, one of the basic tenets of the programme is that beneficiary communities must be involved throughout the project cycle. All members of the community, also those who do not qualify for subsidies, are included.</p> <p>The Programme therefore aims to bring about social cohesion, stability and security in integrated developments and to create jobs and economic well being for communities which did not previously have access to land and business services, formal housing and social and economic amenities.</p>
PROVISION OF SOCIAL AND ECONOMIC FACILITIES (PSEF)	<p>Owing to backlogs in existing settlements and the need to prioritize those, authorities responsible for the provision of social and economic facilities, such as schools, clinics, community halls, recreational facilities and trading facilities, have not been able to provide facilities in most new housing projects.</p> <p>In line with the policy to establish quality, sustainable human settlements, a programme has been introduced to fund primary social and economic amenities, where funding is not available from other Data Sources.</p>

The development of the proposed new integrated human settlement of Wolmaransstad Extensions 17, 18 and 19 will take place against the background of Outcome 8. 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.

1.4 INTEGRATED HUMAN SETTLEMENT PLANNING

As stated in section 1.1 supra, phase 1 of the project regarding the establishment of an integrated human settlement at Wolmaransstad entails the establishment of 2500 residential erven that will cater for a variety of housing typologies.

Free Standing Single House



Semi Detached – Row Housing



Walk-ups (Apartments) / Town houses / Flats



The second phase of the project that is scheduled to commence during the 2016/2017 financial year, will cater for an additional 1500 residential erven.

The project commenced with a Project Steering Committee meeting that took place on 03 February 2015 during which the project programme and timeframe were discussed in detail with the Maquassi Hills Local Municipality. This meeting of the Project Steering Committee was succeeded by a meeting with representatives of the landless community of Wolmaransstad on 11 February 2015.

In order to allow for the integrated development of the vacant municipal land located west of Wolmaransstad Extensions 10 and 13, an area of 356 hectares was identified for planning purposes.

Map 2: View of proposed development area



As integral part of the township establishment process, the following studies were commissioned by Maxim Planning Solutions (Pty) Ltd as part of the pre-planning activities:

- Aerial survey conducted by TMK Professional Land Surveyors;
- Generation of contours from the aerial survey data;

- Geotechnical investigation of the development areas conducted by Geoset CC;
- Cultural Heritage Resources Impact Assessment conducted by A Pelsler Archaeological Consulting;
- 1:100 year floodline determination conducted by CWT Consulting;
- Detail civil engineering services investigation conducted by NEP Consulting Engineers;
- Traffic Impact Assessment conducted by TechIQ Consulting Engineers; and
- Environmental Impact Assessment conducted by AB Enviro-Consult

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

Following receipt of the results of the pre-planning studies, an integrated layout plan was compiled in respect of the entire development area. This integrated layout plan was presented to the Project Steering Committee on 01 July 2015 and was approved by the Committee on 01 July 2015 subject to the amendments and inputs of the Civil Engineering Consultant and Traffic Impact Assessment.

In order to accommodate the phased implementation of this project by the Department of Local Government and Human Settlements, as detailed above, the integrated layout plan was divided into the following three township areas:

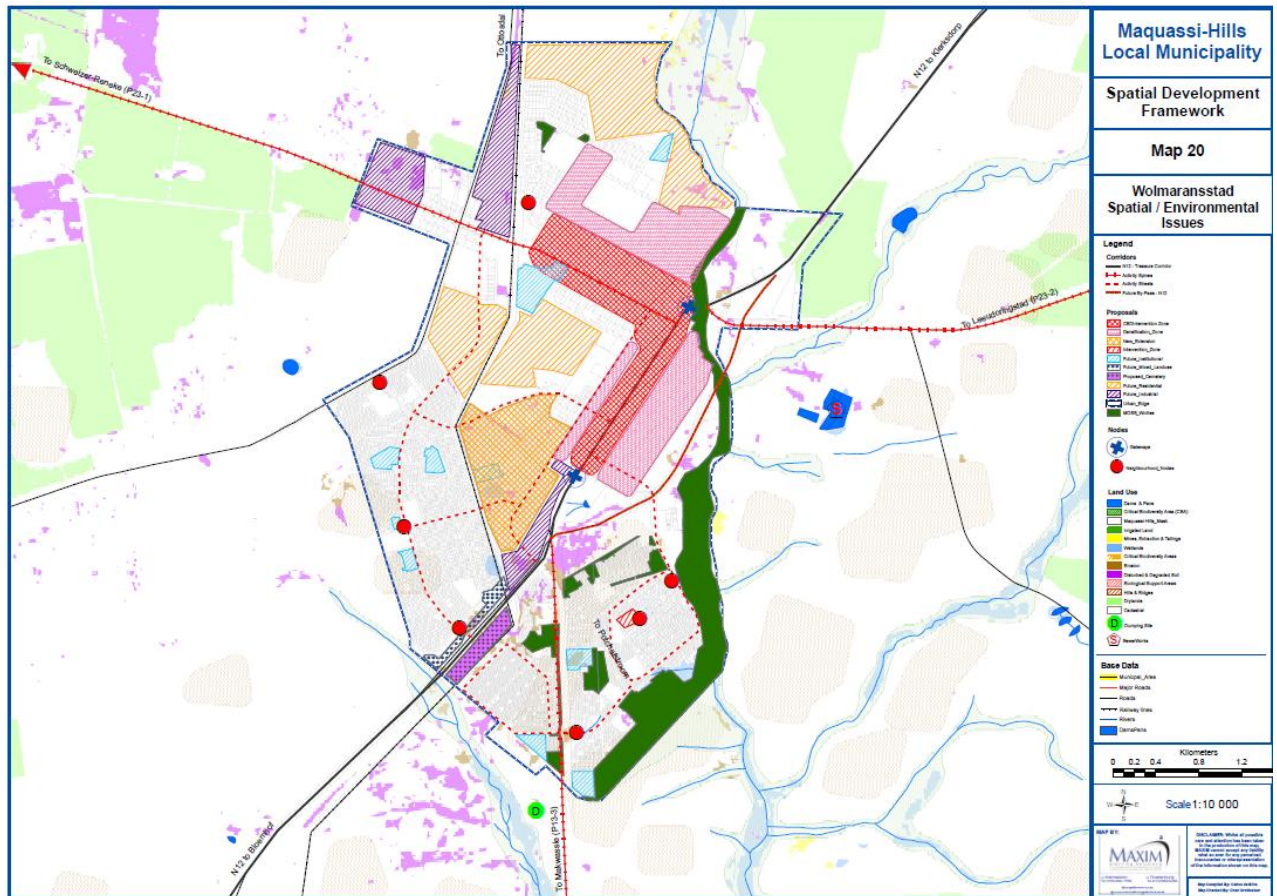
- Wolmaransstad Extension 17: Comprising the first phase of the development with 2500 residential erven
- Wolmaransstad Extension 18: Comprising the second phase of the development with 1506 residential erven
- Wolmaransstad Extension 19: Comprising the third phase of the development with 593 residential erven

In terms of the Spatial Development Framework, 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.

In terms of the approved Maquassi Hills Spatial Development Framework, 2011 the areas between Wolmaransstad Extension 13 and the old urban area of Wolmaransstad were earmarked for future residential development purposes. The properties earmarked for this purpose however currently vest in private ownership. In considering an alternative location for the proposed integrated human settlement, the area west of the existing urban area of Wolmaransstad Extensions 10 and 13 were earmarked for this purpose as the area has limited physical restrictions which will impact negatively on development whilst forming a logic extension of the urban area of Wolmaransstad Extensions 10, 13 and 15 (refer Map 3).

Map 3: Wolmaransstad Spatial / Environmental Issues (Maquassi Hills SDF, 2011)



1.5 APPLICATION

Maxim Planning Solutions (Pty) Ltd is hereby applying on behalf of the Maquassi Hills Local Municipality for the:

- Establishment of the proposed township Wolmaransstad Extension 17 on a portion of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No.184-HO;

- Establishment of the proposed township Wolmaransstad Extension 18 on a portion of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No.184-HO; and
- Establishment of the proposed township Wolmaransstad Extension 19 on a portion of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No.184-HO

in terms of the provisions of Chapter IV of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986).

1.6 PUBLIC PARTICIPATION

The application in respect of the establishment of the proposed townships Wolmaransstad Extensions 17, 18 and 19 will be advertised in accordance with Section 108(1)(a) of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) in the Overvaal Nuus on 30 October 2015 and 06 November 2015 as well as in the North West Provincial Gazette on 27 October 2015 and 03 November 2015. Objectors will be afforded a period of 28 days from 30 October 2015 to submit objections or comments in respect of the proposed township areas to the Municipal Manager.

The application will also, in accordance with the prescriptions of Section 108(1)(b) of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) be referred to the following external organizations / departments for comments or objections:

- ✧ Department of Public Works and Roads
- ✧ Telkom SA Limited
- ✧ Eskom
- ✧ Dr. Kenneth Kaunda District Municipality
- ✧ Department of Minerals Resources
- ✧ Department of Agriculture, Forestry & Fisheries
- ✧ Department of Water and Sanitation
- ✧ Department of Local Government and Human Settlements
- ✧ Department of Education
- ✧ Department of Health
- ✧ South African Post Office
- ✧ Spornet
- ✧ South African Heritage Resources Agency (SAHRA)
- ✧ South African National Roads Agency Limited (SANRAL)
- ✧ Sedibeng Water

The fore-mentioned organizations / departments will be afforded a period of 60 days to comment in this matter in accordance with the prescriptions of Section 108 (1) of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986).

1.7 STUDY AREA DELINEATION

The proposed development areas comprises a portion of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO as described in detail in section 2.1.

1.8 REPORT OUTLINE

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

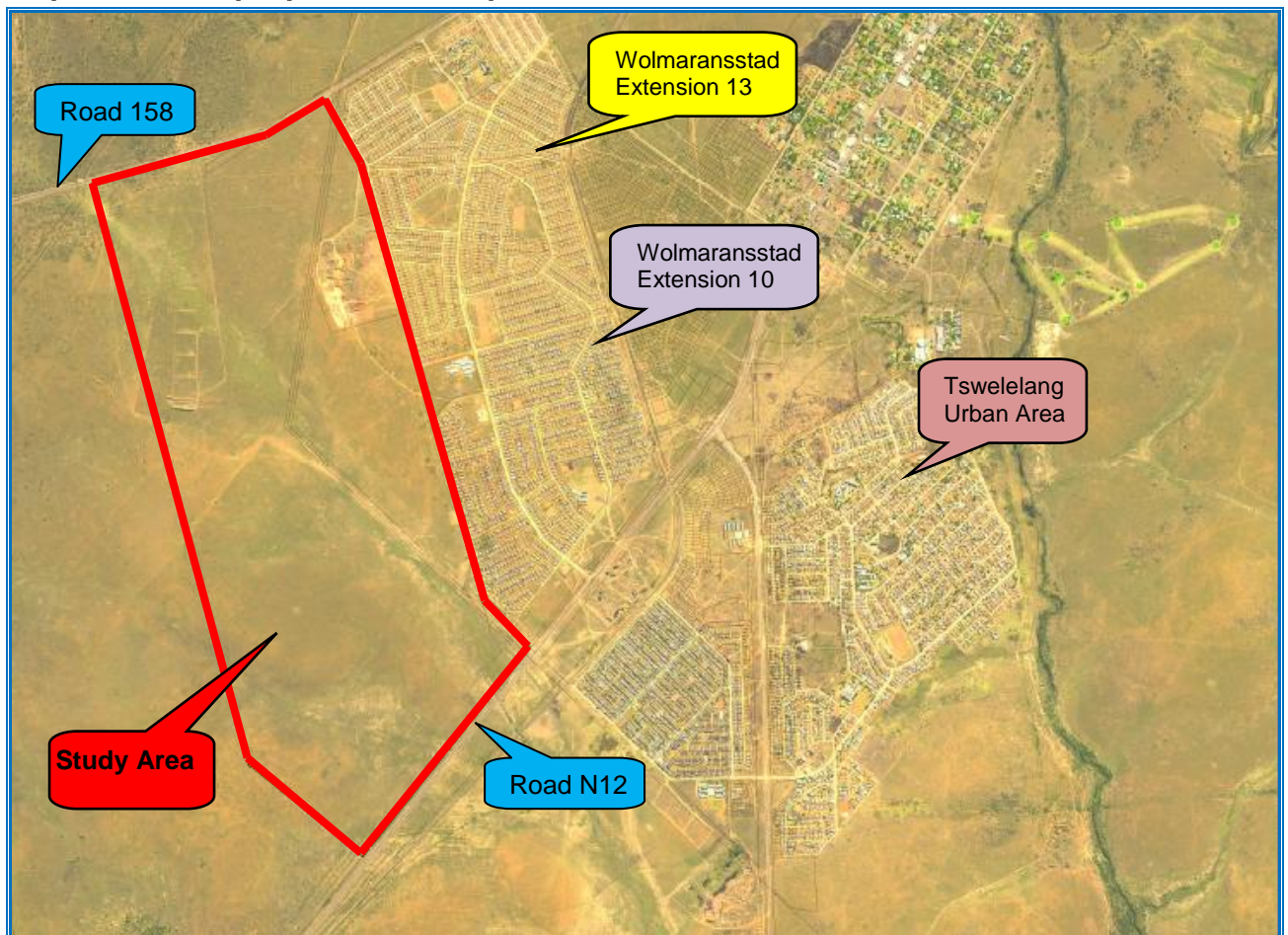
- Chapter 2: Particulars of the development area
- Chapter 3: Physical aspects
- Chapter 4: Proposed development
- Chapter 5: Provision of Engineering Services
- Chapter 6: Conclusion

CHAPTER 2: PARTICULARS OF THE DEVELOPMENT AREAS

2.1 LOCALITY

The proposed development area is located adjacent to the western portion of the urban area of Wolmaransstad and is bordered to the south by Road N12 (Wolmaransstad – Bloemhof Road) and to the north by the Wolmaransstad – Leeuwfontein Provincial Road (Road 158).

Map 4: View of proposed development area



The respective proposed township areas are located as follows:

- Wolmaransstad Extension 17:**
 Located directly adjacent and to the west of the existing township areas of Wolmaransstad Extension 10 and Wolmaransstad Extension 13 in the far western portion of the urban area of Wolmaransstad. The proposed township will be located on a portion of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO.

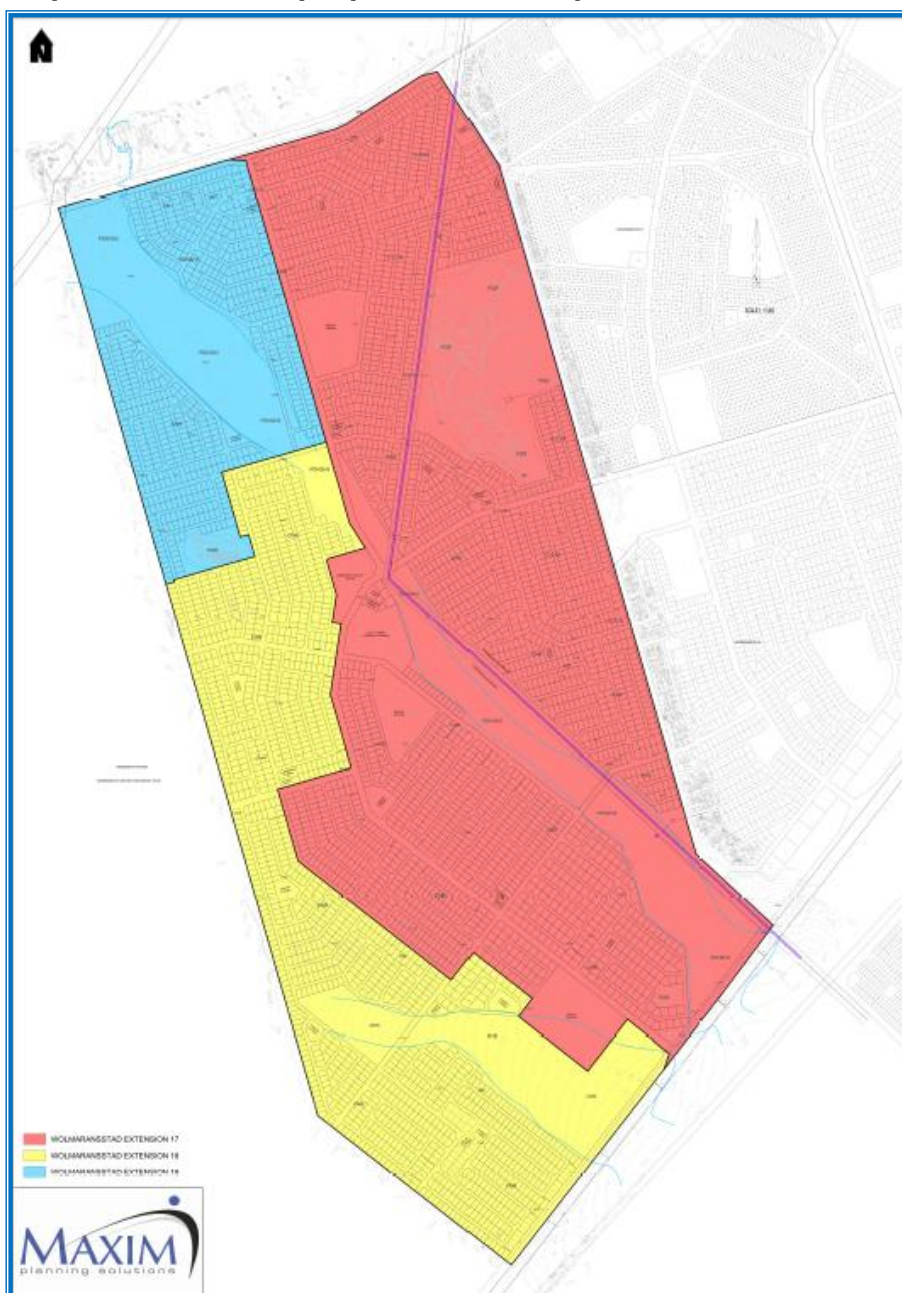
- **Wolmaransstad Extension 18:**

This township area will be located to the west of the proposed township area of Wolmaransstad Extension 17. The proposed township area will be located on a portion of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO.

- **Wolmaransstad Extension 19:**

This township area will be located in the north western portion of the development area and to the west of the proposed township area of Wolmaransstad Extension 17. The proposed township area will similarly be located on a portion of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO.

Map 5: Location of proposed township areas



The proposed township areas detailed above are all located within the area of jurisdiction of the Maquassi Hills local Municipality which in turn falls within the area of jurisdiction of the Dr. Kenneth Kaunda District Municipality.

2.2 SG DIAGRAM

The Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO is reflected on SG Diagram A301/1906 (attached as **Annexure D** to the application for township establishment).

2.3 OWNER

The Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO is currently registered in the name of the Maquassi Hills Local Municipality by virtue of Crown Grant 46/1910 (document attached as **Annexure F** to the application for township establishment).

2.4 AREA

The proposed township areas comprise the following areas:

- Wolmaransstad Extension 17: 214,2650 hectares
- Wolmaransstad Extension 18: 100,0842 hectares
- Wolmaransstad Extension 19: 52,8891 hectares

2.5 EXISTING LAND USE AND ZONING

The proposed development area is currently predominantly vacant with the exception of the following:

- **Municipal reservoir (Plate 1)**



- **Livestock “kraals” (Plate 2)**



- **Decommissioned shooting range (Plate 3)**
- **Telecommunication tower (Plate 4)**



In terms of the Maquassi Hills Land Use Scheme, 2007 the subject property is currently zoned “Municipal”.

2.6 MINERAL RIGHTS

According to Crown Grant No. 46/1910, the rights to minerals in respect of the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO were separated from the property rights and currently vest in the name of the Maquassi Hills Local Municipality by virtue of Certificate of Mineral Rights K3624/1997RM registered on 20 June 1997 (refer **Annexure F** to the application for township establishment).

The above-mentioned 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 application for township establishment will subsequently also be referred to the Department of Minerals and Energy for its consent in respect of the proposed township.

2.7 RESTRICTIVE TITLE CONDITIONS

According to Crown Grant No. 184-HO, the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO is subject to the following title conditions, which will be dealt with as indicated:

- * *“THIS GRANT SHALL BE SUBJECT to all conditions and stipulations contained in the Town Lands Ordinance 1904, and in any amendment thereof and shall also be subject to all rights and servitudes which now affect or at any time hereafter may be found to affect the title to the land hereby transferred or to be binding on the Government in respect of the said Land as at the date thereof.”*

The fore-mentioned condition has lapsed through repeal by virtue of Act 36 of 1976.

- * *“THE SAID COUNCIL OF THE MUNICIPALITY OF WOLMARANSSTAD as the registered owners of the within property shall have the right to make a dam and construct a water furrow to and in favour of the town of Wolmaransstad on that portion known as Port-Allen of the quitrent farm Vlakfontein No. 131 Wolmaransstad in the extent Three thousand two hundred and seventy five (3,275) morgen Three hundred and ninety-three (393) square roods, held by Johan Christian Bornman under Deed of Transfer No. 308/1882, as more fully described in Deed of Permission (Acte van Vergunning) No. 584 of 1896, dated 13th April 1895 – and registered in the Deeds Office on the 29th July 1896, Book C., Folio 1045.”*

Preliminary indications are that this right shall not be transferred to the erven in the proposed township areas

- * *“THIS GRANT is made on the conditions that all roads already made over this land by lawful authority shall remain free and unobstructed, that the land shall be subject to grazing for the cattle of travellers, that the said land shall be further subject to such stipulations as have been established or may hereafter be established by the Legislature and finally that the owners shall be liable to the prompt payment of an annual tax as provided in Law No. 4 of 1899 in any amendment thereof.”*

Preliminary indications are that this condition will not be transferred to the erven in the proposed township areas.

- * *“By Notarial Deed K2187/85S, the right has been granted to ESKOM to convey electricity over the property hereby conveyed together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, grosse whereof is hereunto annexed.”*

This servitude does affect the proposed township area of Wolmaransstad Extension 17 and traverses the proposed township area from south to north. This servitude is indicated on diagram SG No. A1613/1988 and was accommodate within the township area of Wolmaransstad Extension 17 within a number of “Public Open Space” erven. This servitude has a width of 31m (15,5m measured from centre line). This servitude does not affect the proposed township area of Wolmaransstad Extension 18 but affects the proposed township area of Wolmaransstad Extension 19. The servitude affecting the proposed township area of Wolmaransstad Extension 19 is located in the north-western corner of the proposed township area and comprises a powerline with a servitude width of 22m

(11,0m measured from the centre line). This servitude was accommodated within a “Public Open Space” and “Agricultural” erf.

- * *“By Notarial Deed K2188/85S, the right has been granted to ESKOM to convey electricity over the property hereby conveyed together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, gross whereof is hereunto annexed.”*

This servitude does affect the proposed township area of Wolmaransstad Extension 17 and traverses the proposed township area from south to north. This servitude is indicated on diagram SG No. A1613/1988 and was accommodate within the township area of Wolmaransstad Extension 17 within a number of “Public Open Space” erven. This servitude has a width of 31m (15,5m measured from centre line). This servitude does not affect the proposed township area of Wolmaransstad Extension 18 but affects the proposed township area of Wolmaransstad Extension 19. The servitude affecting the proposed township area of Wolmaransstad Extension 19 is located in the north-western corner of the proposed township area and comprises a powerline with a servitude width of 22m (11,0m measured from the centre line). This servitude was accommodated within a “Public Open Space” and “Agricultural” erf.

- * *“By Notarial Deed K2189/85S, the right has been granted to ESKOM to convey electricity over the property hereby conveyed together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, grosse whereof is hereunto annexed.”*

This servitude does not affect the proposed township areas of Wolmaransstad Extensions 17 and 18 due to the location of the powerline servitude in relation to the proposed township areas. The servitude however affects the proposed township area of Wolmaransstad Extension 19 and is located in the north-western corner of the proposed township area. The servitude is indicated on diagram SG No. A347/1990 and comprises a servitude width of 22m (11,0m measured from the centre line). This servitude was accommodated within a “Public Open Space” and “Agricultural” erf

- * *“Kragtens Notariële Akte No. K3917/88S gedateer 24-10-88 is die hierinvermelde eiendom onderhewig aan ‘n ewigdurende servituut van waterleiding t.g.v. OVS-Goudvelde-Watteraad soos meer volledig sal blyk uit gemelde Notariële Akte waarvan ‘n afskrif hieraan geheg is.”*

The exact location of this servitude is known and same does not affect the proposed township areas due to the location thereof.

- * *“The within mentioned servitude of a dam and waterfurrow over certain portions of the farm Vlakfontein No. 131 District Wolmaransstad has been more clearly defined by Notarial Deed No. 107/1915S – regd 4/2/1910.”*

This servitude does not affect the proposed township areas due to the location thereof.

- * *“By Notarial Deed no. 335/1962S, the right has been granted to ESKOM to convey electricity over the property hereby conveyed together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, grosse whereof is hereunto annexed.”*

This servitude does not affect the proposed township area due to the location of the relevant powerline in relation to the proposed township areas.

- * *“By Notarial Deed No. 501/1963S, the right has been granted to ESKOM to convey electricity over the property hereby conveyed together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, grosse whereof is hereunto annexed.”*

This servitude does not affect the proposed township areas of Wolmaransstad Extensions 17, 18 and 19 due to the location of the concerned powerline in relation to the fore-mentioned proposed township areas. This servitude is located directly adjacent to the north-western corner of the proposed township area of Wolmaransstad Extension 19.

- * *“By Notarial Deed No. 118/1969S, the right has been granted to ESKOM to convey electricity over the property hereby conveyed together with ancillary rights, and subject to conditions, as will more fully appear on reference to said Notarial Deed and diagram, grosse whereof is hereunto annexed.”*

This servitude does not affect the proposed township areas due to the location of the relevant servitude area in relation to the proposed township areas.

- * *“Kragtens Notariële Akte No. K2249/98S gedateer 24-03-98 is die hierinvermelde eiendom onderhewig aan ‘n ewigdurende serwituut oor die gebied gemerk ABCDEF soos aangedui op kaart LG No. 8147/97 ten gunste van Goudveld Water soos meer volledig sal blyk uit gemelde Notariële Akte waarvan ‘n afskrif hieraan geheg is.”*

The exact route of this servitude has been determined and same does not affect the proposed township areas due to the location thereof.

- * *“BY VIRTUE OF THE UNDERMENTIONED NOTARIAL DEED THE ROUTE OF THE WITHIN-MENTIONED POWERLINE SERVITUDE HAS BEEN DETERMINED. K221/1990S.”*

This servitude comprises the route determination of Notarial Deeds of Servitude K2187/1985S and K2188/1985S and affects the proposed township area of Wolmaransstad Extension 17 and traverses the proposed township area from south to north. This servitude is indicated on diagram SG No. 5850/1997 and was accommodate within the township area of Wolmaransstad Extension 17 within a number of “Public Open Space” erven. This servitude has a width of 31m (15,5m measured from centre line). This servitude does not affect the proposed township area of Wolmaransstad Extension 18 but affects the proposed township area of Wolmaransstad Extension 19. The servitude affecting the proposed township area of Wolmaransstad Extension 19 is located in the north-western corner of the proposed township area and comprises a powerline with a servitude width of 22m (11,0m measured from the centre line). This servitude was accommodated within a “Public Open Space” and “Agricultural” erf.

- * *“AND WHEREAS certain portions of the farm known as THE WOLMARANSSTAD TOWN AND TOWNLANDS, NO. 173, situate in the District of Wolmaransstad, Ward “Lower”, and shown on the diagram hereunto annexed (marked S.G. No. A301/07) framed in the Surveyor-General’s Office, Pretoria, from surveys made by Surveyor Franz. Visser in December 1905, have been reserved under Section three of the Town Lands Ordinance, 1904, by the Government of the Transvaal for public purposes, measuring respectively:-*

- (a) *TEN (10) MORGEN.*
- (b) *FOUR (4) MORGEN.*
- (c) *SEVEN (7) MORGEN, FOUR HUNDRED AND FORTY- NINE (449) SQUARE ROODS.*
- (d) *TWO (2) MORGEN, FIVE HUNDRED AND SEVENTY-EIGHT (578) SQUARE ROODS.*
- (e) *NINETY-THREE (93) MORGEN, THREE HUNDRED AND FORTY-TWO (342) SQUARE ROODS.”*

This condition has since lapsed by virtue of repeal in terms of Act 36 of 1976.

- * *“THIS GRANT SHALL BE SUBJECT to all conditions and stipulations contained in the Town Lands Ordinance 1904, and in any amendment thereof and shall also be*

subject to all rights and servitudes which now affect or at any time hereafter may be found to affect the title to the land hereby transferred or to be binding on the Government in respect of the said Land as at the date thereof.”

This condition has similarly since lapsed through repeal by virtue of Act 36 of 1976.

2.8 SERVITUDES

The proposed township areas of Wolmaransstad Extensions 17, 18 and 19 are subject / affected by the following servitudes:

- **Wolmaransstad Extension 17:**
 - Eskom powerline servitude as indicated on diagram SG No. 5850/1997 and registered by virtue of Notarial Deed of Servitude K221/1990S and as amended by Notarial Deed of Amendment and Notarial Deed of Servitude K4498/1998S. This servitude has a width of 31m (15,5m from the centre of the line) and accommodates the Eersteling Traction / Makwassie Traction 1 (132kV) Feeder HV Overhead Line as indicated on **Plate 5**.

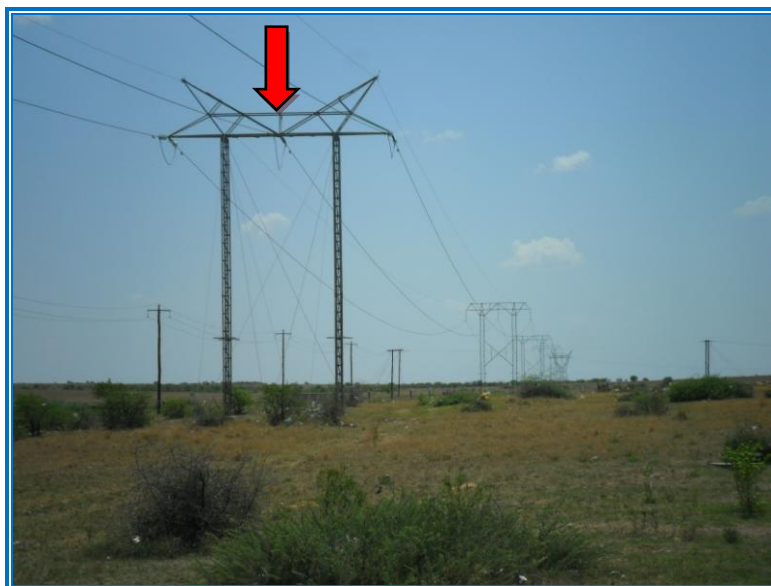


Plate 5: View of Eskom Eersteling Traction / Makwassie Traction 1 (132kV) Feeder HV Overhead Line

- **Wolmaransstad Extension 18:**
 - None
- **Wolmaransstad Extension 19:**
 - Eskom powerline servitude as indicated on diagram SG No. A5850/1997 and registered by virtue of Notarial Deed of Servitude K221/1990S and as

amended by Notarial Deed of Amendment and Notarial Deed of Servitude K4498/1998S. This servitude has a width of 22m (11m from the centre of the line) and accommodates the Eskom Goat DS / Klipfontein Rural 1 (132kV) Overhead Line as indicated on **Plate 6**.

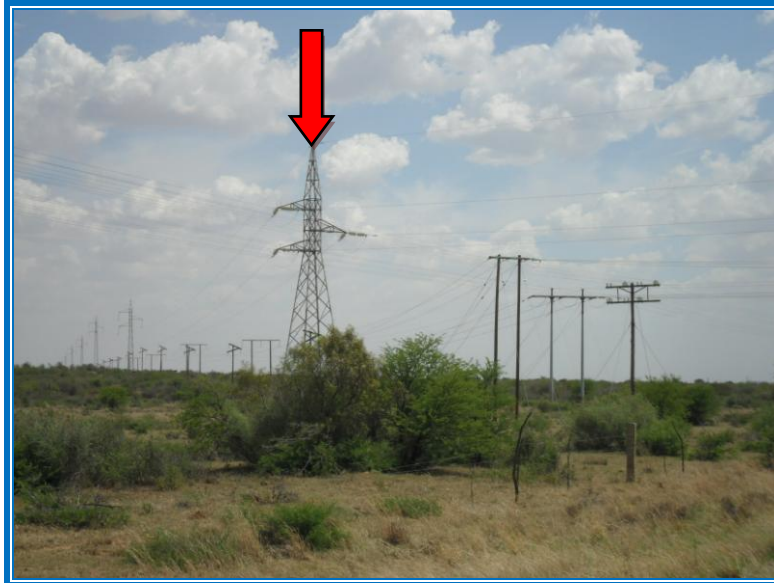


Plate 6: View of Eskom Goat DS / Klipfontein Rural 1 (132kV) Overhead Line

- Eskom powerline servitude as indicated on diagram SG No. A347/1990 and registered by virtue of Notarial Deed of Servitude K2058/1992S. This servitude has a width of 22m (11m from the centre of the line) and accommodates the Eskom Leeufontein Rural / Strydpoort 1 (22kV) Feeder MV Overhead Line as indicated on **Plate 7**.

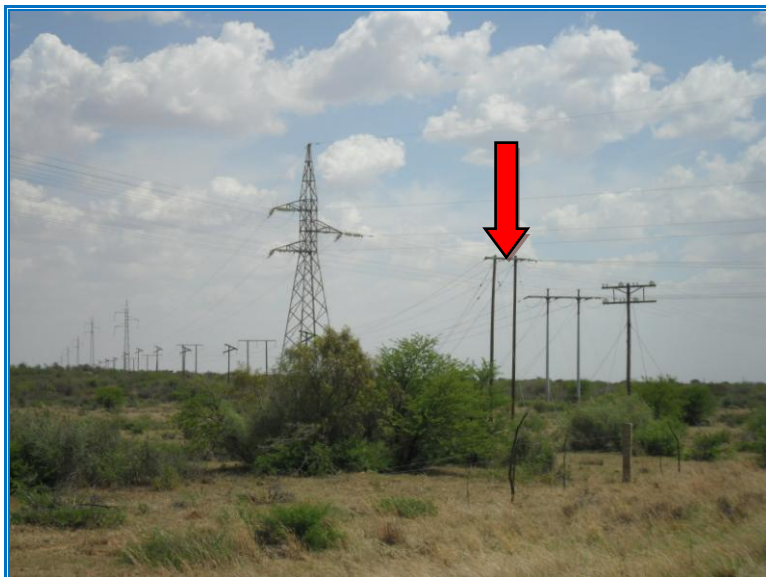


Plate 7: View of Eskom Leeufontein Rural / Strydpoort 1 (22kV) Feeder MV Overhead Line

CHAPTER 3: PHYSICAL ASPECTS

3.1 TOPOGRAPHY

As part of the pre-planning studies that were conducted in respect of the development area, an aerial survey of the study area was conducted by TMK Professional Land Surveyors (refer **Figure 4**).

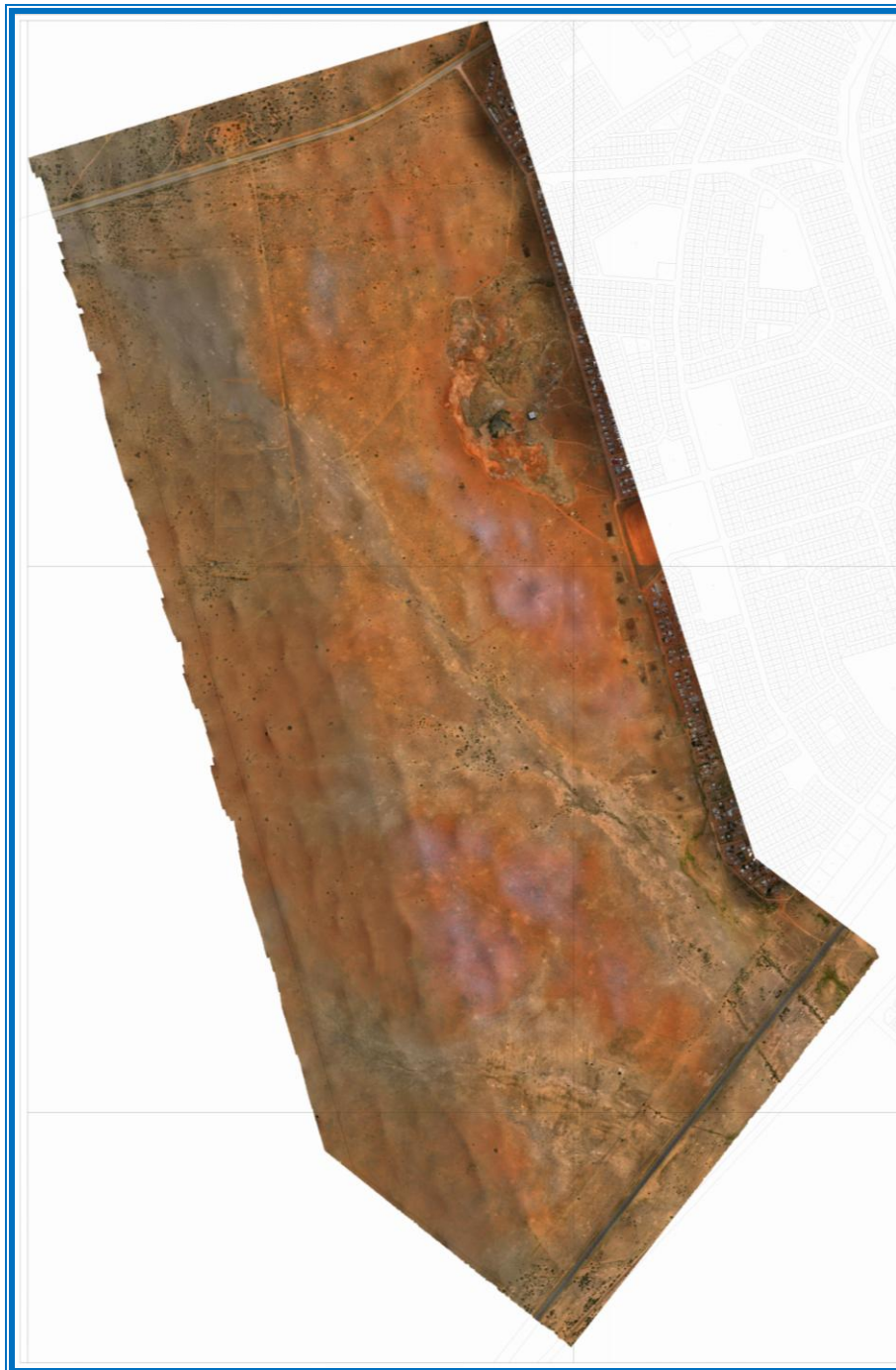


Figure 4: Aerial survey of development area

The aerial photograph that was taken of the development area was used for the generation of contour data. The results of the contour survey are reflected on **Figure 5** below.

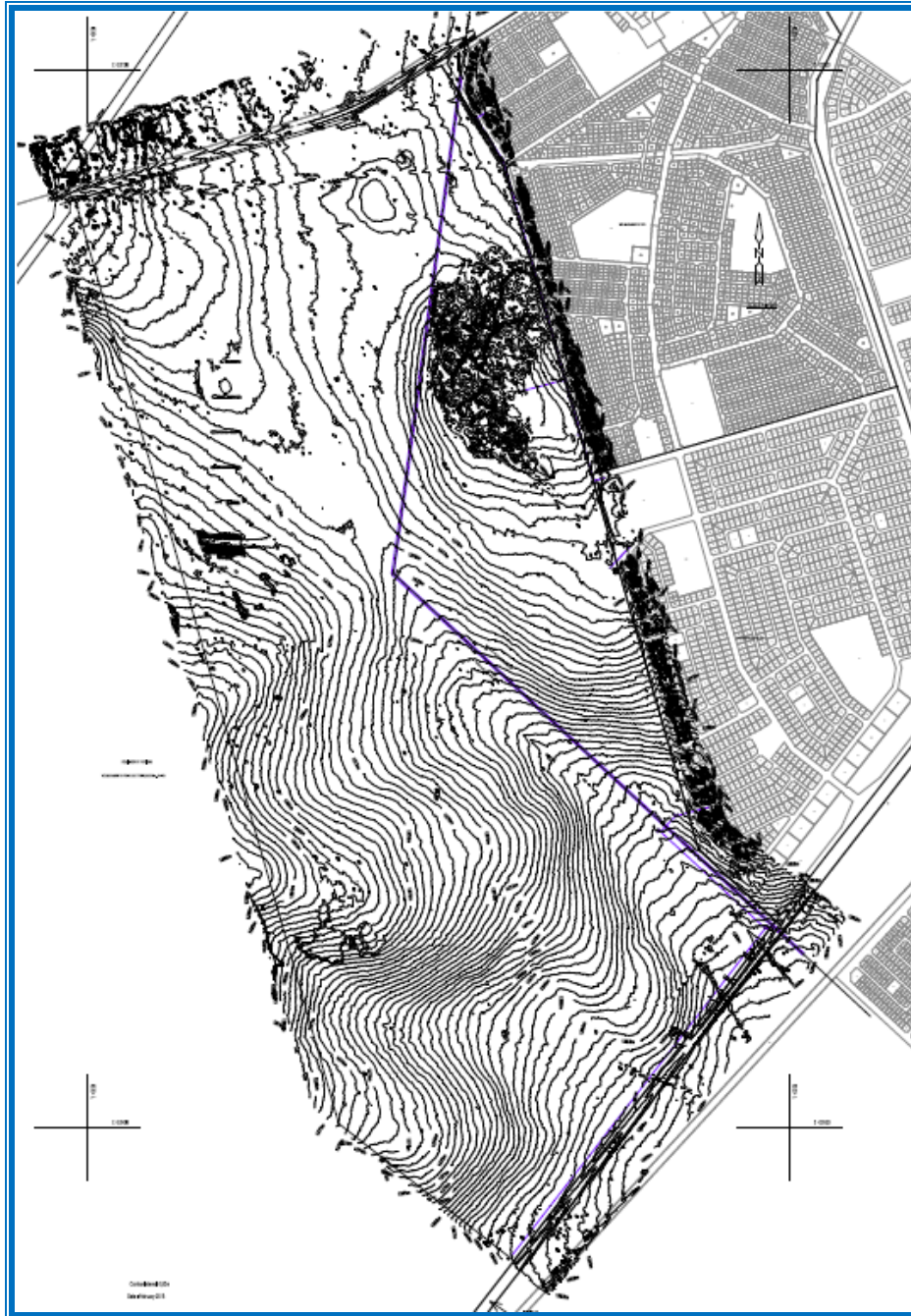


Figure 5: Contour data

The study area is situated on the Pre-Karoo section of the South African Highveld (Region 4A, Wellington, 1955). The topography of the area comprises of undulating plains, with a low gradient towards the small non-perennial streams that drain the area.

There are two (2) areas where the topographical features of the area will not allow for residential development to take place. These areas include an old borrow pit with an area

of mixed spoil surrounding it which is located adjacent to the eastern boundary of the development area and along the western boundary of the existing township area of Wolmaransstad Extension 13 (refer **Plates 8 and 9**)



Plate 8: View of quarry / excavation area



Plate 9: View of mixed spoil

The second topographical restriction comprises the decommissioned shooting range of the SANDF with a number of earthen banks and a large berm that acted as back-stop. The large earthen bank / berm was accommodated within a “Public Open Space” erf (refer **Plate 10**). This facility was relocated to Ottosdal. This facility will be discussed in greater detail in section 3.9.1.



Plate 10: View of decommissioned shooting range earthen banks



Plate 11: View of drainage area traversing the development area

Two non-perennial tributaries of the Maquassie spruit intersects the site. One of the tributaries drains towards the north-west and the other one towards the south-east. The afore-mentioned tributary has a small tributary draining from the west. These two tributaries join southeast of the site.

3.2 CLIMATE

The region is characterized by summer rainfall with thunderstorms, with annual low rainfall figures of 446 mm for Wolmaransstad, recorded at the closest weather station to the site. Winters are dry with frost common. The warmest months are normally December and January and the coldest months are June and July.

An analysis of the data confirms a Weinert's N-Value in the order of 6.0 for Wolmaransstad. The mechanical disintegration of rocks will therefore be dominant over chemical decomposition, and shallow soil horizons will be expected in areas of poor drainage, underlain by igneous rocks.

Storm water drainage and road pavement design must incorporate the climatic extremes above.

3.3 FRESHWATER SYSTEM

The proposed development area is located within the Middle Vaal Water Management Area. Plate flow is the dominant drainage pattern on site, and three (3) drainage channels intersect the site. The catchments areas of the fore-mentioned three drainage features are reflected on the following figure.

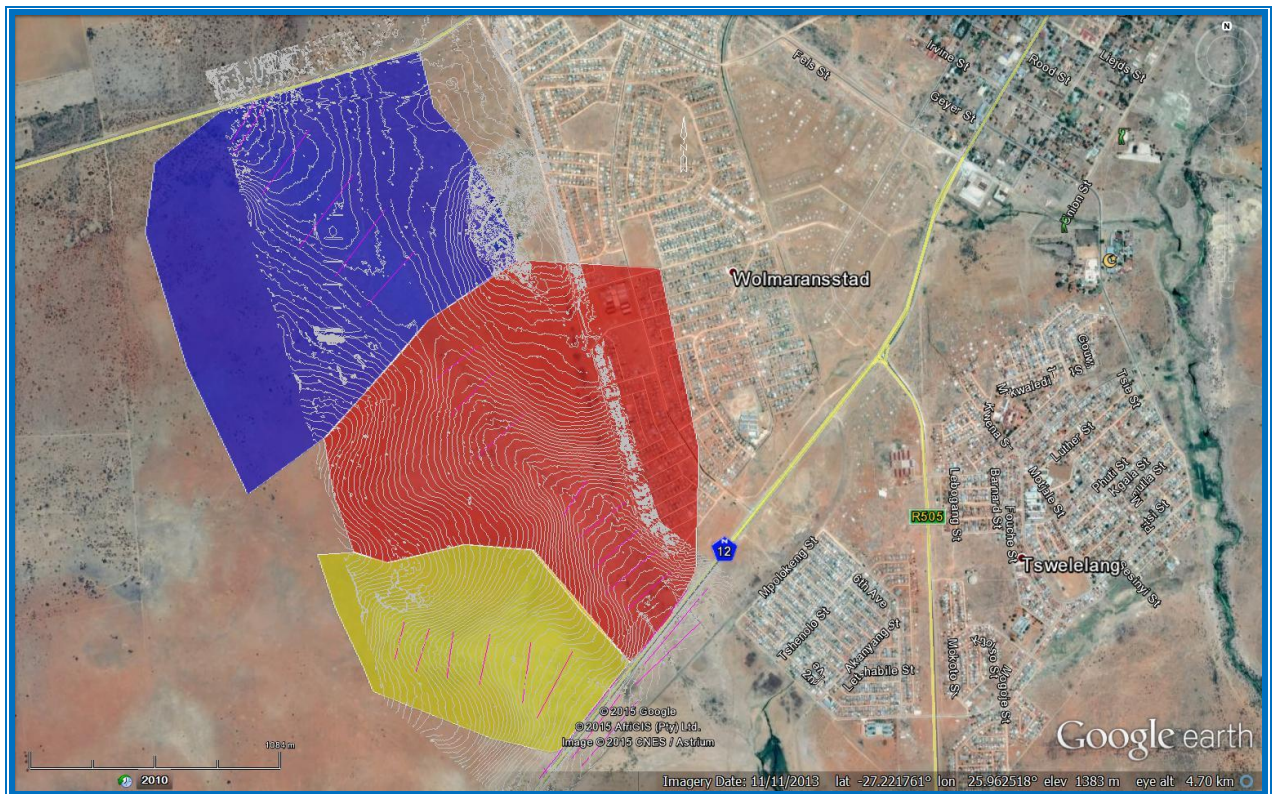


Figure 6: Catchment Areas

The characteristics of the streams are listed below.

- **Stream 1**

- Area of catchment: 0,75 km²
- Length of longest watercourse: 1,5 km
- Equal area height difference: 17 m
- Distance to catchment centroid: 0,82 km
- Time of concentration 30 minutes

- **Stream 2**

- Area of catchment: 0,87 km²
- Length of longest watercourse: 1,1 km
- Equal area height difference: 16 m
- Distance to catchment centroid: 0,5 km
- Time of concentration 19 minutes

- **Stream 3**

- Area of catchment: 1,08 km²
- Length of longest watercourse: 1,06 km
- Equal area height difference: 5 m
- Distance to catchment centroid: 0,64 km
- Time of concentration 30 minutes

The site is located on a moderate to shallow slope towards the central portion of the site. Drainage occurs in a south-easterly and north-westerly direction, although both eventually confluence in the Makwassie Spruit, a tributary to the Vaal River.

Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures.

Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms.

All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

Drainage provision into and along the already existing culverts and gutters from the existing roads of the town should be used for storm water drainage.

3.4 WETLANDS AND PANS

As detailed in section 3.3 supra, the development area is intersected by three (3) drainage features and it was subsequently necessary to determine the 1:100 year floodline applicable to the concerned drainage features in accordance with the provisions of Section 144 of the Water Act, 1998 (Act 36 of 1998).

In view of the fore-mentioned, Maxim Planning Solutions (Pty) Ltd appointed CWT Consulting for the determination of the 1:100 year floodline applicable to the drainage features. The results of the floodline determination are reflected on **Figure 7**.

The areas associated with the 1:100 year floodlines were accommodated in the layout plans of the proposed township areas as “Public Open Space” areas as well as areas designated for “Agriculture” which is earmarked for urban agricultural purposes.

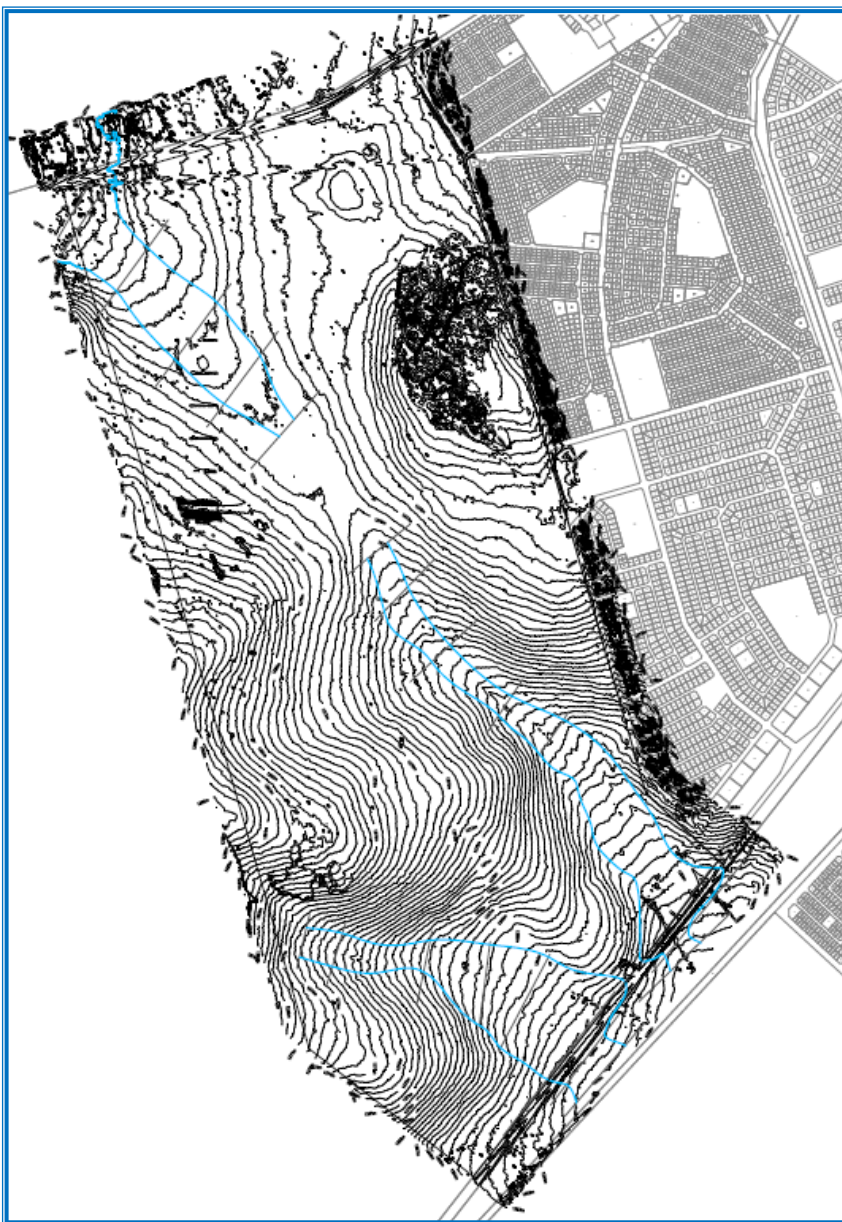


Figure 7: 1:100 year floodlines calculated by CWT Consulting Engineers

3.5 VEGETATION

The area is typically characterized by Dry Cymbopogon Themeda *veld type* of the Pure Grassveld Type (Acocks, 1988). The site itself is covered by sparse grasslands of which some was used as agriculture land, and only a very few *Vachellia / Senegalia (Acacia)*, *Searcia (Rhuss)* and *Grewia* species are found. The grass cover is disturbed and overgrazing is evident on site (refer **Plates 12 and 13**).



Plate 12: View of development area from N12



Plate 13: View of development area from Leeuwfontein Road

3.6 GROUNDWATER

Although no seepage or the presence of perennial fluctuations of ground water was encountered on site, we expect that a seasonal perched water table may exist. The permanent or perched water table on site is expected deeper than 1,5m below ground surface, but may be perched and temporarily found on the solid porphyry and rhyolite bedrock. A ferruginised profile indicates that some perennial water level fluctuations may occur.

Ground water in the form of seepage was not intersected in any test pit during the investigation, but normal water tightening techniques such as damp course on foundation levels are required.

The expected high permeability of the silty sand may lead to leachate from sanitation systems to reach the ground water, and a closed water borne sewage system is recommended.

3.7 GEOLOGY (Extract from Geotechnical Report compiled by Geoset attached as **Annexure N** to the application for township establishment)

The area is underlain by quartz porphyry, feldspar porphyry and rhyolite of the

Makwassie Formation, Platberg Group, Ventersdorp Supergroup. Surficial deposits on site include colluvium, covering some of the lithology.

The quartz porphyry and rhyolite is expected to weather down to a more sandy material from the quartz, and the feldspar porphyry usually has a weathered soil profile with a higher clay content originating from the higher feldspar content.

No dolomite occurs in the area and no stability investigation is required.

3.7.1 SITE EVALUATION

The presence of ferricrete indicates that perennial fluctuations of ground water will be encountered on site, proving that a seasonal perched water table may exist.

Special care must be taken to ensure adequate surface drainage to prevent the accumulation of water next to structures.

The site contains low to medium compressible or collapsible soil, with low to medium and even highly expansive soil, and foundations will need special treatment to withstand movement associated with the variable moisture content of the soil, and if loose patches in relation to large core stones or boulders are encountered, it may also result in differential settlement of structures.

Some problems regarding excavatability can be expected almost across the site reflected in the PR classification on the site due to the relative shallow soil profiles and the presence of shallow rock and some core stones and boulders of porphyry and rhyolite.

Retaining walls as well as slope stabilization measures are recommended on all constructed embankments exceeding 1,5m.

No mining activities on site or history of mining or contaminated land in the area were found. A quarry is located at the centre northern portion of the site and it should be rehabilitated and excluded from the development. The site is located a distance from any active mining operations and in an inactive area regarding seismic activity.

Storm water diversion measures such as ponding pools are recommended to control peak flows during thunderstorms. Drainage provision into and along the already provided culverts from the existing roads of the town should be incorporated within the new layout design.

All embankments must be adequately compacted and planted with grass to stop any excessive erosion and scouring of the landscape.

3.7.2 SITE ZONATION

In terms of the results of the geotechnical investigation, the development area was divided into the following geotechnical zones which are described in detail in this section:

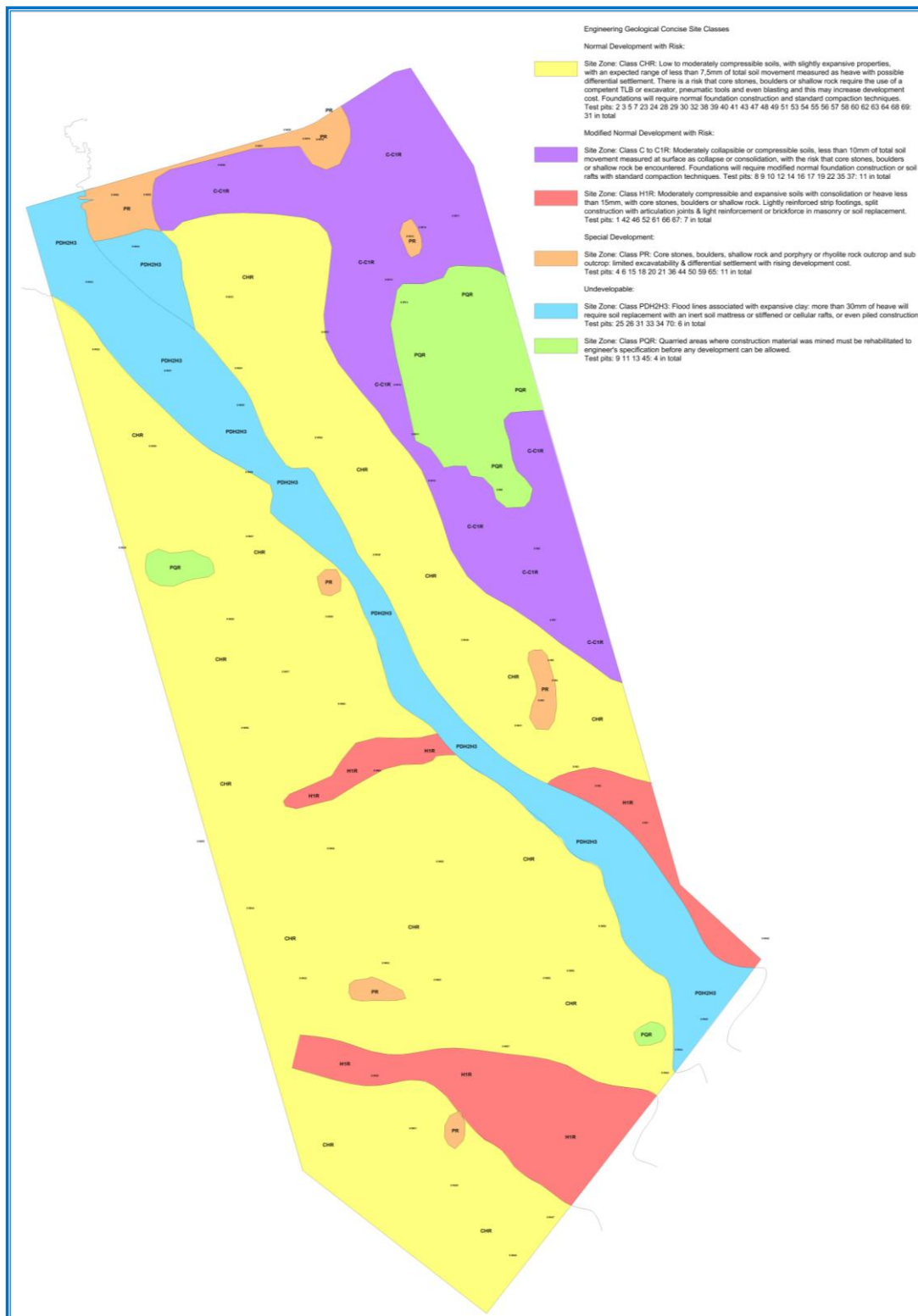


Figure 8: Geotechnical soil zones

Normal Development with Risk:**Site Zone: Class CHR:**

Low to moderately compressible soils with a thickness of less than 750mm, with slightly expansive properties, with an expected range of less than 7,5mm of total soil movement measured at surface as consolidation or heave, with possible differential settlement as there is a risk that core stones, boulders or shallow rock require the use of a competent TLB or excavator, pneumatic tools and even blasting and this may increase development cost. Foundation excavations should be inspected and loose material well compacted. If loose patches are present around core stones, in situ material below foundations should be removed to a depth and width of 1,5 times the foundation width or to a competent horizon and replaced with material compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content. Foundations will require normal foundation construction and standard compaction techniques, and it is classified as CHR according to the classification in terms of the SAIEG & NHBRC guidelines (1995) or the SAICE Code of practice (1995).

Modified Normal Development with Risk:**Site Zone: Class C to C1R:**

Moderately collapsible or compressible soils with a thickness in excess of 750mm, with an expected range of less than 10mm of total soil movement measured at surface as collapse or consolidation, with possible differential settlement due to the risk that of presence of core stones, boulders or shallow rock that may require the use of a competent TLB or excavator, pneumatic tools and even blasting and this may increase development cost. Foundation excavations should be inspected and loose material well compacted. If loose patches are present around core stones, in situ material below foundations should be removed to a depth and width of 1,5 times the foundation width or to a competent horizon and replaced with material compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content. Foundations will require modified normal foundation construction such as soils rafts and standard compaction techniques, or deep strip foundations and it is classified as C-C1R according to the classification in terms of the SAIEG & NHBRC guidelines (1995) or the SAICE Code of practice (1995).

Site Zone: Class H1R:

Moderately compressible and expansive soils with a thickness up to 750mm, with an expected range of less than 15mm of total soil movement measured at surface as consolidation or heave, with possible differential settlement due to the risk that core stones, boulders or shallow rock may require the use of a competent TLB or excavator, pneumatic tools and even blasting and this may increase development cost. Modified normal foundation techniques will require the use of lightly reinforced strip footings, split construction with articulation joints at all internal and external doors and openings with light reinforcement or brickforce in masonry or soil replacement with a soil raft that requires the removal of in situ material below foundations to 1,0m beyond the perimeter of the structure and to a competent horizon and replaced with material compacted to

93% MOD AASHTO density at -1% to +2% of optimum moisture content, with normal construction with lightly reinforced strip footings and light reinforcement in masonry, with standard compaction techniques with drainage provision, and it is classified as H1R according to the classification in terms of the SAIEG & NHBRC guidelines (1995) or the SAICE Code of practice (1995).

Special Development:

Site Zone: Class PR:

Core stones, boulders, shallow rock and porphyry and rhyolite rock outcrop and sub outcrop are present with difficult excavation and may result in differential settlement and development cost such as during the installation of services will rise dramatically.

Undevelopable:

Site Zone: Class PDH2H3:

Zones indicating areas influenced by flood lines were also identified and development should be restricted to outside these areas. These zones are also associated with the presence of expansive clay classified as H1 up to H2 and H3, where more than 30mm of heave measured at surface will require soil replacement with an inert soil mattress or stiffened or cellular rafts, or even piled construction.

Site Zone: Class PQR:

Quarried areas where construction material was mined must be rehabilitated to engineer's specification before any development can be allowed.

The comprehensive Geotechnical Report is attached as **Annexure N** to the application for township establishment.

3.7.3 FOUNDATION SOLUTIONS

- ***Consolidation or collapse settlement***

Site Class C (Estimated total Settlement of less than 5mm):

Normal Construction:

Minor collapse settlement requires normal construction (strip footing and slab on the ground) with compaction in foundation trenches and good site drainage.

Site Class C1 (Estimated total Settlement of between 5 and 10mm):

Modified normal construction:

Reinforced strip footing and slab on the ground.

Articulation joints at some internal and all external doors and openings.

Light reinforcement in masonry.

Site drainage and service/plumbing precautions recommended.

Foundation pressure not to exceed 50 kPa (single storey buildings).

Compaction of in situ soils below individual footings:

Remove in situ material below foundations to a depth and width of 1,5 times the foundation width or to a competent horizon and replace with material compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content.

Normal construction with light reinforcement in strip foundation and masonry.

Deep strip foundations

Normal construction with drainage precaution.

Founding on a competent horizon below problem horizon.

Soil Raft

Remove in situ material to 1,0m beyond perimeter of building to a depth and width of 1,5 times the widest foundation or to a competent horizon and replace with material compacted to 93% MOD AASHTO density at -1% to +2% of optimum moisture content.

Normal construction with lightly reinforced strip footings and masonry.

- ***Expansive soil***

- **Site Class H (Estimated total heave of less than 7.5mm):**

Soil tested as medium expansive with a clay layer thickness of up to 0,3m from surface

Normal construction:

Minor heave requires normal construction (strip footing and slab on the ground) with site drainage and service/plumbing precautions recommended.

- **Site Class H1 (Estimated total heave of between 7.5 and 15mm):**

Tested as medium expansive with a clay layer thickness of between 0,45 to 0,85m from surface,

or a highly expansive clay layer of between 0,3 and 0,4m in thickness from surface

or a clay layer with a very high expansive potential of up to 0.3m.

Modified normal:

Lightly reinforced strip footings.

Articulation joints at all internal/external doors and openings

Light reinforcement in masonry.

Site drainage and plumbing/service precautions.

Or soil raft:

Remove all or part of expansive horizon to 1,0m beyond the perimeter of the construction and replace with inert backfill compacted to 93% MOD AASHTO density at -1% to 2% of optimum moisture content.

Normal construction with lightly reinforced strip footings and masonry.

Site drainage and plumbing/service precautions.

Site Class H2 (Estimated total heave of between 15 and 30mm):

Tested as medium expansive with a clay layer thickness of between 0,85 to 2,0m, or highly expansive of between 0,4 and 0,85m in thickness measured from surface, or a clay layer with a very high expansive potential of between 0.3 and 0.4m.

Soil raft:

See H1.

Stiffened or cellular raft:

Articulation joints or solid lightly reinforced masonry.

Site drainage and plumbing/service precautions.

Piled construction:

Piled foundation with suspended floor slabs with or without ground beams.

Site drainage and plumbing/service precautions.

Split construction:

Combination of reinforced brickwork/blockwork and full movement joints.

Suspended floors or fabric reinforced ground slabs.

Site drainage and plumbing/service precautions.

Site Class H3 (Estimated total heave of more than 30mm):

Soil tested as medium expansive with a clay layer thickness of more than 2,0m (>2,0m thick),

or highly expansive of more than 0,85m (0,85m or more in thickness),

or a clay layer with a very high expansive potential of more than 0.4m in thickness.

Foundations require special design by structural engineer of the following:

Soil raft:

As for H1.

Stiffened or cellular raft:

As for H2.

Piled construction:

As for H2.

3.7.4 CONCLUSION

- The area is underlain by quartz porphyry, feldspar porphyry and rhyolite of the Makwassie Formation, Platberg Group, Ventersdorp Supergroup. Surficial deposits on site include colluvium, covering some of the lithology.
- Some problems are foreseen regarding the excavatability to 1,5m depth on site, and a competent TLB or excavator, pneumatic tools and even blasting may be required for the installation of services.
- Zoning of the site revealed zones with constraints regarding the compressibility and collapse potential, as well as the expansive properties of the soil, and shallow rock and core stones may hamper the placement of services.
- This investigation was done to reveal the geotechnical properties on site with the techniques as described. Although every possible factor during the investigation was dealt with, it is possible to encounter variable local conditions. This will require the inspection of foundations by a competent person to verify expected problems

3.8 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. The proposed development triggers the following regulations:

Number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice) :	Description of activity as per project description ² :
983, 4 December 2014	19 (i)	The dredging, excavation, infilling and depositing of approximately 1 500 cubic metres of soil, sand and gravel within a tributary of the Makwassiespruit in order to establish infrastructure.
984, 4 December 2014	15	The clearance of 289.53 hectares of indigenous vegetation, in order to establish a township on the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO.
985, 4 December 2014	2	The construction of a 1200kl Tower Reservoir outside an urban area, within a critical biodiversity area (CBA 2) as identified in the NW 2009 Biodiversity Conservation Assessment (BCA)
985, 4 December 2014	12 (ii)	Clearance of 289 530 000 square meters of indigenous vegetation within a critical biodiversity area (CBA 2) as identified in the NW 2009 Biodiversity Conservation Assessment (BCA). Clearance is proposed in order to establish a township on the Remaining Extent of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO

The project was registered with the Department of Rural and Economic Development and the Environmental Impact Assessment Report is currently in process of finalisation following the finalisation of the public participation process and the Environmental Impact

Assessment will in due course be submitted to the Department of Rural and Economic Development for consideration.

In terms of the Scoping Report submitted to the fore-mentioned Department, the following conclusions were drawn by the independent environmental practitioner:

- As in the rest of South Africa, there is a housing shortage in the area.
- The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process.
- The alternatives considered for the proposed development includes “Mixed land use township” (Alternative 1), “Single land use: Housing only” (Alternative 2) and the “No-go option” (Alternative 3).
- Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities shops, banking facilities, clinics, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities.
- A mixed land use development is *socially responsible* based on the following:
 - It covers the mixed and lower income bracket by providing a higher density housing option;
 - The development will inevitably support the use of public transport;
 - The development will include supporting social infrastructure (schools), as well as some retail or commercial activities;
 - The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
 - Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
 - Promote entrepreneurial services and products;
 - Be within walking distance to places of refreshment and trade for residents;
 - Provide job opportunities; and
 - Improve neighbourhood quality.
- By providing only one land use type (ie, housing), mixed income development and social integration across race and income levels, *cannot be achieved*. By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.
- The only other alternative that exists for the proposed development is the “no-go” option which will imply that the status quo will prevail. This is totally unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper

road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

- The proposed development will address this shortage.
- **Although this is only the Scoping phase of the proposed development, no “fatal flaws” have been encountered as of yet. All the issues envisaged at this stage can be mitigated.**

3.9 CULTURAL HERITAGE AREAS

A Pelsers Archaeological Consulting was commissioned to conduct a Cultural Heritage Resources Impact Assessment in respect of the proposed development areas. The fore-mentioned assessment contained the following results:

As part of the assessment of the area, a desktop study was undertaken to put the farm and the general geographical area in a historical and archaeological context.

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided basically into three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

- Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago
- Middle Stone Age (MSA) less than 300 000 – 20 000 years ago
- Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

There are no known Stone Age sites close to the study area (Bergh 1999: 4), although one is known to exist to the south of the town, including some rock engravings (p.4-5). Although no Stone Age sites were recorded during the assessment, some individually scattered Stone Age tools were identified in the study area.

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts. In South Africa it can be divided in two separate phases (Bergh 1999: 96-98), namely:

- Early Iron Age (EIA) 200 – 1000 A.D.
- Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) indicates that a Middle Iron Age should be included. His dates, which are widely accepted in archaeological circles, are:

- Early Iron Age (EIA) 250 – 900 A.D.
- Middle Iron Age (MIA) 900 – 1300 A.D.
- Late Iron Age (LIA) 1300 – 1840 A.D.

There are once again no known Iron Age sites close to the study area (Bergh 1999: 6-7), although this might just point to a lack of archaeological research in the region. No sites were found during the assessment though.

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. The earliest Europeans to travel through the area were the groups of Broadbent & Hodgson in 1823, Hodgson & Archbell in 1826 and later that of Krebs in 1838 (Bergh 1999:12-13). They were closely followed by the Voortrekkers (p.14). Wolmaransstad was proclaimed as town in February 1891 (Bergh 1999: 147).

A map dating to 1907 (from the Chief Surveyor General database) for Portion 1 (CSG Document 101DZD01) shows that the farm was then numbered 173 and that it was held by the then Government in title. The farm was surveyed in December 1905. The oldest map for Portion 2 (the section under scrutiny) dates to the 1907's (www.csg.dla.gov.za). No sites or features are shown on the map.

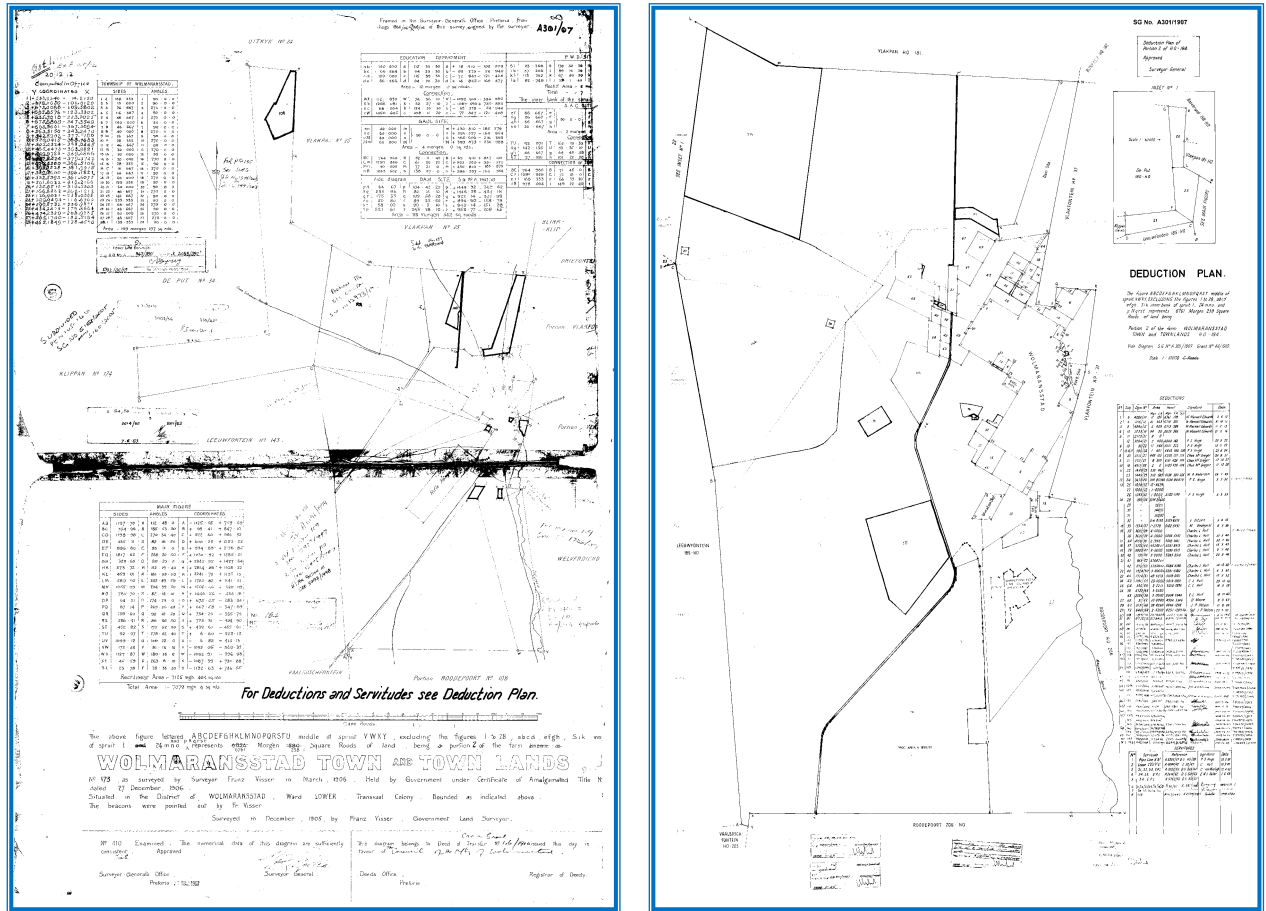


Figure 9: 1907 Surveyor-General map of Portion 2 of the farm Wolmaransstad Town and Townlands No. 184-HO (www.csg.dla.gov.za).

3.9.1 RESULTS OF FIELDWORK

During the assessment a number of sites, features and objects (17 in total) were recorded in the study area. This includes possible graves, some individual stone tools, farm related structures, the remains of the old SANDF Shooting Range and others. Most of these are much younger than 60 year of age and not significant in terms of their cultural heritage origin.

Site 1: SANDF Firing Range

The site is dominated by a large structure relating to the South African Defense Force (pre-1994). There is a high back-stop (approximately 12 meters high), as well as a concrete structure for target operators. Spent ammunition also litters the area within the shooting range. The age of the site is not known, but is most likely less than 60 years of age and dates from the 1960's onwards. The recording done during the assessment is seen as sufficient and no further mitigation is recommended.



GPS Location: S27.21919 E25.94874.
Cultural Significance: Low
Heritage Significance: Low
Field Ratings: General protection C (IV C): Phase 1 is seen as a sufficient recording of the existing structure and it may therefore be demolished of (low significance).
Mitigation: None required.

Plate 14: A view of the firing range structure from the top of the back-stop



Plate 15: Another view of decommissioned SANDF site



Plate 16: Some of the spent ammunition found at the site.

Site 2 - Quarry

This is a deserted quarry, dating to recent times, and has impacted on a portion of the study area. If any archaeological or historical sites or features were present here in the past it would have been severely impacted or destroyed as a result. Some informal dumping of household discard is also visible in the quarry area.



Some informal dumping of household discard is also visible in the quarry area.

GPS Location: S27.202231 E25.97698.
Cultural Significance: None
Heritage Significance: None
Field Ratings: None
Mitigation: None required.

Plate 17 : A view of a section of the quarry (note the informal dumping)

Sites 3 – 11: Various farming related and other recent structures

Across the study area there is evidence of modern subsistence cattle farming activity. This includes a number of cattle enclosures (kraals) and a possible area where cattle is slaughtered and/or branded. Formal agriculture is represented by the presence of the remains of concrete/cement farm dams/reservoirs, covered in graffiti, with some discard thrown inside. Several broken concrete cattle troughs are also present across the site.

Running parallel to the power lines, and underneath the power lines are the remains of concrete boundary posts. Close to the firing range stands a cement column with an embedded steel dropper. Another one stands a few meters away. They could possibly have been the entrance to the shooting range.

There are patches of exposed bedrock on some sections of the site, and soil ridges that run across the site in other places. Rocks from the bedrock have, in places, been placed at intervals, in straight lines, on top of the soil ridges. This is either the result of recent agriculture (ploughing) or the SADF activities here.

Close to the N12 is a concrete low-level bridge that may have been related to agriculture in the area, or may have been part of an old road.

None of these sites or features are older than 60 years of age and of any cultural or heritage significance and can therefore be demolished once development commences.

GPS Locations: S27.21342 E25.95427 (3); S27.22407 E25.96043 (4); S27.22175 E25.95606 (5); S27.22231 E25.95824 (6); S27.22753 E25.96292 (7); S27.21139 E25.94735 (8); S27.22038 E25.9518 (9); S27.22753 E25.96292 (10); S27.22867 E25.96354 (11)

Cultural Significance: Low

Heritage Significance: Low

Field Ratings: General protection C (IV C): Phase 1 is seen as a sufficient recording of the existing structure and it may therefore be demolished of (low significance).

Mitigation: None required.



Plate 18: Cement dam and trough in the area (note the graffiti)



Plate 19: Some of the modern cattle kraals in the area.



Plate 20: One of the cement border posts. Plate 21: Low-level bridge in study area

Sites 12 – 15: Possible Graves

A conversation with an elder of the community, prior to commencing the survey, indicated the possibility of old graves. However he was not able to indicate where these might be located. There are several heaps of "packed" stones in the study area that could potentially be graves (4 in total). Although these graves have not been confirmed, the possibility of low stone packed or unmarked graves in the area needs to be taken into consideration. As part of the social consultation that should be undertaken for the proposed development local inhabitants should be consulted regarding the presence and locality of graves here. Should these turn out to be graves, or if more unknown graves are identified as a result, then mitigation measures will have to be implemented. Some could include fencing-off and preserving in situ, or exhumation and relocation after all legal processes have been undertaken.



GPS Location: S27.23255 E25.95846 (12); S27.23050 E25.95947 (13); S27.23064 E25.95914 (14); S27.22851 E25.96332 (15)

Cultural Significance: High if graves

Heritage Significance: High if graves

Field Ratings: Although these features are possibly not graves, the possibility cannot be ruled out. If graves then these graves need to be either preserved or relocated.

Mitigation: Social consultation. If graves then either preserve in situ or exhume and relocate.

Plate 22: One of the possible graves in the area.

Site 16 – 17: Scattered stone tools

A few individual stone tools were found scattered in the area, mainly in pebbled areas that are being eroded (water washed) out. It is possible that more could be located in the area, but as there is no formal Stone Age site (such as a cave or shelter close by) these tools are out of context and of less significance. The recording done during the assessment is seen as sufficient mitigation. The stone tools found date to the Middle Stone Age.

GPS Location: S27.22352 E25.95952 (16); S27.21718 E25.95156 (17).

Cultural Significance: Low

Heritage Significance: Low

Field Ratings: General protection C (IV C): Phase 1 is seen as a sufficient recording of the existing structure and it may therefore be demolished of (low significance).

Mitigation: None required.



Plate 23: One of the stone tools found in the area.



Plate 24: Another MSA stone tool found in the area.



Figure 10: Distribution of sites and track paths followed during assessment (Google Earth 2015).

3.9.2 CONCLUSION AND RECOMMENDATION

A number of sites and features were identified during the survey, including a defunct old SADF firing range, some recent farming related sites and structures and possible graves, as well as scattered locations of individual MSA stone tools. Besides the stone tools and the graves possibly, none of the other sites or features are older than 60 years of age or of any cultural heritage significance. The graves need to be confirmed through social consultation however, and if these turn out to be graves then they could be either preserved in situ or exhumed and relocated should the development impact on them negatively.

It is therefore recommended that the development be allowed to take place. However, the subterranean presence of archaeological or historical sites, features or objects is always a possibility. This could include previously unknown and unmarked burial pits. Should any be uncovered during the development process a heritage specialist should be called in to investigate and recommend on the best way forward.

The comprehensive Cultural Heritage Resources Impact Assessment conducted by A Pelsers Archaeological Consulting is attached as **Annexure O** to the application for township establishment.

CHAPTER 4: PROPOSED DEVELOPMENT

4.1 LAND USES

The intention of the applicant i.e the Maquassi Hills Local Municipality is to utilize the concerned property for the establishment of the proposed township areas of Wolmaransstad Extensions 17, 18 and 19. The primary aim of the township areas is to address the urgent need experience by the Maquassi Hills Local Municipality in the Wolmaransstad / Tsweleng urban complex for vacant residential erven. This need has given rise to illegal occupation of the vacant land adjacent to the Wolmaransstad Correctional Services site. In accordance with the phasing of this development as proposed by the Department of Local Government and Human Settlements, the first phase of the development will include the establishment of an integrated human settlement comprising 2500 residential erven whereas the second and third development phases will include 1521 and 593 residential erven respectively.

In order to accommodate a variety of housing typologies and to ensure that a proper integrated human settlement is established, the layout plan of the proposed township Wolmaransstad Extension 17 incorporates 266 “Residential 1” erven with stand sizes in excess of 500m² that are earmarked for middle income and bonded housing. The layout plan also incorporates a site of 2,5556 hectares that can accommodate a higher density residential development including inter alia Community Residential Units (CRU’s), flats or walk-ups. The fore-mentioned site was positioned within the primary service node of the township area ensuring that the inhabitants of this facility will have easy access to the support functions (business and community facilities) available at this node.

The layout plan of the proposed township Wolmaransstad Extension 18 similarly makes provision for 31 “Residential 1” erven that can be employed for middle income and bonded housing.

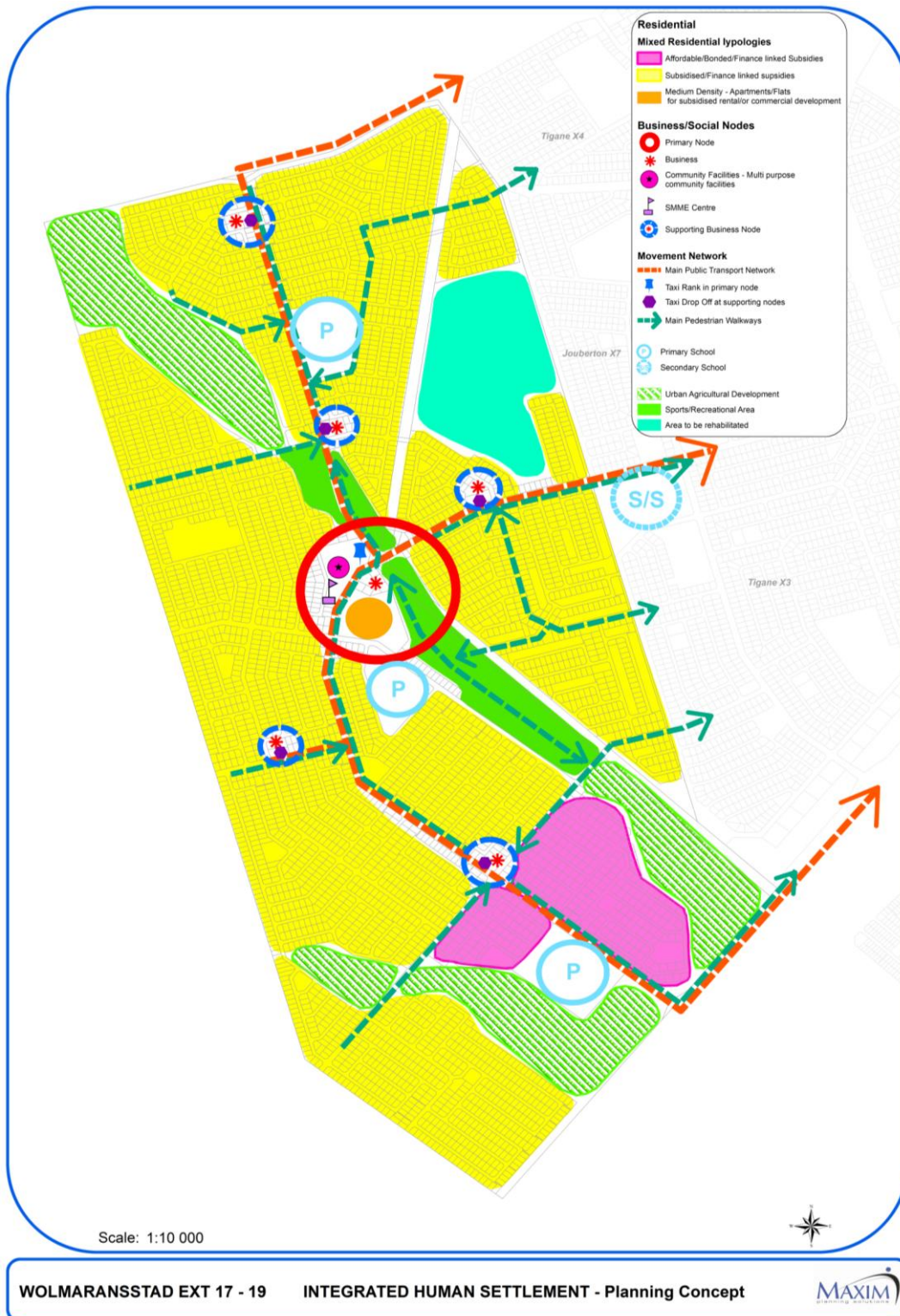
Due to the large areas that were excluded from development as a result of the impact of the 1:100 year floodline applicable to the three drainage features as well as in an attempt to alleviate the economic plight of some of the inhabitants, provision was made for a number of sites that can be used for non-noxious urban agricultural purposes (e.g. fruit- and vegetable gardens) as determined by the Local Authority.

In accordance with the requirements of the Maquassi Hills Local Municipality, the layout plans of the respective township areas also make provision for a number of business erven at each of the identified business nodes to allow for a number of enterprises to be established within such node. The business nodes also incorporate a communal parking facility that will service all the business erven within such node allowing for larger

business facilities to be established on the respective business erven as a result of the availability of a communal parking area.

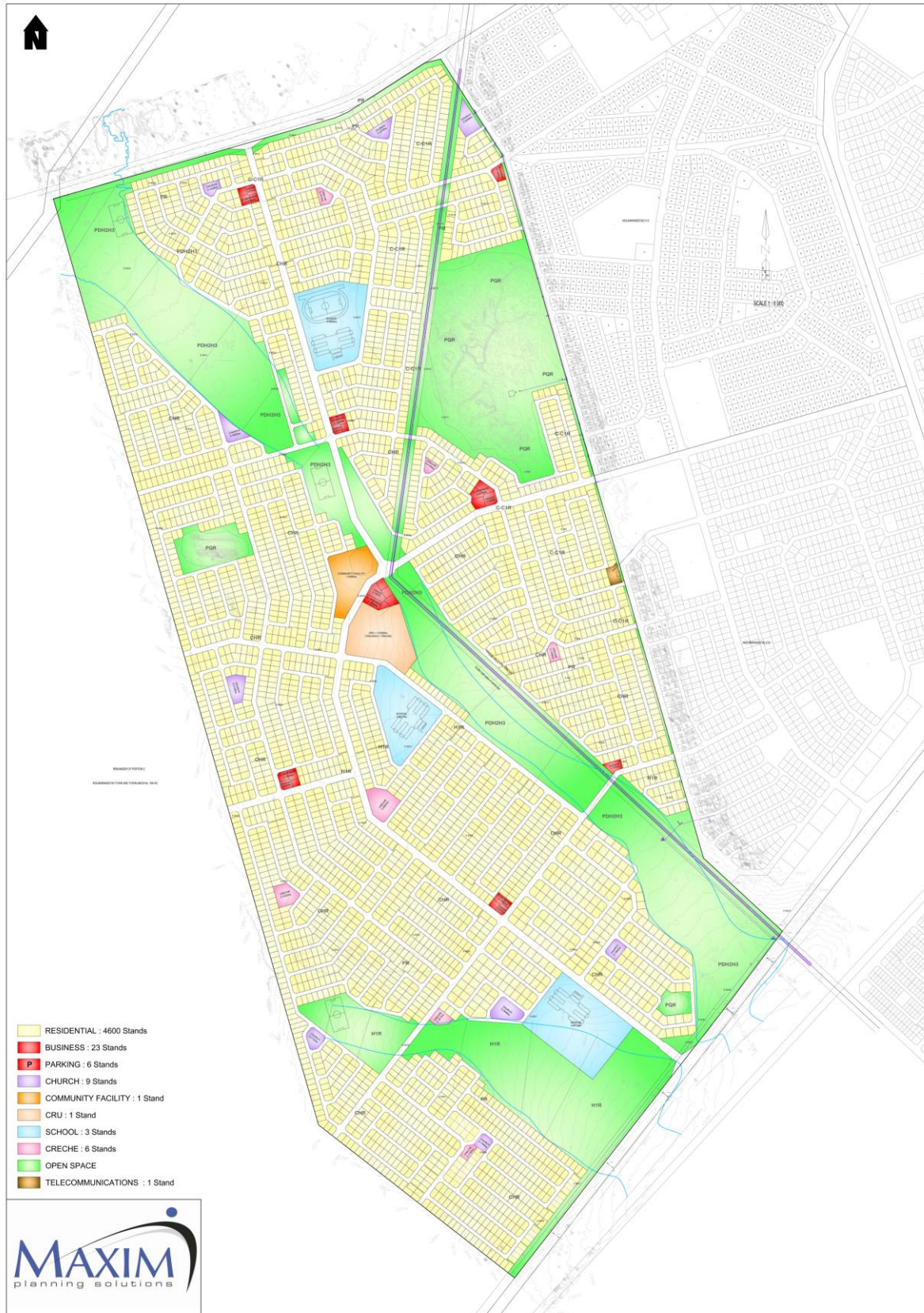
The planning concept employed during the compilation of the integrated human settlement layout plan is reflected on the following map.

Map 6: Integrated Human Settlement - Planning Concept



The integrated layout plan compiled in respect of the identified development area is reflected on the following map.

Map 7: Integrated layout plan (Wolmaransstad Extensions 17, 18 and 19)



The layout plans of the respective township areas make provision for the following land uses:

Wolmaransstad Extension 17

Use Zone	Proposed Land Use	Number of erven	Area in hectares	% of area
Residential 1	Dwelling house (average stand size 413m ²)	2500	103,3097	48,22%
Residential 2 (Density: 100 dwelling units per hectare)	Community Residential Units (CRU), rental flats	1	2,5556	1.19%
Business 2	Shops	17	1,2483	0.58%
Special	Parking	4	0,4019	0.19%
	Telecommunication	1	0,1728	0.08%
Municipal	Community facility, taxi rank, municipal paypoint, clinic, etc.	1	1,6379	0.76%
Institutional	Primary School	3	11,1195	5.19%
	Crèche	4	0,8715	0,41%
	Church	3	0,7613	0,36%
Public Open Space	Parks	16	30,8937	4.90%
Agricultural	Non-noxious urban agricultural activities (e.g. fruit- and vegetable gardens) as determined by the Local Authority	1	10,5066	4.90%
Existing public roads	Streets		50,7862	23,70%
Total		2552	214,2650	100%

Wolmaransstad Extension 18

Use Zone	Proposed Land Use	Number of erven	Area in hectares	% of area
Residential 1	Dwelling house (average stand size 390m ²)	1506	58,6995	58.65%
Business 2	Shops	3	0,1900	0,19%
Special	Parking	1	0,0800	0.08%
Institutional	Crèche	3	0,6332	0.63%
	Church	4	1,0812	1.08%
Public Open Space	Park	2	2,4812	2.48%
Agricultural	Non-noxious urban agricultural activities (e.g.	2	17,2133	17.20%

	fruit- and vegetable gardens) as determined by the Local Authority			
Existing public roads	Streets		19,7058	19.69%
Total		1521	100,0842	100%

Wolmaransstad Extension 19

Use Zone	Proposed Land Use	Number of erven	Area in hectares	% of area
Residential 1	Dwelling house (average stand size 300m ²)	593	17,7860	33.63%
Business 2	Shops	3	0,1756	0,33%
Special	Parking	1	0,0731	0.14%
Institutional	Church	2	0,4463	0.84%
Public Open Space	Park	4	3,5771	6.76%
Agricultural	Non-noxious urban agricultural activities (e.g. fruit- and vegetable gardens) as determined by the Local Authority	1	17,7880	33.63%
Existing public roads	Streets		13,0450	24.68%
Total		604	52,8891	100%

4.2 FACTORS INFLUENCING THE LAYOUT PLANS

The layout plans of the proposed township areas of Wolmaransstad Extensions 17, 18 and 19 were influenced by the following factors:

★ Wolmaransstad Extension 17:

- Providing access to the proposed township area from the adjacent existing township areas of Wolmaransstad Extensions 10 and 13;
- Providing access to the proposed township area (and indirectly the proposed township areas of Wolmaransstad Extensions 18 and 19) from Road N12 through the introduction of a proposed partial clover (parclo) interchange;
- Reserving the area required for the proposed partial clover interchange within a servitude area where it affects the proposed township area of Wolmaransstad Extension 17;
- Accommodating the existing Eskom Eersteling Traction / Makwassie Traction 1 (132kV) powerline servitude (31m wide) vide diagram SG No. 5950/1997 traversing the central portion of the development area from north to south;

- Aligning the main collector roads in the adjacent township areas of Wolmaransstad Extensions 10 and 13 with the collector roads in the proposed township area;
- Limiting access to individual erven from the main collector roads;
- The 1:100 year floodline of the three drainage channels was determined and the layout plan accommodates the 1:100 year floodline and restricts development to the area outside the 1:100 year floodline;
- Ensuring adequate surface stormwater drainage;
- Accommodating the area associated with the borrow pit / spoil area within the layout plan as an open space that can be developed for recreational purposes once this area has been rehabilitated;
- Accommodating the existing telecommunication mast on a stand in the proposed township area;
- Providing 266 “Residential 1” erven with erf sizes in excess of 500m² to accommodate middle income / bonded houses;
- Providing a central node at the intersection of the main road network through the proposed township area that will accommodate higher density residential development, community facilities and business facilities;
- Accommodating the Eskom Leeufontein Rural / Trotsville 1 (22kV) Feeder MV Overhead Line within the layout plan and providing a 9m building restriction area along the route of this powerline (line located along the southern boundary of the proposed township area adjacent to Road N12 from where it follows the general direction / route of the 132kV HV Overhead Feeder Line and eventually diverting from this route and entering the township area of Wolmaransstad Extension 10 (as indicated on the layout plan) (refer also to **Plate 25** below)
- Aligning the southern boundary of the proposed township area with the cadastral boundary of Road N12 (subdivided as Portion 150 of the farm Wolmaransstad Town and Townlands No. 184-HO)
- Providing a 20m building restriction area along the reserve boundary of Road N12;
- Providing a line of no access along the south-eastern boundary of the proposed township area bordering onto Road N12 as well as for a distance of 100 metres along the main access road to the township area from Road N12;
- Providing areas that can be utilized for urban agricultural purposes;
- Providing a 16m building restriction area along the reserve boundary of Provincial Road 158;
- Providing a line of no access along the northern boundary of the proposed township area bordering onto Provincial Road 158 as well as for a distance of 100 metres along the main access road to the township area from Provincial Road 158;
- Accommodating an existing informal stormwater drainage feature located along the eastern boundary of the proposed township area (the consulting civil

engineering consultants indicated that plans exist to formalise this drainage canal into a properly lined concrete canal (refer **Plate 26** below);

- The open space erven provided in the proposed township area to accommodate the proposed drainage feature detailed in the preceding paragraph, will also accommodate the 9m building restriction area applicable along the Eskom overhead powerline located in the road reserve of the street in the township area of Wolmaransstad Extension 13 bordering onto the eastern boundary of the proposed township area (refer also to **Plate 26**)
- The layout plan also incorporates the recommendations of the appointed consulting civil engineering consultants in respect of the optimization of the serviceability of the township area as well as the most appropriate phasing thereof.



Plate 25: View of Eskom Leeufontein Rural / Trotsville 1 (22kV) Feeder MV Overhead Line along Road N12



Plate 26: View of informal drainage canal located along eastern boundary of the proposed township area

★ **Wolmaransstad Extension 18:**

- Providing access to the proposed township area from the adjacent proposed township area of Wolmaransstad Extension 17 linking onto the existing township areas of Wolmaransstad Extensions 10 and 13;
- Reserving the area required for the proposed N12 partial clover interchange within a servitude area where it affects the proposed township area of Wolmaransstad Extension 18;
- Aligning the main collector roads in the adjacent township area of Wolmaransstad Extension 17 with the collector roads in the proposed township area;
- Limiting access to individual erven from the main collector roads;
- The 1:100 year floodline of the three drainage channels was determined and the layout plan accommodates the 1:100 year floodline and restricts development to the area outside the 1:100 year floodline;

- Ensuring adequate surface stormwater drainage;
- Providing 31 “Residential 1” erven with erf sizes in excess of 500m² to accommodate middle income / bonded houses;
- Accommodating the Eskom Leeufontein Rural / Trotsville 1 (22kV) Feeder MV Overhead Line within the layout plan and providing a 9m building restriction area along the route of this powerline (line located along the northern boundary of the N12 road reserve as indicated on the layout plan) (refer also to **Plate 25** above)
- Aligning the southern boundary of the proposed township area with the cadastral boundary of Road N12 (subdivided as Portion 150 of the farm Wolmaransstad Town and Townlands No. 184-HO)
- Providing a 20m building restriction area along the reserve boundary of Road N12;
- Providing a line of no access along the south-eastern boundary of the proposed township area bordering onto Road N12;
- Providing areas that can be utilized for urban agricultural purposes;
- The layout plan also incorporates the recommendations of the appointed consulting civil engineering consultants in respect of the optimization of the serviceability of the township area as well as the most appropriate phasing thereof.

★ **Wolmaransstad Extension 19:**

- Providing access to the proposed township area from the adjacent proposed township area of Wolmaransstad Extension 17 which in turn links onto the existing township areas of Wolmaransstad Extensions 10 and 13;
- Accommodating the existing Eskom Leeufontein Rural / Strydpoort 1 (22kV) MV Overhead powerline servitude (22m wide) as shown on diagram SG No. A347/1990 located in the far north-western corner of the development area (refer **Plate 7** above);
- Accommodating the existing Eskom Goat DS / Klipfontein Rural (132kV) Overhead powerline servitude (22m wide) as shown on diagram SG No. A5850/1997 located in the far north-western corner of the development area (refer **Plate 6** above);
- Aligning the main collector roads in the adjacent proposed township areas of Wolmaransstad Extensions 17 and 18 with the collector roads in the proposed township area;
- Limiting access to individual erven from the main collector roads;
- The 1:100 year floodline of the three drainage channels was determined and the layout plan accommodates the 1:100 year floodline and restricts development to the area outside the 1:100 year floodline;
- Ensuring adequate surface stormwater drainage;
- Providing areas that can be utilized for urban agricultural purposes;

- Providing a 16m building restriction area along the reserve boundary of Provincial Road 158;
- Providing a line of no access along the northern boundary of the proposed township area bordering onto Provincial Road 158 as well as for a distance of 100 metres along the main access road to the township area from Provincial Road 158;
- Accommodating the high back-stop (approximately 12 meters high) as well as a concrete structure for target operators forming part of the decommissioned SANDF shooting range within an open space area.
- The layout plan also incorporates the recommendations of the appointed consulting civil engineering consultants in respect of the optimization of the serviceability of the township area as well as the most appropriate phasing thereof.

4.3 ACCESS

Access to the proposed township areas of Wolmaransstad Extension 17, 18 and 19 will be from the existing street network of the existing township areas of Wolmaransstad Extensions 10 and 13 through the extension of the main road network within these township areas to link with those in the proposed township areas. In addition to the fore-mentioned existing street networks in the adjacent township areas of Wolmaransstad Extensions 10 and 13, access to the proposed township areas of Wolmaransstad Extensions 17, 18 and 19 will also be obtained directly off Road N12 (Wolmaransstad – Bloemhof road) (refer **Plates 27 and 28**) as well as from Provincial Road 158 (Wolmaransstad – Leeuwfontein Road) (refer **Plates 29 and 30**). The access roads linking onto Road N12 and Provincial Road 158 will be provided during the establishment of the township area of Wolmaransstad Extension 17.



**Plate 27: View of Road N12
(direction west)**



**Plate 28: View of Road N12
(direction east)**



Plate 29: View of Provincial Road 158 (direction east)



Plate 30: View of Provincial Road 158 (direction west)

Due to the location of the proposed township areas of Wolmaransstad Extensions 17 and 18 adjacent to the N12 (Wolmaransstad – Bloemhof Road) and Wolmaransstad Extensions 17 and 19 located adjacent to Provincial Road 158, as well as the fact that the proposed township areas of Wolmaransstad Extensions 17, 18 and 19 will also be accessed off the N12 and Provincial Road 158, Maxim Planning Solutions (Pty) Ltd commissioned TechIQ Consulting Engineers to conduct a Traffic Impact Study in respect of the proposed township areas. The comprehensive Traffic Impact Study is attached as **Annexure P** to the application for township establishment). The results of the Traffic Impact Assessment can be summarised as follows:

Wolmaransstad has excellent road links to surrounding areas, including the following:

ROUTE	DESTINATION
N12 north	Matlosana, Tlokwe and Johannesburg
N12 south	Bloemhof, Kimberley and Cape Town
R505 north	Ottosdal
R505 south	Makwassie
R504 east	Leeudoringstad
R504 west	Schweizer-Reneke

The proposed township is served by the following roads:

ROUTE	CLASSIFICATION	DESCRIPTION
N12	Class U1 / R1	Principal arterial along the south-eastern boundary of the site. In the Wolmaransstad town centre the road becomes Broadbent Street

Leeufontein Road	Class U3 / R3	Minor arterial road along the north-western boundary of the site. Links to R504 (Kruger Street) and continues to the north as R505
Piet Retief Street	Class U4	Collector road between the site and the Wolmaransstad town centre. Although the road is aligned with the R505 to Makwassie east of the N12, the road does not connect to the N12
Fels Street	Class U4	The street runs east-west between the historic town and new housing developments. Towards the west, the road provides one of the few connections across the railway line that divides the new Wolmaransstad extensions

The road network of the proposed townships provides for the following:

- Access on N12 approximately 800 metres south of the access to the Wolmaransstad Extensions
- Access on Leeufontein Road
- Connections to the continuous routes in the existing road network to the east of the proposed townships (three collector roads)
- Continuous roads towards the south-western edge of the proposed township that provide the framework for future expansion.

The distribution of trips within the townships is expected to be as follows:

Entrance on N12	45%
Entrance on Leeufontein Road	25%
Roads within the residential area	30%
TOTAL	100%

External destinations are expected as follows:

N12 south to Bloemhof	5%
R505 south to Makwassie	15%
N12 north and Wolmaransstad town centre	65%
Leeufontein Road west	5%
R504 to Schweizer-Reneke	5%
R505 north to Ottosdal	5%
TOTAL	100%

A five-year planning period with 2020 as horizon year was applied in the traffic analysis as recommended in the *Manual for Traffic Impact Studies*. A growth rate of 4% p.a. compound growth was used to calculate the 2020 horizon year background traffic

demand. Results of the capacity analysis for the 2020 horizon year total traffic demand are summarised below.

○ **Access to Wolmaransstad X17 on national road N12**

ACCESS TO WOLMARANSSTAD X17 ON N12					
APPROACH	TURN	AM PEAK HOUR		PM PEAK HOUR	
		DELAY (s)	LOS	DELAY (s)	LOS
North N12	Straight	0.0	A	0.0	A
		0.7	A	1.2	A
South N12	Left	0.0	A	0.0	A
		0.0	A	0.0	A
West Wolmaransstad X17	Left	6.5	A	6.2	A
		13.3	B	15.3	C
TOTAL		3.6	A	1.9	A

It is concluded that the proposed two-way stop control and lane configuration will ensure adequate capacity and efficient traffic flow.

○ **Junction of national road N12 and R505 to Makwassie**

T-JUNCTION OF R505 AND N12					
APPROACH	TURN	AM PEAK HOUR		PM PEAK HOUR	
		DELAY (s)	LOS	DELAY (s)	LOS
North N12	Left	0.0	A	0.0	A
		0.0	A	0.1	A
East R505 to Makwassie	Left	6.6	A	8.7	A
		38.2	E	22.8	C
South N12	Straight	0.1	A	0.0	A
		1.9	A	3.3	A
TOTAL		10.0	B	4.4	A

The level of service (LOS) for the right turn movement on the R505 is LOS E, with delay slightly higher than the threshold of 35 seconds for LOS D.

The average level of service on the eastern approach is D (delay 30.3 seconds) and for the intersection as a whole, the LOS is A.

It is concluded that the existing lane configuration with left turn slip lanes and exclusive right turn lanes will provide acceptable operating conditions in the horizon year.

○ **Intersection of Piet Retief Street and Fels Street**

INTERSECTION OF PIET RETIEF STREET AND FELS STREET					
APPROACH	TURN	AM PEAK HOUR		PM PEAK HOUR	
		DELAY (s)	LOS	DELAY (s)	LOS
North Piet Retief Street	Left	9.8	A	10.0	B
	Straight	10.8	B	11.1	B
	Right	10.5	B	10.8	B
East Fels Street	Left	0.0	A	0.0	A
	Straight	0.0	A	0.1	A
	Right	0.4	A	0.2	A
South Piet Retief Street	Left	9.0	A	7.5	A
	Straight	10.5	B	9.8	A
	Right	10.4	B	10.0	B
West Fels Street	Left	0.0	A	0.0	A
	Straight	0.0	A	0.0	A
	Right	0.4	A	0.0	A
TOTAL		7.1	A	6.9	A

This intersection provides the preferred route to the Wolmaransstad city centre for residents in the southern residential areas and can be expected to operate satisfactorily.

○ **Intersection of R504 Schweizer-Reneke / Kruger Street and Leeufontein Road / R505**

INTERSECTION OF R504 AND LEEUWFontein ROAD / R505					
APPROACH	TURN	AM PEAK HOUR		PM PEAK HOUR	
		DELAY (s)	LOS	DELAY (s)	LOS
North R505 Ottosdal Way	Left	9.7	A	11.2	B
	Straight	12.8	B	15.5	C
	Right	12.6	B	11.3	B
East R504 Kruger Street	Left	0.0	A	0.0	A
	Straight	0.0	A	0.0	A
	Right	0.4	A	0.4	A
South Leeufontein Road (to Wolmaransstad X17)	Left	9.7	A	9.5	A
	Straight	12.7	B	15.0	C
	Right	12.1	B	11.7	B
West R504 to Schweizer-Reneke	Left	0.0	A	0.0	A
	Straight	0.1	A	0.1	A
	Right	0.7	A	1.2	A
TOTAL		5.8	A	3.8	A

It is concluded that the existing two-way stop intersection of R504 to Schweizer-Reneke / Kruger Street and the Leeufontein Road / R505 to Ottosdal

has sufficient capacity to accommodate the 2020 horizon year total traffic demand and no improvements are required.

o **Intersection of Nicodemus Street and Leeuwfontein Road**

INTERSECTION OF NICODEMUS STREET AND LEEUWFontein ROAD					
APPROACH	TURN	AM PEAK HOUR		PM PEAK HOUR	
		DELAY (s)	LOS	DELAY (s)	LOS
North Leeuwfontein Road	Left	0.0	A	0.0	A
	Straight	0.0	A	0.0	A
East Nicodemus Street to residential areas	Left	9.2	A	8.8	A
	Right	10.9	B	10.9	B
South Leeuwfontein Road	Straight	0.0	A	0.1	A
	Right	0.7	A	1.1	A
TOTAL		1.4	A	1.0	A

It is concluded that the existing layout of the T-junction of Nicodemus Street and Leeuwfontein Road that provides access to the existing residential township from the north-west can accommodate the projected 2020 horizon year total traffic demand.

o **Access to Wolmaransstad X17 on Leeuwfontein Road**

NEW T-JUNCTION ACCESS TO WOLMARANSSTAD X17 ON LEEUWFontein ROAD					
APPROACH	TURN	AM PEAK HOUR		PM PEAK HOUR	
		DELAY (s)	LOS	DELAY (s)	LOS
North-east Leeuwfontein Road	Left	0.0	A	0.0	A
	Straight	0.0	A	0.0	A
South-east access to Wolmaransstad X17	Left	5.2	A	5.3	A
	Right	9.3	A	9.5	A
South-west Leeuwfontein Road	Straight	0.0	A	0.0	A
	Right	0.5	A	0.7	A
TOTAL		5.1	A	2.3	A

It is concluded that the proposed access to township Wolmaransstad X17 on Leeuwfontein Road can be expected to operate at a high level of service and will be able to efficiently accommodate the projected 2020 horizon year total traffic demand.

In summary, the capacity analysis indicates that the existing road network can accommodate the 2020 horizon year traffic demand of the proposed townships Wolmaransstad Extensions 17, 18 and 19 without the need for any road improvements and that the proposed T-junctions on the N12 national road and Leeuwfontein Road respectively will operate efficiently with two-way stop control.

It is recommended that the two T-junctions should include separate left and right turn lanes on all approaches to minimise the impact of the proposed township on these two major roads.

The following recommendations were also made in the Traffic Impact Assessment in respect of ancillary transport aspects:

- **Township Layout**

The proposed township Wolmaransstad X17 is expected to have a low level of vehicle ownership and will therefore rely on walking and public transport to serve the needs of the residents. The township layout has been designed to provide in the specific needs of the community, including the following:

- A wishbone configuration of major roads that connect the township to the N12 national road in the south-east, the Leeufontein Road in the north-west and the existing residential developments as well as the Wolmaransstad town centre towards the north-west. No access to individual residential units is provided from these roads.
- The T-junction where the three roads meet, should initially be a two-way stop, but can be converted to a three-way stop or traffic signal to accommodate the crossing of pedestrians to the proposed business development, community facilities and CRU development. Alternatively, a roundabout can provide a traffic calming effect and can be combined with a raised pedestrian crossing to improve the safety of pedestrians.

- **Schools**

Schools were located in the north-western, central and south-eastern sectors of the residential area to reduce the walking distance to schools.

Site traffic assessments should be undertaken of the site development plans of the schools to ensure that all traffic engineering aspects such as access, pedestrians, drop-off and pick-up of learners, public transport and deliveries are properly addressed.

- **Community Facilities**

Small business sites, crèches and churches have been scattered throughout the area to reduce walking distances. The central community facility is located at the junction of the three major roads and should provide a public transport facility.

- **Pedestrians**

Paved pedestrian walkways of at least 1.5m wide should be provided along at least one side of the following roads:

- The three minor arterials that form the backbone of the road network
- The two additional roads that connect to the existing residential area to the east

- Collector roads within the residential area, particularly those that provide access to schools and business sites.

It is accepted that the cost of paved pedestrian walkways along all roads may be prohibitive, but paved pedestrian walkways along all streets should be a long term objective and should be accommodated in the **design** of all streets.

○ **Public Transport**

It is undesirable to have informal taxi facilities within the residential area. Provision should therefore be made for the following facilities:

- Lay-bys for minibus taxis and / or buses at frequent intervals along major roads
- Lay-bys for minibus taxis and / or buses at school sites
- Lay-bys or minibus taxi parking bays at business sites
- Minibus taxi parking at the community facility.

It is **not** desirable to have public transport facilities along the N12 or Leeufontein Road and facilities should rather be located within the township as recommended above.

The following conclusion and recommendations were also made in the Traffic Impact Assessment:

Based on a site visit, traffic counts, a traffic analysis and capacity analysis of all intersections in the study area, discussions with the town planning consultants and perusal of the proposed township layouts, it is concluded that the existing road network in the vicinity of the proposed Wolmaransstad Extensions 17, 18 and 19 townships can efficiently accommodate the proposed townships from a traffic engineering point of view.

It is therefore recommended from a traffic engineering point of view that:

- The application for the township Wolmaransstad X17 be granted.
- Access to the township be granted to the N12 national road, approximately 800m from the existing T-junction to the Wolmaransstad extensions, as well as to the Leeufontein Road and the four roads that integrate Wolmaransstad X17 with the existing residential townships to the north-east.
- Provision be made for public transport and pedestrians as recommended in the report.
- Site traffic assessments be undertaken of the site development plans for each of the three school sites prior to construction of the schools.

Subsequent to the compilation and submission of the Traffic Impact Assessment, the Traffic Engineer convened a meeting with representatives of the South African National Roads Agency Limited (SANRAL) on 15 October 2015 to discuss the comments on the TIA. During this meeting the following issues were raised:

- SANRAL considers N12 as a Class 1 Principal arterial and any access must comply with interchange spacing requirements, i.e. no at grade intersections will be accommodated in the long term plan.
- The road reserve for a future interchange must be provided at all accesses to the N12.
- The existing access to the township area of Wolmaransstad Extension 10 off the N12 does not meet SANRAL's spacing standards and will have to be closed (comment: this access was approved during 1997 and constructed during the late 90's when the responsible roads authority was still the Provincial Department of Roads).
- In terms of the TRH26 South African Road Classification and Access Management manual, Version 1.0, August 2012, the minimum spacing between freeway "access to access" interchanges is set as follows:
 - Yellow line break point distance: 1,30km
 - Centre line spacing: 1,50kmThe distance between the centre line of the Makwassie Road (R505) interchange and the existing access to Wolmaransstad Extension 10 is approximately 1,05km. The distance between the proposed access and the existing access to Wolmaransstad Extension 10 is approximately 910m which results in a centre line spacing of 1,96km.

In response to the meeting of 15 October 2015, a concept schematic presentation of the proposed interchange at the access point to the proposed township area of Wolmaransstad Extension 17 was forwarded to SANRAL on 21 October 2015. In response to the fore-mentioned submission, SANRAL indicated its principle approval in respect of the conceptual spacing and design of the parclo interchange but requested that the following issues be addressed in an addendum to the Traffic Impact Assessment:

- Interchange design with the most important geometric detail
- Local traffic should not utilize the N12 as primary route. Attention will have to be given to the proposed new rail crossing as well as the closure of the other at grade intersection as soon as the new access is constructed.

The addendum to the Traffic Impact Study is currently being attended to by the Traffic Engineer and will be submitted to SANRAL in due course.

The area required for the parclo intersection from the N12 to the proposed township, based on the concept geometric design, was subsequently reserved on the layout plan and will be addressed as integral part of the township establishment process. This area will be reserved through the registration of a servitude for road purposes in favour of the South African National Roads Agency Limited over the erven affected.

CHAPTER 5: PROVISION OF ENGINEERING SERVICES

5.1 INTRODUCTION

NEP Consulting Engineers (Pty) Ltd was appointed to investigate and report on the provision of civil engineering services to the proposed township areas.

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

- Section 5.2: Water Supply
- Section 5.3: Sanitation

5.2 WATER SUPPLY

5.2.1 BULK WATER SUPPLY

Bulk water is currently supplied to Wolmaransstad by means of a bulk water supply line from Sedibeng Water and boreholes. Purified water is pumped from Balkfontein to Leeudoringstad reservoirs, from where it is pumped into the Buisfontein reservoir; from there the water gravitates to the Wolmaransstad reservoirs and Tsweleng 9.2 ML reservoir.

From the Tsweleng reservoir water is supplied to Makwassie/Lebaleng and Tsweleng area next to the development. The existing storage is sufficient to provide the ultimate demand for the new development.

This report will deal with the actual requirement of the development under consideration. It is proposed that water will be pumped through a 355mm diameter pipe running parallel to the existing water main pipe serving the area of Wolmaransstad Extensions 10 and 13 to a 1200kl Tower Reservoir situated at the highest point next to the proposed development.

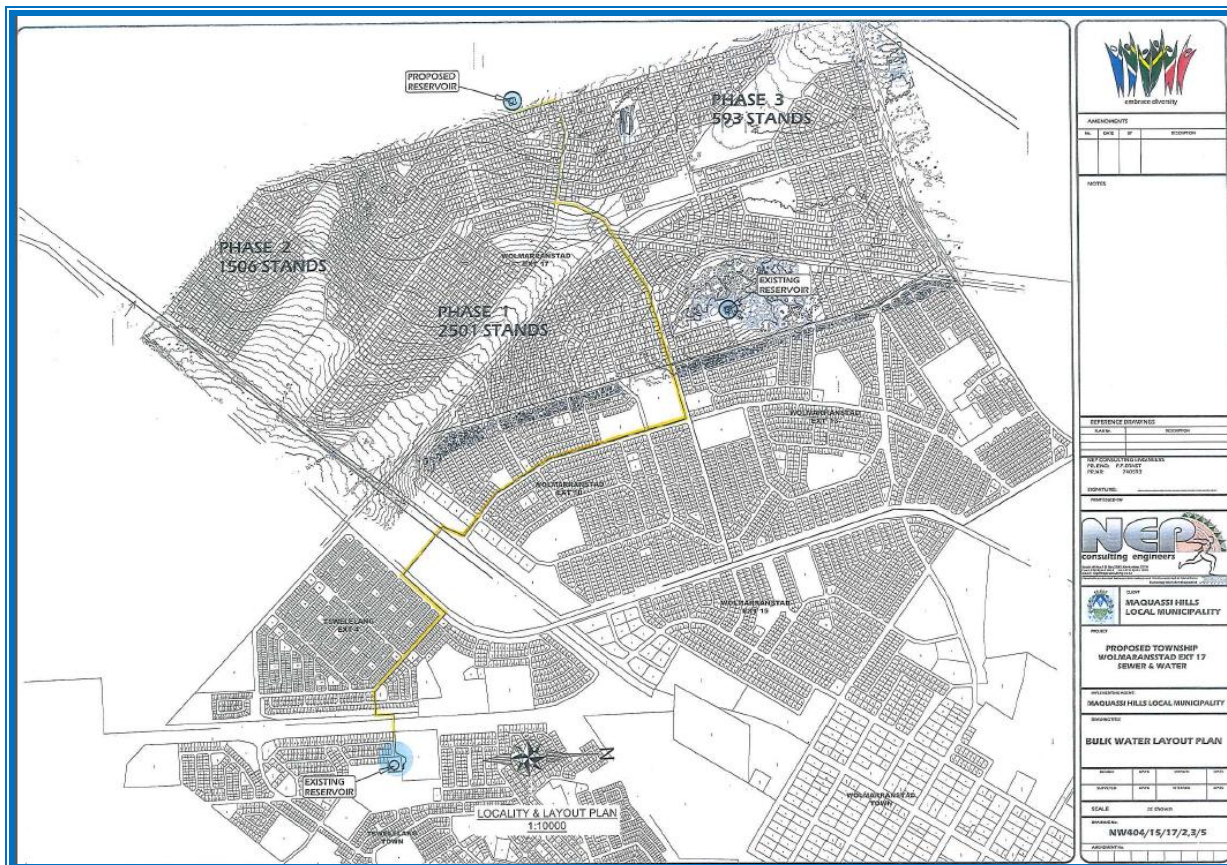


Figure 10: Bulk water supply layout plan

From the water Demand calculations a Peak Water Demand of 58l/s is required for the development.

Table 9: Demand Calculations Bulk Water

MAQUASSI HILLS LOCAL MUNICIPALITY					
WATER DEMAND AND DESIGN CRITERIA CALCULATIONS -WOLMARANSSTAD EXT 17					
Item	Description	Unit	Input	Output	
1	Populations				
1.1	Year of Population Count	Year	2015		
1.2	Number of Houses Counted	No	4650		
1.3	House Occupancy	p/h	6		
1.4	Population Count - Year of Population Count	Total		27900	
1.5	Year of Construction	Year	2015		
1.6	Year Difference - Population Count till Construction	Years		0	
1.7	Annual Population Growth	%	1.5		
1.8	Population at Construction Stage	Year	2014	27900	
1.9	Population	Year	2024	32379	
1.10	Population	Year	2034	37577	
2	Demand Calculations	Unit	Design Horison		
2.1	Average Annual Daily Demand		2015	2025	2035
	BLOS - 25 l/c/d	kl/d	698	809	939
	HLOS - 60 l/c/d	kl/d	1674	1943	2255

2.2 Gross Average Annual Demand				
Loss Factor		10%		
BLOS - 25 l/c/d	kl/d	767	890	1033
HLOS - 60 l/c/d	kl/d	1841	2137	2480
2.3 Summer Daily Demand				
Summer Peak Factor		2		
2.3.1 BLOS - 25 l/c/d				
SDDpu = SPF * GAADD : supply)	kl/d	1535	1781	2067
2.3.2 HLOS - 60 l/c/d				
SDDpu = SPF * GAADD : (supply)	kl/d	3683	4274	4960
2.4 Source Demand				
2.4.1 BLOS - 25 l/c/d				
Based on SDDpu				
Source demand for 12 hour pumping day	l/s	35.52	41.22	47.84
Source demand for 24 hour pumping day	l/s	17.76	20.61	23.92
2.4.2 HLOS - 60 l/c/d				
Based on SDDpu				
Source demand for 4 hour pumping day	l/s	255.75	296.81	344.46
Source demand for 12 hour pumping day	l/s	85.25	98.94	114.82
Source demand for 24 hour pumping day	l/s	42.63	49.47	57.41
2.5 Storage Capacity				
2.5.1 Required Storage Capacity 48hours	kl	3682.80	4274.04	4960.20
2.5.1 Required Storage Capacity 24hours	kl	1841.40	2137.02	2480.10
2.5.1 Required Storage Capacity 4hours	kl	460.35	534.25	620.02

5.2.2 INTERNAL WATER RETICULATION

A ring feeder system with a diameter of 160-75 mm diameter uPVC pipe is suggested for the development. The internal water reticulation is to follow the proposed road network where possible to reduce the impact to the environment.

The scheme consists of an internal water network consisting of:

DESCRIPTION	QUANTITY
75mm pipe	48200m
160,110,90 mm uPVC pipe	8900m
Water meters	4650 off
Stand Tap	4650off
Valves	143 off
Fire Hydrants	107 off

The design parameters to be used:

- Flow per household 60 l per day
- Minimum flow 0.7l /s
- Maximum flow 2.5l /s
- Peak flow 2.5l/s
- Infiltration 15%

5.3 SANITATION

5.3.1 BULK SEWER

The existing outfall sewer line south-east of the development serving Wolmaransstad Extensions 10 and 13 Tswelelang Extension 4 is currently overloaded. It will however be necessary to construct a new outfall sewer line running parallel to the existing to service the proposed development.

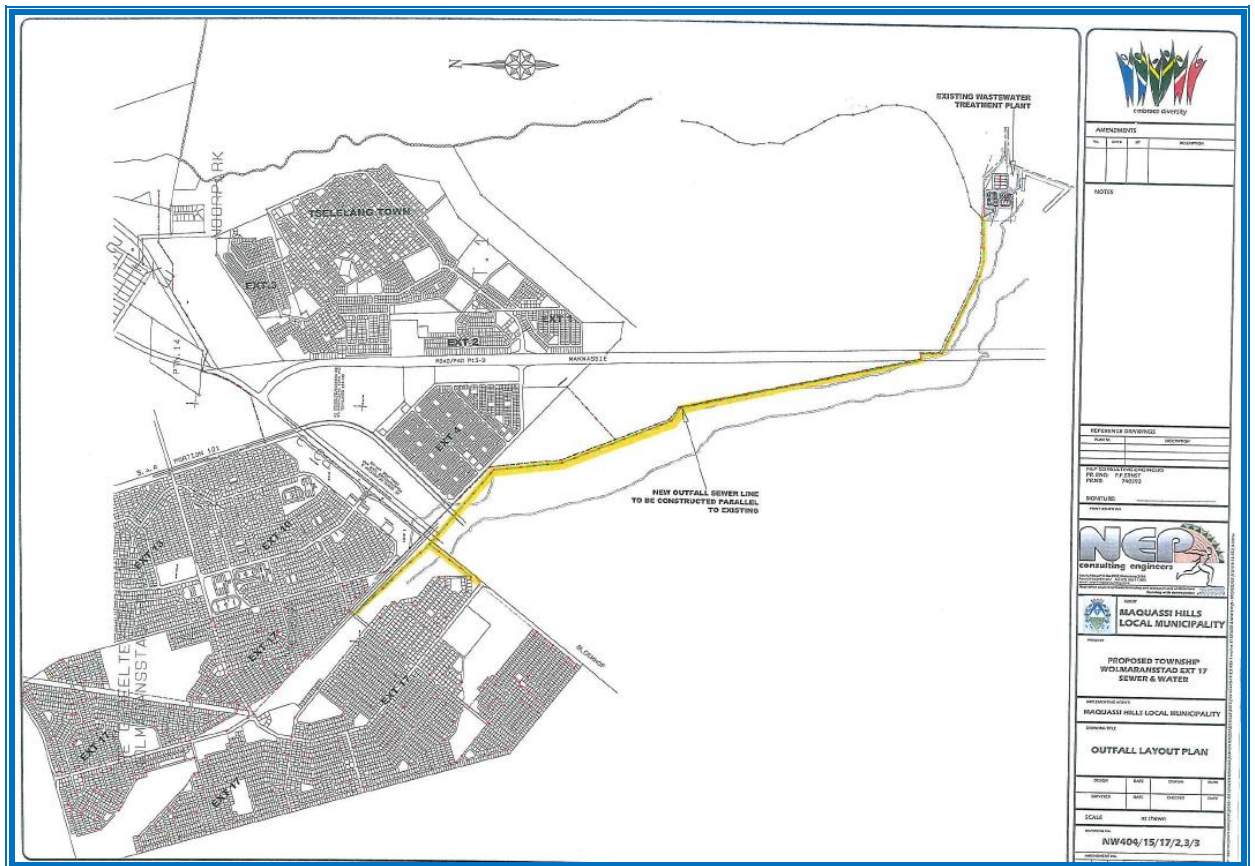


Figure 10: Sewer reticulation layout plan

Table 10: Demand Calculations Bulk Sewer

FLOW DESIGN FOR OUTFALL SEWER LINE - 4650 STANDS			
High Income	0 %	0	FAMILIES
Medium income	0 %	0	FAMILIES
Low Income	100 %	4650	FAMILIES

TOTAL population			34724		
According table C1 of the "Guidelines for provision of engineering services and amenities in township development."					
Area	Quantity	Units	@ l/dag	l/dag	
Residential	0	FAMILIES	1000	0	
	0	FAMILIES	750	0	
	5787	FAMILIES	500	2893650.459	
Business	29	m2	600/100m2	174	
Schools/Church	19	m3	600/100m2	114	
				2893938.46	ADF
System				Peak Factor	2.5
				Infiltration	15 %
Peak flow tempo	$=(A \times PF) / 86400$				
	83.74 (B)				
Design flow tempo.(Wet)			Design flow tempo.(Dry)		
	$=B+0.15 \times B$		$=B+0 \times B$		
	96.297		83.74		
Pipe Diameter d	0.419		0.39		
80% Flow Q	120.371		*****	From PDWF	139.56
80% Flow for d	0.468				0.504

The scheme consists of a bulk sewer pipe line consisting of:

DESCRIPTION	QUANTITY
500mm pipe Outfall lines	5000m
Manholes	65 off

5.3.2 INTERNAL SEWER NETWORK

A gravity system is proposed for the development; It is proposed that a minimum 160mm diameter PVC sewer network be installed. The entire sewer will drain to the lowest point south east of the development. From this point it will be collected by the new outfall sewer line to the existing WWTW.

5.3.3 DEMAND CALCULATIONS INTERNAL SEWER NETWORK

The sewer demand calculations are based on the "Red Book" water demand figures.

For the **residential stands** the demand is calculated as follows:

- Conventional small sized erf = 0,5 Kl per erf per day.

- 4650 stands x 0,5 Kl per erf per day = 2325 Kl/day.

Table 11: Design Criteria for Sewer Network

DESIGN ELEMENT	CRITERIA
Average Annual Daily flow for residential erven	2325 Kl/day
Peak Factor	2.5
Design Capacity of Sewer	80% Full
Sewer pipe and fittings	PVC to SANS 1601 for stiffness class 400 KPa
Normal Minimum Velocity	0.75 m/s
Absolute Minimum under extraordinary circumstances	0.60 m/s
Manhole	Placement Intervals not more than 80 m Positions on steep grades (1:10 or steeper)
Allowance for Infiltration	0.04 liters per minute per meter per meter diameter (l/min/m length/m dia)
Manhole Material (including cover and frame)	Concrete
Minimum pipe diameter	160mm Mains 110mm House Connections 315-560mm outfall line
Minimum depth cover	1.5 m Traffic Areas From 0.6 m Other Areas

The scheme consists of an internal sewer network consisting of:

DESCRIPTION	QUANTITY
160mm pipe	36000m
250,315mm pipe	9000m
Manholes	375 off

5.4 SOLID WASTE

Solid waste removal is a function of the Maquassi Hills Local Municipality.

CHAPTER 6: CONCLUSION

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

- The purpose of the applications for township establishment is to provide sufficient erven within the Wolmaransstad / Tsweleng urban complex to address the short term need for residential erven in order to address existing informal settlement of land and avoid further informal settlement from taking place whilst similarly providing vacant erven to allow for orderly future settlement.
- The proposed development areas are located directly adjacent to existing township areas and constitute the logic extension of the existing built-up urban area of Wolmaransstad.
- The project set out to establish a proper integrated human settlement and the opinion is held that this can be achieved through the development of these three township areas.
- The proposed township areas are easily accessible due to their location adjacent to the existing township areas of Wolmaransstad Extensions 10 and 13 whilst provision will also be made to access the township areas directly off Road N12 and Provincial Road 158.
- The layout plans that were compiled in respect of the respective township areas comprehensively address the issues identified during the pre-planning studies relating inter alia to the following:
 - Areas not suitable for development due to physical features (quarry, spoil area and shooting range) were properly addressed and accommodated in the layout plan;
 - Eskom servitudes and other powerlines traversing the proposed development area are adequately protected;
 - Accommodating the three (3) drainage channels traversing the development area and the 1:100 year floodline applicable to said features;
 - Incorporating the road network with that of the adjacent township areas;
 - Accommodating existing infrastructure on site (telecommunication mast and water reservoir);
 - Providing sufficient space for the future construction of a parclo interchange at the N12 access to the township area;
 - Incorporating the prescribed lines of no access and building restriction areas;
 - Incorporating the results of the geotechnical investigation which indicated that the development area is suitable for township establishment purposes;
 - The Heritage Impact Assessment similarly concluded that the development be allowed to take place taking cognisance of the conclusions and recommendations put forward in the report;

- Engineering services can be provided to the proposed township areas.

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

K. RAUBENHEIMER

Pr. PIn A/924/1996