

REPUBLIQUE DU CAMEROUN  
Paix – Travail – Patrie  
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REPUBLIC OF CAMEROON  
Peace – Work – Fatherland  
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## MINISTRY OF HOUSING AND URBAN DEVELOPMENT

DIVISION OF STUDIES, PLANNING AND COOPERATION  
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# PSU

## SUMMARY URBAN DEVELOPMENT PLAN

### The Wum Council Layout

# Wum Town

**BET: CAMGIS Plc.**

**Financed: PIB 2012**

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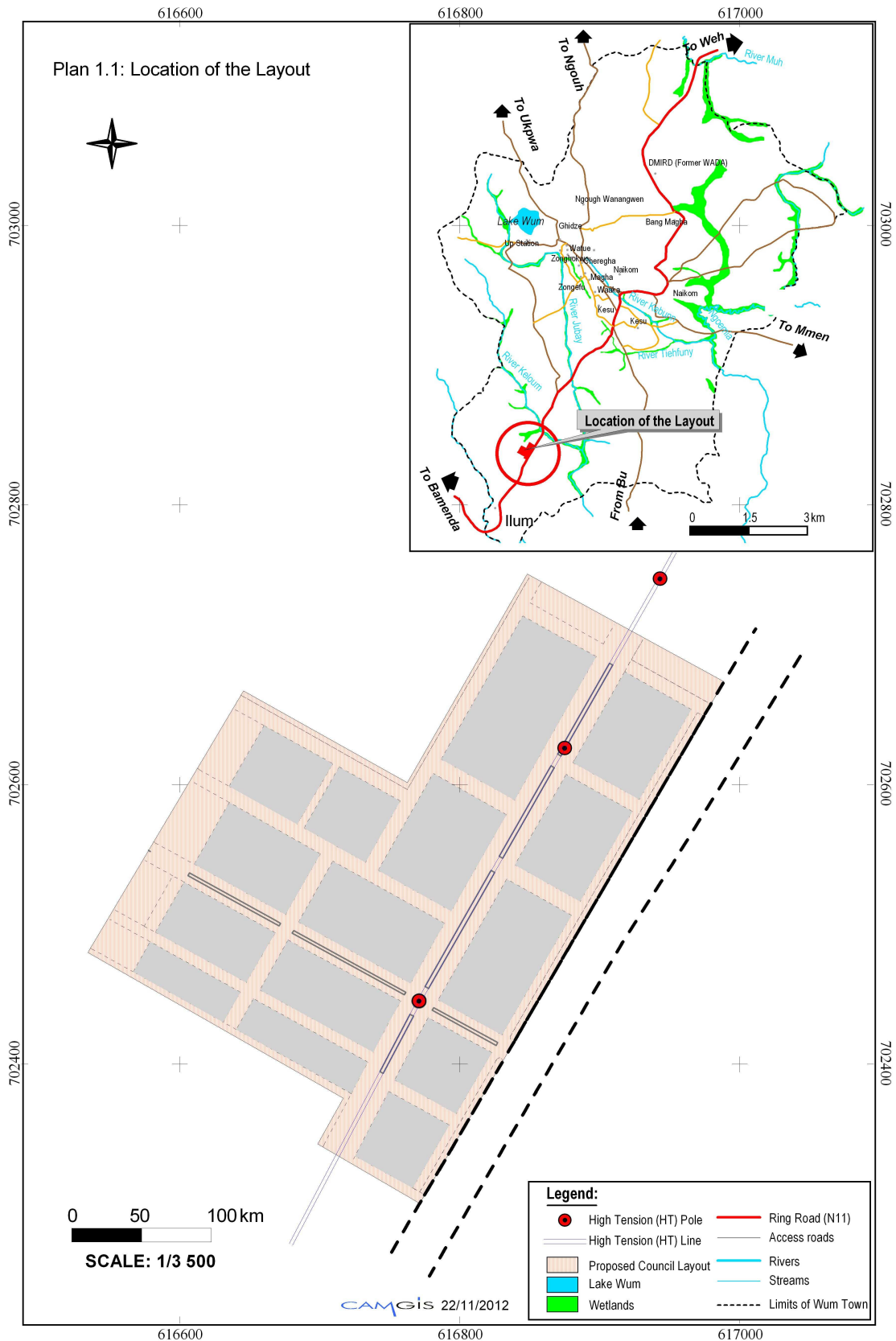
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# PART I: ORGRANISATION OF THE LAYOUT

## 1 Organisation of the Layout

### 1.1 Location

The Wum Council Layout is located at the southern tip of the study area (very close to the Ilum community) (*Plan N° 1.1*). It occupies an area of 107 279m<sup>2</sup> (*10.73hectares*)



## 1.2 Land Use

The distribution of the space by main types of land use is as indicated below in Table 1.1 *Plan N°1.2*.

Table 1.1: Distribution of the space by main types of land use

Land use	AREA (m <sup>2</sup> )	AREA (hectares)	Percent (%)
Medium Density	29 446	2,9	27,4
High Density	20 969	2,1	19,5
<b>Subtotal</b>	<b>50 415</b>	<b>5</b>	<b>46,9</b>
Playground	3 677	0,4	3,4
Parking lot	866	0,1	0,8
Access road	18 543	1,9	17,3
Open space	9 558	1,0	8,9
(HT) & Dual carriage way	8 779	0,9	8,2
National road (N11)	12 102	1,2	11,3
Road corridor	1 718	0,2	1,6
Road Island	1 621	0,2	1,5
<b>Total</b>	<b>107 279</b>	<b>10.73</b>	<b>100,0</b>

## 1.2 Residential land use

Two categories of residential land use were allocated within the layout:

- High density residential area
- Medium density residential area.

Detailed distribution of the medium and high density residential blocks can be seen in Table 1.2 below and *Plan N°1.2*.

Table 1.2: Distribution of the medium and high density residential blocks

Land use	Block N°	Area (m <sup>2</sup> )
Medium Density	A1	4 067
	A2	4 006
	A3	5 217
	A4	2 587
	A5	2 517
	A6	3 791
	A7	3 066
	A8	2 369
	A9	1 826
High Density	B1	2 814
	B2	2 530
	B3	7 083
	B4	4 778
	B6	3 764
<b>Total</b>		<b>50 415</b>

## PART II: LAYOUT PLANNING PROPOSALS

### 2 Public and Community Facilities

Public and community facilities are those basic services, which have specific locations and sites, provided for the general interest of the population.

#### 2.1 Components

The main components to be included during the subdivisions of plots within the layout include:

1. Educational facilities (*Day Care, Nursery and primary schools*);
2. Health facilities (*health post/health centres*);
3. Social welfare facilities;
4. Public/community hall.
5. Civic and cultural facilities;
6. Quarter market;
7. Parking lot;
8. Sports and recreational facilities (*playground*);

##### 2.1.2 Educational facilities

This is done with the understanding that the government has the primary responsibility for the education of its citizens. Denominational and lay private providers offer alternative types of education to those who can afford them and complement the government's contributions.

Table 2.1: Proposed standards for Public Educational Facilities.

Item	Public Educational Facilities	Level of Provision	Population Threshold	Catchments Radius	Space Standards
01	Day care centres	Block	11 - 100	500m	0.5hectares
02	Primary /Nursery schools	Neighbourhood	101 - 500	1.0km	2.0 hectares

Source: CAMGIS 2012

##### 2.1.2.1 Day Care Centers

With the growth of the layout and demands on the population for alternative ventures and activities will necessitate the opening of a day care centre in the layout to provide care for the children and liberate some time for parents to carry out other activities. One day care centre is proposed.

##### 2.1.2.2 Nursery and Primary schools

This is based on the standard that 101 to 500 people can supply a nursery school within a catchment radius of 500-1000 metres. Nursery schools should be provided within walking distance for 3-5 years old without crossing major roads to school. As such, a nursery school should have a small pupil/teacher ratio and small classroom sizes. The government/council should provide at least one while religious bodies and lay private establishments should complement. This provides a choice and makes it possible for the poor to have access to affordable nursery schools.

As concerns primary school, this is based on the standard that 101 to 500 population can supply a government primary school within a residential neighbourhood. By 2016, the layout should have had at least 1 government primary school.

### 2.2 Layout road networks and infrastructure

The components of the council layout road networks and infrastructure include:

- Road networks and infrastructure;
- Drainage networks and structures;
- Water supply networks;
- Electricity supply networks;
- Sewage systems;

### 2.2.1 Proposed Hierarchy of Layout Road Networks

The proposed roads are meant to ensure maximum accessibility to all functional layout land used and to ease movement of goods and services as well as the population within the layout.

The elements of the proposed hierarchy of the layout roads include:

- **Primary Road:** National Road (N11);
- **Access Roads:** Access roads provide links between the blocks found in the layout.

The specific planning objectives of the proposed layout road networks include:

- Saving travel time within and through the layout;
- Moving goods and obtaining services;
- Minimizing road accidents.

#### 2.2.1.1 Cross Sectional profiles of roads

The proposed cross sectional profiles of primary and access roads can be seen in Figure 2.1, and 2.2 below. The only primary road is the Ring Road (N11) passing in front of the Council Layout. It is important that the specifications as indicated be respected.

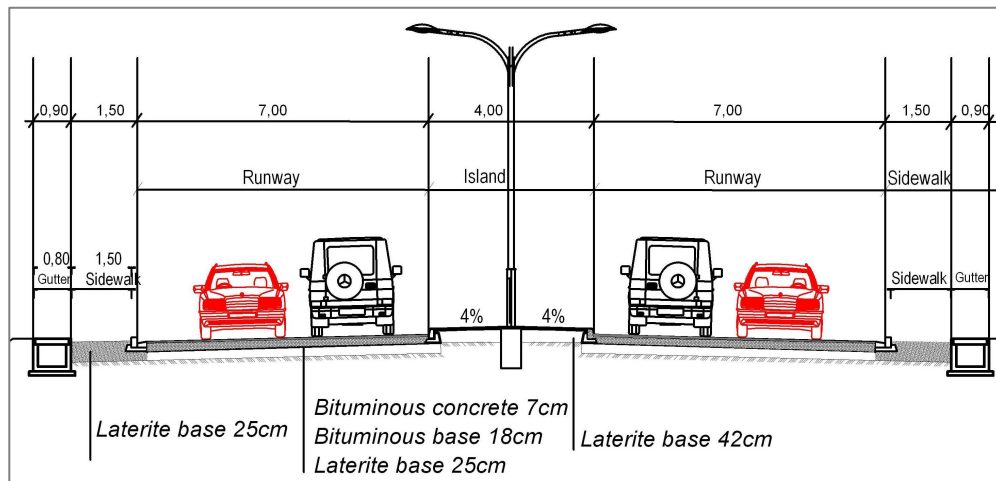


Figure 2.1: Cross section profile of primary road (N11)

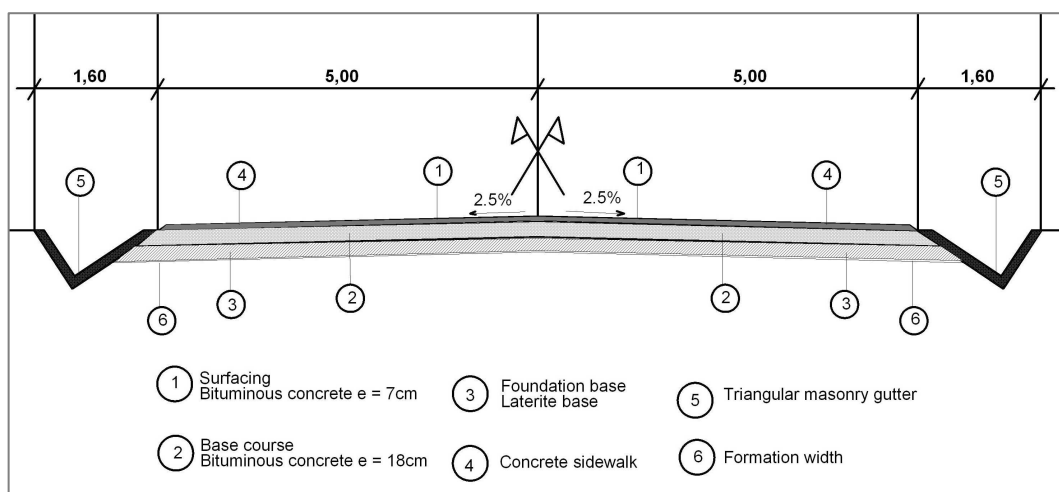


Figure 2.2: Cross sectional profile of access roads



### 2.2.2 Drainage

The types of drainage elements envisaged within the layout include:

- Natural drainage;
- Road drainage channels and structures;
- The drainage of individual properties.

The proposed drainage networks within the layout shall take a single form:

- Road drainage channels and structures which is closely related to the hierarchy of layout road networks;

### 2.2.3 Water Supply Networks

To meet up with regular and adequate water supply within the layout, studies should be carried out on how to tap water from neighbouring streams, treat and distribute it to the population. However, for the immediate, water supply should be connected to the CAMWATER/CDE networks i.e. from that of the Council's new slaughterhouse. The water supply network elements include:

- Sources of water supply;
- Capacities of sources of water supply;
- Quality of water supply;
- Hierarchy of water supply network;
- Maintenance of networks and infrastructure.

The proposed hierarchy of water supply networks to the layout includes:

- A transportation mains which carries potable water from source to the storage reservoir or tank;
- A secondary distributor network which distributes water within the layout.

### 2.2.4 Energy Supply

The layout need to be connected to the AES SONEL (HT) electricity grid passing through the layout. The energy supply elements include:

- Energy installation (*step down transformer*);
- Energy supply networks;
- Energy distribution system;
- Maintenance of networks, infrastructure and installations.

Electricity is the only collective source of energy now in use. The hierarchy of the proposed electricity supply networks include:

- The high tension (HT) line which transports electricity from Bamenda to Wum;
- Medium tension lines which step down the capacity and transport energy to the layout;
- Distribution lines which distribute energy to small spatial units such as the blocks;
- Individual connection lines which shall link individual buildings and homes to the whole network.

### 2.2.5 Sewage Systems

The domestic elements of sewage include:

- Domestic sewage;
- Sewage networks;
- Sewage treatment plants;
- Sewage infrastructure and structures.

Each proposed collective sewage network of the layout is composed of:

- A secondary collector network which collects from blocks and connects to the primary network;

- Local collectors which connect individual households, buildings and activity areas to secondary collectors.

### **2.2.5.1 Low cost sewage treatment system**

The low cost sewage treatment system has been recommended for the Wum Council Layout. This system is also suitable for communities with low population density, whereby the use of sewage network is very expensive to run. It can also be designed for group of houses, clusters, neighbourhood, spatial units and even the whole town.

It has the advantage that it does not require a lot of energy to function nor require the lowest point to function.

The sewage is collected by trucks and deposited in a treatment plant made of several ponds using natural methods to break down the sewage completely and the water at the exit of quality not dangerous to the environment. The quality of the water depends on the number of facultative and maturation ponds. See diagram below.

The elements of the pondage system:

- Septic tanks;
- Tankers;
- Stabilizer ponds ( anaerobic, facultative and maturation ponds);
- Disposal units.

The advantages are that a pond:

- Does not require expensive equipment;
- Does not require highly trained operational personnel;
- Is economical to construct;
- Provides treatment that is equal or superior to some conventional processes
- Is adaptable to changing loads;
- Is adaptable to land application;
- Consumes little energy;
- Serves as a wildlife habitat;
- Has an increased potential design life;
- Has few sludge handling and disposal problems;
- Is probably the most trouble-free of any treatment process when used correctly, provided a consistently high quality effluent is not required.

The limitations are that pondage system:

- May emit odors;
- Requires a large area of land;
- Treats wastes inconsistently depending on climatic conditions;
- May contaminate ground waters unless properly lined;
- May have high suspended solids levels in the effluent.

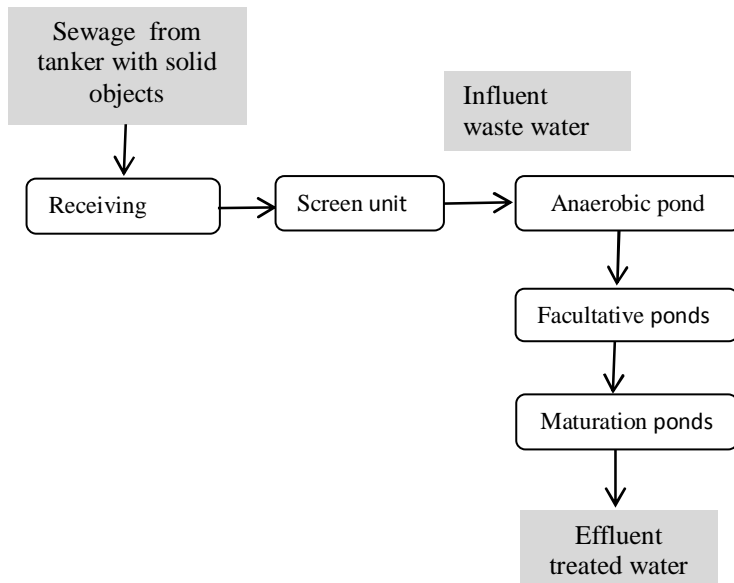


Fig 2.3: Pondage system for waste treatment

## 2.3 Environment and Nature Protection

The main elements of the layout environment include

- a) Protected areas;
- b) Layout open space;
- c) Public hygiene and sanitation;
- d) Solid waste;
- e) Pollution of the environment;

### 2.3.1 Management of Protected Areas and Open Space

Protected areas within the layout include sites which should not be occupied, developed or built upon. These include:

- All public rights-of-way which include all proposed: -
  - Primary roads;
  - All proposed access roads

The elements of open space also include:

- Public right of way
- Layout parks and gardens
- Sports facilities: playgrounds.

### 2.3.2 Layout Hygiene and Sanitation Plan

The elements of hygiene and sanitation include:

- Housing conditions:
  - Ventilation;
  - Surroundings.
- Public Conveniences:
  - Toilets and latrines;
  - Urinals;
- Solid waste management;
- Air pollution.

### **2.3.3 Management of Layout Solid Waste**

The element and aspects of solid waste management include:

- Components of solid waste;
- Management of pre-collection;
- Collection sites;
- Waste containers;
- Collecting and transportation;
- Waste treatment (recycling);
- Waste disposal;
- Waste management technology;
- Sources of solid waste;
- Organization of solid waste management.

Solid waste collection points should be located at 200-500 metres apart along access roads.

### **2.3.4 Sewage Management**

Sewage management deals with the collection, transportation, treatment and safe disposal of domestic, public and industrial liquid waste.

The Elements of sewage Management includes:

- a) Domestic toilets and latrines;
- b) Public conveniences (toilets and urinals);
- c) Industrial waste treatment plants.

To improve on sewage management in the short term, the following are recommended:

- a) Continuously sensitising the public on the proper handling of domestic and public liquid waste;
- b) Organising the regular evacuation, transportation, treatment and safe disposal of sewage.

# PART III: IMPLEMENTATION

## 3 Implementation Strategies

### 3.1 Land Use

#### 3.1.1 Local Council Layout

Such sites and services scheme for housing could be realized by the council.

##### 3.1.1.1 Operational Procedures

The operational procedures for sites and services schemes should involve:

- Obtaining authorization to create and service layouts;
- Mobilization of funds for sites and services schemes;
- Selection and acquisition of the sites;
- Surveying, planning and laying out of the sites;
- Development of the sites by:
  - ⇒ Constructing roads and drainage networks;
  - ⇒ Connecting water and electricity;
  - ⇒ Beacons of plots.
- Allocation of plots to those who can afford them;
- Control of the development and construction of houses;
- Progressively providing public and community facilities:
  - ⇒ Schools,
  - ⇒ Markets,
  - ⇒ Shopping facilities,
  - ⇒ Sport and recreational facilities,
  - ⇒ Open spaces,
  - ⇒ Parking spaces,
- Management and exploitation of sites and services schemes.

##### 3.1.1.2 Sources of Finance

The potential sources for funding sites and services schemes include:

- FEICOM;
- Local Council;
- Ministry in charge of housing and urban development;
- Commercial banks;
- Cooperative credit unions;
- Funding agencies;

## 3.2 The Layout Environment

### 3.2.1 Management of Solid Waste

#### 3.2.1.1 Policy

- Minimise the generation of solid waste at production sources;
- Encourage the domestic separation (sorting) and recycling of waste;
- Ensure the regular and prompt collection, treatment and disposal of solid waste;
- Promote the economic exploitation of solid waste;
- Solid waste management policy options include:
  - Develop local council capacity in solid waste management;
  - Selectively privatise solid waste management in public places to local entrepreneur;

#### 3.2.1.2 Strategy

- a) Sensitise the public on solid waste pre-collection management;
- b) Clarify roles and responsibilities for solid waste management;
- c) Prepare and implement a strategic plan for solid waste management;
- d) Enforce rules and regulations on solid waste;
- e) Mobilize local and external funds for solid waste management;
- f) Select and use appropriate solid waste management technology;

- g) Carefully programme the collection of waste to minimize conflict.

### 3.2.1.3 Management Procedures

The recommended system for solid waste management should be focused on:

- a) Pre-collection management by waste generation entities such as:
  - Threshing and reduction of waste at source;
  - Separation (sorting) of waste at source;
  - Proper handling of solid waste at pre-collection points.
- b) Collective management of solid waste at the level of residential blocks:
  - Collection of waste from points of generation to collection points;
  - Proper depositing of waste at collection point.
- c) Management of collection points:
  - Location and siting of collection points at block level;
  - Development of collection points;
  - Proper equipment of collection points;
  - Use of appropriate collection, transportation and dumping equipment;
  - Proper collection and transportation to dump sites.
- d) Management of dump sites involves:
  - Proper location;
  - Proper siting;
  - Development of dump sites;
  - Management of dump sites;
  - Treatment of waste;
  - Safe disposal of waste.

The recycling of waste is an economic venture which should be carried out by NGOs or economic operators. They may, however, be assisted by local councils, the government or funding partners.

### 3.2.1.4 Actors

- a) Occupants of houses;
- b) Occupants and users of public places;
- c) Local council;
- d) Public health;
- e) Divisional officer;
- f) Traditional authorities;
- g) Local NGO(s) concerned;
- h) Representative of landlords;
- i) Representative of economic operators;
- j) Representative “*Buyam-sellam*”;
- k) Market associations.

## 3.2.2 Sewage Management

### 3.2.2.1 Guidelines for Sewage Management

To improve on sewage management in the short term, the following guidelines are recommended:

- a) Continuously sensitising the public on the proper handling of domestic and public liquid waste;
- b) Ensuring the adequate capacities and design of sewage facilities in the building and business approval processes;
- c) Regularly inspecting and controlling domestic and public sewage facilities;
- d) Organising the regular evacuation, transportation, treatment and safe disposal of sewage.

### 3.2.2.2 Pollution of the Layout Environment

To gradually reduce levels of layout environmental pollution, the following guidelines are recommended:

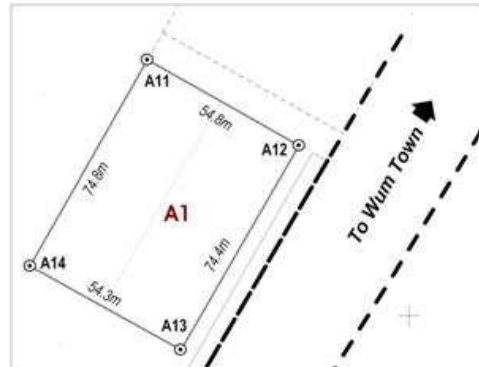
- Continuous sensitisation of the public on ways of reducing pollution;

- Carrying out proper public hygiene and sanitation programmes;
- Ensuring the systematic planning and development of land;
- Ensuring the proper management of solid and liquid waste.

### 3.3 The Council Layout Control Points

In the table and diagram below, the control points are composed of coordinates of every point used in the demarcation of blocks. These coordinates are made up of abscissas and ordinates which shall permit the technical team to effectively locate the points of the blocks on the ground. The units of the coordinate system used is UTM WGS84 as seen in (*Plan 3.1*). The alphabet/numbers used to identify a point is described as follows (A14) (the first alphabet refers to the block/type of density area i.e. (A) stands for medium density residential area and (B) for high density area. The next numerical number to identify the block (A1) stands for the first block. Lastly the last number refers to the ID of the peg (4) as seen in the figure below.

BLOCK_ID	Peg_Id	XCOORDS	YCOORD
A1	A11	616917.8	702680.7
	A12	616965.5	702653.7
	A13	616928.3	702589.3
	A14	616880.9	702615.7



**Table 3.1** shows the detailed control points to be used during the setting out of the **Blocks** within the layout. Plan 3.1 shows graphically blocks, points and distances between control points.

**Note:** It is important that the technical services in-charge should follow strictly the specifications as described else the areas of roads and blocks may alter.

Table 3.1: Coordinates of Control Points

BLOCK_ID	Peg N°	XCOORDS	YCOORD
A1	A11	616917.8	702680.7
	A12	616965.5	702653.7
	A13	616928.3	702589.3
	A14	616880.9	702615.7
A2	A21	616876.1	702607.2
	A22	616923.3	702580.8
	A23	616886.1	702516.3
	A24	616839.4	702542.5
A3	A31	616833.6	702532.3
	A32	616880.0	702506.5
	A33	616830.2	702420.9
	A34	616784.6	702446.0
A4	A41	616777.5	702433.3
	A42	616823.0	702408.2
	A43	616797.5	702364.6
	A44	616753.6	702388.7
A5	A51	616749.3	702380.5
	A52	616792.6	702356.5
	A53	616766.4	702311.4
	A54	616725.2	702334.4
A6	A61	616757.9	702445.1
	A62	616738.2	702408.7
	A63	616657.3	702453.1
	A64	616677.5	702488.9
A7	A71	616668.2	702494.0
	A72	616647.5	702458.5
	A73	616582.7	702494.2
	A74	616603.1	702530.3
A8	A81	616734.4	702401.6
	A82	616722.5	702379.1
	A83	616640.5	702424.9
	A84	616652.8	702446.7
A9	A91	616643.4	702451.5
	A92	616631.2	702430.1
	A93	616566.9	702466.0
	A94	616578.9	702487.5

BLOCK_ID	Peg N°	XCOORDS	YCOORD
B1	B11	616709.5	702614.9
	B12	616684.1	702571.5
	B13	616635.3	702598.7
	B14	616660.4	702642.1
B2	B21	616757.6	702588.2
	B22	616732.7	702544.4
	B23	616688.8	702568.8
	B24	616713.8	702612.5
B3	B31	616845.0	702720.5
	B32	616897.6	702691.6
	B33	616839.4	702588.8
	B34	616786.9	702618.0
B4	B41	616833.4	702578.5
	B42	616794.1	702509.4
	B43	616741.7	702538.7
	B44	616781.2	702607.9
B5	B51	616789.2	702500.8
	B52	616765.0	702457.7
	B53	616749.5	702466.2
	B54	616684.8	702501.6
	B55	616709.4	702545.3
	B56	616774.0	702509.3
B6	B61	616700.6	702550.4
	B62	616675.7	702507.0
	B63	616610.3	702543.1
	B64	616635.5	702587.1

HT Poles	HT ID	XCOORDS	YCOORD
HT Poles	HT1	616771	702445
	HT2	616875	702626