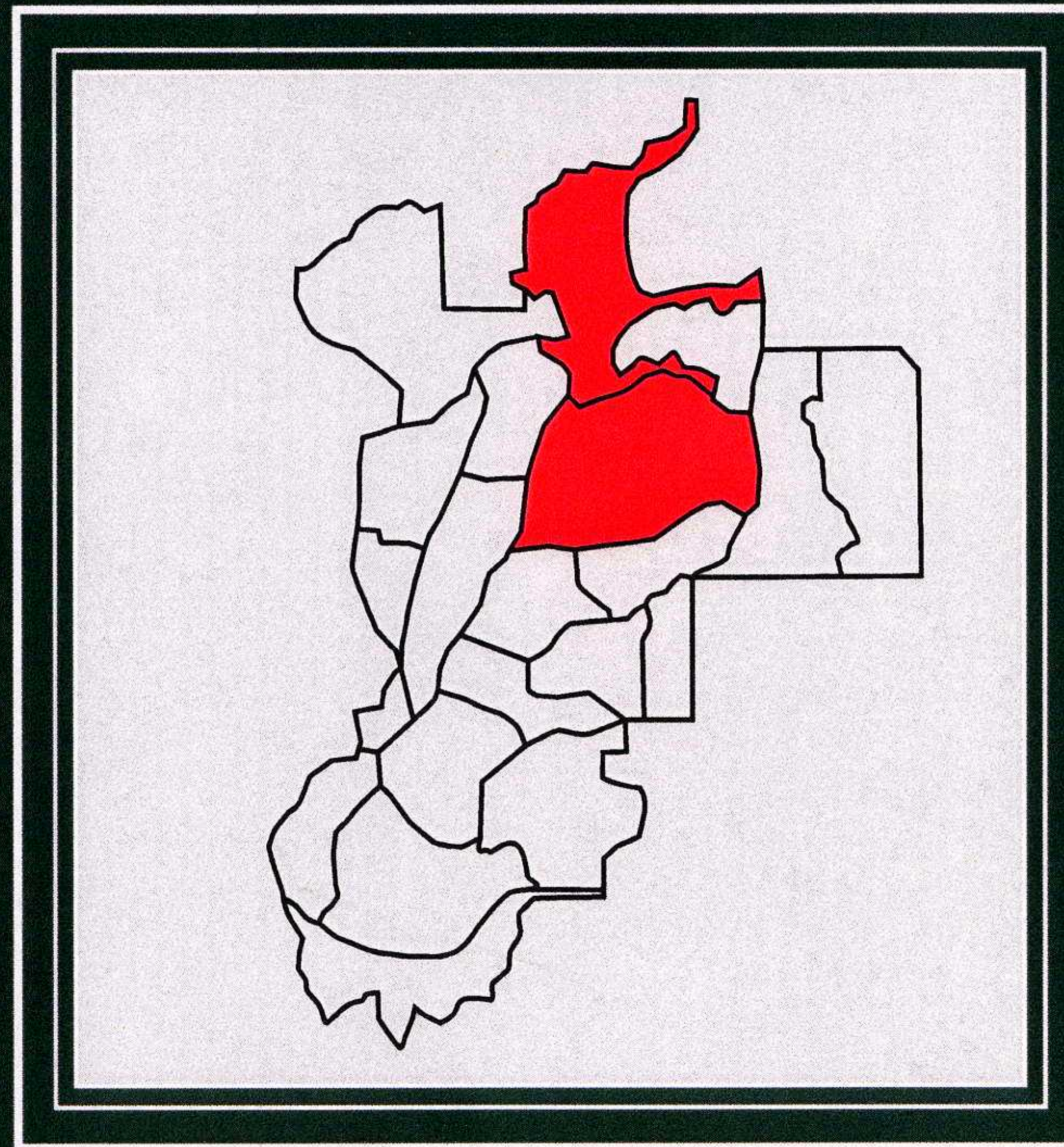


# LOCAL PLAN PUTRAJAYA

PRECINT 1 & PRECINT 13





The Planning Area - Artist's Impression



Precinct 1 - Artist's Impression

This Written Statement shall be read together with Plan No. PP/LP/p1&13/1.

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The Planning Area - Artist's Impression

Precinct 1 - Artist's Impression

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# PART 1: PRELIMINARY

## 1.1 INTRODUCTION

001 The Structure Plan for Putrajaya and Part of Sepang District was approved by the State Planning Committee Selangor Darul Ehsan on 17 August 1995 and assented to by the State Assembly Selangor on 1 November 1995. The Structure Plan Putrajaya and Part of Sepang District was gazetted in the State of Selangor Gazette G.N.Selangor 1530 Jld. 48 Tambahan 1 dated 1 November 1995.

002 Pursuant to the said approval and assent, Perbadanan Putrajaya now, therefore, directs the preparation of the Local Plan Putrajaya: Precinct 1 and Precinct 13, the said areas, Precinct 1, also referred to as the Government Precinct, and Precinct 13, also referred to as Taman Wetland, being areas within the designated boundaries of Putrajaya.

003 By the powers provided under section 4(1) of Act 536, Perbadanan Putrajaya Act 1995, (which confers on Perbadanan Putrajaya the powers and functions of a local authority in the Kawasan Perbadanan Putrajaya), and section 5(1) of Act 172, Town and Country Planning Act 1976, (which confers on a local authority the powers and functions of a local planning authority), Perbadanan Putrajaya is the responsible and competent authority for the preparation and approval of the Local Plan for Precinct 1 and Precinct 13.

004 The Planning Area of the Local Plan for Precinct 1 and Precinct 13 is as shown and demarcated in Plan No. PPJ/LP/p1&13/1.

005 This Written Statement, forming part of the said Local Plan, shall be read in conjunction with the said Plan PPJ/LP/p1&13/1.

## 1.2 REQUIREMENTS OF THE TOWN AND COUNTRY PLANNING ACT

006 This Local Plan is prepared in accordance with the requirements of the Town and Country Planning Act 1976 (hereinafter referred to as the Act), section 12(3), as amended by the Town and Country Planning (Amendment) Act 1995 (hereinafter referred to as the Amendment).

007 The contents of the Local Plan are as specified by the said section of the Act, viz:

"A local plan shall consist of a map and a written statement and shall -

- (a) formulate, in such detail as the local planning authority thinks appropriate, its proposals for -
  - (i) the development of;
  - (ii) the use of land in;
  - (iii) the protection and improvement of the physical environment of;
  - (iv) the preservation of the natural topography of;
  - (v) the improvement of the landscape of;
  - (vi) the preservation and planting of trees in;
  - (vii) the making up of open spaces in;
  - (viii) the preservation and enhancement of character and appearance of buildings in;
  - (ix) the improvement of communications in; and
  - (x) the management of traffic in, the area of the local plan, and
- (b) contain such matters, as may be prescribed or as the Committee may in any particular case specify.

008 As development of Putrajaya consists generally of construction

on a new site, certain provisions of the Act, such as pertaining to improvement of existing infrastructure and buildings, will, however, not apply. To the extent that they apply, the provisions of the Act are adhered to.

009 The process of preparing the Local Plan shall be in accordance with Part III, sections 13, 14 and 15 of the Act.

### 1.3 THE STRUCTURE PLAN

010 The Structure Plan for Putrajaya and Part of Sepang District adopted a set of policies for the planning and development of Putrajaya. Of the policies the following are relevant to the planning of Precinct 1 and Precinct 13.

- 011 Putrajaya shall be developed as:
- an "Intelligent City;
  - a "City-in-a-Garden";
  - an administrative city that meets the needs of the Federal Government;
  - a city with a carefully monitored physical and ambient environment
  - a city with a high quality living environment
  - a city that gives priority to public transport

012 In accordance with the Town and Country Planning Act 1976 (section 15(2)), this Draft Local Plan shall conform generally to the said Structure Plan.

### 1.4 THE MASTERPLAN

013 The Masterplan for Putrajaya, hereinafter referred to as the Masterplan, was approved by Perbadanan Putrajaya on 31st March 1997.

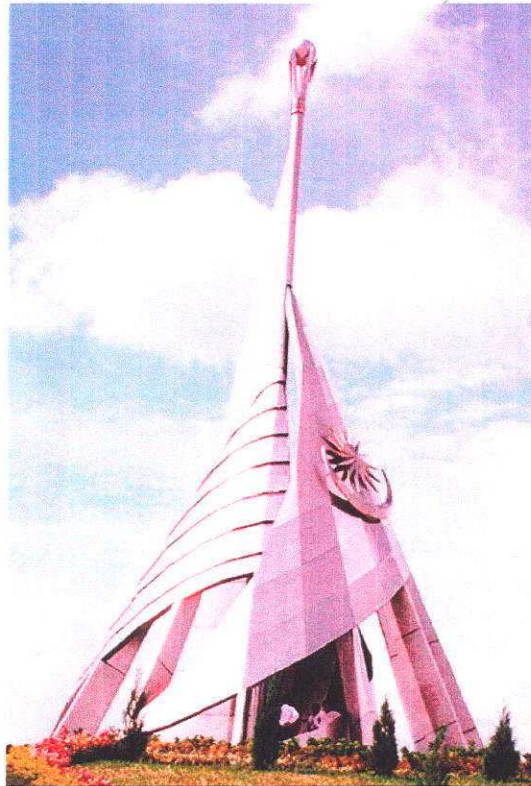
014 The Masterplan reaffirms the concepts of an "Intelligent City" and "City-in-a-Garden" of the Structure Plan. In furtherance of the concept of a "City-in-a-Garden" the Masterplan proposes "an integrated system of parks, water courses, wetlands, forests and open spaces...".

015 With reference to special role of Precinct 1, the Masterplan states: "The Government Precinct is the symbolic focus for Putrajaya Masterplan."

016 The objectives and intent of the Masterplan shall be confirmed and detailed in the Local Plan for Precinct 1 and Precinct 13.

### 1.5 URBAN DESIGN GUIDELINES

017 To support and ensure the successful implementation of the Local Plan, an Urban Design Guidelines shall be prepared. The Urban Design Guidelines shall elaborate upon design parameters and control guidelines specific to the development of each individual parcel of land.



• MERCU TANDA

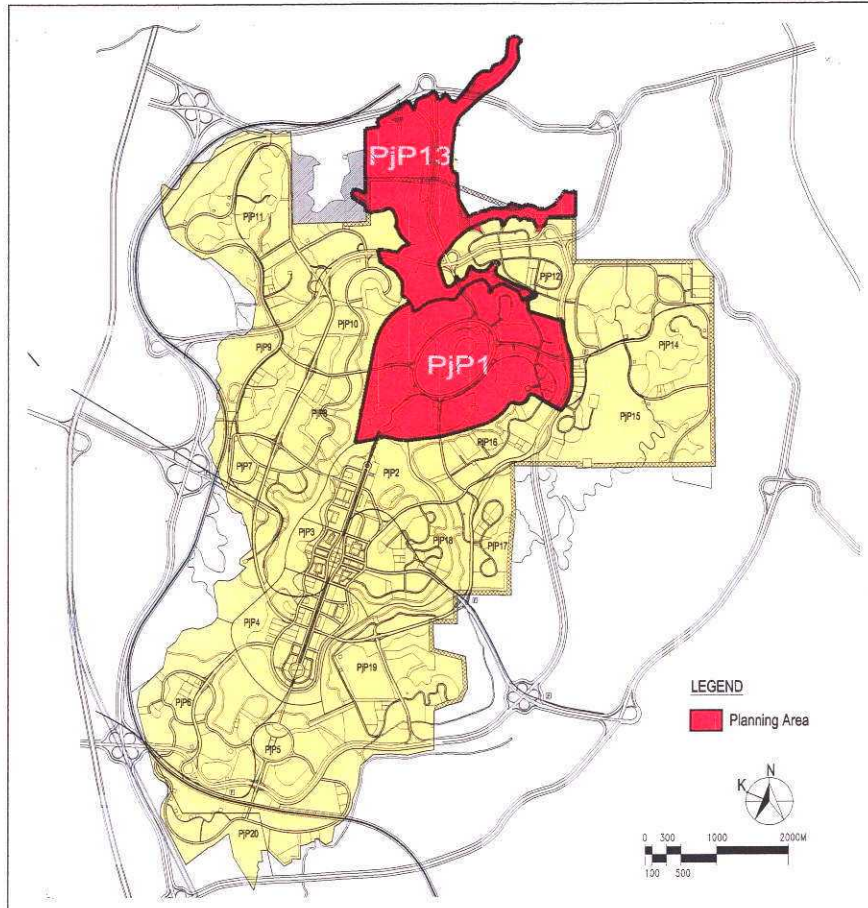
## PART 2: THE PLANNING AREA

### 2.1 LOCATION

018 The Planning Area comprises the combined areas of Precinct 1 and 13. Precinct 1, also referred to as the Government Precinct, and Precinct 13, also referred to as the Taman Wetland, are adjacent and contiguous but distinct precincts with very different functions and characters. They occupy a northern location along the central spine of Putrajaya (See Map 1: Location). Because of Precinct 13's location at the northern boundary of Putrajaya, it serves as the gateway into the new city from the direction of Kuala Lumpur. The South Klang Valley Expressway defines not only the northern termination of the city site, but also that of Precinct 13.

019 The combined area of the two precincts, including land and water surfaces, is 2,049.9 acres, with Precinct 1 covering 1,162.3 acres and Precinct 13 covering 887.6 acres.

020 The two precincts are generally bounded by residential precincts. Precinct 13 is bounded on its west by Precinct 11 and on its east by Precinct 12, while Precinct 1 is bounded on its west by Precinct 10 (within which is located the Prime Minister's residence) and Precinct 8, and on its east by Precinct 15. To the south-east of Precinct 1 is Precinct 16. All these precincts are residential areas, with a variety of housing types and densities. However, immediately to the south of Precinct 1 is located Precinct 2, the Mixed Development Precinct, a part of the Core Area of Putrajaya and an area with a mixture of government offices, commercial buildings and high density residential developments.



MAP 1 : LOCATION



Existing Site Context

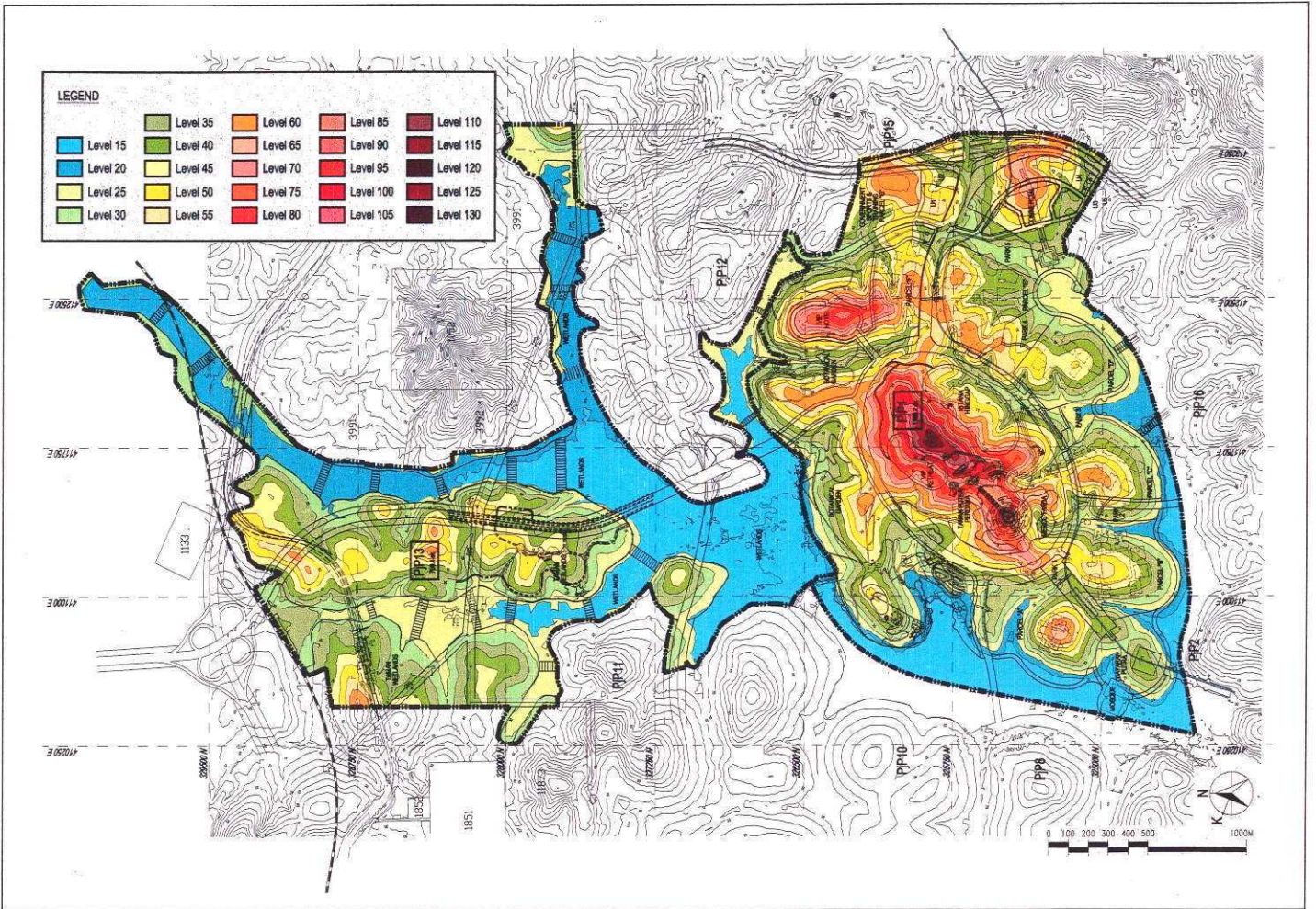
## 2.2 LANDFORM and TOPOGRAPHY

021 The dominant landform feature of Precinct 1 is a central hill with a number of radiating spurs in all directions that end in 9 distinct knolls surrounding the central hill (see Map 2: Topography). The central hill is at an elevation of +125m (Taman Putra Perdana) and the surrounding knolls range in elevation from +50m to +90m. The hill and knolls tend to have a gentler gradient towards the top, with their slopes dropping away at an increasing steepness. Typically, the hills and knolls are separated by gentle, rolling valleys (See Map 3: Slopes).

022 Precinct 1 is located at the confluence of the Sungai Chuau and the Sungai Bisa. Sungai Chuau runs north-south at the western boundary of the precinct, while Sungai Bisa runs east-west at the southern boundary. The flooding of the valleys of these two rivers in forming the lake creates a peninsular with a north-east to south-west axis out of Precinct 1.

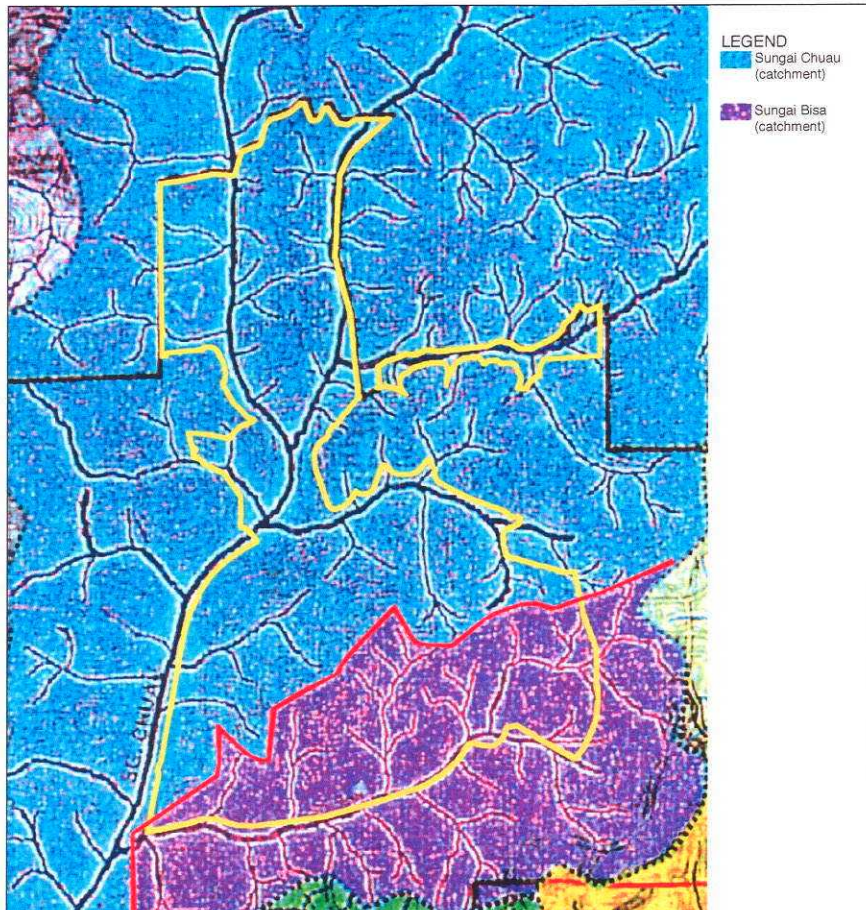
023 Precinct 13 is located upstream along the Sungai Chuau from Precinct 1. The site is characterised by undulating terrain with existing elevations ranging from 25m to 60m, and is dominated by a ridge, bounded on both sides by forks of the Sungai Chuau. The flooding of these two stream valleys for the artificial wetlands creates a long narrow peninsular with a north-south axis. Several knolls along the ridge provide geographical interest. Patches of steep slopes of >25° occur in the middle portion of the ridge. Most of the site, however, possesses fairly gentle slopes.

024 Precinct 13 includes an eastward extension along a water course fringing the northern boundary of Precinct 12. Most of this extension will also be inundated and converted into wetlands, also be inundated and converted into wetlands.



MAP 2 : Topography





MAP 4 : Rivers and Streams

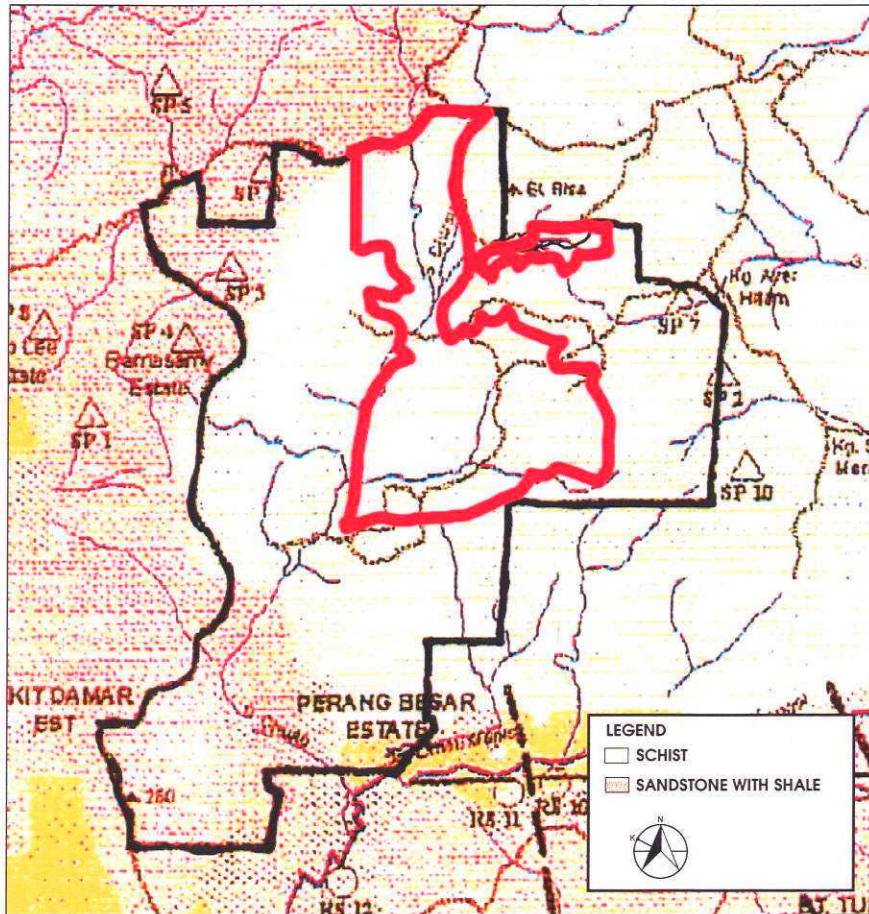
## 2.3 HYDROLOGY and DRAINAGE

025 The mean annual rainfall recorded over Putrajaya is 2250 mm whilst the mean discharge of the Upper Sungai Chuau Catchment is 0,4 m<sup>3</sup>/sec. The mean daily pan evaporation averages at 5.3 mm/day.

026 Generally, there is a concentric pattern of drainage flow emanating from the central hill in Precinct 1 to the Sungai Chuau and Sungai Bisa. (See Map 4: Rivers and Streams)

027 The water level at the main lake area, on the west and south-west fringes of Precinct 1 will be at +21m, while water levels at other parts of the lake and wetlands complex will rise, by means of a series of weirs, to +31m. To mitigate against flooding, platform levels are set at +24m or above. The promenade level will be set accordingly from +22.5m to 31.5m.

028 Precinct 13 is drained, from north to south, by the Sungai Chuau, the main water source for the proposed wetlands. The original configuration and water flow of the river system will be altered significantly by engineering works designed to construct wide waterways for the creation of the artificial wetlands. Wetlands will eventually cover 46.8% of the total area of Precinct 13. Surface runoff from Precinct 13, as well as from neighbouring precincts will drain into the wetlands, which will serve as a filter for the lake.



MAP 5 : Geology

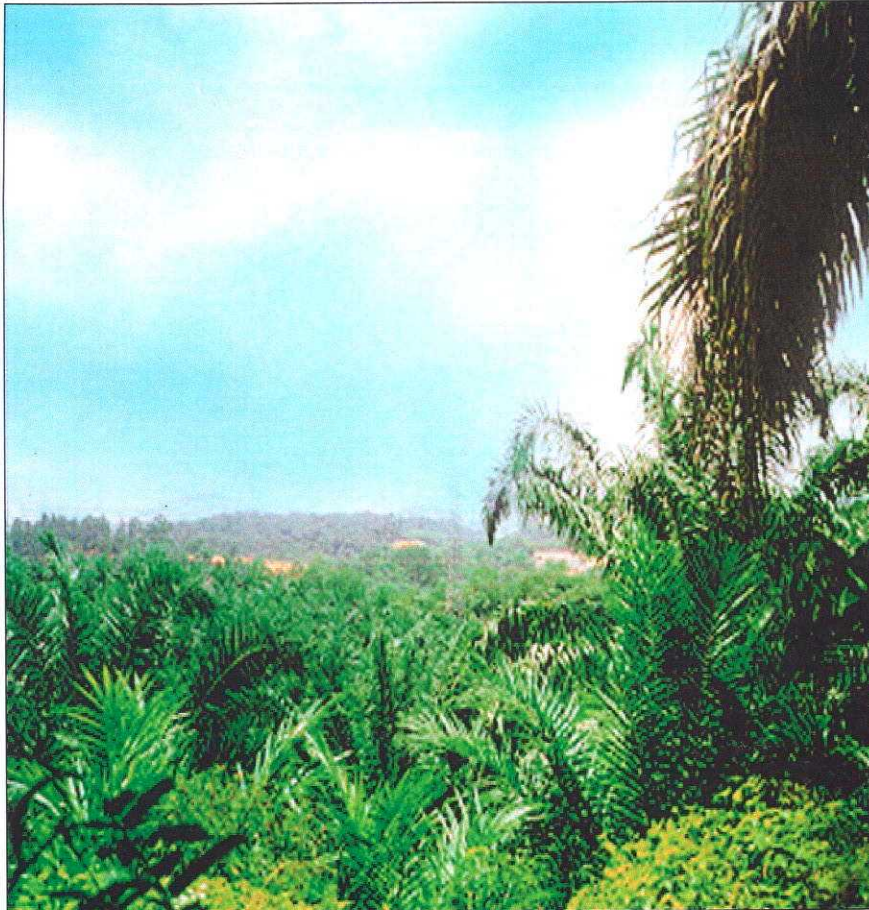
## 2.4 GEOLOGY and SOILS

029 The two precincts are characterised by Kenny Hill sandstone and shale overlying Hawthorden Schist. At the lower elevations, alluvium has spread on to the valley floors. The destabilisation effect of earthworks is to be mitigated by keeping development off the sides of slopes where possible, and out of the valley areas where soils are less capable of load bearing. (See Map 5: Geology)

030 Soil tests in the southern peninsula area of Precinct 13 show lateritic silty clay occurring in generally 3 layers with slight differentiation in composition and texture. Underlying the lateritic clay at a depth of about 12 m. is a very hard grey silt. This is expected to prevail throughout most of Precinct 13.

031 In Precinct 1, tests from boreholes at Parcel B show soil in 2 layers, a top layer of alluvium varying from 2 to 3 m., and an underlying layer of Residual Soil of the Kajang Formation. Bedrock, consisting of sandstone and weathered phyllite, begins from about 8 m. deep. These soil conditions are indicative of the whole of the southern slopes of the peninsular designated for Government buildings.

032 Development will be restricted in Precinct 13 and geology and soils would not generally be an issue. However, geotechnical reports prior to development will be required for each particular site or parcel of land and more detailed examination of the capability and characteristics of the geology and soil type will be conducted for every proposed development, particularly in Precinct 1.



Existing Vegetation

## 2.5 PRESENT LAND USE and VEGETATION

033 The Planning Area is presently a plantation. Oil palms, some rubber trees and belukar are found on the site, with some fruit trees, including durian and banana, occurring towards the south of the peninsula in Precinct 13. The majority of existing trees do not fall within the purview of the Tree Preservation Order of the Town and Country Planning Act. They also do not provide a sufficiently varied and interesting ecological mix to warrant conservation. As unique and specialised parks such as the Taman Wetland and the Taman Botani will be developed in the Planning Area, a considerable replacement with more varied plant species is to be anticipated. Only existing vegetation in critical locations, such as steep slopes, may be preserved.

## 2.6 FAUNA

034 The Planning Area is still rich in terrestrial and aquatic wildlife. Species of small mammals, reptiles, amphibians, birds, fresh water fish and prawns as well as insects abound. While the construction period will disturb the wildlife temporarily, the completion of the wetlands will provide a sustainable ecological system in which the present fauna will be able to regenerate.

## PART 3: OBJECTIVES

### 3.1 FEDERAL GOVERNMENT ADMINISTRATIVE CENTRE

035 The rationale for Putrajaya was to create a separate city away from Kuala Lumpur and move Federal Government ministries and departments to that city. Precinct 1, the Government Precinct, is the location within Putrajaya where these ministries and departments will be concentrated. The successful development of Putrajaya, therefore, depends on the successful development of Precinct 1. A fundamental objective for Precinct 1 is:

**TO CREATE AN ENVIRONMENT FOR THE GOVERNMENT OFFICES TO FUNCTION EFFICIENTLY AND EFFECTIVELY.**

036 In furtherance of this objective the Local Plan for Precinct 1 shall ensure that the Government offices and support facilities are integrated with the city and regional transportation systems to increase their operational efficiency and to facilitate public access to them.

037 The Taman Wetland and the parks in Precinct 1 shall be systematically developed to create, besides fulfilling their town-wide functions, a conducive working environment for the office workers.

038 Public spaces such as plazas, squares, promenades, etc. shall be planned and developed in Precinct 1 and maintained to enhance the social and cultural atmosphere for office workers and for the visiting public.

039 Adequate lighting shall be provided along the promenade and other open spaces to encourage public use of these places at night and enhance the importance of the Government Precinct in the cultural life of Putrajaya.

040 Commercial facilities shall be provided, in particular in Parcel Z, to support the needs of office workers.

041 In the implementation of development plans the following guides prepared for Perbadanan Putrajaya shall be adhered to:

- Urban Design Guidelines
- Lake Management Guide
- Stormwater Management Guide
- Transport Design Guide
- Environmental Management Guide
- Drainage Design Guide
- Signage and Advertisement Design Guide

### 3.2 WETLANDS PARK SYSTEM

042 A central objective of both the Structure Plan and the Masterplan is to create a "City-In-A-Garden". The Taman Wetland and the parks in Precinct 1 epitomise this effort. The successful realisation of this objective, therefore, depends very much on the successful development of the wetlands and parklands in Precinct 13 and the parks in Precinct 1. Another fundamental objective for the two Precincts is, therefore:

**TO ENSURE THE SUCCESSFUL PLANNING, IMPLEMENTATION AND MAINTENANCE OF THE WETLANDS AND PARKS SYSTEM.**

043 All public parks and gardens, from the Taman Wetland and Taman Botani to the small urban park in Parcel Z, shall be gazetted as public open space.

044 Buffer zones shall be provided along roads, rails and utility alignments and around utility reserves to enhance the visual quality of Taman Wetland and the Government Precinct.

045 Detail Layout Plans and Landscaping Plans, together with appropriate landform and environmental management reports, geotechnical reports, traffic impact reports, etc., shall be prepared before each park is approved for implementation.

046 Guidelines and standards, such as on street furniture, signage, advertisement control, use of building materials, painting of buildings, etc. shall be drawn up to manage the special features of Taman Wetland and the Government Precinct.

047 Various aspects of the ambient environment, such as air quality, water quality, noise level, etc. shall be monitored to ensure that the ecological system of the Taman Wetland and other parks is sustained.

048 Wildlife shall be nurtured and protected in the wetlands and parks system.

### 3.3 INTELLIGENT CITY

049 Another objective of the Structure Plan and the Masterplan is to create an "intelligent city". While this applies to all precincts of Putrajaya, Precinct 1 is a priority and test area for realising this objective. An objective of the Local Plan in this regard is:

**TO USE PRECINCT 1 AS A LEAD PRECINCT FOR DEVELOPING PUTRAJAYA INTO AN "INTELLIGENT CITY".**

- 050 A system of electronically operated kiosks shall be installed:
- (i) for the use of the public to obtain information, make inquiries, seek assistance, etc. and
  - (ii) for use as terminals for application and renewal of official documents and payment of official dues.

The Government Precinct shall be a priority area for installing such a system.

051 A computerised system of city-wide security surveillance, emergency assistance alert, fire alarm, traffic control, public lighting control, etc. shall be installed. The Government Precinct shall be a priority area for installing such a system.

### 3.4 PUBLIC TRANSPORT

052 Implicit in the transportation proposals of the Masterplan and applied, in particular, to Precinct 1 and Precinct 13, is the objective: **TO ENSURE THAT THE TWO PRECINCTS SHALL, AS MUCH AS POSSIBLE, BE FREE OF TRAFFIC CONGESTION. PUBLIC TRANSPORT SHALL BE GIVEN EMPHASIS.**

053 The Local Plan shall aim at creating an efficient transport system with multi-mode public transport.

054 The transport strategy shall give priority to public transport and shall encourage transfer to this mode, for example, through the provision of park-and-ride facilities, special bus lanes, etc.

055 LRT stations, together with buses and taxis interface, shall be conveniently located to serve workers in the Government offices.

056 The transportation Masterplan is designed to achieve a target of 70% of all travel to the Core Precincts, including Precinct 1, by public transport. This target shall be adhered to in the implementation of the Local Plan.

057 The public transport situation shall be monitored to ensure that public transport shall be efficient, convenient, comfortable and economic.

058 In parallel with ensuring a viable and efficient public transport system, the Local Authority shall adopt controls to restrict the access of private vehicles, to a maximum of 30% of all trips, into the Core Area, including Precinct 1, and such restriction mechanisms may include limiting parking provisions.

### 3.5 INFRASTRUCTURE and UTILITIES

059 Putrajaya is to be developed with an advanced infrastructure system. Several features, never before applied elsewhere in the country, are being introduced here. These include a central cooling system and the use of conduits for the carrying of cables and pipes over the whole city, etc. An objective for the Local Plan is, therefore:

**TO USE PRECINCT 1 TO SUPPORT THE PROPOSED ADVANCED INFRASTRUCTURE SYSTEM.**

060 Various aspects of the infrastructure system combine to create a pollution-free city, including a transportation system based on public transport to curb air pollution, a sewerage system to control water pollution, a gross pollution trap system to prevent debris from entering the lake and wetlands, etc. These systems shall be maintained and monitored.

061 A utilities conduit system is proposed that allows for the dispensation with overhead wires and cables. The conduit shall be consistently implemented in Precinct 1 and Precinct 13 to enhance the aesthetics of the Precincts.

062 The utilities conduits system allows for a "no dig" policy to be instituted in the maintenance of utility reticulations and the casual increase of supply to users. The "no dig" policy shall be enforced.

063 A central cooling system shall be installed in Precinct 1.

## PART 4: DESIGN CONCEPTS

064 Based on the objectives for the Precinct and taking into consideration the topography of the site, 11 civic design conceptual considerations have been applied to the planning of the Government Precinct. They are:

1. Organisation and Orientation
2. Parks and Open Space
3. Vehicular Circulation
4. Non-vehicular Circulation
5. Parking
6. Addressing and Servicing
7. Public Transportation
8. Building Heights
9. Utilities
10. Landmarks and Sights
11. Phasing

065 These conceptual aspects form the structure and basis for a comprehensive plan that takes into consideration form, function and aesthetics. The plans on the following pages will illustrate the overall concept for the plan of the Government Precinct.

066 The organisation of the Government Precinct is further determined by a physical order based on government hierarchy, cultural sensitivities, and public presentation. The location and orientation of buildings should relate to the location of physical and cultural treasures and landmarks, such as the Putra Mosque, the Mercu Tanda, the Dataran Putra, the Putra Bridge, the other bridges and the Taman Botani. Presentation of, and access to, special realms, such as the Taman Putra Perdana and VIP facilities requires additional measures of consideration, such as security service, telecommunications, and cultural needs of the local and international communities.

067 Plot ratios for the Government Precinct are 1.4 for the Government parcels and 2.3 for the Commercial parcels. These plot ratios will ensure that the developments within this precinct will be kept to low and medium densities.

068 The following are the plans that illustrate the urban design intention and will be used to guide developments on individual parcels within the Government Precinct.

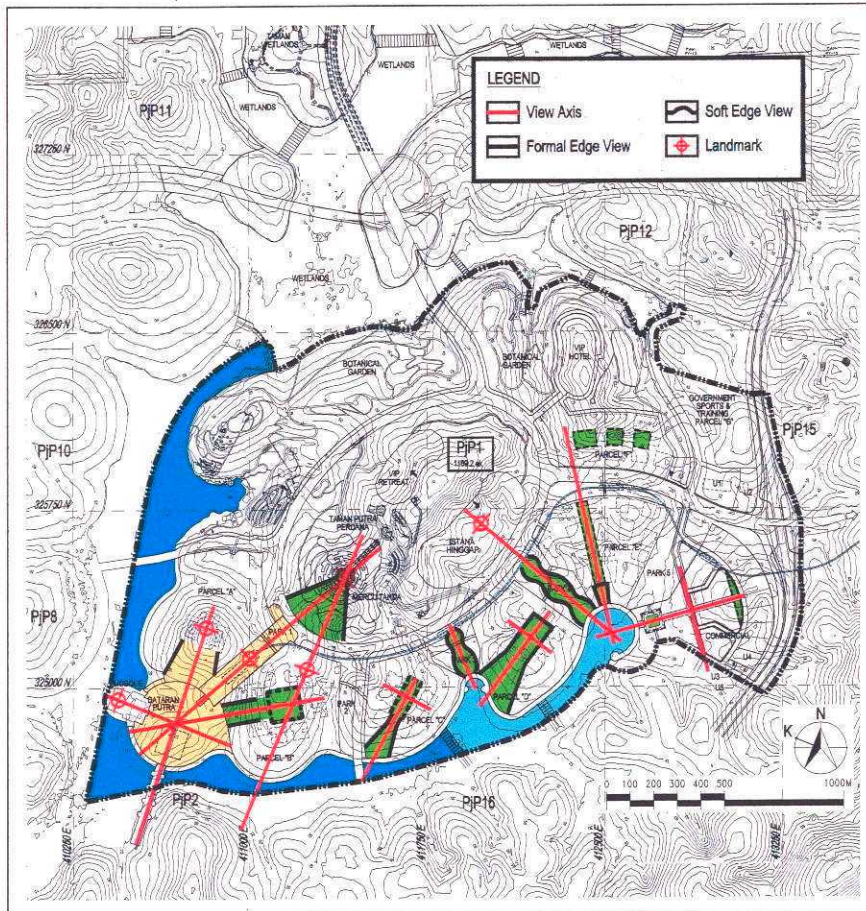


Diagram 1 : Organisation and Orientation

#### 4.1 ORGANISATION and ORIENTATION

069 Topographically, the Government Precinct is a series of knolls surrounding a larger hill, and as such it lends itself to a strong visual ordering principle by which views are generated and framed to and from each knoll top. Furthermore, views are framed by buildings as well as by the landscape with both formal and soft edges. In these regards, formal edges are strict, man-made and ordered. By contrast, soft edges are informal and exist more as unattended nature.

070 As one moves from the Commercial Area to the west through the sites, the views gradually open up more and more, until a long view down the Boulevard is generated at the Prime Minister's complex on Parcel A. During the same sequence, views become increasingly formal in nature as well, from a sighting on a small waterway, to a hilltop, to a bridge, and finally to the Dataran Putra and beyond. The views and spatial order from the less-developed western side of the Precinct are more informal, with some views extending into the wetlands. All view corridors are tied together by the Oval Drive and its adjacent roads.

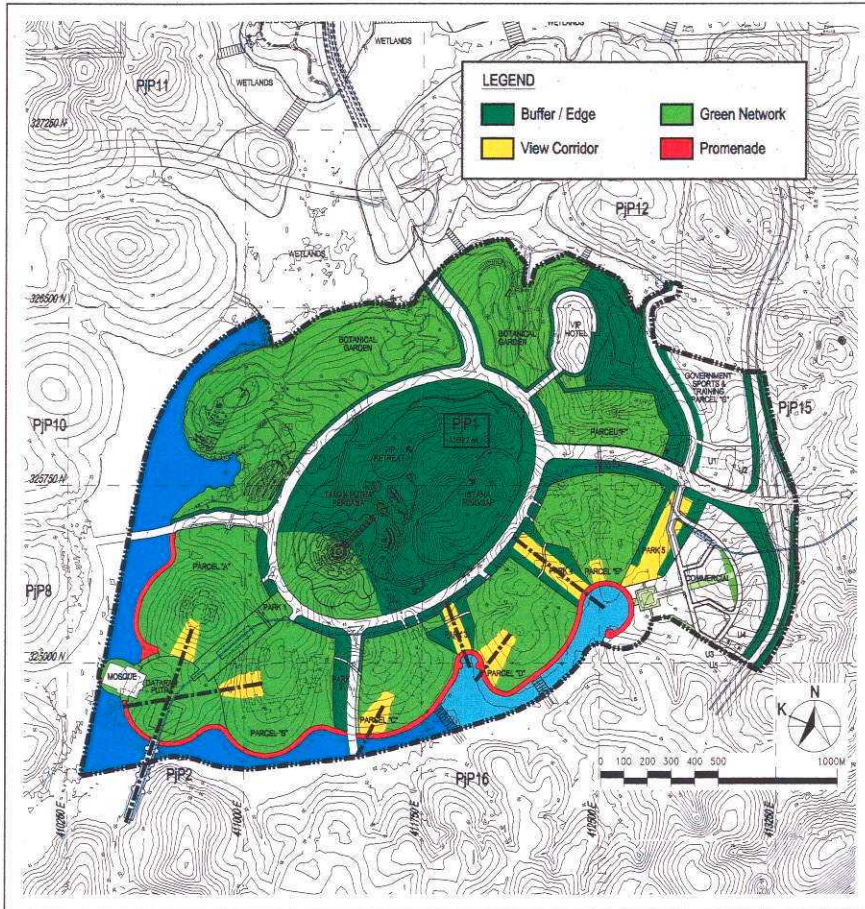


Diagram 2 : Parks and Open Space

## 4.2 PARKS and OPEN SPACE

071 A basic purpose of the open space provision and landscaping works should support the concept of a "City-in-a-Garden", where landscaped space is a prevalent feature of Putrajaya.

072 Intrinsic in their ordering system, both the open space and landscape serve many functions, including; providing views, drainage, flood control, microclimatic control, and serving as security buffers and shaded connectors.

073 Within the open space hierarchy, the major garden on the central hill - Taman Putra Perdana - and the Taman Botani are the celebration and principle repository of the landscape. Other gardens serve to spatially organise development into clusters, lending an overall identity to the place. The resultant landscape should produce a clear and holistic interpretation of the Government Precinct.

### 4.3 VEHICULAR CIRCULATION

074 Movement into and out of the Government Precinct peninsula is via spoke roads in the direction of the four cardinal points.

075 These roads connect, in term, to a four-lane, one-way distributor - The Oval Drive. The Oval Drive then feeds the individual parcels around its circumference. These entry roads into the parcels are seen as the predominant form of access, and allow each parcel to be secured. Service circulation is also through these roads.

076 The topography is reinforced by the Oval Drive. Entering from the main water crossing from the north, the view is toward the central hill. The views, circulating clockwise are at first into a valley, and are closed, i.e. they are finite and bounded by physical slopes. As the Oval Drive emerges past the east spoke road and Parcel E, the land begins to flatten out, so that views become more expansive.

077 At the south spoke road, the Oval Drive is clearly on the outward slope of the central hill, and long distance views are afforded to the other side of the lake and beyond.

078 Finally, as the Oval Drive goes past the main Prime Minister's complex on Parcel A and the east spoke road, the views begin to close again, bringing the spatial experience full cycle.

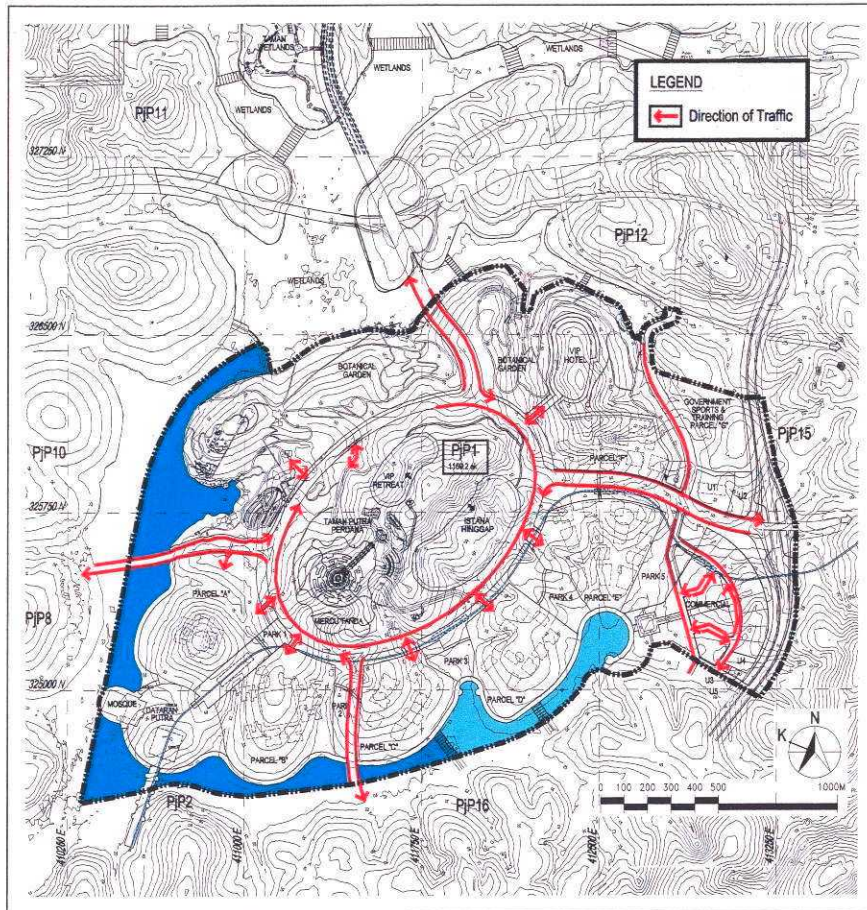


Diagram 3 : Vehicular Circulation

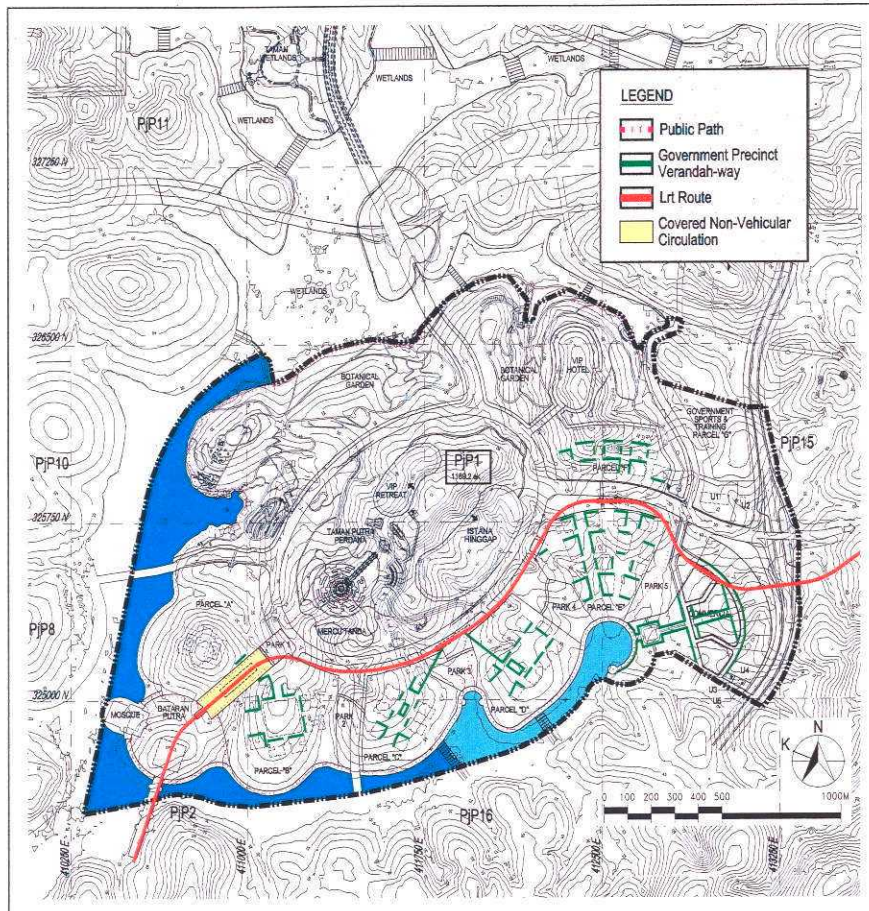


Diagram 4 : Non-Vehicular Circulation

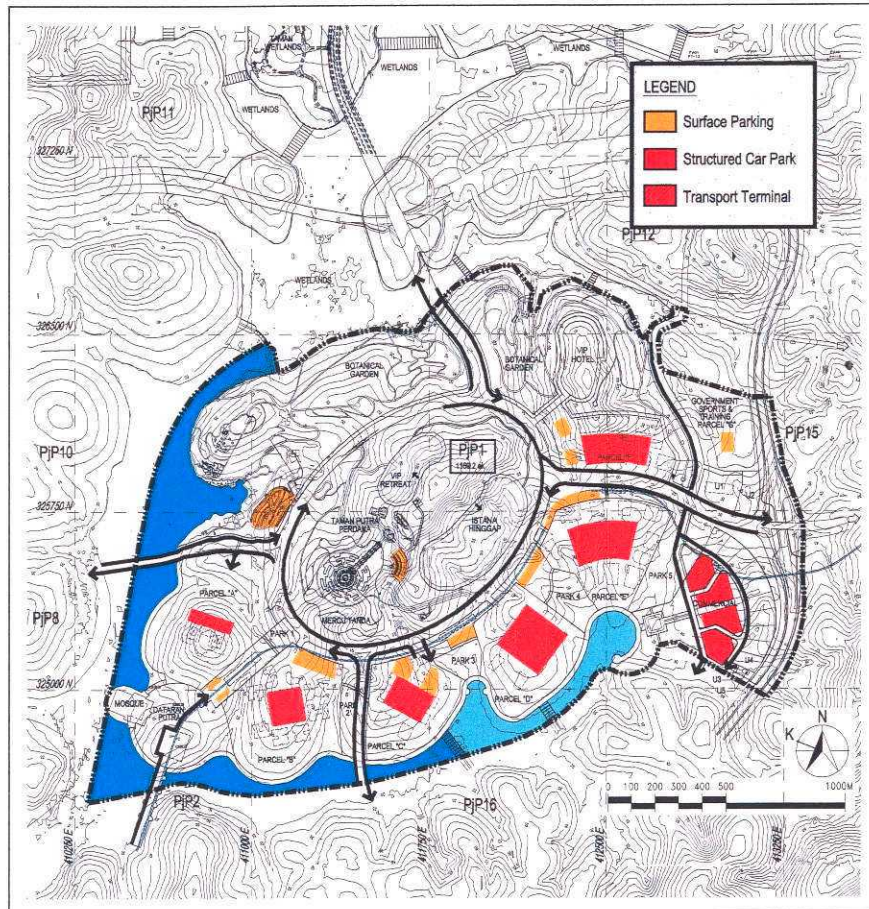
#### 4.4 NON-VEHICULAR CIRCULATION

079 Non-vehicular circulation emanates from two sources: car park areas and LRT stations.

080 From the car park areas, public paths are to connect areas of interest - usually in zones of lowest security, including the Promenade and the path connecting the two upper wetland areas to the west of the precinct:

081 From the LRT stations, physical connections convey the commuters to areas of development. These are usually in the form of verandah-ways, pergolas or trellises and, when appropriate, some underground or pedestrian bridge connections could occur.

082 The pedestrian network is comprehensive and may originate or terminate at public LRT stations, combined with bus and taxi stands; alternatively car parks are provided to accommodate private transport.



## 4.5 PARKING

083 Parking is organised into structured car parking and surface car parking. Structured car parking is generally located within each parcel, while surface car parking is generally at the periphery. Parking is also located at key nodes along pedestrian routes for visitors within the Government Precinct: at the Mercu Tanda, the Taman Botani, the LRT site between parcels C and D, in the Commercial area, as well as on limited occasions, at the Dataran Putra area.

084 Parking areas need to be connected to the development which they serve. With over 14,000 car spaces needed, a clear strategy is defined. Generally, parking under buildings is limited, and usually to only one level. Where possible, the sloped site should be taken advantage of to provide natural ventilation with the car parks. In dense sites, like Parcel E and the Commercial Area, structured car parking could be located together on one of the building sites. In the phasing from some motorcycle traffic to full car traffic, parking spaces may be set aside at the ratio of 1 car space to 5 motorcycle spaces for future conversion when the demand arises.

Diagram 5 : Parking

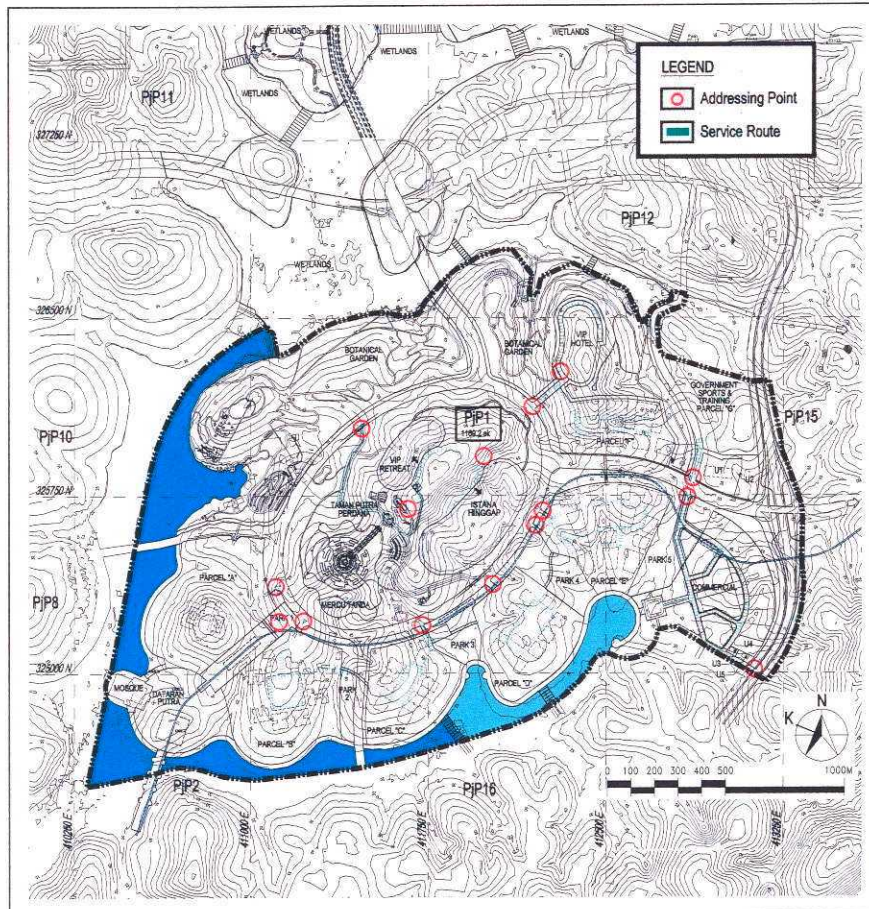


Diagram 6 : Address and Servicing

#### 4.6 ADDRESSING and SERVICING

085 The points of address for the Government Offices are generally off the Oval Drive. It is suggested that an even-odd numbering system be used for post purposes, with Parcel A being 1 Oval Drive, Parcel B being 2 Oval Drive, the Taman Botani being 3, 5, 7 (could be for future reserve); Parcel C, D, E being 4, 6, and 8 respectively; the VIP Hotel being 9, and the VIP Retreat 11; Parcel F being 10 and the Istana Hinggap as number 12.

086 The Government sports training complex and the Commercial area have points of address off the east spoke road.

087 Service routes and their effects are mitigated by level separation, as well as by off-peak scheduling in certain instances. Within the government office parcels, once past a secured entry point, a service vehicle may be allowed to travel between parcels. This is to keep service vehicles off the Oval Drive as much as possible, as well as to cater for a maintenance or collection route.

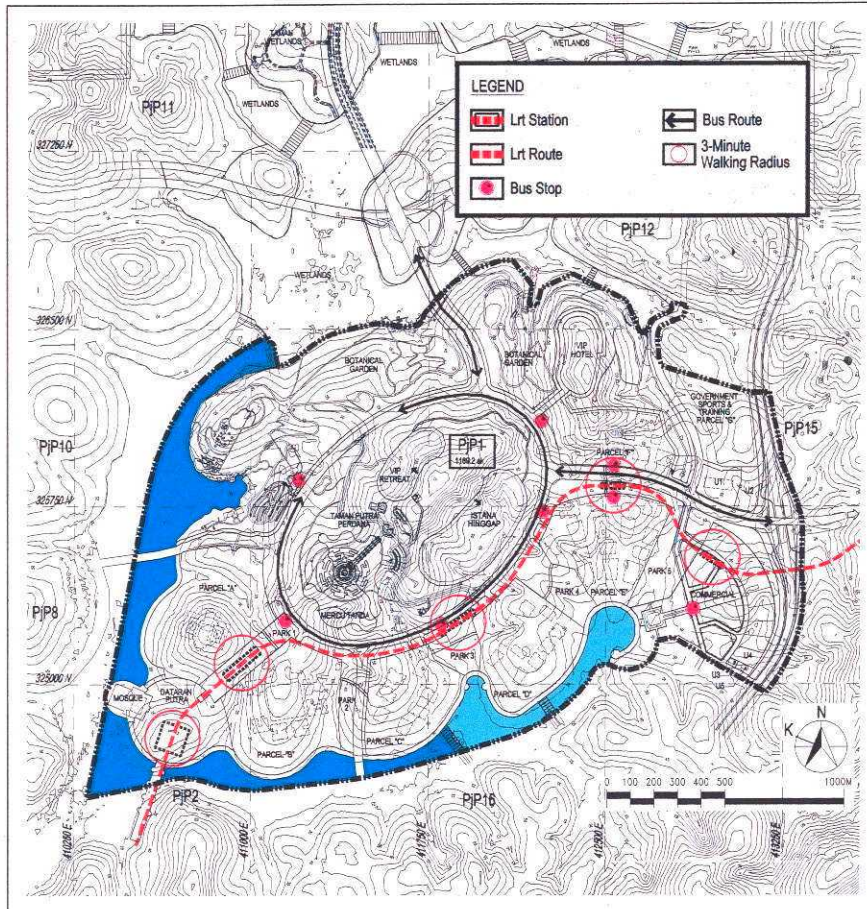


Diagram 7 : Public Transport

## 4.7 PUBLIC TRANSPORT

088 With the target of 70% for public transport ridership, development must be served by adequate facilities. Mostly a linear strand of five LRT stations is envisaged, and a bus circuit comprising at least six stops is to be considered. These are all in low security zones, and are ideally placed, within 300 meter walking radii to the individual offices.

089 The bus stops also feed parking areas. The LRT station between Parcels C and D is also coupled with a bus stop. In addition, inter-modal transfer capabilities are provided at the Commercial Area transport terminal (park and ride facilities, bus terminal, and LRT station).

## 4.8 BUILDING HEIGHTS

090 The overall height control for the Government Precinct is based on 2 main factors, that is maintaining the topography of the site and reinforcing the status and significance of the Prime Minister's Complex on Parcel A.

091 The relative heights and elevations of buildings should give precedence to the hierarchy of governmental position, access, and operations. The Prime Minister's Complex, at five storeys from platform level RL 55.00 is visually the highest building in this precinct. The height of other buildings will be controlled to be lower. They will be between three to eight storeys but will be located along lower contours. Arrangement of buildings will attempt to permit most buildings a clear view of the lake, while at the same time accentuating the land form.

092 In terms of real height, development towards the east of Taman Putra Perdana may be somewhat taller. This is because of the platform levels that are somewhat lower, as well as the need to accommodate a certain magnitude of development.

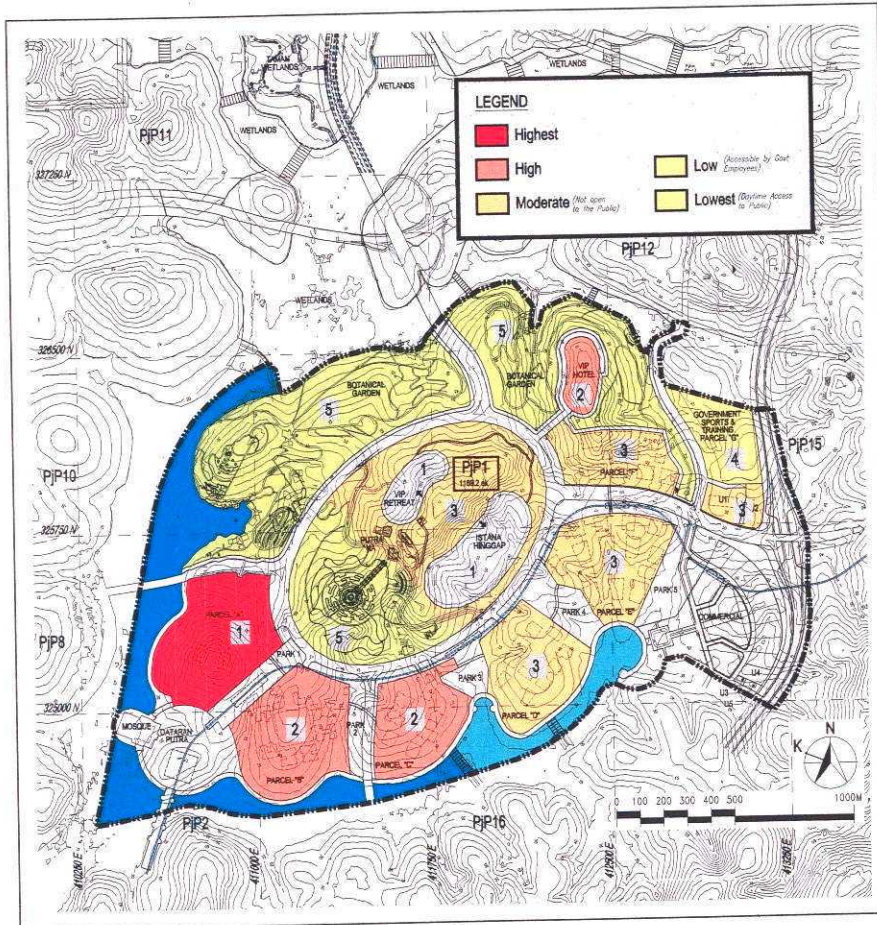


Diagram 8 : Building Heights

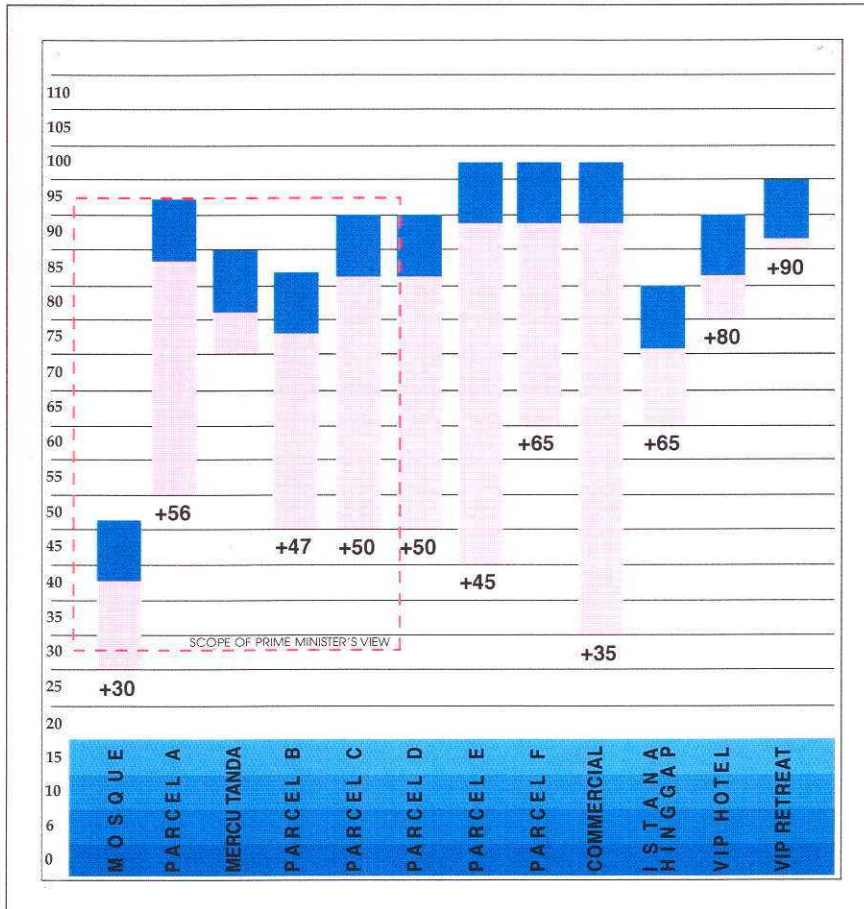
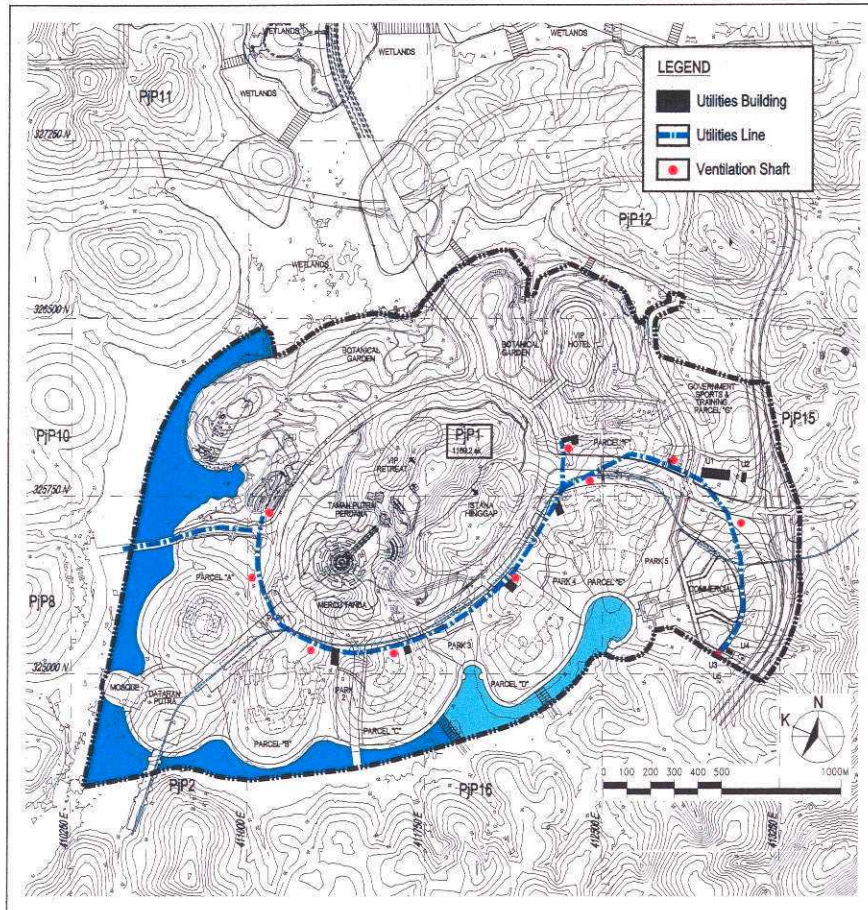


Diagram 9 : Platform Levels and Building Heights



## 4.9 UTILITIES

093 Buildings housing utilities are organised to be linked by the utility lines themselves. They have also been sited with two other principles in mind, namely: secured access when needed, without entering or disturbing a high security area, and to be kept clear from beneath potential building sites.

094 A building housing utilities has been provided for each government office parcel, so that maximum flexibility can be accommodated towards build out:

095 Ventilation shafts need to be provided at about every 500m for the LRT (these can be hidden in the landscape as they are approximately 1.5m x 1.5m in size and low structures). Where the LRT stations are spaced about every 500m, the vents can be located within each station, and integrated with other utility vents. An additional vent may be located in between and may be concealed with signage or information kiosks.

Diagram 10 : Utilities

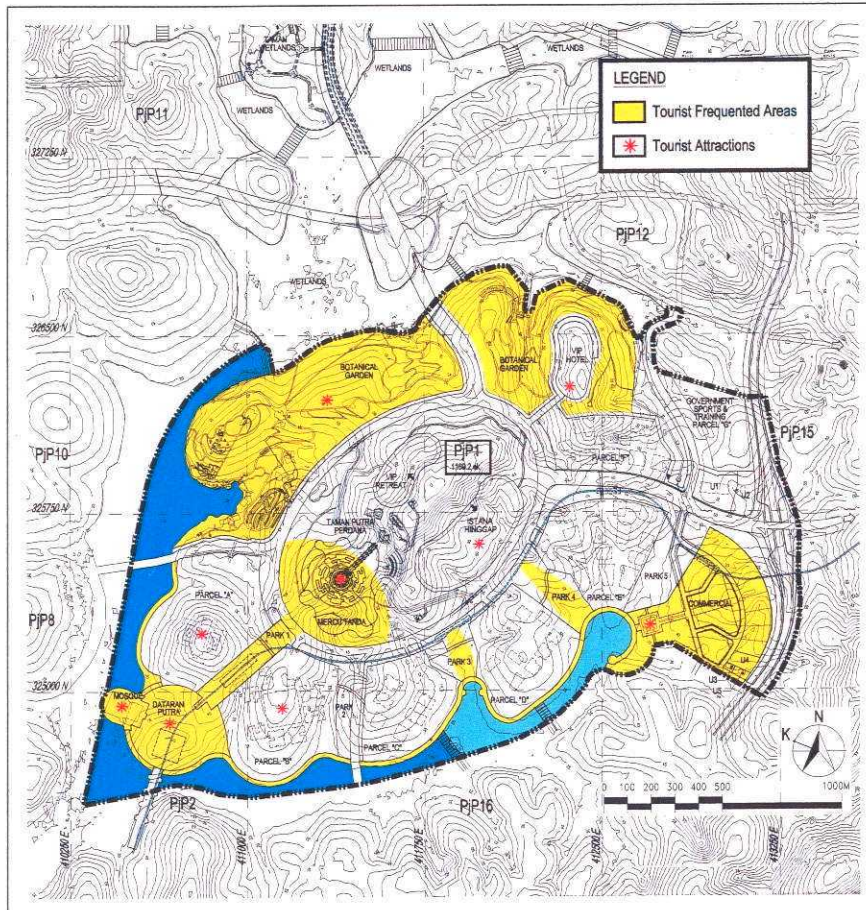


Diagram 11 : Landmarks and Sights

#### 4.10 LANDMARKS and SIGHTS

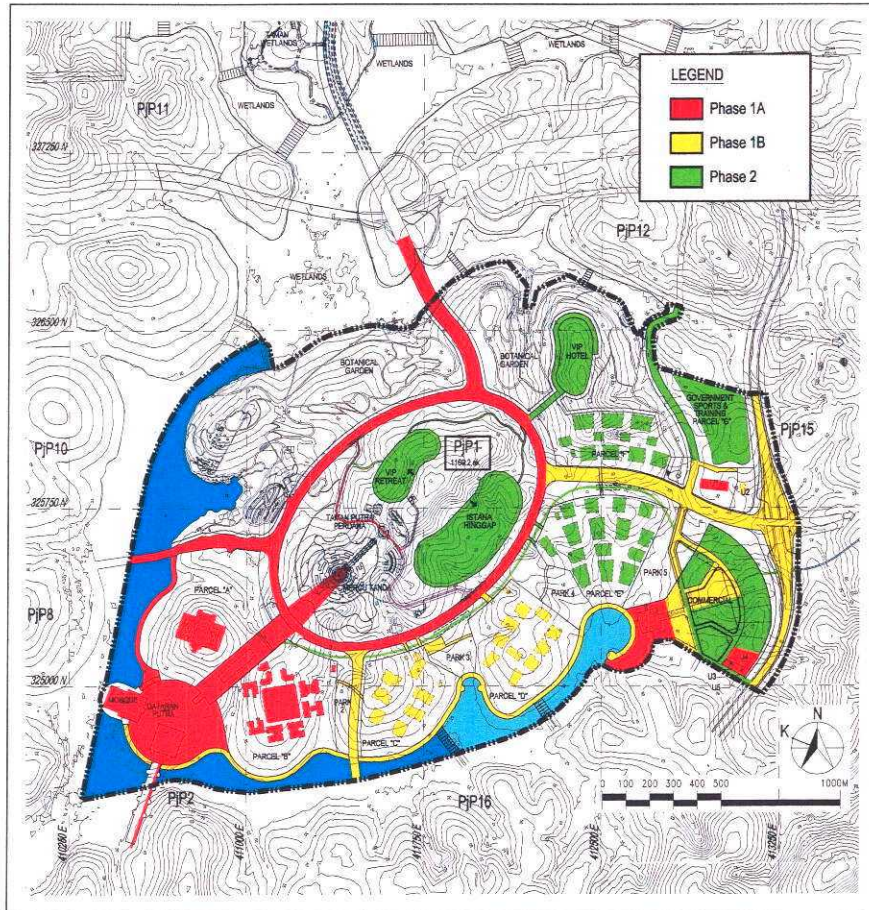
096 The lowest security zones within the Precinct include the landmarks and sights that are attractive and accessible to tourists.

097 Parking and transport concepts are also located to cater for access to these sights and attractions.

098 The potential for tourism abounds throughout Putrajaya including the Government Precinct and adjacent waterways. Three areas may be the focal points for visitors:

- 1) the Dataran Putra and Mercu Tanda area;
- 2) the Commercial area to the east; and
- 3) the Taman Botani - Wetlands area to the north and west.

099 These places are all tied together by the Promenade, which also serves as a venue for tourists. All attractions and other landmarks serve to orient the tourist traffic.



#### 4.11 PHASING

100 While Putrajaya, in particular the Government Precinct, is to be constructed speedily to enable the early transfer of Federal Government administrative functions from Kuala Lumpur to the new city, the logistics of site development requires that a Phasing Plan be available to guide orderly development.

## PART 5: DEVELOPMENT PROPOSAL

### 5.1 FUNCTION and CHARACTER

101 Precinct 1, also referred to as the Government Precinct, is an area dedicated to Federal Government administrative offices. It occupies a strategically located peninsula formed by the flooding of the Sungai Chuau and Sungai Bisa valleys in the creation of the artificial lake. The government buildings are located on the south-facing slopes, spread out in a fan shape. This southern boundary of Precinct 1 is defined by a crenate semi-circular water edge underlined by a landscaped promenade with a fairly wide band of water as a foreground. This provides an opportunity for imaginative town planning and architecture to plan and design the various Government buildings into an integrated composition that affords an inspiring view from the south. The intent is to project and emphasise the purpose, function and character of Putrajaya as the Federal Administrative Centre.

102 Precinct 13, on the other hand, is wholly set aside as a wetlands sanctuary. It is also referred to as the Taman Wetland. It will largely be free of building structures, but facilities for the public to view, study and enjoy the re-created natural ecology and environment will be provided.

103 Although Precinct 13 includes the upper extension of the Sungai Chuau valley floor that would be inundated for the lake and wetlands, a series of weirs are necessary to maintain desirable water levels for the artificial wetlands. About half of the precinct, on hilly ground, will remain as dry land and will be developed as a metropolitan park.

104 The northern half of Precinct 1, which is devoted to open space (Taman Putra Perdana and the Taman Botani) and fringed by the lake, merges with the open space and water surface areas of the Taman Wetland of Precinct 13.

105 To the south, Precinct 1 is linked to the rest of the Core Area by Putra Bridge, a strategic and focal bridge that crosses an arm of the lake. The Government Precinct is therefore both separated from and conveniently connected to the commercial and civic precincts.

106 Precinct 1 itself has a commercial function. A major sub commercial centre of the city, providing almost 375,000 m<sup>2</sup> or more than 4 million sq. feet of commercial floor space, is located in Precinct 1.

107 The entry into Putrajaya from the north, therefore, provides a dramatic experience of passing through a quiet area of simulated wild nature, with trees, water-plants and open waters, to an area of impressive buildings and busy human activity. This is intended to project and reinforce the fact, image and impression of Putrajaya as a City-in-a-Garden.

## 5.2 COMPONENTS and LAND USE – PRECINCT 1

108 The Local Plan for Precinct 1 and Precinct 13 does not sub-divide the Planning Area into planning zones or blocks. Because of its nature as a new development, Precinct 1 is, instead, divided into Development Parcels. The majority of the Development Parcels are for various Government uses. Precinct 1 consists of the following land use components (See Plan 1: Land Use):

### 5.2.1 GOVERNMENT (INSTITUTIONAL) USES

109 At 328.6 acres or about 31.7 % of the land area, Government uses constitute the second largest land use in the Government Precinct. The largest single land use, however, is dedicated to open space.

#### 5.2.1.1 Government Offices

110 A total of six (6) land parcels, Parcels A to F, totalling 251.7 acres, is set aside for Federal Government offices, i.e. to house various Government ministries and departments. The Prime Minister's Department will be located on Parcel A and B, which will provide both a functional and design focus for the area.

#### 5.2.1.2 Other Government Uses

111 Further land parcels are set aside to support the Federal Administrative function. The total area set aside for such supportive uses is 76.9 acres. These include sites for:

- Istana Hinggap
- VIP Retreat
- VIP Hotel
- Government Sports and Training Complex (Parcel G)

### 5.2.2 COMMERCIAL USES

112 An area of 57 acres, designated as Parcel Z is reserved for

commercial uses. Commercial land constitutes only 5.5 % of the land area. Parcel Z will be designed with its own integrated urban park.

### 5.2.3 PUTRA MOSQUE

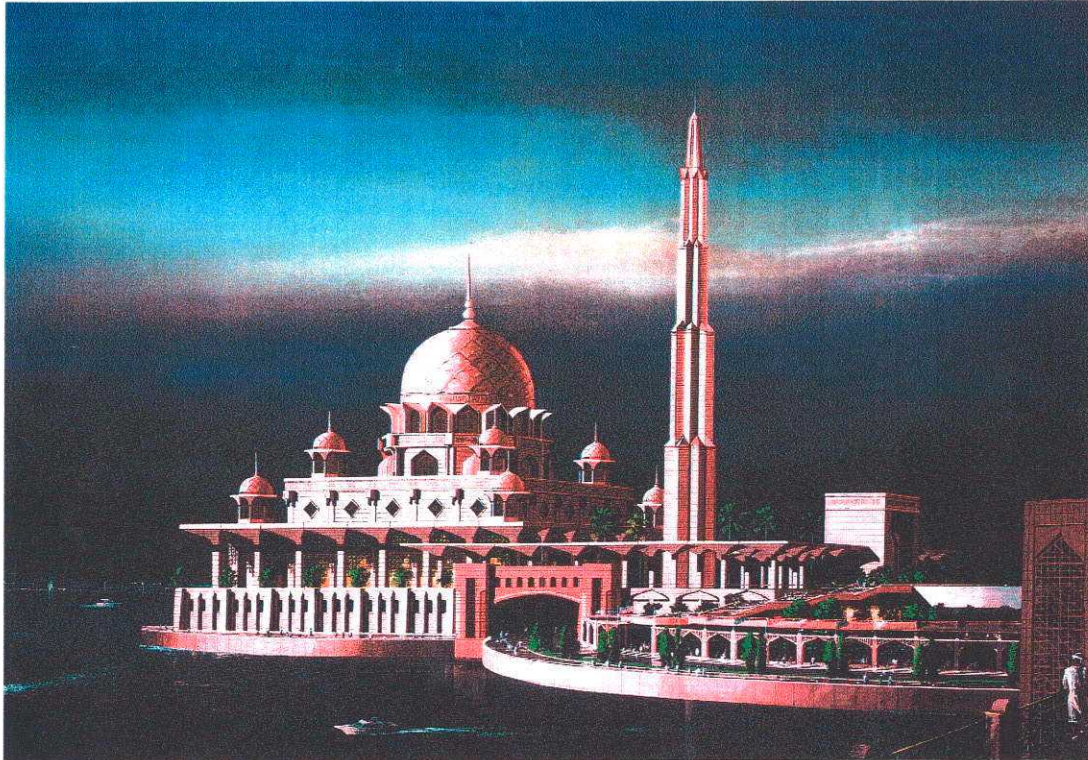
113 An important mosque of the City will be located adjacent to Dataran Putra. It will jut into the water of the lake, making it appear, when viewed from across the lake, to be floating. This mosque will largely serve the religious needs of Government employees.

### 5.2.4 INFRASTRUCTURE

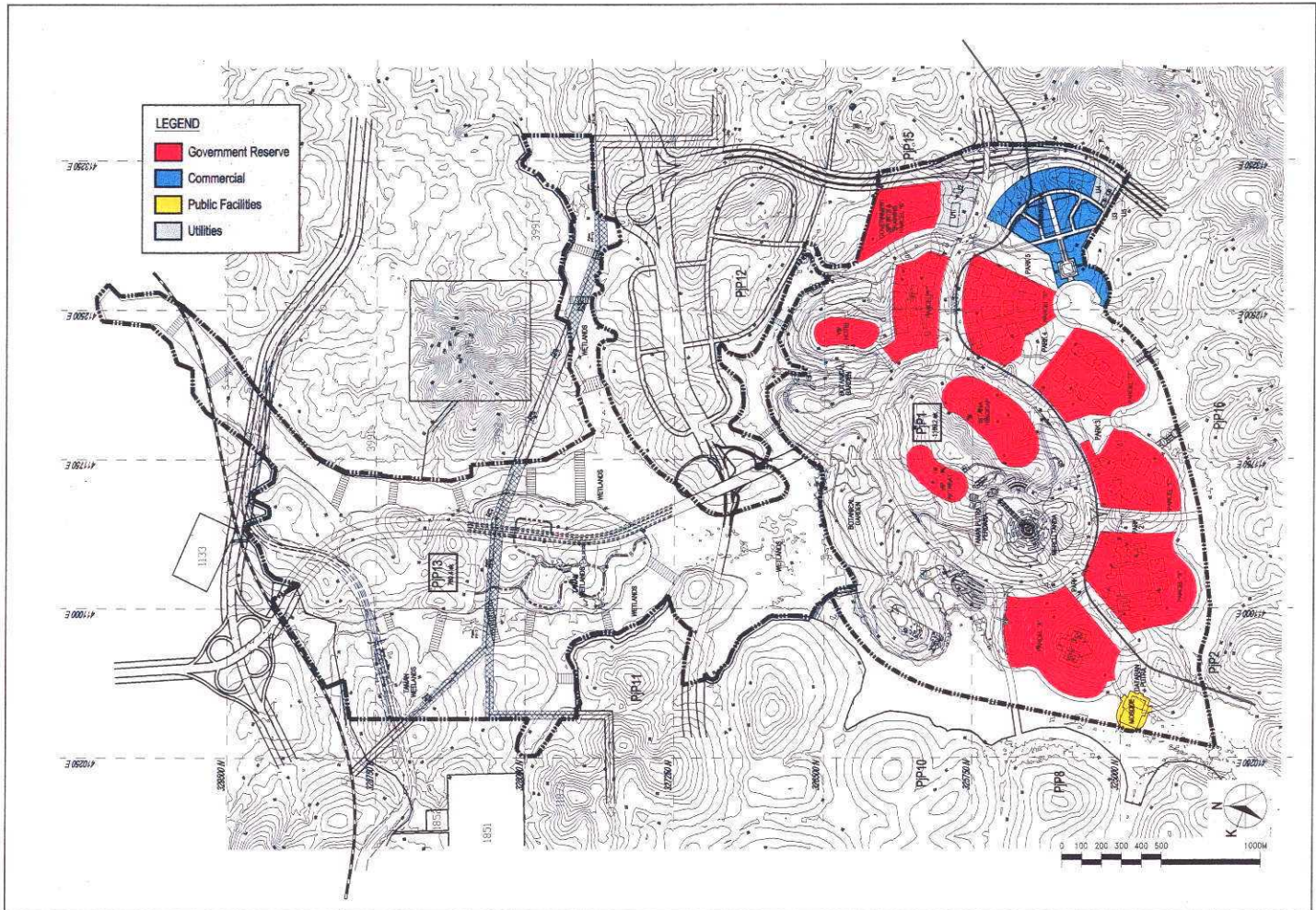
#### 5.2.4.1 Transportation Reserves

114 The transport and communications system of Precinct 1 is articulated by a road and a light rail transit system. Land reserved for these systems take up 107.7 acres. Together with the utility sites such land constitutes the acreage required for infrastructure. They amount to 119.8 acres or a relatively low 11.6% of the total land area. The low percentage is largely because of the large amount of land set aside for open space. (The utilities and transportation systems will be elaborated below.)

115 A central and unifying feature of the road system in Precinct 1 is the Oval Drive. This is an inner ring road that connects all land parcels designated for Federal Government Ministries and Departments located in the Precinct. The Oval Drive will be a major bus route with bus-stops conveniently spaced along it to serve Government employees travelling to and from work. The LRT Reserve as well as a utility reserve follows the alignment of the Oval Drive part of the way.



• PUTRA MOSQUE



Plan 1 : Land Use

116 Because of its location on a peninsula, the bridges connecting Precinct 1 to the rest of the city are an important feature. Four major bridges link it northwards to Precinct 13, westwards to Precincts 8 and 10 (Bridge B10), one bridge southwards (Putra Bridge) to Precinct 2, the Mixed Development Precinct, and the remainder of the Core Area, and another southwards (Bridge B1) to Precinct 16. The bridges add to the spaciousness and character of the Government Precinct.

#### **5.2.4.2 Utility Reserves**

117 Five utility parcels, totalling 12.1 acres, are reserved to serve the needs of sewerage, electricity supply, telecommunications, piped gas supply, district central cooling, and solid waste disposal.

#### **5.2.5 OPEN SPACE**

118 Precinct 1 is the location of two Metropolitan Parks, namely the Taman Botani and Taman Putra Perdana, besides being planned in a generous parkland and open space setting. Public open space occupies 489.2 acres or 47.2% of the land area, the largest single land use component. Together with the portion of the lake and wetlands included within the boundary of the Precinct and other public open spaces such as Dataran Putra, the total is 650.6 acres or 56.0% of the Precinct area. (The system of parks will be elaborated below.) (See Plan 2: Open Space and Parks)

#### **5.2.5.1 Precinct 1 Open Space Components**

119 The open space components in Precinct 1 include the following elements :

##### **Taman Putra Perdana**

120 This contains the Mercutanda, a VIP Retreat and the Istana Hinggap. This area occupies the central mound of the site and is circumscribed by the Oval Drive.

##### **Taman Botani**

121 Located on the north-facing slopes of Precinct 1, this is an important open space and civic feature of Putrajaya, contributing to fulfilling the objective of creating "a city in a garden". This area would also act as the transition between the formal promenade on the south face of Precinct 1 and the informality of the wetlands of Precinct 13.

##### **Dataran Putra**

122 This is a large, tree-lined, paved, public plaza that will serve as the formal "People's Place" within the city. Spatially, it acts as a hinge between the Boulevard axis and the axis of Government buildings in the Government Precinct. The area of Dataran Putra includes Putra Bridge and Putra Mosque.

##### **Promenade**

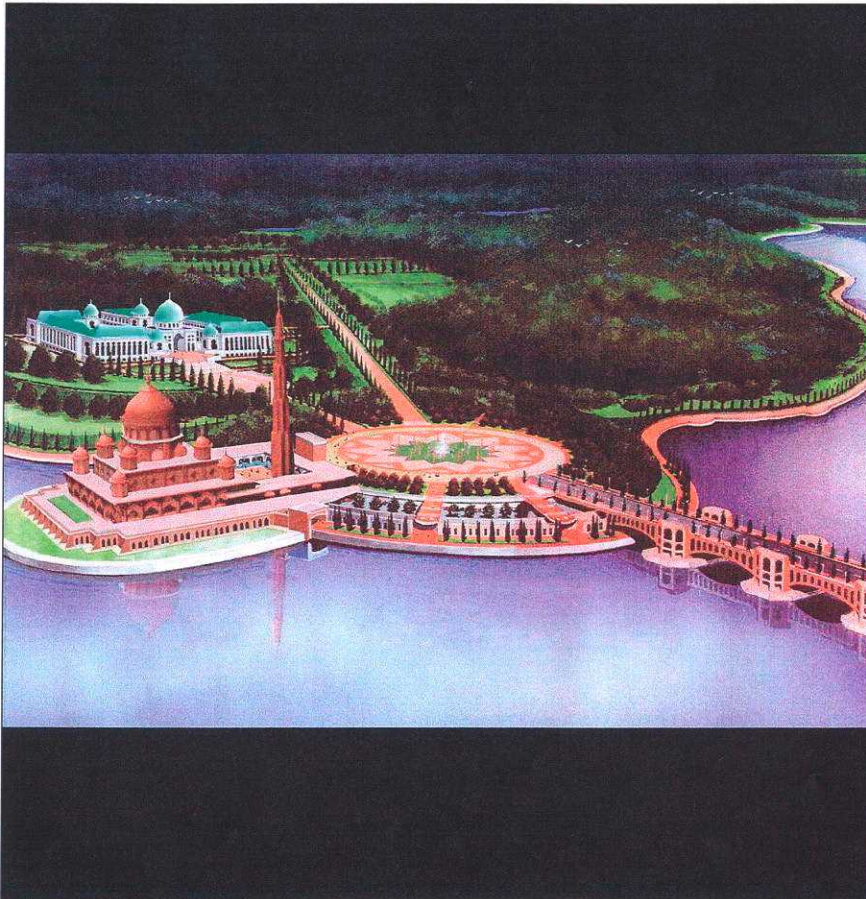
123 A large section of the western and southern water edge of Precinct 1, which is also the boundary and water edge of the majority of Government building parcels, is to be developed as a continuous promenade or waterfront walkway. While the promenade defines the water margin of the Precinct, particularly when viewed from across the lake, and is a piece of formal civic design, informal human activities will be encouraged along it. Food kiosks, information booths, etc. will be located along it. It will also be well lit for night activities. Generally it will be an area for family outdoor recreation, particularly in the evenings.

##### **The Linear Park**

124 The Linear Park essentially runs on the outer edge of the Oval Road which surrounds Taman Putra Perdana. The Linear Park stretches from the western edge of the Taman Botani in a semi-circle to meet the eastern edge of the same Taman Botani at the VIP Hotel location.



• Taman Botani



Dataran Jambatan &amp; Masjid Putra

For a considerable part of its alignment through Precinct 1, the LRT will run under the Linear Park. Spurs from the Linear Park towards the promenade and lake will create a number of small parks (6 designated on the Plan) interspersed between the Government building parcels A through F, as well as between Parcel E and the commercial parcel. These small parks will serve as separation space between building parcels, buffer zones for roads, public access routes between major open spaces and civic design spaces, as well as function as lunch-time rest and recreational areas for employees in the Government offices.

#### City Park in Parcel Z

125 This is a formal park designed to enhance the shopping environment of the commercial area and at the same time provide an open space for the lunch-break of commercial office workers.

### 5.3 COMPONENTS and LAND USE - PRECINCT 13

126 Precinct 13 is essentially dedicated to one single land use component, the Taman Wetland. However, the northern road access into the city as well as a TNB transmission reserve cross it and together take up 16.8% of the land area. The remainder of the land area, 392.9 acres or 83.2% of the land area is devoted to the Metropolitan Park (the 'dry' part of Taman Wetland) and to buffer zones. Together with water surfaces, Precinct 13 covers 887.6 acres, the wetlands itself covering 415.2 acres. (See Plan 2: Open Space and Parks)

127 The Taman Wetland will be a major tourist destination.

#### 5.3.1 TAMAN WETLAND - THE WETLANDS

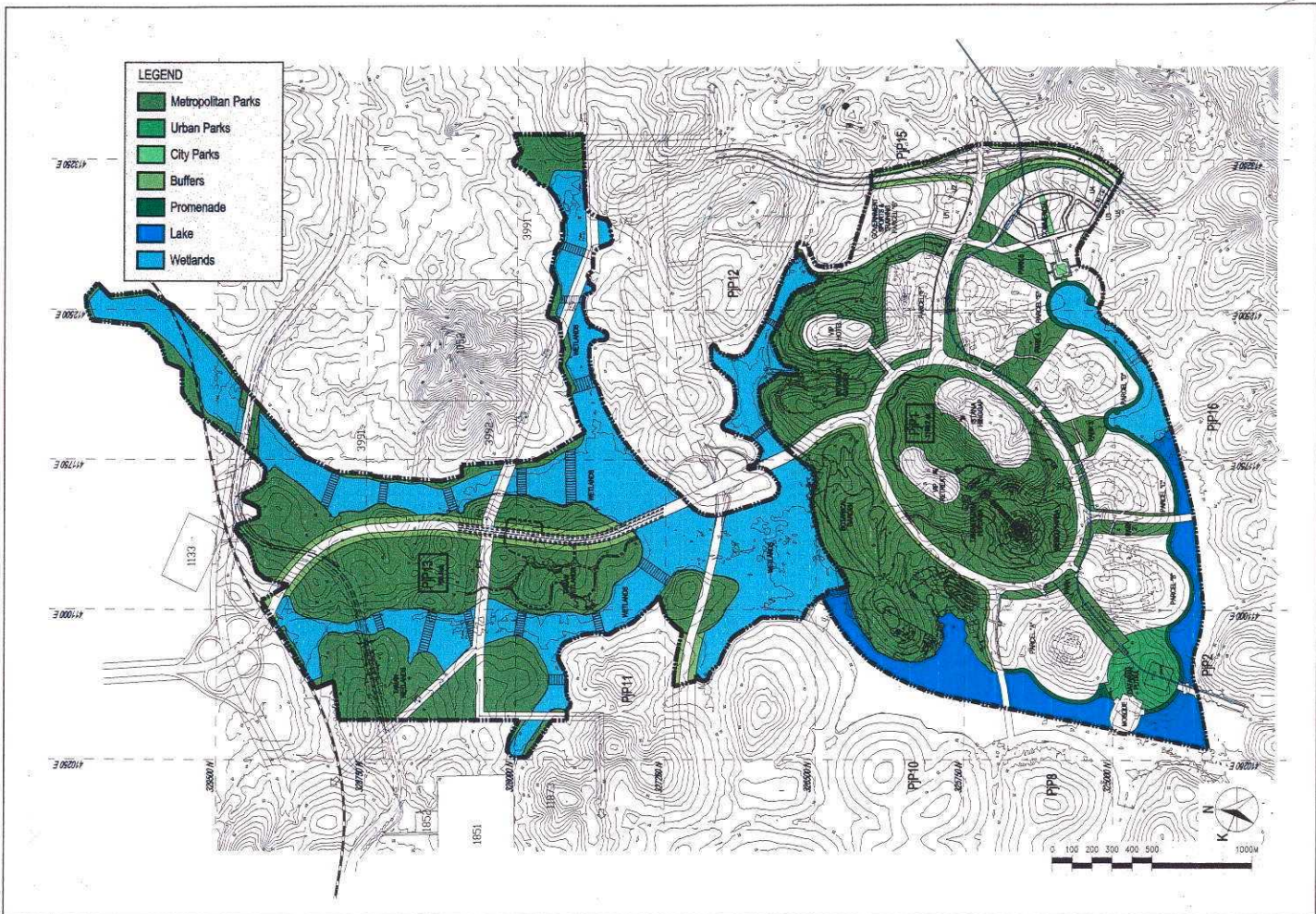
128 Water quality modelling has been performed to determine the size of the wetland area required to achieve Class IIB water quality level. The design provides for a total upstream wetland area of 130 hectares with six wetland blocks located on the upstream arms of Sungai Chua and Sungai Bisa, the blocks being Upper North Wetland (24.2 ha), Upper West Wetland (20.4 ha), Upper East Wetland (10.1 ha), Lower East Wetland (10.1 ha), Upper Bisa Wetland (21.1 ha) and Central Wetland (47.8 ha). The scale of the wetlands is believed to be one of the largest of its type in the world.

129 A multi-cell structure will be adopted in the design of the artificial wetlands. The six wetland blocks will contain 23 cells, each separated by a weir (or bund).

130 Vegetation types proposed for the wetlands include rooted emergent macrophytes, rheophiles and freshwater forest swamp vegetation. Over twenty species of aquatic plants are proposed for the wetland system. Most species selected are principally for pollutant removal. However, a list of species is also proposed for research and educational

and educational purposes. Fish stocking is recommended for mosquito control. The wetlands are designed as habitats for sustainable vegetation communities and associated fauna as well as to provide an environment conducive for passive recreation.

131 The wetlands will act as retention pond, silt trap and sponge, removing most pollutants. The lake catchment area, however, is about 44 km<sup>2</sup>, and only 61% of it will drain through the wetlands before entering the lake while the remaining 39% will drain directly into the lake. With the proposed wetlands system, phosphorus removal efficiency of 60-90% is achievable, a value conforming to the upper limit required to prevent lake eutrophication. Nevertheless, careful monitoring and management of stormwater, sewage and other discharges within the catchment must be maintained.



Plan 2 : Open Space and Parks



Taman Wetland

### 5.3.2 TAMAN WETLAND - THE PARK

132 The Park or "dry" part of the Taman Wetland, includes the following components:

- Topiary Gardens (Taman Tema Arca Organik)
- Aquatic Bird Sanctuary
- Bird Habitat
- Water Fowl Habitat
- Children's Adventure Playground
- Picnic Area
- Apiary (Kawasan Pemeliharaan Lebah)
- Vista points

133 Although buildings will not be an eminent part of Taman Wetland, they will include:

- Nature Interpretation Centre
- Surau
- Laboratory
- Look Out Tower
- Public toilets
- Rain shelters
- electricity supply substation

134

Table 1: LAND USE TABLE PRECINCT 1

USE	ACREAGE	% OF LAND AREA	% OF TOTAL AREA
<b>Government</b>	<b>328.6</b>	<b>31.7</b>	
• Offices	251.7		
• Istana Hinggap	30.4		
• VIP Retreat	12.2		
• VIP Hotel	10.1		
• Sports & Training (Parcel G)	24.2		
<b>Public Facilities (Putra Mosque)</b>	<b>6.3</b>	<b>0.6</b>	
<b>Utilities</b>	<b>12.1</b>	<b>1.2</b>	
• DCC	5.7		
• Gas	0.3		
• Other Utilities	6.1		
<b>Commercial (Parcel Z)</b>	<b>57.0</b>	<b>5.5</b>	
<b>Open Space (Land)</b>	<b>489.2</b>	<b>47.2</b>	
• Taman Botani	206.6		
• Taman Putra Perdana	152.4		
• Linear Park	76.0		
• Promenade	19.3		
• Buffers	34.9		
<b>Civic Area (Dataran Putra)</b>	<b>34.5</b>	<b>3.3</b>	
<b>Transportation</b>	<b>107.7</b>	<b>10.4</b>	
• Road Reserve	107.7		
<b>Total Land</b>	<b>1035.4</b>		<b>89.1</b>
<b>Open Space (Water)</b>	<b>126.9</b>		
• Wetlands	29.7		
• Lake	97.2		
<b>Total Water</b>	<b>126.9</b>		<b>10.9</b>
<b>Total Precinct</b>	<b>1162.3</b>		<b>100.0</b>

135

Table 2: LAND USED TABLE PRECINCT 13

USE	ACREAGE	% OF LAND AREA	% OF TOTAL AREA
<b>Open Space (Land)</b>	<b>392.9</b>	<b>83.2</b>	
• Park	361.2		
• Buffers	31.7		
<b>Open Space (Water)</b>	<b>415.2</b>		
• Wetlands	415.2		
<b>Utilities</b>	<b>36.0</b>	<b>7.6</b>	
• TNB Reserve	36.0		
<b>Transportation</b>	<b>43.5</b>	<b>9.2</b>	
• Road Reserve	43.5		
<b>Total Land</b>	<b>472.4</b>		<b>53.2</b>
<b>Total Water</b>	<b>415.2</b>		<b>46.8</b>
<b>Total Precinct (Present)</b>	<b>887.6</b>		<b>100.0</b>

## 5.4 ENVIRONMENT

136 Precinct 1 and Precinct 13 are particularly significant efforts in the proposition of creating Putrajaya as a City-in-a-Garden. Taman Wetland will be internationally unique. The Taman Botani will have national and possibly international significance, while Taman Putra Perdana will be of regional importance. Dataran Putra will have national importance in times of national events. In addition, Precinct 1 contains open spaces, such as the Promenade and the Linear Park, which are of city level importance. The public open spaces not only provide a conducive atmosphere and environment for office workers and out-door space for daily open-air activities but also space for the hosting of international, national, regional and local events.

137 Some of the parks, in particular Taman Wetland, will be important towards creating an eco-tourism industry for Putrajaya. Landscaping and the selection of planting material for the variety of parks will be considered according to suitability to the peculiarities of the individual park or open space. While hard landscaping may be suitable for the Promenade, soft landscaping will be more suitable for the Wetlands; while formal landscape design may be appropriate for Dataran Putra, informality will be called for in the Wetlands; while variety in planting material will be sought for the Wetlands and the Taman Botani, repetition and controlled choice will be preferable for the Promenade; and so on.

138 An Environmental Management Plan is to be developed for each of the two Precincts of the Local Plan.

139 Standards of environmental quality shall be adopted to monitor and protect the environment, such as with regards to water and air quality and noise level (see Appendices 2, 3 and 4.)

140 Measures shall be taken to ensure that water-borne diseases and vector-borne diseases, particularly diseases spread by vectors that may breed in the water bodies, are controlled.

### 5.4.1 ENVIRONMENTAL PROTECTION

141 As a high standard of environmental quality is one of the objectives of the Local Plan, sources of pollutants should be anticipated in order to develop appropriate counter strategies.

#### 5.4.1.1 Air pollution

There are no issues recognisable at present as there will be limited heavy vehicles anticipated in Precinct 1 and few permitted through the park area in Precinct 13. Air quality should fulfil Malaysian Guidelines for Air Quality standards (see Appendix 4).

#### 5.4.1.2 Wastewater

Effluent is to be channelled out of the Precincts through the sewage system. The integrity of sewer lines within the Precincts, especially the parks, must, however, be monitored. Discharge and effluent should fulfil the standards provided in Appendix 2.

#### 5.4.1.3 Surface Water

Stormwater and surface runoff, potentially carrying plant and other debris and silt from construction works, are channelled into drains and eventually enter the wetlands and lake system. Gross pollutant traps should be used to prevent flotsam from entering the water bodies. Drains in public areas should be covered. Silt control measures will be elaborated below. Lake water quality should fulfil the Putrajaya Lake Water Quality Standard (see Appendix 2).

A water quality monitoring programme should be developed and carried out and it should take into consideration the sources of pollution that may be from:

- (a) site;
- (b) other developments;
- (c) river and watercourses.
- (d) GPTs, and
- (e) other water bodies.

**5.4.1.4 Solid Waste**

Indiscriminate disposal of left-over food and drinks at picnic areas will not be permitted. Adequate rubbish bins should be provided. Recycling will be the basic principle adopted for solid waste management.

**5.4.1.5 Noise**

This is not expected to be an issue in Precinct 13 as vehicles will be required to travel at a low speed within the Park. In Precinct 1 the emphasis on public transport will significantly reduce the noise generated by vehicles. Noise level should fulfil WHO guidelines (see Appendix 4).

**5.4.1.6 Toxic or Hazardous Waste**

This is not expected within the site.

**5.4.1.7 Agrochemical Usage and Pesticides**

Agrochemical usage and pesticides will be controlled through more reliance on chemicals of organic origin that are degradable.

**5.4.2 SOIL EROSION**

142 Silt generated by the abundance of construction work going on for a substantial period of time will be a major source of pollution for Putrajaya. The threat is not only in terms of degradation to the landform but also having an adverse effect on the water quality of the lake and the river system both within the site and beyond it.

143 Guidelines should be developed to deal with all aspects of building and other construction, including:

- (a) the planning;
- (b) the construction period;
- (c) the operation period.

144 Control of development on slopes should also be carried out with:

- (a) restricted development on slopes between 16 - 25 %;
- (b) no development on slopes above 25%;
- (c) retention of existing vegetation.

145 At the point of project planning mitigation measures should be submitted, including:

- (a) a soil erosion and sediment control plan;
- (b) an earthworks management schedule.

146 During construction the following measures should be provided:

- (a) sediment trapping measures such as silt traps and silt fences;
- (b) surface runoff maintenance such as diversion from disturbed areas.

147 Protection of the lake and wetlands water quality will be of special importance to Putrajaya. Lake shore protection measures include:

- (a) turfing;
- (b) cut and fill carpeting;
- (c) temporary protection cover;
- (d) provision of shore boundary drains.

148 During the operation period, particularly of the parks and wetlands protection and mitigation measures include:

- (a) evaluation of the carrying capacity of the park;
- (b) adherence to an Operational Plan that includes the following elements: park management, water quality monitoring, a solid waste disposal system, and a leaf litter and plant debris collection and disposal system

#### **5.4.3 ENVIRONMENTAL MONITORING**

149 An Environmental Audit should be developed and used. An environmental quality standard has been developed by Perbadanan Putrajaya and will be used for the purpose of monitoring environmental quality in Precinct 1 and Precinct 13 (see Appendices 2, 3 and 4). Air quality monitoring stations and lake and wetlands water quantity and quality stations should be set up.

## 5.5 TRANSPORTATION

157 A key element in the planning of Putrajaya is a transportation system that gives priority to public transport so as to encourage people to switch away from the private car. In furtherance of this objective an efficient integration between the various public transport modes should be promoted. The transport system for Putrajaya has been developed around an integrated bus and LRT public transportation system complemented by a highway network. (See Plan 3: Transportation)

158 The main element of the Putrajaya's public transport system will be a Light Rail Transit (LRT) system linking the major centres of employment, residence, shopping and transport interchange. The LRT will have a major station to provide interchange with the Commuter Rail Service (CRS) operating in the Express Rail Link corridor, and linked to Park-and-Ride (P&R) facilities with high levels of accessibility from the primary road network.

### 5.5.1 ROAD NETWORK

159 The local network in the government precinct is shown in Pj/LP/p1&13/1.

160 A central and unifying feature of the road system in precinct 1 is the oval drive. This is an inner ring road that provides access to all land parcels designated for federal government ministries and departments located in the precinct. The right-of-way reserve for the oval drive also includes an LRT reserve and a utility reserve. The oval drive will be a major bus route with bus-stops conveniently spaced along it to serve government employees travelling to and from work. The oval road is proposed as a one-way road operating in a clockwise direction with five lanes.

### 5.5.2 CAR PARKING PROVISION

161 The total employment population of the Government Precinct will be in excess of 50,000 when fully developed. The majority of these workers will arrive and depart their place of employment during the morning and evening peak hours.

162 To encourage use of public transport the proposed parking provision will be 1 space for every 160 m<sup>2</sup> of government office space with 20% addition for visitors and 1 space for every 160 m<sup>2</sup> of commercial office space. This is significantly lower than corresponding rates in Kuala Lumpur and surrounding areas.

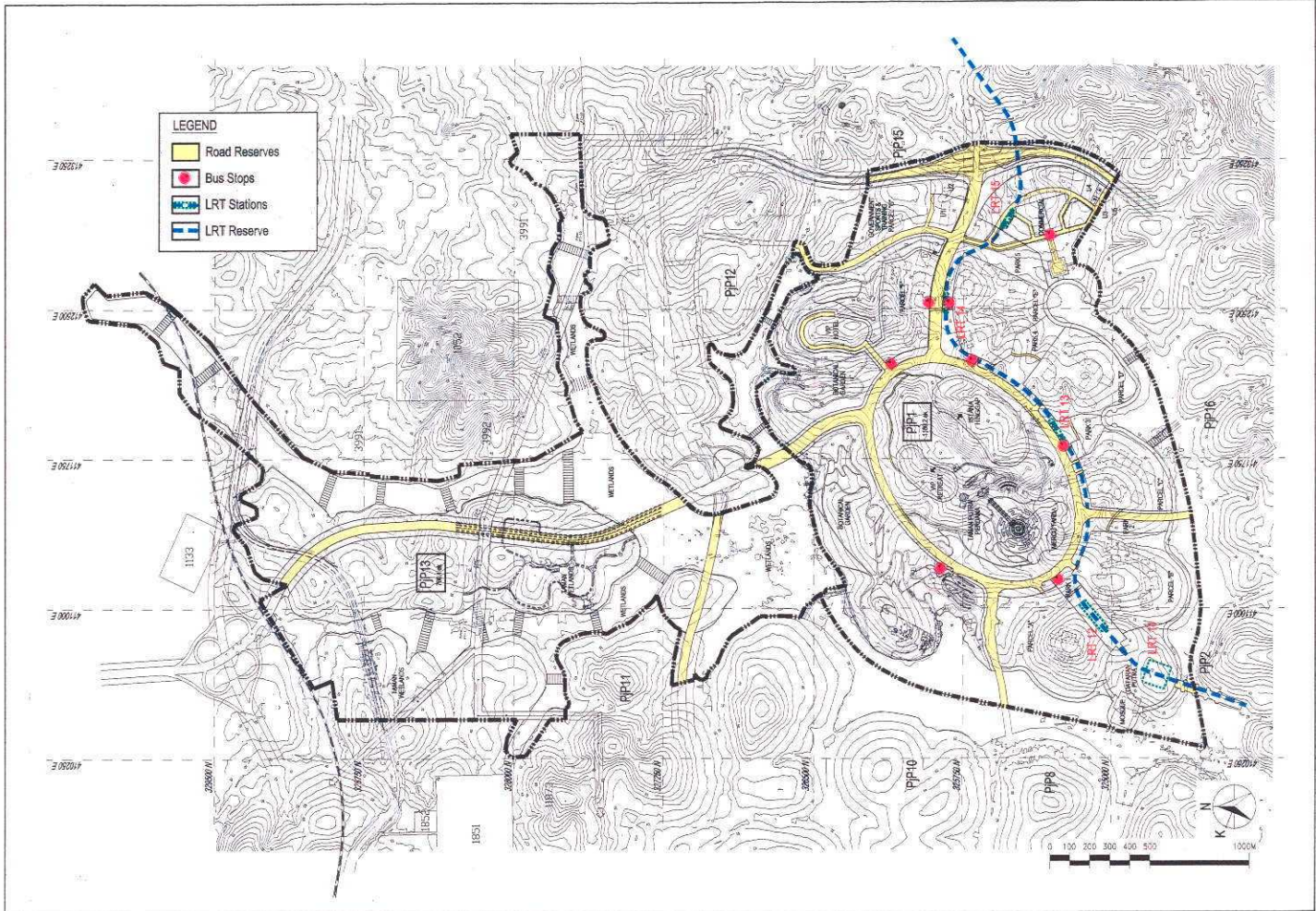
### 5.5.3 ROAD JUNCTIONS

163 The proposed junction layouts of Roads B, C, D and E with the Oval Road are based on signalised layouts and traffic flows estimated in a Transportation Study prepared for the Government Precinct. Traffic signal controlled junctions located around the Oval Road will operate within capacity at the time of full development at Putrajaya.

### 5.5.4 SITE ACCESS

164 The proposed highway network in the government precinct is shown in plan Pj/LP/p1&13/1. All parcels in the precinct have direct access to this main road network and the junction proposals have been examined for feasibility.

165 The parcels are also connected by an "inter-parcel" road which has been designed to give access between government parcels without the requirement to use the oval road.



Plan 3 : Transportation

Access to the Taman Putra Perdana will be taken from the outside lane of the Oval Road (lane five). In general, this is not good practice although given the low level of traffic generated by the Taman Putra Perdana few problems would be anticipated. The number of access points to the Taman Putra Perdana should be limited to two.

### 5.5.5 PUBLIC TRANSPORT

166 The transport strategy will give priority to public transport with a target of 70% of all journeys into the Core Area by public transport. The public transport system will be a multi-mode system with the following elements:

#### 5.5.5.1 LRT

167 The proposed LRT alignment is shown in Plan PPj/LP/p1&13/1. The Government Precinct is served by Stations 11 (Dataran Putra and the Mosque), Station 12 (Parcels A and B), Station 13 (Parcels C and D), Station 14 (Parcels E and F) and Station 15 (Parcel Z).

#### 5.5.5.2 BUSES

168 The major roads in Precinct 1 will all serve as bus routes.

169 Bus stops will be located to serve major generators such as the government parcels, the commercial centre and LRT stations. In general stops would be provided at intervals of about 400-500 metres requiring walking distances of 300m at most.

170 A total of 7 bus stops are proposed and their locations are shown in Plan PPj/LP/p1&13/1 and summarised in the Table below.

#### 171 BUS STOP LOCATION TABLE

Bus Stop	Area Served
1	Taman Botani
2	Parcel F, VIP Hotel
3	Parcels E and F, LRT Station 14 - (North)
4	Parcels E and F, LRT Station 14 - (South)
5	Parcels E, Istana Hinggap
6	Parcels C and D, LRT Station 13
7	Parcels A and B, Perdana Walk
8	Parcel Z

#### 5.5.5.3 TAXIS

172 Taxi ranks and pick-up points should be provided at locations where taxi usage justifies such facilities, for example, in commercial and shopping areas, within large office developments, at LRT stations, hotels and at high density residential buildings.

173 All government parcels have drop-off points located adjacent to the more important buildings and these can be used by taxis to drop off visitors.

174 Taxi Stands should be provided at the LRT stations and located adjacent to bus stops / LRT entrances to facilitate transfer between the various transport modes.

175 Parcel Z is a large commercial area and would be a suitable location for a taxi waiting area or rank. The preferred location would be adjacent to the LRT Station 15. A rank or waiting area of sufficient size to accommodate 20 taxis should be provided.

## 5.6 INFRASTRUCTURE and UTILITIES

(See Plan 4: Infrastructure and Utilities)

### 5.6.1 DRAINAGE

176 Of the total runoff from the Government Precinct 26% flows to the wetlands (Lower East) and 72% flows into the lake (including the Upper Biso). Of the runoff from the Taman Wetland all flow into the wetlands before entering the lake.

#### 5.6.1.1 Government Offices Area

177 Government office buildings that dominate the southern and eastern portions of the Government Precinct and abutting the lake foreshore will result in a significant amount of paved surfaces, increasing the rapidity of runoff.

178 Opportunities for overland conveyance of major stormwater flows in this area will be limited because of land constraints. Accordingly a significant portion of the trunk drainage system is underground.

#### 5.6.1.2 Parkland Areas

179 As pedestrian access will be encouraged into the Taman Wetland, Taman Botani and other parkland areas public safety must be incorporated into the drain design.

180 Major stormwater flows should be conveyed overland. Where possible landscaped rock lined overland flow paths should be used to reduce velocities to safe levels. Possible recirculation should be considered to make the steeper trunk drainage lines an integrated feature of the Taman Botani and Taman Wetland.

#### 5.6.1.3 Planning Approach

181 All trunk drainage will be designed to convey the 1:100 year design flood.

182 Major stormwater flows should be conveyed underground in the Government Offices area and above ground in landscaped channels in the parkland areas. Where possible channels should be comprised of a grouted rock invert. The use of concrete channels is not recommended because of aesthetics.

183 The proposed drainage system for the Planning Area is as shown in Plan 5: Drainage.

### 5.6.2 WATER SUPPLY

184 Water supply to the Government Precinct will be sourced from reservoir WR3 which has a capacity of 12MG (60ML). To ensure uninterrupted supply to end users in the Government Precinct, arrangements are incorporated in the overall water supply design for Putrajaya for alternative supply from reservoir WR1, which has a storage capacity of 8 MG (38.8 ML).

185 Pipes will be mild steel of 400 mm diameter in size. Generally, pipes will be laid 1.2 m below the road formation level. At the Oval Road the pipes will be offset 13.2 m from the centreline of the road to the outer side.

186 The pipe carrying capacity is 3.52 mgd (16 mld) at maximum velocity of 1.5 m/s. Valves will be located along the Oval Road for ease of maintenance. Scour valves will be located at the lowest points where water may be drained off to nearby drains during cleaning operations, while air valves will be located at the highest points and will be housed in chambers. Pipes crossing roads shall be protected by encasing.

### 5.6.3 TELECOMMUNICATIONS

187 A comprehensive telecommunications network, utilising the high-speed broad band transmission system in line with the MSC Telecommunications backbone infrastructure, is planned for Putrajaya. The first exchange building will be located in Precinct 1 in Parcel Z.



Plan 4 : Utilities

188 In line with the objective of not requiring digging for maintenance and expansion purposes, an underground ducting system will be employed. A standard reserve of 2 m. width by 2 m. depth for the ducting system and 2 m. by 3 m. for the manholes will be provided along all roads as well as bridges and crossings. Twenty-four (24) ways PVC ducts, with R 2A (modified) manholes for every 100 to 200 metres intervals, will be provided. Eight (8) of the total number of ducts will be utilised immediately with the balance of sixteen (16) ways as spares for future needs (i.e. 200% expansion capability).

#### **5.6.4 ELECTRICITY SUPPLY**

189 A standard reserve of 4 m. width by 4.3 m. depth for the ducting and manholes system along the roads as well as at bridges and other crossings will be provided. The manholes will be installed at approximately 100 to 200 metres intervals. The design for the ducting system caters for future requirements and the principle of no digging for maintenance and expansion is adhered to. The system comprises of 16 sets of 4-ways PVC ducts for 132 and 33kv lines and 8 sets of 2-ways PVC ducts for 11kv lines. The load design, especially for 11kv supply, is based on 100% spare capacity to cater for future expansion.

#### **5.6.5 CHILLED WATER SUPPLY**

190 A Gas District Cooling (GDC) plant will produce and supply 25,000 RT of chilled water at 7 degrees Celsius from its chiller plant to the Government Precinct via Road B and the Oval Road. A return pipe of equivalent size will be located next to the supply pipe along the same route within the utility reserve.

#### **5.6.6 NATURAL GAS DISTRIBUTION**

191 Natural gas is sourced from the City Gate Station at the Serdang Power Station. It is distributed to the Government Precinct via Road E and Road F by a high pressure NPS 16 steel pipeline. The gas is then tapped from Road F to a Gas District Station located within the GDC Plant along Road 8.

192 From the Gas District Station, the natural gas is distributed to

Development Parcels in the Government Precinct via a medium pressure polyethylene (PE) pipeline system to gas area stations located in every parcel.

193 From the gas area stations, the natural gas is reticulated within the parcels as a low pressure system to end users/appliances in a polyethylene pipeline.

#### **5.6.7 WASTEWATER DISPOSAL**

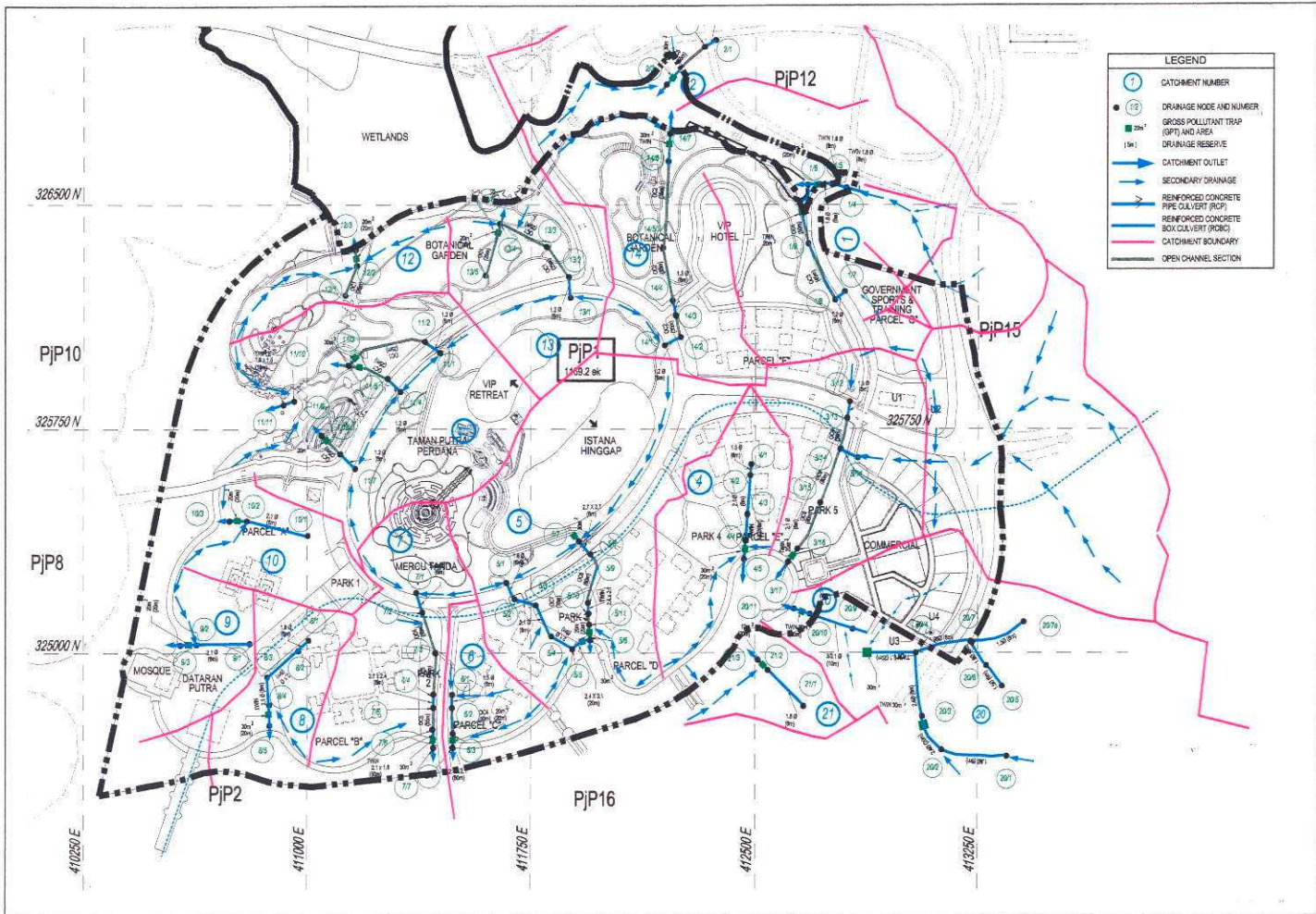
194 Precinct 1 is served by a gravity main sewer line. It runs within the road verge at 1.0 m at the Oval Road and 3.0 m at the Promenade. The sewer line diameter ranges from a minimum of 225 mm at the Oval Road to a maximum of 1500 mm at Pump Station No. 5 (P55). The depth ranges from a minimum of 1.2 m at the Oval Road to a maximum of 12.0 m. at P55.

195 In the case of Precinct 13, although it is largely a park and open space area, wastewater is expected to be generated from several sources within it during the operation stage i.e. at the public amenities at the car parks, rest areas and visitor centres. No effluent discharge will be permitted within the boundary of the Taman Wetland. All sewage will be collected by the sewer trunk intake network to a pump station located at the southern tip of the peninsula. The pumping station will pump the sewage into the main system for eventual treatment at the city centralised treatment facility.

#### **5.6.8 SOLID WASTE MANAGEMENT**

196 It is envisaged that the solid waste generated will be divided at source into at least three streams; dry recyclables (ferrous, non-ferrous, glass, plastic containers, fibre and containers), wet organic (biodegradable materials, kitchen scraps, yard and garden wastes, etc.) and general rubbish (all waste not fitting the above descriptions). The total tonnage anticipated from the Government Precinct is 120 tons per day.

197 The disposal of the solid waste, including landfill sites, will, however, not be located in Precinct 1 or Precinct 13.



Plan 5 : Drainage

## PART 6: DEVELOPMENT CONTROL

198 For the purpose of granting planning permissions the Local Authority shall apply the Local Plan in the following manner:

- i For the purpose of locating the development in its appropriate location the developer shall be required to comply with Plan No. Pp/LP/p1&13/1.
- ii For the purpose of using the land in accordance with permissible use the developer shall be required to comply with Land Use Orders for Precinct 1 and Precinct 13 that shall form part of this Local Plan.
- iii For the purpose of developing a building to an approved bulk, volume, height and coverage of the site the developer shall be required to comply with Development Parameters that shall form part of this Local Plan.

199 The Land Use Orders and the Development Parameters are, therefore, not only a guide for development approval for the Local Authority but also a guide for planning and architectural design for the developer.

## 6.1 USE CLASS ORDERS AND USE CLASSES

### 6.1.1 USE CLASS ORDERS

200 The purpose of a Use Class Order is to determine and make public the permissible use of land within the planning zone or, in the case of Precinct 1, the Development Parcel. This is to make known to the potential developer the possible uses he may develop the land for and, therefore, to facilitate the processing of applications for development or for change of land use. The Use Class Order is based on a systematic and comprehensive classification of land uses and grouping of compatible uses.

201 There are three potential responses to every application. For each development parcel it is therefore essential to identify the degree of "permissibility" for the various land uses that may potentially be applied for. This provides the Local Authority a means to respond to applications quickly and confidently. An application may fall within one of the three following categories:

- i. Permissible Development
- ii. Permissible Development with Condition
- iii. Prohibited Development

202 To allow for flexibility, the Use Class Orders seek to identify a range of permissible uses for each development parcels besides indicating the intended use. The flexible Use Class Orders will allow a less rigid land use control and yet ensure that the character, homogeneity, harmony and amenity of the Precincts are maintained.

203 In the Use Class Orders the meaning of the Use of Land includes the use of the building or buildings on the land.

204 The Use Class Orders for Precinct 1 and Precinct 13 are as in Schedule 1 and Schedule 2.

### 6.1.2 USE CLASSES

205 The Use Classes are prepared by Perbadanan Putrajaya and are attached to this Draft Local Plan as Appendix 1.

## 6.2 DEVELOPMENT PARAMETERS

206 The purpose of the Development Parameters is to ensure that the concepts and objectives of the Structure plan and Masterplan are achieved in the realisation, particularly, of Precinct 1. (Precinct 13 is not sub-divided into development parcels and generally without buildings.)

207 The Planning Parameters define the intended Use, Parcel Acreage, Buildable Area, Plinth Area, Gross Floor Area, Plot Ratio and Maximum Building Height for each development parcel.

208 An Urban Design Guidelines, not forming part of the Local Plan, is being developed to define in more detail the relationship of buildings and spaces, the street edges, pedestrian networks, building forms, etc.

209 The Development Parameters are as provided in Schedule 3: Development Parameters.

## Schedule 1 : Use Class Order - Precinct 1 (Government Precinct)

Parcel	Land Use	Permissible Development	Permissible Development With Conditions	Conditions	Prohibited Development
Parcels A,B,C,D	Gov./ Institutional	Class II(a) 1,6 Class II(d) 2	Class II(a) 2, 3, 10 Class II(c) 2 Class II(f) all Class IV(e) 2,8,9 Class VI(a) 1, 5,7,10 Class VI(b) all	- temporary - to service workers only - appropriate level - to service workers only - incidental to main use - appropriate level	Class II(a) all other than specified Class II(b) all except 1 Class II(c) all except 2 Class II(d) all except 1,2 All Other Classes
Parcels E,F	Gov./ Institutional/ Commercial	Class II(a) 1,6 Class II(d) 2	Class II(a) 2, 3, 10 Class II(c) 2 Class II(f) all Class IV(a),(b),(c),(d),(e)- all except : Class IV(a) 50,51,73,75 Class IV(b) 51,52,78 Class IV(c) 1 Class VI(a)1,5,7,10 Class VI(b) all	- temporary - to service workers only - appropriate level - to be determined on a case by case basis - incidental to main use - appropriate level	Class II(a) all other than specified Class II(b) all except 1 Class II(c) all except 2 Class II(d) all except 1,2 All Other Classes
Putra Mosque	Religious	Class II(d) 1	none		Class II(d) all except 1 All Other Classes
Istana Hinggap	Residential	Class I - 9	Class II(d) 2	- to service workers only	All Other Classes
VIP Retreat	Gov./ Institutional	Class II(a) 13	Class II(d) 2	- to service workers only	All Other Classes
VIP Hotel	Gov./ Institutional/ Commercial	Class II(a)12 Class IV(a) 36	Class IV(a) 7,8,11,12,13,18,21,23,35,58,59, 67,68	- incidental to main use	Class IV(a) all other than specified All Other Classes
Parcel G	Gov./ Institutional	Class II(a) 9	Class II(e) 10	- to be operated as a canteen	All Other Classes
Taman Botani, Taman Putra Perdana, Linear Park, Dataran Putra	Open Space	Class III(a) all	Class VI(a) 1,7,10	- incidental to main use	All Other Classes
Promenade	Civic Area	Class III(b) 2	Class II(e) 10	- restricted in location	All Other Classes
Parcel Z	Commercial	Class IV(a) all Class VI(a) all	Class II(f) - all Class VI(a) 1,4,5,7,8,9,10	- appropriate level - incidental to main use	All Other Classes
Parcels: U1,U2,U3,U4,U5	Utility	Class II(f)	none		All Other Classes
Road and LRT Reserves	Infrastructure	Class VI(a) 1,2,3,7,10	Class VI(b)	- where necessary	All Other Classes

## Schedule 2 : Use Class Order - Precinct 13 (Taman Wetland)

Parcel/Area	Land Use	Permissible Development	Permissible Development With Conditions	Conditions	Prohibited Development
Taman Wetlands	Open Space	Class III(a) 1 Class III(c)	Class IV(a) 63	with appropriate architectural	All Other Classes
TNB Transmission Reserve	Utility	none	Class II(f)	- appropriate level only	All Other Classes
Road Reserves	Infrastructure	Class VI(a) 1,2,3,7,10	Class VI(b)	- where necessary	All Other Classes

## SCHEDULE 3 : DEVELOPMENT PARAMETERS – PRECINCT 1 (Government Precinct)

PARCEL	USE	AREA (acres) (see Plan)	BUILDABLE m2	PLINTH AREA m2	MAX. GFA m2	PLOT RATIO	HEIGHT	CAR PARKS
Parcel A	Govt	53.7	43,548	22,934	53,984	0.5	see Fig. 1	405
Parcel B	Govt	51.5	41,092	28,762	151,280	0.7	see Fig. 2	1,135
Parcel C	Govt	33.9	27,864	19,490	163,229	1.3	see Fig. 3	1,224
Parcel D	Govt	40.9	38,953	27,267	211,365	1.4	see Fig. 4	1,585
Parcel E	Govt	42.8	60,277	42,158	339,728	2.2	see Fig. 5	2,548
Parcel F	Govt	28.9	38,261	26,781	262,801	2.2	see Fig. 6	1,971
Parcel G	Govt./Inst.	24.2	71,800	14,360	14,360	0.2	low	108
Parcel Z	Commercial	57.0	151,869	78,154	374,864	2.3	see Fig. 7	4,026
Istana Hinggap	Govt./Inst.	30.4	124,284	12,428	12,428	0.1	see Fig. 8	60
VIP Retreat	Govt./Inst.	12.2	41,109	8,222	8,222	0.2	see Fig. 9	61
VIP Hotel	Govt./Inst.	10.1	40,863	14,300	28,600	0.7	medium	210
Putra Mosque	Pub Facility	6.3	32,636	26,109	32,636	1.0	see Fig. 10	500
Dataran Putra	Civic Area	34.5	95,192	9,519	10,656	0.1	see Fig. 11	500
Parcels U1, U2, U3, U4, U5	Utility	12.1	48,593	11,379	24,337	0.9	low	185
<b>TOTAL</b>		438.5	856,361	341,863	1,688,490			14,518

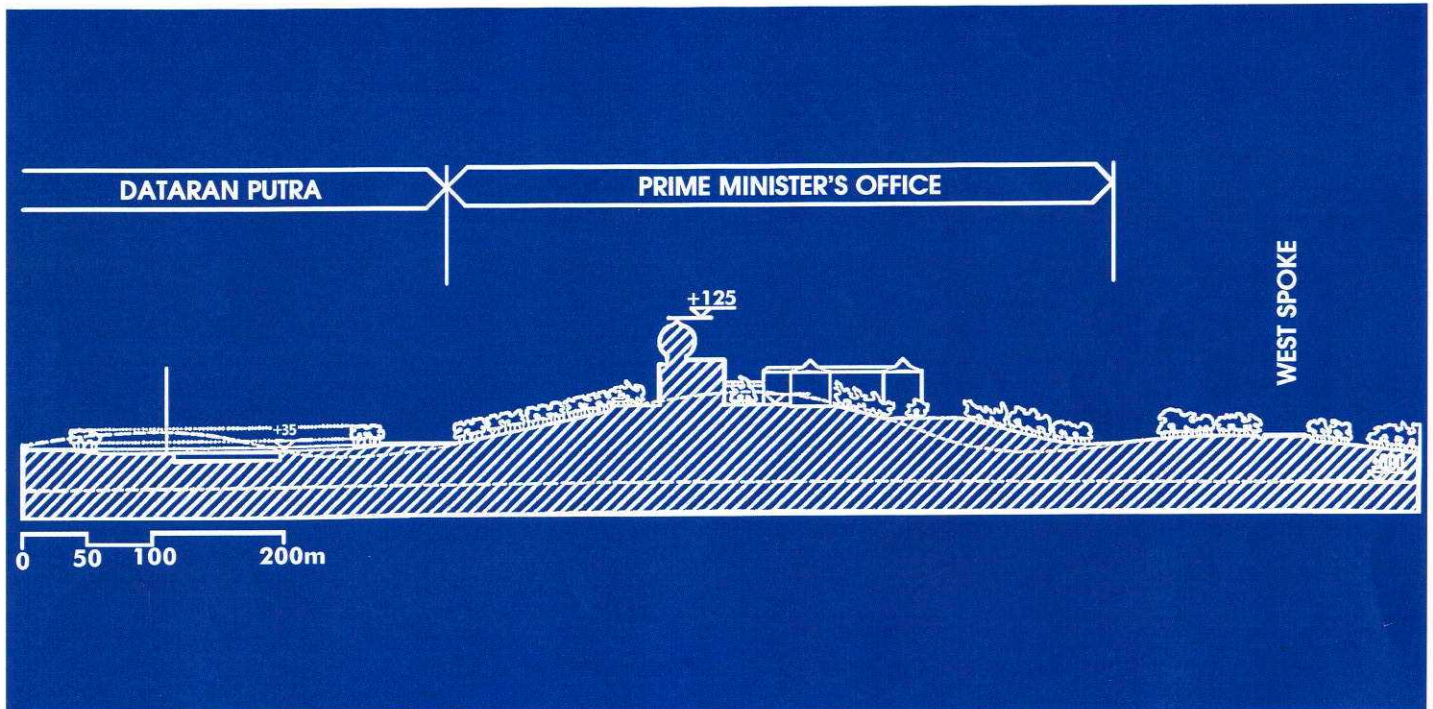


Figure 1 : Parcel A Section

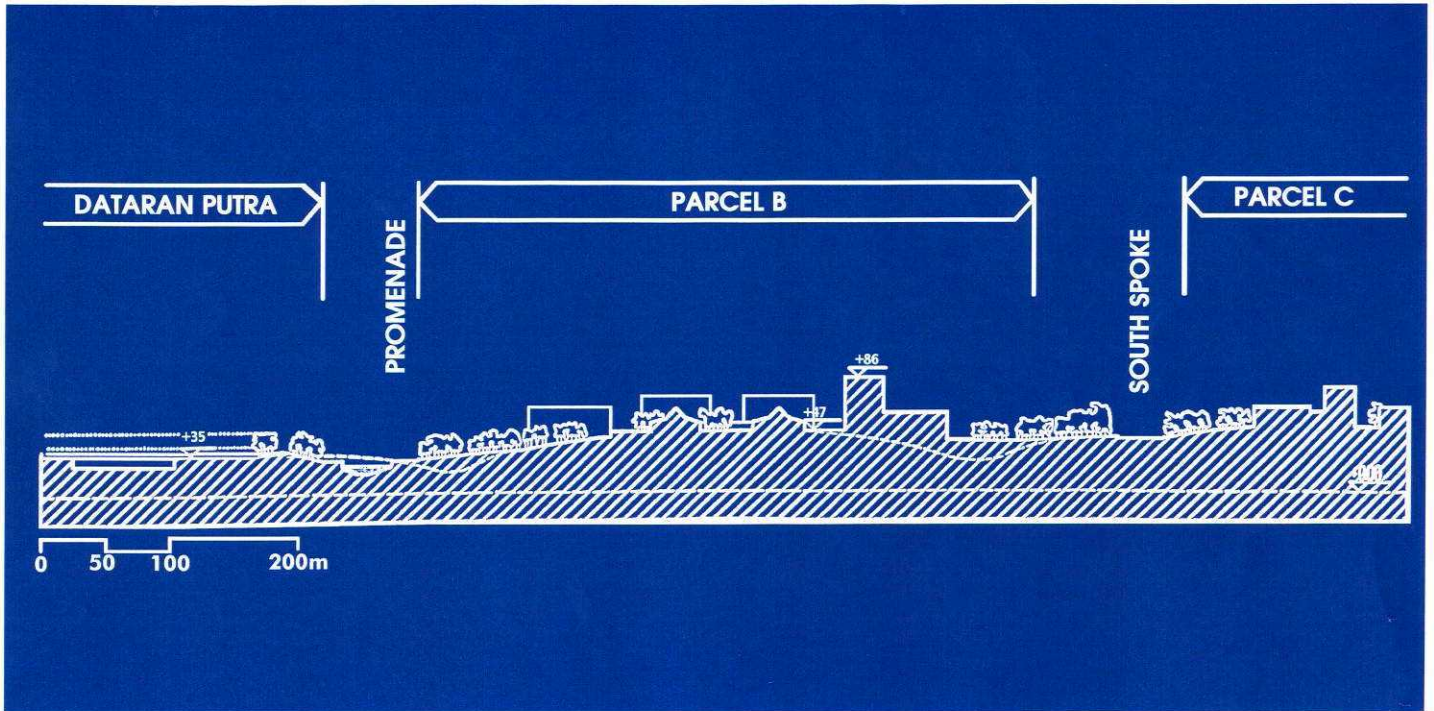


Figure 2 : Parcel B Section

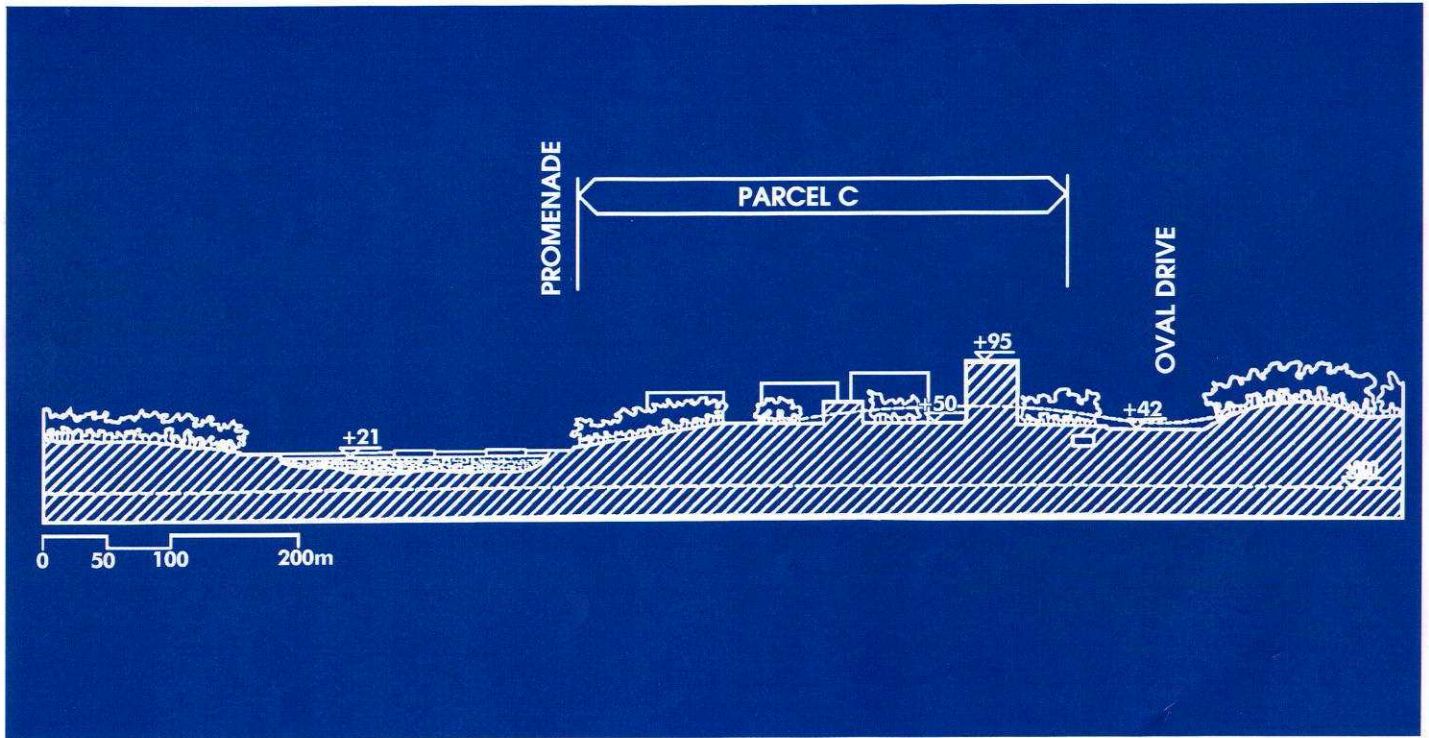


Figure 3 : Parcel C Section

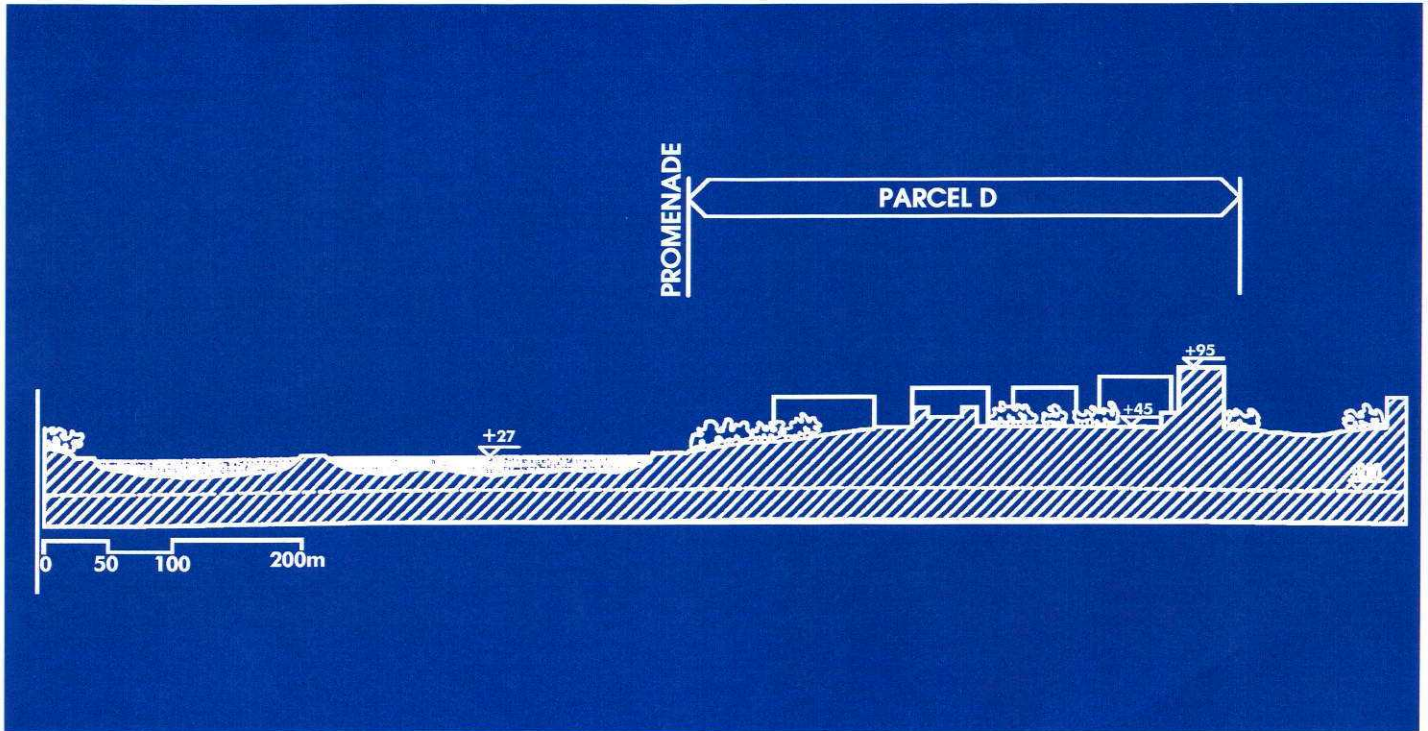


Figure 4 : Parcel D Section

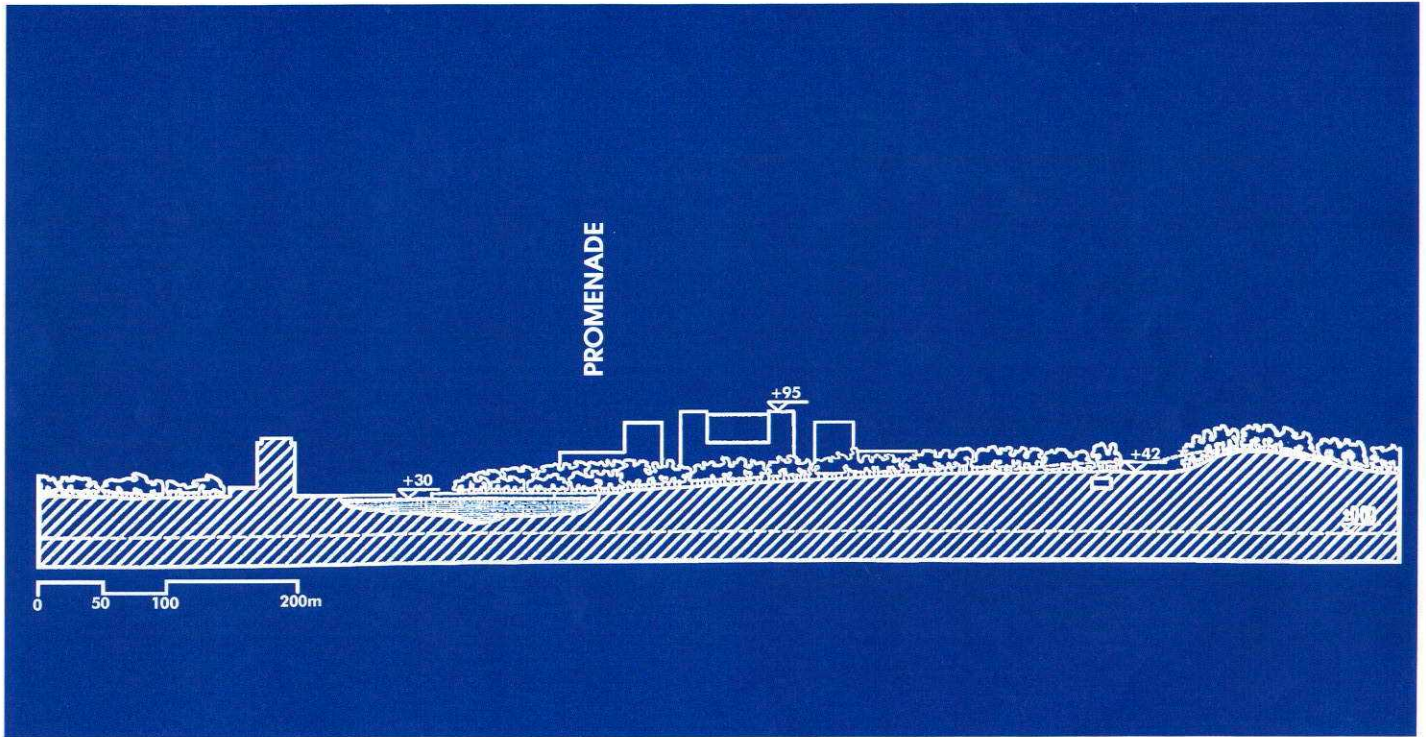


Figure 5 : Parcel E Section

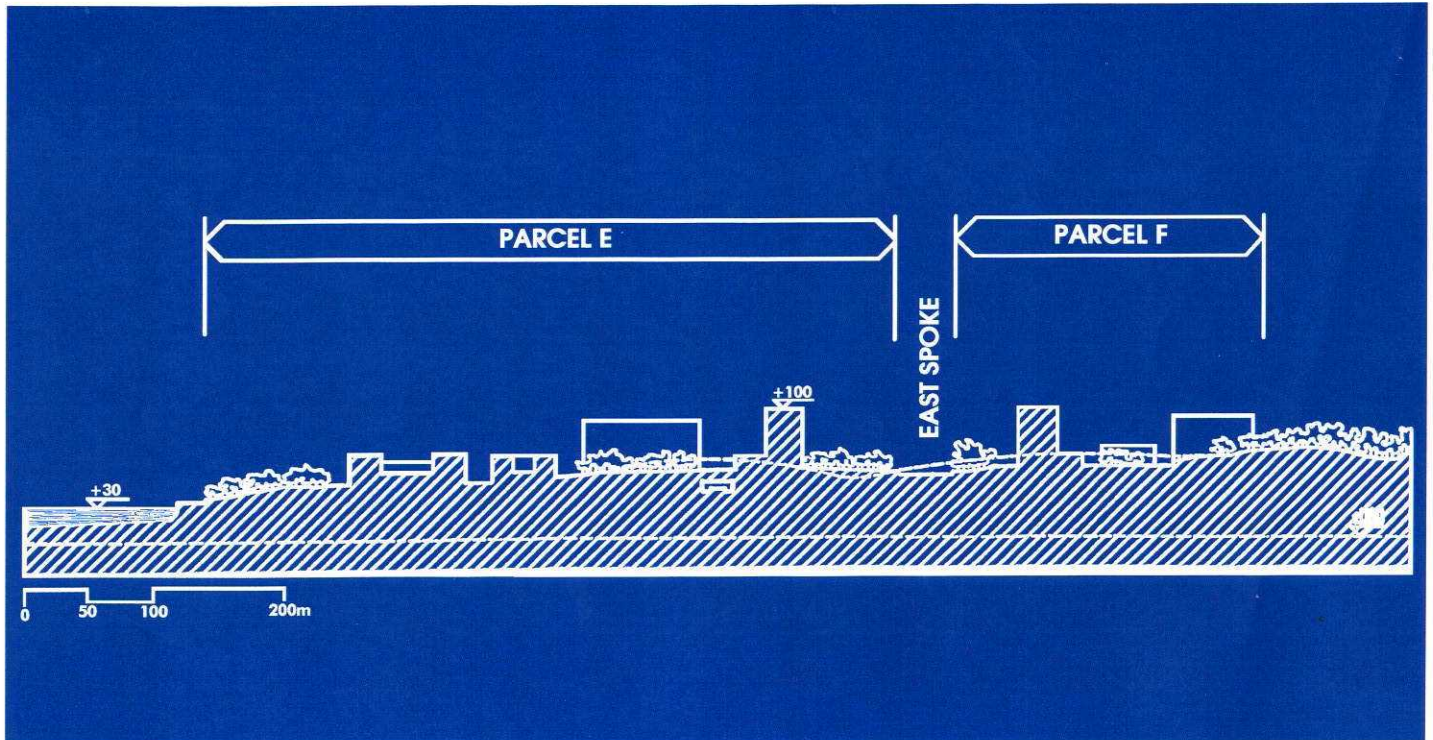


Figure 6 : Parcel F Section

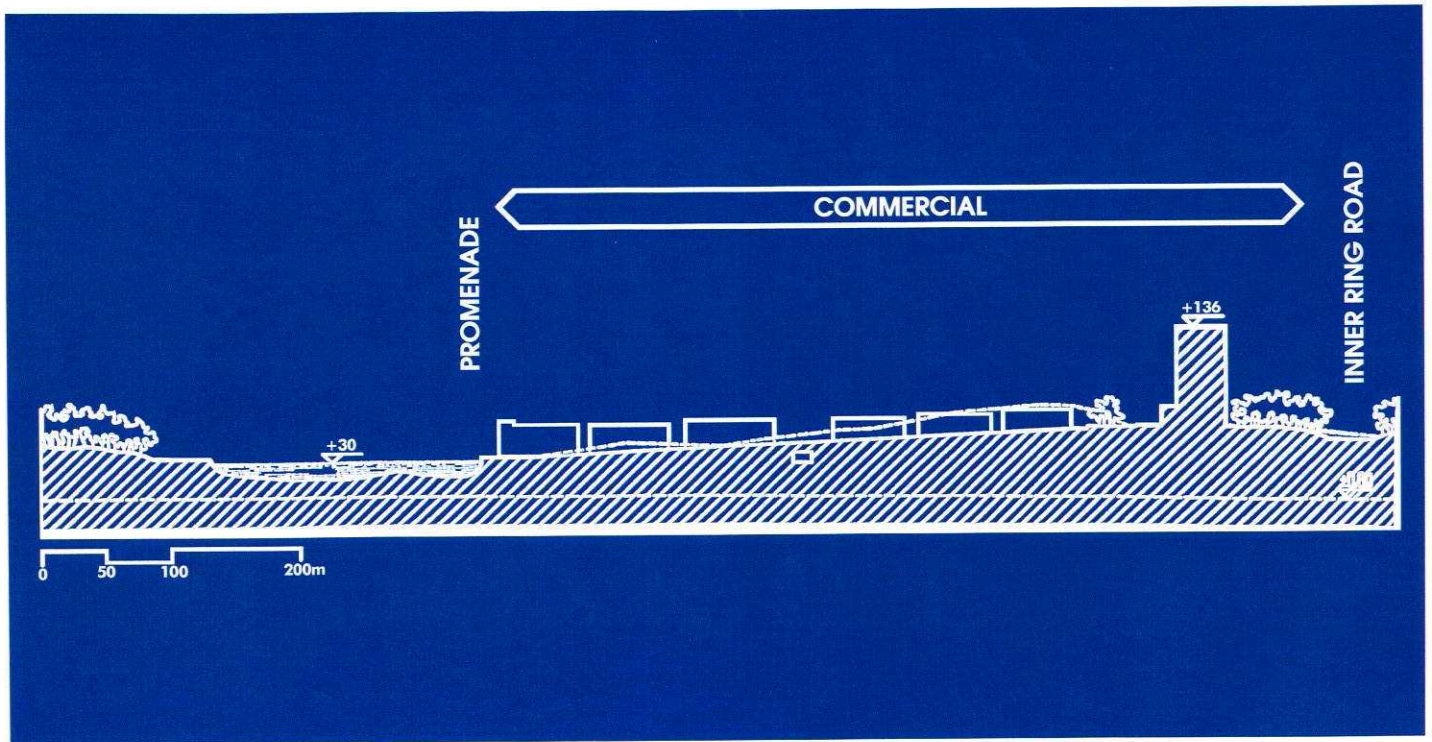


Figure 7 : Parcel Z Section

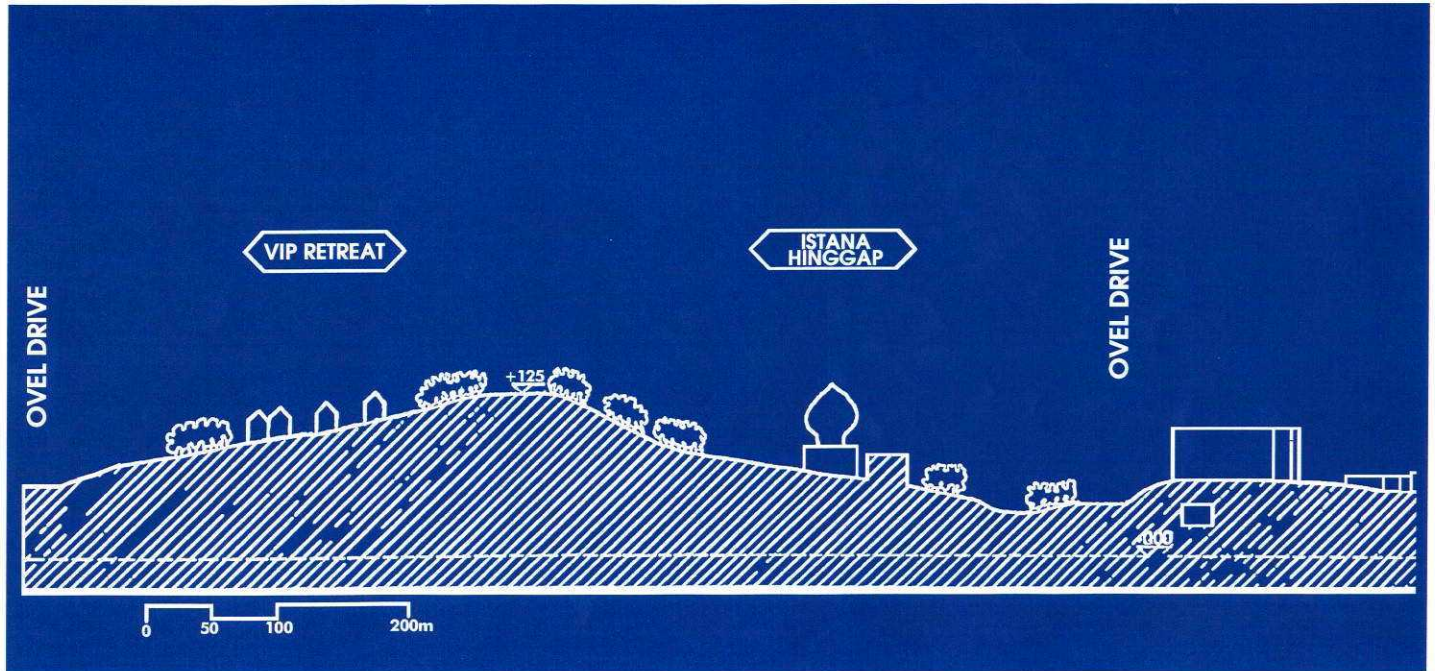


Figure 8 : Istana Hinggap Section

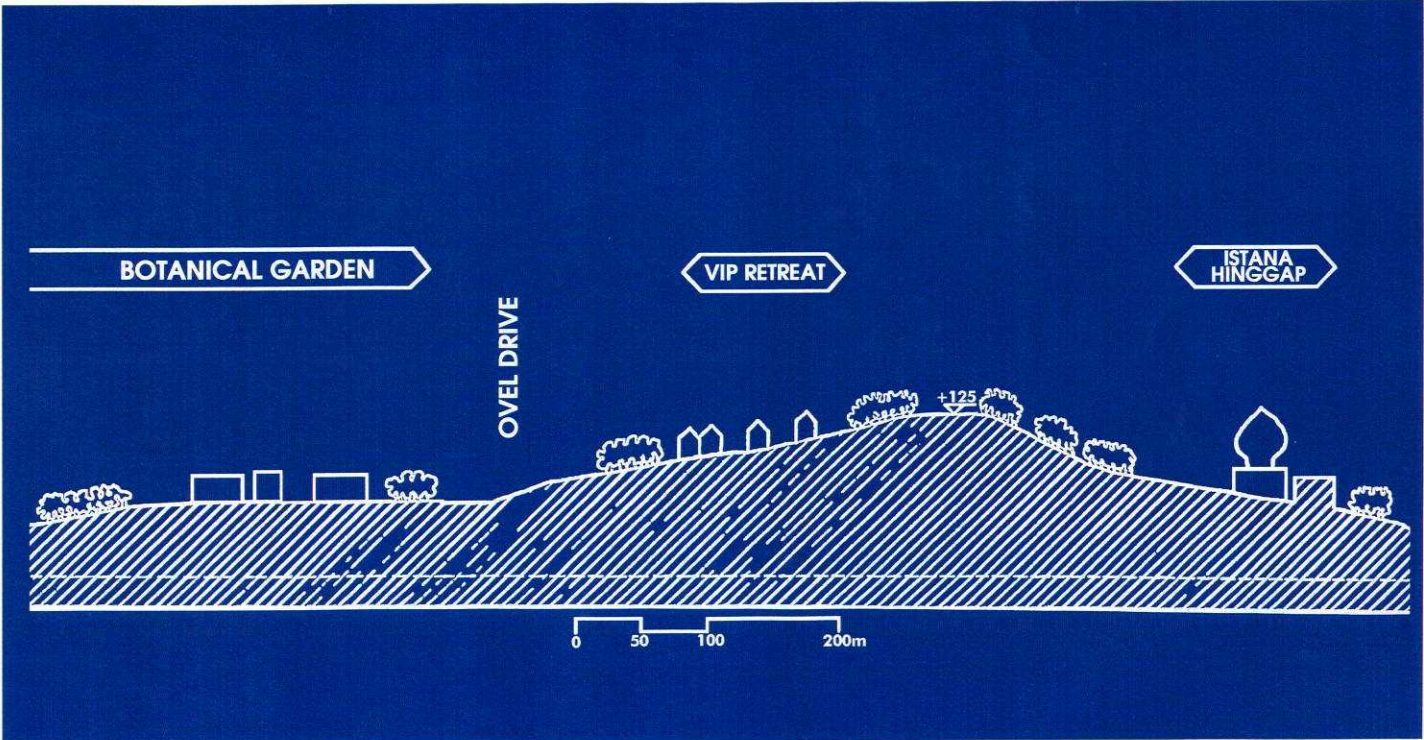


Figure 9 : VIP Retreat Section

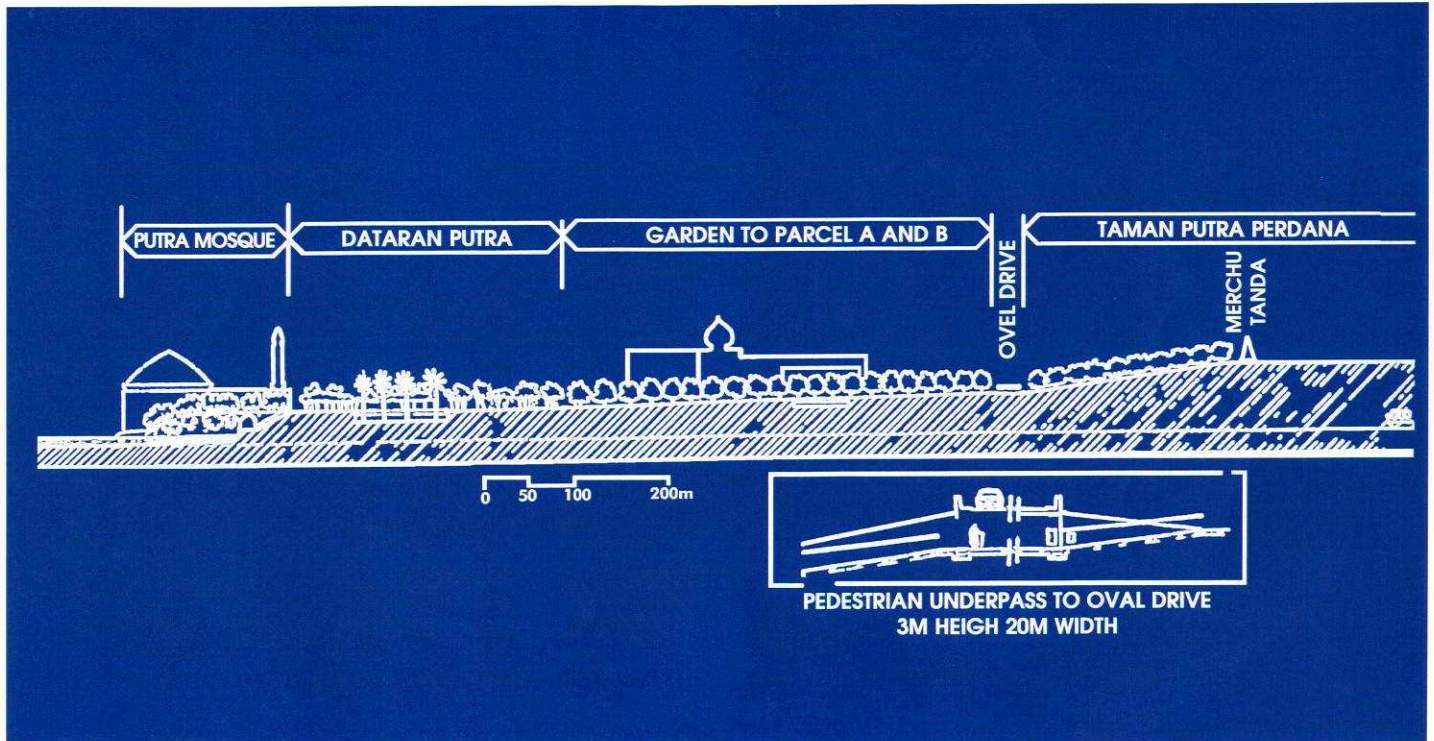


Figure 10 : Gardens & Putra Mosque Section

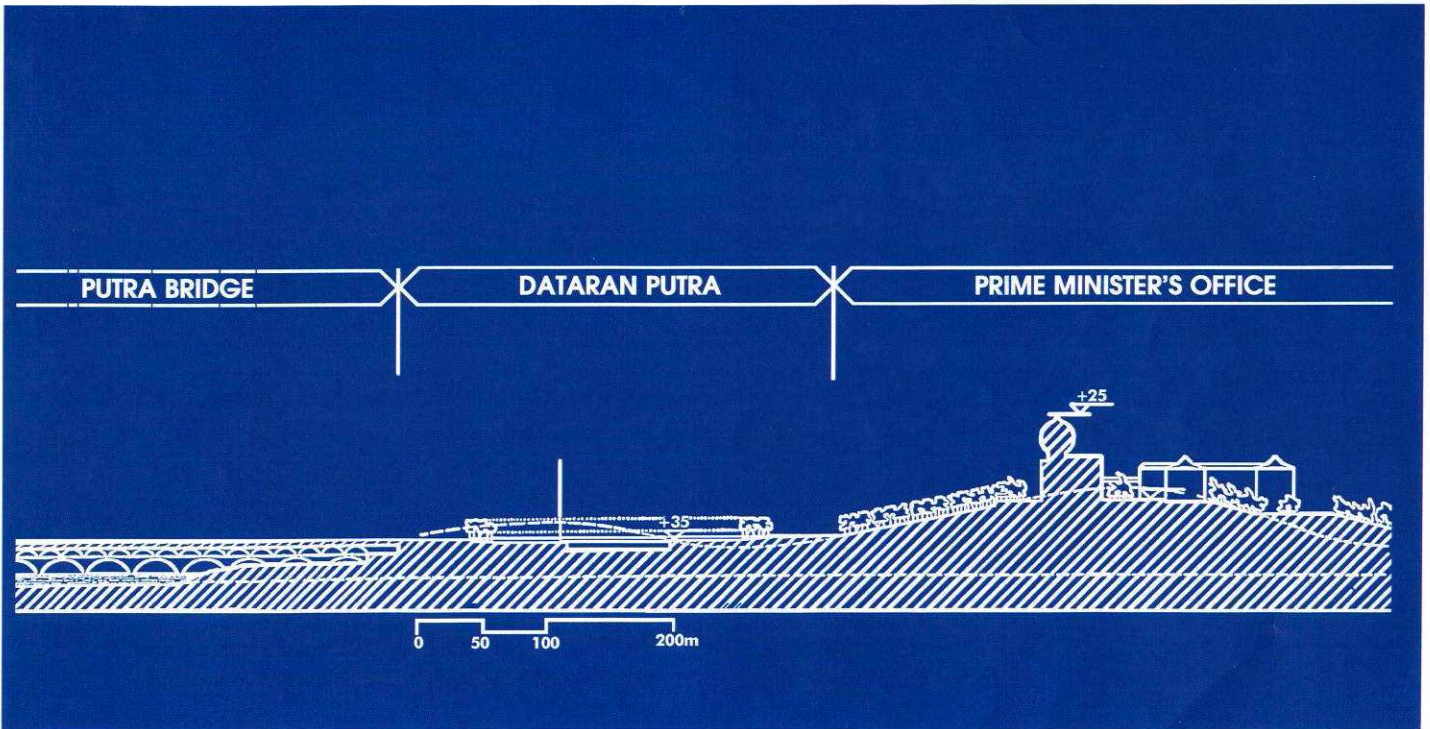


Figure 11 : Dataran Putra Section

## Appendix 1 Use Classes

USE CLASS	ACTIVITY
<b>CLASS 1 : RESIDENTIAL</b>	
	1. Bungalow
	2. Semi detached
	3. Terrace
	4. Town House
	5. Cluster House
	6. Flat
	7. Apartment
	8. Condominium
	9. Istana Hinggap
<b>CLASS II : GOV. /INSTITUTIONAL</b>	
<b>Class II(a) : Government</b>	
	1. Government Office
	2. Semi-government Office
	3. Perbadanan Office
	4. Perbadanan Reserve
	5. Diplomatic Reserve
	6. Archive
	7. Art Gallery
	8. Convention and Exhibition Centre
	9. Sport and Training Complex
	10. Court of Law
	11. Museum
	12. VIP Hotel
	13. VIP Retreat
	14. Government Reserve
<b>Class II(b) : Educational</b>	
	1. Day Care Centre (taska)
	2. Kindergarten (Tadika)
	3. Primary School
	4. Secondary School
	5. School Complex (Primary & Secondary)
	6. Religious School
	7. Special School (for disable)
	8. Institution of Higher Learning
<b>Class II(c) : Health</b>	
	1. Hospital
	2. Health Clinic
	3. Welfare Home
	4. Handicapped Centre
	• Government
	• NGO
	5. Convalescence
<b>Class II(d) : Religious</b>	
	1. Mosque
	2. Surau

USE CLASS	ACTIVITY
<b>CLASS II : GOV. /INSTITUTIONAL</b>	
<b>Class II(d) : Religious</b>	
	3. Other religious
	• Church/Chapel
	• Temple
	• Hindu temple
	• Others
<b>Class II(e) : Other Amenities</b>	
	1. Police Station
	• Police HQ
	• Town Police Station
	• Marine Police Office
	• Mounted Police
	2. Fire & Rescue Services
	• Fire & Rescue HQ
	• Fire & Rescue Station
	3. Library
	• Main Library
	• Neighbourhood Library
	4. Community Hall
	5. Multi-purpose Hall
	6. Information Centre
	7. Civic & Cultural Facilities
	8. Public Toilet
	9. Public Market
	10. Food Court
<b>Class II(f) : Public Utilities</b>	
	1. Electricity supply
	• Rentice TNB
	• PMU
	• PPU
	• PE
	• Feeder Pillar
	2. Water supply
	• Water treatment plant
	• Water reservoir
	• Water Tank
	• Water pump station
	3. Sewerage
	• Sewerage Treatment Plant
	• Main Sewerage Pump Station
	• Sewerage Pump station
	4. Solid waste
	• Transfer Station
	• Drop off Centre (recyclable)
	• Bin House (Drop off point)

USE CLASS	ACTIVITY
<b>CLASS II : GOV./INSTITUTIONAL</b>	
<b>Class II(f) : Public Utilities</b>	
	5. Telecommunication
	• Telecom Exchange
	• Satellite Earth Station
	• Radio Site/Tower
	• Fibre Distribution House
	• Street Cabinet
	6. Gas
	• Multi Product Pipeline Reserve
	• Petronas Gas Pipeline Reserve
	• District Gas Station
	• Area Gas Station
	7. Gas district cooling
	• District Cooling Centre
<b>Class II(g) : Public Recreation Club</b>	
	1. Gymnasium
	2. Sport and athletic field
	3. Stadium
	4. Indoor Sports Facilities
	5. Velodrome
	6. Swimming Complex
	7. Aqua Sports
<b>Class II(h) : Cemetery</b>	
	1. Cemetery
	2. Crematorium
<b>CLASS III : OPEN SPACES</b>	
<b>Class III(a) : Parks</b>	
	1. Metropolitan Park
	• Taman Botani
	• Taman Putra Perdana
	• Taman Rimba Alam
	• Taman Warisan Pertanian
	• Taman Wawasan
	• Taman Nusantara
	• Taman Sri Bayu
	• Taman Lindungan
	• Taman Selatan
	• Taman Rimba Desa
	• Taman Saujana Hijau
	• Taman Wetland
	• Taman Puncak Selatan
	• Nurseri Putrajaya
	2. Urban Park
	• Dataran Putra
	• Perdana Walk

USE CLASS	ACTIVITY
<b>CLASS III : OPEN SPACES</b>	
<b>Class III(a) : Parks</b>	
	• Linear Park
	• Riparian Park
	• Lake Valley Park (Retention Ponds)
	• Hilltop Park
	• Green Network
	• Buffer zones
	• Landscape Buffer
	• Road buffer
	• Drainage Buffer
	• Utility Buffer
	3. City Park
	• Community Parks
	• Neighbourhood Park
	• Pocket Park
	• Plaza/Square
	4. Local Park
	• Playground
	• Play Court
	• Fitness Station
<b>Class III(b) : Civic Area</b>	
	1. Boulevard
	• Boulevard
	• Dataran Wawasan
	• Dataran Putrajaya
	• Dataran Rakyat
	• Dataran Khazanah
	2. Promenade
	• Type A(soft edge)
	• Type B(hard edge)
	• Type C(soft & hard edge)
<b>Class III(c) : Waterbody</b>	
	1. Lakes
	• Jetty sili
	• Bot Ronda
	• Rekreasi
	• Others
	2. Wetlands
	• Pelancungan
	• Others
	3. Retention pond
	• Rekreasi
	• Others
	4. River
	• Rekreasi

USE CLASS	ACTIVITY
<b>CLASS III : OPEN SPACES</b>	
Class III(c) : Waterbody	
	• Others
<b>CLASS IV : COMMERCIAL</b>	
Class IV(a) : Main Commercial	
	1. Agency (Exporting, Shipping, News, Tourism, Advertising & General Exhibition)
	2. Agency Car Rental
	3. Amusement Park
	4. Antique Goods; Sales
	5. Art Gallery
	6. Artist Equipment; Sales
	7. Bar & Snack Bar
	8. Barber Shop/Hair Saloon
	9. Bazaar
	10. Bicycle; Sales
	11. Book Store
	12. Boutique
	13. Bowling, Billiard & Snooker Centre
	14. Car & Motor Vehicle Showroom; Sales
	15. Carpets & Mats; Sales
	16. Children's Playing Products; Sales
	17. Cineplex
	18. Cocktail & Grill Room
	19. Computer Products; Sales
	20. Construction Products (limited); Sales
	21. Cyber Café
	22. Dentist
	23. Disco
	24. Educational & Tutorial Centre
	25. Electrical Products; Sales
	26. Embroidery; Sales
	27. Financial & Banking Institution
	28. Fishing Equipment; Sales
	29. Food & Beverage; Sales
	30. Fruits; Sales
	31. General Post Office
	32. Grocery Goods; Sales
	33. Hair Care Products; Sales
	34. Health & Beauty Centre
	35. Health Club
	36. Hotel
	37. Interior Design & House Furniture; Sales
	38. Jet Ski & Boat Showroom; Sales
	39. Jewellery; Sales
	40. Launderette
	41. Leather & Animal Hide; Sales

USE CLASS	ACTIVITY
<b>CLASS IV : COMMERCIAL</b>	
Class IV(a) : Main Commercial	
	42. Make Up & Beautician Centre; Sales
	43. Medical Centre
	44. Medical Centre
	45. Medical Clinic
	46. Mobile Telephone & Pager; Sales
	47. Money Changer
	48. Nursery, Florist; Sales
	44. Medical Clinic
	45. Mobile Telephone & Pager; Sales
	47. Money Changer
	48. Nursery, Florist; Sales
	49. Offices
	50. Petrol Station with N.G.V
	51. Petrol Station without N.G.V
	52. Pewter Goods; Sales
	53. Pharmacy, Medicine Shop and/or Drugs Store
	54. Photo Studio
	55. Plastic Goods; Sales
	56. Postal Services
	57. Private Institution of Higher Learning
	58. Restaurant
	59. Restaurant and Coffee House
	60. Roast Meat; Sales
	61. Rubber Products; sales
	62. Scientific Instruments; Sales
	63. Security & Brokerage House
	64. Shoes; Sales
	65. Spectacles, Optical Instruments (Sales & Repair)
	66. Sports Products; Sales & Repair
	67. Stationery; Sales
	68. Tailor
	69. Textiles; Sales
	70. Toiletry Products; Sales
	71. Toys; sales
	72. Traditional Medicine; Sales
	73. Veterinary Clinic
	74. Videos, CDs, Cassettes; Sales
	75. Warehouse; Sale
	76. Watch Shop; Service
<b>Class IV(b) : Sub - Commercial</b>	
• Supermarket	1. Agency (Exporting, Shipping, News, Tourism, Advertising & General Exhibition)
• Shop Office	
• Hotel	2. Agency Car Rental

USE CLASS	ACTIVITY
<b>CLASS IV : COMMERCIAL</b>	
<b>Class IV(b) : Sub - Commercial</b>	
• Showroom	3. Amusement Park
• Mix Commercial	4. Antique Goods; Sales
• Banking	5. Aquarium & Pet Shop; Sales
• Entertainment/Recreational Centre	6. Arcade
	7. Artist Equipment; Sales
	8. Auditorium
	9. Bar & Snack Bar
	10. Barber Shop/Hair Saloon
	11. Bazaar
	12. Bicycle; Sales
	13. Book Store
	14. Boutique
	15. Bowling, Billiard & Snooker Centre
	16. Car & Motor Vehicle Showroom; Sales
	17. Carpets & Mats; Sales
	18. Children's Playing Products; Sales
	19. Cineplex
	20. Clinic
	21. Cocktail & Grill Room
	22. Computer Products; Sales
	23. Construction Products (limited); Sales
	24. Consultants Office
	25. Dentist
	26. Disco
	27. Educational & Tutorial Centre
	28. Electrical Products; Sales
	29. Embroidery; Sales
	30. Financial & Banking Institution
	31. Fishing Equipment; Sales
	32. Food & Beverage; Sales
	33. Fruits; Sales
	34. Grocery Goods; Sales
	35. Hair Care Products; Sales
	36. Health & Beauty Centre
	37. Hotel
	38. Interior Design & House Furniture; Sales
	39. Jet Ski & Boat Showroom Sales
	40. Jewellery; Sales
	41. Launderette
	42. Leather & Animal Hide; Sales
	43. Locksmith
	44. Make-Up & Beautician Centre; Sales
	45. Medical Centre

USE CLASS	ACTIVITY
<b>CLASS IV : COMMERCIAL</b>	
<b>Class IV(b) : Sub - Commercial</b>	
	46. Medical Clinic
	47. Mobile Telephone & Pager; Sales
	48. Money Changer
	49. Nursery, Florist; Sales
	50. Pawn Shop
	51. Petrol Station with N.G.V
	52. Petrol Station without N.G.V
	53. Pewter Goods; Sales
	54. Pharmacy, Medicine Shop and / or Drugs Store
	55. Photo Studio
	56. Plastic Goods; Sales
	57. Post Office
	58. Postal Services
	59. Pottery, crockery and other earthenware
	60. Private School
	61. Private Welfare Home
	62. Restaurant
	62. Restaurant & Coffee House
	64. Roast Meat; Sales
	65. Rubber Products; sales
	66. Scientific Instruments; Sales
	67. Shoes; Sales
	68. Spectacles, Optical Instruments, Sales & Repair
	69. Sports Products; Sales & Repair
	70. Stationery; Sales
	71. Steak House
	72. Supermarket
	73. Tailor
	74. Textiles
	75. Toiletry Products; Sales
	76. Toys; Sales
	77. Traditional Medicine; Sales
	78. Veterinary Clinic
	79. Videos, CDs, Cassettes; Sales
	80. Watch Shop; Sales
<b>Class IV(c) : Neighbourhood Centre</b>	
• Supermarket	1. Aquarium & Pet Shop; Sales
• Shop Office	2. Barber Shop/Hair Saloon
• Shop House	3. Battery; Sales
	4. Bazaar
	5. Bicycle; Sales
	6. Boutique

USE CLASS	ACTIVITY
<b>CLASS IV : COMMERCIAL</b>	
<b>Class IV(c) : Neighbourhood Centre</b>	
	7. Clinic
	8. Coffin Dealers
	9. Electrical Products; Sales
	10. Embroidery
	11. Equestrian Club
	12. Food & Beverage; Sales
	13. Fruits; Sales
	14. Funeral Parlour/Sick Receiving House
	15. Grocery Goods; Sales
	16. Hair Care Products; Sales
	17. Health & Beauty Centre
	18. Launderette
	19. Make Up & Beautician Centre; Sales
	20. Medical Clinic
	21. Mini Market
	22. Mobile Telephone & Pager; Sales
	23. Nursery; Florist; Sales
	24. Petrol Station with N.G.V.
	25. Petrol Station without N.G.V
	26. Pharmacy, Medicine Shop and/or Drugs Store
	27. Photo Studio
	28. Plastic Goods; Sales
	29. Polo Club
	30. Post Office
	31. Postal Services
	32. Pottery, crockery and other earthenware
	33. Private Recreational Club
	34. Private School
	35. Private Welfare Home
	36. Professional Offices
	37. Restaurant & Coffee House
	38. Roast Meat; Sales
	39. Rubber Products; sales
	40. Shoes; Sales
	41. Spectacles, Optical Instruments; Sales & Repair
	42. Stationary; Sales
	43. Supermarket
	44. Tailor
	45. Toiletory Products; Sales
	46. Toys; sales
	47. Traditional Medicine; Sales
	48. Videos, CDs, Cassettes; Sales
<b>Class IV(d) : Local Centre</b>	
	1. Barber Shop/Hair Saloon
	2. Bicycle; Sales & Repair

USE CLASS	ACTIVITY
<b>CLASS IV : COMMERCIAL</b>	
<b>Class IV(d) : Local Centre</b>	
	3. Clinic
	4. Convenience Store
	5. Cyber Café
	6. Food & Beverage; Sales
	7. Fruits; Sales
	8. Grocery Goods; Sales
	9. Launderette
	10. Locksmith.
	11. News Agent
	12. Nursery, Florist; Sales
	13. Photo Studio
	14. Restaurant/Café
	15. Stationary; Sales
	16. Tailor's Shop
	17. Toiletory Products; Sales
	18. Tuition Centre
	19. Video Centre
<b>CLASS IV (e) : Other Area</b>	
	1. Convenience Shop
	2. Day Care Centre (Taska)
	3. Launderette
	4. Kindergarten (Tadika)
	5. Private Recreational Club
	6. Private School
	7. Private Welfare Home
	8. Postal Service
	9. Banking Service
	10. Clinic
	11. Pharmacy
	12. Others
<b>CLASS V : SERVICE INDUSTRY</b>	
<b>Class V(a) : Motor Repair &amp; Services</b>	
	1. Motor Vehicle Equipment, Accessories and Spare Part (Sales and Installation of);
	2. Motor Workshop
	3. Battery : Charge and Repair
	4. Boats (Sales, Storage and Repair);
	5. Car Wash and Polish
	6. Tyre Service Centre
	7. Tyre - including wheel balancing and wheel alignment (Sales and Storage)
	8. Workshops, Car, Motorcycle and Machinery repair
	9. Installation of air conditioners to motor vehicles

USE CLASS	ACTIVITY
<b>CLASS V : SERVICE INDUSTRY</b>	
<b>Class V(b) : Furniture</b>	
	1. Furniture (Assembling; Sales and Storage);
	2. Rattan Store; sales and storage;
	1. Frame Maker (Sales, Storage and Manufacture);
	2. Glass Cutting and Picture Framing (Sales and Storage);
	1. Bread
	2. Bakery
	3. Roast Meat (sales and storage);
	4. Bottling of Drinks
	5. Other Food Productions
<b>Class V(e) : Warehousing and Storage</b>	
	1. Alloy and Amalgam including other metal treatment ( Sales and Storage);
	2. Animal / Fish Manure (Dry and Palette), (Sales and Storage);
	3. Animal Feed (Sales and Storage);
	4. Cables and Wires (Sales and Storage);
	5. Charcoal, Coal and other Related Material (Sales and Storage);
	6. Detergent, wash products and other related items
	7. Embroidery (Floor area exceeding 280 sq. m.)
	8. Fiberglass Products (Sales and Storage)
	9. Flammable Gas (Sales and Storage);
	10. Godowns or Store (Floor area exceeding 280 sq. m.)
	11. Hardware and Construction Products
	12. Industrial and Agricultural Chemicals
	13. Plywood (Sales and Storage)
	14. Tailoring (Exceeding 5 machines)
<b>Class V(f) : Services</b>	
	1. Acetylene, Oxygen, and LPG exceeding 230 kg; (Sales and Storage)
	2. Advertising Sales And Making Of Signcrafts And Related Products
	3. Batching Plant
	4. Book Binding and Printing Press (small scale)
	5. Bus Depot
	6. Dry Cleaning
	7. Electrical Appliances; Repair
	8. Pest Control
	9. Petrol/NGV Filling and Service Station

USE CLASS	ACTIVITY
<b>CLASS V : SERVICE INDUSTRY</b>	
<b>Class V(f) : Services</b>	
	10. Petrol/NGV Filling and Service Station and Ancillary Service
	11. Petrol/NGV Filling Station
	12. Plumbing
	13. Putrajaya Service Centre & Perbadanan Depot
	1. Goldsmith (Manufacturing);
	2. Metal Materials Sales/Repair
	3. Scientific Instrument (Sales and Repair);
	4. Tiles, Marble Slabs and other Related Item (Sales and Storage);
	5. Welding Works
<b>CLASS VI : INFRASTRUCTURE</b>	
<b>Class VI(a) : Transportation</b>	
	1. Road Reserve
	2. ERL Reserve
	3. Bridge
	4. Transportation Hub/Terminal
	5. LRT Station
	6. Park & Ride Station
	• Surface Parking
	• Multistory Parking
	• Basement
	7. Car Park
	• Surface Parking
	• Multistory Parking
	• Basement
	8. Bus Station
	9. Taxi Station
	10. Bus & Taxi Lay-by
<b>Class VI(b) : Drainage</b>	
	1. Drainage Reserve
	2. Gross Pollutant Trap Area
	3. Oil and Grease Trap Area
	4. Drainage - Sump Area

## APPENDIX 2 ( Page 1 of 3 Pages )

## PARAMETER LIMITS FOR PUTRAJAYA WATER QUALITY

Parameters	Units	Parameter Limits for Putrajaya Water Quality		
		Putrajaya Ambient Lake Water Quality Standards	Standards for Discharge into the Lake Area or onto Land	Standards for Discharge into Sewers
Ammonia Nitrogen	mg/l	0.3	1.0	-
BODs at 20°C	mg/l	3.0	10.0	400.0
COD	mg/l	25.0	30.0	1,000.0
DO	mg/l	5.0 - 7.0	-	-
pH		6.5 - 9.0	6.0 - 9.0	5.0 - 9.0
Colour	TCU	150.0	450.0	-
Electrical Conductivity	µmhos/cm	1,000.0	-	-
Floatables		No Visible Floatables	-	-
Odour		No objectionable Odour	-	-
Salinity	ppt	1.0	-	-
Taste		No objectionable Taste	-	-
Transparency (Secchi)	m	0.6	-	-
Total Suspended Solids	mg/l	50.0	50.0	400.0
Temperature	°C	Normal +2	38.0	45.0
Turbidity	NTU	50.0	-	-
Hardness	mg/l	250.0	-	-
Chlorophy II a	mg/l	0.7	-	-
Faecal E. Coliform	counts/100ml	100.0	2,000.0	-
Total Coliform	counts/100ml	5,000.0	10,000.0	-
Salmonela	counts/l	0	-	-
Enteroviruses	PFU/L	0	-	-
Aluminium (Al)	mg/l	<0.05 if pH<6.5 <0.1 if pH>6.5	-	-
Ammonia	mg/l	0.02 - 0.03	-	-
Antimony (Sb)	mg/l	0.03	-	-
Arsenic	mg/l	0.05	0.05	2.0
Barium (Ba)	mg/l	1.0	-	-
Beryllium (Be)	mg/l	0.004	0.004	-

## APPENDIX 2 ( Page 2 of 3 Pages )

## PARAMETER LIMITS FOR PUTRAJAYA WATER QUALITY

Parameters	Units	Parameter Limits for Putrajaya Water Quality		
		Putrajaya Ambient Lake Water Quality Standards	Standards for Discharge into the Lake Area or onto Land	Standards for Discharge into Sewers
Gas Carbon Dioxide (CO <sub>2</sub> )	mg/l	-	-	-
Cadmium (Cd)	mg/l	0.002	0.01	1.0
Free Chlorine (Cl <sub>2</sub> )	mg/l	1.5	1.0	-
Chloride	mg/l	-	600.0	-
Chromium (Cr (VI))	mg/l	0.05	0.05	2.0
Chromium (Cr (III))	mg/l	0.05	0.2	10.0
Copper (Cu)	mg/l	0.2	0.1	10.0
Calcium (Ca)	mg/l	-	-	-
Cyanide (CN)	mg/l	0.02	0.02	2.0
Flourine (F)	mg/l	1.5	2.0	-
Iron (Fe)	mg/l	1.0	1.0	5.0
Lead (Pb)	mg/l	0.05	0.05	2.0
Magnesium (Mg)	mg/l	-	-	-
Manganese (Mn)	mg/g	0.1	0.2	10.0
Mercury (Hg)	mg/l	0.0001	0.001	0.1
Nitrate (NO <sub>3</sub> )	mg/l	7.0	15.0	-
Nitrite (NO <sub>2</sub> )	mg/l	0.04	-	-
Nickel (Ni)	mg/l	0.02	0.2	10.0
Potassium (K)	mg/l	-	-	-
Phosphorus (P)	mg/l	0.5	0.5	-
Sodium (Na)	mg/l	-	-	-
Selenium (Se)	mg/l	0.01	0.01	-
Silver (Ag)	mg/l	0.05	0.05	-
Silicon (Si)	mg/l	50.0	-	-
Sulphate (SO <sub>4</sub> )	mg/l	250.0	300.0	-
Sulphur (S)	mg/l	0.05	0.5	2.0
Tin (Sn)	mg/l	-	0.2	10.0
Uranium (U)	mg/l	-	-	-

## APPENDIX 2 ( Page 3 of 3 Pages )

## PARAMETER LIMITS FOR PUTRAJAYA WATER QUALITY

Parameters	Units	Parameter Limits for Putrajaya Water Quality		
		Putrajaya Ambient Lake Water Quality Standards	Standards for Discharge into the Lake Area or onto Land	Standards for Discharge into Sewers
Zinc (Zn)	mg/l	5.0	1.0	10.0
Gross-a	Bq/l	0.1	Not Detectable	-
Gross-b	Bq/l	1.0	Not Detectable	-
Radium (Ra-226)	Bq/l	<0.1	Not Detectable	-
Strontium (Sr-90)	Bq/l	<1.0	Not Detectable	-
Polychlorinated Biphenyls	µg/l	-	0.1	-
Carbon Chloroform Extract	µg/l	500	-	-
MBAS/BAS	µg/l	500	1.0	-
O&G (mineral)	µg/l	-	-	-
O&G (emulsified edible)	µg/l	0.0015	Not Detectable	100.0
PCB	µg/l	0.1	-	-
Phenol (C <sub>6</sub> H <sub>5</sub> -OH)	mg/l	0.001	0.001	2.0
Aldrin/Dieldrin	µg/l	0.02	-	-
BHC	µg/l	2.0	-	-
Chlordane	µg/l	0.08	-	-
1-DDT	µg/l	0.1	-	-
Endosulfan	µg/l	10.0	-	-
Heptachlor/Epoxide	µg/l	0.05	-	-
Lindane	µg/l	2.0	-	-
2,4-D	µg/l	70.0	-	-
2,4,5-T	µg/l	10.0	-	-
2,4,5-TP	µg/l	4.0	-	-
Paraquat	µg/l	10.0	-	-

Note: NR = No Recommendation

NF = Free from visible film, sheen, discoloration and deposits.

## APPENDIX 3

## MALAYSIAN AIR QUALITY GUIDELINES

## RECOMMENDED MALAYSIAN GUIDELINES

(at 25 degrees Celsius and 101.13 kPa)

Pollutant and Method	Averaging Time	Malaysia Guidelines		Target Year for Compliance
		(ppm)	(g/m <sup>3</sup> )	
Ozone	1 Hour	0.10	200	1995
	8 Hour	0.06	120	
Carbon Monoxide As 2524	1 Hour	30	35*	1995
	8 Hour	9	10*	
Nitrogen Dioxide As 2447	1 Hour	0.17	320	1990
	10 Minutes	0.19	500	
Sulfur Dioxide As 2523	1 Hour	0.13	350	1990
	24 Hour	0.04	105	
Particles TSP As 2724.3	24 Hour		260	1995
	1 Year		90	
PM 10	24 Hour		150	1995
	1 Year		50	
Lead As 2800	3 Month		1.5	1991

\*mg/m<sup>3</sup>

## RECOMMENDED MALAYSIAN SECONDARY GUIDELINES

Pollutant and Method	Averaging Time	Malaysia Guidelines (mg/m <sup>2</sup> /day)	Target Year for Compliance
Dustfall As 2724.1	1 Year	133	1995

## APPENDIX 4

## WHO RECOMMENDED NOISE EXPOSURE LIMITS

Recommended Noise Exposure Limits (dB(A))	Remarks
Less than 75 (8-hr exposure per day)	No identifiable risk of hearing damage. Higher levels of prolonged exposure may cause hearing impairment and loss.
Less than 45 (background noise)	For good speech intelligibility indoors.
55 or less	Desirable daytime outdoor noise levels which will not likely cause annoyance in community.
45 or less	Desirable night-time outdoor noise levels.
35 or less (bedroom noise limit)	No likelihood of sleep disturbance.