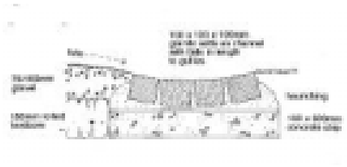
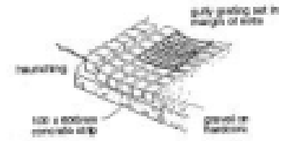
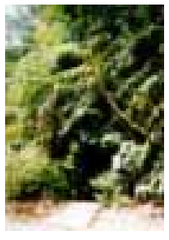
PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Roadside**	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Naturally blend with surrounding	– Open space – plaza	  
	▪ **Signage** ❑ Contemporary ❑ Formal ❑ Simple ❑ Clear	– Masonry – Metal – Hardwood	– Clear – Vandalism proof – To follow Signage and Advertisement Design Guideline Putrajaya	– Junction	 
	▪ **Planting** ❑ Formal	– Shade medium size tree – Palm – Shrub	– Provide ample shade – Hardy Plants – Attractive	– Roadside	 
❑ **Buffer**	▪ **Planting** ❑ Natural ❑ Informal	– Palm – Shrub – Forest species – Medium trees	– Able to Screen – Safe – Attractive	– Along Roadside – Public utilities boundary – Between TNB-Turbine area and Housing area	  

PLANNING REQUIREMENT : URBAN DESIGN

LAYOUT PLAN

(i) The layout plan must demonstrate that the following elements are addressed in the design:
- Development appropriate to topographical features
- Appropriate building orientation with respect to the sun
- Appropriate pedestrian and vehicular access systems
- Site infrastructure systems are designed in a manner which enhances site development

(ii) Illustrate the effective and efficient integration of the pedestrian, cycle and road systems

(iii) Development is to be designed to work with site contours to avoid unnecessary cut and associated retaining structures

(iv) Illustrate a high level of permeability between site uses within the Planning Block and with adjoining Planning Blocks

(v) Illustrate appropriate site building setbacks from major traffic routes or other noise generating or potentially dangerous infrastructure

(vi) Illustrate that the site will be developed in a logical sequence

(vii) The layout plan should illustrate that the form of development effectively contributes to the Planning Block's sense of place and amenity with the context of Putrajaya

BUILDING CHARACTER

(i) Avoid monotonous building designs – provide a range of housing types to meet different lifestyle choices, diversity in the marketplace and opportunity for an interesting street frontage

(ii) Ensure that buildings are designed to respect the topographical features of the site ,eg buildings should step with steeper sites – do not cut substantial benches into steep land

(iii) Building design should respect the amenity of adjoining and adjacent buildings and their residents

(iv) Building design should interpret local image and character with new materials that are energy efficient

(v) Building facades should be designed to accommodate a tropical environment

(vi) Designers should look to the use of innovative building materials that are less maintenance intensive and more environmentally efficient

(vii) While diversity is sought in building design, buildings should be designed with a common theme that provides a linkage to the style and nature of the development area

(viii) Building design should ensure good living environments for residents that do not adversely impact on neighbours

(ix) The building design should incorporate landscaping that contributes to a pleasant and safe environment and integrates well with the streetscape and adjoining open space areas

HEIGHT, MASSING AND BUILDING SPACES

(i) Building design must comply with all provisions relating to plot ratio, plinth, building height and setbacks as contained within these guidelines, and must comply with the UDG of Precinct 11 and 13.

(ii) Spaces on any ground level should not directly overlook dwellings on adjacent land

(iii) Ground floor levels must be responsive to pedestrian footpaths and continuity and flow between buildings

(iv) Building design does not significantly reduce daylight to open space and habitable rooms in adjacent development

(v) Roof pitch and overlay should be designed to meet local environmental requirements

(vi) Roof overhang should be designed to minimise the impact on sight lines from adjacent buildings

(vii) Buildings should be designed to encourage facade articulation and use of design elements that reduce building bulk and provide a pleasant street aspect. Any blank wall should be avoided.

(viii) The design of free standing buildings should be sympathetic with adjoining buildings, yet provide for local identity and character

COLOUR TEXTURE

(i) Building colours should harmonise with the predominant colours of the surrounding area

(ii) Use of earth tones shall be encouraged

(iii) Colours for specific building types will be subject to the approval of the Perbadanan. Pastel colours are to be encouraged

MISCELLANEOUS

(i) Privacy and visual controls – overlooking to be controlled by appropriate orientation f windows and use of splay windows

(i) Air conditioning equipment including piping – all equipment should be contained in compartments that are designed as an integral component of the building to ensure the equipment is hidden from view

(ii) Drying yards – building design should incorporate appropriate design for drying areas that allows for natural ventilation and light while ensuring they are hidden from public view

(iii) Aerials and satellite dishes – the location of aerials and satellite dishes must not impact on the amenity of adjoining buildings

(iv) Service ducting shall not be exposed on the external surfaces of buildings

(v) Carports and garages should:
- Be designed to integrate with the design of associated buildings
- Not diminish the attractiveness of the streetscape
- Not visually dominate views of the house from the street
- Cover the full length of a car

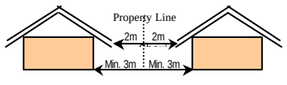
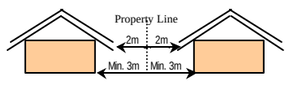
(vi) Dwellings with green frontage must address that frontage with habitable spaces and not service areas only

(vii) Dwelling design must provide sufficient outdoor open space that can act as an extension of the dwelling for relaxation, entertainment, recreation and children's play purposes.

(viii) For the installations of grills, residents need to abide by the guidelines on the Uniform Design and Installation of Grills for Buildings in Putrajaya (Department of Urban Services, Putrajaya)

(ix) Any changes to the façade and design of buildings must seek planning permission for Perbadanan Putrajaya.

PHYSICAL PLANNING REQUIREMENTS PLANNING BLOCK 11 (PB 11)

MAIN LAND USES:	SEMI-DETACHED HOUSES	TERRACE HOUSE	SCHOOL COMPLEX	SURAU	MAIN ELECTRIC SUBSTATION
(i) Density	▪ 12-18 units/acre	▪ 20 units/acre	▪ One in PB11 ▪ Maximum Plint Area : 30%	▪ One in PB11 ▪ Maximum Plint Area : 50%	▪ One in PB11
(ii) Composition	▪ Goverment	▪ Goverment			
(iii) Minimum Lot size	▪ 300m2	▪ 130m2	▪ 6 hac	▪ 0.2 hac	▪ 0.2 hac
(iv) Height	▪ 2 levels on flat or gently sloping land ▪ 3 levels on steep land	▪ 2 levels on flat or gently sloping land	▪ Maximum 4 storey	▪ Max. 2 storey	
(v) Setbacks:					
▪ Front/Rear setbacks	▪ Total setback distance for both the front and rear setbacks must total 9 metres ▪ Street frontage – min. 3.0 metres ▪ Rear setback – min. 3.0 metres	▪ Total setback distance for both the front and rear setbacks must total 9 metres ▪ Street frontage – min. 3.0 metres ▪ Rear setback – min. 3.0 metres ▪ Variation in setbacks is permissable only for blocks and not individual houses	▪ Street frontage – Minimum 6 metres ▪ Rear – Minimum 6 metres	▪ Front – Minimum 6 metres ▪ Rear – Minimum 6 metres	▪ Front – min. 6 metres ▪ Rear – min. 3 metres
▪ Building to building	▪ N/A	▪ N/A	▪ N/A	▪ N/A	▪ N/A
▪ Side boundary	▪ Minimum 3 metres	▪ Where applicable minimum 3 metres	▪ Minimum 6 metres	▪ Minimum 6 metres	▪ Minimum 6 metres
▪ Street boundary	▪ Side setback to 15 metres road, for roads with 3 metres green buffer	▪ Minimum 3 metres	▪ Setback from access road – 12m (min)	▪ Setback from access road – 12m (min)	▪ Minimum 6 metres
▪ Setback Between Roofs' Eaves	▪ Minimum 2 metres				
▪ Distance Between Buildings					

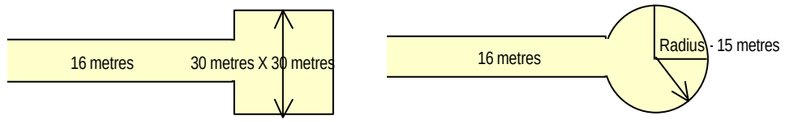
MAIN LAND USES:	SEMI-DETACHED HOUSES	TERRACE HOUSE	SCHOOL COMPLEX	SURAU	MAIN ELECTRIC SUBSTATION
▪ Car Park	▪ Min. 2 cps on site ▪ CPS to be clear of min. front setback.	▪ Minimum 1 cps per unit ▪ CPS to be clear of minimum front setback	▪ 1 CPS : 8 staffs + 10% for visitors ▪ 1 MPS : 10 staffs 1 MPS : 20 students (form 5 & 6) ▪ 1 bicycle rack : 50 students ▪ Min. 10 car lay-bye for drop off / pick up ▪ Bus bay : min. 6 bays	▪ 1 CPS per 250m2 floorspace ▪ 1 CPS : 75 GFA (add 2 CPS for surau with KAFA class) ▪ 1 MPS : 150 GFA ▪ 1 rack : 50 students – min. 1 rack bicycle for surau with KAFA class	▪ N/A
(vi) Fencing As per the Fencing Design Guidelines Manual, Volume 1 and Volume 2, chapter 1, 2 and 3	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 5	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 6	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 11	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 13	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 15
(vii) Layout Plan	▪ Use the setback flexibility and building design variation to break up and vary the position of the houses	▪ Use the setback flexibility and building design variation to break up and vary the position of the houses	▪ Layout plans to show the design concept including: ❑ Total gross net areas of indoor play, outdoor play, roofed shade and other outdoor shade areas. ❑ Service areas to be aesthetically screened. ❑ Site car parking to be clearly indicated. ❑ Site car parking to be landscaped. ❑ Min 2m landscaped buffer between car parking spaces and any boundary. ❑ Initiate stacked outdoor play areas, carparking. ❑ Indicate car parking set down/pick up areas – to be visible from road. ❑ Indicate pedestrian access to/from the site and connection to surrounding pedestrian pathways. ❑ Where boundaries aren't residential dwellings, carefully locate potentially noisy activities to minimise impacts. ❑ Show appropriate screening that protects the amenity of abutting residential uses.	▪ Layout plan to show the design concept including: ❑ Location of all key facilities. ❑ Location of car parking spaces ❑ Location of screening devices to minimise impact of noise (for example – air conditioning equipment). ❑ Effective screening to abutting residential uses. 	▪ Layout plan to show the design concept including: ❑ Location of all key facilities. ❑ Location of car parking spaces ❑ Location of screening devices to minimise impact of noise producing machinery. ❑ Effective screening to abutting residential uses.

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

ROAD NETWORK AND DESIGN STANDARD

(i) Network Type

- Spine Road - 32 metres reserve
- Local Road - 22 metres reserve
- Access Road - 16 metres reserve
- Cul-De-Sac - 15 metres reserve



(ii) Road Capacity

- Spine Road - 1000 pcu/hr/lane
- Local Road - 700 pcu/hr/lane

(iii) Junction Control Criteria

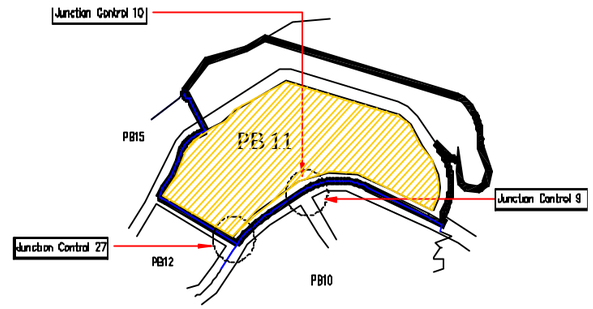
Junction Control	Total sum of 2-way traffic on the major road and heavier approach on minor road (PCU)	
	Spine Road	Local Road
Stop Control	up to 1500	up to 1500
Traffic Signal	Up to 4500	Generally not required
Grade Separation	Generally not required	Generally not required

(iv) Visibility Standards for Priority Junction

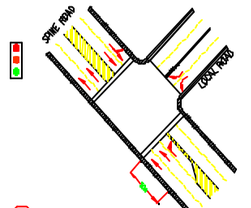
- Because minor road are uncontrolled. It is essential that adequate standards of visibility are archieved in the layout and that sight distances take account of the speed of traffic on the major road. The standards for providing clear visibility for minor road traffic are set out in the figure given

(v) Transport Design Guide for Putrajaya

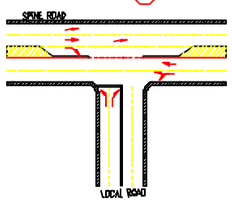
- Details on other design criteria to be referred to the Transport Design Guide for Putrajaya (1998)



Planning Block 11 (PB 11) - Key Plan



Junction Control at 9

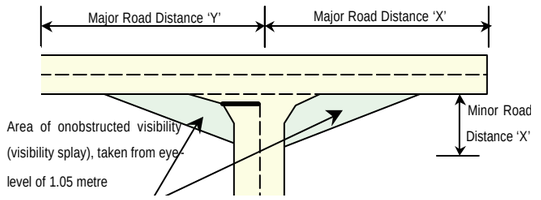


Junction Control at 10

Junction Control at 27

Junction with signal controlled pedestrian crossing phase

Visibility Standards for Priority Junction



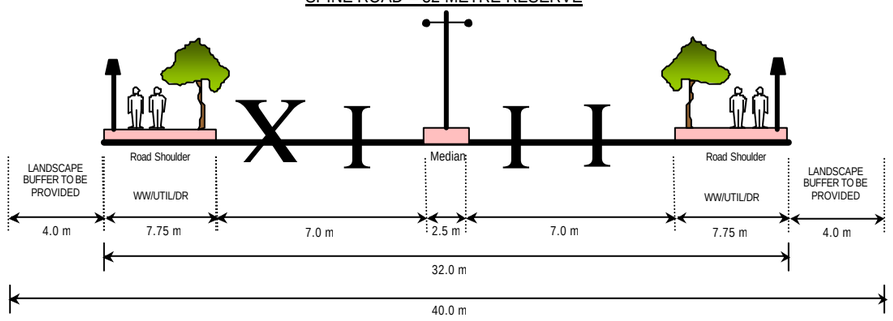
Minor Road Distance 'X' (metre)	▪ 9.0 metre most situations ▪ 4.5 metre an absolute minimum on lighty trafficked roads (< 200 vph)		
Major Road Distance 'X'(metre)	120	90	45
Speed Limit (KPH)	60	50	40

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

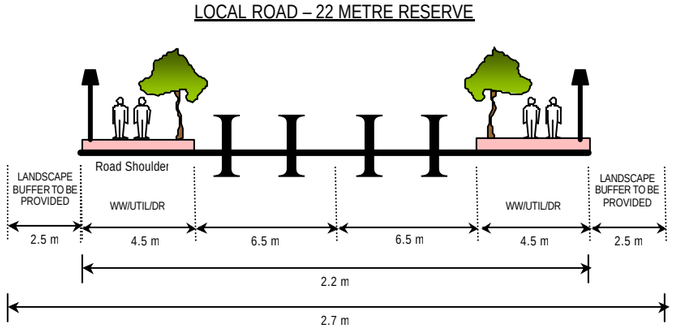
ROAD NETWORK AND DESIGN STANDARD

(v) Typical Road Cross Section

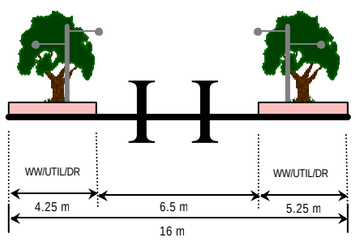
SPINE ROAD – 32 METRE RESERVE



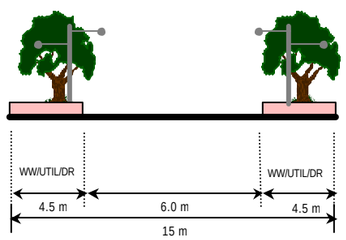
LOCAL ROAD – 22 METRE RESERVE



ACESS ROAD – 16 METRE RESERVE



CUL-DE-SAC – 15 METRE RESERVE



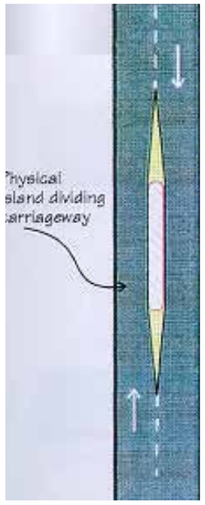
Note:
- WW/UTIL/DR : Common pedestrians walkway utility and drainage reserve
- Minimum cover to all utilities should be 15 metre
- Cul-De-Sac are permitted for bungalows only serving typically no more than 25 units
- Minimum cover to all utilities should be 15 metre

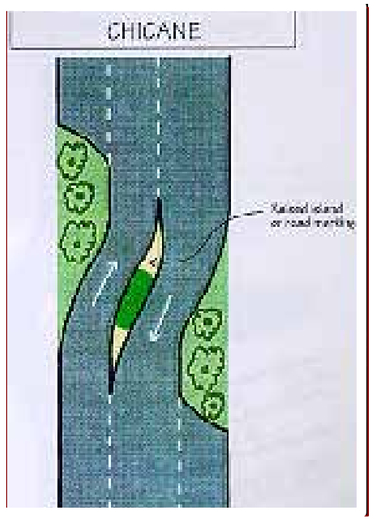
(vii) Access to School

- To ensure adequate number of bus bays for drop-off and waiting school buses.
- To ensure continuity of walkway and cycle paths for PB5 and beyond to enable a high number of walk and bicycle mode trips.

(viii) Traffic Calming

- Use Chicanes and dividers along local distributor





PLANNING REQUIREMENTS : INFRASTRUCTURE

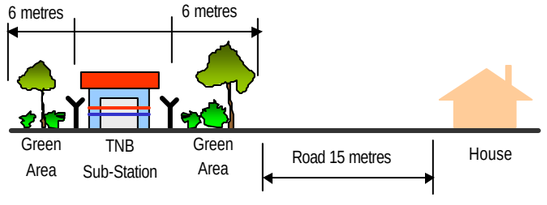
UTILITIES

(i) Environment

- The detailed platform levels shall be determined at the D.0 approval stage
- All earthworks must comply with the Environmental Management Guidelines of Putrajaya and Earthwork By-Laws (Perbadanan Putrajaya 1996)
- A planting strip of min 3 m shall be implemented around the school complex as a buffer for noise and air pollution.

(ii) Electricity

- The electricity supply for PB11 is mostly used for residential which are approximately 90% of the total Electrical Energy required.
- Provision of adequate numbers of 33KV Main Distribution Station (MDS) to be supported by a series of 11 KV Sub-Stations (Single & Double Chambers) and feeder pillars at strategic locations to comply with the electricity provider's (TNB) requirement.
- Feeder pillars along public roads and areas shall have all doors to open away from road and public view.
- Electrical cabling network for overall development of PB11 shall consist of 33KV,11KV and 415V distribution network systems.
- The electrical cabling network system shall be placed along the utility reserves to conform to the no dig policy. All electrical cabling shall be of the underground system.
- Sub-Station: shall have a minimum 6 metres setback on all sides to the nearest residential building. These shall be extensively landscaped.
- Fencing of utility buildings shall abide by Fencing Design Guidelines-Vol 2, Chap. 15 pg 132
- The area reserved for Main Intake Station is 3 acres, 0.3 acres for Main Distribution Station and 0.1 acres for sub-station

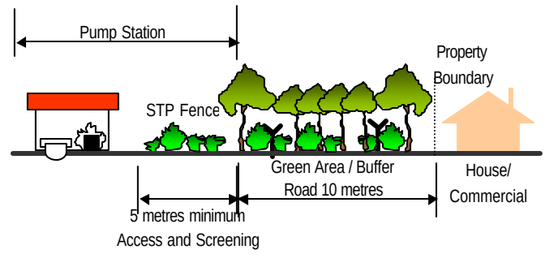


(iii) Drainage

- Drainage to the site shall be provided in terms of collection, conveyance and retention of flow from the site.
- Gross Pollutant Traps to be provided at the outlet of discharge points.
- The drainage design shall comply with the Putrajaya Stormwater Management Design Guidelines (1998), Drainage Masterplan Study Report for Putrajaya (1996) and Urban Stormwater Management Manual for Malaysia (JPS,2000)
- The hydraulic performance of Sungai Gajah shall be maintained and if required, enchanced by proper provision of adequate reserve width and access for maintenance
- Consideration to be given for the aesthetic enhancement of the Sungai Gajah and it adjacent areas and the Sungai Gajah may be channelized and closed
- In this case, approval to be obtained from Jabatan Pengairan dan Saliran, Selangor (JPS)

(iv) Sewerage

- A network of gravity sewer reticulation to collect sewage from the precinct. (Level 3 works.)
- From these reticulation networks, sewage will be discharged into the centralized trunk sewer system of Putrajaya (Level 1 & 2 works) at appropriate points.
- The trunk sewers will terminate at two pump-stations. These two pump stations are PS1 in Precinct 9 and PS9 (Levels 1 & 2 works) located at the south of precinct 11, next to Road R3.
- From PS1 and PS9, sewage will be conveyed via the centralized trunk sewer system to STP2 for treatment. However, STP2 is not scheduled to be ready until Year 2003. In the interim, sewage discharge will be temporary directed to the sewage switching station PS5 for onward conveyance to STP1 for treatment until the completion of STP2.
- The buffer for a closed STP shall be 10 m to the nearest property boundary.
- The buffer for an open STP system shall be 30 m to the nearest property boundary.



PLANNING REQUIREMENTS : INFRASTRUCTURE

UTILITIES

(v) Gas

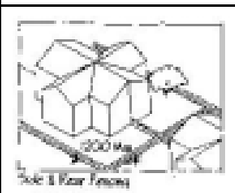
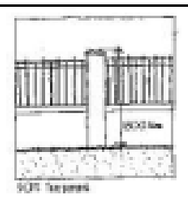
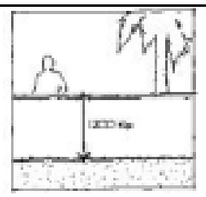
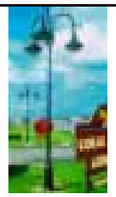
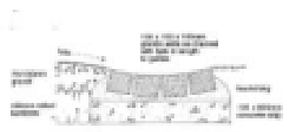
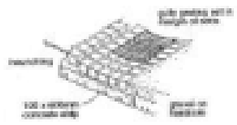
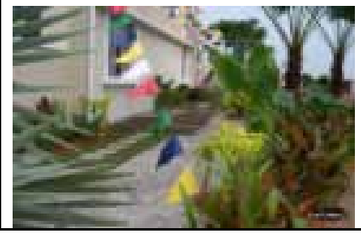
- The gas supply for PB11 is mostly used for residential which are approximately 80% of the total gas requirements.
- Gas supply for PB11 will be served from a District Gas Station located at Precinct 9 through a medium pressure gas pipeline.
- Provisions of 4 nos. of area Gas Station are allocated within the Precinct 11 development to cater for the projected gas loading requirements, with total area reserve of 1.13 acres.
- Low-pressure gas pipeline reticulation from the Area Gas Station is planned to serve the gas requirements for the residential, commercial and other amenities.
- Safety provision for construction within the vicinity.
- (For details of Gas Pipeline Reserve Design refer Appendix 1)

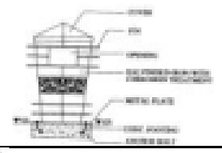
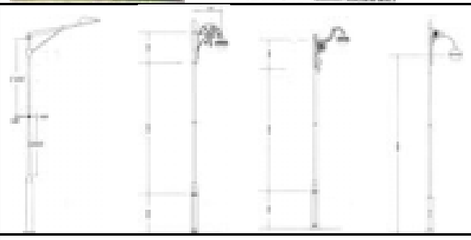
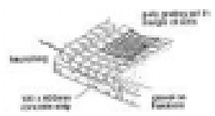
(vi) Waste Disposal

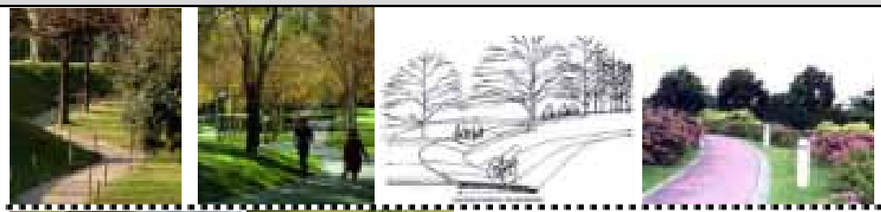
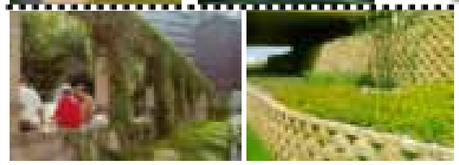
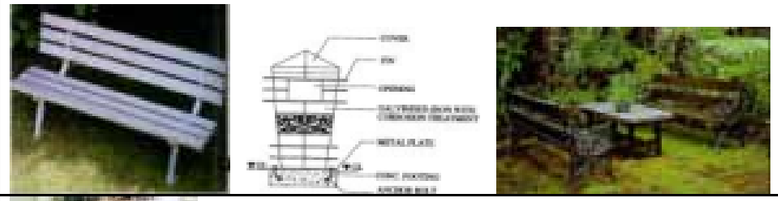
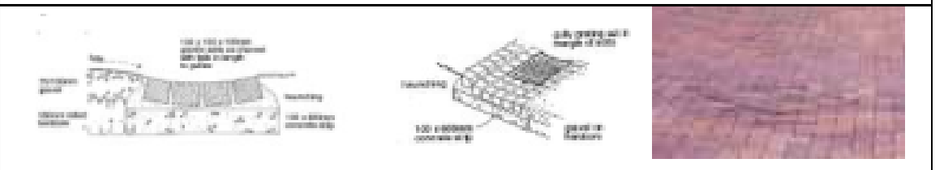
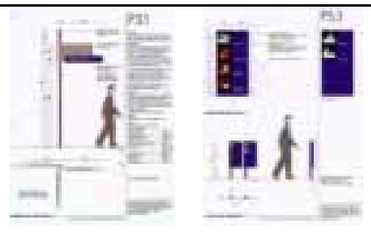
- Solid waste management in PB11 shall address reduction, reuse, recycling and recovery, the 4 R's of waste management.
- Solid waste is proposed to be separated at source, by residents or employees, into three streams; dry recycles, wet waste and rubbish (all other wastes). The dry recyclable is to be further separated at source into containers and fiber materials.
- The sensitivity of the site in terms of waste management relates to the operational requirements of Precinct 11, which require that no burial of material is undertaken during the construction phase.
- In addition to control odour nuisance to any sensitive receptors biodegradable waste cannot be left at the site for extended periods.
- The waste management shall comply with Urban Design Guidelines and Environmental Guidelines for Putrajaya.
- For low rise residential, refuse chamber is to be placed in front of the house, either left or right of the driveway and near to main road for the ease of mechanical collection. The estimated generation of solid waste is 5kg/unit/day.
- For high rise residential (apartment, condominium and government's quarters), individual refuse chamber center must be placed at each block. These refuse chambers must be built on ground floor / basement. Building management team would collect the refuses from refuse chamber and place it to the refuse chamber center. The estimated generation of solid waste is 5 kg/unit/day.
- For non-residential building, refuse chamber center can be built at the ground floor / basement or apart from the main building. The estimated generation of solid waste for recreation park/public transport stop station are 0.2kg/visitor, 300L/1000m^2(gross floor area) for shopping complex and 500L/1000m^2(gross floor area) for restaurant.
- Access road must be constructed for the ease of mechanical collection and public use. Obstructions to any collection vehicle's access must be disallowed at all time.

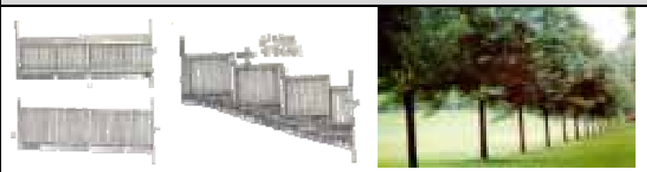
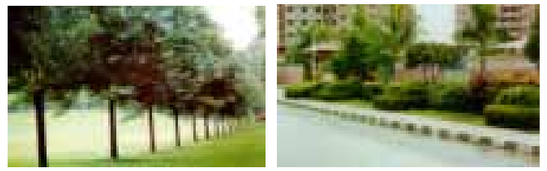
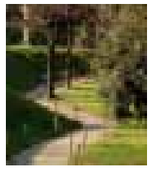
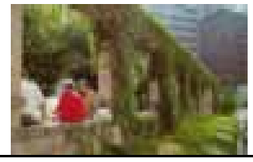
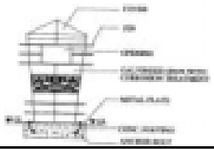
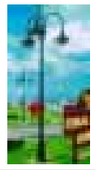
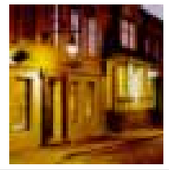
(vii) Water Supply

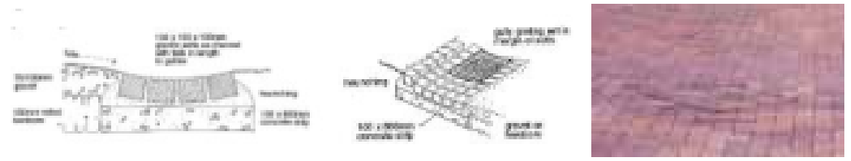
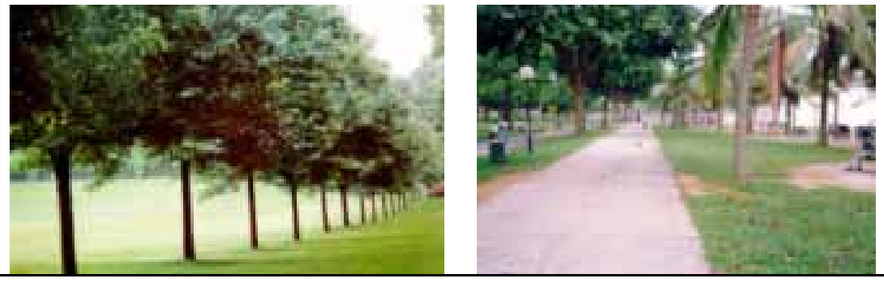
- Water supply to PB11 shall be consistent with the provision of water supply master plan for Putrajaya.
- Storage reservoir and pumping station together with the rising and falling mains shall be planned to serve this area in compliance with Jabatan Bekalan Air (JBA) requirement, and Design Criteria and Standards for Water Supply System, JKR (1989)

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Residential (Landed)**	▪ **Paving, walls and steps** ❑ Informal ❑ Formal ❑ Contemporary	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Durable	– Building compound	
		❑ **Walls** – Key stone – Concrete – Fencing brick etc.	– Harmonize with surrounding	– Building compound	 
	▪ **Fence, Gate and Barrier** ❑ Contemporary ❑ Formal ❑ Traditional	– Hardwood – Metal – Masonry	– To follow Fencing Design Guideline Putrajaya	– Boundary line	  
	▪ **Lighting** ❑ Contemporary ❑ Informal ❑ Formal	– Hardwood – Metal – Concrete	– Durable – Attractive – Safe	– Building compound	 
	▪ **Drainage** ❑ Swales ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Concealed drains	– Building lot	  
	▪ **Planting** ❑ Formal ❑ Informal	– Tree – Palm – Shrub – Groundcover	– Non-poisonous species – Strong branch – Medium size	– Building compound	 
	▪ **Irrigation Strategy**	– Tap from storage tank or JBA main or tap from JBA main			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Roadside**	▪ **Paving, walls and steps** ❑ Formal ❑ Contemporary	❑ **Paving / Step** – Clay brick – Concrete – Interlocking paver etc.	– Anti slippery surface – Max. gradient 8% – Max. Gradient for super elevation 2%	– Roadside	 
		❑ **Wall** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding environment	– Slope areas	  
	▪ **Site Furniture** ❑ Contemporary	– Hardwood – Masonry – Metal	– Vandalism proof – Safe – Attractive	– Junction	 
	▪ **Lighting** ❑ Robust ❑ Minimal ❑ Reflect character of adjacent neighbourhood	– Timber – Metal	– Max. height 10m	– Footpaths – Cycle track – Car park	
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Naturally blend with surrounding	– Open space – plaza	  
	▪ **Signage** ❑ Contemporary ❑ Formal ❑ Simple ❑ Clear	– Masonry – Metal – Hardwood	– Clear – Vandalism proof – To follow Signage and Advertisement Design Guideline Putrajaya	– Junction	 
	▪ **Planting** ❑ Formal	– Shade medium size tree – Palm – Shrub	– Provide ample shade – Hardy Plants – Attractive	– Roadside	 
	▪ **Irrigation Strategy**	– Trucking			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **School**	▪ **Paving, walls and steps** ❑ Formal ❑ Contemporary	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Max. gradient 2% for supper elevation – Durable	– Pedestrian walkway – Open space	
		❑ **Walls** – Key stone – Concrete – Fencing brick etc.	– Harmonize with surrounding environment	– Slope areas	
	▪ **Site furniture** ❑ Contemporary	– Hardwood – Metal – Stone	– Vandalism proof – Durable – Safe	– Resting areas – Reading areas	
	▪ **Lighting** ❑ Contemporary ❑ Simple	– Hardwood – Metal – Concrete	– Max height of 4m for open space – Max height of 10m for roadside – Attractive – Safe	– Entrance – Playfield – Roadside	
	▪ **Drainage** ❑ Swales ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Harmonious with surrounding environment – Preferable covered drain	– When necessary	
	▪ **Signage** ❑ Contemporary	– Metal – Hardwood – Concrete	– To follow Signage and Advertisement Design Guideline Putrajaya	– Entrance – Play areas	
	▪ **Irrigation Strategy**	– Pipe reticulation from PHB and/or trucking			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **School**	▪ **Fences, Railings and Barriers** ❑ Formal ❑ Informal	– Planting – Metal – Hardwood	– To following Fencing Design Guideline Putrajaya	– Entrance – Play areas	
	▪ **Planting** ❑ Formal	– Tree – Palm – Shrub – Groundcover – Turfing	– Able to provide shade – Non-poisonous species – Attractive	– All green areas	
❑ **Drain reserve (Covered)**	▪ **Planting** ❑ Natural ❑ Tropical	– Tree – Palm – Shrub	– Non-poisonous species – Harmonize with surrounding environment	– Drain reserve	
❑ **Mosque**	▪ **Paving / Step, Wall** ❑ Formal ❑ Islamic design	❑ **Paving / Step** – Clay brick – Concrete – Tiles etc	– Anti slippery surface – Max. gradient of 8% – Max. gradient 2 % for superelevation – Durable	– Open space – Plaza	  
		❑ **Wall** – Keystone – Granite stone – Concrete etc.	– Harmonize with surrounding – Visually attractive	– Slope areas	 
	▪ **Site Furniture** ❑ Simple ❑ Islamic	– Hardwood – Metal – Stone	– Vandalism proof – Durable – Safe	– Open space – Plaza – Road side	  
	▪ **Lighting** ❑ Contemporary ❑ Islamic	– Concrete – Metal – Masonry	– Max. height 4m for open areas – Max. height 10m for roadside	– Entrance at bollard – Roadside – Plaza	   

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Mosque**	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway 's material	– To harmonize with surrounding environment	– All drain system	
	▪ **Structure and Shelter** ❑ Islamic ❑ Contemporary	– Hardwood – Metal – Concrete – Masonry – Poly cabonate etc.	– Sustainable design – Proportion to human scale and surrounding structure – To blend harmoniously with surrounding environment	– Plaza – Open space	
	▪ **Fences, Gates and Barriers** ❑ Formal ❑ Islamic ❑ Contemporary	– Masonry – Metal – Planting	– To suit architectural design – To blend naturally with surrounding environment – To follow fencing design guideline Putrajaya	– Entrance – Plaza – Open space	
	▪ **Water feature** ❑ Islamic ❑ Safe ❑ Natural	– Concrete – Masonry – Metal etc.	– Safe – Attractive	– Entrance – Plaza – Open space	
	▪ **Planting** ❑ Formal ❑ Natural	– Palm – Tree – Shrub – Ground cover	– Hardy – Low maintenance – Attractive – Non-poisonous species	– All green areas	
	▪ **Irrigation Strategy**	– Tap from storage tank, trucking or JBA main			

PLANNING REQUIREMENT : URBAN DESIGN

LAYOUT PLAN

(i) The layout plan must demonstrate that the following elements are addressed in the design:
- Development appropriate to topographical features
- Appropriate building orientation with respect to the sun
- Appropriate pedestrian and vehicular access systems
- Site infrastructure systems are designed in a manner which enhances site development

(ii) Illustrate the effective and efficient integration of the pedestrian, cycle and road systems

(iii) Development is to be designed to work with site contours to avoid unnecessary cut and associated retaining structures

(iv) Illustrate a high level of permeability between site uses within the Planning Block and with adjoining Planning Blocks

(v) Illustrate appropriate site building setbacks from major traffic routes or other noise generating or potentially dangerous infrastructure

(vi) Illustrate that the site will be developed in a logical sequence

(vii) The layout plan should illustrate that the form of development effectively contributes to the Planning Block's sense of place and amenity with the context of Putrajaya

(viii) The location of schools and tadikas should:
- Be in a highly accessible position for the community
- Minimise the introduction of non-local traffic into minor residential streets
- Provide safe and convenient pedestrian and cycle access to residential areas

(ix) Where applicable, the provisions of suraus, within apartment complexes should be a freestanding building.

(x) The apartment complex must include 'drop off' points for the convenience of residents

(xi) Maximum plinth foe apartment building is 60% of the site

BUILDING CHARACTER

(i) Avoid monotonous building designs – provide a range of housing types to meet different lifestyle choices, diversity in the marketplace and opportunity for an interesting street frontage

(ii) Ensure that buildings are designed to respect the topographical features of the site ,eg buildings should step with steeper sites – do not cut substantial benches into steep land

(iii) Building design should respect the amenity of adjoining and adjacent buildings and their residents

(iv) Building design should interpret local image and character with new materials that are energy efficient

(v) Building facades should be designed to accommodate a tropical environment

(vi) Designers should look to the use of innovative building materials that are less maintenance intensive and more environmentally efficient

(vii) While diversity is sought in building design, buildings should be designed with a common theme that provides a linkage to the style and nature of the development area

(viii) Building design should ensure good living environments for residents that do not adversely impact on neighbours

(ix) The building design should incorporate landscaping that contributes to a pleasant and safe environment and integrates well with the streetscape and adjoining open space areas

(x) For school buildings:
- Building design should be of a character that responds to the tropical environment and does not adversely impact on adjacent buildings
- Vehicle parking and pick up/set down areas should be designed and located to minimise impact on adjacent dwellings

HEIGHT, MASSING AND BUILDING SPACES

(i) Building design must comply with all provisions relating to plot ratio, plinth, building height and setbacks as contained within these guidelines, and must comply with the UDG of Precinct 11 and 13.

(ii) Spaces on any ground level should not directly overlook dwellings on adjacent land

(iii) Ground floor levels must be responsive to pedestrian footpaths and continuity and flow between buildings

(iv) Building design does not significantly reduce daylight to open space and habitable rooms in adjacent development

(v) Roof pitch and overlay should be designed to meet local environmental requirements

(vi) Roof overhang should be designed to minimise the impact on sight lines from adjacent buildings

(vii) Buildings should be designed to encourage facade articulation and use of design elements that reduce building bulk and provide a pleasant street aspect. Any blank wall should be avoided.

(viii) The design of free standing buildings should be sympathetic with adjoining buildings, yet provide for local identity and character

COLOUR TEXTURE

(i) Building colours should harmonise with the predominant colours of the surrounding area

(ii) Use of earth tones shall be encouraged

(iii) Colours for specific building types will be subject to the approval of the Perbadanan. Pastel colours are to be encouraged

MISCELLANEOUS

(i) Privacy and visual controls – overlooking to be controlled by appropriate orientation of windows and use of splay windows

(ii) Air conditioning equipment – all equipment should be contained in compartments that are designed as an integral component of the building to ensure the equipment is hidden from view

(iii) Drying yards – building design should incorporate appropriate design for drying areas that allows for natural ventilation and light while ensuring they are hidden from public view

(iv) Aerials and satellite dishes –, aerials and satellite dishes shall be located to avoid adverse impact on the amenity of adjoining buildings

(v) Service ducting shall not be exposed on the external surfaces of buildings

(vi) Carports and garages should:
- Be designed to integrate with the design of associated buildings
- Not diminish the attractiveness of the streetscape
- Not visually dominate views of the house from the street
- Cover the full length of a car

(vii) Dwellings with green frontage must address that frontage with habitable spaces and not service areas only

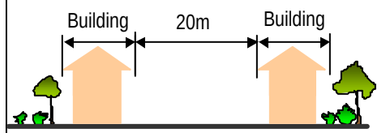
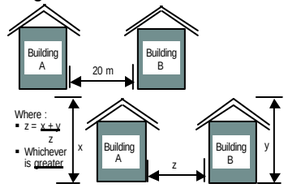
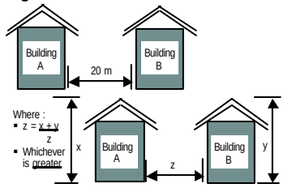
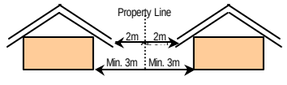
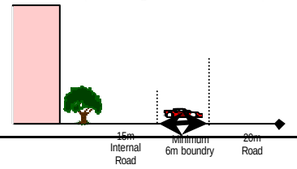
(viii) Dwelling design must provide sufficient outdoor open space that can act as an extension of the dwelling for relaxation, entertainment, recreation and children's play purposes

(ix) The design of tadikas should:
- Ensure that the playground is visually interesting and environmentally safe for children
- The play area is protected from on site and off site hazards
- The play area has adequate shade and shelter areas
- The landscaping assist the educational role of the facility
- Be reasonably compatible in appearance and scale with nearby buildings
- Include appropriate screening and buffering that maintains or improves the amenity of adjoining uses

(x) For the installations of grills, residents need to abide by the guidelines on the Uniform Design and Installation of Grills for Buildings in Putrajaya (Department of Urban Services, Putrajaya)

(xi) Any changes to the façade and design of buildings must seek planning permission for Perbadanan Putrajaya

PHYSICAL PLANNING REQUIREMENTS PLANNING BLOCK 12 (PB 12)

MAIN LAND USES:	MEDIUM COST APARTMENT	GOVERMENT APARTMENT	TERRACE HOUSES	GAS PIPE RESERVE	MAIN ELECTRIC SUBSTATION
(i) Density	▪ 70 units/acre	▪ 78 units/acre	▪ 20 units/acre	▪ N/A	▪ One in PB123
(ii) Composition		▪ 100% Government units	▪ Government housing		
(iii) Minimum Lot size	▪ N/A	▪ N/A	▪ 180m2	▪ N/A	▪ 0.2 hac.
(iv) Height	▪ Max. 12 storey Note: 17 storey upon approval from PJC	▪ Max. 12 storey Note: 17 storey upon approval from PJC	▪ 2 levels on flat or gently sloping land		
(v) Setbacks:					
▪ Front/Rear setbacks			▪ Total setback distance for both the front and rear setbacks must total 9 metres ▪ Front setback – min. 3.0 metres ▪ Rear setback – min. 3.0 metres ▪ Variation in setbacks is permissable only for blocks and not individual houses		▪ Front – Minimum 6 metres ▪ Rear – Minimum 3 metres
▪ Building to building	▪ Minimum 20 metres	▪ Minimum 20 metres 	▪ N/A	▪ N/A	▪ N/A
▪ Side boundary		▪ N/A	▪ Where applicable minimum 3 metres		▪ Minimum 3 metres
▪ Street boundary		▪ Minimum 6 metres	▪ Minimum 3 metres		▪ Minimum 6 metres
▪ Distance Between Building	▪ 20 metres setback between buildings or average of building heights 	▪ 20 metres setback between buildings or average of building heights 			
▪ Distance Between Roof Eaves					
▪ Car Park	▪ Minimum 1 cps per unit+10% visitors ▪ CPS permitted to be within setback ▪ Disabled parking at 1% total cps 	▪ Min 1 CPS per unit+10% visitors ▪ CPS permited to be within setback ▪ Disabled parking at 1% of total cps ▪ Covered motorcycle parking bays at 1:1	▪ Min 2 CPS per unit on site ▪ CPS to be clear of minimum front setback.		▪ N/A

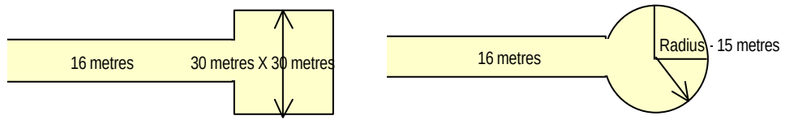
MAIN LAND USES:	MEDIUM COST APARTMENT	GOVERMENT APARTMENT	TERRACE HOUSES	GAS PIPE RESERVE	MAIN ELECTRIC SUBSTATION
(vi) Fencing As per the Fencing Design Guidelines Manual, Volume 1 and Volume 2, chapters 1, 2 and 3	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapters 8	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapters 8	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapters 6	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapters 15 ▪ Generally no fencing would be encourage	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapters 15
(vii) Layout Plan	▪ Provide a fenced children's playground – Minimum of 500m2 ▪ Club House/Community Hall ▪ Suitable size surau + ruang jenazah. Standard: 50%XNo of unitsX0.4m2 ▪ Car park to be well landscaped ▪ Min 2 metres landscape buffer to all boundaries. ▪ Service areas to be aesthetically screened. ▪ Community Hall ▪ Other community provision: ❑ Kindergarten ❑ Day Care Centre ❑ Laundry ❑ Car Wash Area ❑ Convenient Shop ❑ Courts Sepaktakraw or Volleyball	▪ Provide a fenced childrens playground - Minimum 500m2 ▪ Suitable size surau + ruang jenazah. Standard 80%XNo of unitsX0.3m2 ▪ Community Hall ▪ Tadika ▪ Taska ▪ Corner Shops ▪ Car park to be well landscaped ▪ Min 2 m landscape buffer to all boundaries. ▪ Service areas to be aesthetically screened ▪ Other community provision: ❑ Kindergarten ❑ Day Care Centre ❑ Laundry ❑ Car Wash Area ❑ Convenient Shop ❑ Courts Sepaktakraw or Volleyball	▪ Use the setback flexibility and building design variation to break up and vary the position of the houses	▪ Where possible, such non-buildable areas are to be green land for general recreational use.	▪ Layout plan to show the design concept including: ❑ Location of all key facilities ❑ Location of car parking spaces ❑ Location of screening devices to minimise impact of noise producing machinery ❑ Effective screening to abutting residential uses

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

ROAD NETWORK AND DESIGN STANDARD

(i) Network Type

- Spine Road - 32 metres reserve
- Local Road - 22 metres reserve
- Access Road - 16 metres reserve
- Cul-De-Sac - 15 metres reserve



(ii) Road Capacity

- Spine Road - 1000 pcu/hr/lane
- Local Road - 700 pcu/hr/lane

(iii) Junction Control Criteria

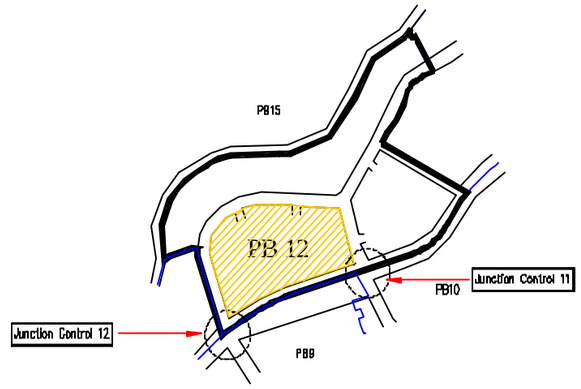
Junction Control	Total sum of 2-way traffic on the major road and heavier approach on minor road (PCU)	
	Spine Road	Local Road
Stop Control	up to 1500	up to 1500
Traffic Signal	Up to 4500	Generally not required
Grade Separation	Generally not required	Generally not required

(iv) Visibility Standards for Priority Junction

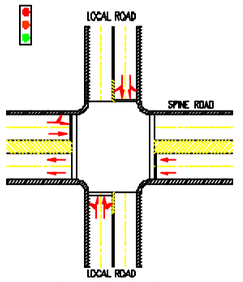
- Because minor road are uncontrolled. It is essential that adequate standards of visibility are archieved in the layout and that sight distances take account of the speed of traffic on the major road. The standards for providing clear visibility for minor road traffic are set out in the figure given

(v) Transport Design Guide for Putrajaya

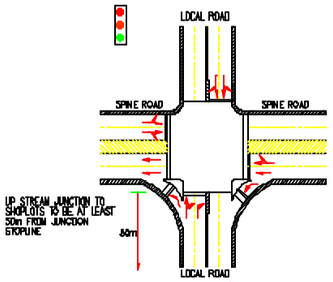
- Details on other design criteria to be referred to the Transport Design Guide for Putrajaya (1998)



Planning Block 12 (PB 12) - Key Plan



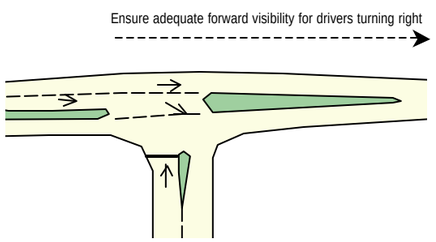
Junction Control at 11



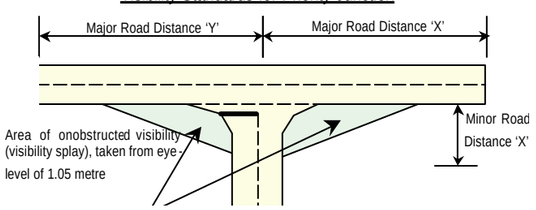
Junction Control at 12

*a. With signal controlled pedestrian crossing phase

Local Dualling to Create Protected Right-Turn Lane



Visibility Standards for Priority Junction



Minor Road Distance 'X' (metre)	▪ 9.0 metre most situations ▪ 4.5 metre an absolute minimum on lighty trafficked roads (< 200 vph)

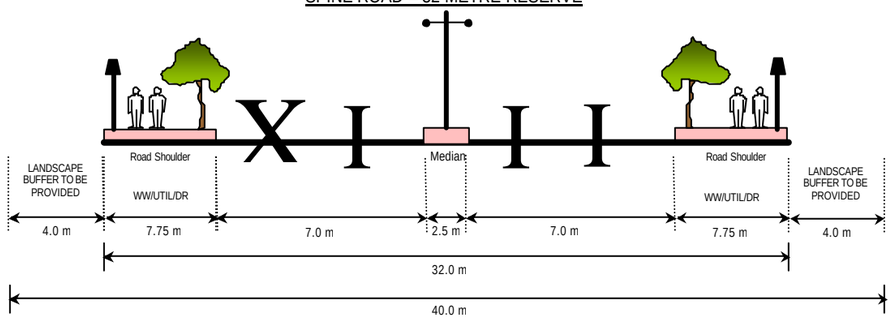
Major Road Distance 'X'(metre)	120	90	45
Speed Limit (KPH)	60	50	40

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

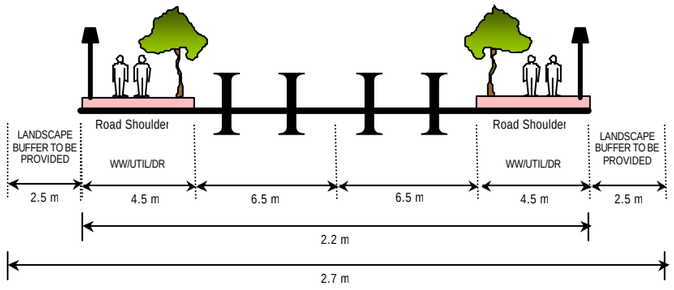
ROAD NETWORK AND DESIGN STANDARD

(v) Typical Road Cross Section

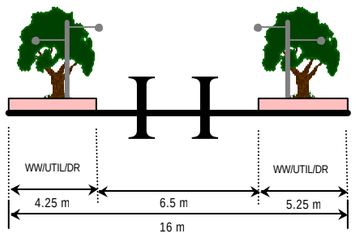
SPINE ROAD – 32 METRE RESERVE



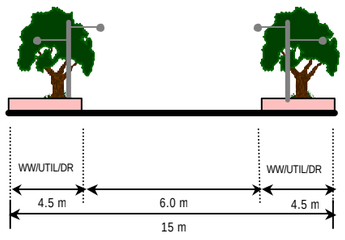
LOCAL ROAD – 22 METRE RESERVE



ACESS ROAD – 16 METRE RESERVE



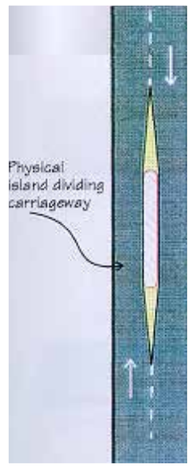
CUL-DE-SAC – 15 METRE RESERVE

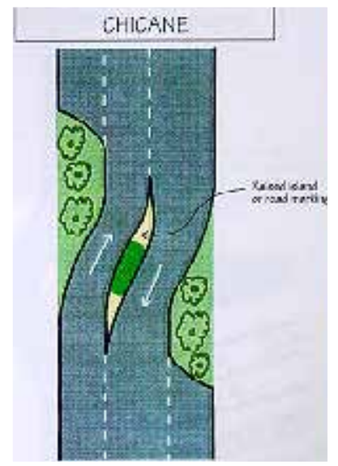


Note:
- WW/UTIL/DR : Common pedestrians walkway utility and drainage reserve
- Minimum cover to all utilities should be 15 metre
- Cul-De-Sac are permitted for bungalows only serving typically no more than 25 units
- Minimum cover to all utilities should be 15 metre

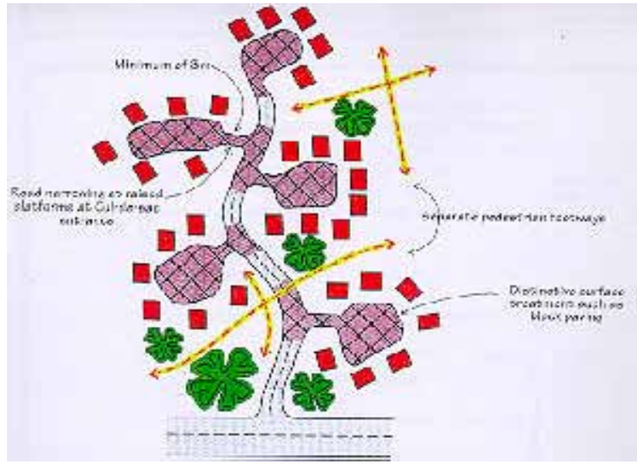
(vii) Traffic Calming

- Use Chicanes and dividers along local distributor





- The road naming at junction leading form local distributor roads into access roads.



PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES

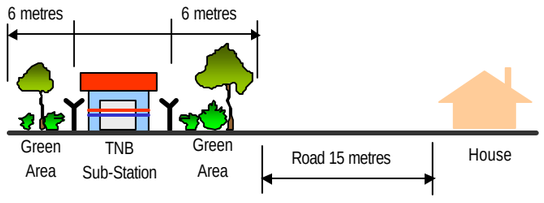
UTILITIES

(i) Environment

- The detailed platform levels shall be determined at the D.0 approval stage
- All earthworks must comply with the Environmental Management Guidelines of Putrajaya and Earthwork By-Laws (Perbadanan Putrajaya 1996)

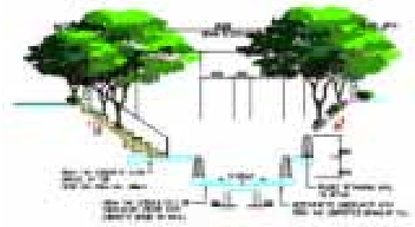
(ii) Electricity

- The electricity supply for PB12 is mostly used for residential which are approximately 90% of the total Electrical Energy required.
- Provision of adequate numbers of 33KV Main Distribution Station (MDS) to be supported by a series of 11KV Sub-Stations (Single & Double Chambers) and feeder pillars at strategic locations to comply with the electricity provider's (TNB) requirement.
- Feeder pillars along public roads and areas shall have all doors to open away from road and public view.
- Electrical cabling network for overall development of PB12 shall consist of 33KV, 11KV and 415V distribution network systems.
- The electrical cabling network system shall be placed along the utility reserves to conform to the no dig policy. All electrical cabling shall be of the underground system.
- Sub-Station: shall have a minimum 6 metres setback on all sides to the nearest residential building. These shall be extensively landscaped.
- Fencing of utility buildings shall abide by Fencing Design Guidelines-Vol. 2, Chap. 15 pg. 132



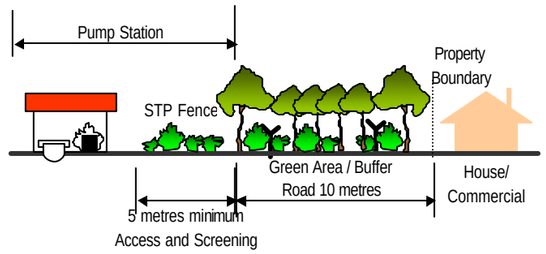
(iii) Drainage

- Drainage to the site shall be provided in terms of collection, conveyance and retention of flow from the site.
- Gross Pollutant Traps to be provided at the outlet of discharge points.
- The drainage design shall comply with the Putrajaya Stormwater Management Design Guidelines (1998), Drainage Masterplan Study Report for Putrajaya (1996) and Urban Stormwater Management Manual for Malaysia (JPS,2000)
- The Sungai Gajah may be developed as a closed drainage system with extensive landscaping



(iv) Sewerage

- A network of gravity sewer reticulation to collect sewage from the precinct. (Level 3 works.)
- From these reticulation networks, sewage will be discharged into the centralized trunk sewer system of Putrajaya (Level 1 & 2 works) at appropriate points
- The trunk sewers will terminate at two pump-stations. These two pump stations are PS1 in Precinct 9 and PS9 (Levels 1 & 2 works) located at the south of precinct 11, next to Road R3
- From PS1 and PS9, sewage will be conveyed via the centralized trunk sewer system to STP2 for treatment. However, STP2 is not scheduled to be ready until Year 2003. In the interim, sewage discharge will be temporary directed to the sewage switching station PS5 for onward conveyance to STP1 for treatment until the completion of STP2
- The buffer for a closed STP shall be 10 m to the nearest property boundary.
- The buffer for an open STP system shall be 30 m to the nearest property boundary.



(v) Gas

- The gas supply for PB12 is mostly used for residential which are approximately 80% of the total gas requirements.
- Gas supply for PB12 will be served from a District Gas Station located at Precinct 9 through a medium pressure gas pipeline.
- Provisions of 4 nos. of area Gas Station are allocated within the Precinct 11 development to cater for the projected gas loading requirements, with total area reserve of 1.13 acres.
- Low-pressure gas pipeline reticulation from the Area Gas Station is planned to serve the gas requirements for the residential, commercial and other amenities.
- Safety provision for construction within the vicinity.
- (For details of Gas Pipeline Reserve Design refer Appendix 1)

PLANNING REQUIREMENTS : INFRASTRUCTURE

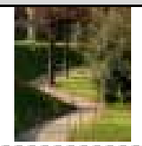
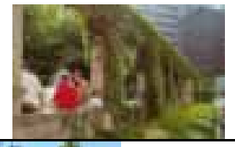
UTILITIES

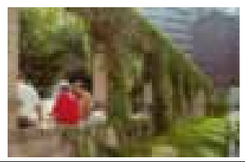
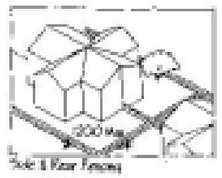
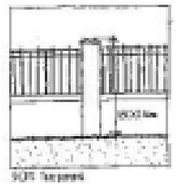
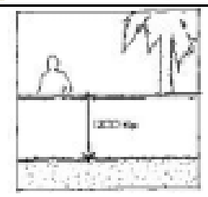
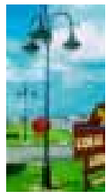
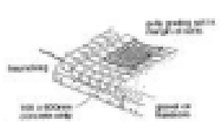
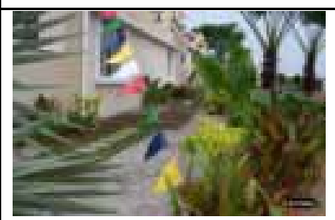
(vi) Waste Disposal

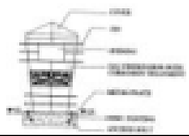
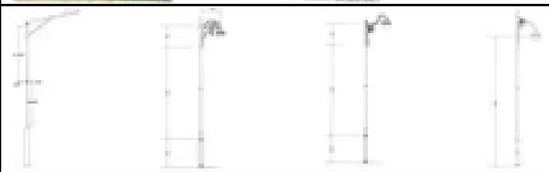
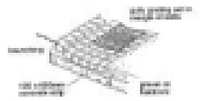
- Solid waste management in PB12 shall address reduction, reuse, recycling and recovery, the 4 R's of waste management.
- Solid waste is proposed to be separated at source, by residents or employees, into three streams; dry recycles, wet waste and rubbish (all other wastes). The dry recyclable is to be further separated at source into containers and fiber materials.
- The sensitivity of the site in terms of waste management relates to the operational requirements of Precinct 11, which require that no burial of material is undertaken during the construction phase.
- In addition to control odour nuisance to any sensitive receptors biodegradable waste cannot be left at the site for extended periods.
- The waste management shall comply with Urban Design Guidelines and Environmental Guidelines for Putrajaya.
- For low rise residential, refuse chamber is to be placed in front of the house, either left or right of the driveway and near to main road for the ease of mechanical collection. The estimated generation of solid waste is 5kg/unit/day.
- The estimated generation of solid waste for recreation park/public transport stop station are 0.2kg/visitor, 300L/1000m ^{2}(gross floor area) for shopping complex and 500L/1000m ^{2}(gross floor area) for restaurant.
- Access road must be constructed for the ease of mechanical collection and public use. Obstructions to any collection vehicle's access must be disallowed at all time.

(vii) Water Supply

- Water supply to PB12 shall be consistent with the provision of water supply master plan for Putrajaya.
- Storage reservoir and pumping station together with the rising and falling mains shall be planned to serve this area in compliance with Jabatan Bekalan Air (JBA) requirement, and Design Criteria and Standards for Water Supply System, JKR (1989).

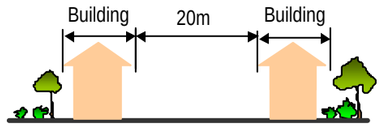
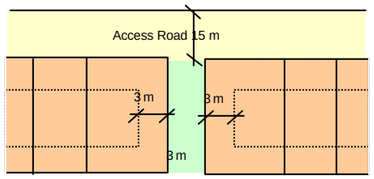
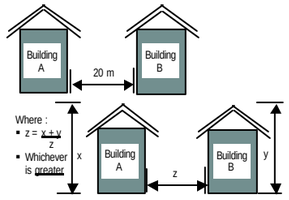
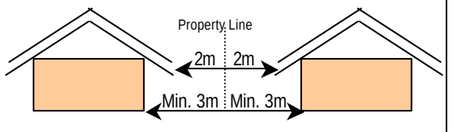
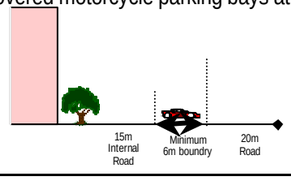
PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Residential (Condominium, Government apartment)**	▪ **Paving / Step, Wall** ❑ Formal	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max-gradient of 8% – Durable	– Open space – Walkway	  
		❑ **Wall** – Keystone – Facing Brick – Concrete etc.	– Harmonize with surrounding environment – To screen the wall with planting	– Slope areas	  
	▪ **Site Furniture** ❑ Contemporary ❑ Elegant formal ❑ Specific design for neighbourhood	– Hardwood – Metal – Concrete	– Vandalism proof – Durable – Functional – Safe	– Open space – Resting areas	  
	▪ **Lighting** ❑ Contemporary ❑ Elegant formal ❑ Specific design for neighbourhood	– Concrete – Metal – Masonry	– Max. height 4m at open areas – Max. height 10m at roadside	– Open space – Entrance with bollard – Roadside	  
	▪ **Drainage** ❑ Swales ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Concealed drains	– Building lot	  
	▪ **Structures and Shelter** ❑ Informal ❑ Vernacular	– Hardwood – Concrete – Masonry – Metal	– To blend harmoniously with surrounding structure – Durable – Safe	– Open space	 
	▪ **Signage** ❑ Formal ❑ Informal ❑ Contemporary	– Metal	– To following Signage and Advertisement Design Guideline Putrajaya	– Entrance – Open space – Pedestrian walkway	  
	▪ **Play feature** ❑ Integrated ❑ Bright colour	– Metal – Rubber matting – Plastic	– Conform to SIRIM standard – Safe – Attractive	– Open space	 

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Residential (Landed)**	▪ **Paving, walls and steps** ❑ Informal ❑ Formal ❑ Contemporary	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Durable	– Building compound	
		❑ **Walls** – Key stone – Concrete – Fencing brick etc.	– Harmonize with surrounding – To screen the wall with planting	– Building compound	  
	▪ **Fence, Gate and Barrier** ❑ Contemporary ❑ Formal ❑ Traditional	– Hardwood – Metal – Masonry	– To follow Fencing Design Guideline Putrajaya	– Boundary line	  
	▪ **Lighting** ❑ Contemporary ❑ Informal ❑ Formal	– Hardwood – Metal – Concrete	– Durable – Attractive – Safe	– Building compound	  
	▪ **Drainage** ❑ Swales ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Concealed drains	– Building lot	  
	▪ **Planting** ❑ Formal ❑ Informal	– Tree – Palm – Shrub – Groundcover	– Non-poisonous species – Strong branch – Medium size trees	– Building compound	 
	▪ **Irrigation Strategy**	Tap from storage tank or JBA main or tap from JBA main			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Roadside**	▪ **Paving, walls and steps** ❑ Formal ❑ Contemporary	❑ **Paving / Step** – Clay brick – Concrete – Interlocking paver etc.	– Anti slippery surface – Max. gradient 8% – Max. Gradient for super elevation 2%	– Roadside	  
		❑ **Wall** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding environment – To screen the wall with planting	– Slope areas	 
	▪ **Site Furniture** ❑ Contemporary	– Hardwood – Masonry – Metal	– Vandalism proof – Safe – Attractive	– Junction	 
	▪ **Lighting** ❑ Robust ❑ Minimal ❑ Reflect character of adjacent neighbourhood	– Timber – Metal	– Max. height 4m at open areas – Max. height 10m at roadside	– Footpaths – Cycle track – Car park	
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Naturally blend with surrounding	– Open space – plaza	  
	▪ **Signage** ❑ Contemporary ❑ Formal ❑ Simple ❑ Clear	– Masonry – Metal – Hardwood	– Clear – Vandalism proof – To following Signage and Advertisement Design Guideline Putrajaya	– Junction	 
	▪ **Planting** ❑ Formal	– Shade medium size tree – Palm – Shrub	– Provide ample shade – Hardly Plants – Attractive	– Roadside	 
❑ **Drain reserve (Covered)**	▪ **Planting** ❑ Natural ❑ Tropical	– Palm – Tree – Shrub	– Non-poisonous species – Harmonize with surrounding environment	– Drain reserve	

PLANNING REQUIREMENT : URBAN DESIGN				
LAYOUT PLAN	**BUILDING CHARACTER**	**HEIGHT, MASSING AND BUILDING SPACES**	**COLOUR TEXTURE**	**MISCELLANEOUS**
(i) The layout plan must demonstrate that the following elements are addressed in the design: ▪ Development appropriate to topographical features ▪ Appropriate building orientation with respect to the sun ▪ Appropriate pedestrian and vehicular access systems ▪ Site infrastructure systems are designed in a manner which enhances site development (ii) Illustrate the effective and efficient integration of the pedestrian, cycle and road systems (iii) Development is to be designed to work with site contours to avoid unnecessary cut and associated retaining structures (iv) Illustrate a high level of permeability between site uses within the Planning Block and with adjoining Planning Blocks (v) Illustrate appropriate site building setbacks from major traffic routes or other noise generating or potentially dangerous infrastructure (vi) Illustrate that the site will be developed in a logical sequence (vii) The layout plan should illustrate that the form of development effectively contributes to the Planning Block's sense of place and amenity with the context of Putrajaya (viii) Where applicable, the provisions of suraus, within apartment complexes should be a freestanding building (ix) The apartment complex must include 'drop off' points for the convenience of residents (x) Maximum plinth foe apartment building is 60% of the site	(i) Avoid monotonous building designs – provide a range of housing types to meet different lifestyle choices, diversity in the marketplace and opportunity for an interesting street frontage (ii) Ensure that buildings are designed to respect the topographical features of the site ,eg buildings should step with steeper sites – do not cut substantial benches into steep land (iii) Building design should respect the amenity of adjoining and adjacent buildings and their residents (iv) Building design should interpret local image and character with new materials that are energy efficient (v) Building facades should be designed to accommodate a tropical environment (vi) Designers should look to the use of innovative building materials that are less maintenance intensive and more environmentally efficient (vii) While diversity is sought in building design, buildings should be designed with a common theme that provides a linkage to the style and nature of the development area (viii) Building design should ensure good living environments for residents that do not adversely impact on neighbours (ix) The building design should incorporate landscaping that contributes to a pleasant and safe environment and integrates well with the streetscape and adjoining open space areas (x) For high rise buildings: ▪ Pedestrian spaces, courts, landscape or recreation areas should be more prominent than vehicle movement and utility spaces ▪ Vehicle parking design and location should minimise impact on adjacent dwellings ▪ Safe and convenient internal access to parking, residential and service areas	(i) Building design must comply with all provisions relating to plot ratio, plinth, building height and setbacks as contained within these guidelines, and must comply with the UDG of Precinct 11 and 13. (ii) Spaces on any ground level should not directly overlook dwellings on adjacent land (iii) Ground floor levels must be responsive to pedestrian footpaths and continuity and flow between buildings (iv) Building design does not significantly reduce daylight to open space and habitable rooms in adjacent development (v) Roof pitch and overlay should be designed to meet local environmental requirements (vi) Roof overhang should be designed to minimise the impact on sight lines from adjacent buildings (vii) Buildings should be designed to encourage facade articulation and use of design elements that reduce building bulk and provide a pleasant street aspect. Any blank wall should be avoided. (viii) The design of free standing buildings should be sympathetic with adjoining buildings, yet provide for local identity and character	(i) Building colours should harmonise with the predominant colours of the surrounding area (ii) Use of earth tones shall be encouraged (iii) Colours for specific building types will be subject to the approval of the Perbadanan. Pastel colours are to be encouraged	(i) Privacy and visual controls – overlooking to be controlled by appropriate orientation of windows and use of splay windows (ii) Air conditioning equipment – all equipment should be contained in compartments that are designed as an integral component of the building to ensure the equipment is hidden from view (iii) Drying yards – building design should incorporate appropriate design for drying areas that allows for natural ventilation and light while ensuring they are hidden from public view (iv) Aerials and satellite dishes – in high rise buildings or multiple tenancy commercial buildings, a central reception system is to be incorporated into the building design. On all other buildings, aerials and satellite dishes shall be located to avoid adverse impact on the amenity of adjoining buildings (v) Service ducting shall not be exposed on the external surfaces of buildings (vi) Carports and garages should: ▪ Be designed to integrate with the design of associated buildings ▪ Not diminish the attractiveness of the streetscape ▪ Not visually dominate views of the house from the street ▪ Cover the full length of a car (vii) Dwellings with green frontage must address that frontage with habitable spaces and not service areas only (viii) Dwelling design must provide sufficient outdoor open space that can act as an extension of the dwelling for relaxation, entertainment, recreation and children's play purposes (ix) Utility and service areas associated shall be suitability enclosed in structures and materials sympathetic with the design of the buildings (x) For the installations of grills, residents need to abide by the guidelines on the Uniform Design and Installation of Grills for Buildings in Putrajaya (Department of Urban Services, Putrajaya) (xi) Any changes to the façade and design of buildings must seek planning permission for Perbadanan Putrajaya

PHYSICAL PLANNING REQUIREMENTS PLANNING BLOCK 13 (PB 13)

MAIN LAND USES:	AFFORDABLE HOMES	TERRACE HOUSES	GAS PIPE RESERVE	MAIN ELECTRIC SUBSTATION
(i) Density	▪ 75 units/acre	▪ 20 units/acre	▪ N/A	▪ One in PB13
(ii) Composition	▪ 100% Affordable Home	▪ Government housing		
(iii) Minimum Lot size	▪ N/A	▪ 180m2	▪ N/A	▪ 0.2 hac.
(iv) Height	▪ Max. 20 storey	▪ 2 levels on flat or gently sloping land		
(v) Setbacks: ▪ Front/Rear setbacks		▪ Total setback distance for both the front and rear setbacks must total 9 metres ▪ Front setback – min. 3.0 metres ▪ Rear setback – min. 3.0 metres ▪ Variation in setbacks is permissable only for blocks and individual houses 		▪ Front – Minimum 6 metres ▪ Rear – Minimum 3 metres
▪ Building to building	▪ Minimum 20 metres		▪ N/A	▪ N/A
▪ Side boundary	▪ N/A	▪ Where applicable minimum 3 metres		▪ Minimum 3 metres
▪ Street boundary	▪ Minimum 6 metres from lot boundary	▪ Minimum 3 metres		▪ Minimum 6 metres
▪ Distance Between Building	▪ 20 metres setback between buildings or average of building heights 	▪ 20 metres setback between buildings or average of building heights		
▪ Distance Between Roof Eaves				
▪ Car Park	▪ Min 1 CPS per unit+10% visitors ▪ CPS permited to be within setback ▪ Disabled parking at 1% of total cps ▪ Covered motorcycle parking bays at 1:1 	▪ Min 2 CPS per unit on site ▪ CPS to be clear of minimum front setback.		▪ N/A

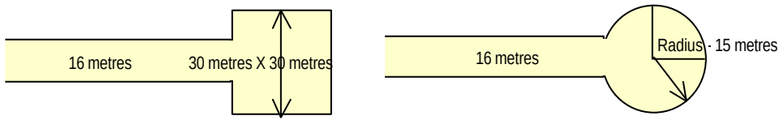
MAIN LAND USES:	AFFORDABLE HOMES	TERRACE HOUSES	GAS PIPE RESERVE	MAIN ELECTRIC SUBSTATION
(vi) Fencing As per the Fencing Design Guidelines Manual, Volume 1 and Volume 2, chapter 1, 2 and 3	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 8	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 6	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 15 ▪ Generally no fencing would be encourage	▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 15
(vii) Layout Plan	▪ Provide a fenced childrens playground. ▪ Suitable size surau - 80%XNo of unitsX0.4m2 ▪ Community Hall ▪ Tadika ▪ Taska ▪ Corner Shops ▪ Car park to be well landscaped ▪ Min 2 metres landscape buffer to all boundaries. ▪ Service areas to be aesthetically screened.	▪ Use the setback flexibility and building design variation to break up and vary the position of the houses	▪ Where possible, such non-buildable areas are to be green land for general recreational use.	▪ Layout plan to show the design concept including: ❑ Location of all key facilities. ❑ Location of car parking spaces ❑ Location of screening devices to minimise impact of noise producing machinery. ❑ Effective screening to abutting residential uses.

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

ROAD NETWORK AND DESIGN STANDARD

(i) Network Type

- Spine Road - 32 metres reserve
- Local Road - 22 metres reserve
- Access Road - 16 metres reserve
- Cul-De-Sac - 15 metres reserve



(ii) Road Capacity

- Spine Road - 1000 pcu/hr/lane
- Local Road - 700 pcu/hr/lane

(iii) Junction Control Criteria

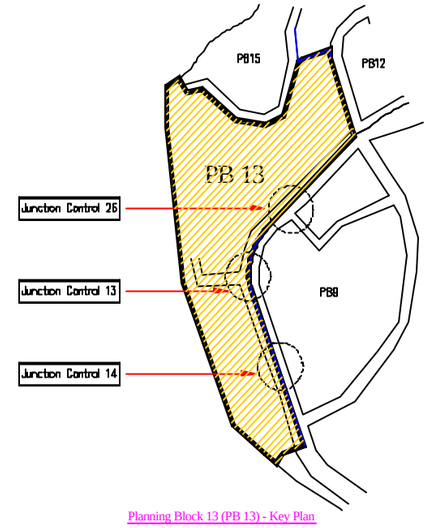
Junction Control	Total sum of 2-way traffic on the major road and heavier approach on minor road (PCU)	
	Spine Road	Local Road
Stop Control	up to 1500	up to 1500
Traffic Signal	Up to 4500	Generally not required
Grade Separation	Generally not required	Generally not required

(iv) Visibility Standards for Priority Junction

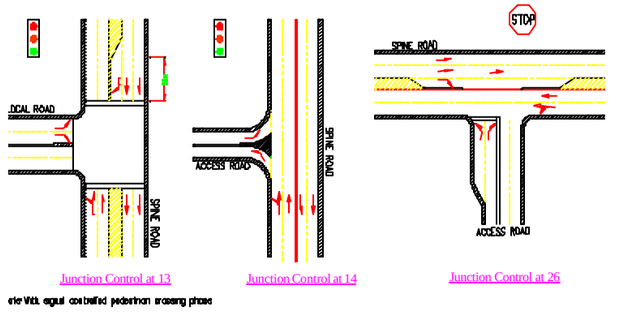
- Because minor road are uncontrolled. It is essential that adequate standards of visibility are archieved in the layout and that sight distances take account of the speed of traffic on the major road. The standards for providing clear visibility for minor road traffic are set out in the figure given

(v) Transport Design Guide for Putrajaya

- Details on other design criteria to be referred to the Transport Design Guide for Putrajaya (1998)



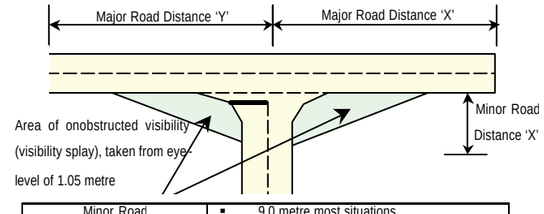
Planning Block 13 (PB 13) - Key Plan



Junction Control at 13 | Junction Control at 14 | Junction Control at 26

crie With signal controlled pedestrian crossing phase

Visibility Standards for Priority Junction



Minor Road Distance 'X' (metre)	▪ 9.0 metre most situations ▪ 4.5 metre an absolute minimum on lighty trafficked roads (< 200 vph)

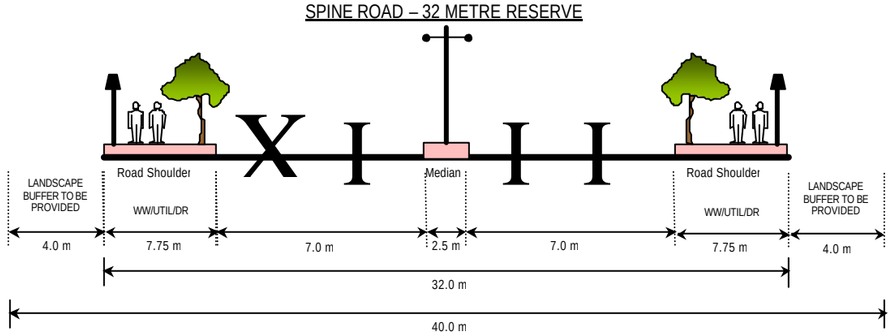
Major Road Distance 'X' (metre)	120	90	45
Speed Limit (KPH)	60	50	40

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

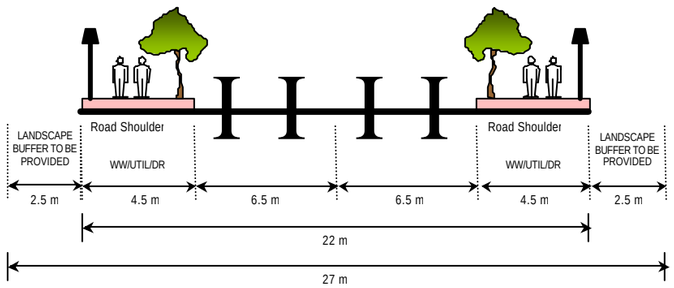
ROAD NETWORK AND DESIGN STANDARD

(v) Typical Road Cross Section

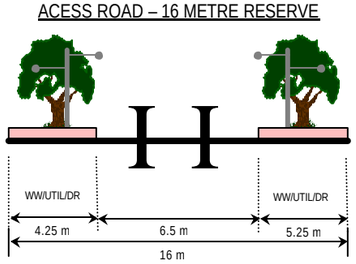
SPINE ROAD – 32 METRE RESERVE



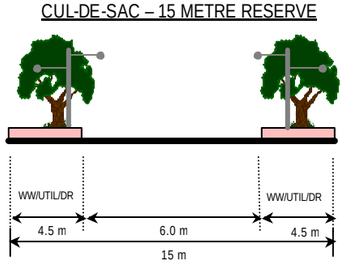
LOCAL ROAD – 22 METRE RESERVE



ACESS ROAD – 16 METRE RESERVE



CUL-DE-SAC – 15 METRE RESERVE



Note:

- WW/UTIL/DR : Common pedestrians walkway utility and drainage reserve
- Minimum cover to all utilities should be 1.5 metre
- Cul-De-Sac are permitted for bungalows only serving typically no more than 25 units
- Minimum cover to all utilities should be 1.5 metre

PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES

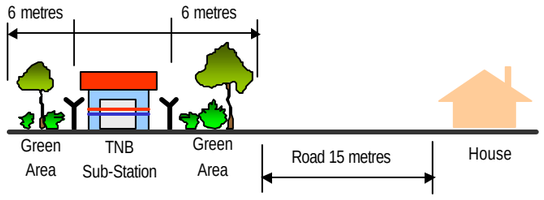
UTILITIES

(i) Environment

- The detailed platform levels shall be determined at the D.0 approval stage
- All earthworks must comply with the Environmental Management Guidelines of Putrajaya and Earthwork By-Laws (Perbadanan Putrajaya 1996)

(ii) Electricity

- The electricity supply for PB13 is mostly used for residential which are approximately 90% of the total Electrical Energy required.
- Provision of adequate numbers of 33KV Main Distribution Station (MDS) to be supported by a series of 11KV Sub-Stations (Single & Double Chambers) and feeder pillars at strategic locations to comply with the electricity provider's (TNB) requirement.
- Feeder pillars along public roads and areas shall have all doors to open away from road and public view.
- Electrical cabling network for overall development of PB13 shall consist of 33KV, 11KV and 415V distribution network systems.
- The electrical cabling network system shall be placed along the utility reserves to conform to the no dig policy. All electrical cabling shall be of the underground system.
- Sub-Station: shall have a minimum 6 metres setback on all sides to the nearest residential building. These shall be extensively landscaped.
- Fencing of utility buildings shall abide by Fencing Design Guidelines-Vol. 2, Chap. 15 pg. 132

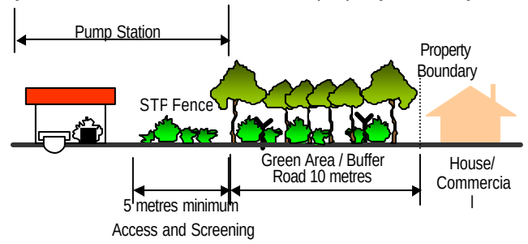


(iii) Drainage

- Drainage to the site shall be provided in terms of collection, conveyance and retention of flow from the site.
- Gross Pollutant Traps to be provided at the outlet of discharge points.
- The drainage design shall comply with the Putrajaya Stormwater Management Design Guidelines (1998), Drainage Masterplan Study Report for Putrajaya (1996) and Urban Stormwater Management Manual for Malaysia (JPS,2000)
- The Sungai Gajah may be developed as a closed drainage system with extensive landscaping.

(vi) Sewerage

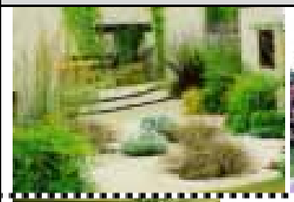
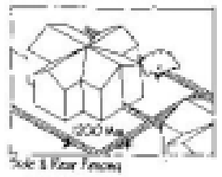
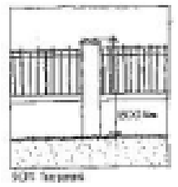
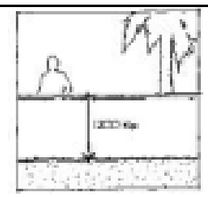
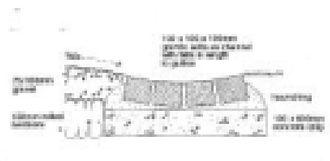
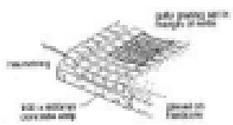
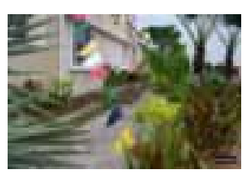
- A network of gravity sewer reticulation to collect sewage from the precinct. (Level 3 works.)
- From these reticulation networks, sewage will be discharged into the centralized trunk sewer system of Putrajaya (Level 1 & 2 works) at appropriate points
- The trunk sewers will terminate at two pump-stations. These two pump stations are PS1 in Precinct 9 and PS9 (Levels 1 & 2 works) located at the south of precinct 11, next to Road R3
- From PS1 and PS9, sewage will be conveyed via the centralized trunk sewer system to STP2 for treatment. However, STP2 is not scheduled to be ready until Year 2003. In the interim, sewage discharge will be temporary directed to the sewage switching station PS5 for onward conveyance to STP1 for treatment until the completion of STP2
- The buffer for a closed STP shall be 10 m to the nearest property boundary.
- The buffer for an open STP system shall be 30 m to the nearest property boundary.

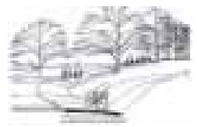
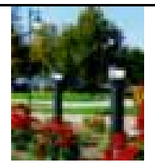
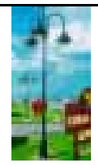
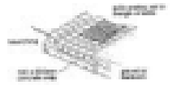


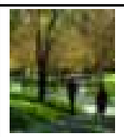
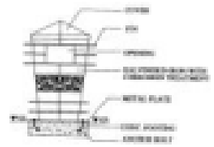
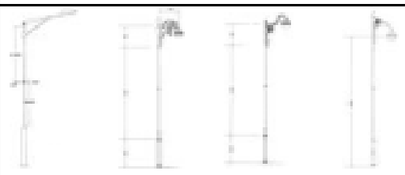
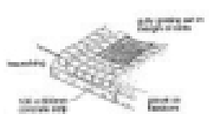
(v) Gas

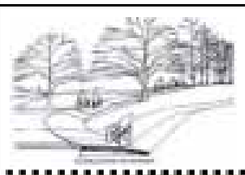
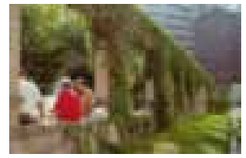
- The gas supply for PB13 is mostly used for residential which are approximately 80% of the total gas requirements.
- Gas supply for PB13 will be served from a District Gas Station located at Precinct 9 through a medium pressure gas pipeline.
- Provisions of 4 nos. of area Gas Station are allocated within the Precinct 11 development to cater for the projected gas loading requirements, with total area reserve of 1.13 acres.
- Low-pressure gas pipeline reticulation from the Area Gas Station is planned to serve the gas requirements for the residential, commercial and other amenities.
- Safety provision for construction within the vicinity.
- (For details of Gas Pipeline Reserve Design refer Appendix 1)

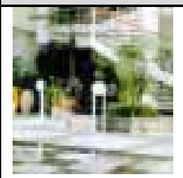
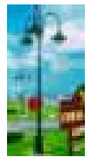
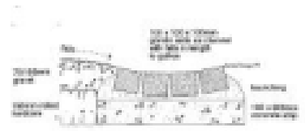
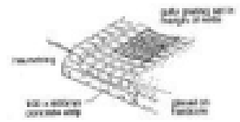
PLANNING REQUIREMENTS : INFRASTRUCTURE	
UTILITIES	
(vi) Waste Disposal ▪ Solid waste management in PB13 shall address reduction, reuse, recycling and recovery, the 4 R's of waste management. ▪ Solid waste is proposed to be separated at source, by residents or employees, into three streams; dry recycles, wet waste and rubbish (all other wastes). The dry recyclable is to be further separated at source into containers and fiber materials. ▪ The sensitivity of the site in terms of waste management relates to the operational requirements of Precinct 11, which require that no burial of material is undertaken during the construction phase. ▪ In addition to control odour nuisance to any sensitive receptors biodegradable waste cannot be left at the site for extended periods. ▪ The waste management shall comply with Urban Design Guidelines and Environmental Guidelines for Putrajaya. ▪ For low rise residential, refuse chamber is to be placed in front of the house, either left or right of the driveway and near to main road for the ease of mechanical collection. The estimated generation of solid waste is 5kg/unit/day ▪ For high rise residential (flats and low cost apartment), refuse chamber have to be built at each block or group of block with the ratio one refuse chamber to two or three building block. The estimated generation of solid waste is 5 kg/unit/day ▪ The estimated generation of solid waste for recreation park/public transport stop station are 0.2kg/visitor, 300L/1000m ^{2}(gross floor area) for shopping complex and 500L/1000m ^{2}(gross floor area) for restaurant. ▪ Access road must be constructed for the ease of mechanical collection and public use. Obstructions to any collection vehicle's access must be disallowed at all time. 	**(vii) Water Supply** ▪ Water supply to PB13 shall be consistent with the provision of water supply master plan for Putrajaya. ▪ Storage reservoir and pumping station together with the rising and falling mains shall be planned to serve this area in compliance with Jabatan Bekalan Air (JBA) requirement, and Design Criteria and Standards for Water Supply System, JKR (1989).

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Residential (Landed)**	▪ **Paving, walls and steps** ❑ Informal ❑ Formal ❑ Contemporary	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Durable	– Building compound	 
		❑ **Walls** – Key stone – Concrete – Fencing brick etc.	– Harmonize with surrounding – To screen the walls with planting	– Building compound	 
	▪ **Fence, Gate and Barrier** ❑ Contemporary ❑ Formal ❑ Traditional	– Hardwood – Metal – Masonry	– To follow Fencing Design Guideline Putrajaya	– Boundary line	  
	▪ **Lighting** ❑ Contemporary ❑ Informal ❑ Formal	– Hardwood – Metal – Concrete	– Durable – Attractive – Safe	– Building compound	
	▪ **Drainage** ❑ Swales ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Concealed drains	– Building lot	  
	▪ **Planting** ❑ Formal ❑ Informal	– Tree – Palm – Shrub – Groundcover	– Non-poisonous species – Strong branch – Medium size trees	– Building compound	 
	▪ **Irrigation Strategy**	– Tap from storage tank or JBA main or tap from JBA main.			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Residential (Condominium, Government apartment)**	▪ **Paving / Step, Wall** ❑ Formal ❑ Informal ❑ Natural	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max-gradient of 8% – Durable	– Open space – Walkway	  
		❑ **Wall** – Keystone – Facing Brick – Concrete etc.	– Harmonize with surrounding environment – To screen the wall with planting	– Slope areas	  
	▪ **Site Furniture** ❑ Contemporary ❑ Elegant formal ❑ Specific design for neighbourhood	– Hardwood – Metal – Concrete	– Vandalism proof – Durable – Functional – Safe	– Open space – Resting areas	  
	▪ **Lighting** ❑ Contemporary ❑ Elegant formal ❑ Specific design for neighbourhood	– Concrete – Metal – Masonry	– Max. height 4m at open areas	– Open space – Entrance with bollard	  
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Naturally blend with surrounding	– Open space – plaza	  
	▪ **Structures and Shelters** ❑ Contemporary ❑ Simple ❑ Informal	– Timber – Concrete – Metal	– Sustainable design – Proportion to surrounding scale	– Open space – Plaza	 
	▪ **Signage** ❑ Formal ❑ Informal	– Metal	– To following Signage and Advertisement Design Guideline Putrajaya	– Entrance – Open space – Pedestrian walkway	  
	▪ **Play feature** ❑ Integrated ❑ Bright colour	– Metal – Rubber matting – Plastic	– Conform to SIRIM standard – Safe – Attractive	– Open space	 

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Drain reserve**	▪ **Planting** ❑ Informal ❑ Natural	– Palm – Tree – Shrub	– Non-poisonous species – Harmonize with surrounding environment	– Drain reserve	
❑ **Roadside**	▪ **Paving, walls and steps** ❑ Formal ❑ Contemporary ❑ Informal	❑ **Paving / Step** – Clay brick – Concrete – Interlocking paver etc.	– Anti slippery surface – Max. gradient 8% – Max. Gradient for super elevation 2%	– Roadside	   
		❑ **Wall** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding environment – To screen the wall with planting	Slope areas	 
	▪ **Site Furniture** ❑ Contemporary	– Hardwood – Masonry – Metal	– Vandalism proof – Safe – Attractive	– Junction	 
	▪ **Lighting** ❑ Robust ❑ Minimal ❑ Reflect character of adjacent neighbourhood	– Timber – Metal	– Max. height 4m at open areas – Max. height 10m at roadside	– Footpaths – Cycle track – Car park	
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Naturally blend with surrounding	– Open space – plaza	  
	▪ **Signage** ❑ Contemporary ❑ Formal ❑ Simple ❑ Clear	– Masonry – Metal – Hardwood	– Clear – Vandalism proof – To following Signage and Advertisement Design Guideline Putrajaya	– Junction	 
	▪ **Planting** ❑ Formal	– Palm – Shrub – Forest species	– Provide ample shade – Hardly Plants – Attractive	– Roadside	 
	▪ **Irrigation Strategy**	– Trucking			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Gas pipe reserve**	▪ **Planting** ❑ Formal ❑ Informal ❑ Natural	– Tree – Palm – Shrub	– Non-poisonous species	– Reserve areas	
❑ **Open space**	▪ **Paving, walls and steps** ❑ Informal and contemporary ❑ Informal and natural ❑ Robust	❑ **Paving / Step** – Clay brick – Concrete – Grasscreate etc	– Anti slippery surface – Max. gradient 8% – Durable – Accessible for disable	– Open space – Plaza – Roadside	  
		❑ **Wall** – Key stone – Facing brick – Concrete – Granite stone etc.	– Visually attractive – Harmonize with surrounding environment – To screen the wall with planting	– Slope areas	  
	▪ **Water feature** ❑ Natural ❑ Contemporary	– Rock, Natural – Tile finish – Metal sculpture – Concrete sculpture	– Safe – Attractive	– Entrance – Open space – Plaza	
	▪ **Signage** ❑ Contemporary ❑ Formal	– Masonry – Metal	– To following Signage and Advertisement Design Guideline Putrajaya	– Entrance – Junction – Pedestrian – Sport areas	 

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Open space**	▪ **Lighting** ❑ Contemporary ❑ Robust ❑ Decorative	– Hardwood timber – Metal – Fiberglass	– Max. height compound lighting 4m – Max. height street lighting 10m – Anti-corrosion finishes	– Plaza – Open space – Road side	  
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Visually attractive – Naturally blend with surrounding	– Open space – plaza	  
	▪ **Structures and Shelters** ❑ Contemporary ❑ Simple ❑ Informal	– Timber – Concrete – Metal	– Sustainable design – Proportion to surrounding scale – Durable	– Open space – Plaza	 
	▪ **Play feature** ❑ Robust ❑ Colorful ❑ Safe	– Timber – Rubber matting – Metal	– Conform to SIRIM standard – Safe – Attractive	– Open space – Plaza	 
	▪ **Sport feature** ❑ Robust ❑ Colorful ❑ Safe	– Timber – Rubber matting – Concrete	– Durable – Safe	– Open space	 
	▪ **Signage** ❑ Contemporary ❑ Formal	– Masonry – Metal	– To following Signage and Advertisement Design Guideline Putrajaya	– Entrance – Junction – Pedestrian – Sport areas	 
	▪ **Water feature** ❑ Naturalistic ❑ Contemporary	– Rock, Natural – Tile finish – Metal sculpture – Concrete sculpture	– Safe – Attractive	– Entrance – Open space – Plaza	 
	▪ **Irrigation Strategy**	Pipe reticulation from pond and supported by trucking or tap from JBA main.			

PLANNING REQUIREMENT : URBAN DESIGN				
LAYOUT PLAN	**BUILDING CHARACTER**	**HEIGHT, MASSING AND BUILDING SPACES**	**COLOUR TEXTURE**	**MISCELLANEOUS**
1. The layout plan must demonstrate that the following elements are addressed in the design: ▪ Development appropriate to topographical features ▪ Appropriate building orientation with respect to the sun ▪ Appropriate pedestrian and vehicular access systems ▪ Site infrastructure systems are designed in a manner which enhances site development 2. Illustrate the effective and efficient integration of the pedestrian, cycle and road systems 3. Development is to be designed to work with site contours to avoid unnecessary cut and associated retaining structures 4. Illustrate a high level of permeability between site uses within the Planning Block and with adjoining Planning Blocks 5. Illustrate appropriate site building setbacks from major traffic routes or other noise generating or potentially dangerous infrastructure 6. Illustrate that the site will be developed in a logical sequence 7. The layout plan should illustrate that the form of development effectively contributes to the Planning Block's sense of place and amenity with the context of Putrajaya 8. Where applicable, the provisions of suraus, within apartment complexes should be a freestanding building 9. The apartment complex must include 'drop off' points for the convenience of residents 10. Maximum plinth foe apartment building is 60% of the site	(i) Avoid monotonous building designs – provide a range of housing types to meet different lifestyle choices, diversity in the marketplace and opportunity for an interesting street frontage (ii) Ensure that buildings are designed to respect the topographical features of the site ,eg buildings should step with steeper sites – do not cut substantial benches into steep land (iii) Building design should respect the amenity of adjoining and adjacent buildings and their residents (iv) Building design should interpret local image and character with new materials that are energy efficient (v) Building facades should be designed to accommodate a tropical environment (vi) Designers should look to the use of innovative building materials that are less maintenance intensive and more environmentally efficient (vii) While diversity is sought in building design, buildings should be designed with a common theme that provides a linkage to the style and nature of the development area (viii) Building design should ensure good living environments for residents that do not adversely impact on neighbours (ix) The building design should incorporate landscaping that contributes to a pleasant and safe environment and integrates well with the streetscape and adjoining open space areas (x) For high rise buildings: ▪ Pedestrian spaces, courts, landscape or recreation areas should be more prominent than vehicle movement and utility spaces ▪ Vehicle parking design and location should minimise impact on adjacent dwellings ▪ Safe and convenient internal access to parking, residential and service areas	(i) Building design must comply with all provisions relating to plot ratio, plinth, building height and setbacks as contained within these guidelines, and must comply with the UDG of Precinct 11 and 13. (ii) Spaces on any ground level should not directly overlook dwellings on adjacent land (iii) Ground floor levels must be responsive to pedestrian footpaths and continuity and flow between buildings (iv) Building design does not significantly reduce daylight to open space and habitable rooms in adjacent development (v) Roof pitch and overlay should be designed to meet local environmental requirements (vi) Roof overhang should be designed to minimise the impact on sight lines from adjacent buildings (vii) Buildings should be designed to encourage facade articulation and use of design elements that reduce building bulk and provide a pleasant street aspect. Any blank wall should be avoided. (viii) The design of free standing buildings should be sympathetic with adjoining buildings, yet provide for local identity and character	(i) Building colours should harmonise with the predominant colours of the surrounding area (ii) Use of earth tones shall be encouraged (iii) Colours for specific building types will be subject to the approval of the Perbadanan. Pastel colours are to be encouraged	(i) Privacy and visual controls – overlooking to be controlled by appropriate orientation of windows and use of splay windows (ii) Air conditioning equipment – all equipment should be contained in compartments that are designed as an integral component of the building to ensure the equipment is hidden from view (iii) Drying yards – building design should incorporate appropriate design for drying areas that allows for natural ventilation and light while ensuring they are hidden from public view (iv) Aerials and satellite dishes – in high rise buildings or multiple tenancy commercial buildings, a central reception system is to be incorporated into the building design. On all other buildings, aerials and satellite dishes shall be located to avoid adverse impact on the amenity of adjoining buildings (v) Service ducting shall not be exposed on the external surfaces of buildings (vi) Carports and garages should: ▪ Be designed to integrate with the design of associated buildings ▪ Not diminish the attractiveness of the streetscape ▪ Not visually dominate views of the house from the street ▪ Cover the full length of a car (vii) Dwellings with green frontage must address that frontage with habitable spaces and not service areas only (viii) Dwelling design must provide sufficient outdoor open space that can act as an extension of the dwelling for relaxation, entertainment, recreation and children's play purposes (ix) Utility and service areas associated shall be suitability enclosed in structures and materials sympathetic with the design of the buildings (x) For the installations of grills, residents need to abide by the guidelines on the Uniform Design and Installation of Grills for Buildings in Putrajaya (Department of Urban Services, Putrajaya) (xi) Any changes to the façade and design of buildings must seek planning permission for Perbadanan Putrajaya

PHYSICAL PLANNING REQUIREMENTS PLANNING BLOCK 14 (PB 14)

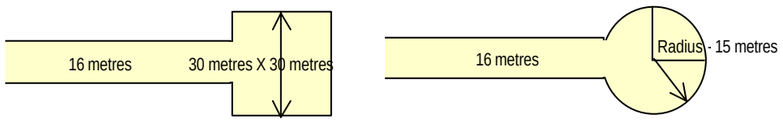
MAIN LAND USE: Government Reserve	PLANNING REQUIREMENT : BUILDING	
KEY PROVISION	**BUILDING SETBACKS**	**CAR PARK**
(i) Perbadanan Reserve ▪ Minimum lot size : 5.4 acre (2.2 hac.) ▪ Height : 3 levels on flat or gently sloping land; 2 levels on steeply sloping land ▪ Fencing : As per Fencing Design Guidelines Manual Volume 2, Chapter 10, p.86	**(i) Front / Rear Setback** ▪ Street frontage – Minimum 6 metres ▪ Rear setback – Minimum 6 metres ▪ Side setback – Minimum 6 metres	▪ Minimum 1 cps per 1000m2 floor area+10% for visitors
(ii) Kelab Residen ▪ Minimum lot size : 2 acre (0.8 hac.) ▪ Height : 3 levels on flat or gently sloping land; 2 levels on steeply sloping land ▪ Fencing : As per Fencing Design Guidelines Manual Volume 2, Chapter 10, p.86		▪ Minimum 1 cps per 500m2 floor area
(iii) Service Industry ▪ Minimum lot size : 3.6 acre (1.4 hac.) ▪ 2 storey ▪ Fencing : As per Fencing Design Guidelines Manual Volume 2, Chapter 10, p.86		▪ Minimum 1 cps per 500m2 floor area
(iv) Police Reserve ▪ Minimum lot size : 4 acre (1.6 hac.) ▪ Height : Maximum 3 storey ▪ Fencing : As per FDG Manual Volume 2, Chapter 10, pg.86	▪ Minimum 1 cps per 500m2 floor area	
(v) Petrol Station ▪ Minimum lot size : 1 acre (0.4 hac.) ▪ Single storey ▪ Fencing : As per Fencing Design Guidelines Manual Volume 2, Chapter 10, p.86 ▪ Plinth area – 40% max ▪ Plot ratio – 0.5 max	▪ 6m measured from the road reserve to the nearest permanent structure in the petrol station ▪ a min. landscape buffer of 5m shall be provided for petrol station located next to a residential building	▪ 1 CPS : 150 GFA

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

ROAD NETWORK AND DESIGN STANDARD

(i) Network Type

- Spine Road - 32 metres reserve
- Local Road - 22 metres reserve
- Access Road - 16 metres reserve
- Cul-De-Sac - 15 metres reserve



(ii) Road Capacity

- Spine Road - 1000 pcu/hr/lane
- Local Road - 700 pcu/hr/lane

(iii) Junction Control Criteria

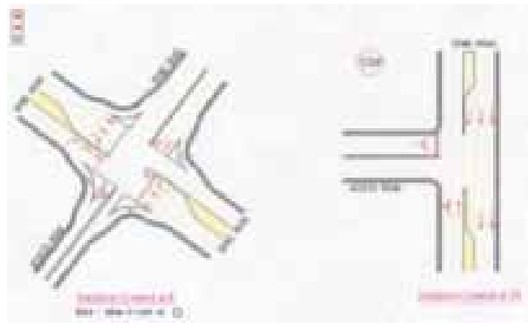
Junction Control	Total sum of 2-way traffic on the major road and heavier approach on minor road (PCU)	
	Spine Road	Local Road
Stop Control	up to 1500	up to 1500
Traffic Signal	Up to 4500	Generally not required
Grade Separation	Generally not required	Generally not required

(iv) Visibility Standards for Priority Junction

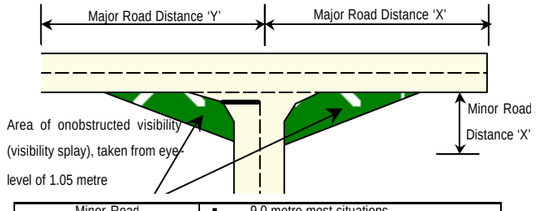
- Because minor road are uncontrolled. It is essential that adequate standards of visibility are archieved in the layout and that sight distances take account of the speed of traffic on the major road. The standards for providing clear visibility for minor road traffic are set out in the figure given

(v) Transport Design Guide for Putrajaya

- Details on other design criteria to be referred to the Transport Design Guide for Putrajaya (1998)



Visibility Standards for Priority Junction



Minor Road Distance 'X' (metre)	▪ 9.0 metre most situations ▪ 4.5 metre an absolute minimum on lighty trafficked roads (< 200 vph)

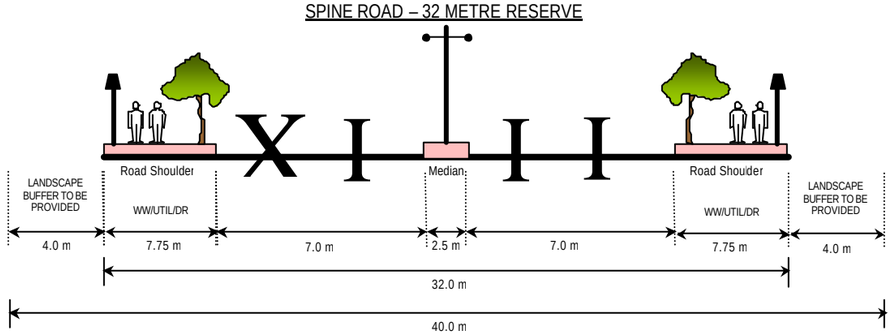
Major Road Distance 'X'(metre)	120	90	45
Speed Limit (KPH)	60	50	40

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

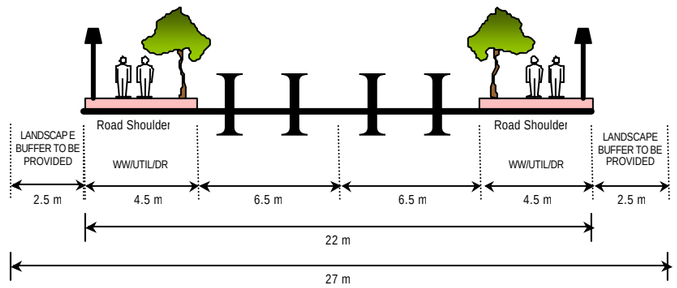
ROAD NETWORK AND DESIGN STANDARD

(v) Typical Road Cross Section

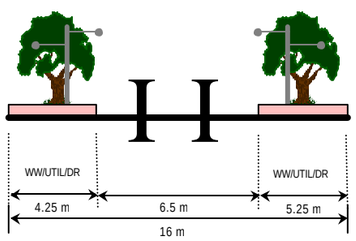
SPINE ROAD – 32 METRE RESERVE



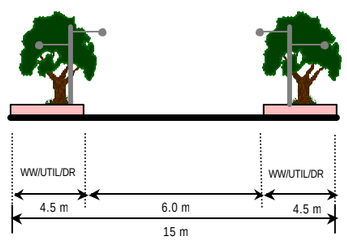
LOCAL ROAD – 22 METRE RESERVE



ACESS ROAD – 16 METRE RESERVE

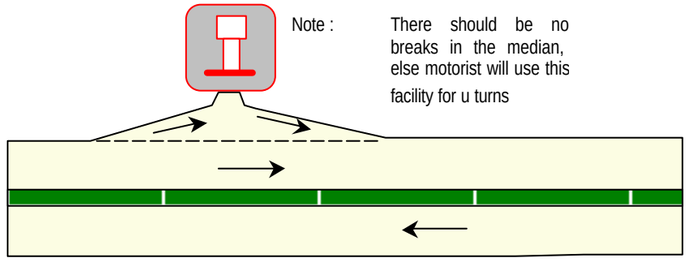


CUL-DE-SAC – 15 METRE RESERVE



Note:
- WW/UTIL/DR : Common pedestrians walkway utility and drainage reserve
- Minimum cover to all utilities should be 1.5 metre
- Cul-De-Sac are permitted for bungalows only serving typically no more than 25 units
- Minimum cover to all utilities should be 1.5 metre

(vii) Petrol Station Access



PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES

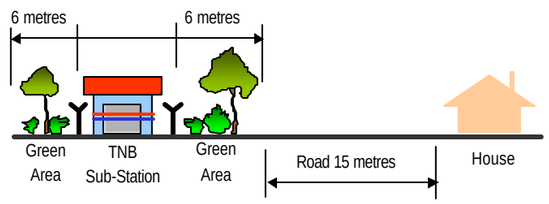
UTILITIES

(i) Environment

- A shared waste treatment facility must be provided
- The detailed platform levels shall be determined at the D.0 approval stage
- All earthworks must comply with the Environmental Management Guidelines of Putrajaya and Earthwork By-Laws (Perbadanan Putrajaya 1996)

(ii) Electricity

- The electricity supply for PB14 is mostly used for residential which are approximately 90% of the total Electrical Energy required.
- Provision of adequate numbers of 33KV Main Distribution Station (MDS) to be supported by a series of 11KV Sub-Stations (Single & Double Chambers) and feeder pillars at strategic locations to comply with the electricity provider's (TNB) requirement.
- Feeder pillars along public roads and areas shall have all doors to open away from road and public view.
- Electrical cabling network for overall development of PB14 shall consist of 33KV, 11KV and 415V distribution network systems.
- The electrical cabling network system shall be placed along the utility reserves to conform to the no dig policy. All electrical cabling shall be of the underground system.
- Sub-Station: shall have a minimum 6 metres setback on all sides to the nearest residential building. These shall be extensively landscaped.
- Fencing of utility buildings shall abide by Fencing Design Guidelines-Vol. 2, Chap. 15 pg 132

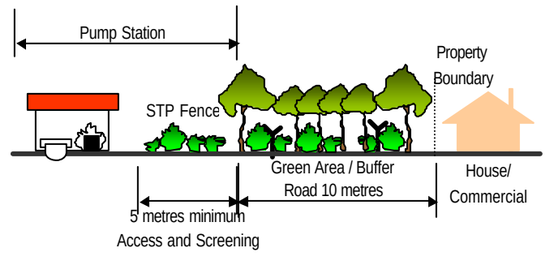


(iii) Drainage

- Drainage to the site shall be provided in terms of collection, conveyance and retention of flow from the site.
- Gross Pollutant Traps to be provided at the outlet of discharge points.
- The drainage design shall comply with the Putrajaya Stormwater Management Design Guidelines (1998), Drainage Masterplan Study Report for Putrajaya (1996) and Urban Stormwater Management Manual for Malaysia (JPS,2000)

(iv) Sewerage

- A network of gravity sewer reticulation to collect sewage from the precinct. (Level 3 works)
- From these reticulation networks, sewage will be discharged into the centralized trunk sewer system of Putrajaya (Level 1 & 2 works) at appropriate points
- The trunk sewers will terminate at two pump-stations. These two pump stations are PS1 in Precinct 9 and PS9 (Levels 1 & 2 works) located at the south of precinct 11, next to Road R3
- From PS1 and PS9, sewage will be conveyed via the centralized trunk sewer system to STP2 for treatment. However, STP2 is not scheduled to be ready until Year 2003. In the interim, sewage discharge will be temporary directed to the sewage switching station PS5 for onward conveyance to STP1 for treatment until the completion of STP2
- The buffer for a closed STP shall be 10 m to the nearest property boundary.
- The buffer for an open STP system shall be 30 m to the nearest property boundary.



(v) Gas

- The gas supply for PB14 is mostly used for residential which are approximately 80% of the total gas requirements.
- Gas supply for PB14 will be served from a District Gas Station located at Precinct 9 through a medium pressure gas pipeline.
- Provisions of 4 nos. of area Gas Station are allocated within the Precinct 11 development to cater for the projected gas loading requirements, with total area reserve of 1.13 acres.
- Low-pressure gas pipeline reticulation from the Area Gas Station is planned to serve the gas requirements for the residential, commercial and other amenities.
- Safety provision for construction within the vicinity.
- (For details of Gas Pipeline Reserve Design refer Appendix 1)

PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES

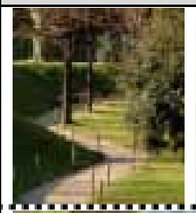
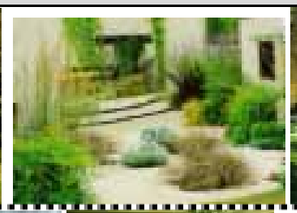
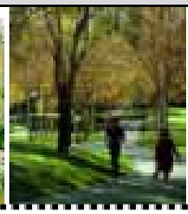
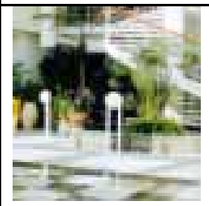
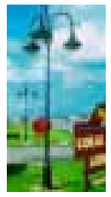
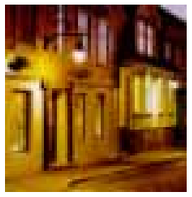
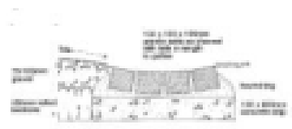
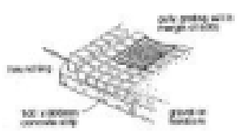
UTILITIES

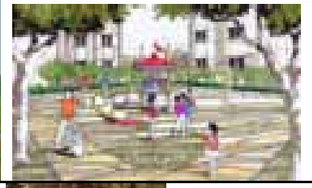
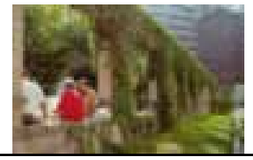
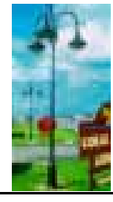
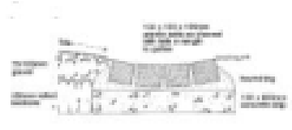
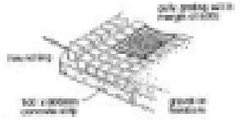
(vi) Waste Disposal

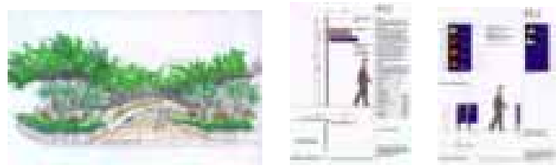
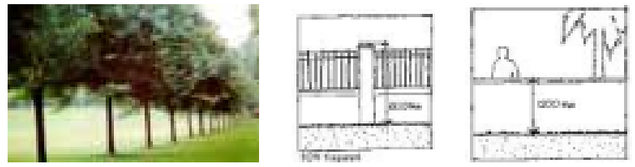
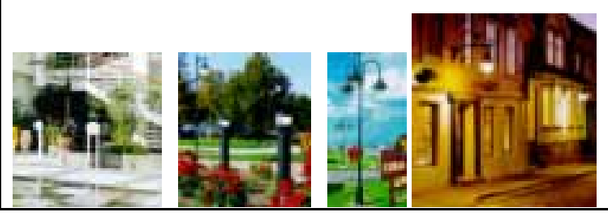
- Solid waste management in PB14 shall address reduction, reuse, recycling and recovery, the 4 R's of waste management.
- Solid waste is proposed to be separated at source, by residents or employees, into three streams; dry recycles, wet waste and rubbish (all other wastes). The dry recyclable is to be further separated at source into containers and fiber materials.
- The sensitivity of the site in terms of waste management relates to the operational requirements of Precinct 11, which require that no burial of material is undertaken during the construction phase.
- In addition to control odour nuisance to any sensitive receptors biodegradable waste cannot be left at the site for extended periods.
- The waste management shall comply with Urban Design Guidelines and Environmental Guidelines for Putrajaya
- For non-residential building, refuse chamber center can be built at the ground floor / basement or apart from the main building. The estimated generation of solid waste for recreation park/public transport stop station are 0.2 kg/visitor, 300L/1000m^2(gross floor area) for shopping complex and 500L/1000m^2(gross floor area) for restaurant
- Access road must be constructed for the ease of mechanical collection and public use. Obstructions to any collection vehicle's access must be disallowed at all time

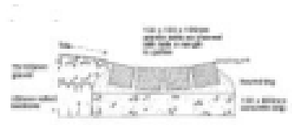
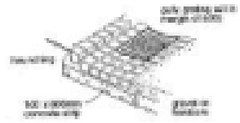
(vii) Water Supply

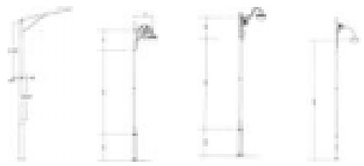
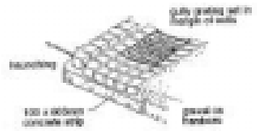
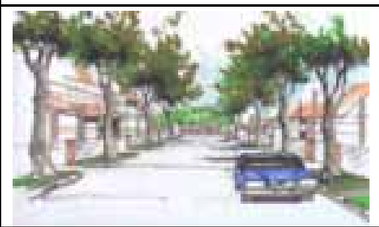
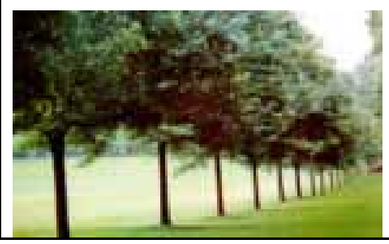
- Water supply to PB14 shall be consistent with the provision of water supply master plan for Putrajaya.
- Storage reservoir and pumping station together with the rising and falling mains shall be planned to serve this area in compliance with Jabatan Bekalan Air (JBA) requirement, and Design Criteria and Standards for Water Supply System, JKR (1989)

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Government facilities**	▪ **Paving, walls and steps** ❑ Informal ❑ Natural	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Max. gradient 2% for superelevation – Durable	– Open space – Plaza	   
		❑ **Walls** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding – Visually attractive	– Slope areas	 
	▪ **Site Furniture** ❑ Simple ❑ Formal	– Hardwood – Metal – Stone	– Vandalism proof – Durable – Functional – Safe	– Open space – Plaza	   
	▪ **Lighting** ❑ Contemporary ❑ Hi-tech	– Concrete – Metal – Masonry	– Max. height 4m at open areas	– Bollard at pedestrian entrance – Plaza – Road side	   
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Rock boulder – Culvert – Concrete – Granite stone wall – Drain cover on walkway to follow walkway ‘s material	– Preferable covered drain – Natural fence if necessary – Accessible for maintenance works – Natural landscape setting for opened monsoon drain	– All drainage system	  
	▪ **Structures and Shelters** ❑ Informal, Vernacular, ❑ Hi-tech	❑ **Structures** – Hardwood timber – Metal – Concrete – Masonry ❑ **Roof** – Clay tile – Metal decking – Poly cabonate	– Sustainable design – Proportion to human scale and surrounding structure – Functional – To blend harmoniously with surrounding environment	– Open areas – Plaza	  
	▪ **Irrigation Strategy**	– Pipe reticulation from PHB and/or trucking			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Government facilities**	▪ **Play feature** ❑ Contemporary ❑ Robust ❑ Bright	– Steel frame – Rubber matting	– Conform to SIRIM standard	– Open space	 
❑ **Recreation club**	▪ **Paving / Step, Wall** ❑ Formal ❑ Informal ❑ Geometric	❑ **Paving/Step** – Clay brick – Concrete – Interlocking block etc	– Anti-Slippery surface – Max. gradient 8% – Durable	– Plaza	  
		❑ **Wall** – Key stone – Facing brick finish – Concrete finish etc.	– Harmonize with surrounding structure	– Slope areas	 
	▪ **Site Furniture** ❑ Contemporary ❑ Hi-tech	– Hardwood – Metal – Concrete	– Vandalism proof – Durable – Functional – Safe	– Pocket space – Plaza – Roadside	   
	▪ **Lighting** ❑ Contemporary ❑ Hi-tech ❑ Informal ❑ Natural	– Concrete – Metal – Masonry	– Max. height 4m at open areas	– Bollard at pedestrian entrance – Plaza – Roadside	   
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway ‘s material	– Harmonious with surrounding design	– Plaza – Open space	  
	▪ **Structures and Shelter** ❑ Informal ❑ Vernacular	– Hardwood – Concrete – Monsonry – Metal	– To blend harmoniously with surrounding structure – Durable – Functional	– Plaza – Open space	  

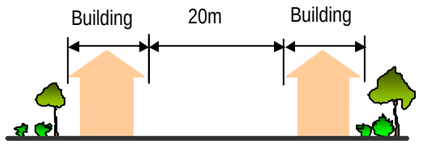
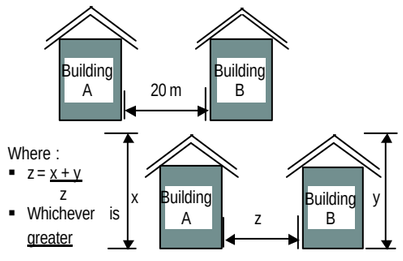
PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Recreation club**	▪ **Signage** ❑ Hi-tech ❑ Simple	– Metal	– To following Signage and Advertisement Design Guideline Putrajaya	– Plaza – Open space – Pedestrian walkway – Bicycle track	
	▪ **Fences, Gate and Berries** ❑ Contemporary ❑ Formal ❑ Informal	– Engraved stone – Metal	– To suit architecture design – To blend naturally with surrounding environment – To follow Fencing Design Guideline Putrajaya	– Entrance – Boundary demarcation	
	▪ **Water features** ❑ Contemporary ❑ Formal ❑ Hi-tech	– Stone – Concrete – Metal	– Safe – Attractive – Clean	– Entrance – Plaza – Open space	
❑ **Service industry**	▪ **Paving / Step, Wall** ❑ Formal	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max-gradient of 8% – Durable	– Open space – Walkway	
		❑ **Wall** – Keystone – Facing Brick – Concrete etc.	– Harmonize with surrounding environment	– Slope areas	
	▪ **Site Furniture** ❑ Contemporary ❑ Elegant formal	– Hardwood – Metal – Concrete	– Vandalism proof – Durable – Functional – Safe	– Open space – Resting areas	
	▪ **Lighting** ❑ Contemporary ❑ Elegant formal	– Concrete – Metal – Masonry	– Max. height 4m at open areas – Max. height 10m at roadside	– Open space – Entrance with bollard – Roadside	

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Service indusrty**	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway 's material	– Harmonious with surrounding environment	– Where necessary	  
	▪ **Structures and Shelter** ❑ Formal ❑ Vernacular	– Hardwood – Concrete – Monsonary – Metal	– To blend harmoniously with surrounding structure – Durable – Safe	– Open space	  
	▪ **Signage** ❑ Informal ❑ Formal	– Metal	– To following Signage and Advertisement Design Guideline Putrajaya	– Entrance – Open space – Pedestrian walkway	  
	▪ **Play feature** ❑ Integrated ❑ Bright colour	– Metal – Rubber matting – Plastic	– Conform to SIRIM standard – Safe – Attractive – Durable	– Open space	 
❑ **Road reserve**	▪ **Paving, walls and steps** ❑ Informal and contemporary ❑ Informal and natural ❑ Robust	❑ **Paving / Step** – Clay brick – Concrete – Grasscreate etc	– Anti slippery surface – Max. gradient 8% – Durable – Accessible for disable	– Open space – Plaza – Roadside	  
		❑ **Wall** – Key stone – Facing brick – Concrete – Granite stone etc.	– Visually attractive – Harmonize with surrounding environment	– Slope areas	
	▪ **Site Furniture** ❑ Robust ❑ Contemporary ❑ Decorative	– Hardwood timber – Concrete – Metal	– Vandalism proof – Durable – Safe	– Open space – Plaza – Roadside	 

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Road reserve**	▪ **Lighting** ❑ Contemporary ❑ Robust ❑ Decorative	– Hardwood timber – Metal – Fiberglass	– Max. height compound lighting 4m – Max. height street lighting 10m – Anti-corrosion finishes – Durable	– Plaza – Open space – Road side	
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Culvert – Concrete – Drain cover on walkway to follow walkway 's material	– Visually attractive – Naturally blend with surrounding	– Open space – plaza	  
	▪ **Signage** ❑ Contemporary ❑ Formal	– Masonry – Metal	– As per Signage and Advertisement Design Guideline Putrajaya	– Entrance – Junction – Pedestrian	 
	▪ **Planting** ❑ Tropical ❑ Formal	– Palms – Trees – Shrubs – Ground covers	– Tropical species – Low maintenance	– All green area	 
❑ **Drain reserve**	▪ **Planting** ❑ Tropical ❑ natural	– Palms – Shrubs – trees	– Tropical species – Low maintenance	– All green area	

PLANNING REQUIREMENT : URBAN DESIGN				
LAYOUT PLAN	**BUILDING CHARACTER**	**HEIGHT, MASSING AND BUILDING SPACES**	**COLOUR TEXTURE**	**MISCELLANEOUS**
(i) The layout plan must demonstrate that the following elements are addressed in the design: ▪ Development appropriate to topographical features ▪ Appropriate building orientation with respect to the sun ▪ Appropriate pedestrian and vehicular access systems ▪ Site infrastructure systems are designed in a manner which enhances site development (ii) Development is to be designed to work with site contours to avoid unnecessary cut and associated retaining structures (iii) Illustrate a high level of permeability between site uses within the Planning Block and with adjoining Planning Blocks (iv) Illustrate appropriate site building setbacks from major traffic routes or other noise generating or potentially dangerous infrastructure (v) The layout plan should illustrate that the form of development effectively contributes to the Planning Block's sense of place and amenity with the context of Putrajaya	(i) Ensure that buildings are designed to respect the topographical features of the site ,eg buildings should step with steeper sites – do not cut substantial benches into steep land (ii) Building design should respect the amenity of adjoining and adjacent buildings and their residents (iii) Building design should interpret local image and character with new materials that are energy efficient (iv) Building facades should be designed to accommodate a tropical environment (v) Designers should look to the use of innovative building materials that are less maintenance intensive and more environmentally efficient (vi) The building design should incorporate landscaping that contributes to a pleasant and safe environment and integrates well with the streetscape and adjoining open space areas (vii) The development creates a visually and physically amenable work environment	(i) Building design must comply with all provisions relating to plot ratio, plinth, building height and setbacks as contained within these guidelines (ii) Roof pitch and overhang should be designed to meet local environmental requirements (iii) Roof overhang should be designed to minimise the impact on sight lines from adjacent buildings (iv) Buildings should be designed to encourage facade articulation and use of design elements that reduce building bulk and provide a pleasant street aspect; blank walls to be avoided (v) The design of free standing buildings should be sympathetic with adjoining buildings, yet provide for local identity and character	(i) Building colours should harmonise with the predominant colours of the surrounding area (ii) Use of earth tones shall be encouraged (iii) Brighter colours for specific building types will be subject to the approval of PPj (iv) No uncoated metals should be used for the sidings of industrial building(s) – should metal sidings be utilised, these should be coated in suitable colours, preferably earth tones (v) Profiled metals may be used for the sidings of industrial buildings	(i) Privacy and visual controls – overlooking to be controlled by appropriate orientation of windows and use of splay windows (ii) Air conditioning equipment and piping–all equipment should be contained in compartments that are designed as an integral component of the building to ensure the equipment is hidden from view (iii) Aerials and satellite dishes shall be located to avoid adverse impact on the amenity of adjoining buildings (iv) Service ducting shall not be exposed on the external surfaces of buildings (v) Carports and garages should: (vi) Be designed to integrate with the design of associated buildings (vii) Not diminish the attractiveness of the streetscape (viii) Buildings associated with industrial uses should: ▪ Be reasonably compatible in appearance and scale with nearby buildings ▪ Include appropriate screening and buffering that maintains or improves the amenity of adjoining uses (ix) Development associated with industrial uses must be designed to contain within the site any potential adverse visual or environmental impacts (x) Risks and hazards associated with the industrial development must be within acceptable levels and adequate safety measures must be in place (xi) Access to, parking and servicing of industrial uses must not reduce the amenity of lands in the vicinity (xii) Ensure that no noise emissions or vibrations from the site cause a nuisance to nearby residents

PHYSICAL PLANNING REQUIREMENTS PLANNING BLOCK 15 (PB 15)

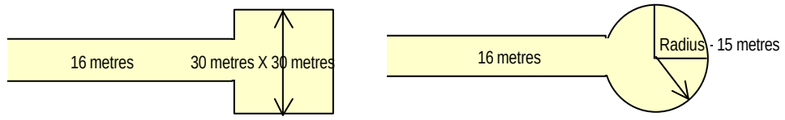
MAIN LAND USES: Residential	PLANNING REQUIREMENT : BUILDING		
KEY PROVISION	**APARTMENT**	**BUNGALOW**	**SECONDARY SCHOOL**
(i) Permissible Use ▪ Apartment ▪ Bungalow **(ii) Height** ▪ Apartment - Maximum 12 storey Note: 17 storey upon approval from PJC ▪ Bungalow - Maximum 8 units per acre **(iii) Density** ▪ Apartment - 40 unit/acre ▪ Bungalow - Maximum 8 units per acre **(iv) Fencing** ▪ Apartment - As per Fencing Design Guidelines Manual, Volume 2, Chapter 8 ▪ Bungalow - 2 levels on flat or gently sloping land; 3 levels on steepy sloping land **(v) Layout Plan** ▪ A buffer of 30m between planning block and the ERL reserve	**(i) Front / Rear Setback** ▪ Front setback – Minimum 3 metres ▪ Rear setback – Minimum 3 metres **(ii) Building to Building** ▪ Maximum 20m distance  ▪ 20 metres setback between building or everage of building heights  **(iii) Car Park** ▪ Minimum 1 car parking space per units + 10% for visitors ▪ Disable parking at 1% of total cps ▪ Covered motorcycle parking bays at 1 : 1 **(iv) Community Provision** ▪ Community Hall ▪ Surau + ruang jenazah ▪ Kindergarten ▪ Day Care Centre ▪ Laundry ▪ Car Wash Area ▪ Convenient Shop ▪ Courts Sepaktakraw or Volleyball	**(i) Front / Rear Setback** ▪ These setbacks apply to all bungalows ***that do not have*** frontage to the Taman Wetlands Promenade ▪ Total setback distance for both the front and rear setbacks must total 9 metres comprised as follows ▪ Street frontage – Minimum 3 metres ▪ Rear setback – Minimum 3 metres **(ii) Front / Rear Setback** ▪ These setbacks apply to all bungalows that ***do have*** frontage to the Taman Wetlands Promenade ▪ Total setback distance for both the front and rear setbacks must total 10 metres **(iii) Side Setbacks** ▪ Minimum 3 metres **(iv) Setback Between Roof's Eaves** **(v) Side Setback To Road** **(vi) Car Park** ▪ Min 2 cps on site ▪ CPS to be clear of min front setback	**(i) Area –** 13.9 acre **(ii) Height** - Maximum 4 storey **(iii) Front/Rear setbacks** ▪ Street frontage – Minimum 6 metres ▪ Rear – Minimum 6 metres **(iv) Side Boundary** ▪ Minimum 6 metres **(v) Street Boundary** ▪ Setback from access road – 12m (min) **(vi) Car Park** ▪ 1 CPS : 8 staffs + 10% for visitors ▪ 1 MPS : 10 staffs 1 MPS : 20 students (form 5 & 6) ▪ 1 bicycle rack : 50 students ▪ Min. 10 car lay-bye for drop off / pick up ▪ Bus bay : min. 6 bays **(vii) Fencing** ▪ Refer Fencing Design Guidelines Manual, Volume 2, chapter 11 **(viii) Layout Plan** ▪ Layout plans to show the design concept including: ❑ Total gross net areas of indoor play, outdoor play, roofed shade and other outdoor shade areas. ❑ Service areas to be aesthetically screened. ❑ Site car parking to be clearly indicated. ❑ Site car parking to be landscaped. ❑ Min 2m landscaped buffer between car parking spaces and any boundary. ❑ Initiate stacked outdoor play areas, car parking. ❑ Indicate car parking set down/pick up areas – to be visible from road. ❑ Indicate pedestrian access to/from the site and connection to surrounding pedestrian pathways. ❑ Where boundaries aren't residential dwellings, carefully locate potentially noisy activities to minimise impacts. ❑ Show appropriate screening that protects the amenity of abutting residential uses

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

ROAD NETWORK AND DESIGN STANDARD

(i) Network Type

- Spine Road - 32 metres reserve
- Local Road - 22 metres reserve
- Access Road - 16 metres reserve
- Cul-De-Sac - 15 metres reserve



(ii) Road Capacity

- Spine Road - 1000 pcu/hr/lane
- Local Road - 700 pcu/hr/lane

(iii) Junction Control Criteria

Junction Control	Total sum of 2-way traffic on the major road and heavier approach on minor road (PCU)	
	Spine Road	Local Road
Stop Control	up to 1500	up to 1500
Traffic Signal	Up to 4500	Generally not required
Grade Separation	Generally not required	Generally not required

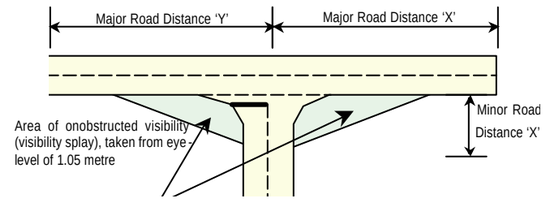
(iv) Visibility Standards for Priority Junction

- Because minor road are uncontrolled. It is essential that adequate standards of visibility are archieved in the layout and that sight distances take account of the speed of traffic on the major road. The standards for providing clear visibility for minor road traffic are set out in the figure given

(iv) Transport Design Guide for Putrajaya

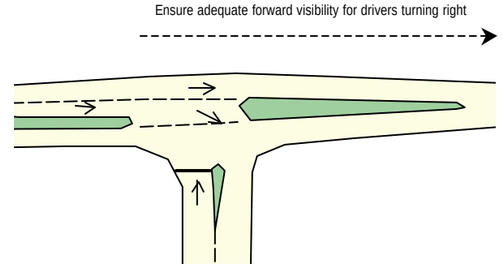
- Details on other design criteria to be referred to the Transport Design Guide for Putrajaya (1998)

Visibility Standards for Priority Junction



Minor Road Distance 'X' (metre)	▪ 9.0 metre most situations ▪ 4.5 metre an absolute minimum on lighty trafficked roads (< 200 vph)		
Major Road Distance 'X'(metre)	120	90	45
Speed Limit (KPH)	60	50	40

Local Dualling to Create Protected Right-Turn Lane

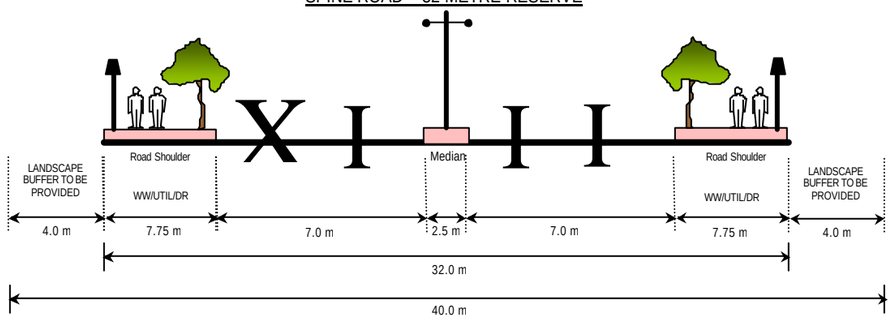


PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

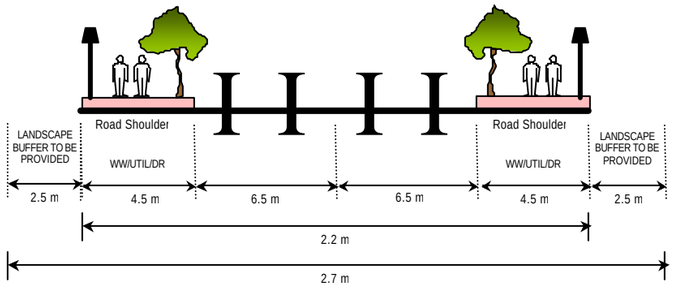
ROAD NETWORK AND DESIGN STANDARD

(iv) Typical Road Cross Section

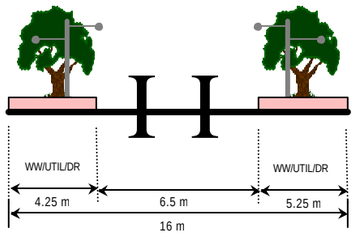
SPINE ROAD – 32 METRE RESERVE



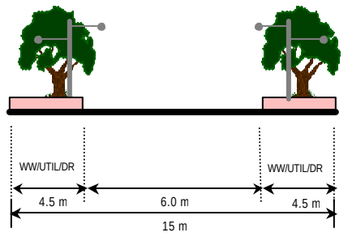
LOCAL ROAD – 22 METRE RESERVE



ACESS ROAD – 16 METRE RESERVE



CUL-DE-SAC – 15 METRE RESERVE



Note:

- WW/UTIL/DR : Common pedestrians walkway utility and drainage reserve
- Minimum cover to all utilities should be 15 metre
- Cul-De-Sac are permitted for bungalows only serving typically no more than 25 units
- Minimum cover to all utilities should be 15 metre

PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES

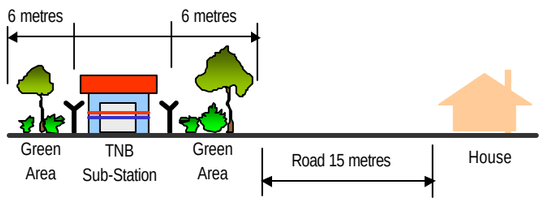
UTILITIES

(i) Environment

- The detailed platform levels shall be determined at the D.0 approval stage
- All earthworks must comply with the Environmental Management Guidelines of Putrajaya and Earthwork By-Laws (Perbadanan Putrajaya 1996)

(ii) Electricity

- The electricity supply for PB15 is mostly used for residential which are approximately 90% of the total Electrical Energy required.
- Provision of adequate numbers of 33KV Main Distribution Station (MDS) to be supported by a series of 11KV Sub-Stations (Single & Double Chambers) and feeder pillars at strategic locations to comply with the electricity provider's (TNB) requirement.
- Feeder pillars along public roads and areas shall have all doors to open away from road and public view.
- Electrical cabling network for overall development of PB15 shall consist of 33KV, 11KV and 415V distribution network systems.
- The electrical cabling network system shall be placed along the utility reserves to conform to the no dig policy. All electrical cabling shall be of the underground system.
- Sub-Station: shall have a minimum 6 metres setback on all sides to the nearest residential building. These shall be extensively landscaped.
- Fencing of utility buildings shall abide by Fencing Design Guidelines-Vol. 2, Chap. 15 pg. 132

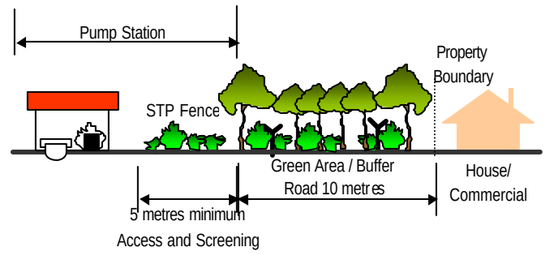


(iii) Drainage

- Drainage to the site shall be provided in terms of collection, conveyance and retention of flow from the site.
- Gross Pollutant Traps to be provided at the outlet of discharge points.
- The drainage design shall comply with the Putrajaya Stormwater Management Design Guidelines (1998), Drainage Masterplan Study Report for Putrajaya (1996) and Urban Stormwater Management Manual for Malaysia (JPS,2000)
- The Sungai Gajah may be developed as a closed drainage system with extensive landscaping

(iv) Sewerage

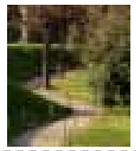
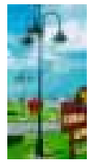
- A network of gravity sewer reticulation to collect sewage from the precinct. (Level 3 works.)
- From these reticulation networks, sewage will be discharged into the centralized trunk sewer system of Putrajaya (Level 1 & 2 works) at appropriate points
- The trunk sewers will terminate at two pump-stations. These two pump stations are PS1 in Precinct 9 and PS9 (Levels 1 & 2 works) located at the south of precinct 11, next to Road R3
- From PS1 and PS9, sewage will be conveyed via the centralized trunk sewer system to STP2 for treatment. However, STP2 is not scheduled to be ready until Year 2003. In the interim, sewage discharge will be temporary directed to the sewage switching station PS5 for onward conveyance to STP1 for treatment until the completion of STP2
- The buffer for a closed STP shall be 10 m to the nearest property boundary.
- The buffer for an open STP system shall be 30 m to the nearest property boundary.

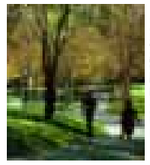
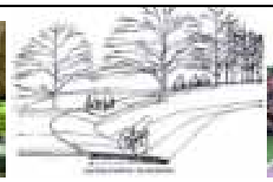
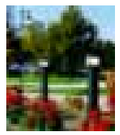
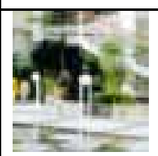
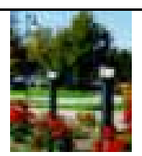
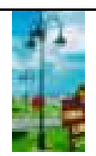
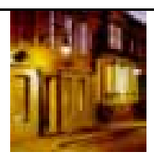
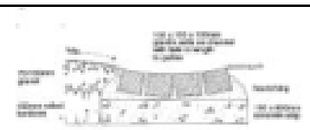
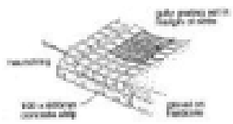


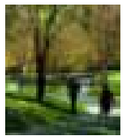
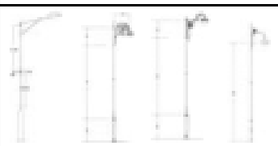
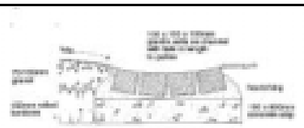
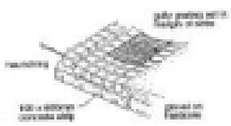
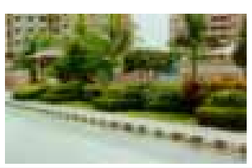
(v) Gas

- The gas supply for PB15 is mostly used for residential which are approximately 80% of the total gas requirements.
- Gas supply for PB15 will be served from a District Gas Station located at Precinct 9 through a medium pressure gas pipeline.
- Provisions of 4 nos. of area Gas Station are allocated within the Precinct 11 development to cater for the projected gas loading requirements, with total area reserve of 1.13 acres.
- Low-pressure gas pipeline reticulation from the Area Gas Station is planned to serve the gas requirements for the residential, commercial and other amenities.
- Safety provision for construction within the vicinity.
- (For details of Gas Pipeline Reserve Design refer Appendix 1)

PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES	
UTILITIES	
(vii) Waste Disposal ▪ Solid waste management in PB16 shall address reduction, reuse, recycling and recovery, the 4 R's of waste management. ▪ Solid waste is proposed to be separated at source, by residents or employees, into three streams; dry recycles, wet waste and rubbish (all other wastes). The dry recyclable is to be further separated at source into containers and fiber materials. ▪ The sensitivity of the site in terms of waste management relates to the operational requirements of Precinct 11, which require that no burial of material is undertaken during the construction phase. ▪ In addition to control odour nuisance to any sensitive receptors biodegradable waste cannot be left at the site for extended periods. ▪ The estimated generation of solid waste for recreation park/public transport stop station are 0.2kg/visitor, 300L/1000m ^{2}(gross floor area) for shopping complex and 500L/1000m ^{2}(gross floor area) for restaurant. 	**(viii) Water Supply** ▪ Water supply to PB16 shall be consistent with the provision of water supply master plan for Putrajaya. ▪ Storage reservoir and pumping station together with the rising and falling mains shall be planned to serve this area in compliance with Jabatan Bekalan Air (JBA) requirement, and Design Criteria and Standards for Water Supply System, JKR (1989)

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Residential (Condominium, Government apartment)**	▪ **Paving / Step, Wall** ❑ Formal	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max-gradient of 8% – Durable	– Open space – Walkway	  
		❑ **Wall** – Keystone – Facing Brick – Concrete etc.	– Harmonize with surrounding environment	– Slope areas	 
	▪ **Site Furniture** ❑ Contemporary ❑ Elegant formal ❑ Specific design for neighbourhood	– Hardwood – Metal – Concrete	– Vandalism proof – Durable – Functional – Safe	– Open space – Resting areas	  
	▪ **Lighting** ❑ Contemporary ❑ Elegant formal ❑ Specific design for neighbourhood	– Concrete – Metal – Masonry	– Max. height 4m at open areas – Max. height 10m at roadside	– Open space – Entrance with bollard – Roadside	  
	▪ **Drainage** ❑ Swales/Natural drain ❑ Covered drain	– Culvert – Concrete	– Harmonious with surrounding environment	– Where necessary	 
	▪ **Structures and Shelter** ❑ Informal ❑ Vernacular	– Hardwood – Concrete – Monsonary – Metal	– To blend harmoniously with surrounding structure – Durable – Safe	– Open space	  
	▪ **Signage** ❑ Formal ❑ Informal ❑ Hi-tech	– Metal	– To following Signage and Advertisement Design Guideline Putrajaya	– Entrance – Open space – Pedestrian walkway	  

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Residential (Condominium, Government apartment)**	▪ **Play feature** ❑ Integrated ❑ Bright colour	– Metal – Rubber matting – Plastic	– Conform to SIRIM standard – Safe – Attractive – Durable	– Open space	 
❑ **Park**	▪ **Paving, walls and steps** ❑ Informal	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Max. gradient 2% for superelevation – Durable	– Open space – Plaza	   
		❑ **Walls** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding – Visually attractive	Slope areas	 
	▪ **Site Furniture** ❑ Contemporary ❑ Informal	– Hardwood – Metal – Stone	– Vandalism proof – Durable – Functional – Safe	– Open space Plaza	   
	▪ **Lighting** ❑ Robust ❑ Contemporary	– Concrete – Metal – Masonry	– Max. height 4m at open areas – Max. height 10m at roadside	– Bollard at pedestrian entrance – Plaza	   
	▪ **Drainage** ❑ Swales/Natural drain ❑ Covered drain	– Rock boulder – Culvert – Concrete Granite stone wall	– Preferable covered drain – Natural fence if necessary	All drainage system	 
	▪ **Structures and Shelters** ❑ Informal, Vernacular, ❑ Hi-tech	❑ **Structures** – Hardwood timber – Metal – Concrete – Masonry	– Sustainable design – Proportion to human scale and surrounding structure – Functional	– Open areas – Plaza	  
	▪ **Irrigation Stratrgy**	– Top from storage tank or JBA main or tap from JBA main			

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Park**	▪ **Planting** ❑ Informal ❑ Formal ❑ Tropical	– Trees – Palms – Shrub – Ground covers	– Tropical species – Low maintenance – Attractive	– All green area	 
❑ **Road reserve**	▪ **Paving, walls and steps** ❑ Informal	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Max. gradient 2% for superelevation – Durable	– Open space – Plaza	 
		❑ **Walls** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding – Visually attractive	– Slope areas	
	▪ **Site Furniture** ❑ Contemporary ❑ Informal	– Hardwood – Metal – Stone	– Vandalism proof – Durable – Functional – Safe	– Open space – Plaza	 
	▪ **Lighting** ❑ Robust ❑ Contemporary	– Concrete – Metal – Masonry	– Max. height 10m at roadside	– Bollard at pedestrian entrance – Plaza	
	▪ **Drainage** ❑ Swales/Natural drain ❑ Covered drain	– Rock boulder – Culvert – Concrete – Granite stone wall	– Preferable covered drain – Natural fence if necessary	– All drainage system	 
	▪ **Planting** ❑ Formal ❑ Informal ❑ Tropical	– Trees – Palms – Shrubs – Ground covers	– Tropical species – Low maintenance	– All green area	 

PLANNING REQUIREMENT : URBAN DESIGN

LAYOUT PLAN

(i) The layout plan must demonstrate that the following elements are addressed in the design:
- Development appropriate to topographical features
- Appropriate building orientation with respect to the sun
- Appropriate pedestrian and vehicular access systems
- Site infrastructure systems are designed in a manner which enhances site development

(ii) Illustrate the effective and efficient integration of the pedestrian, cycle and road systems

(iii) Development is to be designed to work with site contours to avoid unnecessary cut and associated retaining structures

(iv) Illustrate a high level of permeability between site uses within the Planning Block and with adjoining Planning Blocks

(v) Illustrate appropriate site building setbacks from major traffic routes or other noise generating or potentially dangerous infrastructure

(vi) Illustrate that the site will be developed in a logical sequence

(vii) The layout plan should illustrate that the form of development effectively contributes to the Planning Block's sense of place and amenity with the context of Putrajaya

(viii) Where applicable, the provisions of suraus, within apartment complexes should be a freestanding building.

(ix) The apartment complex must include 'drop off' points for the convenience of residents.

(x) Maximum plinth foe apartment building is 60% of the site

BUILDING CHARACTER

(i) Avoid monotonous building designs – provide a range of housing types to meet different lifestyle choices, diversity in the marketplace and opportunity for an interesting street frontage

(ii) Ensure that buildings are designed to respect the topographical features of the site ,eg buildings should step with steeper sites – do not cut substantial benches into steep land

(iii) Building design should respect the amenity of adjoining and adjacent buildings and their residents

(iv) Building design should interpret local image and character with new materials that are energy efficient

(v) Building facades should be designed to accommodate a tropical environment

(vi) Designers should look to the use of innovative building materials that are less maintenance intensive and more environmentally efficient

(vii) While diversity is sought in building design, buildings should be designed with a common theme that provides a linkage to the style and nature of the development area

(viii) Building design should ensure good living environments for residents that do not adversely impact on neighbours

(ix) The building design should incorporate landscaping that contributes to a pleasant and safe environment and integrates well with the streetscape and adjoining open space areas

HEIGHT, MASSING AND BUILDING SPACES

(i) Building design must comply with all provisions relating to plot ratio, plinth, building height and setbacks as contained within these guidelines, and must comply with the UDG of Precinct 11 and 13.

(ii) Spaces on any ground level should not directly overlook dwellings on adjacent land

(iii) Ground floor levels must be responsive to pedestrian footpaths and continuity and flow between buildings

(iv) Building design does not significantly reduce daylight to open space and habitable rooms in adjacent development

(v) Roof pitch and overlay should be designed to meet local environmental requirements

(vi) Roof overhang should be designed to minimise the impact on sight lines from adjacent buildings

(vii) Buildings should be designed to encourage facade articulation and use of design elements that reduce building bulk and provide a pleasant street aspect. Any blank wall should be avoided

(viii) The design of free standing buildings should be sympathetic with adjoining buildings, yet provide for local identity and character

COLOUR TEXTURE

(i) Building colours should harmonise with the predominant colours of the surrounding area

(ii) Use of earth tones shall be encouraged

(iii) Colours for specific building types will be subject to the approval of the Perbadanan. Pastel colours are to be encouraged

(iv) No uncoated metals should be used for the sidings of the bus depot building(s) – should metal sidings be utilised, these should be coated in suitable colours, preferably earth tones

(v) Profiled metals may be used for the sidings for bus depot buildings

MISCELLANEOUS

(i) Privacy and visual controls – overlooking to be controlled by appropriate orientation of windows and use of splay windows

(ii) Air conditioning equipment including piping – all equipment should be contained in compartments that are designed as an integral component of the building to ensure the equipment is hidden from view

(iii) Drying yards – building design should incorporate appropriate design for drying areas that allows for natural ventilation and light while ensuring they are hidden from public view

(iv) Aerials and satellite dishes – the location of aerials and satellite dishes must not impact on the amenity of adjoining buildings

(v) Service ducting shall not be exposed on the external surfaces of buildings

(vi) Buildings associated with the bus depot should:
- Be reasonably compatible in appearance and scale with nearby buildings
- Include appropriate screening and buffering that maintains or improves the amenity of adjoining uses
- The bus depot is to be designed to contain within the site any potential adverse visual or environmental impacts
- Access, parking and servicing of buses at the bus depot must not reduce the amenity of lands in the vicinity of the depot

(vii) Carports and garages should:
- Be designed to integrate with the design of associated buildings
- Not diminish the attractiveness of the streetscape
- Not visually dominate views of the house from the street
- Cover the full length of a car

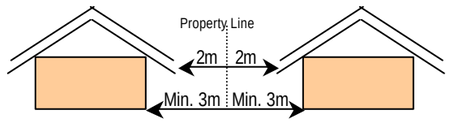
(viii) Dwellings with green frontage must address that frontage with habitable spaces and not service areas only

(ix) Dwelling design must provide sufficient outdoor open space that can act as an extension of the dwelling for relaxation, entertainment, recreation and children's play purposes

(x) For the installations of grills, residents need to abide by the guidelines on the Uniform Design and Installation of Grills for Buildings in Putrajaya (Department of Urban Services, Putrajaya)

(xi) Any changes to the façade and design of buildings must seek planning permission for Perbadanan Putrajaya.

PHYSICAL PLANNING REQUIREMENTS PLANNING BLOCK 16 (PB 16)

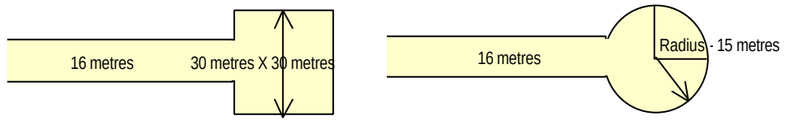
MAIN LAND USES: Residential	PLANNING REQUIREMENT : BUILDING	
KEY PROVISION	**BUILDING SETBACKS**	**CAR PARK**
(i) Permissible Use ▪ Institutional (for Taman Wetland use) **(ii) Height** ▪ Maximum 2 storeys **(iii) Fencing** ▪ As per Fencing Design Guidelines Manual, Volume 2, Chapter 10	**(i) Front / Rear Setback** ▪ Front setback – Minimum 6 metres ▪ Rear setback – Minimum 6 metres ▪ Side setback – Minimum 6 metes **(ii) Setback Between Roof's Eavers**  	**(i) Car Park** ▪ Minimum 1 cps per 1000m2 floor space

PLANNING REQUIREMENTS : TRAFFIC AND TRANSPORTATION

ROAD NETWORK AND DESIGN STANDARD

(i) Network Type

- Spine Road - 32 metres reserve
- Local Road - 22 metres reserve
- Access Road - 16 metres reserve
- Cul-De-Sac - 15 metres reserve



(ii) Road Capacity

- Spine Road - 1000 pcu/hr/lane
- Local Road - 700 pcu/hr/lane

(iii) Junction Control Criteria

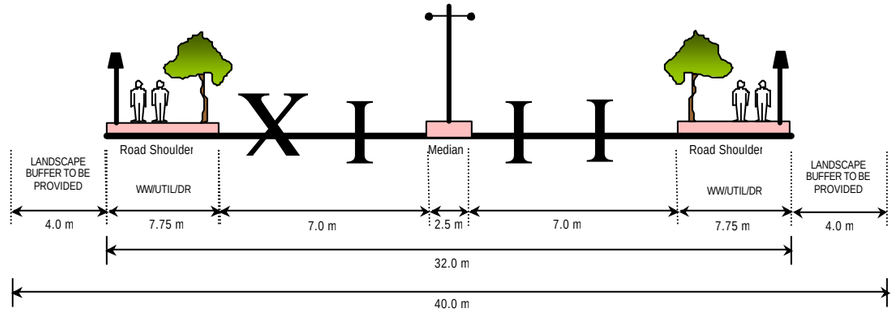
Junction Control	Total sum of 2-way traffic on the major road and heavier approach on minor road (PCU)	
	Spine Road	Local Road
Stop Control	up to 1500	up to 1500
Traffic Signal	Up to 4500	Generally not required
Grade Separation	Generally not required	Generally not required

(iv) Transport Design Guide for Putrajaya

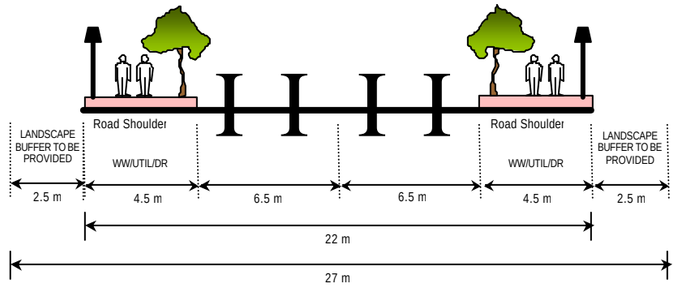
- Details on other design criteria to be referred to the Transport Design Guide for Putrajaya (1998)

(iv) Typical Road Cross Section

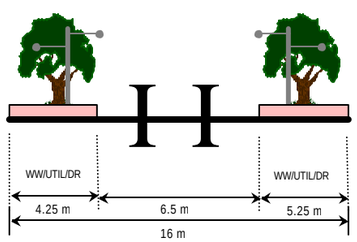
SPINE ROAD – 32 METRE RESERVE



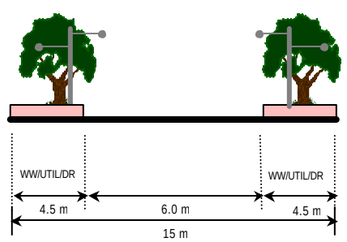
LOCAL ROAD – 22 METRE RESERVE



ACESS ROAD – 16 METRE RESERVE



CUL-DE-SAC – 15 METRE RESERVE



Note:
- WW/UTIL/DR : Common pedestrians walkway utility and drainage reserve
- Minimum cover to all utilities should be 1.5 metre
- Cul-De-Sac are permitted for bungalows only serving typically no more than 25 units
- Minimum cover to all utilities should be 1.5 metre

PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES

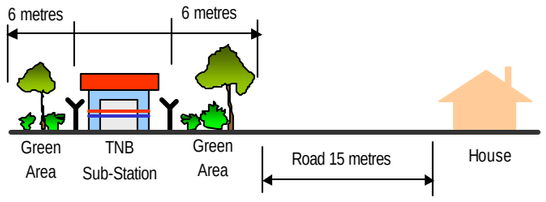
UTILITIES

(i) Environment

- The detailed platform levels shall be determined at the D.0 approval stage
- All earthworks must comply with the Environmental Management Guidelines of Putrajaya and Earthwork By-Laws (Perbadanan Putrajaya 1996)

(ii) Electricity

- The electricity supply for PB16 is mostly used for residential which are approximately 90% of the total Electrical Energy required.
- Provision of adequate numbers of 33KV Main Distribution Station (MDS) to be supported by a series of 11KV Sub-Stations (Single & Double Chambers) and feeder pillars at strategic locations to comply with the electricity provider's (TNB) requirement.
- Feeder pillars along public roads and areas shall have all doors to open away from road and public view.
- Electrical cabling network for overall development of PB16 shall consist of 33KV, 11KV and 415V distribution network systems.
- The electrical cabling network system shall be placed along the utility reserves to conform to the no dig policy. All electrical cabling shall be of the underground system.
- Sub-Station: shall have a minimum 6 metres setback on all sides to the nearest residential building. These shall be extensively landscaped.
- Fencing of utility buildings shall abide by Fencing Design Guidelines-Vol. 2, Chap. 15 pg. 132

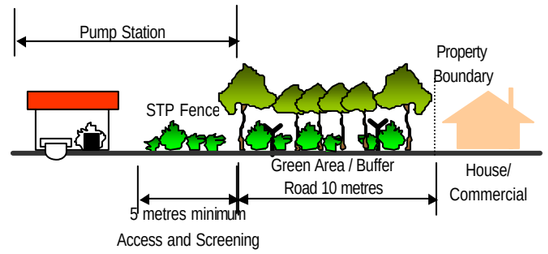


(iii) Drainage

- Drainage to the site shall be provided in terms of collection, conveyance and retention of flow from the site.
- Gross Pollutant Traps to be provided at the outlet of discharge points.
- The drainage design shall comply with the Putrajaya Stormwater Management Design Guidelines (1998), Drainage Masterplan Study Report for Putrajaya (1996) and Urban Stormwater Management Manual for Malaysia (JPS,2000)

(iv) Sewerage

- A network of gravity sewer reticulation to collect sewage from the precinct. (Level 3 works.)
- From these reticulation networks, sewage will be discharged into the centralized trunk sewer system of Putrajaya (Level 1 & 2 works) at appropriate points.
- The trunk sewers will terminate at two pump-stations. These two pump stations are PS1 in Precinct 9 and PS9 (Levels 1 & 2 works) located at the south of precinct 11, next to Road R3.
- From PS1 and PS9, sewage will be conveyed via the centralized trunk sewer system to STP2 for treatment. However, STP2 is not scheduled to be ready until Year 2003. In the interim, sewage discharge will be temporary directed to the sewage switching station PS5 for onward conveyance to STP1 for treatment until the completion of STP2.
- The buffer for a closed STP shall be 10 m to the nearest property boundary.
- The buffer for an open STP system shall be 30 m to the nearest property boundary.



(v) Gas

- The gas supply for PB16 is mostly used for residential which are approximately 80% of the total gas requirements.
- Gas supply for PB16 will be served from a District Gas Station located at Precinct 9 through a medium pressure gas pipeline.
- Provisions of 4 nos. of area Gas Station are allocated within the Precinct 11 development to cater for the projected gas loading requirements, with total area reserve of 1.13 acres.
- Low-pressure gas pipeline reticulation from the Area Gas Station is planned to serve the gas requirements for the residential, commercial and other amenities.
- Safety provision for construction within the vicinity.
- (For details of Gas Pipeline Reserve Design refer Appendix 1)

PLANNING REQUIREMENTS : INFRASTRUCTURE AND UTILITIES

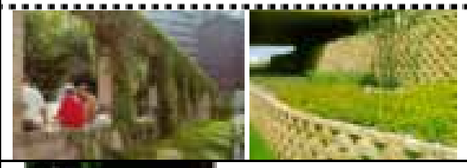
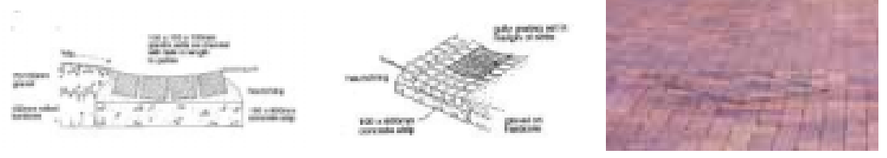
UTILITIES

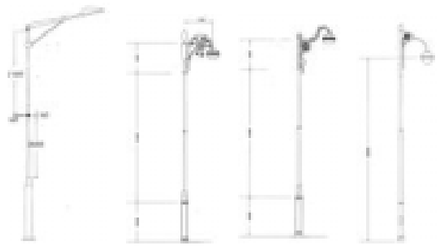
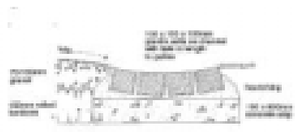
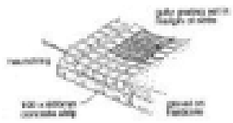
(vi) Waste Disposal

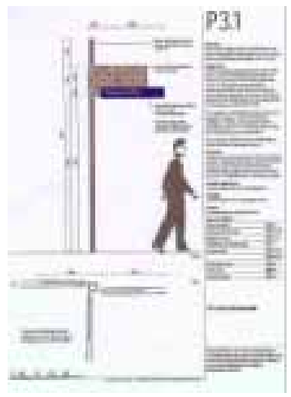
- Solid waste management in PB16 shall address reduction, reuse, recycling and recovery, the 4 R's of waste management.
- Solid waste is proposed to be separated at source, by residents or employees, into three streams; dry recycles, wet waste and rubbish (all other wastes). The dry recyclable is to be further separated at source into containers and fiber materials.
- The sensitivity of the site in terms of waste management relates to the operational requirements of Precinct 11, which require that no burial of material is undertaken during the construction phase.
- In addition to control odour nuisance to any sensitive receptors biodegradable waste cannot be left at the site for extended periods.
- The estimated generation of solid waste for recreation park/public transport stop station are 0.2kg/visitor, 300L/1000m ^{2}(gross floor area) for shopping complex and 500L/1000m ^{2}(gross floor area) for restaurant.

(vii) Water Supply

- Water supply to PB16 shall be consistent with the provision of water supply master plan for Putrajaya.
- Storage reservoir and pumping station together with the rising and falling mains shall be planned to serve this area in compliance with Jabatan Bekalan Air (JBA) requirement, and Design Criteria and Standards for Water Supply System, JKR (1989)

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Taman wetland**	▪ **Paving, walls and steps** ❑ Informal ❑ Natural	❑ **Paving / Step** – Clay brick – Concrete – Interlocking block etc	– Anti slippery surface – Max. gradient 8% – Max. gradient 2% for superelevation – Durable	– Wetland promenade	
		❑ **Walls** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding – Visually attractive	– Slope areas	
	▪ **Site Furniture** ❑ Simple ❑ Informal	– Hardwood – Metal – Stone	– Vandalism proof – Durable – Functional – Safe	– Wetland promenade	
	▪ **Lighting** ❑ Contemporary ❑ Hi-tech ❑ Informal	– Concrete – Metal – Masonry	– Max. height 4m at open areas – Max. height 10m at roadside	– Wetland promenade	
	▪ **Drainage** ❑ Swales/Natural drain ❑ Concealed drains	– Rock boulder – Culvert – Concrete – Granite stone wall Drain cover on walkway to follow walkway ‘s material	– Preferable covered drain – Natural fence if necessary – Accessible for maintenance works	– All drainage system	
	▪ **Structures and Shelters** ❑ Informal, Vernacular,	❑ **Structures** – Hardwood timber – Metal – Concrete – Masonry	– Sustainable design – Proportion to human scale and surrounding structure – Functional – To blend harmoniously with surrounding environment	– Wetland promenade	

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Taman wetland**	▪ **Planting** ❑ Wetland ❑ Natural	– Trees – Palm – Shrubs	– Water side species	– Wetland promenade	
❑ **Roadside**	▪ **Paving, walls and steps** ❑ Formal ❑ Contemporary	❑ **Paving / Step** – Clay brick – Concrete – Interlocking paver etc.	– Anti slippery surface – Max. gradient 8% – Max. Gradient for super elevation 2%	– Roadside	 
		❑ **Wall** – Key stone – Concrete – Granite stone etc.	– Harmonize with surrounding environment	Slope areas	
	▪ **Site Furniture** ❑ Contemporary	– Hardwood – Masonry – Metal	– Vandalism proof – Safe – Attractive	Junction	 
	▪ **Lighting** ❑ Robust ❑ Minimal ❑ Reflect character of adjacent neighbourhood	– Timber – Metal	– Max. height 4m at open areas – Max. height 10m at roadside	– Footpaths – Cycle track – Car park	
	▪ **rainage** ❑ Swales/Natural drain ❑ Covered drain	– Culvert – Concrete	– Visually attractive – Naturally blend with surrounding	– Open space – Paza	  

PLANNING REQUIREMENT : LANDSCAPE					
LANDUSE	**DESIGN STYLE**	**MATERIALS**	**GENERAL REQUIREMENT**	**USE/LOCATION**	
❑ **Roadside**	▪ **Signage** ❑ Contemporary ❑ Formal ❑ Simple ❑ Clear	– Masonry – Metal – Hardwood	– Clear – Vandalism proof	– Junction	 
	▪ **Planting** ❑ Formal	– Shade medium size tree – Palm – Shrub	– Provide ample shade – Hardy Plants – Attractive	– Roadside	 
❑ **Buffer**	▪ **Planting** ❑ Natural ❑ Dense	– Palm – Shrub – Bamboo – Tree	– Non-poisonous species	– Buffer zone	 

PLANNING REQUIREMENT : URBAN DESIGN				
LAYOUT PLAN	**BUILDING CHARACTER**	**HEIGHT, MASSING AND BUILDING SPACES**	**COLOUR TEXTURE**	**MISCELLANEOUS**
(i) The layout plan must demonstrate that the following elements are addressed in the design: ▪ Development appropriate to topographical features ▪ Appropriate building orientation with respect to the sun ▪ Appropriate pedestrian and vehicular access systems ▪ Site infrastructure systems are designed in a manner which enhances site development (ii) Development is to be designed to work with site contours to avoid unnecessary cut and associated retaining structures (iii) Illustrate a high level of permeability between site uses within the Planning Block and with adjoining Planning Blocks (iv) Illustrate appropriate site building setbacks from major traffic routes or other noise generating or potentially dangerous infrastructure (v) The layout plan should illustrate that the form of development effectively contributes to the Planning Block's sense of place and amenity with the context of Putrajaya	(i) Ensure that buildings are designed to respect the topographical features of the site ,eg buildings should step with steeper sites – do not cut substantial benches into steep land (ii) Building design should respect the amenity of adjoining and adjacent buildings and their residents (iii) Building design should interpret local image and character with new materials that are energy efficient (iv) Building facades should be designed to accommodate a tropical environment (v) Designers should look to the use of innovative building materials that are less maintenance intensive and more environmentally efficient (vi) The building design should incorporate landscaping that contributes to a pleasant and safe environment and integrates well with the streetscape and adjoining open space areas (vii) The development creates a visually and physically amenable work environment	(i) Building design must comply with all provisions relating to plot ratio, plinth, building height and setbacks as contained within these guidelines (ii) Roof pitch should be designed to meet local environmental requirements (iii) Roof overhang should be designed to minimise the impact on sight lines from adjacent buildings (iv) Buildings should be designed to encourage facade articulation and use of design elements that reduce building bulk and provide a pleasant street aspect (v) The design of free standing buildings should be sympathetic with adjoining buildings, yet provide for local identity and character	(i) Building colours should harmonise with the predominant colours of the surrounding area (ii) Use of earth tones shall be encouraged (iii) Brighter colours for specific building types will be subject to the approval of PPj (iv) No uncoated metals should be used for the sidings of industrial building(s) – should metal sidings be utilised, these should be coated in suitable colours, preferably earth tones (v) Profiled metals may be used for the sidings of industrial buildings	(i) Air conditioning equipment – all equipment should be contained in compartments that are designed as an integral component of the building to ensure the equipment is hidden from view (ii) Service ducting shall not be exposed on the external surfaces of buildings (iii) Carports and garages should: ▪ Be designed to integrate with the design of associated buildings ▪ Not diminish the attractiveness of the streetscape (iv) Buildings associated with industrial uses should: ▪ Be reasonably compatible in appearance and scale with nearby buildings ▪ Include appropriate screening and buffering that maintains or improves the amenity of adjoining uses (v) The gas turbine station design shall: ▪ Ensure safety and minimise ▪ Include appropriate screening and buffering that maintains or improves the amenity of adjoining uses ▪ Ensure that no noise emissions or vibrations from the site cause a nuisance to nearby residents