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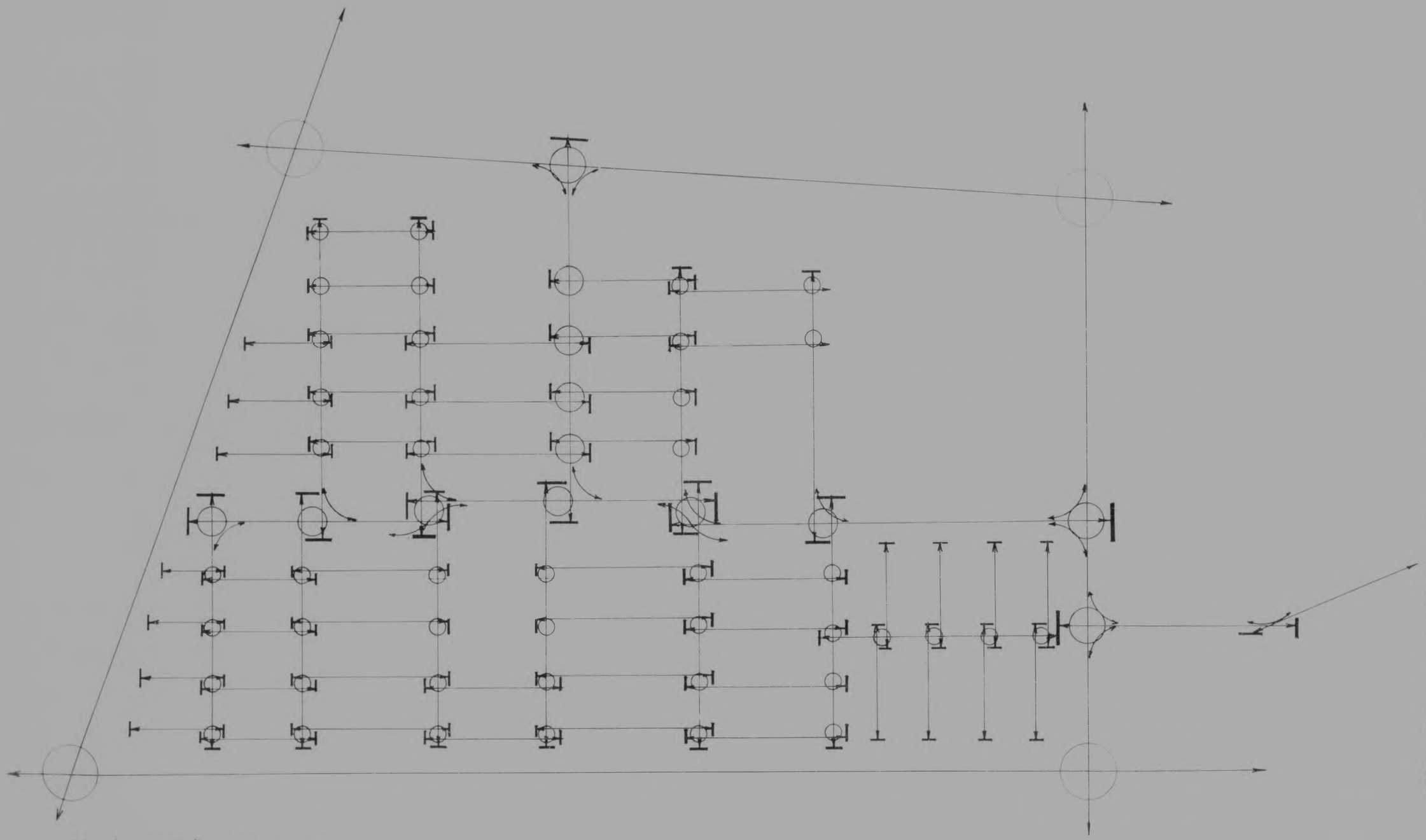
A study of the space creating prinsciples in self built urban black residential environments

Janse, Van Rensburg

2015-06-29
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Creche
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PRINCIPLES: MOVEMENT SPACES

WINTERVELD 2

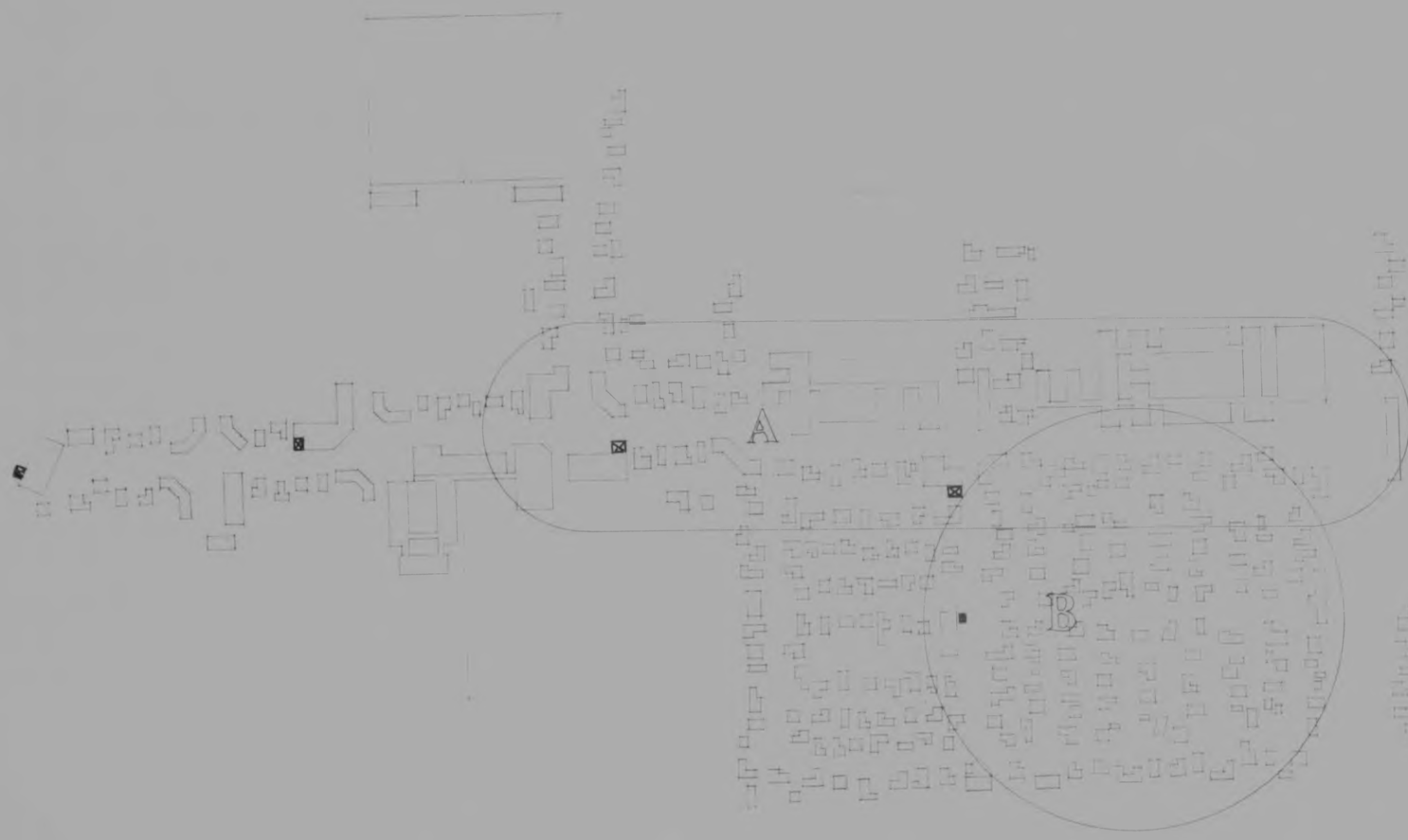
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COMMUNICATION NETWORK



WINTERVELD 2

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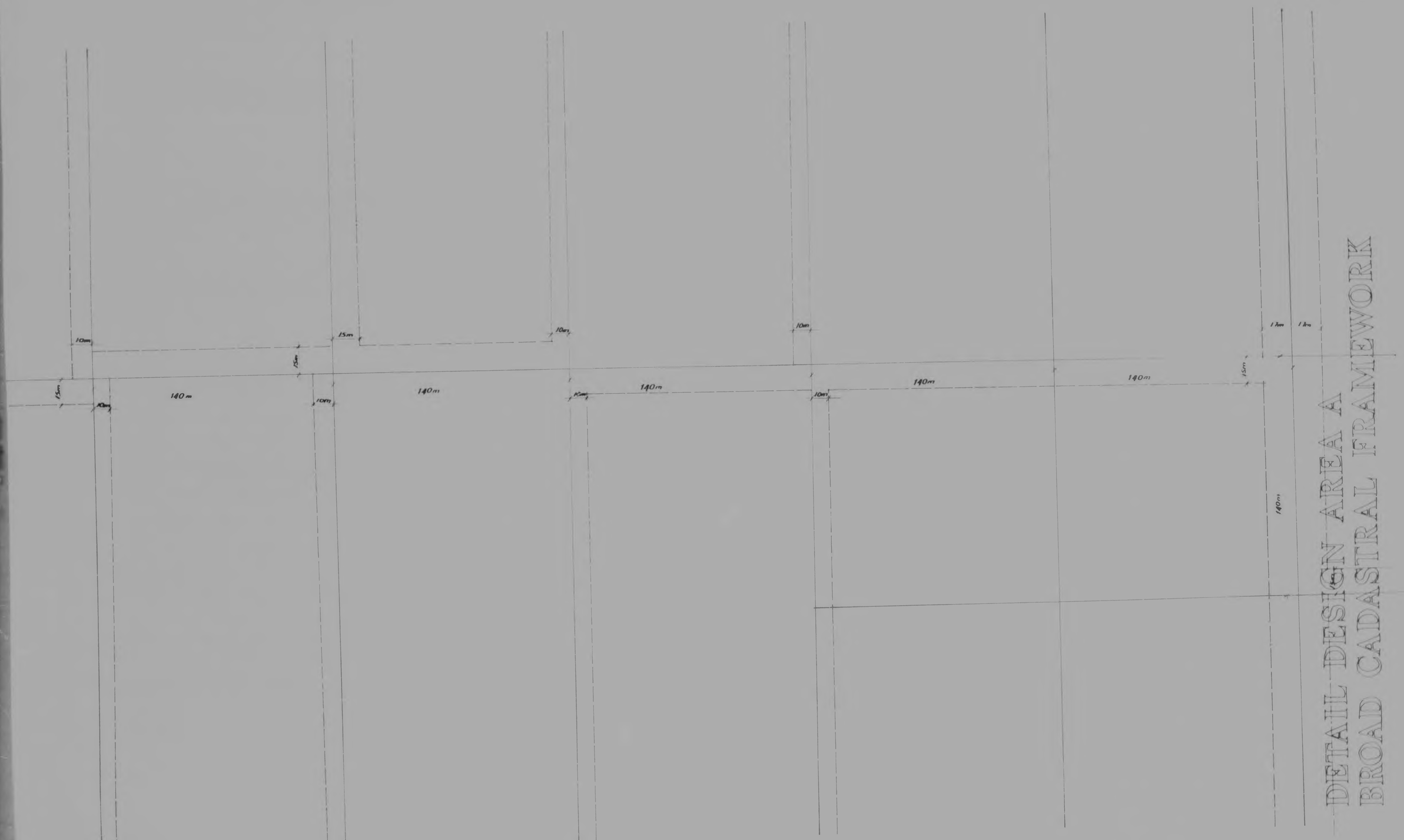
URBAN GRAIN

WINTERVELD 2

A B DETAIL DESIGN AREAS



5.20

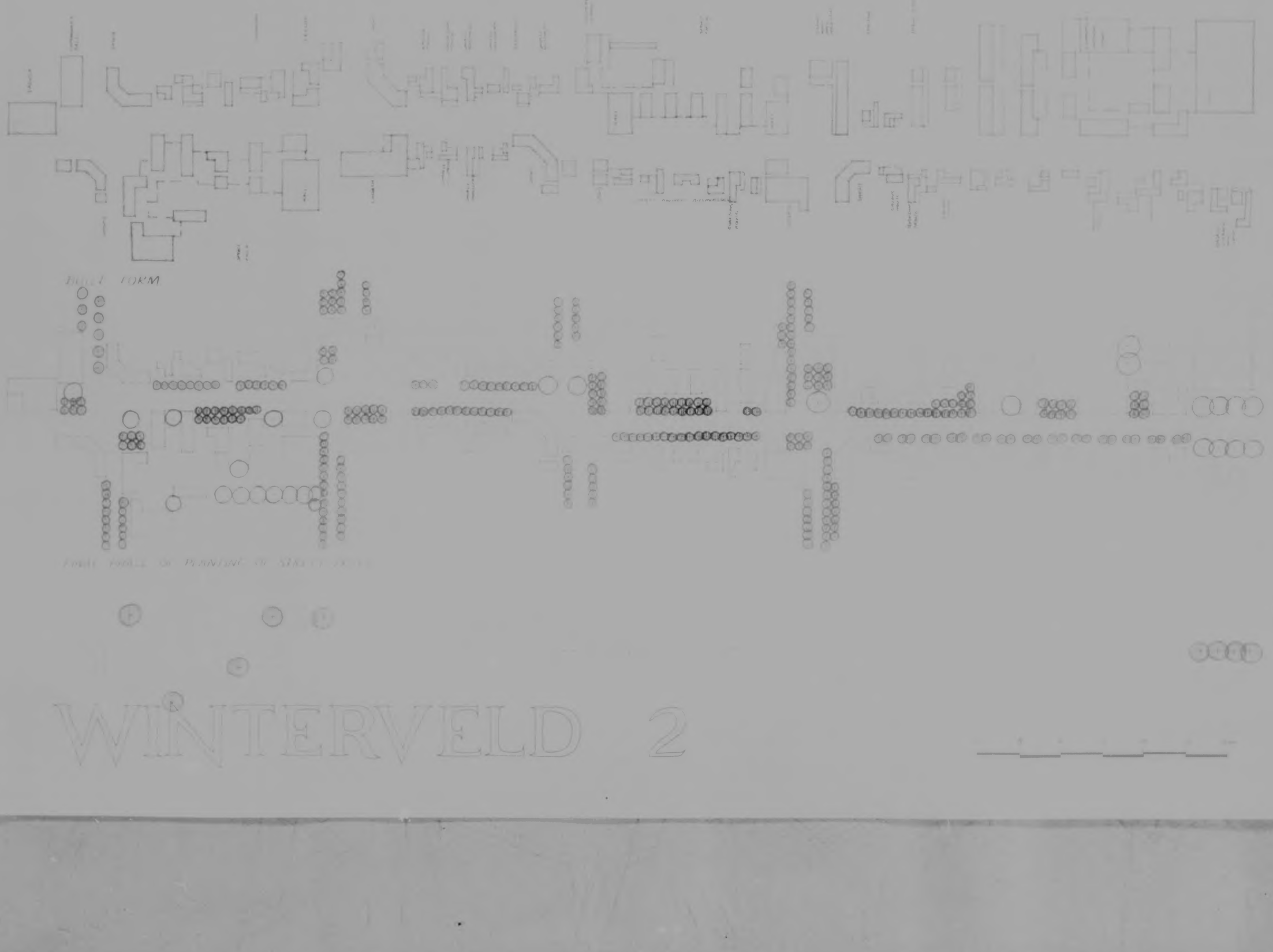


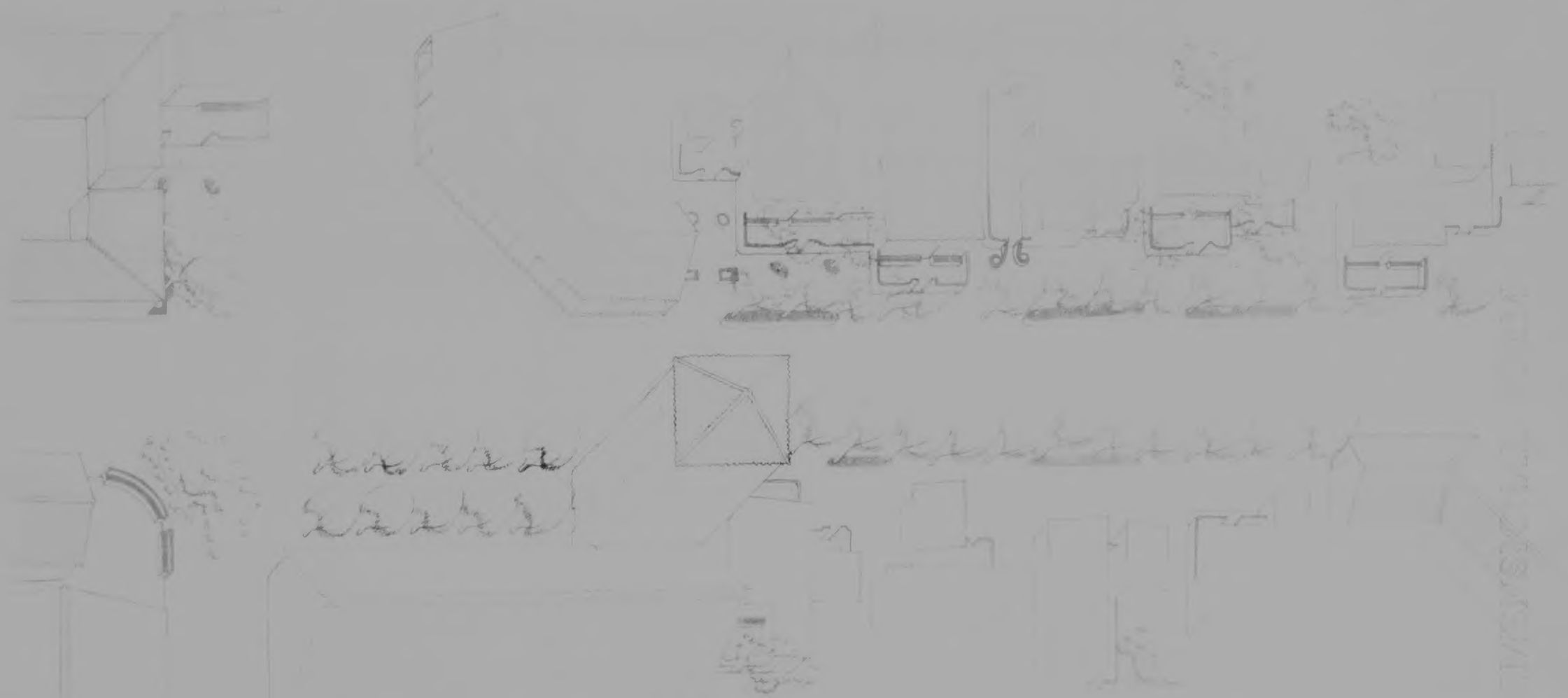
DETAIL DESIGN AREA A
BROAD CADASTRAL FRAMEWORK

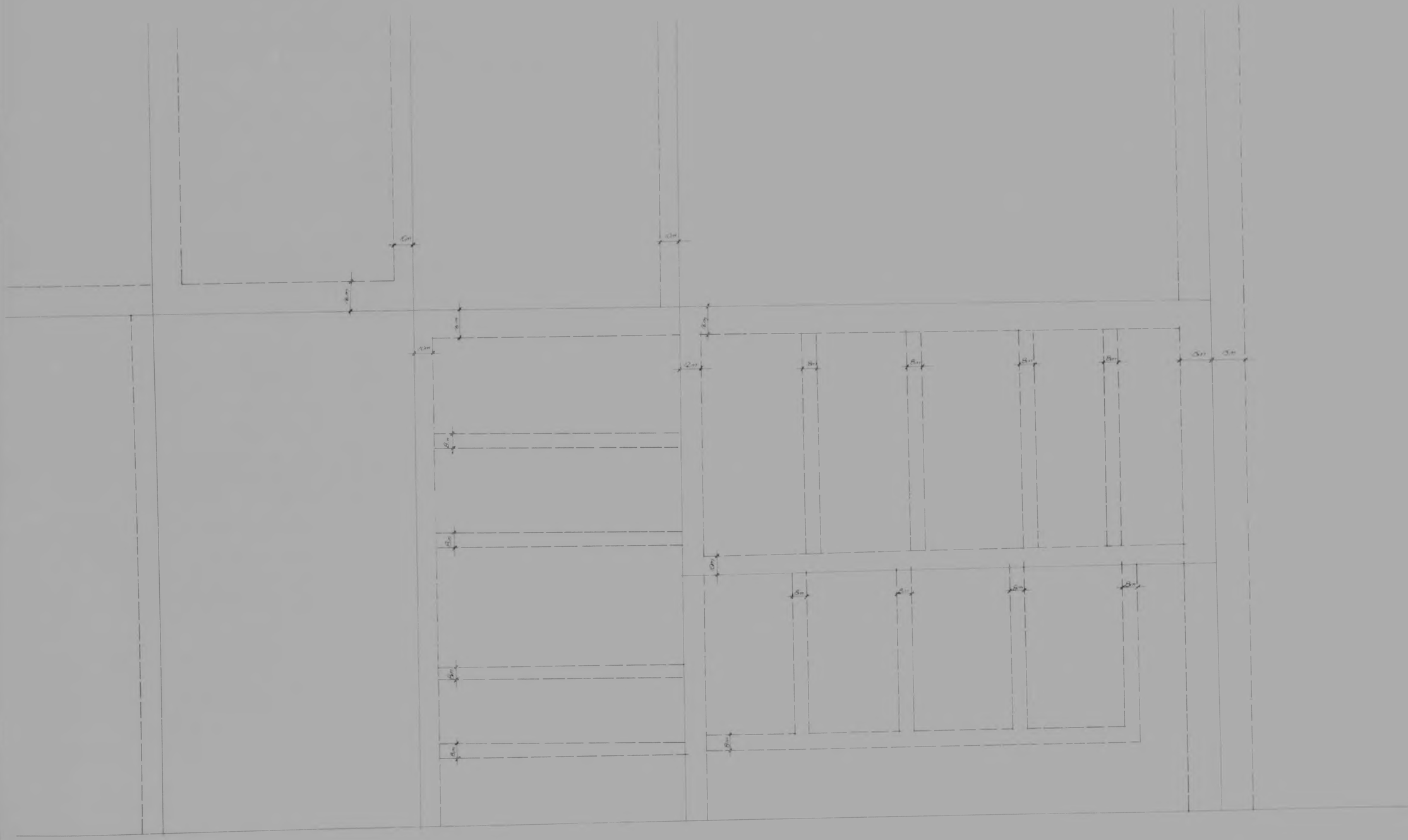
WINTERVELD 2

50 0 50 100

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WINTERVELD 2

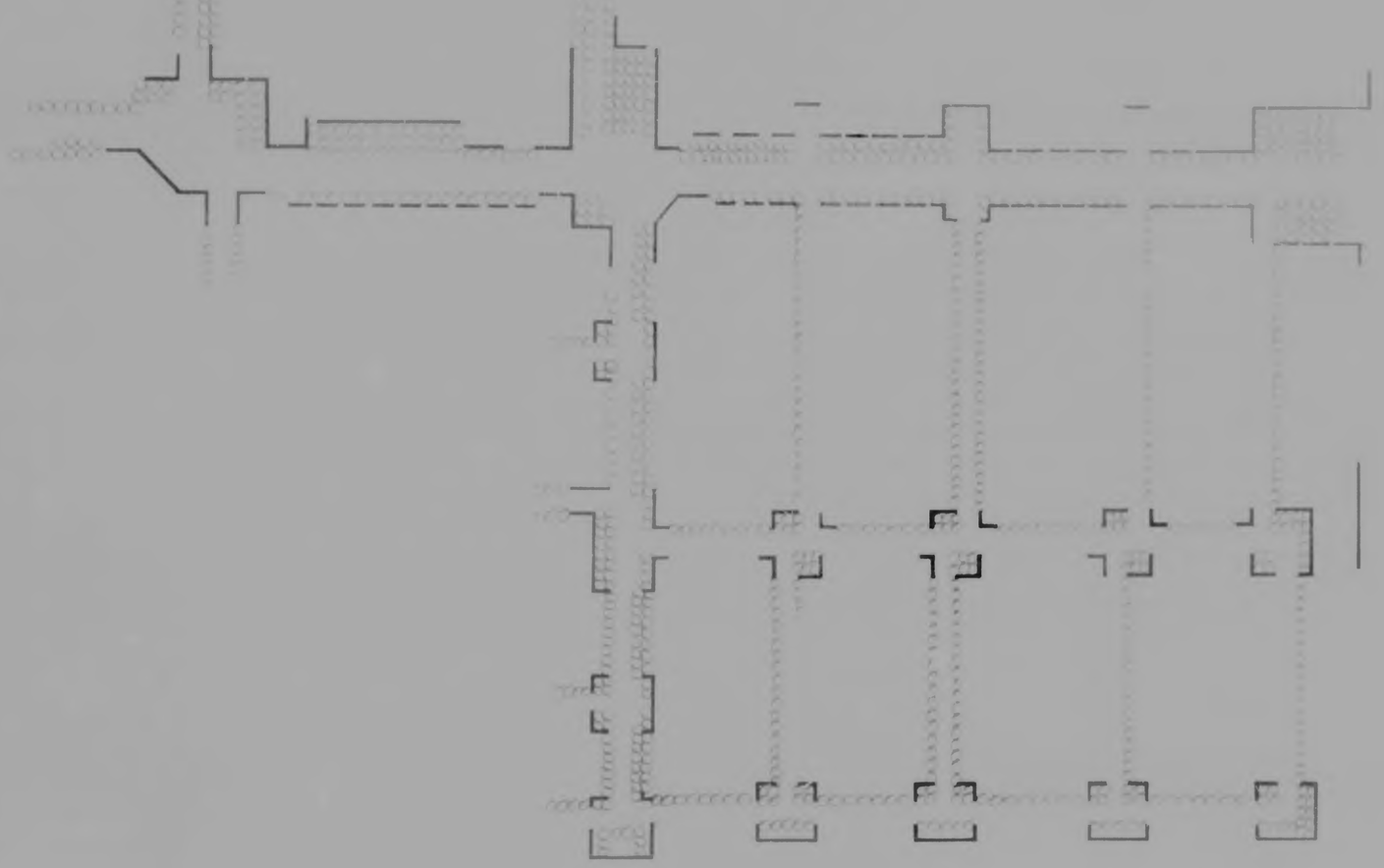




CADASTRAL FRAMEWORK AREA B

WINTERVELD 2

50m 0 10 20 30 40 50 100m



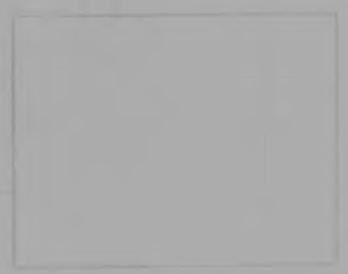
WINTERVELD 2











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URBAN DESIGN GUIDELINES FOR SPACE CREATION IN AN URBAN BLACK RESIDENTIAL ENVIRONMENT.

E.G. JANSE VAN RENSBURG.

PART TWO OF A DISCOURSE SUBMITTED TO THE FACULTY OF ARCHITECTURE, UNIVERSITY OF THE WITWATERSRAND, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE MASTER OF ENVIRONMENTAL PLANNING (URBAN DESIGN).

JOHANNESBURG.

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GENERAL INTRODUCTION.

In the first document 'A Study of the Space Creating Principles in Self-built Urban Black Residential Environments', the space creating principles representative of the lifestyles of the people living in Winterveld were identified and analysed.

It was found that most of those qualities on which the discipline of Urban Design is supported, are present in the self-built urban environment of Winterveld.

In this document, those unique qualities of the Winterveld environment have been used with the discipline of Urban Design, to create guidelines for space creation in a new extension of the Winterveld area, which will allow a more structured recreation of a true urban environment, representative of the Winterveld people's lifestyles in a technological advanced society.

The guidelines focus more on the study area, Study Area C, as identified in the first document, to illustrate how those principles could be used to create a more liveable residential urban environment. The guidelines can be expanded as and when needed to be applied to the total metropolitan environment. In doing so, it can be expected that detailed variations would occur in different parts of the metropolis, which could require spatial adjustments for similar nodes and strips. The guidelines could thus form a structural framework for identification and character of the total environment.

PRECONDITIONS FOR URBANITY

1. WHAT IS URBANITY?

Urbanity is an integration of a variety of systems and activities in various degrees of intensity, representative of the different lifestyles and activities of the people living in a structured environment created by the resident people. It is a combination of complexity, diversity and density which can accept rapid change over great space time scales.

The environment thus created has a disctinct character which is at all times representative of the ever changing lifestyle patterns of the resident population. This environment provide people with identity, self-reliance, control, access to opportunities and activities, freedom, safety, convenience, direct human contact and self expression. The environment therefore should have resilience, generate diversity, respond to uniqueness of place, and provide opportunity for the free exchange of goods and ideas.

2. WHY NEW DEVELOPMENTS LACK URBANITY.

New urban areas lack 'urbanity' since they have become the product of mass construction and regulation, which forms part of the technological approach towards unifying form and process towards singular activities which eliminates richness and diversity of individually created forms and activities, over great time spans.

Technological development emphasises economics of scale and mass production which eliminate the possibilities of robustness towards change and individual expression. It also does not take cognisance of the historical past of people and their cultural inheritance, which eliminates the preconditions for urbanity as stated by many researchers and intellectuals.

PRECONDITIONS FOR URBANITY

UNIVERSAL

PRECONDITION	IDENTIFICATION	EXISTING FORM	SITE SPECIFIC PRINCIPLES : FUTURE DEVELOPMENT
METROPOLITAN SCALE			
LYNCH 1. **LEGIBILITY** CRANE **PREDICTABILITY** UPRU **READABILITY**	**DESCRIPTION** A visual quality referring to the ease with which different parts of the city can be recognised and organised into a coherent pattern. **APPLICATION** Major pattern of transportation routes, intersection and activity nodes.	Transportation routes clearly demarcated but nodes not easily perceived as a result of single storey built form. Commuter rail station in isolation connected to constructed roads with no activities connected to them.	1. Connect commuter rail station to roads with a market place between rail and future CBD.
LYNCH 2. **IMAGE** CRANE **SYMBOLIC PLACE** 	**DESCRIPTION** A common mental image of the city which enables inhabitants to identify with various parts. **APPLICATION** Identification with the structure and meaning of the environment by the: 1. nodes 2. landmarks 3. element interrelations identity – differences structure – spatial pattern meaning – observer	Major movement channel through the area with larger, commercially built grain at the intersections. 	1. Identify hierarchy of symbolic places and prepare principles for development of public space. 2. Develop hierarchy of nodes and linear connections.
UPRU 3. **CONTINUITY** MAKI **LINKAGE**	**DESCRIPTION** The integration of various parts of the metropolis. **APPLICATION** The major transportation routes with intensity of activities and variation in functions forming a clear pattern.	Major central movement channel with more intense commercial activities at intersections.	1. Identify hierarchy of linear public spaces. 2. Determine locational principles for activities and uses alongside linear public spaces. 3. Prepare strategy for development of linear public space.
UPRU 4. **INTEGRATION** 	**DESCRIPTION** The integration of a wide variety of activities with different degrees of compatibility and locational requirements. **APPLICATION** The mixture of space, intensive commercial and manufacturing activities along major transportation routes and flanking residential areas with reinforcing forms of accessibility like railway stations, bus terminuses, connecting roads, etc.	Central spinal route with a variation of activities connection to the bus terminuses, taxi stops and intersecting roads. **Modes of movement:** Bus, taxi, mini-bus, donkey carts, people riding animals, pedestrians, cattle. **Activities:** Supermarkets, garages, workshops, clinics, market places, sports fields, undeveloped CBD.	1. Principles for site interchange of modes of transportation in public space. 2. Mixture of large and small site for manufacturing, commercial and residential use. 3. Accommodate social activities in public space – pedestrians' activities separated from transportation. 4. Safety of pedestrians from traffic.

		UNIVERSAL		SITE SPECIFIC	
	PRECONDITION	IDENTIFICATION	EXISTING FORM	PRINCIPLES
UPRU	5. UNIQUENESS OF PLACE	**DESCRIPTION** The natural realisation of the potential of different locations. **APPLICATION** The natural logical locational responses of activities with different degrees of compati bility to a clear structural framework.	Economic forces determine location of activities.	1. Arrange site sizes to accommodate variety of activities. 2. Economic forces will determine intensity of development of activities. 3. Prepare clear structural framework for movement channels.
UPRU CRANE	6. CHOICE ELECTABILITY	**DESCRIPTION** The freedom to choose from a variety of environmental conditions. **APPLICATION** The elimination of land use controls.	1. Individuals have freedom of choice of landlord. 2. Landlords identify space for development of individual property.	1. Eliminate landlords. 2. Provide variety of site sizes in structural framework. 3. Provide an abundance of individual sites to choose from.
UPRU	7. REINFORCEMENT	**DESCRIPTION** The interdependency of different types of functions complement, reinforce and set off each other. **APPLICATION** The positive natural integration of different types of functions and activities in specific locations.	Landlords and policing constrain natural integration of activities.	1. Provide system of free choice of sites in structural framework.
UPRU	8. SCALE	**DESCRIPTION** The vulnerability of uses to invasion by other uses. Use at a large scale is less vulnerable. **APPLICATION** The invasion of small pockets of uses by the nature of the scale of surrounding development.	Scale single storeyed fine built grain. Presently invasion has not yet occurred since the major function is still residential.	1. Encourage higher intensity at nodes.
CRANE	9. DYNAMICS	**DESCRIPTION** 1. Rapid accelleration of change in city life and structure over great space time scales. 2. Complexity and multiplicity of functions.	 Rapid change in built environment as a result of: 1. Movement of people 2. Temporary structures 3. Intensifying of densities	Prepare principles for: 1. Location of buildings. 2. Upgrading of infrastructure. 3. Allow market forces to determine best location for activities.

PRECONDITION	IDENTIFICATION	EXISTING FORM	SITE SPECIFIC PRINCIPLES
	APPLICATION 1. Continual increasing intensity of activities replace built structures over time. 2. Increasing activities in decreasing space leads to multifunctional use of space and complexity in organisation.	Built form invades public space activities intensify.	Demarcate public space clearly.
CRANE 10. **MALLEABILITY**	**DESCRIPTION** Nodes, centres and places are at various stages of incompleteness or susceptible to progressive additions and modifications.	Introduction of new technology in built form changes environment. Western values change built form.	Prepare principles for built form to accommodate different lifestyle patterns in changing environment.
	APPLICATION Buildings, spaces and systems change continually to accommodate new technologies and activities. Thus public space changes continually.		
UPRU 11. **RESILIENCE**	**DESCRIPTION** The range and choice of environmental conditions.	Landlords constrain choice of environmental conditions.	Prepare clear structural framework to facilitate range of environments.
	APPLICATION Clarity and generality of structure facilitates range and choice.		Introduce an open property market where the individual can have freedom of choice within his means.
UPRU 12. **INTENSITY OF USE**	**DESCRIPTION** The intensity of activities.	Intensity increases as distance to commuter station decreases.	Accommodate the effect of high intensity mode interchanges on environment by integration with high intensity activities.
	APPLICATION Intensity of activities necessitates more complex systems to facilitate convenience of living.		
APPLE- 13. **URBANITY IS A COM-** YARD **BINATION OF COM-** **PLEXITY, DIVERSITY** **AND DENSITY**	**DESCRIPTION** The city fulfils an educational function and therefore should have a vitality to stimulate the inhabitants.	Vitality derived from people's lifestyles. Variety in the urban built form an expression of basic lifestyle patterns.	Allow free market principles to determine location of activities. Release regulatory constraints by de-regulation.
	APPLICATION Creation of : 1. Richness and diversity; 2. Communicability and symbolism; 3. Change and stability.		

PRECONDITION	IDENTIFICATION	EXISTING FORM	SITE SPECIFIC PRINCIPLES
APPLE-YARD 14. URBAN DESIGN MANIFESTO	**DESCRIPTION** 7 Goals for urban life: 1. Liveability. 2. Identity and Control. 3. Access to opportunity, imagination and joy. 4. Authenticity and meaning. 5. Community and public life. 6. Urban self-reliance. 7. Environment for all. **APPLICATION** Physical characteristics: 1. Liveable streets and neighbourhoods. 2. Minimum densities. 3. Integrate activities – mixed uses. 4. Define public space with built form and other structures. 5. Vary built form and spaces with complex space arrangements.	Liveable, controlled and a large degree of community and public life. Little access to opportunities. Large degree of imagination and joy in urban environment.	Connect urban environment to more opportunities. De-legislate, provide incentives and encourage development of opportunities. Define and upgrade public environment.
LYNCH 15. THEORY OF GOOD CITY FORM	**DESCRIPTION** The performance of the city with regard to the following is measured in terms of efficiency and justice. 1. Vitality. 2. Sense. 3. Fit. 4. Access. 5. Control. **APPLICATION** 1. Provide safety, sustenance and contact to people. 2. Provide identity to individual. 3. Match appropriate activities. 4. Easy accessibility. 5. Responsibility of environment.		





IMPLEMENTATION

To set the stage for the development of an urban environment which is representative of a variety of people's lifestyles, the following development principles became important:

1. The individual should create his own individual environment, i.e. the house and the immediate public environment or the interface between his individual environment and the public environment.

2. The public sector should provide an overall framework of expertise, finance and assistance to create the public environment, urban infrastructure and public buildings.

3. Overall design guidelines should be available to guide development by individuals, groups and the public sector without imposing conditions.

Thus the need for a self-help centre to fulfill the public sector or managerial role has been identified as the enabling device. This centre will manage :

1. The implementation of the urban design guidelines, prepared by an urban designer,

2. The development of the public environment and urban infrastructure as needed,

3. Implement the participation strategy and provide small and larger short- and long term financial assistance as well as technical advice to individuals and groups.

Process of implementation of Urban Design Framework in a low income environment

1. Establish a self-help centre where the following assistance will be available to the residents.

   a. Technical assistance in the choice of neighbourhood, depending on the age, structure and activities of the individual family.

   b. Technical assistance in explaining the urban design framework to the individual family.

   c. Technical assistance to accommodate the needs of the individual family for housing into the urban design framework.

   d. Cost estimates based on the floor area of the house the family can afford as well as basic finishes of materials available at the self-help centre.

   e. Assistance to the house builder to:

      (i) obtain financial assistance to build his house;
      (ii) build his home;
      (iii) supply material to the individual to build his house;
      (iv) subcontract elements of the construction of the house to smaller contractors;
      (v) improve his immediate public environment.

2. All documentation and financial statements at the self-help centre should be available and accessible to the inhabitants at all reasonable times.

Self-help Centre

On site facilities which should be available to assist the individual family to build their own house and slot into the overall environmental framework.

1. Urban Design Guidelines.

2. Computerised cost estimates of houses based on materials available at the centre. Cost estimates should be based on square meterage as well as individual quantities of materials required.

3. Basic building materials including the following :

   (i) Building sand.
   (ii) Cement.
   (iii) Concrete, sand and stone.
   (iv) Plaster sand.
   (v) Roof timbers.
   (vi) Roof cladding – corrugated iron sheets.
   (vii) Door frames.
   (viii) Window frames.
   (ix) Doors.

4. A building manager who will assist the family to employ those skills they cannot undertake themselves i.e. bricklaying, plastering, carpentry, glazing, roofing, plumbing, electricity, paving, internal finishes, painting, tiling etc.

Functions of the Self-help Centre

1. Marketing of the town and individual erven.

2. Management of savings of individuals to enter urban development scheme.

3. The issuing of bonds up to R10 000 for the construction of a house, depending on family income.

4. Management of bonds issued, as well as repayments.

5. Implementation of urban design framework.

6. Technical assistance to families in decisions on choice of site and design of affordable house plan.

7. Management of building programme for individuals on sites.

8. Construction of "enabling structure" on each site. The cost of the enabling structure is to be added on to the site cost.

9. Construction of affordable infrastructure.

10. Upgrading of infrastructure.

11. Upgrading of environment with roll-over funds.

Site and service requirements for the self-help centre

1. Electricity to use computer as well as carpentry and welding equipment.

2. Water.

3. Sewerage.

4. Storage space for cement and wood.

5. Under cover working space for:

   (i) Welding.
   (ii) Carpentry.
   (iii) Cabinet-making.
   (iv) Brick and block making.

6. Office space for:

   (i) Financial management.
   (ii) Technical advice to families or individuals.
   (iii) Sales of sites.
   (iv) Building management.
   (v) Centre management.

Financial Management of the Self-help Centre

1. Individuals who intend to live in the town can enter the scheme by :

   (i) The payment of a 20 percent deposit on a chosen site to enable bond registration.

   (ii) Entering the saving scheme by monthly down payments if they do not have enough savings to choose a site. As soon as they have saved enough to cover 20 percent deposit on a site, the savings can be changed into down payments on a bond registered on the chosen site.

   (iii) Payment of the site purchase price in full and registration of a bond to build a house.

2. The self-help centre could do the following to generate funds for upgrading of the environment.

   (i) Generate income by the investment of the savings of individuals at a substantially higher rate than interest paid to the individuals.

   (ii) Sell commercial and industrial properties at a substantially higher price than residential properties and use profits for upgrading.

   (iii) Add a small percentage to monthly urban services and maintenance charges to undertake upgrading.

3. The self-help centre should make annual financial statements of assets and liabilities as well as work completed, available to the people who have entered the urban development scheme, at the end of each financial year.

4. The self-help centre should make annual programmes or work to be undertaken the following year, available for discussion with persons who are part of the scheme.

Personnel requirements for a Self-help Centre to manage the construction of an urban comprising 2 000 houses and more.

1.	Centre manager	1.
2.	Technical Advisors	1.
3.	Construction managers	2.
4.	Financial manager	1.
5.	Blockyard foreman	2.
6.	Clerk and/or secretarial person	2.
7.	Artisans.	

IMPLEMENTATION : CAPITAL WEB

1. Capital Budget.

1.1 The following elements should be provided before sites are sold to individual owners.

1. Road access – gravel or tarred road surfaces as indicated in design guidelines.
2. Piped water connections to each site as well as in public spaces ad indicated in the design guidelines.
3. Sewerage – water borne sewerage should be provided to 80% of the erven. Biological sewerage with soak away grey water disposal should be provided to 20% of the erven.
4. Electricity – main ringnetwork should be provided as underground cables with connections to each individual site. Owners can connect to electricity as and when they decide to do so.
5. Telephone – spaces for main ringnetworks should be preserved for underground cables with connections to each individual site.
6. Paving – all sidewalk spaces should be finally paved at the nodes after 40% of the individual owners have commenced with the construction of their homes.
7. Two primary schools and a high school should be constructed during sales of individual sites.
8. The construction of a space for a community hall, clinic, post office, 2 crêches and 5–10 small shops should commence immediately after the completion of infrastructure contract.

1.2 The capital costs for the construction of the above contracts should be borrowed over a period of 30–50 years and recovered from individual bonds over a period of 20–30 years.

1.3 All infrastructure should be accommodated in the public spaces for ease of access and future maintenance.

1.4 Contracts for the construction of infrastructure should be broken up into small units, to be handled by local contractors.

2. Capital Budget.

Costs for the following should be included in the capital budget for the development of the town.

1. All infrastructure available at the time of sale of individual sites.
2. All road and sidewalk surfaces as mentioned under capital web.
3. Construction costs of all schools required, as well as the community hall, clinic, 2 crêches and a communal sport field.
4. The establishment of a nursery with stock to cover planting at the nodes and main boulevards i.e. strips 1, 3 and 5.
5. Salaries and running costs of the self-help centre for 18 months.
6. Material costs for the construction of 600 houses.

3. Selling price of individual erven:

1. Basic fee for professional services rendered which should include the following:

1.1 Townplanning fees.
1.2 Urban design fees.
1.3 Engineering design fees.
1.4 Land surveying fees
1.5 Architectural fees for major buildings.
1.6 All administration and management fees for the establishment of the town.

2. Infrastructure cost for each site by:

2.1 Dividing the construction cost for roads, sidewalk paving, electricity, telephone, water network by the total number of erven as part of the selling price.

2.2 Dividing the construction and/or installation cost of the two different types of sewerage by the number of erven respectively as part of each different type of erf.

3. A basic fee for the land of R2,50 per m^2 of the area of each site should be added to each site.

4. Selling price of a site should cover:

1. Professional services;
2. infrastructure cost;
3. land cost.

4. Maintenance Budget.

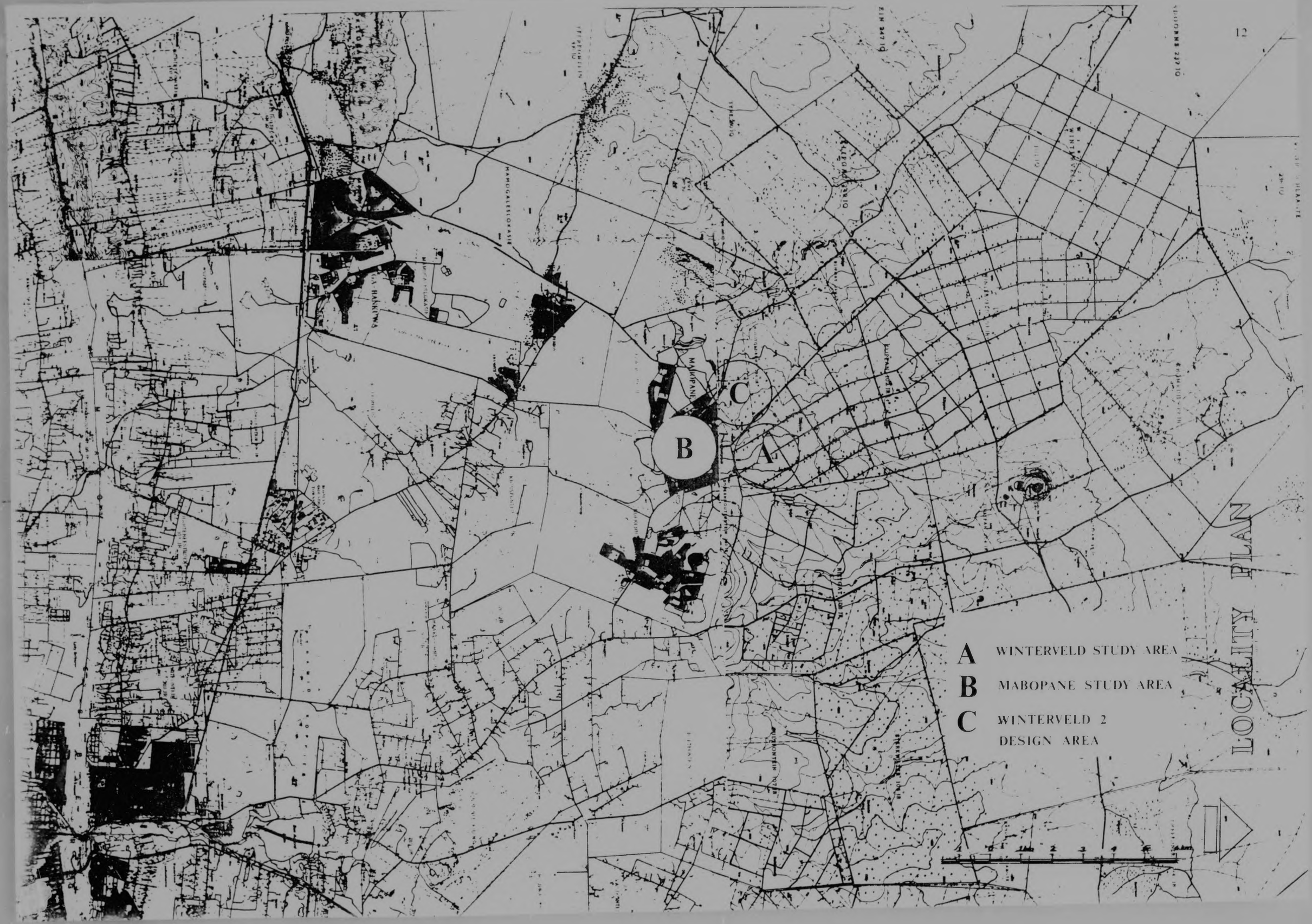
Upon registration of erven in the name of individual owners, a maintenance budget be implemented. The funding of such a budget should be borne by the owners by payment of a monthly maintenance fee of at least .2% of the selling prices of the erven to the self-help centre, who should use the funds to undertake maintenance and upgrading of the environment until such time as an urban management can manage the maintenance and upgrading.

The planting and paving programme for those public urban spaces not funded from the capital budget, should be funded from the maintenance budget.

5. Incentive Budget.

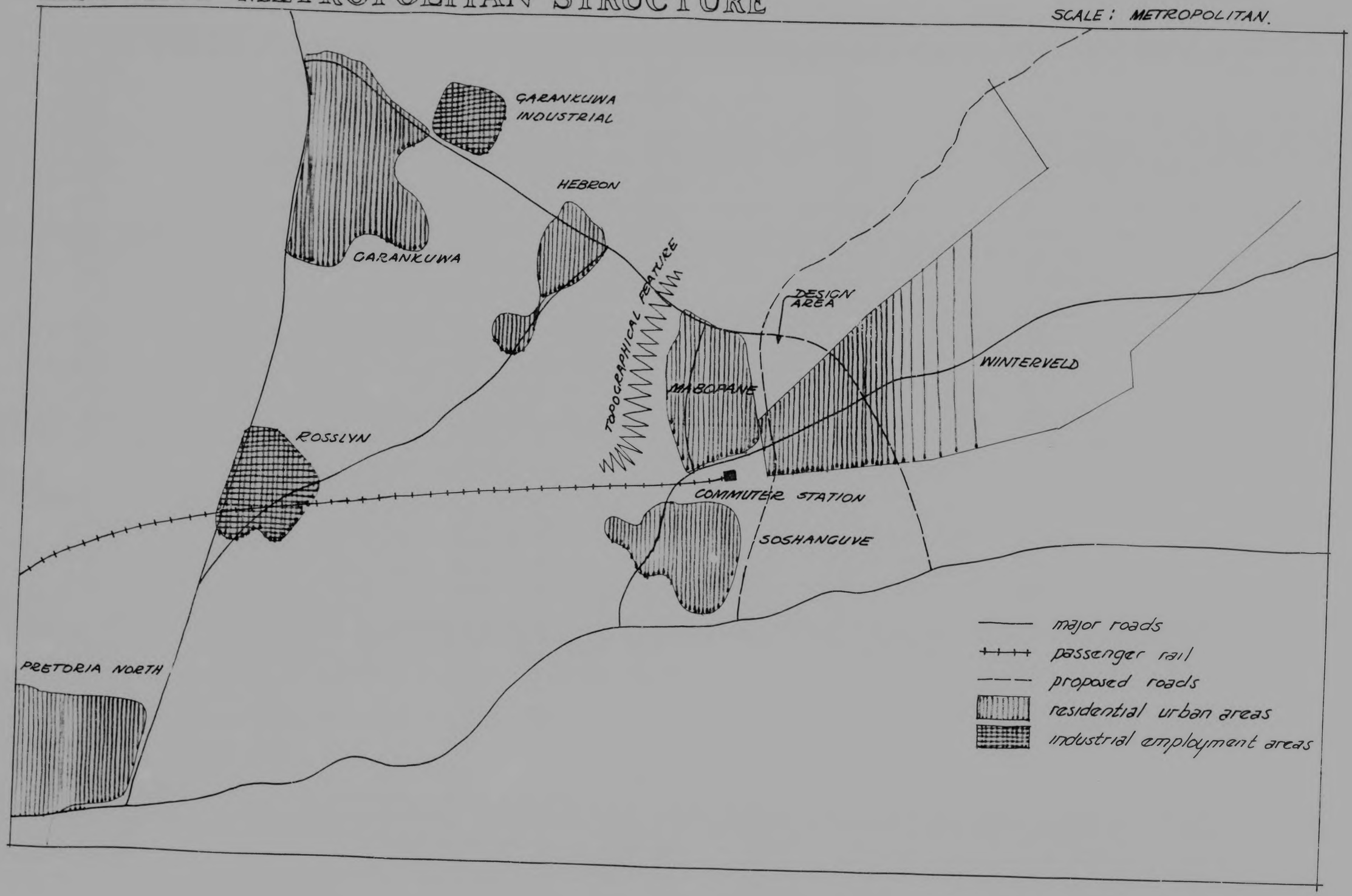
Development incentives to construct colonnades and seating spaces in nodes 1- 4, 6 and 7 as well as along strips 3 and 7 should be funded by levying additional monthly fees on those erven developed for business purposes. An annual business duty should be paid by all businesses, calculated on business floor space basis, instead of business licence fees, to fund this budget at the self-help centre. Additional charges on sales of electricity can be added to supplement the business duty fees.

6. All other ad-hoc structures in the urban environment can be funded from accumulated interest on investment of development funds.


A
B
C
A WINTERVELD STUDY AREA
B MABOPANE STUDY AREA
C WINTERVELD 2
DESIGN AREA
LOCALITY PLAN

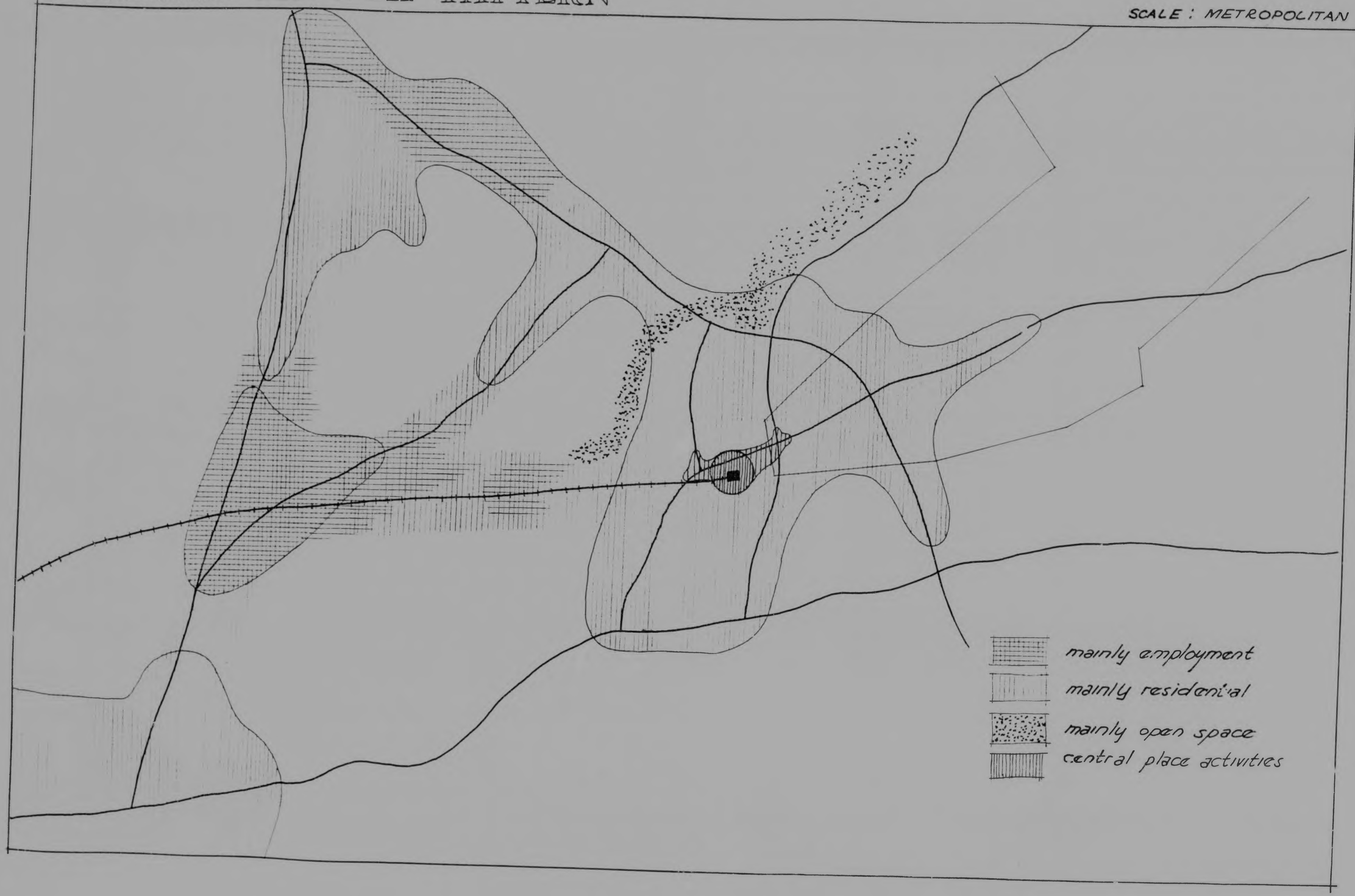
DESIGN PRINCIPLES AND GUIDELINES

EXISTING METROPOLITAN STRUCTURE



EXPECTED GROWTH PATTERN

SCALE : METROPOLITAN



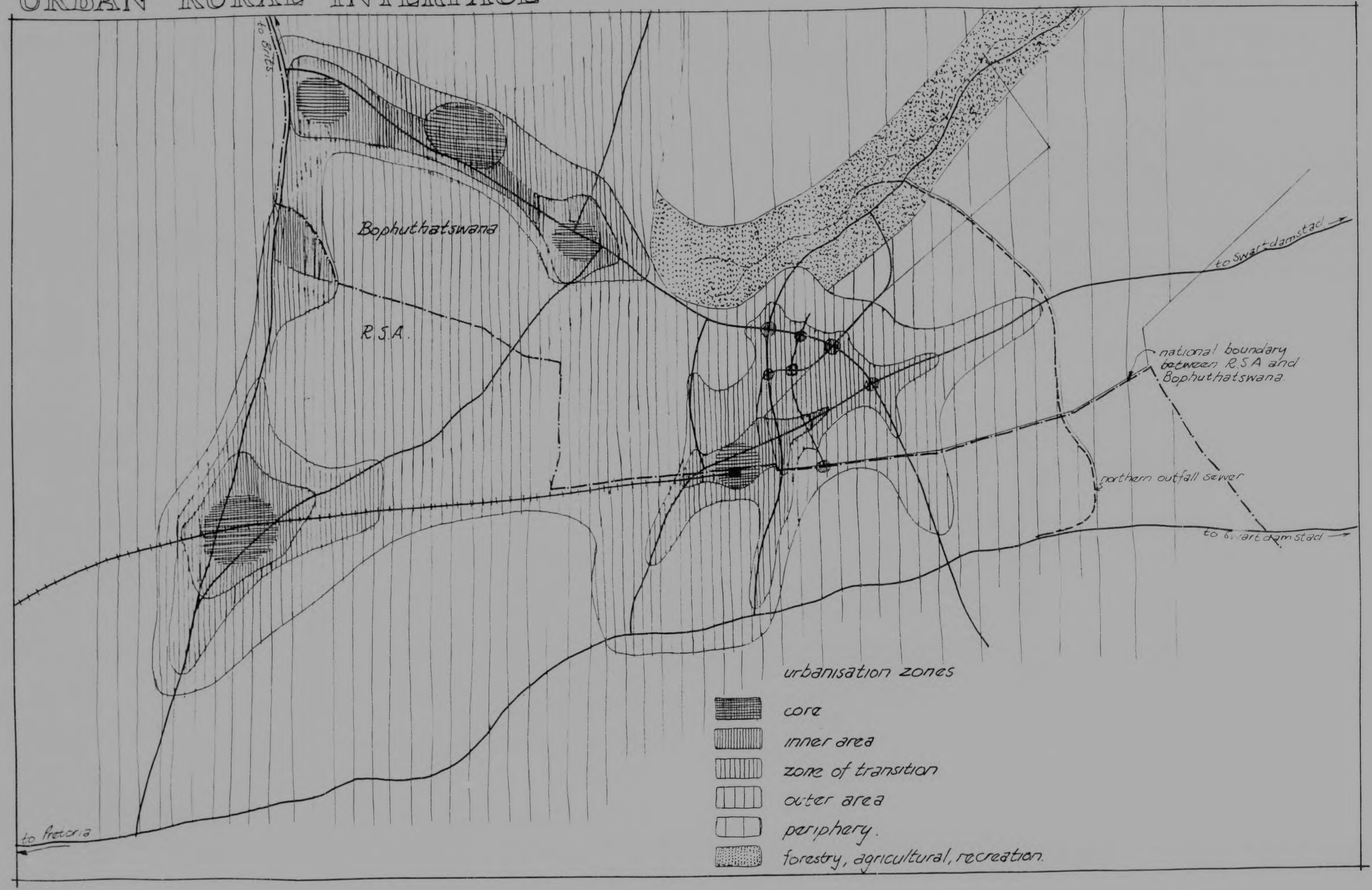
MOVEMENT AND ACTIVITY PATTERN

SCALE: METROPOLITAN



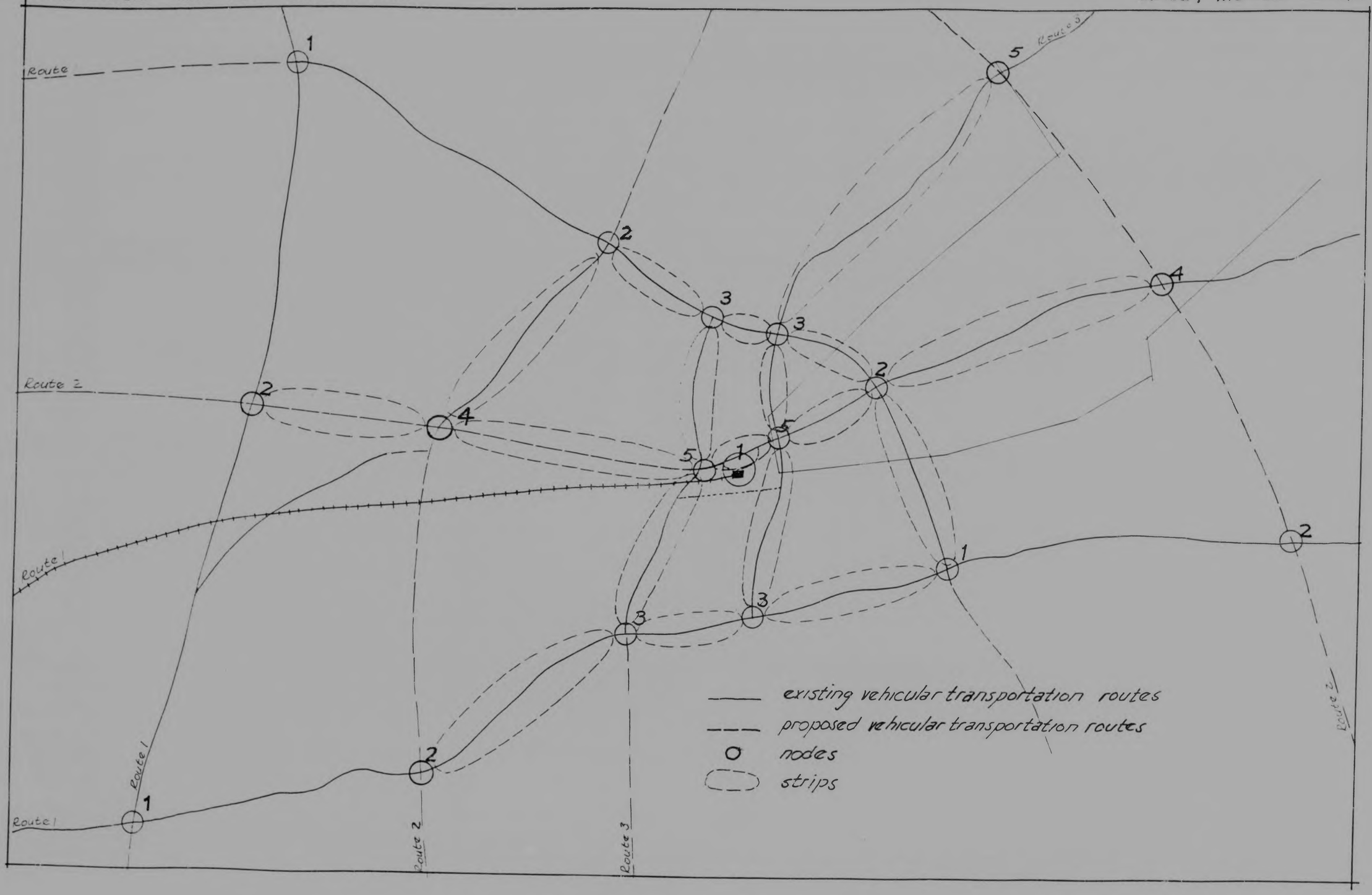
URBAN RURAL INTERFACE

SCALE : METROPOLITAN.



NODES AND STRIPS

SCALE: METROPOLITAN



METROPOLITAN SCALE

PRECONDITION : LEGIBILITY : PREDICTABILITY : READIBILITY

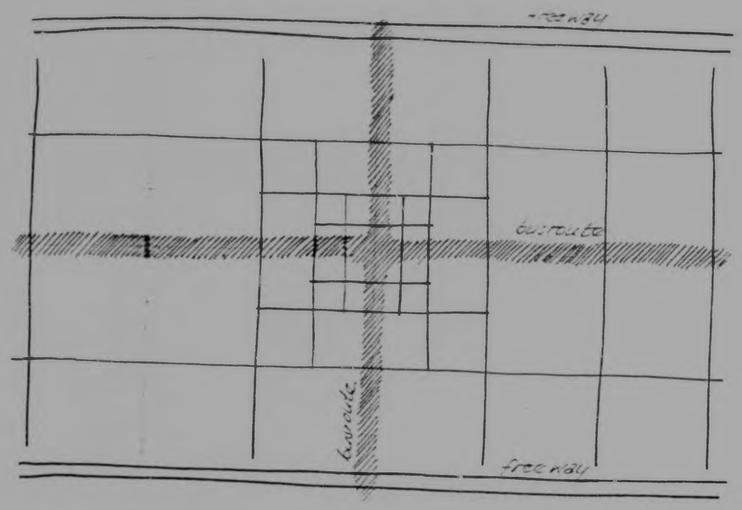
PRINCIPLE : HIGHEST ORDER TRANSPORTATION MODES CONNECT WITH MOST INTENSIVE NODES OF ACTIVITY

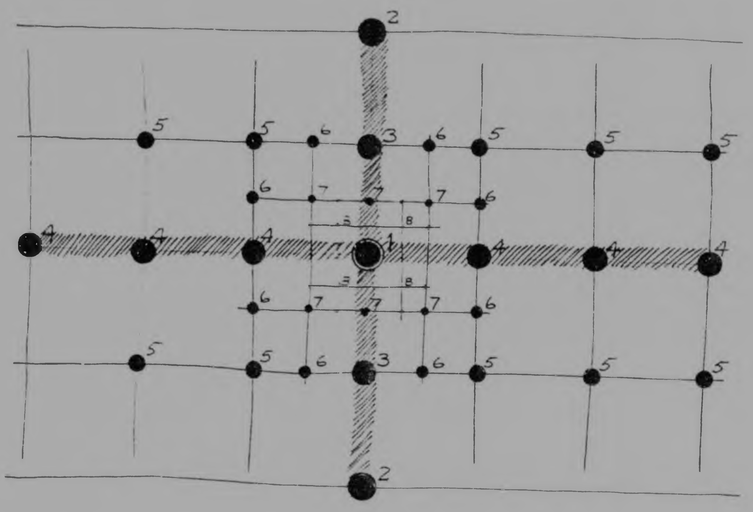
PATTERN : MAJOR TRANSPORTATION ROUTES

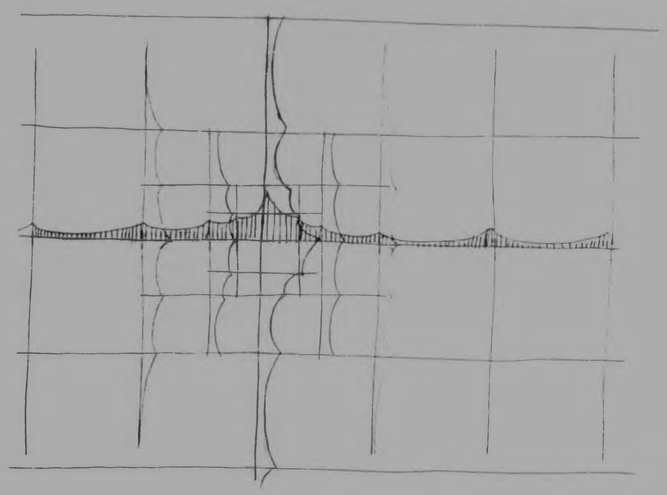
UNIVERSAL

INTERSECTIONS

NODES







Recognition of different parts of the city and organisation into a coherent whole.

MOVEMENT

ELEMENTS:

1. Mass transportation interchange.
2. Traffic interchange.
3. District and local bus stops.
4. Local bus stops.
5. Private transportation.

SITE SPECIFIC



FUNCTION

1. Primary node CBD
2. High volume traffic interchange.
3. Primary mass transportation interchange.
4. Secondary mass transportation interchange.
5. Private vehicular transportation.

ACTIVITIES

Highest intensity of mixed uses.
High intensity manufacturing traffic orientated uses.
High intensity residential and mixed uses.
Medium intensity residential and mixed uses.
Low intensity suburban residential uses.

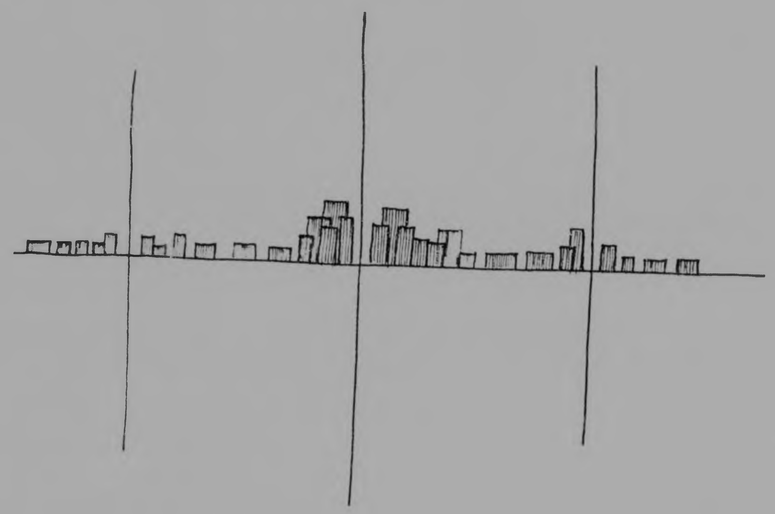
METROPOLITAL SCALE

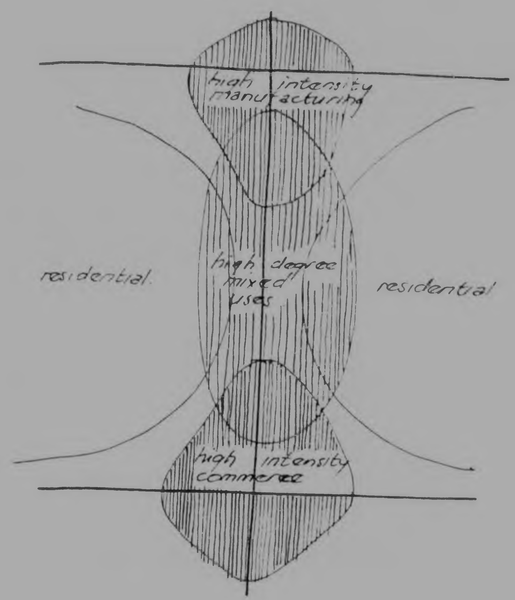
PRECONDITION : IMAGE/SYMBOLIC PLACE

PRINCIPLE : INTERRELATIONSHIP OF ELEMENTS DETERMINE CHARACTER AND MEANING OF ENVIRONMENT

PATTERN : NODES/LANDMARKS/ELEMENT INTERRELATION







ELEMENTS

1. Finer built grain at intersections of movement spaces.
2. Loose grain further away from intersections.
3. Meaning of space – intersection of high nodes of transport and high intensity use – CBD

1. Higher intensity of use at nodes with intersection of transportation nodes.
2. Lower intensity of use in strips.
3. Meaning of space – central place, commerce, manufacturing, residential etc.

1. Interrelation between activities and mode of transport.
2. Mixture of uses.
3. Intensity of uses and activities.
4. Meaning of places – place of employment/manufacturing, mixed use, residence.

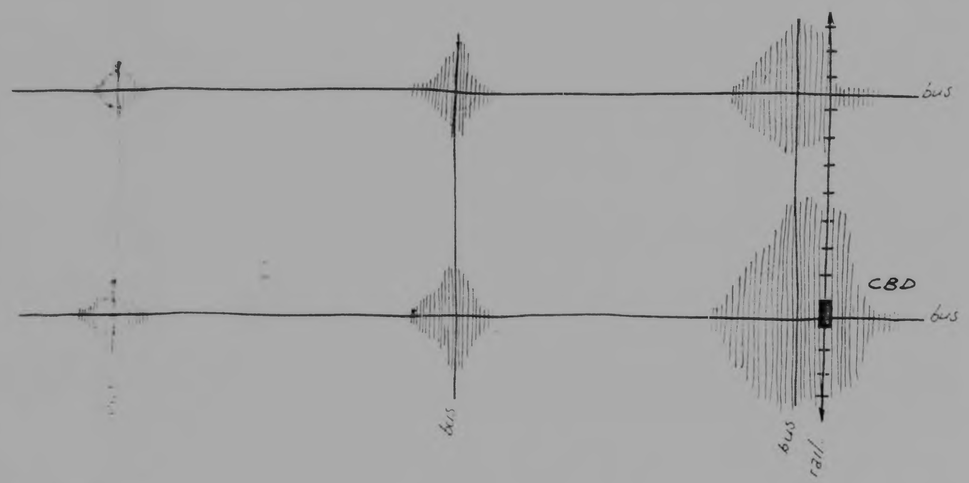
METROPOLITAN SCALE:

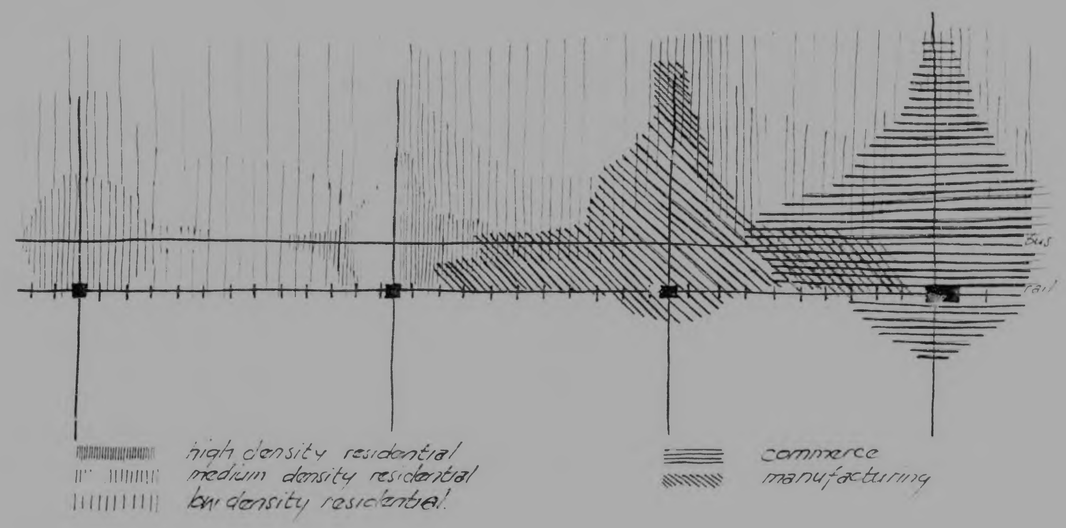
PRECONDITION : CONTINUITY LINKAGE/INTEGRATION

PRINCIPLE:

PATTERN : MAJOR TRANSPORTATION ROUTES INTENSITY OF ACTIVITY/VARIATION OF FUNCTION

UNIVERSAL





ELEMENTS:

MOVEMENT.

1. Linkage determines function of transportation corridors and thus hierarchy

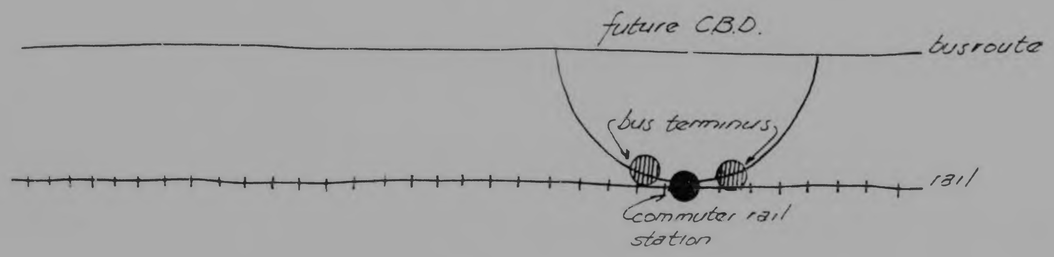
FUNCTION:

1. Intensity of nodes and functions are determined by linkage.

ACTIVITIES:

Linkage determines location of functions.

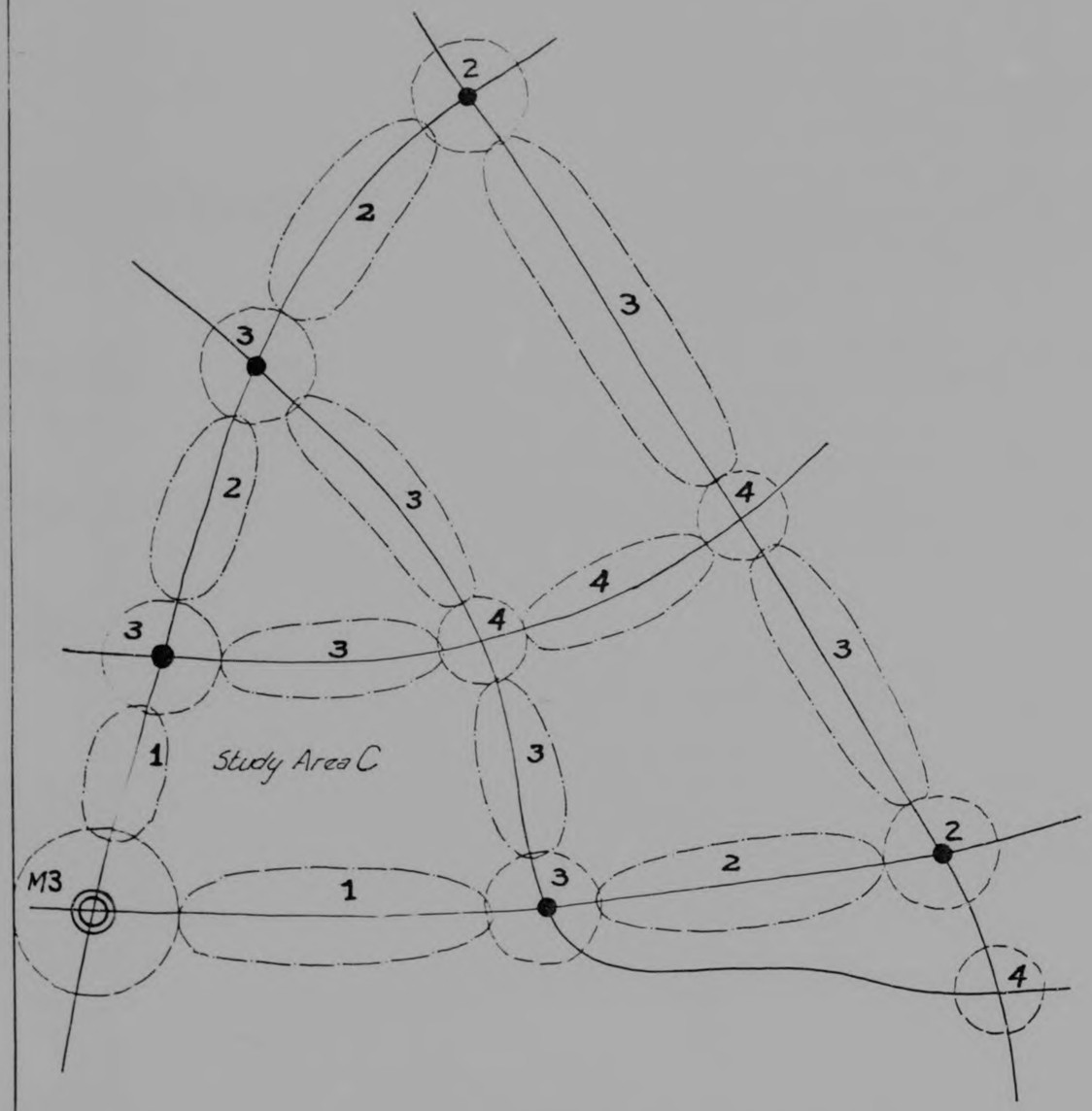
SITE SPECIFIC



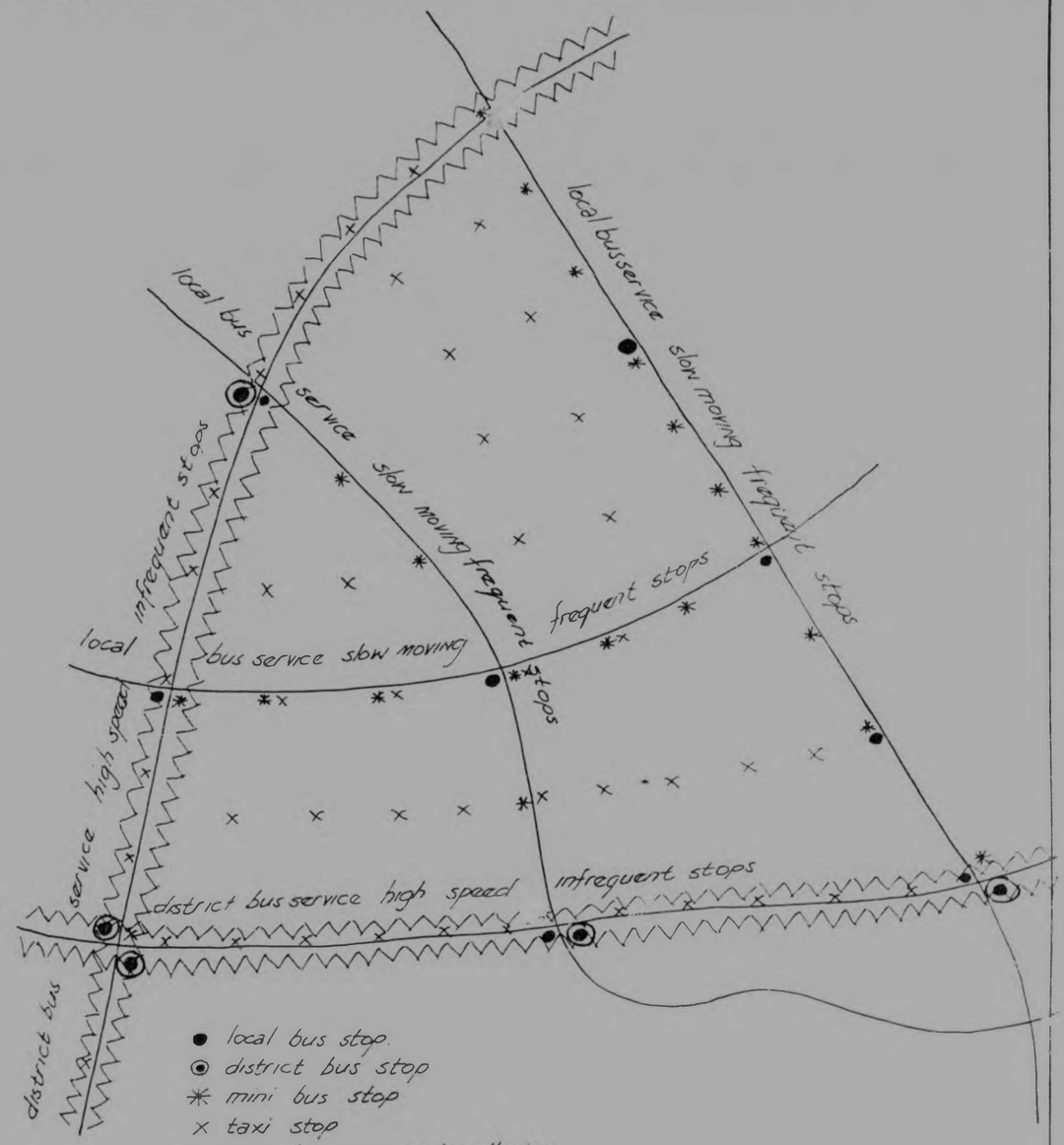
NODES AND STRIPS

SCALE : DISTRICT

HIERARCHY OF NODES AND STRIPS

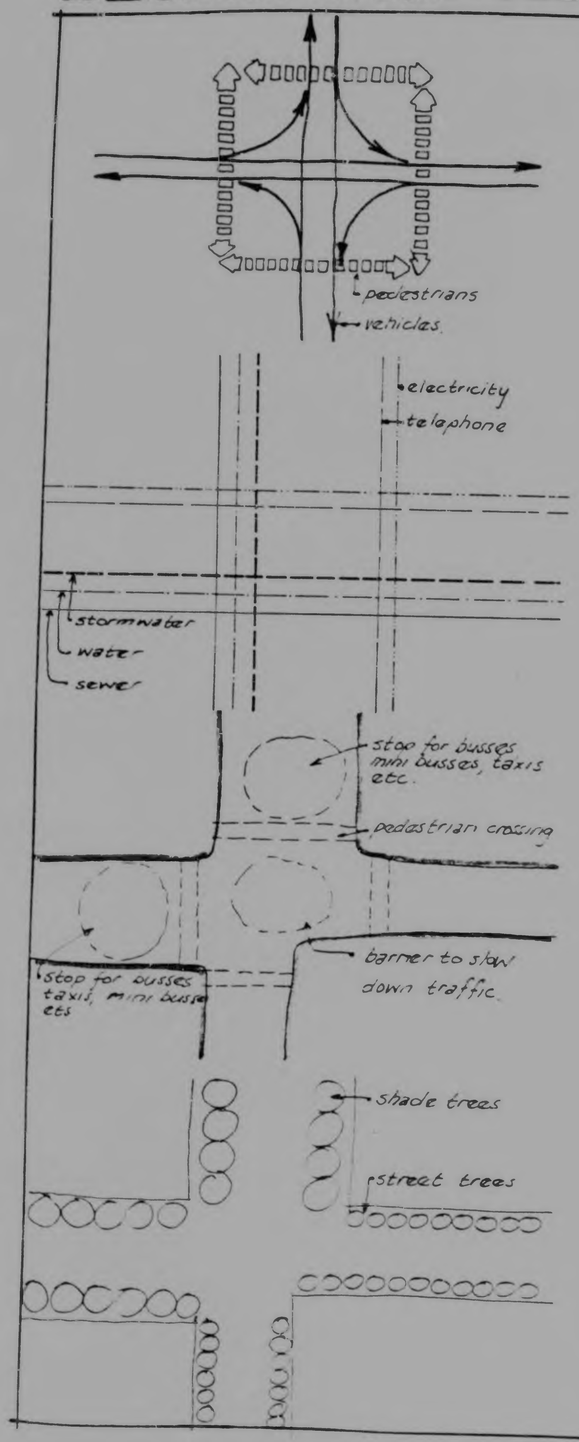


TRANSPORTATION SYSTEMS.



DESIGN PRINCIPLES

NODE 1



MOVEMENT

- traffic preferential
- ease of directional change important.
- other alternative desians for ease of directional change
  - round about
  - diamond interchange

INFRASTRUCTURE

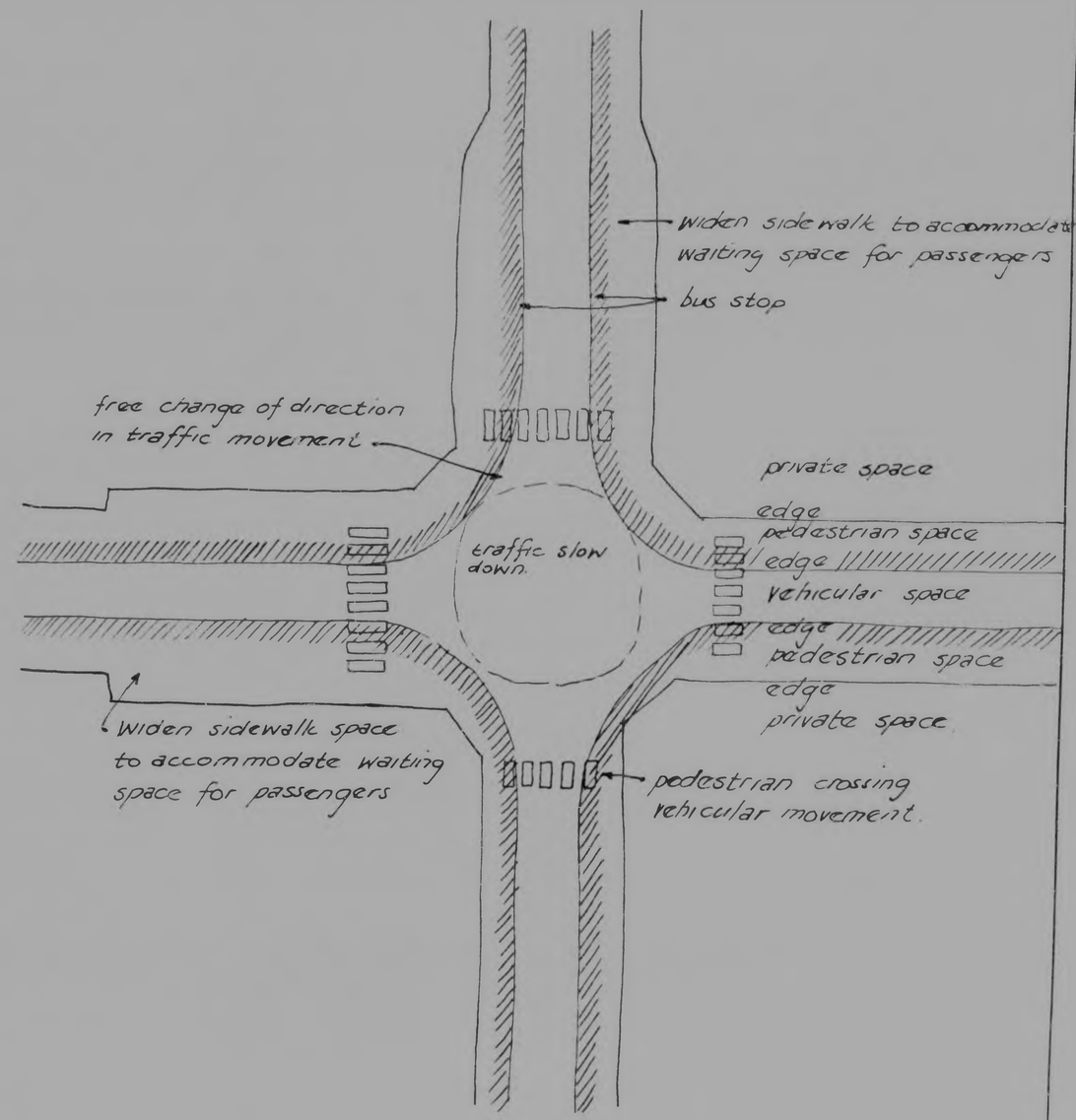
full range including
water - piped
sewer - piped
electricity - underground cable
telephone - underground cable
tarred roads, paved sidewalks,
stormwater.

ACTIVITIES

regional bus stop, taxi rank,
mini bus stop, waiting space
for passengers, access to transportation and traffic orientated activities, refreshments change of transportation modes large land use extensive activities.

LANDSCAPING

shade trees with seating and resting space to protect pedestrians and passengers from harsh summer sun.



PAVING

NODE 1

painted bus stop

roll over kerbing

painted pedestrian crossing

vertical kerbing

island with eventual robot control

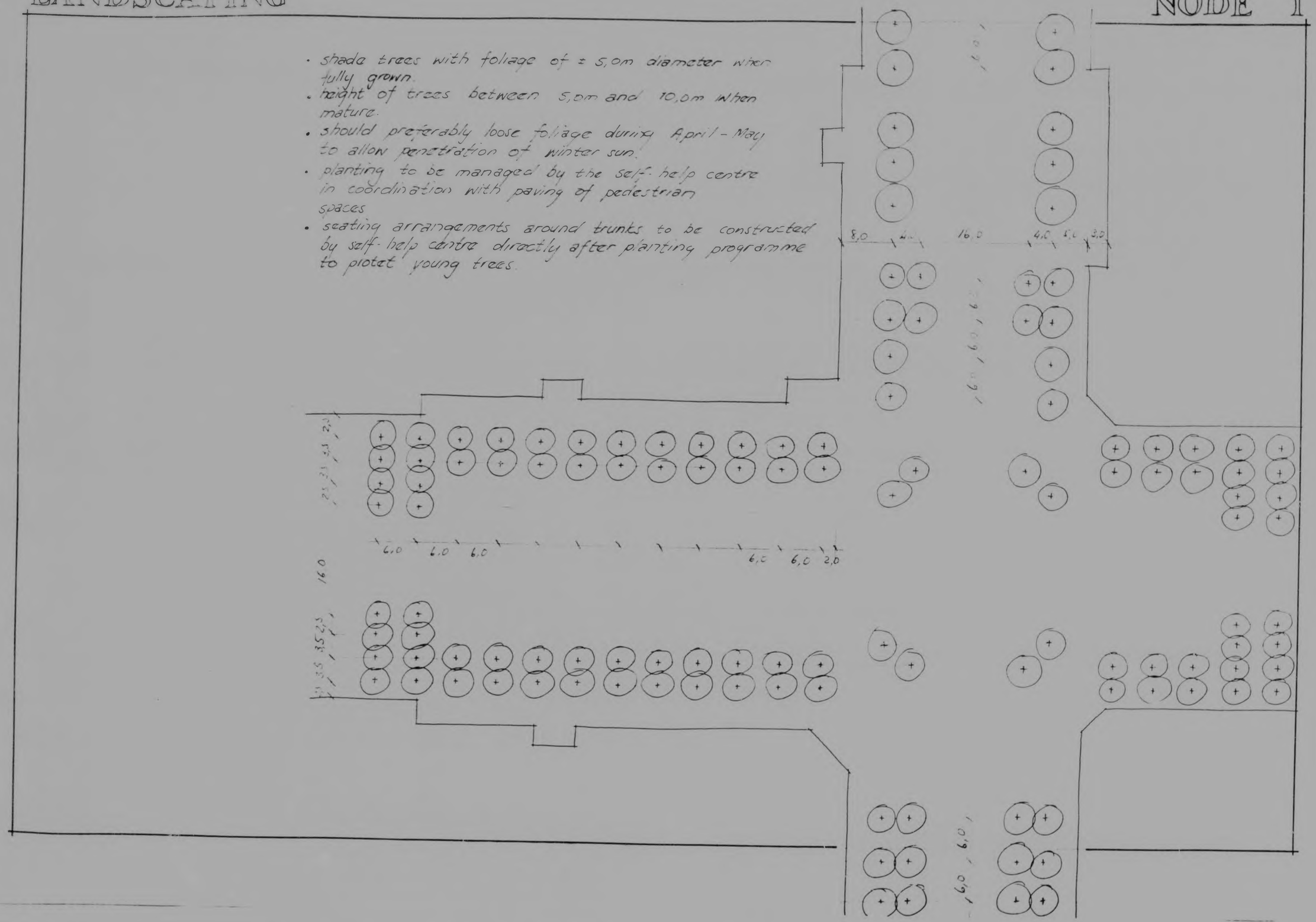
tarred road surface

gravel and eventual paved sidewalk surface

LANDSCAPING

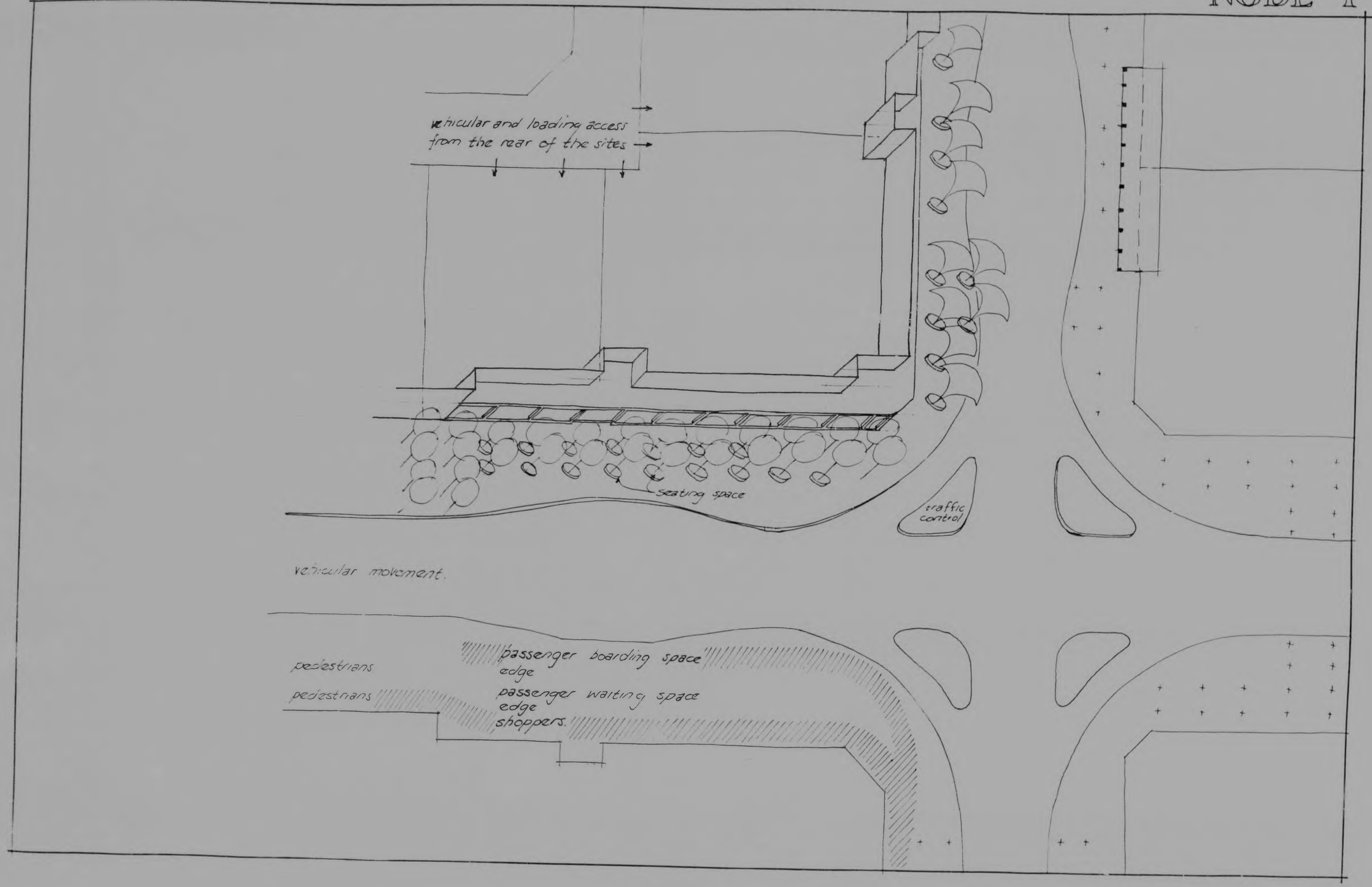
NODE 1

- shade trees with foliage of ± 5,0m diameter when fully grown.
- height of trees between 5,0m and 10,0m when mature.
- should preferably loose foliage during April - May to allow penetration of winter sun.
- planting to be managed by the self-help centre in coordination with paving of pedestrian spaces
- seating arrangements around trunks to be constructed by self-help centre directly after planting programme to plotat young trees.



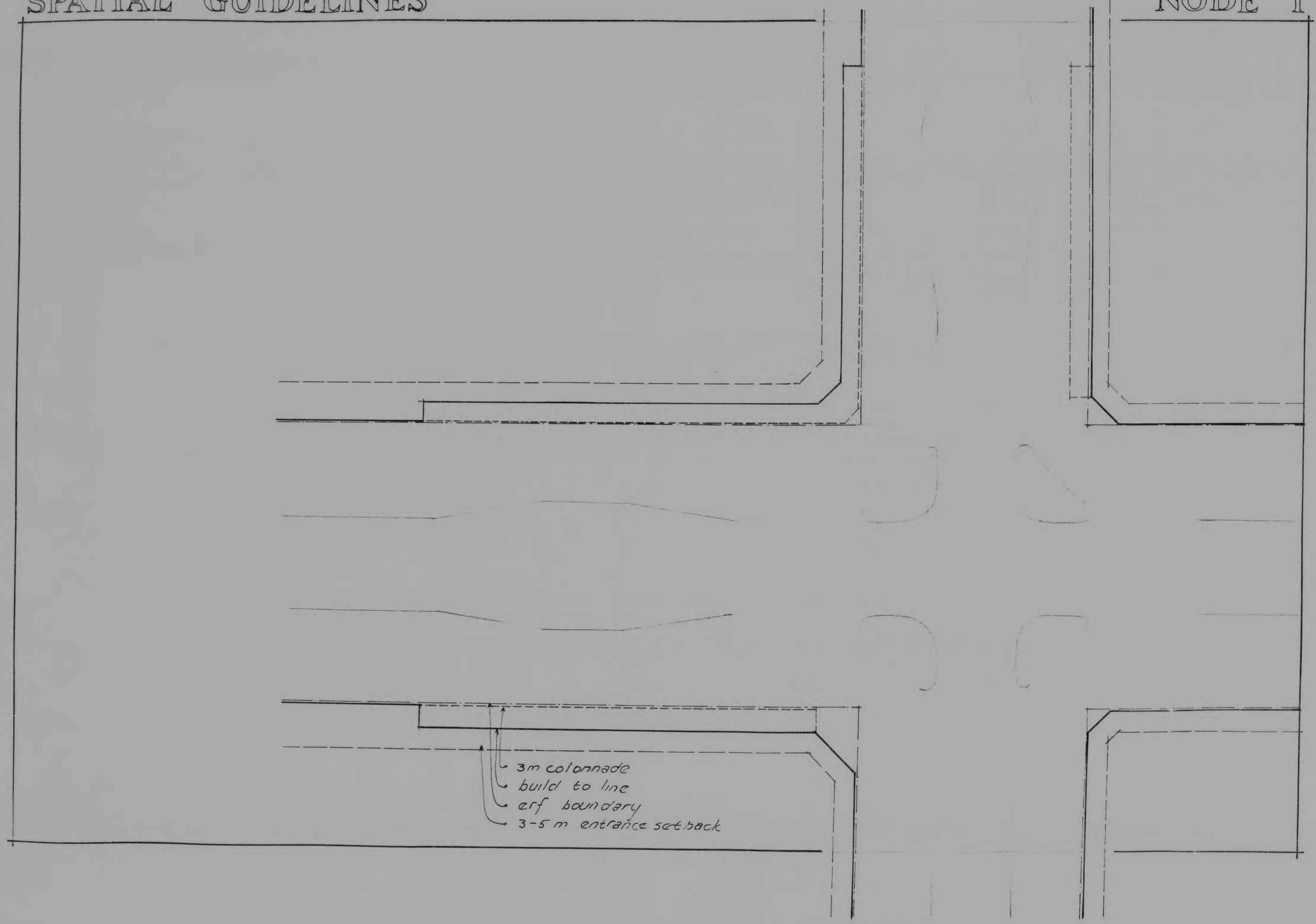
SPATIAL DEVELOPMENT

NODE 1



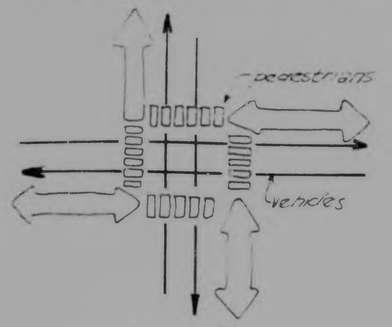
SPATIAL GUIDELINES

NODE 1



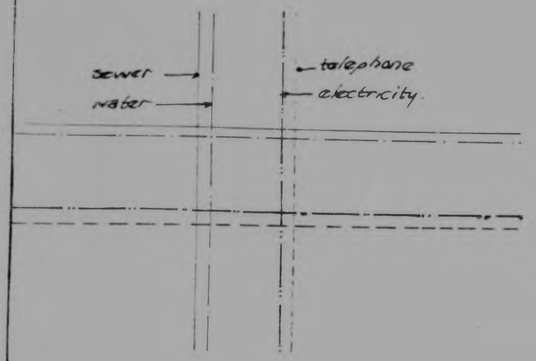
DESIGN PRINCIPLES

NODE 3



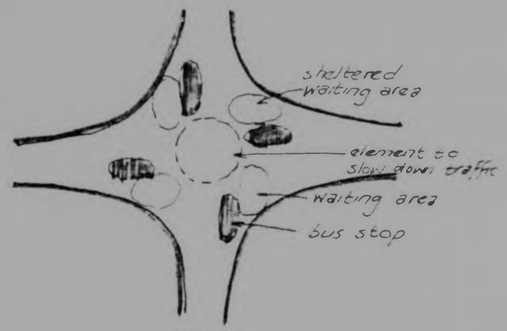
MOVEMENT

- pedestrian preferential space with high incidence of vehicular movement.
- change of transportation modes.
- directional change of transportation - passengers.



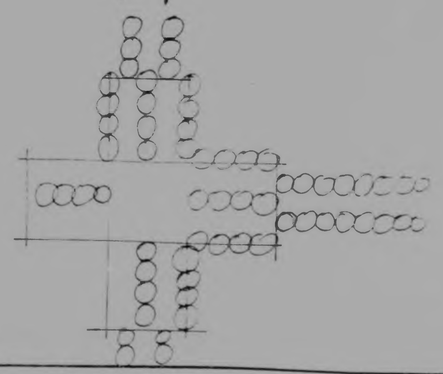
INFRASTRUCTURE

- main ring networks should be accommodated for the following.
  - sewer - piped
  - water - piped.
  - stormwater
  - electricity - underground cable
  - telephone. - underground cable



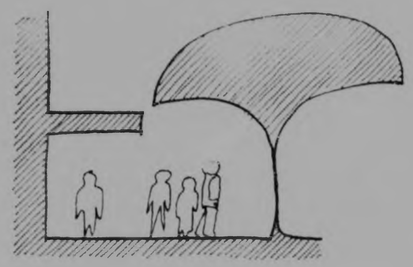
ACTIVITIES

extensive activities such as supermarket, chainstores, garage, sport complex, market, entertainment centre, furniture stores, hospital, large educational centres, motor car sales, etc.

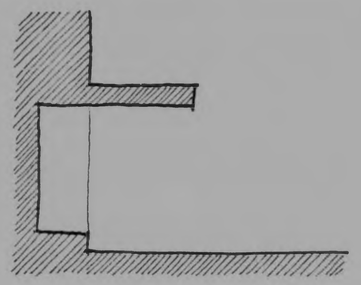


LANDSCAPING.

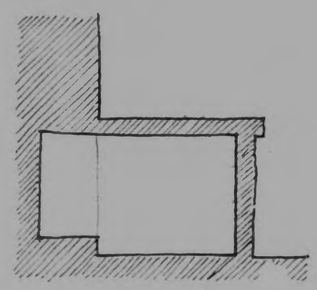
lanes of trees should reinforce the built form, enclose public space and protect pedestrians.
use landscape elements to slow down traffic.



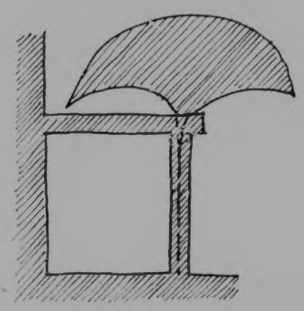
protect pedestrians against natural elements with the use of lanes of trees and built canopies



provide meeting and congregation space at the entrances to activities. Step up at entrance space to facilitate edge between movment space and entranee space.



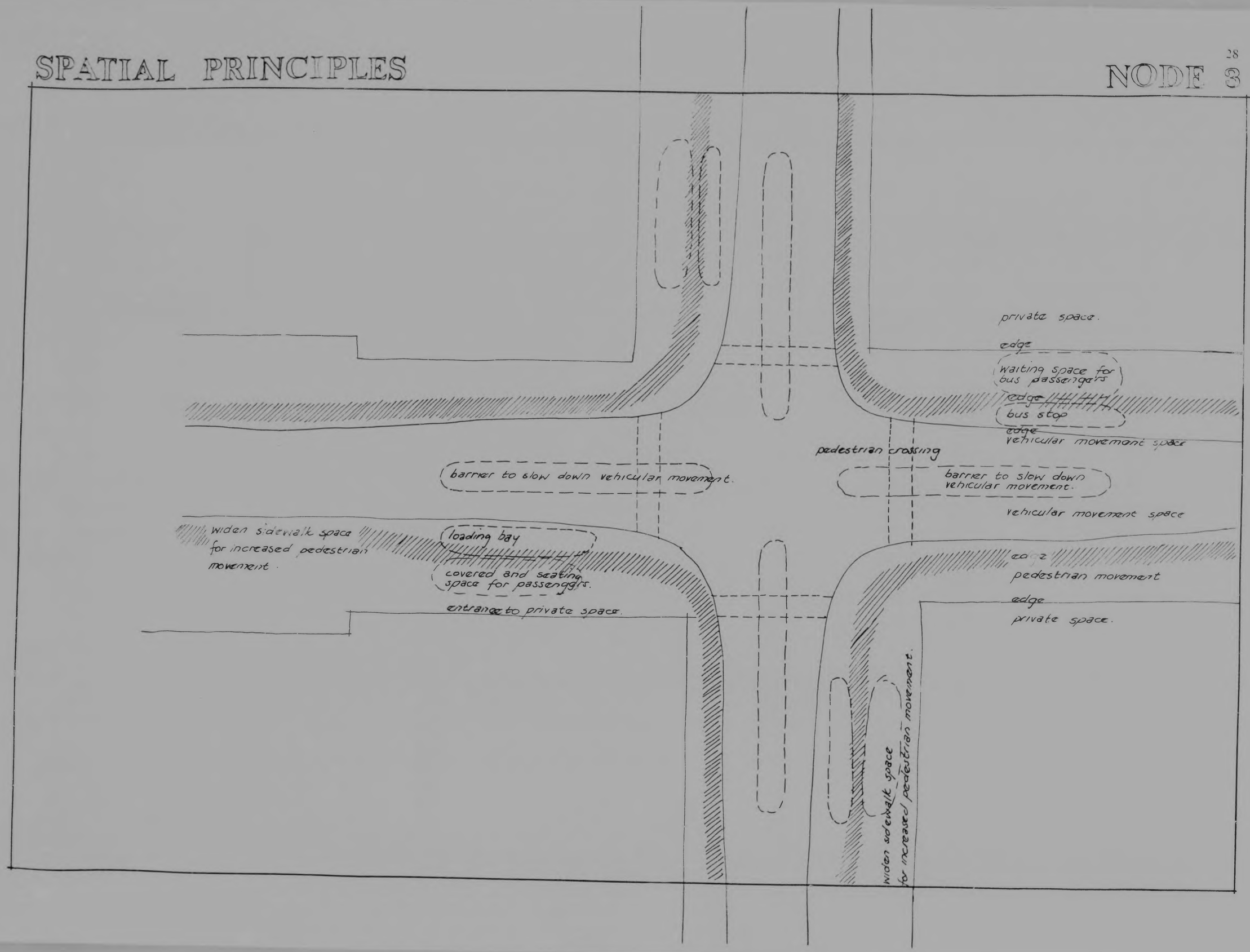
enlarge protected space for pedestrians where bus stops coincide with entrances to activities.



line up trees with collonade to provide continuity in pedestrian movement space.

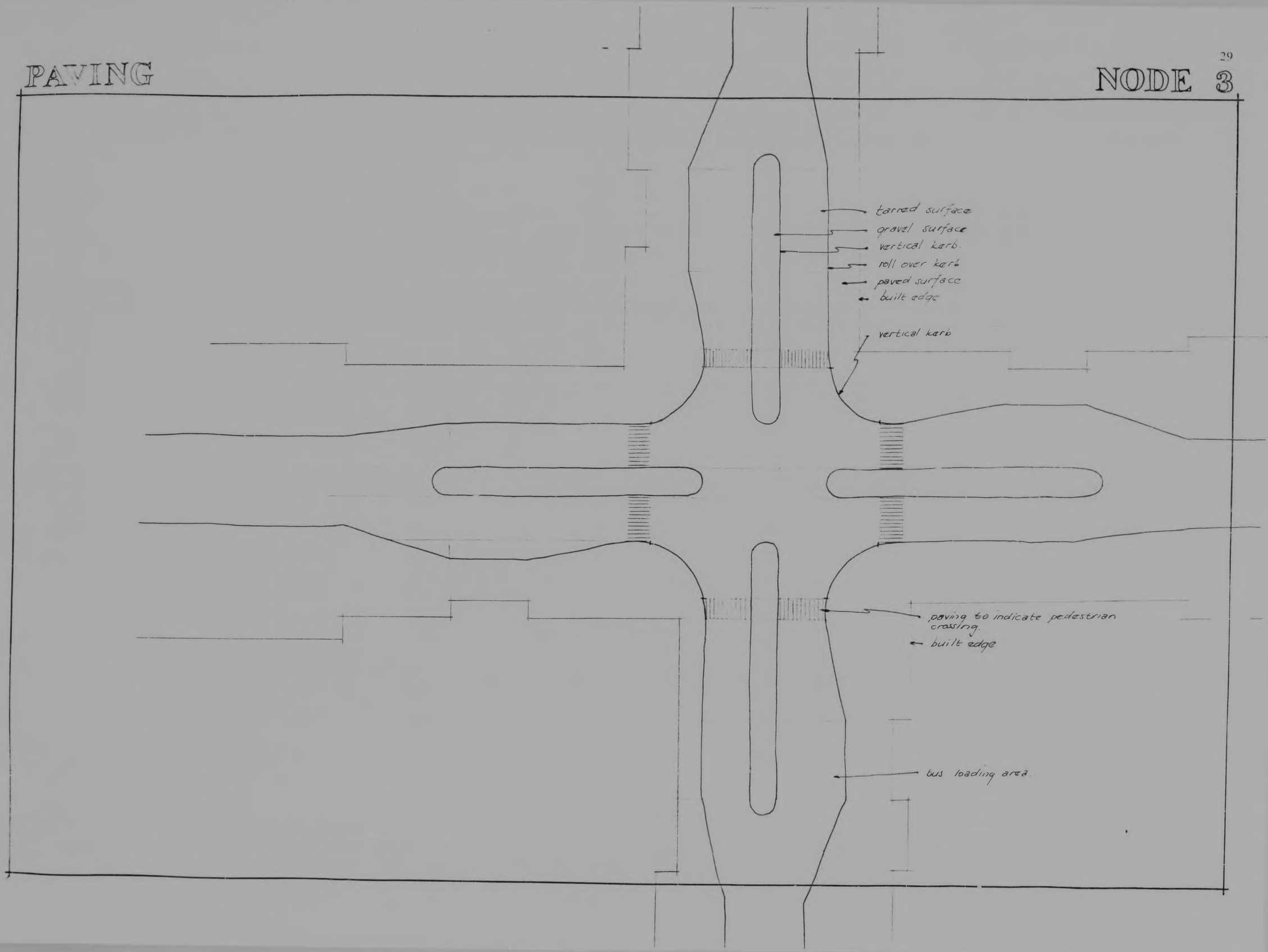
SPATIAL PRINCIPLES

NODE 3



PAVING

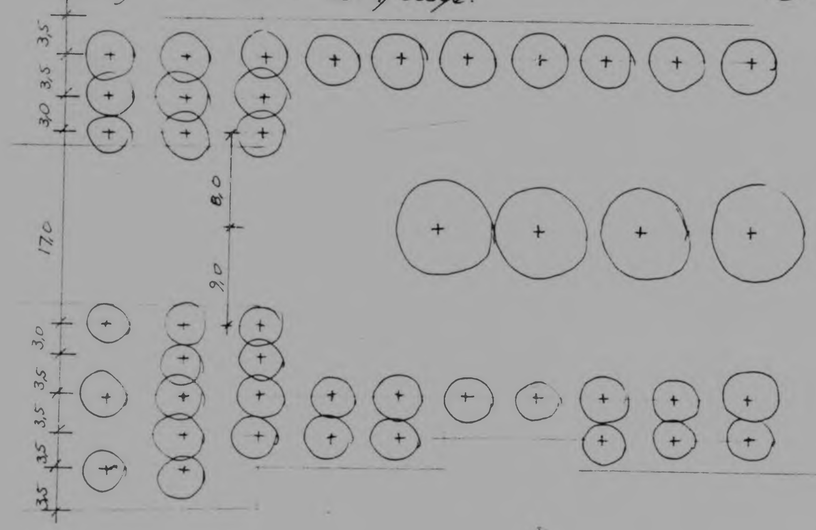
NODE 3

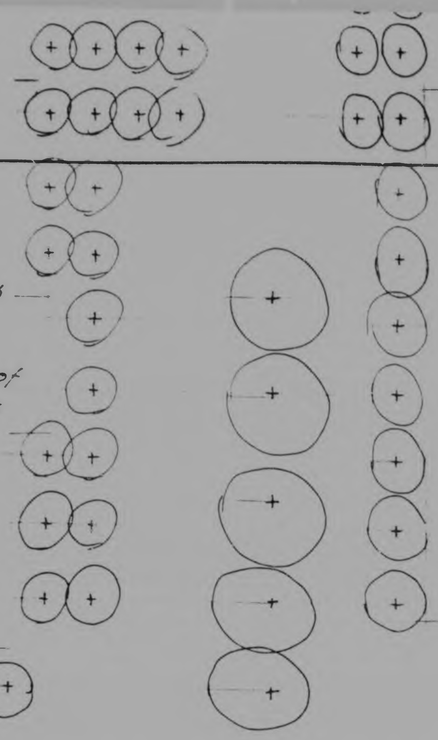


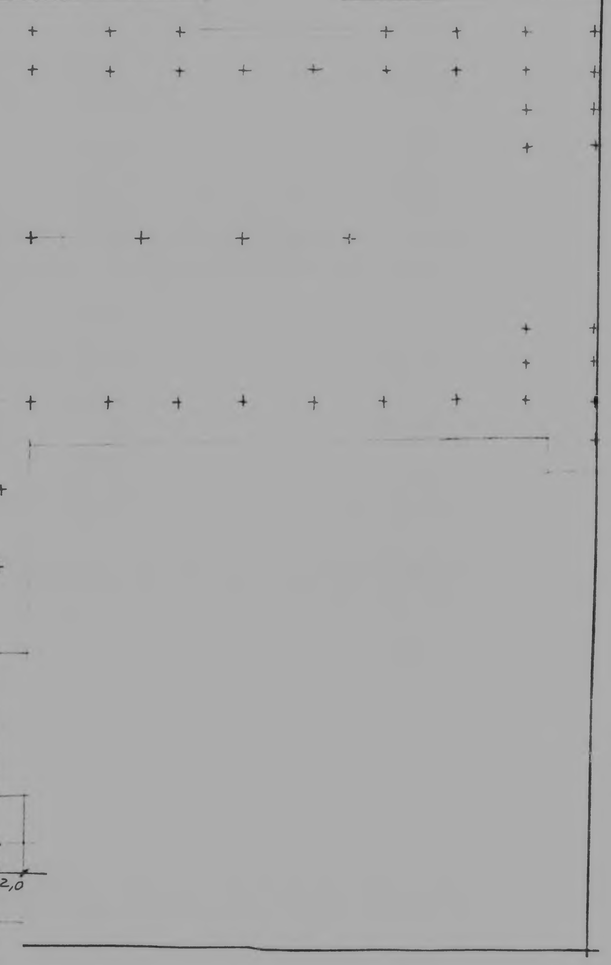
LANDSCAPING

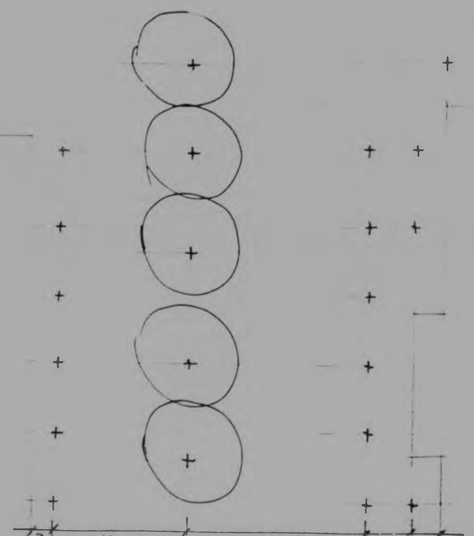
NODE 3

- shade trees on centre islands with foliage diameter of 5-7m when fully grown.
- street trees on pedestrian movement space with foliage diameter of 3-5m when fully grown.
- shade trees should have ground clearance space of 3,0m and more when fully grown to allow for large vehicular movement.
- planting to be managed by the self-help centre and coordinated with the paving programme.
- seating arrangements around trunks of street trees at bus stops to be constructed to protect young trees at an early stage.



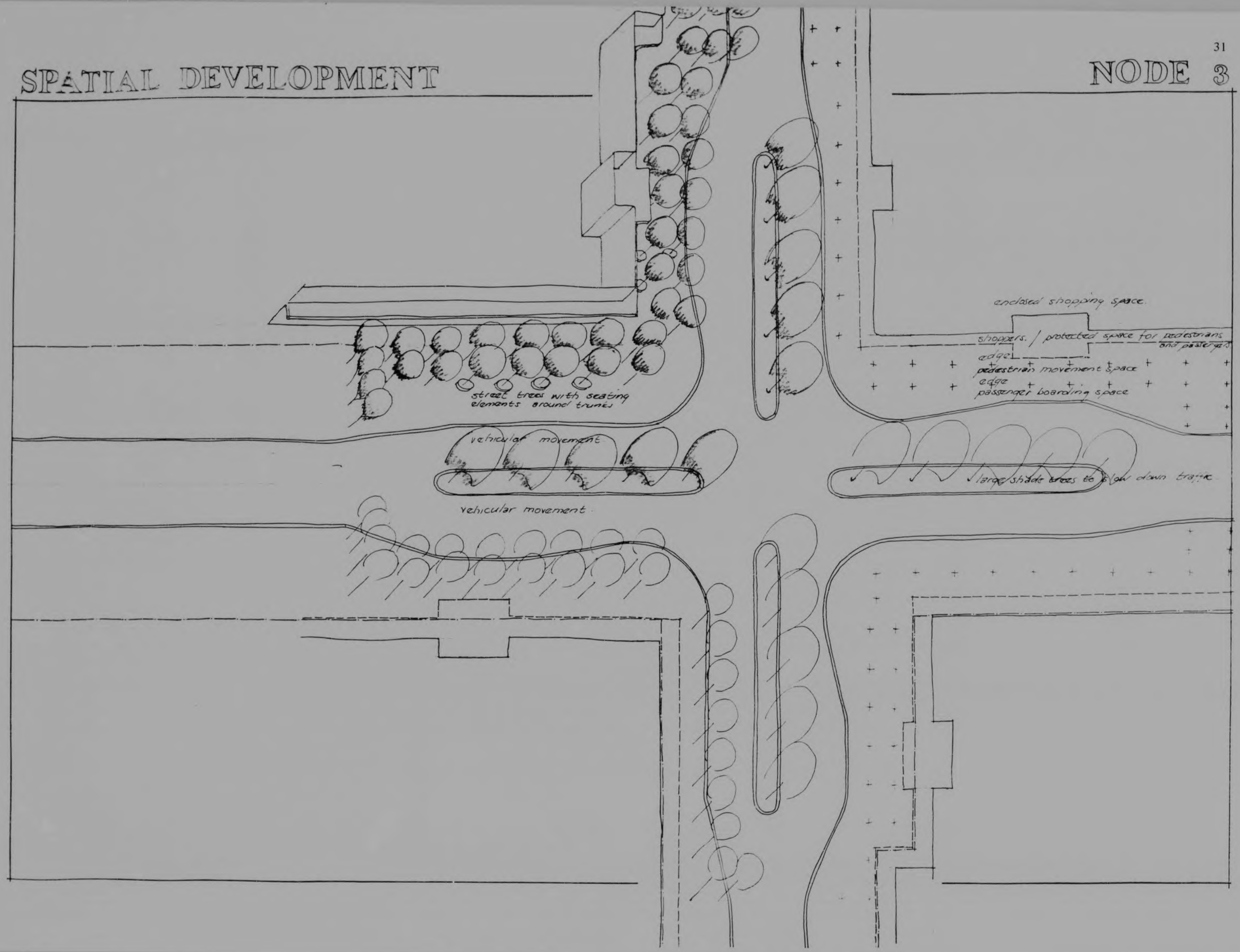






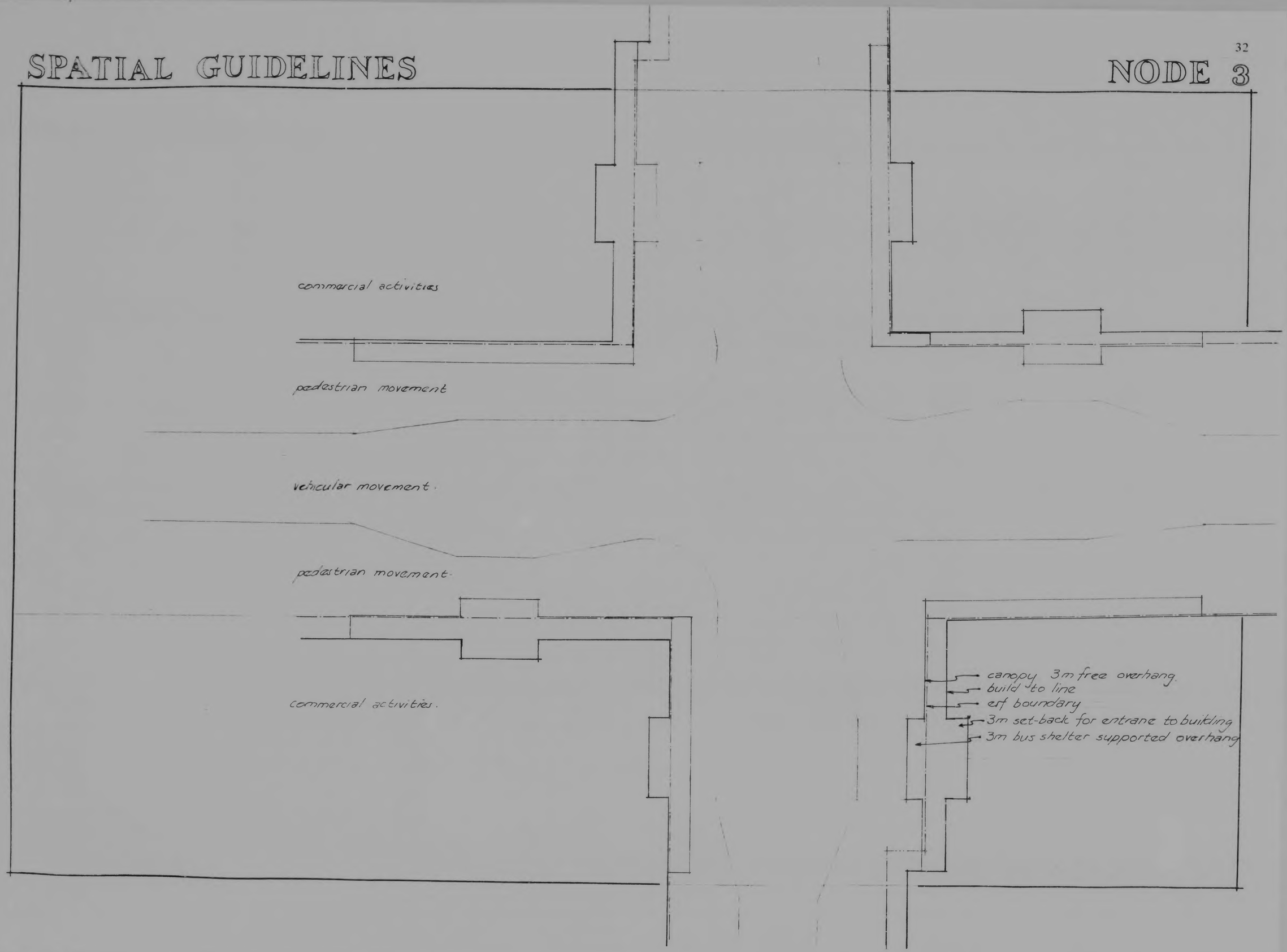
SPATIAL DEVELOPMENT

NODE 3



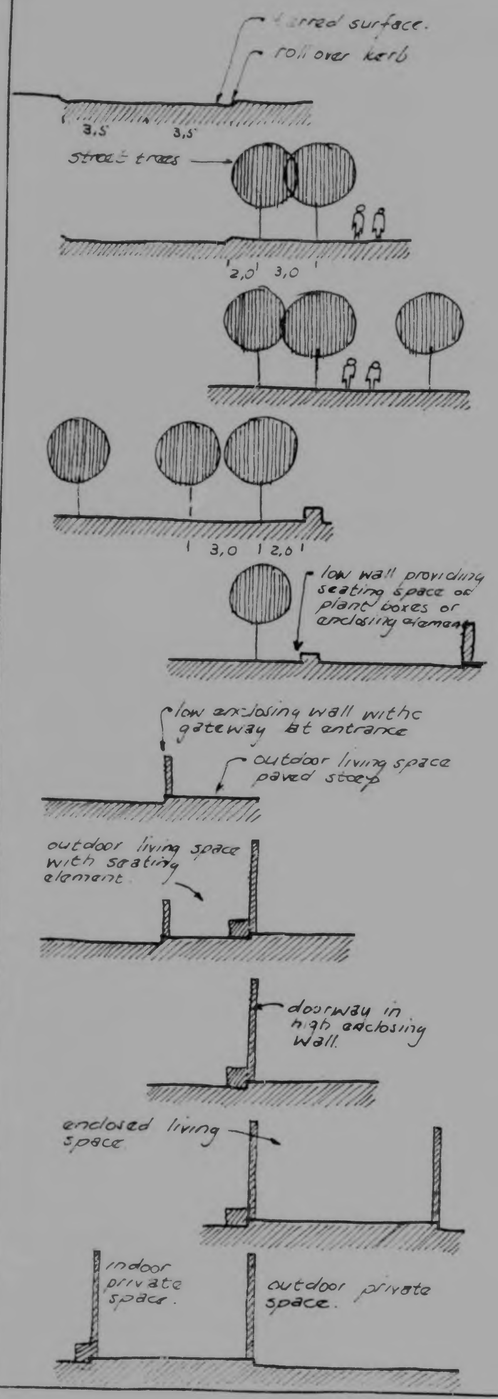
SPATIAL GUIDELINES

NODE 3



SPATIAL ELEMENTS AND PRINCIPLES

STRIP 1



vehicular movement space

edge

pedestrian movement space

edge

semi-public space
garden space

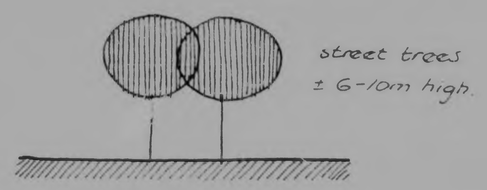
edge

semi private space

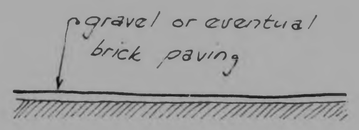
edge

covered enclosed private space

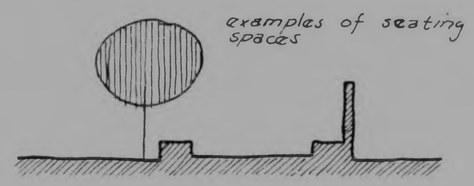
edge



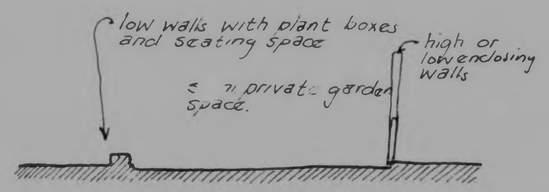
protect pedestrians from vehicular movement



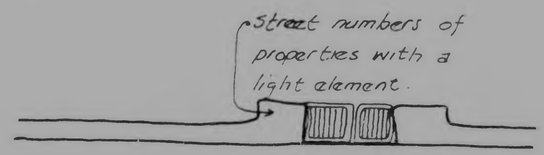
provide durable hard surface in pedestrian movement space for walking and play



provide protected seating space for privacy and shade.



provide clear transition from public to more private domains



connect private garden spaces to public space with clearly defined gateways

DEVELOPMENT PROCESS

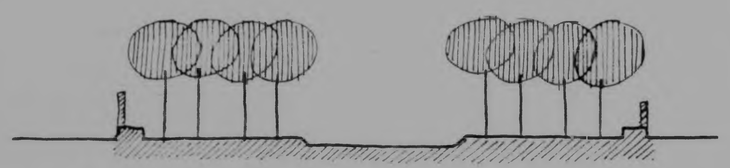
STRIP 1

semi-public space — paving or gardening space
edge — lane of trees with seating space
pedestrians — hard surfaced space
edge — lane of trees

vehicles — tarred surface

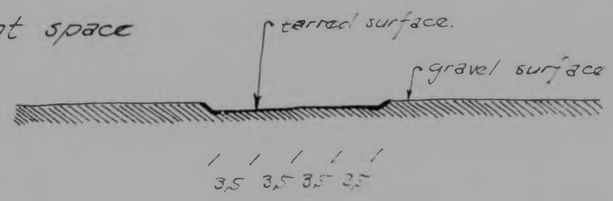
edge — lane of trees
pedestrians — hard surfaced space.
edge — lane of trees with seating space
semi-public space — paving or gardening space.

enabling structure

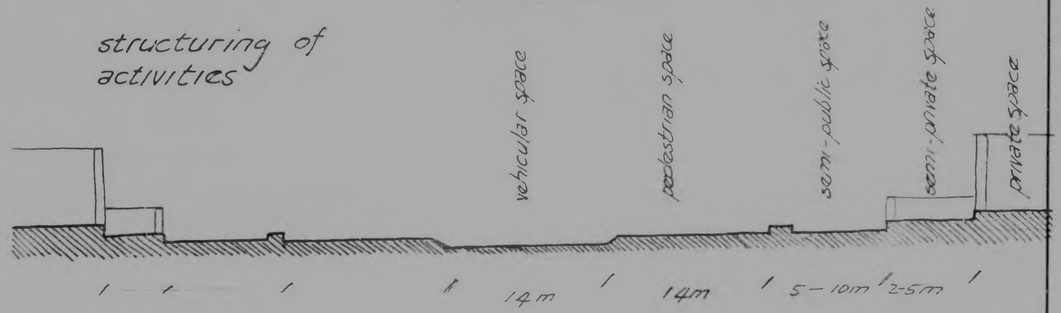


- construction of walls, seating space and flower boxes sidewalk paving and vehicular space paving should be undertaken by the self-help centre
- detail construction of low wall, entrance to site, street number and gate should be to the design of each individual owner.
- costs should be added to the purchase price of the sites. and recovered over the full loan period.
- the following cost distribution is recommended.
  - the cost of the walls and seating spaces should be recovered in the selling price of the erven on which it is built
  - the cost of the tarred road, gravelled sidewalks and trees should be recovered in the selling price of all the erven in the town
- full cost of infrastructure available at the time of first sales of erven should be recovered in the selling price of the erven in the town.

movement space

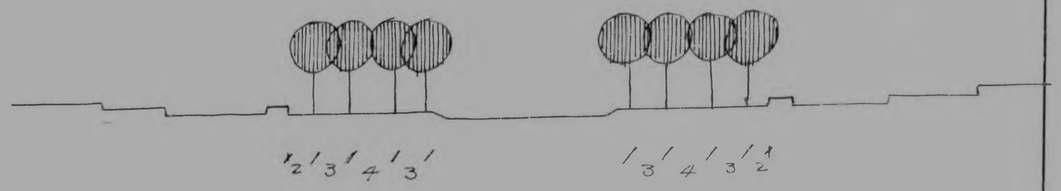


structuring of activities

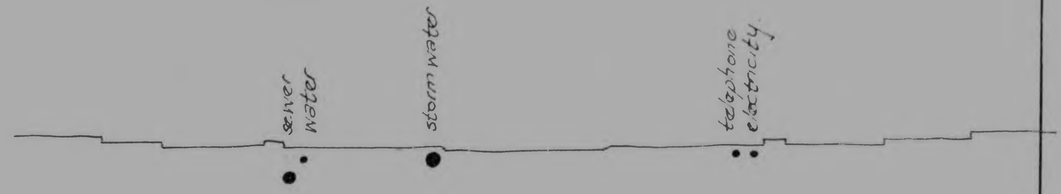


landscaping

double lanes of street trees.

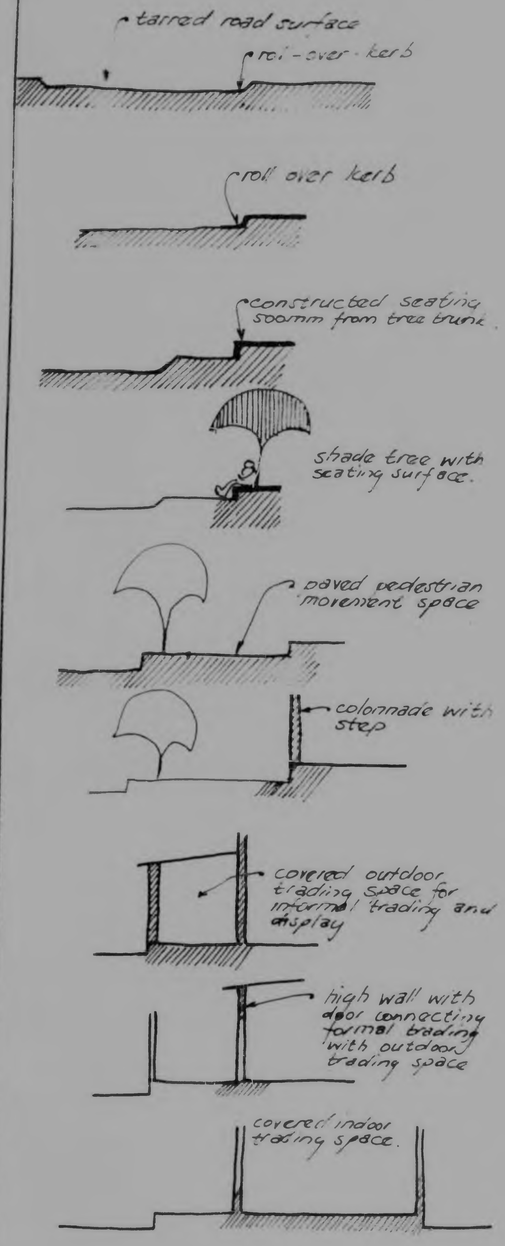


infrastructure.



SPATIAL ELEMENTS AND PRINCIPLES

STRIP 3



vehicular movement space

edge

seating space

edge

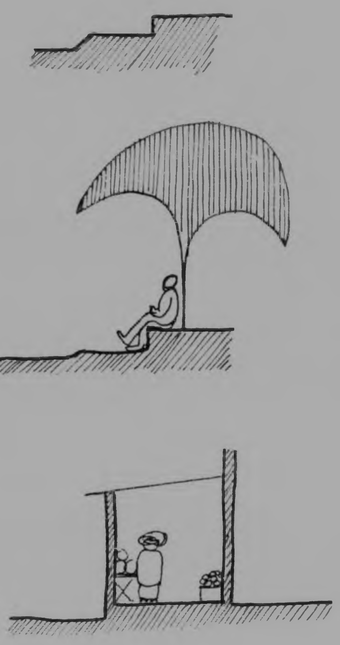
pedestrian movement space

edge

informal trading space

edge

formal trading space



protect pedestrians from vehicular movement

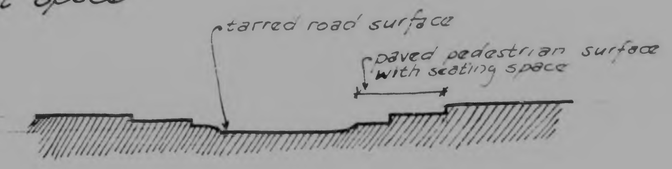
protect resting people from the sun

protect informal traders from natural elements

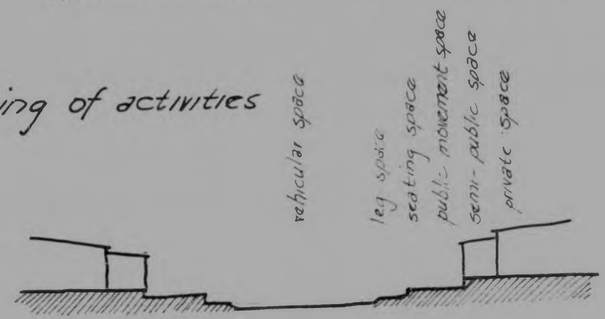
DEVELOPMENT PROCESS

private trading space	covered indoor trading space
edge	high wall with doorway
semi-public space	covered outdoor informal trading space
edge	colomade with step
public space - pedestrians	paved space
edge	lane of trees.
seating space - pedestrians	seating space under trees
edge	1m leg space with roll over kerb
vehicular space	tarred vehicular space.

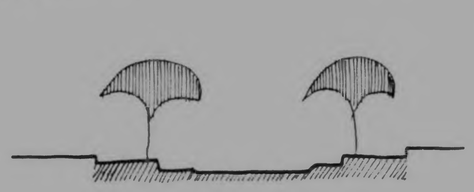
movement space



structuring of activities



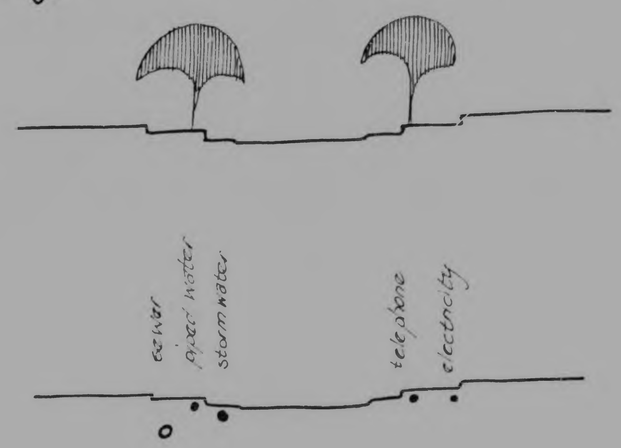
enabling structure.



- construction of tarred road surface, paved pedestrian movement space and seating spaces around tree trunks should be undertaken by the self-help centre
- planting and maintenance of shading trees to be undertaken by the self-help centre
- costs for the above should be added to the first sales price of all the sites with direct access from this public space.
- the full cost of infrastructure available at the time of first sales should be recovered in the selling price of the sites.

landscaping

two single lanes of shading trees.



PRECONDITION FOR URBANITY	IDENTIFICATION	EXISTING FORM	PRINCIPLES : FUTURE DEVELOPMENT
UPRU 1. **REINFORCEMENT**	**DESCRIPTION** The exposure of local inhabitants to a wide range of higher order facilities, activities and influences. **APPLICATION** Major transportation routes release reinforcing qualities of urbanity on activities dependent on passing trade.	Legalities and policies prevent the location of higher order activities and facilities along major transportation routes.	De-legislate, de-regulate and apply free-market forces.
UPRU 2. **CONVENIENCE**	**DESCRIPTION** Ease of access to higher order activities and facilities. **APPLICATION** The location of higher order activities along major transportation routes to intercept support from passing traffic as well as local residents.	Grid communication system facilitates easy access to existing facilities.	Provide a clear communication system with clear pattern of movement and activities.
UPRU 3. **PROTECTION**	**DESCRIPTION** Neighbourhoods frame heavy traffic and high intensity activities. **APPLICATION** Heavy traffic gravitate to major transportation routes and release pressure on parts of the urban fabric.	Tarred central spinal route provides a clear hierarchical arrangement for transportation gravitation.	Facilitate a clear hierarchical order in road spaces and transportation connections.
UPRU 4. **INTEGRATION**	**DESCRIPTION** Neighbourhoods with surrounding fabric and major transportation routes. **APPLICATION** Activities located along major transportation routes become natural focus for people living in the environment thus roads serve to integrate environment rather than bisect.	Integration of small businesses into residential fabric along main spinal road.	Use site sub-divisions and block depths as natural ordering devices for activities.
UPRU 5. **RESILIENCE**	**DESCRIPTION** Range and choice of qualities of environments in the neighbourhood. **APPLICATION** Facilitate freedom of choice in location of activities.	Freedom of choice within framework of individual landlords.	Facilitate total freedom of choice by the creation of a property market based on economic principles.

PRECONDITION FOR URBANITY	IDENTIFICATION	EXISTING FORM	PRINCIPLES : FUTURE DEVELOPMENT
UPRU 6. **FREEDOM OF EXPRESSION**	**DESCRIPTION** The involvement of many people in the making of a place. **APPLICATION** Using the enabling constraint which allows individual freedom while it protects the public good. Could be 1. Structural constraint. 2. Technological constraint. 3. Locational constraint.	Present constraints are: **Technological:** Level of education; Availability of building materials; Built structure accepted. **Structural:** Cadastral grid; landlords; Lifestyle : built form.	Self-building of the individual home environment within an overall development framework.
VICTOR GRUEN 7. **HUMAN FREEDOM**	**DESCRIPTION** Freedom as expressed in the multiplicity of choice in the urban environment. **APPLICATION** Provide a wide range of opportunities for varied experiences. e.g. Sociability – anonymity Conformity – non-confirmity Exposure – non-exposure Community – privacy.	Freedom in choice of landlord and location of his plot.	Provide freedom in choice of an affordable individual site or property.
JANE JACOBS 8. **INGREDIENTS FOR A GOOD NEIGHBOURHOOD**	**DESCRIPTION** 1. Safe sidewalks. 2. Sidewalk place of contact. 3. Use of sidewalks. 4. Use of neighbourhood parks. 5. Local government at three levels. i.e. street/district/city as a whole. **APPLICATION** Provide: 1. Clear distinction between public and private space. 2. Eyes on the street in design of housing. 3. Places to play on sidewalks and in neighbourhood parks. 4. Management of the street, district and the city as a whole.	No clear distinction between public and private spaces.	Define public spaces clearly. Provide guidelines for the siting of buildings to facilitate policing of streets in a natural way. Demarcate pedestrian and vehicular space clearly. Protect pedestrians in public environment from vehicular movement and natural elements.

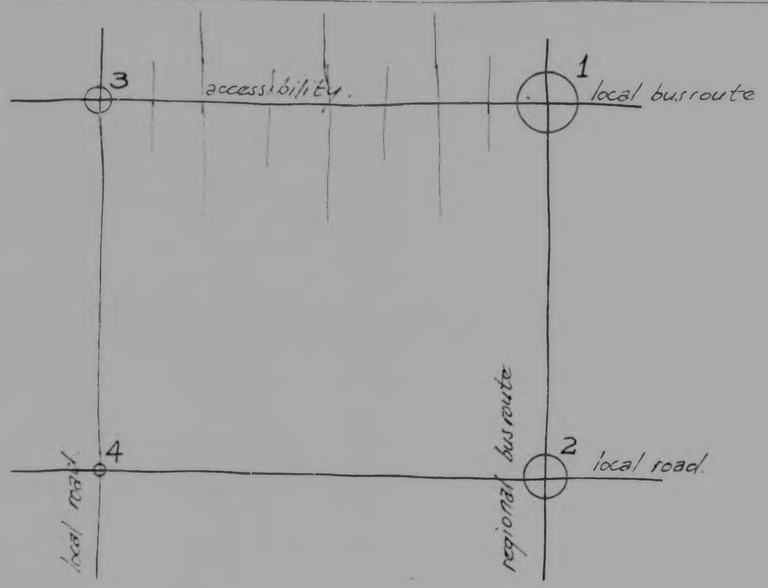


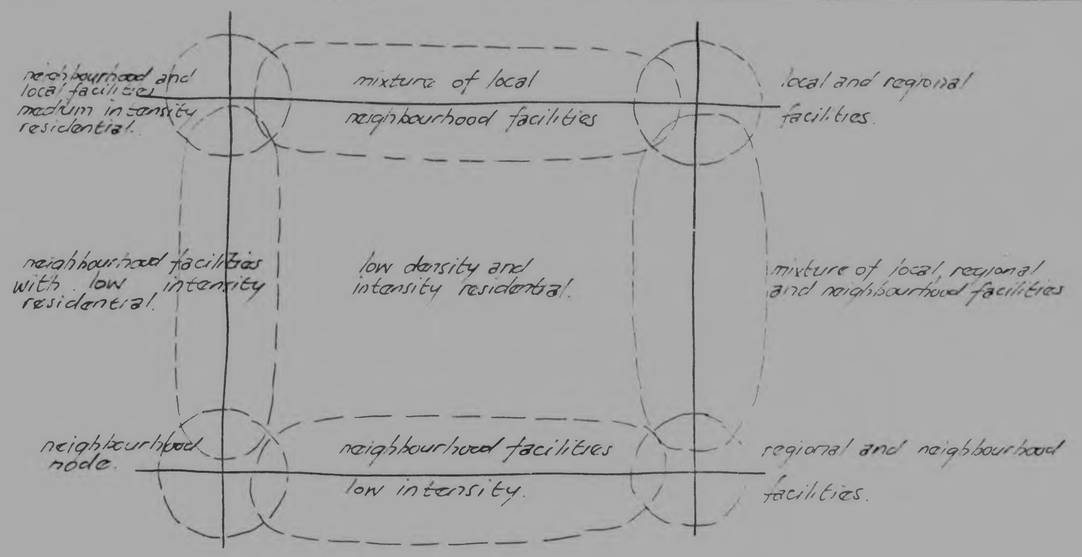


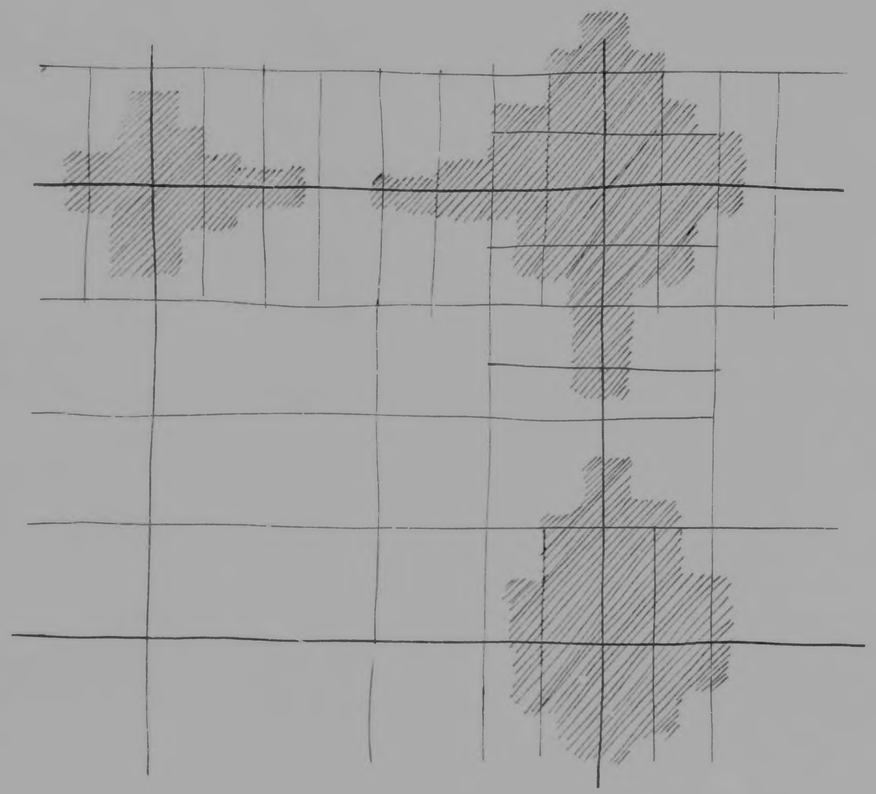


NEIGHBOURHOOD SCALE:
UNIVERSAL

PRECONDITION	IDENTIFICATION	EXISTING FORM	SITE SPECIFIC PRINCIPLES : FUTURE DEVELOPMENT
JANE JACOBS 9. **GENERATION OF DIVERSITY** 	**DESCRIPTION** The need for: 1. Mixed primary uses. 2. Small blocks. 3. Aged buildings. 4. Concentration. **APPLICATION** 1. Mix uses in the neighbourhood environment. 2. Design small city blocks. 3. Retain old buildings. 4. Concentrate development.	Natural mix of uses, block sizes and densities.	Allow free market principles to determine location of activities within a broad framework of transportation network and sizes of subdivisions.







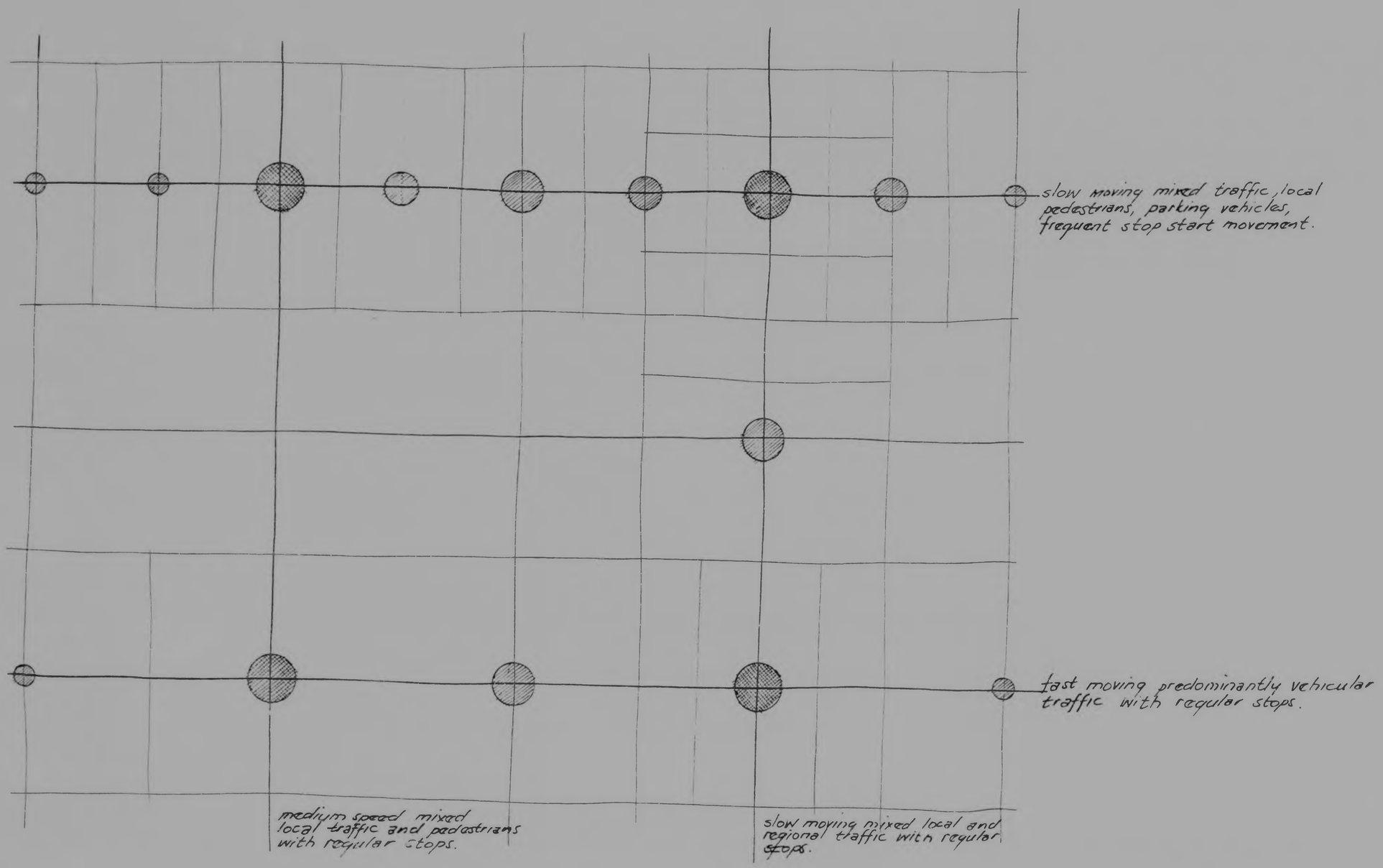
1.	**Regional functions and activities** Garage / market / cinema / supermarket / hospital / technikon / sport complex / civic functions / bus terminus	**Site specific** Supermarkets/ pharmacy / sport complex / garage / take-away / bus terminus
2.	**Social** Filling station / informal market / community hall / clinic / high school/ sport field / pharmacy / doctor / ambulance / library / bus stop / taxi	Sangoma / school / herbalist clinic / informal market / soccers/ coal merchant
3.	**Neighbourhood** Church / crêche / community hall / corner shop / delicatessen / milk shop / butchers / fresh produce / primary school / pharmacy / doctor / library	Water shop / shebeen / basket weavers / gospel preacher / church / child minder / boarding house / titprs / fresh produce sellers / hawkers / soup kitchens

NEIGHBOURHOOD SCALE:

PRECONDITION : PROTECTION INTEGRATION

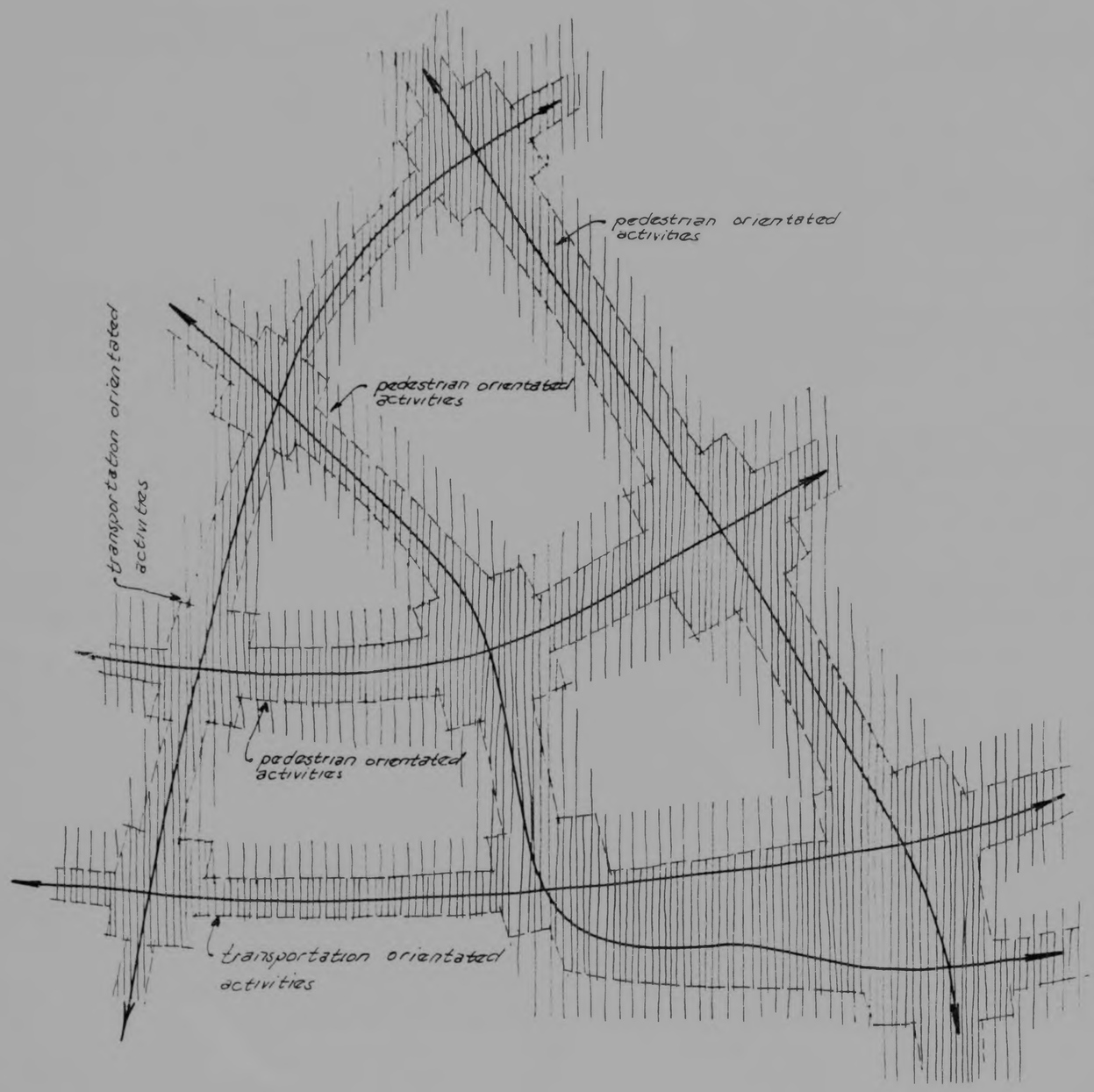
PRINCIPLE : CLEAR HIERARCHICAL STRUCTURE OF MOVEMENT STOPS AND MODES OF TRANSPORT

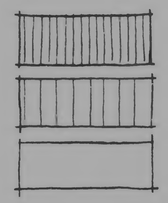
PATTERN



EXPECTED INTENSITY OF ACTIVITIES

SCALE: LOCAL AREA.





higher intensity of activities

medium intensity of activities

low intensity of activities.

traffic and transportation orientated activities:

monthly consumer goods such as:
- supermarkets
- live stock sales
- garages
- hardware
- farming equipment
- furniture, material, clothing
- roadhouse

other activities:
- sport centres
- adult educational centres
- service industries
- regional health centres

pedestrian orientated activities:

weekly and daily consumer goods such as:
- superette.
- cafe, general dealer, grocery store,
- green grocer
- butcher
- dairy product outlet
- bakery
- bottle store
- clothing shops, harberdashery, material

other activities
- various personal services and repairs.
- child education

LOCAL AREA SCALE:

PRECONDITION	DESCRIPTION	EXISTING FORM	PRINCIPLES : FUTURE DEVELOPMENT
UPRU 1. RESPONSE TO UNIQUENESS OF PLACE	**DESCRIPTION** Recognition of positive potentials inherent in particular locations in the making of places and buildings. **APPLICATION** Application of design ingenuity to release potential.	1. Orientation of houses to face public space. 2. Closing off of streets with houses. 3. Greater distances between houses at intersecting public spaces.	1. Interaction between buildings and public space. 2. Accessibility at nodes and linear. 3. Built to line principle.
UPRU 2. FREEDOM OF EXPRESSION	**DESCRIPTION** The creation of uniqueness by the ingeneious response of the individual to the structure of the environment. **APPLICATION** The creation of opportunities and constraints as structural keys to which the individual can respond.	Unrestrained location of minor activities in the structured framework.	1. Development principles to guide the individual in his response to the environment.
UPRU 3. ANONYMITY	**DESCRIPTION** That part which totally private sections of the dwelling unit forms in the total environment. **APPLICATION** Interdependence between private and public sections of the environment affects the quality and useage of the other – performance of social space.	1. Progression of spaces between public space and private spaces. 2. Distance between private dwelling units.	1. Principles to guide interface development between: (a) Public space and private space. (b) Side space between individual developments. (c) Rear space between individual dwelling units.
UPRU 4. INTERFACE 	**DESCRIPTION** Degree to which public activities impose on private space. **APPLICATION** 1. Clarity of definition between public activity and private living. 2. Way in which the interface is made to provide: (a) Sense of Scale. (b) Enclosure. (c) Continuity. (d) Protection.	 Unclear definition of public and private space by thin strands of wire to demarcate home grounds. 	Principles to provide clear demarcation between public and private space.

	PRECONDITION	DESCRIPTION	EXISTING FORM	PRINCIPLES : FUTURE DEVELOPMENT
UPRU	5. CONTINUITY	**DESCRIPTION** The continuity of an urban quality to enable large scale green spaces and cultural facilities to occur in local areas. **APPLICATION** Lay down those essential constraining structures which the individual cannot create, to release freedom of choice which moulds and maintains the quality of the whole.	Similar building materials and principles of built form give continuity in urban environment.	1. Arrange spatial progression from public to private spaces in a design framework.
UPRU	6. COHERENCE	**DESCRIPTION** It is the enabling elements in the environment which include public spaces and their interface with private spaces. **APPLICATION** Create freedom of, and opportunity for choice by providing essential constraints which become enabling elements.	No enabling elements exist in the environment. Only landlords who facilitate leases.	Provide enabling structures to facilitate the development of necessary elements in the public environment eg. seating space, lighting, planting, protecting of pedestrians.
UPRU	7. TIMELESSNESS	**DESCRIPTION** The recognition of the duality between order and disorder by the reflection of the complexity of man in his environment. **APPLICATION** Measure environmental performance in terms of how well it accommodates and enables life and its qualities by: 1. Understanding the complexity of man's life processes. 2. Recognising what is truly significant to man in his environment. 3. Establishing a rapport between man and his environment.		Place the responsibility to create the individual environment in the hands of the inhabitants.
UPRU GRUEN	8. PARTICIPATION FREE EXCHANGE OF GOODS AND IDEAS	**DESCRIPTION** The way in which public space is used by the inhabitants. **APPLICATION** 1. Interface between public and private spaces should be made as a positive element. 2. Necessary social functions should consciously be accommodated in the public spaces.	Exchange of goods and ideas limited by legislation and lack of finance.	Provide necessary social infrastructure at an early stage in the urban environment. Gradual spatial change from public to private space.



PRECONDITION	DESCRIPTION	EXISTING FORM	PRINCIPLES : FUTURE DEVELOPMENT
UPRU **9. SAFETY**	**DESCRIPTION** The public respect for privacy and vice versa. **APPLICATION** 1. Clearly define the interface between public and private space. 2. Provide continuity of the interface. 3. Allow total change to the individual unit behind the interface.	Safety limited since no street lights are provided and public and private spaces not clearly defined.	Provide an overall design framework with clearly defined public spaces, edge conditions and freedom of expression in the individual environment.
GRUEN **10. DIRECT HUMAN CONTACT**	**DESCRIPTION** Opportunity should be provided in the urban realm for continual direct human contact and communication. **APPLICATION** The connection between activities and communication channels should be clearly defined.	Connection between private spaces and public spaces follow clear definition of interfaces of spaces.	Determine spatial progression from private to public space as connection.

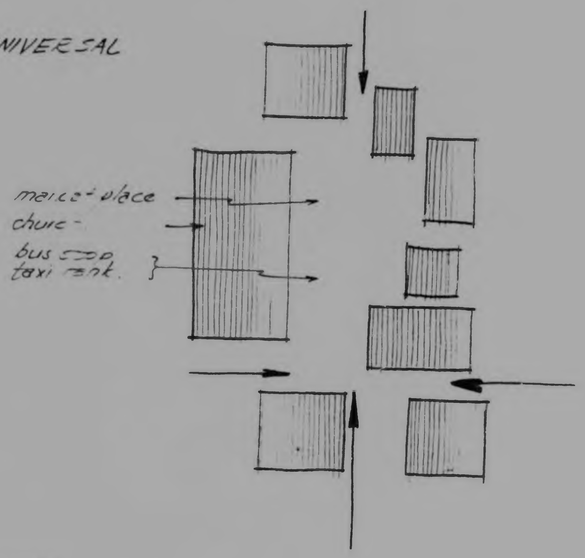


LOCAL AREA SCALE:

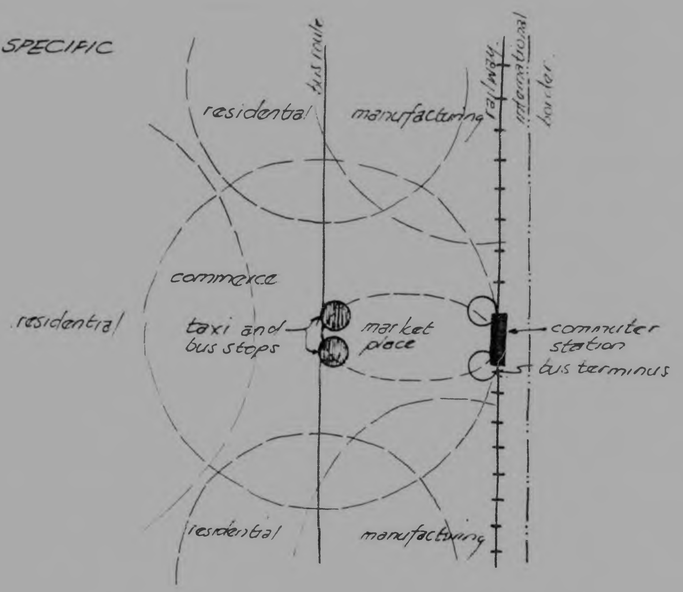
PRECONDITION : SYMBOLIC PLACE

PRINCIPLE:

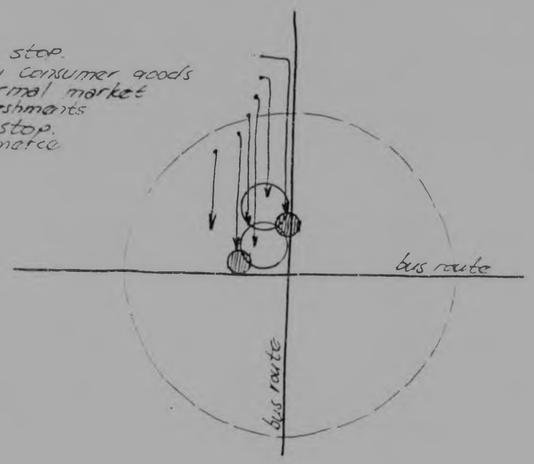
UNIVERSAL



SITE SPECIFIC



DESIGN GUIDELINE



ELEMENTS

MOVEMENT

1. Multiplicity of interchange modes of transportation attracts high intensity of activity. creates CBD.
2. High intensity interchange of regional transportational modes creates market place.
3. Interchange of modes of transport creates meeting place.

FUNCTION

1. Multiplicity of functions connect to high order of interchange of various modes of transportation.
2. High intensity and regional community functions locate at interchange of high order transportation systems.
3. Meeting and waiting space develops at interchange of modes of transport.

ACTIVITIES

1. Formal market/all retail/commerce/bus terminus/rail station/taxi ranks/mini buses/private vehicles/pedestrians/waiting area/park/church/services/commerce/manufacturing etc.
2. Informal market/retail/garage – filling station/bus stop/taxi stop/mini buses/refreshments/private vehicles/waiting/supermarkets.
3. Informal market / refreshments / shopping / waiting / bus stop / taxi stop/pickup area/daily commuter needs.







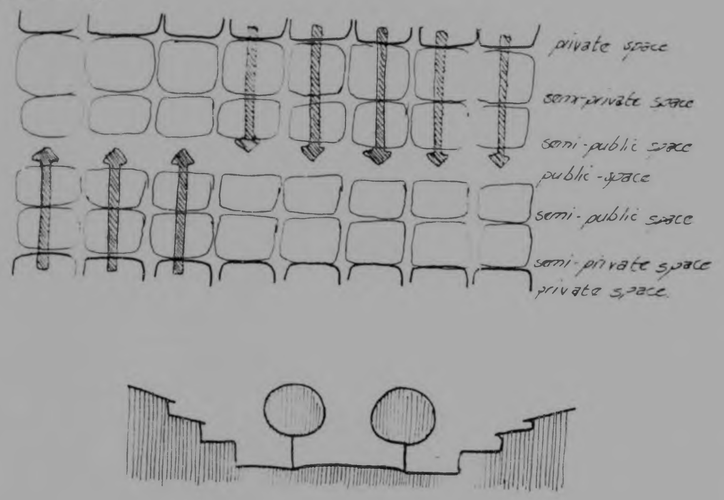


LOCAL AREA SCALE

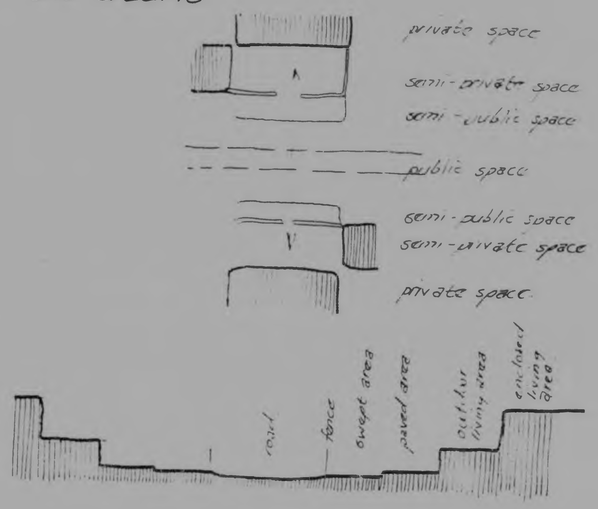
PRECONDITION : ANONYMITY

PRINCIPLE CHOICE OF PRECINCT PROVIDES DEGREES OF PRIVACY, ANONYMITY OR COMMUNITY TO THE INDIVIDUAL

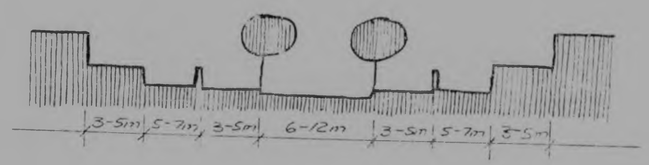
UNIVERSAL



SITE SPECIFIC



DESIGN GUIDELINE.



1. Road surface demarcates public space – vechicles.
2. Sidewalk demarcates public space – pedestrians.
3. Trees protect pedestrians and give privacy to semi-public space.
4. Low wall demarcates change from public to semi-public space.
5. Low wall and roofed area space demarcates semi-private and semi-public space.
6. High walls and pitch roof demarcates private space.

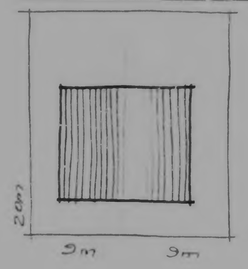
FUTURE

1. As density increases buildings will develop closer to the public space.
2. Trees could provide greater privacy.
3. Wall could provide greater privacy.

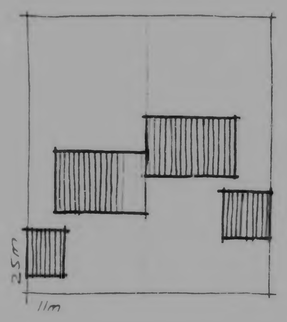
BLOCK AREA SCALE.

PRECONDITION : INTENSITY OF USE

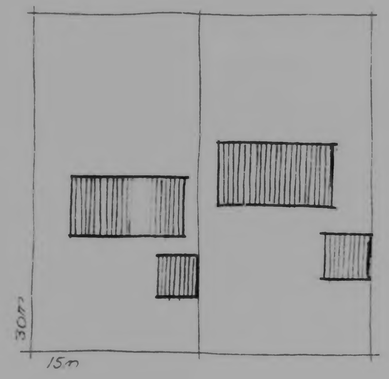
PRINCIPLE : SITE SIZE INTENSITY OF MOVEMENT AND ECONOMICS DETERMINE INTENSITY OF USE



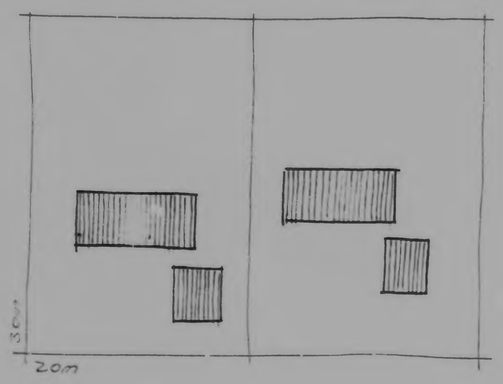
Gross density – 35 du/ha
height – 1 storey
built form – semi-detached on one side boundary
du size – 7 – 80 m²
expansion – double storey – 50 families/ha
block size – 50 x 145 – 165 (mid street to mid street)



gross density – 27 du/ha
height – 1 storey
built form – semi-detached or free standing on one side boundary
du size – 70 – 80 m²
expansion – ground level – 35 du/ha
double storey – 52 du/ha
block size – 62 x 177 – 232 (mid street to mid street)

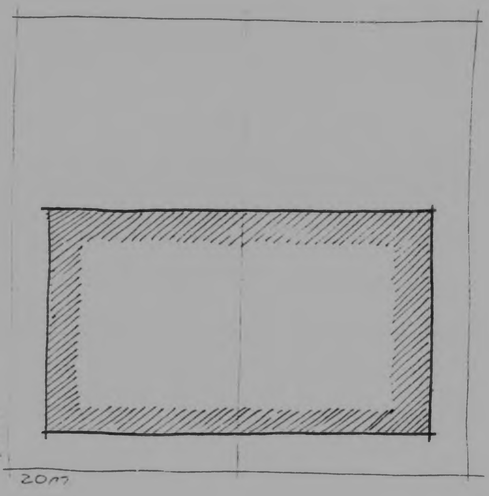


gross density – 18 du/ha
height – 1 storey
built form – free standing
du size – 70 – 80 m² or larger
expansion – ground level 30 du/ha
double storey 55 du/ha
block size – 45 x 240 – 300 m (mid street to mid street)

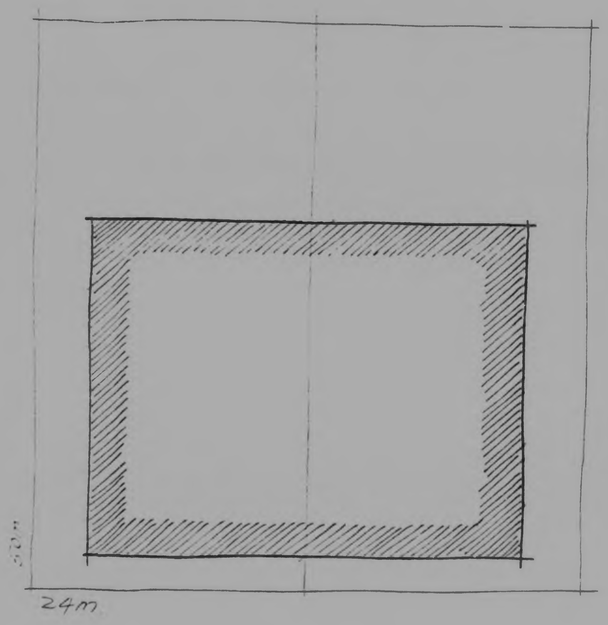


gross density – 10 du/ha
height – 1 storey
built form – free standing
expansion – ground level – 35 du/ha
double storey – 60 du/ha
three storeys – 70 du/ha
block size – 75 x 315 – 415 m (mid street to mid street)

Mixed uses, commerce and industry

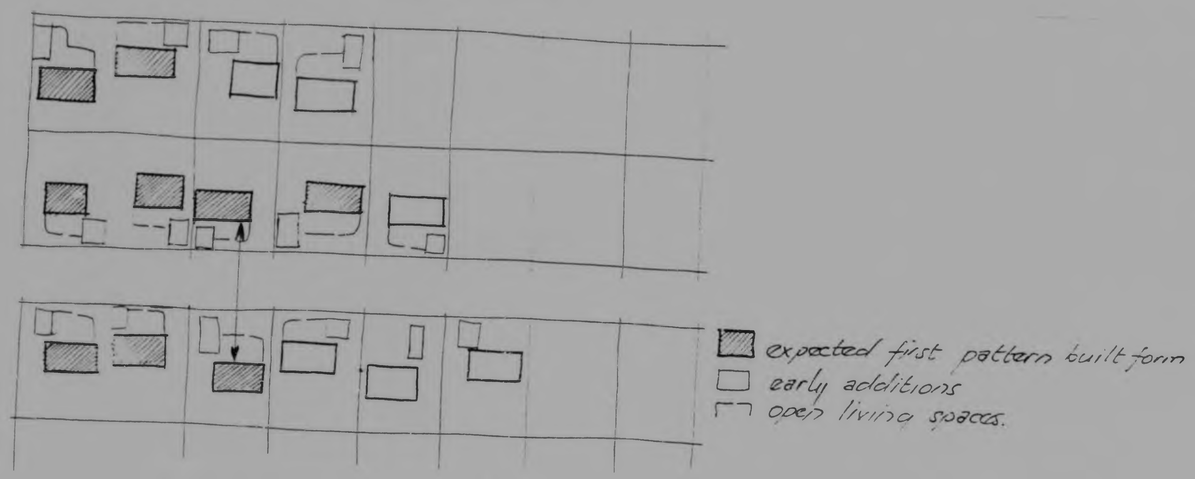


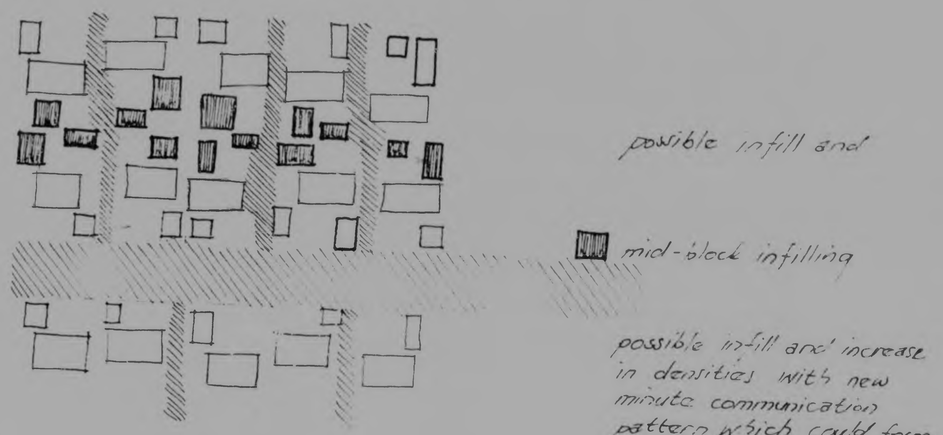
F.A.R. 0,5 – one storey
F.A.R. 0,8 – two storeys
block size – 100 x 315 – 415 m
ideally block should not be longer than 300 mm in commercial and retail areas.



F.A.R. – 0,6 one storey
F.A.R. – 1,0 two storeys
block size 70 m x 308

PRINCIPLE: ENCLOSE PUBLIC SPACE/ORIENTATE OPEN LIVING SPACE ON TO PUBLIC SPACE/PRIVACY



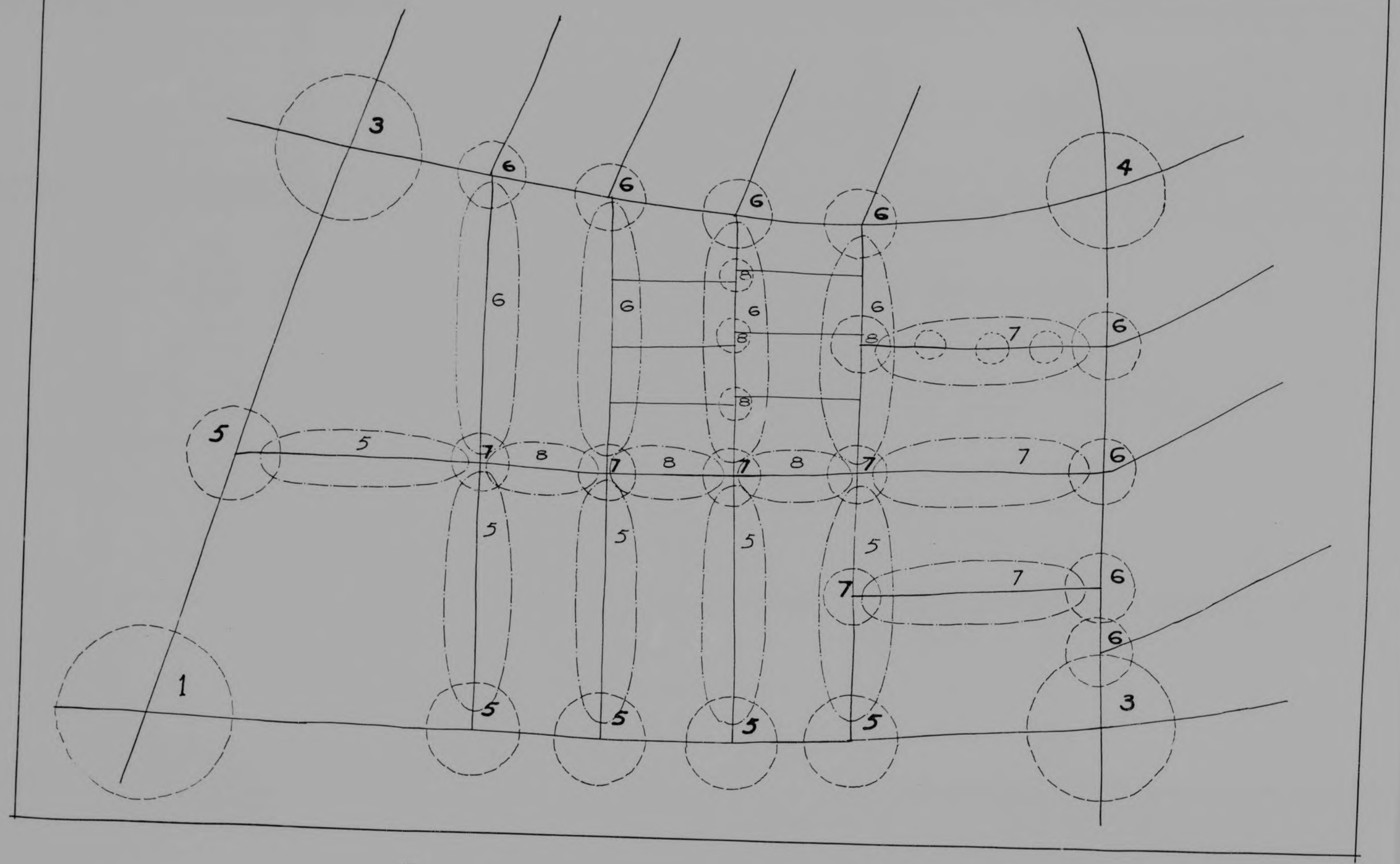


1. Houses are located towards the rear of the site – distance gives privacy.
2. No backyard situation – communication towards public street.

1. Subdivisions of individual sites should not be opposite – should be staggered.
2. Future pedestrian streets will develop on side boundaries.
3. Sites are more square than rectangular in shape.
4. Dimensions vary from 15 x 15 m to 15 x 20 to 20 x 20.

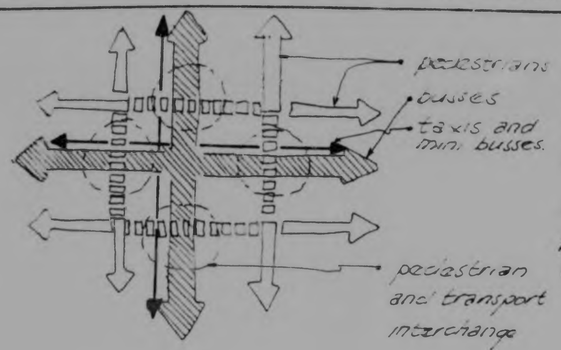
NODES AND STRIPS

SCALE : NEIGHBOURHOOD.



DESIGN PRINCIPLES

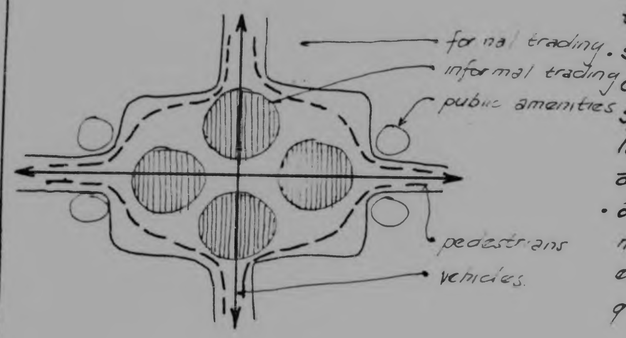
NODE 4



MOVEMENT

strong mass transportation movement through pedestrian preferential space.

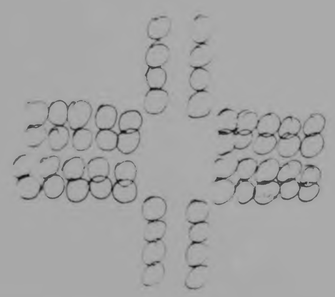
exchange between all modes of mass transportation



ACTIVITIES

- spatial qualities of space should accommodate large congregation and interaction of people.
- space should act as a communal outdoor living space where district and local people can meet and interact
- activities in the space meeting space, resting space, eating, shopping, exchange of goods and ideas,

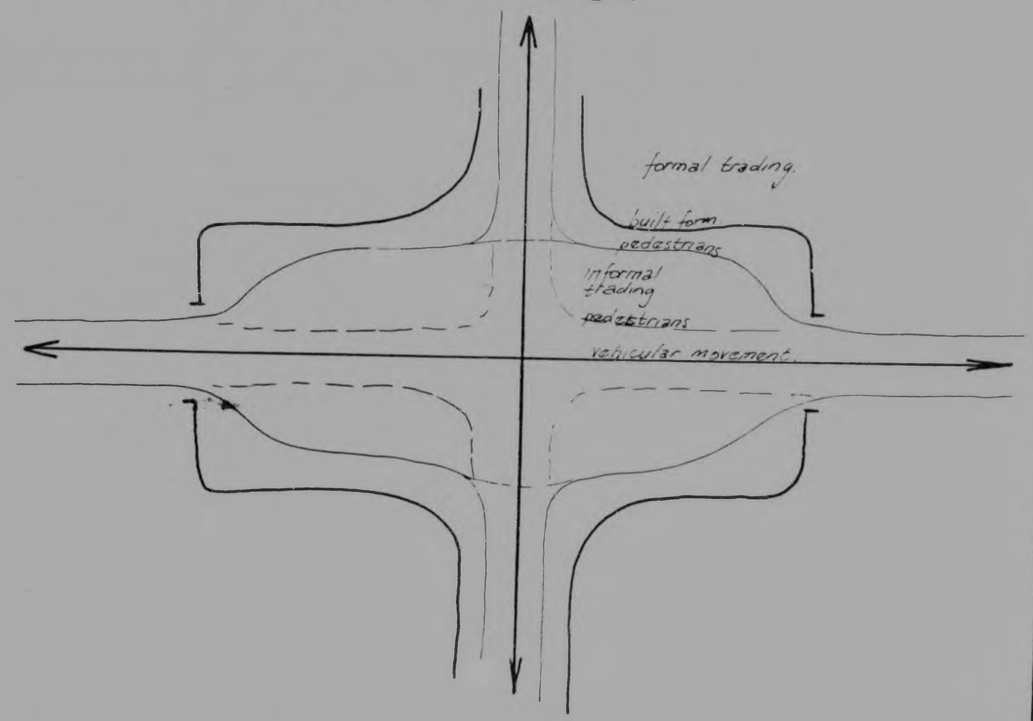
- activities with access to the space.
retail, refreshments, entertainment medical care on daily basis, short term educational facilities, recreation personal and other services. etc.



LANDSCAPING

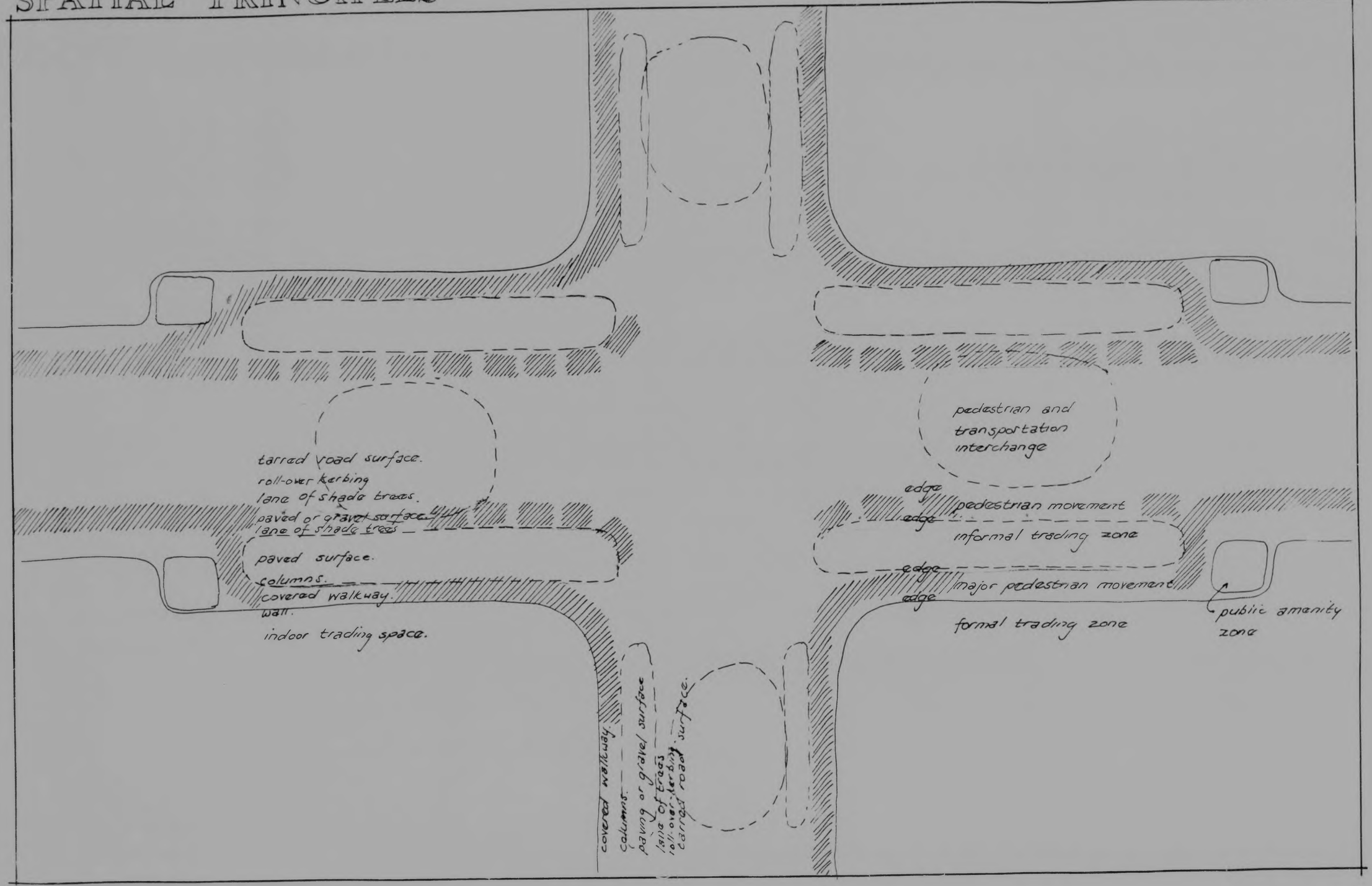
mainly shade trees to protect pedestrians from natural elements and serve as extended space to covered built form.

CONCEPTUAL ARRANGEMENT OF MOVEMENT AND ACTIVITIES



SPATIAL PRINCIPLES

NODE 4



PAVING AND LANDSCAPING

NODE 4

- deciduous shade trees with 5-7m foliage diameter when fully grown should be planted in pedestrianised space.
- self-help centre should provide trees and manage planting programme. as well as undertake and coordinate paving of pedestrianised space
- construction of vehicular space to be undertaken by self-help centre on tender basis with private contractors.
- costs of vehicular and pedestrian space construction should be recovered in sale of all erven in town.
- design of covered colonnade and informal trading spaces should be undertaken by the self-help centre

shade trees.
colonnade
tarred vehicular movement space
roll-over kerb
paved pedestrian movement space.
step-up twice.
paved and covered walkway

step-up

paved informal trading space.

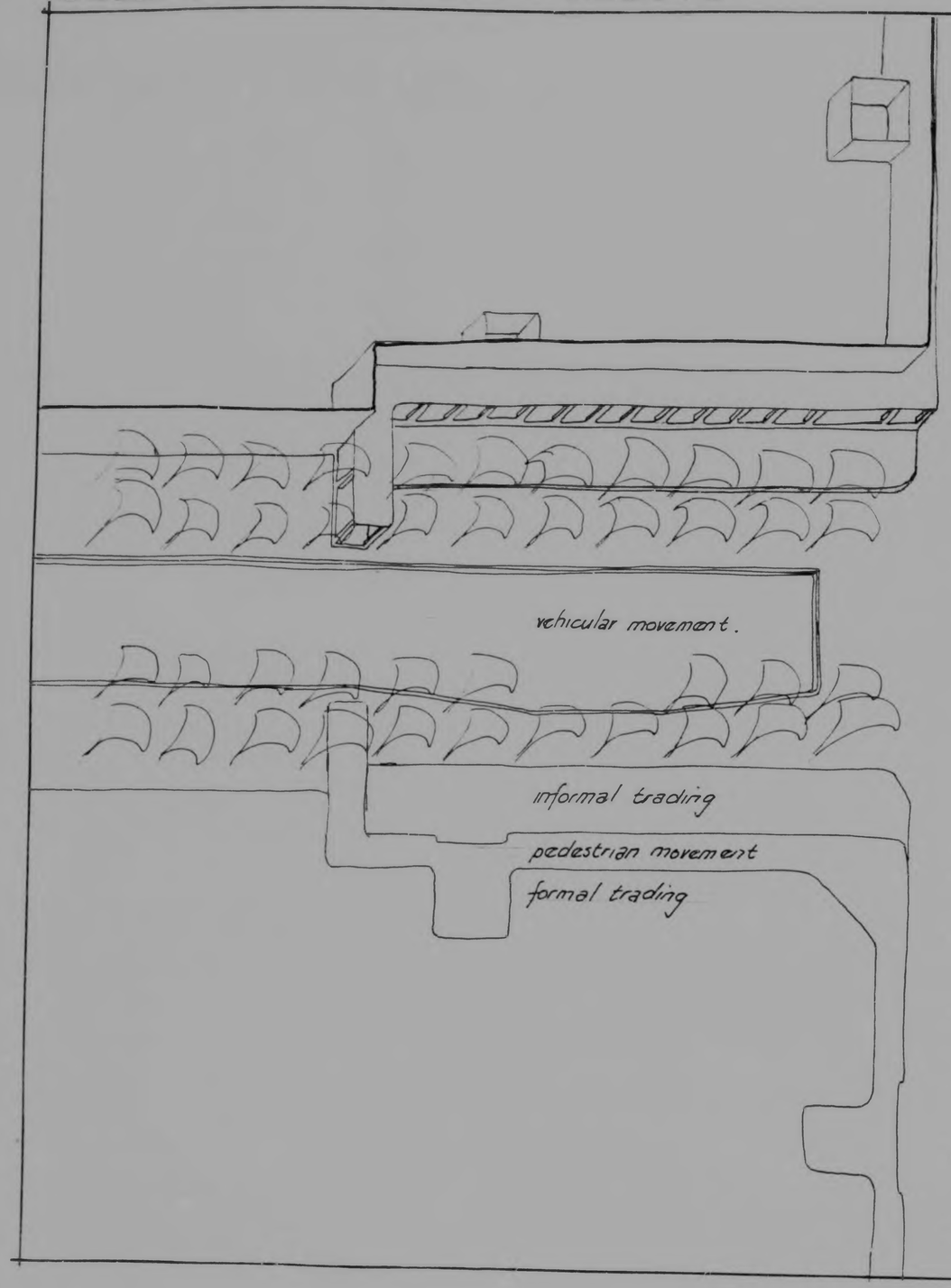
future enclosure of public space by built form from second storey and higher.

space can be enclosed by buildings from second storey and higher in this position.

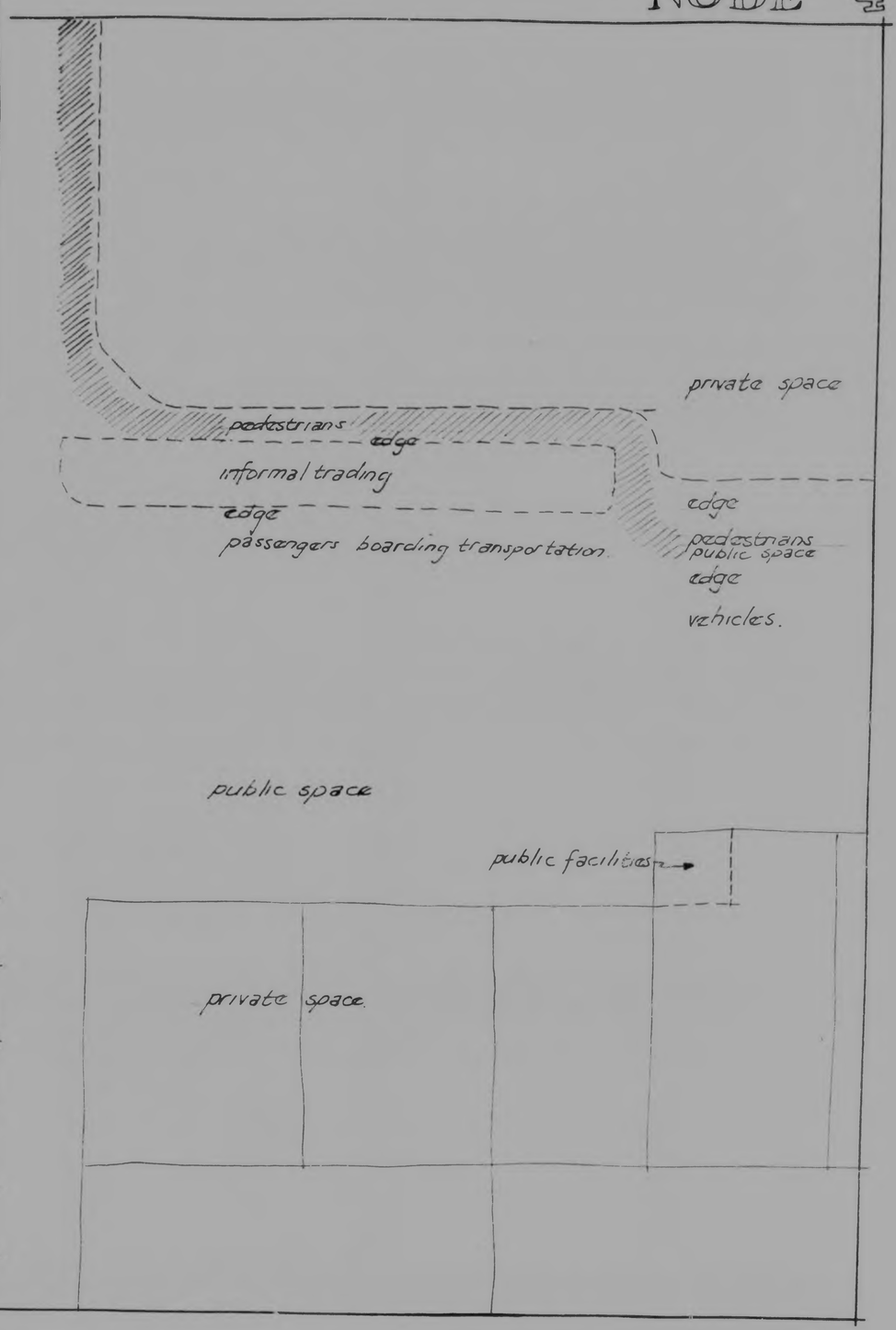
taxi-rank
bus stop

- construction cost of colonnade and covering should be borne by the self-help centre as initiative to developers to develop the public space as envisaged.
- built structures could cover public space from second storey and higher in future as additional incentives to developers in providing amenities as required then in the public space.
- construction cost of public facilities should be included in cost of paving, planting and provision of covered colonnade by the self-help centre.

SPATIAL DEVELOPMENT

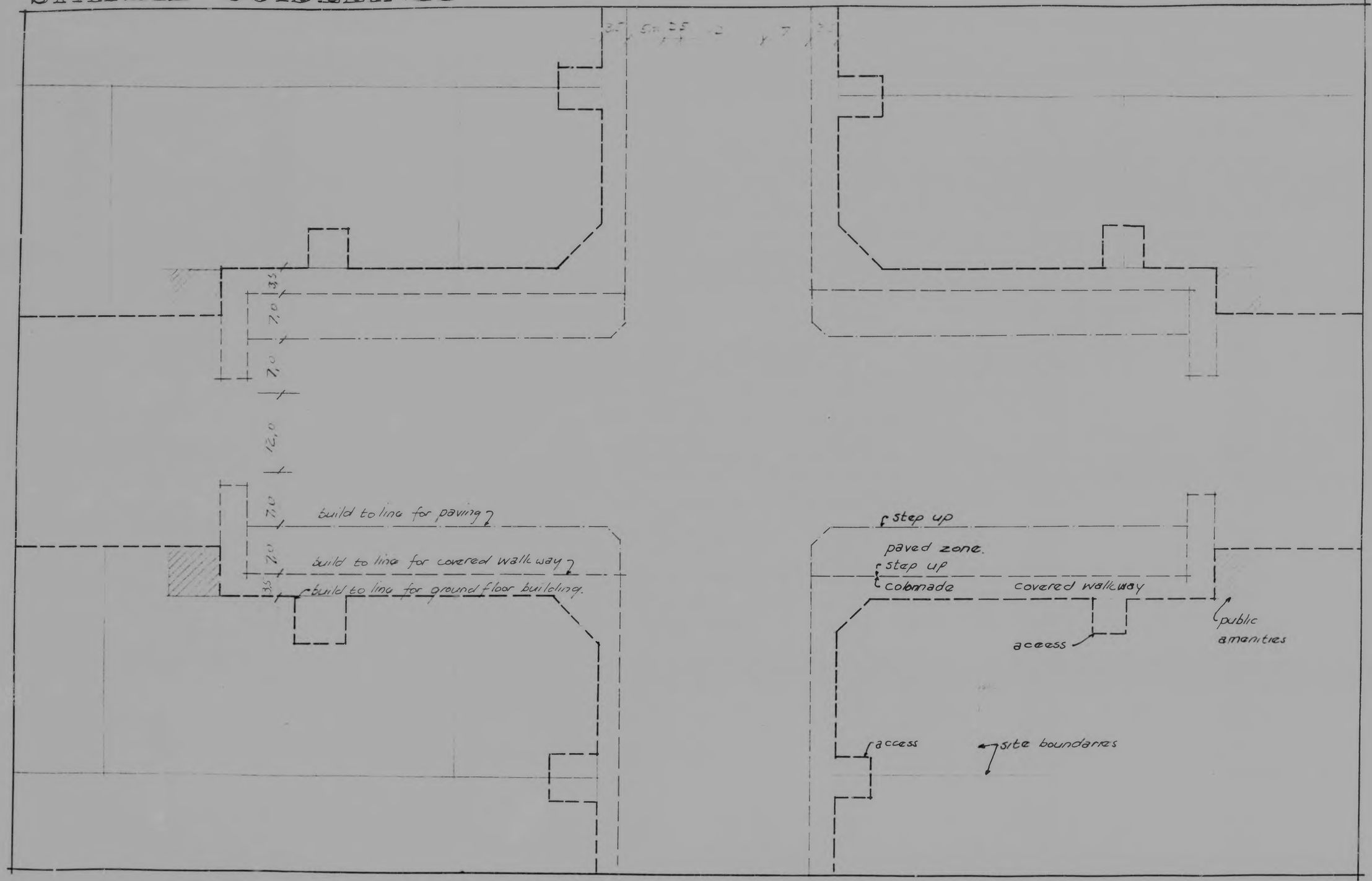


NODE 4



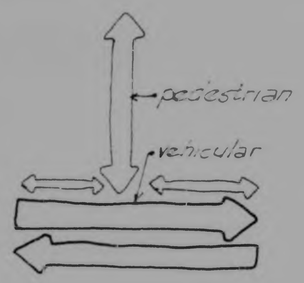
SPATIAL GUIDELINES

NODE 4



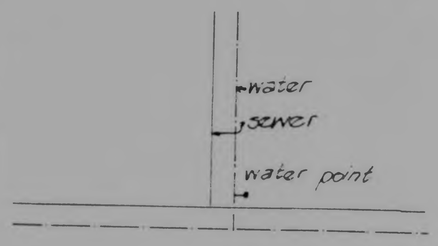
DESIGN PRINCIPLES

NODE 5



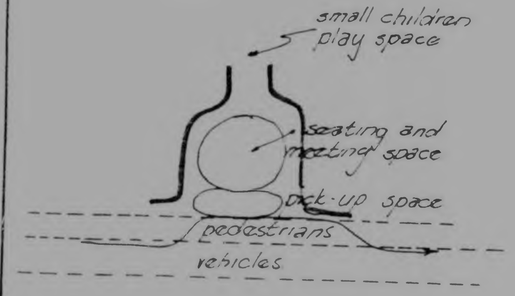
MOVEMENT

pedestrian dominated space connects to district
fast moving vehicular movement dominated space



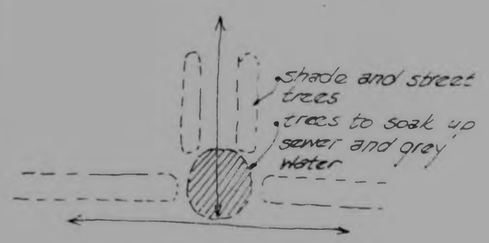
INFRASTRUCTURE

major ring networks of water as well as server systems.
if level of infrastructure still underdeveloped, soak-aways can be constructed under pedestrianised spaces.



ACTIVITIES

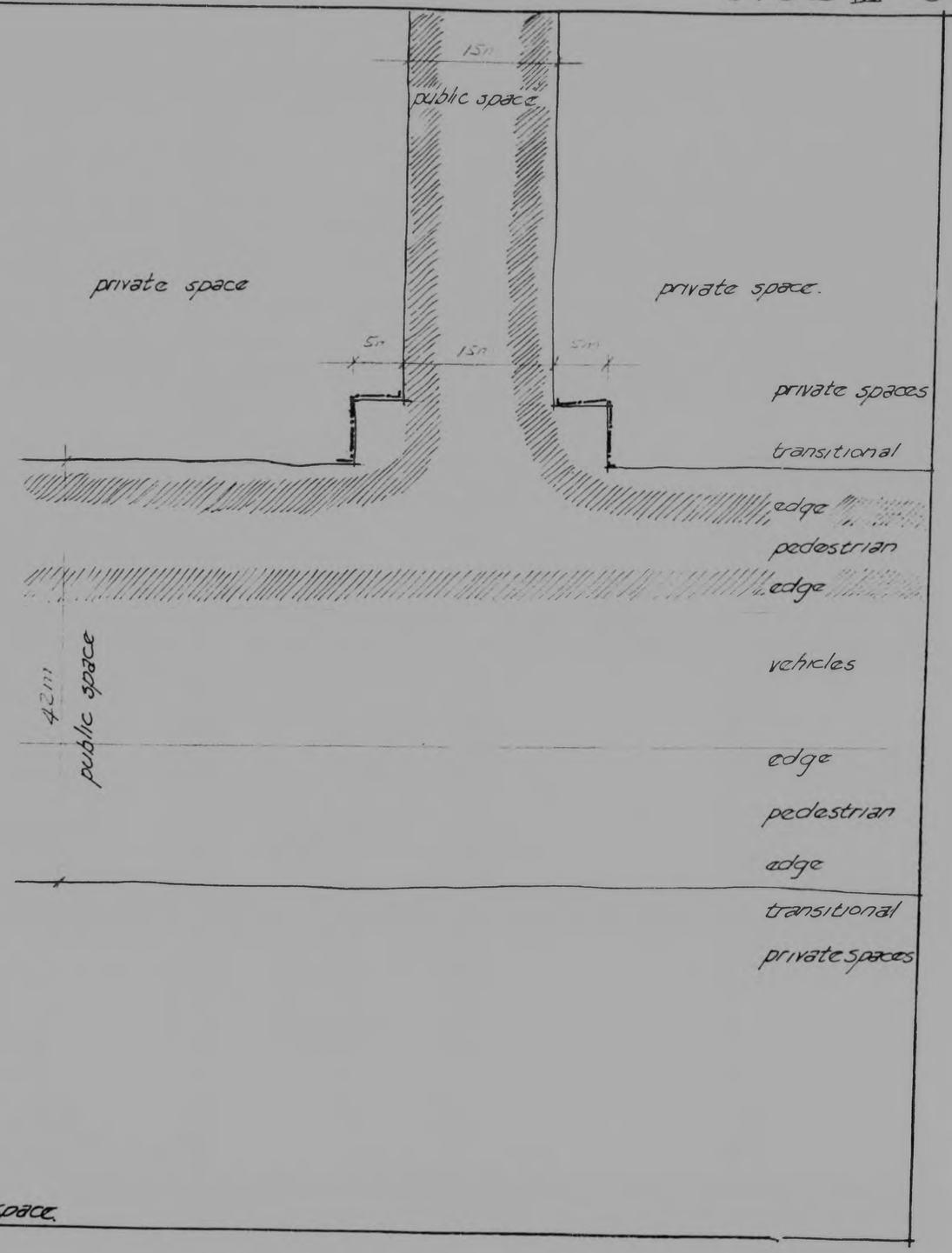
connecting activities will be mainly of a residential nature
public space should provide for:
seating and resting space
play space
pick-up space for transportation
refreshment - water.



LANDSCAPING

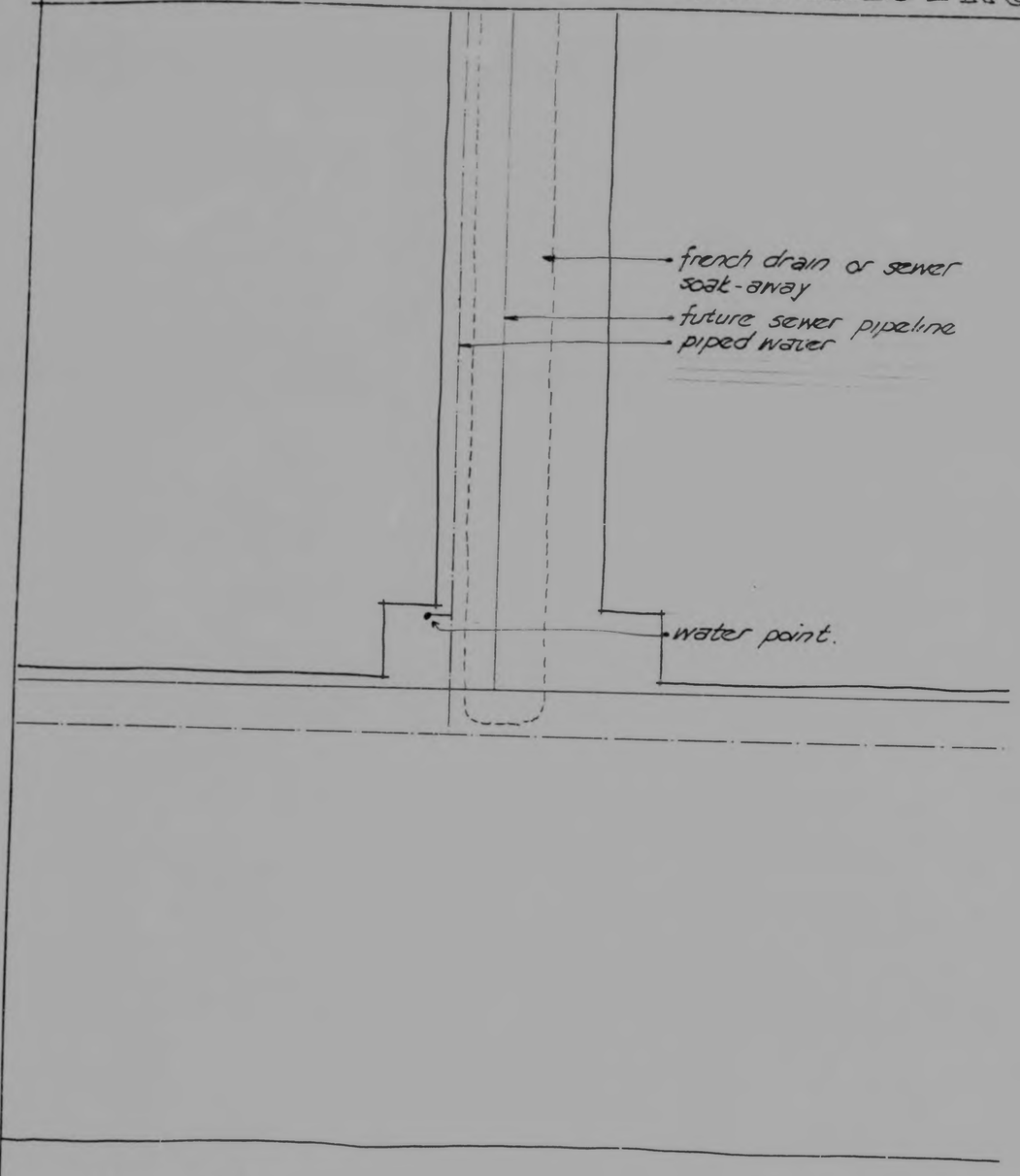
trees providing shade and potection as well as soak up water from soak-aways should be planted in pedestrianised spaces

boulevards of trees to muffle traffic noise and protect pedestrians should be planted in vehicular dominated space.

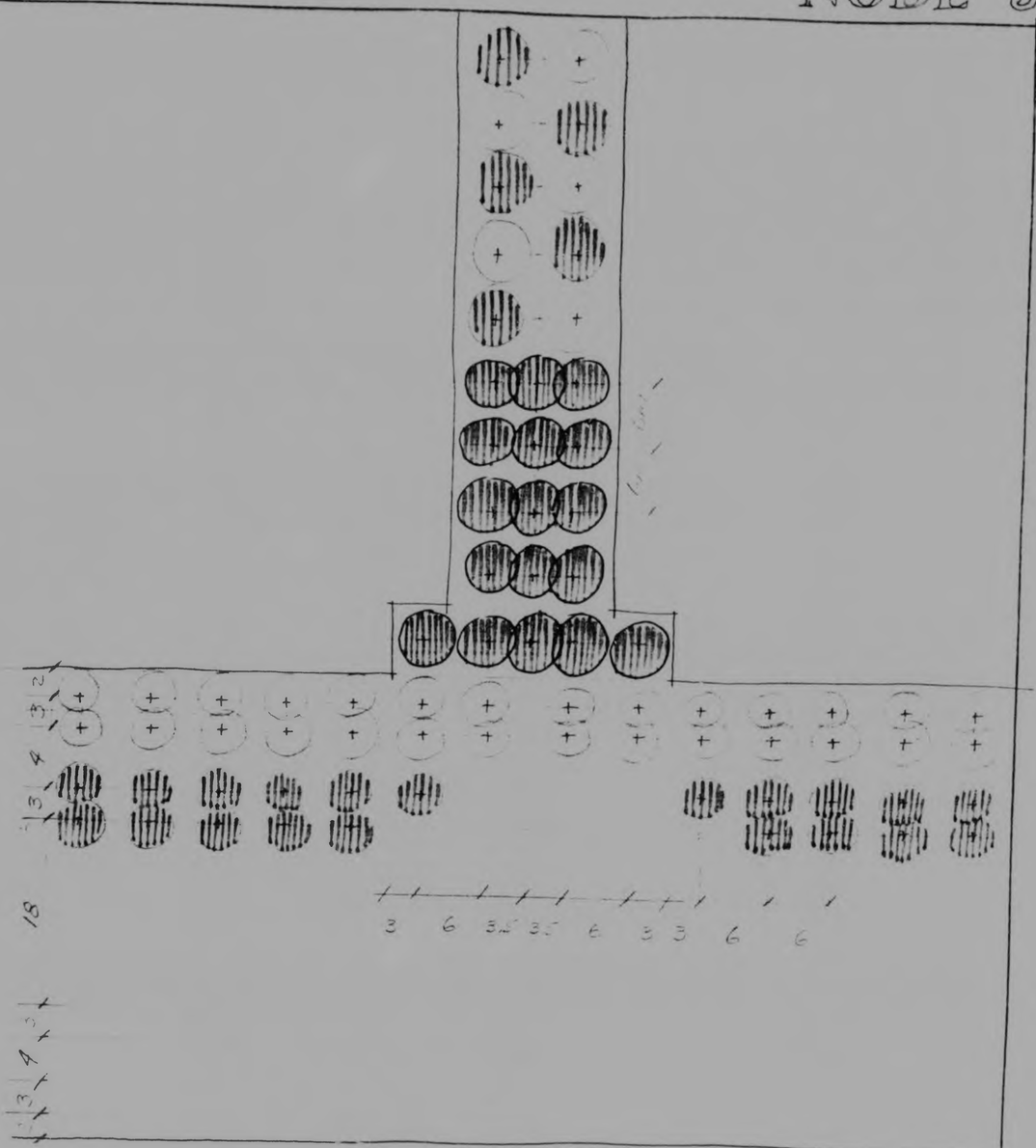


LANDSCAPING AND INFRASTRUCTURE

NODE 5



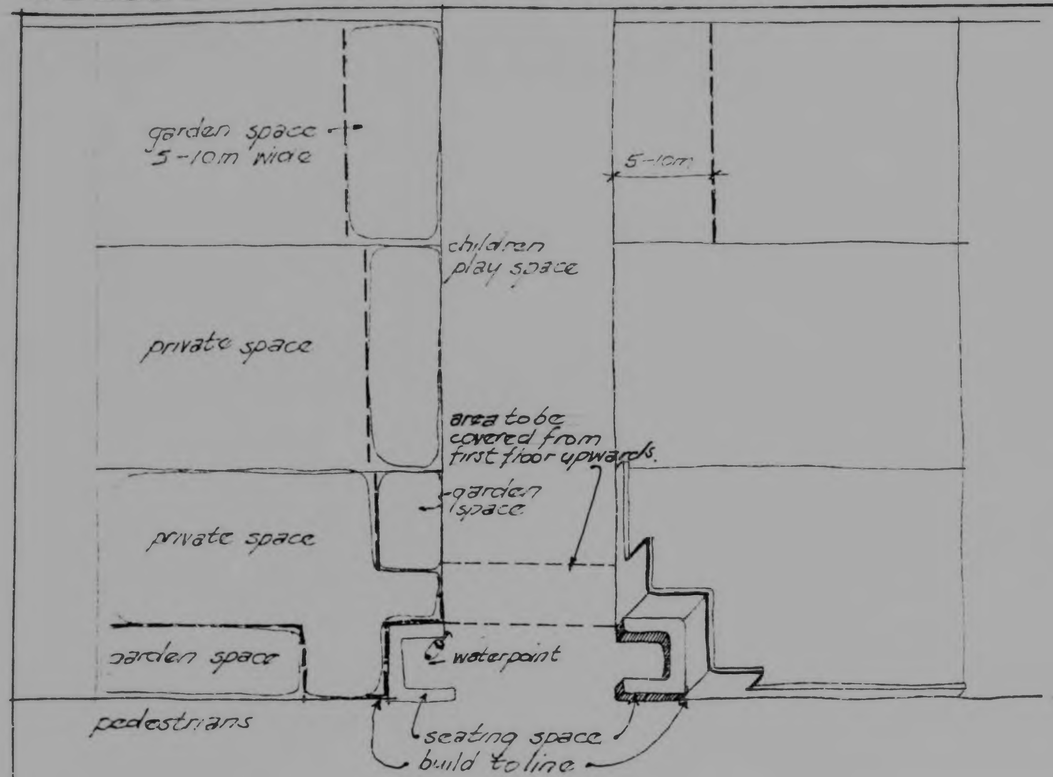
BASIC INFRASTRUCTURE IN PEDESTRIAN DOMINATED SPACE



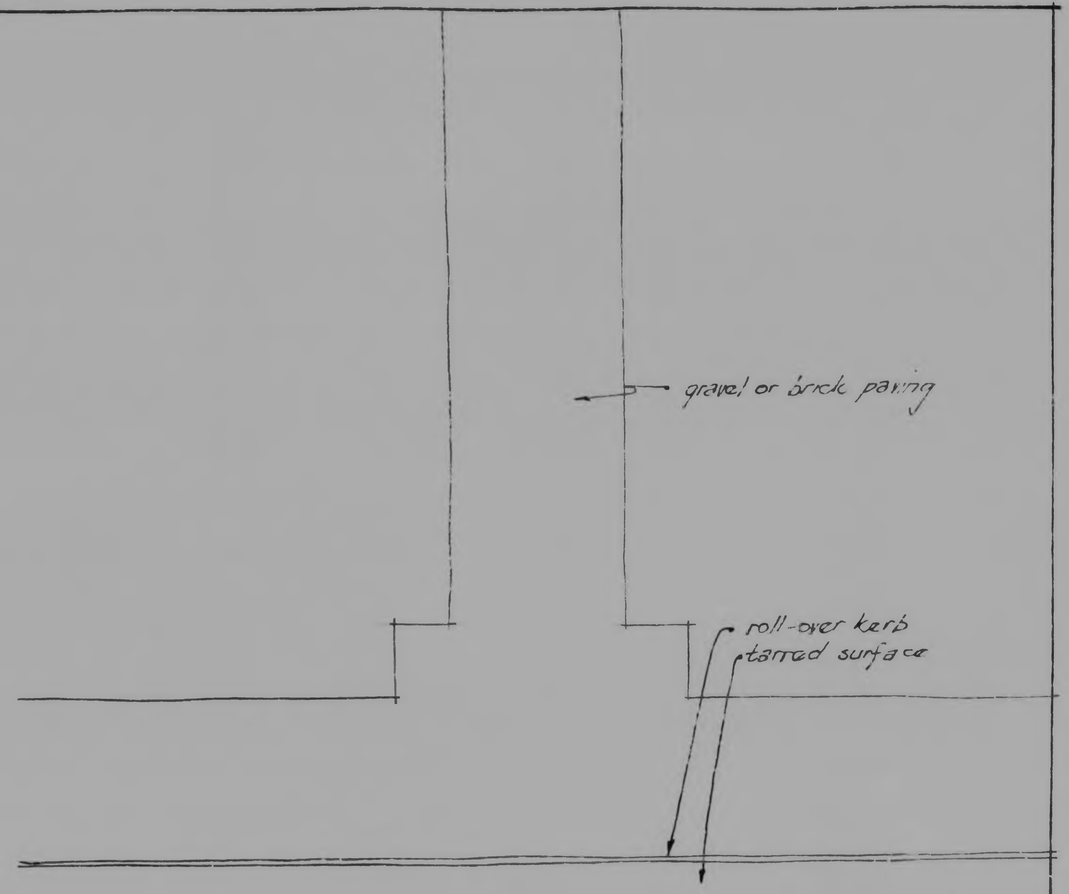
LANDSCAPING

SPATIAL DEVELOPMENT AND PAVING

NODE 5

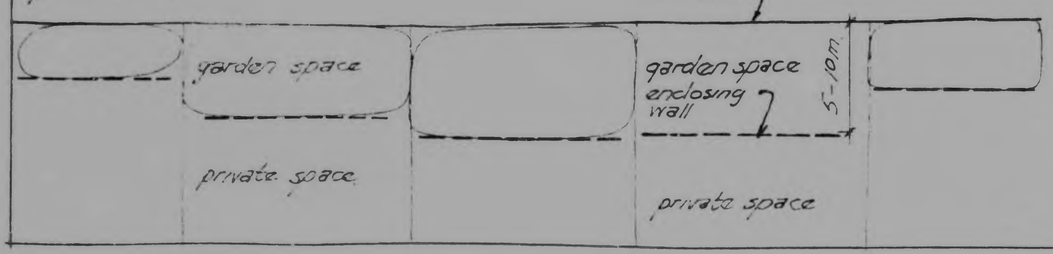


EXAMPLE OF A PARTICULAR APPLICATION



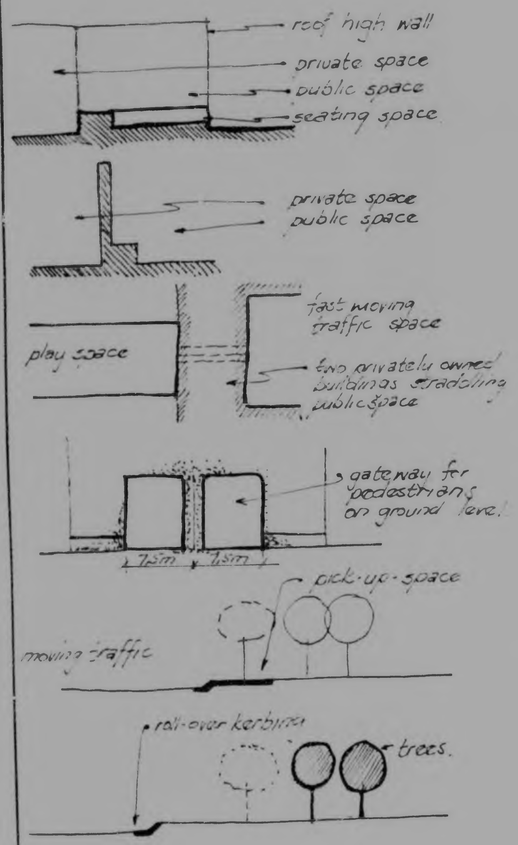
gravel or brick paving

PAVING.



SPATIAL ELEMENTS AND PRINCIPLES

NODE 5



protected seating space

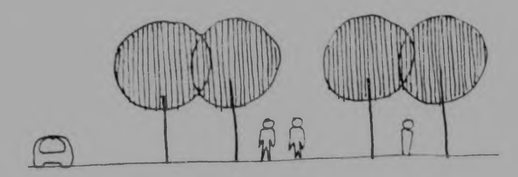
edge

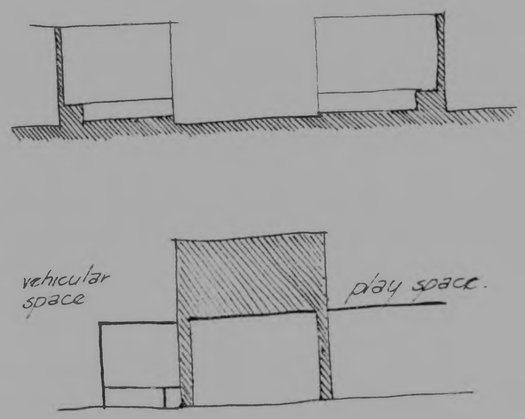
gateway between spaces

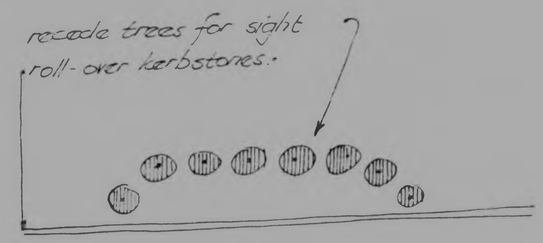
edge

pedestrian pick-up space for taxis and mini-busses

edge







protect pedestrians from fast moving vehicles and natural elements.

reduce the detrimental effects of traffic i.e. noise and air pollution

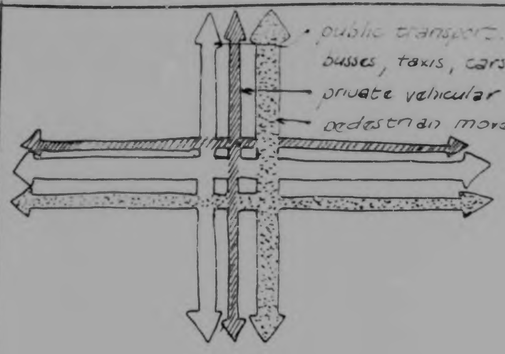
provide protection to seated persons for privacy and comfort.

provide a gateway between pedestrianised play space and space with fast moving vehicles

facilitate easy pick-up by taxis with as little disturbance of moving traffic as possible

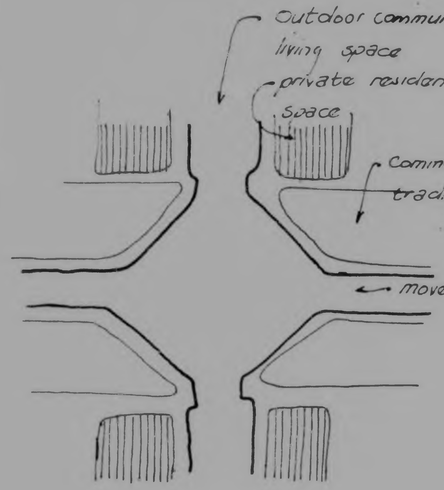
DESIGN PRINCIPLES

NODE 6



MOVEMENT

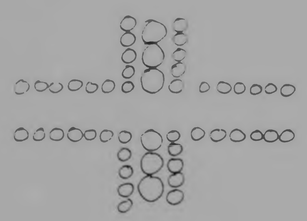
east-west mass transportation movement meets north-south pedestrian movement turning movement of private vehicles, mini-busses and taxis.



ACTIVITIES.

activities connecting to the space will include the following

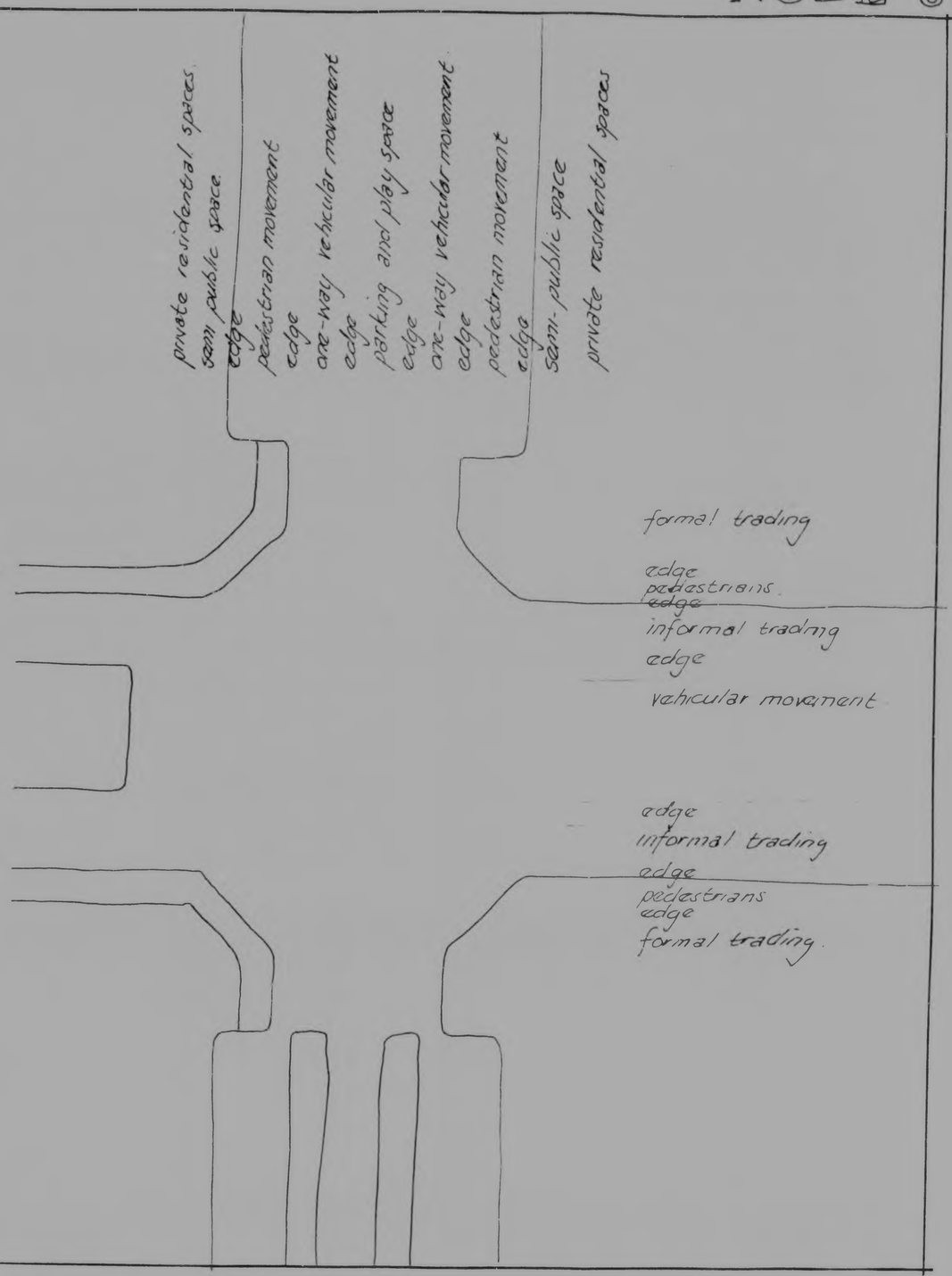
- daily and weekly consumer retailers, board and lodging, eating houses, entertainment retail clothing, shoes and furniture.
  repairs of household goods, personal services
- the following activities should be provided for in the space: pedestrians, shoppers, informal and formal traders, display of goods, resting space, meeting space, exchange of goods and ideas, entertainment, transportation. etc.



LANDSCAPING

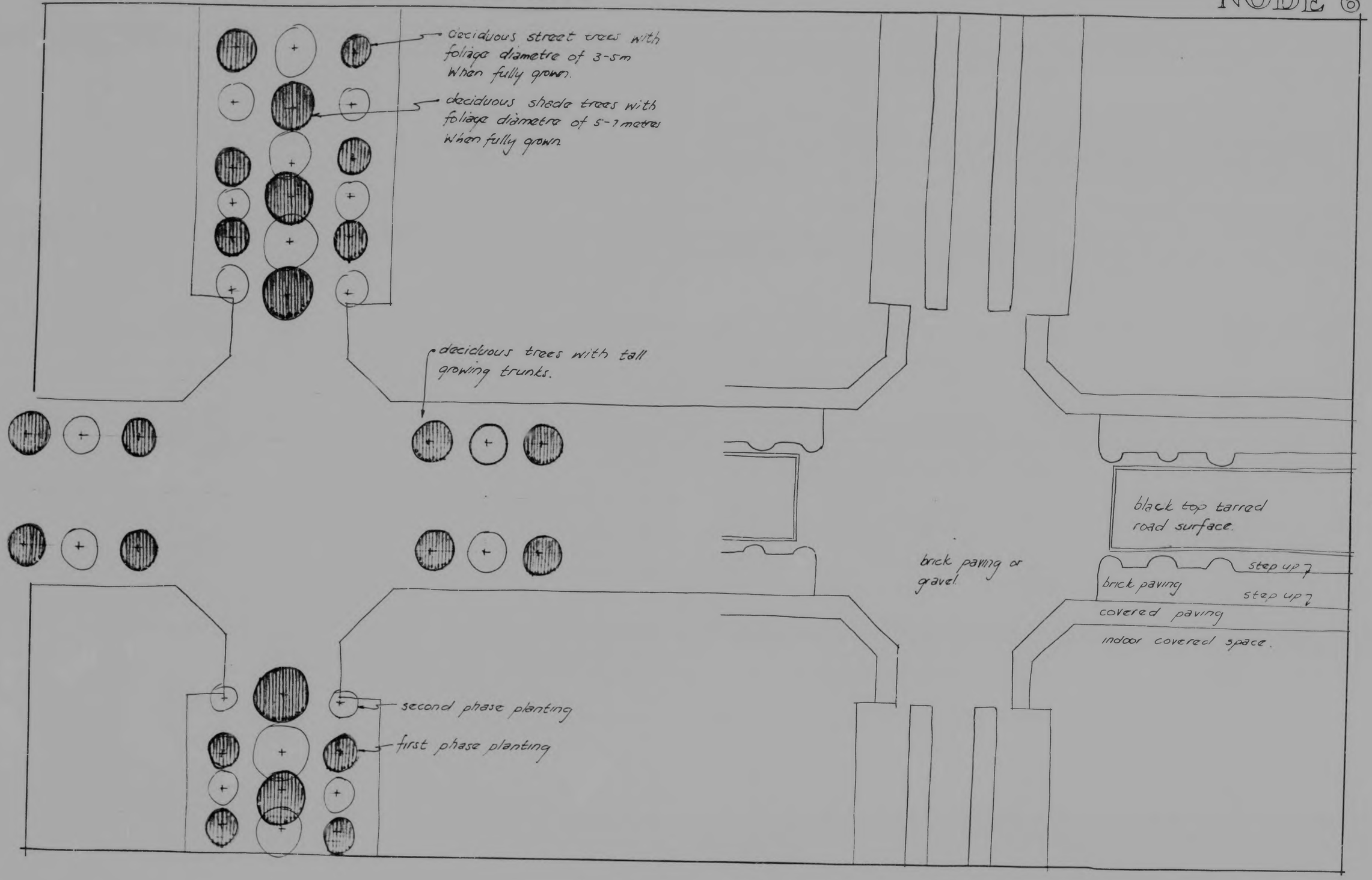
deciduous trees with high trunks should be planted along routes with mass transportation.

deciduous trees with wide foliage should be planted in pedestrian dominated space.



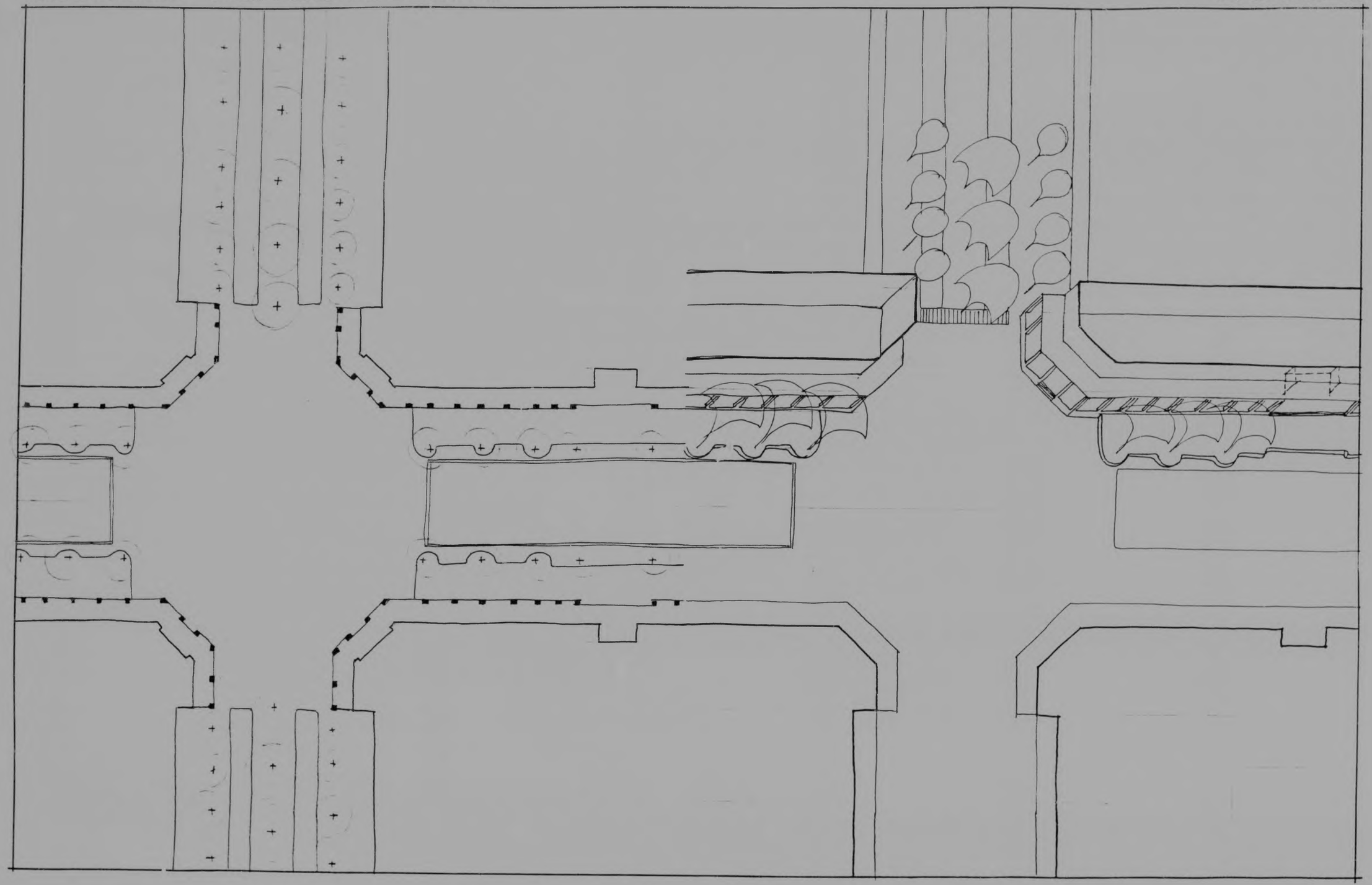
LANDSCAPING AND PAVING

NODE 6



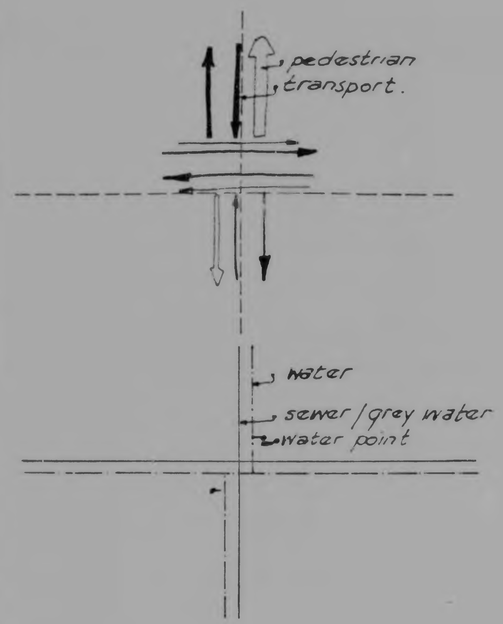
SPATIAL DEVELOPMENT

NODE 6



DESIGN PRINCIPLES

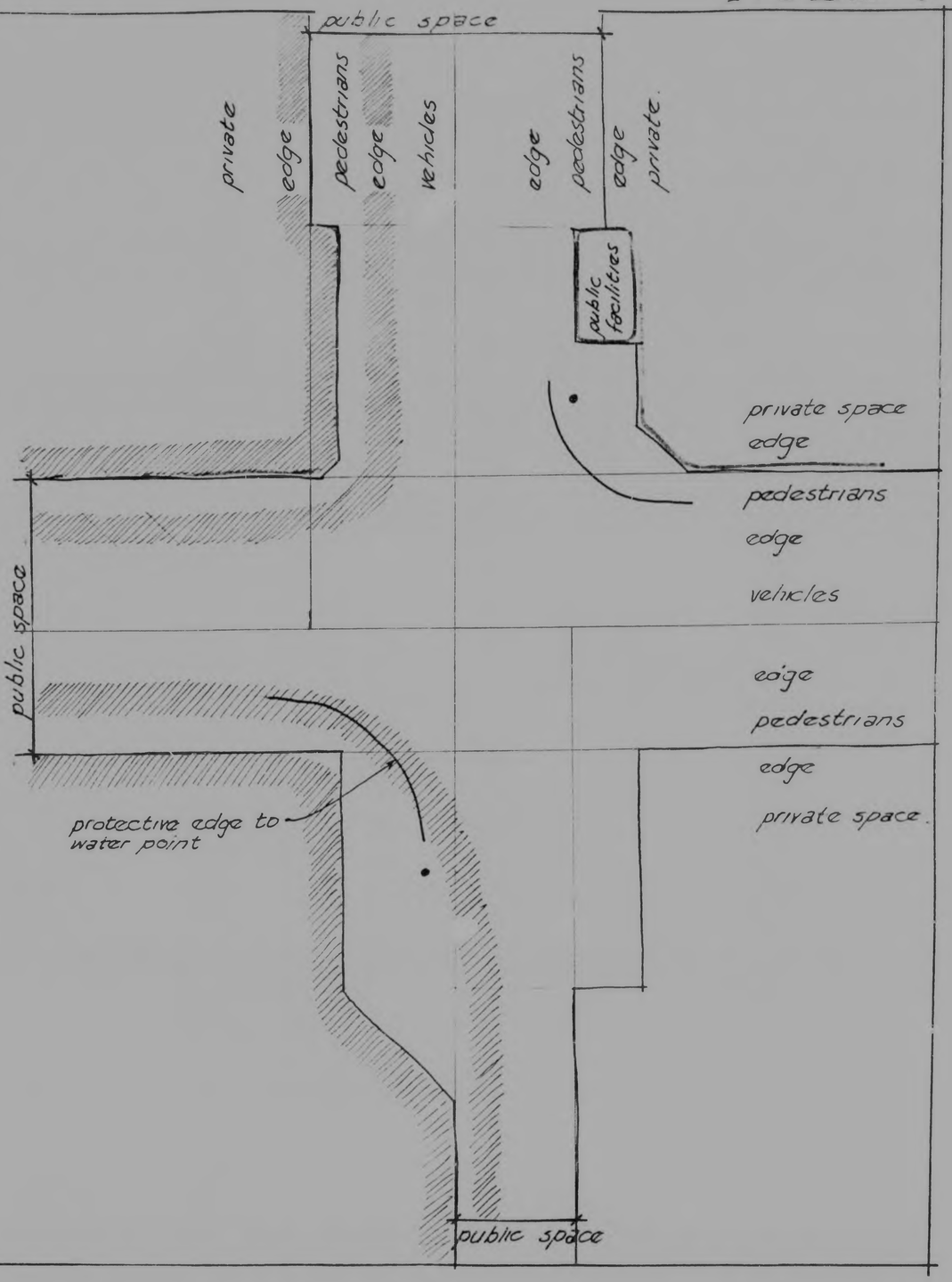
NODE 7

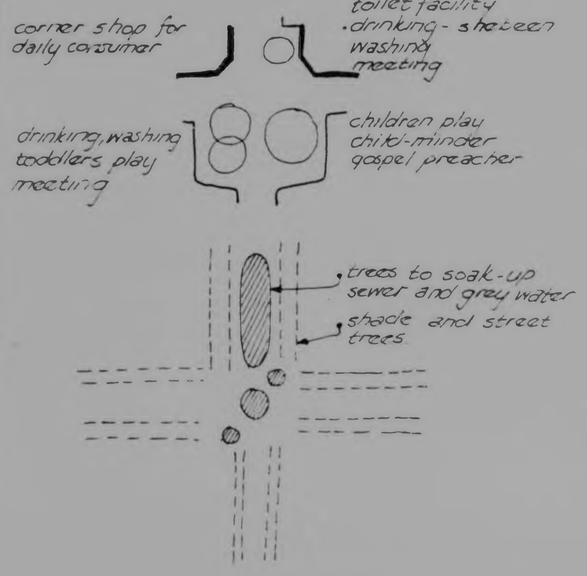


MOVEMENT

vehicular transport comprising private vehicles, taxis, mini-busses will increase north of the node. east west traffic will be more even.
pedestrian movement can be expected to increase north of node towards bus stops and pick-up points

INFRASTRUCTURE.
lower order grey water disposal in soak-away system.
piped water, biological sewer and gravel and paved public space surfaces.





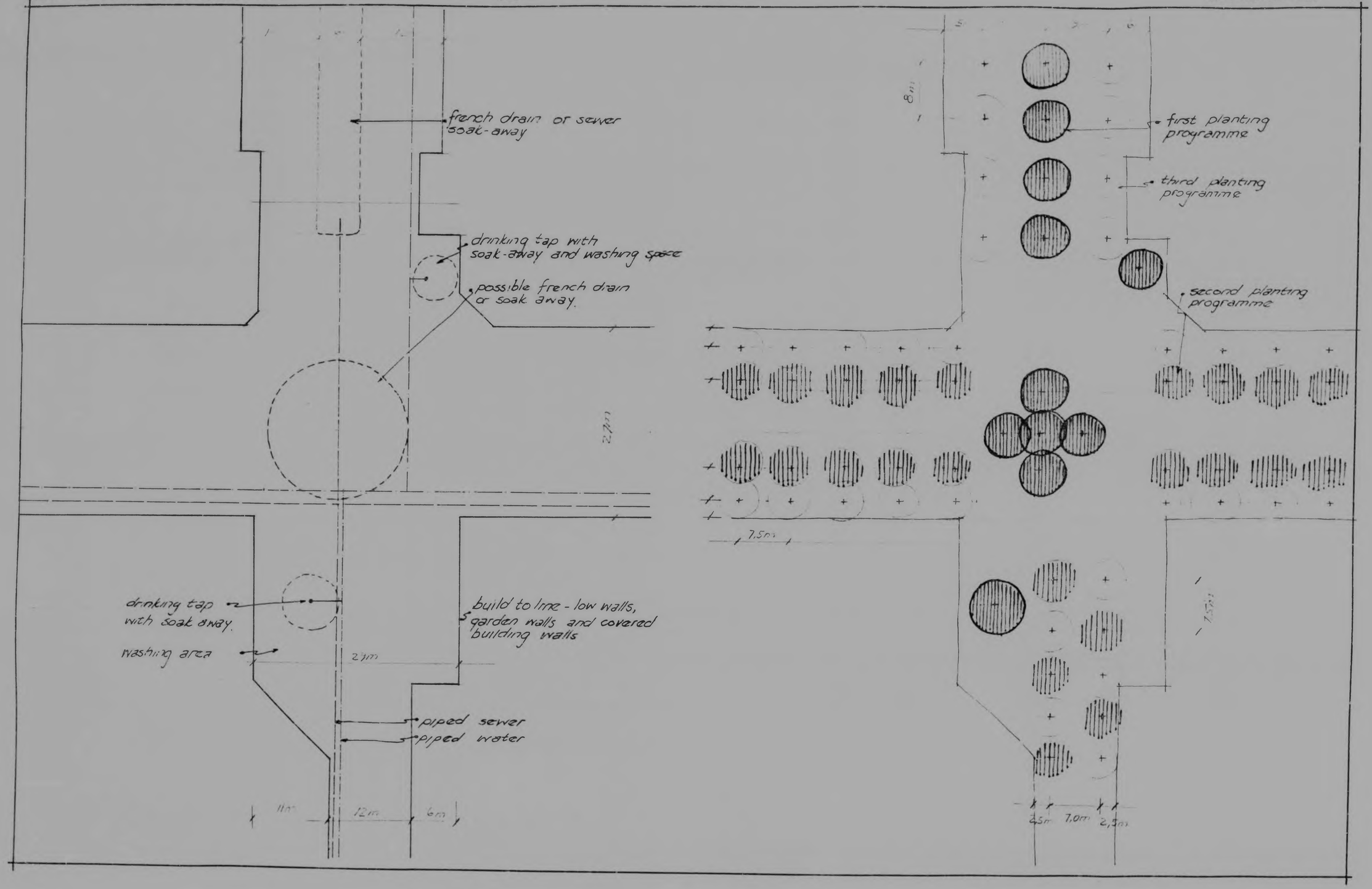
ACTIVITIES.
activities connecting to the space could be corner shop, herbalist, gospel preacher, sangoma, child minder, shebeen, church, basket weaver, bead-worker etc.
activites in the space, play space, washing space, meeting talking, resting, public facilities, refreshments etc.

LANDSCAPING

shade trees to soak up water from soak-away system and protect pedestrians from sun.

INFRASTRUCTURE AND LANDSCAPING

NODE 7



STRUCTURE AND PAVING

NODE 7

seating space.

black top tarred surface
roll over kerbstones
brick paving

step up

low seating wall
low enclosing wall
high enclosing wall

seating space

step up

gravel surface
vertical paving stones

public space
semi-public space
semi-private space
private space

Author Janse van Rensburg E G
Name of thesis Urban design guidelines for space creation in an urban Black residential environment 1985

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