Understanding Site & Carrying Out Site Analysis for Architectural Projects

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Site& Site Analysis--Role and Importance

- Site- Remain critical and valuable for any Architectural Project to be made qualitative, rational, Realistic
- Site- Ignoring site and its distinct character/features invariably leads to wrong architectural solutions
- Site- does not provide space for any Pre-meditated designs to be fitted
- Site- determines and dictates the contours of the buildings to be planned and designed
- Site- defines space on which building is to be conceptualized, planned, designed, constructed, made operational
- Site- determines the size/shape of the buildings to be planned/designed constructed
- Site- determines the space for buildings, parking, landscaping, pavement , hard and soft surfaces
- Site- determines the relationship between built spaces within and outside.

Site& Site Analysis--Role and Importance

- Site- gives distinct character to the building typologies
- Site- supported by orientation & wind direction, helps/enables architects in understanding the context and contours of the project
- Site - supported by approach and accessibility determines the placement and orientation of the project
- Site- Globally all architectural projects ,known for their quality, are outcome of respecting/ valuing site
- Studying/ understanding/analyzing /valuing site remains important for architects before taking up design solutions.
- For realistic understanding/analyzing of Site- Carrying out SWOT analysis remains critical
- Site has to be seen studied both from within , from without/outside , from top and from bottom for understanding its complexity and peculiarities.

Site Analysis- Factors for Evaluating site

i. Locating site on the Map of the city

ii Understanding its location and land use- in terms of City master plan, local plans , name of area, relation with city/area landmark

iii Understanding Site --Looking at the area, size, shape and contours of the site

iv. Marking accessibility to site- Roads and connectivity with city network

iv Identifying existing physical features on site including encumbrances - HT electric lines, services, bult-structures, water bodies etc.

v. Understanding Climate – Regional, City and Site Climate.

vi Mapping Orientation- In terms of cardinal directions

vii. Mapping the Solar Movement related to site

viii Mapping Wind direction in relation to site

Site Analysis- Factors for Evaluating site

ix Evaluating Soil conditions

x. Studying Topography of site- flat/undulating- mapping by studying contours of the site

xi Marking Vegetation and Natural Features existing on site- variety, location, canopy

xii Documenting local Hydrology and Precipitation

xiii Locating city Infrastructures- water supply; sewerage, roads, electrical

xiv Looking at Surrounding Land uses & typologies of Buildings

xv Identifying Vision / Visual Linkages- from and to site

xvi Studying Development Controls- in terms of Floor Area Ratio/ Ground Coverage/ Height/ Setbacks/Parking, Land uses etc.

xvii Mapping Legal Prohibitions- Regarding accessibility, height, setbacks, distances between buildings, projections, ventilation etc.

SITE ANALYSIS

STRENGTH, WEAKNESSES, OPPORTUNITIES, THREATS

SWOT

STRENGTH

- The site is near to the business and agriculture land of the place.
- It has good condition of accessibility through road.
- The area has enough water supply,power lines, telephones and communication lines are available.
-

WEAKNESSES

- There is a possible to deal with noise pollution.
- There are problems in heavy traffic during weekdays.

OPPORTUNITIES

- It can also provide job opportunities to the locals.
- The rich and the poor have the opportunity to socialize with one another.
- Can also provide opportunities for families with no sufficient income for the facilities to be built.
- All families have the opportunity to choose their residence to the best of their income.
- This project can also add to the development increase of the city.

THREATS

INTRODUCTION

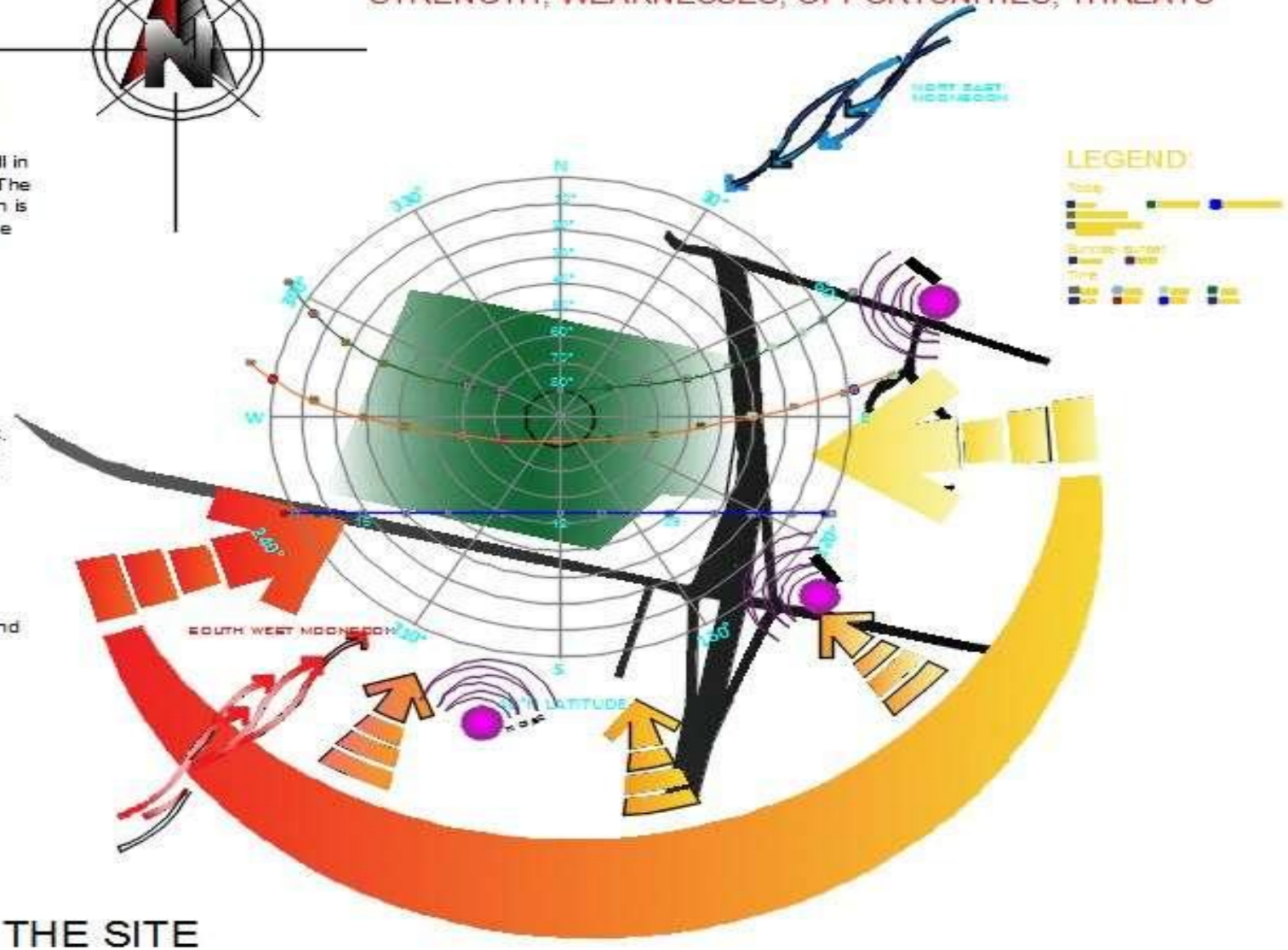
Tanauan,Batangas has a tropical climate.The is a great deal of rainfall in Tanauan, even in the driest month.The Koppen-Geiger climate classification is Af.The avverage annual temperature is 27.0° C in Tanauan.The average annual rainfall is 2459 mm.

CLIMATOLOGY

The temperatures are highest on average in August, at around 27.8 °C. The lowest average temperatures in the year occur in January, when it is around 25.9 °C.

TOPOGRAPHY

The city of Tanauan covers a total land area of 10,716 hectares which represents 3.38% of the total land area of the province (316,581 ha).Majority of the areas in Tanauan City belong to 0 to 15 percent slope that are undulating to rolling.

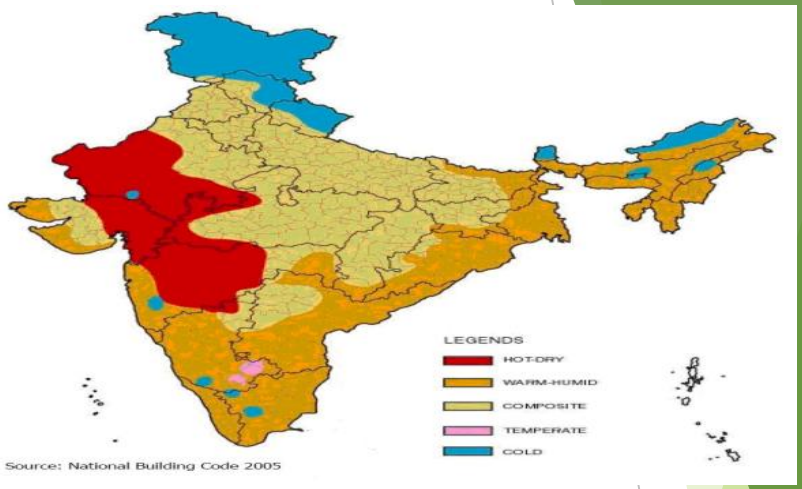


VIEWS FROM THE SITE

Location ; Shape, size

Understanding Climatic

- **Five Climatic Zones In India-**
- ***Hot and Dry***
- ***Warm and Humid***
- ***Moderate / Temperate***
- ***Cold (Cloudy/Sunny)***
- ***Composite***
- All green buildings need not-- to be same



All zones have specific requirements regarding:

--light,

--heat,

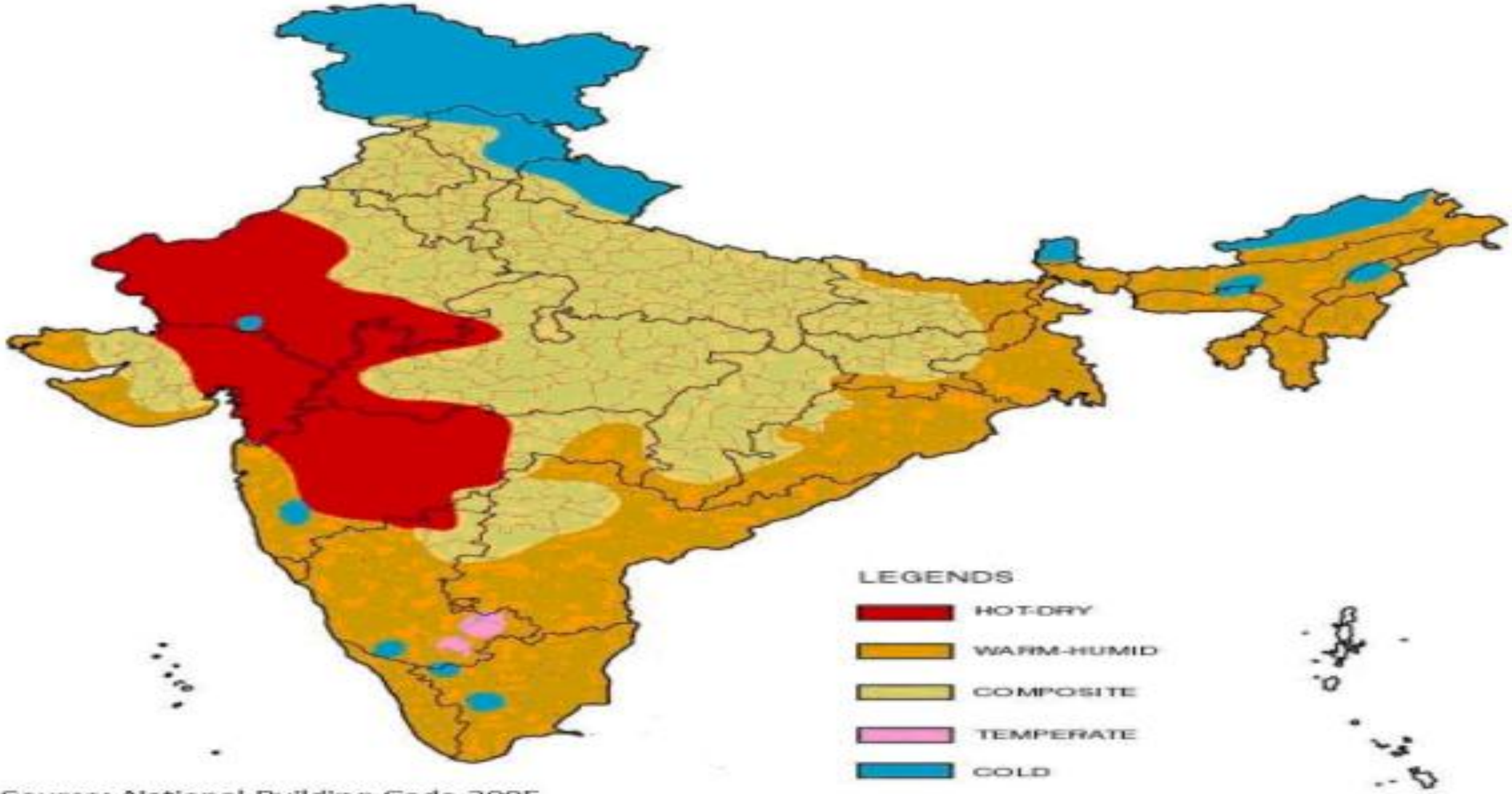
--ventilation and

--thermal comfort

Different zones require different design strategies regarding --building envelop,

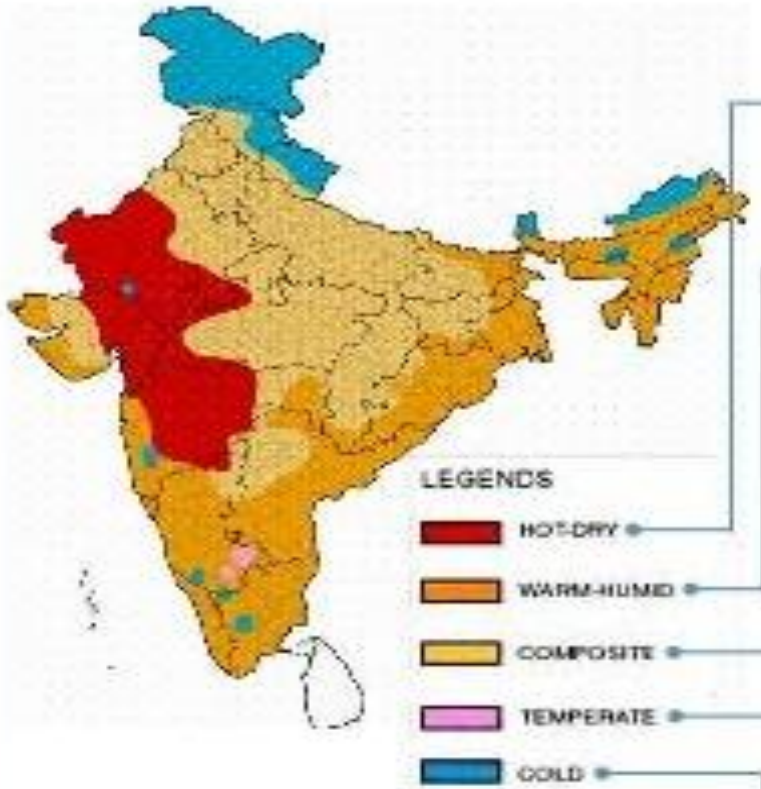
- ***--HVAC,***
- ***-- Lighting ,***
- ***-- Fenestration,***
- ***-- Performance standards***

Climatic Zones of India



Source: National Building Code 2005

Climate Zones in India



- **HOT-DRY**: High temperature • Low humidity and rainfall • Intense solar radiation and a generally clear sky • Hot winds during the day and cool winds at night
- **WARM-HUMID**: Temperature is moderately high during day and night • Very high humidity and rainfall • Diffused solar radiation if cloud cover is high and intense if sky is clear • Calm to very high winds from prevailing wind directions
- **COMPOSITE**: This applies when 6 months or more do not fall within any of the other categories • High temperature in summer and cold in winter • Low humidity in summer and high in monsoons • High direct solar radiation in all seasons except monsoons high diffused radiation • Occasional hazy sky Hot winds in summer, cold winds in winter and strong wind in monsoons
- **TEMPERATE**: Moderate temperature • Moderate humidity and rainfall • Solar radiation same throughout the year and sky is generally clear • High winds during summer depending on topography
- **COLD**: Moderate summer temperatures and very low in winter • Low humidity in cold/sunny and high humidity in cold/cloudy • Low precipitation in cold/sunny and high in cold/cloudy • High solar radiation in cold/sunny and low in cold/cloudy • Cold winds in winter

SOURCE: Bureau of Indian Standards, National Building Code of India 2005, Part 8 Building Services, Section 3 Air Conditioning, Heating and Mechanical Ventilation; Bansal, N. K. & G. Minke (1988), Climatic Zones and Rural Housing in India; Krishan, A., N. V. Baker & S. V. Szokolay (2001), Climate Responsive Architecture - A Design Handbook for Energy Efficient Buildings, Tata McGraw Hill

Site Analysis- Understanding, Location

i) ***Understanding Site*** –

- Most critical in design process
- . Detailed site analysis needed to--
- Recording elements existing at site
- understand various features

--Evaluate information on site/ its surroundings

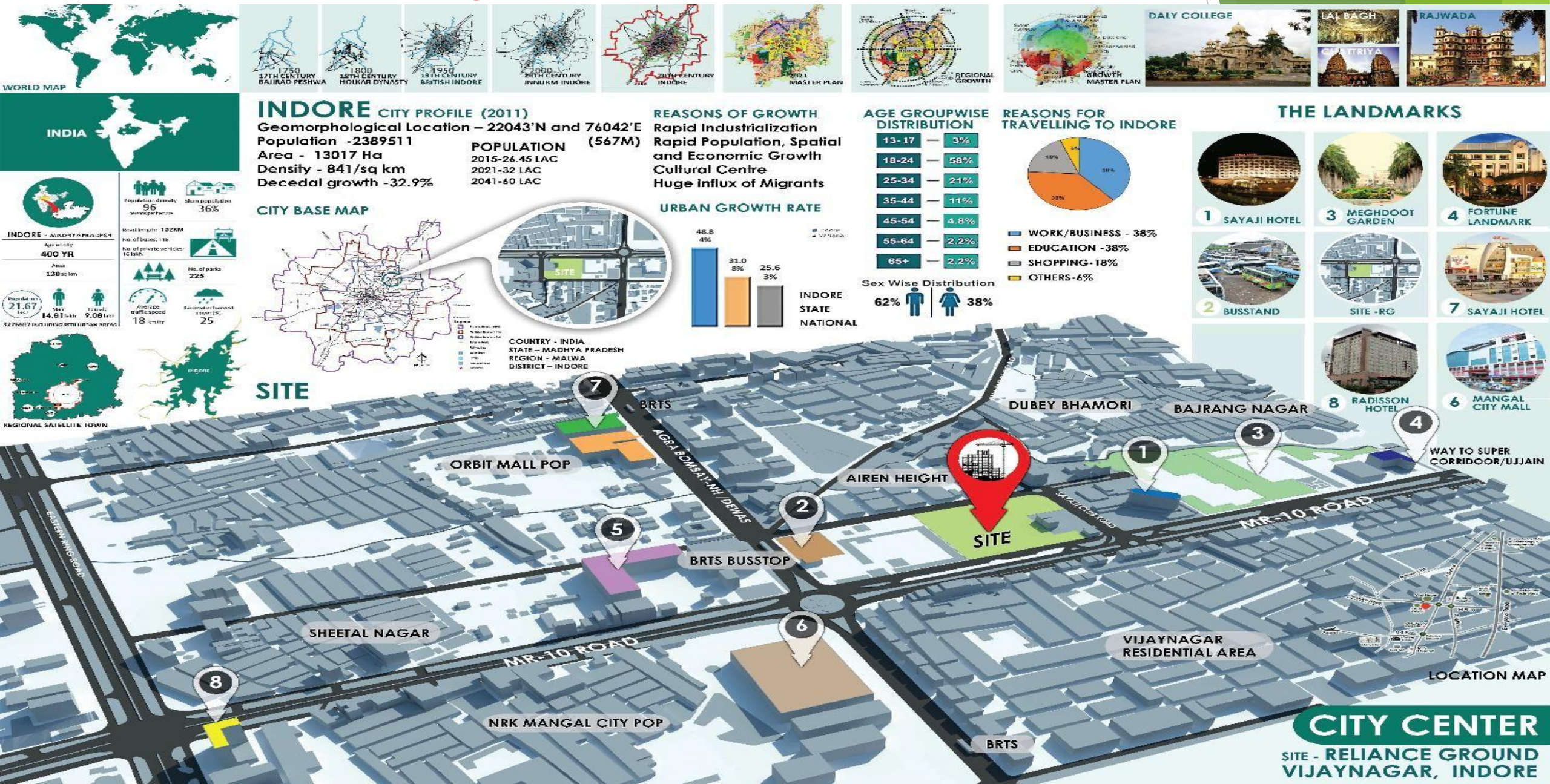
-Use of Site as per Master Plan

ii)Location

First aspect that one needs to be looked at----

- Where site is located?
- How site is approached?
- Name of street/ road etc-- on which site is located?
- How far away is major junction- major land mark

Understanding and Location of Site



Site Analysis- Orientation

iii)*Orientation* -- position/positioning of site with relation to points of the compass or other specific directions

•Orientation of site plays important **role in siting of building.**

When combined with:

•-- wind direction and

•-- sun path

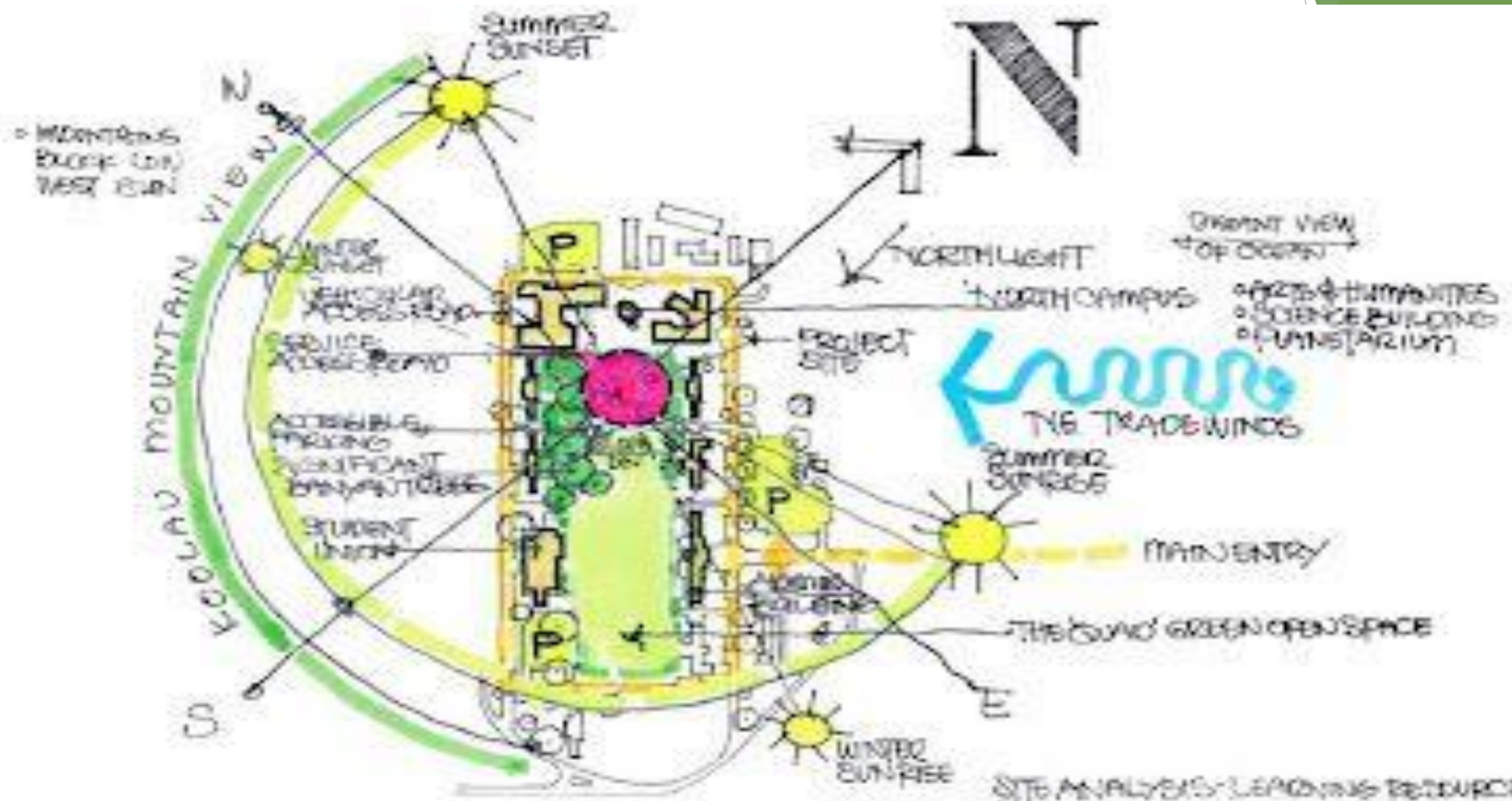
-- would give a good idea as to how building / design should be oriented to :

--optimize design.

•Orientation /sun path will also determine

•**-- placement of rooms** inside buildings.

Site Analysis- Orientation



Understanding Sun- its Path/Movement Summer/Winter

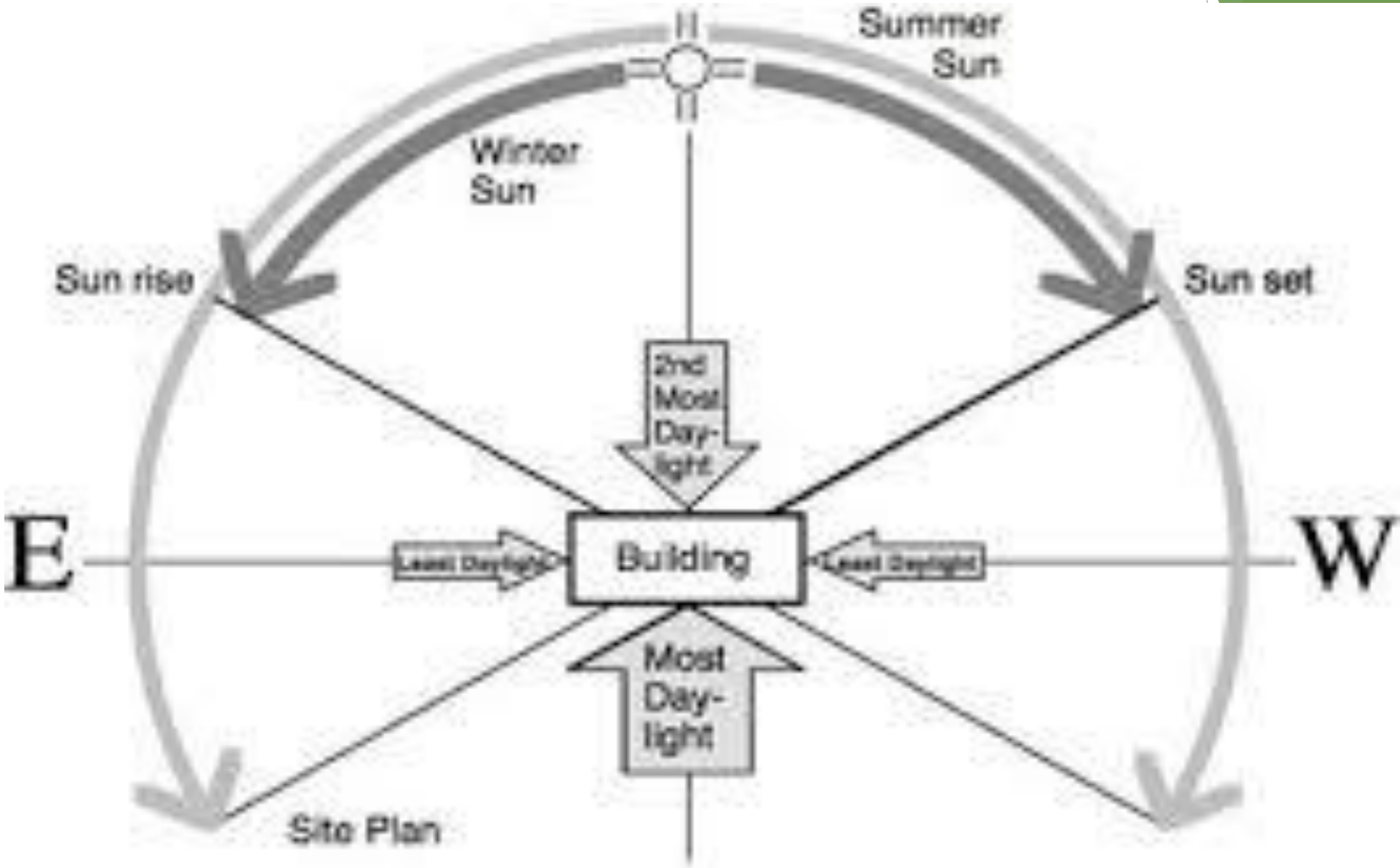
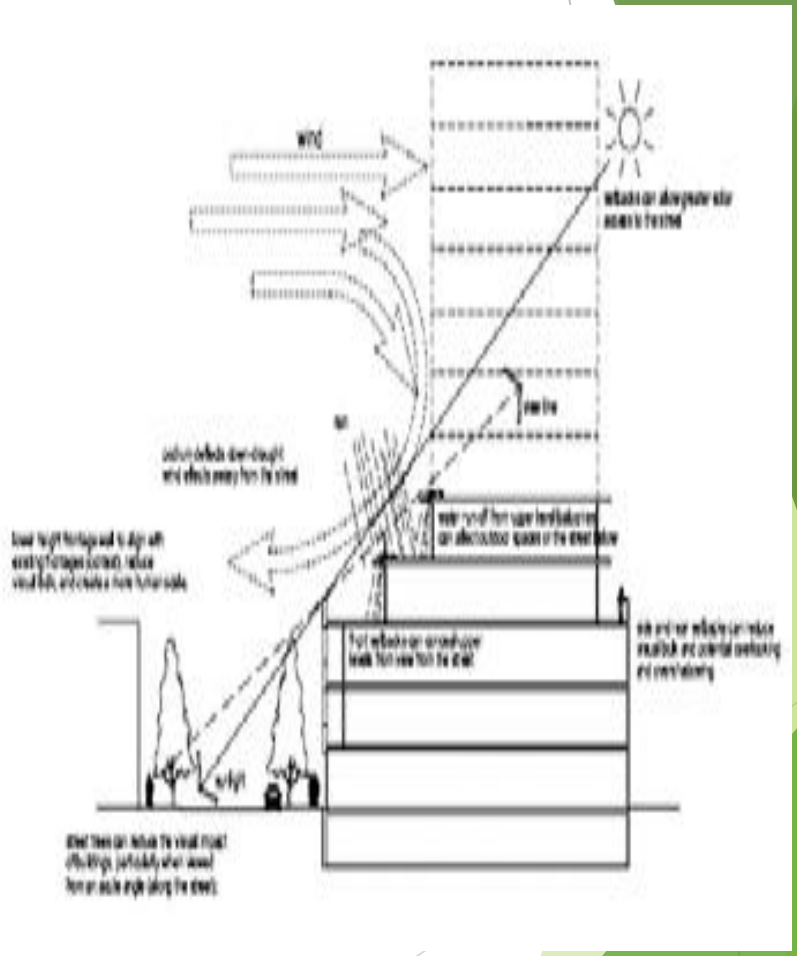


Figure 1

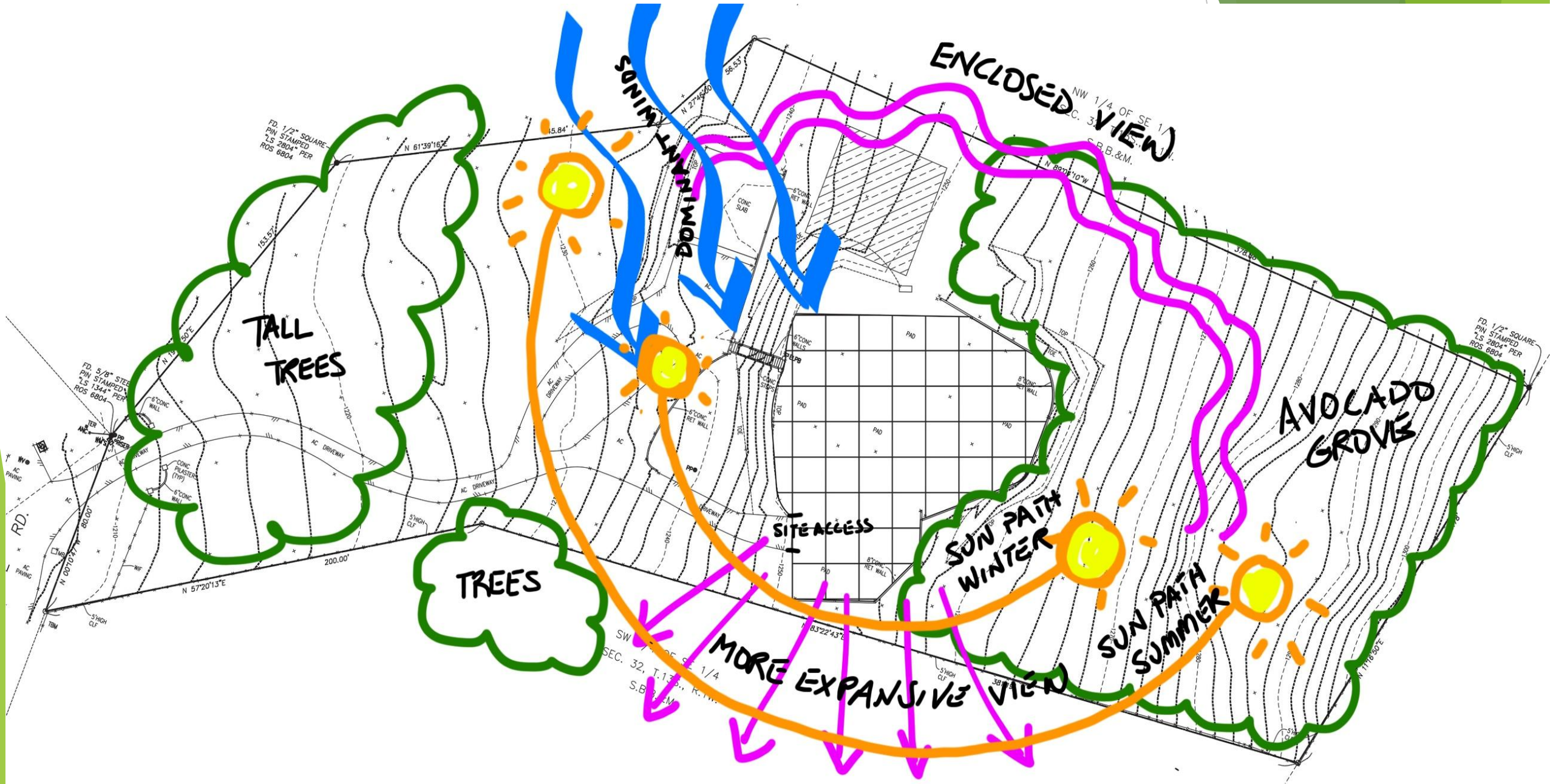
Site Analysis- Wind Direction

iv) Wind Direction

- Most locations will have a general major direction from which wind comes.
- However, this will not always hold true and will vary from location to location.
- For designing a climatologically responsive building---- important to consider --direction of wind --so that it can be channelized through interiors.--



Site Analysis- Wind Direction/ View to and from Site



Site Analysis-Soil Conditions

vi) SOIL

Soils vary from place to place.

- **with Properties also varying according to type of soil.**

-Sandy soil,

- clayey soil,

--laterite etc

all have different properties

– load bearing, water retentivity /absorption, homogeneity

-- which impact design of building.

- **Soil conditions -- important from structural point of view while designing High Rise buildings.**

Site Analysis-Soil Conditions

Site Analysis-Topography

vii) Topography **–**

--refers to slope & level of land whether

--- land is flat/plain or

--- sloping/ undulating

• Designing--a sloping site will be more challenging.

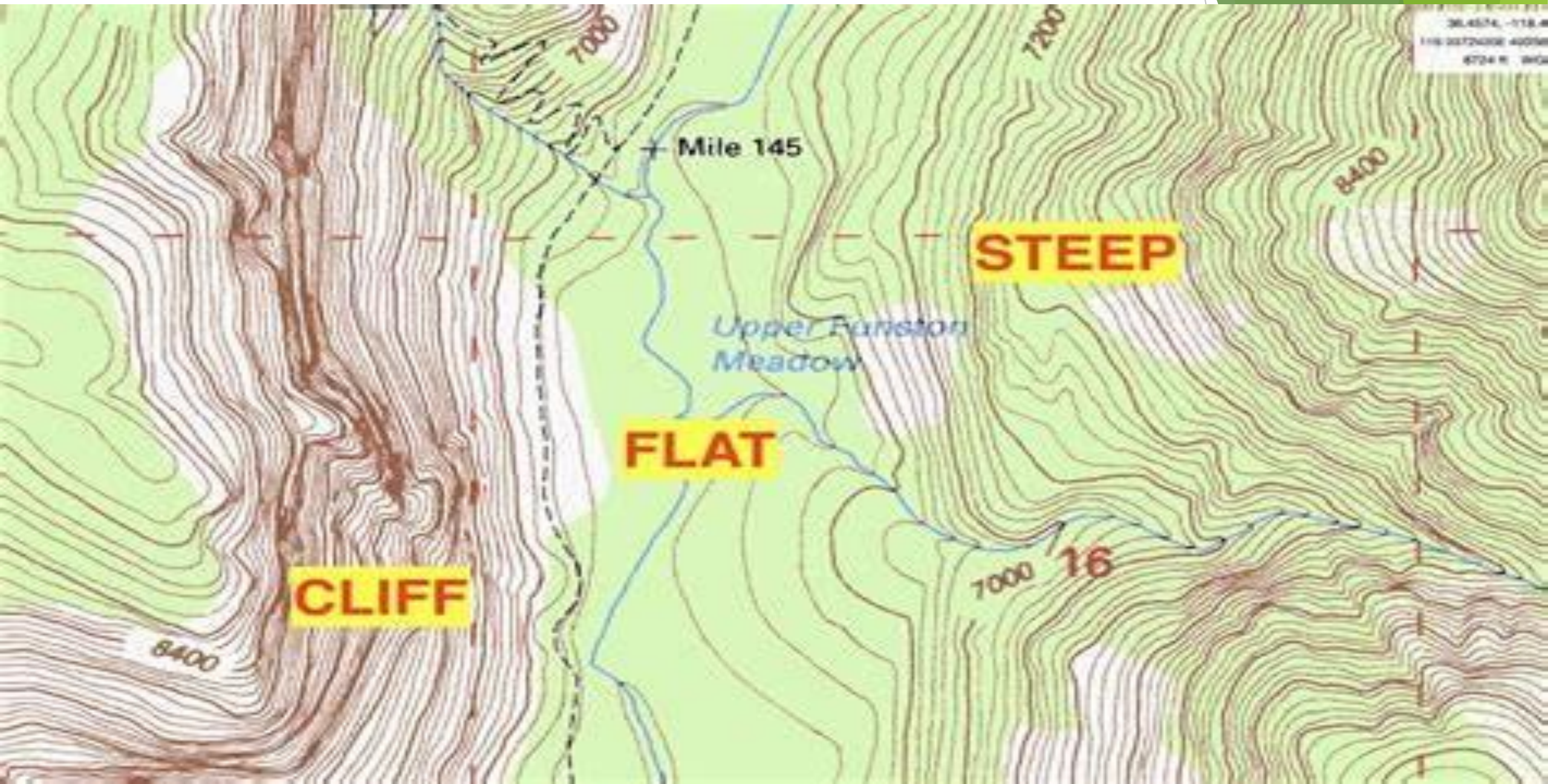
• In sloping, sites-- exact slope can be interpreted from a detailed Contour map.

•Locations/ spacing of contour-- play a big role in siting of building.

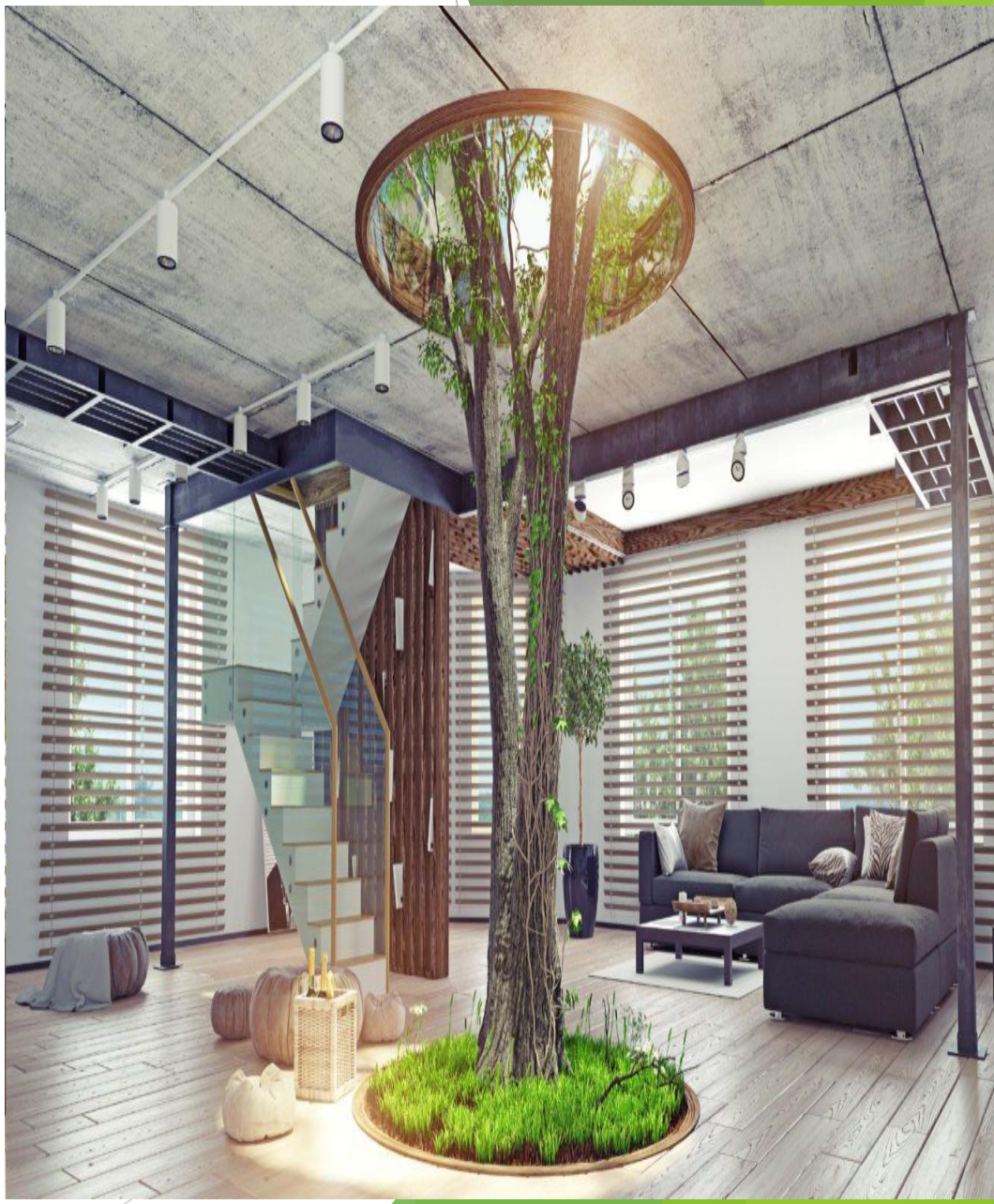
• Always better to design buildings along contours,

• integrating contours into design reduces unnecessary cutting / filling of soil.

Site Analysis-Topography



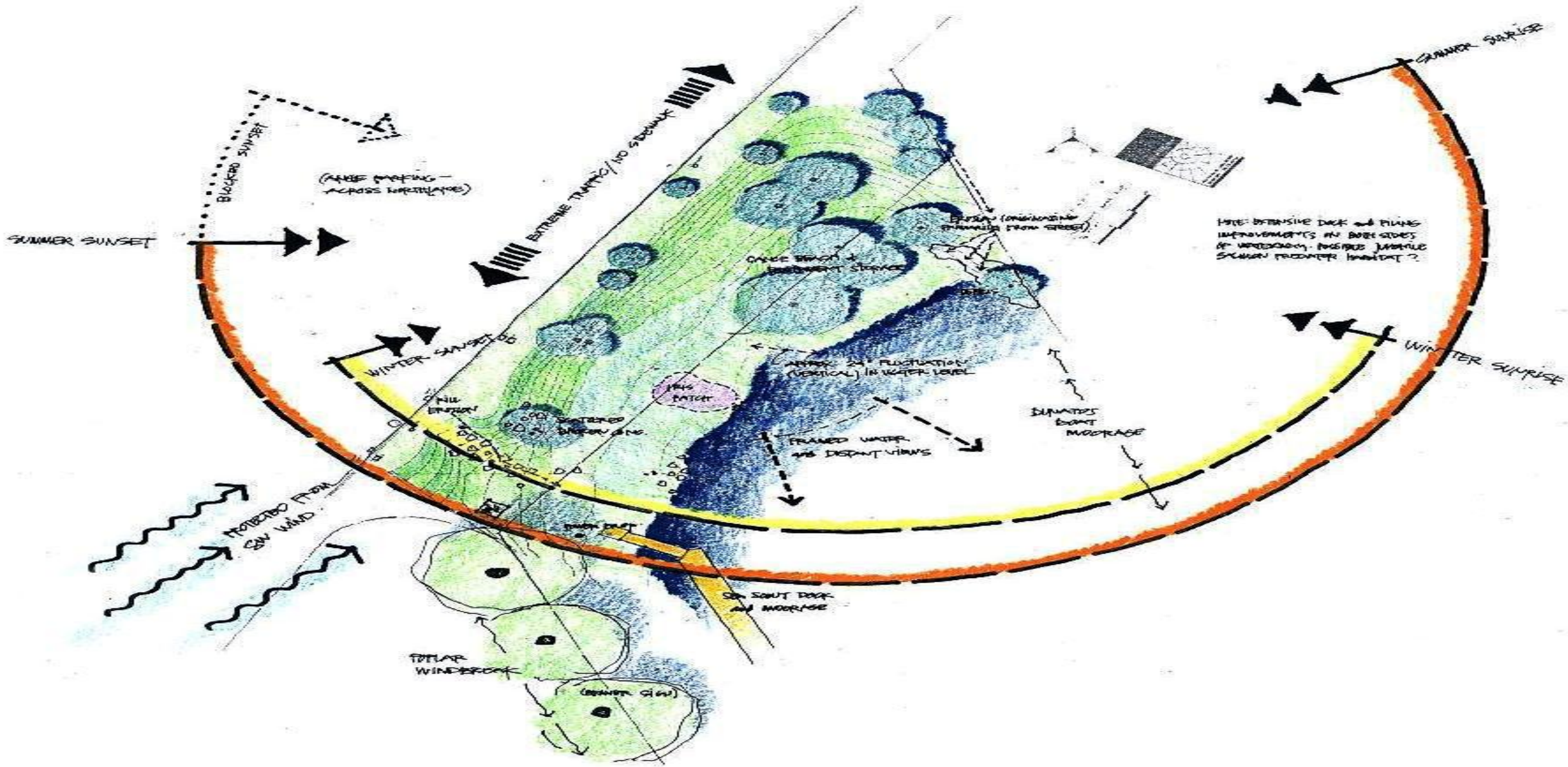
Site Analysis-Vegetation & Natural Features



•Viii) Vegetation and Natural Features

•Natural vegetation present on site very important.
• Every good design will
-- integrate
---highlight &
---accentuate
-- in design Natural vegetation to create perfect harmony.
•Vegetation comprises of
•-- trees, flora / fauna present on site.
•These should be marked on site plan
•-- so that it will assist during design stage along with ;
--location, ---
-- type ,
-- size ,
--diameter or
- spread of branches/ heights etc

Site Analysis-Vegetation & Natural Features, Sun ,Wind



Site Analysis-Precipitation & Hydrology

ix) Hydrology and Precipitation:

•Amount of rainfall
• Time period during which rainfall occurs/ site receives
•-are to be mapped/ found out.

• Relative Humidity found out to --determine moisture content in atmosphere.

• Higher relative humidity suggests a humid climate,-- cross circulation of wind at body level is must for comfort.
• A lower relative humidity suggests a dry climate
•Great rainfall/ Snow– Roof to be sloping
•- Draining of water to be ensured
•- Large proportion of site to be kept landscaped /open

Site Analysis-Precipitation & Hydrology

Site Analysis-Precipitation & Hydrology

Site Analysis- Infrastructure Facilities

x) Infrastructure

•Infrastructure facilities-- refer to services present in vicinity of Site.

• Major facilities to be considered are :

-- water supply,

-- Storm water drainage ,

-- Waste disposal,

-- Electricity supply

- Roads

-Communication network etc.

• important while planning / zoning in site for :

--promoting economy and

--making optimum use of services

Site Analysis-Land Use/Visual Linkages

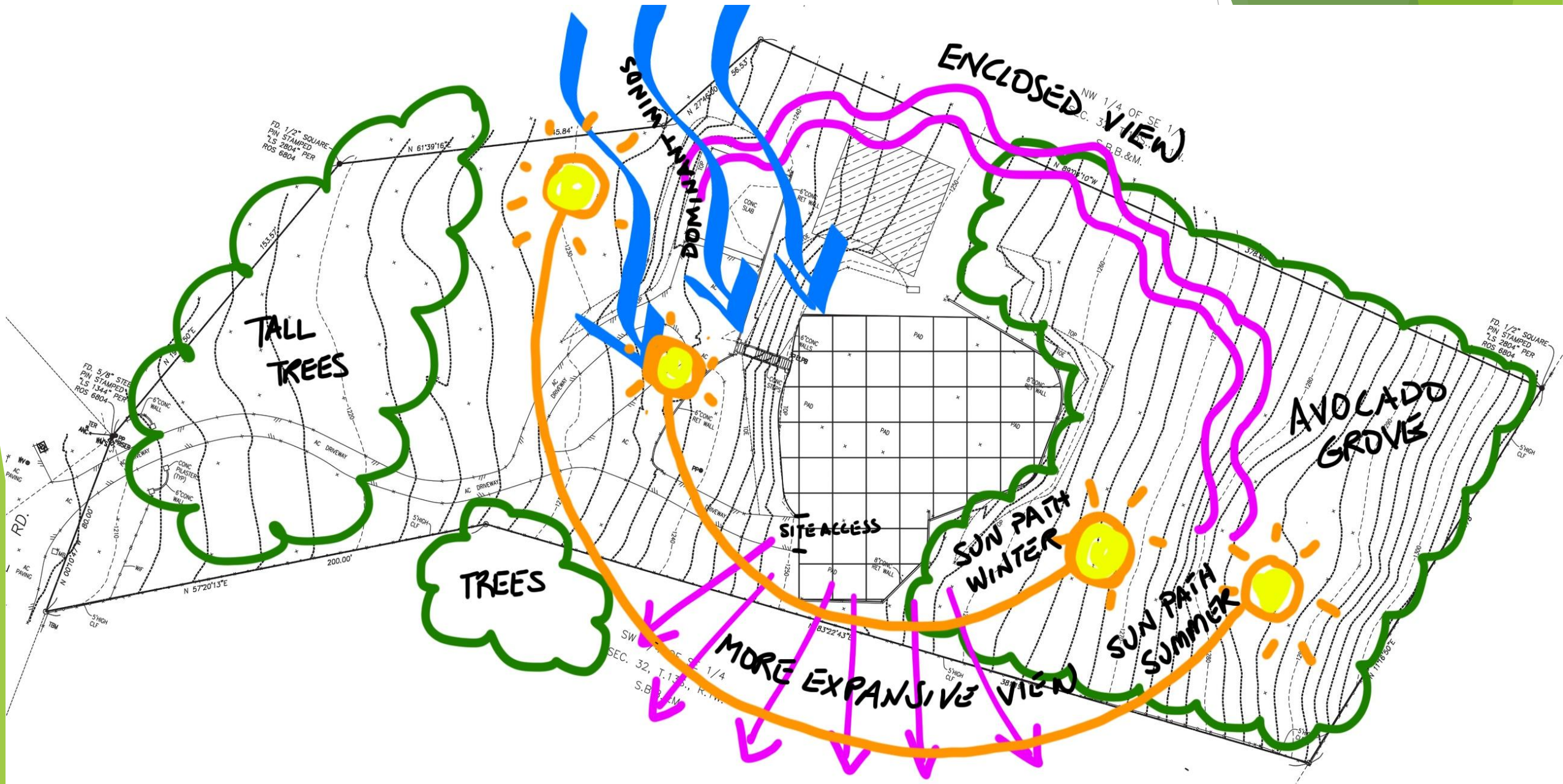
***xi)Surrounding land uses & buildings* –**

. For optimum design solution —
--surrounding land uses and
--buildings
.need close focus and consideration
•-- Incompatible land-uses lead to creation of issues in design.
•Height /setbacks of adjoining buildings important in ensuring
•--flow of air
--- sunlight.

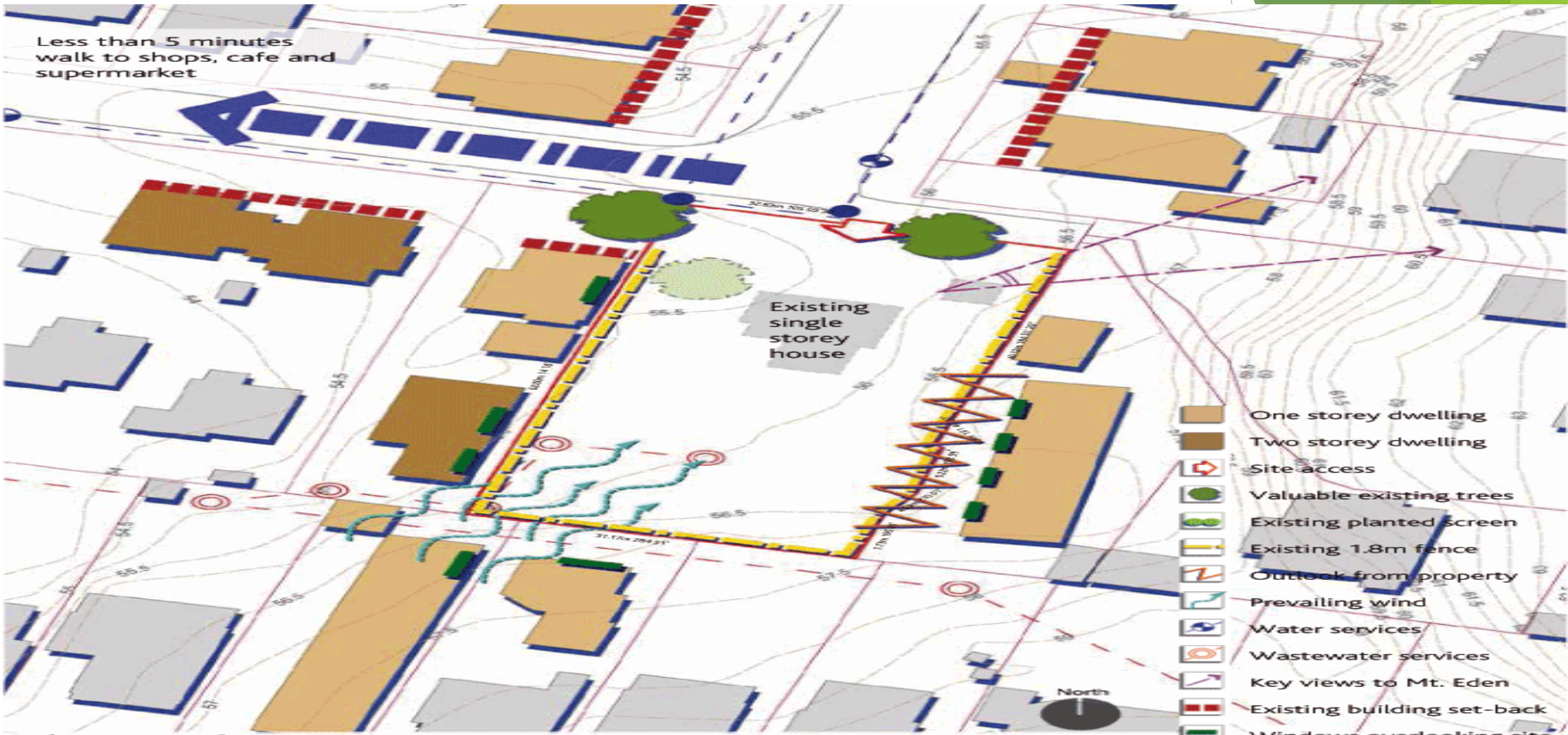
***xii) Prominent Vision lines / Visual linkages* –**

•Important element in design process.
•-- Views to site as well as
•--views from site
• -- need careful consideration, while designing.

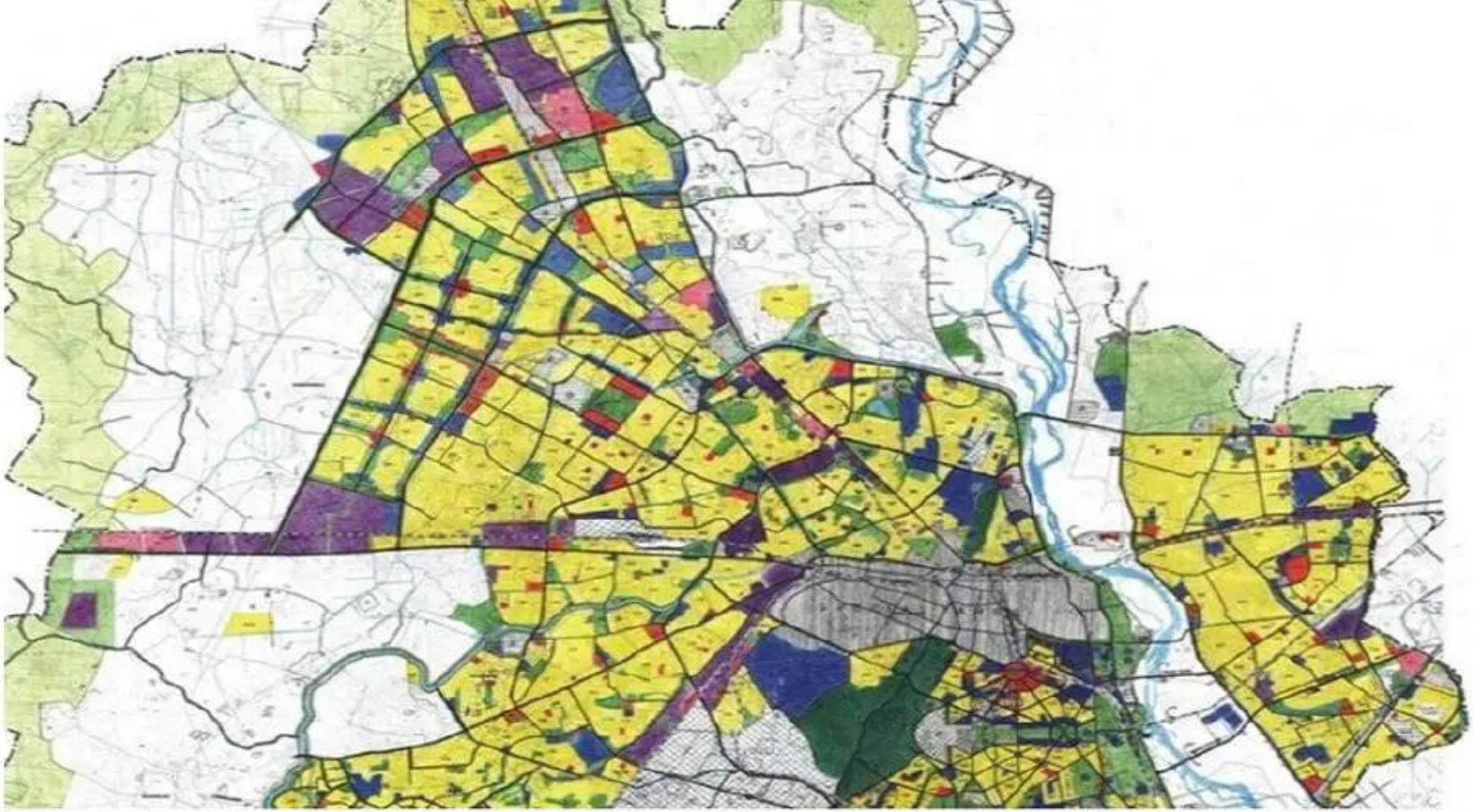
Site Analysis-Land Use/Visual Linkages, Sun Path, Views



Site Analysis-Land Use/Visual Linkages, Surroundings



Site Analysis-Land Use/Visual Linkages



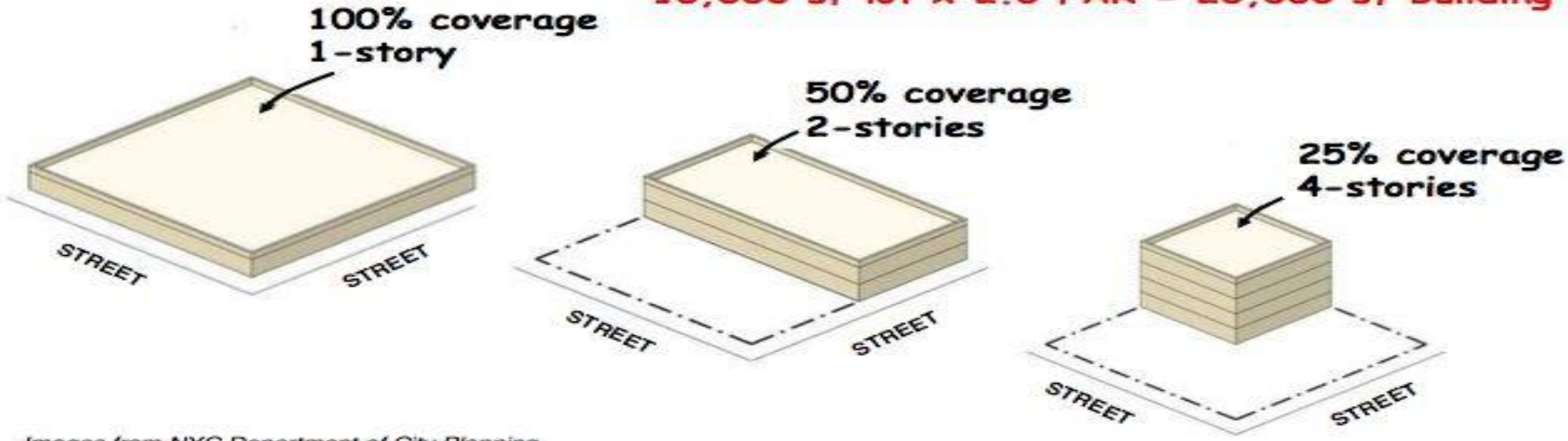
Land Use Planning in Master Plan

Building Regulations- FAR; Height, Ground Coverage, Setbacks

FAR Illustrated

Every zoning district has a **floor area ratio** (FAR). Multiplying the FAR by the **lot size** will give you the permitted **floor area** (size) of a building.

10,000 sf lot x 1.0 FAR = 10,000 sf building
10,000 sf lot x 2.0 FAR = 20,000 sf building



Images from NYC Department of City Planning

Site 1

S.W.O.T.

STRENGTH

• STRATEGIC LOCATION – NEAR TO PUBLIC TRANSPORTATION
o WITHIN 200M
Putra LRT – Pasar Seni station
Rapid KL bus hub
Klang bus station
Seremban bus station
Bus stop – for KL tourist bus (hop-on hop-off)

• NEIGHBOURHOOD - ABLE TO ATTRACT TOURISTS AND PASSERBY
o Central market – an art centre where tourists can get original art pieces
o Petaling Street – a long row of shops that sells counterfeited merchandise and gems at cheap price. A tourist shopping attraction
o 24 hour shops – such as 7-eleven. Attracts passersby at all hours
o Bank – office workers will come by near the site because of Maybank's location
o Near heritage area – the shop houses in the area dated back to before independence.

• HIGH PEDESTRIAN FLOW AROUND THE SITE
o The site is situated amidst a heavy human traffic around the bus stations and LRT station

• ZEBRA CROSSING is provided to reach the site from Central Market and Petaling Street making it easier for pedestrian to reach the site.

• LOCATED IN THE MIDDLE OF A BUSY TRAFFIC
o Making the site to be recognizable and well known.
o Designers can consider designing an iconic (or a landmark) café gallery.

• PARKING
o There is an existing parking near the site

• PEDESTRIAN'S AGE GROUP
o Covers a wide range of age group from senior citizens to high school students

WEAKNESS

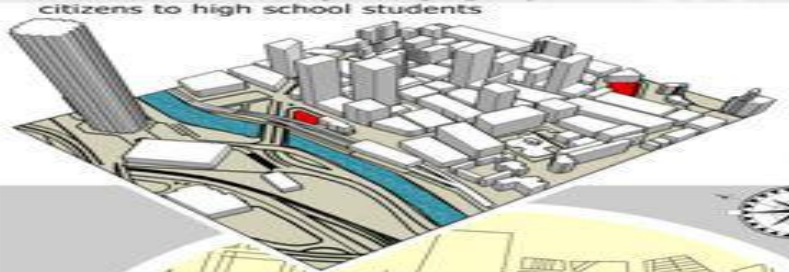
• Heat retention from the surrounding vehicular exhaust emission.
• Pollution
o Noise pollution due to traffic congestion and also high activity area.
o Air pollution from exhaust emission (mainly buses)
• Lack of vegetation
o Absolutely no shade from big trees.
• Chronic traffic congestion. Worsened by buses park on two sides of the site
o Along Jln. Tun Tan Cheng Lock with buses going to Seremban
o Along Jln. Hang Kasturi with buses going to Klang and Kajang
• The strong stink of urine around the site (facing LRT and Rapid KL) because of no public toilet.

OPPURTUNITIES

• The café gallery can be an extension to the art scene surrounding Central Market.

THREAT

• Danger of pick pockets and robbery rate is terribly high (it is very dangerous to walk along Jln. Tun Tan Cheng Lock after 7p.m
• Vandalism gives a very notorious character to the surrounding of the café gallery
• The high vehicular traffic surrounding the site could be a danger to pedestrians.



Artists around Central Market annex

Leboh Pudu

Back Packers' Inn


Flower boutique along Jalan Hang Lekit


A raggae bar on Jalan Tun H. S. Lee 100m from site


Petaling Street


Kuan Ti Temple next to Hotel Malaya

Buskers perform at Central Market pedestrian mall


Dayabumi as landmark


Road hall under the side of LRT track, diagonally near the bus stop on Jalan Tun Tan Cheng Lock


A stretch of graffiti along Gombak River, viewed from Pasar Seni LRT station


Rapid KL hub viewed from Pasar Seni LRT station


Sri Mahamariaman Temple


Penjaja Jalan Tun H. S. Lee

N

View of the site one


1


2

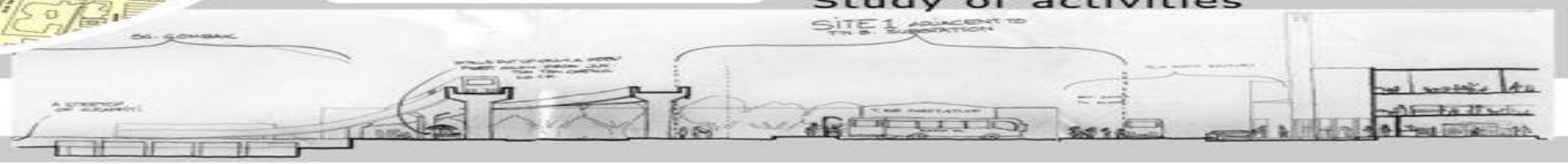

3


4

DESCRIPTION

1. Buildings on the east side of the site one.
2. The TNB substation on the south of the site one.
3. View toward the site from Central Market.
4. The LRT railway line on the west side of the site one.

Study of activities



Conclusions

- All sites remain unique and distinct
- No two sites are similar
- Accordingly design solutions for all sites have to be different & distinct
- Study and analysis of site remains critical and valuable for any good design
- Good design are outcome of detailed study and understanding the site.
- Ignoring, inadequate understanding and misinterpreting the site always lead to wrong design solutions
- Please make detailed study/analysis/understanding of site integral part of architecture teaching-learning/architectural practice
- Great Projects are all products of respecting and valuing site

Falling Water HOUSE- FLWright

Ronchamp Chapel- Corbusier

Guggenheim Museum- F L Wright- NewYork