

JABATAN LANDSKAP

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS

HEALING FROM DEGRADATION:  
UJANA PERBANDARAN,  
BANDAR PUTERI JAYA, SUNGAI PETANI

By:  
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# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | INTRODUCTION ON LAND DEGRADATION

Land is an essential building block of civilization, it is essential for growing most of the food that the world's ever-growing population needs, and yet its contribution to our quality of life is perceived and valued in starkly different and often incompatible ways. A minority has grown rich from the unsustainable use and largescale exploitation of land resources, with related conflicts intensifying in many countries. The world has reached a point where we must reconcile these differences and rethink the way in which we plan, use, and manage the land.

While land degradation is a global problem, it takes place locally and requires local solutions. Greater commitment and more effective cooperation at the local level are necessary to stop land degradation and loss of biodiversity. Our ability to manage trade-offs at a landscape scale will ultimately decide the future of land resources – soil, water, and biodiversity – and determine success or failure in delivering poverty reduction, food and water security, and climate change mitigation and adaptation. Indeed, integrated land and water management is recognized as an accelerator for achieving most of the 17 Sustainable Development Goals (SDGs). Further agricultural expansion, one of the main causes of land degradation, could be limited by increasing yields on existing farmland, shifting to plant-based diets, consuming animal proteins from sustainable sources, reducing food loss, waste and also unusable land for community at urban area.



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | TYPES OF LAND DEGRADATION



## LAND DEGRADATION

- is a process in which the value of the biophysical environment is affected by a combination of human-induced processes acting upon the land.
- It is viewed as any change or disturbance to the land perceived to be deleterious or undesirable
- Caused by multiple forces. I.e: Extreme weather conditions
- It all caused by human activities and pollute or degrade the quality of soil and land utility.
- Is a natural or human induced process that negative effect the laws.
- Process of land degradation induce erosion by water, chemical degradation (acidification) and physical degradation by compaction and excavation works.

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | TYPES OF LAND DEGRADATION



## **WATER EROSION**

covers all forms of soil erosion by water, including sheet and rill erosion and gullying. Human-induced intensification of land sliding, caused by vegetation clearance, road construction, etc.

## **WIND EROSION**

refers to loss of soil by wind, occurring primarily in dry regions.

## **SOIL FERTILITY DECLINE**

Short term to refer to what is more precisely described as deterioration in soil physical, chemical and biological properties. Whilst decline in fertility is indeed a major effect of erosion, the term is used here of cover effects of processes other than erosion. The main processes involved are:

- lowering of soil organic matter, with associated decline in soil biological activity;
- degradation of soil physical properties (structure, aeration, water holding capacity), as brought about by reduced organic matter;
- adverse changes in soil nutrient resources, including reduction in availability of the major nutrients (nitrogen, phosphorus, potassium), onset of micronutrient deficiencies, and development of nutrient imbalances.
- buildup of toxicities, primarily acidification through incorrect fertilizer use.

## **WATERLOGGING**

Lowering in land productivity through the rise in groundwater close to the soil surface. Also included under this heading is the severe form, termed ponding, where the water table rises above the surface. Waterlogging is linked with salinization, both being brought about by incorrect irrigation management.

## **SALINIZATION**

Refer to all types of soil degradation brought about by the increase of salts in the soil. It thus covers both salinization in its strict sense, the buildup of free salts; and sodification (also called alkalization), the development of dominance of the exchange complex by sodium. As human-induced processes, these occur mainly through incorrect planning and management of irrigation schemes.

## INTRODUCTION

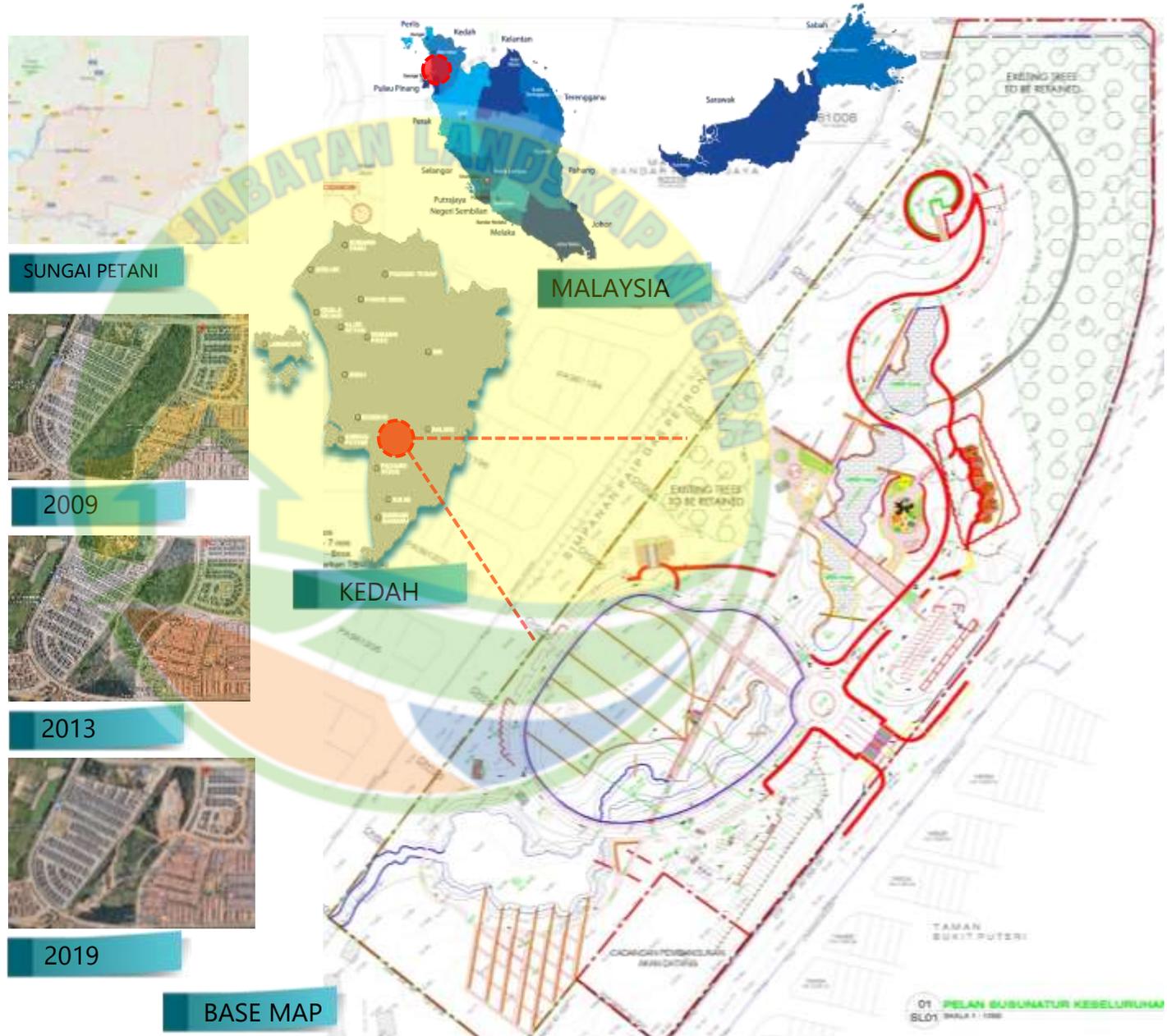
Proposed Bandar Puteri Jaya Public Park is one of the park that has identified by the national landscape department and determined the location by City Council Sungai Petani for development as a recreational park to attract visitors and local communities for a variety of recreational and leisure activities

## SITE LOCATION

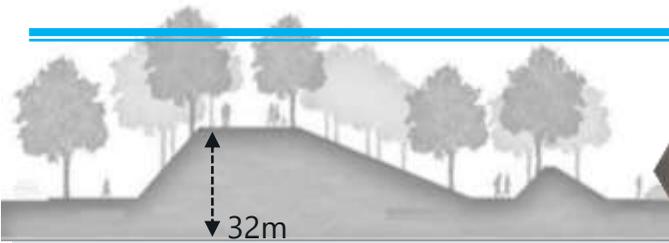
The parks is situated at east area of Kuala Muda and it is 10km from city center of Sungai Petani

It is surround by middle range residential area being developed by OSK SDN. BHD.

The proposed site area is 29.1 acre and has been handed to local authority as part of its requirement in achieving Development Order to develop township.



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | ANALYSIS & STUDY: ACCESSIBILITY AND VIEW



Proposed view tower with the height about 32m to enhance a good view from above

## LEGENDS:

- Main road
- Land road
- Border line
- The main red road to site
- Secondary door

## ACCESSIBILITY

- proposed main entrance
- Traffic flow proposition

## GOOD VISUAL

- Proposed view tower

## SCHEDULE OF GRADIENT:

- 0% – 4%
- 5% – 9%
- 10% – 19%
- 20% – 30%
- 30% – above

Site area  
Site boundaries

Existing road

Existing road

Existing road

Site area

Main road

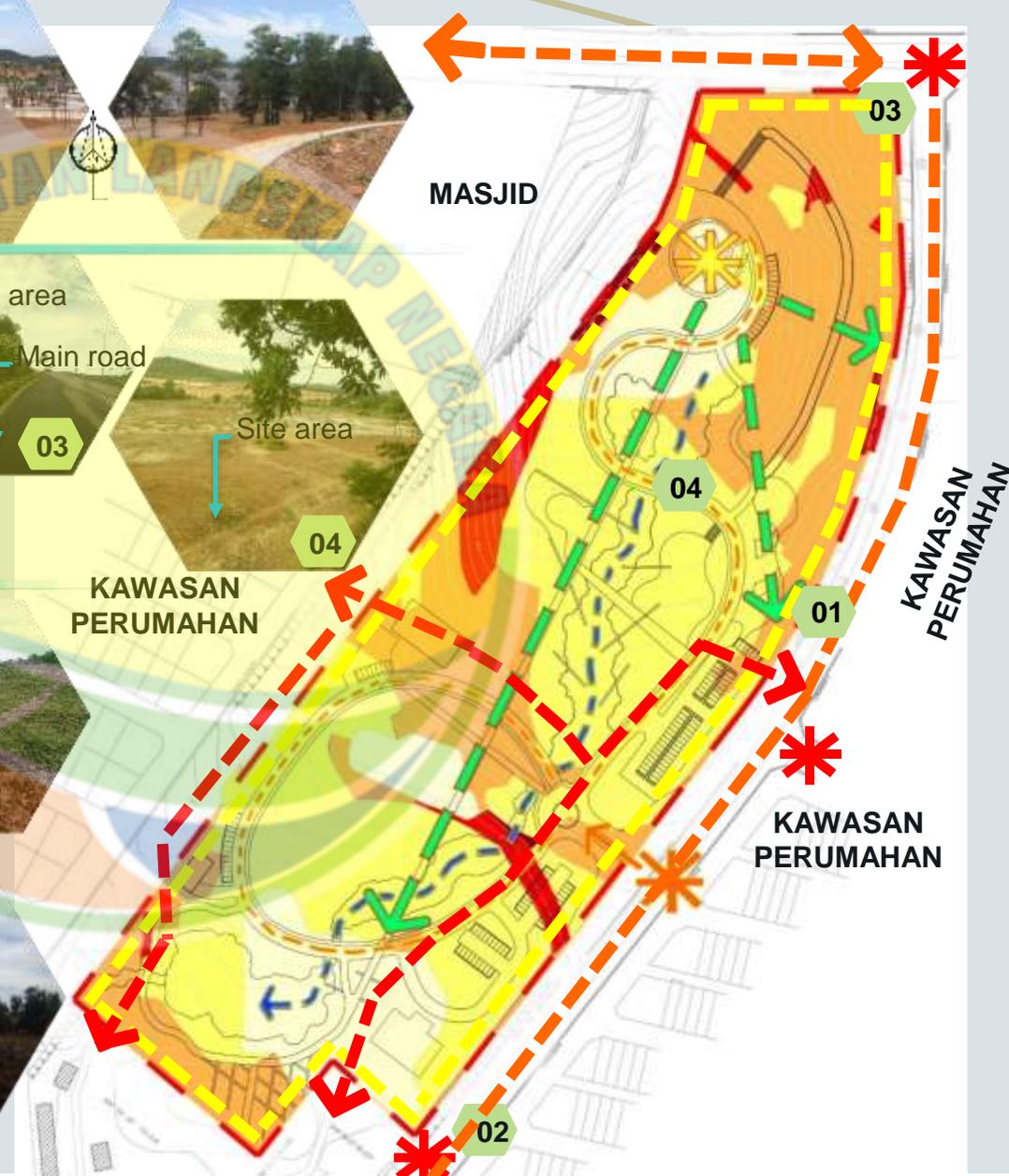
Site area

KAWASAN PERUMAHAN

MASJID

KAWASAN PERUMAHAN

KAWASAN PERUMAHAN



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | ANALYSIS & STUDY: TOPOGRAPHY & WIND DIRECTION

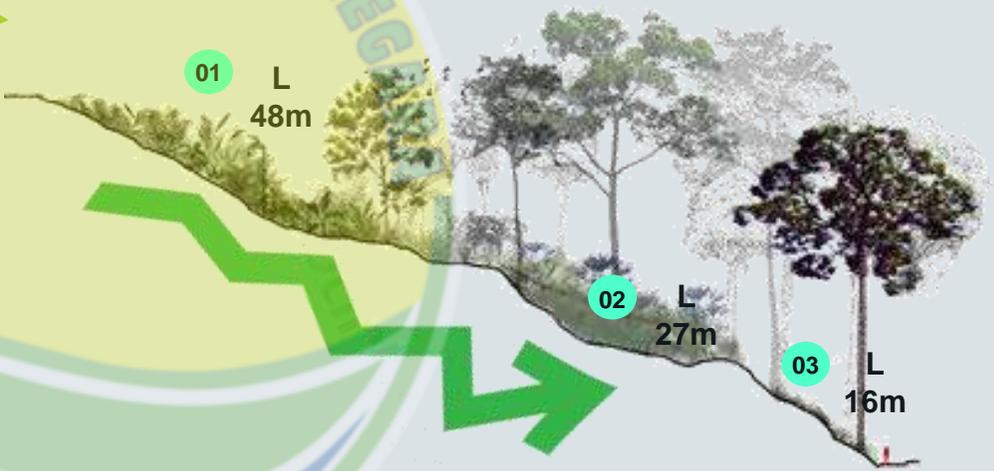
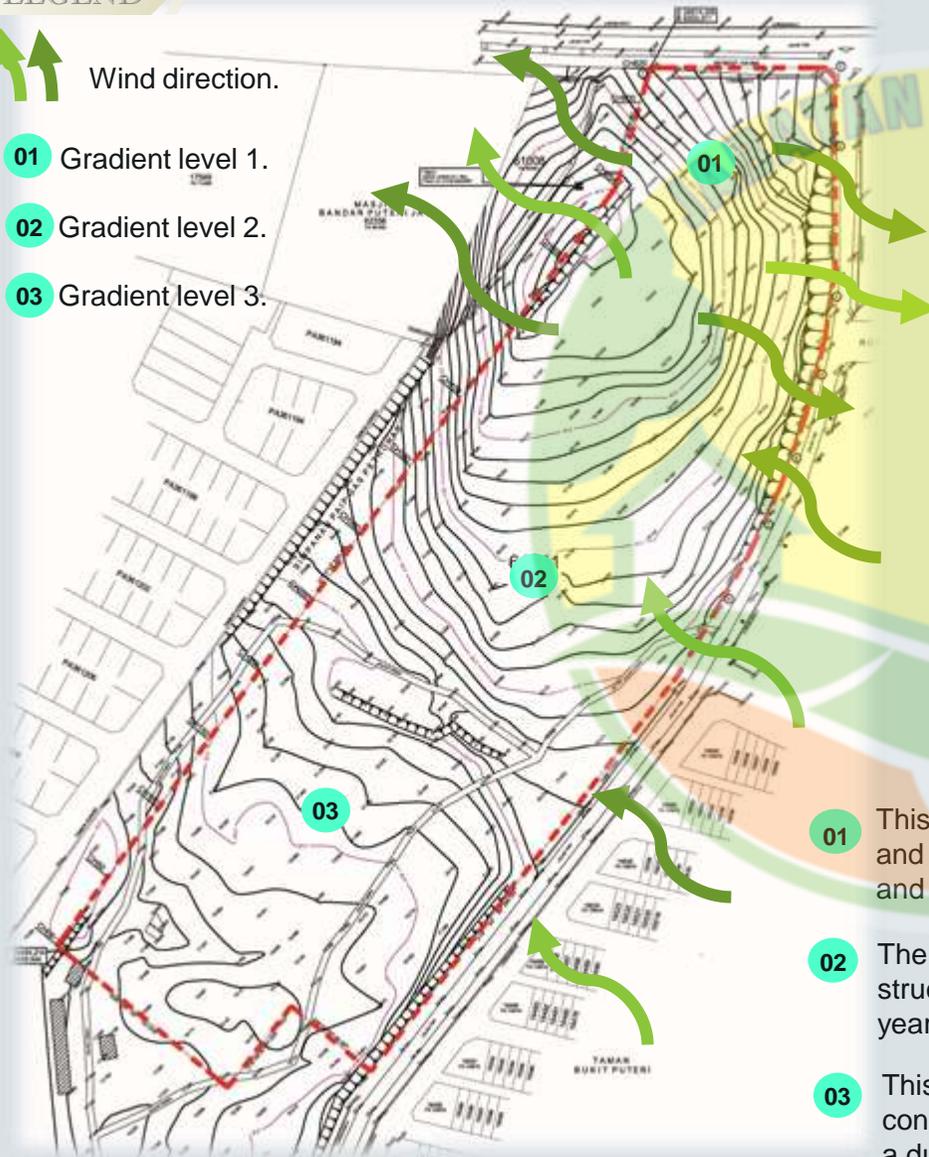
## LEGEND

 Wind direction.

**01** Gradient level 1.

**02** Gradient level 2.

**03** Gradient level 3.



**01** This area has been degraded by nature and human activities. Barren rocks and land excavation has been done and badly eroded. Trees felling activities and excessive land removable.

**02** The existing land form has been degraded causing a breakdown of soil structure, aggregation and porosity. This occurs during heavy rain fall over the years. Excessive built up of heavy metal i.e: iron

**03** This is the lowest area which has been a center for workers quarters and construction vehicles and machinery storage before and currently it becomes a dumping construction site.

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | ANALYSIS & STUDY: SITE ISSUES

“An increase in quantity and urban space coverage of ex-landfills defined as non-operating landfill, where waste disposal activities have been laid of or completed.”

**Ministry of Housing & Local Department (2004)**  
**National Solid Waste Department (2012)**

## WATER QUALITY

Rainwater, water break up the laterite soil and makes the water turn into red and full of acidic chemical. It also brings solid waste and particles thus affect water quality.



## SOIL EROSION

This area has been degraded by nature and human activities. Barren rocks and land excavation has been done and badly eroded. Laterite soil contains acid and when a heavy rainfall occurs, it can causes severe excessive soil erosion.

**EXISTING SECONDARY FOREST**  
 ( *Acasia spp* & low under growth)

## CONSTRUCTION DUMPING SITES

this dumping site is covered with under growth

## HEAT

The land is too hot and dry. Hence, plant cannot survive under the heat and there are not enough of water supply to give out to the plant and soil.

## BROWNFIELD

This is the lowest area which has been a center for workers quarters and construction vehicles and machinery storage before and currently it becomes a dumping construction site

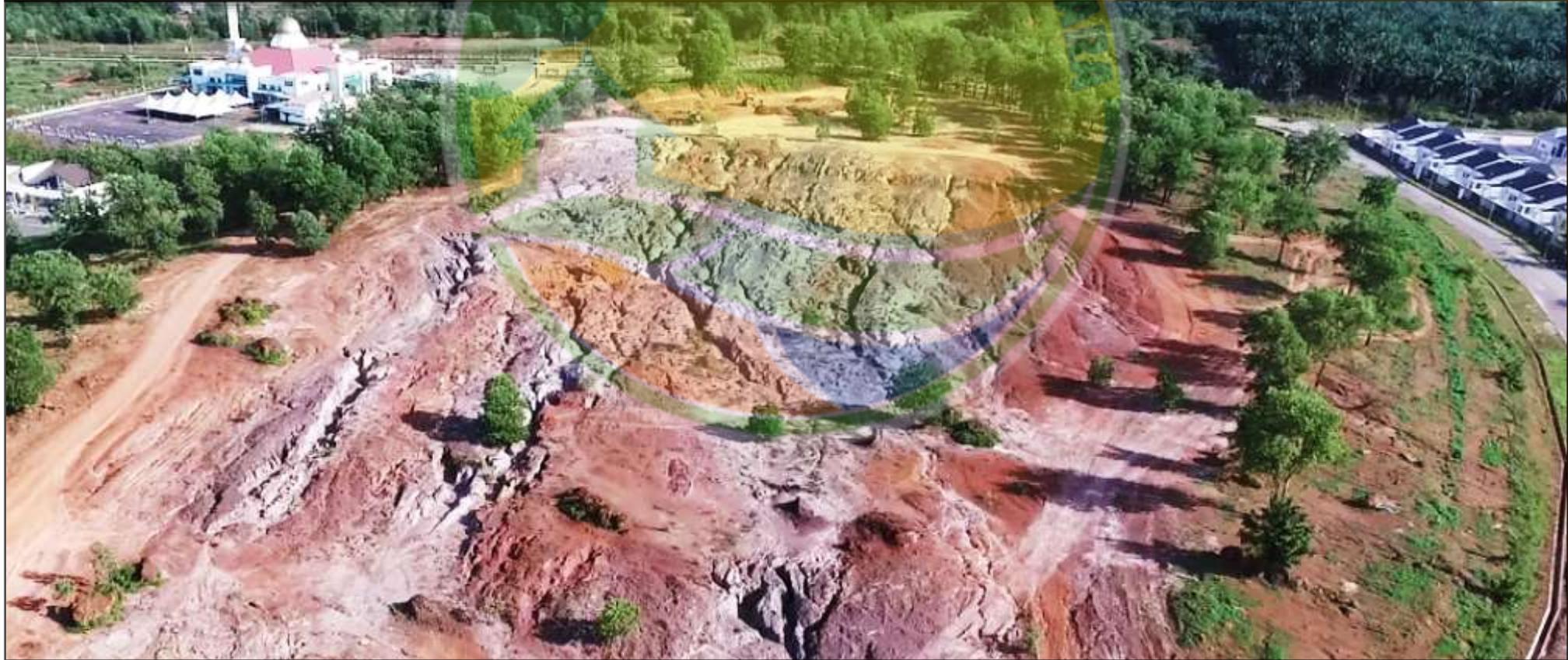


# LOCALISING SUSTAINABLE DEVELOPMENT GOALS

## PHOTOGRAPHS OF PROJECT (BEFORE)



Degradation and laterite gullies.



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | PHOTOGRAPHS OF PROJECT (BEFORE)



Existing site condition with gullies and expose laterite boulders



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS

## PHOTOGRAPHS OF PROJECT (BEFORE)



Expose degradation and laterite gullies.



An aerial view show existing site condition with expose degraded and laterite gullies.

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | PHOTOGRAPHS OF PROJECT (BEFORE)



**LOCALISING SUSTAINABLE DEVELOPMENT GOALS**  
**PHOTOGRAPHS OF PROJECT (BEFORE)**



Existing site condition with land deformation at degraded area

**LOCALISING SUSTAINABLE DEVELOPMENT GOALS** |  
**PHOTOGRAPHS OF PROJECT (BEFORE)**

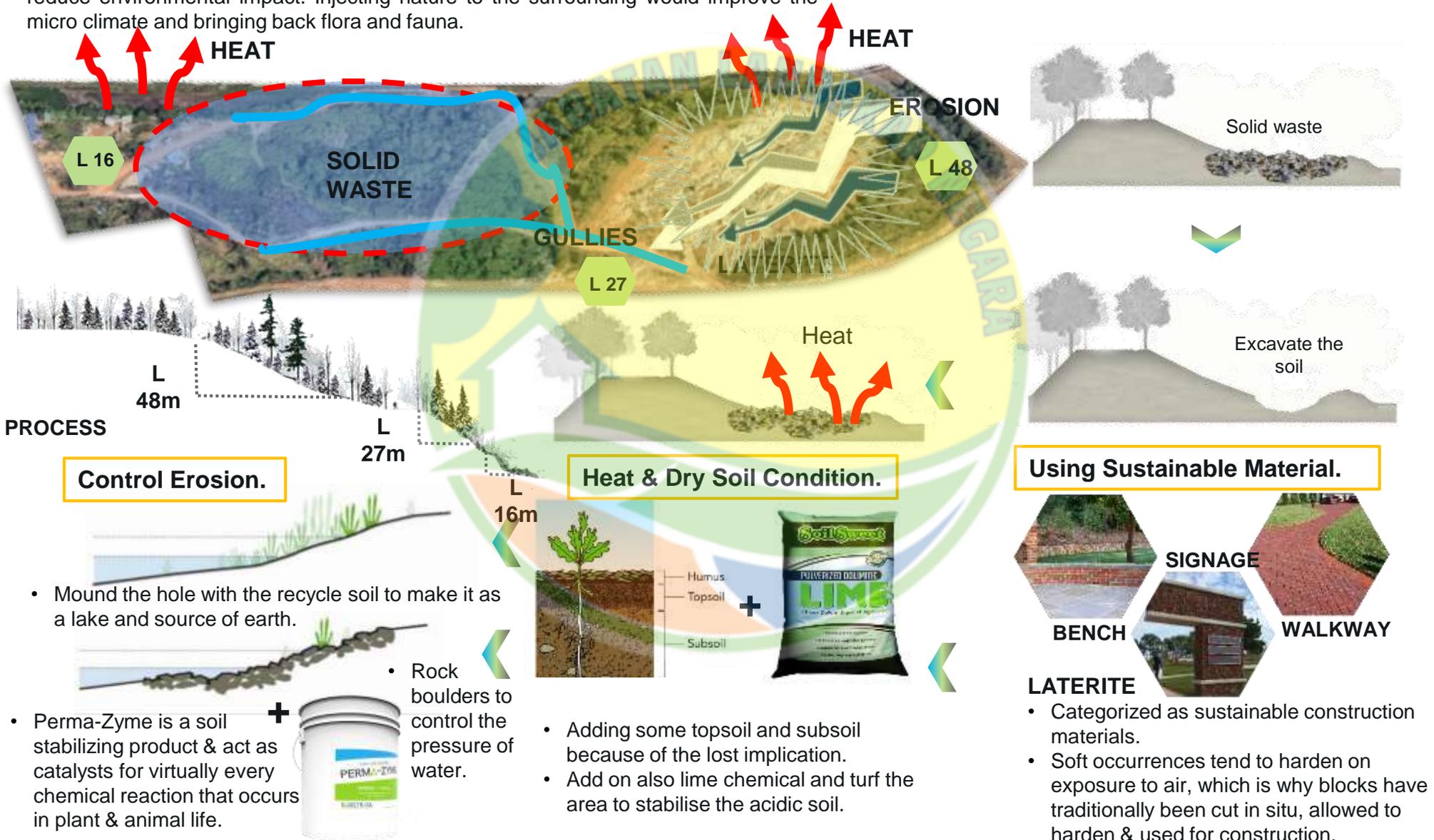


Construction debris at site

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | DESIGN STRATEGY: REHEAL DEGRADATION & BROWNFIELD

## Degradation and Brownfield Area

To design and create biological solution by having design contours to remodel and reduce environmental impact. Injecting nature to the surrounding would improve the micro climate and bringing back flora and fauna.



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | DESIGN STRATEGY: WATER RECLAMATION



1



LATERITE



ZONE A

2



ECOLOGICAL FILTERATION

Removes impurities by lowering contamination of water using a fine physical barrier, a chemical process, or a biological process.



ZONE B

3



PHYTOREMEDIATION

The direct use of living green plants for in place, removal, degradation, or containment of contaminants in soils, sludges, sediments, surface water and groundwater.



ZONE C

4



DRY CREEK



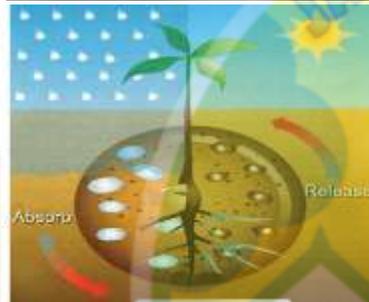
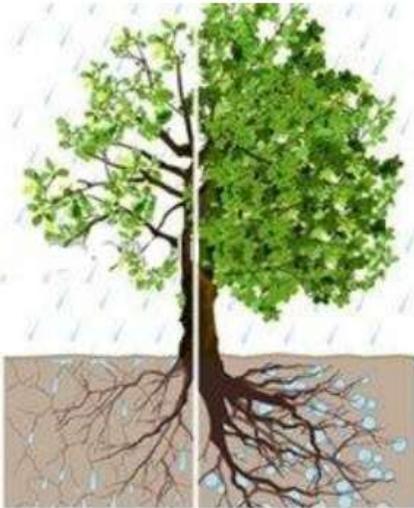
ZONE D

Adaption of the condition of landform that has been eroded by creating 'Dry Creek' act as natural drain. Hence, Dry Creek can be convert into river rhyme.

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | DESIGN STRATEGY: WEATHER CONSTRAINT

## Weather

The condition of the site is too dry and hot. Even the trees could not be alive.

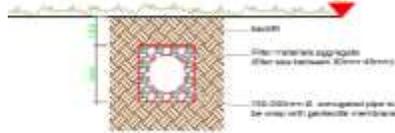


By using **agro gel**, it is sufficient enough to supply the plant if the when the weather become drought.

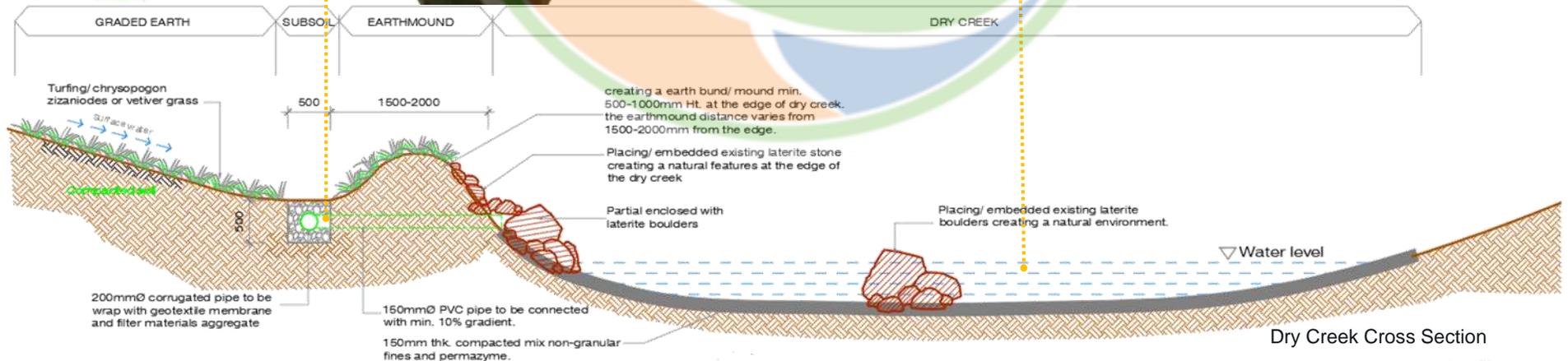
### The benefit of using agro gel :-

- Boost up plant
- Absorbs water more than its weight.
- Non-polluting & non-toxic.
- Frequency of watering plants is reduced.
- Soil water holding capacity is improved

Use lake water pump to supply water if there are not enough supply of water.



- Make a man made lake by using existing site material to supply water to the site condition. It also help to contain water during a heavy rainfall.
- Make an irrigation to all area.





**THE GLOBAL GOALS**  
For Sustainable Development

# SUSTAINABLE DEVELOPMENT GOALS



**Economic Growth**



**Social Development**



**Environmental Protection**

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS

## SDGS AT A GLANCE



**1** NO POVERTY

End poverty in all its forms everywhere



**2** ZERO HUNGER

End hunger, achieve food security and improved nutrition and promote sustainable agriculture



**3** GOOD HEALTH AND WELL-BEING

Ensure healthy lives and promote well-being for all at all ages



**4** QUALITY EDUCATION

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



**5** GENDER EQUALITY

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



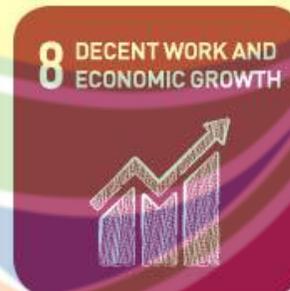
**6** CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all



**7** AFFORDABLE AND CLEAN ENERGY

Ensure access to affordable, reliable, sustainable and modern energy for all



**8** DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



**9** INDUSTRY, INNOVATION HUNGER AND INFRASTRUCTURE

Achieve gender equality and empower all women and girls



**10** REDUCED INEQUALITIES

Reduce inequality within and amongst countries

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS

## SDGS AT A GLANCE



**11** SUSTAINABLE CITIES AND COMMUNITIES

Make cities and human settlements inclusive, safe, resilient and sustainable



**12** RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns



**13** CLIMATE ACTION

Take urgent action to combat climate change and its impacts



**14** LIFE BELOW WATER

Conserve and sustainably use the oceans, seas and marine resources for sustainable development



**15** LIFE ON LAND

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



**16** PEACE, JUSTICE AND STRONG INSTITUTIONS

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



**17** PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | SDGS AT A GLANCE

## Goal 15. Life On land

15



## Goal 2. Zero Hunger

End hunger, achieve food security and improve nutrition and promote sustainable agriculture

3

## Goal 3. Good Health

“Deaths and illnesses from hazardous chemicals and air, water and soil pollution”

4

## Goal 4. Quality Education

5

## Goal 5. Gender Equality

“Violence against all women in the public and private spheres”

6

## Goal 6. Clean Water & Sanitation

8

## Goal 8. Decent Work and Economic Growth

“Decent job creation, entrepreneurship and growth of micro enterprises and SMEs”

9

## Goal 9. Industry, Innovation And Infrastructure

11

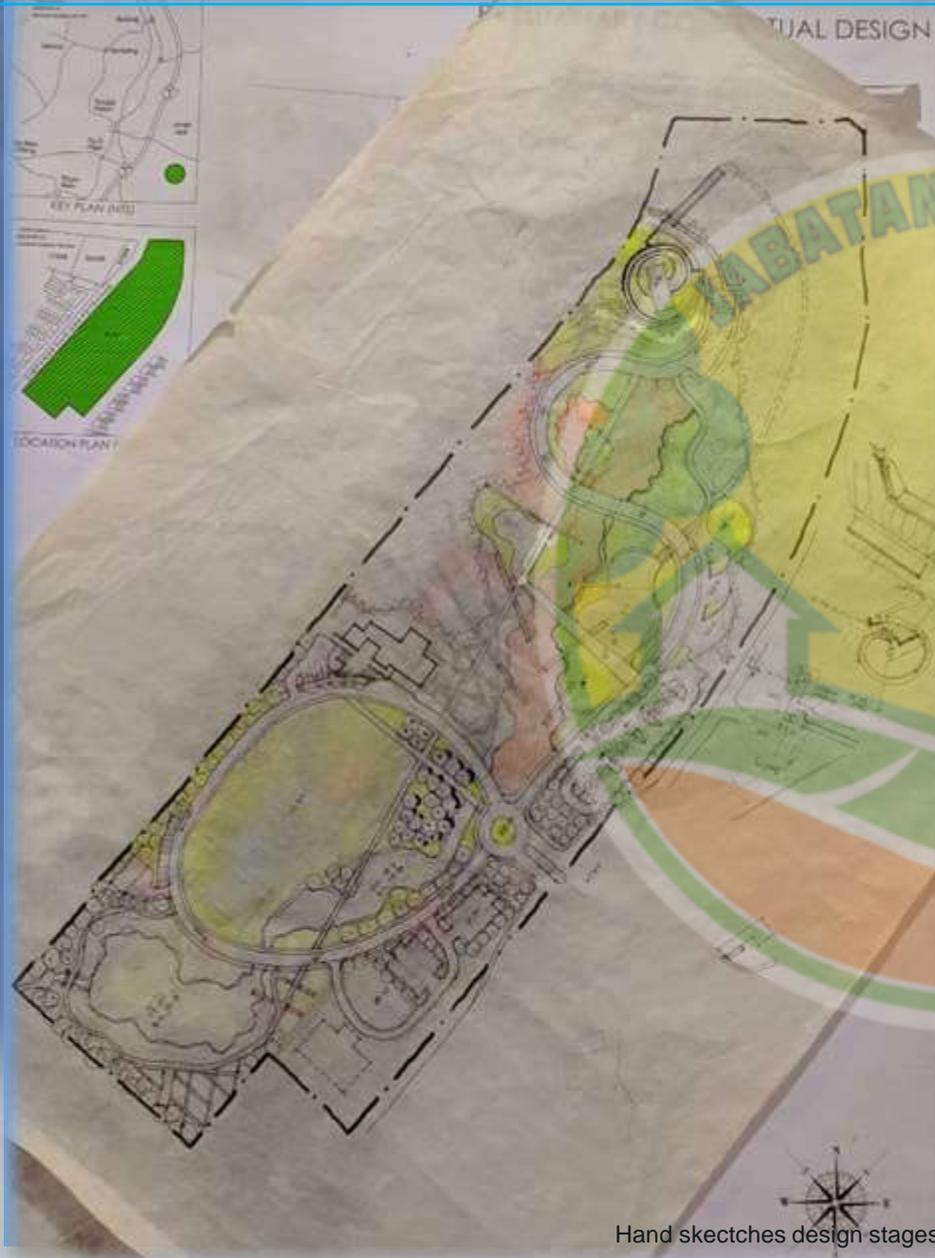
## Goal 11. Sustainable Cities And Communities

13

## Goal 13. Climate Action

“Resilience and adaptive capacity to climate-related hazards and natural disasters in all countries”

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I DESIGN STRATEGY : MASTERPLAN



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | DESIGN STRATEGY : MASTERPLAN

## DESIGN ELEMENTS :

1. MAIN ENTRANCE
2. VIEWING TOWER
3. CIRCULAR EARTH MOUND
4. STEPS
5. DRY CREEK
6. ARTHEMETIC, SHAPE & OPPOSITE WORD GARDEN
7. FACILITIES BUILDING - TOILET
8. PLAZA
9. PARKING
10. STORE
11. POND - FOR FUTURE IRRIGATION/ DETENTION POND
12. WATER OUTLET
13. COMMUNITY FARMING
14. FUTURE COMMUNITY HALL
15. OPEN LANDSCAPE AREA
16. ECOLOGICAL FILTRATION POND
17. CREEK FINGERS
18. SENIOR GYM
19. CHILD GYM
20. JUNGLE TRAILS
21. EXISTING TREE AND BUSHES TO BE PRESERVED
22. FOODTRUCK LAYBY
23. FUTURE SCHOOL SITE



2 ZERO HUNGER



## Pave the road from farm to market

Access to affordable, nutritious food for everyone is vital. We must innovate and invest in making our supply chains more efficient by developing sustainable durable markets. To support these markets, we must also improve rural infrastructure, particularly roads, storage and electrification, ensuring farmers ability to reach a wider consumer base.

End hunger, achieve food security and improved nutrition and promote sustainable agriculture



COMMUNITY GARDEN

### SOCIAL BENEFIT

- + COMMUNITY GATHERING SPACES
- + PROVIDES AN EDUCATIONAL VENUE

### ECONOMIC BENEFIT

- + GENERATE REVENUE
- + REDUCE “FOOD MILES” THAT ARE REQUIRED TO TRANSPORT NUTRITIOUS FOOD

### ENVIRONMENTAL BENEFIT

- + REDUCE FOOD WASTE THROUGH COMPOSTING
- + POSITIVELY IMPACT THE URBAN MICRO-CLIMATE

### HEALTH BENEFIT

- + ACCESS TO FRESH, AFFORDABLE FOOD
- + GREATER VARIETY OF FOODS
- + OPPORTUNITY FOR PHYSICAL EXERCISE
- + IMPROVED PSYCHOLOGICAL WELL-BEING



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 3 : ZEGOOD HEALTH AND WELL-BEING



Ensure healthy lives and promote well being for all at all ages



Good health explicitly with wellbeing, and conceptualizes health as a human right requiring physical and social resources to achieve and maintain. 'Wellbeing' refers to a positive rather than neutral state, framing health as a positive aspiration

### SOCIAL BENEFIT

- + COMMUNITY GATHERING SPACES
- + PROVIDES AN EDUCATIONAL VENUE

### ENVIRONMENTAL BENEFIT

- + POSITIVELY IMPACT THE URBAN MICRO-CLIMATE

### HEALTH BENEFIT

- + OPPORTUNITY FOR PHYSICAL EXERCISE
- + IMPROVED PSYCHOLOGICAL WELL-BEING



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS |

## GOAL 3 : ZEGOOD HEALTH AND WELL-BEING

3 GOOD HEALTH AND WELL-BEING



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 4 : QUALITY EDUCATION

### 4 QUALITY EDUCATION



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



#### Type of outdoor learning :

- Environmental Education
- Recreational & Adventure Activities
- Social Development Programs
- Team Building & Leadership training
- Management Development programs

- ensure inclusive and equitable quality education and promote lifelong learning opportunities for all – plays a central role in building sustainable, inclusive and resilient societies
- aims to provide children and young people with quality and easily accessible education plus other learning opportunities
- To provide outdoor learning experience to the public through landscape design approach.



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | GOAL 4 : **QUALITY EDUCATION**

4 QUALITY EDUCATION



Community garden for elderly



Kids play at outdoor playground



Alphabet mural wall



Jungle Trekking activities



Taking pictures with alphabet mural background

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 5 : GENDER EQUALITY

5 GENDER EQUALITY



- Emphasis on the importance of achieving progress on peaceful and inclusive societies, access to justice and rule of law, and effective, accountable and inclusive institutions.
- Providing women and girls with equal access to education, health care, decent work and benefit societies and humanity at large
- Equal access to education, technology, health care, decent work, and representation in political and economic decision-making processes will nurture sustainable economies and benefit societies and humanity at large

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | GOAL 5 : GENDER EQUALITY

5 GENDER  
EQUALITY





# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 6 : **GENDER EQUAL**CLEAN WATER AND SANITATION

6 CLEAN WATER AND SANITATION



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 8 : DECENT WORK AND ECONOMIC GROWTH

### 8 DECENT WORK AND ECONOMIC GROWTH



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

#### TANGIBLE

- INFLUENCE SURROUNDING LAND VALUE
- GENERATE REVENUE (FOOD TRUCK)
- COMMUNITY GATHERING SPACES( COMMUNITY GARDEN)

#### INTANGIBLE

- OPPORTUNITY FOR PHYSICAL EXERCISE
- IMPROVED PSYCHOLOGICAL WELL-BEING





# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 9 : **INDUSTRY, INNOVATION AND INFRASTRUCTURE**

### 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



- **Phytoremediation**
- **Existing laterite stone**
- **Lime**

Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation

- The importance of the infrastructure sector to the process of economic growth and development has long been recognized and understood by policymakers.
- Adequate infrastructure, modern commerce characterized by production specialization play a major role to boost the economic activities
- Adequate infrastructure in **UJANA PERBANDARAN** with designed with implemented on universal design i.e: ramp, walkway for easy access for all users.
- Innovation design on material selection, design approach suit with site condition with using existing laterite stone as landscape material features.
- Ecology design on implemented dry creek & creek fingers design to slow down volume of water during heavy rain.





Remodel land form with chanel out rain water through dry creek and creek fingers



Dry creek and creek fingers



Existing laterite stone as decorative wall



Alphabet wall with infill existing laterite stone



Features wall existing laterite stone

# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | GOAL 11 : SUSTAINABLE CITIES AND COMMUNITIES

## 11 SUSTAINABLE CITIES AND COMMUNITIES

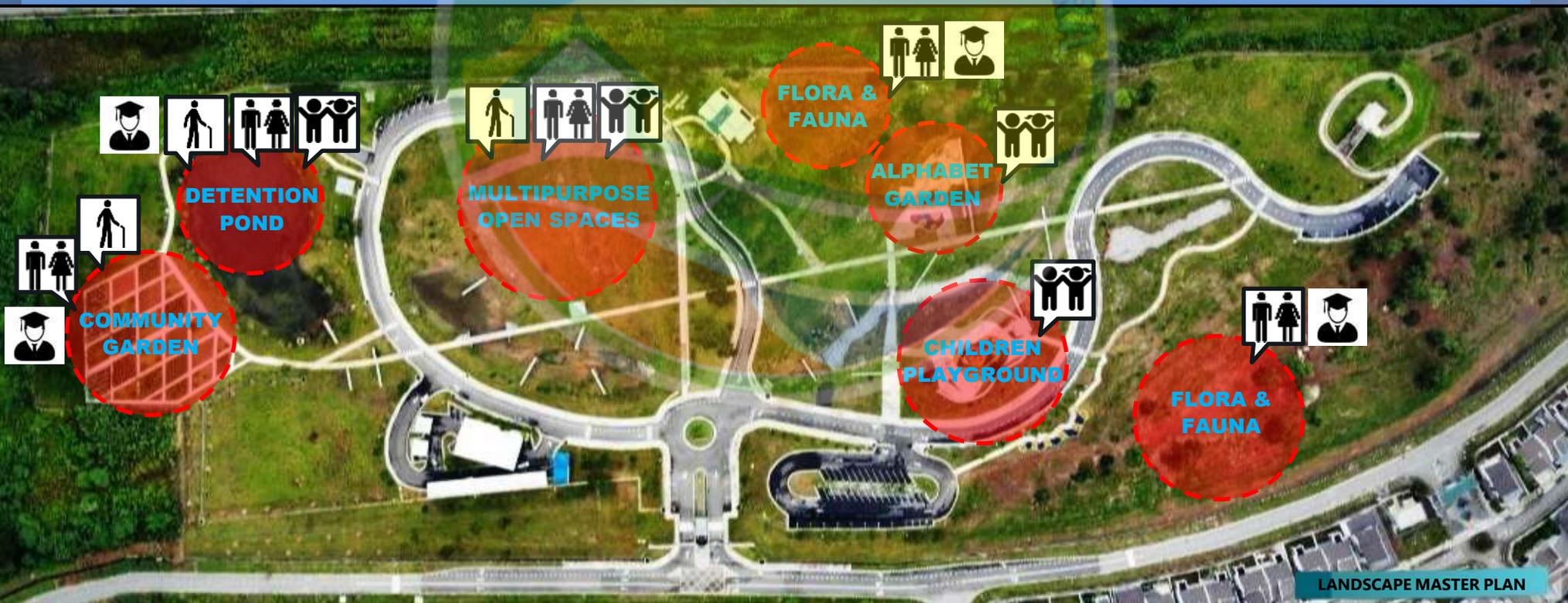


Make cities and human settlements inclusive, safe, resilient, and sustainable



Making cities sustainable means creating career and business opportunities, safe and affordable housing, and building resilient societies and economies. It involves investment in public transport, creating green public spaces, and improving urban planning and management in participatory and inclusive ways.

- Safety/ Sustainable
- Reduce flash flood
- Retaining water
- Creating healthy life style





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Community garden for elderly



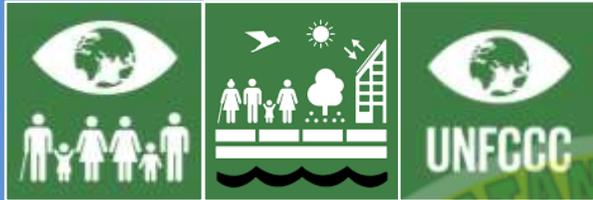
Kids play at outdoor playground



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

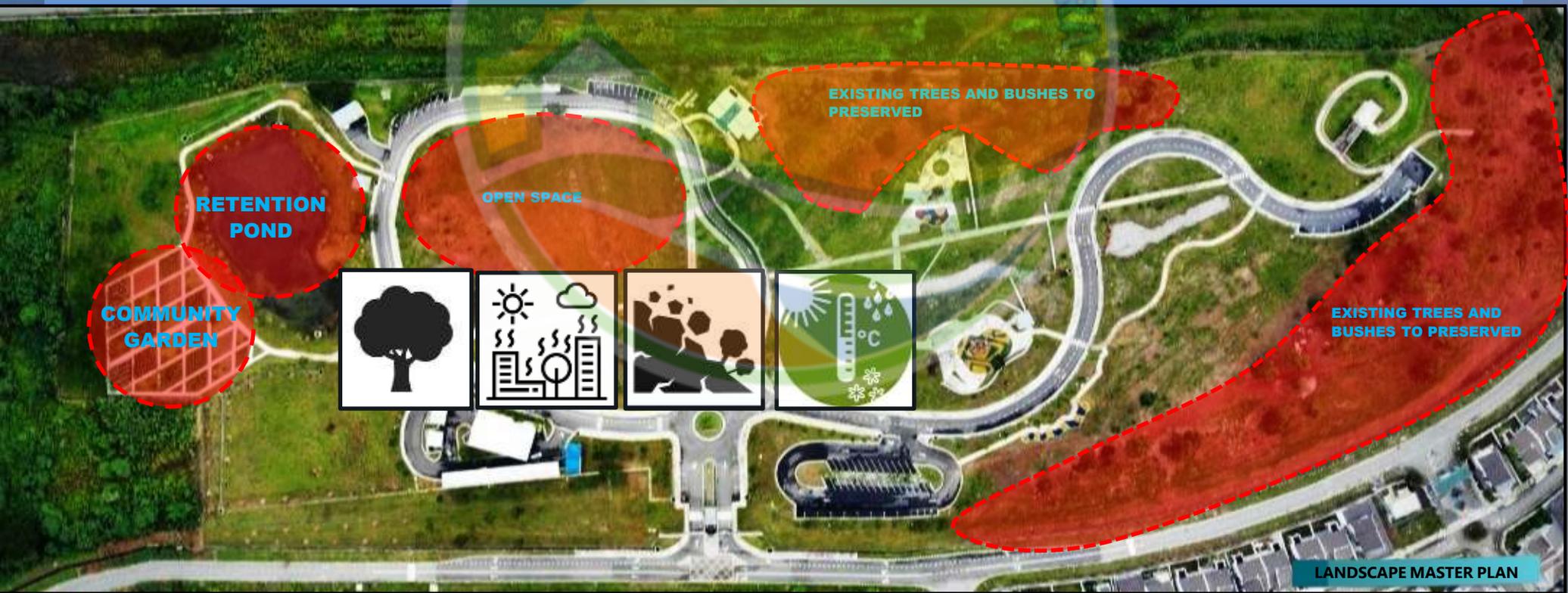
## GOAL 13 : CLIMATE ACTION

13 CLIMATE ACTION



Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy

- Reduce micro climate
- Visual impact
- Land degradation
- Erosion
- Reduce heat
- Nutrient depletion



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS | GOAL 13 : CLIMATE ACTION

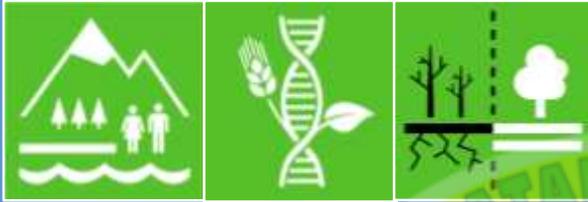
13 CLIMATE ACTION



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 15 : LIFE ON LAND

15 LIFE ON LAND



Protect, restore and promote sustainable use of terrestrial ecosystem, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

- Planting billions of trees across the world is one of the biggest and cheapest ways of taking CO2 out of the atmosphere to tackle the climate crisis.
- As trees grow, they absorb and store the carbon dioxide emissions that are driving global heating.

"A 100-foot tree, 18 inches diameter at its base, produces 6,000 pounds of oxygen."

"On average, one tree produces nearly 260 pounds of oxygen each year."

"One tree produces nearly 260 pounds of oxygen each year. One acre of trees removes up to **2.6 tons of carbon dioxide each year**. Trees lower air temperature by evaporating water in their leaves."

**UJANA PERBANDARAN** planted with 1,145nos of trees, 2,720 nos of shrubs and turfing with 90,000 msq.



# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I

## GOAL 15 : LIFE ON LAND

15 LIFE ON LAND



**LOCALISING SUSTAINABLE DEVELOPMENT GOALS I  
PHOTOGRAPHS OF PROJECT (AFTER)**



**LOCALISING SUSTAINABLE DEVELOPMENT GOALS I  
PHOTOGRAPHS OF PROJECT (AFTER)**



**LOCALISING SUSTAINABLE DEVELOPMENT GOALS I  
PHOTOGRAPHS OF PROJECT (AFTER)**



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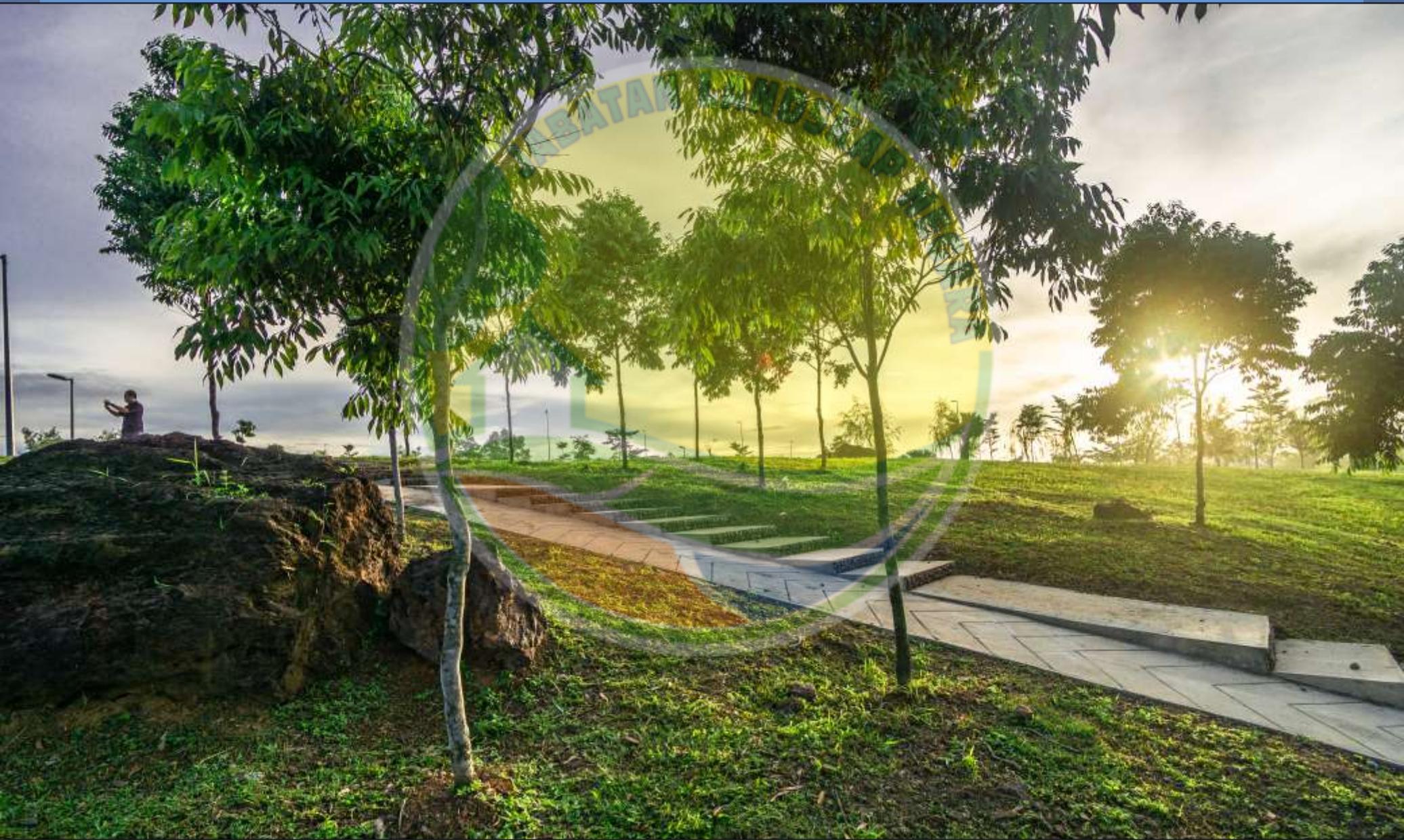


# LOCALISING SUSTAINABLE DEVELOPMENT GOALS I PHOTOGRAPHS OF PROJECT (AFTER)



Universal design integrated walkway promoting healthy environment

**LOCALISING SUSTAINABLE DEVELOPMENT GOALS I**  
**PHOTOGRAPHS OF PROJECT (AFTER)**



**LOCALISING SUSTAINABLE DEVELOPMENT GOALS I  
PHOTOGRAPHS OF PROJECT (AFTER)**



Utilization of natural boulders further enrich the landscape concept

**LOCALISING SUSTAINABLE DEVELOPMENT GOALS I  
PHOTOGRAPHS OF PROJECT (AFTER)**



**LOCALISING SUSTAINABLE DEVELOPMENT GOALS I  
PHOTOGRAPHS OF PROJECT (AFTER)**



Nightscapes of Viewing tower adorned with warm colour

**ENVIRONMENT PROTECTION IS AN IMPORTANT ASPECT OF ISLAM. BEING STEWARDS ON EARTH, IT IS THE RESPONSIBLE OF MUSLIM TO CARE FOR THE ENVIRONMENT AND ALSO ON SUSTAINABLE DEVELOPMENT.**



EVERY DAY IS EARTH DAY





**THANK YOU.**