

BIOPHILIC DESIGN FOR SUSTAINABLE LIVING

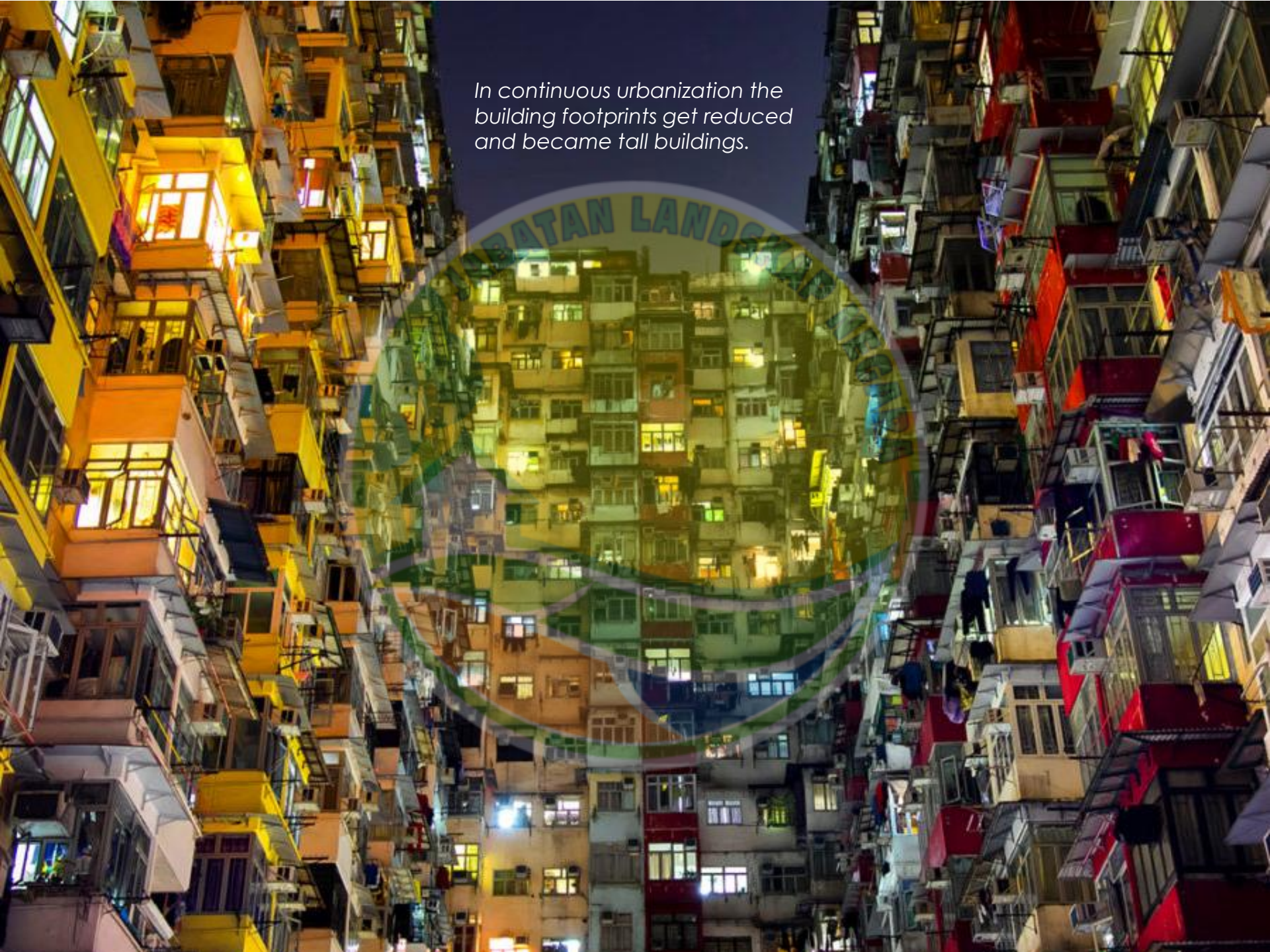
PRESENT BY PHUA CHIN ENG

LANDart



**Rapid
development**

In continuous urbanization the building footprints get reduced and became tall buildings.





*“**Biophilic** design is an **approach** to architecture that seeks to connect building occupants more closely to nature.”*





Environmental
Features



Texture, Pattern &
Colour



Thermal Comforts



Light and Space



Air Quality &
Ventilations



Psychological &
Physiological Effect

BIOPHILIC DESIGN ELEMENTS

Alila²

@ TANJUNG TOKONG, PENANG

SUMMIT PARK @ Southville city

SEPANG, SELANGOR

Aiila²
steps to paradise

IBATAN LANDSKAP

Aiila²

steps to paradise

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CONCEPT & APPROACH



SKY PARADISE



GROUND PARADISE

Observation Towers

The highest place to see the lower regions

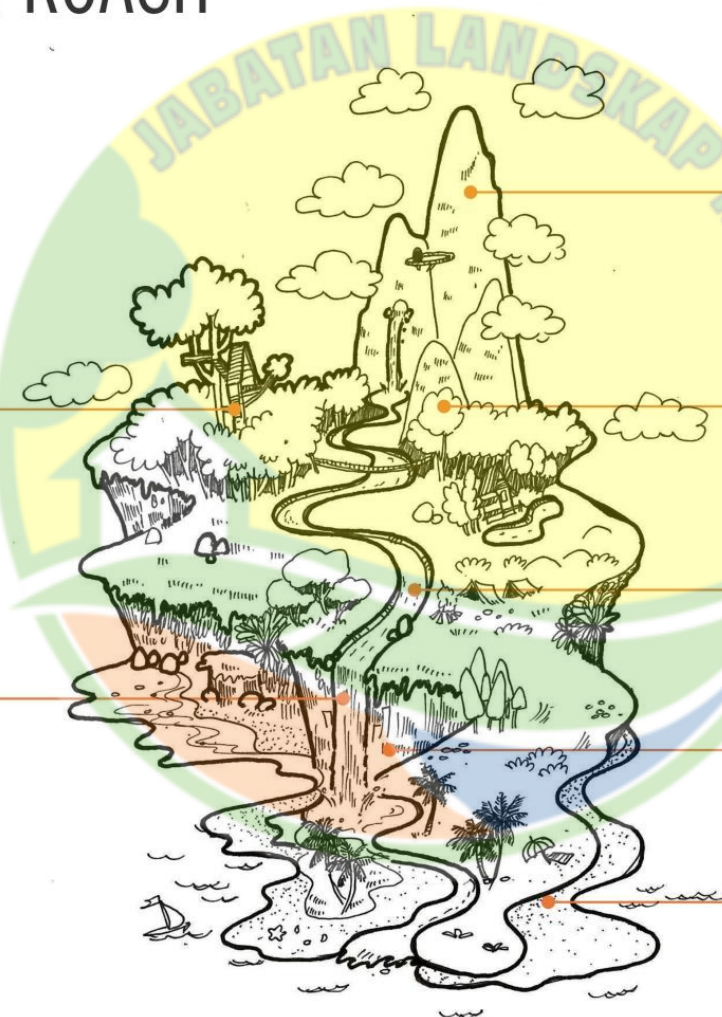


Waterfall

Creating infinity flowing and movement as welcoming introduction



Interpretation of Paradise



An alluring haven
surround by nature

Iconic Mountain

It is often relates to the highest areas of luxury and grandeur



Lush Landscape

Setting out that emphasizes an area filled with natives flora and fauna that offers more adventurous & mysterious activities



Winding river / road

The winding river / road provide a natural atmosphere as is often seen in forest areas that are not effected by the development



Terracing Garden

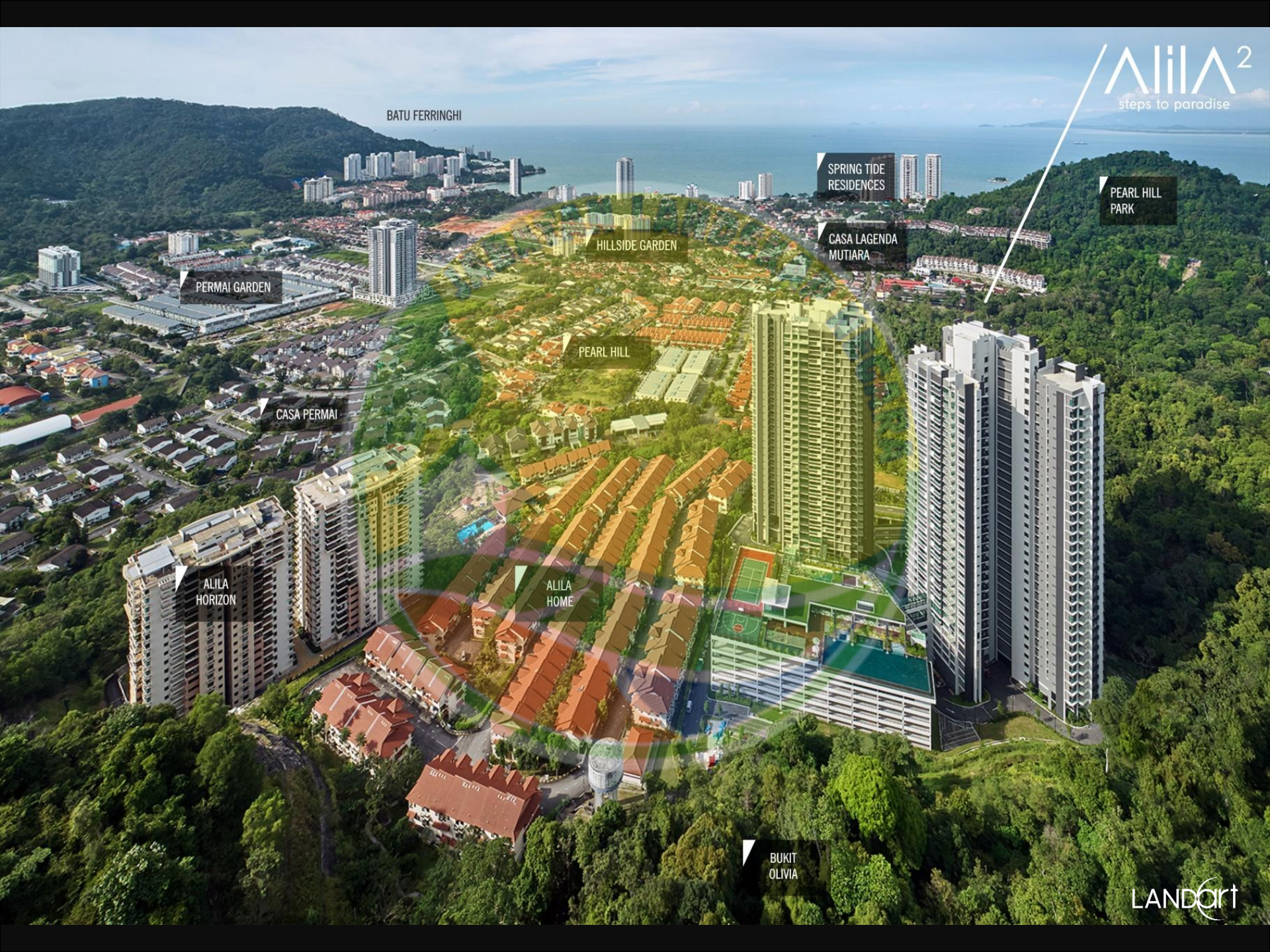
Offers wall treatments with forest feel creepers & climbers, more activities & more mysterious space



Beach Feel

Podium Level: Creating fun activities under the sun





BATU FERRINGHI

SPRING TIDE
RESIDENCES

PEARL HILL
PARK

CASA LAGENDA
MUTIARA

HILLSIDE GARDEN

PERMAI GARDEN

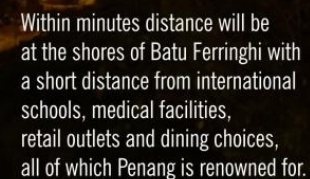
PEARL HILL

CASA PERMAI

ALILA
HORIZON

ALILA
HOME

BUKIT
OLIVIA



MASTER PLAN

9.8 acres in total land use

6.4 acres of development below 76m level, with 30% designated green space

3.4 acres of land above 76m level, preserved as a natural hill

There are 2 landscaped zones which are Zone Garden Terracing and Zone Condo Landscape that used as a landscape element balanced to each other.

Zone Garden Terracing focuses more on the inspiration of bird habitats, eating and relaxing before flying freely towards the Zone Condo Landscape. Enchanting landscape foot path surrounded by natures, birds chirping fill to our ears make whole area so calm and relaxed. Widely used Lemon Grass (*Cymbopogon citratus*) at terracing area is designated to meet Green Building Index (GBI) Gold Certificate standards by providing generous green space with 47% of project land area is covered by trees and gardens

Facilities surrounded to this area are:

1. Guard house
2. Feature walkway
3. Picnic Garden
4. Camp site
5. Resting Shelter
6. Hanging nest feature and lighting
7. Spiral road with creepers and vines to the nature rocks/cliff

Zone Condo Landscape is sited at amongst the hilly ambience of a tropical garden village and purely designed for those who appreciate the beauty of nature and the serenity of sea breezes, ALILA² promises breathtaking views, enchanting landscaped gardens, along with all the luxuries and amenities you'd expect from a modern resort-inspired condominium.

Facilities surrounded to this area are:

1. Residence Tower main entrance
2. Garden Parking
3. Parking façade
4. Podium Landscape
 - a. Club House
 - b. Infinity pool
 - c. Jacuzzi
 - d. Hydro gym
 - e. Interactive wading pool
 - f. Outdoor play area with hammock
 - g. Children's playground
 - h. Indoor play area
 - i. BBQ and dining area
 - j. Open deck
 - k. Changing room
 - l. Half basketball court
 - m. Tennis court

Nilam
steps to paradise

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SKY PARADISE
Condominium Landscape Zone

GROUND PARADISE
Garden Terracing Zone

Waterfall
Creating infinity flowing and movement as welcoming introduction

Observation Towers
The highest place to see the lower regions

Waterfall
Creating infinity flowing and movement as welcoming introduction

Paradise Implementations

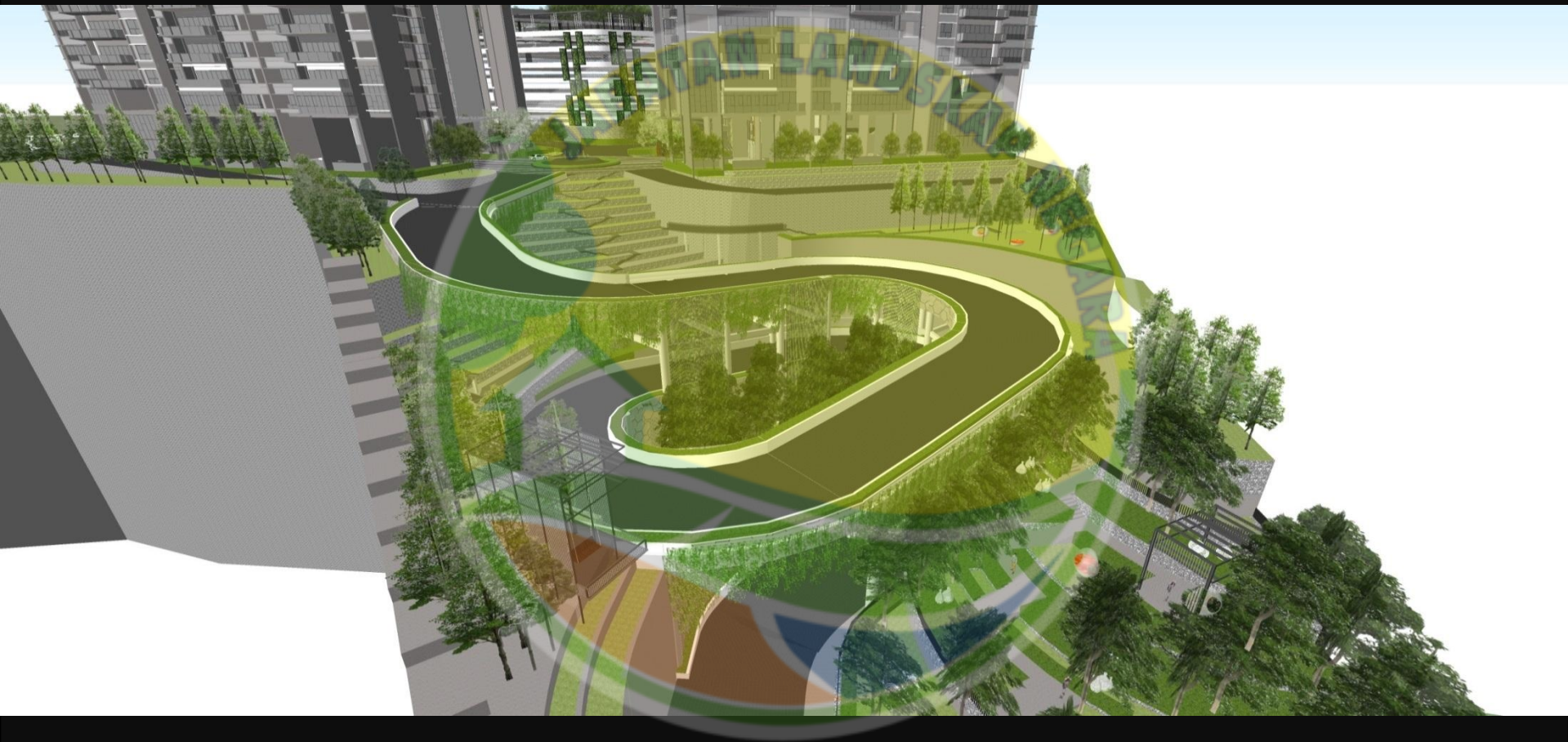
Iconic Mountain
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Podium Level: Creating fun activities under the sun

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Terracing Garden
Offers wall treatments with forest feel creepers & climbers, more activities & more mysterious space

Lush Landscape
Setting out that emphasizes an area filled with natives flora and fauna that offers more adventurous & mysterious activities





JABATAN LANDSKAP NEGARA



As you drive home up to your haven that is ALILA², you will travel along a meandering path that instantly transports you away from the incessant noise of the world below. On this gently winding road, a luscious variety of trees of all heights, offer shelter and respite from the tropical sun, gently swaying in the breeze, bidding you a warm Welcome Home.

SPIRAL ROAD

Cymbopogon & *Caesalpinia*
pulcherrima terrace

Parthenocissus
tricuspidata mixed with
Epipremum pinnatum

Thunbergia grandifolia
Thunbergia laurifolia



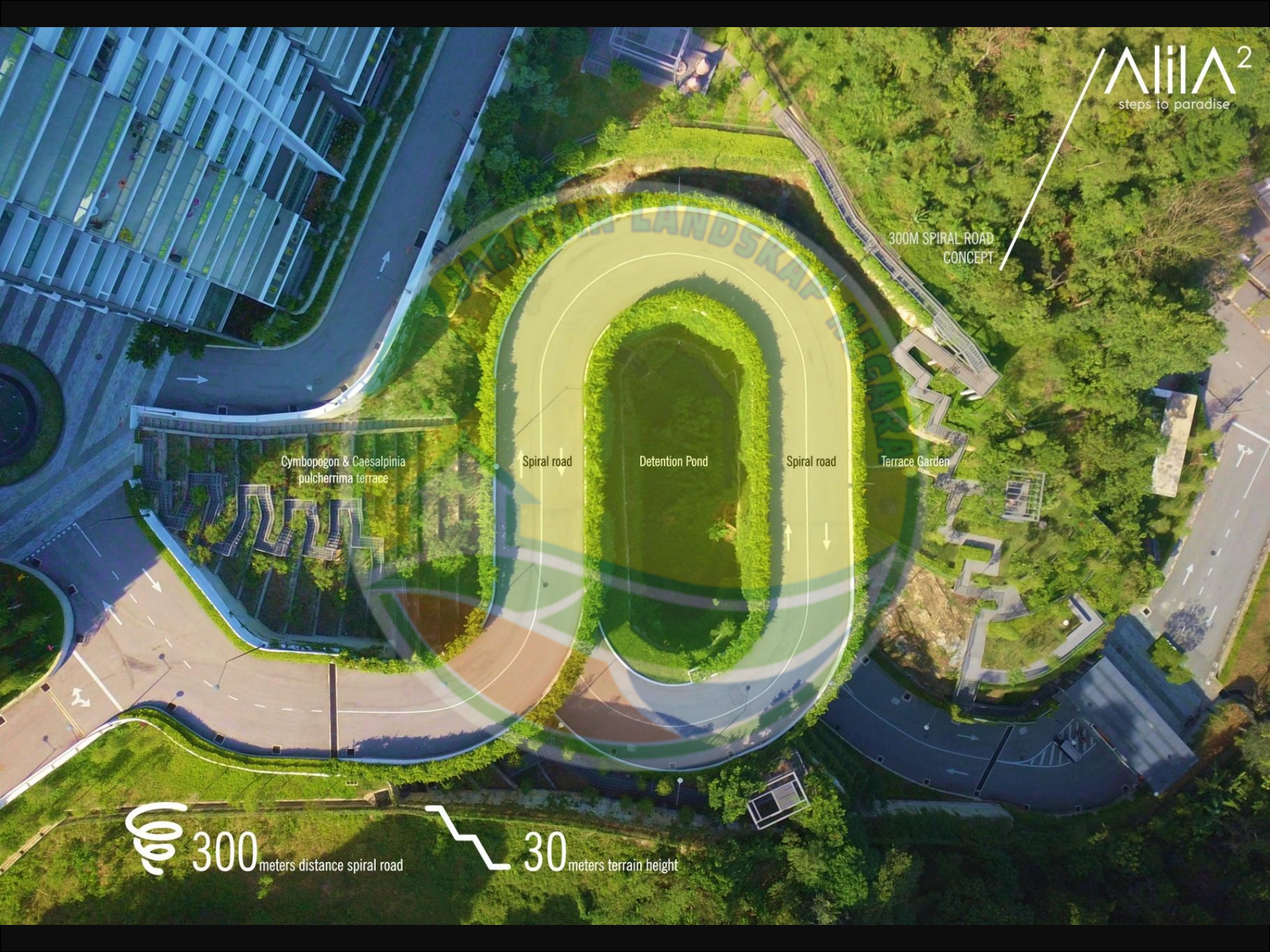
SPIRAL ROAD CONCEPT



SPIRAL ROAD ELEVATION



SPIRAL ROAD SECTION



Cymbopogon & Caesalpinia
pulcherrima terrace

Spiral road

Detention Pond

Spiral road

Terrace Garden

300M SPIRAL ROAD
CONCEPT

300
meters distance spiral road

30
meters terrain height





CYMBOPOGON CITRATUS &
CAESALPINIA PULCHERRIMA TERRACE



CYMOPOGON CITRATUS &
CAESALPINIA PULCHERRIMA TERRACE

WHEN CONTEMPORARY
DESIGN AND WIDE OPEN
SPACES GENTLY HARMONISE,
ALILA² IS BORN.

ENGINEERING CHALLENGES & INNOVATIONS FOR SUSTAINABLE APPROACH

ALILA² is a hillside development project located on hilly terrain. This type of development is challenging not only in term of the specific engineering techniques required, but also in term of achieving sustainable development goals, protecting the environment.

ALILA² C&S Consultant, had to work closely with Architect to overcome the following challenges:

- Selecting a sustainable location for the footprints of the building, considering appropriate levels and ease of access.
- Planning and designing the mode of access from the existing road to the building platform due to different in levels of up to 30m.
- Creating environmentally, friendly and easy-to-maintain rainwater detention facilities.
- Avoiding steep terrain (Class III and above).
- Planning the water supply for high levels and running of service pipes
- To minimize disturbance to the environment for a sustainable development.

LAYOUT PLANNING & ACCESS

- Footprints was located at RL65m, mid height, in front of the steeper hill at the back.
- Avoiding too drastic level different for access by having caissons socket into the bedrock as safe and cost effective.
- While, adopted winding road up o the hill approach to avoid excessive cutting and stability issues of tight space by having oval shape reinforced concrete structural ramp.
- At the end, entire setting was found to be very neat, visually interesting and pleasing.

MINIMIZING DISTURBANCE TO ENVIRONMENT FOR SUSTAINABLE DEVELOPMENT

- Conducted a comprehensive soil investigate to study the sub-surface soil strata prior to layout planning and design. Conducting 8 boreholes and geographical surveys in seismic refraction survey to gather good representative knowledge of the granitic bedrock stratum.
- Proper and effective rock excavation planned and designed to avoid un-controlled cutting and damage of the site.
- Controlled blasting theory was implemented to determine the minimum distance from nearby residence so that the vibrations (particle velocity) were within safe and permitted limits by using controlled blasting and chemical cracking.

Combination of multiple retaining wall system

- Reinforced earth retaining wall
- Reinforced concrete walls
- Caisson wall
- Allan blocks
- Rubble pitching wall

MYSTERIOUS WALK TOWARDS
GIANT SWING PAVILLION





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TERRACING GARDEN ZONE

1. Guard House with entrance signage
2. Refuse Chamber
3. Tristellateia - climbers steps
4. Outdoor Camping area with fire pit
5. Hanging Cocoon Pavillion
6. Green Lawn
7. Observation Deck
8. Spiral Road
9. Detention Pond
10. Gian Swing Pavillion
11. Boardwalk beside Alan Wall
12. Cymbopogon & Caesalpinia pulcherrima terrace
13. Cocoon Seating Pavillion
14. Kaduk Boardwalk
15. Mini Forest Entrance
16. Grand Roundabout with Water Feature
17. Tower Signages
18. "Paddy-Neomara" Terrace

TERRACE GARDEN WALK

Mini hiking next to
your door steps



275_{steps}



375_{meters}



30_{meters terrain height}



TERRACE GARDEN WALK



TRISTELLATEIA - CLIMBERS STEPS



TERRACE GARDEN WALK



Terrace Garden & Feature Walkway

ALILA² was designed for those who appreciate the beauty of nature and the serenity of sea breezes, that promises a home of wide open spaces, breathtaking views, enchanting landscaped gardens, along with all the luxuries and amenities you'd expect from a modern resort-inspired condominium.

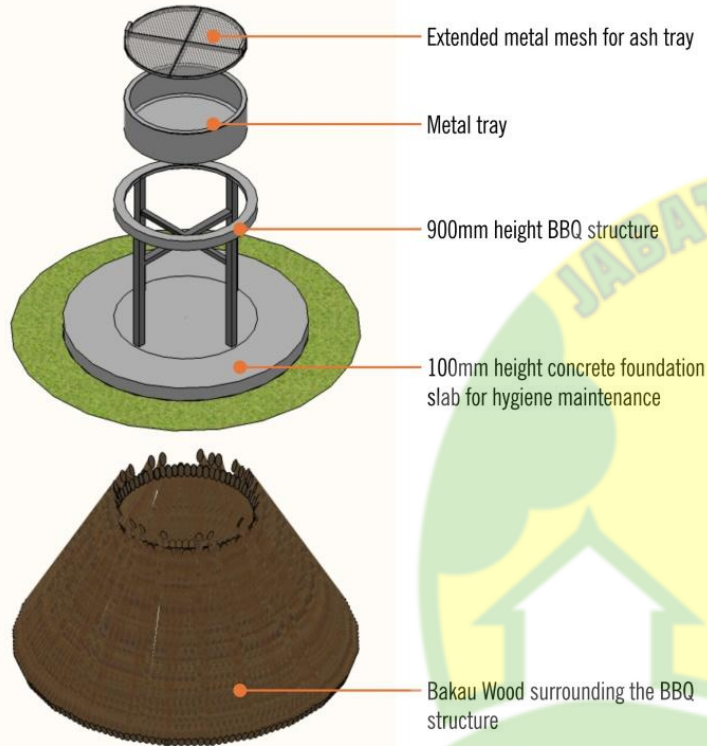


HANGING COCOON PAVILLION



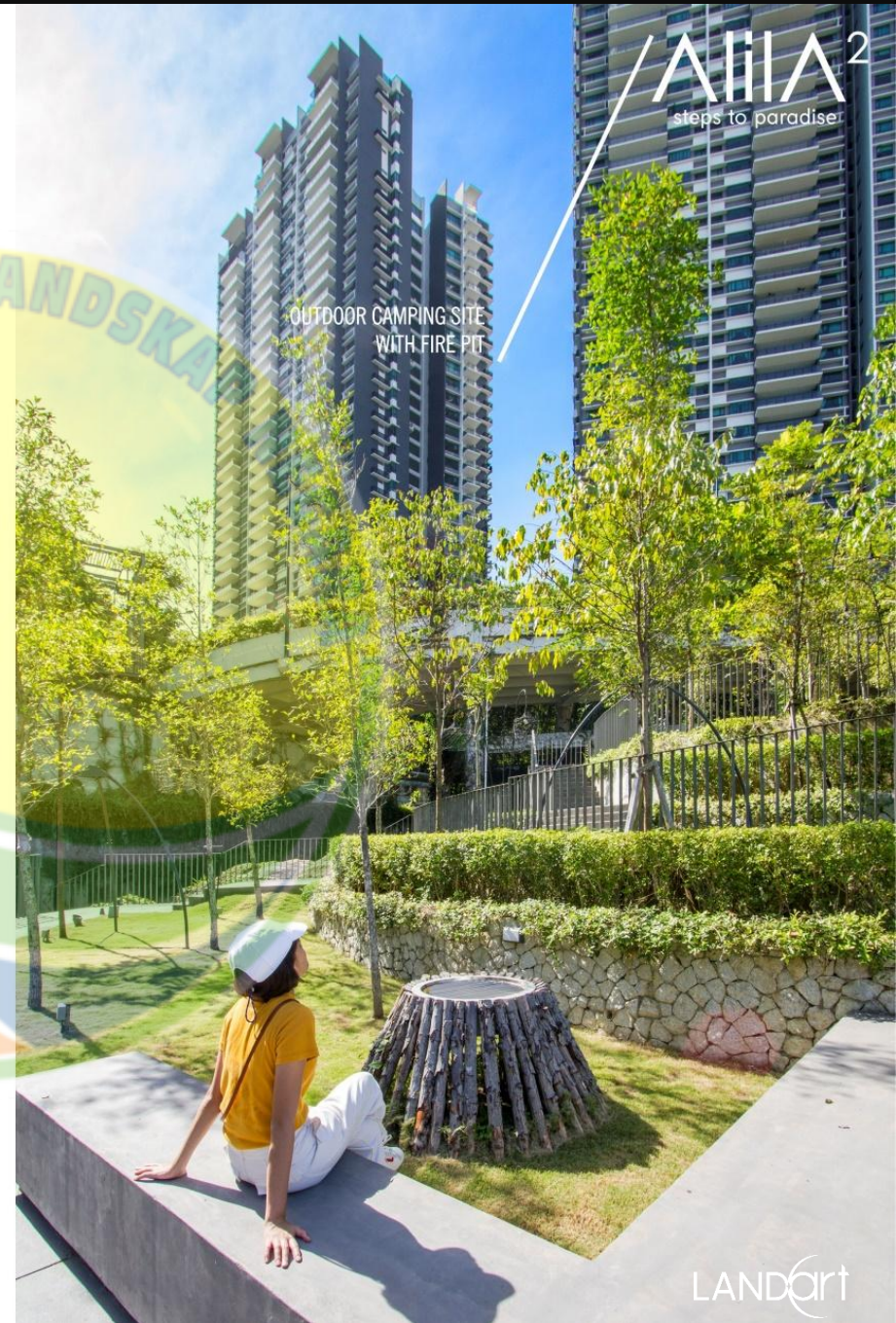


OUTDOOR CAMPING SITE
WITH FIRE PIT



BBQ / FIRE PIT DESIGN

Small details that emphasize the concept that close to nature and exact mood approach



OUTDOOR CAMPING SITE
WITH FIRE PIT



2

nos fire pits



5

nos hanging tent



3

nos cocoon seat



2

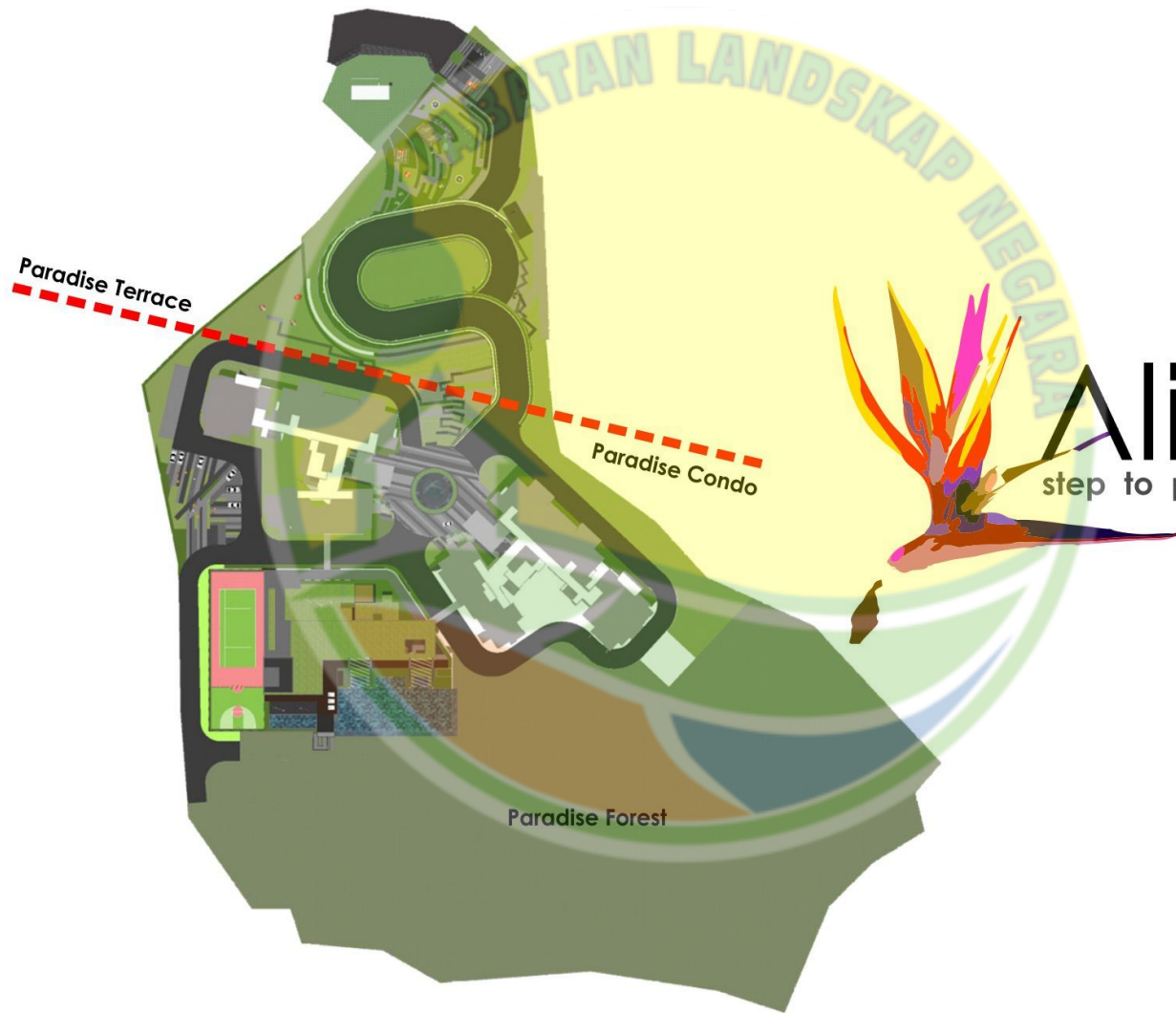
nos hanging cocoon



ALILA² SERIES OF NEST



STARRY NIGHT



Aiila²
step to paradise



OUTDOOR COCOON
SEATING PAVILION



AWAY FROM
THE MADDENING
CROWD,
A SANCTUARY
TO ESCAPE TO

Alila²
steps to paradise

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Nilam
steps to paradise

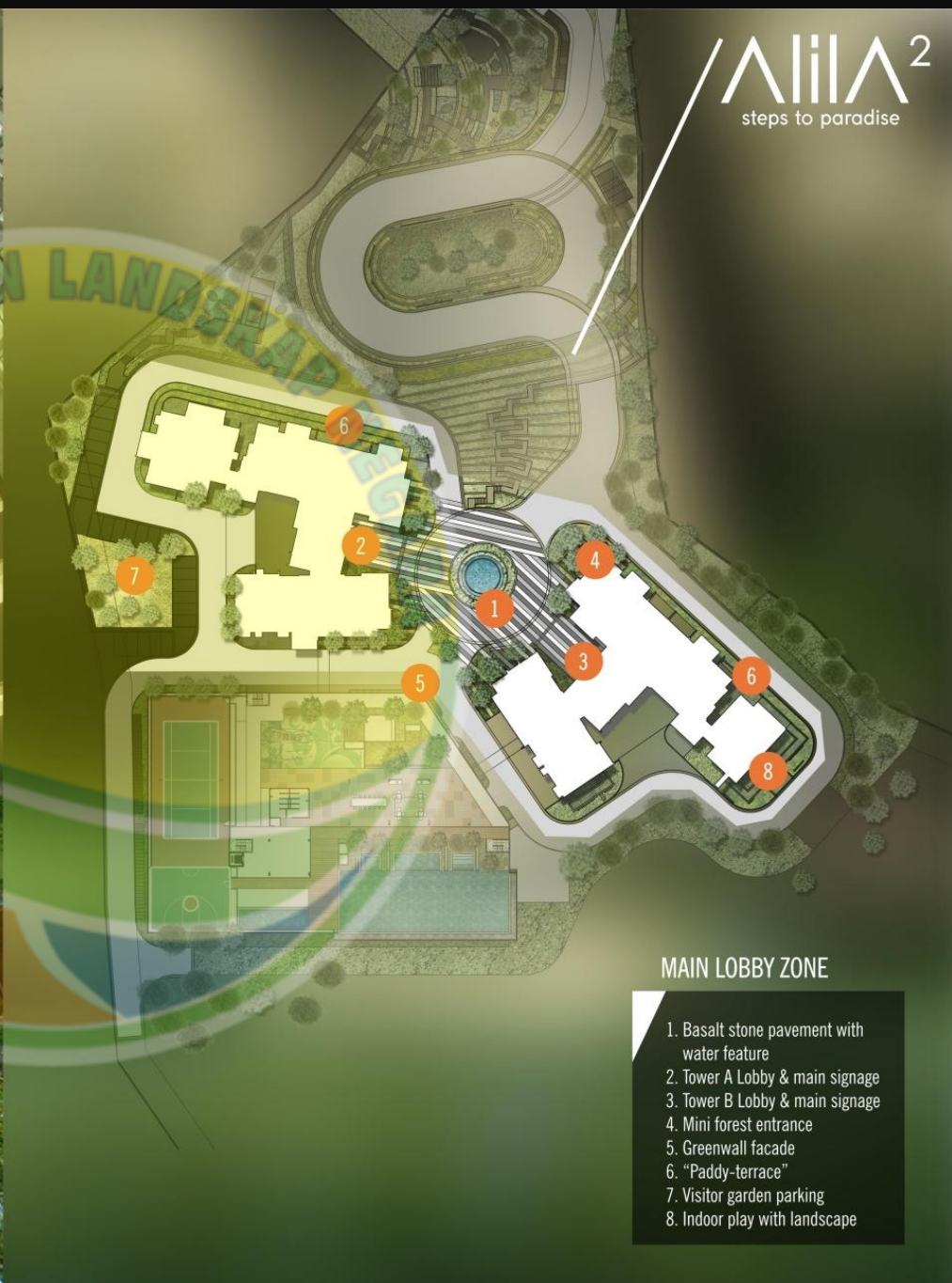
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ROUNDBOUT WITH
WATER FEATURE



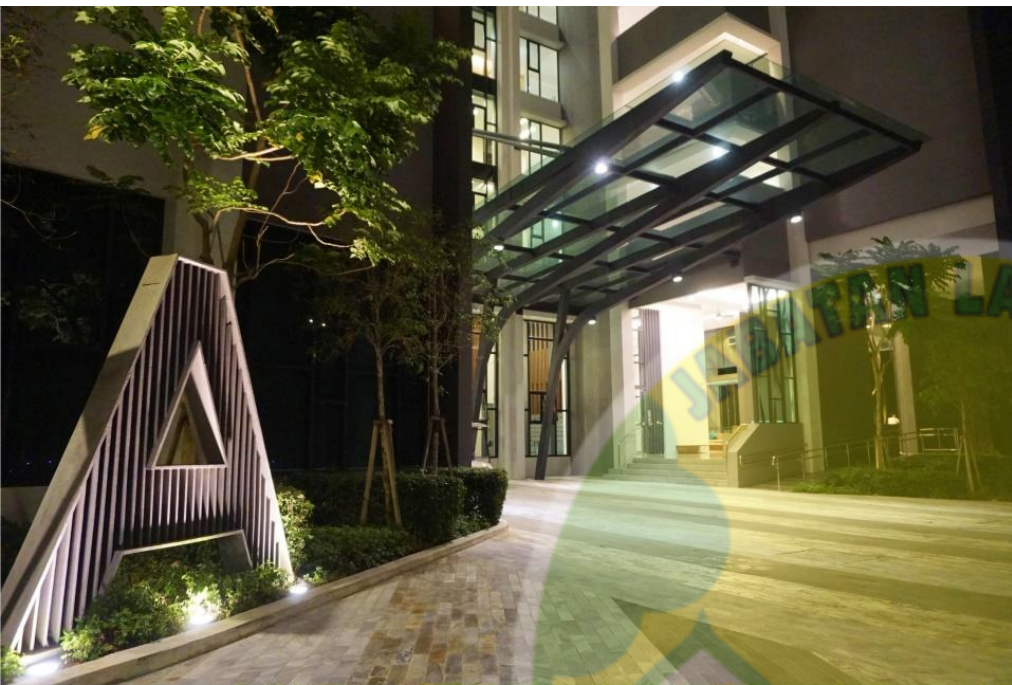
ALILA² MAIN LOBBY WATER FEATURE

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MAIN LOBBY ZONE

1. Basalt stone pavement with water feature
2. Tower A Lobby & main signage
3. Tower B Lobby & main signage
4. Mini forest entrance
5. Greenwall facade
6. "Paddy-terrace"
7. Visitor garden parking
8. Indoor play with landscape



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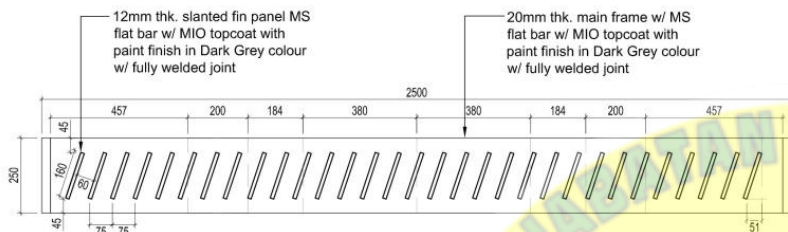
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steps to paradise

TOWER MAIN SIGNAGE

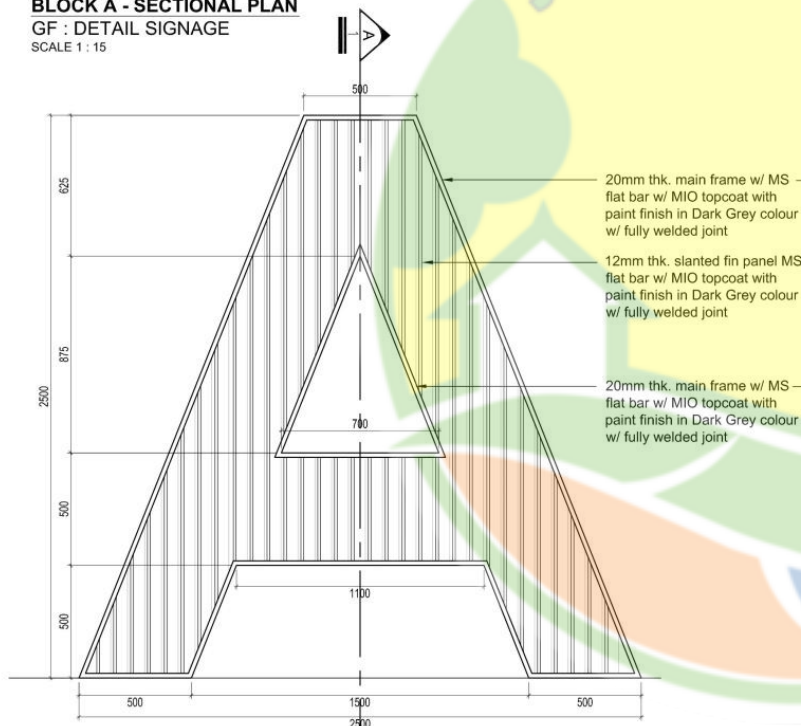


2.5m height x 2.5m width Tower Signage
as simple yet so grand

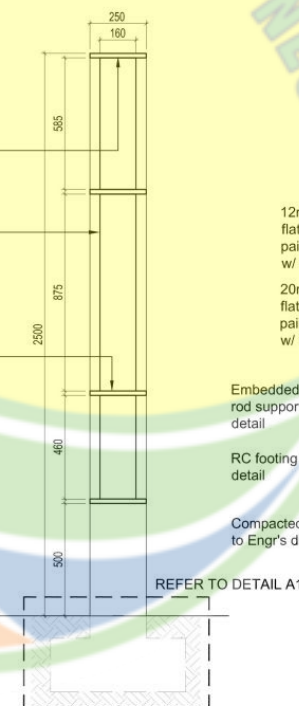
TOWER MAIN SIGNAGE



BLOCK A - SECTIONAL PLAN
GF : DETAIL SIGNAGE
SCALE 1 : 15



BLOCK A - FRONT ELEVATION
GF : DETAIL SIGNAGE
SCALE 1 : 20

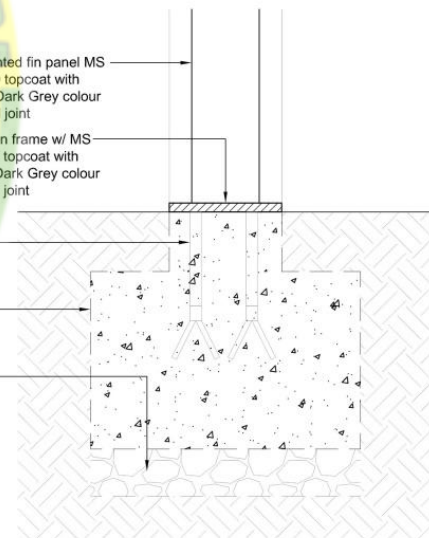


BLOCK A - SECTION A1-A1
GF : DETAIL SIGNAGE
SCALE 1 : 20

12mm thk. slanted fin panel MS flat bar w/ MIO topcoat with paint finish in Dark Grey colour w/ fully welded joint

20mm thk. main frame w/ MS flat bar w/ MIO topcoat with paint finish in Dark Grey colour w/ fully welded joint

REFER TO DETAIL A1



BLOCK A - DETAIL A1
GF : DETAIL SIGNAGE
SCALE 1 : 10



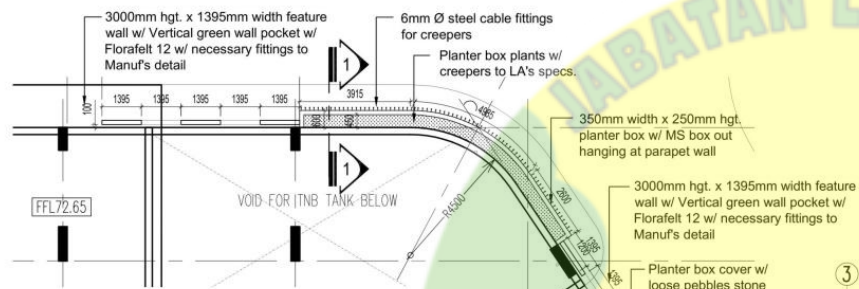
Initial Stage Proposal

Landscape and Architecture was blended perfectly with vertical garden paneling and creepers to soften the building façade and surrounding environment.

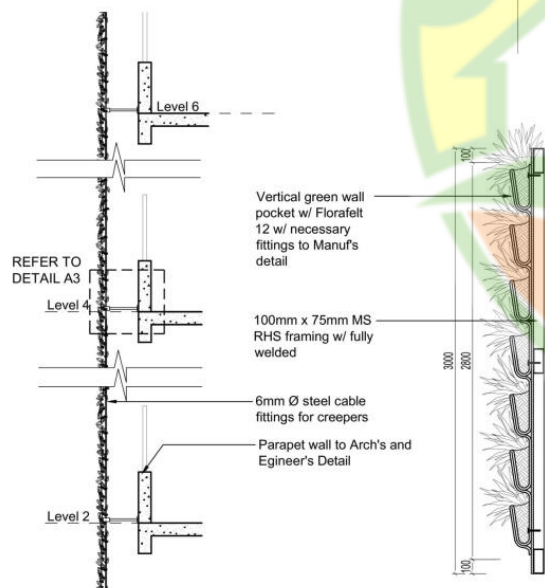
GREENWALL FACADE



GREENWALL FACADE
DETAIL

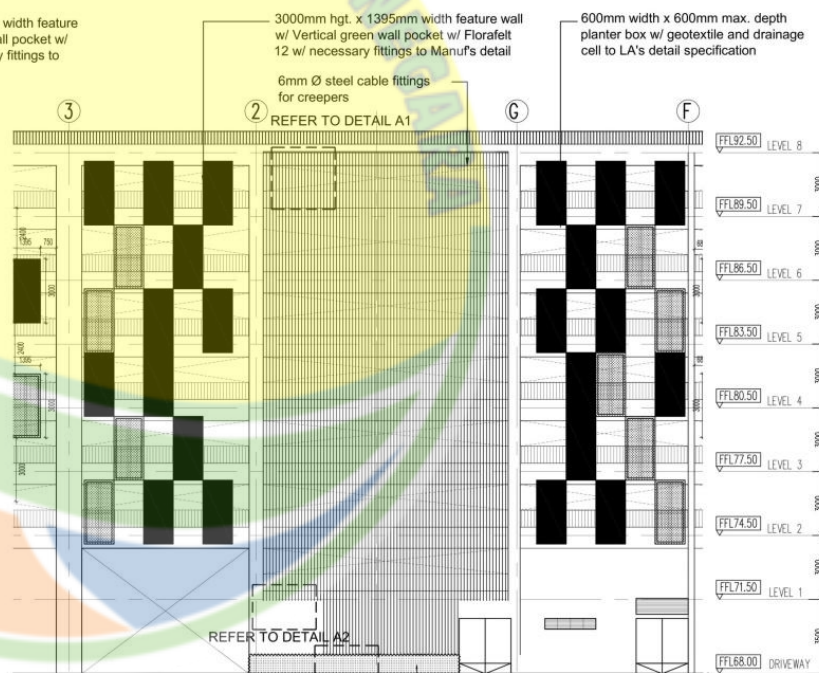


TYPICAL LAYOUT PLAN (LEVEL 1-6)
CARPARK FEATURE WALL
SCALE 1 : 150



TYPICAL SECTION 1-1 (LEVEL 1-6)
CARPARK FEATURE WALL
SCALE 1 : 50

TYPICAL GREE WALL - SECTION
CARPARK FEATURE WALL
SCALE 1 : 30



FRONT ELEVATION
CARPARK FEATURE WALL
SCALE 1 : 200

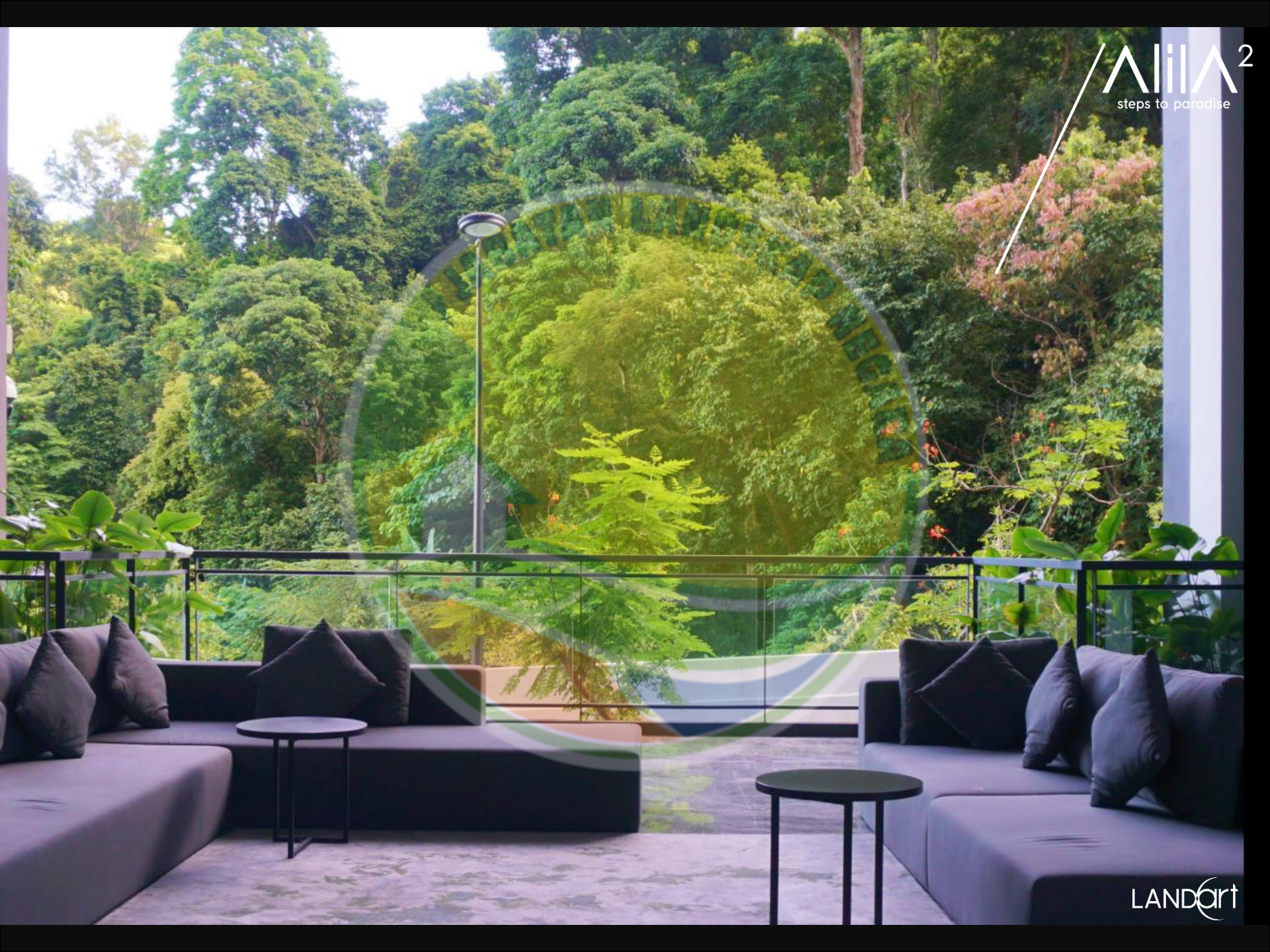


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steps to paradise

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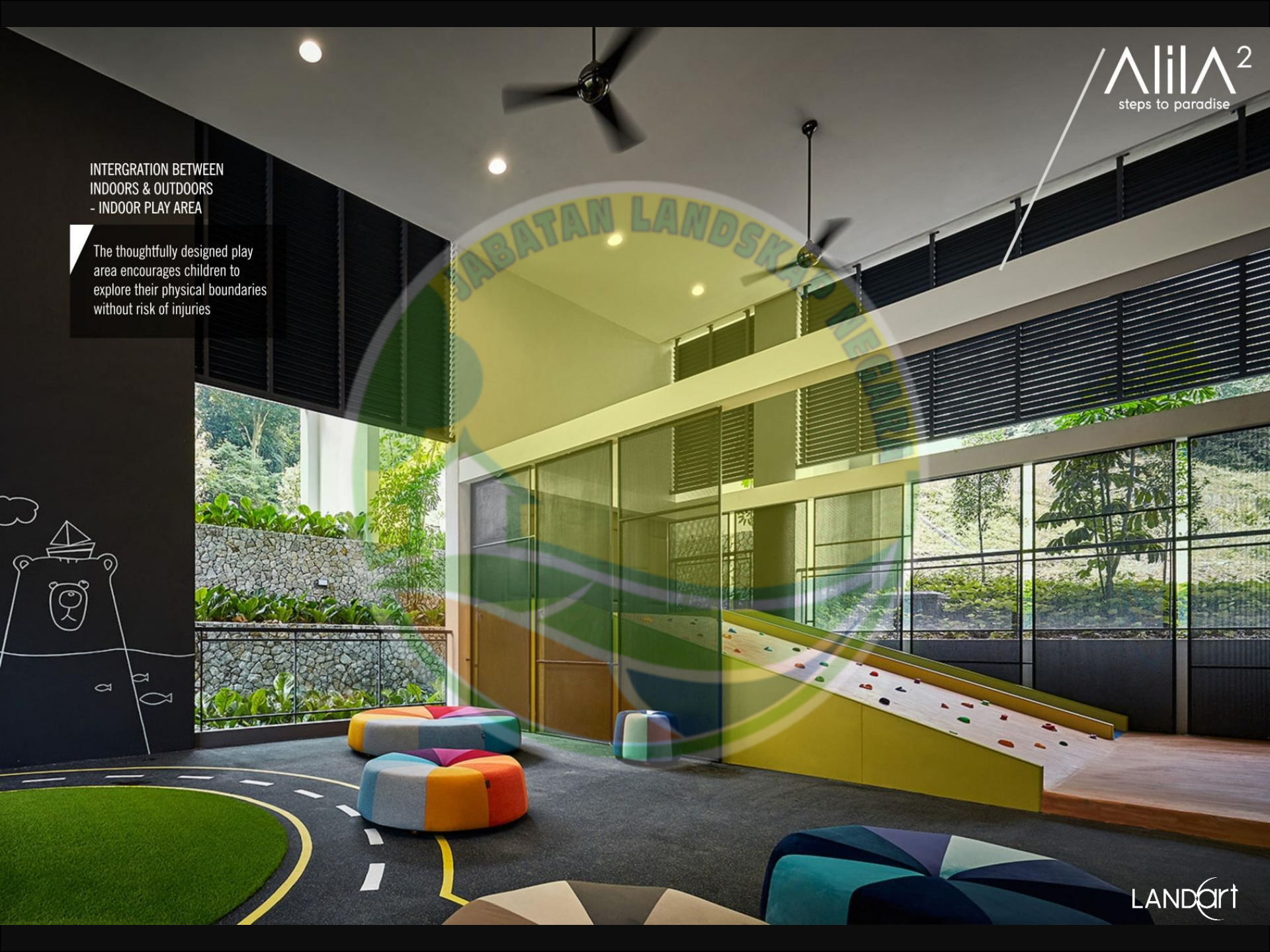




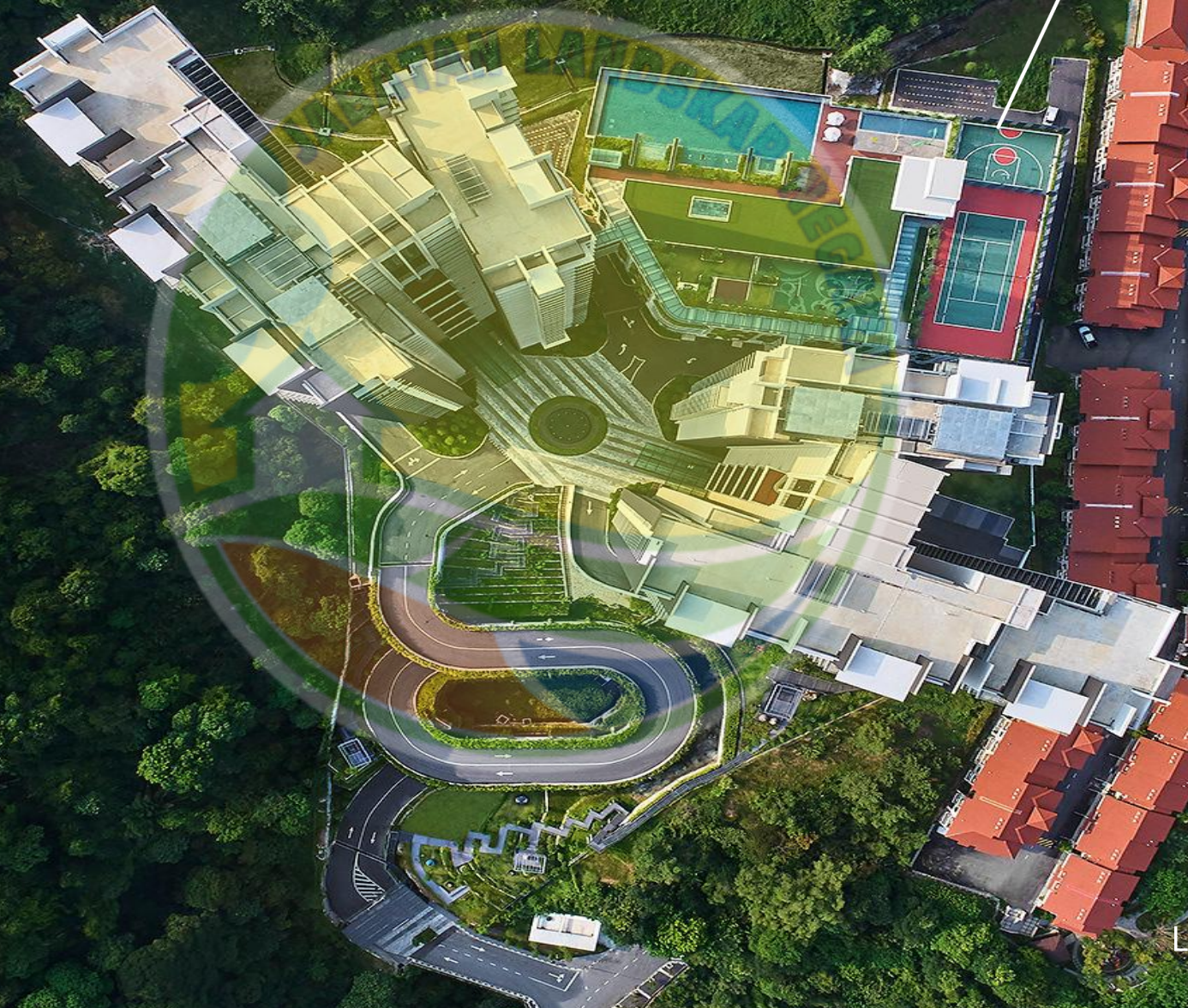


INTERGRATION BETWEEN
INDOORS & OUTDOORS
- INDOOR PLAY AREA

The thoughtfully designed play area encourages children to explore their physical boundaries without risk of injuries



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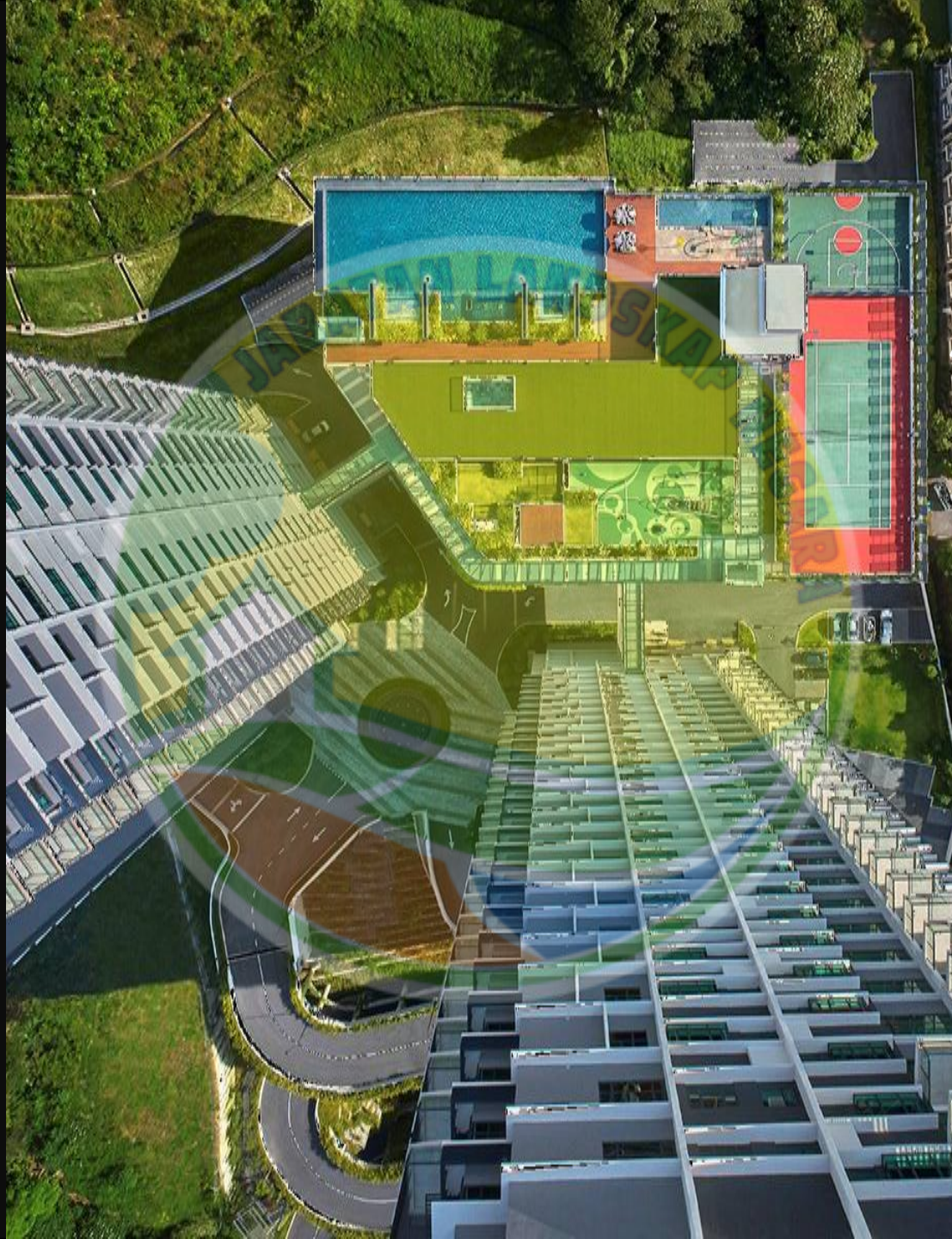
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steps to paradise



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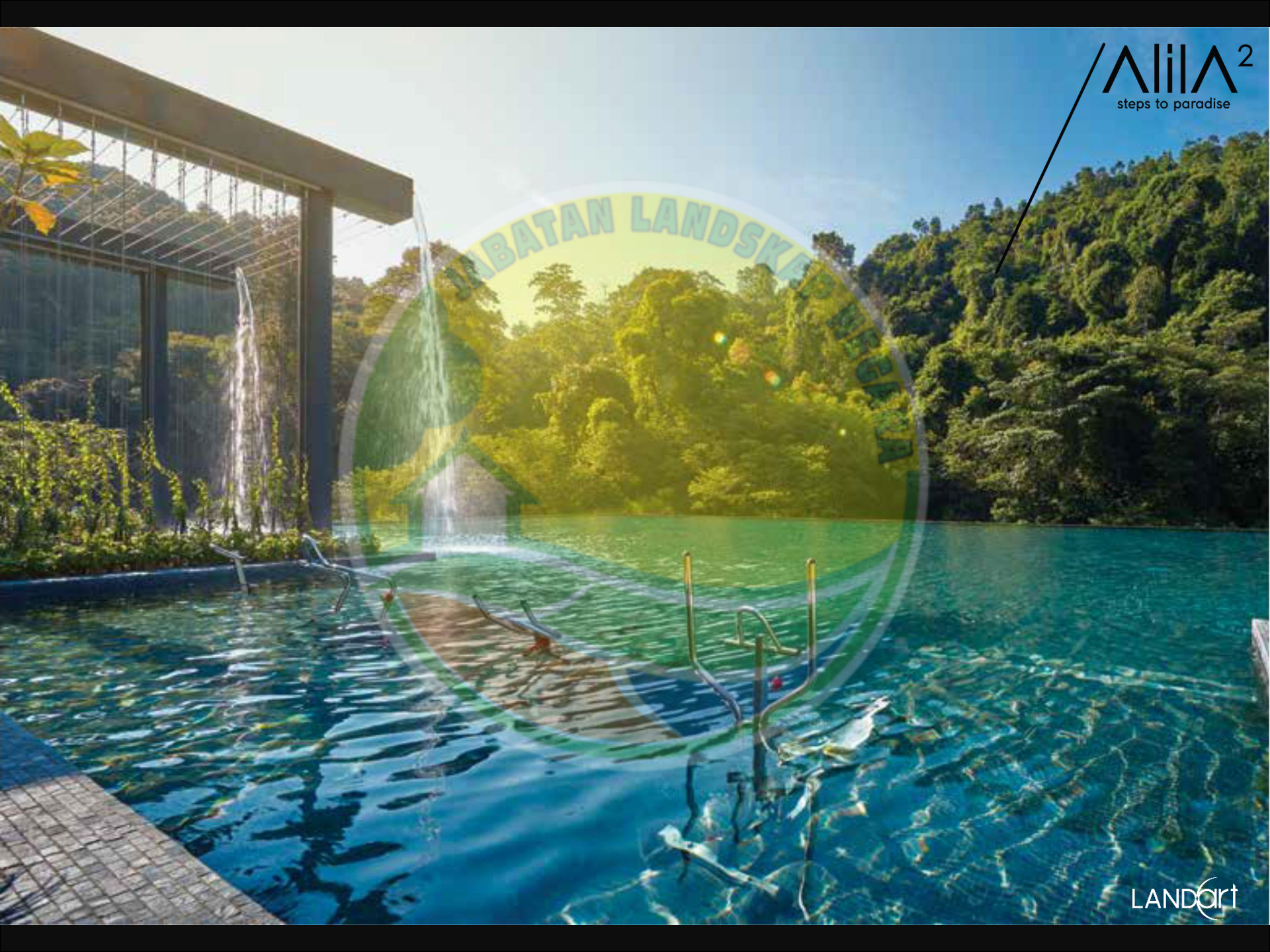
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INFINITY POOL

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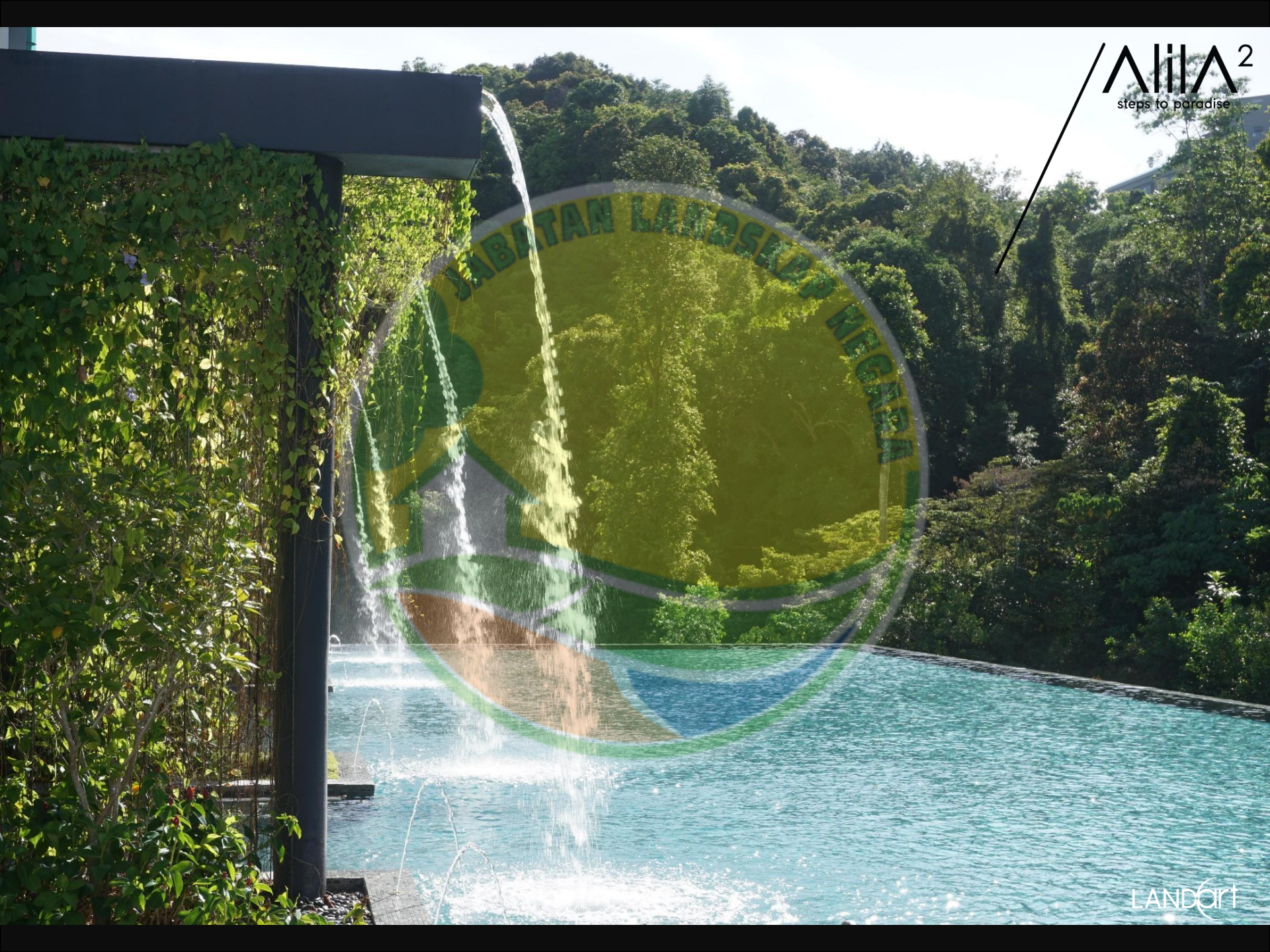
JABATAN LANDSK

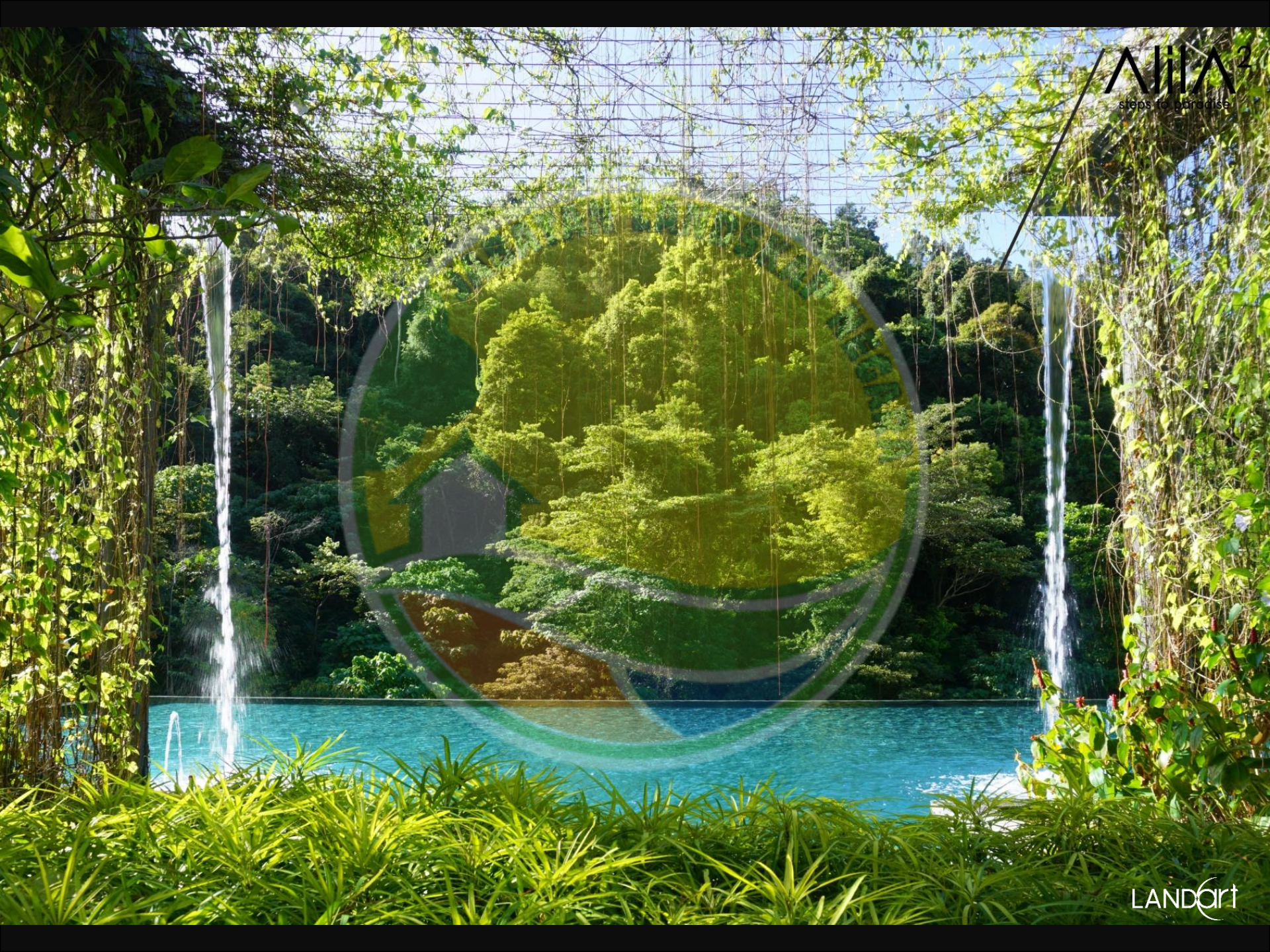


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HYDRO GYM

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INFINITY POOL

POOL LANDSCAPE

Swimming pool area at podium level has been embraced by the hill view that taken a borrowed-landscape approach bring the resident closer to the nature.

INTERACTIVE
KIDS POOL





OPEN GARDEN

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steps to paradise

OPEN GARDEN

LANDORT

CONTEMPORARY
DESIGN WIDE OPEN
Gathering space at upper roof
with outstanding views



COVERED WALKWAY

PLAYGROUND

OPEN GARDEN

ROOF TOP LEVEL 9 - OPEN LAWN

PLAYGROUND



PLAY COURT











ENJOY YOUR
FAVOURITE
MOVIES IN YOUR
OWN THEATRE.
UNWIND IN THE
JACUZZI AND
MASSAGE ROOM.
OR SIMPLY
CHILL OUT IN
THE WELCOMING
LOBBY.

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steps to paradise

CLUB HOUSE FACILITIES

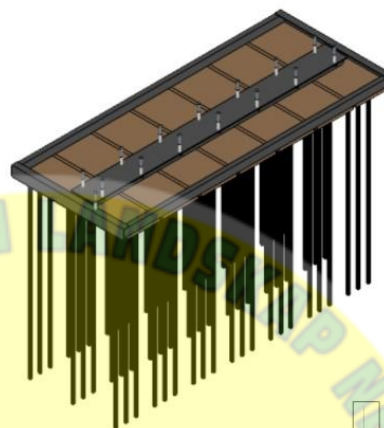
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RAIN DROP PANELLING

RAIN DROP PANELLING

The sound of the water crashing down and the raindrops bouncing off the surface was very hypnotic and very relaxing. This approach was implemented to synchronize to the feature surrounding it

**RAIN DROP PANELING DETAIL
ISOMERIC**



400mm length x 125mm width x 10mm
thk. composite wood panel

Ø10mm x 600mm height Aluminium
rod fixed to Composite wood panel w/
35mm distance per panel

E-1

CEILING PLAN

Upper slab w/ Artificial grass to
LA's approval

30mm height sotter C-channel bolted
to r.c ceiling

End composite wood panel w/ sotter
groove

400mm length x 125mm width x 10mm
thk. composite wood panel

Ø10mm x 600mm height Aluminium
rod fixed to Composite wood panel w/
35mm distance per panel

SECTION E-1

E-2

Upper slab w/ Artificial grass to
LA's approval

900mm height glass railing

End composite wood panel w/ sotter
groove

400mm length x 125mm width x 10mm
thk. composite wood panel

Ø10mm x 600mm height Aluminium
rod fixed to Composite wood panel w/
35mm distance per panel

SECTION E-2

RAIN-DROP FEATURE CEILING

Scale 1:15



GREEN INITIATIVES

GREEN BUILDING INDEX - GOLD

ESTIMATE COMPOST BIN REQUIREMENT

Proposed : 6 nos of bins
Capacity : 600 liter capacity per bin approx. 15kg of composed (as per manufacturer's specification)
Total Capacity : 3600 liter from 6 compost bin
Total Volume : approx. 90kg of compost fertilizer

FERTILIZER REQUIREMENT	UNITS	QUANTITY	RATE		TOTAL REQ. KG
1 Trees Ground Level	nos	130	gm/tree	150	19.5
2 Small trees Level 7	nos	48	gm/tree	150	7.2
3 Turfing	sqm	2295	gm/tree	20	45.9
4 Herbs Garden	sqm	1820	gm/tree	50	91
TOTAL FERTILISER REQUIRED					163.6
50% OF REQUIREMENT					81.8
NO. COMPOST BIN REQUIRED			15kg/bin		5.45

* The compost fertiliser to be used for trees, palm & shrubs only (excluding original landscape area)

Total Fertilizer requirement = 163kg
Compost Fertilizer 90kg = 55% of Total Requirement



6 nos Compost Bin Location



JABATAN LANDSKAP NEGARA

SOFTSCAPE FACTS

434 nos of trees

37,563 nos of shrubs

25% of herbs species

8,165 nos of creepers & climbers

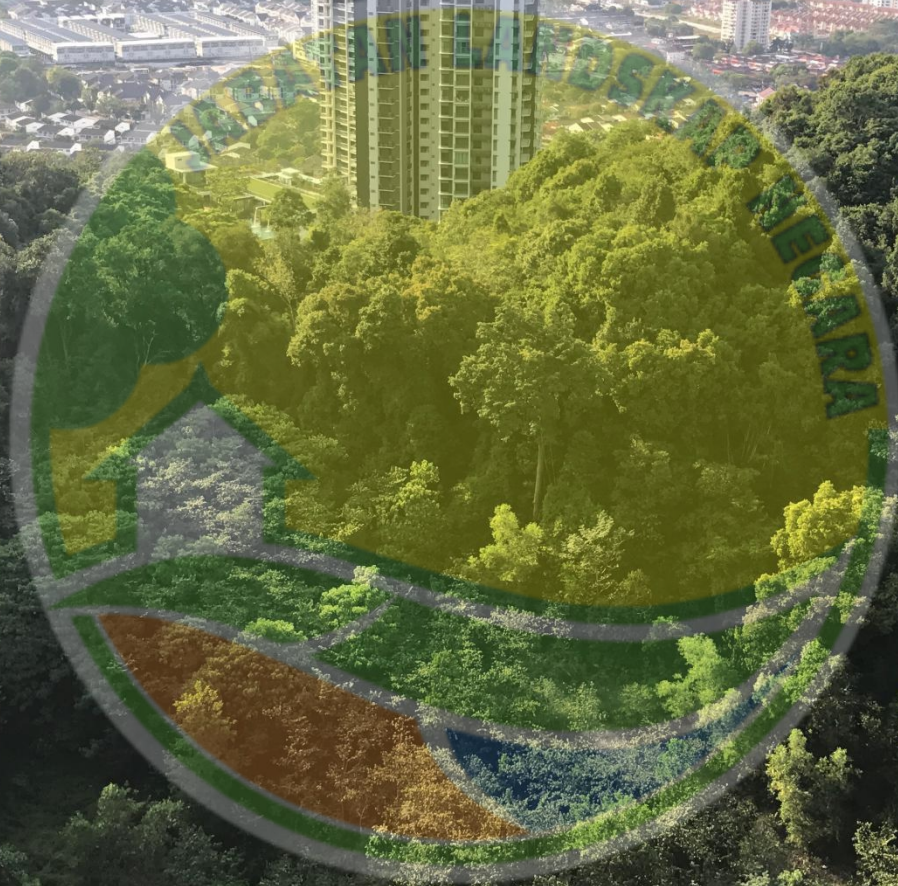
41,832 nos of groundcovers

2,864 square feet of turf

Murraya paniculata



When the black ants walk to search of
Belamcanda chinensis flower sweetness,
there are still many other flowers to explore





JABATAN LANDSKAP NEGARA

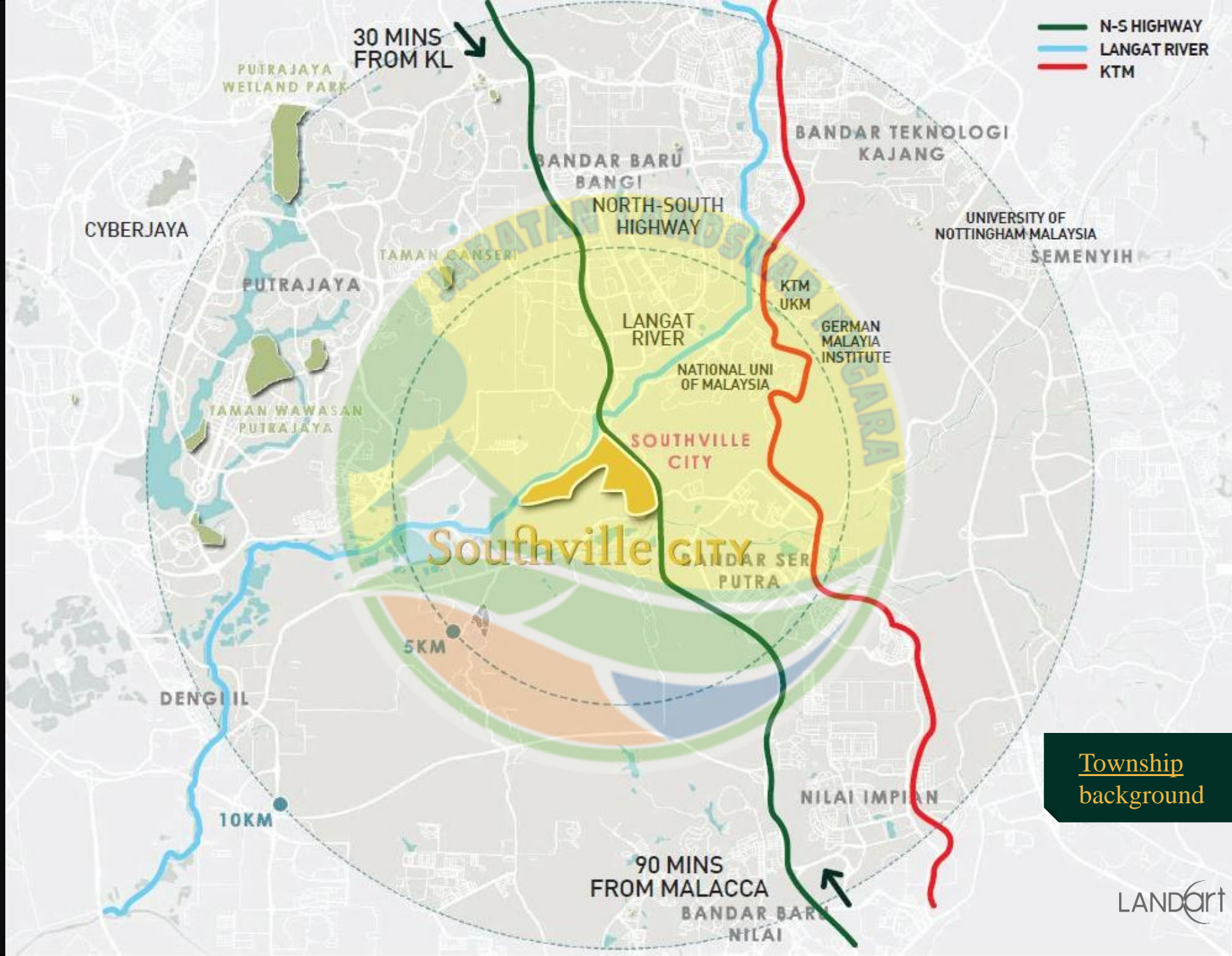
BACK TO ALILA

Caesalpinia pulcherrima

SUMMIT PARK @ Southville city

SEPANG, SELANGOR





Township
background

Masterplan



toll plaza

summit park
public park

sensory
high rise residential

avens residence
landed residential

savanna suites
high rise resi + commercial

cerrado
high rise residential

savanna plaza
commercial

streetscape (ph1)

Streetscape



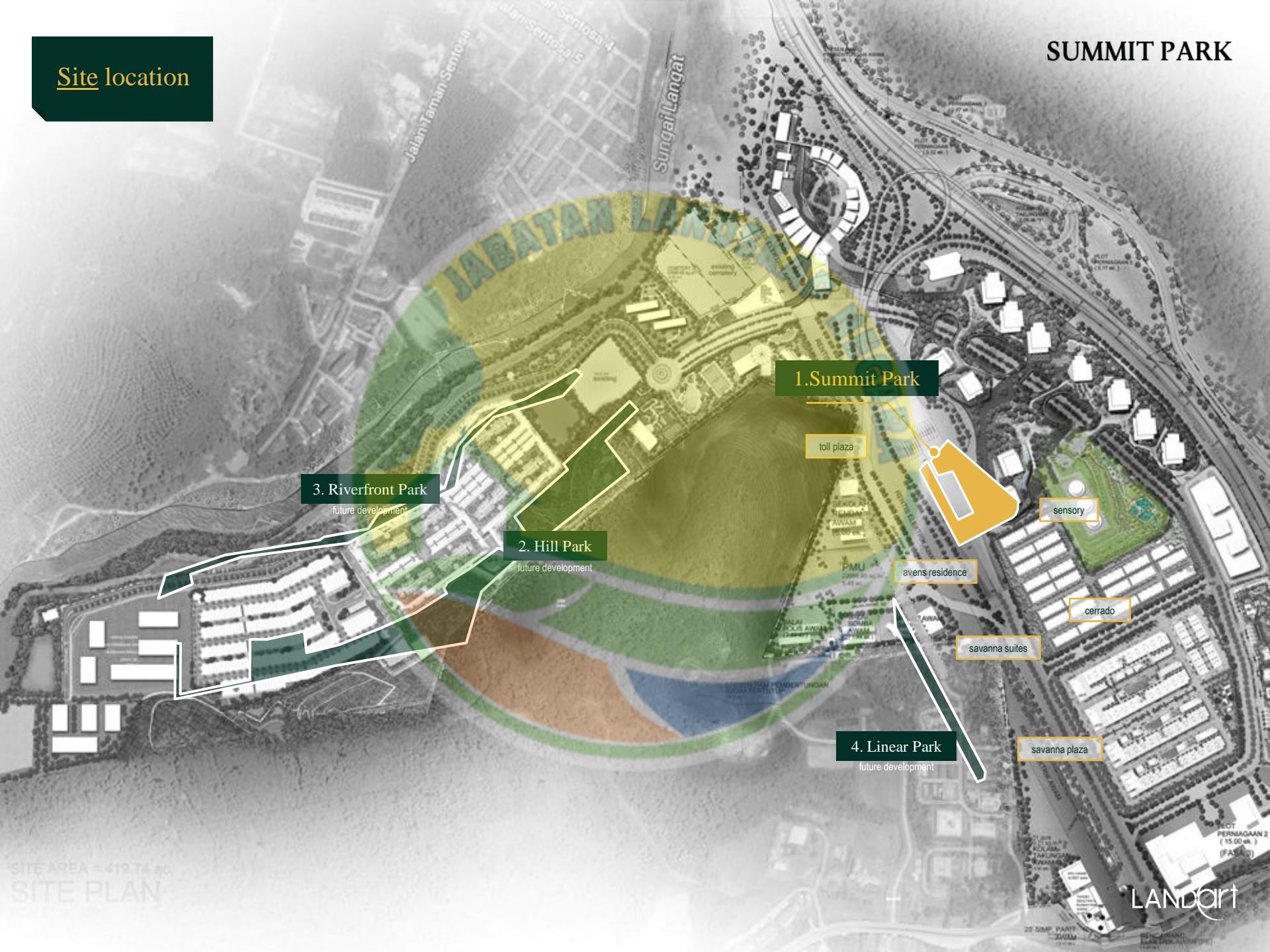
Southville city



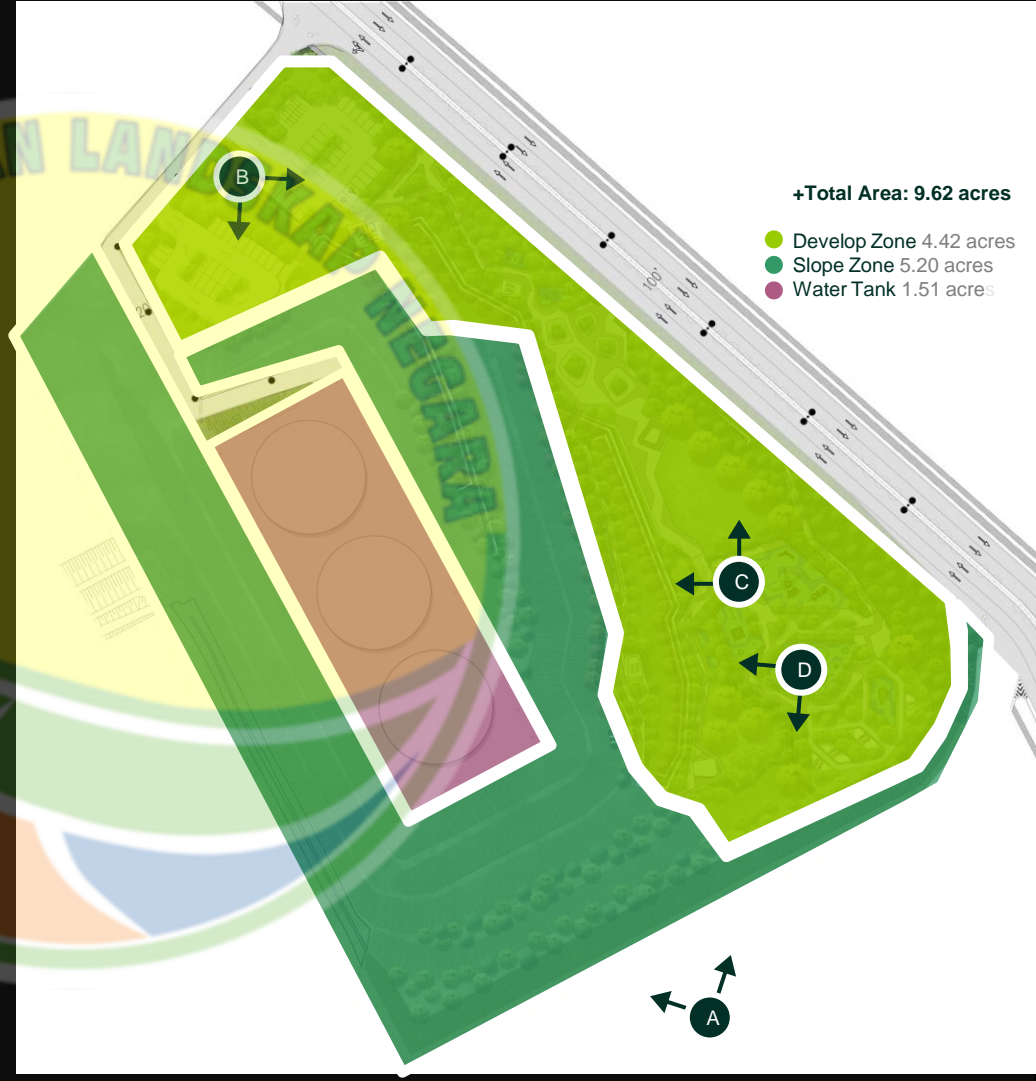
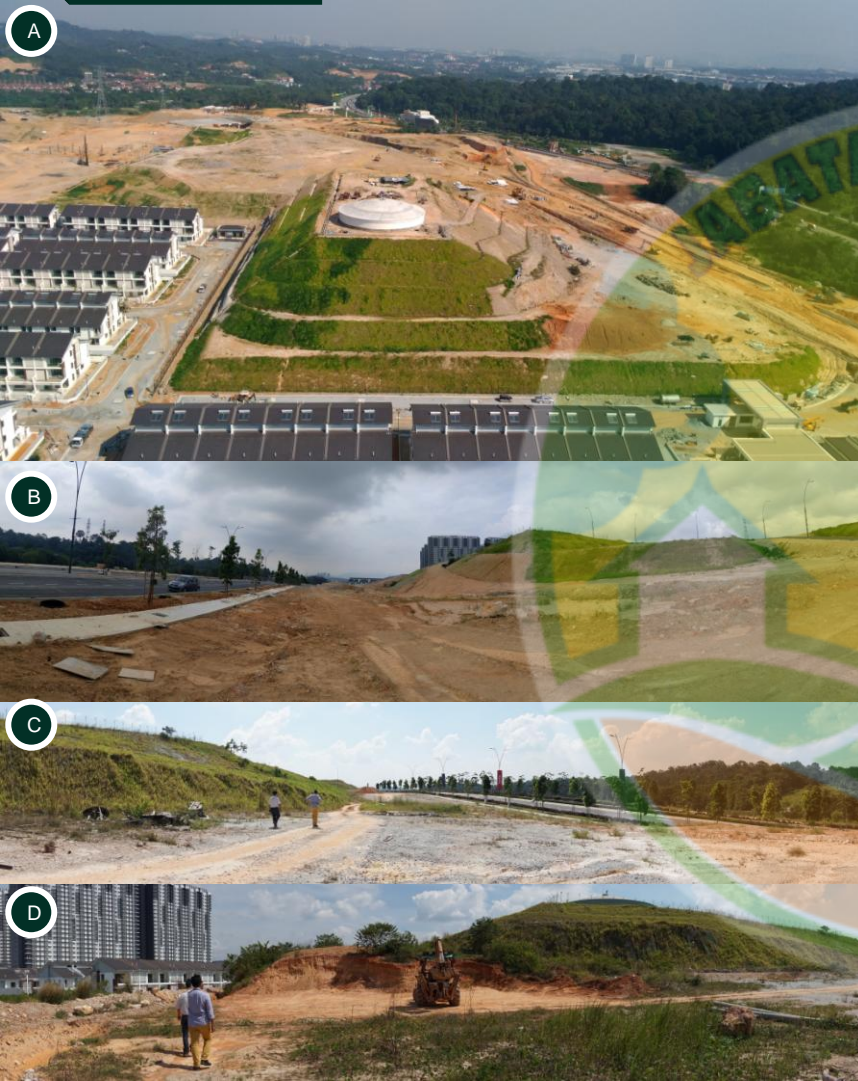
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Site location

SUMMIT PARK



Existing site



Site issues



Poor Soil Condition

Top soil have been remove during earthworks
Bare surface & rocky soil
Sandstone / Clay (S.I. Report)

+



Steep Terrain Area

Average 1:1.5 slope gradient
Limited area for development
Terrace hill landform
Minimizing the disturbance to the
engineered slope

+

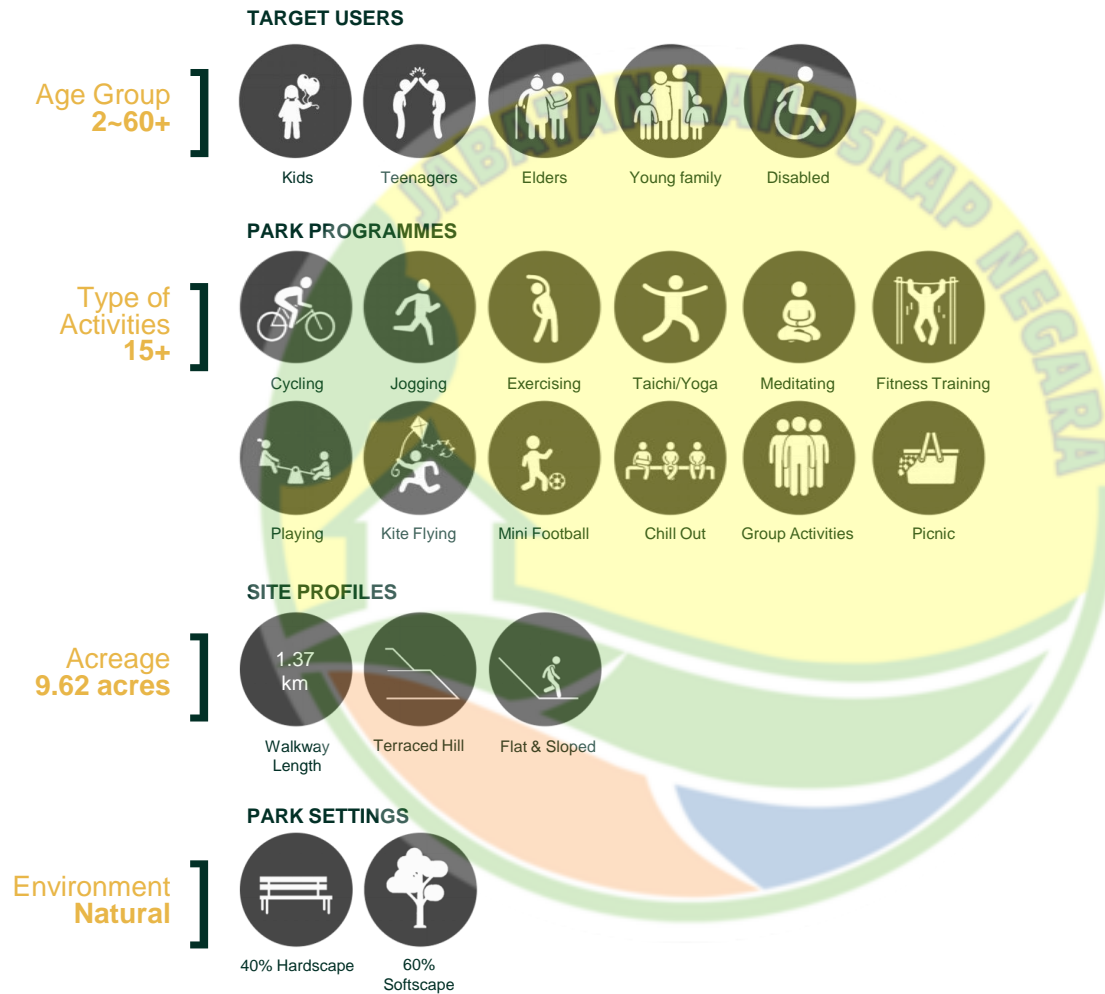


Heat Stress

Massive land clearing in 2013
Unpleasant thermal comfort

+design objective

Urban Forest Park



Masterplan

+Legend

- 1 Public Entrance
- 2 Children Playground 822sqm
- 3 Outdoor Fitness Station 250sqm
- 4 Picnic Area 500sqm
- 5 Meditation Area 380sqm
- 6 Pavilion 3 nos
- 7 Multipurpose Lawn 950sqm
- 8 The Pinnacle 700sqm
- Skate Park Feat. Planter
- 9 Summit Trail 80m
- 10 Public Toilet
- 11 Public Car Park 58 nos
- 12 Interlocking Block Wall System
- 13 Water Tank

SUMMIT PARK



SUMMIT PARK

Project walkthrough

+ aerial view (overall)



pavilion / meditation

picnic area

summit pavilion

fitness station

playground

summit trail

lawn

pinnacle

toilet

parking

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Project
walkthrough

+ entrance signage



Project
walkthrough

+ entrance signage

SUMMIT PARK



Project
walkthrough

+ access ramp

Playground

+ aerial view



Playground

+ aerial view

- 800m2 area
- 3 different play area with different age groups
- 18 play equipment with more than 50 play components
- certified safety compliance playground

play area

1

play area

3

play area

2

Playground

+ play area 1

SUMMIT PARK



Playground

+ play area 2

SUMMIT PARK



Playground

+ play area 3






CPSI Certified Playground Safety Inspectors

Playground

Safety compliance

playground safety specialists who use their education, knowledge, training and experience to examine playground design, fabrication, installation and management through inspection and audit, and recommend measures to enhance the safety of playground, and attempt to reduce the risks of playing on playgrounds

+ safety concern priority rating



RATING Safety Concern Priority	DESCRIPTION Conditions Likely to Cause	CORRECTIVE ACTION Conditions should be corrected
PRIORITY 1	Non-compliant safety concern that may result in permanent disability, loss of life or body parts.	Immediately
PRIORITY 2	Non-compliant safety concern that may result in temporary disability.	As soon as possible
PRIORITY 3	Non-compliant safety concern that is likely to cause a minor (non-disabling) injury.	When time permits
PRIORITY 4	Non-compliant safety concern whose potential to cause an injury is minimal.	If condition is worsen
PRIORITY 5	The item has been determined to be compliant with the Owner/operator's operating policy and standard of care.	Continued ongoing preventive maintenance is recommended



Project
walkthrough

+ outdoor picnic area
(aerial view)



Project
walkthrough

+ outdoor picnic area



Project
walkthrough

+ outdoor picnic area

SUMMIT PARK



Project
walkthrough

+ seating area



- + aerial view (overall)

+ aerial view (overall)

pinnacle

LANDart

Project
walkthrough

+ the pinnacle (aerial view)



Project
walkthrough

+ the pinnacle (aerial view)

SUMMIT PARK

Project
walkthrough

+ the pinnacle



Project
walkthrough

+ the pinnacle



Project
walkthrough

+ the pinnacle

SUMMIT PARK





Project
walkthrough

+ multipurpose lawn



Project
walkthrough

- + stage mound
- + multipurpose lawn



SUMMIT PARK

Project walkthrough

+ aerial view (slope /
pinnacle area)

Project
walkthrough

- + the pinnacle
- + integrated outdoor fitness station



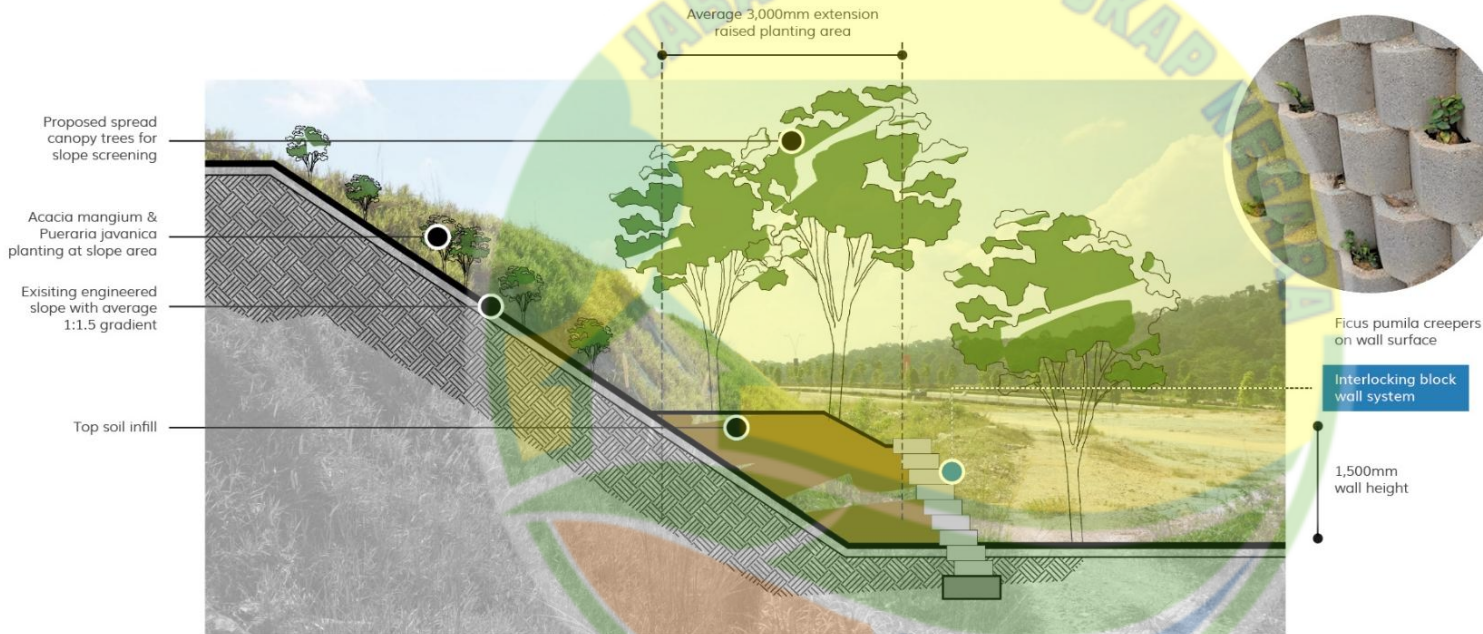


SUMMIT PARK

Project
walkthrough

+ summit trail

INTERLOCKING BLOCK WALL SYSTEM



The major challenge of this project is to revamp the wasteland into a lush urban forest by crafting it through a landscape treatment. Planting selection were consulted with certified Arborist, and the species were selected to adapt and sustain with site nature. The development of the park avoids major earthworks to the natural environment. Steep terrain area treated with block wall as a planter filled with forest tree species as well as minimizing the disturbance to the engineered slope. Rocky slope surface were treated with legumes plants that will provide biomass as organic compost to poor soil condition. Acacia mangium, a fast-growing tropical leguminous tree were planted along the buffer zone for reforestation purpose.



9 months effects



SUMMIT PARK

Project
walkthrough

+ summit trail

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SUMMIT PARK

Project walkthrough

+ outdoor fitness station



Project
walkthrough

- + reflexology path
- + outdoor fitness station



SUMMIT PARK

Project
walkthrough

+ pavilion 1

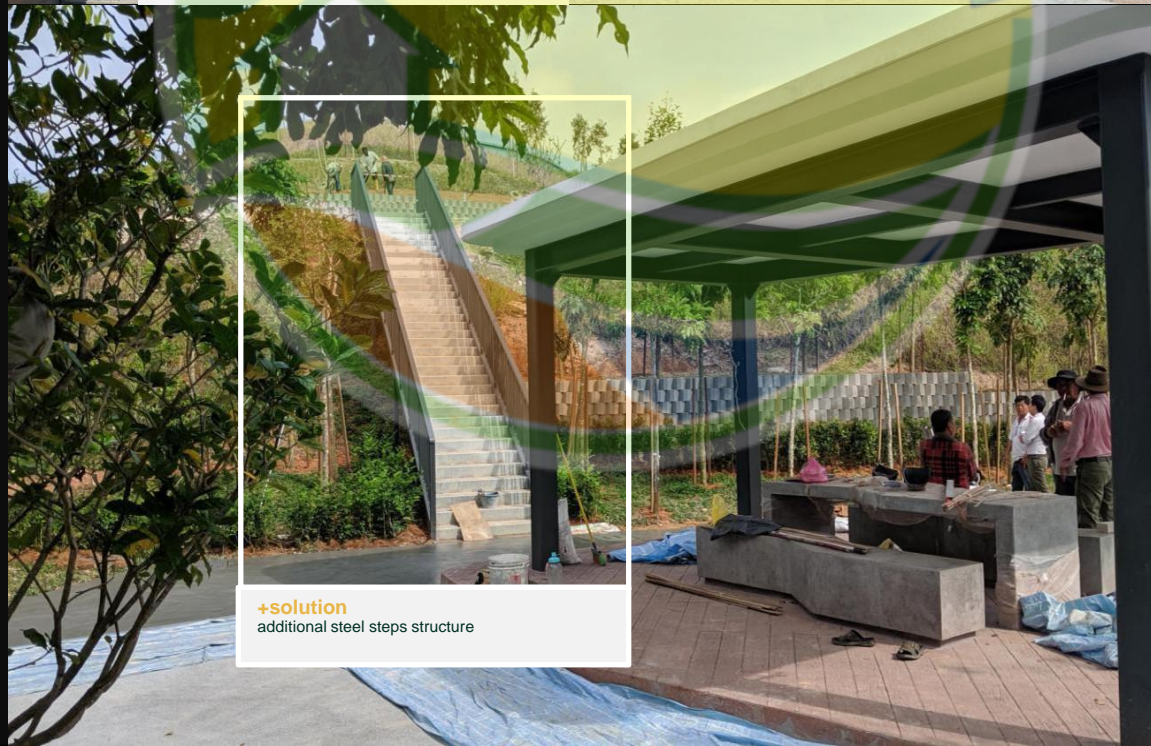


LANDart



SUMMIT PARK

Challenges & constraints



SUMMIT PARK

Project
walkthrough

+ public toilet

SUMMIT PARK

Project
walkthrough

+ public parking



Summit Park
site photo 2018



SUMMIT PARK



+ drainage excavation works of hard material

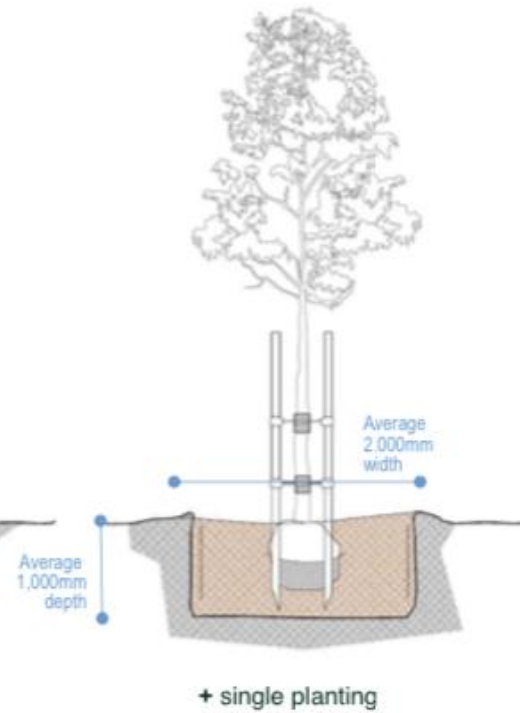
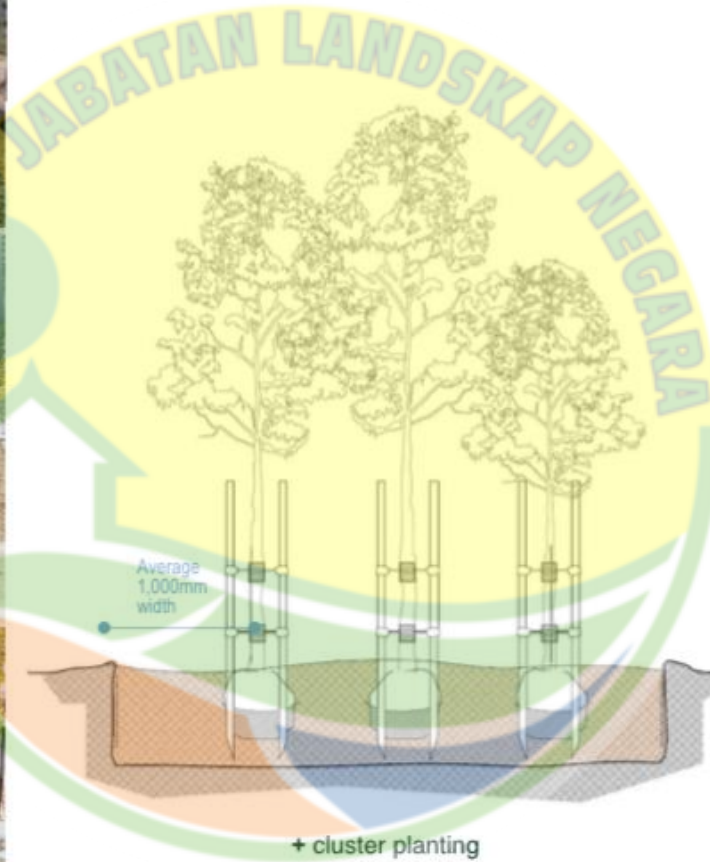


SUMMIT PARK



Planting approach

+ planting method

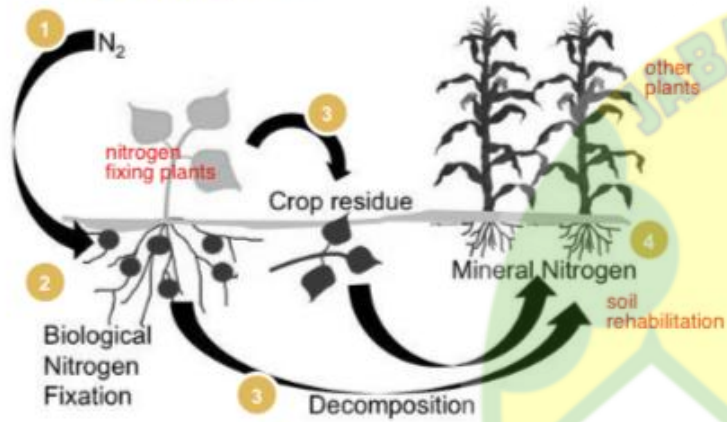


SUMMIT PARK

Planting approach

+ nitrogen fixing plants

+ nitrogen fixing process



Acacia mangium



Pueraria javanica



+4 months planting



SUMMIT PARK

2018



LANDart

2020





Biophilic design connecting humans with nature to improve health and well being, and for sustainable living.



JABATAN LANDSKAP NEGARA

**HOPE YOU
LIKE IT**