



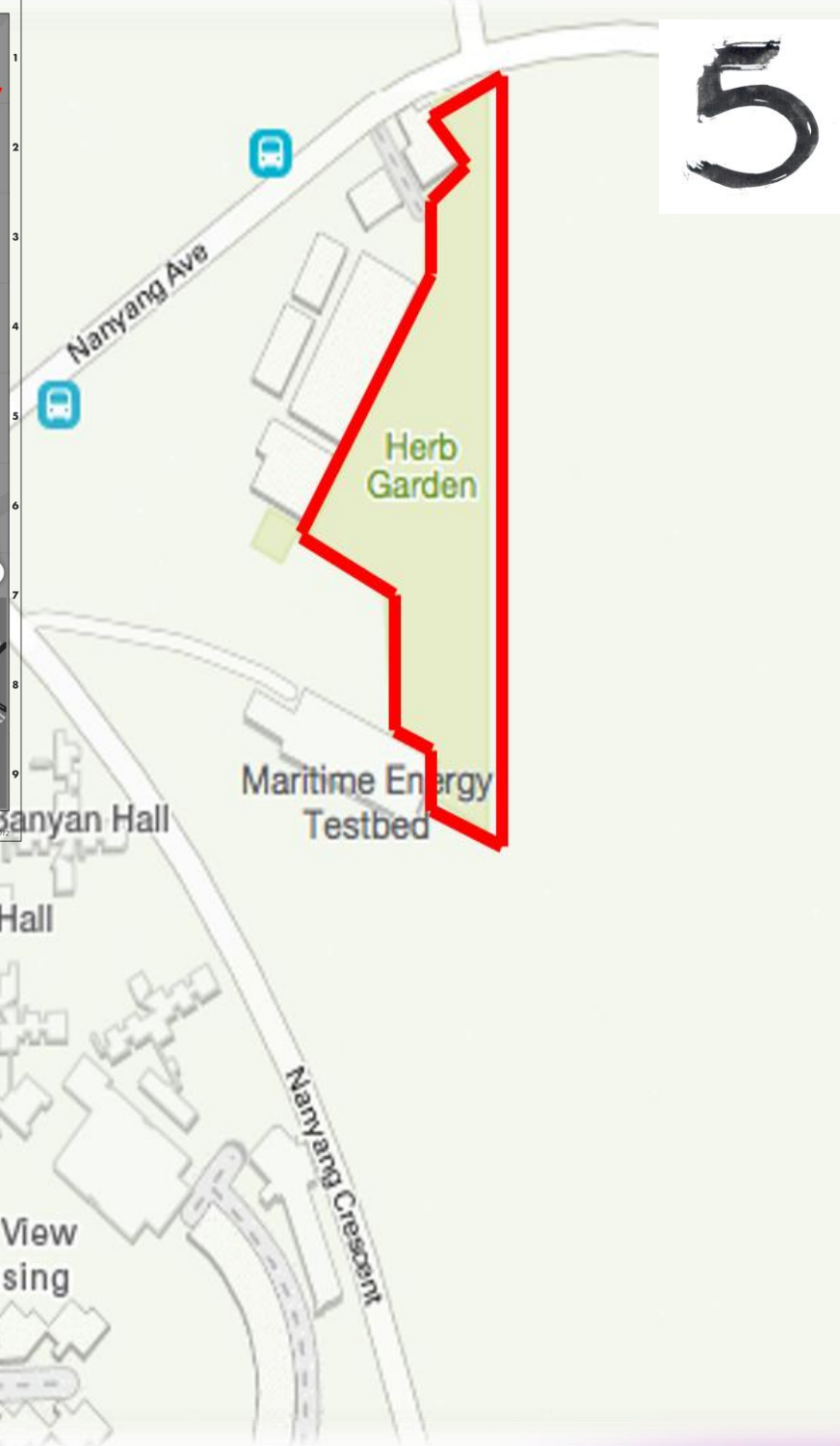
CANCER RIBBON GARDEN

NEW ENTRANCE FOR
NTU COMMUNITY GARDEN

INTEGRATED PROJECT 2

DONE BY:
NG YAN LIN, SEBASTIAN
1600076
DLA/FT/1B/01

WAYS TO GET THERE



5

LOCATION: NANYANG TECHNOLOGICAL UNIVERSITY

50, NANYANG AVENUE SINGAPORE (639798).

Nearest MRT station: Boon Lay (EW27)

By Bus : 199 (From Boon Lay Interchange, alight at Bus Stop No: 27181 PUB Sub Station)

By Expressway: PIE Jalan Bahar (Exit 36) ➡ Towards Changi Airport ➡ Take exit & turn left

PIE Jalan Bahar (Exit 36) ➡ Towards Tuas ➡ Take exit & turn right

Walking Time: 10min

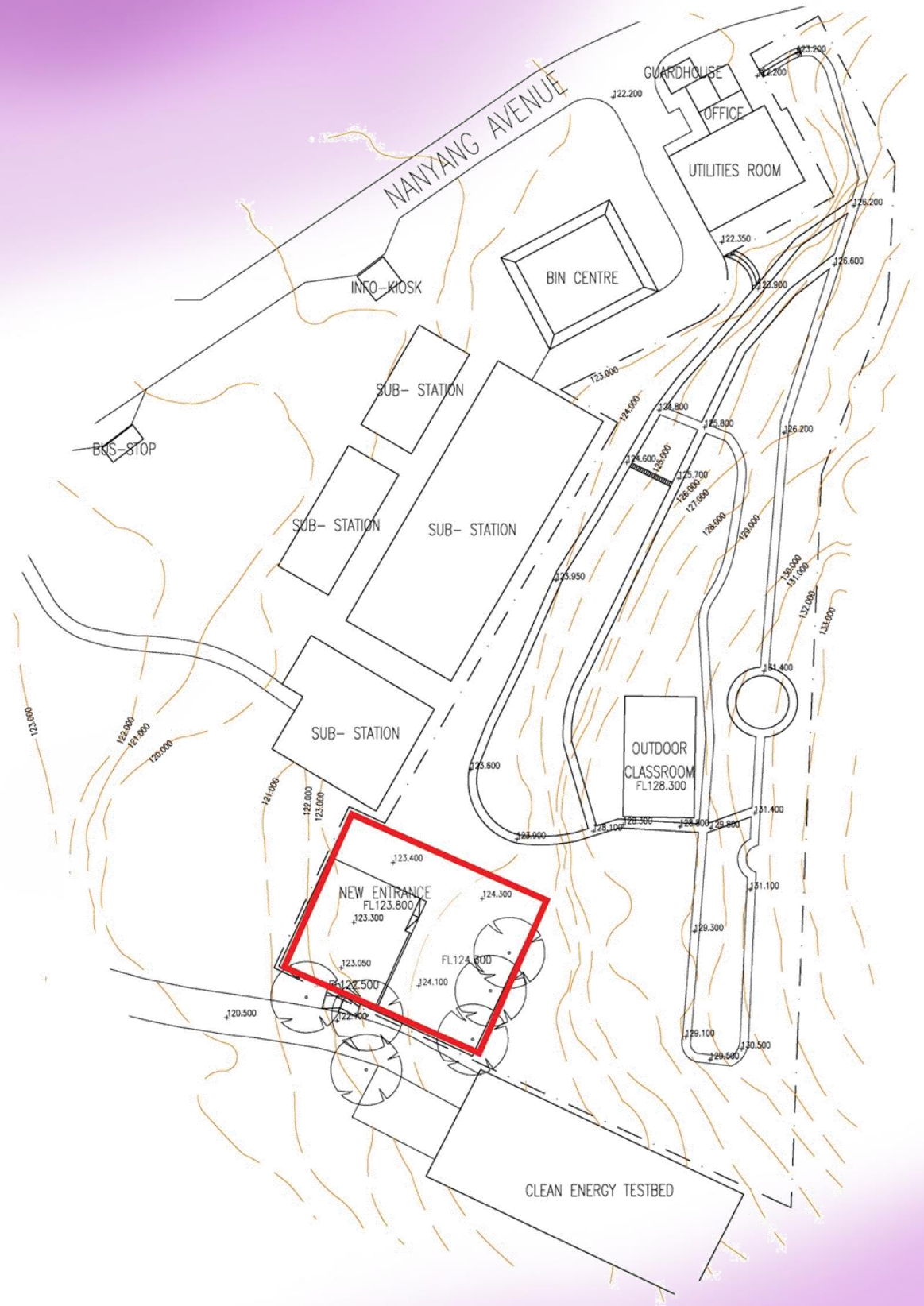


DESIGN OVERVIEW

The Client has requested for a proposed new entrance in addition to the Nanyang Technology University (NTU) Community Herb Garden. The given design plot is 24 by 30 meters and is located off Nanyang Crescent, nearest to the NTU entrance from Jalan Bahar. The Garden consist a total area of two acres and is home to more than 300 kinds of medicinal herbs and domesticated plants, catering to those who seek for herbal remedies as well as to those who are interested to learn more about herbs and gardening.

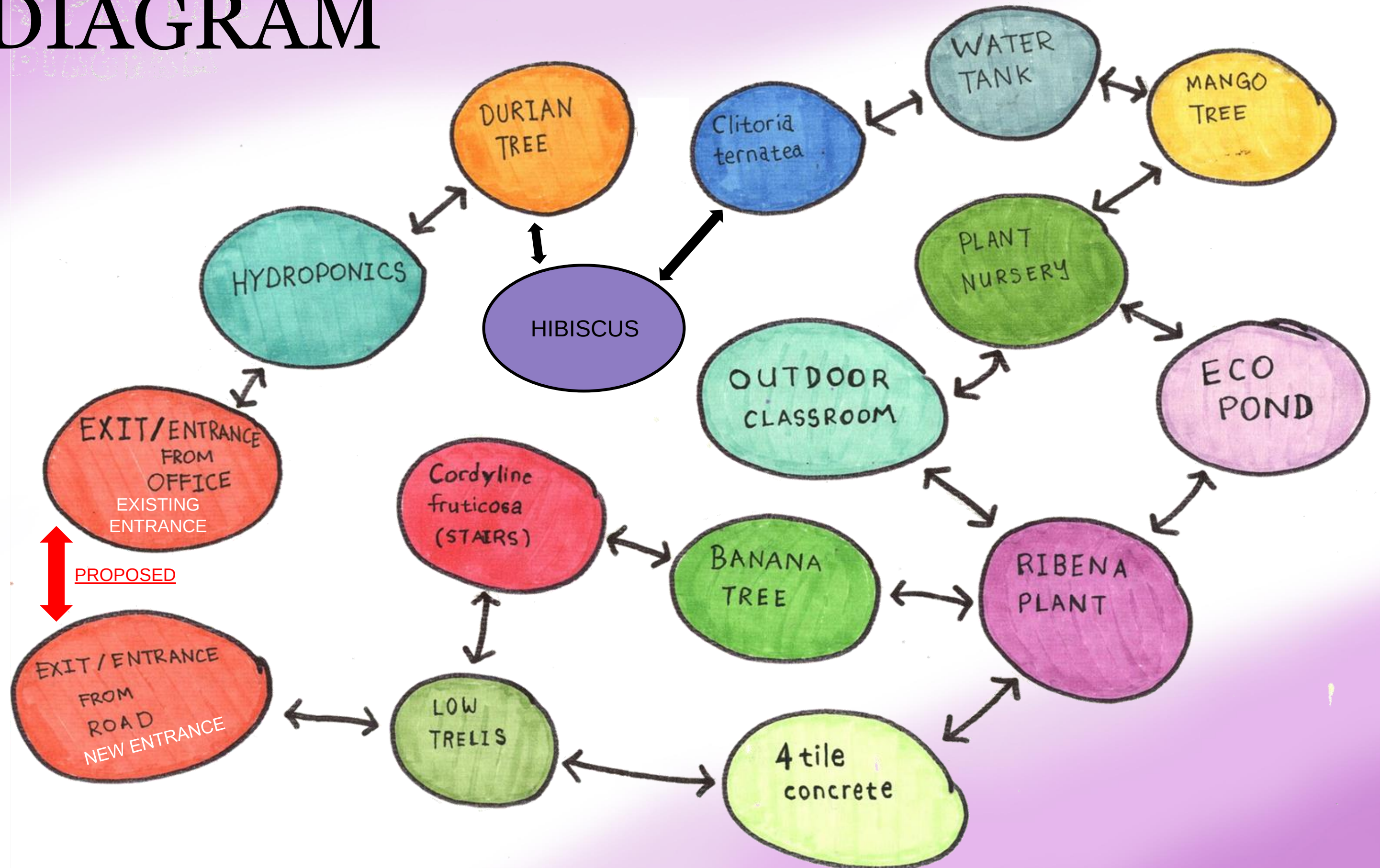
The garden was first started in 2009 by Mr Ng Kim Chuan, after losing his younger brother to lymphoma, a cancer affecting the immune system. To cope with his loss, he began reading deeply about the health benefits of Chinese Herbs to provide free alternative treatment to patient, especially cancer patients, as well as provide herbs for research use (e.g. NTU 's Double Degree B.Sc. (Hons) in Biomedical Sciences & B.Medicine (Chinese Medicine)) and over the years, he and his team has been able to benefit more than 4000 patients and has become a world-renowned community garden that attracts visitor from all around the world for the hidden treasures growing in this garden.

Therefore, it is only right that this garden deserves a well celebrated new entrance for Mr Ng's Team and it's visitors apart from the formal entrance hidden from sight by the garbage bin.

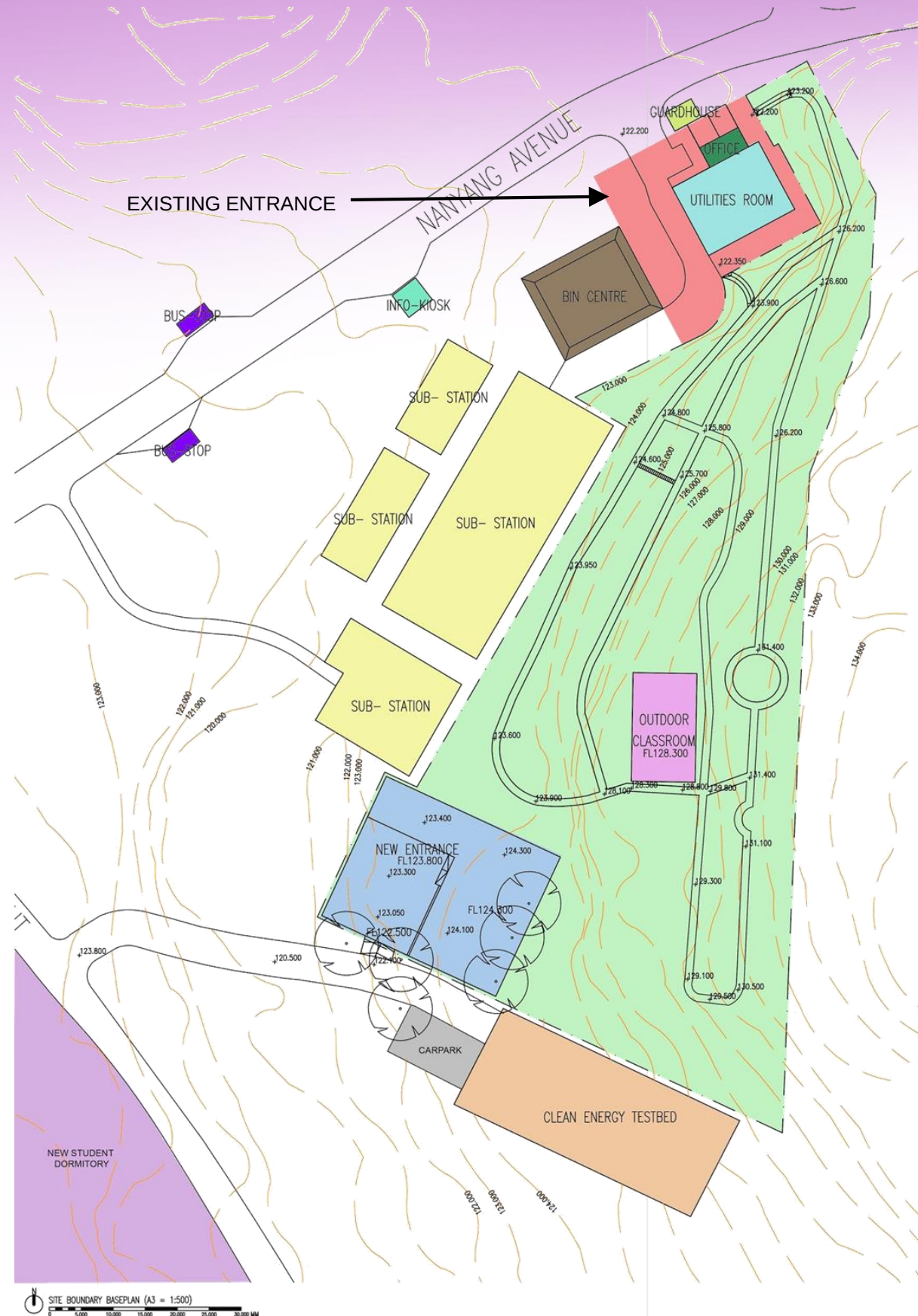


Site boundary of NTU Community Garden is lined with dotted lines and the given plot is boxed up in red.

DIAGRAM

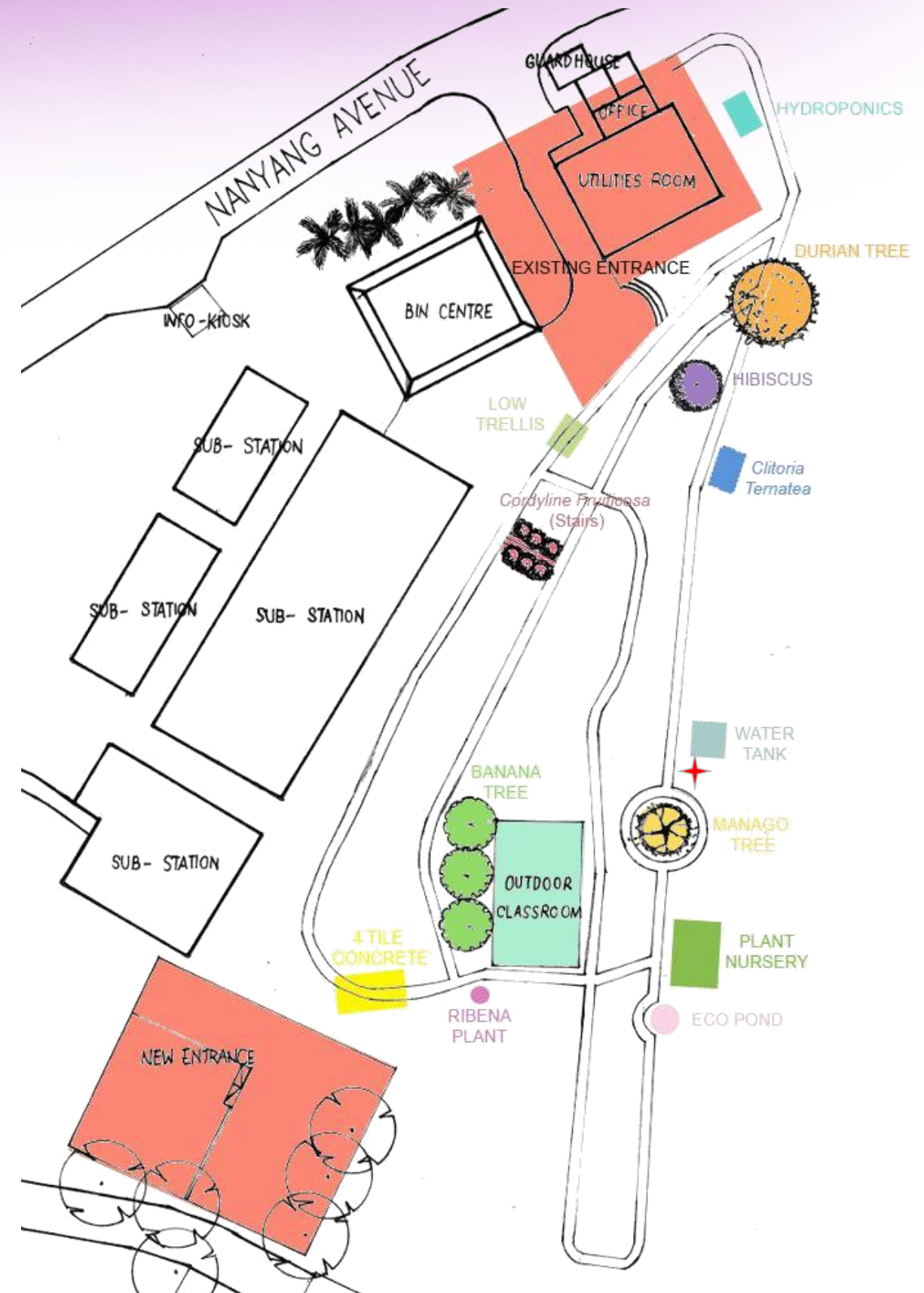


SURROUNDINGS



Showcasing structures and other amenities which is in close proximity to the Ntu Community Herb Garden

LANDMARKS



Showcases the landmarks/ points of interest & Entrances to the NTU Community Herb Garden (NTS) Not to Scale

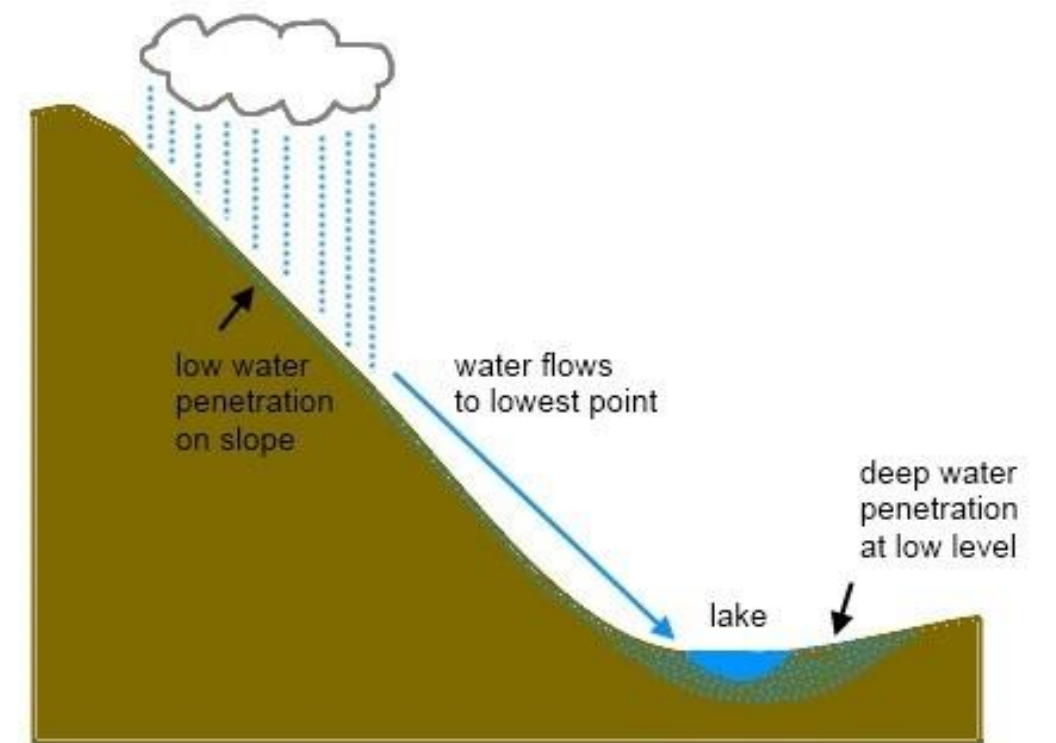
SUMMARY OF SITE ANALYSIS



PEDESTRAIN CIRCULATION
High use of concrete

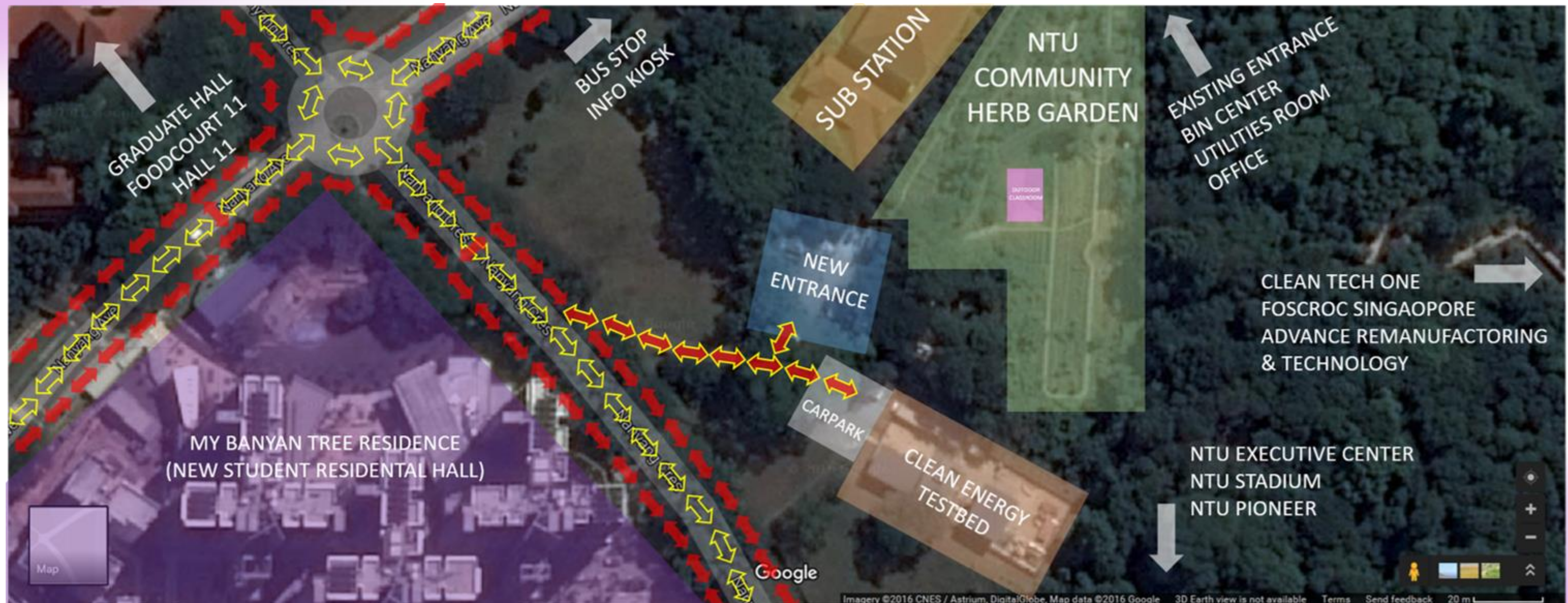


VEHICLE CIRCULATION
No drop off



TOPOGRAPHY
Water collects at the lowest point

SATELLITE WITH CIRCULATION & SITE CONTEXT



The design aims to incorporate NTU students residing in the new student dormitory as part of my target audience. As they are in closer proximity to the new garden and the herb garden than compared to the Yunnan Garden which is the only garden on the NTU campus. By making the cancer ribbon garden a public space.

LEGEND:

-  :HUMAN CIRCULATION:
-  :VEHICLE CIRCULATION:

CIRCULATION JUSTIFICATION

← from North Hill Food Court, 636959, 64 Nanyang Cres
to NTU Community Herb Garden

4 min (300 m)

via Nanyang Ave

Use caution - may involve errors or sections not suited for walking

North Hill Food Court

636959, 64 Nanyang Crescent

↑ Head northwest on Nanyang Cres

74 m

📍 At the roundabout, take the 1st exit onto Nanyang Ave

📍 Destination will be on the right

240 m

NTU Community Herb Garden

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

← from North Hill Food Court, 636959, 64 Nanyang Cres
to Home (Yunnan Garden @ NTU)

21 min (1.7 km)

via Nanyang Cres and Nanyang Dr

Use caution - may involve errors or sections not suited for walking

North Hill Food Court

636959, 64 Nanyang Crescent

↑ Head southeast on Nanyang Cres

📍 Go through 1 roundabout

1.2 km

↑ Continue onto Nanyang Dr

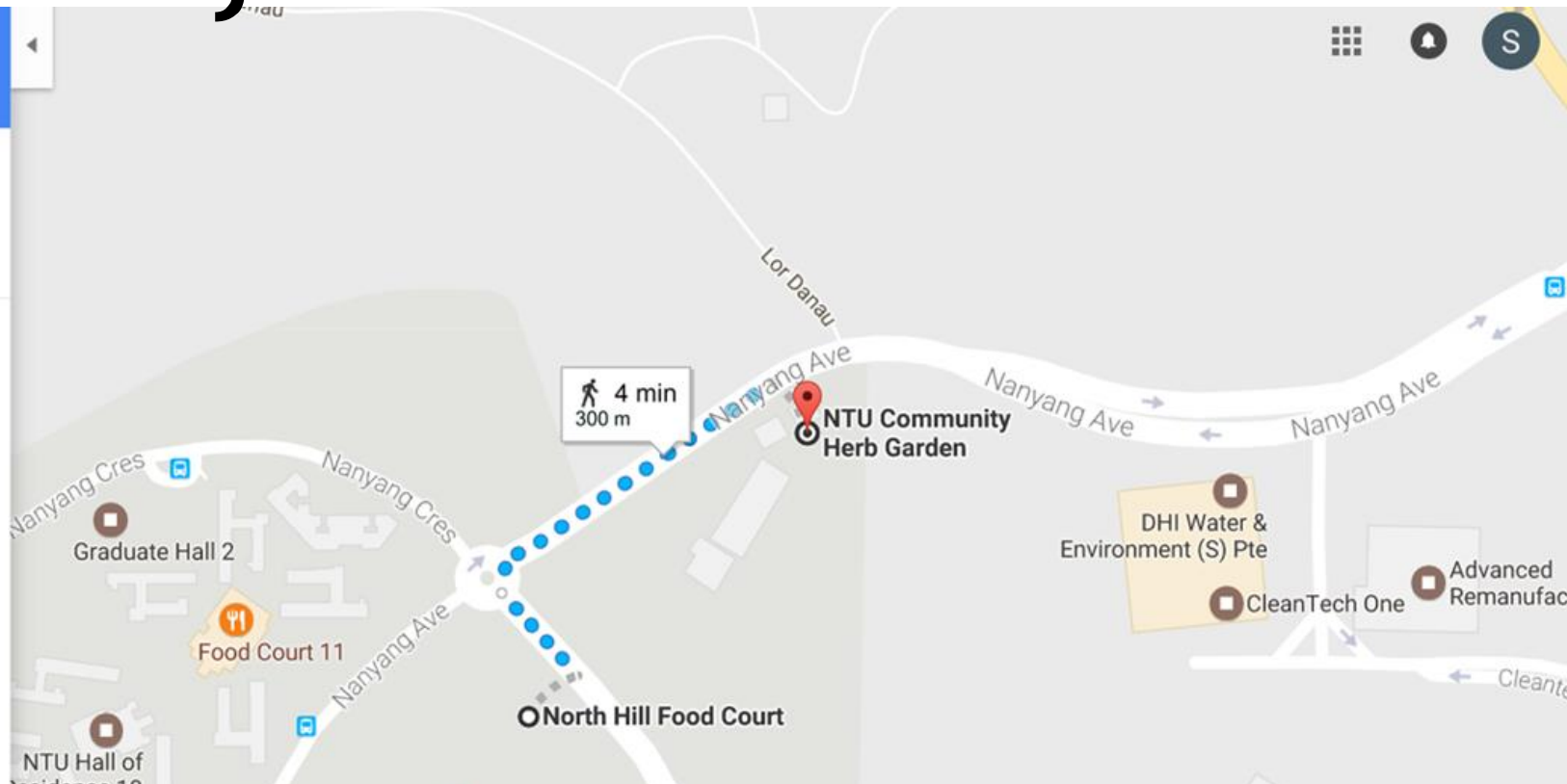
📍 Destination will be on the left

500 m

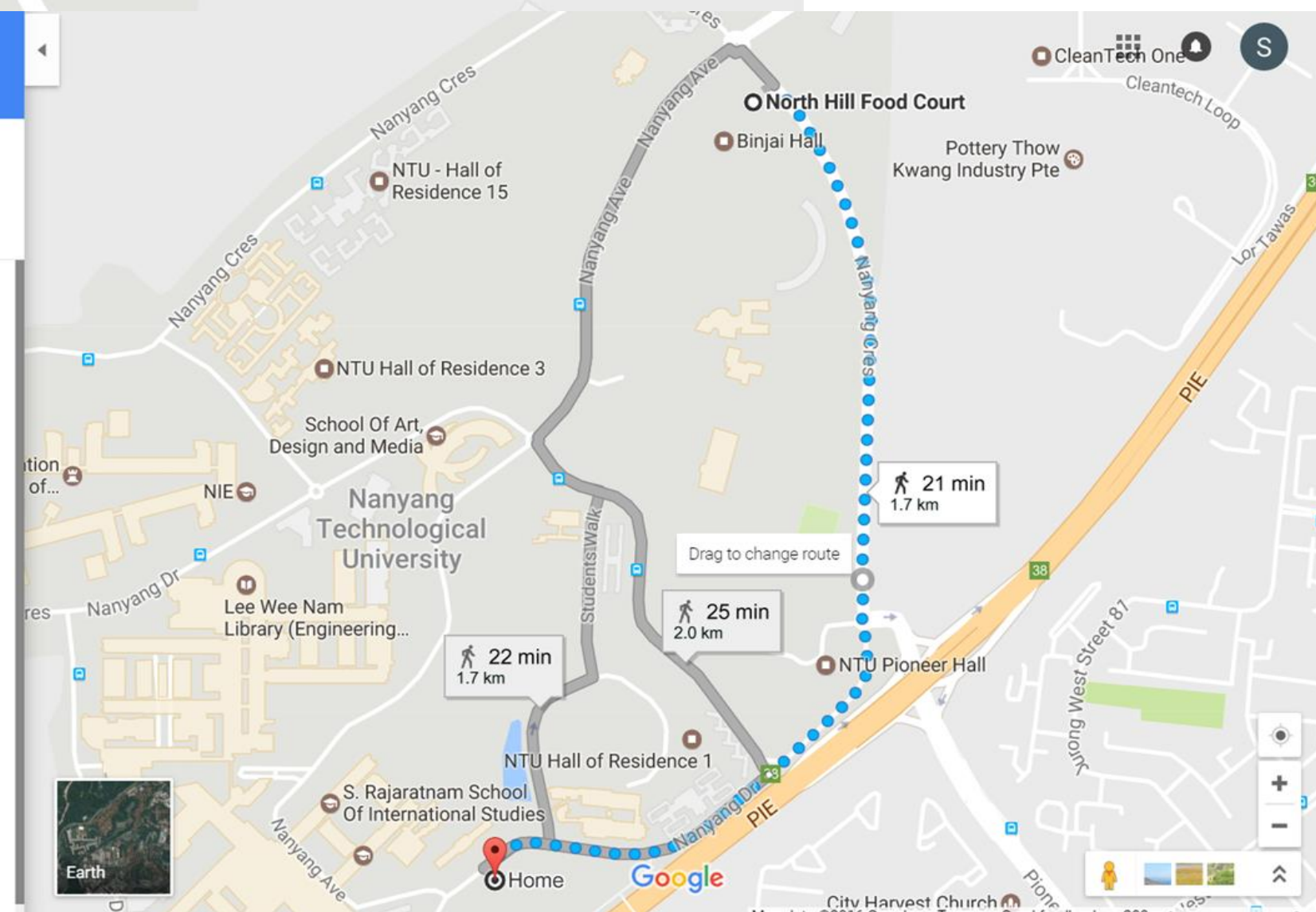
Yunnan Garden @ NTU

12 Nanyang Drive, 637721

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.



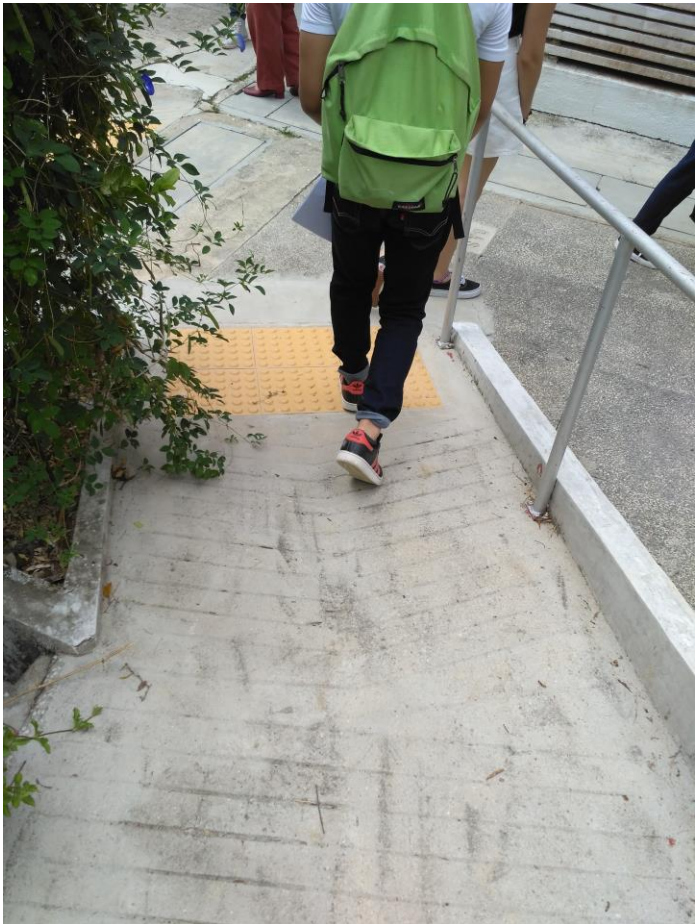
(Using North Hill Food Court as a starting point which is located in the My Banyan Tree Student Dorms)



SUMMARY OF SITE ANALYSIS



SOFTSCAPE
No Zoning



HARDSCAPE
Wheelchair Friendly Ramp @ Existing Entrance



VIEWS /NOISE
From Sub Station / Clean Energy Testbed

NEW ENTRANCE SOFTSCAPE DIAGRAM

LEGEND:



: *Samanea saman*



: *Ficus sp.*



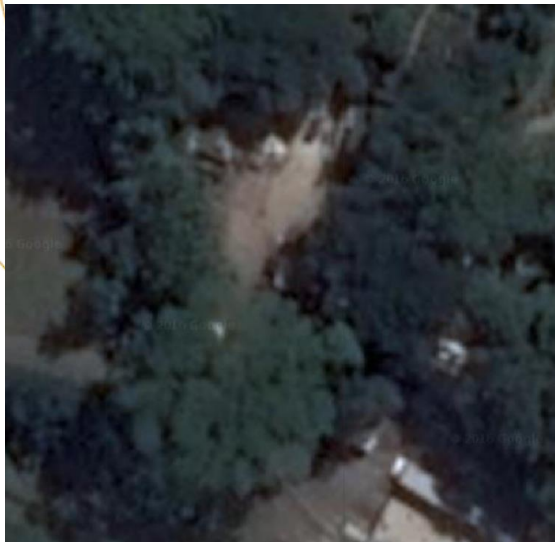
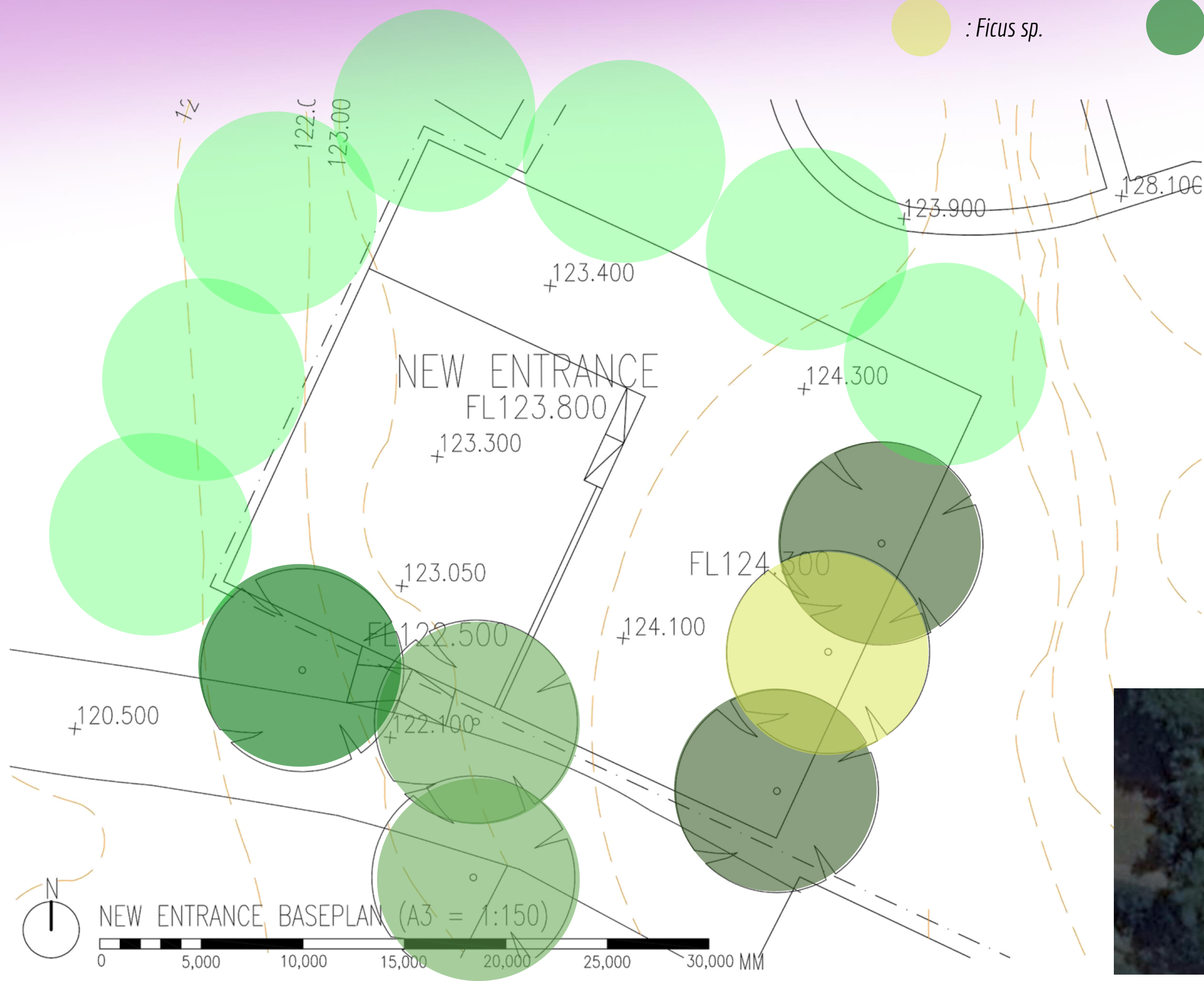
: *Unidentified vegetation*



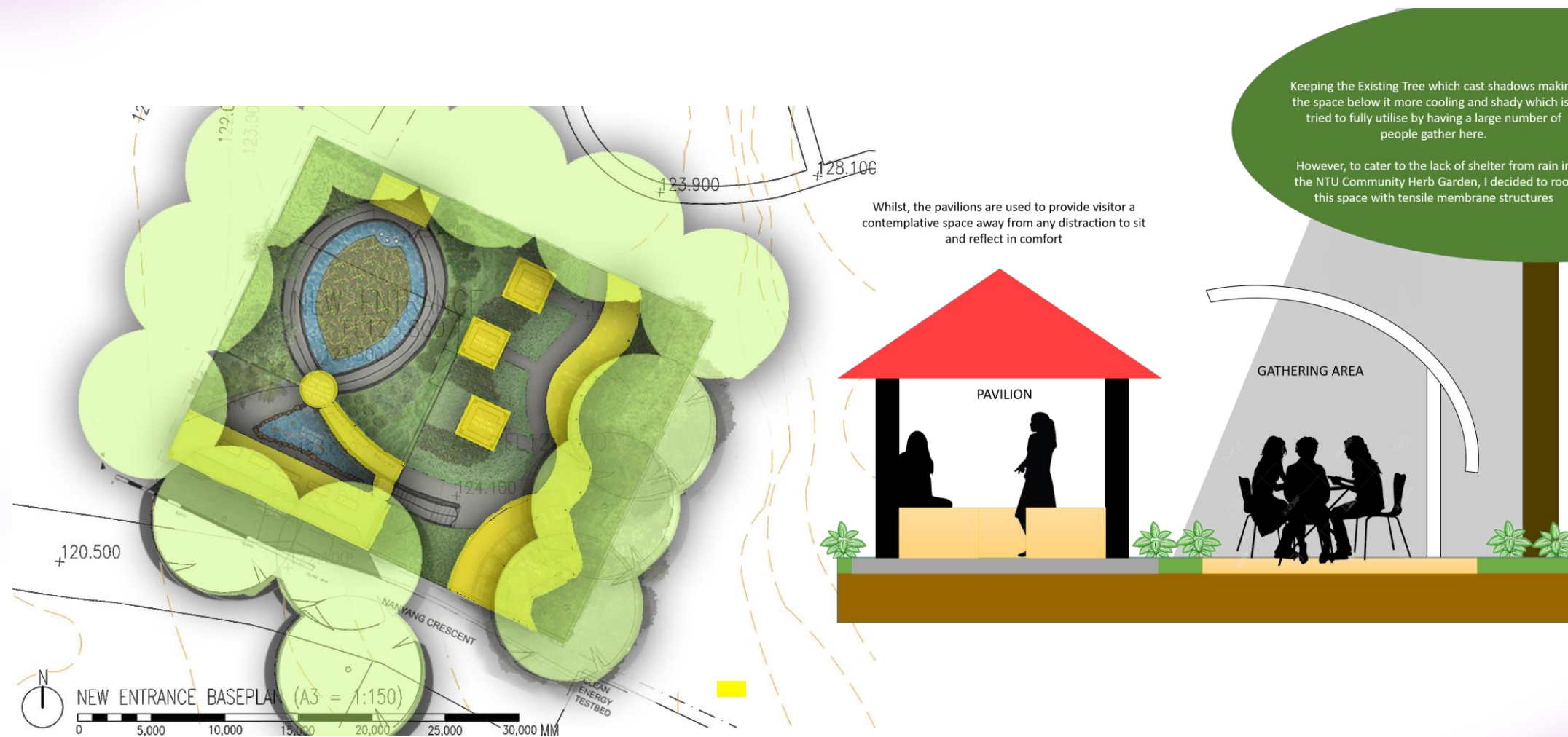
: *Spathodea campanulata*



: *Euterpe edulis*



SUMMARY OF SITE ANALYSIS

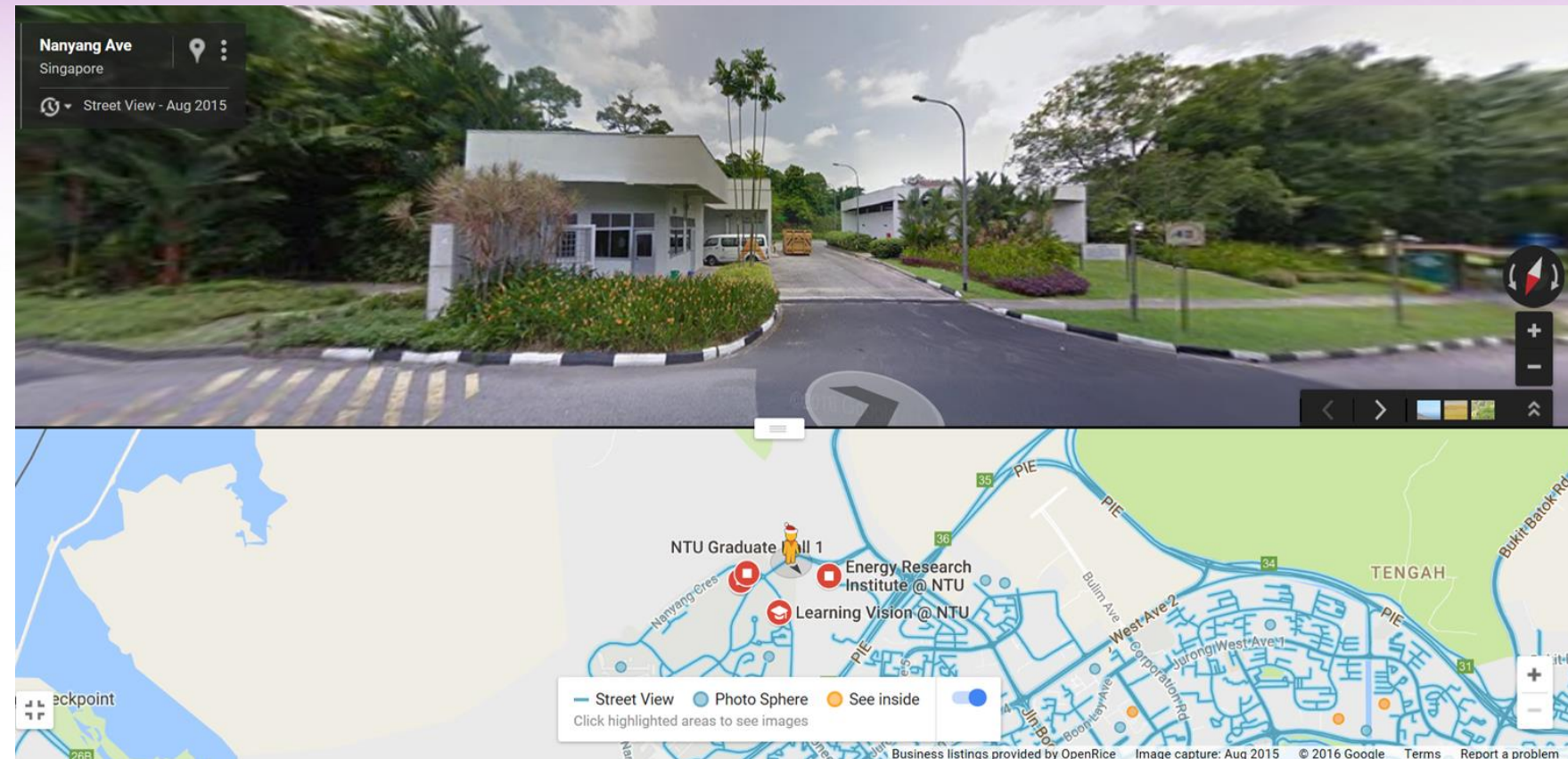


MICROCLIMATE – SUN / RAIN
Provide shade from afternoon sun / shelter people from rain



DRAINAGE
Cover drains to remove falling threat

WALK IN VIEW (OF EXISTING ENTRANCE)



WALK IN VIEW (OF NEW ENTRANCE)



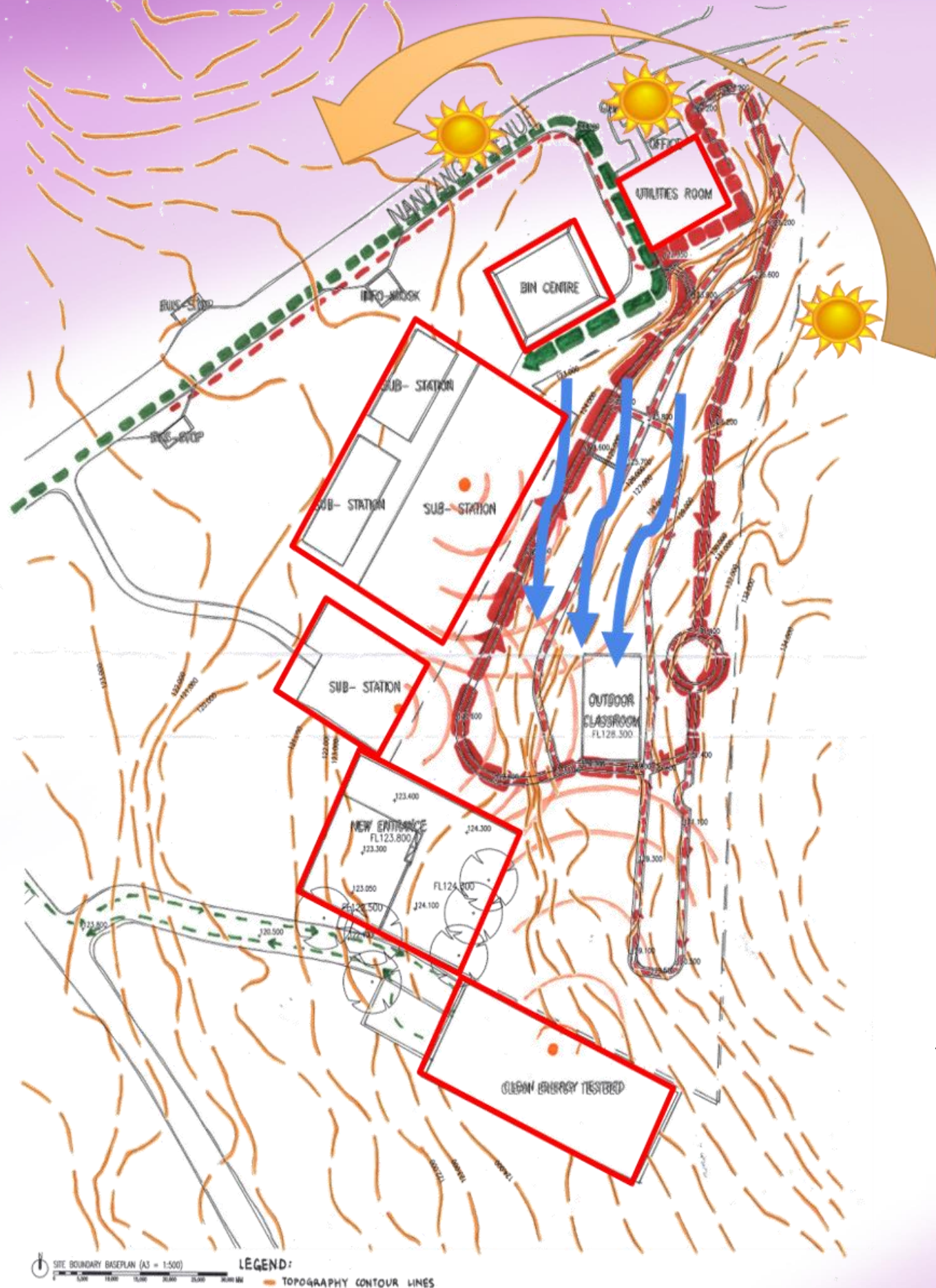
CONCLUSION:

One of the major issues of this two entrance is that they are not human circulation friendly as they were not original design with the functionality of entrance of a garden in mind.

At the existing entrance, it is being used as a garbage bin center. While, at the new entrance it used as a place of storage to keep excess materials that have been donated to the herb garden by sponsors.

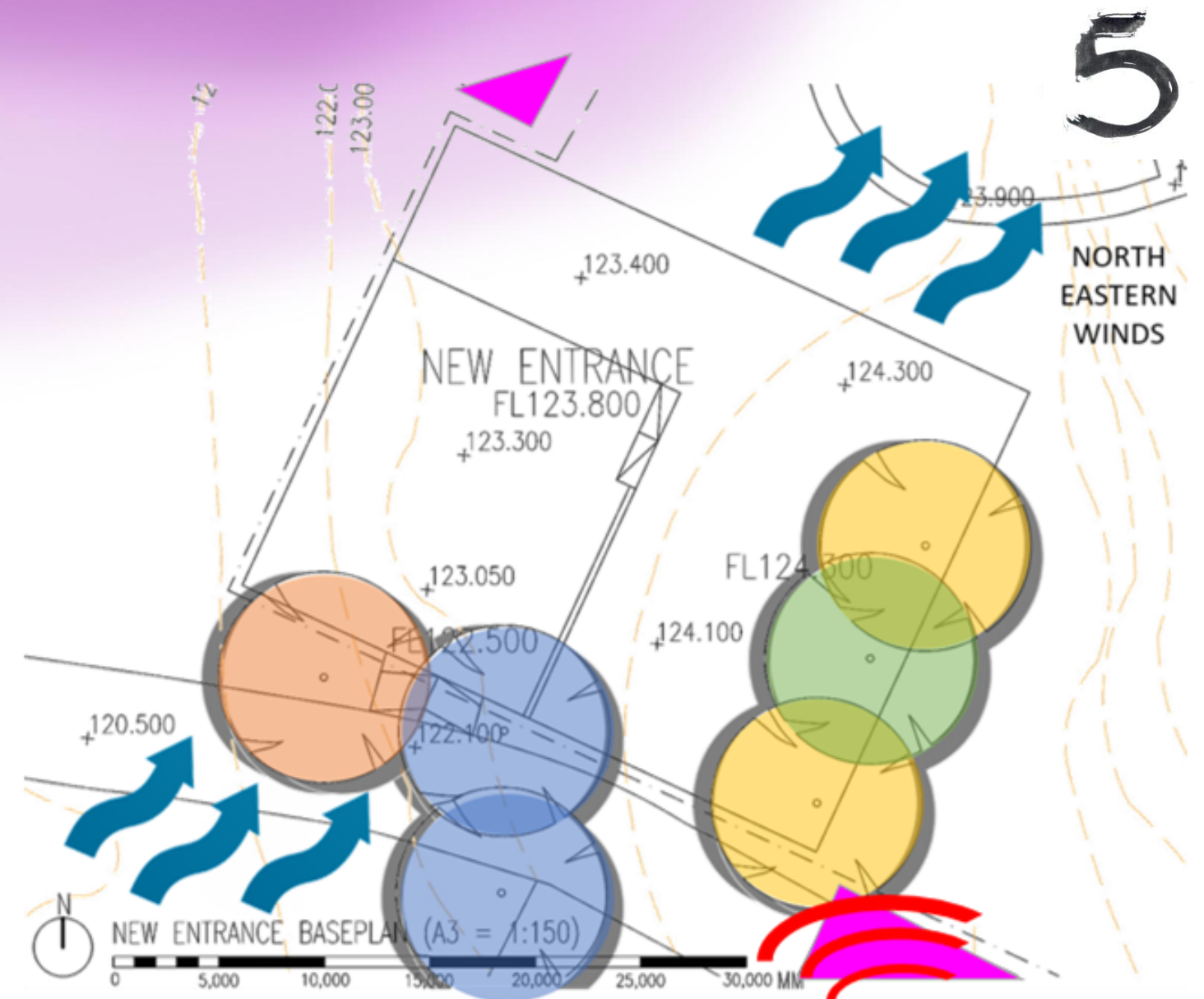
Therefore, this makes both entrance less attractive to visitors and hence has not been able to garner visitor to the garden to its full potential.

COMPOSITE SITE ANALYSIS



TEAMWORK - OUTDOOR CLASSROOM

Inclusive of (MICROCLIMATE, TOPOGRAPHY, CIRCULATION & HARDSCAPE)



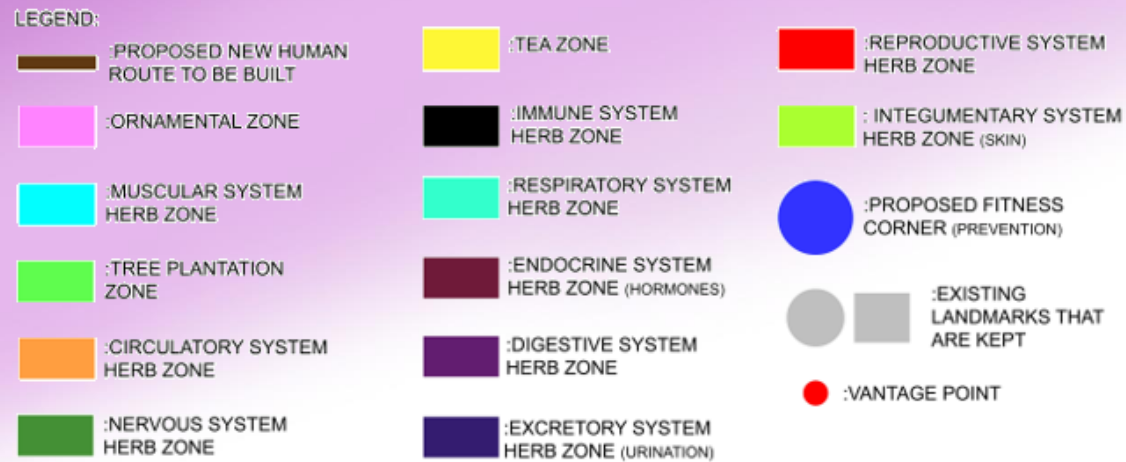
LEGEND:

- : *Euterpe edulis*
- : *Ficus sp.*
- : *Samanea saman*
- : *Spathodea campanulata*
- : Surrounding Infrastructure
- : Wind direction
- ~ : Noise/Sound Pollution

INDIVIDUAL - NEW ENTRANCE

The design of the garden was influenced by its site analysis as it tries to conserve the existing Trees & Palms as much as possible (**SOFTSCAPE**), follow the gradient to connect the entrance of the herb garden and collect rainwater because it is the lowest point of the herb garden (**TOPOGRAPHY**), Eliminating Sound pollution from other surrounding structures such as the Clean Energy Testbed through buffering and masking (**NOISE**), Hedging up unsightly views of surrounding heavy infrastructures (**VIEWS**) & Utilising the Sun Patterns and Shadows that are cast to select and place plants accordingly to their sun requirements and shelters placement so as to fully utilise its effectiveness in the landscape, Looking at the flow of rainwater and finding an effective way to drain away water and prevent flooding in the landscape & following the wind direction to channel and create a cooling effect in the garden known as the venture effect (**MICROCLIMATE**).

ZONING OF NTU COMMUNITY HERB GARDEN

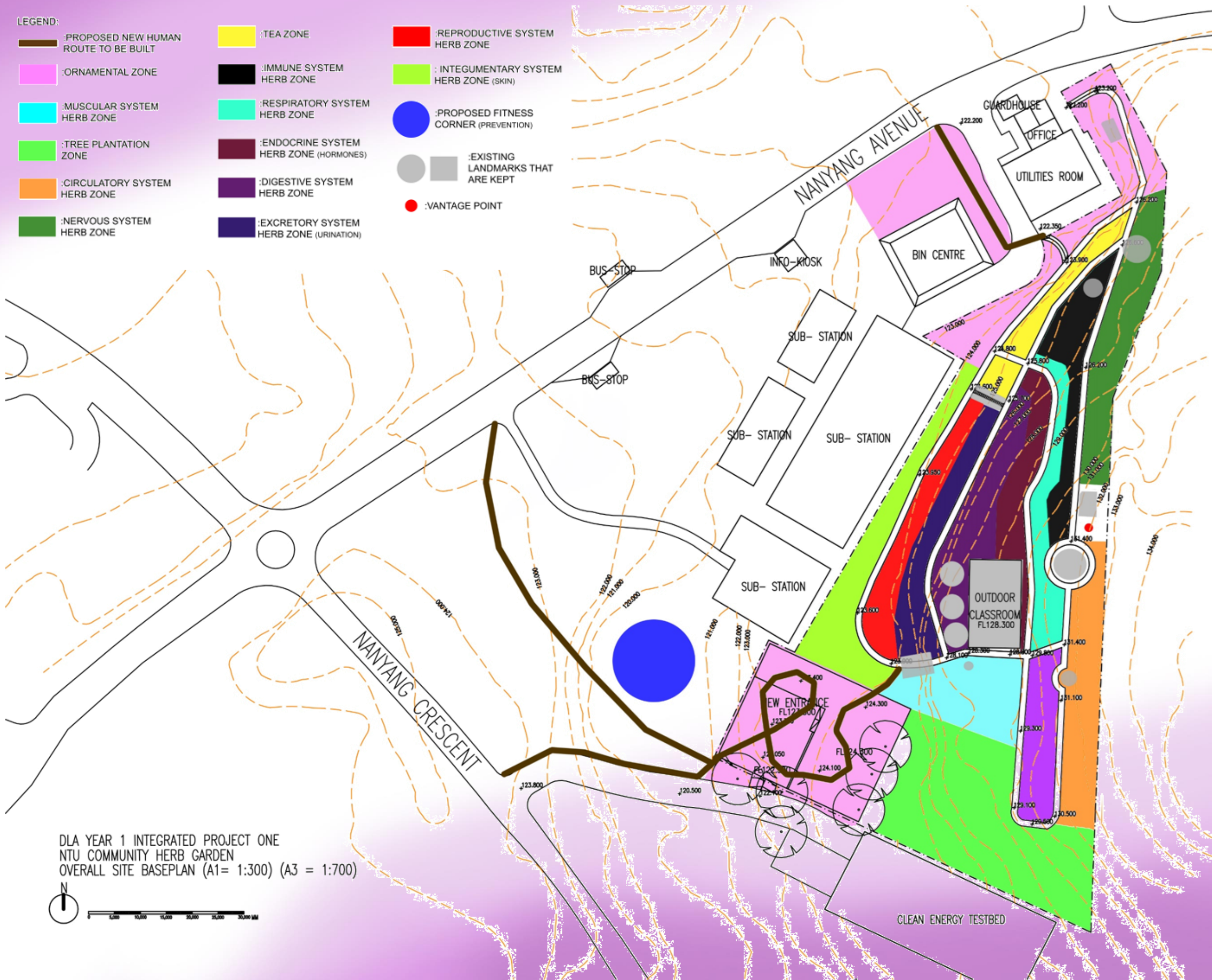


The design tries to keep as many existing landmarks as possible, so to counter the threat of falling durian on visitor a safety net shall be suspended above human circulation so that falling durian would be cached and keep visitors unharmed.

The zoning design actually tries to form a loop between the existing entrance and the new entrance through newly proposed pedestrian paths so as to eliminate threat of walking on roads and risk of accidents.

A fitness corner was also added along this new path so that as visitor walk into the garden through the new entrance. It would form this Cancer story of prevention (Fitness Corner), followed by Support & Hope (Cancer Ribbon Garden) and finally seeking for treatment (NTU Community Herb Garden)

Arrangement of zone was inspired by what the garden had to offer tea, fruits and herbs. The fruit were kept as landmarks of the garden and tea was zone into one. While, the large array of herbs were grouped according to the 11 body systems we need to live and function properly.



RESEARCH OF AWARENESS RIBBON

(SOURCE Wikipedia)

Awareness ribbons are symbols meant to show **support** or raise consciousness for a cause. Different colours and patterns are associated with different issues. Of the uses of ribbons to draw awareness to health issues, perhaps the best-known is the [pink ribbon](#) for support of those with [breast cancer](#). Other health and social concerns which have adopted coloured ribbons include [Alzheimer's disease](#) (purple), [HIV/AIDS](#) (red), [bipolar disorder](#) (green), and [brain disorder](#) or disability (silver).

The first ribbons that were represented as meaningful objects in history were the tokens given to knights during the Middle Ages in Europe

Awareness Ribbon Colours & Meaning



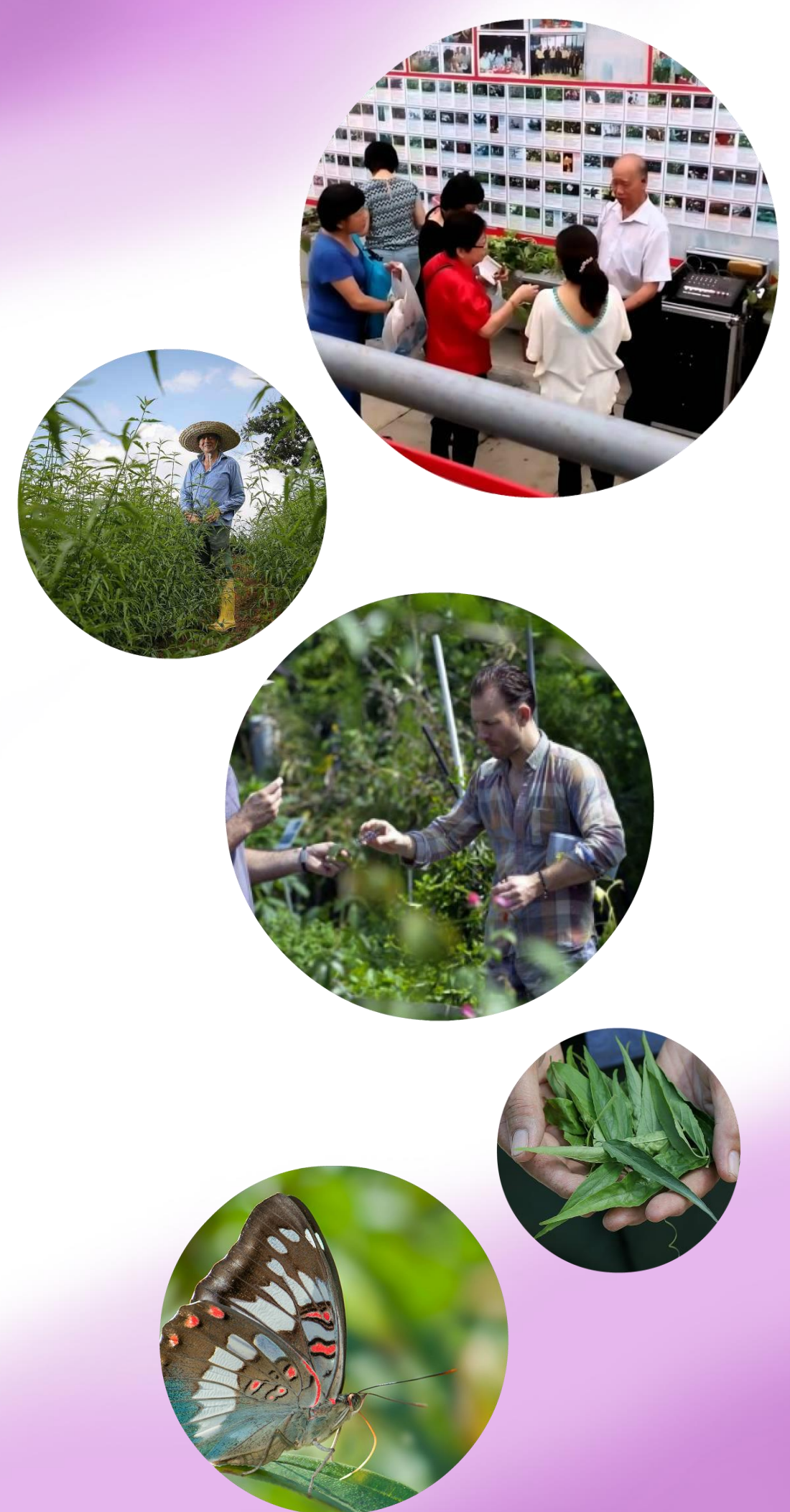
 All Cancers Lavender	 Head & Neck Cancer Burgundy/Ivory	 Pancreatic Cancer Purple
 Appendix Cancer Amber	 Hodgkin's Lymphoma Violet	 Prostate Cancer Light Blue
 Bladder Cancer Marigold/Blue/Purple	 Kidney Cancer Orange	 Sarcoma/Bone Cancer Yellow
 Brain Cancer Grey	 Leiomyosarcoma Purple	 Stomach Cancer Periwinkle
 Breast Cancer Pink	 Leukemia Orange	 Testicular Cancer Orchid
 Carcinoid Cancer Zebra Stripe	 Liver Cancer Emerald Green	 Thyroid Cancer Teal/Pink/Blue
 Cervical Cancer Teal/White	 Lung Cancer White	 Uterine Cancer Peach
 Childhood Cancer Gold	 Lymphoma Lime	 Honors Caregivers Plum
 Colon Cancer Dark Blue	 Melanoma Black	
 Esophageal Cancer Periwinkle	 Multiple Myeloma Burgundy	
 Gallbladder/Bile Duct Cancer Kelly Green	 Ovarian Cancer Teal	

Click here for a printable chart of
**CANCER AWARENESS
RIBBON COLORS**

DESIGN CONCEPT

The design was inspired by the History and beginnings of the NTU Community Herb Garden the design plays on the symbolism of an awareness ribbon which is used to show support or raise consciousness for a cause. As many cancer patients, family and friends often visit the garden to collect traditional Chinese herbal medicine which requires long term consumption to be the most effective in curing illness and diseases and on every visit, the landscape would be able to Link them to the NTU Community Herb Garden from the Nanyang Crescent Road and passing through this landscape visitors would be provided with comfort and support through the various environmentally sensitive and cost conscious landscape elements and spaces which promotes interaction for people of all backgrounds and age.

Additional, the design aims to incorporate NTU students residing in the new student dormitory as part of my target audience. As they are in closer proximity to the new garden (approx. 4mins) and the herb garden than compared to the Yunnan Garden (approx. 21 mins) which is the only garden on the NTU campus. By making the cancer ribbon garden a public space



Picture taken with the NTU Community Herb Garden (Above)

DESIGN OBJECTIVES & INTERPRETATION

*(Boxes No. 2 & 6 Highlighted in Grey has been misinterpreted by the designer)

No.	Client's Objectives: Designs shall aim to be:	Objective Keywords:	My Objectives Designs shall aim to be:
1	<u>Aesthetically pleasing</u>	Beautiful, Add elements of Interest, pleasure of sight and hearing	Aesthetically pleasing
2	Aid <u>interaction</u> with plants	Interaction	Allow for interaction through human socialisation and landscape elements
3	<u>Environmentally friendly</u> in all aspects	Eco Friendly	Environmentally friendly in all aspects
4	<u>Cost conscious</u> in material selection	Frugal, Un- wasteful	Cost conscious in material selection
5	<u>Community spaces for specific programs and function</u>	Create a number of spaces	Community spaces for specific programs and function
6	For/ <u>Herb growing enthusiast</u> of all ages, <u>researchers, gardening volunteers, hired operations workers, local visitors and overseas visitors</u>)	Target Audience: All herb fanatics	For/Herb growing enthusiast of all ages and backgrounds which includes of the wheelchair disabled

DESIGN STRATEGIES

No.	Strategies
1	•Planting vegetation with a variation of plant textures (create effect sub-consciously) •Planting vegetation with a variety of plant colours (create effect consciously) •Usage of landscape elements of different height •Use landscape elements made from different materials
2	•Fragrant plants used in the landscape to stimulate in visitor the sense of smell and interact with the plants •Interact and appreciate paintings hang in the gallery, sponsored by the Singapore Cancer Society's Art Enrichment Program •Socialise and interact with people in the gathering area
3a	•CONSERVING EXISTING PLANTS AND TREES • conserving the <i>Ficus microcarpa</i>, <i>Cyrtostachys renda</i> and <i>Samanea saman</i> which are in good condition and coincide with my design concept of landscape proposal. •RESPONSE TO EXISTING SITE PROFILE • keeping the existing gradient form and do minimal cut and fills to establish the new platforms of 122.100, 123.200 and 124.300 in the plot •WASTAGE MANAGEMENT AND RECYCLING •The plastic water tank on the existing site are salvaged and incorporated into the design as rainwater storage tanks. •The existing <i>Spathodea campanulata</i> tree that poses dangers to human circulation around the area shall be cut & sold off as it is commonly used as soft white wood used to make paper, drums and blacksmith's bellows. This money is then allocated to further fund the implementation of the garden design. •Wild vegetation that has not been identified and the <i>Euterpe edulis</i> shall be cut up and used as plant waste for composting which is then used to enrich the soil of the other plants in the garden. (Composting is placed near Warehouse at the Existing Entrance) •CONSERVATION OF ENERGY • minimising lawn areas, lowers the maintenance needs of the plot • The cascading water feature along with the North East wind creates a cooling environment for the landscape, minimising the need for electrical appliances to cool the garden (Evaporative Cooling) [The toilet relies on the buoyancy of warm air to rise and exit through openings located at ceiling height. Cooler outside air replaces the rising warm air through carefully designed inlets placed near the floor, reducing the need for electrical appliance to cool toilet. (Stack ventilation)]

DESIGN STRATEGIES

No.	Strategies
3b	•ORGANIC GARDENING • Keeping in mind that NTU Community Herb Garden uses organic garden/pesticide free which enables it to attract butterflies. The garden shall also apply this principle so as to not affect the Community garden and provide healthy food that is good for us and for the environment (Composting is placed near Warehouse at the Existing Entrance) •ENCOURAGE CREATION OF NEW WILDLIFE HABITAT • Introducing Annona squamosal (Bird-Attracting, Caterpillar Food Plant), Stachytarpheta indica(Butterfly Food Plant), Asystasia gangetica ‘Variegata’ (Attract Butterflies), Lantana montevidensis (Attract Butterflies), Ficus sp. (Attract Birds), Cissus nodosa (Bird-Attracting), Strelitzia reginae ‘Mandela's Gold” (Bird-Attracting) • Put in place a small water bodies in the form of natural pond with Koi fishes and aquatic plants •ENCOURAGE ON SITE INFILTRATION OF RUNOFF • Having Natural Filtration system using aquatic and marginal plants to absorbs excess nutrients in water biological filter using natural filter medium such as gravel •OTHERS • Applying high ratio of concrete mixed with recycled concrete aggregate (RCA) from the cuts made to the existing site gradient in the landscape • Swapping out timber for solid composite timber which has a longer life span and require • Materials suppliers are sourced in the closest proximity, lowering the carbon footprint produced from shipping. • Rain water cached by the water feature and stored is used to water the plants in the garden, reducing the strain on water being pumped from the office up to the peak of the NTU Community Herb Garden which the tank is located [Refer to Page 12 – Sustainable Water Cycle] • Using the degraded concrete aggregate to create a sloping gabion wall from 124,300
4	•Utilizing the existing gradient of the site, it is able to keep cost down •Some materials on site are salvage and used in the design, reducing the cost to purchase new materials [Refer to Page 12 – Sustainable Water Cycle] •Material are long lasting and durable, requiring little to no maintenance in the low run. Saving maintenance cost
5a	•To create the atmosphere/ambience of the landscape: • A large cascading water feature is able to create soothing sounds and drown out the noise from nearby infrastructure (masking) Vegetation with dense foliage to act as sound barrier against neighbouring Infrastructure which produce noise pollution such as the Clean Energy Testbed (Buffering) [

DESIGN STRATEGIES

No.	Strategies
5b	•Storm water runoff • Landscape is densely vegetation allowing rain to percolate the ground and prevent flooding in the landscape • The Water feature and eco pond act as a form of storm water catchment area • Spaces • A large interacting area for cancer patients, survivors, family and friends to socialise (Hope/and Support) – Gathering Area • A gallery hangs with chosen art from cancer survivor from Singapore Cancer Society (SCS) art enrichment programme to encourage all (Hope and Support) – Art Gallery • Many small space for visitors, family and friends to have a quiet retreat and reflect (Grieve, Reflection and Relaxation)
6	•Wheelchair friendly ramp incorporated into design •Variation of landscape elements allow for different age groups to interact with the landscape •Place signage with graphic visual that are easy to comprehend and uses simplified English terms [Refer right]

RESEARCH FOR COMPOSTING

Methods of Home Composting

(Source TheVeggieLady.cm)

Aerobic HOT compost	Anaerobic COOL compost
e.g. 3-Bay System	e.g. black council bin
Fueled by OXYGEN & moisture	Fueled by BACTERIA & moisture
Turned weekly	Not turned
Large (at least 1 cubic metre)	Small (less than 1 cubic metre)
Quick Ready in 6 weeks	Slow Ready after 6 months
Kills pathogens & weeds	Can spread pathogens & weeds

JUSTIFICATION FOR SELECTION OF AEROBIC COMPOSTING

(Sourced from NParks, TheVeggieLady.com & gardeningknowhow.com)

Allow for larger amount of composting over a shorter period of time as the whole NTU community garden of 2 acres of land uses organic gardening meaning a lot of horticultural waste is generated and large amount of compost is used to fertilise the soil.

Also, this method has many advantages such as producing compost that are drier and almost odourless compost, with a more neutral pH allowing for easier handling by volunteers and cater to most plants as most plants grow best in soils between 6 and 7.5, while Anaerobic composting produces a wetter and more acidic compost, with a stronger odour

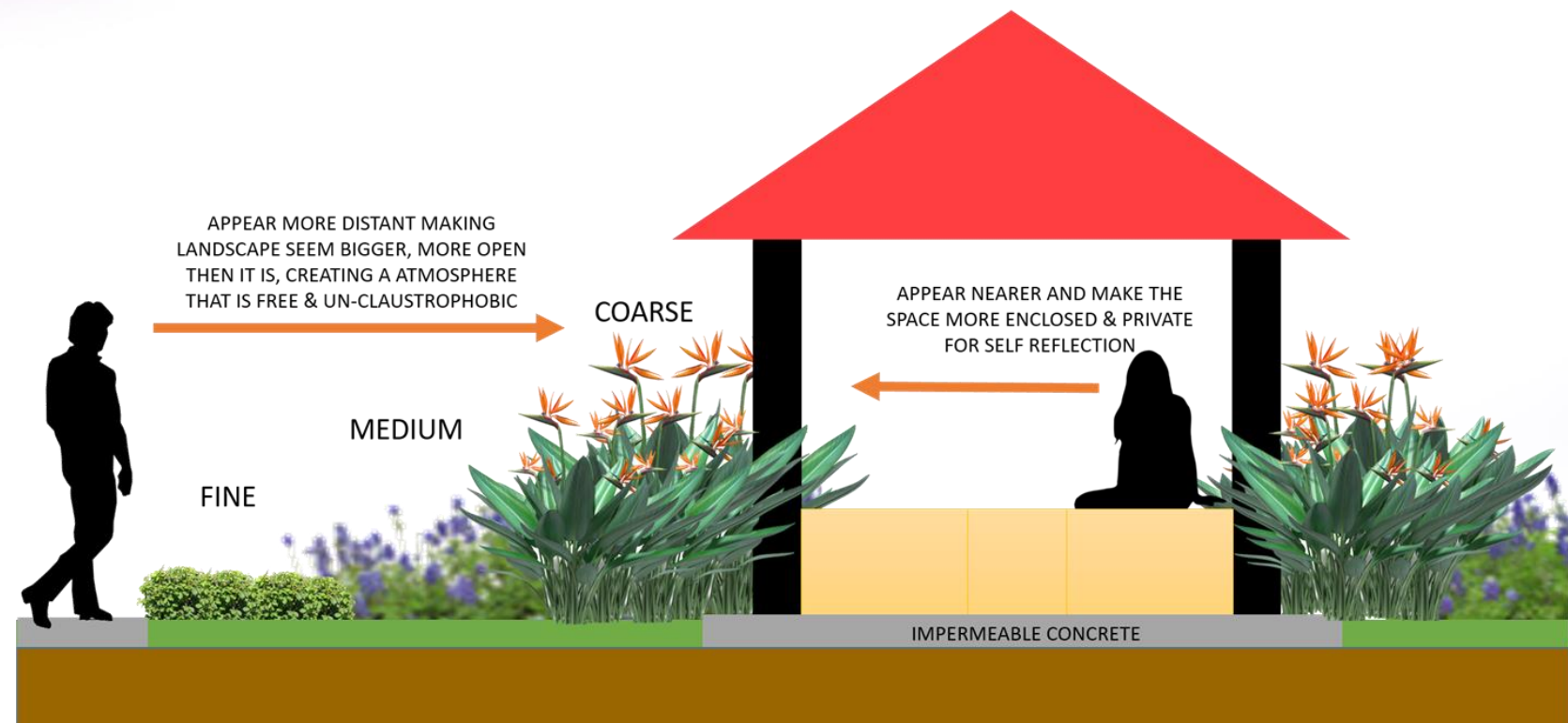
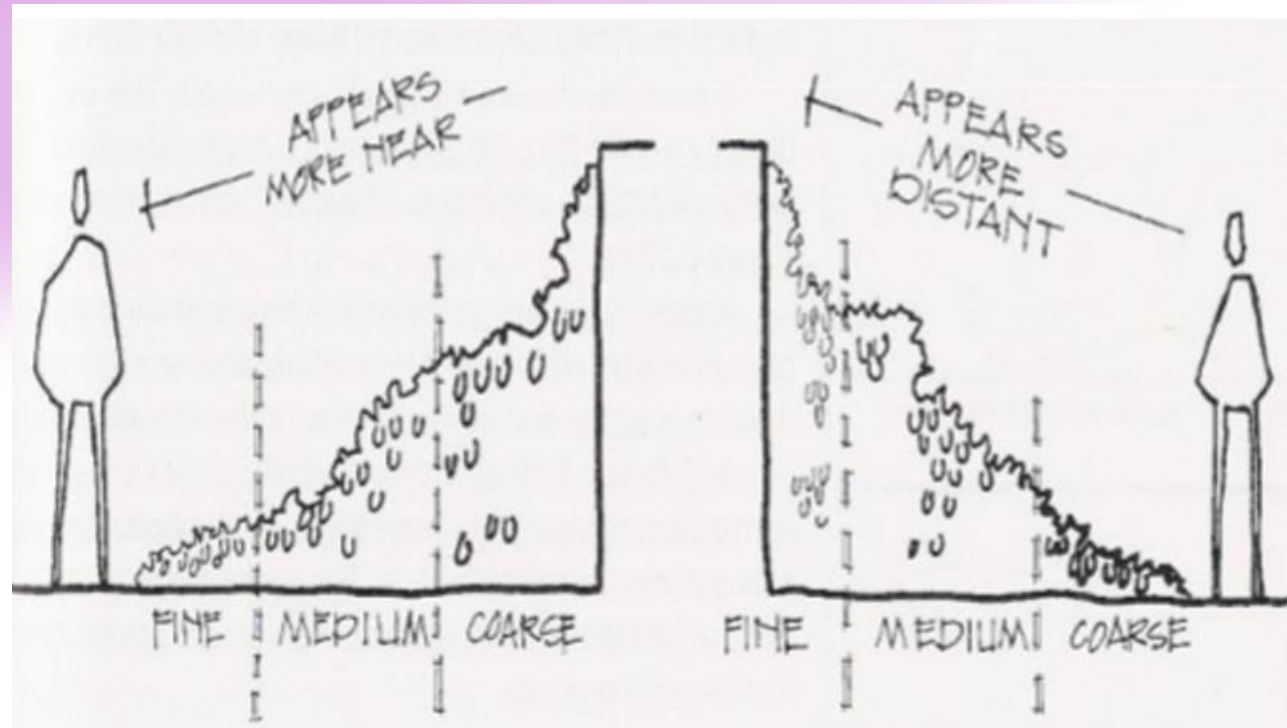
● HOW TO MAKE COMPOST

Sourced from NParks

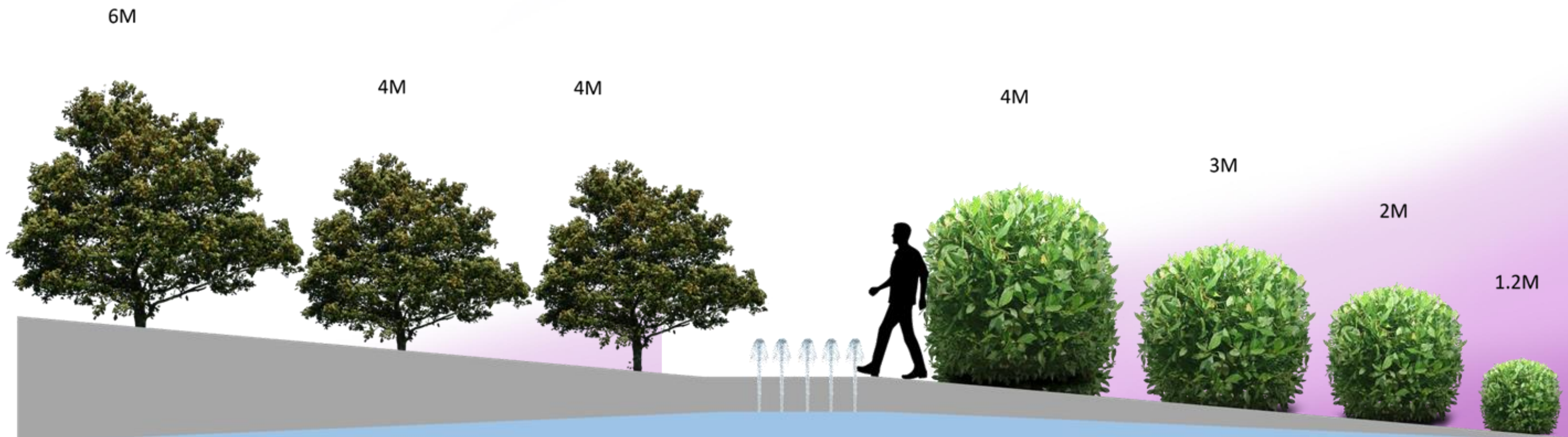
1. To make your own compost , select a container with a lid. It can be made of plastic, rubber or wood. The container size is dependent on the amount you wish to make. Generally, the final volume of compost will be about one-tenth of the original material
2. For aerobic composting, drill small holes around the bin to allow air to circulate freely.
3. Place the bin in an appropriate place such as your balcony, and rest the bin on bricks to elevate it. (small holes on the bins may attract insects and cause odours. As such, try to place the container away from children and the elderly.)
4. Insert equal amounts of "browns" and "greens" into the bin (refer to the table on right) and add a few handfuls of garden soil to introduce microorganisms into the mixture.
5. Add water to the mixture & mix thoroughly consistently every week until moist, but not dripping wet.
6. Turn the pile for air circulation consistently every week. Ensure that the pile is neither too wet nor too dry. If it is too wet, add more "browns" and if it is too dry, add more water.
7. The compost mixture will heat up from aerobic activity taking place. It is essential to let reach 70°C as the heat will eliminate any harmful bacteria in the mixture.

A good compost needs to have a balanced amount of "brown" and "green" components.	
Browns	Greens
Fallen dry leaves and twig	Cut grass
Woody pruning	Soft green prunings
Cardboard such as boxes, cereal packets and cardboard tube	Kitchen and fruit wastes such as discarded raw vegetable parts, fruit peelings and apple cores
Wood shavings and sawdust	Teabags and tea leaves
Thick vegetable stems such as broccoli and corn stalk	Egg shells
Newspaper and waste paper	
Shredded office waste	

PLANTING TEXTURE/ELEMENT'S HEIGHT VARIETY



Even though plant texture may not appeal to a layman senses visually consciously but the different textures can help in the visual creation of a space and it's ambience/atmosphere subconscious (as shown top left) Landscape application (as shown top right)



(As shown above) The plants in the ribbon loop which consist of plants with anticancer properties has been arranged in ascending height parallel to the ascending ramp so as to encourage a higher chance visitor interaction with this plants

WATER HARVESTING DIAGRAM

SUSTAINABLE WATER CYCLE

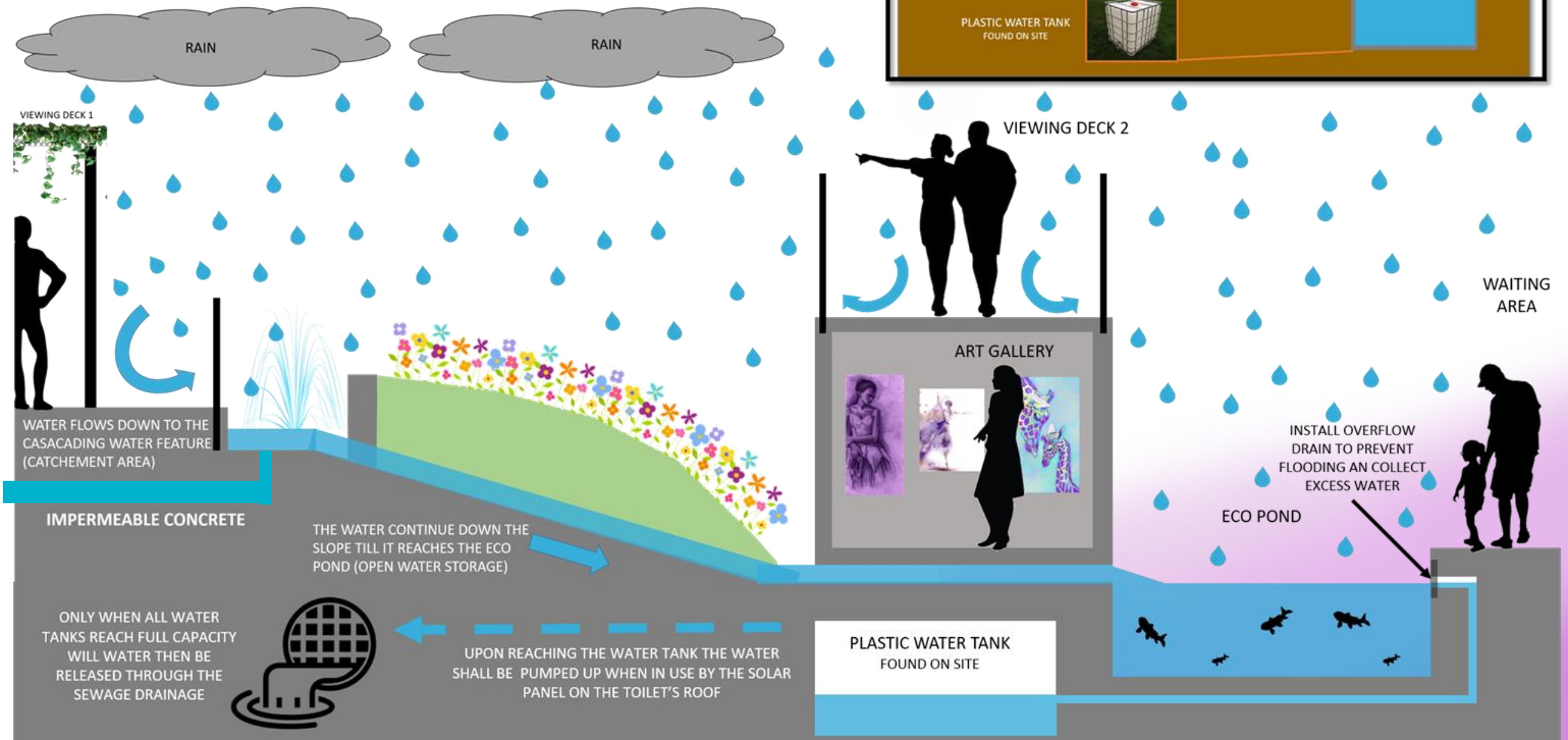
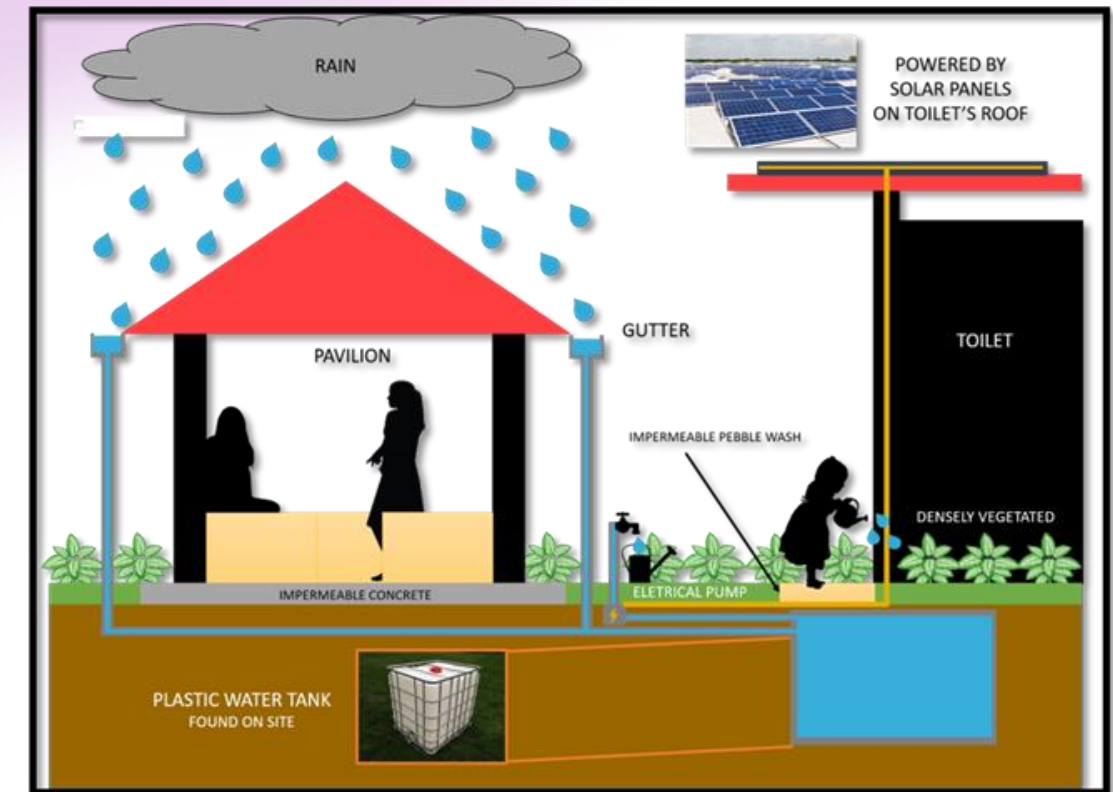
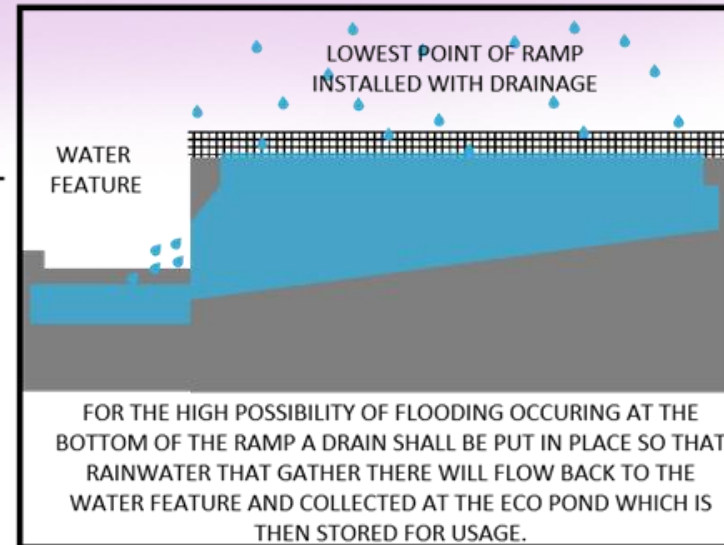
LEGEND:



RAINWATER DROPLET



RAINWATER FLOW



WATER ALSO FLOWS
FROM THE VIEWING DECK
1 DRAINAGE INTO THE
WATER FEATURE

COOLING EFFECT DIAGRAM

NTU COMMUNITY
HERB GARDEN



Callistemon salignus 'Great Balls of Fire'
This hedge was chosen because it only has a maximum height of 1.8m, unlike other plants (*Rhapis excelsa* 5m & *Syzygium myrtifolium* 20m) . Which allows wind to still enter the community herb garden. It also has red leaves which create a good backdrop for the green herbaceous plants in the ribbon loop

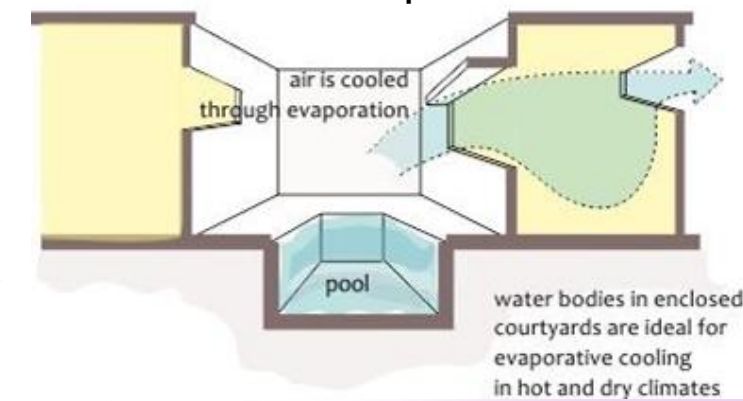
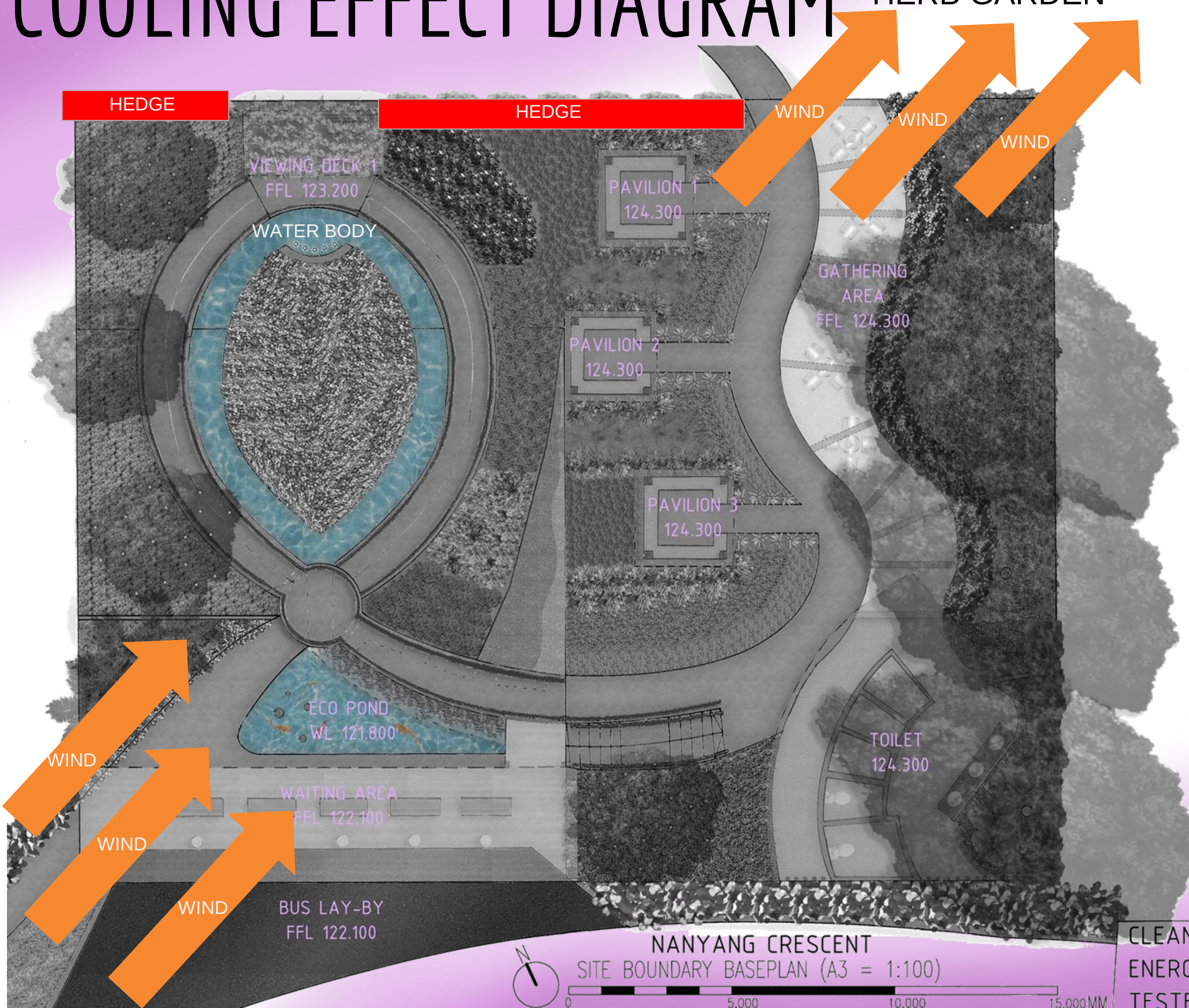


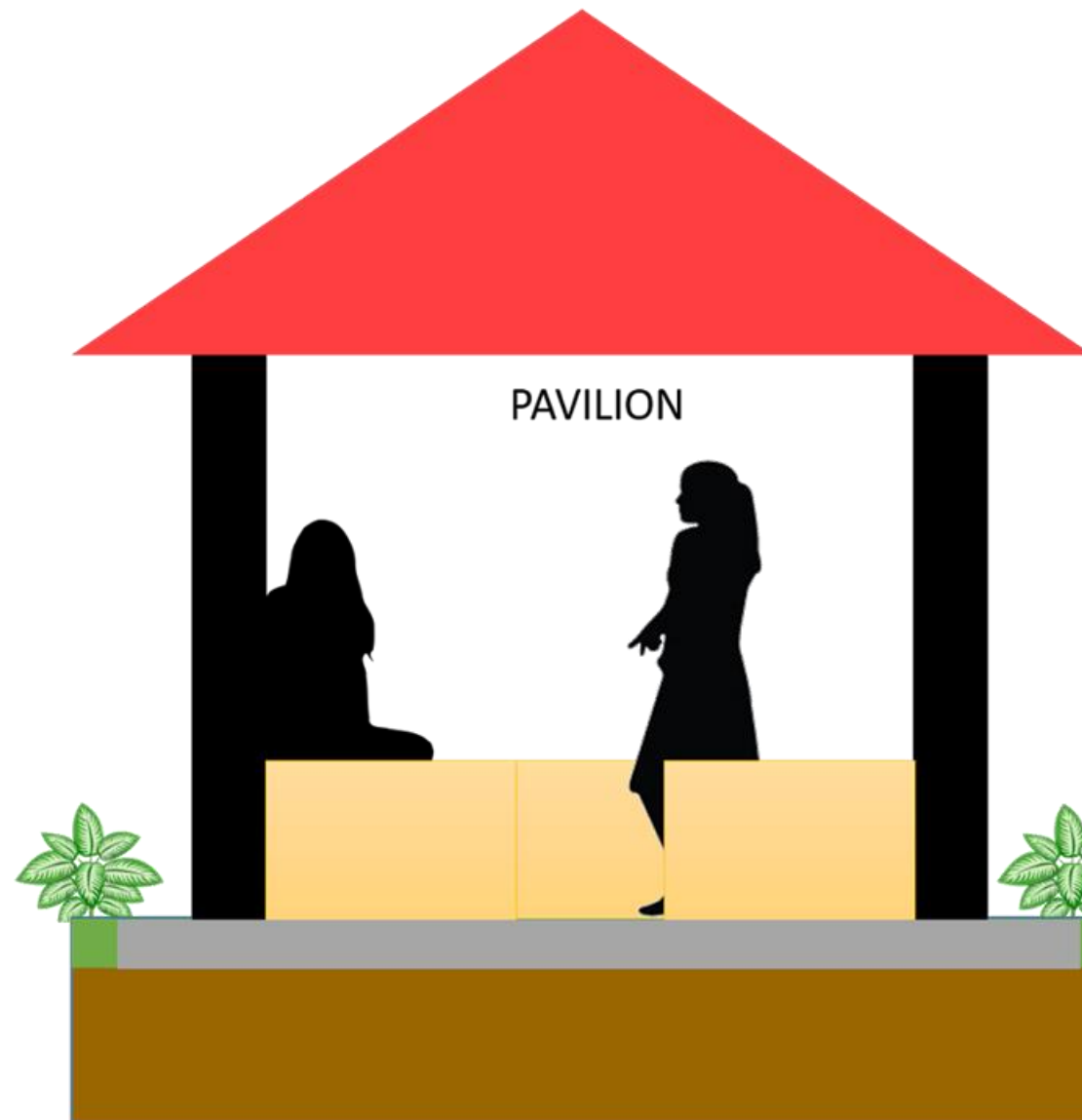
Diagram showing how a pond is able to cool a space through evaporative cooling

The design allows for evaporative cooling as the wind blows in from the the North East Direction, the evaporated water (water vapour) from the water body absorb the heat & at moisture to the air. Creating a cooling & soothing environment for visitor



SHELTER PLACEMENT

Whilst, the pavilions are used to provide visitor a contemplative space away from any distraction to sit and reflect in comfort



Keeping the Existing Tree which cast shadows making the space below it more cooling and shady which is I tried to fully utilise by having a large number of people gather here.

However, to cater to the lack of shelter from rain in the NTU Community Herb Garden, I decided to roof this space with tensile membrane structures



SHELTERS PLACEMENT

This viewing deck is made out of wire mesh and climber plants as it shades visitor from the sun, but it allows rainwater to percolate preventing flooding and flows to the catchment area.

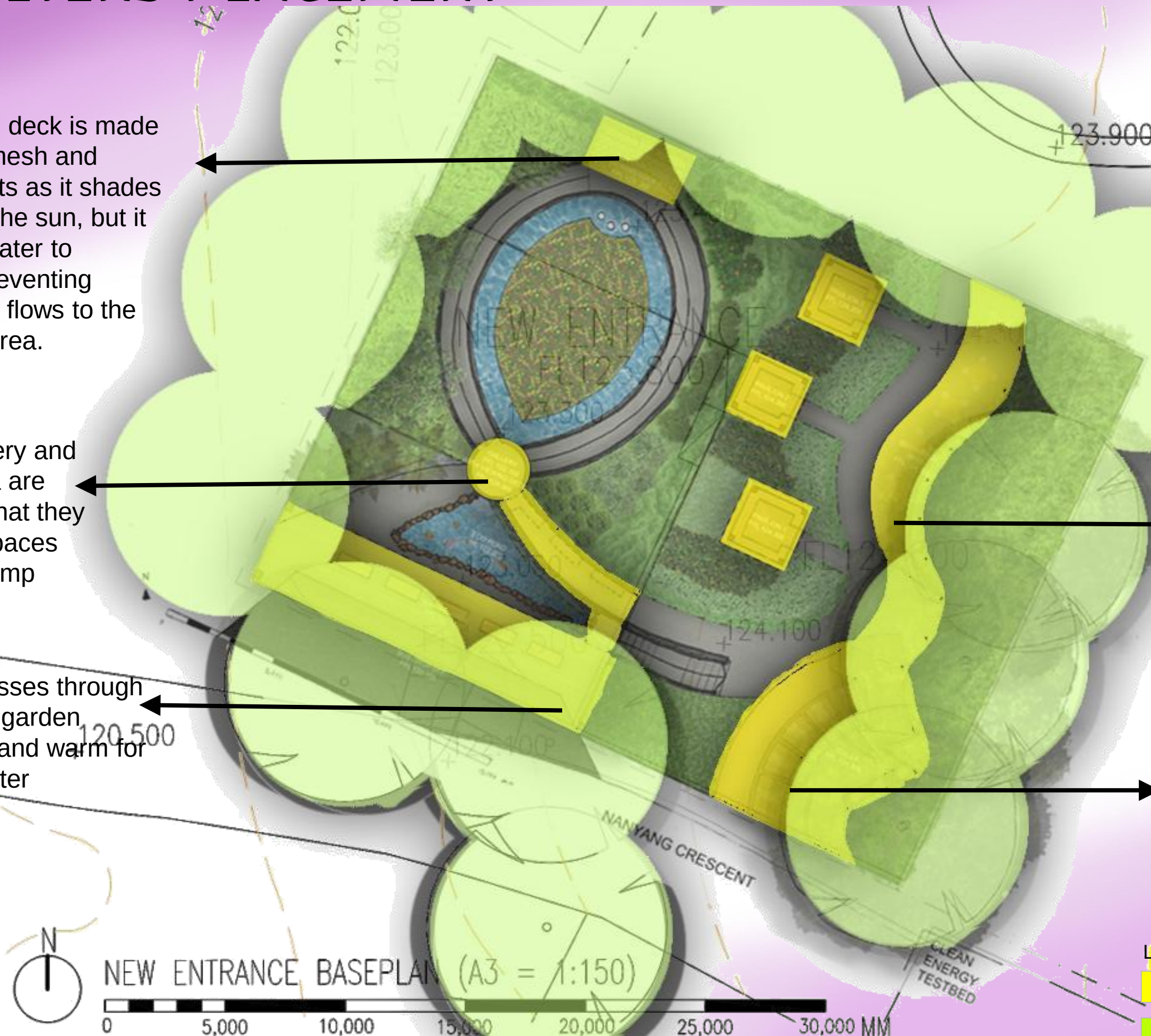
The Art gallery and seating area are created so that they make this spaces below the ramp functional

Sunlight passes through making the garden welcoming and warm for visitor to enter

Shelters are made out of different material as different users have different definition of what is comfort and welcome and the design hopes to cater to most of them

This space uses a tensile membrane as the shade from the existing tree along with the material gives off a warm welcoming glow for visitors to gather in this area

Toilet is located here because it needs to be close to Clean Energy Testbed for supply of water

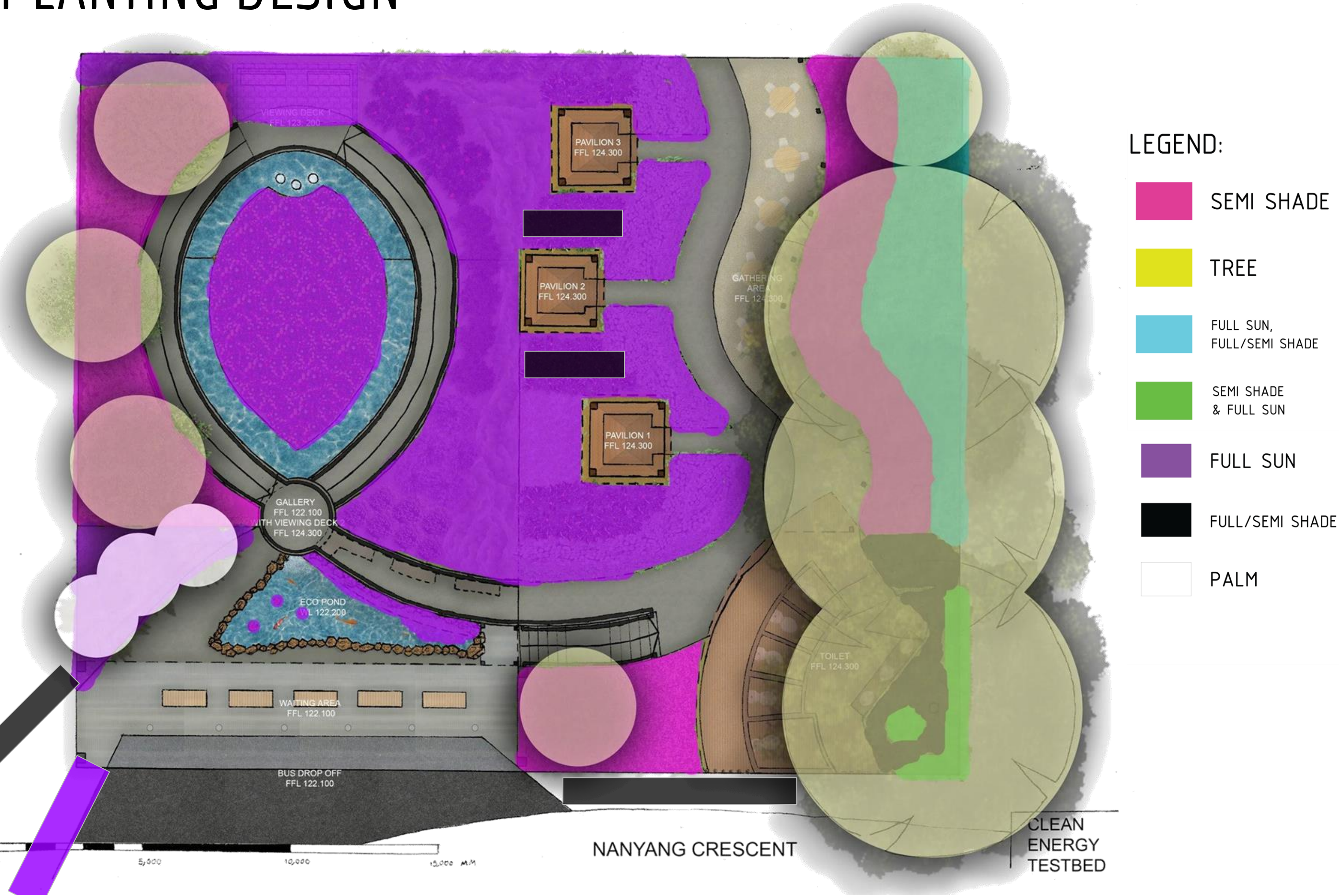


LEGEND::

: SHELTER:

: TREES

PLANTING DESIGN



NOISE (SOUND POLLUTION)

EXISTING SITE
NOISE
SOUND POLLUTION



WHY DO WE HAVE TO DEAL WITH THIS PROBLEM:



LANDSCAPE MIGHT NOT BE
ABLE TO ATTRACT WILDLIFE

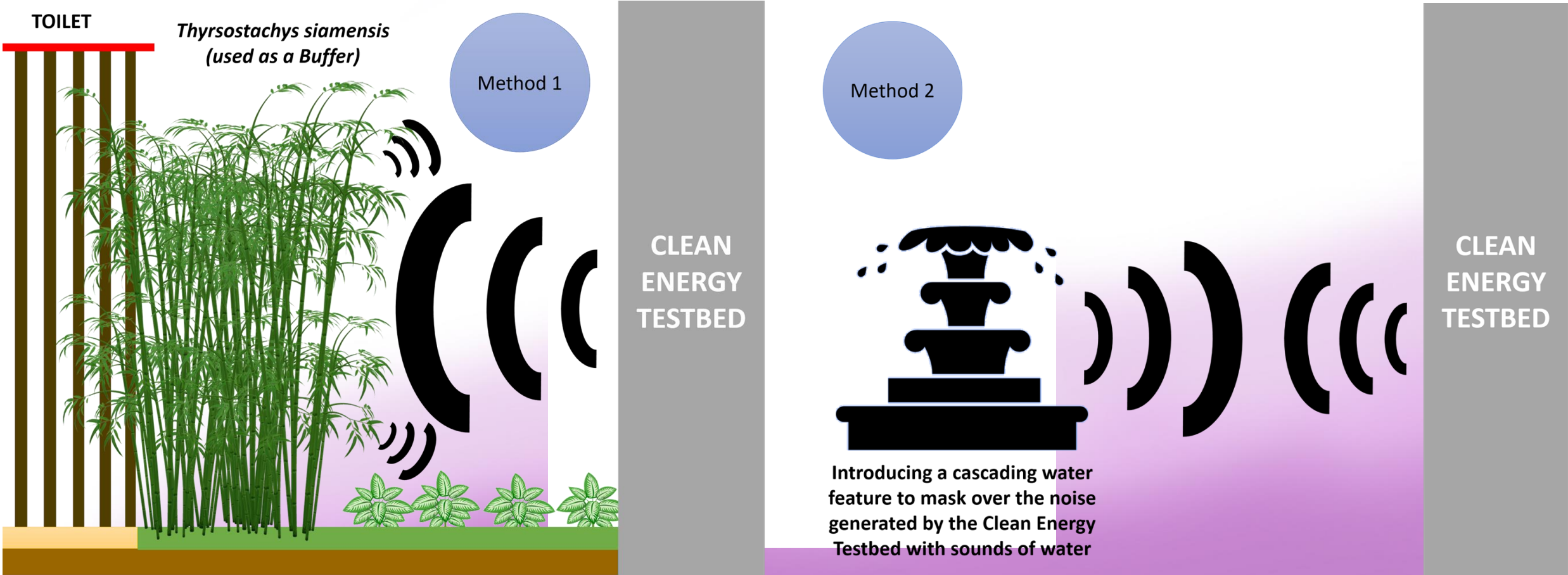


MIGHT BE UNINVITING TO VISITOR
AND CAUSE IRRITATION, STRESS
AND EVEN HEARING LOSS



MIGHT DISTURB THE
ATMOSPHERE AND AMBIENCE
YOU WANTED TO CREATE

CLEAN
ENERGY
TESTBED





WHEELCHAIR FRIENDLY DESIGN

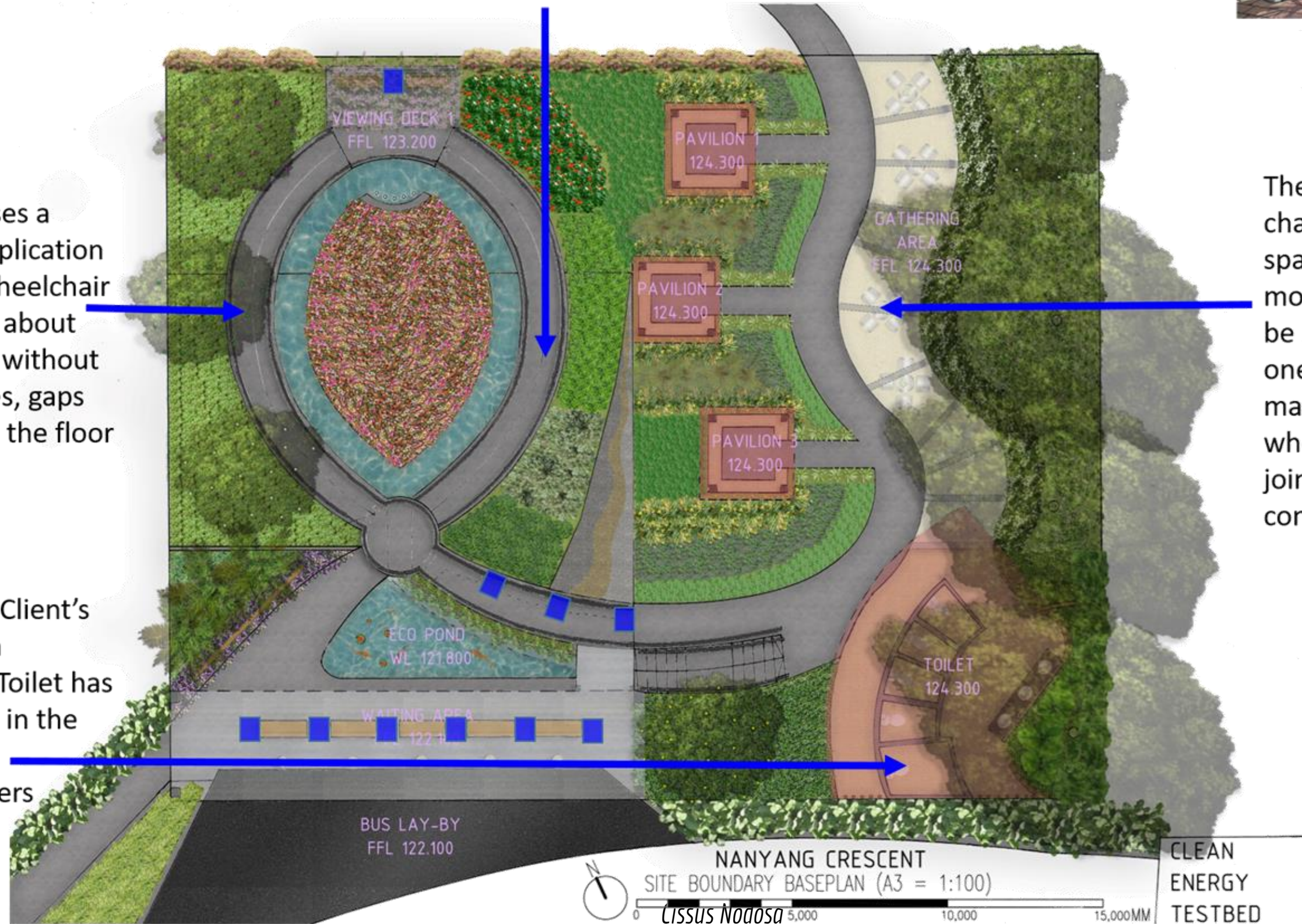
One of the most prominent wheelchair friendly features is the ramp. Which is used to allow wheelchair user to have a smooth and pleasant journey to enjoy the whole landscape & get to the NTU Community Herb Garden



As concrete uses a continuous application it allows for wheelchair users to move about the landscape without much obstacles, gaps and bumps on the floor

Following the Client's requirement a Handicapped Toilet has been installed in the landscape for wheelchair users

The Stainless steel chairs in this space are made modular and can be stacked up on one another making room for wheelchair user to join in on the conversation



Legend:



:Allocated space that can fit 1 Wheelchair
So Wheelchair users can rest and enjoy
the landscape just like other visitors

SAMPLE OF PLANT SIGNAGE

ONLY FOR PLANTS WITH ANTICANCER PROPERTIES

Sabah Snake Weed

(*Clinacanthus nutans*)

The Sabah Snake Weed is a herb that is often planted and collected in the herb garden for its cooling nature and cancer fighting properties.

It can be grown in full sun or partial shade and can grow to a height of 3m.

The cultivar gets its name from Sabah villagers' daily hikes through the jungle and whenever they get bitten by a snake, they will look for this herb, munch it and use the juice of the herb to apply to the wound.

Cancer Remedy Recipe:

5 Black Face General Leaf (*Strobilanthes crispus*) + 50 Sabah Snake Grass Leaf + 1 Green Apple, Blend with water. (Daily)



Green Leathery Foliage



Red, Orange Flowers



Cancer-Combating
Formula/Remedy



For more information, visit florafaunaweb.nparks.gov.sg
Disclaimer: The information provided is, at best, of a general nature and cannot substitute for the advice of a medical professional

CASE STUDY

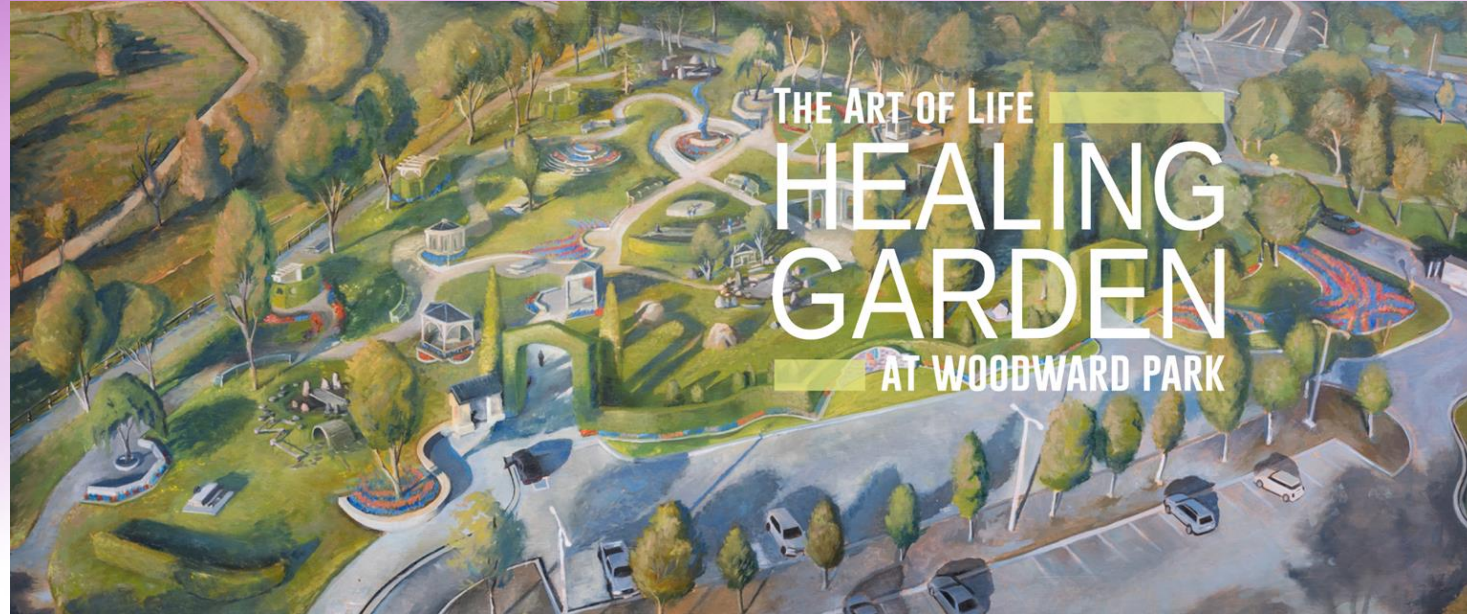


Illustration of the Art of Life Healing Garden at Woodward Park (2015)



Drone picture of the cancer ribbon trail



Art enrichment programmes



Art celebration event

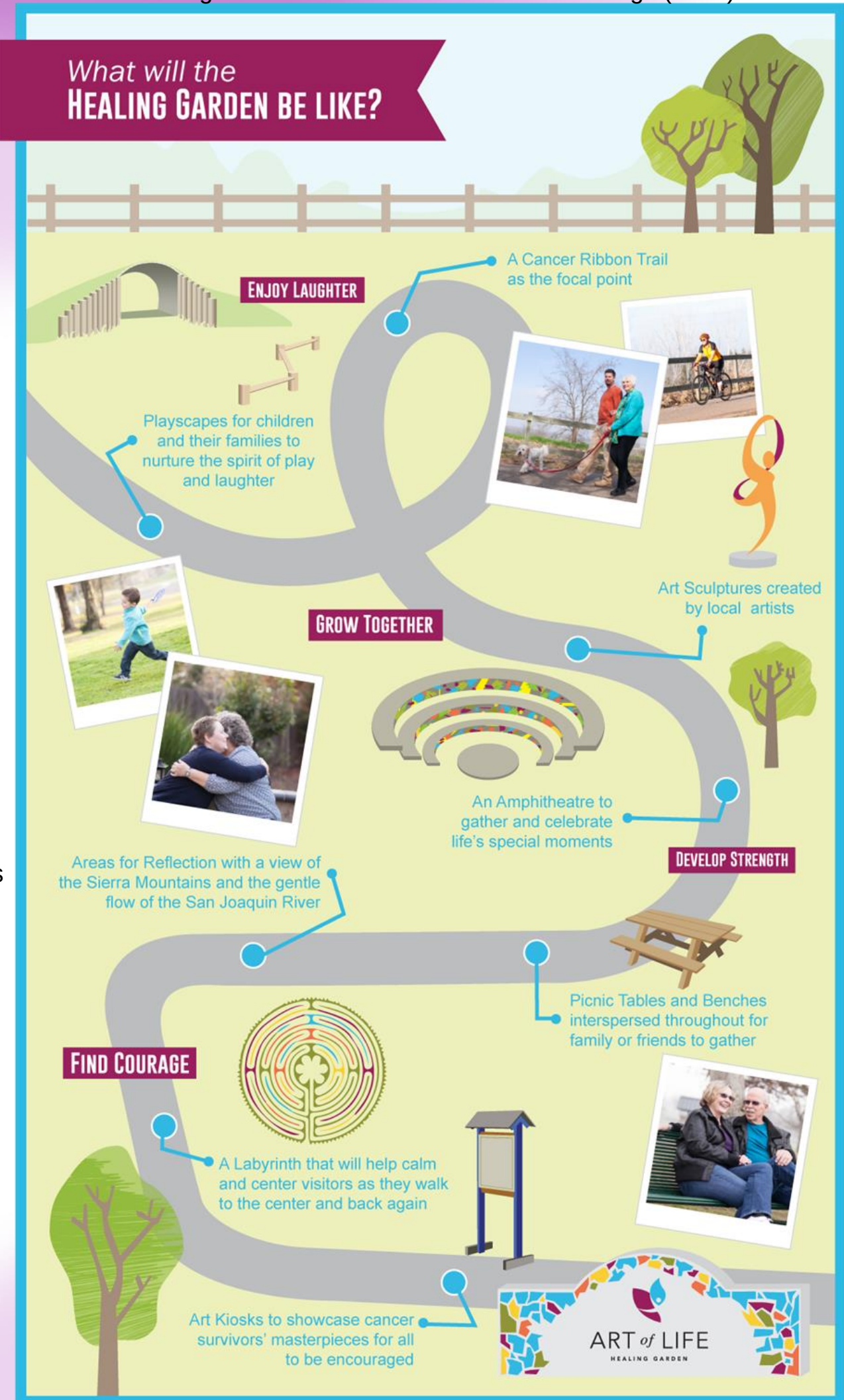
Location: California, Woodward park

Plot size: 3 acres (12140.6 m square)

Association: Art of Life Cancer Foundation

A Community Project Celebrating Life, Hope & Renewal

Art of Life Healing Garden at Woodward Park Walkthrough (2015)



MOOD IMAGES

DESIGN CONCEPT: Cancer Ribbon Garden

MOOD PICTURES: Comforting, Relaxing, Stress Free, Support, Welcomed



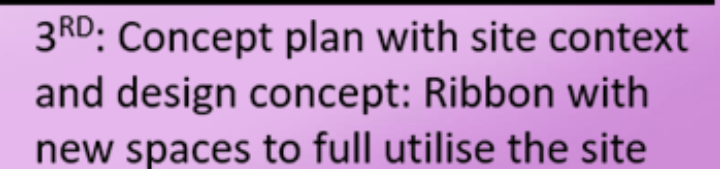
(Colours are used to represent each space respectively)



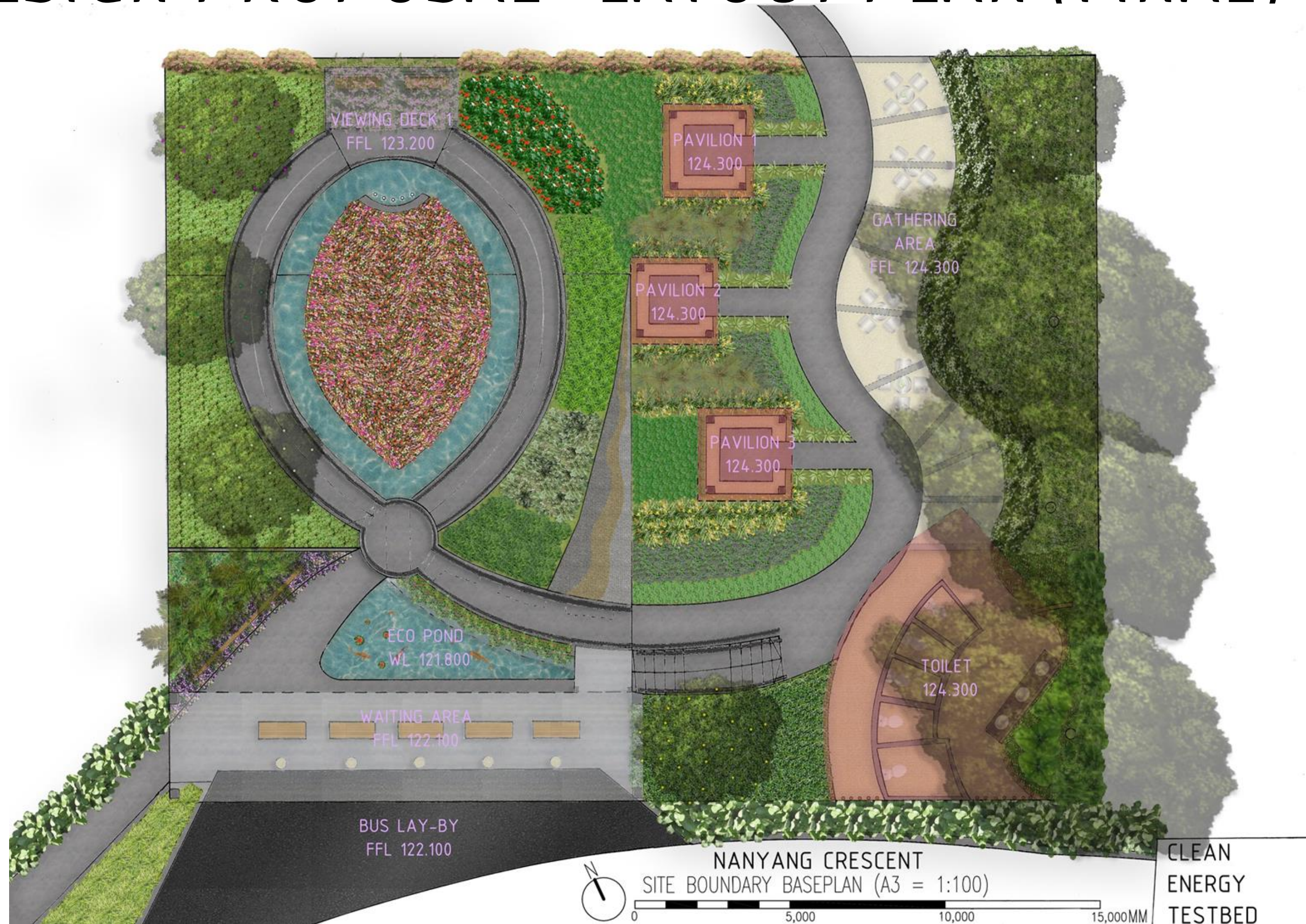
LEGEND:
 :VIEWING DECK
 : GALLERY

CONCEPT PLAN

2nd : Best arrangement according to (Warehouse has been removed and existing entrance because it did not creating a well celebrated entrance.)



DESIGN PROPOSAL- LAYOUT PLAN (FINAL)

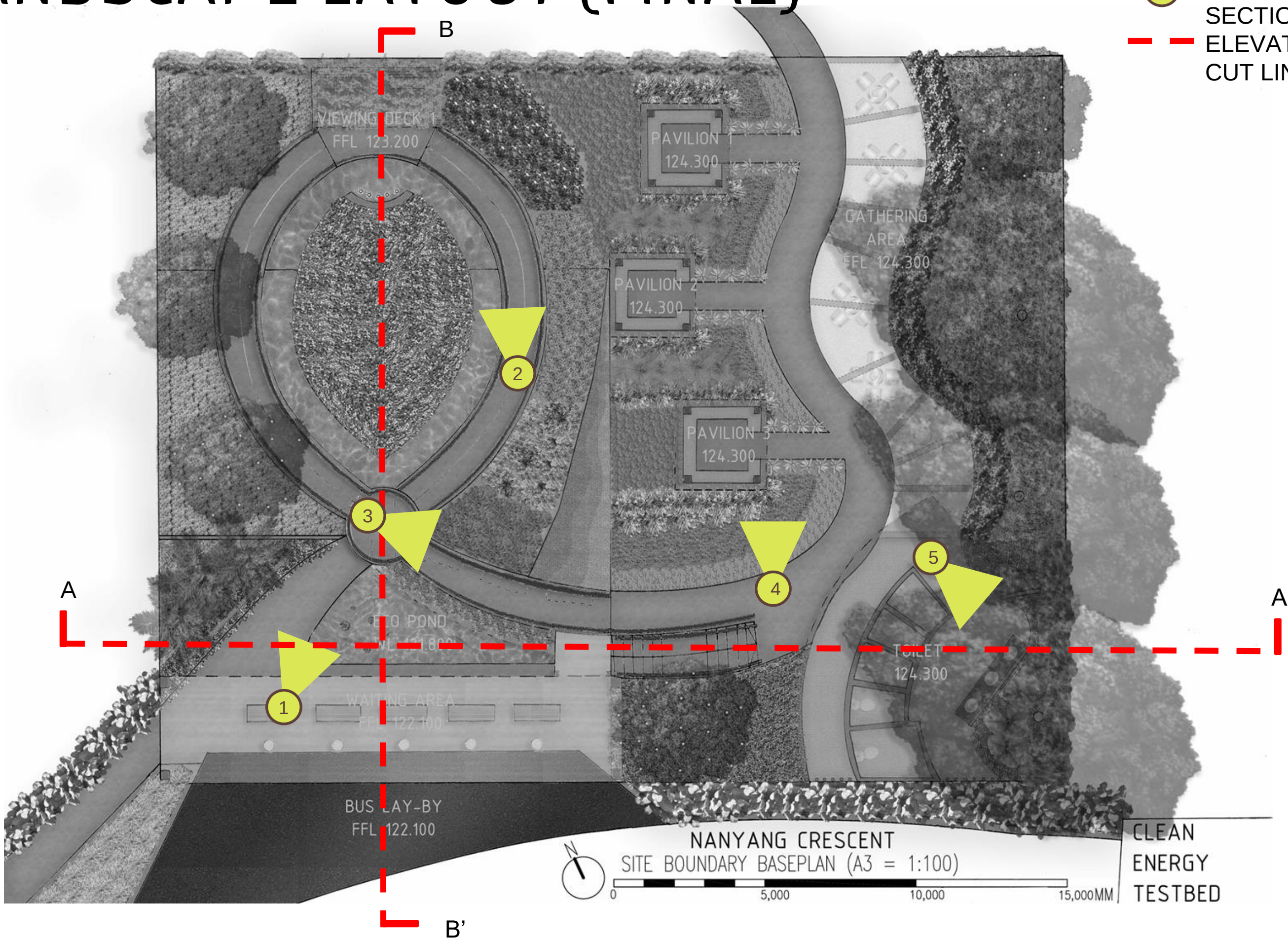


LANDSCAPE LAYOUT (FINAL)

LEGEND:

PERSPECTIVE
POINT

SECTIONAL
ELEVATION
CUT LINES



DESIGN WALKTHROUGH

Upon alighting from the bus or walking in through the newly created sidewalk, you will be greeted by an eco-pond filled with life, a curtain of weeping vines swaying along to the wind and the soothing sounds of cascading waters setting the relaxing and laidback atmosphere of the garden.

As visitors embark on the ribbon loop, a map of the garden will be located at the start to allow visitor an aerial view of the garden and identify the ribbon like circulation of the garden.

Visitors then proceed into the small gallery displaying cancer survivor's artworks to give hope and comfort to cancer patients, family and friends of survival after treatment and provide people with the history and how the garden came about.



DESIGN WALKTHROUGH



Emerging from the gallery, a ramp brings the visitor through the ribbon loop surrounded by herbs and plants with anti cancerous properties that are properly labelled with signage about it's use and characteristics and alongside this ramp water cascade down the chaddar which is the flow of water over elaborately carved stone built on the existing sloped gradient to further emphasis the comfortable gardens ambience.

Along the middle of the loop is a landing that has been designed as a viewing deck sheltered with creepers growing and entwining on metal wire mesh which providing users shade and a place to rest, protecting them from the outside, evoking a sense of warmth and security which offers a scenic view created by the fountain, a sea of colourful flowers (*Portulaca grandiflora*)

DESIGN WALKTHROUGH

Upon reaching the peak of the ramp which is located at the top of the gallery which has been designed to be used as a landing and also a viewing deck allowing visitors elevated at this height a 360° view of the garden which includes of an aerial view of the ribbon loop and beyond.

Following that an ornamental tree (*Cassia fistula*) which flowers profusely with bright yellow flowers, especially so during the hot & dry seasons of Singapore in April and behind this tree is a sponsored mural pieced together by 56 bespoke hand painted tiles with personal messages of hope outside of the walls of the toilet is able to capture the visitors' attention to continue to further explore the garden.



DESIGN WALKTHROUGH

A meandering path then continues to bring visitors to the NTU Community Herb Garden, this path then diverges the place in to three different spaces.

On one side where existing well grown tree are, it is used as a gathering spaces for cancer patients, family and friends to gain hope through sharing from cancer survivors and for other visitors to socialise under shade and integrated with this space is a organic shaped toilet which is surrounding an existing *Samanea saman* tree.

While, on the other side, a contemplative space overlooks the ribbon loop, this space is created for family and friends who's loved ones who had lost the battle in the fight against cancer to reflect and remember them, before getting back on their feet and finding hope& renewal again.

When visitor reach the end of the path, they can either enter the NTU Community Herb Garden if it's within the permitted opening hours, if not turn back and exit the Cancer Healing Garden.



DESIGN WALKTHROUGH



REFLECTION:

This perspective want to showcase the flow of the design concept: meandering ribbon even into it toilet though the changing the sink from 3 on a table in a straight and linear form to individual sink table so that they are place along this curvy and organic shape and coinciding with the concept.

However, due to the constraint f time the design shall be kept the same in plan and be shown through this artist's impression of what the toilet is supposed to look like.

DESIGN PROPOSAL- SECTIONAL ELEVATION



DESIGN PROPOSAL- SOFTSCAPE

LAVENDER COLOUR PLANTS



Stachytarpheta indica



Phryganocydia corymbosa



Asystasia gangetica 'Variegata'



Lantana montevidensis

PLANTS WITH ANTICANCER PROPERTIES



Clinacanthus nutans



Pereskia bleo



Strobilanthes crispus



Callicarpa nudiflora



Trapa natans



Plantago major



Euterpe oleracea



Euphorbia tithymaloides



Cassia fistula



Annona squamosa



Anacardium occidentale (Dwarf)



Suregada multiflora

FRAGRANT PLANTS



Pogostemon cablin



Plectranthus purpuratus



Gardenia jasminoides

DESIGN PROPOSAL- SOFTSCAPE

EXISTING TREE



Samanea Saman



Ficus sp.

FOCAL PLANT



Portulaca grandiflora

SCREENING & COLOURFUL PLANTS



Piper sarmentosum



Licuala orbicularis



Lycopodium japonicum



Clathea lutea



Pandanus cultivars



Costus woodsonii



Cissus nodosa



Lepironia articulata



Callistemon salignus
'Great Balls of Fire'



Strelitzia reginae 'Mandela's Gold'



Cyrtostachys renda



Furcraea foetida

CULTURAL INFLUENCE



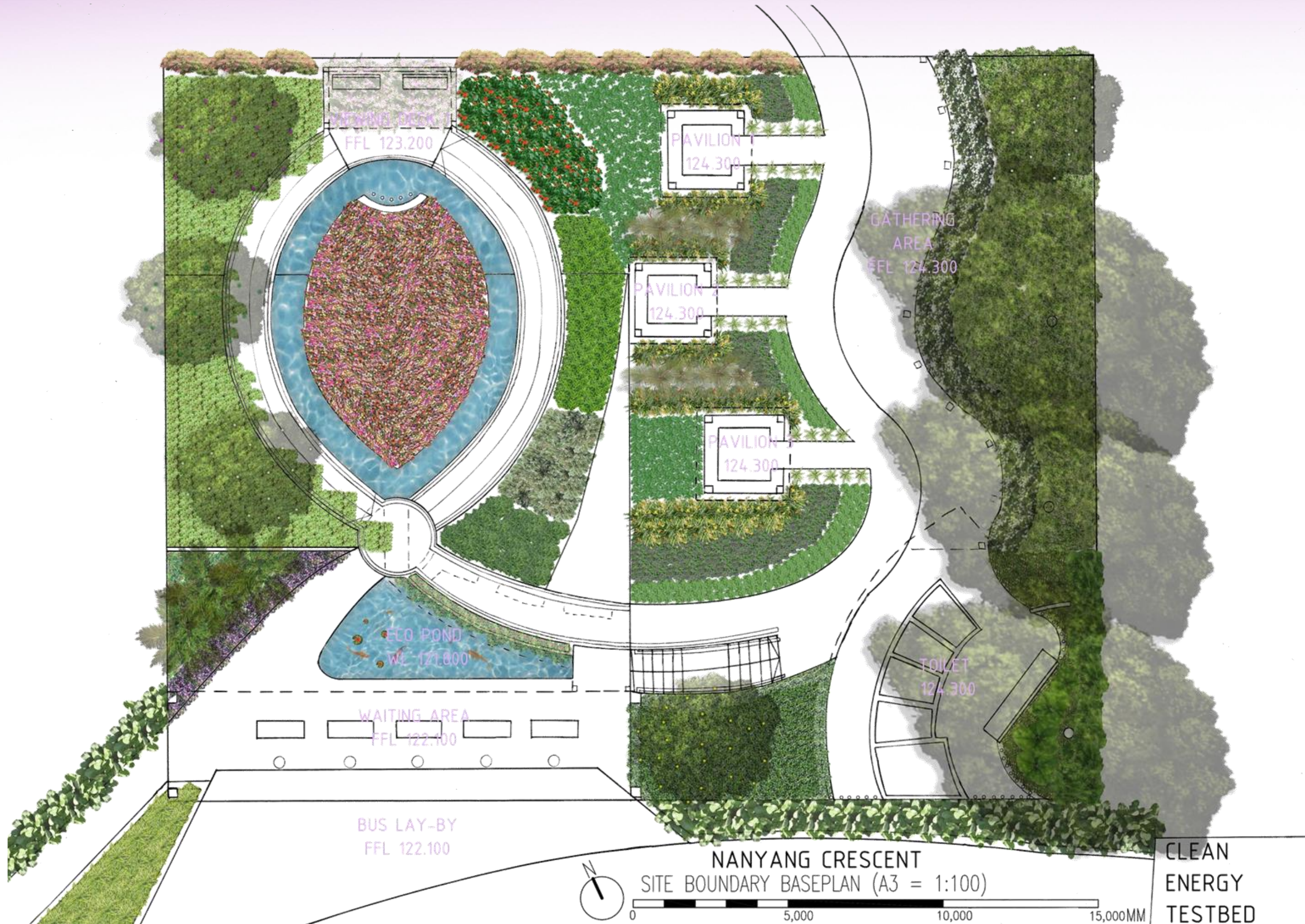
Nelumbo nucifera

SOUND BARRIERS



Thyrsostachys siamensis

DESIGN PROPOSAL- LAYOUT PLAN (SOFTSCAPE)

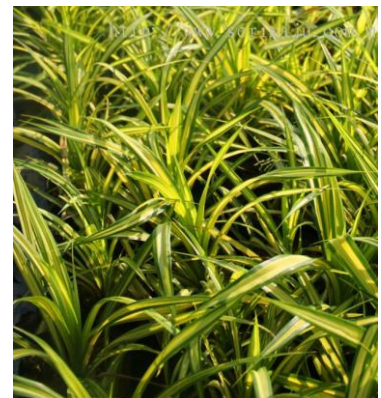


SOFTSCAPE JUSTIFICATION



Clathea lutea

Selected to be planted around empty spots between the plot and the road to enhance the user's entry experience. By soften up the concrete foundation of the plot with dense foliage cultivars.



Pandanus cultivars

This selection was inspired by the Skyville @ Dawson, which planted this plants along its roads which thrived and grew well at the same time providing interest and visual and sound barrier from the sight and sound of vehicular circulation



Cassia fistula

Known as the golden shower tree as it has Bright yellow, fragrant, produced in long pendulous clusters which induces flowers during long periods of drought and is used in harsh roadside environments which why it is placed near the Nanyang Crescent Road.



Strelitzia reginae 'Mandela's Gold'

With a common name; Bird of Paradise. With Some Religions such as Christianity, Zoroastrianism and Islam believing in a paradise afterlife. While, other religions such as Buddhism and Judaism believing in nirvana/heaven which is a synonym of paradise



Portulaca grandiflora

Inspired by Art of Life's Paula Project, Paula as it was named after had cancer and painted as a form of her own therapy started this project. The painting she painted was a sea of colourful flowers which i interpreted as a Rainbow of Hope (with flower colour ranging from orange, pink to red). As visitors walk along the ramp, they will capture a glimpse of hope and in life hope is what keeps us



Paula and her husband (from middle to left) standing with her painting of flowers (right) (Art of Life Foundation, 2016)

DESIGN PROPOSAL- HARDSCAPE

MAIN STRUCTURES



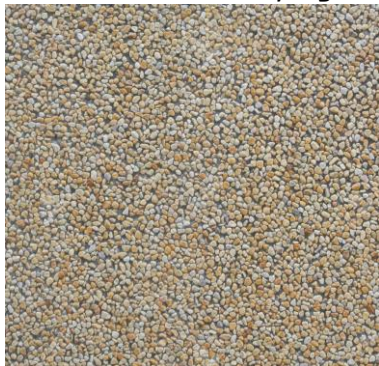
Standing Seam
Mild Steel Roofing



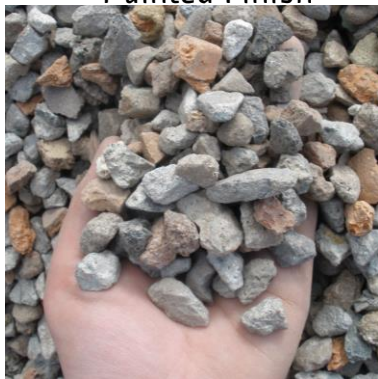
Mild Steel
Painted Finish



Wire Mesh



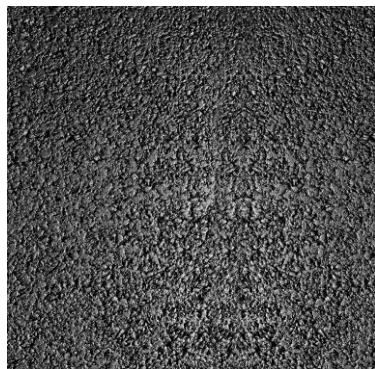
Pebblewash



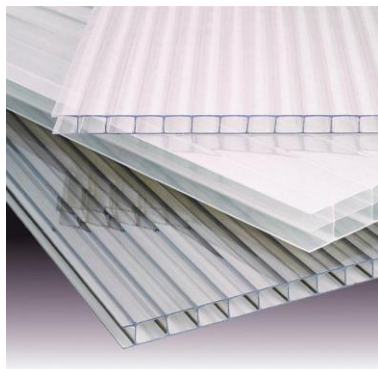
Recycled Concrete Screed Finish



Tensile Membrane

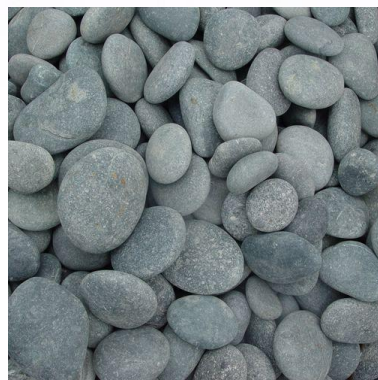


Asphalt



White Translucent
Polycarbonate Roofing

ADDITIONAL, ETC.



Light Grey unpolished
loose pebbles



Polished Grey Granite
Stone Sinks Countertops



Stainless Steel Table Set



Brown Composite Timber



Ceramic Sinks &
Toilets

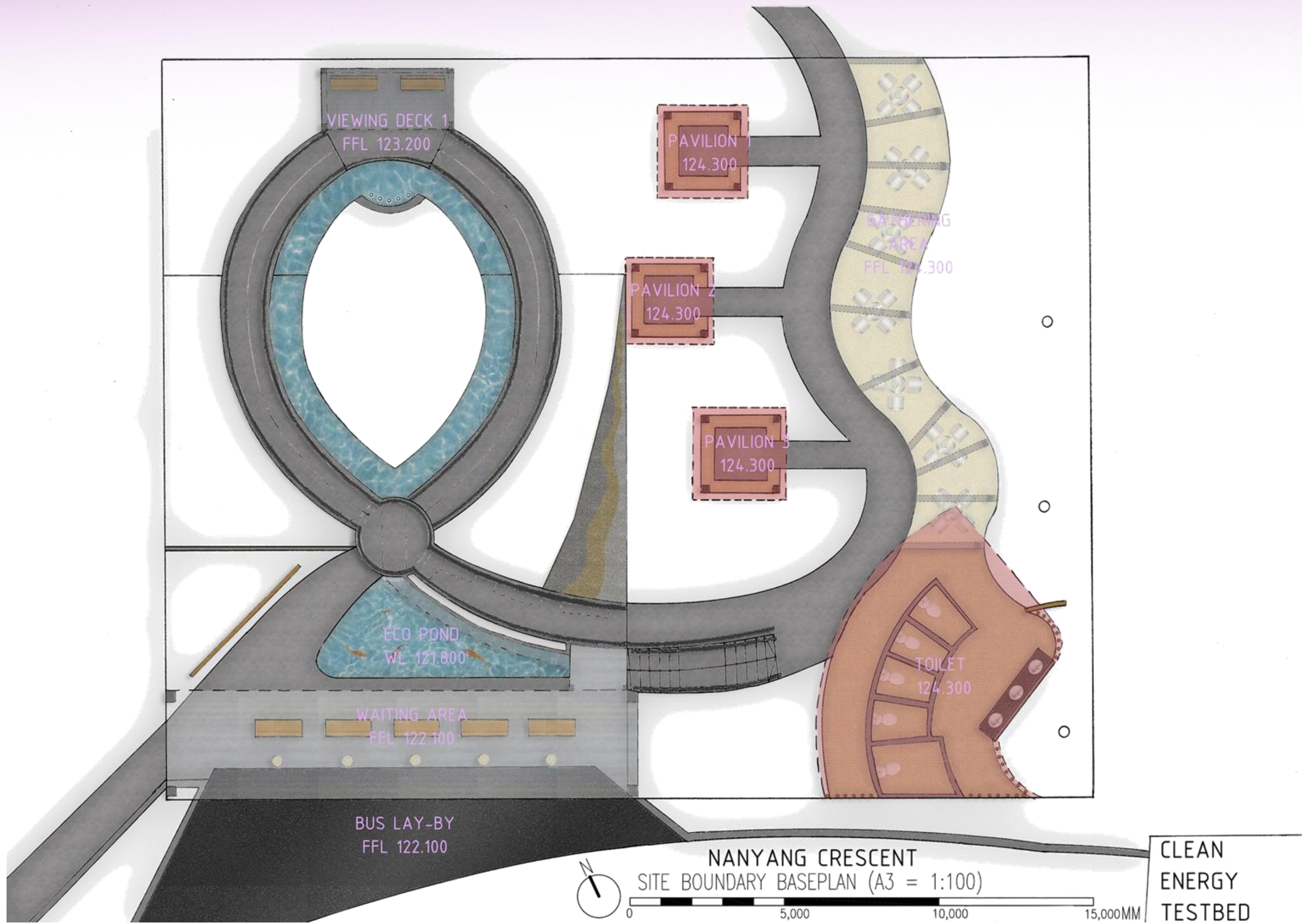


Fountain pump



Degraded/Recycled
Concrete aggregate
stained finish (Light
Grey, Brown, Dark
Grey)

DESIGN PROPOSAL- LAYOUT PLAN (HARDSCAPE)



HARDSCAPE JUSTIFICATION

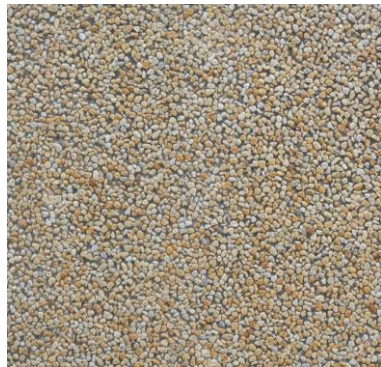


Tensile Membrane

Chosen because the material has a flexible design aesthetic which is versatile and is able to follow the meandering shape of the Gathering area.

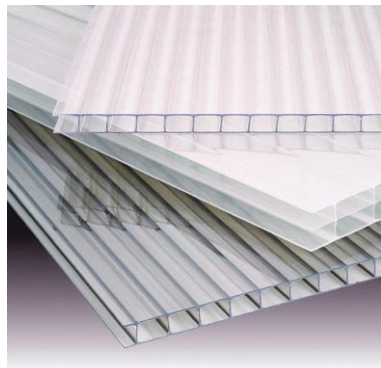
Other benefits of choosing this material

1. in daylight, the membrane translucency offers soft diffused natural lighting cost. At night, the artificial lightings creates an ambient exterior luminescence
2. Shorten construction/installation time
3. Reduced cost as it is a lightweight structure
4. Earthquake resistant because it bears less building load and has more elasticity



Pebblewash

Chosen because it is able to differentiate the gathering area from other part of the landscape design. But, at the same time both screed concrete and pebble wash is binded by concrete.



White Translucent
Polycarbonate Roofing

Chosen because the translucent material is able in daylight, to offers soft diffused natural lighting

Other advantages are that these panels are resistant to heat, sunlight, snow, and rain, which enable them to last for many years without fading or discolouring.



Standing Seam
Mild Steel Roofing

Chosen because the mild steel can easily fit in with the organic shape of my toilet, but also at the same time still follow my boxy and rigid pavilion roofs.

But i wanted to keep the roof colour orange as it mimic the clay roofs colour. Which is known for its stability, durability and therefore offers a sense of familiarity as this boxy shaped pavilions are a common sight in Singapore (allowing people recreational and community spaces in their neighbourhoods) to visitor.



Simple pavillion around the neighbourhood

FOUNTAIN JUSTIFICATION



Cascading water feature made of natural boulders



Cascading water down a flat glass surface

CASCADE:

For this part of the water feature, i was inspired by the Diana, Princess of Wales Memorial Fountain Chaddar as it created a cascade that was modern with it repetition and material choice, but still had the feeling of water cascading down rocks because of it changing levels.

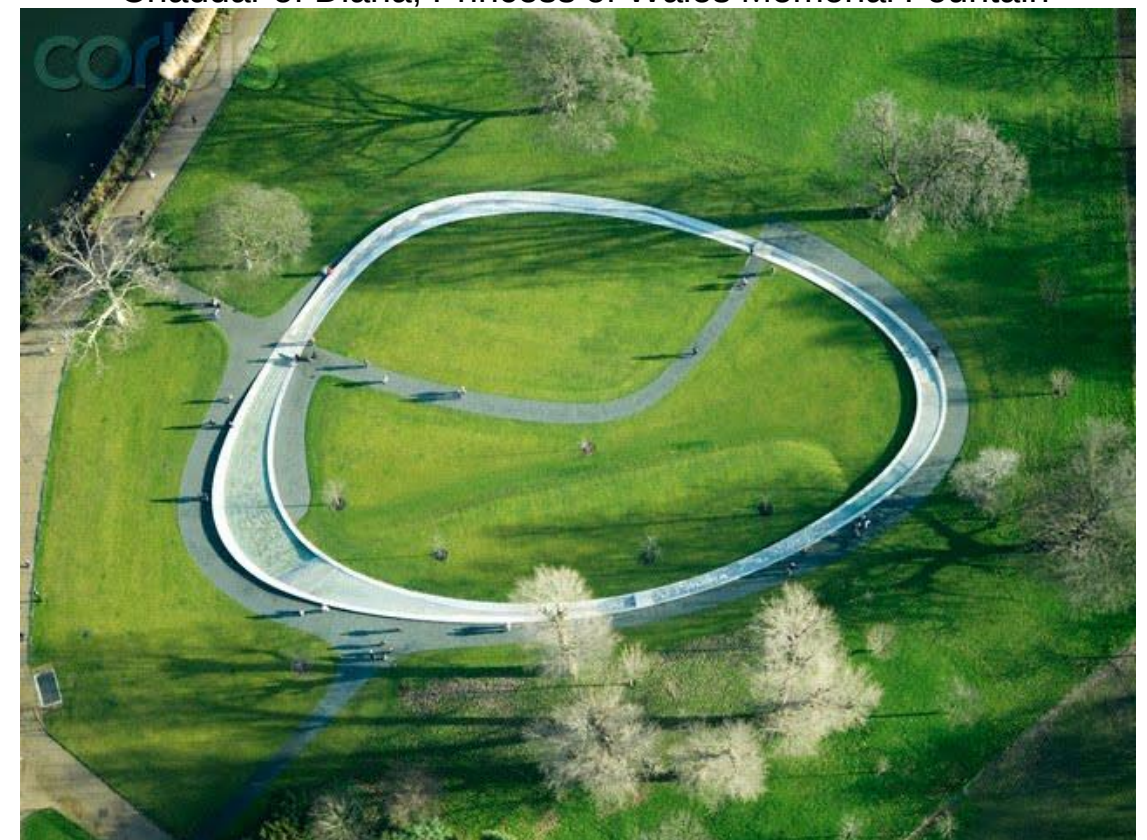
The chaddar is known as the flow of water over elaborately carved stone found in traditional Mughal gardens which i found to be applicable in my design by putting Glass Fiber Reinforced Concrete (gfrc) on the cast in situ - concrete foundation of my water feature following the design of chaddar of Diana, Princess of Wales Memorial Fountain located at Hyde Park, W Carriage Dr, London W2 2UH, UK

This chaddar feature is also prominent as compared to a flat slope concrete with screed finish water feature because the gfrc is able to add dimension and add interest with it unique textures as the water gushes down it to visitor experience.

Also by having the water feature designed in this matter, the soothing sounds of the water shall be spreaded out in the landscape to maximise coverage of the noise pollution from the neighbouring infrastructure and keep the ambience of the space relaxing and comfortable for visitor.



Chaddar of Diana, Princess of Wales Memorial Fountain

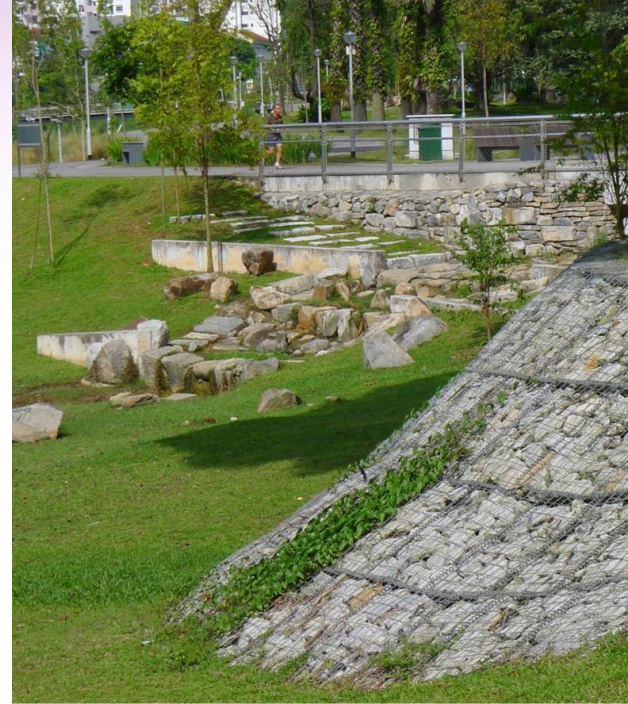


Aerial view of Diana, Princess of Wales Memorial Fountain

SLOPE/GABION WALL JUSTIFICATION



Gabion wall with layering of concrete aggregate of different colour



Bishan-Ang Mo Kio Park Recycled Hill

Inspired by the Bishan - Ang Mo Kio Park Recycled Hill (left), salvaging concrete from the existing concrete flooring found on the plot. To cover up the sharp hard edge of the plot, due to its changing levels.

Then I was inspired by the gabion wall with layering of different colour concrete aggregate (furthest left) to create more interest to this sloping gabion wall by staining the degraded concrete aggregate different colours and layering them in this wavy and curvy form so as to connect/carry my meandering concept to this part of the landscape as well.

Stainless steel's resistance to corrosion, low maintenance, strength-weight ratio and aesthetic features make it a preferred material for many commercial uses.

One of the most valuable assets of stainless steel is its resistance to corrosion. Lower grades of stainless steel can withstand corrosion in water environments and basic atmospheric conditions. And higher grades of stainless steel can withstand corrosion caused by acid and alkaline solutions. Stainless steel offers this high resistance to corrosion due to its layer of chromium oxide. This protective layer makes stainless steel ideal for industrial plants or hospitals that require a corrosion resistant metal.

By having this table set in the gathering area made out of this material, it lowers the maintenance cost as it is resistant to the acid rainfall, is easy to clean and does not rust, fade and stain easily keeping its colour and beauty over the period of its useful lifetime.

Also after its useful life has ended, stainless steel is completely recyclable, so you can feel good knowing that you're promoting a healthier planet. If you ever need to retire stainless steel from a worn-out or damaged product, find a metal recycling plant to dispose of the unneeded material.



Stainless Steel Table Set

MATERIAL SOURCING

Chosen for expertise:

CONCRETE - Samwoh Corporation Pte Ltd, 25E Sungei Kadut Street 1, Singapore 729333

Chosen for close proximity (reduce carbon footprint)

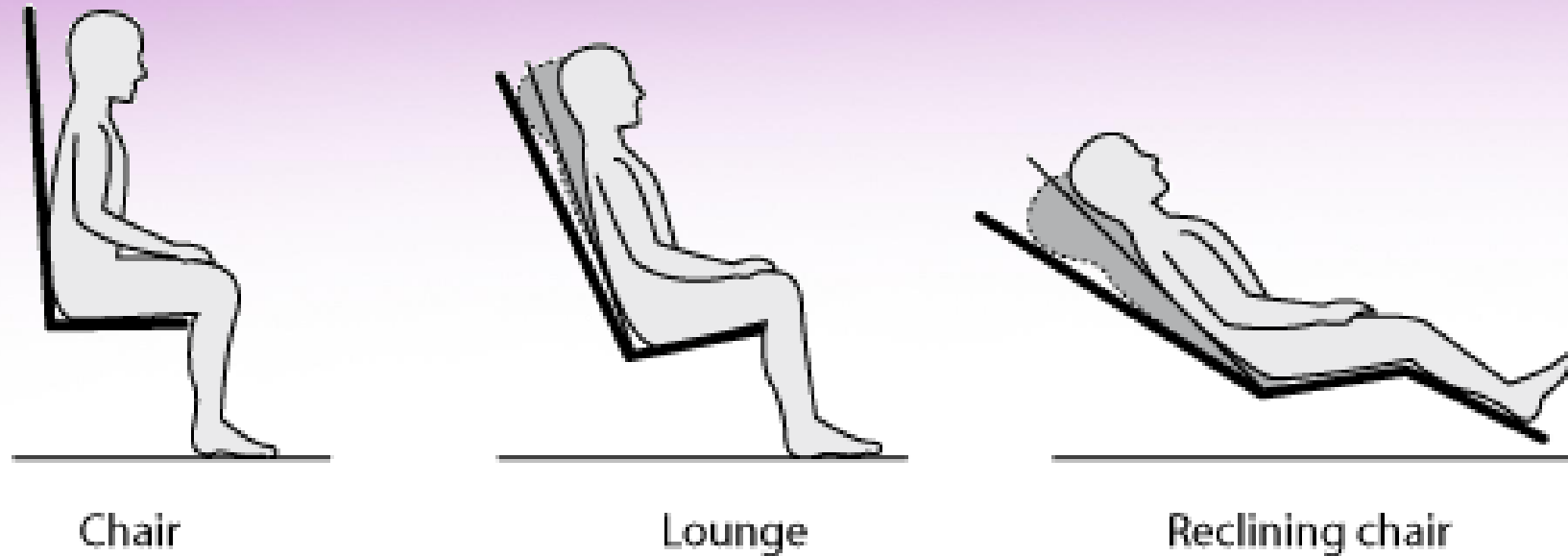
STEEL - M Metal Pte Ltd, 5 Kian Teck Drive, 628822 (Approx. 2.3 km away [4 mins by car])

SOFTSCAPE/VEGETATION - Thong Hup Gardens Pte Ltd, 2 Jurong West Street 25, Singapore 648325 (Approx 2.6 km away [5 mins by car]) / NTU Community Herb Garden

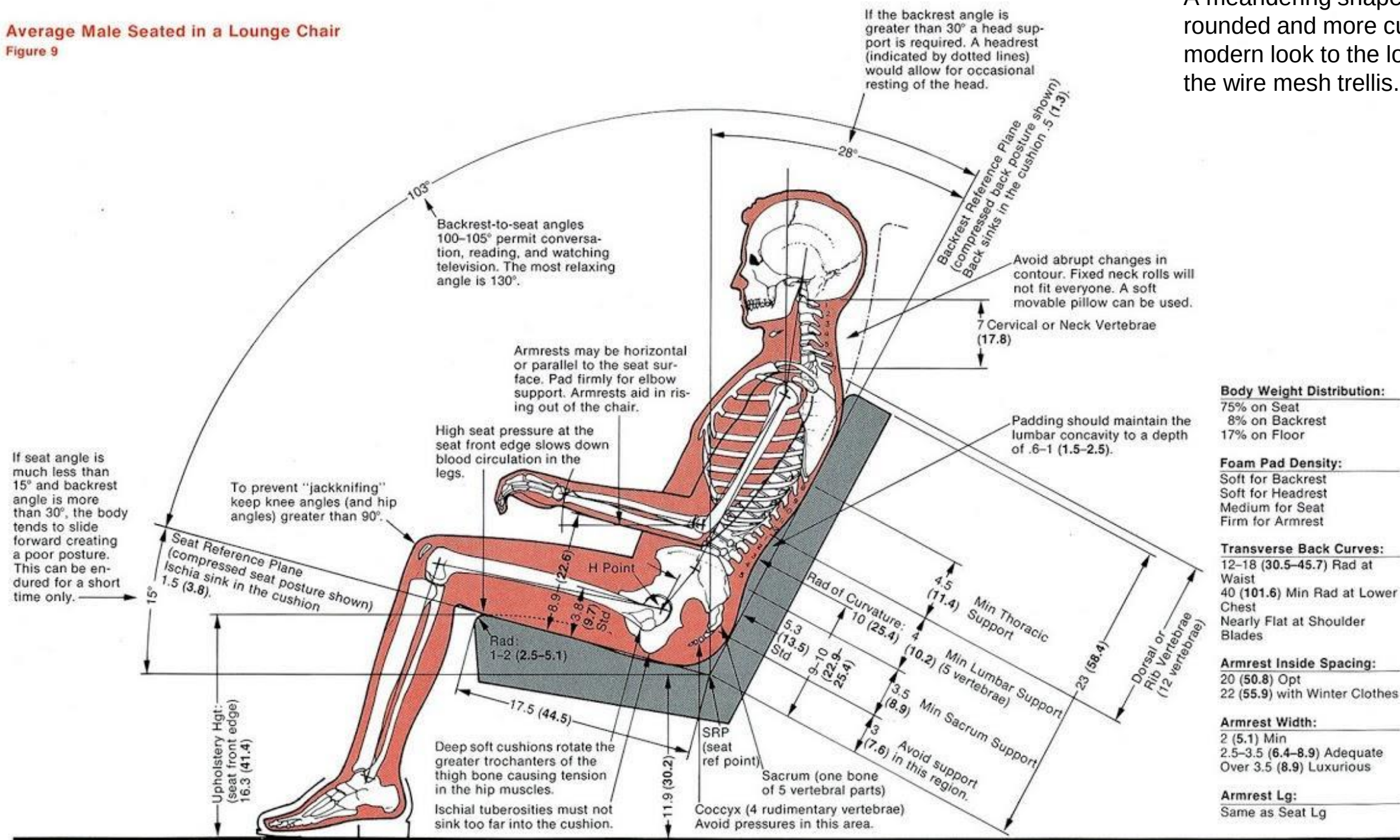
POLYCARBONATE - YSL Holdings Pte Ltd, 14 Third Chin Bee Road, Singapore 618690 (Approx. 5.0 km away [8 mins by car])

TENSILE MEMBRANE - Multimedia Engineering Pte Ltd, #05-15, 50 Bukit Batok Street 23, Singapore 659578 (Approx. 10.3 km away [8 mins by car])

RESEARCH FOR CONSTRUCTION DETAILS



Average Male Seated in a Lounge Chair
Figure 9



JUSTIFICATION FOR CONSTRUCTION DETAILS:

The lounge bench located on viewing deck 1 in the ribbon loop is able to relate to my concept which is comfort and welcome through a meandering form design.

This has been achieved by making the bench at a lounge position allowing visitors to sit in this space surrounded by nature in full relaxation onlooking the focal point as foam jet creates soothing sounds of cascading water as it flows down the slope with a sea of colourful flowers blossoming from behind.

A meandering shaped has been achieved by making the metal joint rounded and more curvy with tapered ends for a more slick and modern look to the lounge bench which has been similar applied to the wire mesh trellis.



Specifications

- Type : Flat-head Cap screw
- Diameter : M2.5
- Length : 20mm
- Quantity : 10pcs in one bag
- Grade : 10.9
- Drive size : 1.5mm Hex-screwdriver



Specifications

- Type : Flat-head Cap screw
- Diameter : M2.5
- Length : 25mm
- Quantity : 10pcs in one bag
- Grade : 10.9
- Drive size : 1.5mm Hex-screwdriver

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