TAYLOR'S UNIVERSITY

Wisdom · Integrity · Excellence

School of Architecture, Building & Design
Bachelor of Science (Honours) (Architecture)

Project Management (MGT60403 / ARC3612 / ARC3614)

Project 1: DEFINING AND DOCUMENTING A PROJECT

STUDENT NAME:

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1.0 INTRODUCTION

1.1.1 COMPANY HISTORY

On the 1st of April 2016, A.K.K.L SDN. BHD. was framed by various disabling and youthful business people with development knowledge foundation. Accordingly, the organization's fundamental center movement depends on the development field. It holes the status of Bumiputra, using all the expertise, skills and experience acquire by the Board of Directors, Management Team and the staffs are fully owned by Bumiputera.

1.1.2 COMPANY ESTABLISHMENT

A.K.K.L SDN. BHD. Is also a registered company under Pusat Perkhidmatan Kontraktor (PKK) in Class A, Construction Industry Development Board Malaysia (CIDB) Grade G7, Ministry of Finance Malaysia (MOF) and widely recognized by ISO 9001:2008.

Since its foundation, many projects have been effectively completed and several projects are in the process of construction. Until today, the projects range from earthworks, infrastructure works, buildings and that's only the tip of the iceberg.

1.1.3 COMPANY MISSION & VISION

A.K.K.L SDN. BHD. Is additionally a potential and high believability organization since we have effectively presented every single important record required before the focused on accommodation dateline. Moreover, all undertakings are being counseled by chosen experts.

We procure our customers certainty through powerful and creative plan, likewise with the expert basic leadership capacities from our prepared specialists in the organization. We are pleased to serve every last customer that we manage and furthermore furnish them with every one of the prerequisites and necessities. That is the reason our organization's motto is “Built your dream here”.

1.1.4 INDIVIDUAL PROFILE

Company Name: JOHNFENG Sdn Bhd

- Project Manager more than 10 years of experience in architecture and construction firm.
- Experience includes safety, quality control, supervising team members and subcontractor.
- Writing project plans, reports and documentation.
- Ensuring the success of a project from its initial planning, design, executing, monitoring, controlling to closure.
- To make decisions to solve any circumstances.

Scope of Works

- Ascertain client's exact requirements
- Budgetary Parameters
- Analyzing and managing project risk
- Monitoring progress
- Cost estimating and developing the budget
- Activity and resource planning

Ar. CJF

Education

- **Taylor's University, Malaysia**
  Foundation in Natural and Built Environments
  (1996 – 1998)

- **Taylor's University, Malaysia**
  (BA Hons in Architecture)

- **University of Deakin, Australia**
  (Master in Science, Public Policy & Management)

Professional Experience

- 7 years of experience as a project Manager
- Completed 13 construction projects within that 7 years of project managing
- Multi-award winner in Malaysia for the year 2016 and 2017
- Successfully completed Citibank Tower project and also Tropicana Residences in Malaysia recently

Company Name: NHB Studio Sdn Bhd

- Creating building designs
- Produce detailed workings, drawings and specifications
- Liaising with construction professionals about the feasibility of potential project
- Working around constraining factors such as planning legislation, environmental impact and project budget
- Assess the needs of the building and its users and advise the client on the practically of their project
- Specify the nature and quality of materials required
- Applying for planning permission
- Preparing and presenting reports, proposals and applications
- Adapting plans according to circumstances and resolving any problems that may arise during building construction

Scope of Works

- Building Design and Detailed Drawings
- Planning Permission and Permit Application
- Quotation and Furniture Selection
- Tender Document

Ar. NHB

Education

- **Manchester School of Architecture (1996 – 1998)**

BSc. Architecture, Part 1 of the Architect Registration Board (ARM) and Royal Institute of British Architects (RIBA) examinations

- **University College London (1998 – 1999)**

March, Architecture, RIBA and ARB Part 2 accredited

- **Registered Architect with Board Architects Malaysia (LAM) (2003)**

Professional Experience

- **Forsters and Partners (2000 – 2004)**

Asistant Architect

- **Zaha Hadid Architects (2004 – 2010)**

Senior Architect

- **Grimshaw Architects (2011 – 2014)**

Principal Architect

- **NHB Studio Sdn Bhd (2014 – current)**

Company Name: NHB Studio Sdn Bhd

- Creating building designs
- Produce detailed workings, drawings and specifications
- Liaising with construction professionals about the feasibility of potential project
- Working around constraining factors such as planning legislation, environmental impact and project budget
- Assess the needs of the building and its users and advise the client on the practically of their project
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Ar. NC

Scope of Works

- Ecology Study & Conservation
- Master Planning & Guidelines
- Sustainable Landscape Design
- Parks & Green Space

Education

- **American Degree Program (1996)**
- **University of California, Berkeley (1997– 2000)**

Undergraduate minor in Landscape Architecture, Part 1 of the Architect Registration Board (ARM) examinations

- **Amsterdam Academy of Architecture (Department of Landscape (2004-2006)**

Master in Landscape Architecture, RIBA and ARB Part 2 accredited

- **Registered as corporate member of the Institute of Landscape Architects Malaysia (ILAM-2007)**

Professional Experience

- **Tom Leader Studio (2000 – 2003)**

Assistant Landscape Architect, Senior Landscape Architect

- **Tierra Design (2007-2014)**

Principal Landscape Architect

- **Nanyang Technological University (2010-2014)**

Senior Lecturer for Landscaping Design In Nanyang University

- **NHB Studio Sdn Bhd (2014 – current)**

Principal Landscape Architect

Company Name: AKKL CORP.

A.K.K.L

- Creating building designs
- Produce detailed workings, drawings and specifications
- Liaising with construction professionals about the feasibility of potential project
- Working around constraining factors such as planning legislation, environmental impact and project budget
- Assess the needs of the building and its users and advise the client on the practically of their project
- Specify the nature and quality of materials required
- Applying for planning permission
- Preparing and presenting reports, proposals and applications
- Adapting plans according to circumstances and resolving any problems that may arise during building construction

Ir. AK

Scope of Works

- Co-ordination with client
- Vendor Development
- Planning and Budgeting
- Monitoring execution team
- Bar Bending Schedule approval
- Handling structural drawings.

Education

-Harvard Graduate School of Design (1996-1998)

BSc. Architecture, Part 1 of the Architect Registration Board (ARM) and Royal Institute of British Architects (RIBA) examinations

-Massachusetts Institute of Technology (1998-1999)

March, Architecture, RIBA and ARB Part 2 accredited

-Registered Architect with Board Architects Malaysia (LAM) (2003)

Professional Experience

- **Berkshire Development (2000 – 2004)**

Rewarded Engineer

- **Zaha Hadid Architects (2004 – 2010)**

Senior Engineer

- **Alibaba Group (2011 – current)**

Principal Engineer

Company Name: INFRA SEGI M&E Sdn Bhd

- Creating M&E services
- M&E design
- Liaising with construction professionals about the feasibility of potential project
- Working around constraining factors such as planning legislation, environmental impact and project budget
- Assess the needs of the building and its users and advise the client on the practically of their project
- Specify the nature and quality of materials required
- Applying for planning permission
- Preparing and presenting reports, proposals and applications
- Adapting plans according to circumstances and resolving any problems that may arise during building construction

Scope of Works

- Building Mechanical Detailed Drawings
- Planning Permission and Permit Application
- Quotation cost for M&E services
- Tender Document

Ir. ED

Education

- **GLASSGOW ENGINEARING SCHOOL (2000 – 2003)**
- **University College London (2004 – 2006)**
- **Registered MECHANICAL ENGINEARING Malaysia (2010)**

Professional Experience

- **Forsters and Partners (2000 – 2004)**

Asistant Architect

- **AR ED (2004 – 2010)**

Senior Architect

- **MARTIN TOH(2011 – 2014)**

Principal Architect

- **INFRA SEGI M&E Sdn Bhd**

Company Name: YX QS Consult

- Prepare tender document which includes condition of contract, type of contract, drawings, BQ
- Estimating budget based on measurements of the designer or client sketches
- Assist in establishing client requirement and undertake feasibility studies
- Perform risk value management and cost control
- Advice on procurement strategy
- Prepare and analyze costing for tenders

Sr CYX

Scope of Works

- cost management & quantity surveying
- insurance valuations
- legal support
- management consultancy
  -project monitoring

Education

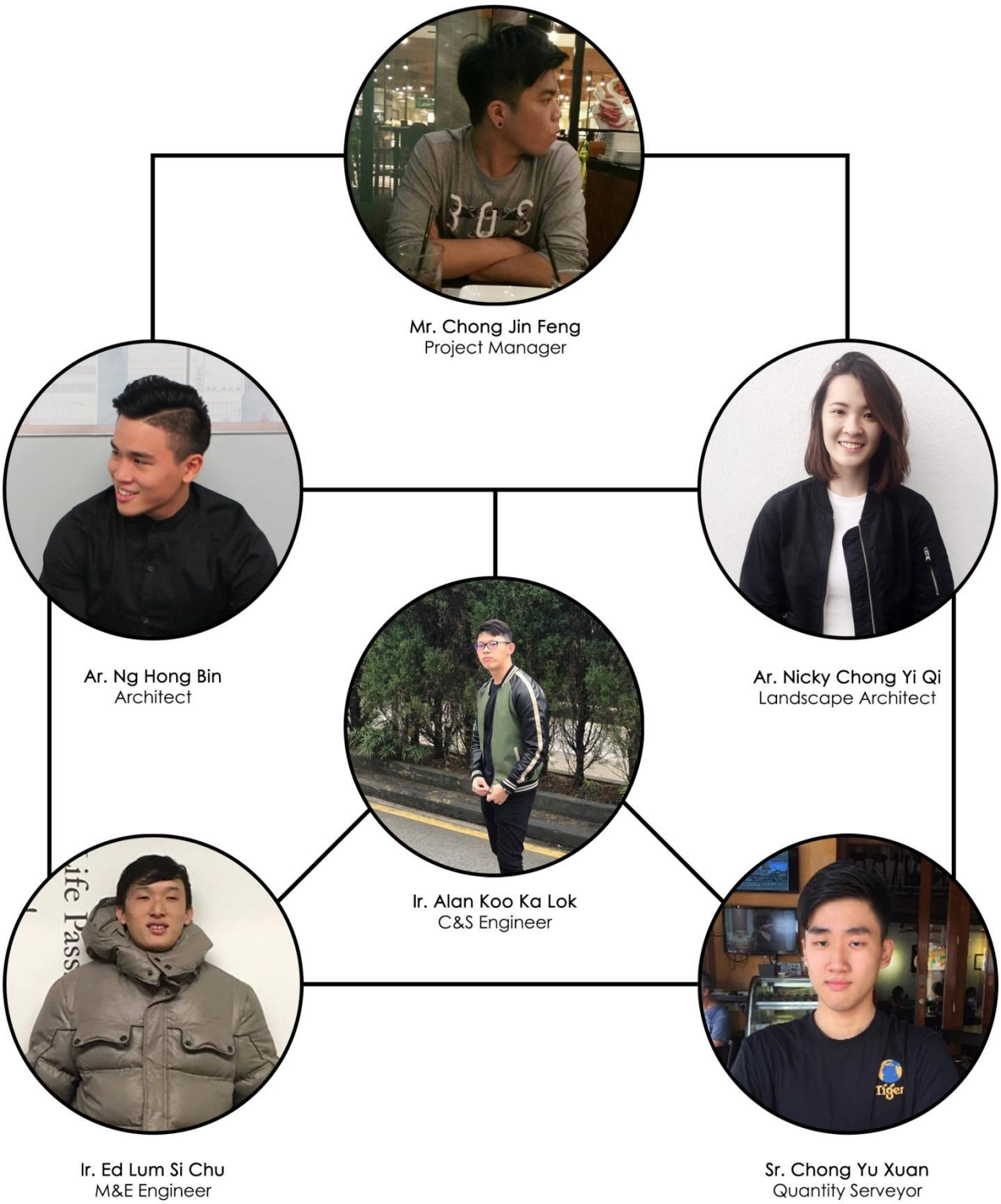
- **A level study in Science(1996-1998)**
- **Bachelors of Quantity Surveying (1999-2002)**
- **Masters in Building Surveying(2003-2005)**
- **Registered quantity surveyors with board of quantity surveyor Malaysia (2010)**

Professional Experience

- **YX QS Consult (2005 – current)**

Chief Executive Officer

1.1.4 ORGANIZATIONAL CHART



Fundamentally, this organization chart benefit all consultants in AKKL Sdn. Bhd. for its visual communication of information which is more effective than pure text. It has brought success especially in meeting our objectives and client's requirements. Also, wiith the guidance of this chart, it helps us analyse budget, design work team and generate reports.

2.0 PRELIMINARY STUDIES

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2.1 CLIENT'S BRIEF

2.1.1 CLIENT PROFILE

TAYLOR'S UNIVERSITY LAKESIDE CAMPUS
MS ALIA AHAMAD

Our client, Taylor's University Lakeside Campus assigned AKKL Sdn Bhd to design a 'Recreation District' for staff and students. Ms Alia Ahamad, Ar Sateerah Hassan and Ar Emmanuel are the representatives of Taylor's University Lakeside Campus behind this effort to create a new platform for recreational purpose.

2.1.2 PROJECT OBJECTIVES & REQUIREMENT

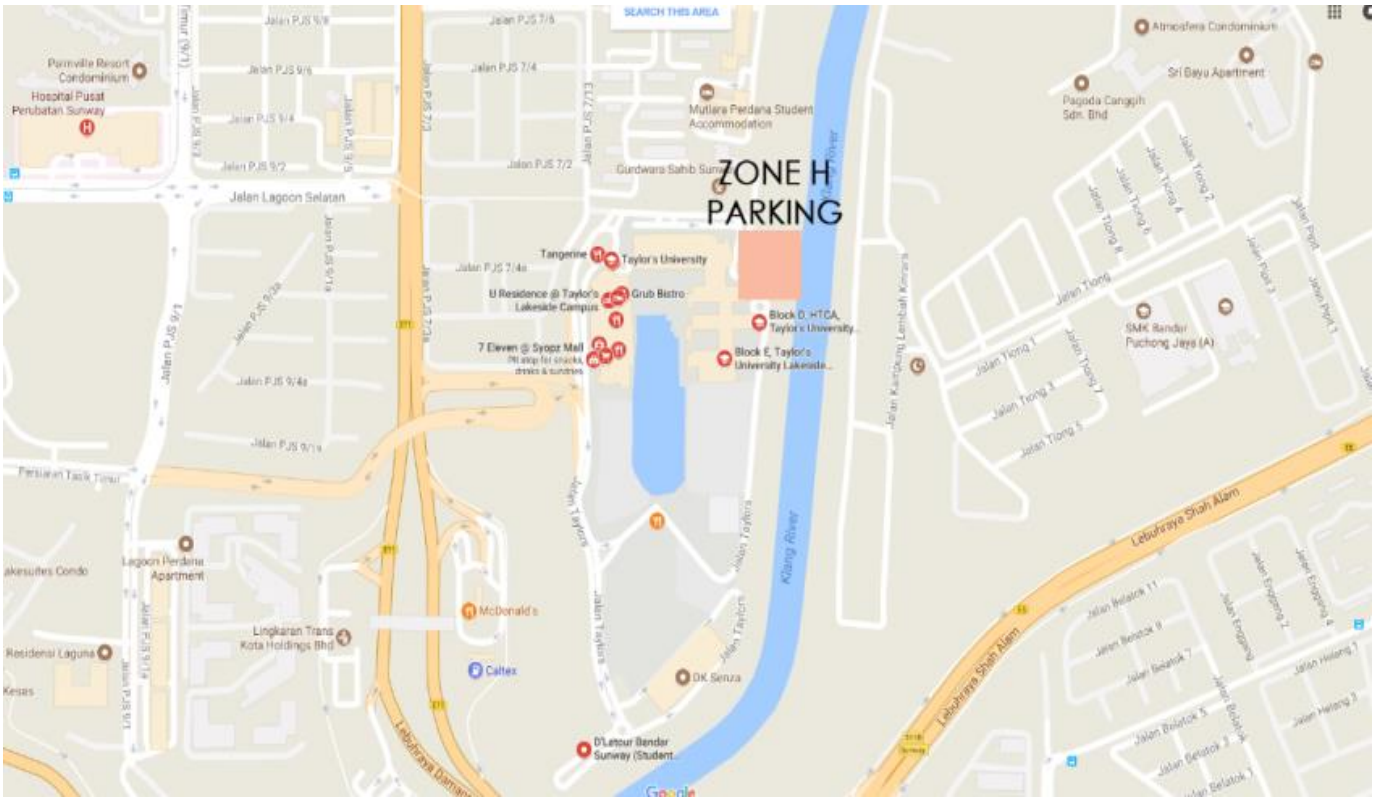
- To propose a new recreational area.
- To manage and facilitate any future outdoor activities for staff and students
- To create a common bond within the campus community.

Size	600m²
Spaces to be provided -Indoor and partially outdoor	• Office(max 3 person) • Lounge • Toilets (2 units each M/F) • Indoor/outdoor recreation area(darts, carom, congkak, table tennis, table games –monopoly, scrabble etc. • Cafeteria (20 people) • Magazine corner
Structure	• Light weight, fast construction • (container design is allowed)
Materials	• Insulated wall • Finishes, fixtures with good quality and workmanship

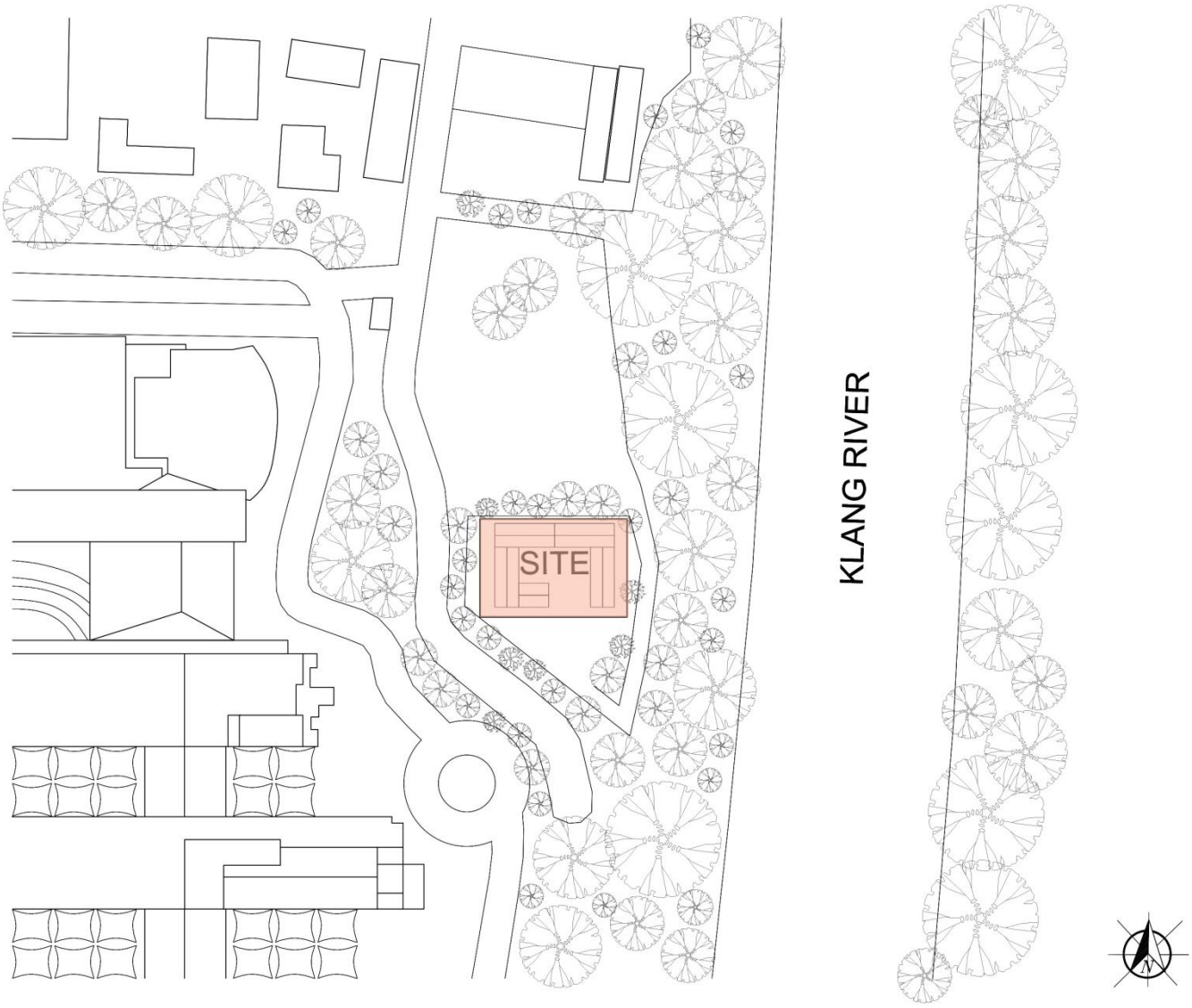
Existing condition	• Existing large trees to remain undisturbed
Theme	• Contemporary • Low energy (natural ventilation, lighting) • Reusable energy (rain water harvesting)
Mechanical requirement	• Air Cond (only if necessary) • Low energy light fittings
Landscape	• Trees, shrubs (for boundary) • Turf • Outdoor tiles/paving

2.2 SITE ANALYSIS

2.2.1 SITE FINDINGS



Location Plan



Site Plan

2.2.2 S.W.O.T ANALYSIS

STRENGTH

Large open & peaceful site

Nice view and vista

Waterbody nearby solves problem for drainage during rainy condition

WEAKNESS

Separated from main building blocks

Unutilized open space

Poor land condition

OPPORTUNITY

Provide more natural shading

Provide point of interest at carpark area

Provide interactive pavilion to attract people

THREAT

Noise production during construction affects study environment of students

Traffic congestion caused during construction

Pollution of river and car may contaminate the space and cause unpleasant smell

3.0 PROJECT MANAGEMENT

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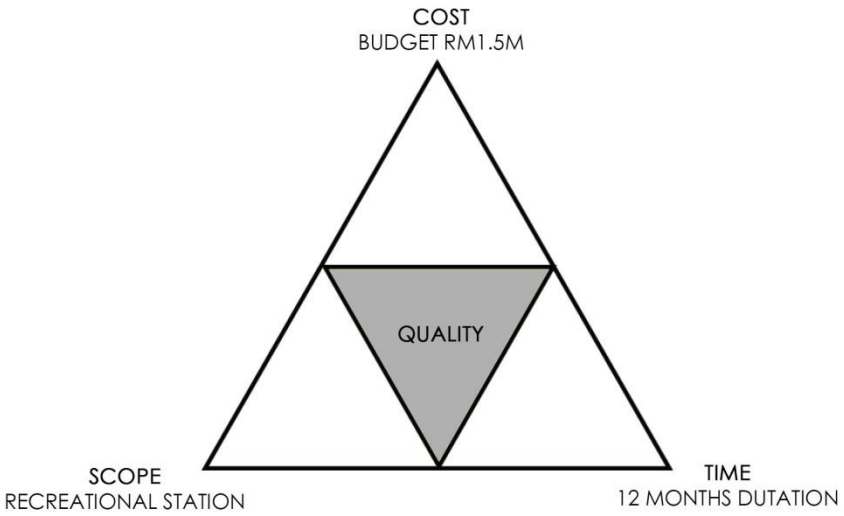
3.1 SUCCESS CRITERIA

To be successful in the project, it is very important to achieve certain criteria.

1. The project must bring profit to the company in a timeframe of 12 months.
2. The Recreation Station should be self-sustained economically to maintain within the budget given.
3. The project should be completed within the timeframe given of 12 months.

3.1.1 PROJECT MANAGEMENT CONSTRAINTS



A. COST

The success criteria of the project should be attained at the client's budget that benefit both the stakeholder and the client.

1. Clear articulation of plan by the company consultants for attaining lowest cost with long-term usable materials for building structure and furniture including reusing and salvaging materials.
2. The completed project should be attained locally and sustainable as per client's requirement.
3. The cost must be achieved with client's satisfaction that benefits in long term.

B. TIME

To avoid any higher exposure and the risk, the project must complete within the timeframe given of 12 months. There are few conditions to consider to ensure that the project is successfully delivered.

1. Regularly monitoring the transportation of materials and site is very crucial.
2. Construction workers are supervised by our company assigned contractors with our company architect and engineer to ensure a consistent workflow and ensuring their wellbeing and fair wages.
3. The Gantt chart, a graphical illustration of schedule is provided so that construction and installations of pavilion are completed in a given durations.

C. SCOPE

The project is to follow the status of the schedule, control the influences that cause the schedule changes and manage the changes efficiently.

1. The team should always review and do a rework when needed.
2. A proper estimation of the project in timescale and budget needed.
3. Managing the risk properly and efficiently with high awareness of health and safety precautions implemented thoroughly on site.

D. QUALITY

The successful quality can be achieved when all 3 perimeters above are well maintained.

1. The completed project has a high level of client's satisfaction or exceeds client's expectation.
2. To consider a proper hygiene and refinement works, sustainable features such as selection of materials are to be well equipped.
3. Carefully planned by the professionals in the field at all time to minimize the cause of construction defects.

3.1.2. SUCCESS FACTORS

Our company aims to achieve high excellence in success for every project we handle. We are well aware, prepared and required with all the professions and knowledge we have making the project successful.

The main factors that affect the rate of success are:

A. SKILL + EXPERIENCE

Equipped with the best professions.

B. FLEXIBILITY

The main keys to problems solving is to be flexible.

C. BACK-UP PLANS

Always have plan B and C to avoid any circumstances.

D. SUPPORT

Gaining full support from client and friends from similar fields.

E. ORGANISED

Keeping the team focus and organize.

3.2 WORK BREAKDOWN STRUCTURE

PROJECT MANAGER's breakdown projects into smaller components to organize the team's work into manageable sections. This is to ensure the tasks and activities can be regularly monitored and efficiently revised.

3.2.1 COSULTANT WORK SCOPE BREAKDOWN (Job Oriented)

A. ARCHITECT

- Site Analysis
- Design Requirement
- Conceptual Design
- Schematic Design
- Schematic Drawings
- Detailed Specifications & Design
- Building Design Approval

B. LANDSCAPE ARCHITECT

- Landscape Analysis & Potential
- Vegetation Selection
- Schematic Vegetation Layout
- Landscape Integration
- Landscape Drawing & Rendering

C. CIVIL & STRUCTURAL ENGINEER

- Site Analysis (Existing Structure)
- Construction Study & Schematic
- Construction Method & Planning
- Structural Integration
- Structural Drawings

D. MECHANICAL & ELECTRICAL ENGINEER

- Lighting & Ventilation Potential Selection
- Artificial Lighting Selection
- Mechanical Ventilation Selection
- Schematic M&E Layout
- Rain Water Harvesting System
- M&E Integration
- M&E Drawings

E. QUANTITY SURVEYOR

- Site Survey
- Preliminary Costing
- Material Cost Breakdown
- Detailed Construction Cost
- Overall Net Profit

3.2.2 CONSULTANT WORK SCOPE BREAKDOWN (Phase Oriented)

1. STAGE 1: PRE-DESIGN

    - Client Briefing
    - Design Requirement
    - Site Survey
    - Soil Survey
    - Feasibility Studies

2. STAGE 2: SCHEMATIC DESIGN

    - Outline Design
    - Programming
    - Concept Ideas
    - Schematic Designs
    - Schematic Sketches
    - Schematic Structural Planning
    - Schematic M&E Layout
    - Schematic Landscape Design
    - Material Proposal
    - Cost Research
    - Preliminary Costing
    - Schematic Gantt Chart

3. STAGE 3: DESIGN DEVELOPMENT

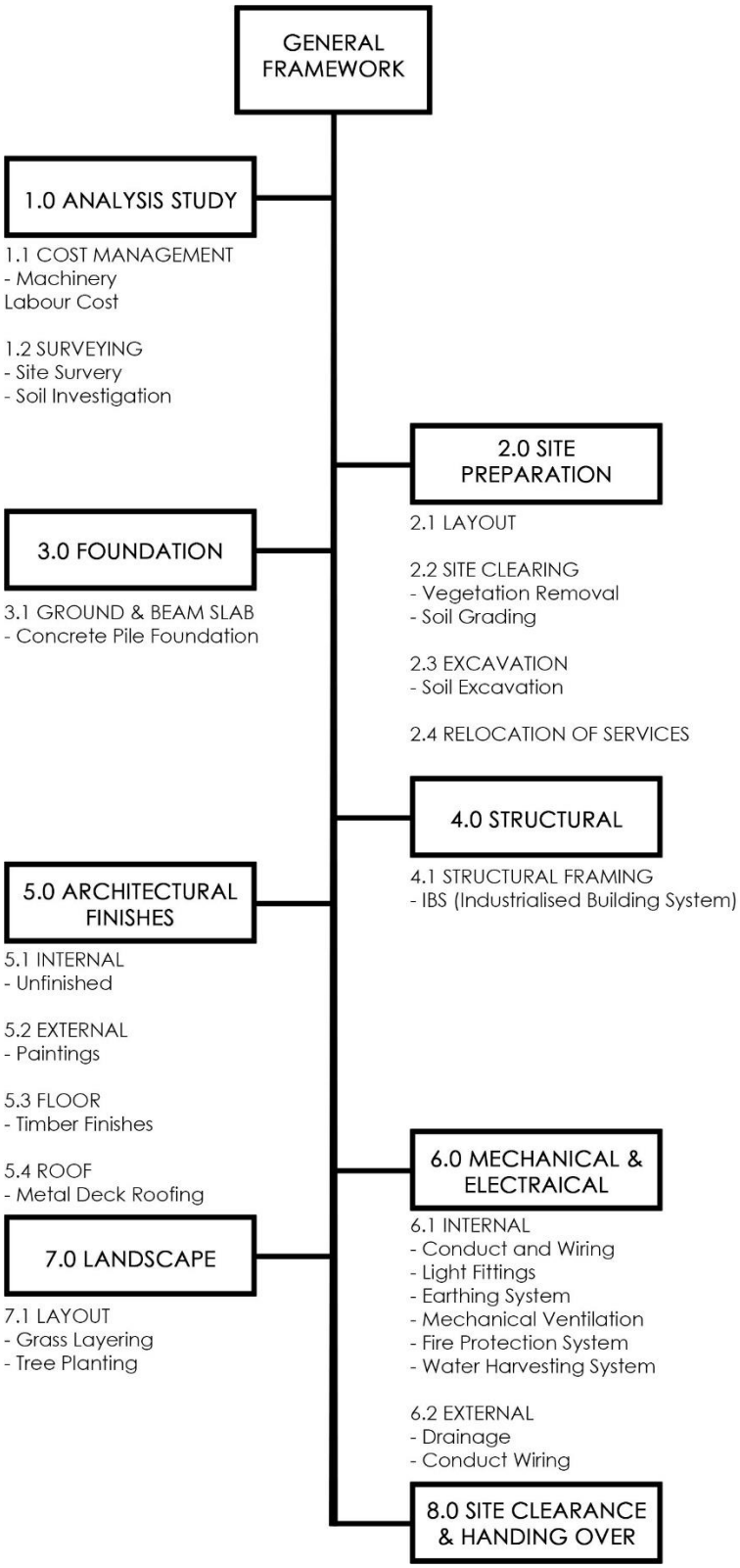
    - Finalized Design
    - Detailed Design
    - Submission Drawings
    - Constructional Research
    - Constructional Planning
    - Earthwork Submission
    - Earthwork Approval
    - System Identification
    - Finalized Landscape Proposal
    - Revised Costing
    - Rough Project Budget

4. FINAL STAGE: SUBMISSION & APPROVAL

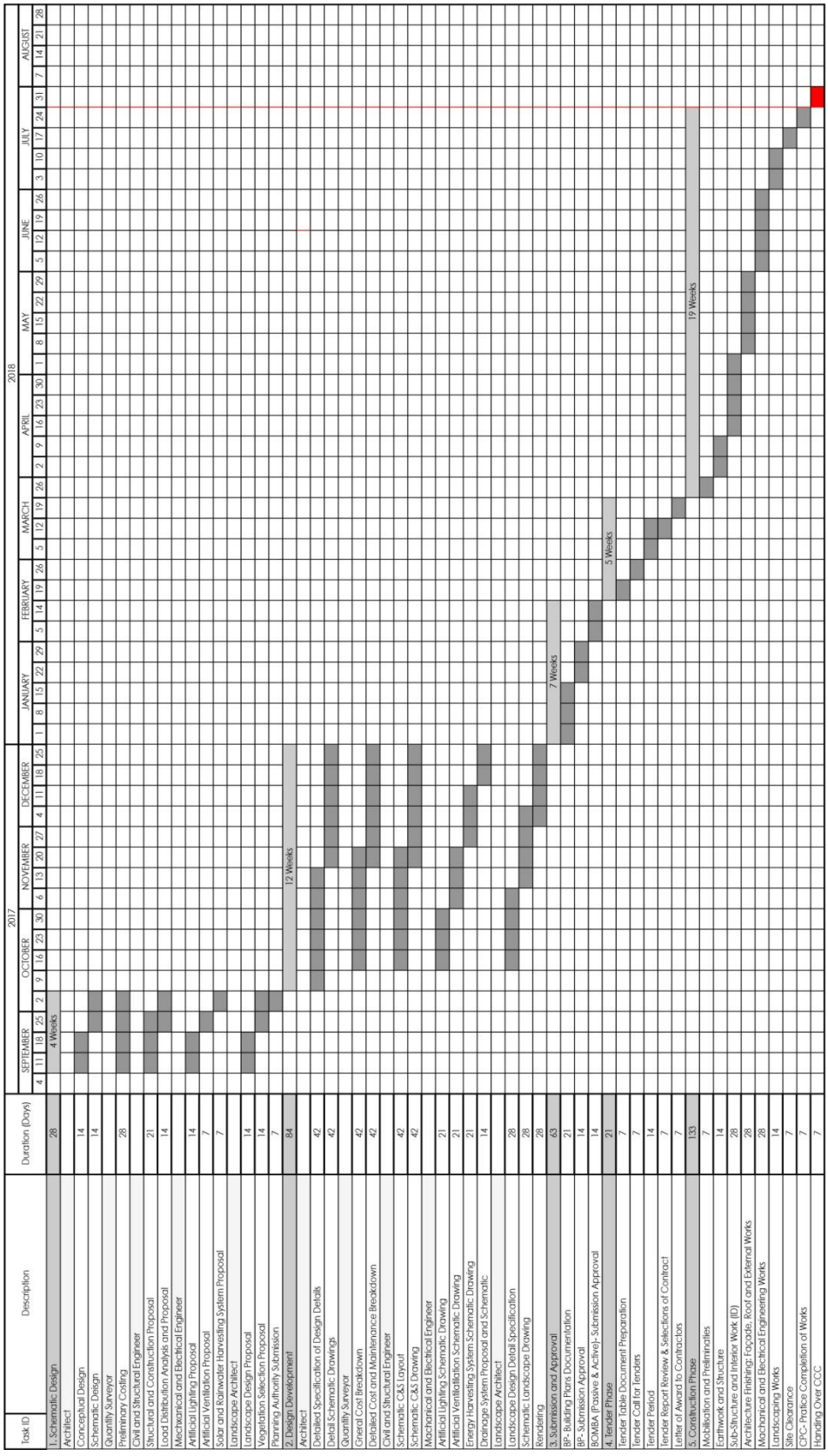
    - Building Design Approval

3.3 CONSTRUCTION PLANNING

3.3.1 CONSTRUCTION WORK BREAKDOWN SCHEDULE (General Framework)



3.3.2 CONSTRUCTION WORK BREAKDOWN SCHEDULE (Gantt Chart)



3.4 RISK ANALYSIS

1. SITE EXCAVATIONS

A. Damage on existing wiring

Severity: 2

Likelihood: 1

Cost: Low

Impact: Extra cost of cables amendments and possible of electrocuted accidents

B. Damage on existing water pipes

Severity: 2

Likelihood: 1

Cost: Low

Impact: Extra cost for piping amendments

C. Damaged on neighboring shop house

Severity: 3

Likelihood: 1

Cost: Medium

Impact: Extra cost to compensate neighboring tenants

STRATEGY & MITIGATION:

- Attaining physical data on the site from the authority with on-site supervision surveyor.

2. CONSULTANTS LIABILITY

A. Under construction specifications

Severity: 3

Likelihood: 5

Cost: Medium

Impact: Delay of Project

B. Wrong cost estimation

Severity: 2

Likelihood: 4

Cost: Medium

Impact: Exceeding Project Cost

STRATEGY & MITIGATION:

- Make sure drawings are detailed with supervision of architect and engineer on site

3. LABOR

A. Worker's injury on site

Severity: 3

Likelihood: 2

Cost: Medium

Impact: Lawsuits, fines & compensation

B. Worker's death on site

Severity: 4

Likelihood: 1

Cost: High

Impact: Lawsuits, fines & compensation

C. Shortage of workers

Severity: 4

Likelihood: 2

Cost: High

Impact: Delay of work and contract fines

STRATEGY & MITIGATION:

- Site manager on site to ensure safety nets, scaffolding and proper safety procedure during construction

4. CONSTRUCTION

A. Wrong installations

Severity: 2

Likelihood: 1

Cost: Medium

Impact: Extra labor & materials cost, time delay

B. Clients change of design

Severity: 3

Likelihood: 1

Cost: High

Impact: Extra labor & materials cost, time delay

C. Time Overrun

Severity: 3

Likelihood: 1

Cost: Medium

Impact: Fines and extra labor cost

D. Maintenance Risk

Severity: 2

Likelihood: 1

Cost: Low

Impact: Extra amenities and services cost

E. Utilities Unavailability

Severity: 1

Likelihood: 1

Cost: Medium

Impact: Water & Electricity from main supply are cut off extra cost were needed

STRATEGY & MITIGATION:

- Site Manager to ensure all constructions on site in following the specification drawings
- Project Manager to ensure the client do not violate any contract agreement or with mutual agreement of proper additional budge

5. MACHINERY & TOOLS

A. Breakdown of plants & machines

Severity: 2

Likelihood: 1

Cost: High

Impact: Higher cost of repair

B. Lack of site mobility

Severity: 1

Likelihood: 2

Cost: High

Impact: Delay of time

C. Insufficient tools and machine

Severity: 1

Likelihood: 1

Cost: High

Impact: Extra cost and delay of time

D. Delay of operation time

Severity: 2

Likelihood: 1

Cost: Medium

Impact: Delay of time

STRATEGY & MITIGATION:

- Ensure trustable suppliers and contractor
- Good planning of machinery usage in sequence
- Extra labor by HR to be employed is required

6. BUILDING MATERIALS

A. Insufficient of quantity

Severity: 1

Likelihood: 1

Cost: Medium

Impact: Exceeding Project Cost

B. Extra materials

Severity: 1

Likelihood: 1

Cost: N/A

Impact: Wastage

C. Delay delivery

Severity: 1

Likelihood: 1

Cost: Low

Impact: Time Delay

D. Defects on materials

Severity: 1

Likelihood: 2

Cost: Medium

Impact: Extra material cost

E. Stolen of Materials

Severity: 1

Likelihood: 1

Cost: Medium

Impact: Extra material cost

STRATEGY & MITIGATION:

- Ensure trustable suppliers and secure the parameter of site
- Extra materials for any damages should be counted in the preliminary cost
- Leftover materials can be carried on the other project or resell back

7. NATURAL DISASTER

A. Heavy downpour

Severity: 1

Likelihood: 4

Cost: Low

Impact: Defect in materials & structural members

B. High humidity on site

Severity: 1

Likelihood: 2

Cost: Low

Impact: Defect in materials & structural members

STRATEGY & MITIGATION:

- Proper storage and protections of materials should be taken care of.

8. OTHERS

A. Bankruptcy of client

Severity: 5

Likelihood: 1

Cost: High

Impact: Suspension of project

B. Security on site

Severity: 2

Likelihood: 2

Cost: Low

Impact: Higher project cost and then delay

C. Noise or view complaints by neighboring tenants

Severity: 1

Likelihood: 1

Cost: N/A

Impact: None

STRATEGY & MITIGATION:

- Background checks on client's financial stability, obtaining legal advice.
- Hire security guard

LEGEND:

	LIKELIHOOD		SEVERITY
1	REMOTE	1	MINIMAL OR NO IMPACT
2	UNLIKELY	2	ADDITIONAL RESOURCES REQUIRED, ABLE TO MEET
3	LIKELY	3	MINOR SLIP IN KEY MILESTONE
4	HIGHLY LIKELY	4	MAJOR SLIP IN KEY MILESTONE OR CRITICAL PATH IMPACTED
5	NEAR CERTAINLY	5	CANT ACHIEVE KEY TERM OR MAJOR PROGRAM MILESTONE

4.0 ARCHITECTURE

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4.1 DESIGN STATEMENT

Our vision is to become a creative interactive pavilion where everyone congregate and converge together. The pavilion comprises of various public realm such as the lobby, cafeteria, activity room, collaborative workspace, mini office, event venues, pocket parks and washroom. With exciting events had here regularly, we offer the community a platform for sharing and exchanging.

It is designed to interlink the campus blocks and the carpark area while injecting positive life. The design emphasizes on sustainability. The container pavilion is designed to reduce the use of artificial lighting by using full height glazing to maximize natural light penetration. Besides, it emphasizes the inside out relation and promotes visual connectivity to the surrounding context.

The containers are arranged in a semi enclosed loop to provide open and enclosed spaces within the building. The spaces are articulated around the central courtyard which serves as event venue and are interspersed with plantation which offers natural shading and cools the building passively. The spatial layout and design strategies offer an intimate and cozy ambience making it the point of interest which draws public in.

4.2 SCHEMATIC DESIGN

4.2.1 CASE STUDY

4.2.1.1 BOXPARK CROYDON

Area: 2622.0 m²

Architects: BDP

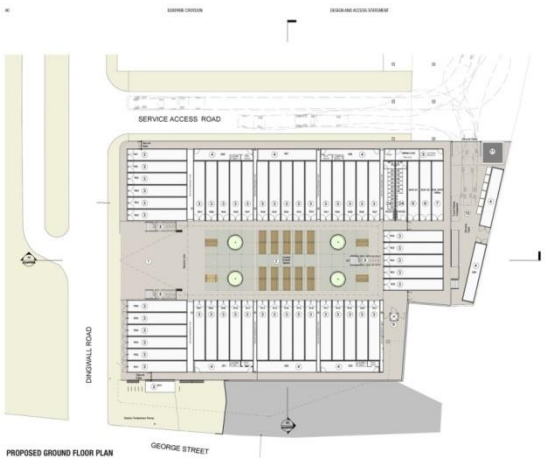
Project Year: 2016

Location: Croydon, United Kingdom

which is part of the mixed-use Ruskin Square development next to East Croydon station, creates a unique dining experience that focuses on small independent traders.

market hall – like Covent Garden or La Boqueria in Barcelona – so there is a central focus to the scheme with units arranged around it, as well as outdoor terrace spaces.

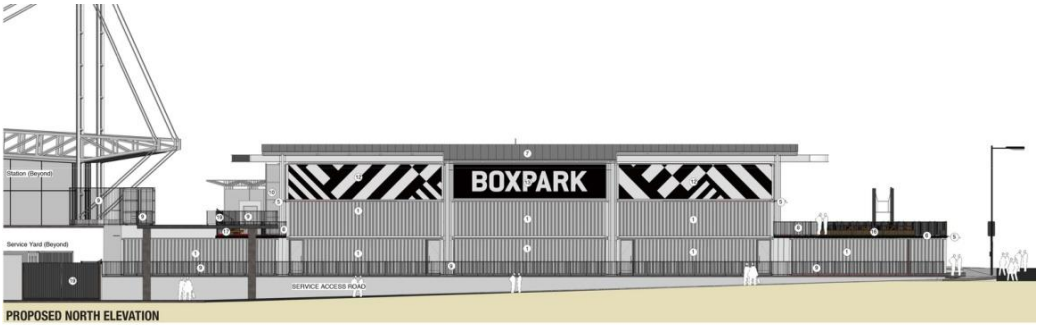
The change of level between the station entrance and Dingwall Road means people enter from multiple entrances and levels adding spatial interest and animation.



Ground floor plan shows the relationship between the shipping containers and central atrium which emphasizes the interaction of the public while provoking the sense of city lifestyle in Croydon.

Entirely constructed out of refitted shipping containers, Boxpark utilizes a unique position in being able to offer affordable and flexible conditions for lifestyle brands, cafes, restaurants and galleries to trade and succeed.

PROPOSED SOUTH ELEVATION



PROPOSED NORTH ELEVATION

4.2.1.2 ROYAL WOLF / ROOM 11

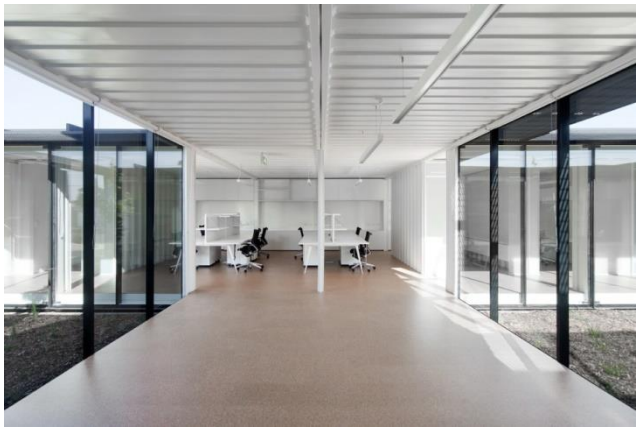
Architects: Room11

Location: Sunshine VIC 3020, Australia

Project Year: 2013

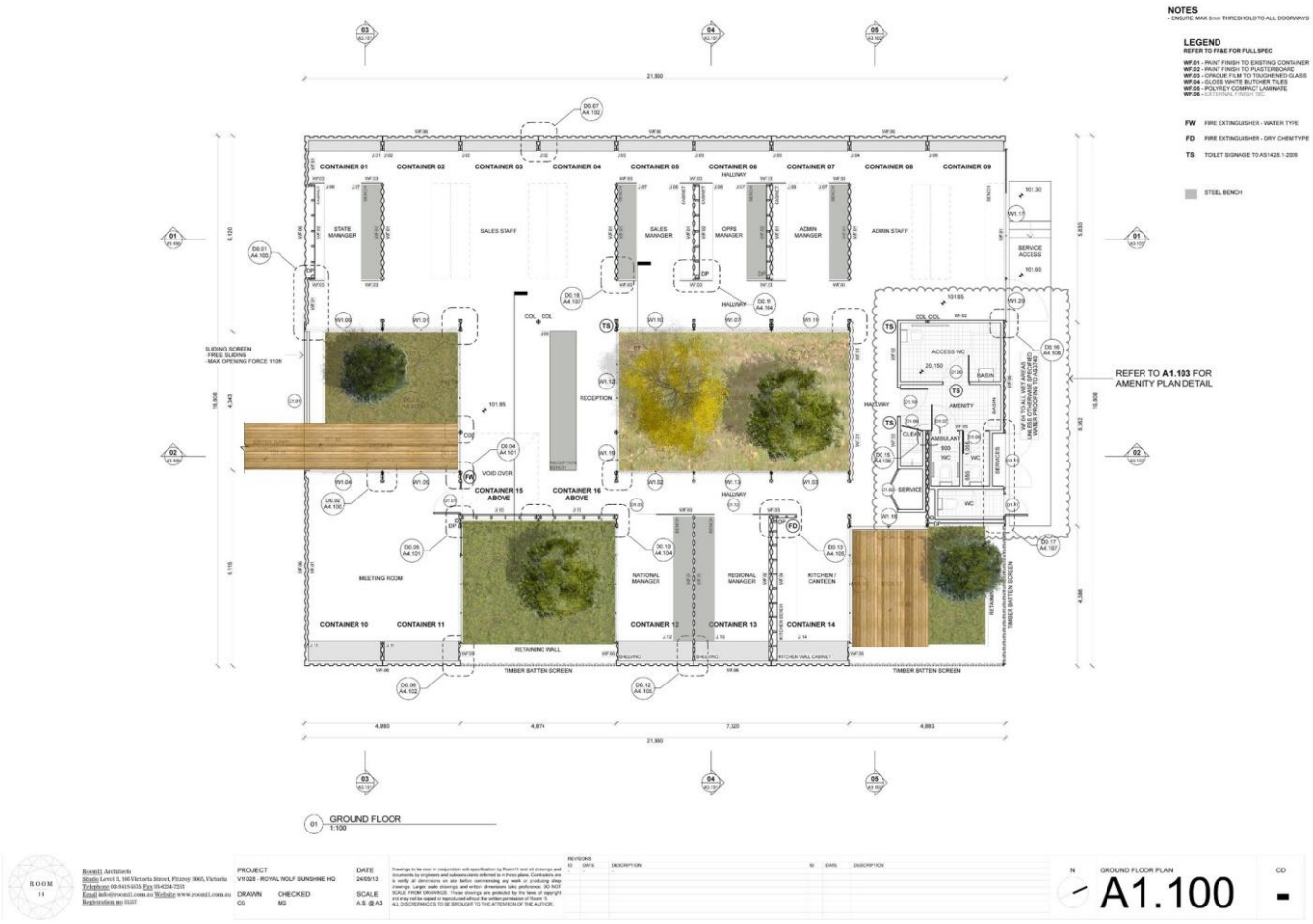
Royal Wolf is a specialist in the hire, sale & modification of new & refurbished shipping containers.

Room11 take the claustrophobic volume within a regular shipping container and transform it into a spacious light filled work environment with planted internal courtyards.



Ends of containers are sheared off and replaced with face fixed full height glazing. Rather than cover the metal skin of the containers internally, the sheared ends are re-used to create insulated sandwich panels, exposing and celebrating the raw container skin.

Finally two containers are placed on end, creating a high narrow void with skylight at the entry while functioning as a marker for signage within the flat terrain.



The design utilizes whole containers, positioned in a way that 20ft and 40ft containers create four courtyards and externally form a complete rectangle.

4.2.2 CONTAINERS STUDY

Pros

- Eco friendly
- Cost efficient
- Durable
- Easily available
- Structural Soundness
- Modular
- Recyclable

Cons

- Challenging heat control
- Deterioration under a shorter time compared to concrete buildings
- Requires skilled workers
- Health hazard

Problem Solving

- Have green landscaping around and in the building
- Insulate with weather-proof materials and paint
- Hire local skilled workers for construction
- Sandblast off-site

4.2.3 PROPOSED CONTAINERS

20' Container	**40' Container**
	
External Dimension: 6.058m (Length) x 2.438m (Width) x 2.591m (Height) **Internal Dimension**: 5.867m (Length) x 2.352m (Width) x 2.385m (Height)	**External Dimension**: 12.192m (Length) x 2.438m (Width) x 2.591m (Height) **Internal Dimension**: 12.032m (Length) x 2.352m (Width) x 2.385m (Height)

4.2.4 MATERIALITY

INSULATED SHIPPING CONTAINER

Shipping containers with readily available insulation are used. The thin wall of a standard dry container may be affected by the extreme changes in tropical external climate due to tropical heat and cold during rainy seasons. Insulated container helps to maintain consistent internal temperature up to some extent. At the same time, it saves cost and energy as the building will depend less on mechanical ventilation.

COMPOSITE TIMBER DECKING

- Good machinability, clinching, planning, sawing, drilling and painting are available locally
- High level of UV and colour stability
- Easy and clean installation
- Weather resistant, suitable from -40 to 60
- Requires no painting, no glue and low maintenance
- Extremely durable compared to conventional timber decking

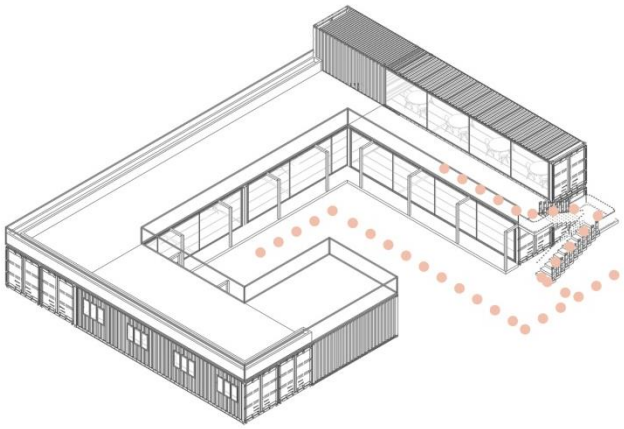
TIMBER FLOORING

- Easily sourced locally, can reuse used timber
- Similar emissivity and conductivity as concrete
- Lower density than concrete
- Lower absorption of heat compared to concrete
- Provides a warm and welcoming feeling as compared to concrete

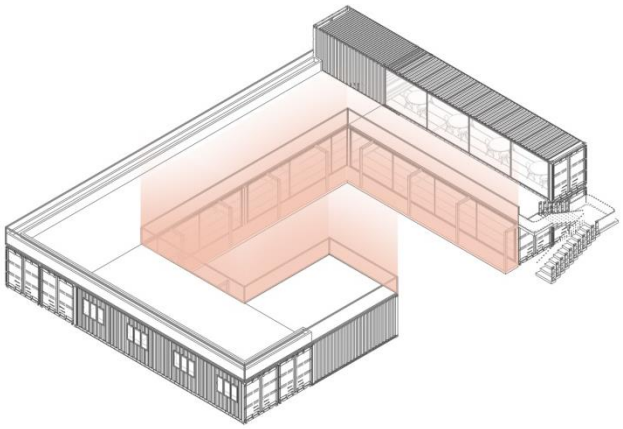
TILED RESTROOM FLOOR

- Durable
- Easy to maintain
- Hygienic
- Not harmful to health
- Not susceptible to staining
- Largely scratch and crack resistant

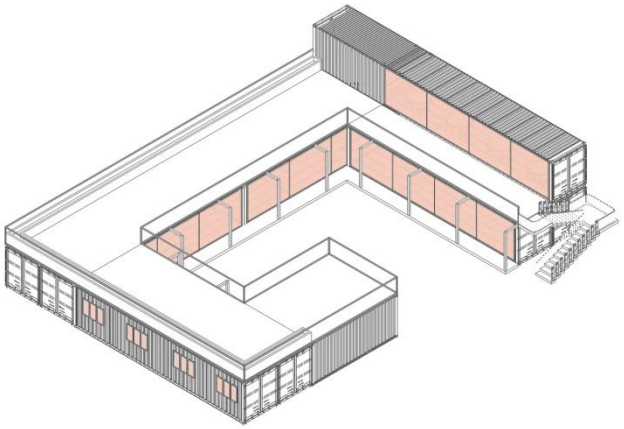
4.2.5 DESIGN STRATEGIES



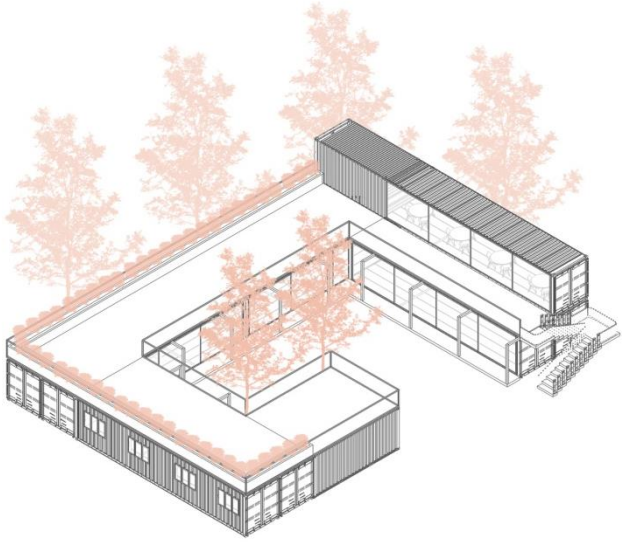
1. Main entrance faces the only accessible route for ease circulation purpose.



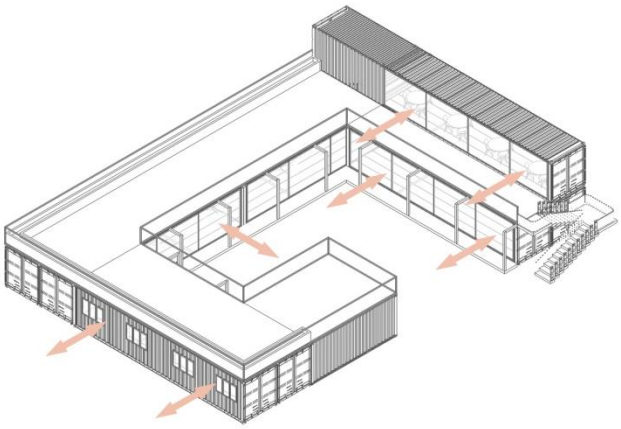
2. Centralised layout creates interactive pocket space.



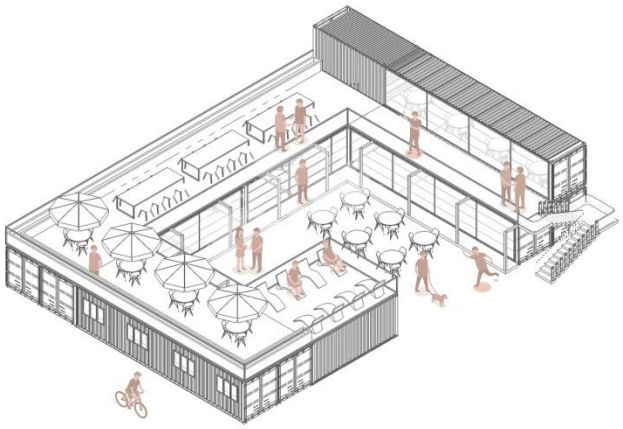
3. Frames views and vistas.



4. Vegetation creates buffer zone within carpark area.



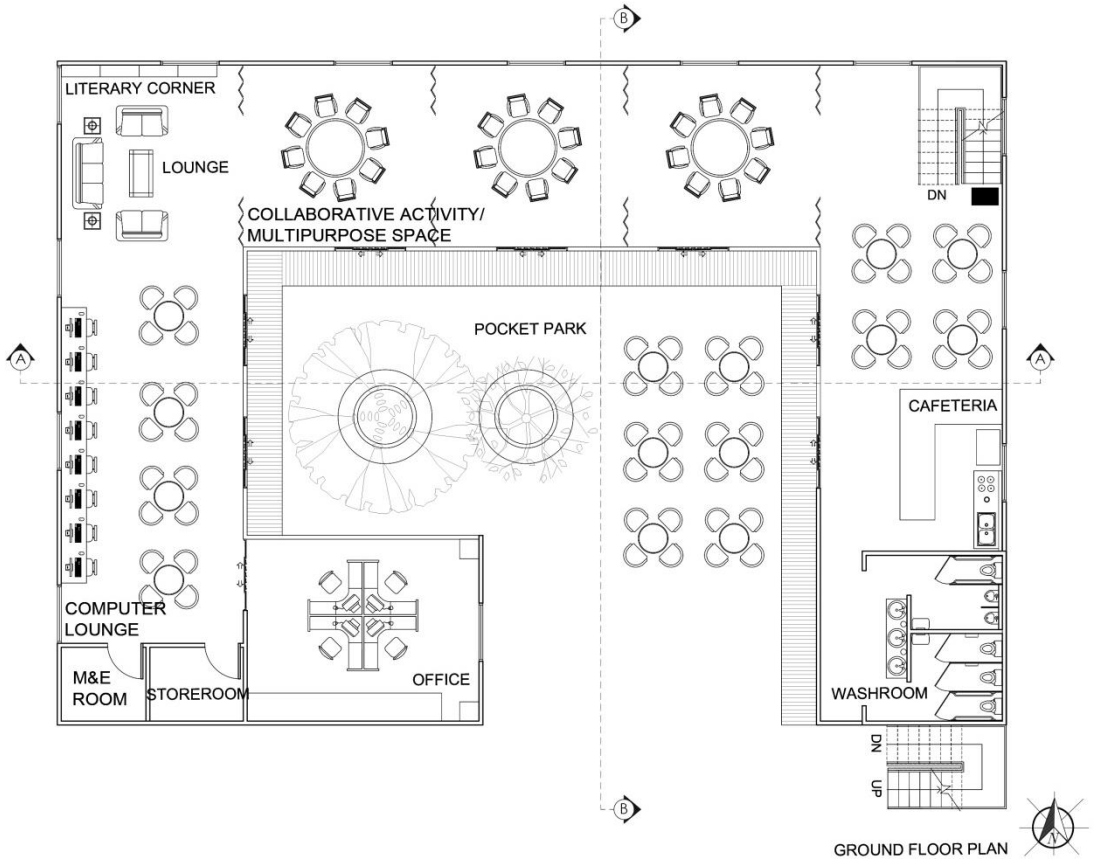
5. Inside out relation fosters small neighborhood environment.

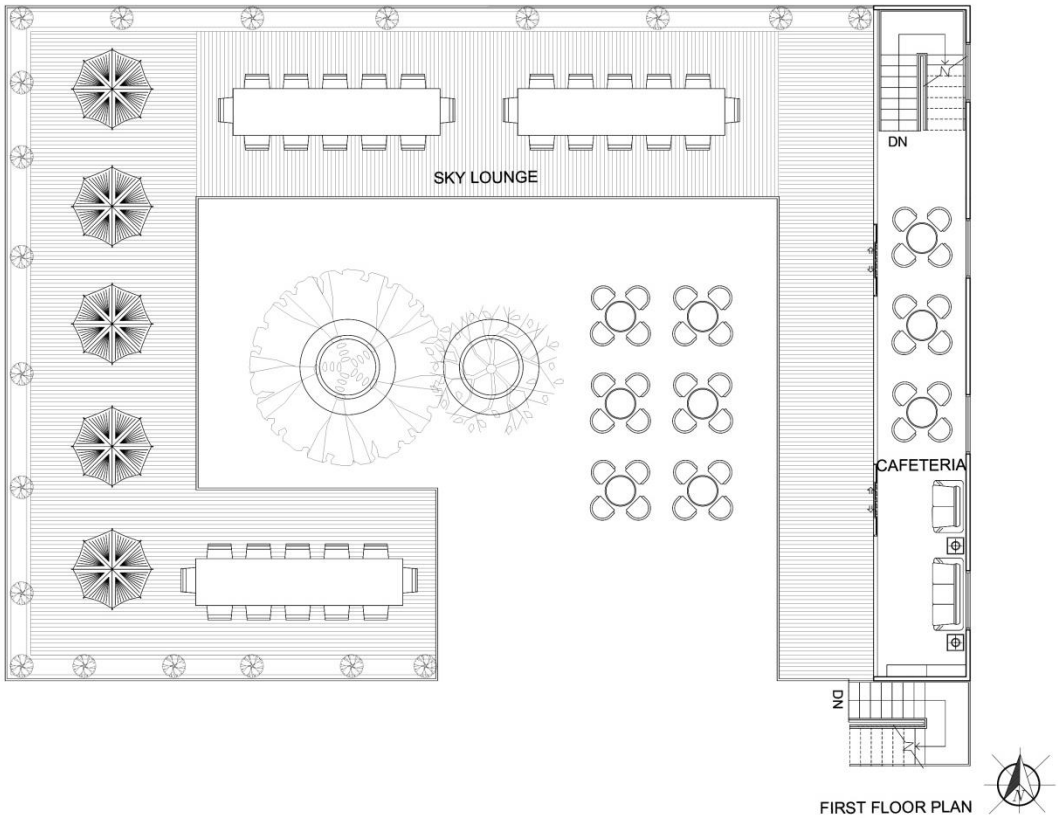


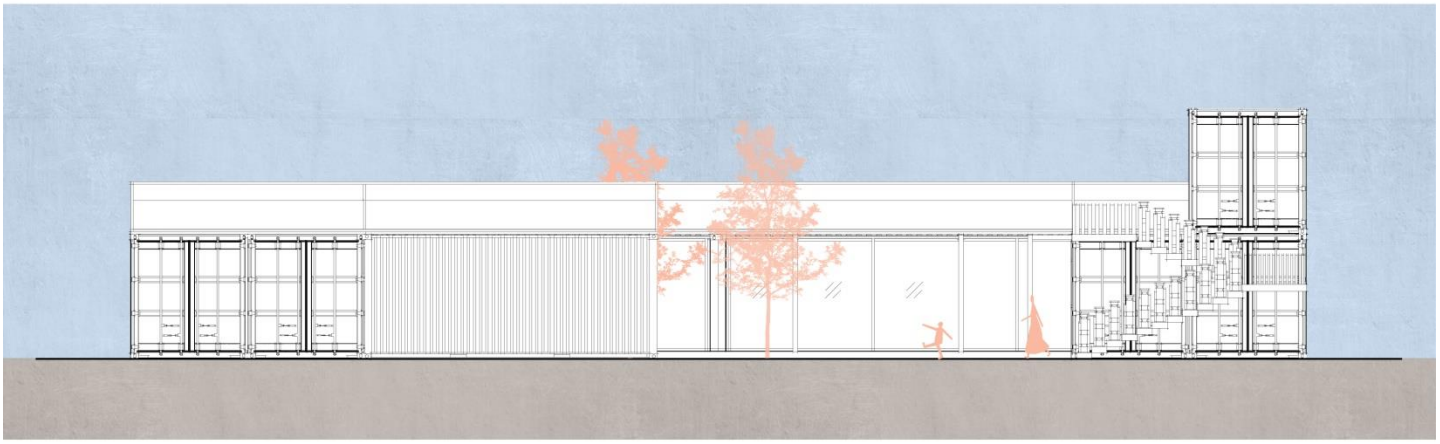
6. New programmes are injected, creating a point of interest.

4.3 DESIGN DEVELOPMENT

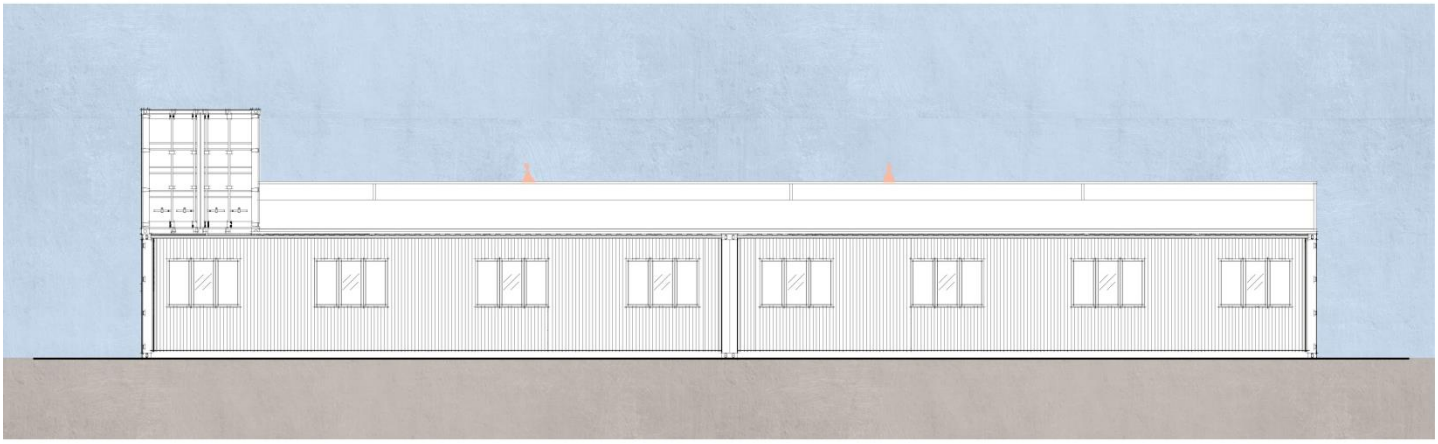
4.3.1 ARCHITECTURAL DRAWINGS



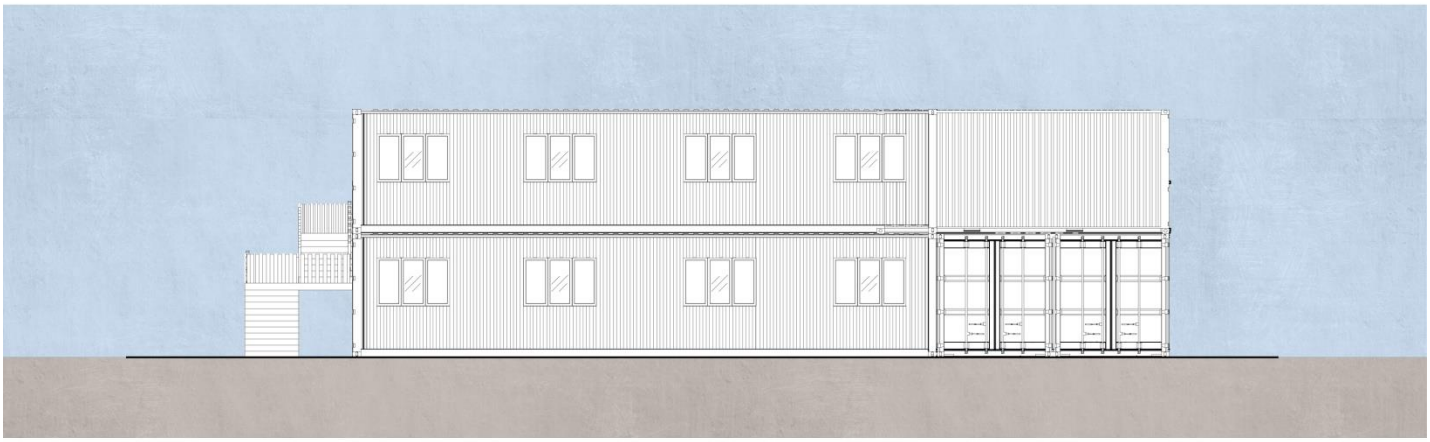




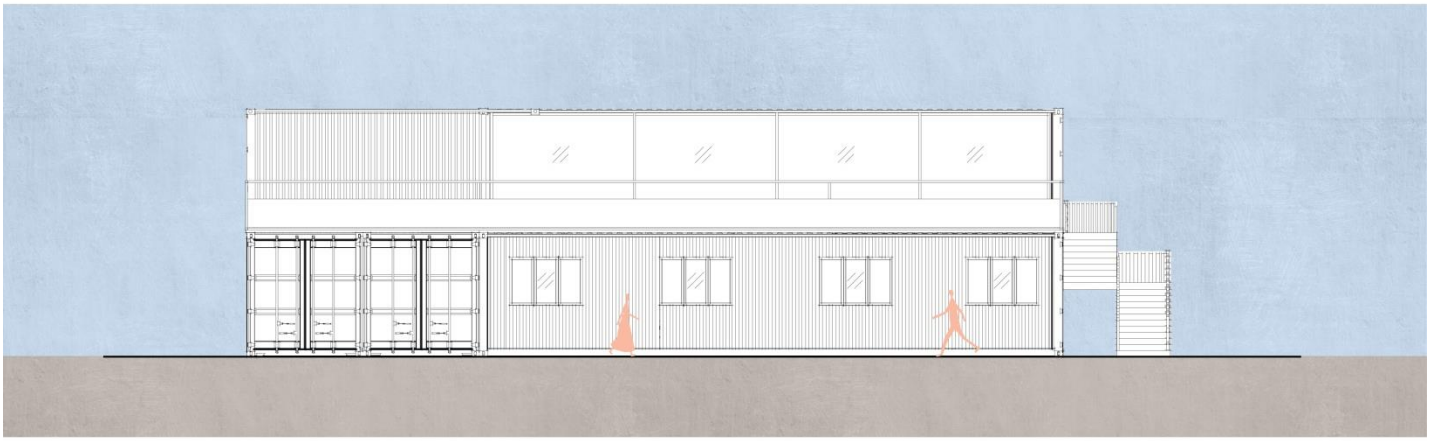
FRONT ELEVATION



REAR ELEVATION



EAST ELEVATION



WEST ELEVATION

SECTION A-A

SECTION B-B

4.3.2 SPATIAL VISUALIZATION

Outdoor courtyard as multipurpose space

Collaborative working space

Lounge and relaxing area

Activity and study area

Outdoor dining area

Indoor dining area

5.0 LANDSCAPE ARCHITECTURE

5.0 LANDSCAPE ARCHITECTURE

5.1 EXISTING LANDSCAPE

The initial idea of the landscape design is to manage and facilitate some future outdoor activities for staff and students, this will create a common bond within the campus community. The landscape design has divided into two categories; on-ground and on-containers. On-ground layer is planted with the plantation and paving while on-containers is featured with the other plantation and furniture. Shrubs are proposed to be located along the containers to act as the boundary of the recreation district.

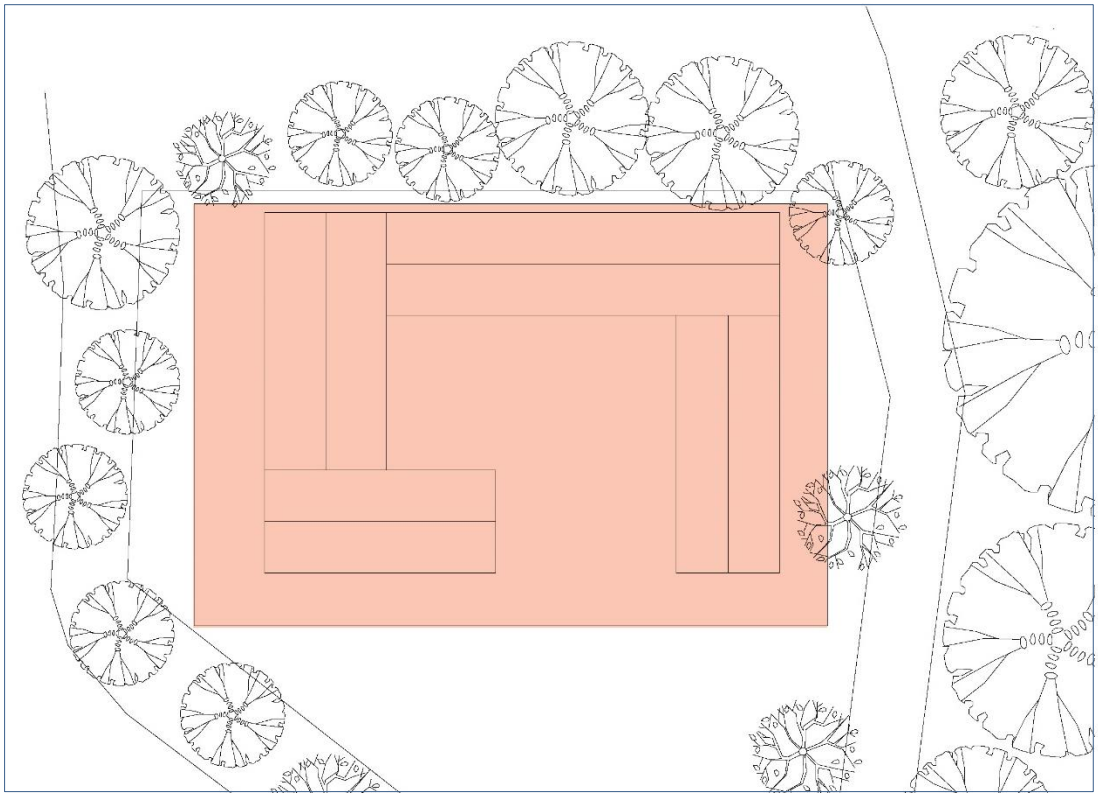


Figure 5.0: Plan view. Area highlighted in red shows available spaces for landscape design.

5.1.2 TWO CATEGORIES OF LANDSCAPE DESIGN

According to the site context, landscape design has divided into 2 categories: on-ground and on-containers.

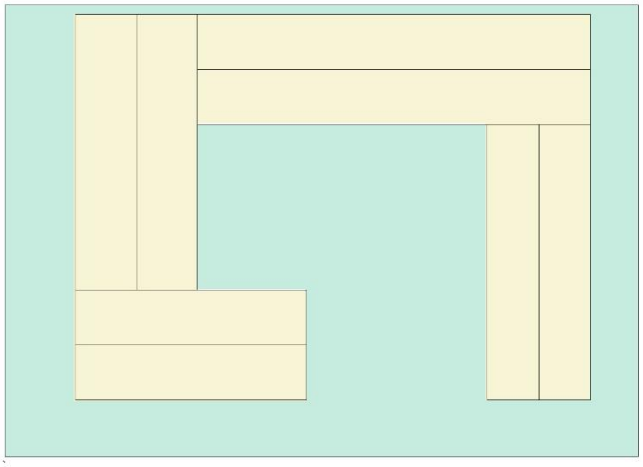


Figure 5.1.1: Plan view

Total area: 600m2

Yellow- On-container

Green- On-ground

5.2 ON-GROUND LANDSCAPE DESIGN

5.2.1 EXISTING CONDITION

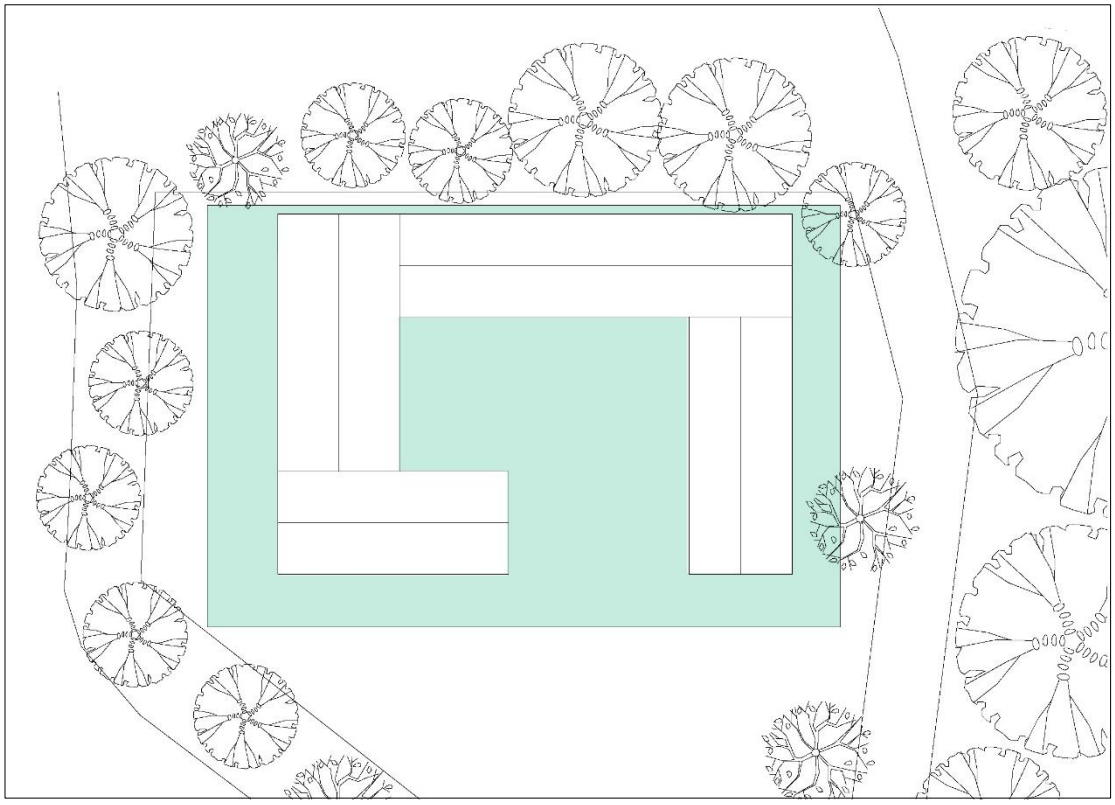


Figure 5.2: Plan view. Highlight of On-ground landscape area

Existing Condition

Total area: 327.5m2

Hardscape:

1. Soil
2. Rock
3. Fence

Softscape:

1. Trees
2. Bushes

5.2.2 LANDSCAPE LAYOUT

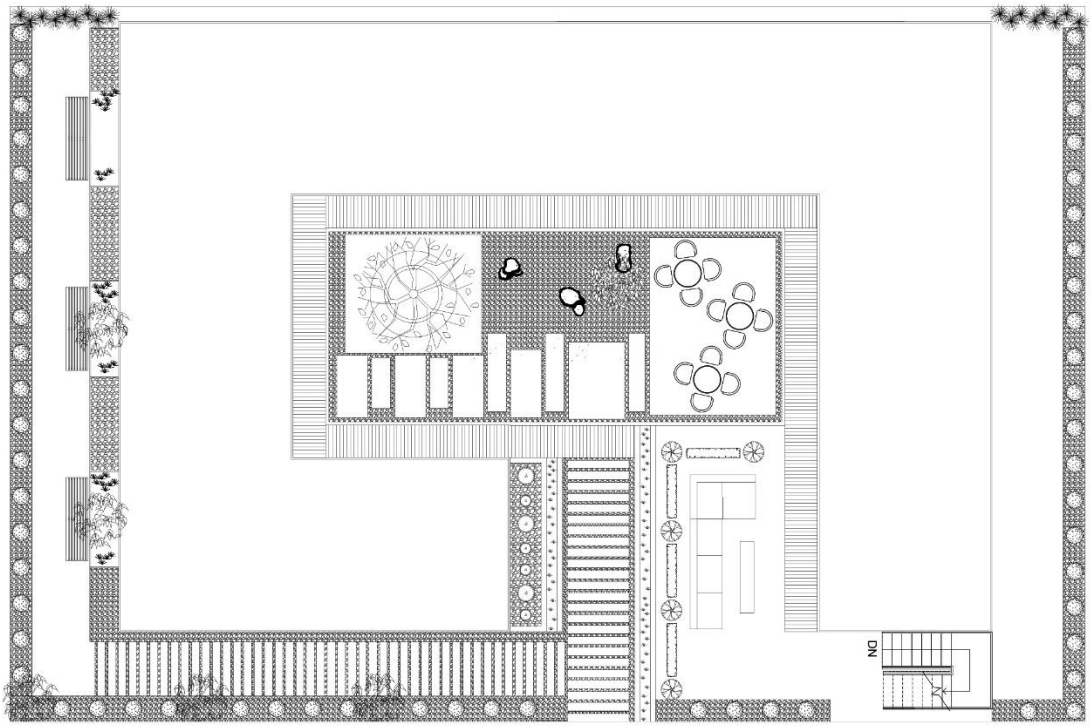


Figure 5.2: Plan view. Proposed landscape layout

Existing Condition

Total area: 327.5m2

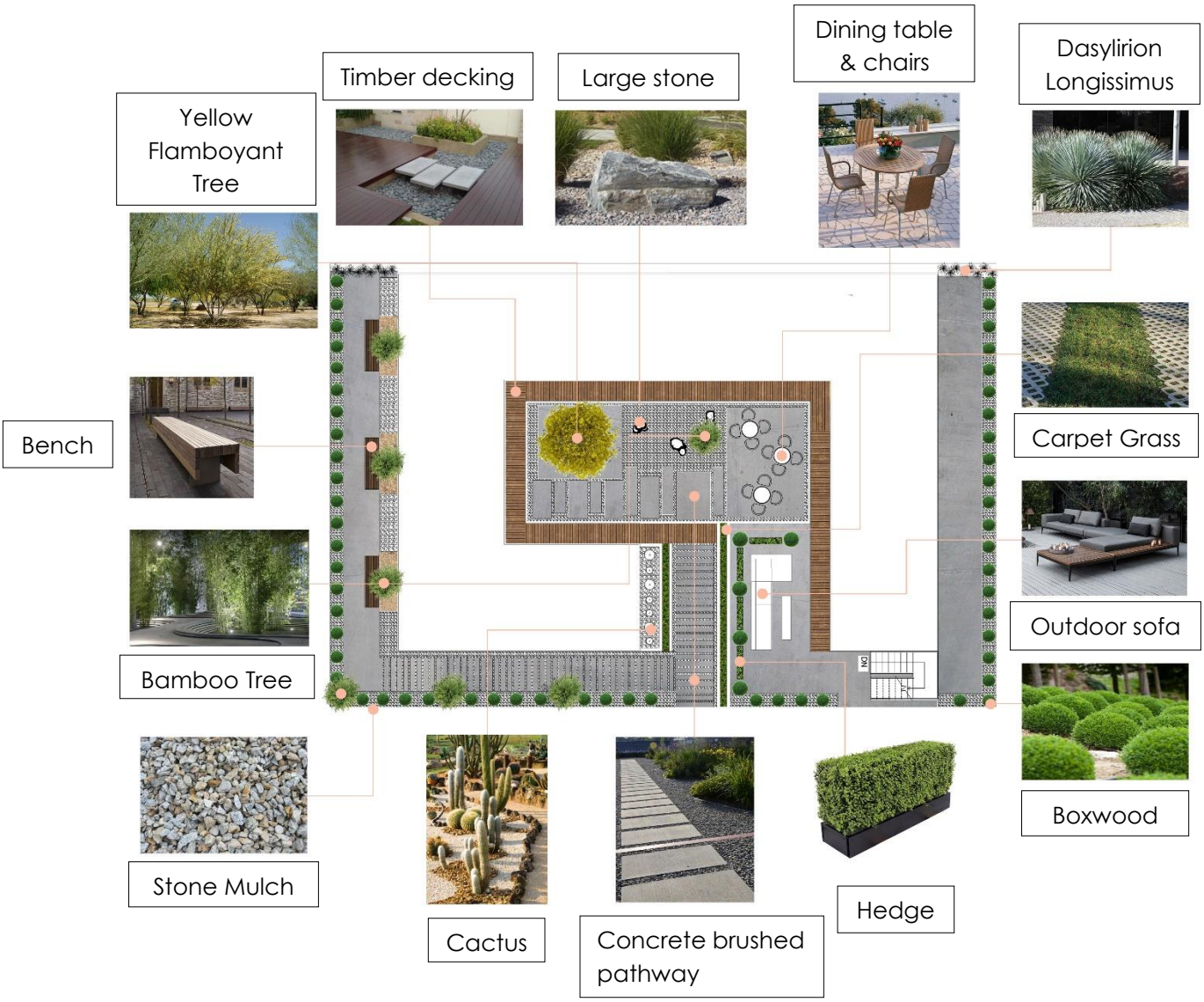
Hardscape:

1. Timber decking
2. Bench
3. Concrete brush pathway
4. Steel tables and chairs
5. Stone Mulch
6. Outdoor Sofa
7. Large Rock

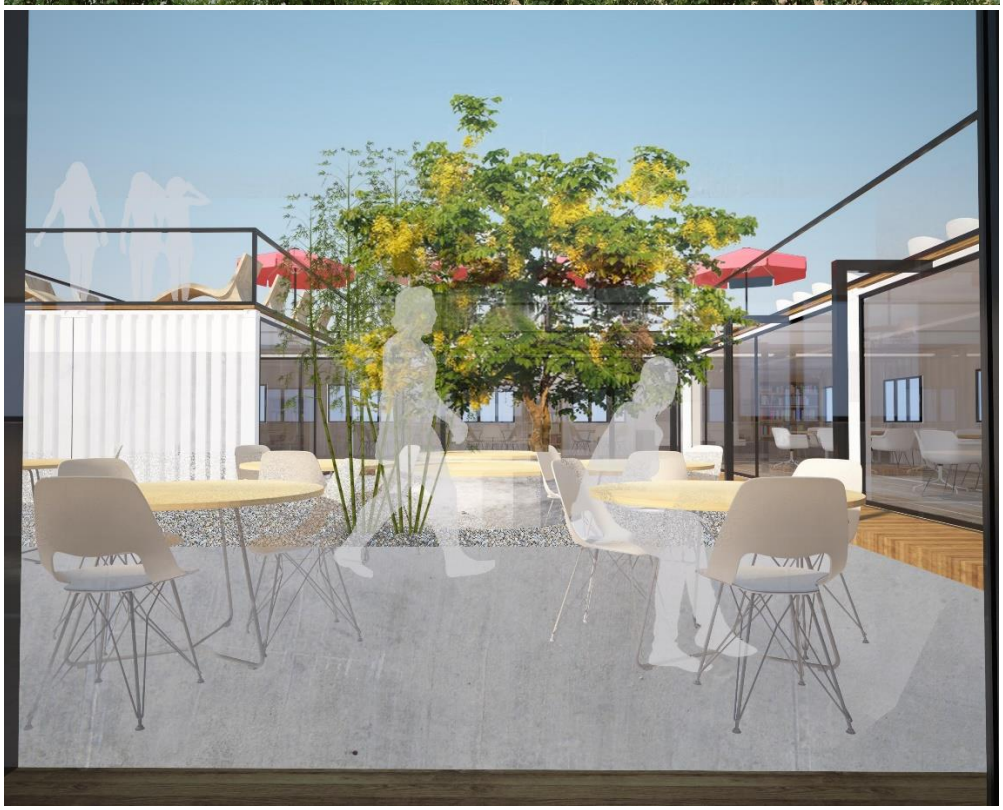
Softscape:

1. Green bamboo tree
2. Carpet grass
3. Cactus
4. Dasylirion Longissimus
5. Boxwood
6. Yellow Flamboyant Tree
7. Hedge

5.2.3 HARDSCAPE & SOFTSCAPE DESIGN



5.2.4 RENDERINGS



5.3 ON-CONTAINERS LANDSCAPE DESIGN

5.3.1 EXISTING CONDITION

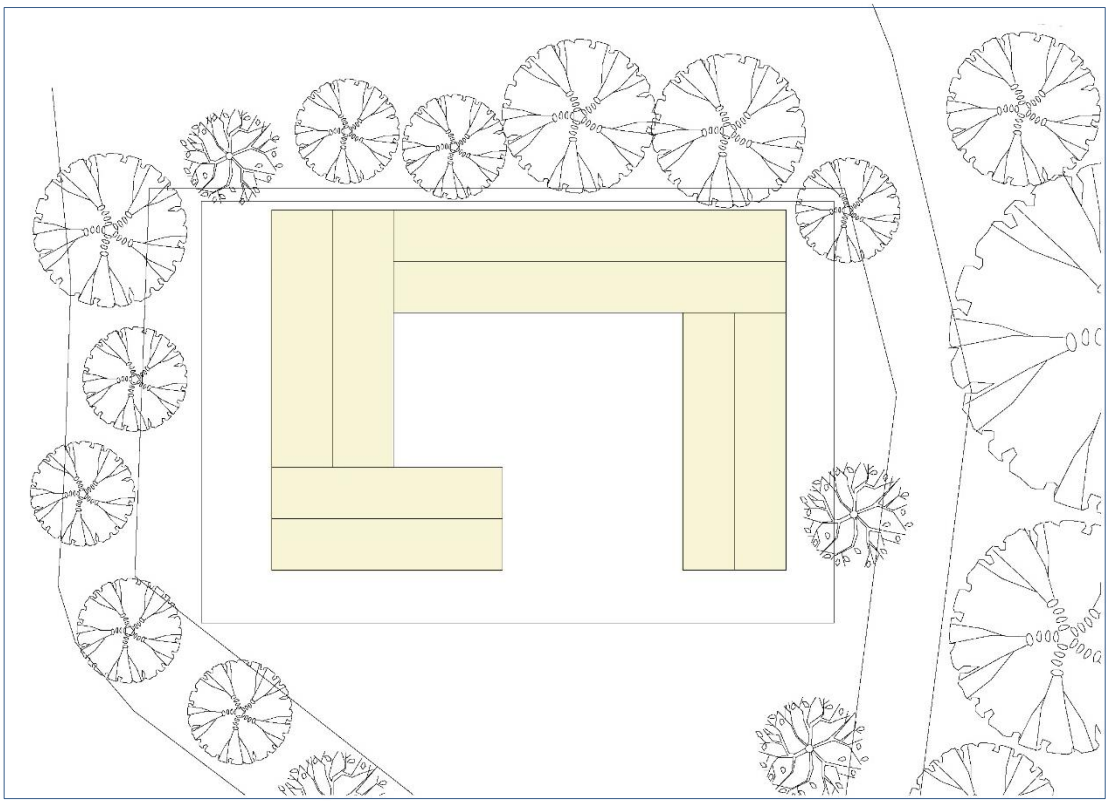


Figure 5.3: Plan view. Highlight of On-containers landscape area

Existing Condition
Total area: 272.5m2
Hardscape: Zinc platform
Softscape: -

5.3.2 LANDSCAPE LAYOUT

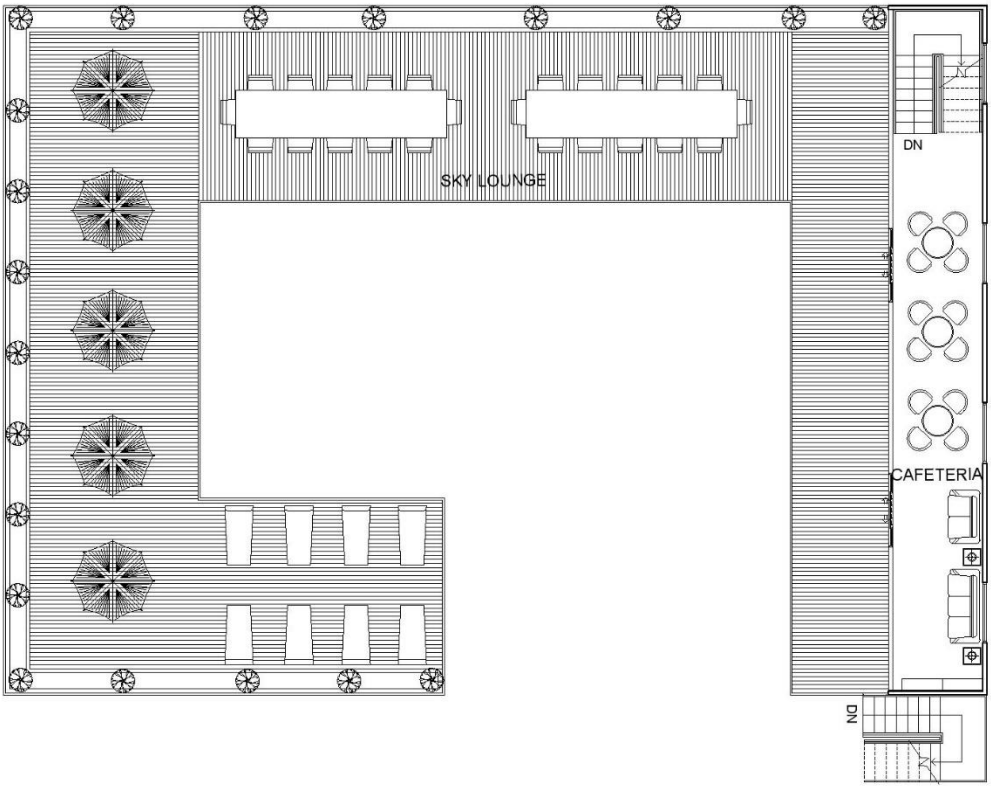


Figure 5.3.1: Plan view. Proposed landscape design.

Existing Condition

Total area: 272.5m2

Hardscape:

1. Timber decking
2. Patio Umbrella
3. Table and chairs
4. Outdoors Lounge Chairs
5. Black Metal Railing
6. Planter box

Softscape:

1. Yellow Daisies

5.3.3 HARDSCAPE & SOFTSCAPE DESIGN

Patio Umbrella

Black Metal Railing

Tables & Chairs

Timber Decking

Planter Box

Yellow Daisies

Outdoor Lounge Chairs

5.3.4 RENDERINGS

6.0 CIVIL & STRUCTURAL ENGINEERING

6.1 CONTAINER PROPERTIES

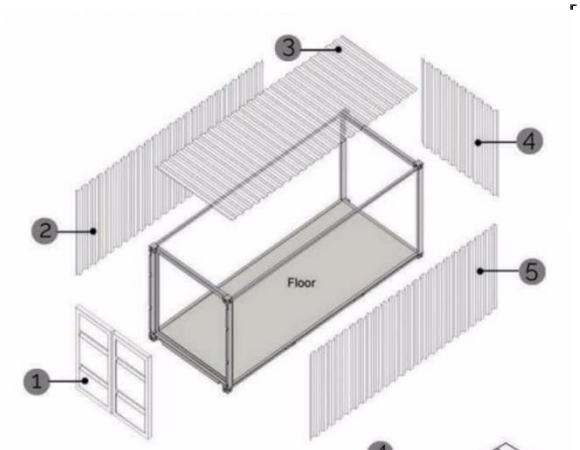
6.1.1 CONTAINER PROPERTIES

20' Container	40' Container
	
External Dimension: 6.058m (Length) x 2.438m (Width) x 2.591m (Height) **Internal Dimension**: 5.867m (Length) x 2.352m (Width) x 2.385m (Height)	**External Dimension**: 12.192m (Length) x 2.438m (Width) x 2.591m (Height) **Internal Dimension**: 12.032m (Length) x 2.352m (Width) x 2.385m (Height)

Advantages and Disadvantages of Using Containers

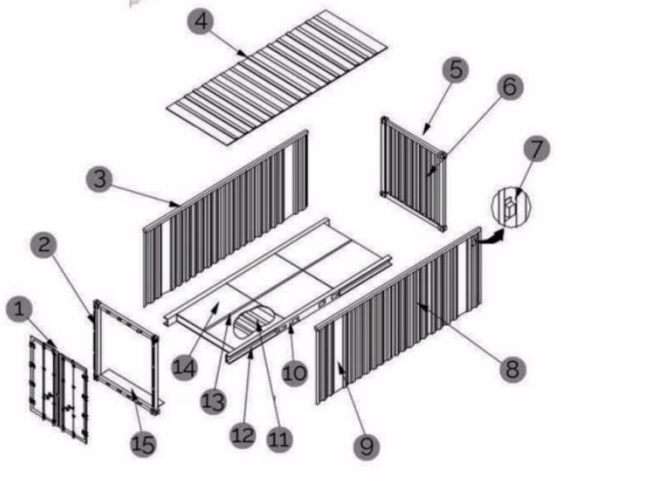
Advantages	Disadvantages
-Design to carry heavy load -Could be stacked in high columns up to 12 containers. -Designed to resist harsh environment. -Strong 4 corner to support stack of other containers. -A limit of 300kg is recommended for the roof part.	-Long narrow box with less than 2800mm height. -When its old enough it will get rusted easily. -Controlling temperature inside steel containers. -Not enough of open 'free' spaces.

6.1.2 CONTAINER STRUCTURE



Container members

1. Front door
2. Side wall panel
3. Roof panel
4. Back wall panel
5. Side wall panel



Container members

1. Door assembly
2. Rear end frame
3. Top side rail
4. Roof panel
5. Front end frame
6. End wall panel
7. Ventilation
8. Side wall panel
9. Roof panel
10. Front end frame
11. End wall panel
12. Ventilation
13. Side wall panel
14. Roof panel
15. Front end frame

Containers Support Structure

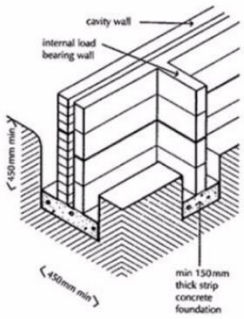
The load-carrying element of all box containers is a steel framework, consisting of four corner posts and two bottom side rails, two top side rails, two bottom cross members and a pair of front top end rail.

6.2 STRUCTURAL SYSTEM

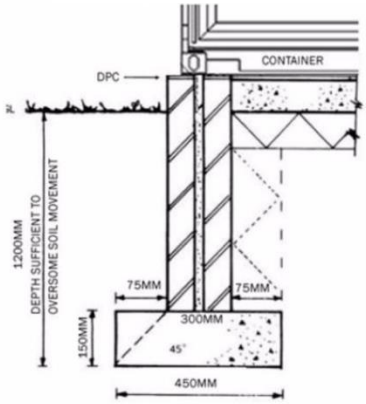
6.2.1 FOUNDATION SYSTEM

Shallow strip foundation

-combination of pier and slab foundation.



Shallow strip foundation



PROS AND CONS

Advantages	Disadvantages
Suitable for sandy soil	Low durability
Simplicity of design	High cost in the final stages of construction inability to make monolithic binding of the floor to the basement
Cheap familiar technology	
Built without expensive tools	
Conventional build method	

Strip foundation is chosen as it is the cheapest and easier way of foundation design which is suitable for the unstable sandy soil condition at the site. It saved the cost and time of the construction built.

6.2.2 STRUCTURAL CONNECTION

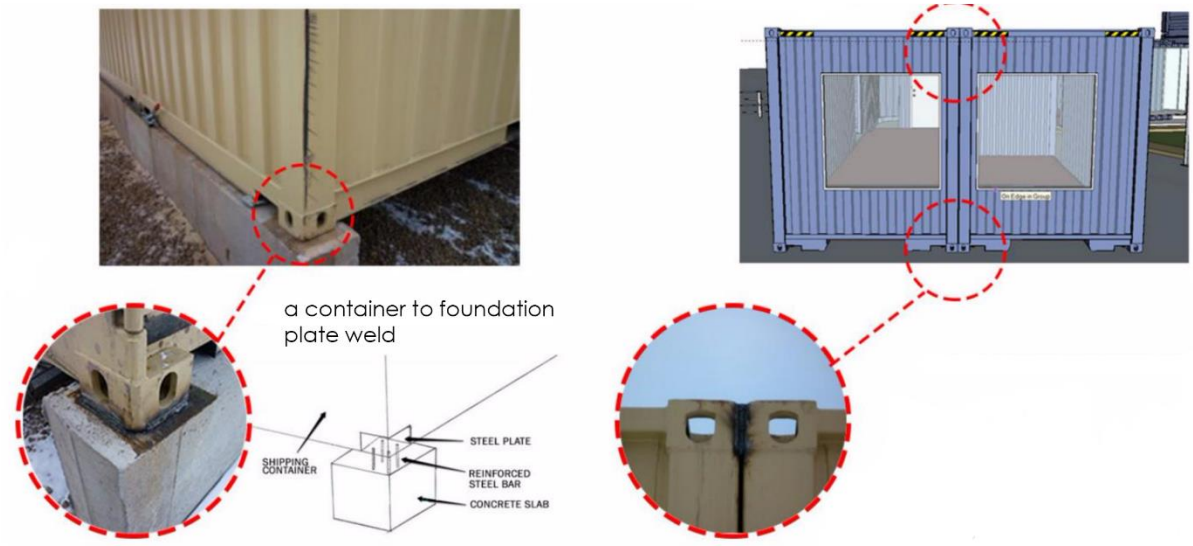
Container to Foundation

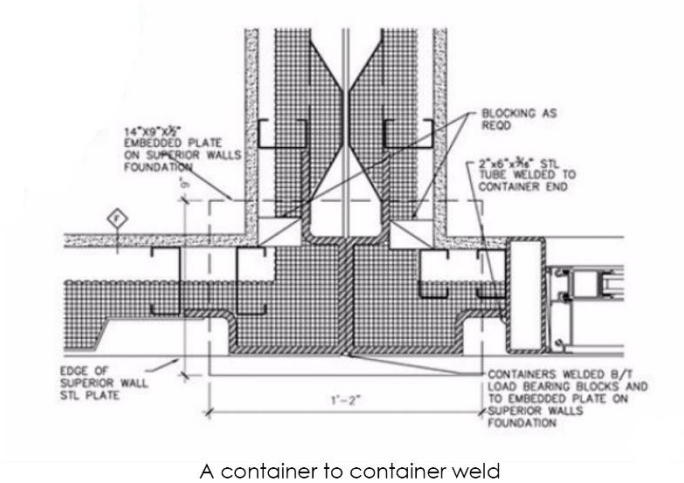
-Through a steel plate which has been set in the concrete.

-Steel plates fit inside the corner fittings, acting as a heavy duty washer for the bolts.

Container to Container

-All corner blocks are welded to each other to secure the containers to themselves.





A container to container weld

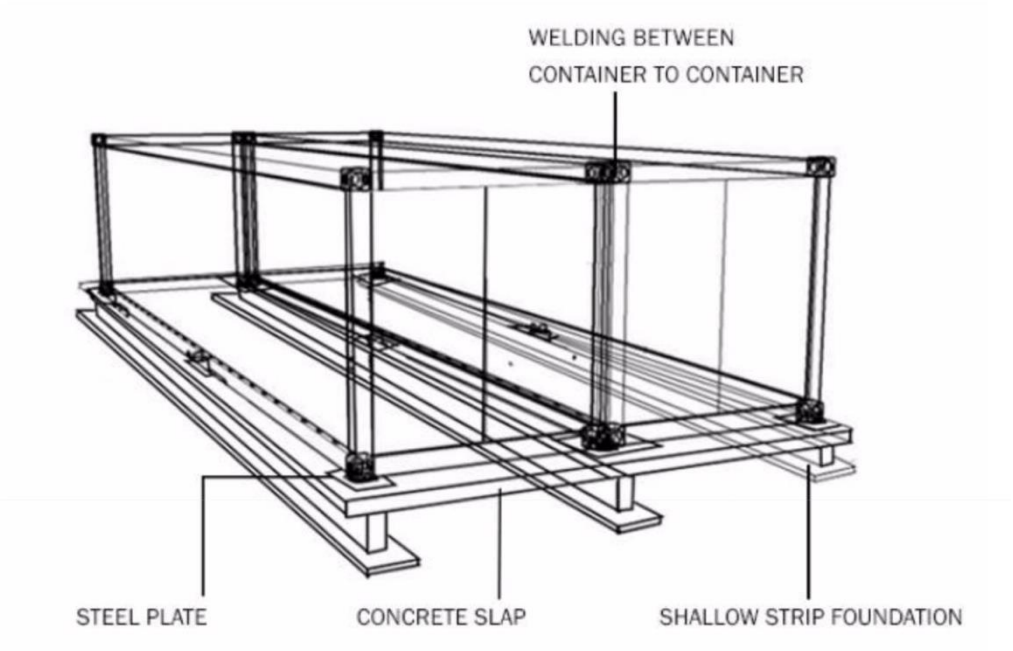
Advantages:

-the most secure method

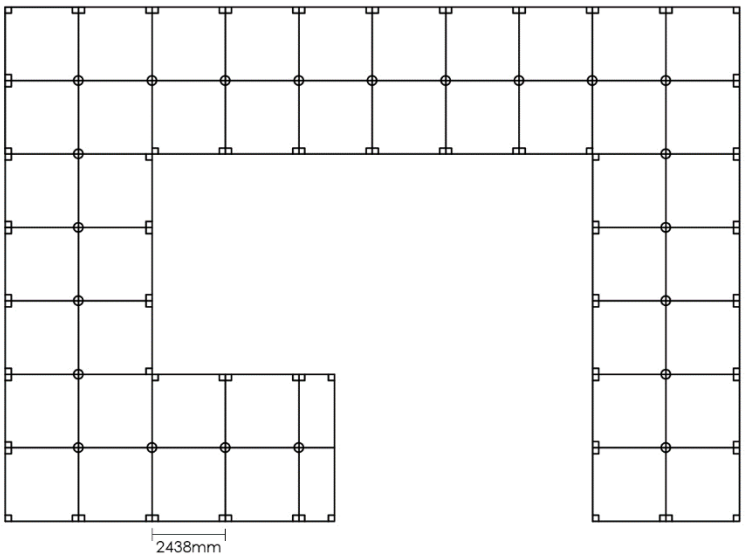
-not difficult for a handy person

-simply weld the containers together.

6.2.3 STRUCTURAL PERSPECTIVE



Steel Plate layout

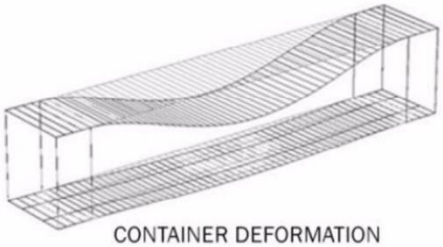


Steel plates are welded in every 2438mm distance of the container length.

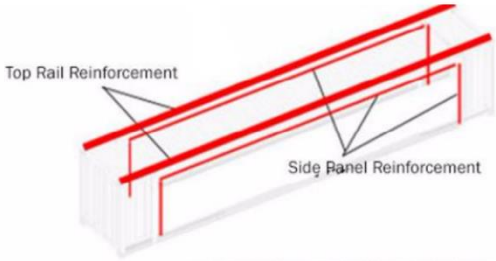
6.2.4 CONTAINER MODIFICATION

-When cutting or removing any of the paneling, considerable reinforcement would be needed to replace the support being lost.

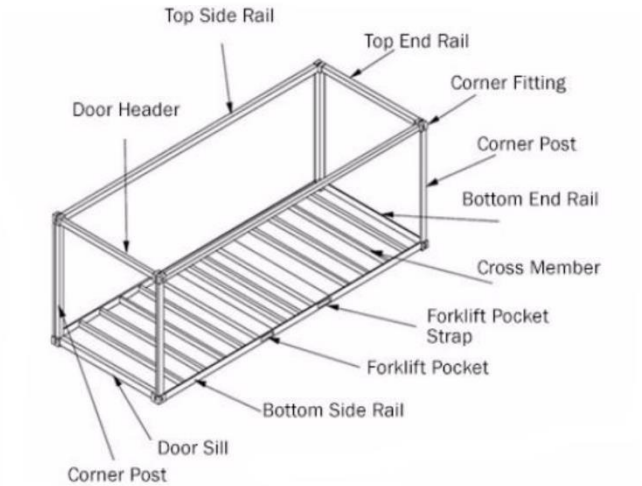
-Steel framing will be required to frame out the opening.



CONTAINER DEFORMATION

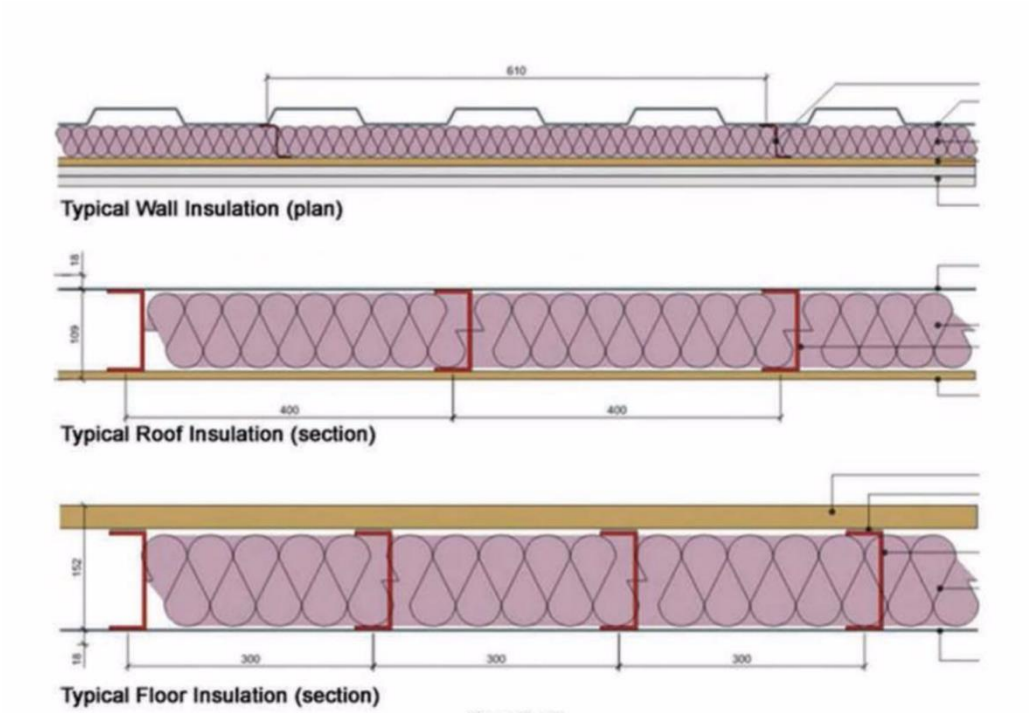


CONTAINER REINFORCEMENT



STRUCTURE OF CONTANER

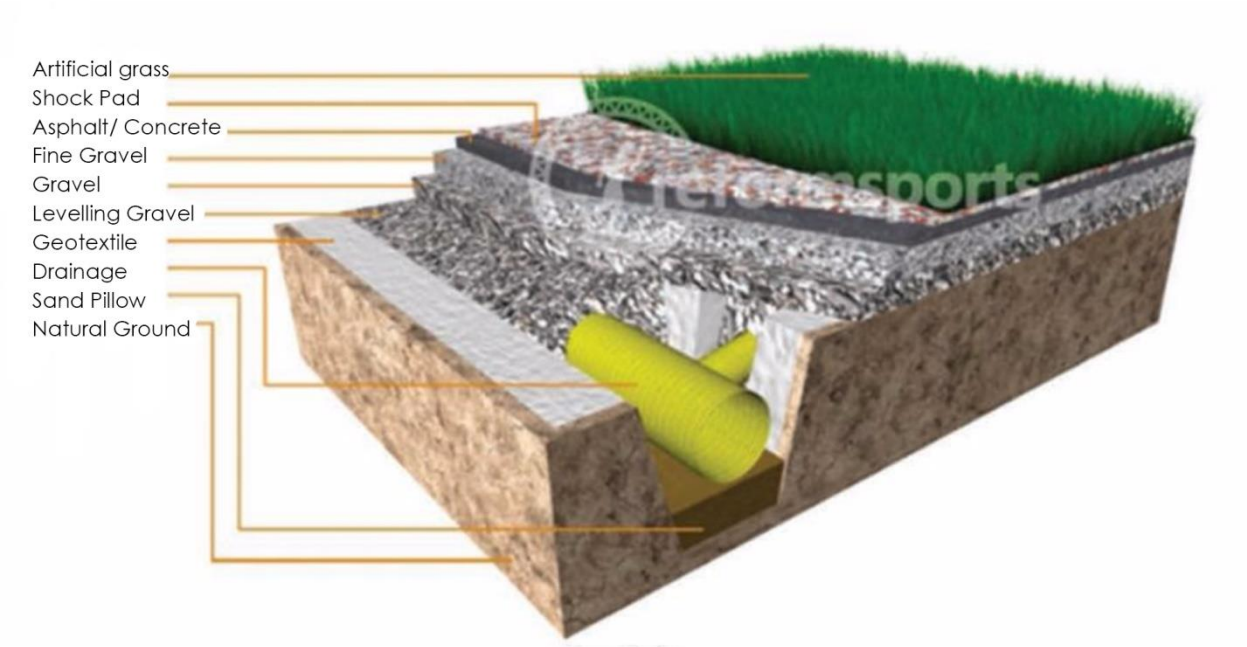
6.2.5 INSULATION



The exterior walls, ground floor, roof and glazing make up the core envelope of a building.

Energy code compliance and your site's location, thermal zone and climate will factor strongly, and will determine insulation requirements.

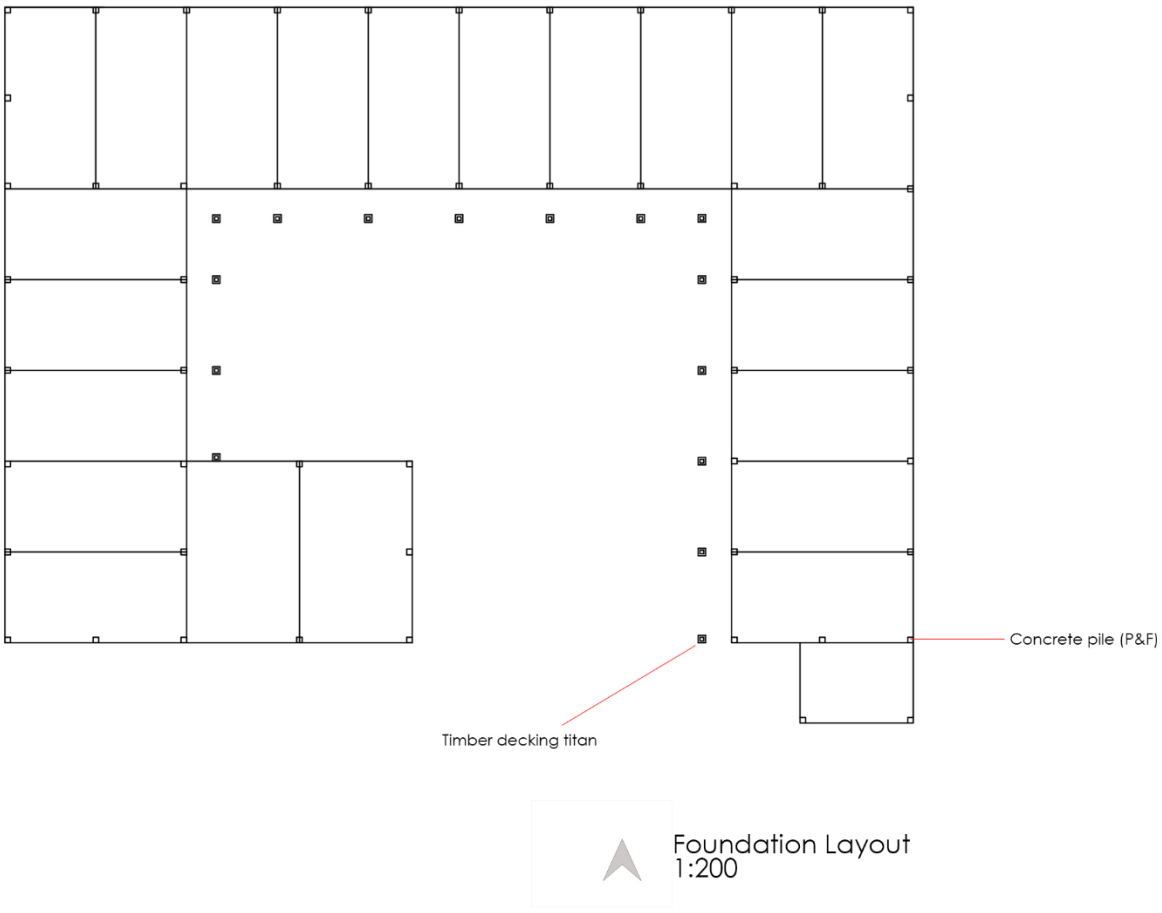
6.2.6 DRAINAGE



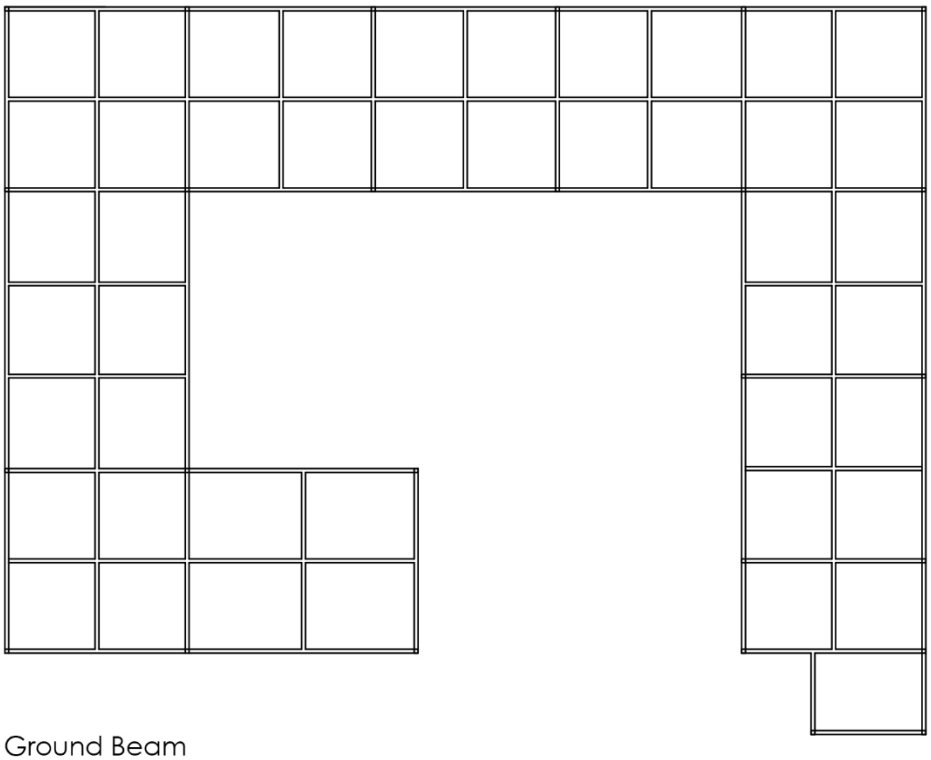
Drainage is installed for use in the site to dispose the water, or a drain to harvest the water.

6.3 STRUCTURAL DRAWINGS

6.3.1 FOUNDATION LAYOUT



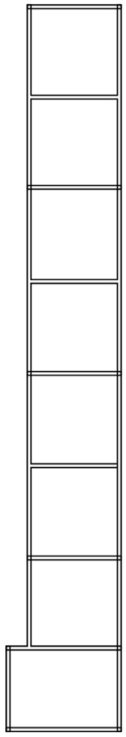
6.3.2 GROUND FLOOR LAYOUT



Ground Beam

Ground Floor Layout
1:200

6.3.3 FIRST FLOOR LAYOUT



First Floor Layout
1:200

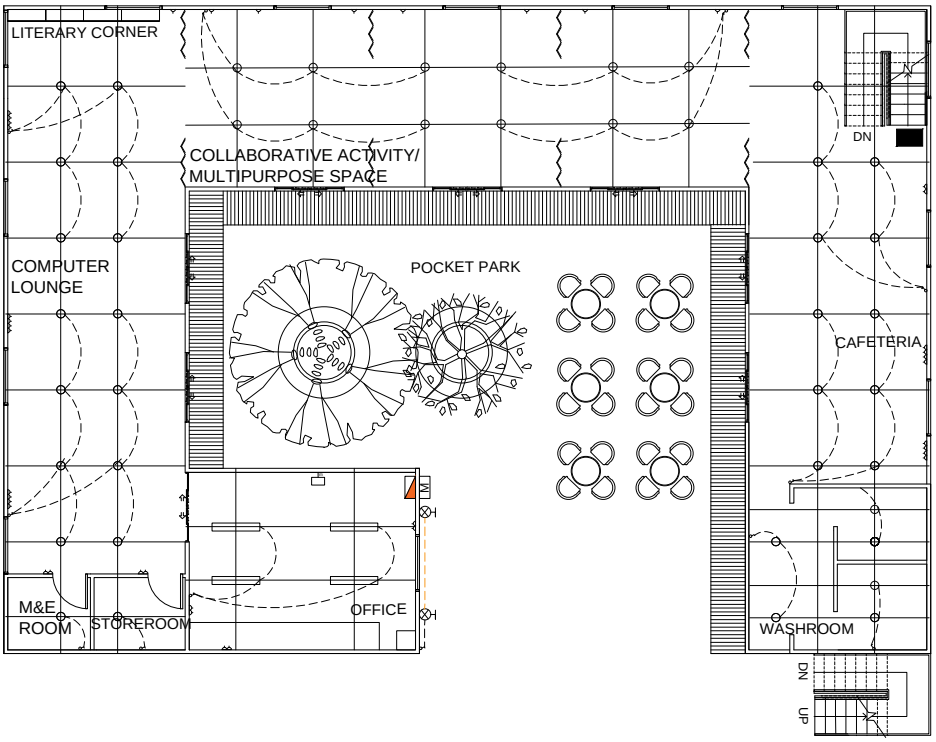
6.4 SUMMARY (SWOT)

Strength	Strip foundation is cheaper and easier to design foundation suit to the condition of the site. It is cost-effective and time saving for the construction built.
Weakness	Minimal structure and thin insulation layer to reduce headroom obstruction.
Opportunity	Container design area able to achieve with minimal structural system due to strong natural properties of shipping container
	Proposal of embankment at perimeter of the detention pond reduce flood risk

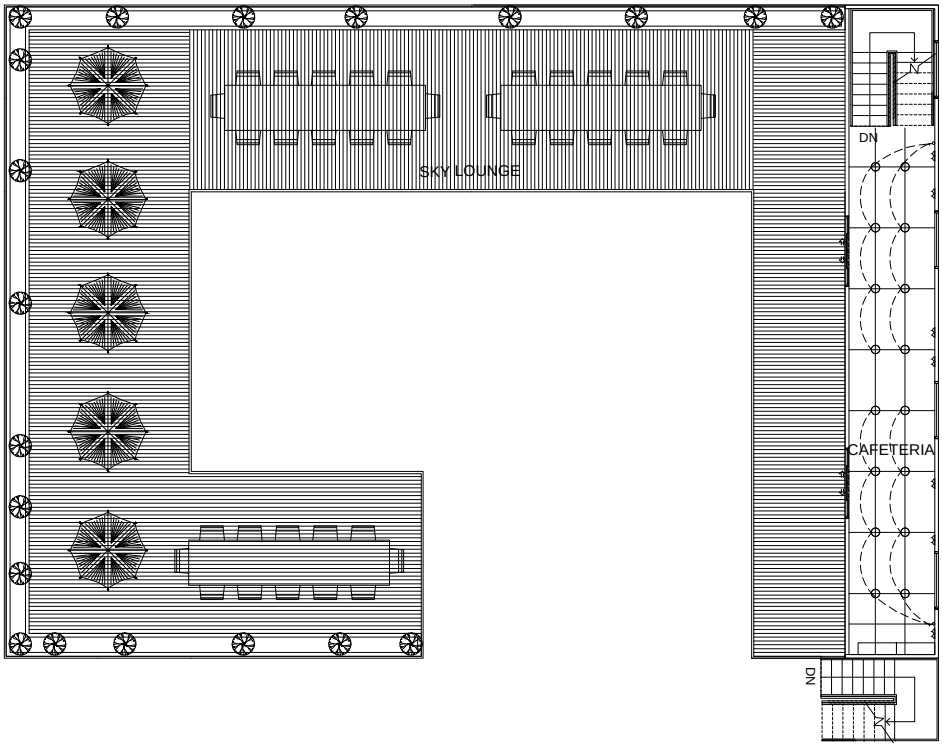
7.0 MECHANICAL & ELECTRICAL ENGINEERING

7.1 LIGHTING

7.1.1 ELECTRICAL LAYOUT



GROUND FLOOR



1ST FLOOR

LEGEND	
M	Electric meter
	Distribution box
	Ceiling light
	Wall light
	Spotlight
	Single socket
	Double socket
	Single switch
	Double switch
	Three pole switch
	Exhaust fan
	Fan
B	Doorbell
t	Telephone line
m	Modem
tv	Television
fm	Radio
	Fluorescent Light

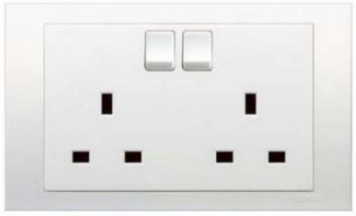
7.12 TYPE OF LIGHTHING, SWITH AND SOCKET

- 7 watt (each)
- LED light
- Ceiling mounted light
- Long life span (30000-50000 hours)
- Efficacy 70lm/w
- Easy maintenance
- Colour warm white
- Quantity 61

- 35 watt (each)
- GU10 LED light
- Wall mounted light
- Long life span (25000 hours)
- Efficacy 70lm/w
- Easy maintenance
- Colour warm white or pure white
- Quantity 2

- 32 watt (each)
- T8 ballasted fixture (fluorescent)
- Ceiling mounted light
- Long life span (24000 hours)
- Efficacy 77lm/w
- Easy maintenance
- Colour white
- Quantity 4

1 GANG 10 AMP ONE WAY SWITCH AT 1600mm AFFL	2 GANG 10 AMP ONE WAY SWITCH AT 1600mm AFFL
	
QUANTITY: 6	QUANTITY: 9

1 GANG 13 AMP SWITCH SOCKET OUTLET AT 400mm AFFL	2 GANG 13 AMP SWITCH SOCKET OUTLET AT 400mm AFFL
	
QUANTITY: 35	QUANTITY: 10

7.2 MECHANICAL VENTILATION

7.2.1 CASSETITE TYPE AIR-CONDITIONER

Model: Daikin Air conditioning Multi 4MXS6BF Heat Pump Inverter 4x FFQ35C Cassette (3.5kW / 15000

Air Conditioner Model:

Daikin Air conditioning Multi 4MXS6BF Heat Pump Inverter 4x FFQ35C Cassette (3.5kW / 15000 Btu)

(840mm x 840mm x 245mm)

Condensate pipe

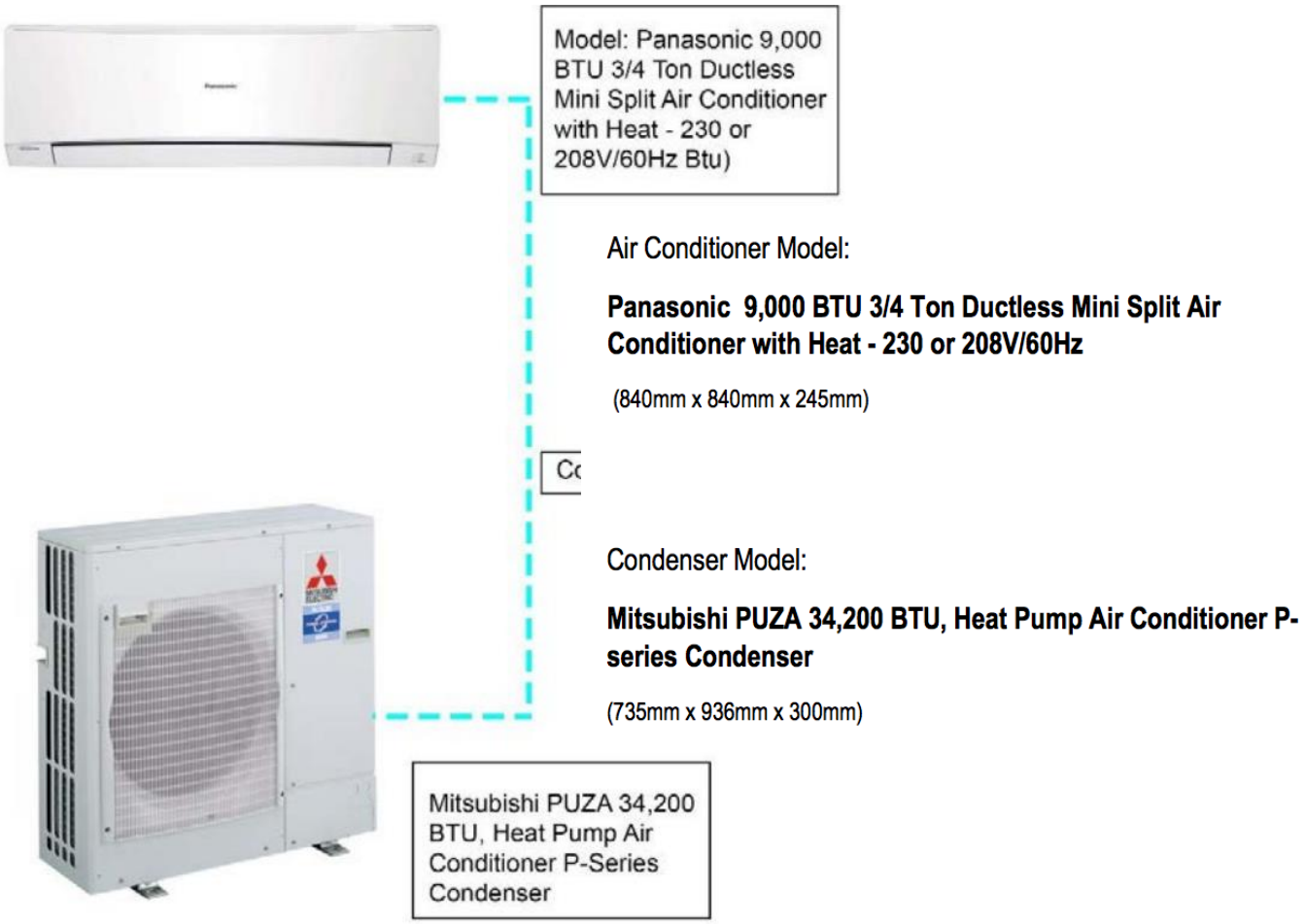
Mitsubishi PUZA 34,200 BTU, Heat Pump Air Conditioner P-Series Condenser

Condenser Model:

Mitsubishi PUZA 34,200 BTU, Heat Pump Air Conditioner P-series Condenser

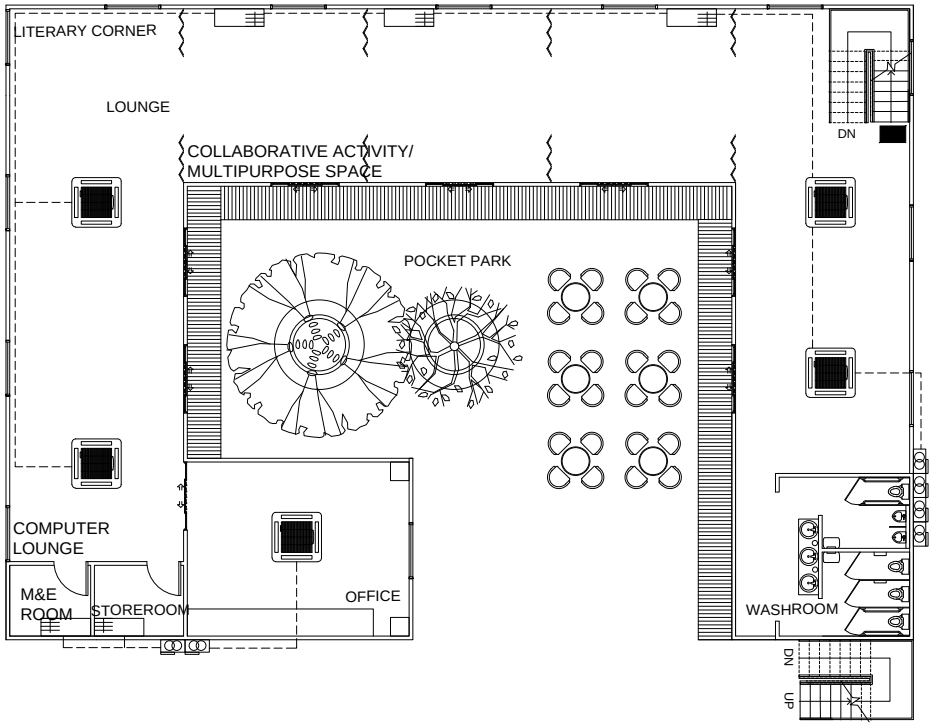
(735mm x 936mm x 300mm)

The usage of ceiling mounted indoor unit is able to provide a large area of cooling effect in a large space such as the indoor spaces. The use of multi head split system are more cost efficient as its great coverage would on requires few of them to maintain the temperature of the building.

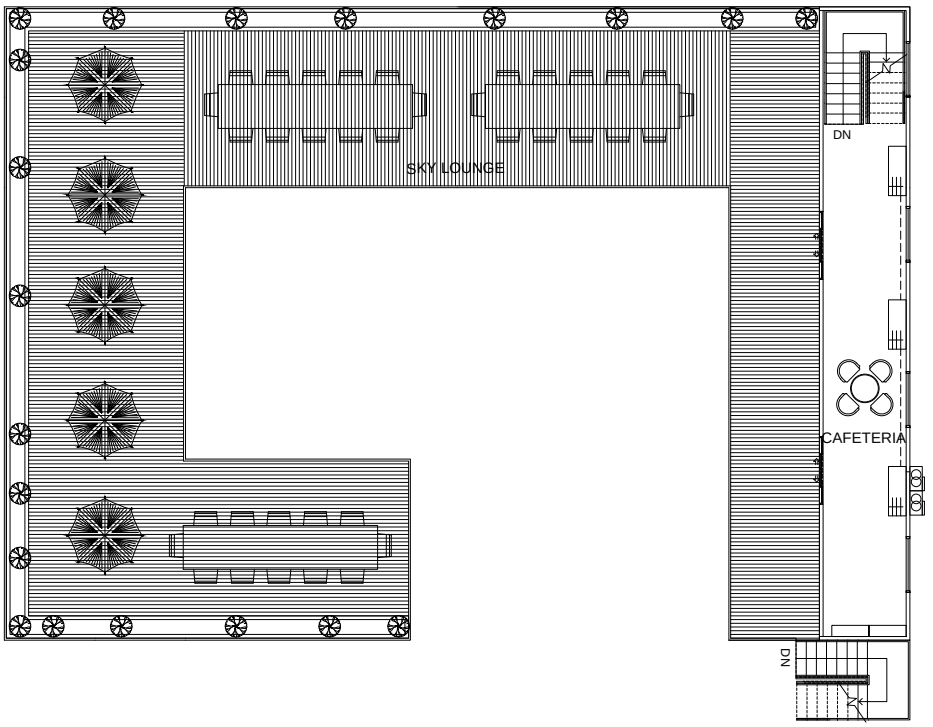


The usage of split unit system is applied to area with relatively small coverage such as the small café on the 1st floor, which is enough to provide sufficient cooling air intake in a lower cost.

7.2.2 AC INDOOR UNIT & OUTDOOR UNIT LAYOUT



GROUND FLOOR

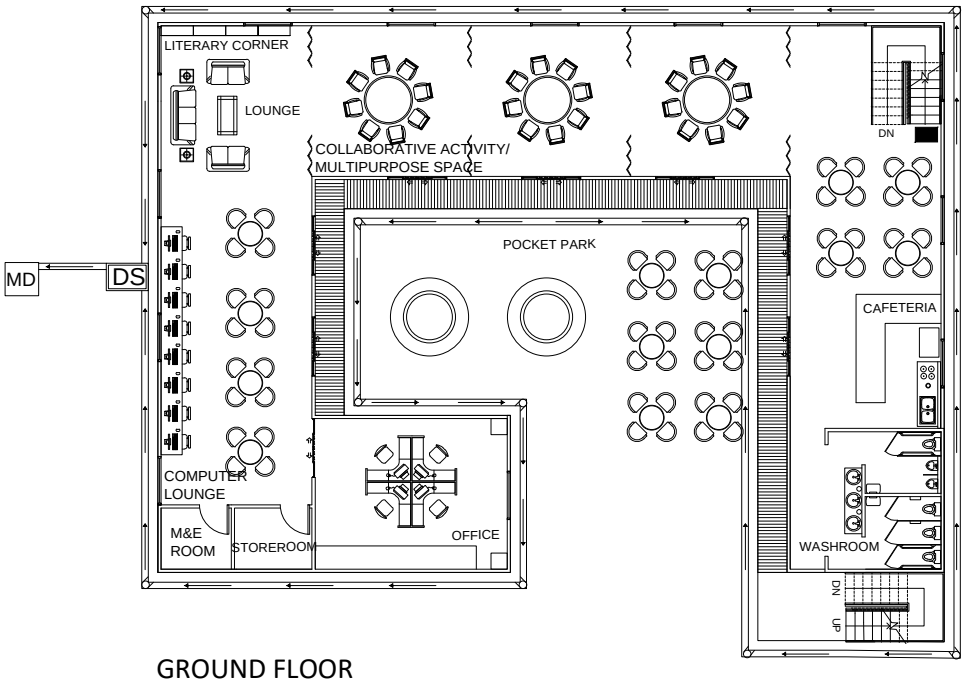


1ST FLOOR

LEGEND		
5		Cassette Type Ac Unit 15000 btu
8		Wall mounted Split Unit 9000 btu
8		Outdoor Condensing Unit
		Suction And Discharge Copper Refrigerant Pipe C/W Insulation

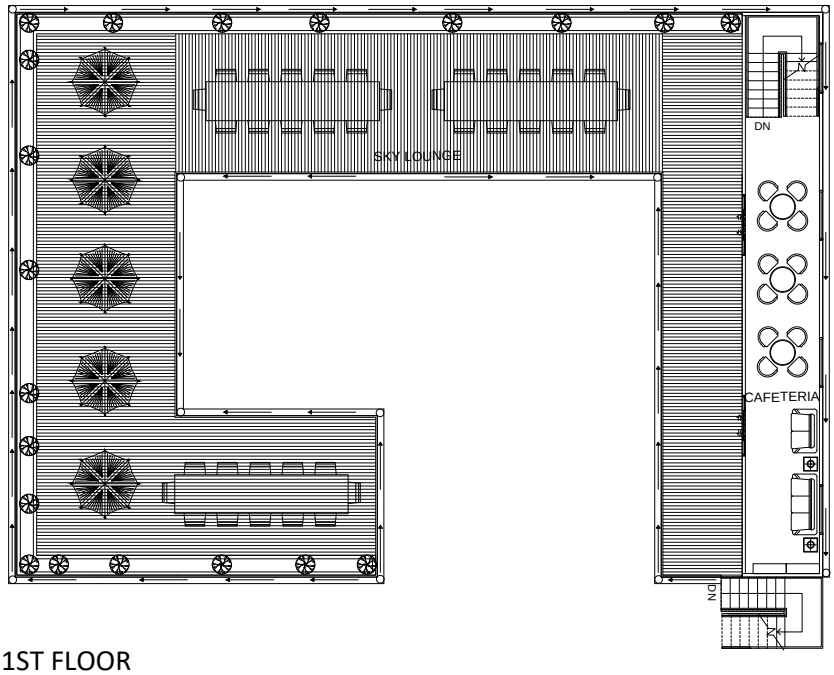
7.3 STORMWATER & DRAINAGE SYSTEM

7.3.1 STORMWATER & DRAINAGE LAYOUT



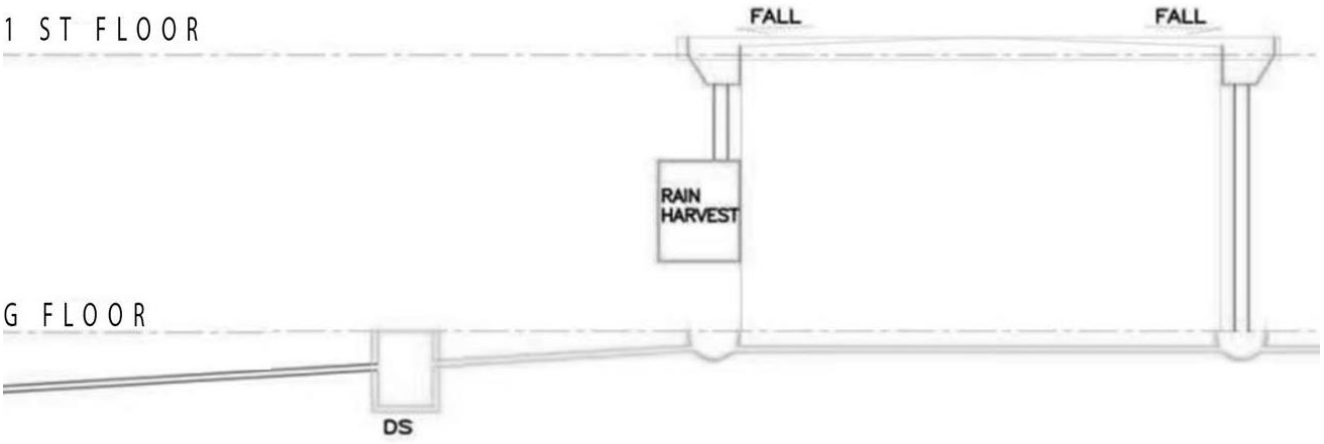
GROUND FLOOR

LEGEND	
DS DS	Drain sump
MD	Monsoon drain
○	∅100mm uPVC downpipe
⟵	∅200mm uPVC perimeter drain



1ST FLOOR

7.3 2 STORMWATER & DRAINAGE SYSTEM (SCHAMTIC DIAGRAM)



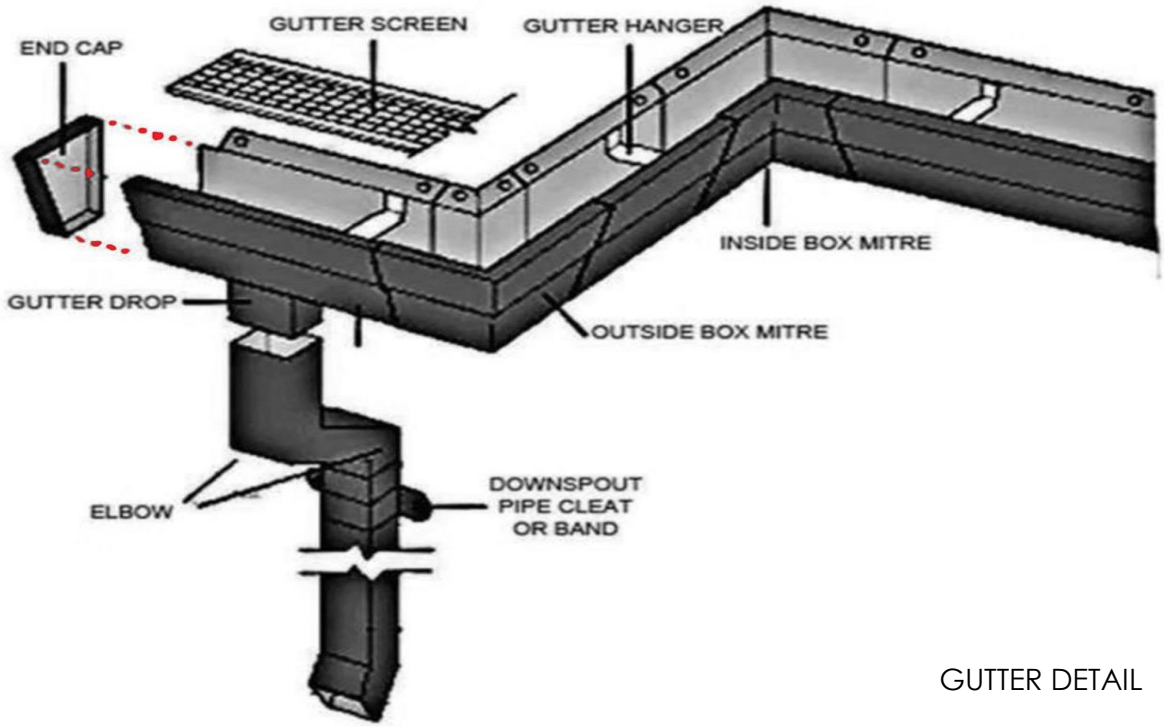
SYMBOL	DESCRIPTION
■	sump
‖	downpipe
⌐	gutter
═	drainage pipe
DS	drainage sump

7.3 3 STORMWATER & DRAINAGE SYSTEM COMPONENT

150MM ALUMINIUM K STYLE GUTTER WITH MILL FINISH ALUMINIUM GUTTER GUARD
GUTTER GUARD: PREVENT LEAVES & DEBRIS TO ENTER THE GUTTER AND DOWNPIPES.

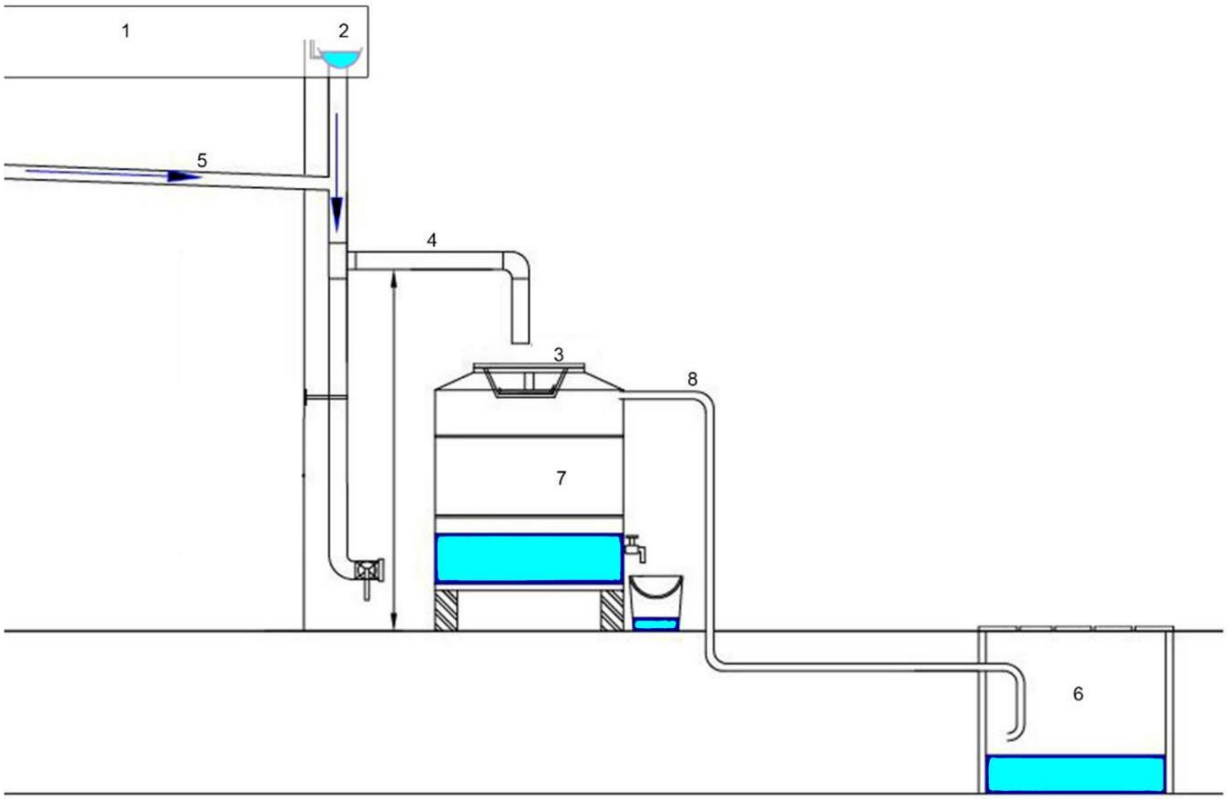
120MM X 100MM ALUMINIUM ROUND DOWNSPOUT

700MM X 700MM SUMP BOXES FROM POLYMER CONCRETE. THE EXCELLENT MATERIAL PROPERTIES OF POLYMER CONCRETE MAKES IT AN IDEAL MATERIAL FOR THESE COMPONENTS. THESE BASINS



GUTTER DETAIL

7.3.4 RAINWATER HARVESTING

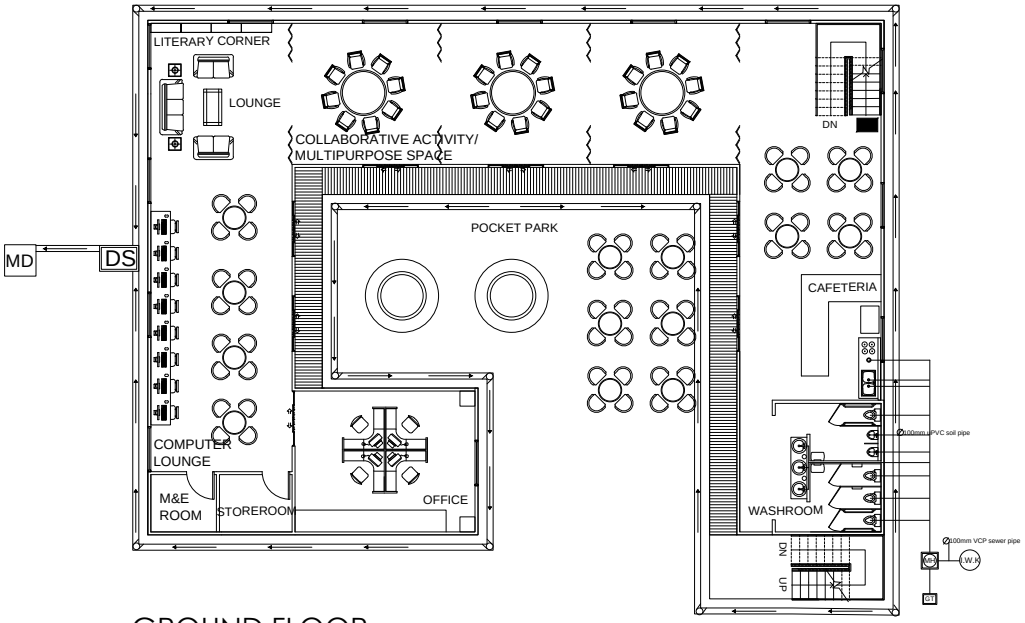


1. Collecting parapet
2. Rainwater downspout
3. Rain head inlet filter
4. First rain separator
5. Collection Pipe
6. Recharge Well
7. Water Tank
8. Overflow Pipe

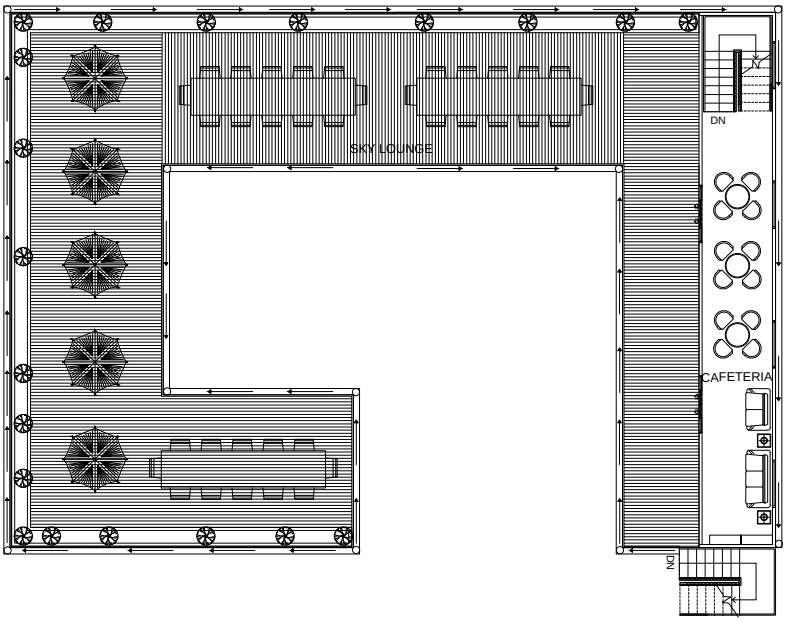
The rainwater conservative harvesting system provides an independent water supply and it act as a sub water source to the main supply. It is in order to promote the eco-green concept of the container. Besides, harvest system cause cheap and reliable source if water to irrigate the landscape, toilet flushing and also other usage.

7.4 SEWAGE SYSTEM

7.4.1 SEWAGE SYSTEM LAYOUT



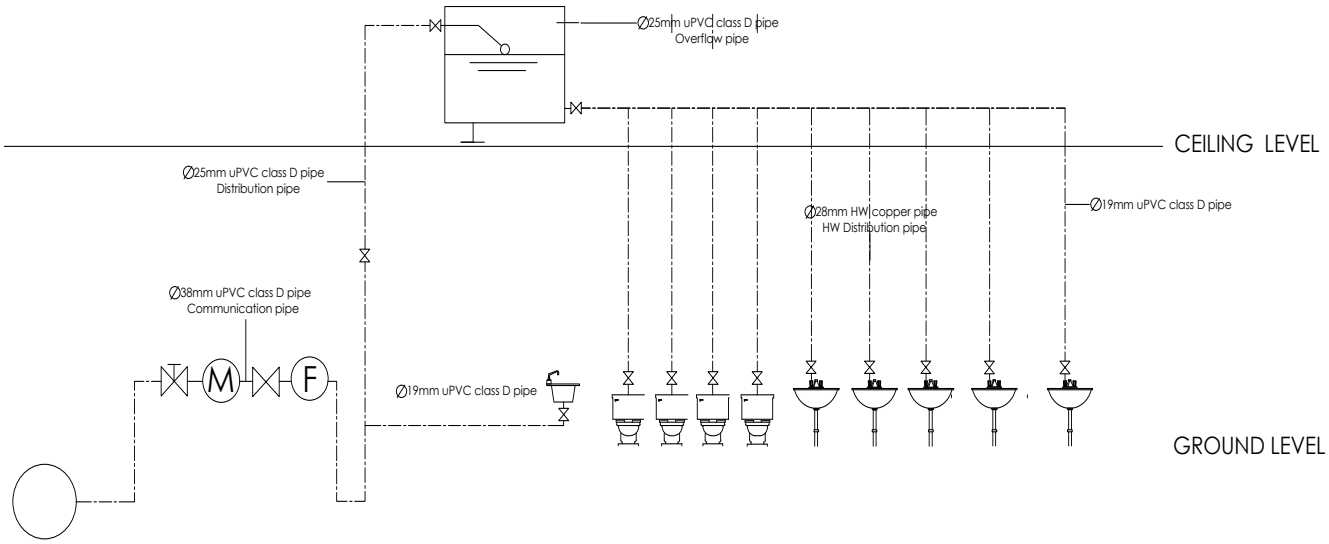
GROUND FLOOR



1ST FLOOR

LEGEND	
DS DS	Drain sump
MD	Monsoon drain
○	∅100mm uPVC downpipe
⟵	∅200mm uPVC perimeter drain

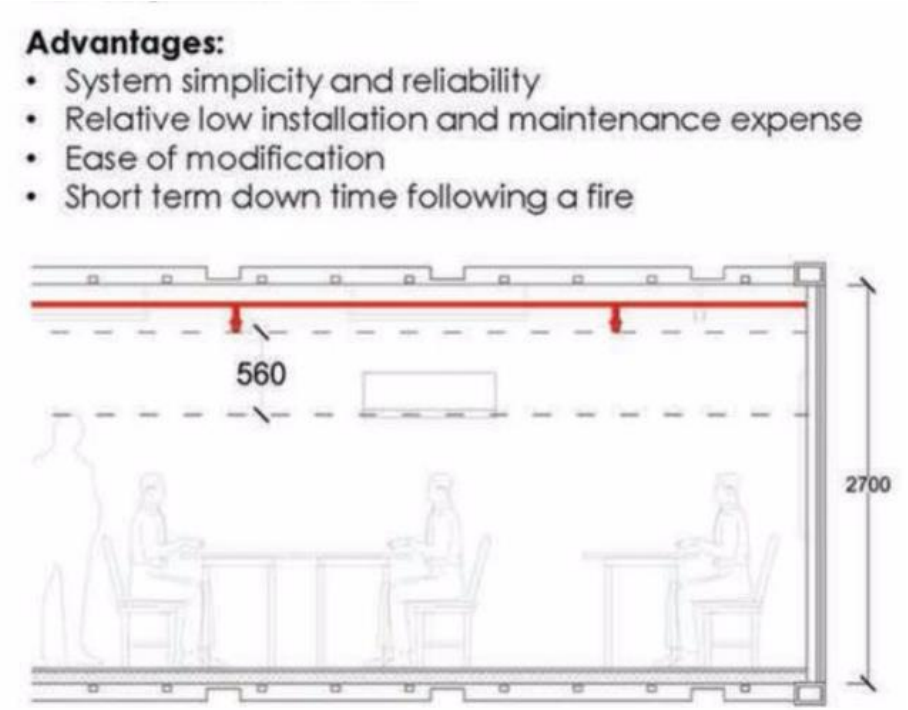
7.4.2 SEWAGE SYSTEM SCHEMATIC DIAGRAM

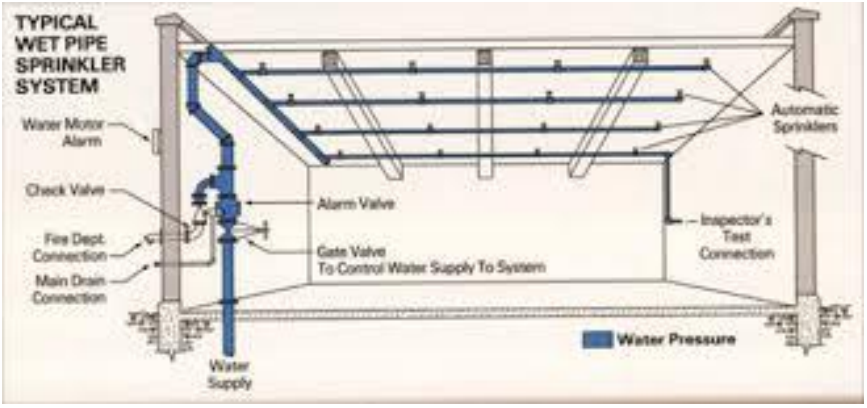


LEGEND	
	WC
	Toilet basin
	Kitchen basin
	Gate valve
	Stop valve
W.T	Cold water tank
M	Meter
F	Filter
	Cold water pipe

7.5 FIRE PROTECTION SYSTEM

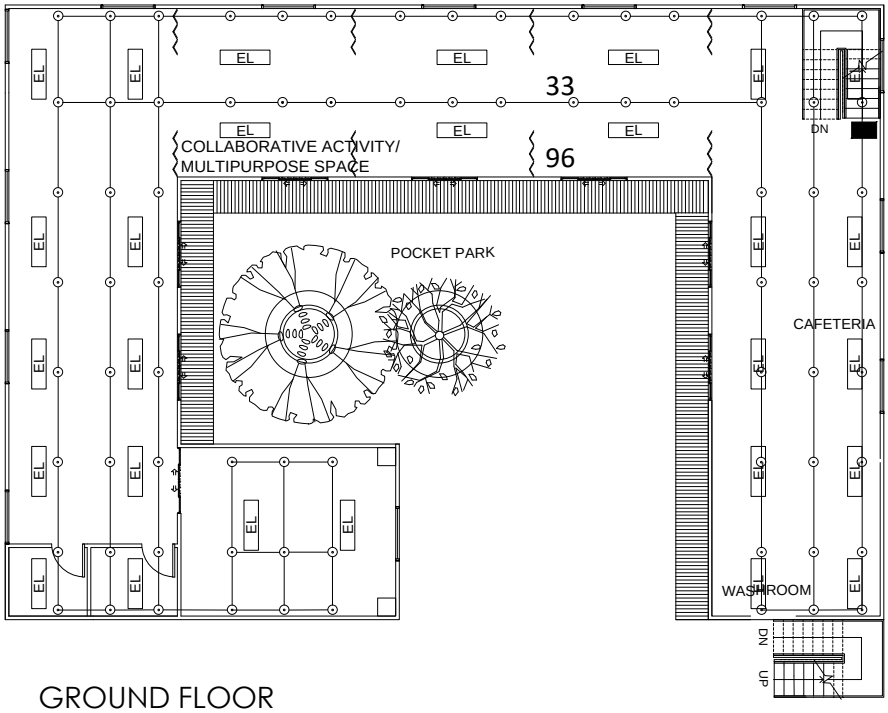
7.5.1 WET PIPE SPRINKLE SYSTEM



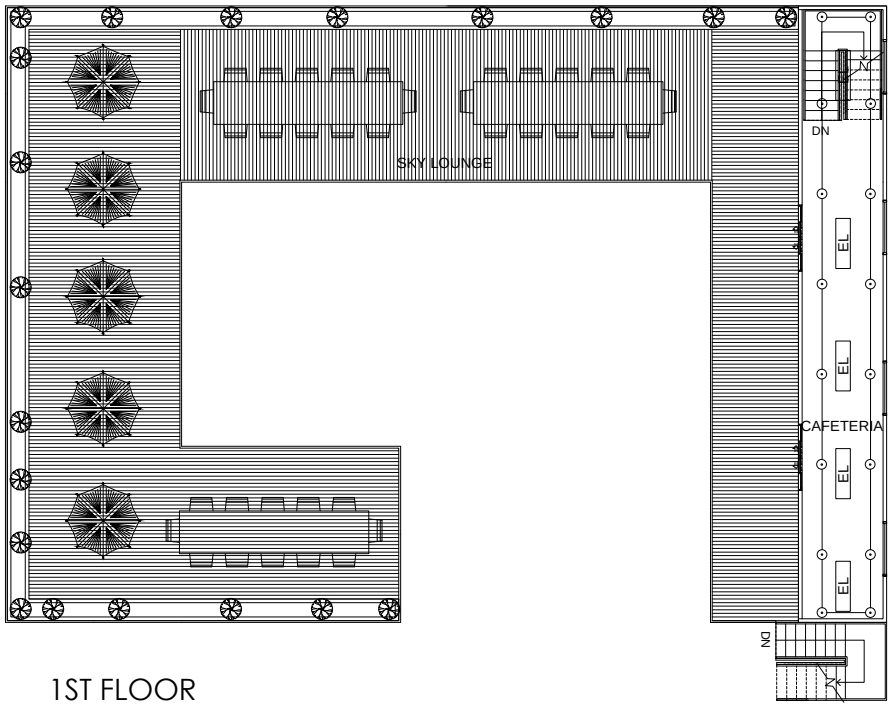


Wet pipe system is the most common fire sprinkler system. A wet pipe system is one in which water is constantly maintained within the sprinkler activities this water is immediately discharge into any fire incident.

7.5.2 SPRINKLER HEAD & EMERGENCY LIGHT LAYOUT



GROUND FLOOR



1ST FLOOR

LEGEND	
EL	Emergency Light
⊙	Sprinkler
———	Pipe C/W Insulation

8.0 QUANTITY SURVEYOR

8.1 LAND DETAIL

8.1.1 LOCATION OF SITE

8.2 CONTAINER

8.2.1 CONTAINER SPECIFICATION & COST:

Supplier:

Redline Stone

Location:

Klang Selangor

20' Container	**40' Container**
	
External Dimension: 6.058m (Length) x 2.438m (Width) x 2.591m (Height) **Internal Dimension**: 5.867m (Length) x 2.352m (Width) x 2.385m (Height) **Price:** RM 8484	**External Dimension**: 12.192m (Length) x 2.438m (Width) x 2.591m (Height) **Internal Dimension**: 12.032m (Length) x 2.352m (Width) x 2.385m (Height) **Price:** RM 14847

8.3 INITIAL COSTING

Category	Name	%	Price(RM)
Operational Expenditure & Cost of Development	Authority	2	10,000.00
	Preliminary Cost	4	200,000.00
	Contingency Cost	5	30,000.00
	Material Wastage Cost	2	10,000.00
	GST	6	300,000.00
Total			550,000.00

Category	Name	%	Price(RM)
Construction Cost	Architectural	10	50,000.00
	Civil & Structural Engineering	12	60,000.00
	Mechanical & Electrical Engineering	12	60,000.00
	Landscape Architecture	8	40,000.00
Total			210,000.00

Category	Name	%	Price(RM)
Other Costing	Labour Cost	2	15,000.00
	Sub-contractor cost	4	60,000.00
Total			75,000.00
TOTAL:		RM	835,000.00

8.4 COST BREAKDOWN

Preliminary Costing

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT(RM)
	Temporary Site Office & Buildings				
1	Cabin 10'x20'	unit	1	15,000	15,000
	Light and Power				
2	connection fee	sum	2	2,000	4,000
3	power consumption for worker's quarter	month/worker	20	3.5	70
4	power consumption for mobile crane (5 tons)	day/crane	14	500	4200
5	TNB rate for commercial use				
	i) first 200kwh	per Kw/h	3	0.44	1.31
	ii) subsequent (>200kwh)	per Kw/h	3	0.51	1.53
6	small tools	month	4	200	800
	Water for the work				
7	connection fee	sum	2	2000	4000
8	water tank and piping	no of tank	1	500	500
9	water construction for site accommodation	month/worker	20	1.5	30
10	water consumption for site use	sum	2	500	1000
	Hording				
11	metal hording.8ft ht	m	98	90	8820
	Safety precaution				
12	safety boots	pair	20	150	3000
13	safety helmets	unit	20	20	400
	Fire protection				
14	fire extinguisher	unit	4	200	800
TOTAL					42,622.84

Building Works

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT(RM)
	Substructure				
	Note: all excavation and fillings are measured from existing ground level unless otherwise stated				
	Excavation				
1	pit for footing	m3	115	50	5750
2	Excavation for ground slab	m3	450	40	18000
	Blinding				
3	blinding beneath footing not exceeding 100mm	m3	5.98	442	2643.16
4	blinding beneath ground slab not exceeding 100mm	m3	28.71	442	12689.82
	Strip Foundation				
	supply and cast reinforced concrete Grade 25 in foundations with 20mm to 10 mm granite mechanically mixed, including working around rod or fabric reinforcement				
5	precast reinforced concrete (grade 25) strip	m3	85	20	1700
6	Foundation mid steel high tensile to strip foundation trench	kg	2000	20	40000
7	reinforced concrete (grade 25) in substructure works	m3	300	35	10500
	Super Structure				
8	universal column(4.8mx3) ;(84.5kg/m)	kg	27580	0.9	24822
9	universal beam(3,3mx6) ;(84.5kg/m)	kg	32346	0.9	29111.4
10	steel container20ft	m2	2	8484	16968
11	steel container 40ft	m2	8	14847	118776
TOTAL					240,960.38

Architectural

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT(RM)
	Doors				
1	aluminum alloy glass double sliding door	no	10	254	2540
2	stainless steel door with matte finish 900mm(w) x 2100mm(h) single leaf	no	2	146	292
	Flooring				
3	timber decking 140mm(w)x19mm(d)	m2	191	1400	267400
4	Vplywood standard timber veneer	m2	138	30	4140
5	ceramic 600x600 bathroom toilet porcellanitic tile	m2	14.8	27	399.6
	Frames				
6	zinc alum frames(doors, window& opening) approx. qty 80m	m	80	13.6	1088
	Wall				
7	insulation wall panel	m2	164	76	12464
8	pvc film faced plywood	unit	164	233	38212
	Curtain Wall & Window				
9	tempered clear glass panel	m2	75.9	84.8	6436.32
10	fixed insulated glass window1500mm(H)x1500mm(W)	unit	17	22	374
	Sanitary				
11	double bowl single drain board kitchen sink	unit	1	118	118
12	toilet ceramic bathroom sink	unit	3	93	279
13	ceramic water closet	unit	4	129.38	517.52
14	male urinal toilet bowl	unit	2	216.3	432.6
	TOTAL				338,693.04

Mechanical and Electrical

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT(RM)
	Air conditioning unit				
1	Panasonic ductless wall mounted split unit	unit	8	2168	17344
2	Daikin cassette type air conditioning unit	unit	5	3900	19500
3	Mitsubishi outdoor condenser unit	unit	8	996	7968
	Electrical system				
	light fixtures				
4	ceiling mounted LED light	unit	61	21.21	1293.81
5	GU10 LED light	unit	2	46	92
6	T8 ballasted fixture ceiling mounted fluorescent light	unit	4	25	100
	Switch				
7	1 gang 10-amp one-way switch	unit	6	2.5	15
8	2 gang 10-amp one-way switch	unit	9	5	45
11	1 gang 13-amp Switch socket outlet	unit	35	2.5	87.5
	2 gang 13-amp Switch socket outlet	unit	10	5	50
	Drainage system				
14	aluminum round downspout 250mm	m	200	10.66	2132
15	150mm aluminum k style gutter with mil finish	m	238	20	4760
	Rainwater harvesting System				
16	water storage tank 500l	unit	2	1148	2296
17	rainwater down pipe 100mm	m	200	10.66	2132
18	galvanized iron gutter	m	100	18.05	1805
19	gear water pump	set	1	10350	10350
20	internal filter	set	1	4968	4968
21	piping and mechanical components	set	1	6250	6250
	Fire protection				
22	emergency light	unit	33	25	825
23	sprinkler	unit	96	6.4	614.4
TOTAL					82,627.71

Landscape

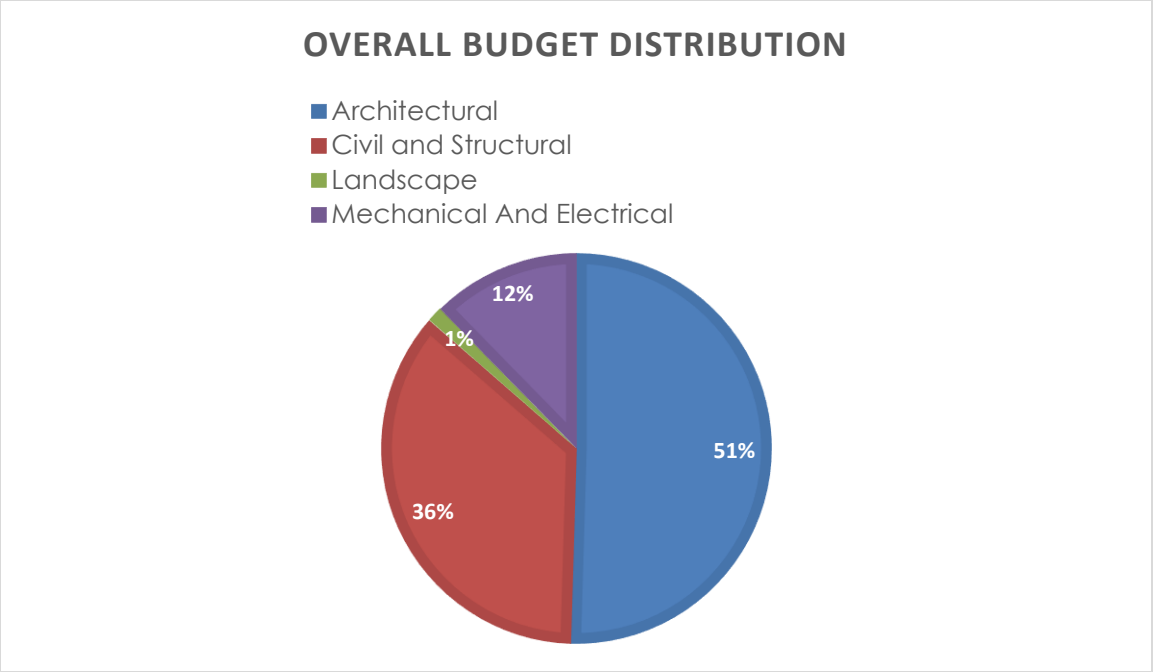
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT(RM)
	Hardscape				
1	stone mulch(1 ton covers 7m2) approx. 100 m2	ton	14	200	2800
2	decorative large rock	ton	1	424	424
	Softscape				
3	green bamboo tree	unit	8	80	640
4	acacia tree	unit	1	212	212
5	synthetic carpet grass	m2	12	10	120
6	cactus	unit	7	15	105
7	dasylirion longissimus	unit	12	25	300
8	boxwood	unit	20	50	1000
9	yellow flamboyant tree	unit	54	50	2700
10	hedge	unit	10	50	500
	TOTAL				8,801.00

Summary

ITEM	DESCRIPTION		RM
1	Building Works		240,960.38
2	Architectural		338,693.04
3	M&E		82,627.71
4	Landscape		8,801.00
6	Material and Wastage		10,000.00
7	Contingency cost		30,000.00
8	Authority		10,000.00
9	Preliminary cost		42,622.84
TOTAL			763,704.97
	Goods and Services Tax(GST) 6%		45822.29
TOTAL CARRIED FROM TENDER			809,527.27

Consultant Cost

	total allocation for consultants is 6%			
	COMPANY	PROFESSION	PERCENT	TOTAL FEE
1	NHB STUDIO SDN BHD	architect & landscape	3%	24285.81
2	A.K.K.L CORP.	c&s engineer	1.50%	12142.90
3	JOHNFENG SDN BHD	project manager	1%	8095.27
4	ED KINGDOM CORP.	m&e engineer	1%	8095.27
5	YX QS CONSULT	quantity surveyor	0.50%	4047.63
TOTAL				56,666.91



The allocation for the recreational district approved by the board is RM1,500,000 and the budget plan for this project is approximately RM809,527.27excluding consultation fees.

9.0 APPENDIX

MEETING MINUTES NO-001

MEETING AGENDA – AKKL SDN BHD

Project Title: Recreation District

Proposed Development of AKKL Sdn. Bhd at Taylor's University Lakeside Campus for proposing a recreation district to manage and facilitate future outdoor activities for staffs and students.

Meeting Location: Taylor's University Lakeside Campus

Meeting Date: 10 September 2017

Meeting Time: 11.00AM-12.00PM

Facilitators:

	Attendance	Abbr.	Company	Email	Contact No.
1	Architect: Ar. Ng Hong Bin	Ar.NHB	NHB STUDIO SDN BHD	nghongbing.designer@gmail.com	0163263132
2	Landscape Architect: Ar. Nicky Chong Yi Qi	Ar.NC	NHB STUDIO SDN BHD	nicky.chong@gmail.com	0192998733
3	C&S Engineer: Ir. Alan Koo	Ir.AK	A.K.K.L CORP.	akkl.kooo@gmail.com	0168570008
4	Project Manager: Ar. Chong Jing Feng	Ar.CJF	JOHNFENG SBD BHD	fengzai@gmail.com	0179577128
5	M&E Engineer: Ir. Ed Lum Si Chu	Ir.ED	INFRA SEGI M&E SDN BHD	ed.lum@gmail.com	0122672200
6	Quantity Surveyor: Sr. Chong Yu Xuan	Sr.CYX	YX QS CONSULT	yuxuan.qs@gmail.com	0123632796

AGENDA ITEMS

Item	Description
1	Architect to discuss concepts and experience from site visit.
2	C & S engineer to recommend structural solutions and whether it is possible for ideas to take place
3	Budget constraints with ideas
4	4 Additional Information: NIL

MEETING MINUTES –AKKL SDN BHD

Meeting is attended by all.

Item	Description	Action	Date of Action
1.0	**Introduction of Role and Identity from Each Participant/Member of the Project**		
	1. ARCHITECT: Ar. Ng Hong Bin	NHB Design Firm	0163263132
	2. C&S ENGINEER: Ir. Alan Koo	A.K.K.L Corp.	0168570008
	3. PROJECT MANAGER: Ar. Chong Jin Feng	JohnFeng Sdn Bhd	0719577128
	4. LANDSCAPE ARCHITECT: Ar. Nicky Chong Yi Qi	NHB Design Firm	0192998733
	5. QUANTITY SURVEYOR: Sr. Chong Yu Xuan	YX Qs Consultant	0123632796
	6. M&E ENGINEER: Ir. Ed Lum Si Chu	Infra Segi M&E Sdn Bhd	0122672200
2.0	**Project info/Brief**	Information	
2.1	Site is located nearby Carpool Parking within Taylor's University Lakeside campus.		
2.2	All stakeholders/participants were given time to voice out their opinions about the site conditions, potential, cost and concept.		
2.3	Costing – RM1.5 million		
3.0	**Architect's Matters**		18/9/2017
3.1	- Briefing to all stakeholders on client's requirement. Presentation on the initial concept/idea of the architect on the project based on the requirements set by the client.	Ar. NHB	
3.2	- Provide case study verbal presentation.		
3.3	- Further develop on the project/building.		
3.4	- Enhance the placement and location of containers in accordance with what has been discussed with Engineers as well as cater to client requirements and concept.		
3.5	- Create an initial physical model to be shown in the next meeting.		
3.6	- Provide conclusion from own analysis on project feasibility/manageability.		
4.0	**Landscape Architect's Matters**		18/9/2017
4.1	- Assist with pathway designation and design.	Ar. NC	
4.2	- Plans on landscaping in and around site discussed and brainstormed with relevant parties.		
4.3	- Description of land survey and the		

4.4	concerns of site boundary. - Provide conclusion from own analysis on project feasibility/manageability.		
5.0 5.1	**Project Manager's Matters** - Briefing to all stakeholders on client's requirement.	Ar. CJF	18/9/2017
6.0 6.1 6.2	**C&S Matters** - Structural concerns discussed with architect in accordance to structural integrity, suitability with weather and usage of materials in relation with the architectural concept. - Provide conclusion from own analysis on project feasibility/manageability.	Ir. AK	18/9/2017
7.0 7.1 7.2 7.3 7.4 7.5	**M&E Matters** - Initial discussion on the sizes of containers, cooling system and lighting types, as well as address plumbing issues and irrigation. - Initial M&E discussions and concerns taking place in accordance with thermal and lighting feasibility. - Provide draft of lighting & ventilation detailing. - Give thought on acoustic performance of building. - Provide conclusion from own analysis on project feasibility/manageability.	Ir. Ed	18/9/2017
8.0 8.1 8.2 8.3	**QS's Matters** - Conduct a comparison on the cost of materials that are presently evaluated for usage for the project. - Provide conclusion from own analysis on project feasibility/manageability.	Sr. CYX	18/9/2017
9.0 9.1 9.2	**Next meeting** - The meeting was adjourned at 12.00pm. - Next meeting will be at 18/09/2017, Monday.	Ar. CJF	18/9/2017

Minutes taken by: Ar. Chong Jin Feng

Minutes reviewed by: Ar. Ng Hong Bin

Minutes verified by: Ms. Alia

MEETING MINUTES NO-002

MEETING AGENDA – AKKL SDN BHD

Project Title: Recreation District

Proposed Development of AKKL Sdn. Bhd at Taylor's University Lakeside Campus for proposing a recreation district to manage and facilitate future outdoor activities for staffs and students.

Meeting Location: Taylor's University Lakeside Campus

Meeting Date: 20 September 2017

Meeting Time: 11.00AM-12.00PM

Facilitators:

	Attendance	Abbr.	Company	Email	Contact No.
1	Architect: Ar. Ng Hong Bin	Ar.NHB	NHB STUDIO SDN BHD	nghongbing.designer@gmail.com	0163263132
2	Landscape Architect: Ar. Nicky Chong Yi Qi	Ar.NC	NHB STUDIO SDN BHD	nicky.chong@gmail.com	0192998733
3	C&S Engineer: Ir. Alan Koo	Ir.AK	A.K.K.L CORP.	akkl.kooo@gmail.com	0168570008
4	Project Manager: Ar. Chong Jing Feng	Ar.CJF	JOHNFENG SDN BHD	fengzai@gmail.com	0179577128
5	M&E Engineer: Ir. Ed Lum Si Chu	Ir.ED	INFRA SEGI M&E SDN BHD	ed.lum@gmail.com	0122672200
6	Quantity Surveyor: Sr. Chong Yu Xuan	Sr.CYX	YX QS CONSULT	yuxuan.qs@gmail.com	0123632796

AGENDA ITEMS

Item	Description
1	Landscape architect to consider hardscape and softscape with surrounding area.
2	Q.S and M&E to confirm with Architect
3	Standard meeting discussing the proposal to follow.

MEETING MINUTES –AKKL SDN BHD

Meeting is attended by all.

Item	Description	Action	Date of Action
1.0	**Introduction** MM1 was read and confirmed by all.	ALL	
2.0 2.1 2.2 2.3	**Project info/Brief** Site is located nearby Carpool Parking within Taylor's University Lakeside campus. All stakeholders/participants were given time to voice out their opinions about the site conditions, potential, cost and concept. Costing – RM1.5 million	Information	
3.0 3.1	**Authority's Matter** - Obtain information (submission requirement, working hours etc) from MPSJ.	Ar. CJF	25/9/2017
4.0 4.1 4.2	**Project Manager's Matters** - To provide Gantt Chart. - Discuss on Gantt Chart.	Ar. CJF	25/9/2017
5.0 5.1 5.2 5.3 5.4	**Architect's Matters** - Proposal is accepted by all, proceed to next state. - Further develop on the project/building. - Provide the design with full drawings (plans, elevations, sections) and 3d models in the next meeting. - Enhance the placement and location of containers in accordance with what has been discussed with engineers as well as cater to client requirements and concept.	Information Ar. NHB	25/9/2017
6.0 6.1 6.2 6.3 6.4	**Landscape Architect's Matters** - Carry out conceptual design based on the design given by the architect. - Propose pathway design. - Produce more greenery to the design. - Get an approval from the architect and to be commented by next meeting.	Ar. NC	25/9/2017

7.0 7.1	**C&S Matters** - Work with the architect on resolution to structural integrity.	 Ir. AK	25/9/2017
8.0 8.1	**M&E Matters** - Reconfirmation with the architect on the sizes of containers, cooling system and lighting types, as well as address plumbing issues and irrigation.	 Ir. Ed	25/9/2017
9.0 9.1 9.2	**QS's Matters** - Produce preliminary budget and to be confirmed with architect. - Conduct a comparison on the cost of materials that are presently evaluated for usage for the project.	 Sr. CYX	25/9/2017
10.0 10.1 10.2	**Next meeting** - The meeting was adjourned at 12.00pm. - Next meeting will be at 25/09/2017, Monday.	 Ar. CJF	25/9/2017

Minutes taken by: Ar. Chong Jin Feng

Minutes reviewed by: Ar. Ng Hong Bin

Minutes verified by: Ms. Alia

MEETING MINUTES NO-003

MEETING AGENDA – AKKL SDN BHD

Project Title: Recreation District

Proposed Development of AKKL Sdn. Bhd at Taylor's University Lakeside Campus for proposing a recreation district to manage and facilitate future outdoor activities for staffs and students.

Meeting Location: Taylor's University Lakeside Campus

Meeting Date: 25 September 2017

Meeting Time: 11.00AM-12.00PM

Facilitators:

	Attendance	Abbr.	Company	Email	Contact No.
1	Architect: Ar. Ng Hong Bin	Ar.NHB	NHB STUDIO SDN BHD	nghongbing.designer@gmail.com	0163263132
2	Landscape Architect: Ar. Nicky Chong Yi Qi	Ar.NC	NHB STUDIO SDN BHD	nicky.chong@gmail.com	0192998733
3	C&S Engineer: Ir. Alan Koo	Ir.AK	A.K.K.L CORP.	akkl.kooo@gmail.com	0168570008
4	Project Manager: Ar. Chong Jing Feng	Ar.CJF	JOHNFENG SDN BHD	fengzai@gmail.com	0179577128
5	M&E Engineer: Ir. Ed Lum Si Chu	Ir.ED	INFRA SEGI M&E SDN BHD	ed.lum@gmail.com	0122672200
6	Quantity Surveyor: Sr. Chong Yu Xuan	Sr.CYX	YX QS CONSULT	yuxuan.qs@gmail.com	0123632796

AGENDA ITEMS

Item	Description
1	Landscape architect to consider hardscape and softscape with surrounding area.
2	Q.S and M&E to confirm with Architect
3	Standard meeting discussing the proposal to follow.

MEETING MINUTES –AKKL SDN BHD

Meeting is attended by all.

Item	Description	Action	Date of Action
1.0	**Introduction** MM2 was read and confirmed by all.	ALL	
2.0 2.1 2.2 2.3	**Project info/Brief** Site is located nearby Carpool Parking within Taylor's University Lakeside campus. All stakeholders/participants were given time to voice out their opinions about the site conditions, potential, cost and concept. Costing – RM1.5 million	Information	
3.0 3.1	**Project Manager's Matters** - Review architect's drawing and discuss solutions to solve design complications (if any).	Ar. CJF	2/10/2017
4.0 4.1 4.2 4.3	**Architect's Matters** - Full drawings (plans, elevations, sections) are to be amended. - 3d models are to be amended more details by next meeting. - Provide draft of lighting & ventilation detailing and to be discussed with M&E engineer by next meeting.	Ar. NHB	2/10/2017
5.0 5.1 5.2	**Landscape Architect's Matters** - To conduct more research on hardscape & softscape design. - To further analyze landscapes and vegetation and to be discussed with the architect.	Ar. NC	2/10/2017
6.0 6.1 6.2 6.3 6.4 6.5	**C&S Matters** - Discussion on construction methods and structural. - Shipping containers structural discussion. - Discuss roof issue with the architect. - Propose material choices such as steel construction with budget. - Materials to be finalized.	Ir. AK	2/10/2017
7.0	**M&E Matters**		2/10/2017

7.1 7.2 7.3 7.4 7.5	- Air-Cond proposal, lightings, mechanical ventilation on toilets. - Type of air-cond (cassette or split). - Type of H.P for air-cond. - Lighting discussion on hardscape. - Architect and project manager to comment by next meeting.	Ir. Ed	
8.0 8.1 8.2 8.3 8.4	**QS's Matters** - Construction methods and cost. - Cost of materials choices. - Cost of mechanical ventilations ducts and valves. - To be discussed with everyone.	Sr. CYX	2/10/2017
9.0 9.1 9.2	**Next meeting** - The meeting was adjourned at 12.00pm. - Next meeting will be at 2/10/2017, Monday.	Ar. CJF	2/10/2017

Minutes taken by: Ar. Chong Jin Feng

Minutes reviewed by: Ar. Ng Hong Bin

Minutes verified by: Ms. Alia

MEETING MINUTES NO-004

MEETING AGENDA – AKKL SDN BHD

Project Title: Recreation District

Proposed Development of AKKL Sdn. Bhd at Taylor's University Lakeside Campus for proposing a recreation district to manage and facilitate future outdoor activities for staffs and students.

Meeting Location: Taylor's University Lakeside Campus

Meeting Date: 3 October 2017

Meeting Time: 11.00AM-12.00PM

Facilitators:

	Attendance	Abbr.	Company	Email	Contact No.
1	Architect: Ar. Ng Hong Bin	Ar.NHB	NHB STUDIO SDN BHD	nghongbing.designer@gmail.com	0163263132
2	Landscape Architect: Ar. Nicky Chong Yi Qi	Ar.NC	NHB STUDIO SDN BHD	nicky.chong@gmail.com	0192998733
3	C&S Engineer: Ir. Alan Koo	Ir.AK	A.K.K.L CORP.	akkl.kooo@gmail.com	0168570008
4	Project Manager: Ar. Chong Jing Feng	Ar.CJF	JOHNFENG SDN BHD	fengzai@gmail.com	0179577128
5	M&E Engineer: Ir. Ed Lum Si Chu	Ir.ED	INFRA SEGI M&E SDN BHD	ed.lum@gmail.com	0122672200
6	Quantity Surveyor: Sr. Chong Yu Xuan	Sr.CYX	YX QS CONSULT	yuxuan.qs@gmail.com	0123632796

AGENDA ITEMS

Item	Description
1	Landscape architect to consider hardscape and softscape with surrounding area.
2	Q.S and M&E to confirm with Architect
3	Standard meeting discussing the proposal to follow.

MEETING MINUTES –AKKL SDN BHD

Meeting is attended by all.

Item	Description	Action	Date of Action
1.0	**Introduction** MM3 was read and confirmed by all.	ALL	
2.0 2.1 2.2 2.3	**Project info/Brief** Site is located nearby Carpool Parking within Taylor's University Lakeside campus. All stakeholders/participants were given time to voice out their opinions about the site conditions, potential, cost and concept. Costing – RM1.5 million	Information	
3.0 3.1 3.2 3.3	**Architect's Matters** - Full drawings (plans, elevations, sections) are to be finalized by next meeting. - 3d models are to be finalized in the next meeting. - Provide spatial visualization with some renderings by next meeting.	Ar. NHB	9/10/2017
4.0 4.1 4.2 4.3	**Landscape Architect's Matters** - Proposal is accepted by the architect. - Minimize budget of landscape proposal and to be discussed with project manager. - Provide some renderings for visualization purpose.	Information Ar. NC	9/10/2017
5.0 5.1 5.2	**C&S Matters** - Provide proposal on structural system. - Provide structural details and to be discussed with the architect.	Ir. AK	9/10/2017
6.0 6.1 6.2 6.3 6.4	**M&E Matters** - Proposals on lighting, mechanical ventilation & cold water supply system are accepted by the architect and project manager. - Provide proposal on storm water & drainage system. - Provide proposal on Sewage system. - Provide proposal on Fire protection.	Information Ir. Ed	9/10/2017

6.5	system - Proposals to be discussed with the architect and project manager.		
7.0 7.1	**QS's Matters** - Update cost based on the revised design.	 Sr. CYX	9/10/2017
8.0 8.1	**Project Manager's Matter** - Review architect's drawing and discuss with architect to solve design complications (if any).	 Ar. CJF	9/10/2017
9.0 9.1 9.2	**Next meeting** - The meeting was adjourned at 12.00pm. - Next meeting will be at 09/10/2017, Monday.	 Ar. CJF	9/10/2017

Minutes taken by: Ar. Chong Jin Feng

Minutes reviewed by: Ar. Ng Hong Bin

Minutes verified by: Ms. Alia