



LAO PEOPLE'S DEMOCRATIC REPUBLIC
MINISTRY OF INFORMATION, CULTURE AND TOURISM

**2nd GMS TOURISM INFRASTRUCTURE FOR
INCLUSIVE GROWTH PROJECT**
SUBPROJECT V1: NAM NGUM RESERVOIR ACCESS IMPROVEMENTS

SUBMITTED BY:



archineer associates
architects | engineers | consultants

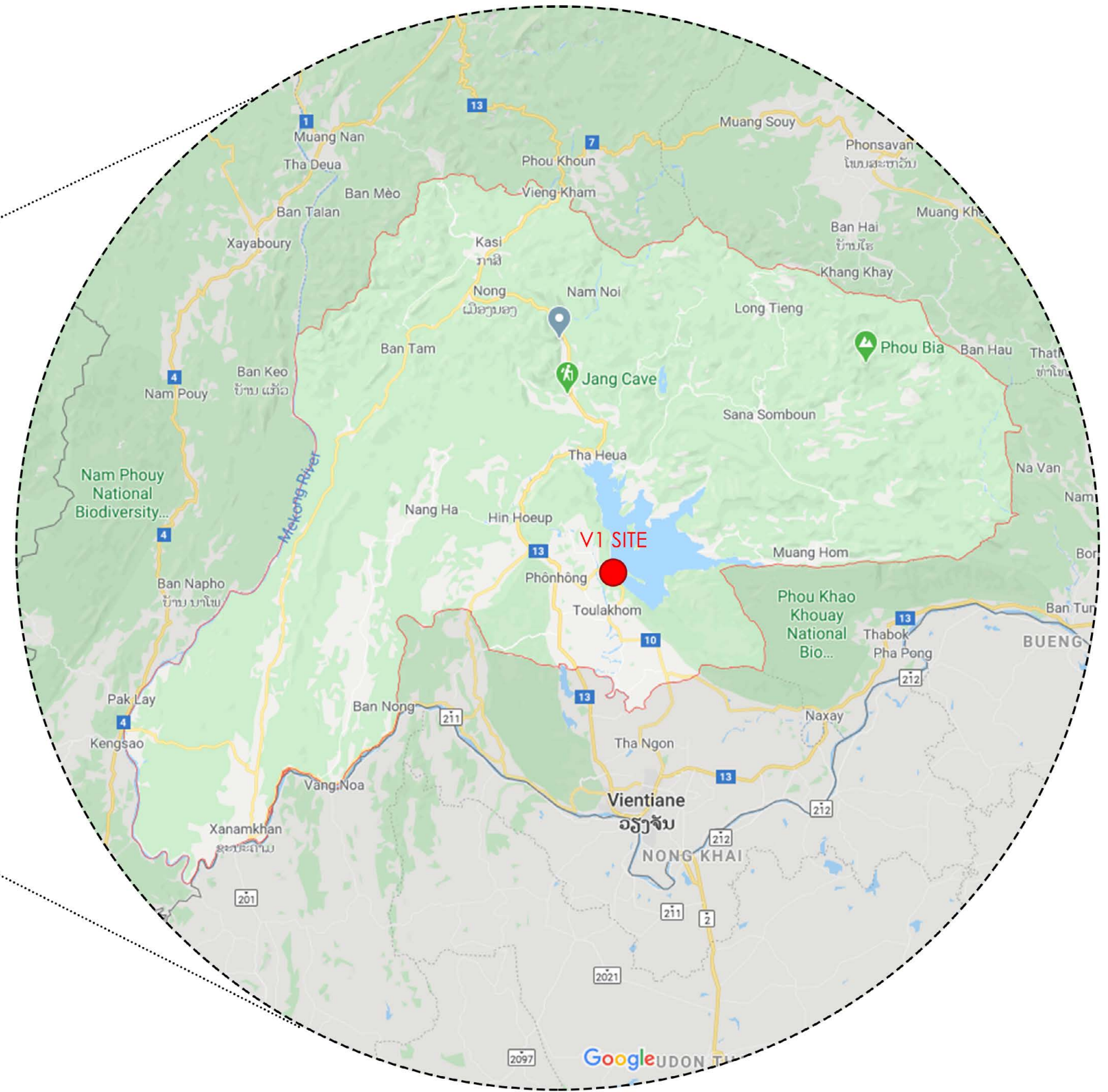
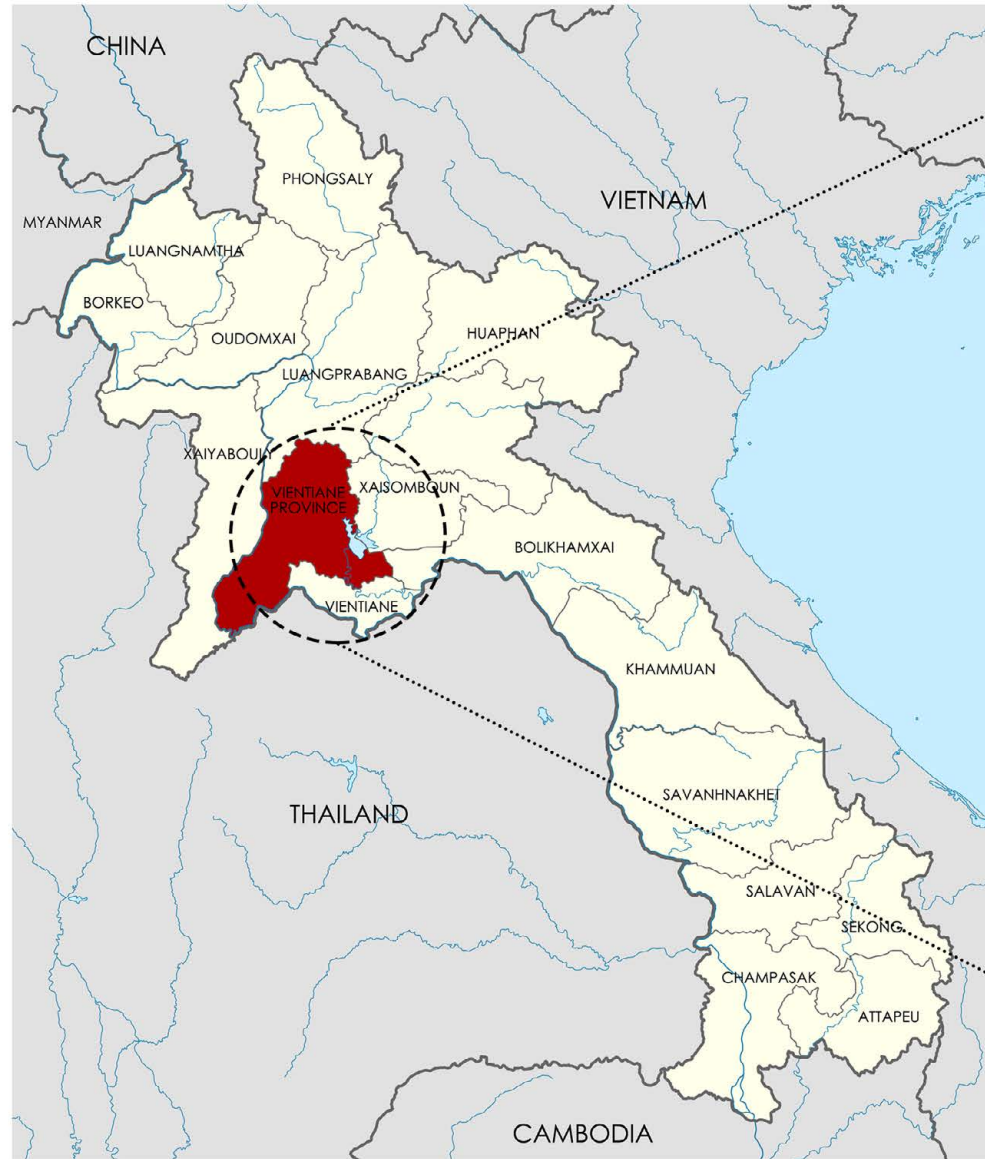
26 MAY 2020

CONTENTS

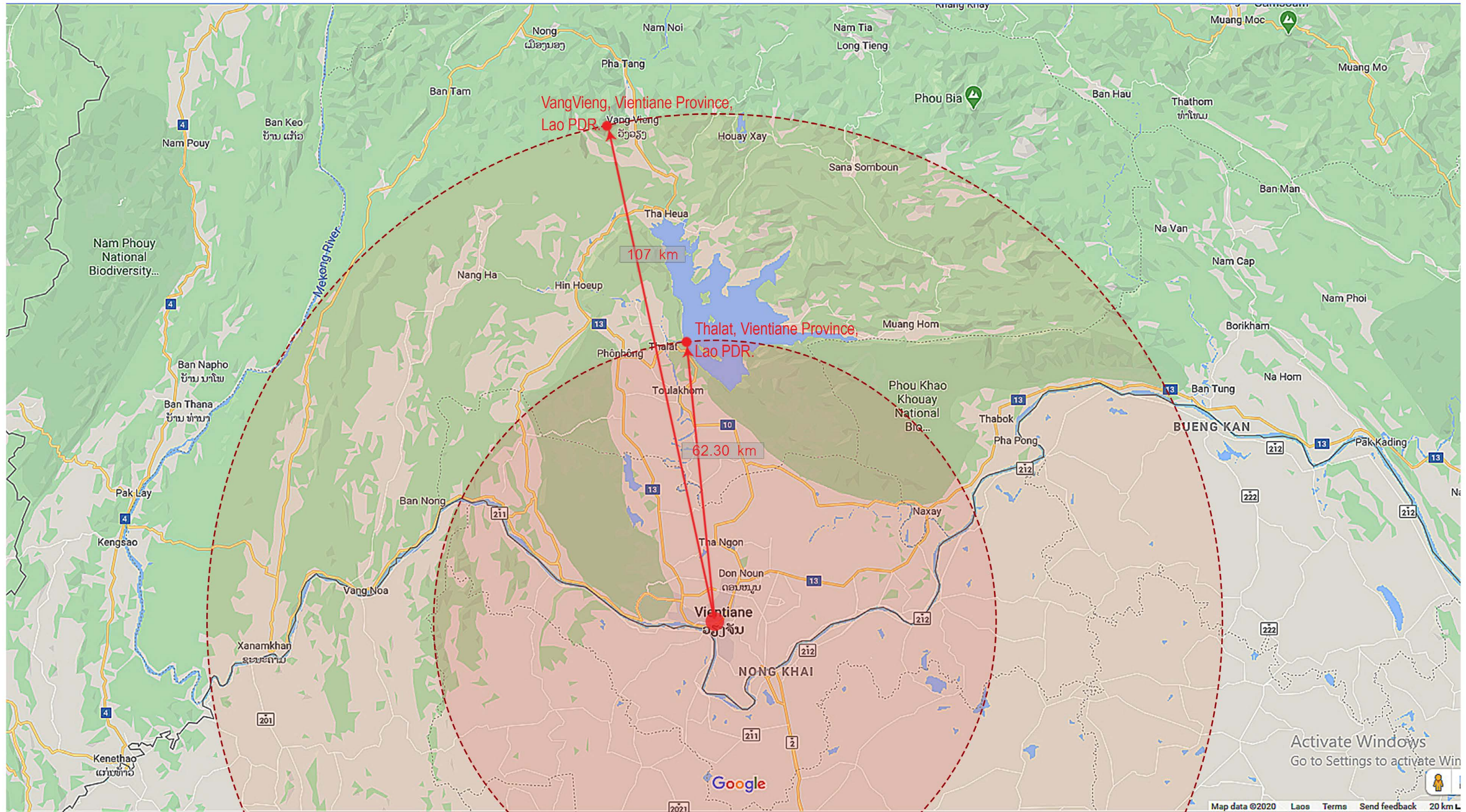
1. PROJECT LOCATION
2. SITE SURVEY
 - 2.1 EXISTING MASTERPLAN
 - 2.2 TOPOGRAPHICAL PLAN
 - 2.3 DRAINAGE AND WATER WAY
 - 2.4 VISUAL INSPECTION
 - 2.5 DEMOLITION PLAN
3. MASTERPLAN
 - 3.1 ZONING
 - 3.2 MASTERPLAN
 - 3.3 TRAFFIC AND ACCESS ROAD
 - 3.4 PERSPECTIVES
4. LANDSCAPE DESIGN
 - 4.1 MASTERPLAN
 - 4.2 ZONE A
 - HARDSCAPE
 - SOFTSCAPE
 - TREES
 - LIGHTING
 - SECTION A
 - PERSPECTIVES
 - 4.3 ZONE B
 - HARDSCAPE
 - SOFTSCAPE
 - TREES
 - LIGHTING
 - SECTION B
 - SECTION C
 - TYPICAL SHOPHOUSE
 - PERSPECTIVES
 - 4.4 ZONE C
 - HARDSCAPE
 - SOFTSCAPE
 - TREES
 - LIGHTING
 - SECTION D
 - SECTION E
 - PUBLIC PLAZA BUILDING
 - CIRCULAR PAVILLION AND DECK
 - TYPICAL HUT
 - PERSPECTIVES
5. OVERFLOW PARKING AND DROP-OFF AREA
6. MATERIAL SCHEDULE

1. PROJECT LOCATION





PROJECT LOCATION:
THALATH, VIENTIANE PROVINCE, LAO PDR
18°31'24.4"N 102°33'19.1"E



PROJECT LOCATION:
VIENTIANE PROVINCE, LAO PDR
18°31'24.4"N 102°33'19.1"E



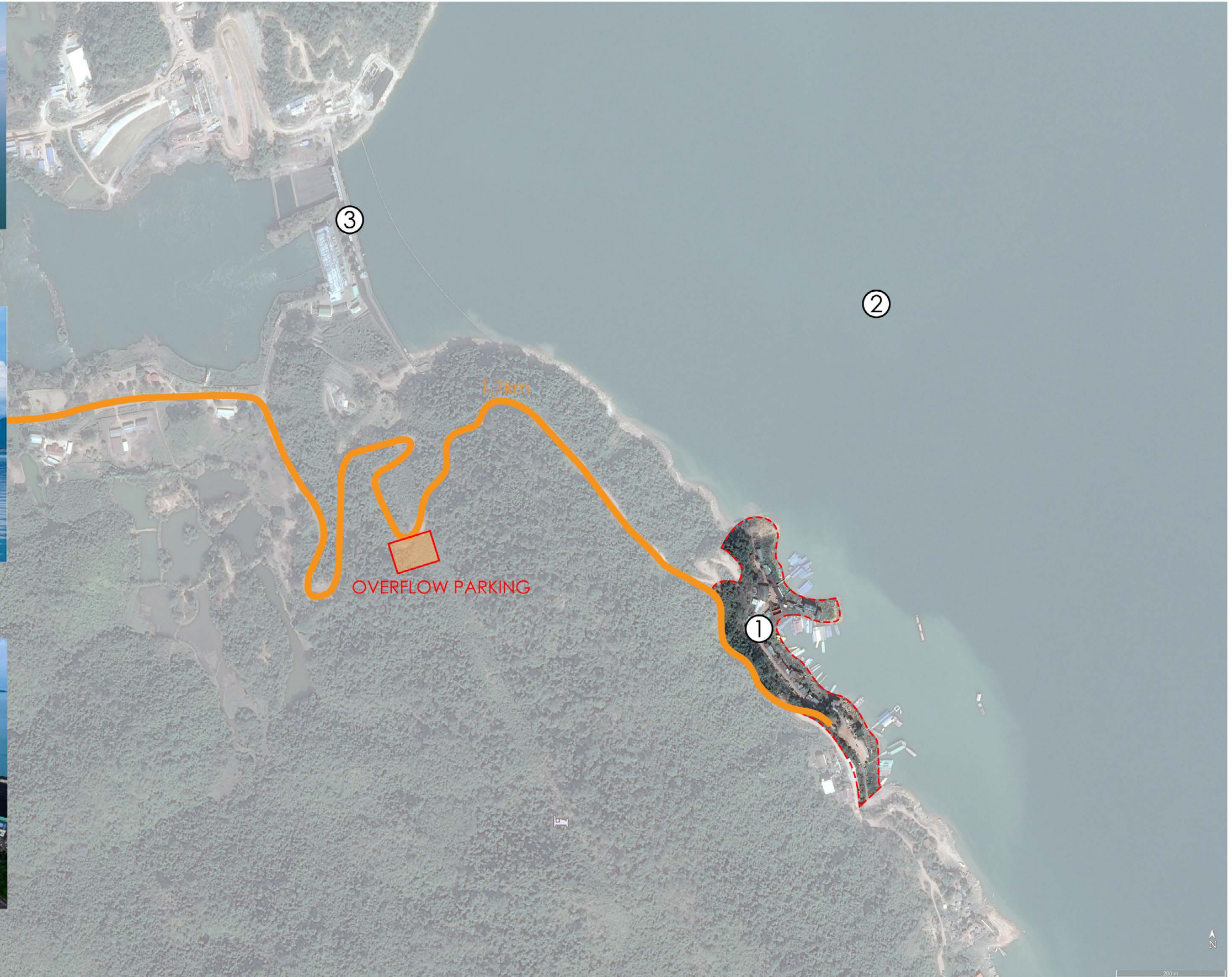
① V1 SITE



② NAM NGUM RESERVOIR



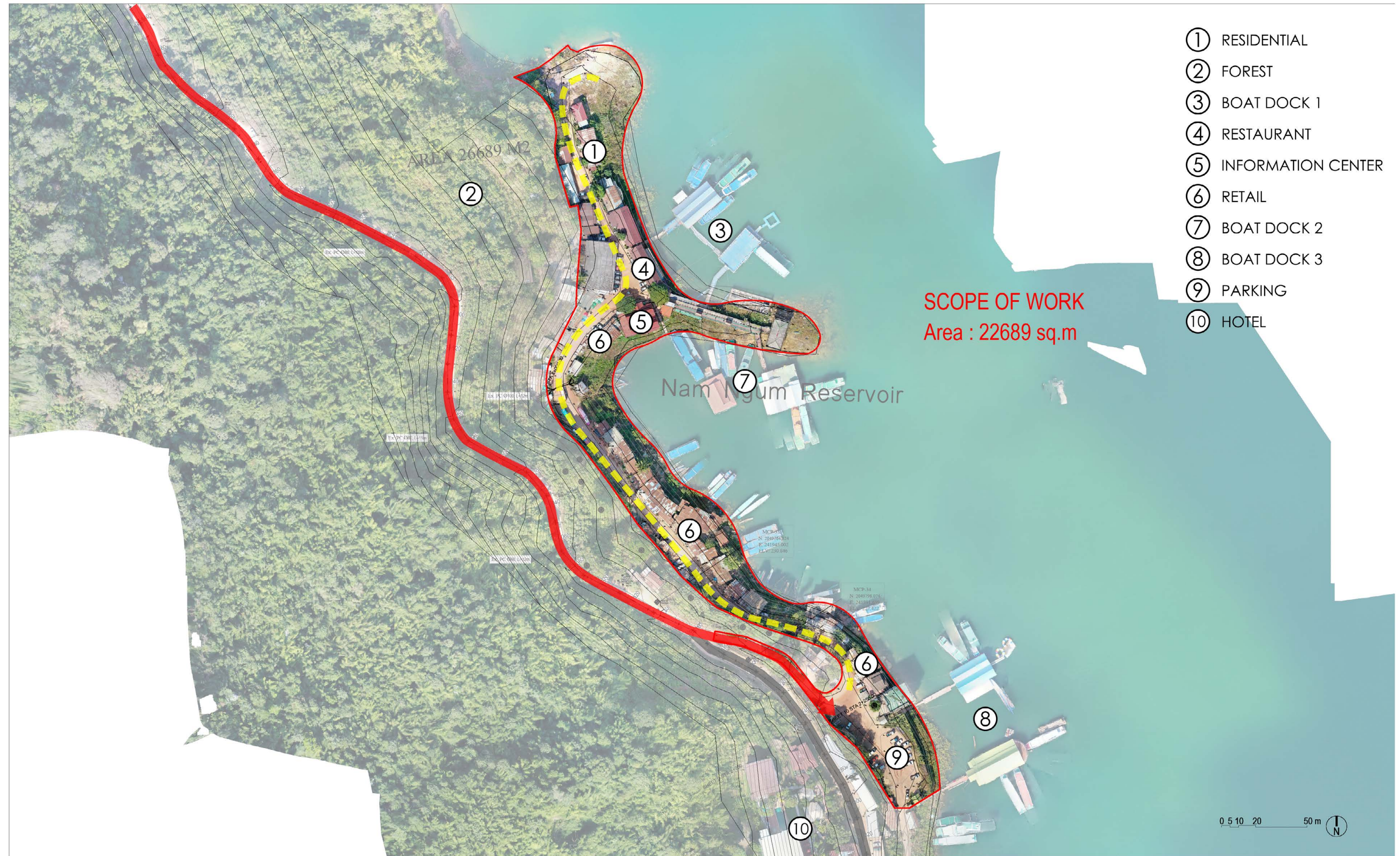
③ NAM NGUM 1 DAM



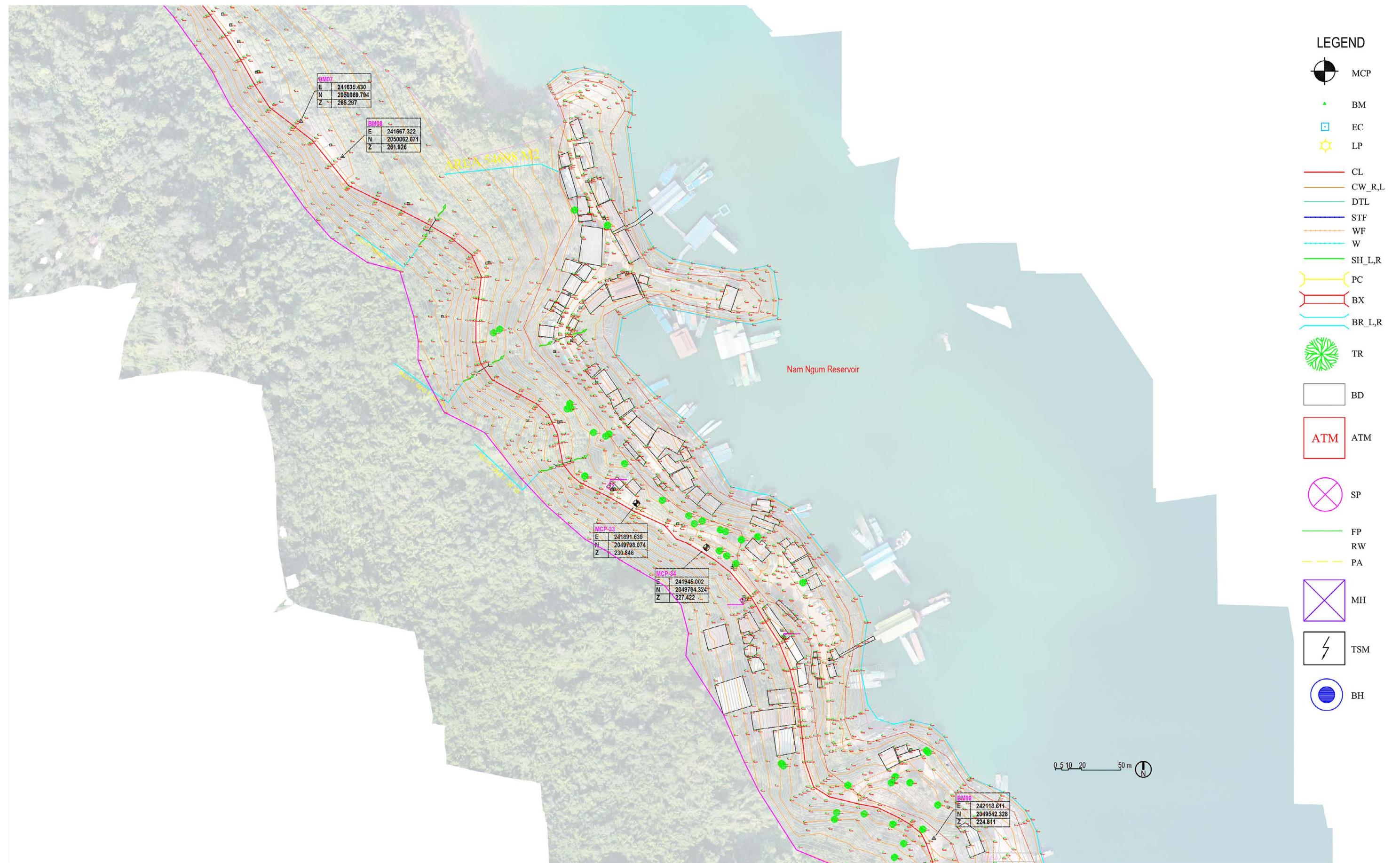
PROJECT LOCATION:
VIENTIANE PROVINCE, LAO PDR
18°31'24.4"N 102°33'19.1"E

2. SITE SURVEY



























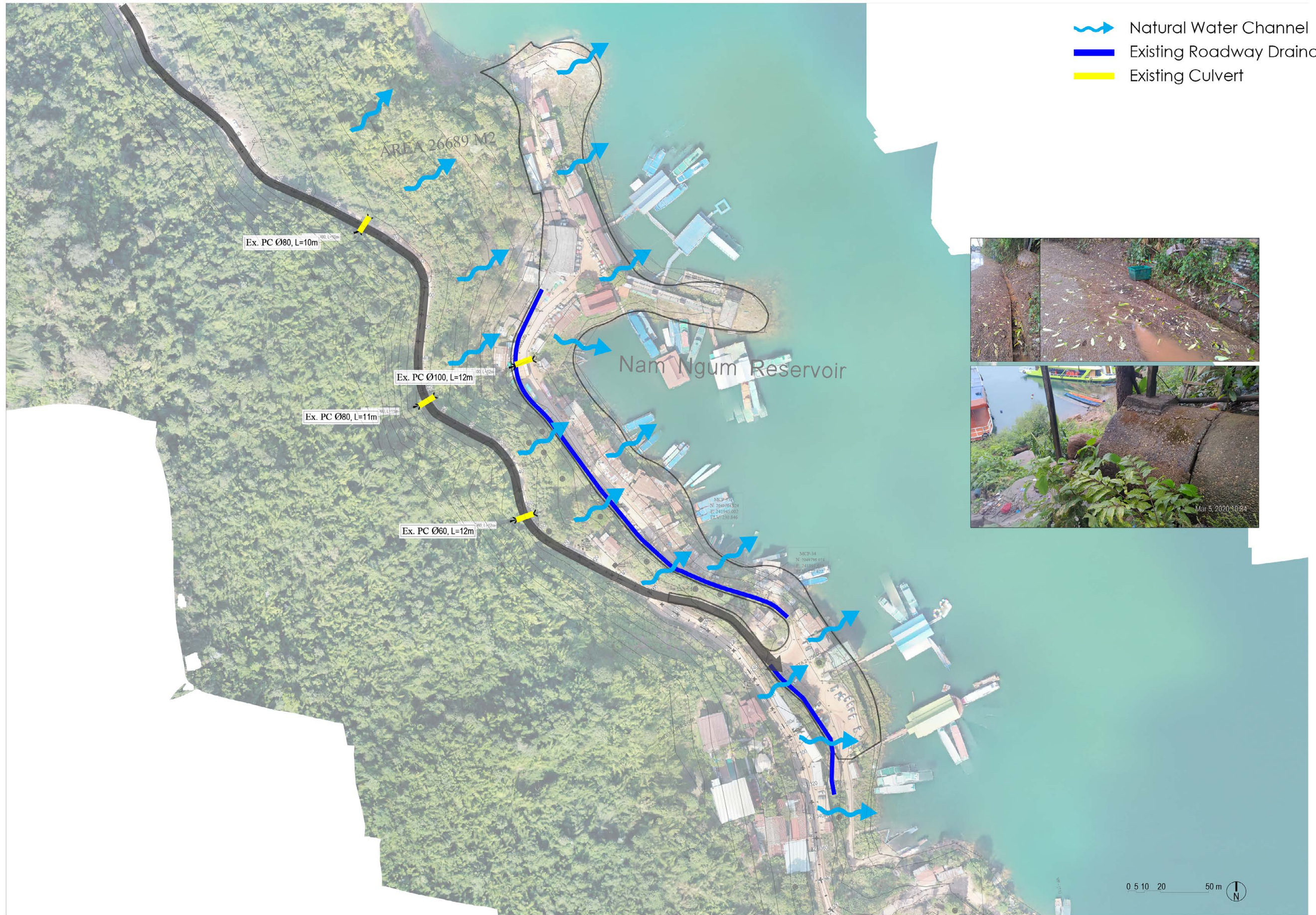





- ① RESIDENTIAL
- ② FOREST
- ③ BOAT DOCK 1
- ④ RESTAURANT
- ⑤ INFORMATION CENTER
- ⑥ RETAIL
- ⑦ BOAT DOCK 2
- ⑧ BOAT DOCK 3
- ⑨ PARKING
- ⑩ HOTEL



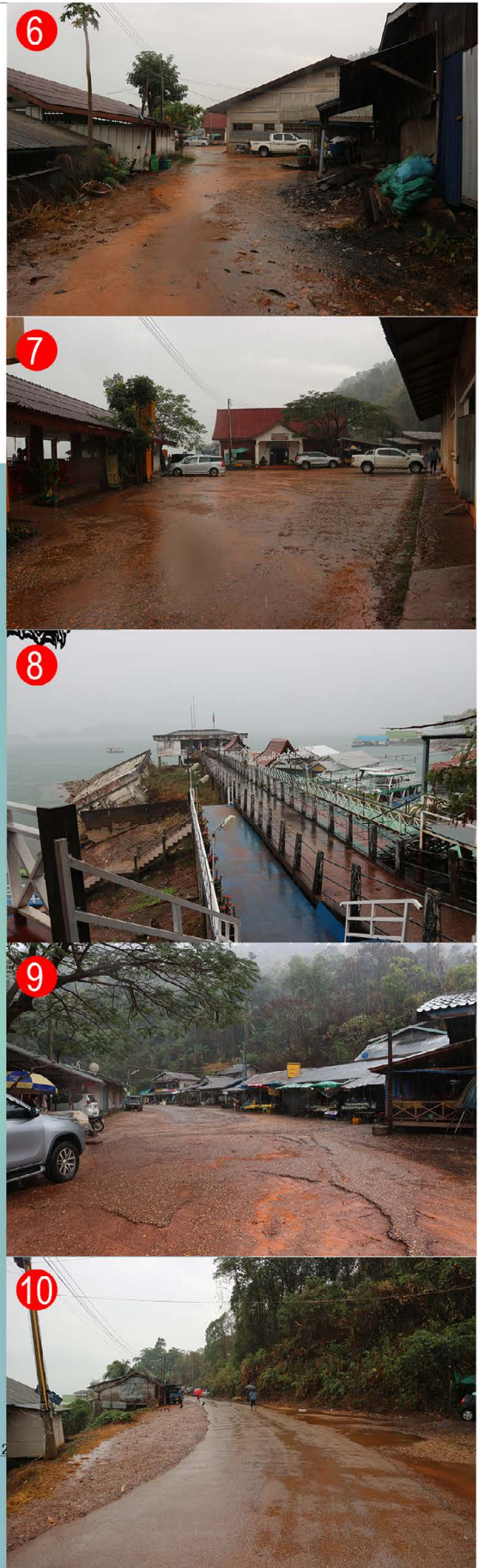
LEGEND

-  MCP
-  BM
-  EC
-  LP
-  CL
-  CW_R,L
-  DTL
-  STF
-  WF
-  W
-  SH_L,R
-  PC
-  BX
-  BR_L,R
-  TR
-  BD
-  ATM
-  SP
-  FP
-  RW
-  PA
-  MH
-  TSM
-  BH



-  Natural Water Channel
-  Existing Roadway Drainage System
-  Existing Culvert





- DEMOLISHED/DISMANTLED
- KEEP
- RENOVATE



3. MASTERPLAN







- PARKING
(3,622m²)
- BOAT DOCK
(2,544m²)
- SHOPHOUSE/RETAIL
(2,496m²)
- RECREATION
(9,818m²)
- PUBLIC PLAZA
(1,855m²)
- PRIVATE PAVILLION
(4,525m²)

- ① PARKING (4 Buses, 34 Cars)
- ② BOAT DOCK
- ③ SHOPHOUSE
(1 FL=18 Units; 2FL=14 Units)
- ④ STEP LANDSCAPE
- ⑤ PUBLIC PLAZA
- ⑥ BOARDWALK VIEW DECK
- ⑦ CIRCULAR PAVILLION
- ⑧ PRIVATE PAVILLION
- ⑨ SEPTIC TANKS
- ⑩ GARBAGE COLLECTION
- ⑪ BOAT'S WASTE TREATMENT
(SEPTIC TANKS)
- ⑫ DROP-OFF
- ⑬ GATE
- ⑭ FERRY DOCK





- Vehicle Road
- Boardwalk
- Walking Path
- Parking Area
- Main Entrance

4. LANDSCAPE DESIGN



- ① PARKING (4 Buses, 34 Cars)
- ② BOAT DOCK
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(SEPTIC TANKS)
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- ⑬ GATE
- ⑭ FERRY DOCK



Concrete trowel finish



DBST Road



Stone pattern stamped concrete



Wood plank pattern stamped concrete



River Pebbles



Stone/Gabion Retaining Wall



Grass pavers



Floating Dock / Walk way





Royal Poinciana (*Delonix regia*)



Angsana (*Pterocarpus indicus* Willd.)



Freshwater Mangrove (*Barringtonia acutangula* (L.) Gaertn.)



Golden shower (*Cassia fistula* L.)

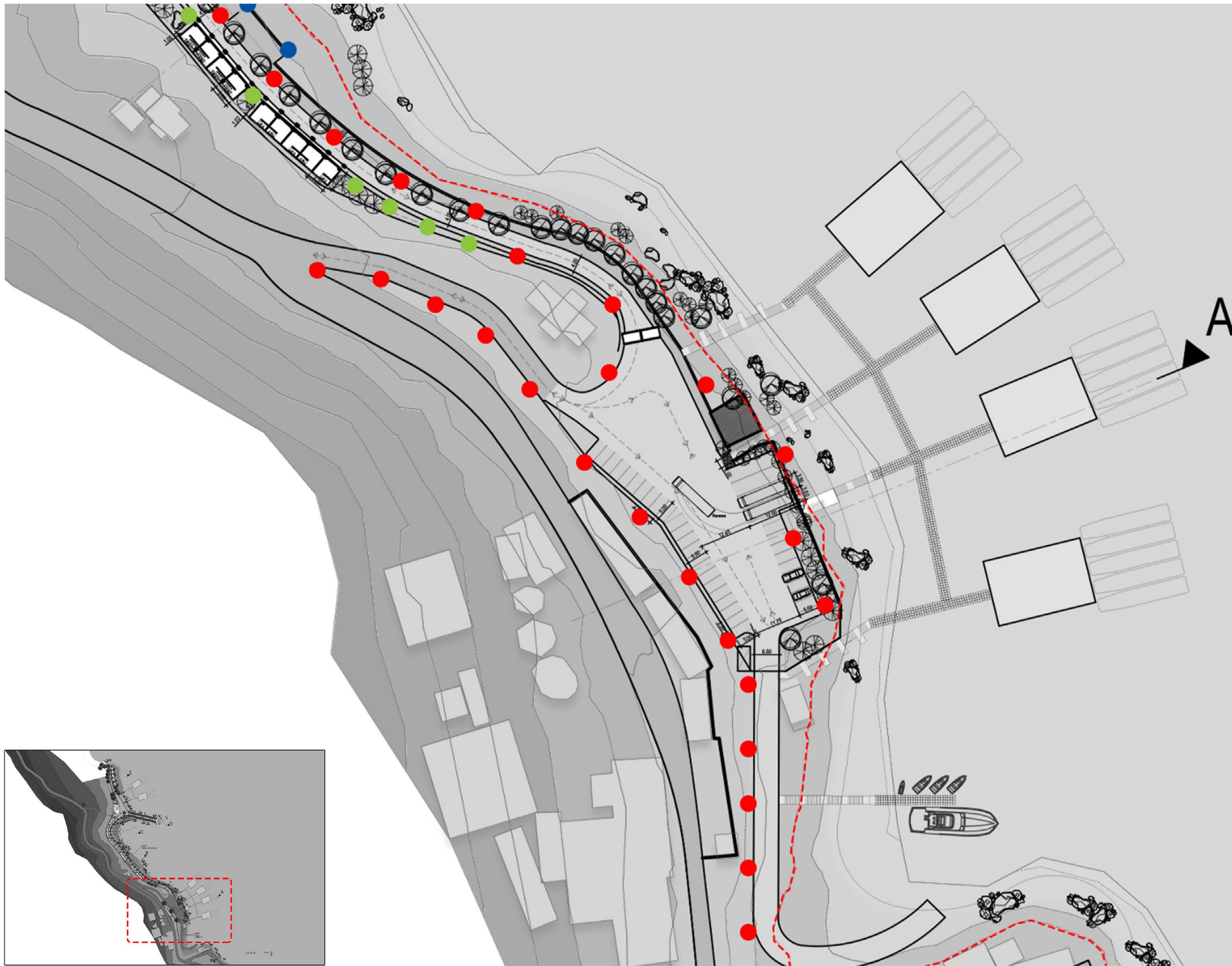


Khaena (*Dolichandrone serrulata* (DC.) Seem.)



Rain tree (*Samanca Saman* (Jacq) Merr.)





● LED Street Light Pole



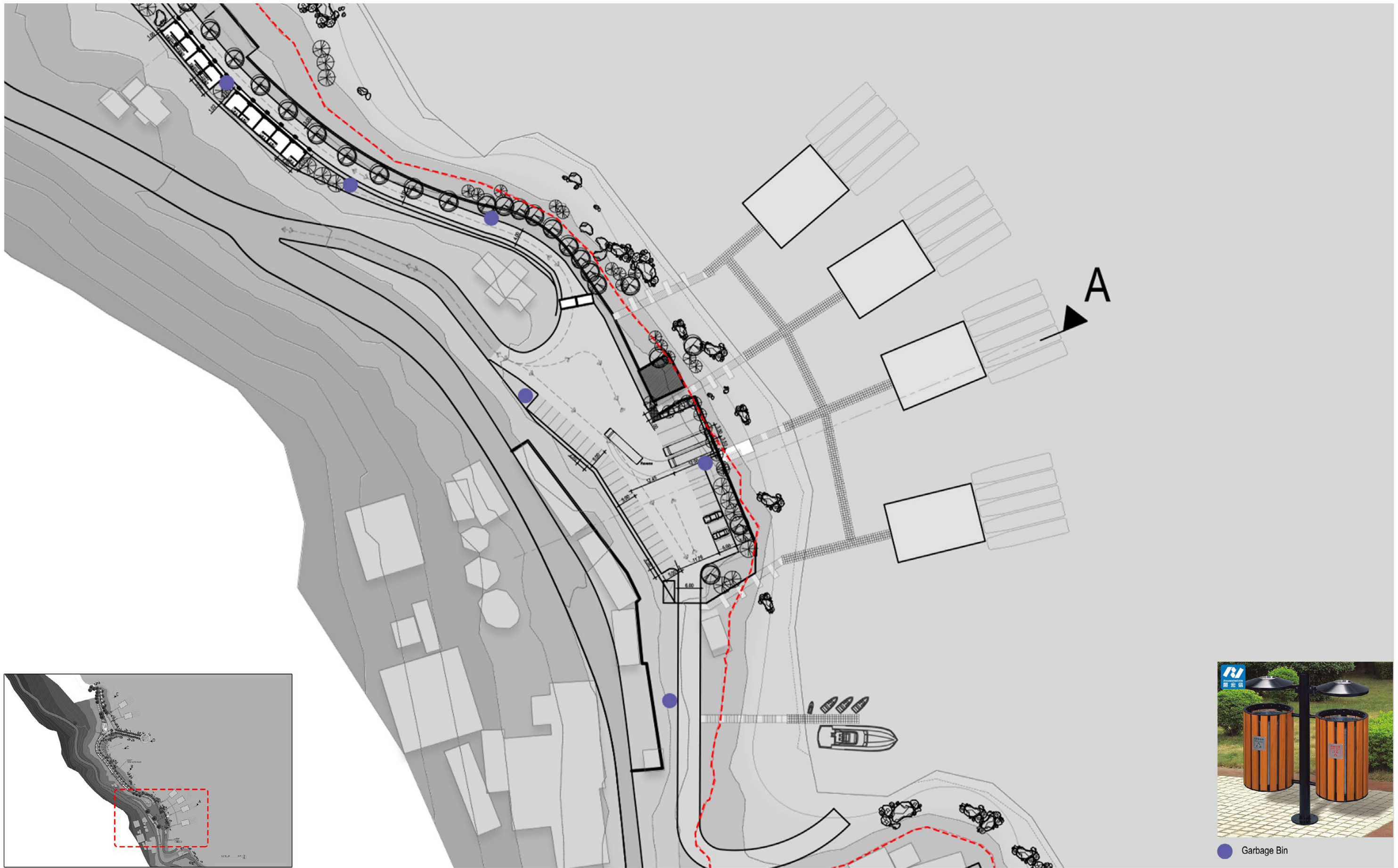
● Garden Light



● LED Step Light



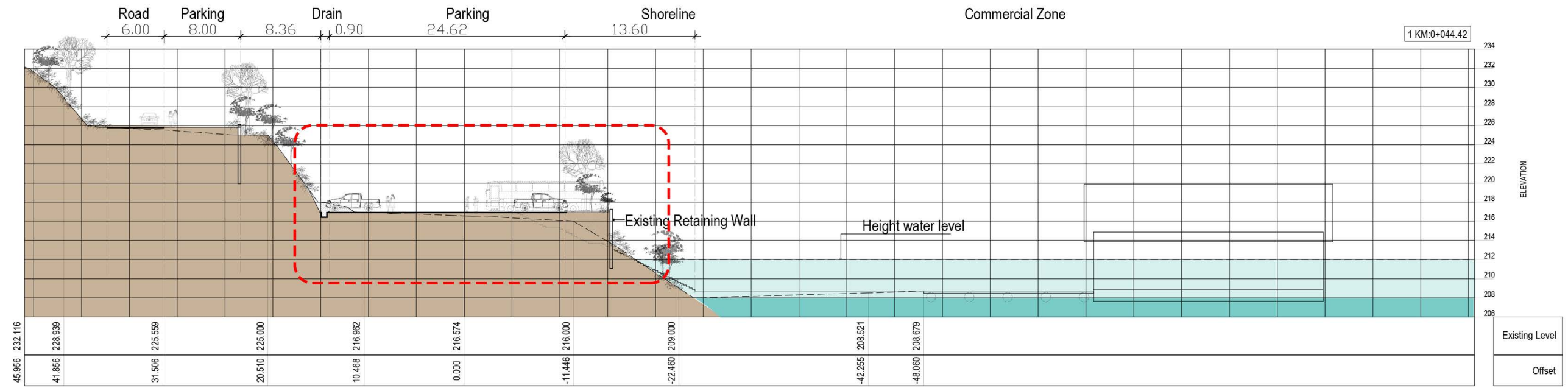
● Walk way Railing Post Lamp



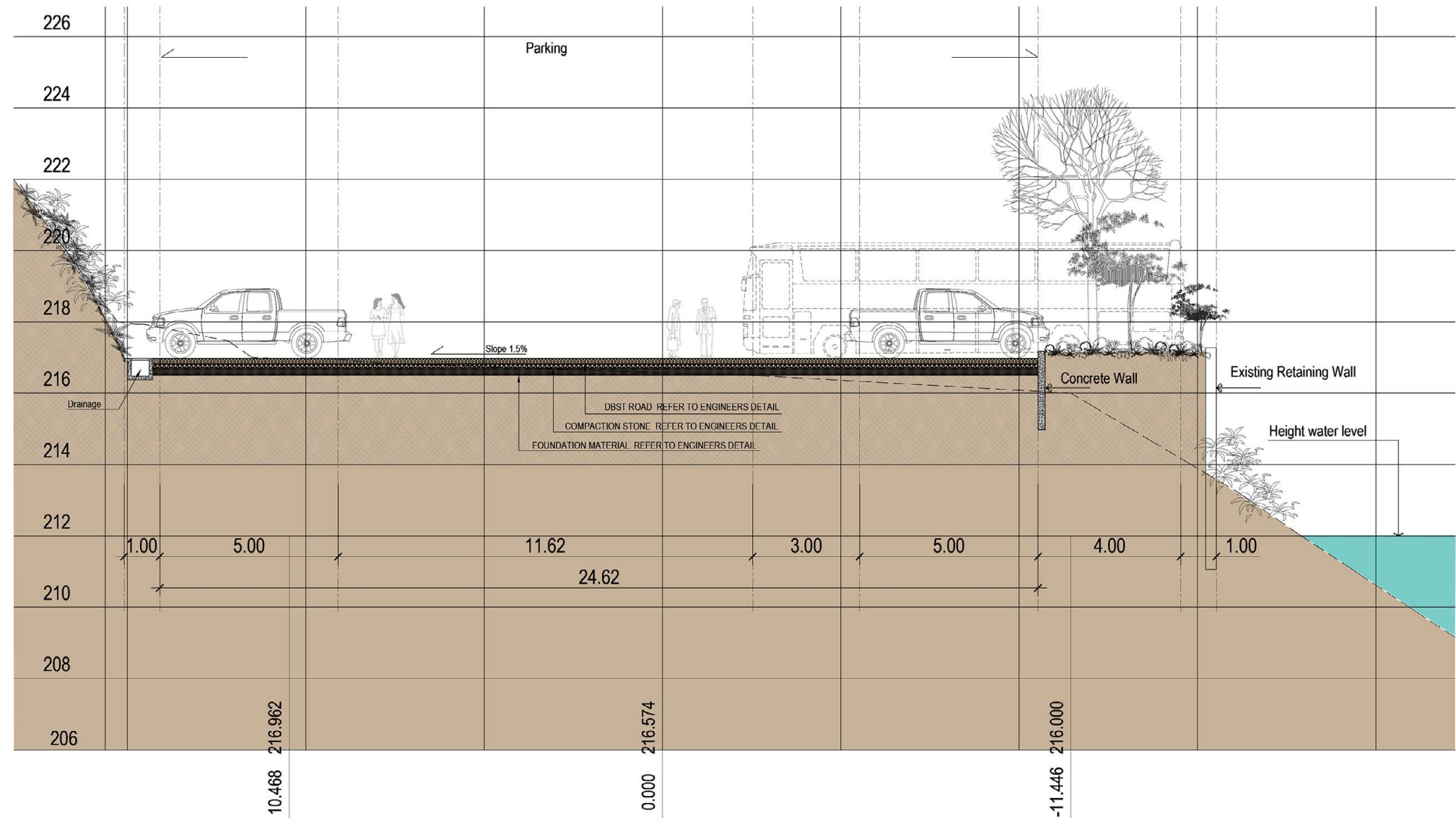
● Garbage Bin



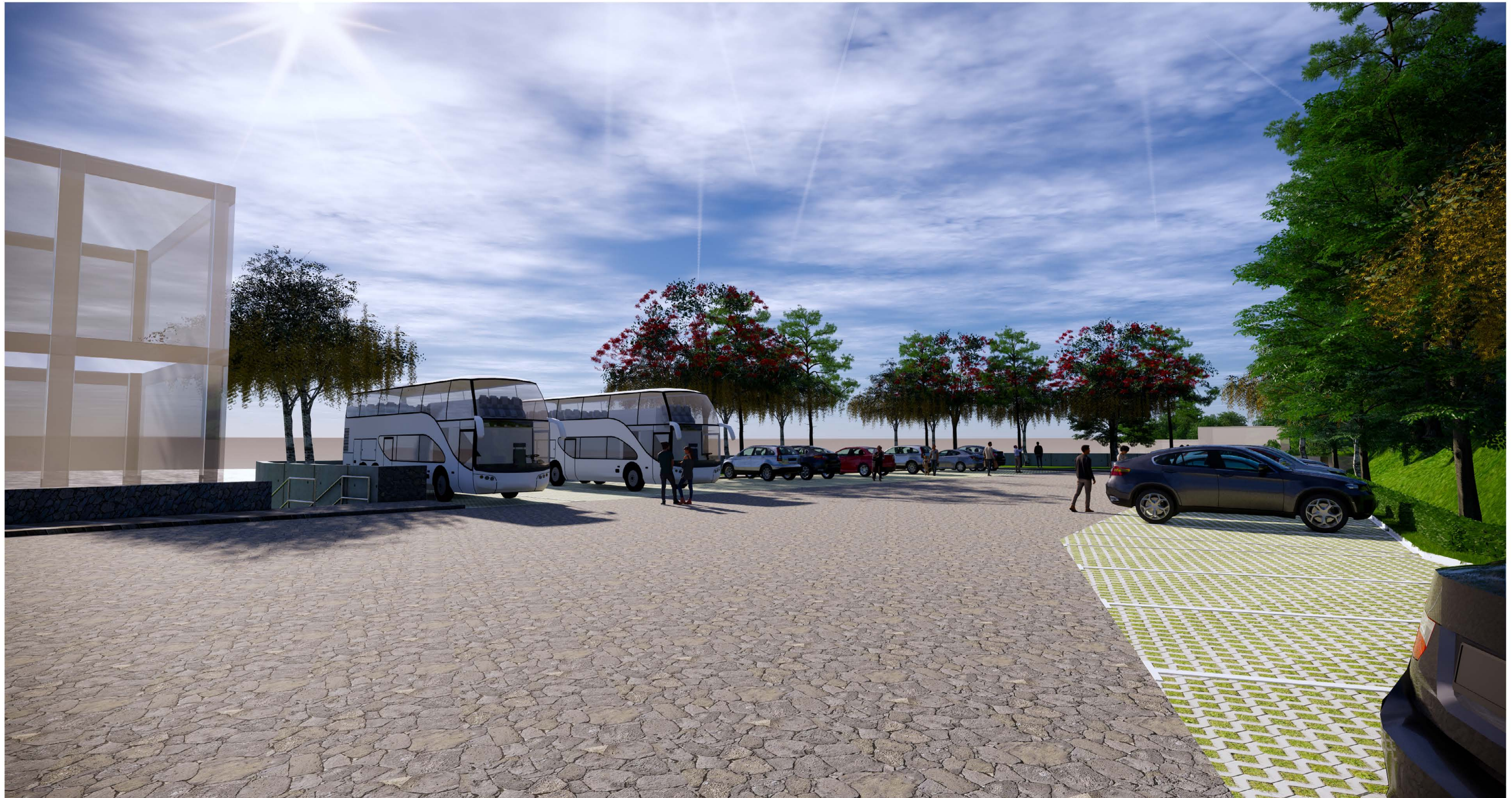
● Gabion Bench



SECTION A

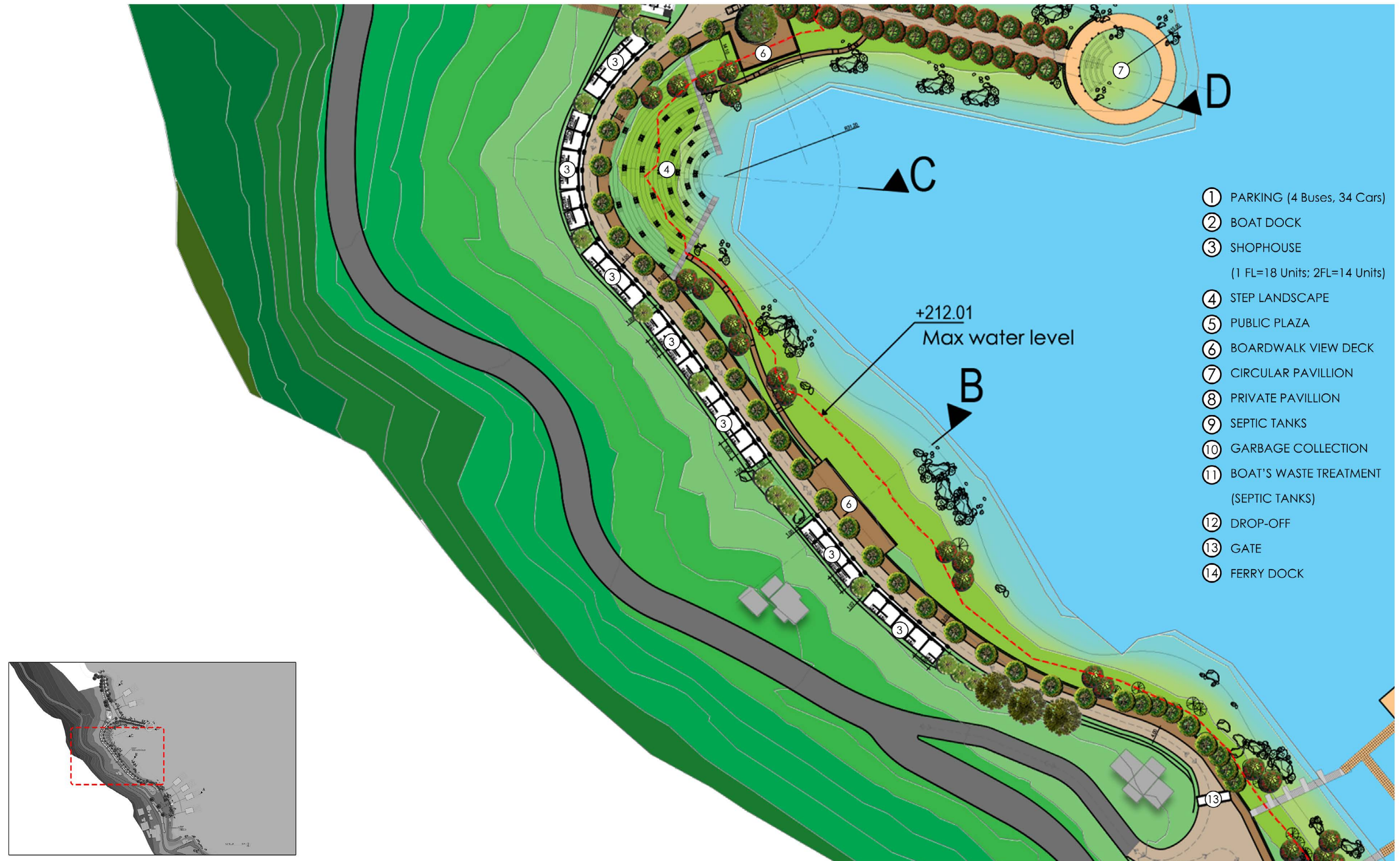






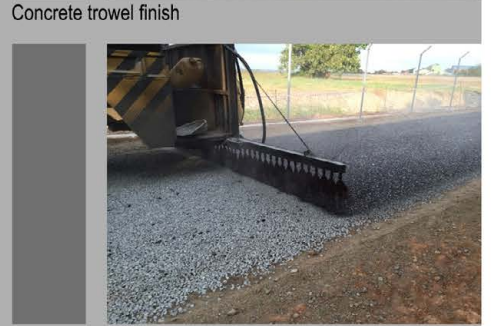
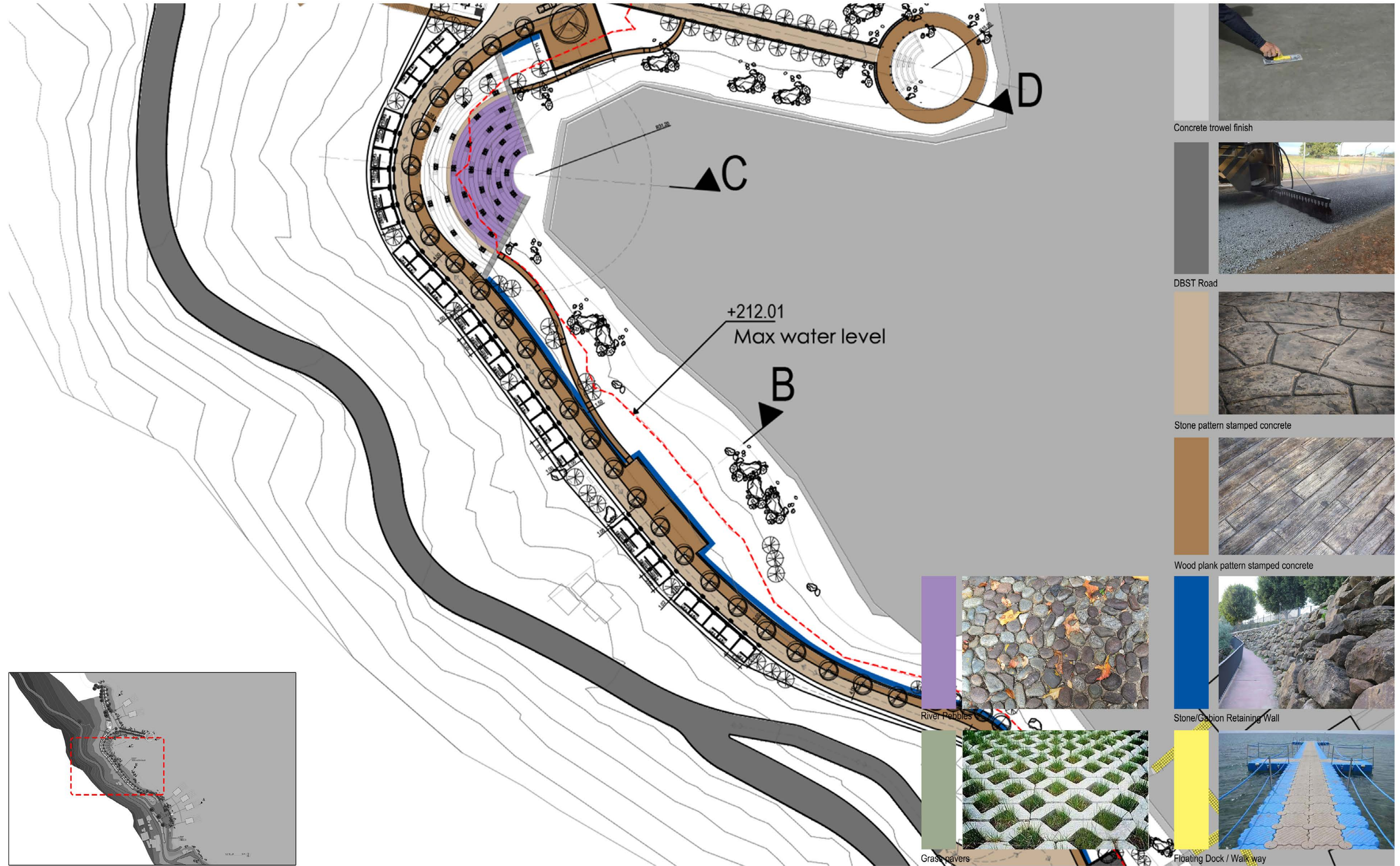


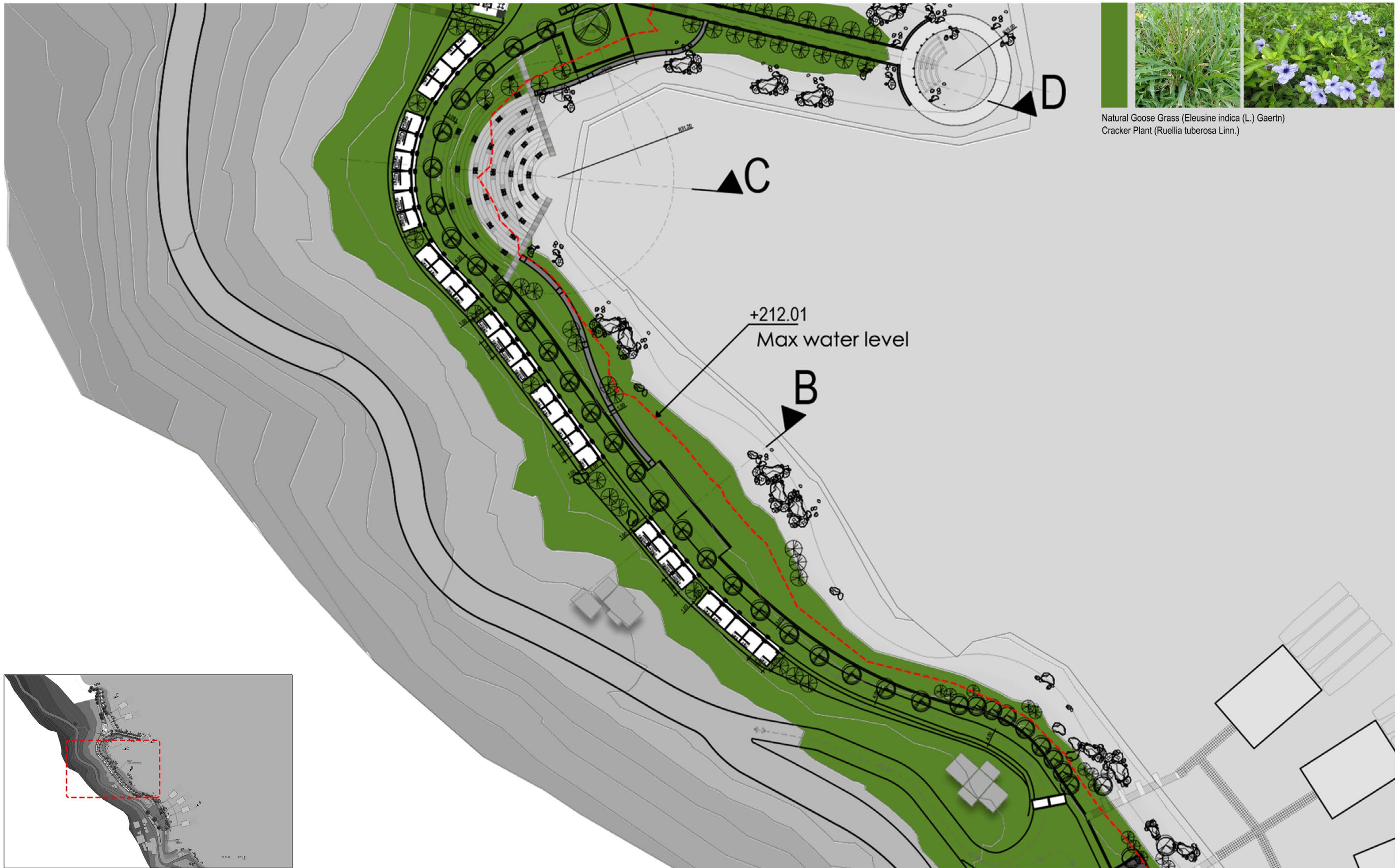




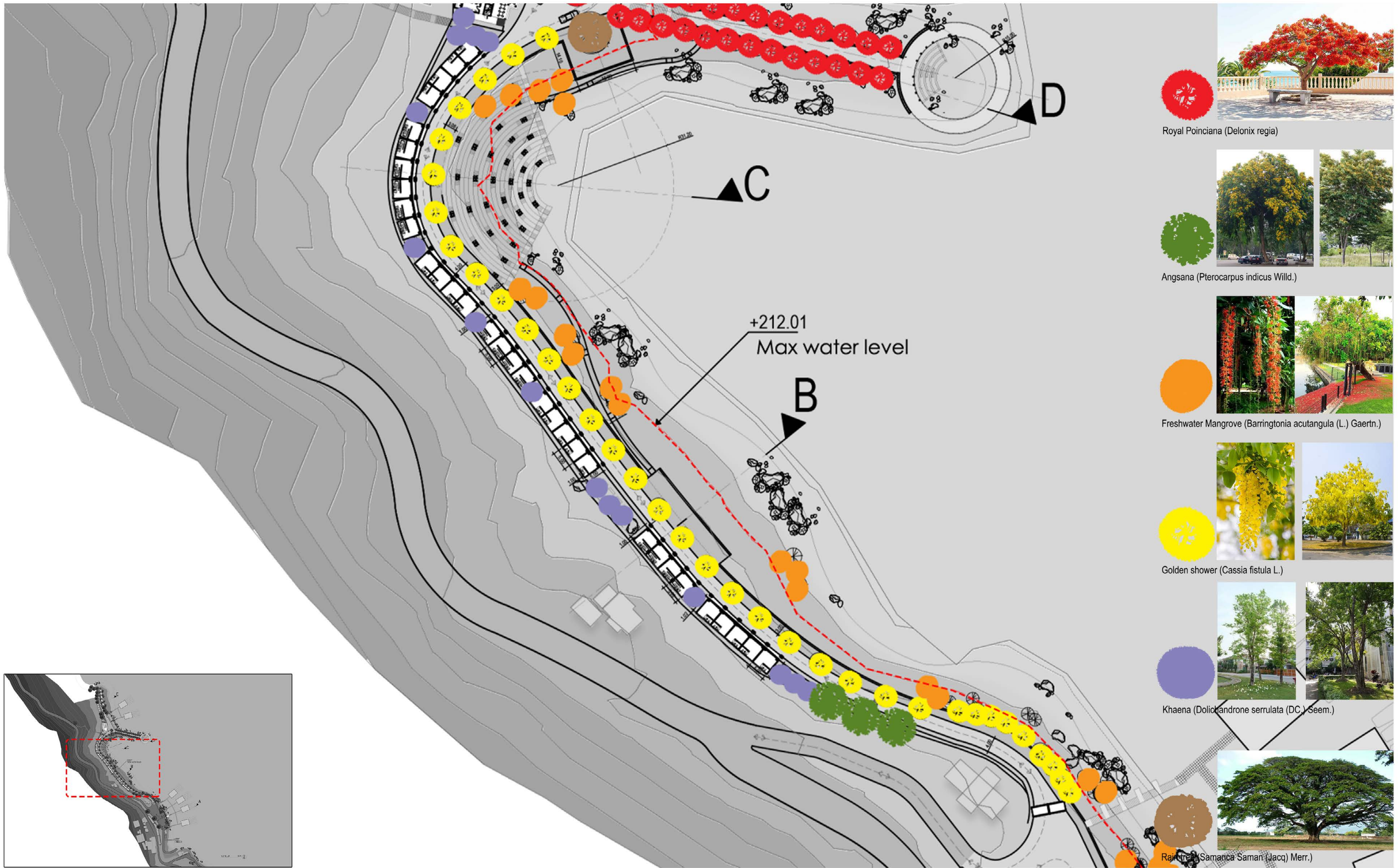
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- ⑨ SEPTIC TANKS
- ⑩ GARBAGE COLLECTION
- ⑪ BOAT'S WASTE TREATMENT
(SEPTIC TANKS)
- ⑫ DROP-OFF
- ⑬ GATE
- ⑭ FERRY DOCK

+212.01
 Max water level





Natural Goose Grass (*Eleusine indica* (L.) Gaertn)
Cracker Plant (*Ruellia tuberosa* Linn.)



Royal Poinciana (*Delonix regia*)



Angsana (*Pterocarpus indicus* Willd.)



Freshwater Mangrove (*Barringtonia acutangula* (L.) Gaertn.)



Golden shower (*Cassia fistula* L.)

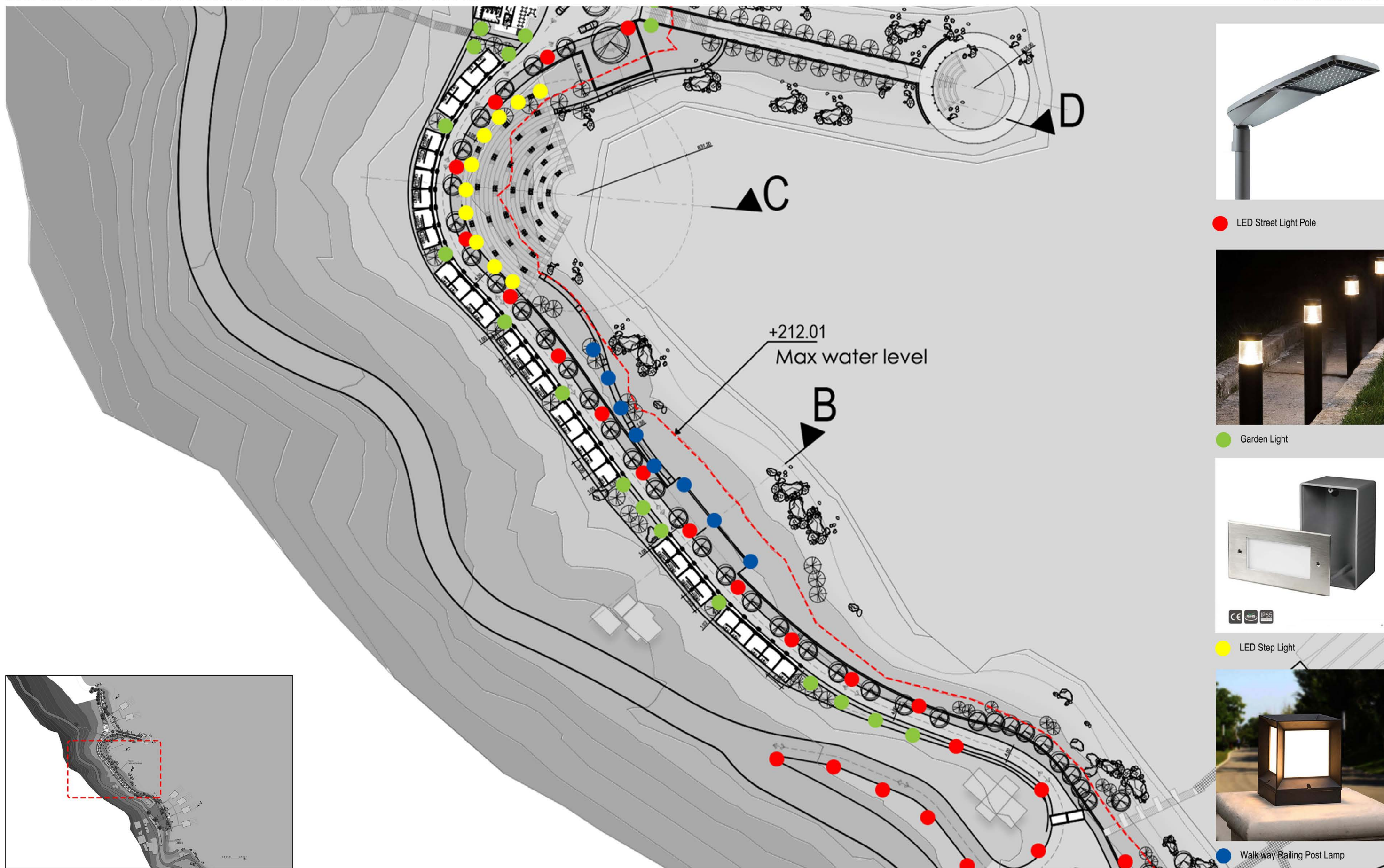


Khaena (*Dolichandrone serrulata* (DC.) Seem.)



Rain tree (*Samanea saman* (Jacq.) Merr.)





LED Street Light Pole



Garden Light



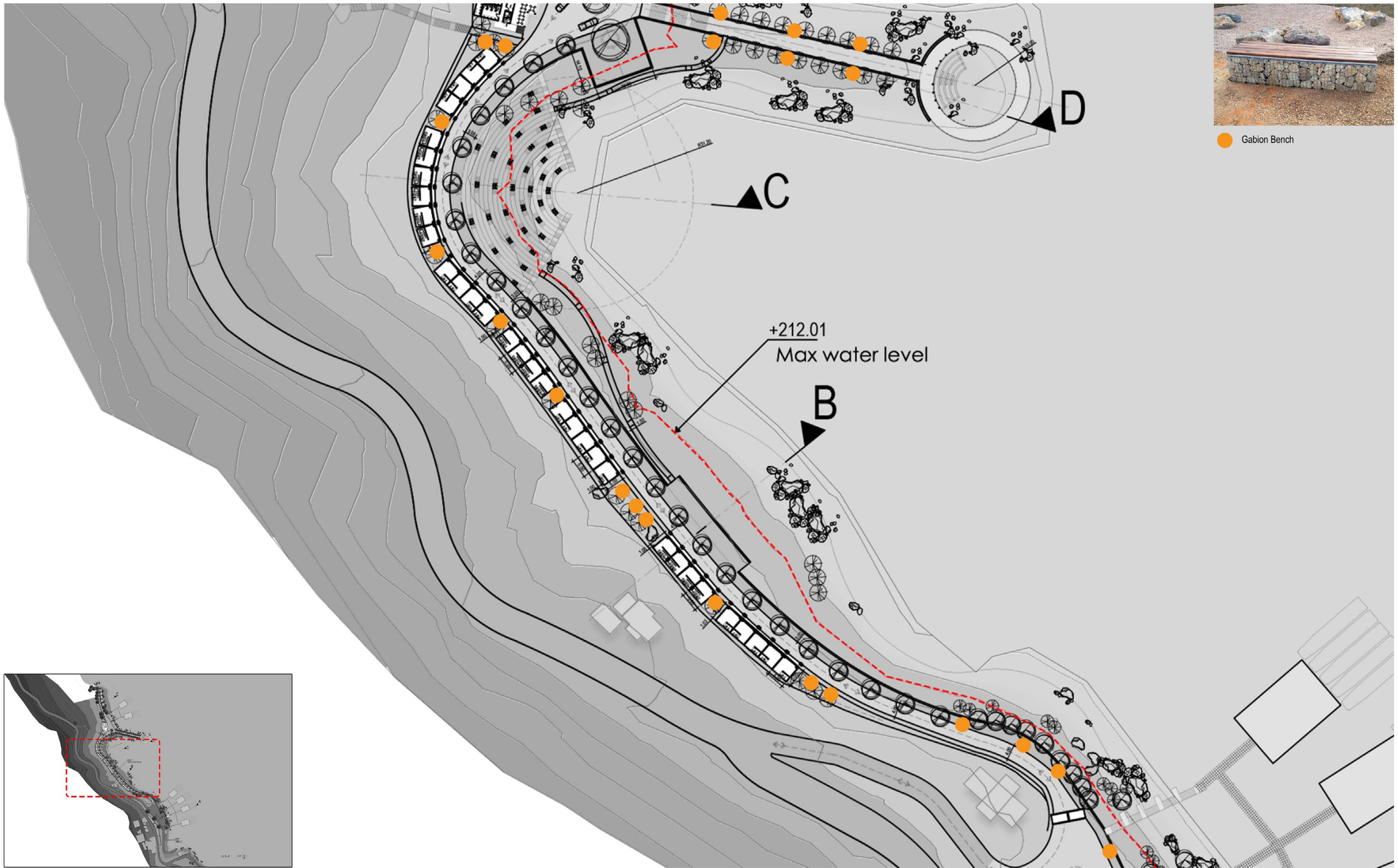
LED Step Light



Walk way Railing Post Lamp

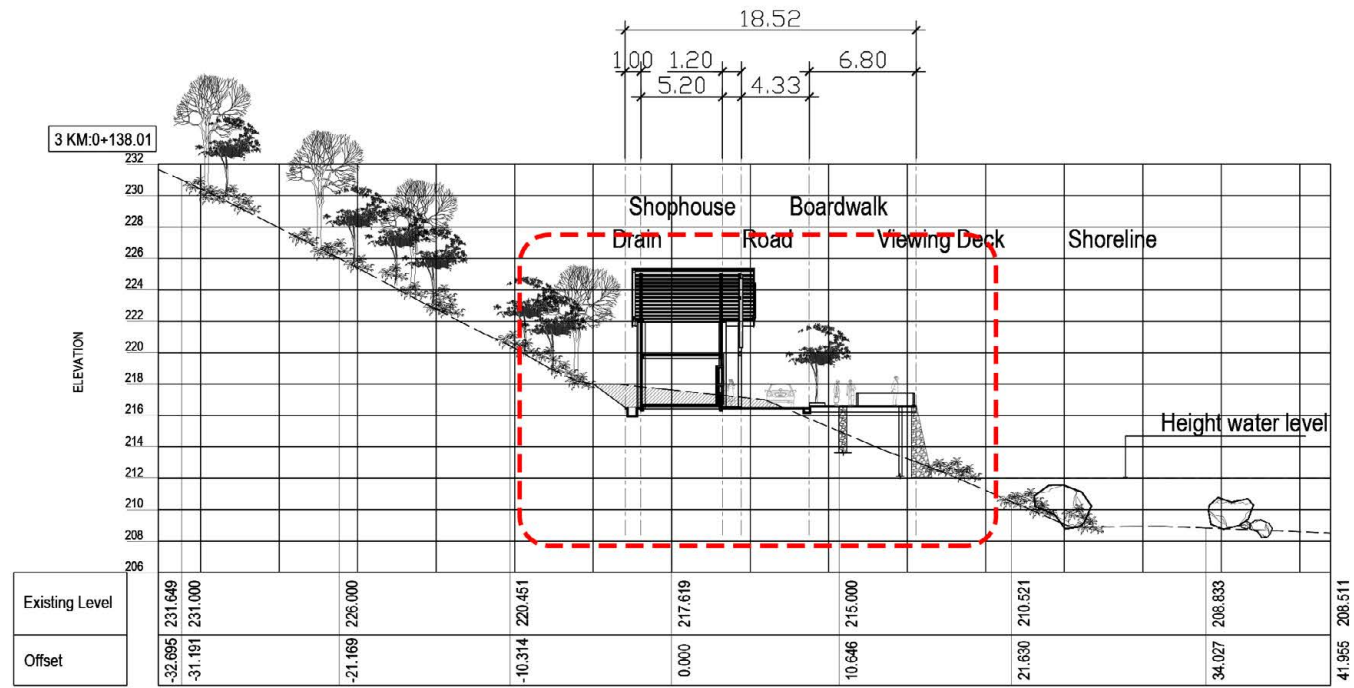


● Garbage Bin

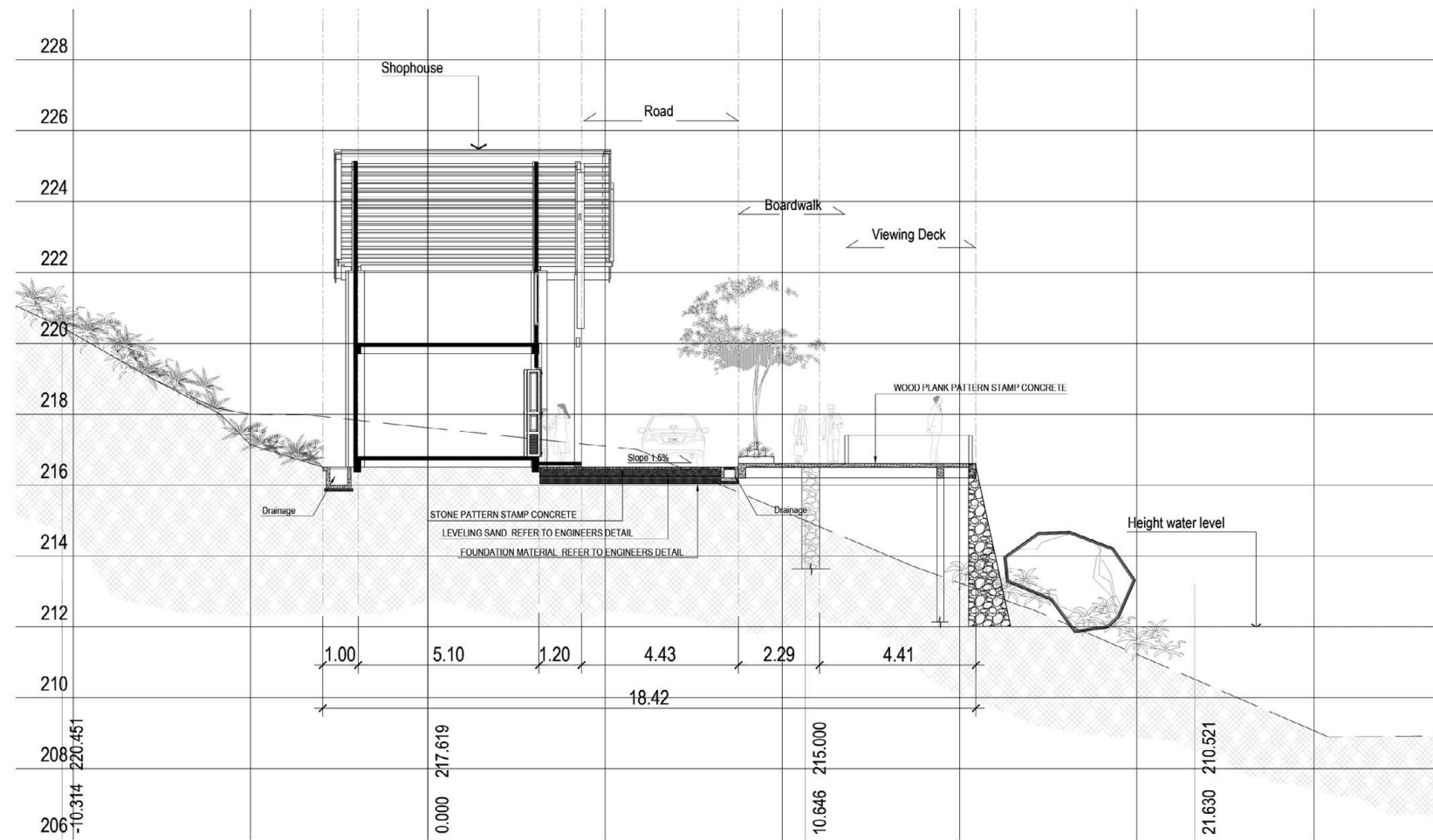


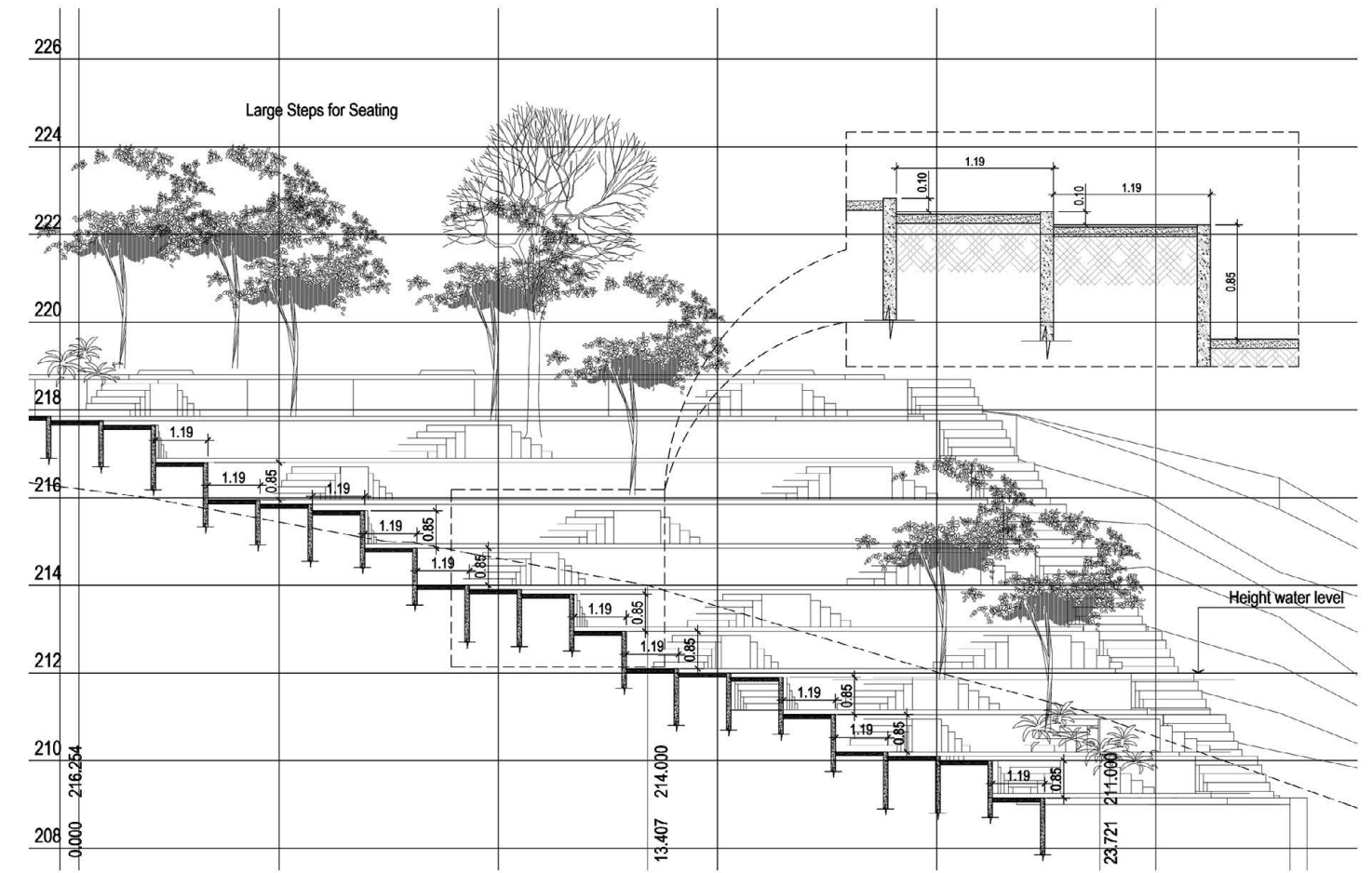
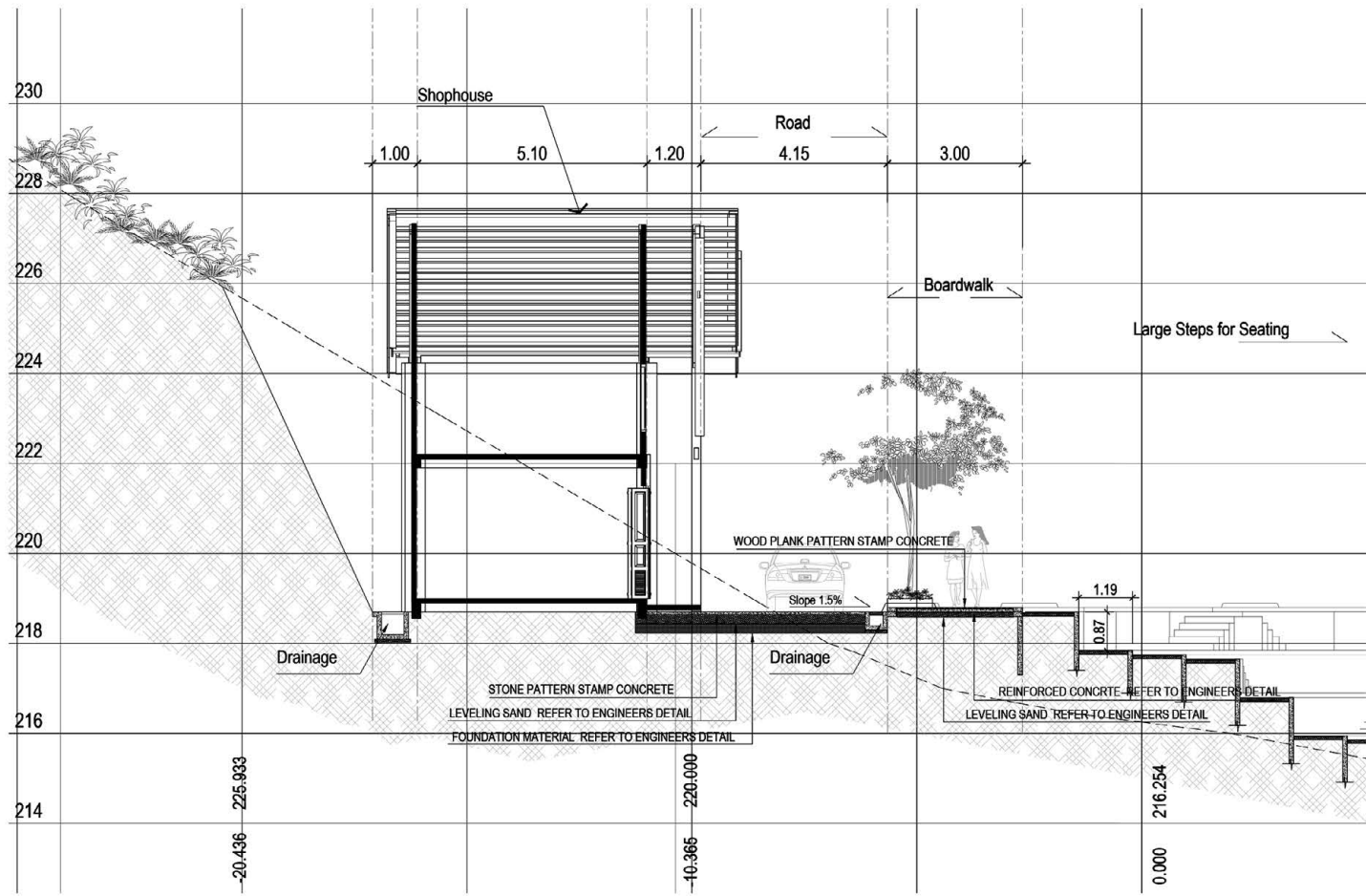
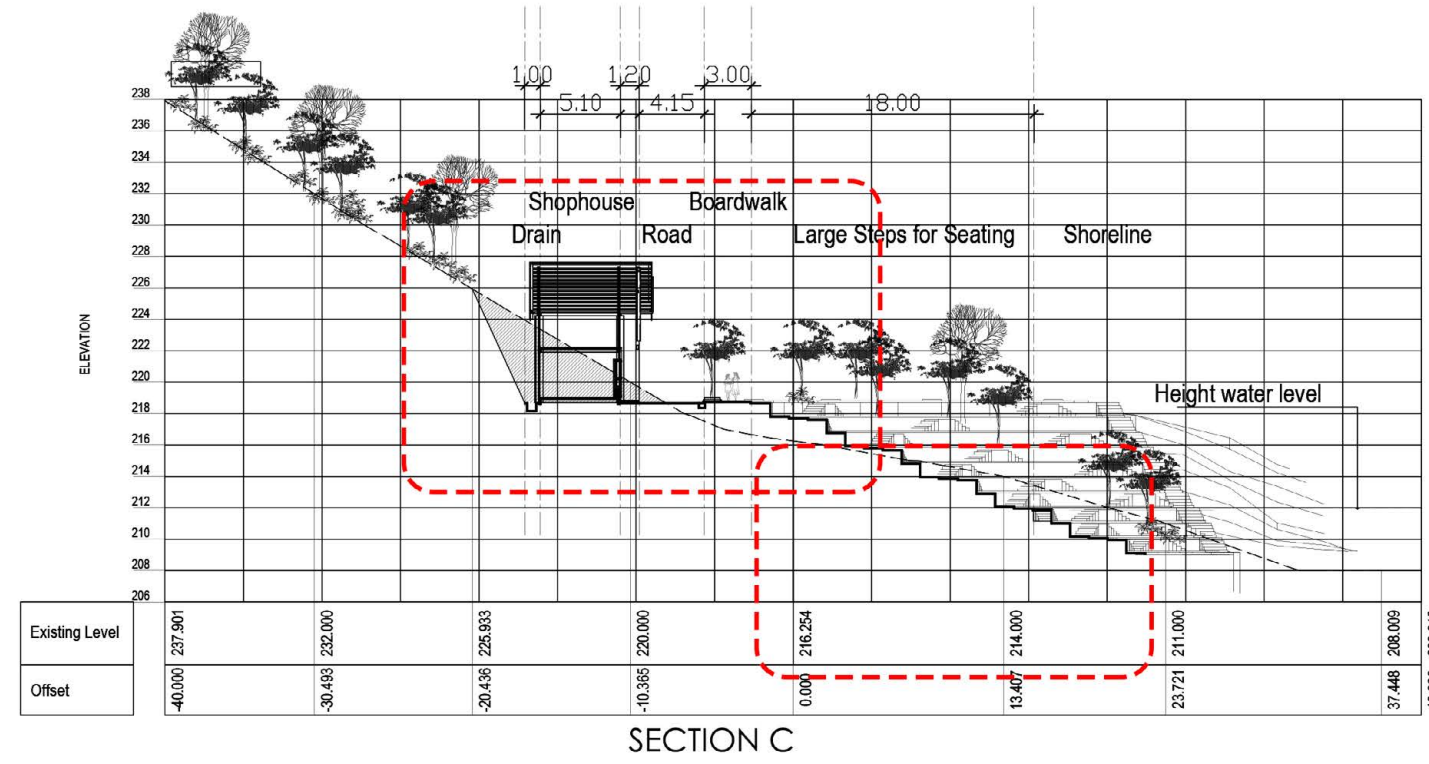
Gabion Bench





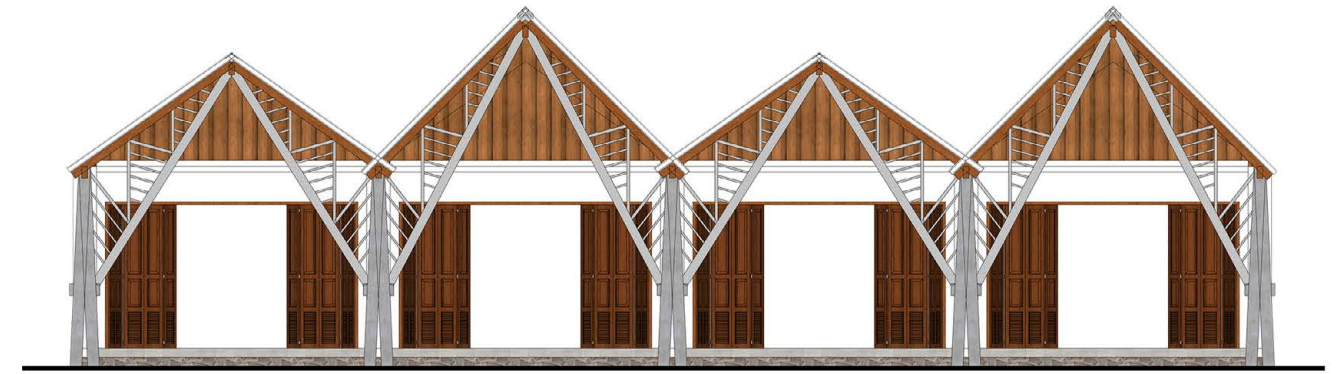
SECTION B



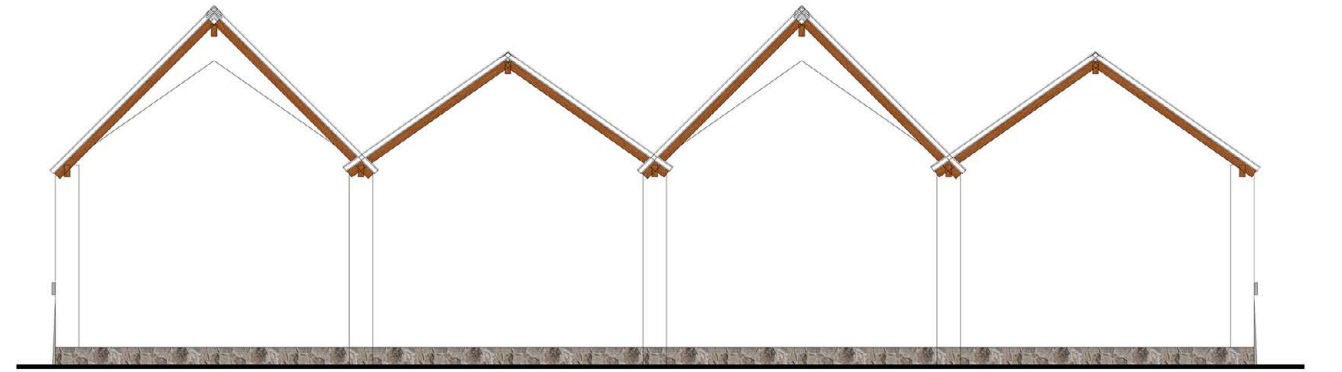




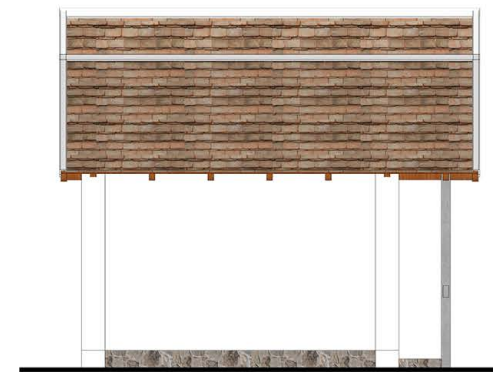
Perspective



Front Elevation



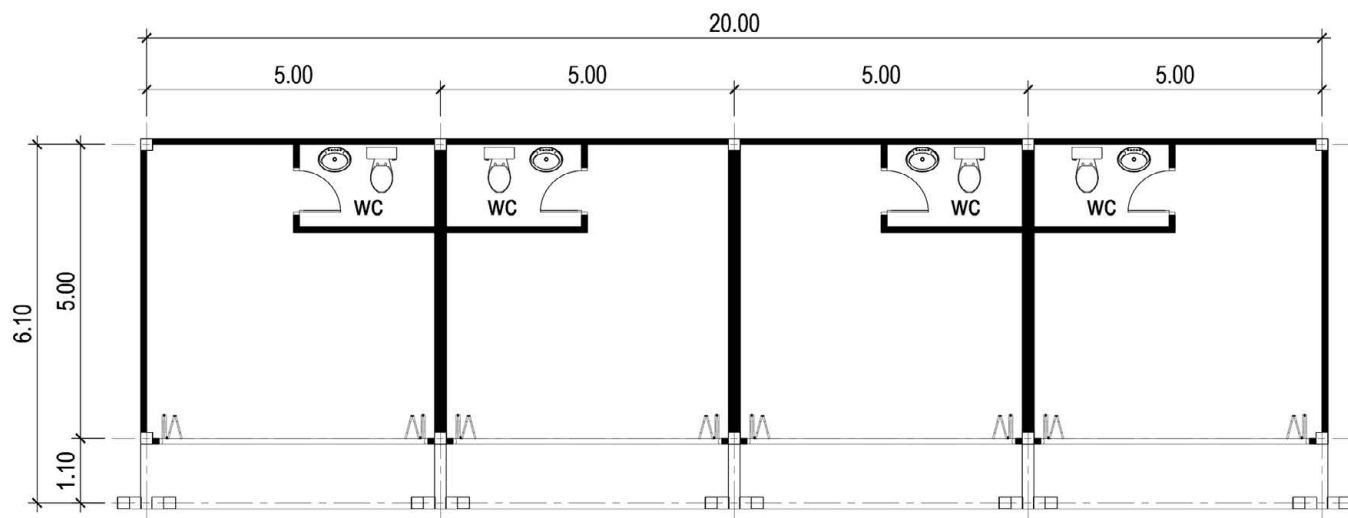
Back Elevation



Left Elevation



Right Elevation



Floor Plan



Stone Masonry



Roof tiles



Steel



Ceramic Tiles



Padauk wood plank



Perspective



Front Elevation



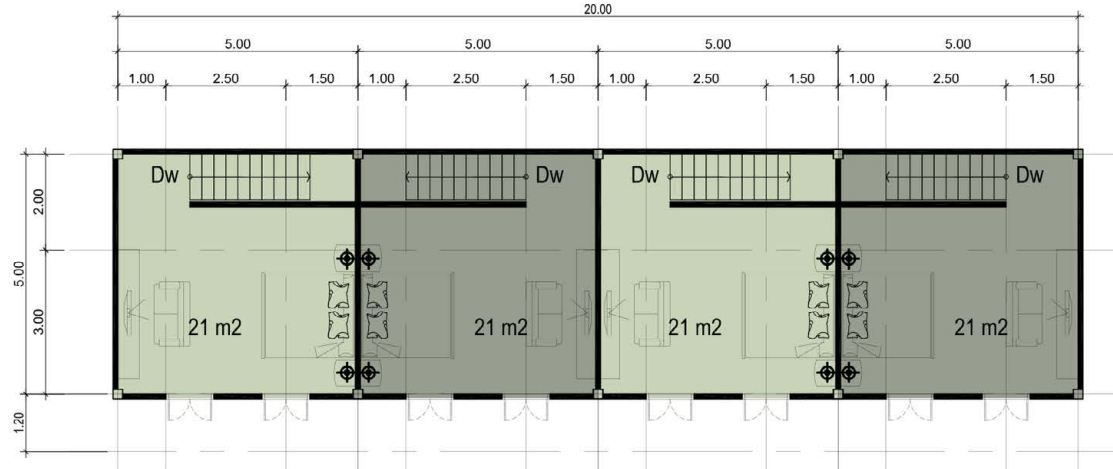
Back Elevation



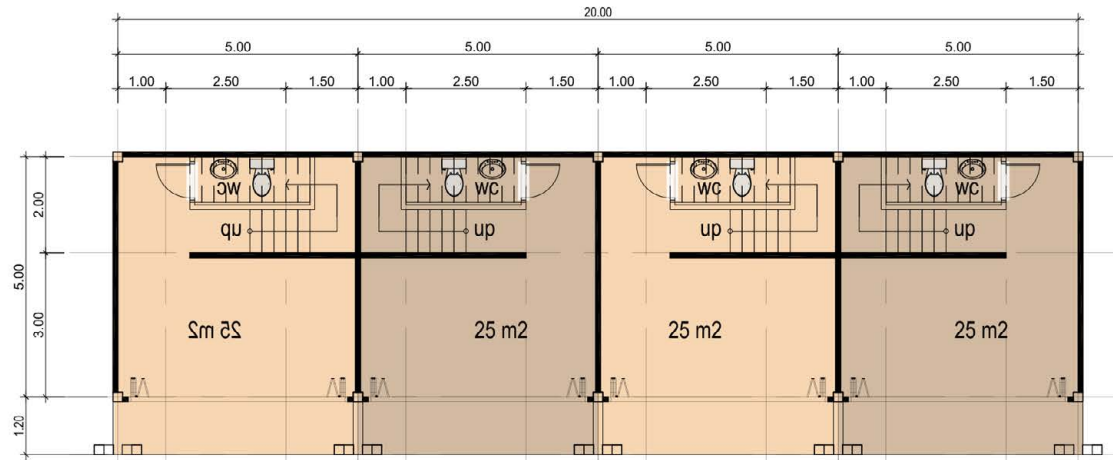
Left Elevation



Right Elevation



2nd Floor Plan



1st Floor Plan



Stone Masonry



Roof tiles



Steel



Ceramic Tiles



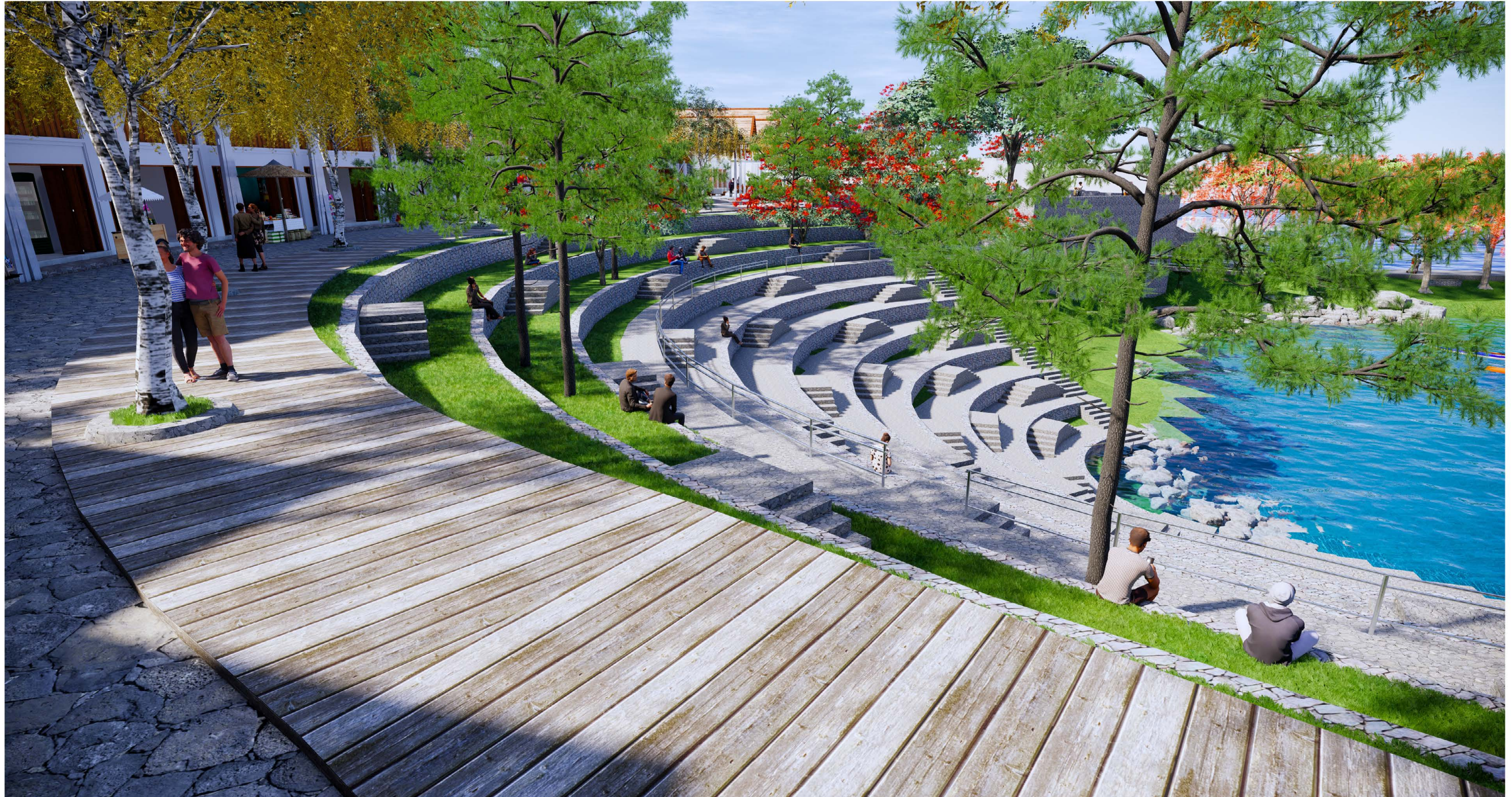
Padauk wood plank

















- ① PARKING (4 Buses, 34 Cars)
- ② BOAT DOCK
- ③ SHOPHOUSE
- (1 FL=18 Units; 2FL=14 Units)
- ④ STEP LANDSCAPE
- ⑤ PUBLIC PLAZA
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- ⑦ CIRCULAR PAVILLION
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- ⑨ SEPTIC TANKS
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- ⑪ BOAT'S WASTE TREATMENT (SEPTIC TANKS)
- ⑫ DROP-OFF
- ⑬ GATE
- ⑭ FERRY DOCK





River Pebbles



Grass pavers



Concrete trowel finish



DBST Road



Stone pattern stamped concrete



Wood plank pattern stamped concrete



Stone/Gabion Retaining Wall



Floating Dock / Walk way





Natural Goose Grass (*Eleusine indica* (L.) Gaertn)
Cracker Plant (*Ruellia tuberosa* Linn.)



Royal Poinciana (*Delonix regia*)



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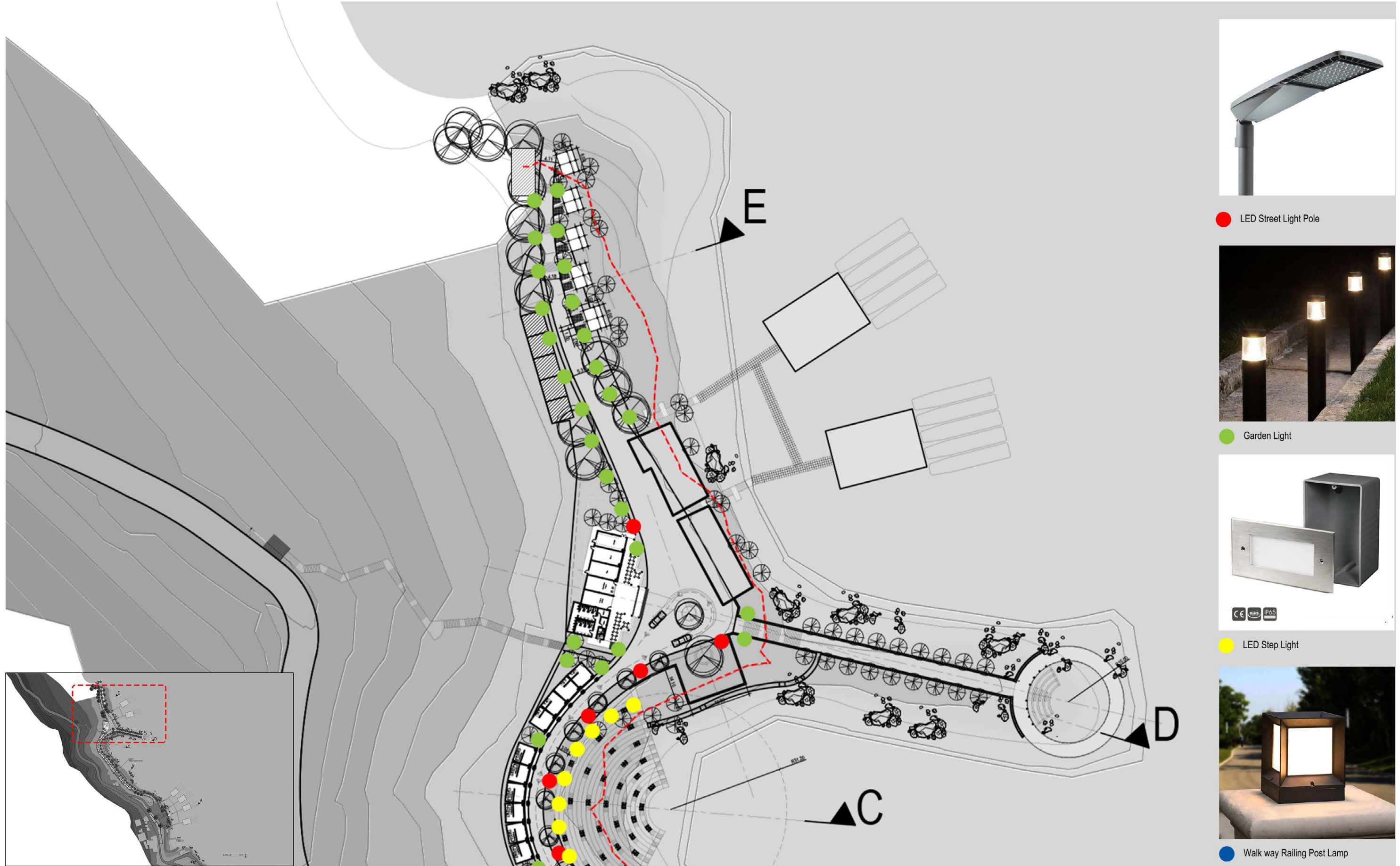


Khaena (*Dolichandrone serrulata* (DC.) Seem.)



Rain tree (*Samanea Saman* (Jacq) Merr.)





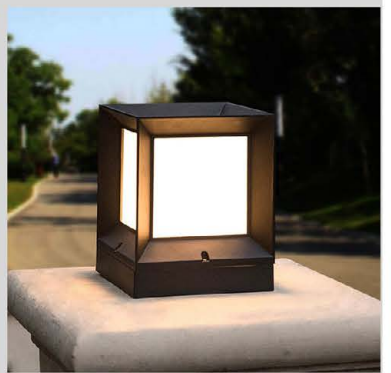
LED Street Light Pole



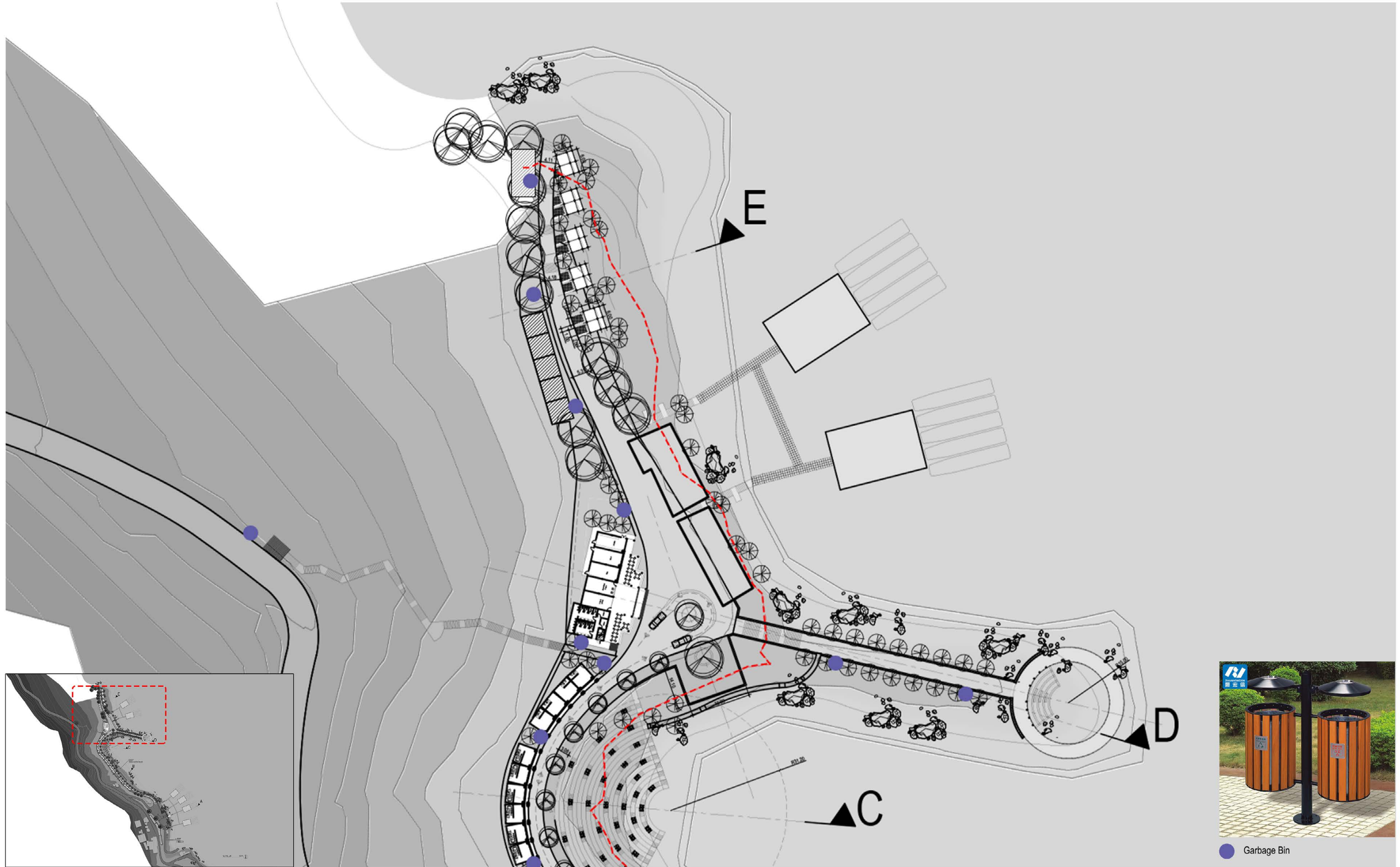
Garden Light

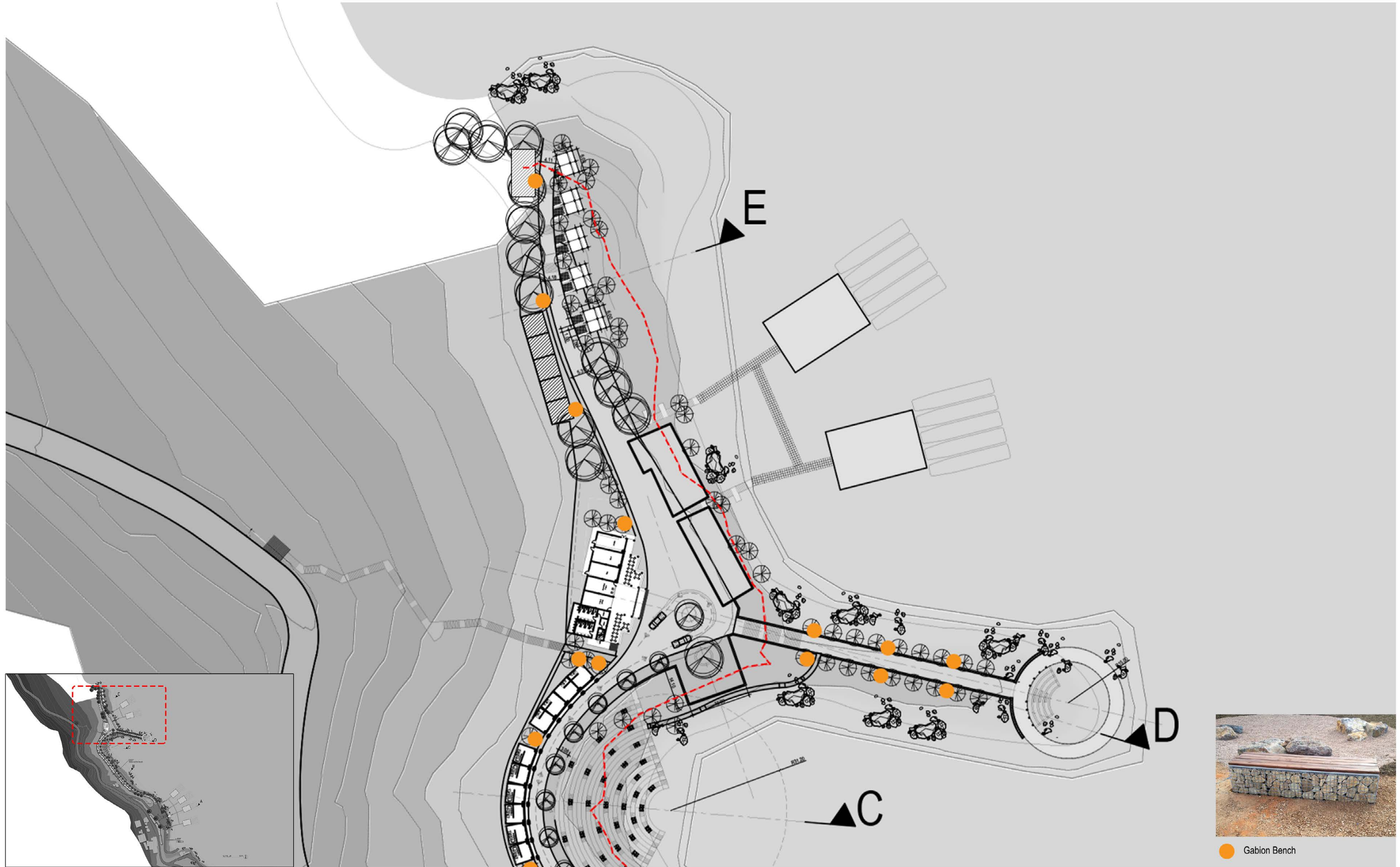


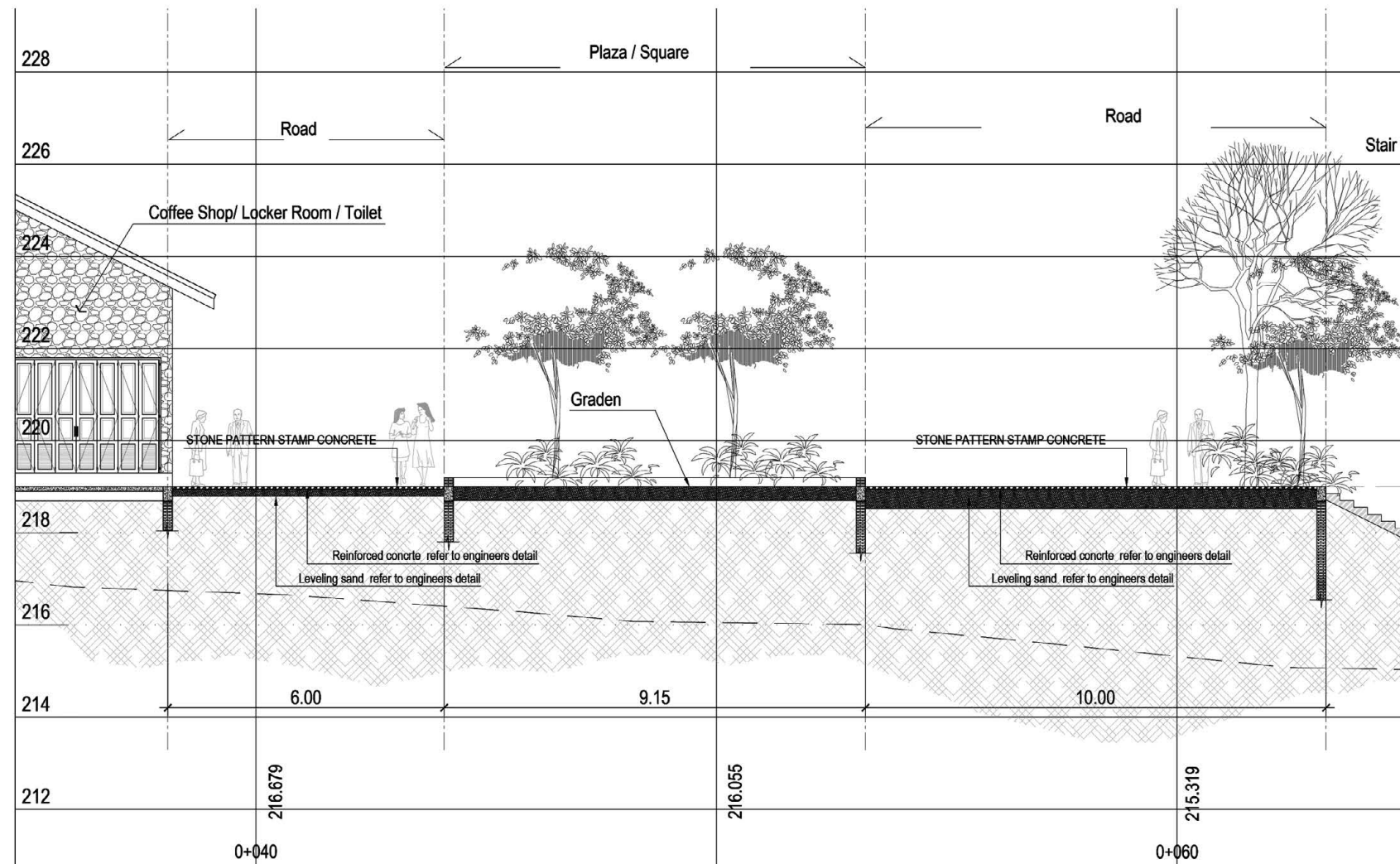
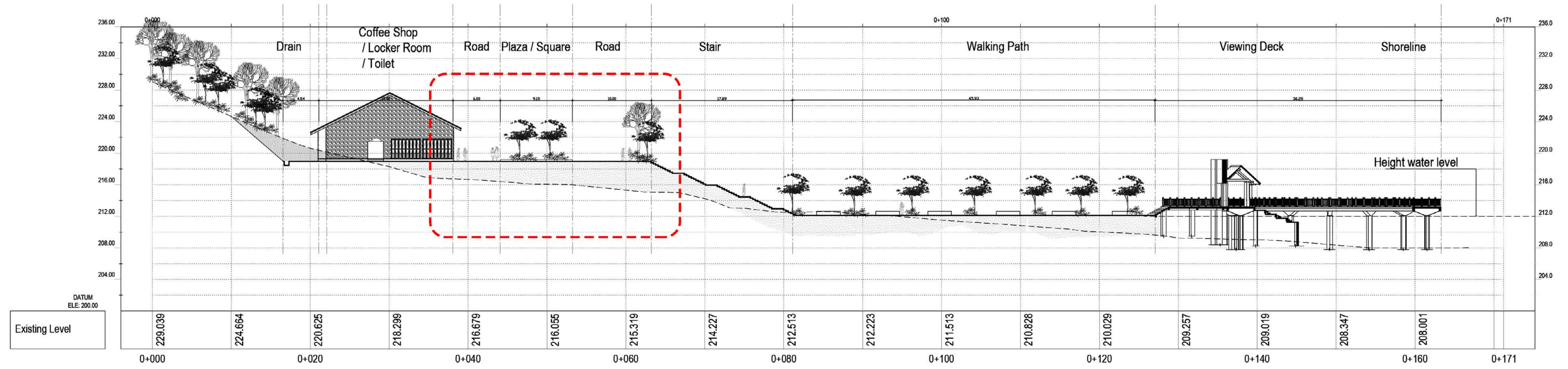
LED Step Light

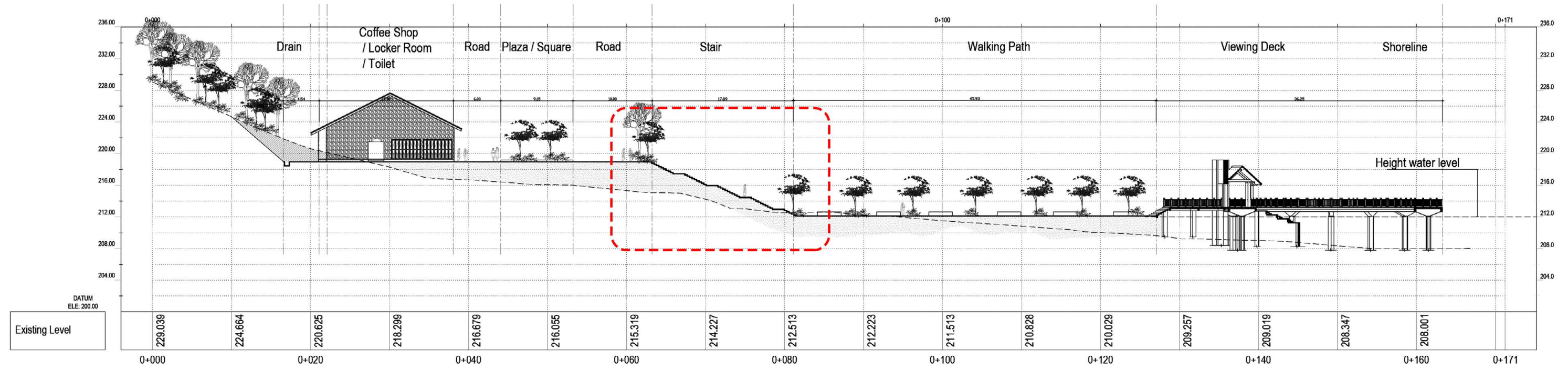


Walk way Railing Post Lamp

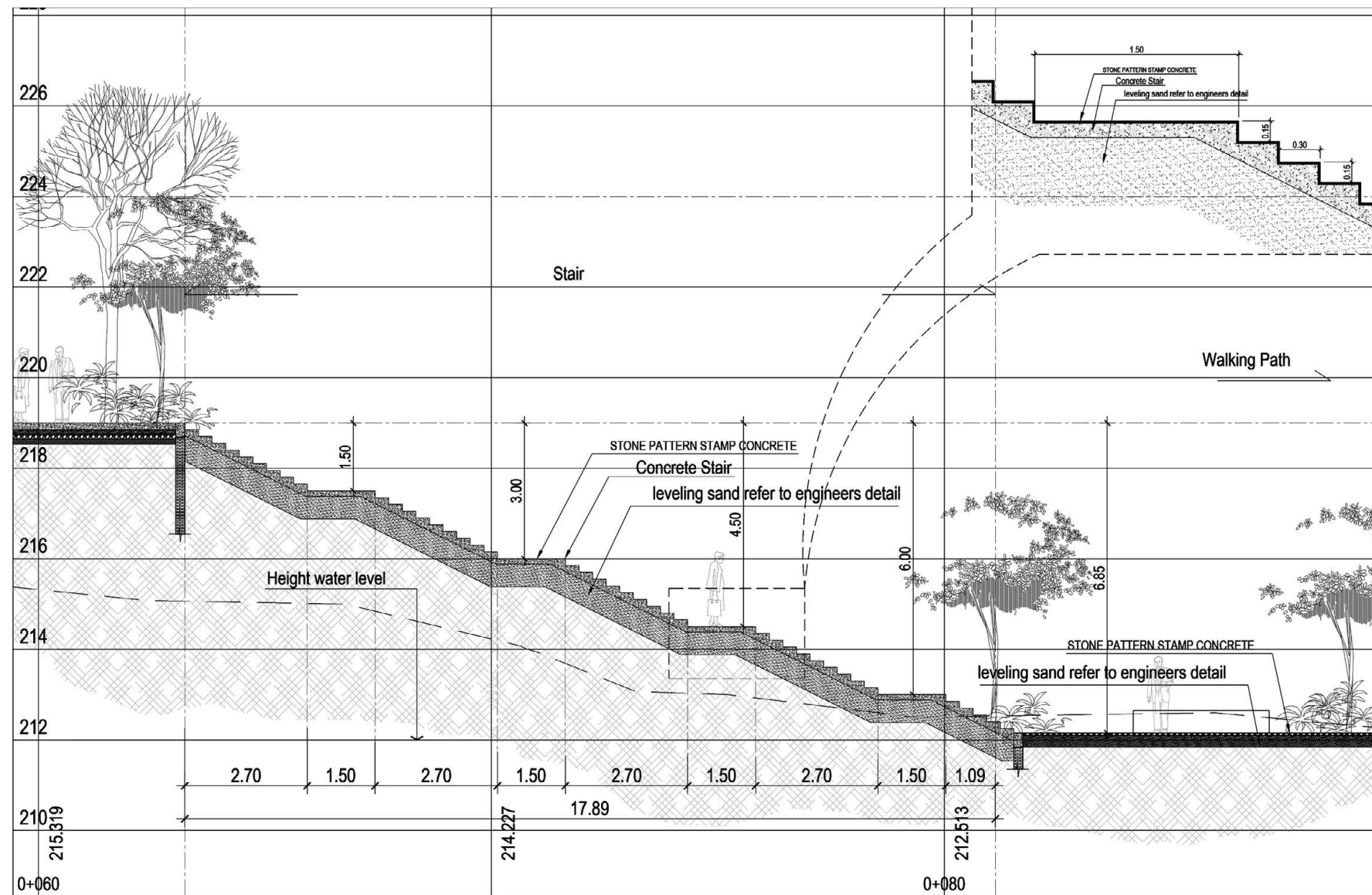


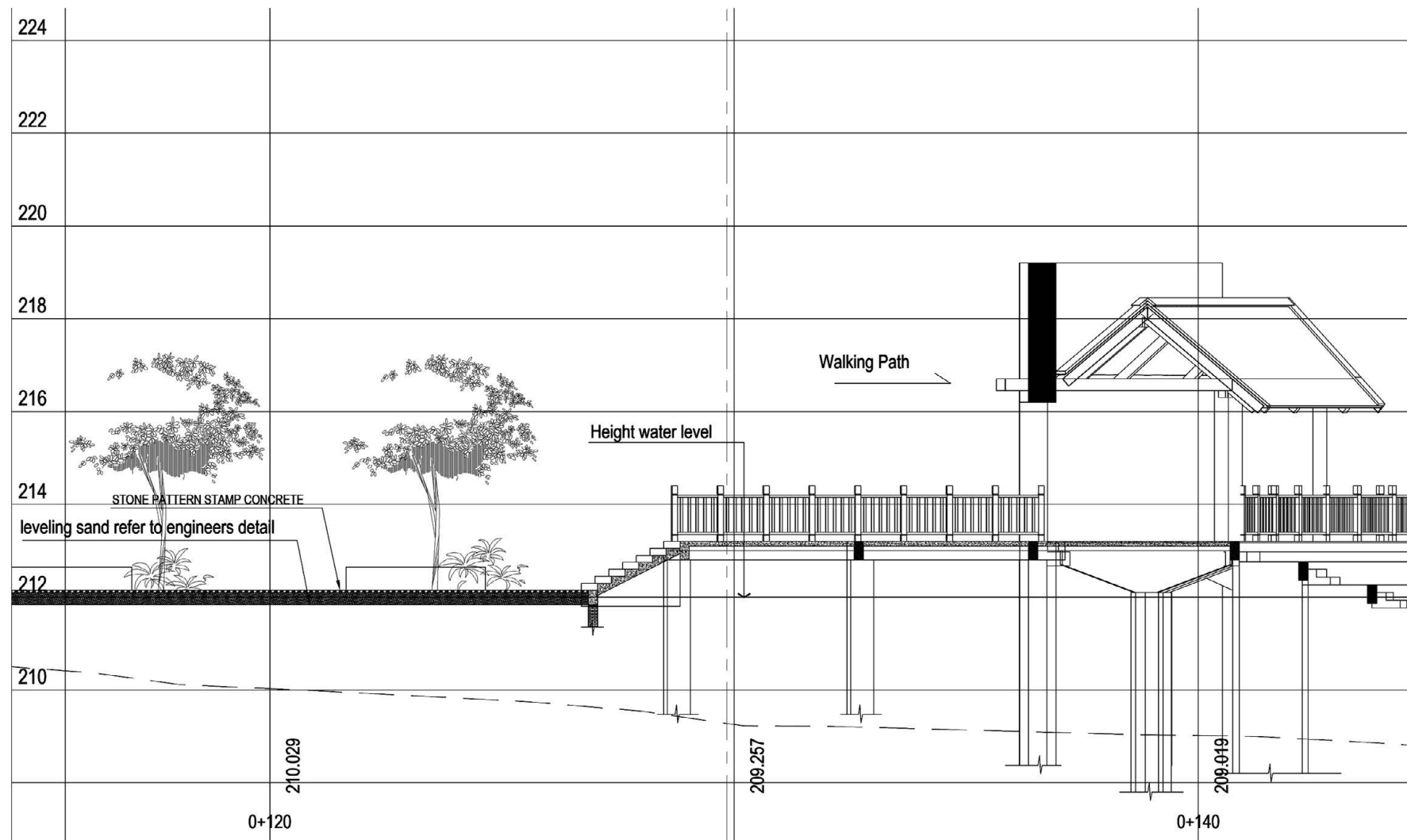
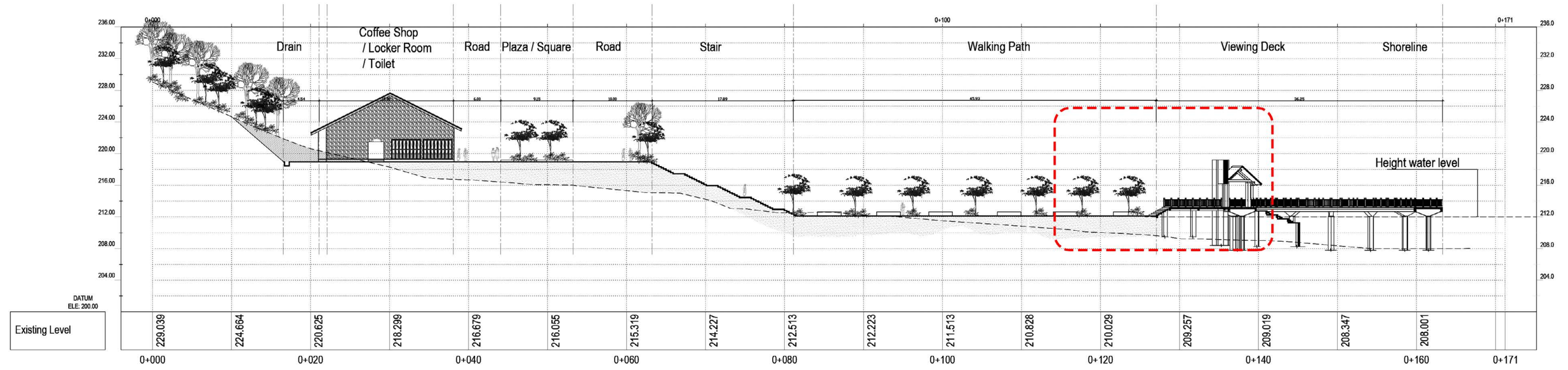


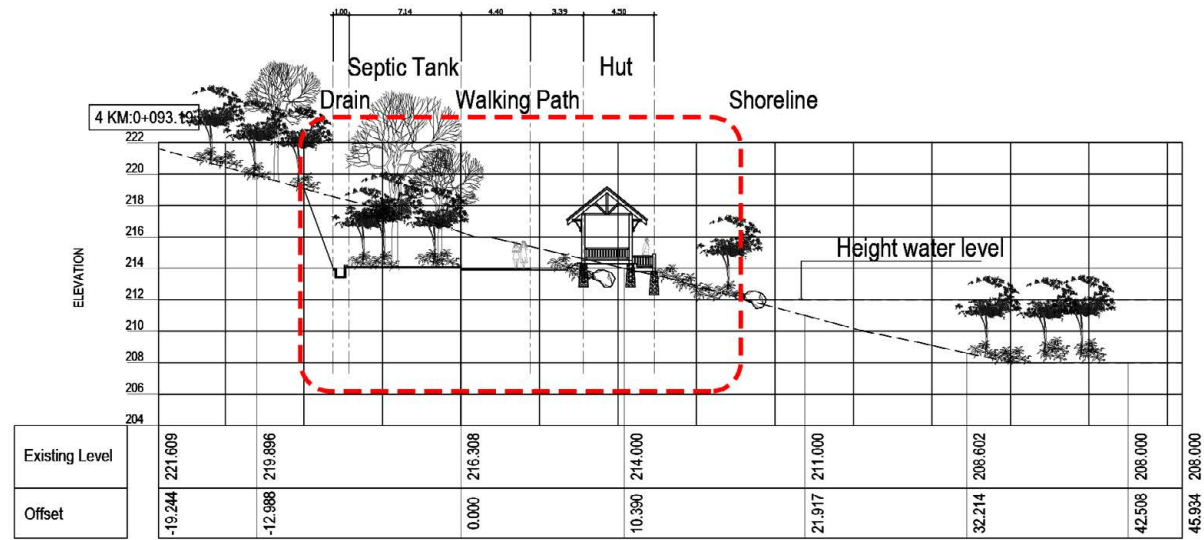




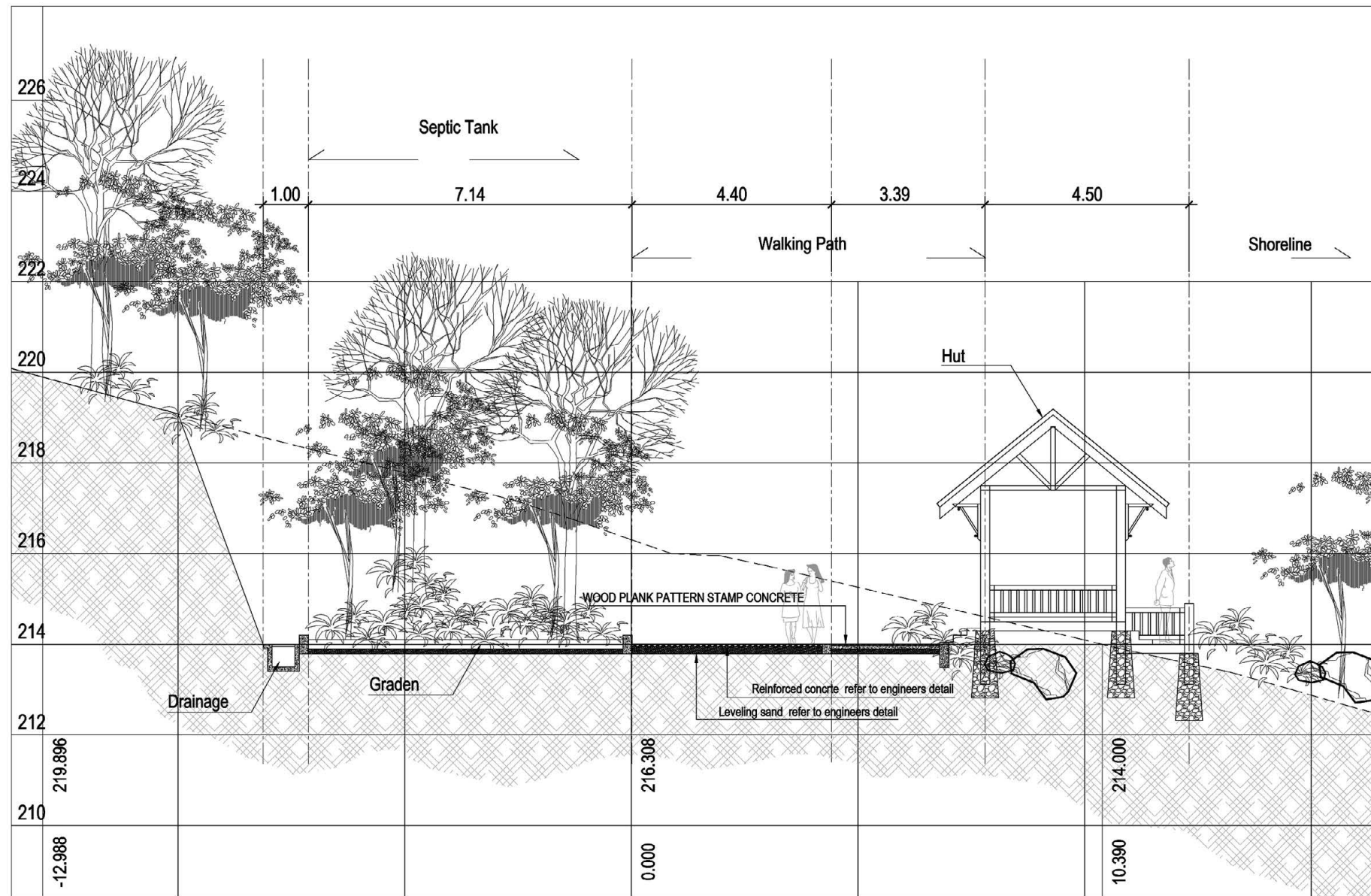
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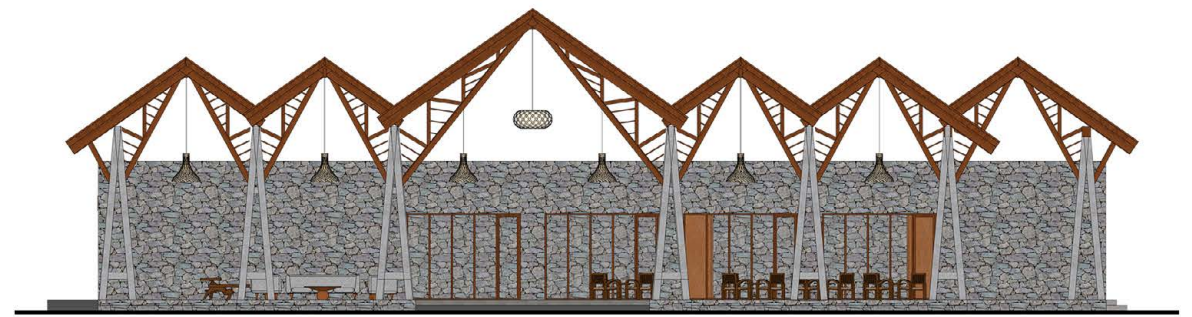


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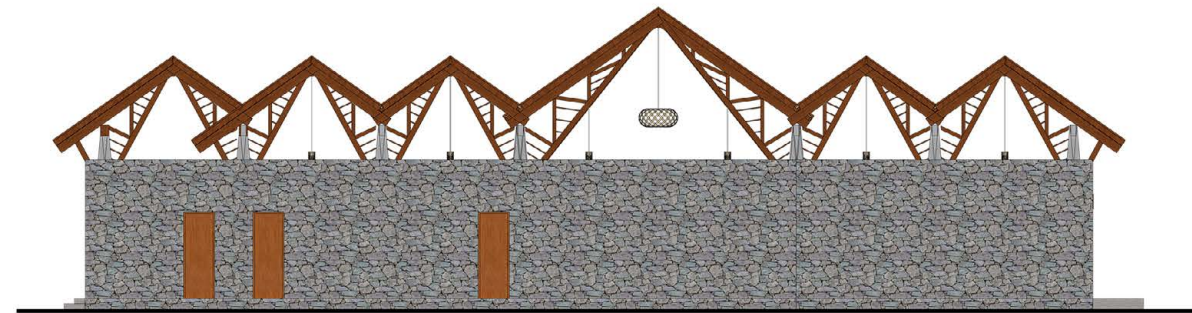




Perspective



Front Elevation



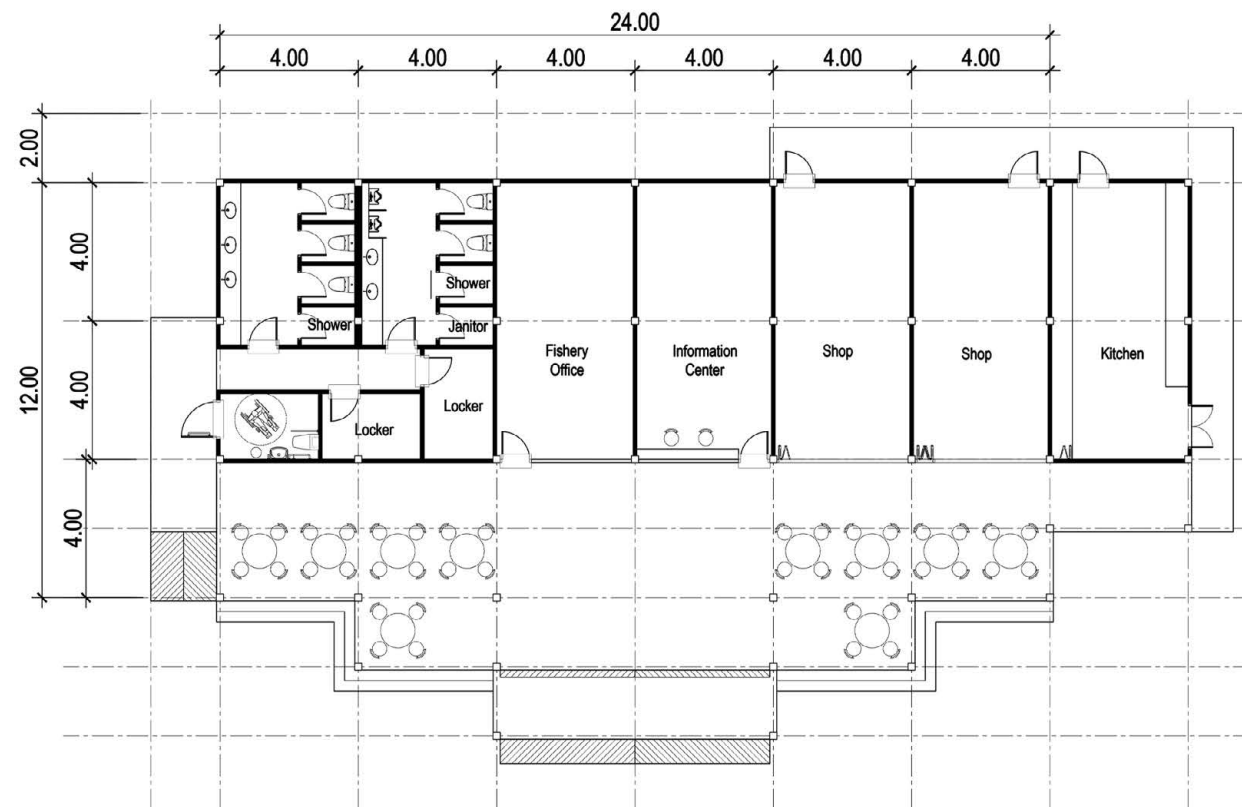
Back Elevation



Left Elevation



Right Elevation



Floor Plan



Stone Masonry



Roof tiles



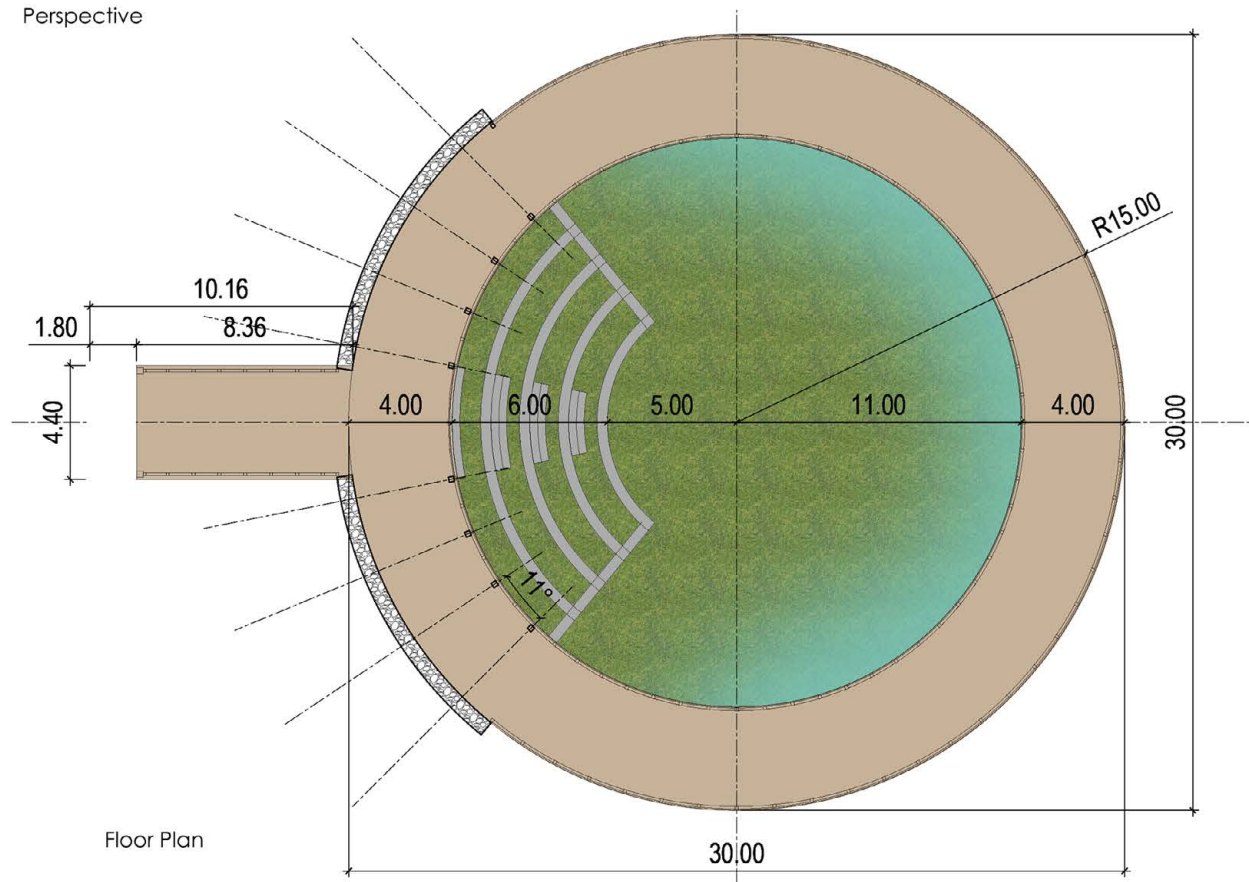
Steel



Ceramic Tiles



Perspective



Floor Plan



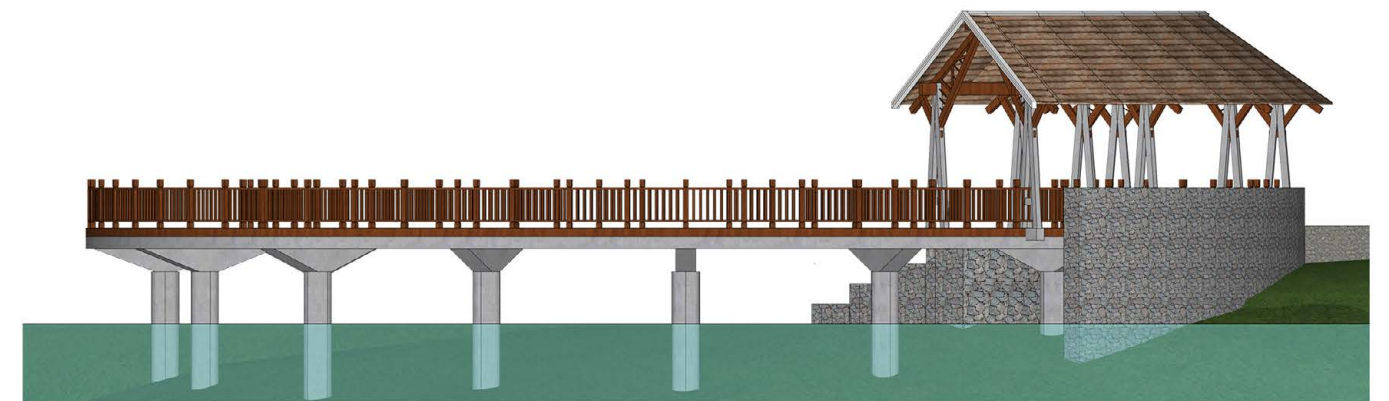
Front Elevation



Back Elevation



Left Elevation



Right Elevation



Stone Masonry



Roof tiles



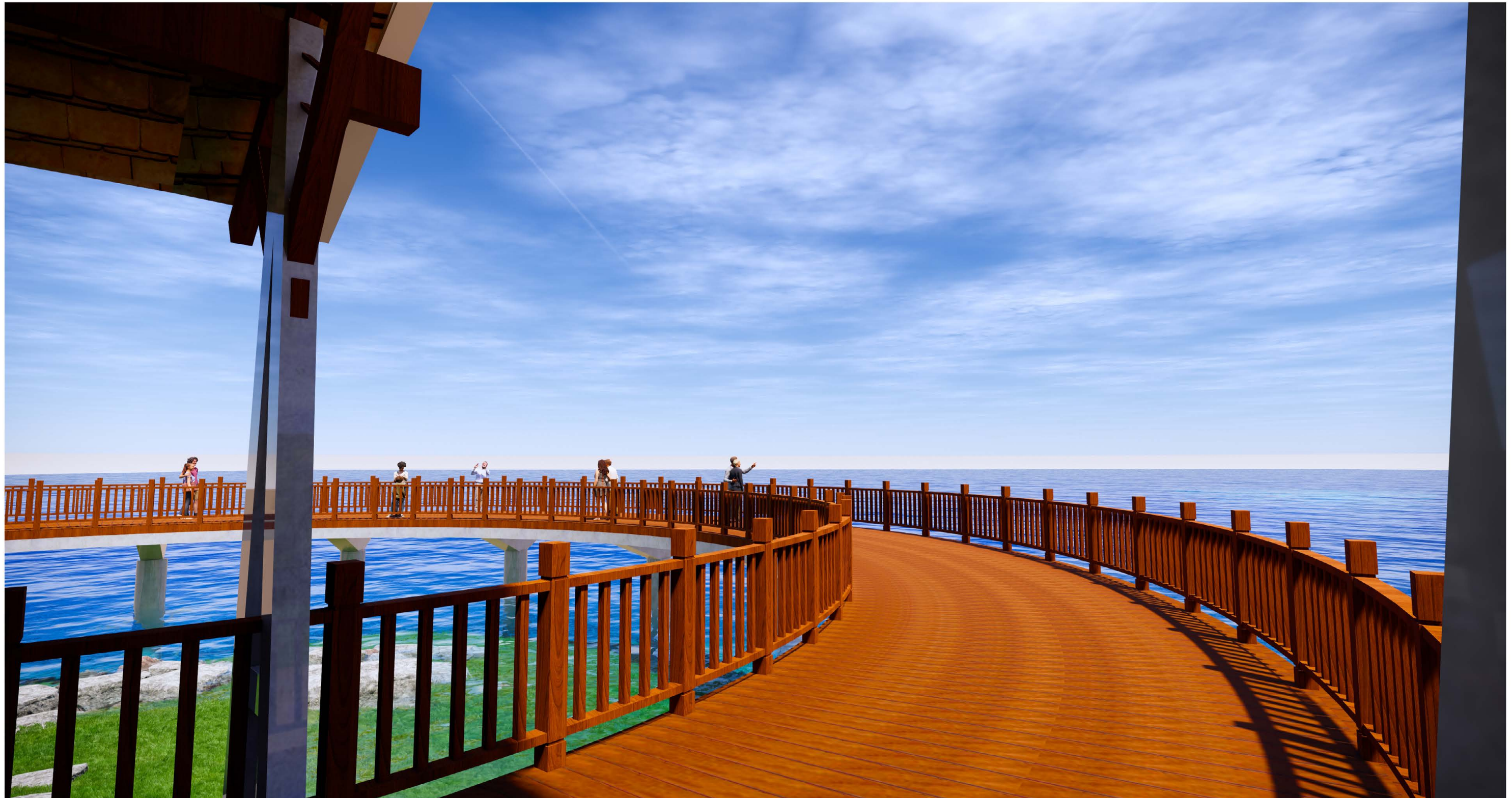
Timber (Paduak wood)



Wood plank pattern stamped concrete

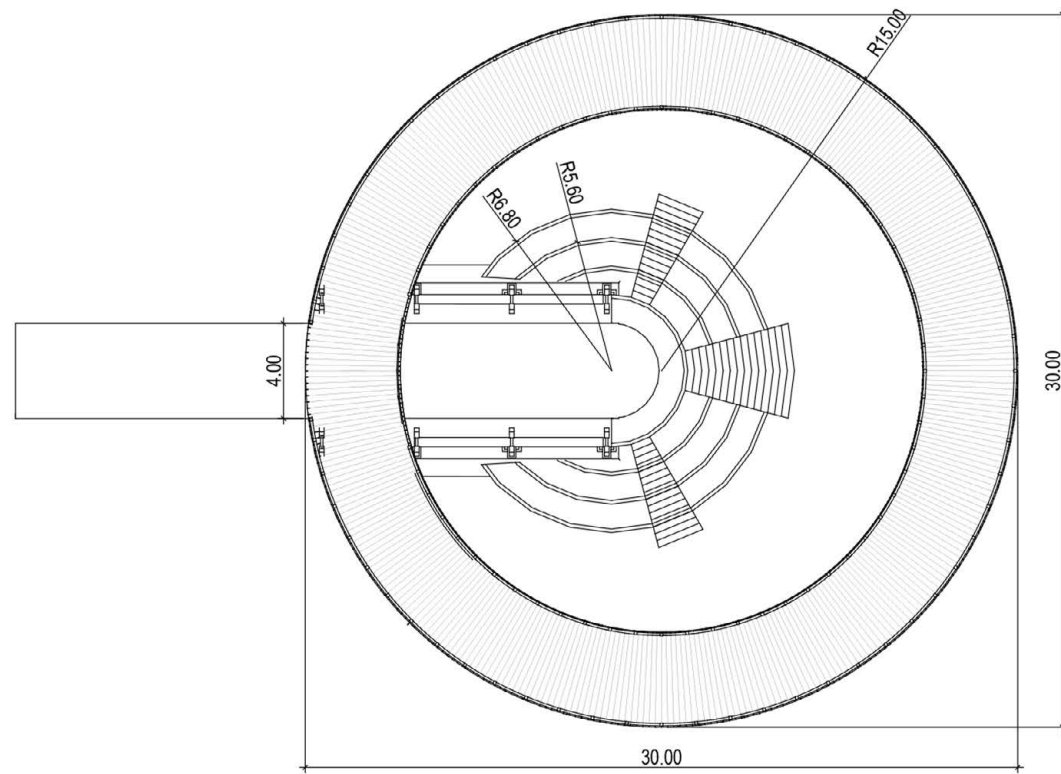








Perspective



Floor Plan



Stone Masonry



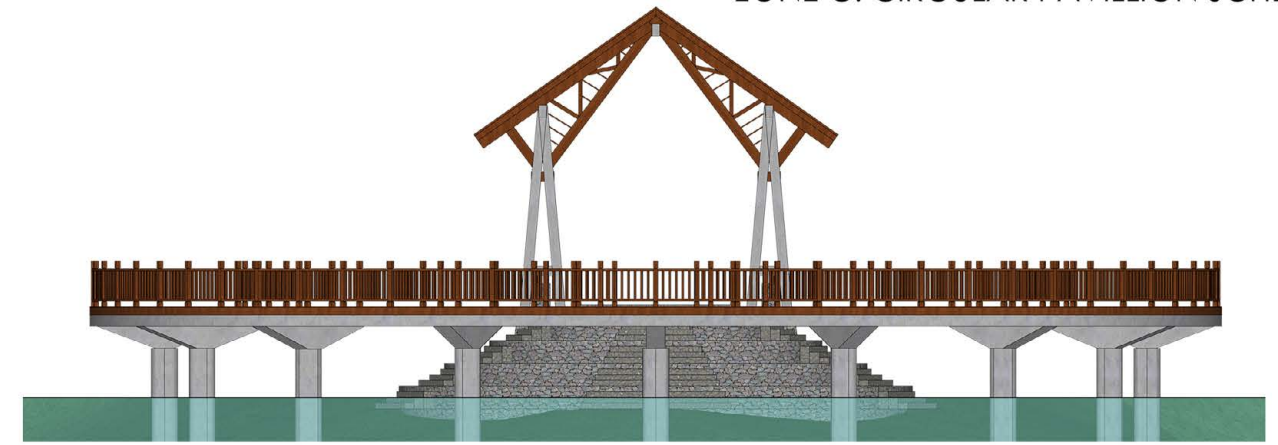
Roof tiles



Timber (Paduak wood)



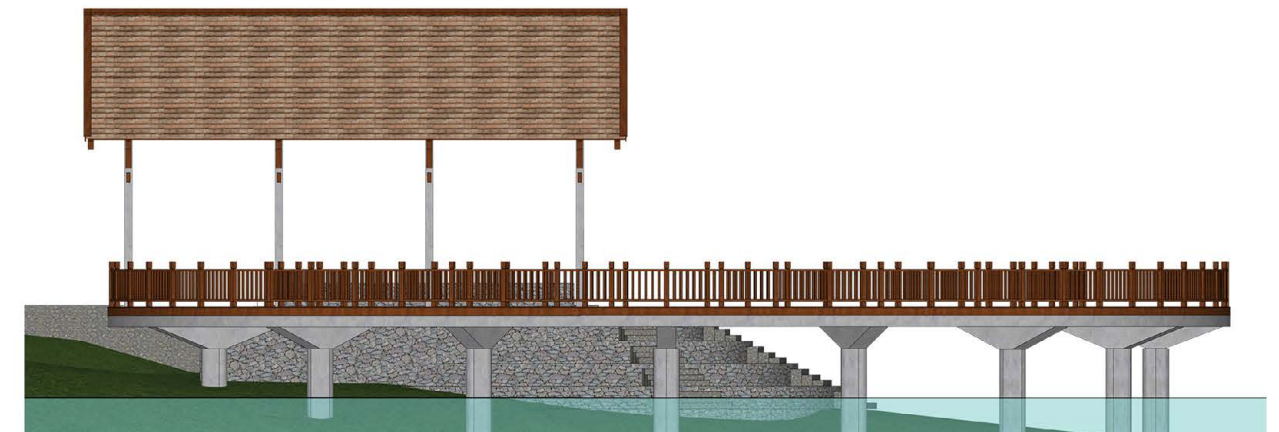
Wood plank pattern stamped concrete



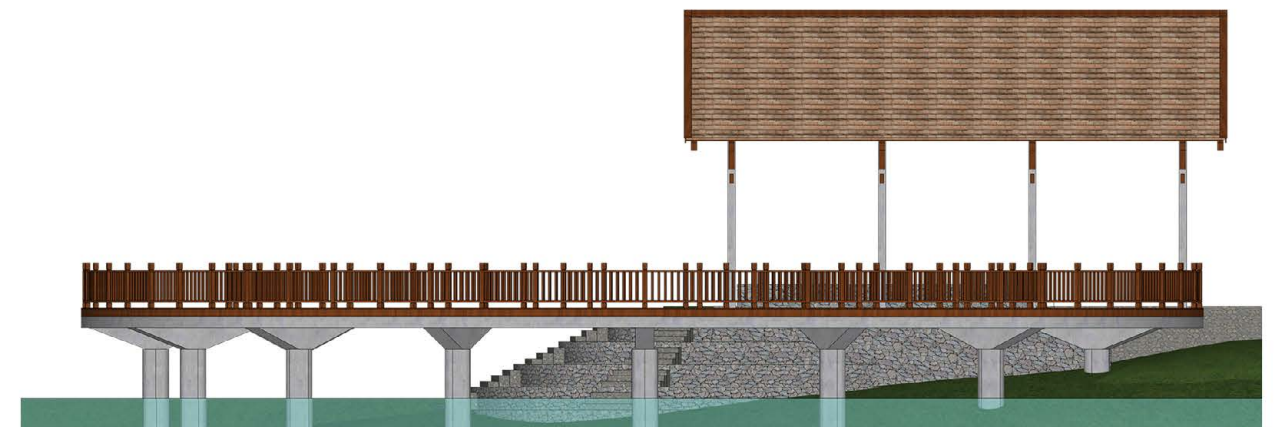
Front Elevation



Back Elevation



Left Elevation



Right Elevation

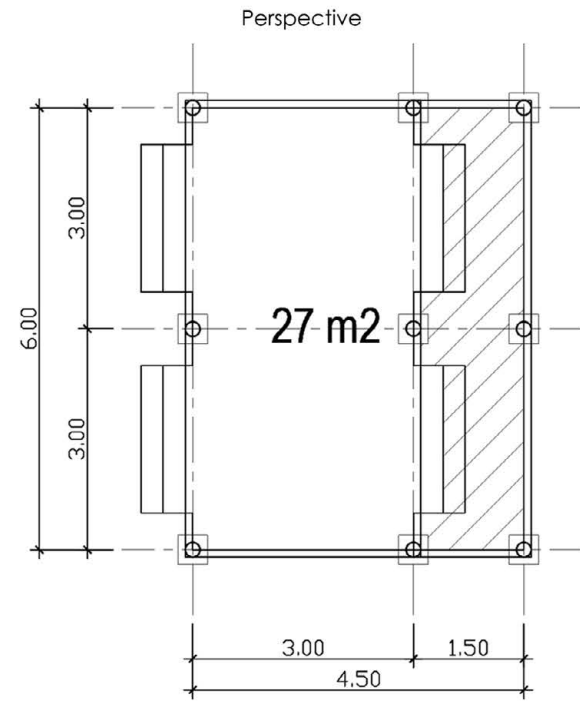
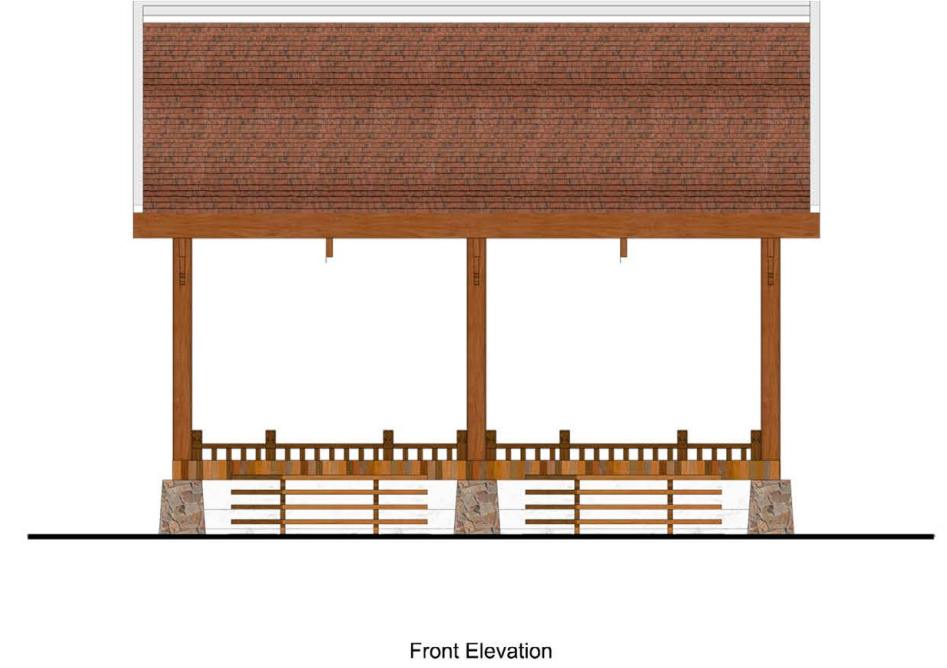
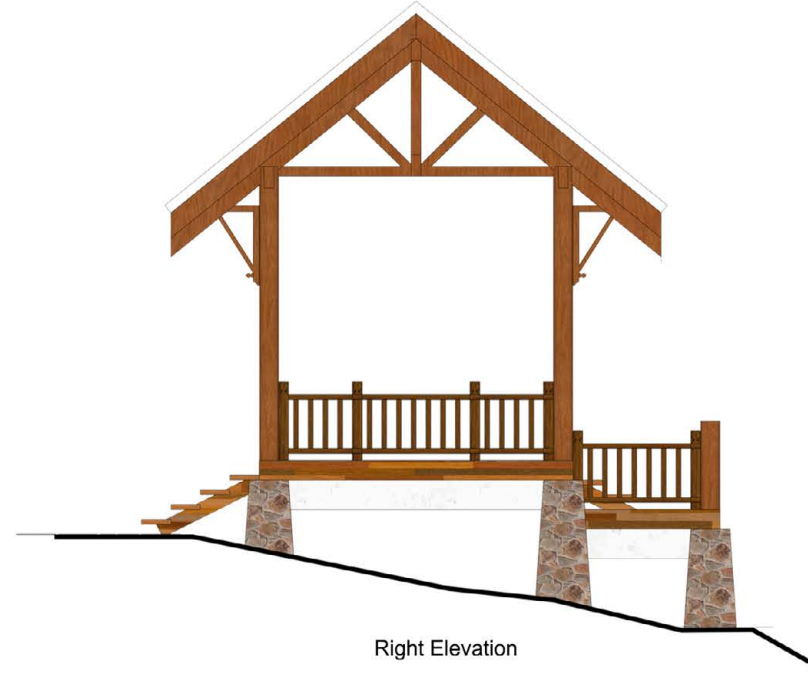




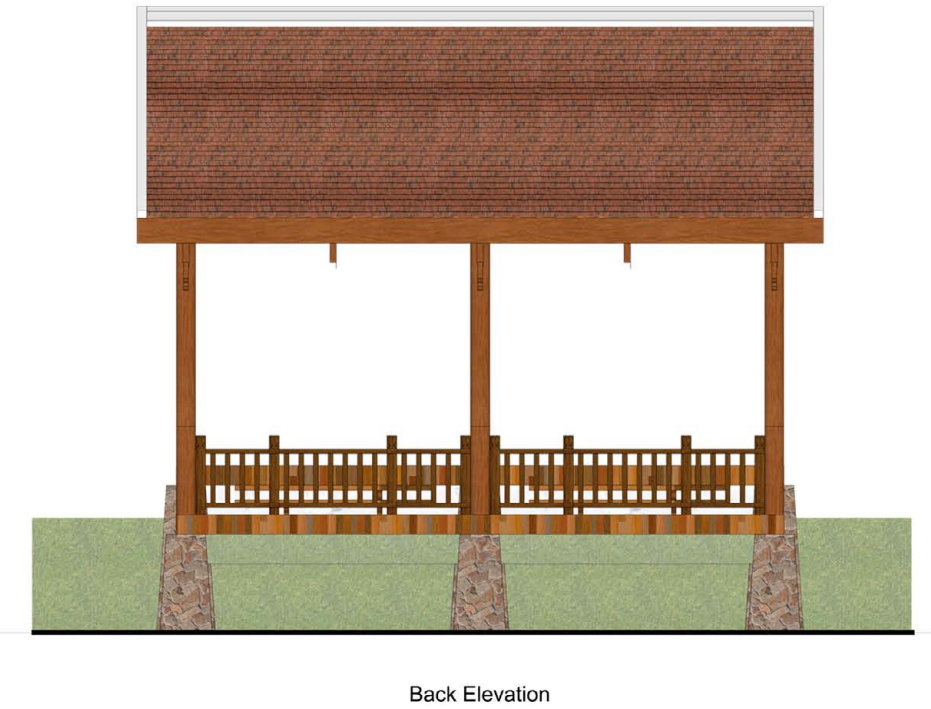








Floor Plan



Stone Masonry



Flat roof tile



Timber (Padauk wood)



Padauk wood plank























5. OVERFLOW PARKING AND DROP-OFF AREA





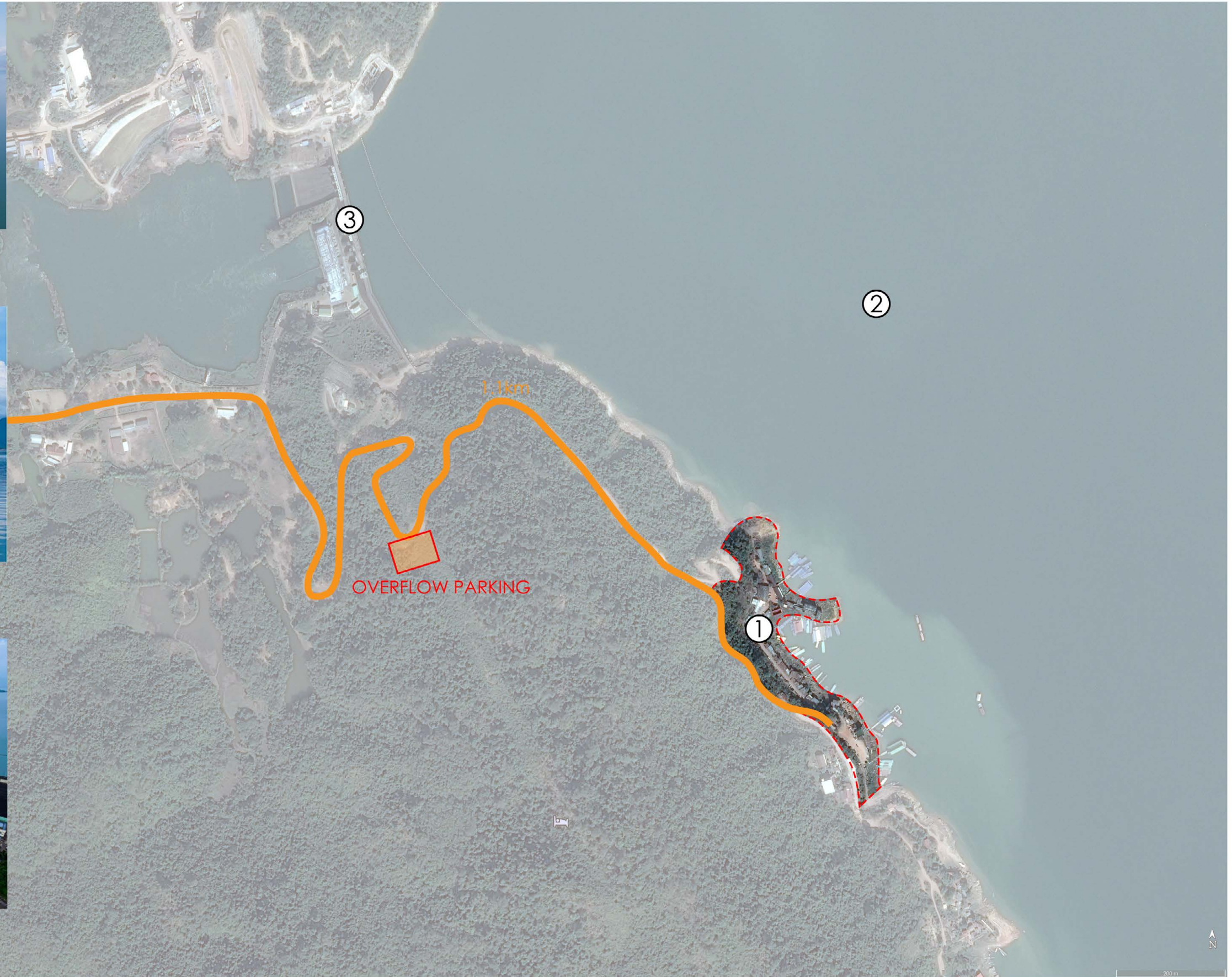
① V1 SITE

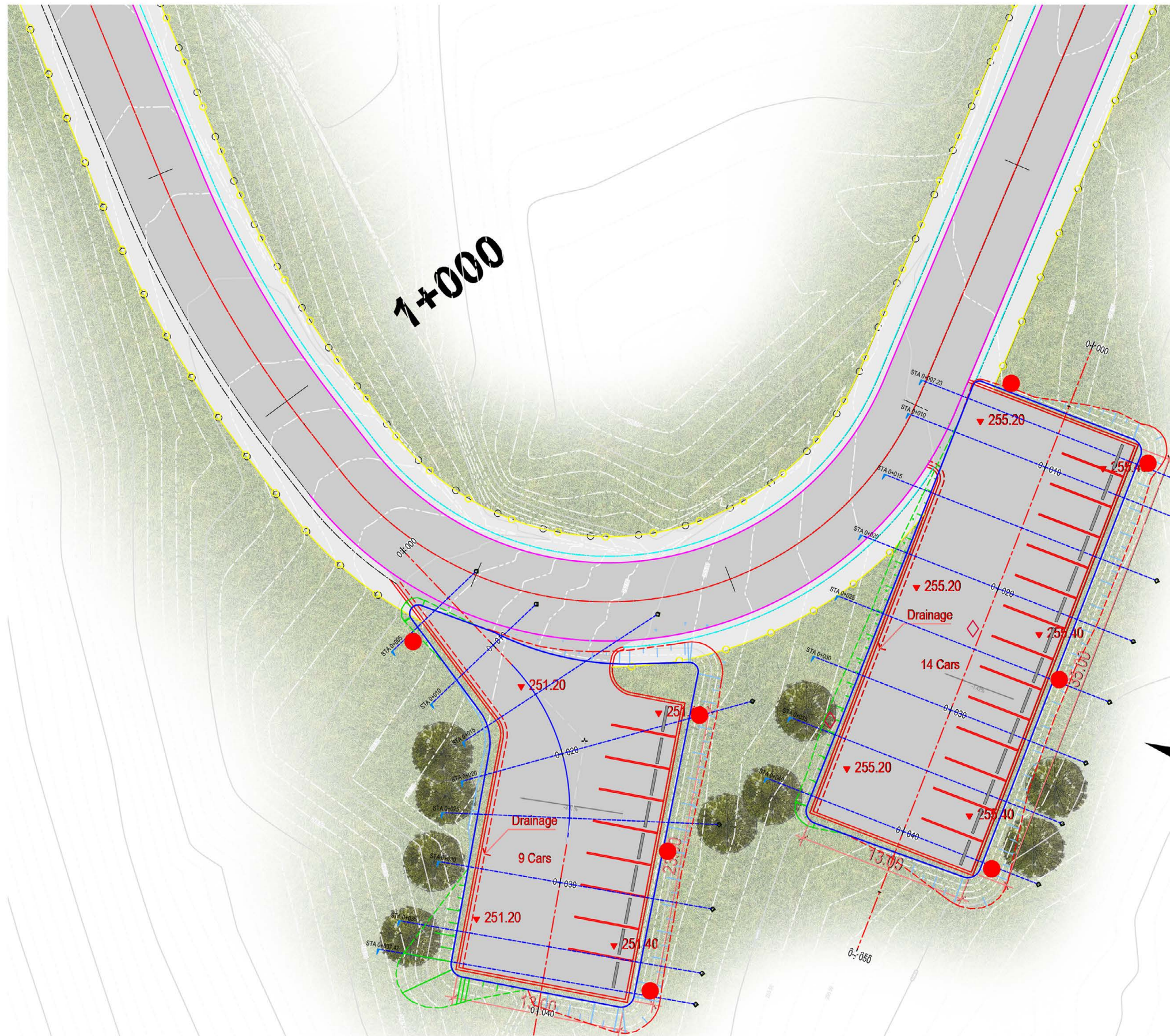


② NAM NGUM RESERVOIR



③ NAM NGUM 1 DAM





Gravel



Concrete Car stopper



LED Street Light Pole



Gravel



Concrete Car stopper



LED Street Light Pole

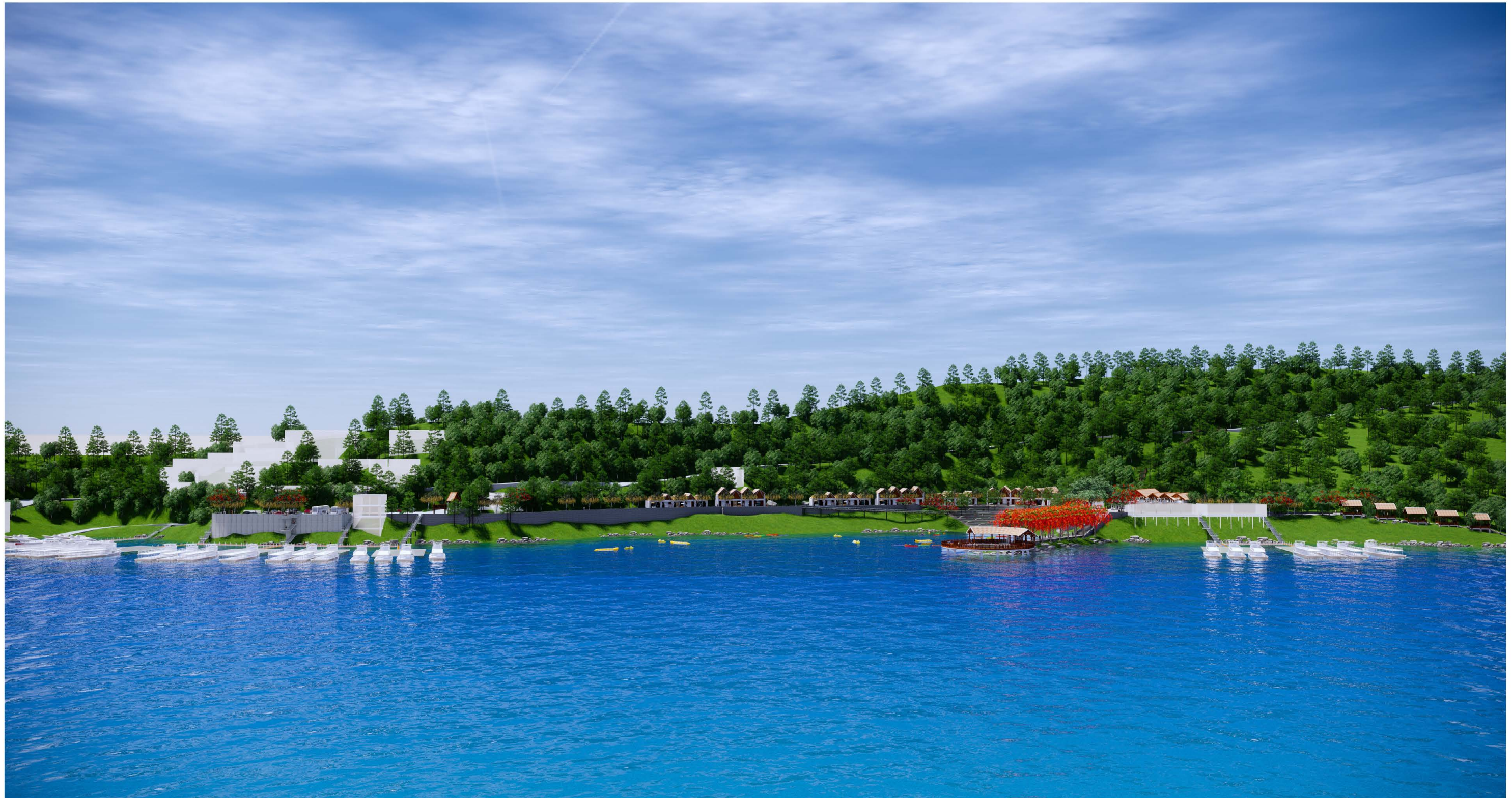


















6. MATERIAL SCHEDULE










Project: 2nd GMS-Tourism Infrastructure for Inclusive Growth




V1 - Nam Ngum Reservoir Access Improvements
Project Owner: Ministry of Information, Culture and Tourism
Vientiane Capital, Lao PDR.


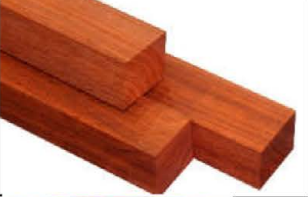




Material Schedule

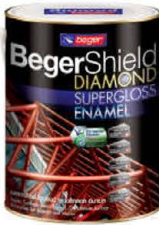





Issue: Conceptual Design
Date: 22 May 2020





No.	Zone	Material	Image	O&M
1	Landscape			
1.1	Natural Grass Goose Grass (Eleusine indica (L.) Gaertn)	Softscape		
1.2	Road	DBST Road		
		Stone pattern stamped concrete		
		Foot path Wheel chair ramp	Wood plank pattern stamped concrete	
1.3	Curb	Precast Concrete		
1.4	Car Parking	Grass Block Pavers		






No.	Zone	Material	Image	O&M
1	Landscape			
1.5	Step Landscape	Pebbles Pevement		
1.6	Retaining Wall	Stone		
1.7	Railing	Stainless steel 304 pipe		
1.8	Stair	Concrete trowel finish		
1.9	Walkway to dock, floating restaurant	Floating plastic ponpoon		
2	Shophouse			
2.1	Wall	Stone masonry		
2.2	Floor	Ceramic tiles		
2.3	Doors and Windows	Padauk wood		

No.	Zone	Material	Image	O&M
		Wood stain coating		
2.4	Roof	Flat concrete roof tiles		
2.5	Roof Structure	Rectangular pipe steel		
		Epoxy paint primer		
		Gloss enamel		
3	Public Plaza			
3.1	Wall	Stone masonry		

No.	Zone	Material	Image	O&M
3.2	Floor	Ceramic tiles		
3.3	Doors and Windows	Padauk wood		
		Wood stain coating		
3.4	Roof	Flat concrete roof tiles		
3.5	Roof Structure	Rectangular pipe steel		
		Epoxy paint primer		
3.6				

No.	Zone	Material	Image	O&M
3.7		Gloss enamel		
4	Circle Pavillion			
4.1	Wall	Stone masonry		
4.2	Floor	Wood plank pattern stamped concrete		
4.3	Railing	Padauk wood		
		Wood stain coating		
4.4	Roof	Flat concrete roof tiles		
	Roof Structure	Rectangular pipe steel		

No.	Zone	Material	Image	O&M
4.5		Epoxy paint primer		
		Gloss enamel		
5	Private Pavillion			
5.1	Base column	Stone masonry		
5.2	Column	Padauk wood		
		Wood stain coating		
5.3	Floor	Padauk wood plank		
		Wood stain coating		






No.	Zone	Material	Image	O&M
5.4	Railing	Padauk wood		
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5.6	Roof Structure	Padauk wood		
		Wood stain coating		







Project: 2nd GMS-Tourism Infrastructure for Inclusive Growth



V1 - Nam Ngum Reservoir Access Improvements
Project Owner: Ministry of Information, Culture and Tourism
Vientiane Capital, Lao PDR.

Trees/Plants Schedule

Issue: Conceptual Design
Date: 22 May 2020

No.	Tree	Location	Image	O&M
1	Natural Goose Grass (Eleusine indica (L.) Gaertn)	Softscape		
2	Cracker Plant (Ruellia tuberosa Linn.)	Softscape		
3	Royal Poinciana (Delonix regia)	Plaza Recreation Zone		
4	Angsana (Pterocarpus indicus Wild)	Parking Huts Zone		
5	Freshwater Mangrove (Barringtonia acutangula (L.) Gaertn.)	Walking Paths Waterfront area		

No.	Tree	Location	Image	O&M
6	Golden Shower (Cassia fistula L.)	Along the Asphalt road		
7	Dolichandrone serrulata (DC.) Seem.	Shop house Walking paths		
8	Red spike flower (Ixora chinensis)	Landscape		
9	Sky Flower (Duranta erecta L.)	Landscape		
10	Caladium bicolor	Landscape		
11	Eukien tea (Carmona retusa (Vahl.) Masum)	Landscape		







No.	Tree	Location	Image	O&M
12	Corn Plant (<i>Dracaena fragrans</i> (L.) Ker Gawl. 'Massangeana')	Landscape		
13	Croton (<i>Codiaeum variegatum</i> . Blume.)	Landscape		

Project: 2nd GMS-Tourism Infrastructure for Inclusive Growth





V1 - Nam Ngum Reservoir Access Improvements
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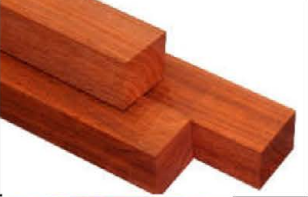




Material Schedule

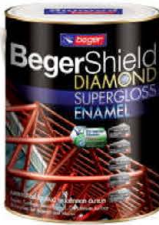




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Project: 2nd GMS-Tourism Infrastructure for Inclusive Growth



V1 - Nam Ngum Reservoir Access Improvements
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Structural Design Description

<p>LEAD CONSULTANT</p>  <p>Hänneemanns Alle 53 DK-2300 København S TP +45 5161 1000 Fax +45 5161 1001 www.ramboll.dk</p>	<p>LOCAL CONSULTANT</p>  <p>Architect Associates Survey Design and Consultant Sdn Co. Ltd. Houma 071, Unit 16, Saphongpani Village, Sayabkhy District, Vientiane, Lao PDR. Tel: (008 21) 814354, Email: vsm@architectgroup.la</p>	<p>CLIENT</p>  <p>LAO PEOPLE'S DEMOCRATIC REPUBLIC (LAO-PDR) MINISTRY OF INFORMATION, CULTURE & TOURISM</p>	<table border="1"> <tr><td>DESIGNED/DRAWN</td><td></td></tr> <tr><td>CHECKED</td><td></td></tr> <tr><td>APPROVED</td><td></td></tr> <tr><td>REV</td><td>DATE</td><td>DESCRIPTION</td><td>DRN</td></tr> </table>	DESIGNED/DRAWN		CHECKED		APPROVED		REV	DATE	DESCRIPTION	DRN	<p>NAME OF PROJECT</p> <p>2ND GMS –TOURISM INFRASTRUCTURE FOR INCLUSIVE GROWTH PACKAGE -TIIGP2-LAO-W02 Subproject V1: Nam Ngum Reservoir Access Improvements</p> <p>TITLE</p> <table border="1"> <tr><td>SHEET NO.</td><td>SHEET SIZE</td></tr> <tr><td>OF</td><td></td></tr> </table> <p>SCALE</p> <p>DRAWING NO.</p> <table border="1"> <tr><td>REV</td><td>DATE</td></tr> </table>	SHEET NO.	SHEET SIZE	OF		REV	DATE
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CONTENT

1. DESIGN STANDARD
2. MATERAILS SPECIFICATION
3. LOAD COMBINATION
4. STRUCTURAL PRIVCIPAL DESCRIPTION

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1. DESIGN STANDARD

1.1 DESIGN CODE

- ACI-318M-14** "Building Code Requirements for Structural Concrete and Commentary".
- AISC 360-16** "Specification for Structural Steel Buildings".
- UBC-97** "1997 Uniform Building Code" (Wood Structure).
- ASCE7-16** "Minimum Design Loads for Buildings and other Structures".

1.2 DESIGN METHOD

- RC structure design using "**ultimate strength design method**" base on **ACI** standard.
- Steel structure design using "**ultimate strength design method**" base on **AISC** standard.
- Wood structure design using "**Allowable Stress Design, ASD**" base on **UBC** standard.

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2. MATERIALS SPECIFICATION

2.1 CONCRETE

- Concrete Foundation $f'c \geq 20-25$ MPa.
- Concrete Column, Beam $f'c \geq 20-25$ MPa.
- Concrete Slab, Stair, Wall $f'c \geq 20-25$ MPa.

2.2 REINFORCING REBARS

- Round Bar diameter 9mm or Less has yield strength $f_y \geq 240$ Mpa with standard grade SR24 or Equivalent.
- Deformed Bar diameter 10mm or More has yield strength $f_y \geq 400$ Mpa with standard grade SD40 or Equivalent.

2.3 STEEL

- Tensile Strength of Steel at Yield Point $f_y \geq 245$ Mpa (SS400 or Equivalent).

2.4 WOOD

- Tensile strength: Limit of resistivity to opposite force applied parallel to the grain $F_t \geq 12$ MPa.

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3. LOAD CONDITION

3.1 DEAD LOAD/SUPER IMPOSE DEAD LOAD

Dead load

No.	MATERIAL	UNIT WEIGHT (kg/m ³)	REMARK
01	FRESH CONCRETE	2320	
02	REINFORCE CONCRETE	2400	
03	STEEL	7850	
04	BRICK WALL	1800 – 2000	
05	WOOD	500 – 1200	
06	CONCRETE BLOCK	1700 – 1800	

Super impose dead load

No.	MATERIAL	LOAD (kg/m ²)	REMARK
01	CEILING	15	
02	MEP SYSTEM	15	
03	FLOOR FINISHING	90	

3.2 LIVE LOAD

- ❑ Live loads are all movable loads including personnel, tools, miscellaneous equipment, movable partitions, part of dismantled equipment and temporary stored materials.

No.	FUNCTION	LIVE LOAD (kg/m ²)	REMARK
01	SHOP HOUSE	300	
02	VIEWING DECK	500	
03	COFFEE SHOP	400	
04	LOCKER ROOM	250	
05	TOILET	200	
06	WALKING PATCH	300	
07	WALKING PATCH ON GROUND	300	

3.3 WIND LOAD

□ Base on the figure demonstrate the basis wind speed at 10m height of 50 years period. “Dr.Khampaseuth THEPVONGSA and Phetsakhone NHAOVARATH Wind speed analysis for structure design in Laos P.D.R”, the basic wind speed for the location of the building is found to be $V_{0, 3s \text{ gust } 50 \text{ years}} = 35\text{m/s}$ (78 mph) and analysis method based on global code ASCE 7-16.



3.4 LOAD COMBINATION

❑ For Serviceability Load Combination:

- ❖ S1 = 1.0DL
- ❖ S2 = 1.0DL + 1.0LL
- ❖ S3 = 1.0DL ± 0.6WL
- ❖ S4 = 1.0DL + 0.75LL ± 0.75(0.6WL)
- ❖ S5 = 0.6DL ± 0.6WL

❑ For Factor Load Combination:

- ❖ U1 = 1.4DL
- ❖ U2 = 1.2DL + 1.6LL
- ❖ U3 = 1.0DL ± 1.6WL + 1.0LL
- ❖ U4 = 0.9DL ± 1.6WL

❑ Symbol and Notation:

- ❖ DL = Dead Load (Including Super Impose Dead Load)
- ❖ LL = Live Load
- ❖ WL = Wind Load

4. STRUCTURAL PRINCIPAL DESCRIPTION

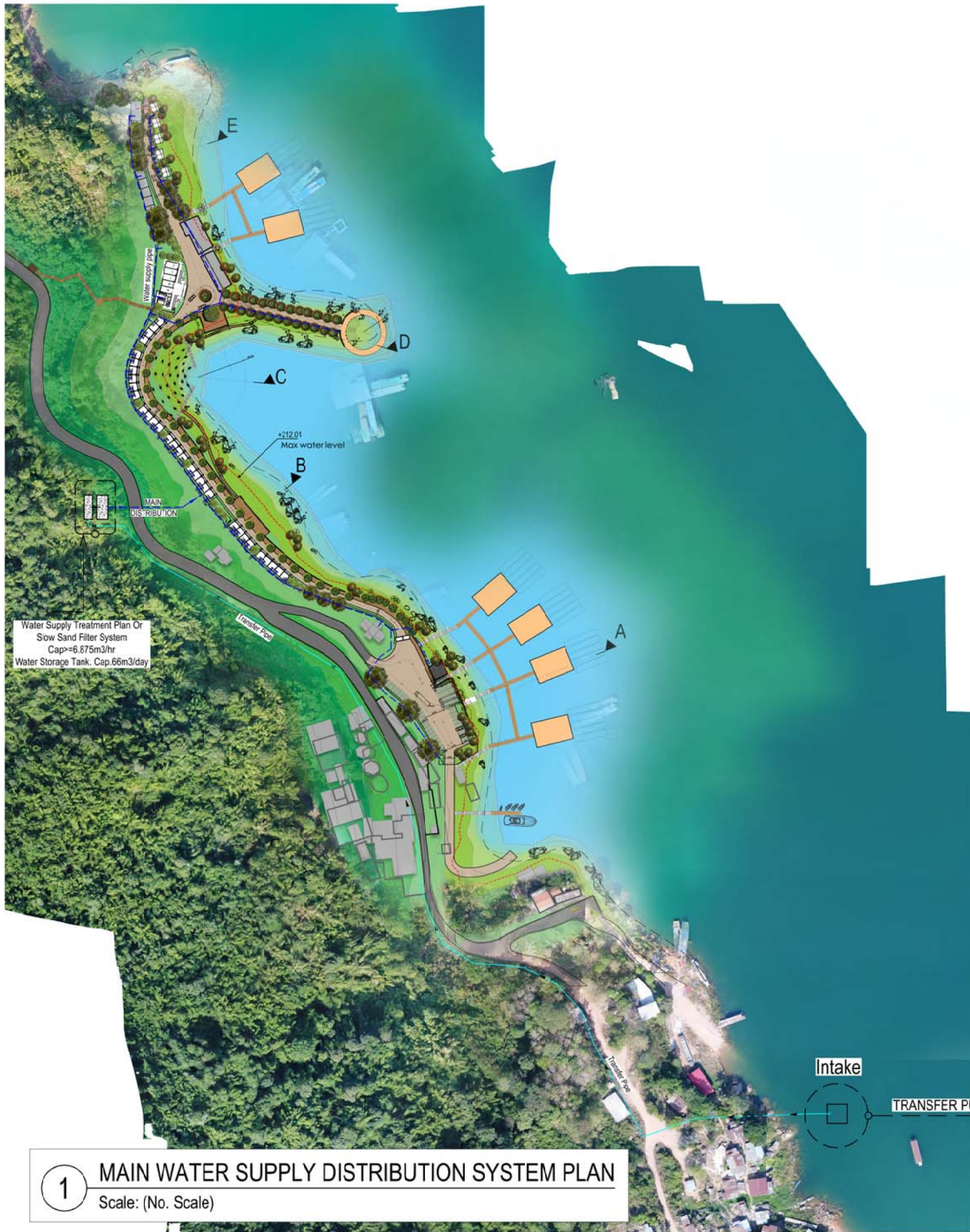
No.	Work item (V1)	Structural Component
1	Road/Parking	Permeable pavement, Concrete stamps Structure: <ul style="list-style-type: none"> • Subbase course. • Subgrade (Existing soil).
2	Shop House	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam, Slab) Steel structure (Roof structure)
3	Viewing Deck	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam) Concrete stamped (Floor slab)
4	Coffee Shop/Locker Room/Toilet	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam, Slab) Steel structure (Roof Framing)
5	Large Steps For Seating	Gabion, Rocks, Concrete: TBC (Recommend to use Gabion)
6	Broad walk	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam, Slab)
7	Walking Patch On Ground	Stamp Concrete, Pavement Block, Concrete Slab :TBC (Recommend to use Stamp Concrete)
8	All Septic Tank	Reinforce Concrete Structure (Base slab, Wall, Top slab)

TBC : To Be Confirmed.

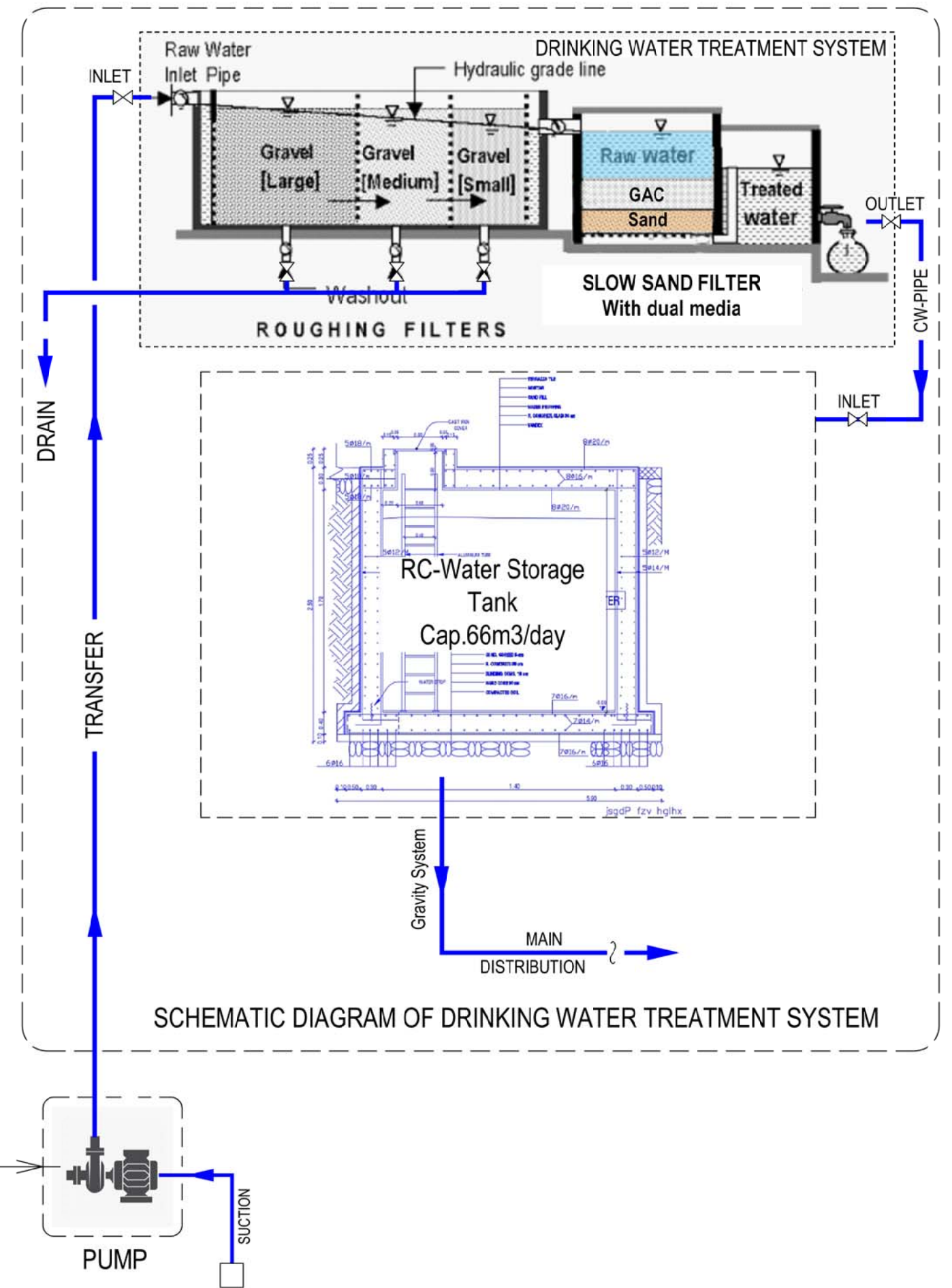
4. STRUCTURAL PRINCIPAL DESCRIPTION

No.	Work Item (V2)	Structural solution
1	Bus and Car Parking	Concrete stamped, Permeable paving Structure: 1. Base surface course. 2. Subbase course. 3. Subgrade (Existing soil).
2	Toilet	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam, Slab) Steel structure (Roof structure)
3	Canteen	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam, Slab) Steel structure (Roof structure)
4	Kitchen and Shops	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam, Slab) Steel structure (Roof structure)
5	Town exhibition	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam, Slab) Steel structure (Roof Framing)
6	Bridge 1 (Suspension bridge)	Foundation: Shallow Reinforce Concrete Footings Reinforce concrete structure/Steel Structure Floor slab: Concrete stamp on steel structure
7	Bridge 2 and Bridge 3	Foundation: Shallow Reinforce Concrete Footings Wooden structure.
8	Observation Deck	Foundation: Shallow Reinforce Concrete Footings Reinforce Concrete structure (Column, Beam) Concrete stamp (Floor slab)

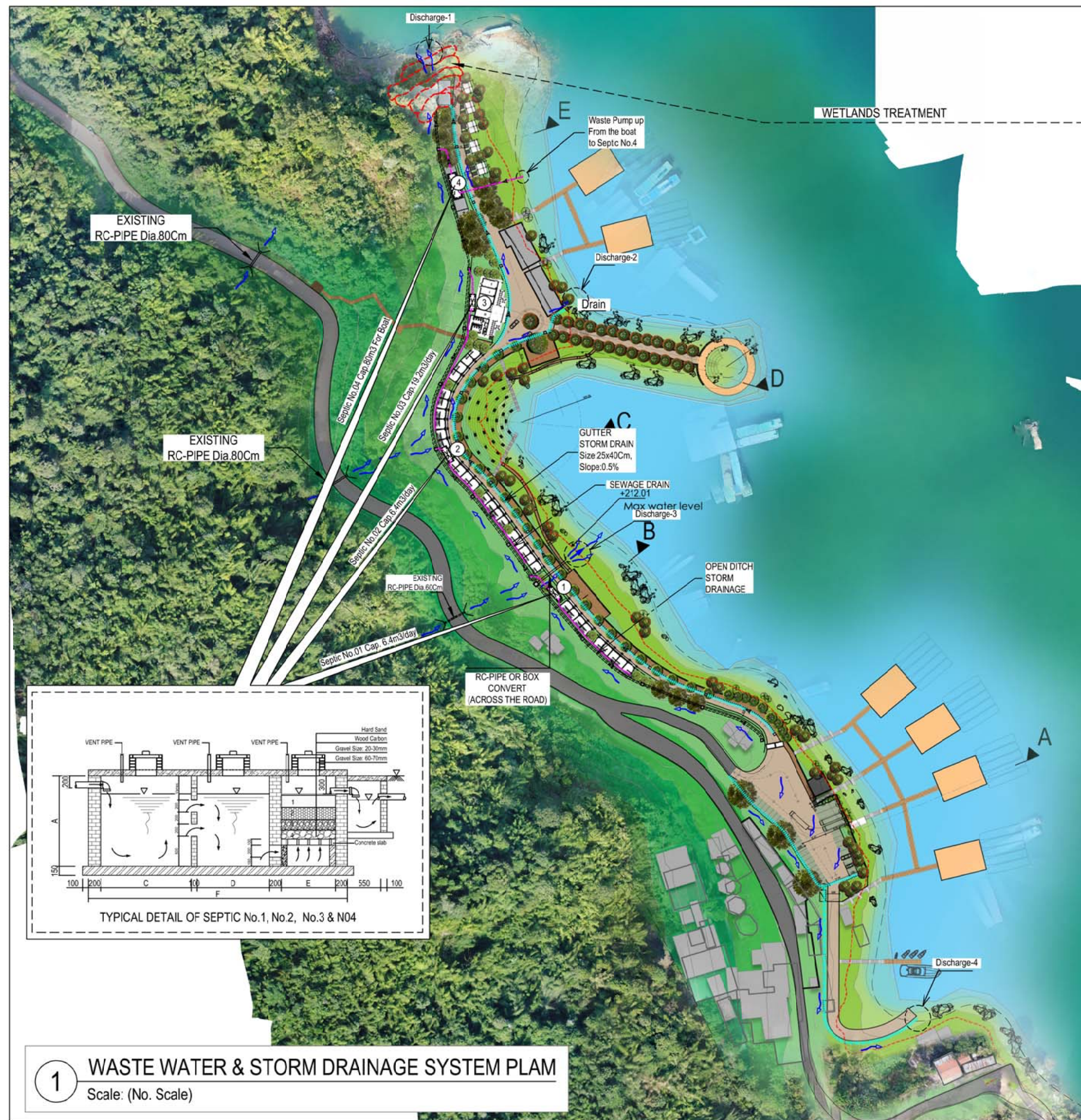
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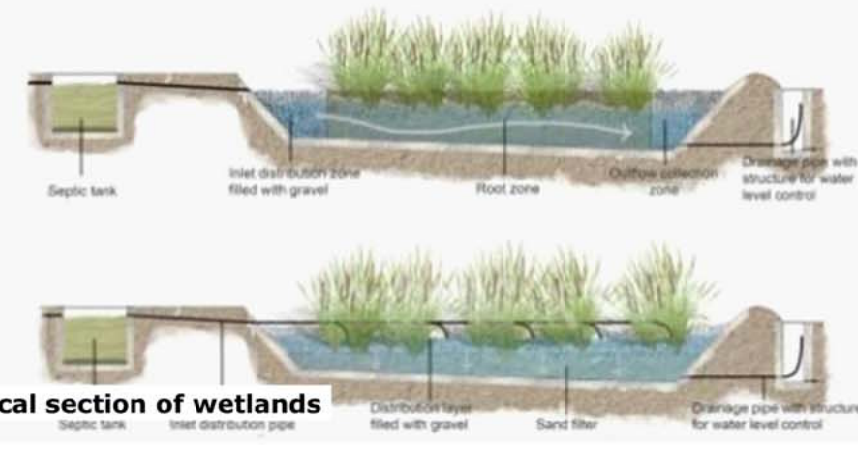
1 MAIN WATER SUPPLY DISTRIBUTION SYSTEM PLAN
Scale: (No. Scale)



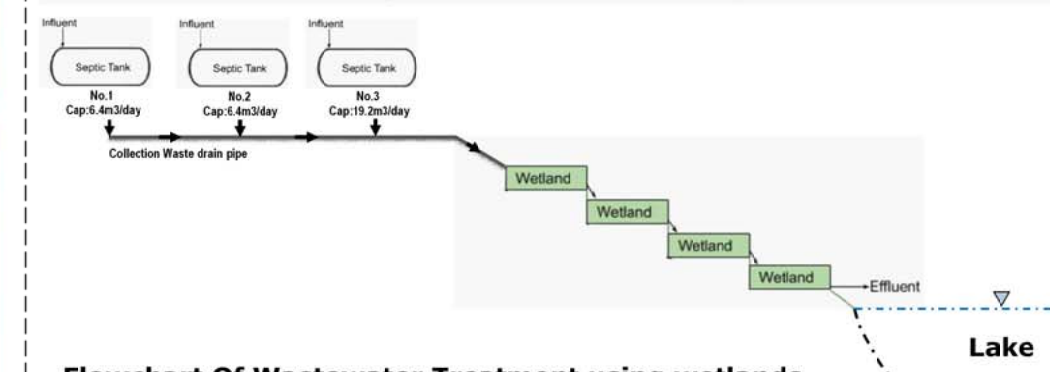
LEAD CONSULTANT : Hannemanns Alle 53 DK-2300 København S Tlf. +45 5161 1000 Fax +45 5161 1001 www.ramboll.dk	LOCAL CONSULTANT : Archineer Associates Survey Design And Consultant Sole, House 571, unit 10, Saphangmor Village, Saysettha District, Vientiane, Lao PDR. Tel: (856-21) 454354. Email: archineers@gmail.com www.archineergroup.la	CLIENT : LAO PEOPLE'S DEMOCRATIC REPUBLIC (LAO-PDR) MINISTRY OF INFORMATION, CULTURE & TOURISM	DESIGNED/DRAWN:	NAME OF PROJECT: 2ND GMS - TOURISM INFRASTRUCTURE FOR INCLUSIVE GROWTH PACKAGE -TIIGP2-LAO-W02 Subproject : Nam Ngum Reservoir Access Improvements (V1)	SHEET NO OF
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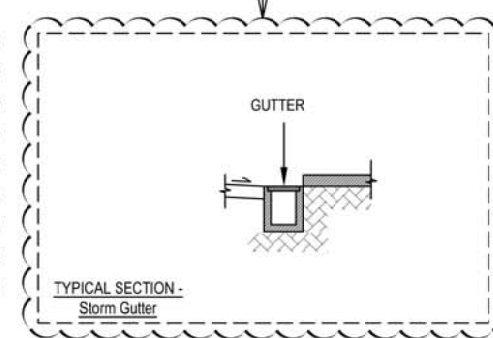
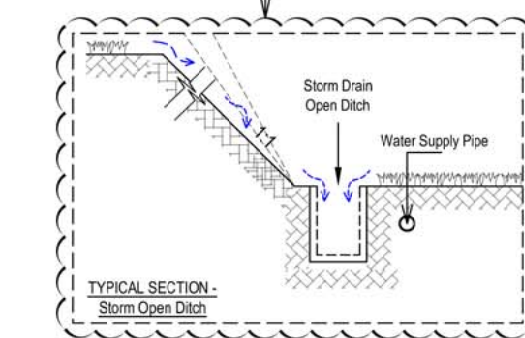
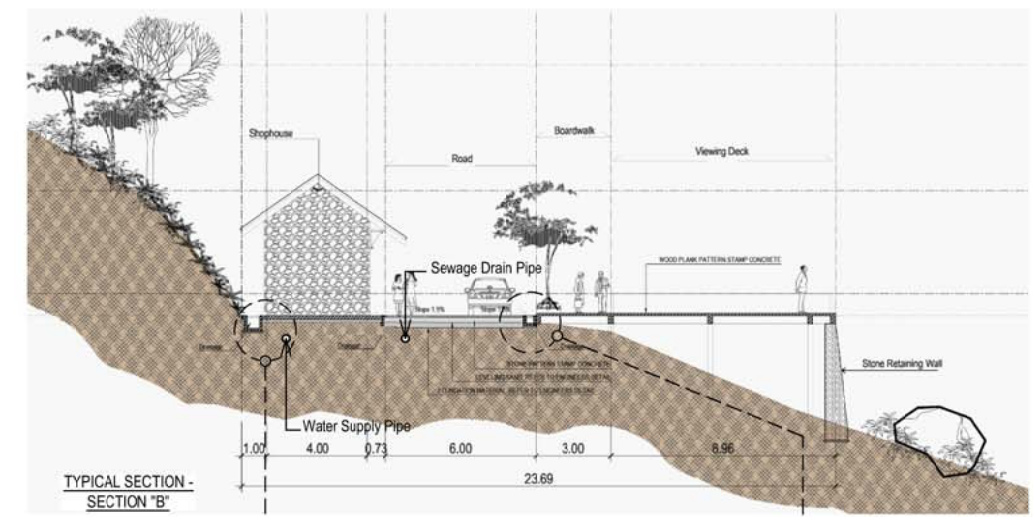
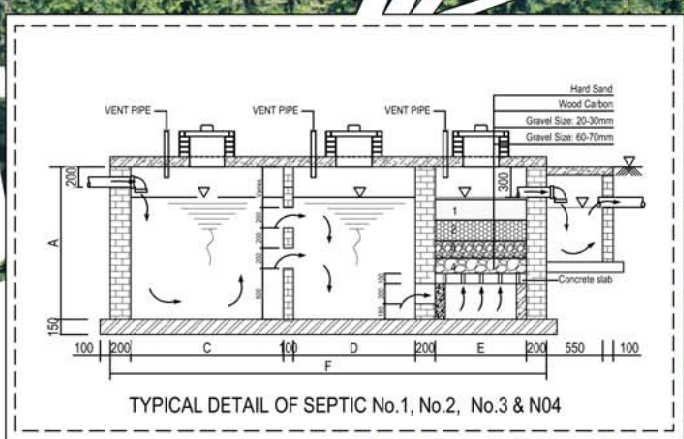
CONSTRUCTED WETLANDS



Typical section of wetlands



Flowchart Of Wastewater Treatment using wetlands



1 WASTE WATER & STORM DRAINAGE SYSTEM PLAN
Scale: (No. Scale)

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REV.		DATE		DESCRIPTION		DRAWING NO :		REV :		DATE :	