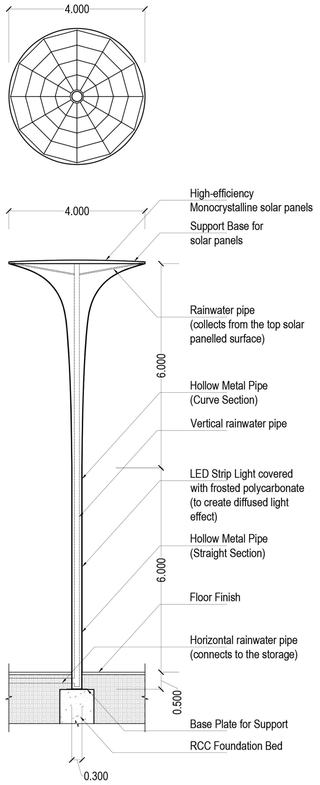
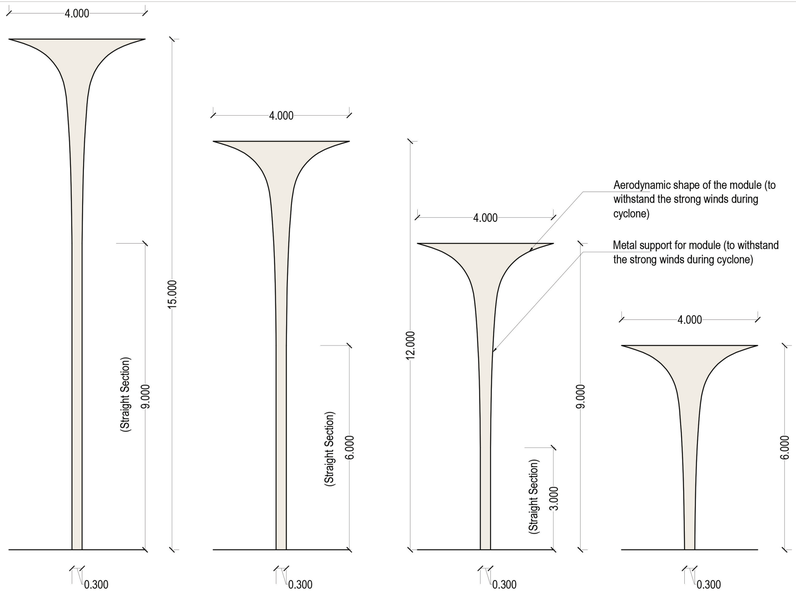


TYPICAL SECTION



MODULES OF VARIOUS HEIGHTS

1 Module = 12 sq.m (Approx.)
Total no. of module = 91
Total area (proposed solar power generation) = 1092 sq.m

Considering, 3.5hrs of maximum sunlight exposure & standard PV panels generating 200watt / sq.m

Note: Standard 2m X 1m solar panels available, which generates 400-500watt depends on location & sun exposure

Total solar power generated in a day by 1sq.m PV Panels = 200 watt X 3.5 hr
= 0.2 KW X 3.5 hr
= 0.7 KWh

Total solar power generated in a day by 1092sq.m PV Panels (Proposed Design)
= 0.7 KWh X 1092
= 764.4 KWh

Total solar power generated in a month by 1092sq.m PV Panels (Proposed Design)
= 764.4 KWh X 30
= 22932 KWh

Total solar power generated annually by 1092sq.m PV Panels (Proposed Design)
= 22932 KWh X 12
= 275,184 KWh

Keeping in mind, the cost involved we limited it to approx. 1000sq.m Incase, more electricity required by the village, there is a huge provision for expansion, as the module is simple & easy to replicate

SOLAR ENERGY DISTRIBUTION SYSTEM

Solar Energy Collection
• Area: 1092 sq.m | 91 Modules | 200 W/m² PV Panels
• Daily Generation: ~764.4 kWh

DC Power Conversion
• Converts sunlight to DC electricity (~764.4 kWh/day)
• Installed at: Base of Tower / PV Control Enclosure

Energy Storage System
• Battery Bank: ~1500 kWh (2-day backup)
• Li-ion or Flow Battery
• Installed in: Secured, ventilated battery enclosure (anywhere on site)

Inverter Station
• Converts DC to AC - Capacity: 800 kW (e.g., 8 x 100 kW units)
• Installed at: Centralized inverter room beside batteries

Step-up Transformer
• Boosts voltage to 11kV for transmission
• Installed at: Within solar farm boundary, near inverter station

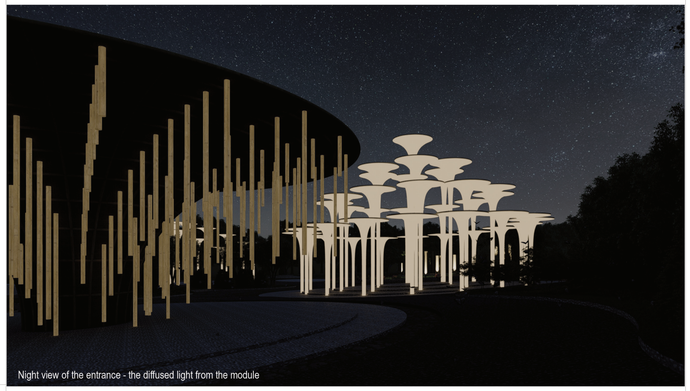
Medium Voltage Transmission Lines
• Carries 11kV AC to distribution point
• Installed as: Overhead or underground lines to community area

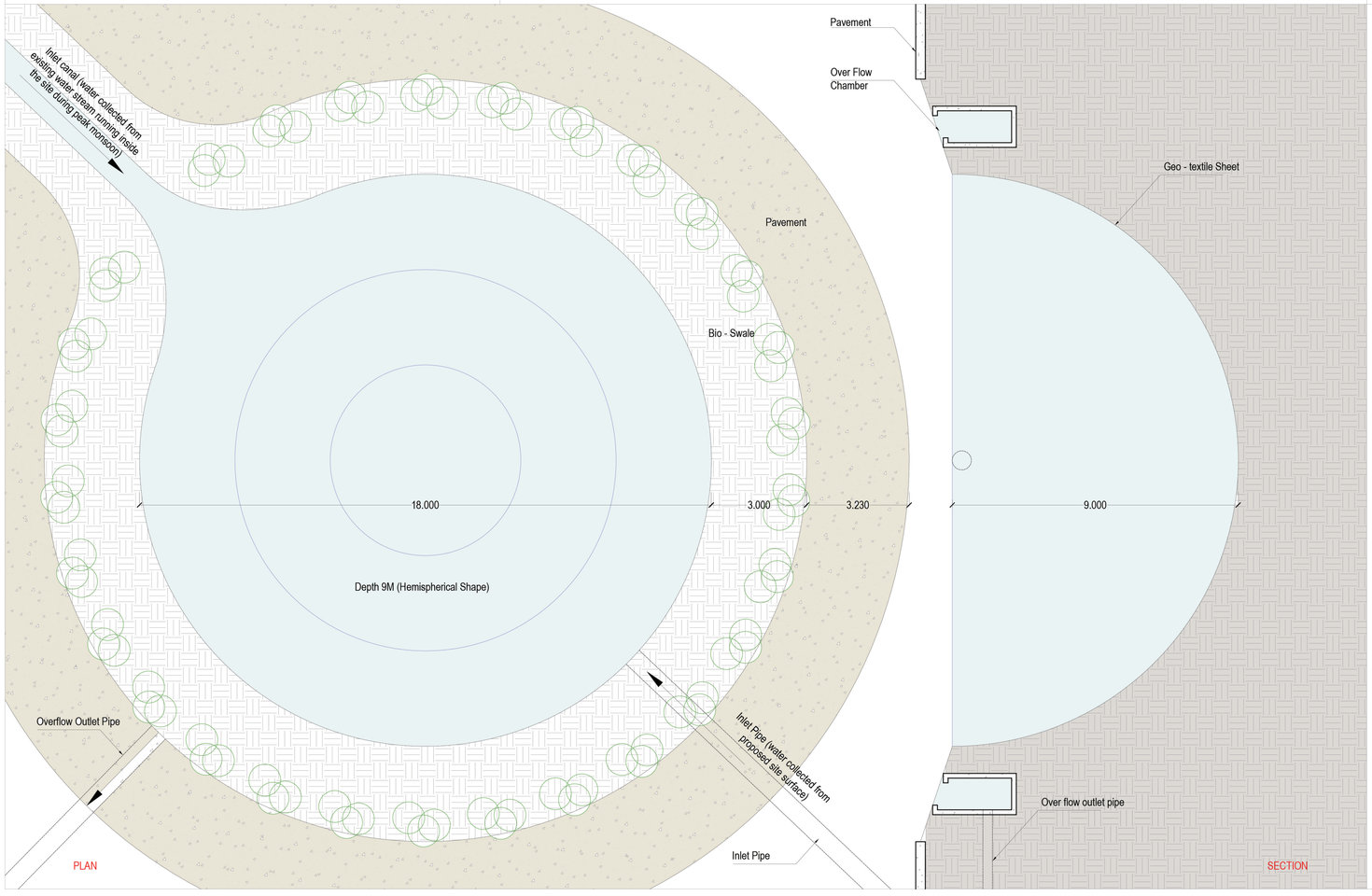
Distribution Substation
• Step-down to 415V (3-phase) / 240V (1-phase)
• Capacity: 800 kW
• Installed at: Near or within community to be served

Low Voltage Distribution Lines
• Voltage: 415V/240V
• Distributes to residential buildings
• Installed as: Overhead poles or underground street lines

Individual connection to homes


Element - FIRE, when seen from the bottom


Night view of the entrance - the diffused light from the module



PLAN

SECTION

WATER DISTRIBUTION SYSTEM

Seasonal Water Stream (Ephemeral Source)
- Activated during rainy season
- Natural flow, mixed with sediment
- Tapping via low-impact channel

Diversion Inlet Structure
- Coarse screen (bamboo/mesh filter)
- Small stone check dam

Gravity Runoff Channel
- Earth or stone-lined
- Follows natural slope
- Planted edges to reduce erosion

Main Rainwater Storage Reservoir
- Sedimentation Basin
- Secondary Filtration Unit (sand layer)

Gravity-Fed Distribution Network

Community & Household Use

Water requirement per person per day = 100 ltrs (Approx.)
Total no. of Household = 67
Assuming 5 persons in a house, total persons = 335
For 355 people, water required (domestic) per day = 335 X 100 ltrs
= 33500 ltrs

Total water requirement for half-year (dry season) = 33500 ltrs X 180
= 6,030,000 ltrs

Total Solar panel area (proposed) = 1092 sq.m
Total Paved area (proposed) = 5400 sq.m (approx.)
Annual Rainfall Marou Village (approx.) = 118 mm

Total Rainwater can be collected from the proposal = (1092+5400) X 0.118 X 0.85(run-off coefficient) X 1000 ltrs
= 651,147.6 ltrs / year

10.8% of the requirement is met by the site rainwater harvesting.

Total capacity of reservoir = 1526.8 cu.m X 1000ltrs
= 1,526,800 ltrs

25.3% of the requirement can be stored (current proposal) in the reservoir for dry season. Keeping in mind, the cost involved we limited it for 1/4th of the requirement.

Incase, more storage required by the village, there is a huge provision for expansion, as we are going for geo-textile layer for storage, rather than any concrete filling.It can be expanded at any time, as per need.


Night view of the site - a landmark for the village


View from the other end of the water channel running through the site, mangroves along the bed, to prevent from soil erosion