



**Mangrove Conservation
&
Development of Mangrove Park at Dahisar**

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Preface:



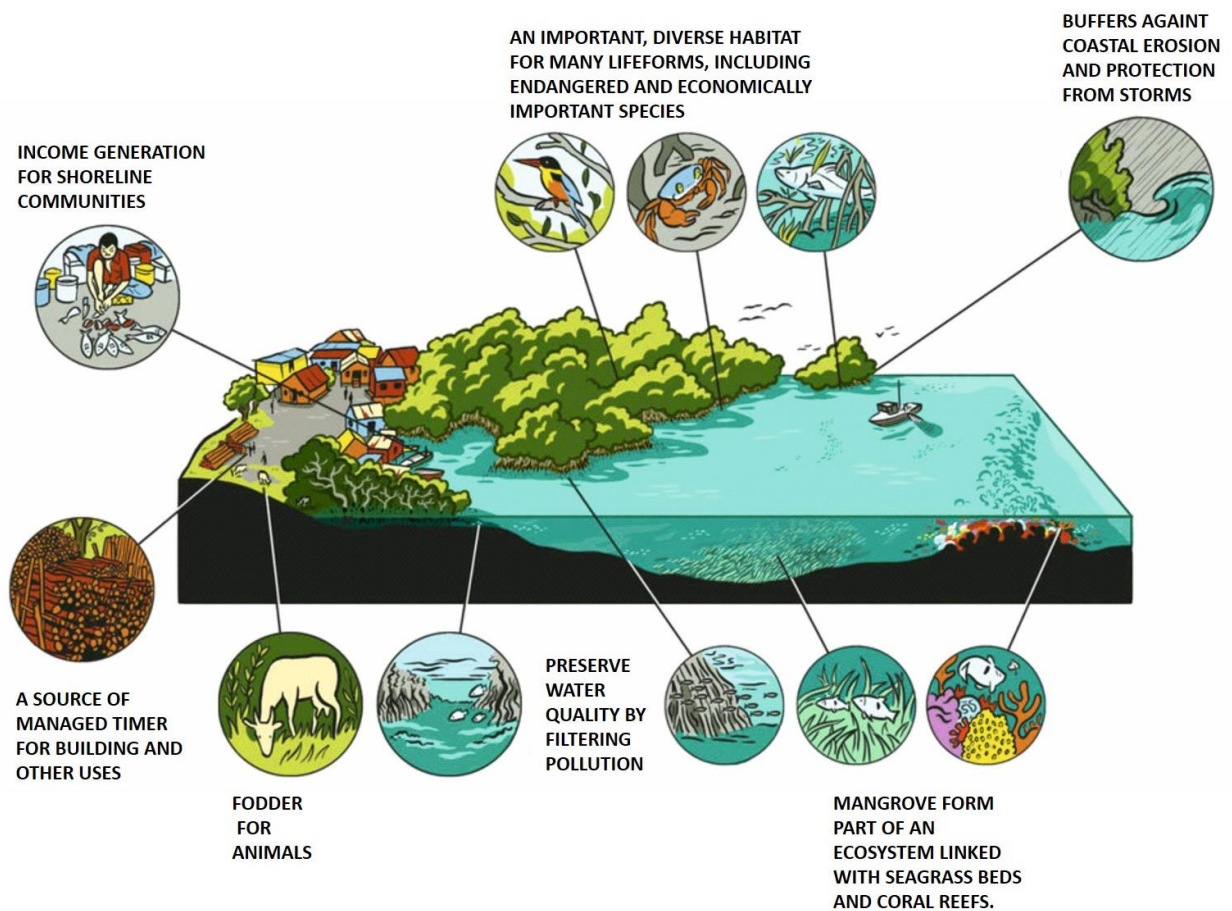
Much maligned as 'smelly, swampy, mosquito-ridden places', the true beauty and value of mangroves should not be overlooked.

Dominating many coastlines in tropical and subtropical areas, mangroves are a bridge between terrestrial and marine environments. They are also extremely productive ecosystems.

The forests transfer organic matter and energy from the land to the sea, forming the base of many marine food webs. They are also home to a wide variety of marine and terrestrial life and serve as nurseries for many coral reef and commercially important fish species. In addition, mangrove forests play a vital role in trapping sediments, thereby stabilizing coastlines and protecting coral reefs and sea grass meadows.

These forests are found between 32 degrees north and 38 degrees south of the equator, in sheltered, inter-tidal areas that receive a high annual rainfall.

The Importance of Mangroves for People and Wildlife:



Mangroves and Mumbai:



Mumbai has over 50 km² of mangroves, probably the highest of any major cities of the world.

Spread all around the periphery of the island including Thane creek, Mahim, Versova, Gorai and Ghodbunder, with sporadic patches in places such as Bandra, Malabar Hill and Colaba.

The recently established Thane Creek Flamingo Sanctuary hosts thousands of flamingos and over 200 species of birds

Physical feasibility Report

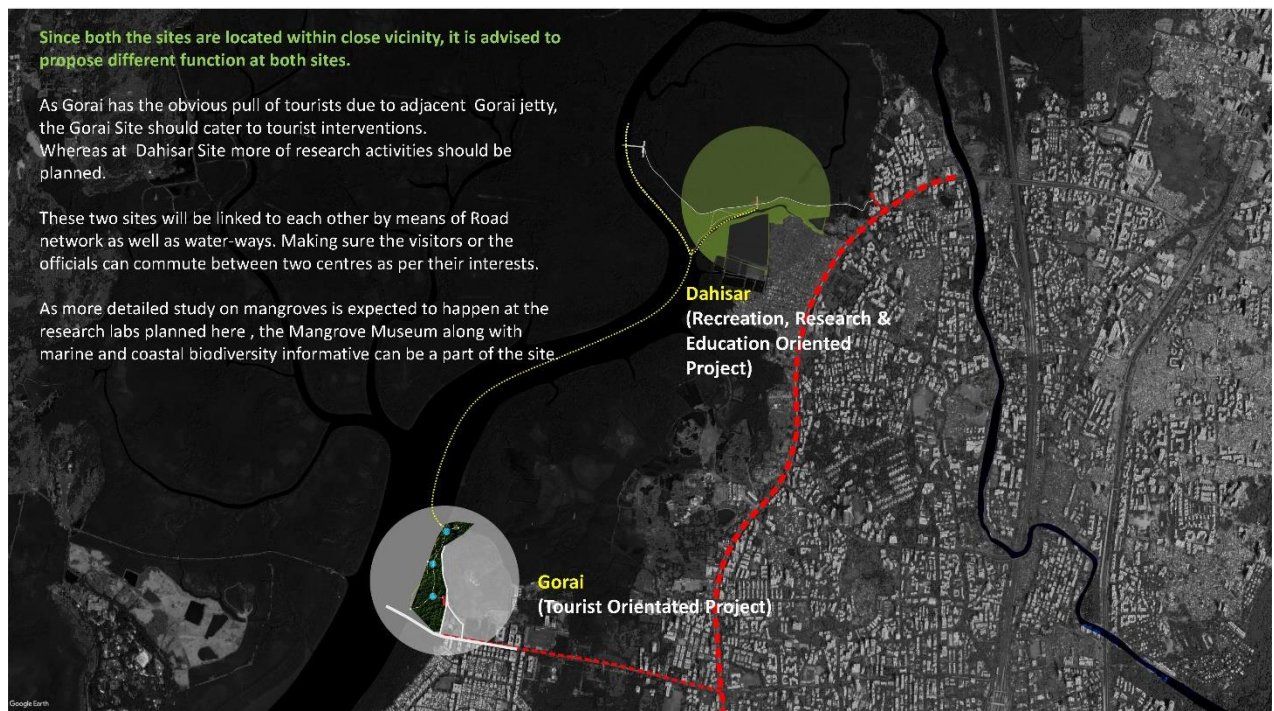
Project name: Mangrove park
Client: Mangrove Department
Site: Dahisar
Site Area: 170.5 hectares (Cumulative Mangrove Forest)
19.2 hectares (Government Mangrove Forest)

Objective:

To educate the citizens of Mumbai about the value of the mangrove ecosystem to their well-being, and in turn running a drive for environmental awareness in the citizen and visitors.

Approach:

The proposed site is well situated at the strategical location. The site is well connected with link road and can be connected by means of waterway connection from Gorai Jetty.



SWOT analysis:

Strengths:

Setting mangrove conservation and a mangrove interpretation centre within the dense mangrove forest at Dahisar. Taking advantage of proximity of Dahisar Link Road, D-Mart, Gorai jetty, and other visitors' attractions the pull of crowd we can set up a centre which will emphasize on environmental importance of mangroves and bio-diversity of the coastal areas.



If connected by the Gorai Mangrove Park by means of water connection; Dahisar Mangrove Park will complete the intention of education, recreation and adventure.

INITIATIVES TAKEN BY MANGROVE CELL:

In recent years mangrove cell has taken initiative to make people aware of the environmental issues and importance of mangroves.

And to serve the same objective the cell have planned to establish mangrove Parks at various locations in Mumbai.

1. Coastal and Marine Biodiversity center at Airoli
2. Mangrove Park at Gorai
3. Mangrove Park at Dahisar

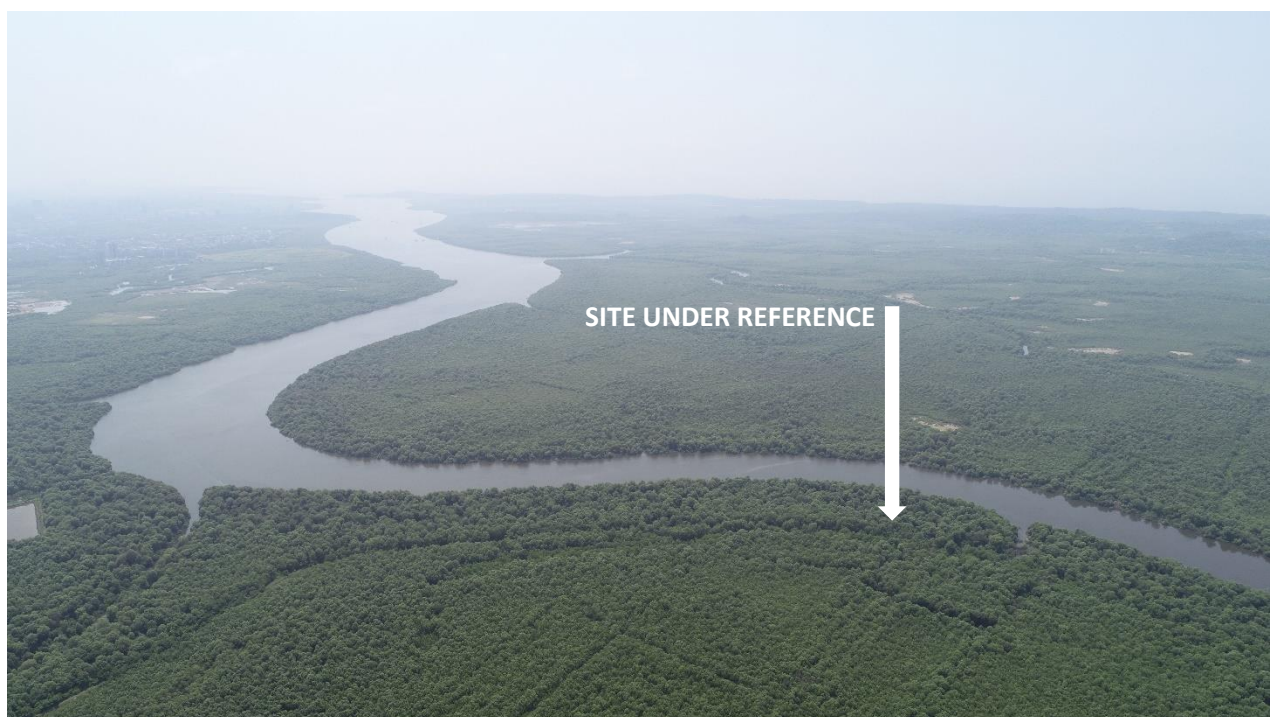
	Interpretation Centre	Research & Scholars	Leisure/ Adventure
Airoli	●	●	●
Gorai	●		●
Dahisar	●	●	●

A map of Mumbai showing the locations of Dahisar, Gorai, and Airoli. Dahisar and Gorai are marked with yellow dots and a dashed yellow box around them. Airoli is marked with a yellow dot. The map shows the coastline and surrounding areas.

This is the only place where one can feel the endless expanse of the mangrove forest and intense urbanism at the same time.



Being under saltpan for years and producing salt, the site already has a roadway constructed along the site boundary as a complete ring road. This will allow the easy access through the mangrove forest, with only resurfacing of the pathway.



Weaknesses:

The complete Mangrove forest is 170 hectares, which includes 19.2 hectares of government Mangrove Forest. Rest Area of the mangrove forest falls under private authority.

The government owned mangrove doesn't have a direct access from the Link road.



Opportunities:

Taking advantage of the isolation of the site, various activities focusing on recreational, educative and adventure activities can be planned with very secured manner. All the facilities will can be planned within the enclosure of the mangroves.

This will help in changing the image of mangroves in the mind of common man. Which is the main objective of the project.

Design Strategy:

1. Attract:

Attract attention of the masses providing recreational activities which in turn initialises the process towards awareness of environmental facts, threats & issues.



2. Educate:

Educating visitors about the mangroves and coastal marine bio diversity. Making them understand current scenarios and benefits of the mangroves and environment.



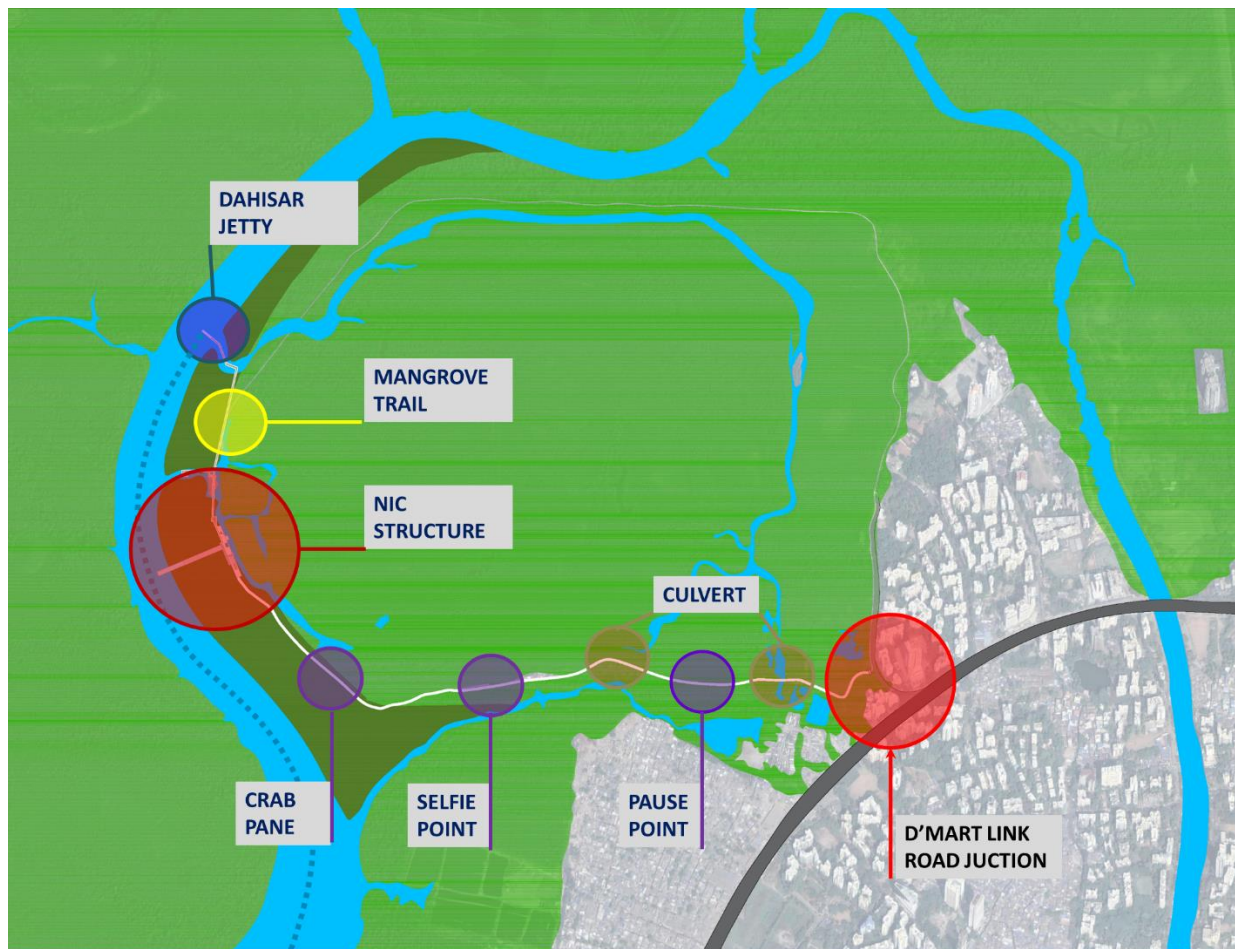
3. Engage:

Adding activities like NIC, Board walks, Kayak Trails etc. which hold their interest in the initialising Active Social Participation in Environmental Issues.



Design Concept:

Entry to the site is planned at the junction of the D-Mart, which is the prominent landmark for the localities.



The centre comprises of the following components:

1. Entrance structure – security and ticketing facility
2. Mangrove Pathway to inter-connect proposed components with informative placed at the interval for educative purpose.
3. Selfie points
4. Crab pond
5. Mangrove nursery
6. Nature Interpretation Centre (NIC)
7. Mangrove trail
8. Dahisar Jetty

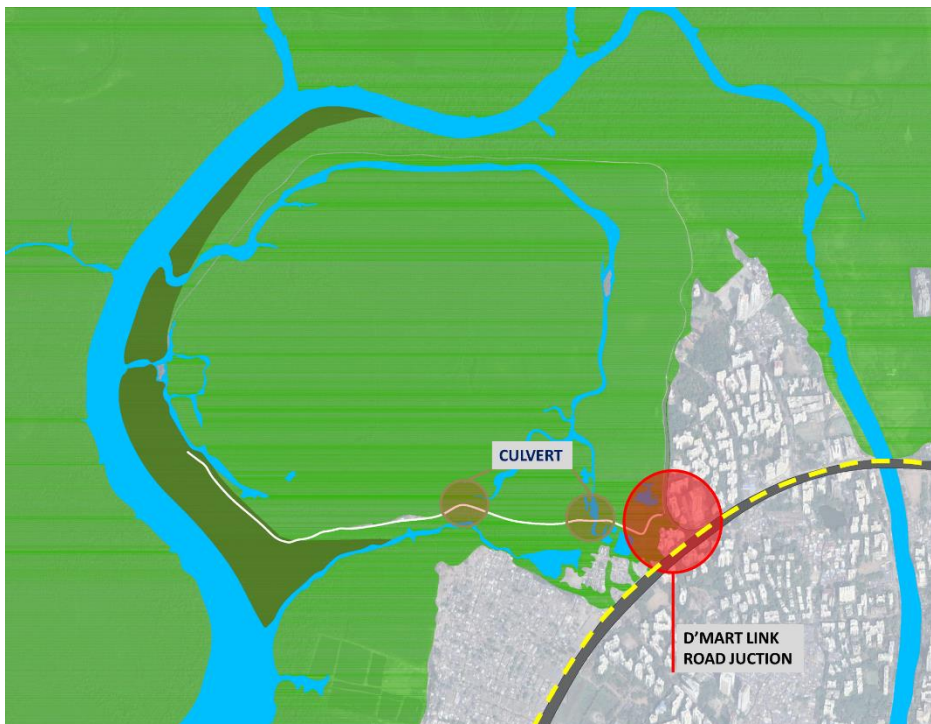
1. Entrance structure – security and ticketing facility



Convenient **Accessibility** to the site due to its proximity to the **Link road**. The western spine of the Link road is well connected to the **Western Expressway** which facilitates the approach to the site. The entry is also in close proximity to the **Metro line**.

Visitors will be given choices to either take the walk through mangrove forest or for elderly people the same route will be made accessible by means of electric golf cart .

2. Mangrove Pathway:



The existing road (previously used for salt transport from saltpan, will be resurfaced to cater to the pedestrian -visitors as well as service vehicles.

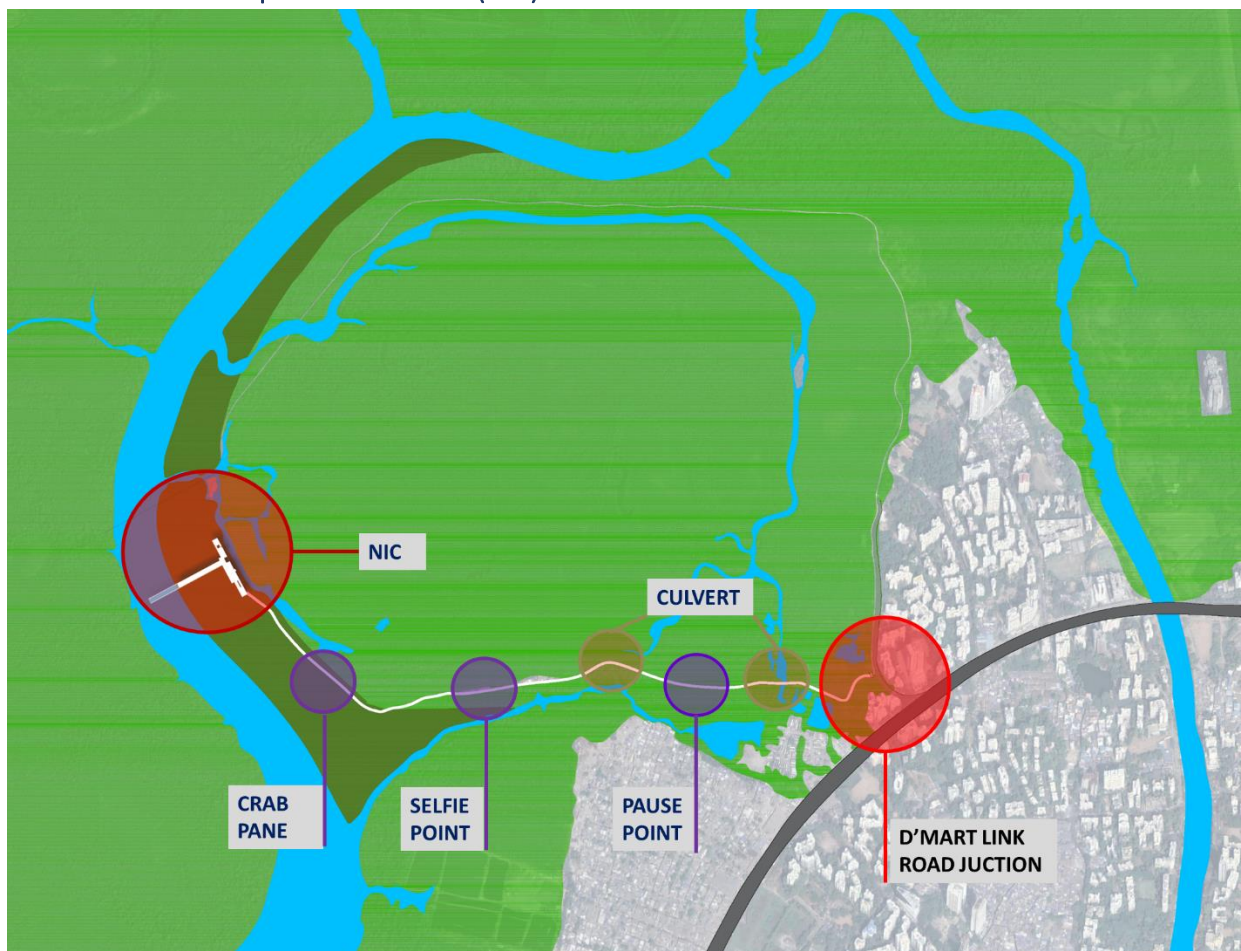
A **Culvert** has been proposed in the trail over the **intersection** between the road and the creek.

This plays an important role in allowing water flow freely on either sides of the road so that there is no hindrance in the growth of the mangroves.

3. Selfie points, Crab pond, Mangrove Nursery:



4. Nature Interpretation Centre (NIC):





This is the heart of the project. Strategically placed structure within the dense mangrove forest, won't be visible unless one reaches the entrance of the NIC. The structure is elevated from the ground and is design like a skywalk which ensures the minimal interference of the structure with land, and gives one a sense of floating structure above the eye level.

The structure contains educative, adventurous and recreational facilities which will attract number of visitors to explore the mangrove forest.





The NIC structure is planned over the existing pathway which allows to do piling work on the existing pathway which is free of mangroves. It facilitates the construction of the NIC as well as no harm to surrounding ecosystem. Structure is designed for Especially abled people and elderly people which connects all the structures with Ramps as well provision of the lift.

The first level includes entrance and a hanging walkway which adds the adventurous factor to the centre.





The first level also includes:

- workshop/ lecture halls- for mass of students and general public to create awareness.
- corporate seminar rooms – for separate corporate cultures to initiate mangrove awareness and also for the departmental seminars.
- Conference room- for Departmental conferences.
- Souvenir shop, admin and toilet facilities.

The second level starts with the café facility at the entrance.



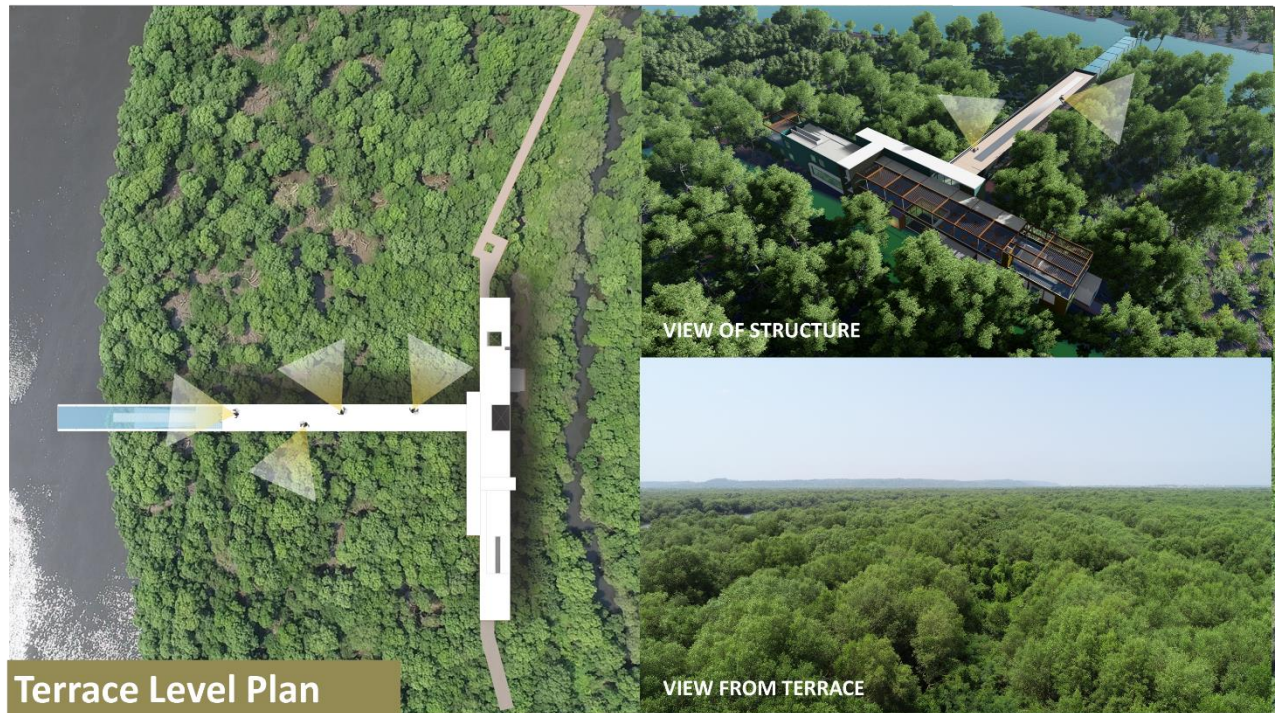


The second level starts with the café facility at the entrance then leads to the mangrove museum and walk on the mangroves.

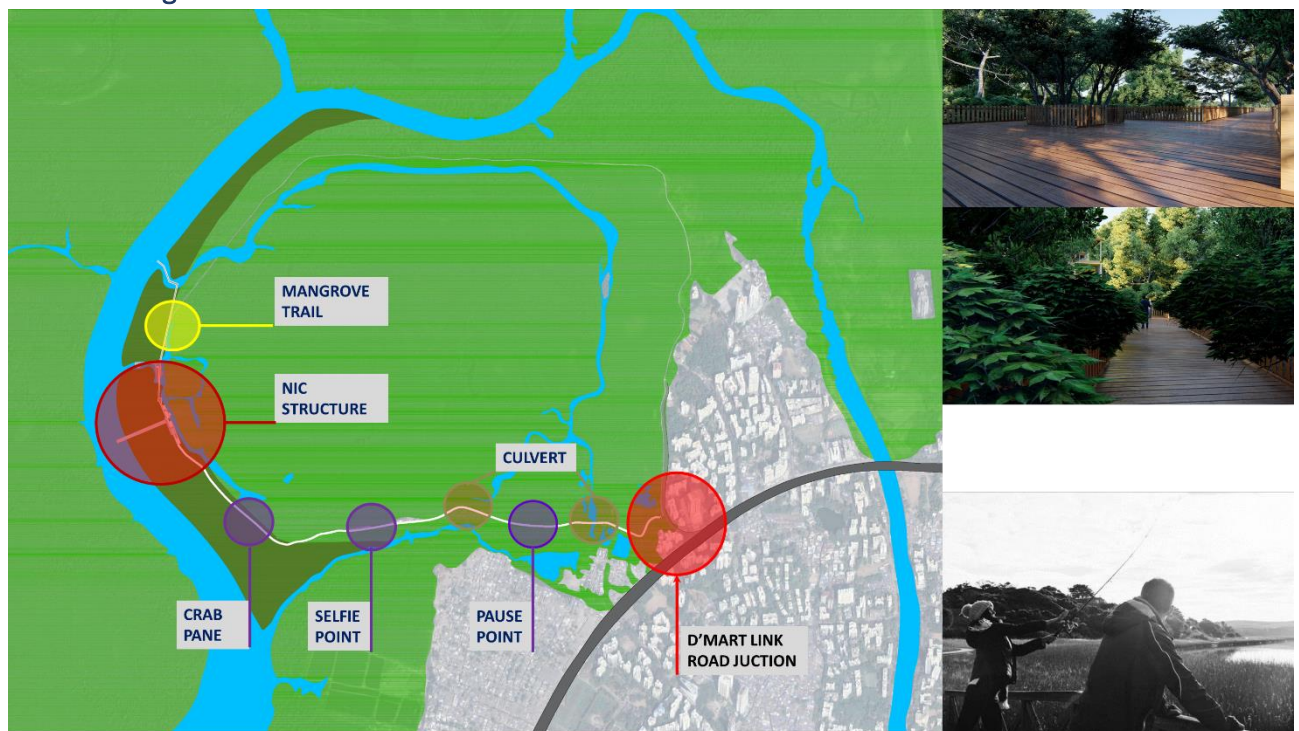
The mangrove museum holds library, digital interactive informative and observatory spaces towards mangrove forest.

The walk on mangroves is the glass bridge where one will actually feel the walk over the mangroves and creek over the glass flooring.





5. Mangrove trail:



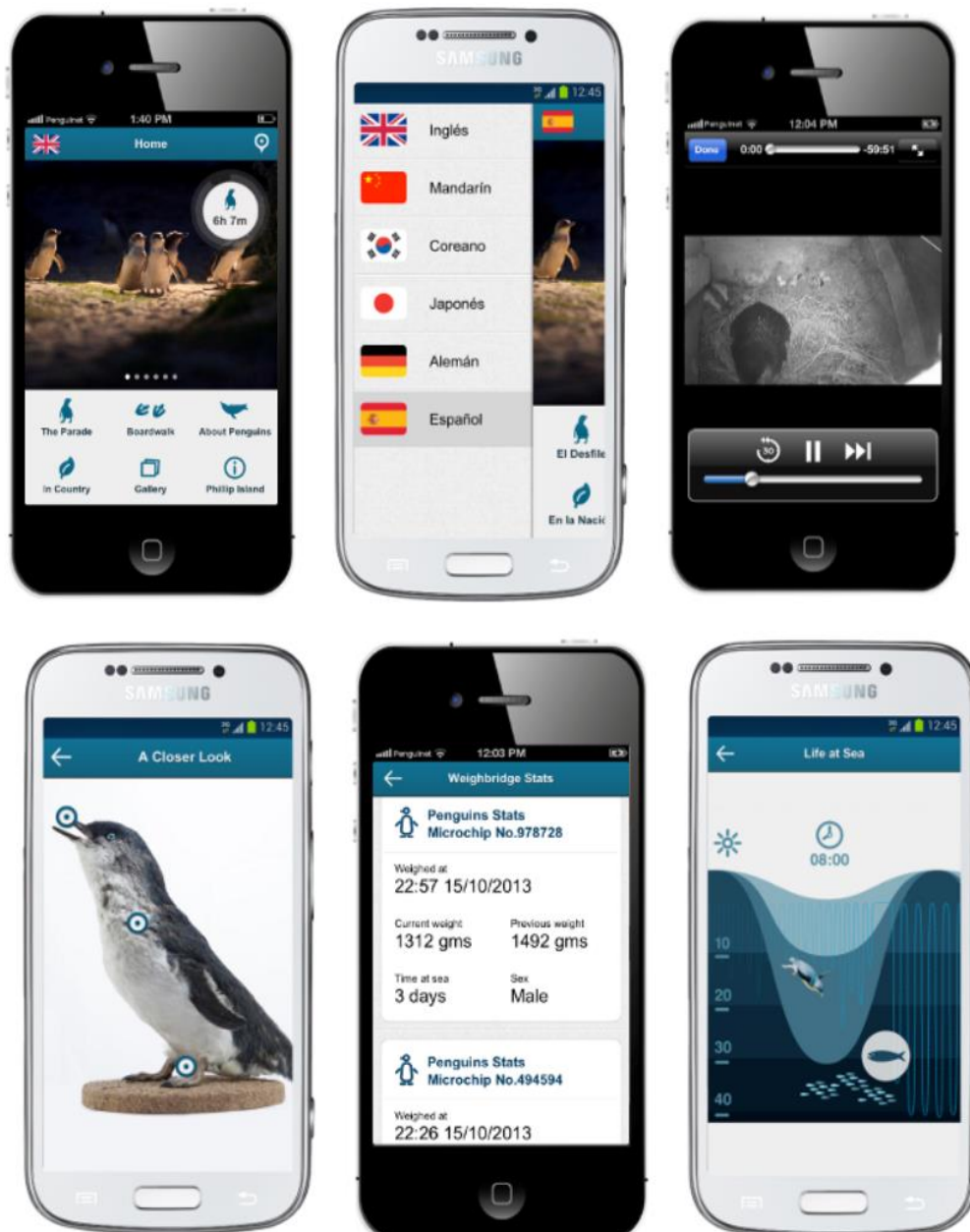
400m long Mangrove Trail has been proposed through the Mangrove forest to allow visitor to have a **deeper interaction** with the natural habitat. It is laid along the high tide line which is richer belt having more varieties of species are found.

The trail forms various decks over the travel to allow the users to enjoy various **recreational** and **educative** activities like **Fishing and Observatory**. The pause points are introduced within the mangrove trail which facilitated the visitor to take rest and pick up points for kayak trail.

6. Know Your Mangrove App:

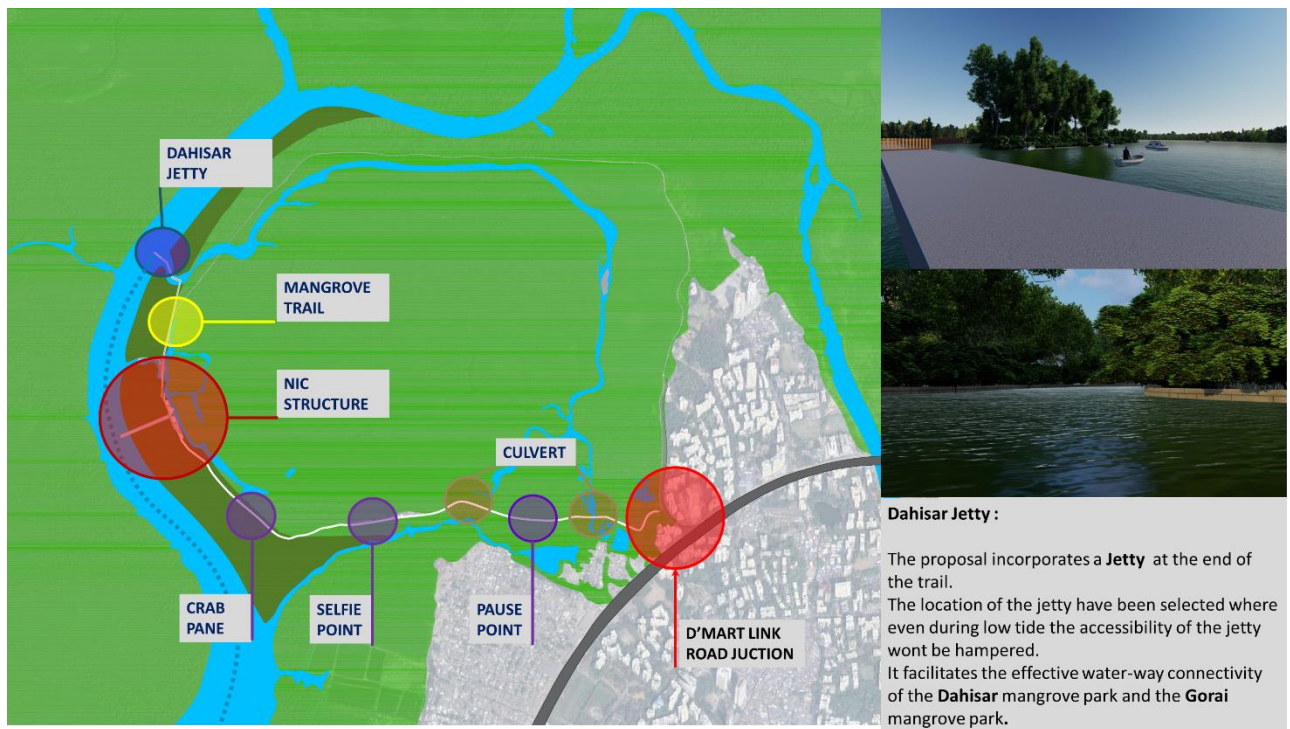
Along 400m long Mangrove trail; visitors will witness the diverse range of flora and fauna. To Study this diversity, we propose to design an app, operated by mobiles and pads which will give the complete information of each and every species of flora –fauna found on the site.

We also propose to develop the audio and visual tour guided by digitalized media operated by mobiles and pads (Based on Heritage Walk app). Where the information will be available just by scanning barcodes at different pause points and on informative panels.



Ref: Penguin Parade app
By Phillip Island

7. Dahisar Jetty:



Phase 2:



Policies & Design Proposal:

Design Component	Location	Purpose	Description
Active zone	Near access points along the road	Attract people to this area	Includes restaurants, eateries, play areas, open courts, tree courts, picnic hubs and toilets.
Passive zone	ecologically sensitive areas	<ul style="list-style-type: none"> • Study • Recreational 	activities like bird watching, fishing, study/conducting research, stroll areas and trails
Vehicular access	to be given up to a certain distance from the eco-sensitive areas, after which the entire area would be vehicle free where only pedestrians would be allowed.		
Construction techniques-	Near mudflat area	Ensure sound disturbance during construction and installation phase	The super structure should be such that it could be dismantled and shifted to another place if necessary
Fencing	Around protected areas	should be such that it allows the passage of mammals from one side to the other below the fence.	
Vegetated hedges	To be created around hot spot areas	to maintain their privacy	These areas would be only viewed from watch towers and decks.
Lighting	protect areas	to be considered to avoid disturbance to fauna	

Policies & Design Proposal:

	Materials	Sustainable Aspects
NIC Nature Interpretation Centre	Foundation: Precast Pile foundation Structural Framing: Metal (Shipping Containers) Flooring : Bricks and Natural Stone flooring over deck floor Infills: 1. Chain link to allow natural ventilation of common spaces. 2. Glass Panels towards north and east façade. (Solar shade glass panels towards west side) 3. Security elements metal framings with wood (Tipco wood) and processed bamboo, recycled plastic panels. Roof: 1. Green roof. 2. Solar shed skylight.	<ul style="list-style-type: none"> • Renewal Energy sources with solar shade panels. • Using recycled materials. • Minimal ground coverage. • Selection of materials in turn to reduce on maintenance cost.
Boardwalk	Foundation: Wooden piles Structural Framing: Wood, Bamboo Flooring : Wooden	
Pause points	Foundation: Wooden piles Structural Framing: Wood, Bamboo Flooring : Wooden	
Watchtower	Foundation: Precast Pile foundation Structural Framing: Metal (Shipping Containers) Flooring : Wooden Infills: 1. Chain link to allow natural ventilation of common spaces. 2. wood (Tipco wood) and processed bamboo, recycled plastic panels.	<ul style="list-style-type: none"> • Renewal Energy sources with turbines.

Design Block Estimate:

Sr. No.	Item	Rate	Unit	Amount (in Lakh)*
1	Cleanup of Mangrove Areas (20 persons for 20 weeks)	330	224	0.74
2	Network of deep channels for enhancing tidal water flow to degraded mangrove areas	500	1000 cum	5.00
3	Nature Interpretation centre, (mangrove NIC + walk on Mangrove) (with Pile Foundation)	70000	1200 sqm	240.00
4	Boardwalks (WOODEN)	150000Rmt	500 m	750.00
5	Execution of pause points for visitors.	Lumsum	3	48.00
6	Execution of Birdwatch platform for visitors.	Lumsum	1	200.00
7	Supply of 9 HP Boat (Dingi)	15	2	30.00
8	Supply of Kayak	2	10	20.00
9	Guide training	1 lakh per training	5	5.00
10	Resurfacing the Pathway of pathway	20000	1800 m	360.00
11	Entrance structure	8000	75 sqm	6.00
12	Block 1	60000	1000 sqm	600.00
13	Block 2	60000	500 sqm	300.00
14	Aquarium	70000	500 sqm	350.00
15	Site Development	Lumsum		100.00
	Total			3154.74

EXPECTED VISITORS FOOTFALL

The Total Footfall Expected is 150 Person Per Day

BOARDWALK PACKAGE	6 SLOTS/DAY	150 PER DAY	25 DAYS	337500
EDUCATIONAL PACKAGE				
KAYAK PACAKGE		4	15 DAYS	180000
PREMIUM KAYAK TRAIL		2	8 DAYS	72000
CASUAL VISITORS		400 PER DAY	25 DAYS	900000
MORNING WALK				
				1,489,500

REVENUE GENERATION IN DAHISAR PARK

PACKAGES		DURATION	PROPOSED CHARGES	
BOARDWALK PACKAGE		240 MIN	125	PER PERSON
EDUCATIONAL PACKAGE		240 MIN	50	PER STUDENT
KAYAK PACAKGE		240 MIN	1000	PER PERSON OR Rs.3000 PER KAYAK
				(30-45 MIN ON KAYAK)
PREMIUM KAYAK TRAIL		60 - 90 MIN	2500	PER PERSON OR Rs.4500 PER KAYAK
				(60-90 MIN ON KAYAK- OPERATION ONLY DURING HIGH TIDES)
				(OPERATION ONLY DURING HIGH TIDES)
CASUAL VISITORS			90	PER PERSON (WATCH TOWER EXCLUDED)
	MORNING WALK	120 MIN	150	PER PERSON MONTHLY PASS
EATERY		LEASED OUT		
SOUVENIER SHOP		LEASED OUT		

Staff Requirement at Park for the Operation & Maintenance

		NO.	SALARY	TOTAL
Staff at Entrance				
	Ticketing office	1	22,000	22,000
	Security	1	22,000	22,000
Staff at NIC				
	Security	4	22,000	88,000
	Orientation	2	24,000	48,000
	Resource Centre	2	24,000	48,000
	Eatery			
	Housekeeping	4	16,500	66,000
	Admin staff	2	24,000	48,000
	Medical assistant	1	25,000	25,000
	security Supervisor	2	24,000	48,000
Staff at Trail				
	5 Pause points	5	12,000	60,000
	watch tower	2	24,000	48,000
Staff For Water Trail				
	Big Boat	3	20,000	60,000
	5 Kayak	5	80,000	400,000
				983,000

Proposed Tours in Park

	25	25	25	25	25	25	Eduactional Institutes	*Small Group Excursion- 10
	1	2	3	4	5	6	7	8
9 to 10	NIC							NIC
10 to 11	Boardwalk and watch tower	NIC						Board Walk till Kayak Boarding Point followed Kayak Trail concluded at the watch tower
11 to 12		Boardwalk and watch tower	NIC					
12 to 1	Return Via Big Boat and refreshments		Boardwalk and watch tower	NIC				Return to the NIC via Big Boat/ Edge Walk and refreshments
1 to 2		Return Via Big Boat and refreshments	Boardwalk and watch tower		NIC			
2 to 3			Return Via Big Boat and refreshments	Boardwalk and watch tower		NIC		
3 to 4				Return Via Big Boat and refreshments	Boardwalk and watch tower			
4 to 5					Return Via Big Boat and refreshments	Boardwalk and watch tower		
5 to 6						Return Via Big Boat and refreshments		

*PLANNED ACCORDING TO HIGH TIDE TO AVAIL THE KAYAK TRAIL AS INCLUSIVE OF THE PACKAGE

Bridge Condition Report

Mumbai Mangroves Conservation Unit

Conservation and Development of
the Mangrove Park at Dahisar

Bridge Condition Report

TANDON URBAN

SOLUTIONS PVT LTD

701, "Harbhajaan", CST Road, Kalina,
Santacruz (East), Mumbai Pin - 400098

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1. INTRODUCTORY REMARKS

1.1. Introduction

There is a bridge on access road to Dahisar mangrove. Condition assessment was done to assess the required renovation

1.2. Methodology of work

The bridge was visited and detailed inspection was carried out officials. Photographs of all structural components were taken.

2. OBSERVATIONS

1. The bridge abutment and piers are constructed in UCR masonry.
2. The superstructure is constructed of steel sections.
3. The abutment masonry is in distressed condition.
4. Pier UCR masonry is damaged at many locations.
5. There is rusting observed in the superstructure steel beams.
6. Approaches have settled and separation observed in main structure and approaches.

3. CONCLUSION

1. The overall support structure consisting of pier and abutment is in heavily distressed condition.
2. The aprons are showing signs of weakness.
3. There is corrosion observed in superstructure.
4. Settlement is observed in approaches
5. Based on all the above is felt that the structure needs to be demolished and constructed new with proper design as per relevant codes and standards

4. PHOTOGRAPHS OF BRIDGE

Abutment Distress



Approach Distress



Approach is Damaged



Apron Distress



Distress in Structure



Pier Distress



5. REFERENCE

IRC codes:

- IRC:5-1998 Section 1, General Features of Design
- IRC:6-2000 Section II, loads and Stresses
- IRC:18-2000 Design Criteria for Prestressed Concrete Road Bridges
- IRC:21-2000 Section III, Cement Concrete (Plain and Reinforced)
- IRC:22-1986 Section IV Composite construction for Road Bridges (1st Revision)
- IRC:78-2000 Section VII, Foundations and Substructure
- IRC:83-1999 Section IX, (Part-1) Metallic Bearings
- IRC:83-1987 Section IX, (Part-II), Elastomeric Bearings
- IRC:89-1997 Guidelines for Design and Construction of River Training and Control Works for Road Bridges (1st Revision)
- IRC:SP 102-2014 Guidelines for Design and Construction of Reinforced Soil Walls

Whenever IRC codes are silent, relevant BIS codes shall be followed. In case, where even BIS codes are silent, other suitable international codes will be adopted.

IS Codes

- | | |
|-------------------|---|
| IS: 456 | Code of Practice for Plain and Reinforced Concrete - based essentially on CP-110 |
| IS: 800 | Code of Practice for General construction in steel |
| IS: 875 | Code of Practice for Design Loads Parts 1,2,3.4 & 5 (other than Earthquake) for Building and structures |
| IS: 1080 | Design and Construction of shallow foundations in soils (Other than Raft, Ring & Shell) |
| IS: 1489 (Part 1) | Specifications for Portland Pozzolana Cement (Fly ash based) |
| IS: 1786 | Specs. for High Strength Deformed steel bars and wires for concrete reinforcement |

IS: 1893	Criteria for Earthquake Resistant Design of structures
IS: 1904	Design and Construction of Foundation in soils: General Requirements
IS: 1905	Code of Practice for Structural Use of Un-reinforced Masonry
IS: 2502	Code of Practice for Bending and Fixing of Bars for concrete Reinforcement
IS: 2950	Designs and Construction of Raft Foundations
IS: 4000	Code of Practice for High Strength Bolts in Steel Structures
IS: 4326	Code of Practice for Earthquake Resistant Design and Construction of Buildings
IS: 2062	Steel for General Structural Purposes-specifications
IS: 8009	Calculation of settlement of shallow foundations
IS: 8112	Specification for 43 Grade Ordinary Portland cement
IS: 8500	Structural Steel —Micro alloyed (Medium and high strength qualities)
IS: 9103	Specifications for Admixtures for Concrete
IS: 12070	Code of Practice for Design and Construction of Shallow Foundations on Rocks
IS: 12269	Specifications for 53 Grade Ordinary Portland cement
IS: 13920	Ductile Detailing of Reinforced Concrete Structures subjected to Seismic Forces

GEOTECHNICAL INVESTIGATION REPORT

PROJECT:

CONSERVATION AND DEVELOPMENT OF THE
MANGROVES PARK AT DHAISAR

CLIENT:

TANDON URBAN SOLUTIONS PVT. LTD.
(TUSPL)

PROJECT EXECUTED BY:

JAY GAJANAN GEOTECHNICS

THANE (WEST).

(CONTACT DETAILS : 9967233499 /

9820090922 / 9820090222 / 022-25800035)



JAY GAJANAN GEOTECHNICS

Proprietor: Mr. Pramod Mahajan: (+91) 9820090222
Mr. Manish Sapkar: (+91) 9820090922

27.11.2018

Tandon Urban Solutions Pvt. Ltd. (TUSPL)

701, Harbhaajan Building,
Kalina, Santacruz (East),
Mumbai – 400 098

**Sub: Geo Technical Investigation report for proposed project of
Conservation and Development of the Mangroves Park at Dhaisar.**

Dear Sir,

We are pleased to submit our revised Geo Technical Investigation report for proposed project of Conservation and Development of the Mangroves Park at Dhaisar.

Thanking you and assuring you to provide our best service to you.

Yours Faithfully,

For
JAY GAJANAN GEOTECHNICS.

Manish Sapkar

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1. INTRODUCTION

The soil investigation work for proposed work at Dahisar, Mumbai was awarded by M/S. Tandon Urban Solutions Pvt. Ltd. (TUSPL) to M/S. Jay Gajanan Geotechnics on 10th November, 2018. The purpose was to assess the subsoil strata from safe bearing capacity point of view.

The field investigation was completed on 15th November, 2018. The laboratory testing work was done by our in-house **NABL** accredited laboratory, i.e. M/S. Jay Gajanan Geotechnics – Soil Mechanics Laboratory. The geotechnical report was prepared and submitted by M/S. Jay Gajanan Geotechnics on 27th November, 2018.

1.1 PURPOSE OF EVALUATION

The purpose of this evaluation was to assess subsurface conditions at the site and to provide geotechnical recommendations for project design based on anticipated and construction activities. Objective of the site investigation was to obtain the information that may be useful for one or more of the following purposes:

1. To select the type and depth of foundation for a given structure.
2. To determine the bearing capacity of soil/rock layer.
3. To establish the ground water level.
4. To select the suitable construction technique.
5. To predict potential foundation problems.
6. To ascertain the suitability of the soil as a construction material.
7. To collect and transport the selected samples of soil, rock and water samples in testing laboratory and conduct relevant tests to determine properties.
8. Recommendations for soil-related construction conditions such as site preparation, earthwork construction, excavation slopes, and difficult excavation.

1.2 SITE LOCATION

The project area is located at Dahisar, Mumbai.

1.3 PROPOSED CONSTRUCTION:

It is proposed to construct residential buildings. It is anticipated that the structures will be constructed mainly from reinforced concrete.

2. SCOPE

The limited scope of services as defined in work order consists of

- Drilling and sampling in one borehole at single location was terminated 15.00 meter below exiting ground level
- Carrying out relevant laboratory tests on representative soil and rock samples.
- Preparation of engineering report based on field and laboratory data.

2.1 FIELD INVESTIGATION

A subsurface exploration programme depends upon the type of structure to be built and also upon variability of the strata at proposed site. Sub-surface explorations are generally carried out in three stages.

A) Reconnaissance: Prior to our field exploration, the site and surrounding areas were visually evaluated by M/S. JAY GAJANAN GEOTECHNICS, Thane (W). The observations were used in planning explorations, in determining areas of special interest, and in relating site conditions to known geologic conditions in the proposed project area. Subsurface exploration programme includes visit to a site and study the

map and other relevant records. The information about the following features is obtained:

- i. General topography of the site.
- ii. Existence of underground water mains, power conduits, etc. at the site.
- iii. Existence of settlement cracks in structure already built near site.
- iv. The evidence of landslides, creep of slope and shrinkage cracks.
- v. The stratification of soil observed from deep cuts near the site.
- vi. Depth of ground water table as observed in wells and drainage pattern.
- vii. Type of vegetation existing at the site.

B) Preliminary Exploration: The aim of a preliminary exploration is to determine the depth, thickness, extent and composition of each soil stratum at the site. The depth of bedrock and the ground water table is also determined. The preliminary explorations are generally in the form of trial pits. Trial pits were not considered for these sub- surface investigations.

C) Detail Exploration: The purpose of detail exploration is to determine engineering properties of soil in different strata. It includes an extensive boring programme, sampling and testing.

DRILLIG

Onsite locations of boreholes were specified by client. The borings were performed to maximum depths of 15.00 m below the existing ground surface elevations. For drilling rotary type drilling rig was used. Rig was coupled with diesel engine, tripod and all drilling accessories. Drilling rig have tripod with suitable arrangement for driving as well as extracting casing. It was also used for conducting Standard Penetration Test (SPT) and Disturbed or wash Soil Sample (DS). On completion of drilling, soil samples were packed in plastic

containers with proper identification tags. Water was circulated to cool the drilling bit.

Initially casing of adequate diameter to suit boring of 100 mm borehole was lowered and boring was commenced. When rock was encountered, size of borehole was changed to N_x (76 mm) diameter. A core barrel and N_x sized bits are used for drilling and recovering rock cores. Recovered rock cores were numbered serially and preserved in good quality sturdy wooden core boxes. Rock core recovery (CR) and Rock Quality Designation (RQD) were computed for every run of length drilled. Rock samples have been selected for laboratory test based on the probable founding elevation of the proposed structure.

STANDARD PENETRATION TEST AND SOIL SAMPLING

All soil sampling and Standard Penetration Testing (SPT) was performed in general accordance with IS: 2131 - 1981 (Reaffirmed 2002) and ASTM Standards D 1586 and D6151. The soil borings were advanced by rotary drilling methods. At regular intervals (1 to 1.5 m), soil samples were obtained with a standard split-spoon sampler. The sampler was first seated 15 cm and then driven an additional 30 cm with blows of a 63.5 kg hammer falling a distance of 75 cm. The number of blows required to drive the sampler the final 30 cm was recorded and is designated the “standard penetration resistance” or “N” value. Because the sampler may be damaged by driving it 12 to 18 inches into very dense soils, it is driven a few inches into such materials and the penetration resistance is expressed as the number of hammer blows versus the depth of penetration, e.g. 100/3”, 50/1”, etc. Penetration resistance, when properly evaluated, is an index of the soil’s shear strength, density, and foundation support capability. SPT ‘N’ values are correlated with the relative density of non-cohesive soils and consistency of saturated cohesive soils.

2.2 SUBSOIL PROFILE

Boreholes observations for proposed project at Dahisar site is presented in this section. Boreholes were drilled up to maximum 15.00 m depth from the existing ground level. Sub-soil conditions described below are based on drilling and sampling in four boreholes. Field borelogs are as attached in the Annexure. During the course of investigation, the following layers of stratum were observed.

- LAYER I – Backfill
- LAYER II – Greyish to yellowish clay
- LAYER II – Completely weathered rock
- Layer IV – Highly weathered basalt

Thickness of each layer encountered along with RQD (Rock Quality Designation) ranges as the case may be at the locations is tabulated below.

Table 1 Summary of Boreholes

BH No.	Layer I	Layer II		Layer III	Layer III	
	Thick m	Thick m	N	Thick m	Thick m	RQD
BH-2	1.5	10.0	4-20	-	4.0	0

Table 2 Ground water level

BH NO.	Water Level (m)
BH-2	3.0

2.3 LABORATORY TESTING

Lab tests were conducted (as per relevant IS code) on soil and water samples to determine their properties which may be used for design and geotechnical evaluation.

Table 3 List of tests conducted

Sr. No.	Test Description	Relevant IS/ASTM code
A	Soil Tests	
1	Grain size analysis	IS 2720 Part 4 - 1985 (Reaff. 2010)
2	Hydrometer analysis	IS 2720 Part 4 - 1985 (Reaff. 2010)
3	Specific gravity	IS 2720 Part 2 - 1973 (Reaff. 2010)
4	Liquid Limit Test	IS 2720 Part 5 - 1985 (Reaff. 2015)
5	Plastic Limit Test	IS 2720 Part 5 - 1985 (Reaff. 2015)
B	Rock Tests	
1	UCS saturated	IS 9143 - 1979 (Reaff. 2010)
2	Point Load Index	IS 8764 - 1998 (Reaff. 2008)
3	Dry Density	IS 13030 (1991, Reaff. 2010)
4	Water Absorption	IS 13030 (1991, Reaff. 2010)
5	Specific Gravity	IS 13030 (1991, Reaff. 2010)
6	Porosity	IS 13030 (1991, Reaff. 2010)
C	Chemical Test on soil	
1	pH test	IS 2720 Part 26 - 1987 (Reaff. 2011)
2	Sulphate content	IS 2720 Part 27 - 1977 (Reaff. 2015)
3	Chloride content	IS 3025 Part 25 - 1988 (Reaff. 2014)

Soil Tests

Grain size analysis – This test is performed to determine the percentage of different grain sizes contained within a soil. The mechanical or

sieve analysis is performed to determine the distribution of the coarser, larger-sized particles.

Specific gravity – The knowledge of specific gravity is needed in calculation of soil properties like void ratio, degree of saturation etc. Specific gravity G is defined as the ratio of the weight of an equal volume of distilled water at that temperature both weights taken in air.

Rock Tests

Dry density, porosity and water absorption test of rock are useful to determine the general parameters such as density, porosity, water absorption, etc. It was performed on rock samples by taking the diameter, weight, length and volume by water displacement method.

Unconfined compressive strength test was conducted to determine the rocks strength, which is further useful to calculate the safe bearing capacity. Rock core samples were cut such that the L/D ratio was 2 to 3. In case where the criteria were not met suitable corrections were applied.

Point load index test was performed on sample whose L/D ratio was less than 2. The Diametrical test was performed specimen with L/D ratio 1.5. Axial Test was performed Specimen with L/D ratio 0.3 to 1.0, Block and irregular lump test the ratio D/W should be between 0.3 to 1.0

Chemical Analysis

Chemical analysis tests like pH value, Sulphate content and Chloride content are performed on soil and water samples to know if the parameters come under permissible limits, and if there is any requirement for precautions while using the time of concrete.

The laboratory tests results are attached in Annexure.

2.4 ENGINEERING ANALYSIS

Engineering analysis of the substratum was performed to determine net safe bearing capacity. Parameters obtained are based on various field and laboratory tests.

Column loads are expected to be heavy.

Bored cast in situ piles are recommended.

2.4.1 CONCLUSIONS AND RECOMMENDATIONS

Pile capacity is estimated considering SPT N in highly weathered rock as 150.

Pile capacity is estimated as per IS 2911 part 1/section 2.

Vertical carrying capacity in Tones of bored cast in situ piles of different socketing lengths in strata with average extrapolated N minimum 150 is tabulated below.

Table 3 Vertical and Uplift capacity

Pile diameter	Safe vertical capacity T			Safe uplift capacity T		
	1D	2D	3D	1D	2D	3D
600mm	101	118	135	11	23	35
700mm	138	161	184	16	32	48

Anticipated pile resp for BH1 & BH2 for 600mm dia pile for 1D socketing.

Lateral capacity is not estimated due to presence of backfill up to 1.5m depth. However it can be considered as 3% of vertical capacity.

Chemical analysis of soil sample indicate that no special provision is required. However due to presence of marine environment prevailing in Mumbai we recommend usual precautions to maintain durability of concrete.

Other quality control measured such as use of bentonite of proper grade and consistency, use of tremie during placement of concrete, collecting and testing of concrete cubes.

We strongly recommend performing initial load tests in all the three forms to confirm above recommended pile capacities.

Notes:

1. This report is issued based on the subsoil condition revealed at the location of boreholes and laboratory tests performed on recovered samples. If during construction of foundations it is observed that sub soil conditions vary from those revealed during investigation it is essential that Jay Gajanan Geotechics shall be contacted so that on confirmation supplementary report shall be issued.

2. Structural designer shall ensure that the foundations are spaced sufficiently apart so that there is no overlap of stresses.

S. G. Joag

M. Tech. (Geotech). FIIB, FIGS, FIIE

Geotechnical Consultant

2.4.2 CALCULATIONS FOR PILE CAPACITY

Ultimate axial load carrying capacity (Q_u) of pile will be = $R_u + R_f$

Where R_u = Ultimate base resistance

R_f = Ultimate shaft resistance

$R_u = C_{u1} \cdot N_c \cdot A_b$

$R_f = \alpha \cdot A_s \cdot C_{u2}$

Where C_{u1} = Average shear strength of below base of pile based on average N value

C_{u2} = Average shear strength in the rock socket zone based on average N value

$N_c = 9$

A_b = Cross sectional area of base of pile

D = Pile diameter

$\alpha = 0.9$ (recommended value)

A_s = Surface area of pile

$Q_{allowable} = R_e/3 + R_f/6$

IS code recommends factor of safety of 3 for both end bearing and friction component. However 3 and 6 is used for end bearing and friction component resp.

Maximum allowable end bearing to be limited to 50 Kg/cm².

A_b = Cross sectional area of base of pile = $(\pi/4) \cdot 0.6 \cdot 0.6 = 0.2827 \text{ m}^2$

D = Pile diameter = 0.6m

Average SPT N is expected to be more than 150. A conservative value of 1520 is used. Average shear strength will 1000kPa or 100T/m²

$$Q_u = 9 \times 100 \times 0.2827 + 0.9 \times \pi \times 0.6 \times 0.6 \times 100$$

$$Q_{\text{safe}} = 254.43/3 + 101.79/6 \quad Q_{\text{safe}} = 84.81 + 16.96 = 101.77\text{T say } 81\text{T}$$

$$\text{Safe uplift} = 16.96 \times 0.7 = 11.87\text{T}$$

S. G. Joag

M. Tech. (Geotech). FIIB, FIGS, FIIE

Geotechnical Consultant

3 REFERENCES

- [1] Indian Standard IS: 2720 Part 4 (1995, Reaffirmed 2015). "Grain size analysis of soil" BIS, New Delhi
- [2] Indian Standard IS: 2720 Part 5 (1995, Reaffirmed 2015). "Determination of liquid and plastic limit" BIS, New Delhi
- [3] Indian Standard IS: 2720 Part 6 (1972, Reaffirmed 2011). "Determination of shrinkage factors" BIS, New Delhi
- [4] Indian Standard IS: 6403 (1981, Reaffirmed 2016). "Determination of bearing capacity of shallow foundations" BIS, New Delhi
- [5] Indian Standard IS: 8009 Part 1 (1976, Reaffirmed 2008). "Calculation of settlements of foundation" BIS, New Delhi

- [6] Indian Standard IS: 2720 Part 3 (1980, Reaffirmed 2011). “Determination of specific gravity” BIS, New Delhi
- [7] Indian Standard IS: 13030 (1991, Reaffirmed 2010). “Method of test for laboratory determination of water content, porosity, density and related properties of rock material” BIS, New Delhi
- [8] Indian Standard IS: 9143 (1979, Reaffirmed 2010). “Method for determination of unconfined compressive strength of rock materials” BIS, New Delhi
- [9] Indian Standard IS: 8764 (1998, Reaffirmed 2011). “Method for determination of Point Load Index of rock materials” BIS, New Delhi



JGG

A large, light pink rectangular box with rounded corners and a thin dark border. Inside the box, the letters "JCC" are written in a large, light pink, serif font. Overlaid on the "JCC" text is the word "ANNEXURES" in a bold, black, sans-serif font.





ANNEXURES

LOCATION PLAN



The logo features the letters "JCC" in a large, light pink, serif font. Overlaid on the center of the "JCC" is the word "BORELOGS" in a bold, black, sans-serif font. The entire logo is contained within a light pink rectangular frame with rounded corners.

BORELOGS

CLIENT : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)													
PROJECT : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar													
BORE HOLE NO. : BH-2						SHEET NO. : 1 OF 2							
LOCATION : Dahisar						DATE : 13/11/2018 TO 15/11/2018							
CO-ORDINATES : --						METHOD : ROTARY DRILLING							
GROUND R. L. : --						CASING : 100mm 1.50m & NX mm Ø UPTO BGL.							
GROUND W. T. : 3.00m Below GL.													
DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	C R %	RQD %	OTHER TESTS
				DEPTH (m)	TYPE	15	15	15	15				
1.00	100 mm		Filling materials (Greyish, silty Clay)	0.00	DS1								
				0.50									
2.00			Soft, greyish, marine CLAY	1.50/									
				2.10	SPT1	02	02	02	02				04
3.00			Stiff, greyish, marine CLAY	3.00/									
				3.60	SPT2	02	03	03	04				06
4.00			Stiff, greyish, marine CLAY	4.50/									
				5.10	SPT3	03	03	04	05				07
5.00			Stiff, greyish, marine CLAY	6.00/									
				6.60	SPT4	04	04	05	07				09
6.00	Stiff, greyish, marine CLAY		7.50/										
			8.10	SPT5	06	06	08	11	14				
7.00	Stiff, greyish, marine CLAY		9.00/										
			9.60	SPT6	08	09	11	13	20				
8.00		Very stiff, greyish brown, CLAY with gravels											
9.00	Very stiff, greyish brown, CLAY with gravels												
10.00	NX												

SPT N = STANDARD PENETRATION TEST VALUE RQD = ROCK QUALITY DESIGNATION UDS = UNDISTURBED SOIL SAMPLE
 CR = CORE RECOVERY DS = DISTURBED SOIL SAMPLE

REMARKS : BORE HOLE CONTINUED ON THE NEXT PAGE

CLIENT : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)															
PROJECT : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar															
BORE HOLE NO. : BH-2						SHEET NO. : 2 OF 2									
DEPTH (m.)	DIA. OF BORE HOLE	LOG.	STRATA DESCRIPTION	SAMPLE		BLOWS/15cm				SPT N	C R %	RQD %	OTHER TESTS		
				DEPTH (m)	TYPE	15	15	15	15						
11.00	NX		Hard, brownish, CLAY with murum	10.50/ 10.60	SPT7	10	--	--	--	R					
			Highly weathered, brownish, BASALT	12.00											48
12.00				Moderately weathered, brownish, BASALT		13.50								53	NIL
13.00						15.00								60	NIL
14.00															
15.00															
16.00															
17.00															
18.00															
19.00															
20.00															
SPT N =STANDARD PENETRATION TEST VALUE RQD = ROCK QUALITY DESIGNATION UDS = UNDISTURBED SOIL SAMPLE CR = CORE RECOVERY DS = DISTURBED SOIL SAMPLE															
REMARKS : BORE HOLE IS TERMINATED AT DEPTH 15.00 m. BELOW G. L.															

SITE PHOTOGRAPHS



LABORATORY TEST RESULTS AND GRAPHS

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SOIL MECHANICS LABORATORY



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TEST REPORT ON SOIL SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 10 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067006
Sample Description : BH No. – 2, SPT2, Depth – 3.00 to 3.60 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

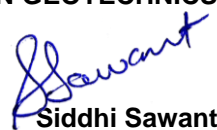
NOTE : Samples as supplied by customer have been tested in laboratory and results as below refer only to the sample tested. Hence no sampling information is included. Results relate only to items tested. This test report is valid of and under the conditions specified herein.

Sr. No.	Test Parameter		Test Method	Acceptance Criteria including UOM	Observed Value	Remarks
1	Grain Size Analysis	Gravel, %	IS 2720 : Part 4, 1985, Reaffirmation 2015	---	0	---
2		Sand, %		---	5	---
3		Silt, %		---	50	---
4		Clay, %		---	44	---
5	Liquid Limit, %		IS 2720 : Part 4, 1985, Reaffirmation 2015	---	48	---
6	Plastic Limit, %			---	21	---
7	Specific Gravity		IS 2720 : Part 4, 1985, Reaffirmation 2015	---	2.66	---

Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: NP: Non - Plastic

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Technical Manager

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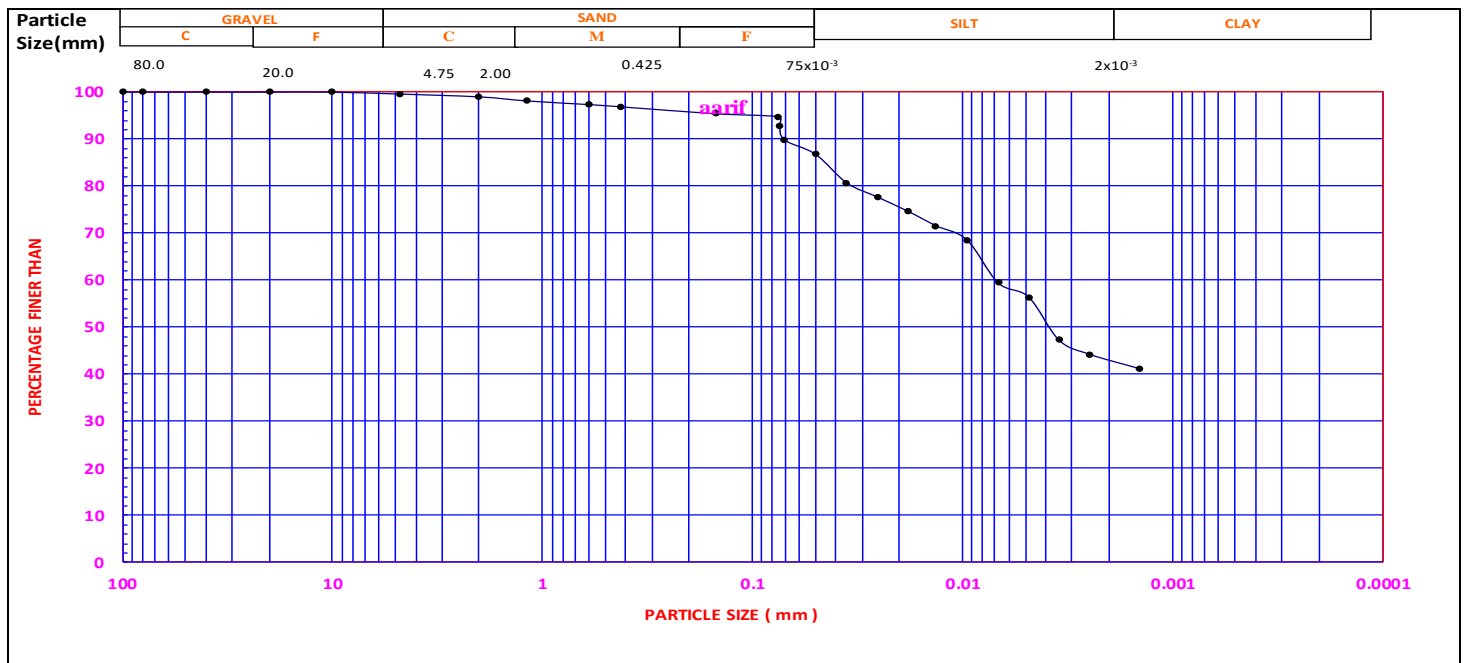
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TEST REPORT ON SOIL SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 11 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067006
Sample Description : BH No. – 2, SPT2, Depth – 3.00 to 3.60 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

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Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: NP: Non - Plastic

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TEST REPORT ON SOIL SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 12 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067007
Sample Description : BH No. – 2, SPT5, Depth – 7.50 to 8.10 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

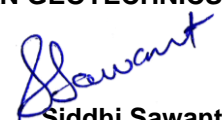
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Sr. No.	Test Parameter		Test Method	Acceptance Criteria including UOM	Observed Value	Remarks
1	Grain Size Analysis	Gravel, %	IS 2720 : Part 4, 1985, Reaffirmation 2015	---	1	---
2		Sand, %		---	9	---
3		Silt, %		---	33	---
4		Clay, %		---	56	---
5	Liquid Limit, %		IS 2720 : Part 4, 1985, Reaffirmation 2015	---	54	---
6	Plastic Limit, %			---	24	---
7	Specific Gravity		IS 2720 : Part 4, 1985, Reaffirmation 2015	---	2.65	---

Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: NP: Non - Plastic

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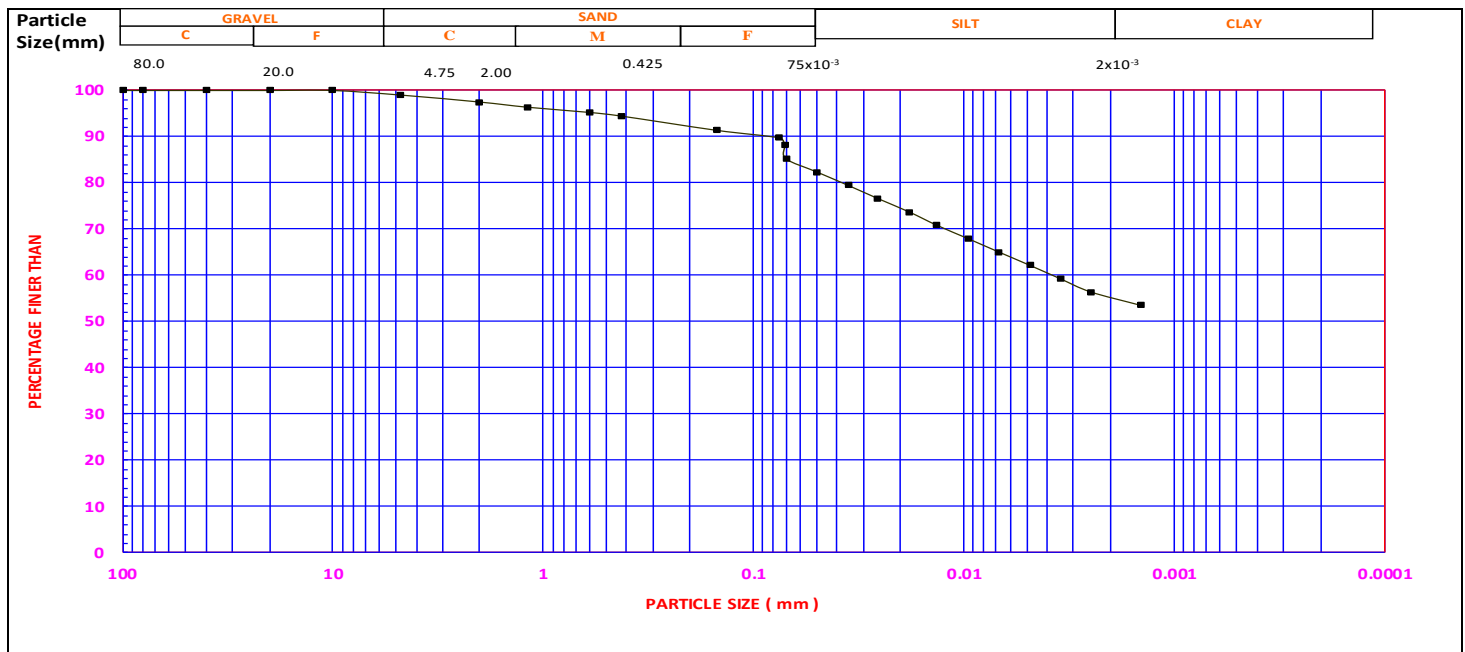
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Test Report No. : ULR- TC794318000000018F **Page No.** : 13 of 18
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Unique Sample ID : 18067007
Sample Description : BH No. – 2, SPT5, Depth – 7.50 to 8.10 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

NOTE : Samples as supplied by customer have been tested in laboratory and results as below refer only to the sample tested. Hence no sampling information is included. Results relate only to items tested. This test report is valid of and under the conditions specified herein.



Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: NP: Non - Plastic

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TEST REPORT ON SOIL SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 14 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067008
Sample Description : BH No. – 2, SPT7, Depth – 10.50 to 10.60 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

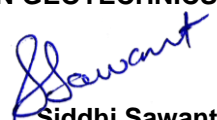
NOTE : Samples as supplied by customer have been tested in laboratory and results as below refer only to the sample tested. Hence no sampling information is included. Results relate only to items tested. This test report is valid of and under the conditions specified herein.

Sr. No.	Test Parameter		Test Method	Acceptance Criteria including UOM	Observed Value	Remarks
1	Grain Size Analysis	Gravel, %	IS 2720 : Part 4, 1985, Reaffirmation 2015	---	20	---
2		Sand, %		---	21	---
3		Silt, %		---	22	---
4		Clay, %		---	37	---
5	Liquid Limit, %		IS 2720 : Part 4, 1985, Reaffirmation 2015	---	41	---
6	Plastic Limit, %			---	22	---
7	Specific Gravity		IS 2720 : Part 4, 1985, Reaffirmation 2015	---	2.65	---

Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: NP: Non - Plastic

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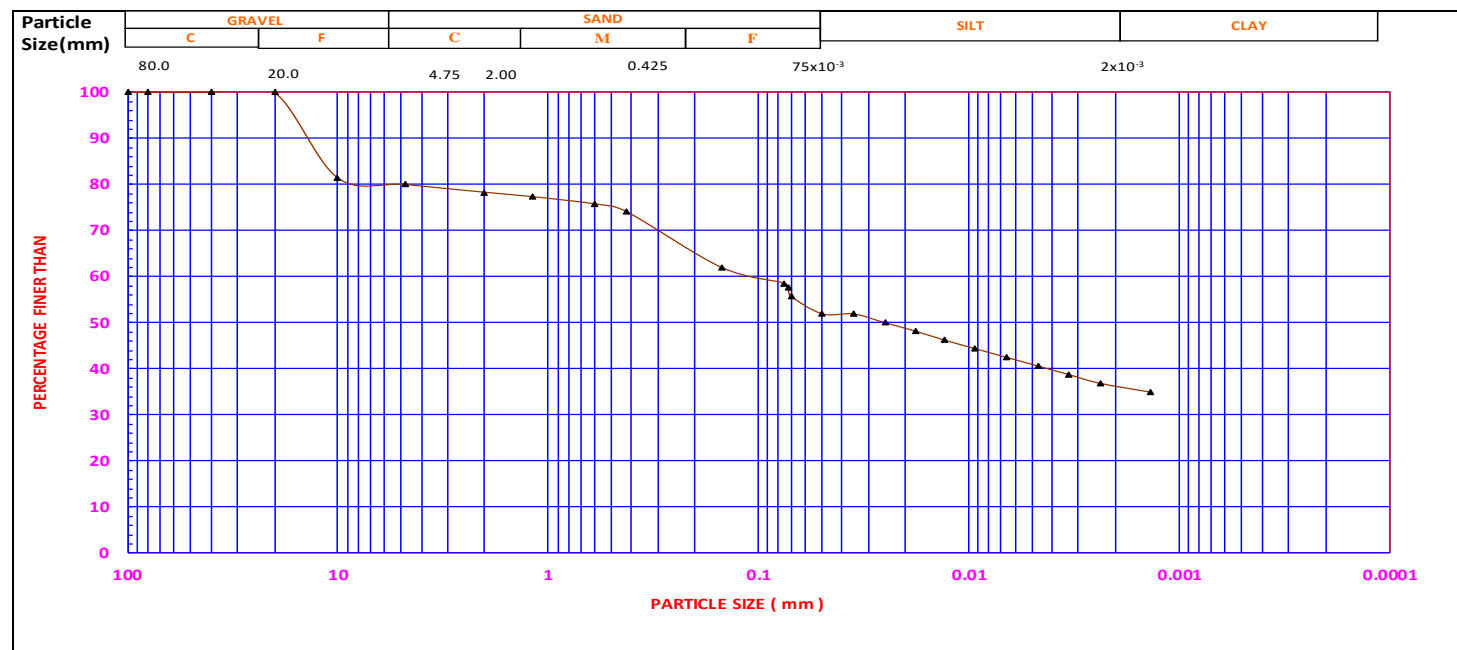
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E-mail : jaygajanan@jaygajanan.in | URL : www.jaygajanan.in | Tel.: 022-25800035 | Mob.: 09967233499.

TEST REPORT ON SOIL SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 15 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067008
Sample Description : BH No. – 2, SPT7, Depth – 10.50 to 10.60 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

NOTE : Samples as supplied by customer have been tested in laboratory and results as below refer only to the sample tested. Hence no sampling information is included. Results relate only to items tested. This test report is valid of and under the conditions specified herein.



Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: NP: Non - Plastic

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TEST REPORT ON ROCK SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 16 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067009
Sample Description : BH No. – 2, Piece No. 2, Depth – 10.60 to 12.00 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

NOTE : Samples as supplied by customer have been tested in laboratory and results as below refer only to the sample tested. Hence no sampling information is included. Results relate only to items tested. This test report is valid of and under the conditions specified herein.

Sr. No.	Test Parameter	Test Method	Acceptance Criteria including UOM	Observed Value	Remarks
1	Dry Density (g/cc)	IS 13030, 1991, Reaff. 2010	---	1.97	---
2	Porosity (%)	IS 13030, 1991, Reaff. 2010	---	22.09	---
3	Water Absorption (%)	IS 2386: Part 3, 1963, Reaff. 2016	---	11.20	---
4	Specific Gravity	IS 2386: Part 3, 1963, Reaff. 2016	---	2.35	---
5	Point Load Index (kg/cm ²)	IS 8764, 1998, Reaff. 2008	---	3.75	Unsoaked
6	Unconfined Compressive Strength (kg/cm ²)	IS 9143, 1979, Reaff. 2010	---	---	---

Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: ---

FOR JAY GAJANAN GEOTECHNICS

Siddhi Sawant
Technical Manager

FLB04/00/01.03.2018

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SOIL MECHANICS LABORATORY



Certificate No.: TC-7943

Address: Shop No. 07, Ground Floor, Cosmos Hills, Opposite Upvan Lake, Pokharan Road No. 01, Upvan, Thane (W) 400606.
E-mail : jaygajanan@jaygajanan.in | URL : www.jaygajanan.in | Tel.: 022-25800035 | Mob.: 09967233499.

TEST REPORT ON ROCK SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 17 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067010
Sample Description : BH No. – 2, Piece No. 17, Depth – 13.50 to 15.00 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018


NOTE : Samples as supplied by customer have been tested in laboratory and results as below refer only to the sample tested. Hence no sampling information is included. Results relate only to items tested. This test report is valid of and under the conditions specified herein.

Sr. No.	Test Parameter	Test Method	Acceptance Criteria including UOM	Observed Value	Remarks
1	Dry Density (g/cc)	IS 13030, 1991, Reaff. 2010	---	2.19	---
2	Porosity (%)	IS 13030, 1991, Reaff. 2010	---	12.75	---
3	Water Absorption (%)	IS 2386: Part 3, 1963, Reaff. 2016	---	5.82	---
4	Specific Gravity	IS 2386: Part 3, 1963, Reaff. 2016	---	2.41	---
5	Point Load Index (kg/cm ²)	IS 8764, 1998, Reaff. 2008	---	3.69	Unsoaked
6	Unconfined Compressive Strength (kg/cm ²)	IS 9143, 1979, Reaff. 2010	---	---	---

Specific Environmental conditions during test if any: Temperature for specific gravity test is 27°C.

Opinion and interpretation if any: ---

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Siddhi Sawant
Technical Manager

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TEST REPORT ON SOIL SAMPLES

Test Report No. : ULR- TC794318000000018F **Page No.** : 18 of 18
Customer Name & address : M/S. TANDON URBAN SOLUTIONS PVT. LTD. (TUSPL)
Project : Geotechnical Investigation For Conservation and Development of the Mangroves Park at Dhaisar
Unique Sample ID : 18067006
Sample Description : BH No. – 2, SPT2, Depth – 3.00 to 3.60 m
Quantity & Condition : Good & Sufficient
Receipt Date : 16.11.2018 **Report Date** : 26.11.2018

NOTE : Samples as supplied by customer have been tested in laboratory and results as below refer only to the sample tested. Hence no sampling information is included. Results relate only to items tested. This test report is valid of and under the conditions specified herein.

Sr. No.	Test Parameter		Test Method	Acceptance Criteria including UOM	Observed Value	Remarks
1	Chemical Analysis	pH value	IS 2720 : Part 26, 1987, Reaff. 2011	---	7.64	---
2		Sulphate content, %	IS 2720 : Part 27, 1977, Reaff. 2015	---	0.065	---
3		Chloride content, %	IS 3025 : Part 32, 1988, Reaff. 2014	---	0.004	---

Specific Environmental conditions during test if any: Temperature for test is 27°C.

Opinion and interpretation if any: ---

FOR JAY GAJANAN GEOTECHNICS


Siddhi Sawant
Technical Manager

क्र.अवि/दहीसर/मॅन्ग्रो पार्क/तांत्रिक मंजूरी/१००४/२०१९

दि.१३.०८.२०१९

✓ प्रति,

विभागीय वन अधिकारी,

मुंबई कांदळवन संधारण घटक यांचे कार्यालय,

६८-बी, कामगार नगर,

टिळक नगर स्टेशन जवळ,

कुर्ला (पूर्व) - ४०००२४.

विषय : दहीसर येथील मॅन्ग्रो पार्क (Mangrove Park) च्या कामासाठी तांत्रिक मंजूरी प्रदान करण्याबाबत.

- संदर्भ :**
१. मे. टी.यु.एस.पी.एल. यांचे पत्र क्र.TUSPL/Gorai/०९ दि.०७.०१.२०१८.
 २. अपर प्रधान मुख्य वन संरक्षक, कांदळवन शाखा यांचे पत्र क्र. Desk-२/Plan/१९७७/२०१८-१९ दि.१९.१२.२०१८.
 ३. विभागीय वन अधिकारी, मुंबई कांदळवन संधारण घटक यांचे पत्र क्र.DFO/MMCU/२१२६/२०१८-१९ दि.०९.०१.२०१९.
 ४. या कार्यालयाचे पत्र क्र.अवि/गोराई/मॅन्ग्रो पार्क/तांत्रिक मंजूरी/५८४/२०१९ दि.२५.०३.२०१९
 ५. विभागीय वन अधिकारी, मुंबई कांदळवन संधारण घटक यांचे पत्र क्र.Desk-२/Plan/५०३/२०१९-२० दि.३१.०५.२०१९.

महोदय,

- (अ) संदर्भित पत्र क्र.५ अन्वये महाराष्ट्र वन विभागातील कांदळवन शाखेच्या अपर प्रधान मुख्य वन संरक्षक यांनी दहीसर येथील मॅन्ग्रो पार्क (Mangrove Park) च्या कामासाठी तांत्रिक मंजूरी प्रदान करण्याबाबत मुख्य अभियंता, मुं.म.प्र.वि.प्रा. यांना विनंती करण्यात आली.
- (ब) त्याअनुषंगाने विभागीय वन अधिकारी, मुंबई कांदळवन संधारण घटक यांचे कार्यालयामार्फत मे.टंडन अर्बन सोल्युशन प्रा.लि. यांनी सादर केलेले प्रकल्प अहवाल आणि अंदाजपत्रक प्राधिकरणास अग्रेषित करण्यात आले.
- (क) प्रस्तावित दहीसर मॅन्ग्रो पार्कच्या बांधकामात वापरण्यात येण्याऱ्या साधन सामुग्री बाबत तांत्रिक सल्लागार समितीने केलेल्या शिफारसीची नोंद घेण्यात आली. तसेच तांत्रिक सल्लागार समितीने शिफारस केल्याप्रमाणे ज्याबाबींचे दर जिल्हा दर सुची मध्ये नाहीत अश्या बाबींच्या दरांकरीता जाहीर सुचना देऊन इच्छुक ठेकेदारांकडून दर मागविण्यात आले याची सुद्धा नोंद अंदाजपत्रकास तांत्रिक मान्यता देतांना घेण्यात आली.
- (ड) तांत्रिक मान्यता देण्याच्या अनुषंगाने अभियांत्रिकी विभागामार्फत विषयाधिन कामाकरिता रु.४५,७८,२८,३९६/- इतक्या रक्कमेच्या सविस्तर अंदाजपत्रकास खालील अटीचे अधिन राहून तांत्रिक मंजूर देण्यात येत आहे.

१. सदर कामासाठी संदर्भित पत्र क्र.५ अन्वये मंजूर कार्यक्रमातील अटींच्या अधीन राहून तांत्रिक मंजूरी देण्यात येत आहे. मंजूर कार्यक्रमातील सर्व अटींचे पालन करण्यात यावे.

मुंबई महानगर प्रदेश विकास प्राधिकरण

२. या अंदाजपत्रकातील प्रस्तावित कामांची सद्यस्थिती दर्शविणारी छायाचित्रे काम सुरु करण्यापूर्वी काढण्यात यावीत. तसेच काम पूर्ण झाल्यानंतरची छायाचित्रे घेण्यात यावीत.
३. बांधकामाच्या साहित्याच्या चाचण्या शासकीय प्रयोगशाळेतून/शासकीय तंत्रनिकेतन /अभियांत्रिकी महाविद्यालयांच्या प्रयोगशाळेकडून वेळीच करून घेण्यात याव्यात व कसोटीस/चाचणीस न (Rejected) उतरेले साहित्य वापरण्याची परवानगी देण्यात येऊ नये. चाचण्याच्या नोंदीचे स्वतंत्र अभिलेख ठेवण्यात यावेत. तसेच सर्व साहित्याची चाचण्यांच्या वारंवारितेचे कटाक्षाने पालन करावे. **एकूण चाचण्यापैकी किमान ३० टक्के चाचण्या शासकीय प्रयोगशाळेतून हाती घेण्याच्या निर्देशांचे काटेकोरपणे पालन करण्यात यावे.**
४. सर्व साहित्यांच्या वापराच्या नोंदीचे अभिलेख ठेवण्यात यावेत. तसेच इमारतीचे नकाशे, मंजूर अंदाजपत्रक, मंजूर निविदा, वर्क ऑर्डर बुक, देयकाच्या प्रती, बांधकाम साहित्याच्या चाचण्यांची नोंदवही व अन्य सर्व आवश्यक अभिलेख प्रत्यक्ष साईटवर ठेवण्यात यावेत.
५. इमारतीच्या मूळ स्वरूपात कोणतेही बदल होणार नाहीत, याची दक्षता घेण्यात यावी.
६. या कामाचे नियोजन काटेकोरपणे करण्यात यावे व विहित वेळेत ते पूर्ण होईल याची दक्षता घेण्यात यावी.
७. कामाचा दोष दायित्व कालावधी (Defect liability Period) कांदळवन विभागाने ठरवावे व या कालावधीमध्ये कामामध्ये/बाबीमध्ये दोष उद्भवल्यास संबंधित अधिकारणाकडून त्यांचे खर्चाने दुरुस्ती हाती घ्यावी. त्यासाठी या कामाचा ठेव रक्कमेचा कालावधीही तेवढाच ठेवावा.
८. सदर काम हाती घेतल्याबाबत स्थानिक स्वराज्य संस्थेस ज्ञात करण्याचा नियम असल्यास बृहन्मुंबई महानगरपालिकेच्या संबंधित विभागास कळविण्यात यावे व हाती घेतलेल्या भागामध्ये आवश्यक सुरक्षा उपाययोजना कराव्यात.
९. अंदाजपत्रकातील बाबी त्यांच्या वर्णनानुसार व सविस्तर विनिर्देशानुसार कार्यान्वित होतील याची दक्षता घेण्यात यावी. प्रत्यक्ष क्षेत्रावर काही तफावत आढळल्यास आवश्यक ठिकाणी कपात दर करण्यात यावा.
१०. अंदाजपत्रकातील दरामध्ये बांधकाम साहित्याच्या स्वामिधनत्त्वाची रक्कम (रॉयल्टी चार्जेस) समाविष्ट असून, अधिकरणाने साईटवर आणलेल्या साहित्याचे स्वामिधनत्त्वाचे शुल्क महसूल खात्यास अदा केले आहे किंवा नाही याची खातरजमा करण्यात यावी तथा याबाबत आवश्यक अभिलेख/पावत्या उपलब्ध न करून दिल्यास शासन परिपत्रक No.Gaun khanji-१०/१००९/CR-३०९/kh dated ११.०२.२०१० मधील दरानुसार / वेळोवेळी सुधारीत दरानुसार गणना करून तेवढी रक्कम अनामत स्वरूपात देयकातून कपात करण्यात यावी तथा आवश्यक अभिलेख / पावत्या सादर केल्यानंतरच ही रक्कम अधिकरणास परत करण्यात यावी.
११. बांधकामासाठी वापरण्यात येणारे साहित्य जमिनीवर न साठवता, पी.सी.सी. किंवा हार्ड बेस असलेल्या ठिकाणी साठवावे व त्यामध्ये अन्य घटक समाविष्ट होणार नाहीत याची दक्षता, प्रत्यक्ष बांधकामाचे वेळी घेण्यात यावी.
१२. सदर अंदाजपत्रकात समाविष्ट बाबींचे दर वस्तू व सेवाकर सहित (GST) प्रस्तावित करण्यात आले असून, वस्तू व सेवा कराबाबत शासनाने वेळोवेळी निर्गमित केलेल्या शासन निर्णयाप्रमाणे कार्यवाही करण्यात यावी.
१३. संपूर्ण काम आय एस-४५६:२०१६ मधील बांधकाम टिकाऊपणासाठीच्या तरतूदीनुसार करावे.
१४. संपूर्ण कामातील खडीसाठी आय एस-३८३:२०१६ मधील तरतूदीनुसार करावे.
१५. विषयांकीत कामाचे अंदाजपत्रकात नमुद केलेल्या बाबी तपासून त्याप्रमाणे त्यासाठीची मानके, सा.बां. विभागाची विनिर्देशित मानके नॅशनल बिल्डिंग कोड २०१६ व आय.एस.कोड प्रमाणे वर्गीकरण करून त्या-त्या मानकानुसार करण्यात यावे.

१६. पुरेसा निधी उपलब्ध झाल्याशिवाय कामाला सुरुवात करू नये.
 १७. कामातील सर्व साहित्याच्या चाचण्या मानकानुसार घेण्यात याव्यात.
 १८. कामाचा Quality Assurance Plan तयार करावा व त्यानुसार काम करावे. यामुळे कामाची प्रत योग्य राखण्यास मदत होईल.
 १९. इमारत बांधकामाकरिता किंवा जोड रस्ता बांधकाम करतांना झाडे तोडण्याची बाब अंतर्भूत असल्यास, सदर झाडे तोडण्याची सक्षम खात्याची अनुमती प्राप्त करावी.
 २०. नियोजित इमारत भूकंप प्रवण क्षेत्रामध्ये येत असल्याने प्रत्यक्षांत काम करताना भूकंप प्रतिबंधक उपाययोजना कराव्यात. शासन परिपत्रक क्र.बीडीजी-१०८७/११/इमारती-२ दि.०६.०२.१९८५ अन्वये सेस्मीक झोन मधील इमारतीसाठीच्या सूचना, काम करताना विचारात घ्याव्यात. तसेच शासन परिपत्रक क्र.बीडीजी-१०१५/सीआर-४९/ईई-२ दि.२१.०६.१९९५ मधील सूचना विचारात घ्याव्यात.
 २१. मलनिःसारण व्यवस्थेमुळे पर्यावरणावर परिणाम होणार नाही, याची दक्षता घ्यावी. मलनिःस्सारण वाहिन्या व पाणी पुरवठा वाहिन्या एकमेकांपासून शक्य तेवढ्या दूर ठेवाव्यात.
 २२. प्रत्यक्ष काम करताना काही बदल अनिवार्य असल्यास, नमुना नकाशातील बाबीच्या संभाव्य बदलास उपभोक्ता खात्याच्या सक्षम अधिकाऱ्यांची मंजूरी घ्यावी.
 २३. अंतर्गत व बाह्य पाणी पुरवठा/मलनिःस्सारण यांचा आराखडा तयार करून त्यास सक्षम अधिकाऱ्यांची मंजूरी घ्यावी.
 २४. प्रकल्प सल्लागाराने दरसूचीमध्ये समाविष्ट नसलेल्या बाबींचा दर निविदा अंदाजपत्रक या कार्यालयास सादर केले असे ग्राह्य धरून त्या बाबींच्या दरांमध्ये काही तफावत आढळल्यास त्यास सर्वस्वी प्रकल्प सल्लागार जबाबदार राहील.
 २५. मंजूर कामांचे भाग / तुकडे पाडू नयेत. कामाची एकत्रित निविदा बोलविण्यात यावी.
 २६. मंजूर कामांतर्गत कामाच्या बाबी, कामांची किंमत यामध्ये कोणत्याही प्रकारचा बदल करण्यात येऊ नये.
 २७. मंजूर कामाची गुणवत्ता उत्कृष्ट राहिल यांची दक्षता प्रकल्प सल्लागार यांनी घ्यावी.
 २८. गळती प्रतिबंधक कामांसाठी दोषदायित्व कालावधी १० वर्षांचा ठेवावा. तसे कलम निविदेत अंतर्भूत करावे.
- (इ) सल्लागाराने अंदाजपत्रकामध्ये जमेस धरलेल्या इतर रक्कमा उदा. अनुषंगिक बाकी (Contingencies) पाणी पुरवठा, मलनिःसारण, विज पुरवठा इ. आदिकरिता भरावयाच्या ठेव रक्कमा व कार्यालयीन शुल्क तसेच सल्लागारांचे शुल्क / देयके या बाबींकरिता या कार्यालयाचे अभिप्राय निरंक असून त्यासाठी आपल्या सक्षम अधिकाऱ्यांची मंजूरी घेण्यात यावी.

सोबत: मंजूर अंदाजपत्रक प्रत. (पृष्ठ क्र. ०१ ते ५२८)

(डॉ. द. तु. ठुबे) १३/८
मुख्य अभियंता

प्रत माहितीकरीता: अपर प्रधान मुख्य वन संरक्षक, कांदळवन शाखा, मुंबई,
वेकफिल्ड हाऊस, ३०२, एस.एस. राम गुलाम मार्ग,
बेलार्ड इस्टेट, फोर्ट, मुंबई - ४००००१.

3

Mumbai Mangroves Conservation Unit		
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar		
ABSTRACT		
SL. No.	Abstract	Project Cost (Rs.)
SECTION-I	NATURE INTERERATION CENTER (Civil)	
A	NIC Building Civil works	
B	NIC Building Glasswork Bidge	
C	NIC Suspension Cabel Bridge	
F	PLUMBING AND SANITORY WORK:	
D	Waste Water Collection	
G	Water Tanks	
H	Solid Waste Collection System	
		215,935,225.00
SECTION-III	DIASATER MANAGEMENT SYSTEM	
A	FIRE FIGHTING SYSTEM	
B	FIRE DETECTION SYSTEM	
C	PUBLIC ADRESSABLE SYSTEM	
D	SURVILEIENCE SYSTEM	
		3,568,575.00
SECTION-II	MANGROVES TRAIL	
A	MANGROVES BOARD WALK	59,500,000.00
B	Approch Road to the Nature Interperation Center	34,781,102.00
C	BATTERY OPERATED VECHICLES	3,090,000.00
D	Entrances Structure and Security Cabin	5,423,275.00
SECTION-IV	Electro Mechinacial Work	
A	Water Pumping System	82,188.00
B	Internal Electrical	5,169,089.00
C	External Electrical	9,151,573.30
E	Substation 22/0.433 KV, 200 KVA	13,499,395.00
F	HVAC	11,084,000.00
G	DG Set	3,424,928.00
H	Earthing system	547,440.00
SECTION-V	Virtual Museum	
A	Development of the Virtual Aquarium	45,262,460.00
B	Display and Infromation Themes for the Nature Infromation Center	11,417,360.00
	Sub Cost	421,936,610
1	Total Cost (1)	421,936,610
	in Cr	42.19
	Add GST 12% (Excluding for the Section III D, Section II A, C Section V as those items are including of the GST)	35,891,785.84
2	ADD CONTENGENCIES @ 3.0 % (2)	12,658,098.31
3	DD DEPOSITS and Fees for (FCA, NPV and other charges , Water ,Sewer & Electricty) (3)	2,794,300.00
4	DD PROJECT MANGEMENT CONSULTANCY CHARGES @ 3.5% of the TOTAL PROJECT COST on (1)	14,767,781.36
	Total Project Cost (1+2+3+4)	488,048,575.81
	in Cr	48.80

45,78,28,396/-
Kishan

Deputy Engineer Gr-I
Engineering Division
M.M.R.D.A.

13/8/19
EXECUTIVE ENGINEER
ENGINEERING DIVISION
MMRDA

Technically Sanctioned for Rs. 45,78,28,396/-

Under Chief Engineer, M.M.R.D.A.
Bandra (E), Mumbai - 51. Register No.
for The Year... 2019-20

By Forty five Crores seventy eight lacs thirty eight thousand three hundred ninety six only.

Chief Engineer
MMRDA
Mumbai



Detailed Estimate of Measurement Sheet
for NIC Building

Mumbai Mangroves Conservation Unit					
Name of Work:Conservation and Development of the Mangrove Park at Dahisar					
Abstract for NIC Building					
Ref ; PWD State e SSR / 2018-19					
Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.1			
2.58	SSR Item No. 14.06 Page No. 124	Providing and fixing in position to the exact profile and prestressing the high tensile strands to specified ultimate strength, standard end anchorages, cable ducts, grouting ducts after prestressing and bearing plates with wedges as per detailed drawings including necessary plant and machinery for prestressing etc. complete	161099.40	M.T.	416,280.85
		Ref: RA No.52			
		Item No.2			
		A) Building Works			
	SSR Item No.21.02 Page No. 187	Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means			
		a) earth, soils of all types, sand gravel and soft murum			
501.92		Excavation Lift from 0.00 mtr to 1.50 mtr	150.15	Cum	75,363.29
		Ref: RA No.1			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.3			
183.59	SSR Item No. 21.36 Page No. 191	Filling in plinth and floors with approved excavated murrum in 15cm to 20cm layers including watering and compaction etc. complete.. Specs no Ref: RA No.2	89.25	Cum	16,385.41
		Item No.4			
53.03	SSR Item No. 21.40 Page No. 192	Providing soling using 80mm size trap metal in layers of 15 cm each including filling voids with sand, ramming, watering etc. complete. Specs no Ref: RA No.3	2138.20	Cum	113,388.75
		Item No.5			
910.00	SSR Item No. 22.37, Page No.209	Providing and laying cast in si tu / Ready Mix Cement Concrete M-30 for bored piles each of load capacity and as per design and of 1000 mm diameter or as directed placed through steel shells sunk to the required depth through all strata except rock excluding provision of reinforcement as per detai led drawings and design approved by the Engineer -in- charge includingplacing wi th fully automatic micro processor based PLC wi th SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quali ty Artificial Sand by tremie arrangements, compaction of concrete including chipping and dressing and withdrawal of shell etc. complete. (Excluding steel reinforcement)	7156.80	RMT	6,512,688.00
	vi)	1000mm diameter			
		Ref: RA No.4			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.6			
520.00	SSR Item No. 22.42, Page No.210	Chiseling through pile shells in hard strata like boulders, soft and hard rocks Beyond 900 mm and upto and inclusive of 1050 mm dia. including removing and stacking the loose materials etc. complete and disposing of the unserviceable materials outside complete.	2180.85	Ring Hour	1,134,042.00
	1)	upto and inclusive of 1050 mm diameter.			
		Ref: RA No.5			
		Item No.7			
		Empty boring for 725-1050 mm dia			
780.00	SSR Item No. 22.54, Page No. 212	Empty boring for 725 to 1050 mm dia. Bored R.C.C. cast Running in situ piles including withdrawal of shell, removal of Metre earth to a distance of 50 metres etc. complete.	1148.70	RMT	895,986.00
		Ref: RA No.6			
		Item No.8			
65.00	SSR Item No. 22.55, Page No. 212	Chipping and dressing of the R.C.C. piles upto 0.60m. including cleaning reinforcement and removal of dismantled materials upto a distance of 50 meter beyond the building area etc. for providing pile caps.	555.45	No.	36,104.25
		Ref: RA No.7			
		Item No.9			
		Providing Bentonite slurry treatment			
747.50	SSR Item No. 22.56, Page No.212	Providing bentonite slurry process for various diameter of piles vide Item Nos 1 (i to xxiv) above. Spec : (As directed by Engineer in Charge)	64.05	RMT	47,877.38
		Ref: RA No.8			
		Item No.10			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
29.07	SSR Item No. 22.57, Page No. 212	Providing, placing and driving in position 6 mm thick permanent M.S. liner upto required depth with 12 mm thick M.S. cutting edge of 0.5 metre length of bottom including fabricating, cutting the M.S. sheet to required diameter and shape, welding the joints and driving with the help of required machineries including all materials, labour and lift etc. complete as directed by the Engineer in charge. Upto 3.00 meter deep liner	73558.80	MT	2,138,354.32
		Ref: RA No.9			
		Item No.11			
65.000	MR	Conducting Integrity Test of various dia Cast In Situ pile including cost of all necessary excavation, back filling, disposal of material, equipment & labour, and chipping of piles with surface preparation to the complete satisfaction of the Consultant.(on 100% piles)	848.00	No.	55,120.00
		Item No.12			
256.98	SSR Item No. 22.61, Page No.213	Providing and laying Cast in situ/Ready Mix cement concrete M-30 of trap metal for R.C.C. pile caps as per detailed designs and drawings, including bailing out water manually, centering, formwork, laying/pumping, compacting, finishing and curing etc. with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc) complete. (Excluding steel reinforcement) Spec. No : RdE1 Page No. 297 Ref: RA No.10	7034.07	Cum	1,807,615.31
		Item No.13			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
	SSR Item No. 23.01, Page No.214	Providing and fabricating structural steel work in rolled sections like joist, channels, angles, tees etc. as per detailed design and drawings or as directed by Engineer-In-Charge. including cutting, fabricating, hoisting, erecting, fixing in position making riveted / bolted / welded connections with connecting plates, braces etc. and including one coat of anticorrosive paint and over it two coats of oil painting of approved quality and shade etc. complete			
51.871		Level 5.00 m to 8.80 m Column	74564.70	MT	3,867,745.55
153.066		Level 8.80 m to 12.60 m Column	75310.35	MT	11,527,453.57
315.700		Level 12.60 m to 16.4 m Column	76055.99	MT	24,010,877.31
238.231		Level 16.40 m to 19.85 m Column	76801.64	MT	18,296,531.74
		Ref: RA No.11			
		Item No.14			
	SSR Item No. 23.12 Page No. 216	Providing structural steel work in hollow section of various thickness and sizes in square, rectangular and round shape from 25mm to 450mm section as per IS 4923 YST 310 Grade produced from iron ore and blast furnace route etc. as per detailed designs and drawing or as directed including cutting, fabricating, hoisting, erecting, fixing in position, making riveted/bolted/ welded connections and painting complete			
16.85		Ref: RA No.53	93196.95	M.T.	1,570,368.61

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No. 15			
23.06	SSR Item No. 24.04, Page No. 217	Providing and laying Cast in si tu/ Ready Mix cement concrete in M15 of trap/ grani te/ quartzite/ gneiss metal for steps including steel centering, plywood/ steel formwork, laying/ pumping, compacting, roughening them if special finish is to be provided, finishing uneven and honeycombed sur face and cur ing etc. complete. The Cement Mortar 1:3 plaster is considered for render ing uneven and honeycombed surface, only. Newly laid concrete shall be covered by gunny bag, plastic, tarpaulin etc. (Wooden centering will not be allowed.), with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.C.L quality Artificial Sand	6059.60	Cum	139,734.38
		Ref: RA No.12			
		Item No.16			
	SSR Item No. 25.13, Page No. 222	Providing and laying Cast in si tu/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. work in foundations like raft ,strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. columns as per detai led designs and drawing or as directed including center ing, formwork, cover blocks laying/ pumping, compact ion finishing the formed sur faces with cement mor tar 1:3 of sufficient minimum thickness to give a smooth and even sur face or roughening i f special finish is to be provided and cur ing etc. complete. (Excluding reinforcement and st ructural steel). wi th fully automat ic micro processor based PLC wi th SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. Wi th natural sand/			
2.45		Pile Cap Top to Level 5.00 m	6851.37	Cum	16,785.86
13.00		Level 5.00 m to 8.80 m Column	6919.88	Cum	89,958.49
22.94		Level 8.80 m to 12.60 m Column	6988.40	Cum	160,313.84

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
22.94		Level 12.60 m to 16.4 m Column	7056.91	Cum	161,885.54
8.52		Level 16.40 m to 19.85 m Column	7125.42	Cum	60,708.62
		Ref: RA No.13			
		Item No.17 (COLOUMN)			
	SSR Item No 25.33, Page No.225	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawings or as directed including centering, formwork, cover blocks compacting and roughening if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Typemixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand			
50.20		Pile Cap Top to Level 5.00 m	11910.27	Cum	597,895.55
4.79		Level 5.00 m to 8.80 m Column	12029.37	Cum	57,620.70
4.79		Level 8.80 m to 12.60 m Column	12148.48	Cum	58,191.20
4.79		Level 12.60 m to 16.4 m Column	12267.58	Cum	58,761.70
4.34		Level 16.40 m to 19.85 m Column	12386.68	Cum	53,758.19
		Ref: RA No.14			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.18 (Beams & lintels)			
	SSR Item No. 25.52, Page No.225	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including centering, formwork, cover blocks, laying/ pumping, compact ion and roughening the surface if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/			
197.93		Level @ 5.00 m Beams	10794.12	Cum	2,136,480.17
6.47		Level @ 8.80 m to 12.6 m Beams	10902.06	Cum	70,536.34
6.47		Level @ 16.4 m to 19.85 m Beams	11010.00	Cum	71,234.72
9.47		Level @ 16.4 m to 19.85 m Beams	11117.94	Cum	105,286.93
		Ref: RA No.15			
		Item No.19 (R.C.C. Slabs and landings)			
	SSR Item No. 25.72, Page No. 227	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including centering, formwork cover blocks, laying/ pumping, compact ion finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete.(Excluding reinforcement and structural steel).with fully automatic microprocessor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.L quality Artificial Sand			
289.68		Tie Level Slab (Level @ 5.00m)	11923.92	Cum	3,454,121.15
700.42		Level @ 8.80 m to 12.6 m Slab	12043.16	Cum	8,435,269.57
761.97		Level @ 12.60 m to 16.4 m Beams	12162.40	Cum	9,267,382.71

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
162.24		Level @ 16.4 m to 19.85 m Beams	12281.64	Cum	1,992,572.88
		Ref: RA No.16			
		Item No.20			
	SSR Item No. 26.34, Page No. 236	Providing and fixing in position HCRM / CRS (Corrosion Resistant Steel) bar reinforcement of various diameters for R.C.C. pile caps, footings, foundations, slabs, beams columns, canopies, staircase, newels, chajjas, lintels pardis, copings, fins, arches etc. as per detailed designs, drawings and schedules. including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required complete.			
77.870		Tie Level Slab (Level @ 5.00m)	70005.60	MT	5,451,336.07
1.770		Ground Floor Slab (Level @ 5.00 m to 8.80 m)	70705.66	MT	125,149.01
65.910		First Floor Slab (Level @ 8.80 m to 12.6 m)	71405.71	MT	4,706,350.48
71.450		Second Floor Slab (Level @ 12.6 m to 16.4 m)	72105.77	MT	5,151,957.12
16.550		Terrace Floor Slab (Level @ 16.4 m to 19.85 m)	72805.82	MT	1,204,936.39
		Ref: RA No.20			
		Item No.21			
	SSR Item No. 27.13 Page No. 247	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete			
42.96		Level @ 5.00 m to 8.80m	6606.61	CUM	283,819.97
63.86		Level @ 8.80 m to 12.60m	6672.68	CUM	426,117.10
53.96		Level @ 12.60 m to 16.40m	6738.74	CUM	363,622.53
11.43		Level @ 16.40 m to 19.85m	6804.81	CUM	77,778.96
		Ref: RA No.21			
		Item No.22			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
159.66	SSR Item No. 29 Page No. 473	Providing and erecting chain link fencing with G.I. chainlink and gauge with all fixtures and fastening.	212.40	Sqm	33,911.78
		Ref: RA No.56			
		Item No.23			
	SSR Item No. 30.04, Page No. 253	Providing expansion joints in R.C.C. framed structure (at terrace level) with premoulded filler 25 mm thick and 3 mm thick aluminium plate as required, bituminous poured filler, fixing lead, flashing on upper side and T.W. battens on inner face finishing etc. Complete as directed			
45.50		Level @ 9.00 m	3879.75	Sqm	176,528.63
178.64		Level @ 13.00 m	3918.55	Sqm	700,009.33
45.50		Level @ 17.00 m	3957.35	Sqm	180,059.20
		Ref: RA No.22			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.24			
	SSR Item No. 31.04, Page No.255	Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved water proofing compound and laying the brick bats on bottom layer in C.M.1:5 admixed with approved water proofing compound filling up to half depth of brick bats, curing this layer for 3 days, applying cement slurry over this layer joints of brick bats with C.M.1:3 admixed with approved water proofing compound and finally top finishing with average 20 mm. thick layers of same mortar added with jute fiber at 1 Kg per bag including finishing the surface smooth with cement slurry admixed with approved water proofing compound. Marking finished surface with false squares of 300mm x 300 mm. making the junctions at the parapet rounded and tapered top for required height, with drip mould at the junction of plaster and parapet and curing and covering 10 years Guarantee against leakproofness on Court fee stamp paper of Rs. 500/- including ponding test etc. complete.			
162.24		Terrace Floor	1011.75	sqm	164,146.32
		Ref: RA No.23			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.25			
114.75	SSR Item No. 31.10 Page No. 257	Providing and laying joint less Polydee-LM, a highly flexible elastometric coating for RCC / cementitious surface for terrace waterproofing on B.B. Coba / R.C.C, after application of TP-42 Primer on perfectly clean surface (free from loose dust and foreign matter) application of 1st coat of Polydee-LM @ 700 gms/ sqm and applying 2nd coat of Polydee-LM @ 700 gms/ sqm and finishing the same with sprinkling the AG-10 granules on the wet coating. (After finishing covering the treatment with 25mm cement plaster for protection with fibrillated 6mm Plyplast fibre @ 125 gms/ sqm to be paid in separate item.) covering 7 years guarantee on Court Fee Stamp Paper of Rs.100/- etc. complete.	1152.90	Sqm	132,295.28
		Ref: RA No.24			
		Item No.26			
	SSR Item No. 33.18, Page No. 268	Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25 mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float, filling joints with neat cement slurry, curing, polishing and cleaning etc. complete.			
497.83		Tie Level Slab (Level @ 5.00m)	1255.01	sqm	624,781.63
551.29		First Floor Plan (+ 8.80 m to 12.6 Level)	1267.56	sqm	698,793.21
1122.33		Second Floor (Level @ 12.6 m to 16.4 m)	1280.11	sqm	1,436,706.08
32.99		Second Floor (Level @ 16.4 m to 19.85 m)	1292.66	sqm	42,644.86
		Ref: RA No.30			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.27			
202.69	SSR Item No. 34.02 Page No. 278	Providing and applying boiled linseed oil in two coats to the new wood work, including knotting, preparing the surface, scaffolding etc. complete as directed. Ref: RA No.54	33.60	Sqm	6,810.38
		Item No.28			
202.69	SSR Item No. 35.01 Page No. 280	Providing and applying two coats of lead/zinc base oil paint/ bituminous paint of approved colour and shade to new wood work and fiber boards including preparing the surface, knotting, scaffolding if necessary, excluding primer coat etc. complete Ref: RA No.55	71.40	Sqm	14,472.07
		Item No.29			
	SSR Item No. 35.22, Page No.282	Providing and applying one coat of seal cement primer of approved manufacture and shed including scaffolding preparing the surface by cleaning dirt and other foreign matters, scrapping if			
	a)	Two Coat			
357.23		Level @ 5.00 m to 8.80m	15.75	sqm	5,626.37
923.36		Level @ 8.80 m to 12.60m	15.91	sqm	14,688.35
857.44		Level @ 12.60 m to 16.40m	16.07	sqm	13,774.77
765.63		Level @ 16.40 m to 19.85m	16.22	sqm	12,420.43
		Ref: RA No.34			
		Item No.30			
	SSR Item No. 36.10, Page No.284	Providing and applying washable oil-bound distemper of approved colour and shade to old and new sur faces in one coat including scaffolding, preparing the surfaces. (excluding the primer coat .) etc. complete.			
357.23		Level @ 5.00 m to 8.80m	24.57	sqm	8,777.14
923.36		Level @ 8.80 m to 12.60m	24.82	sqm	22,913.82

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
857.44		Level @ 12.60 m to 16.40m	25.06	sqm	21,488.65
765.63		Level @ 16.40 m to 19.85m	25.31	sqm	19,375.87
		Ref: RA No.35			
		Item No.31			
		Pergola			
169.93	SSR Item No. 37.03, Page No. 287	Providing and fixing Indian teak wood joists and girders in timber floors of single, double or framed type including scaffolding if necessary, and one coat of primer etc. complete	98782.95	Sqm	16,786,285.48
		Ref: RA No.36			
		Item No.32			
	SSR Item No. 37.10, Page No. 288	Providing and fixing teak wood hand rail of 60 mm x 75 mm as per detailed drawings or as directed by the Engineer, including french polishing, etc. complete. (Note : The work to be executed on preapproval of superintending Engineer).			
262.61		Ground Floor Slab (Level @ 5.00m to 8.8 m)	989.10	Sqm	259,747.55
186.69		First Floor Slab (Level @ 8.8 to 12.60 m)	998.99	Sqm	186,501.63
138.94		Second Floor Slab (Level @ 12.6m to 16.4 m)	1008.88	Sqm	140,174.07
		Ref: RA No.37			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Sanitary & Plumbing			
		Item No.33			
1.00	SSR Item No. 41.30 Page No. 337	Providing and fixing 50mm diameter water meter with non-return valve including strainer, sockets/ union nut and including water meter box making locking arrangement and lock. [without chamber]	12128.55	EACH	12128.55
		Ref: RA No.57			
		Item No.34			
4.00	SSR Item No. 41.48/ Page No. 338	Providing and fixing screw down for 50 mm dia. wheeled stop tap of brass including necessary sockets/ union nut complete.	1541.40	EACH	6165.60
		Ref: RA No.77			
		Item No.35			
22.00	SSR Item No. 41.80 Page No. 342	Providing and fixing 10cm C.I. Nahani Trap including C.I. grating bend and piece of C.I. pipe upto the outside face of the wall complete.	937.65	EACH	20628.30
		Ref: RA No.58			
		Item No.36			
3.00	SSR Item No. 42.02 Page No. 343	Providing and fixing 15cm x 10cm salt glazed stoneware gully trap in cement concrete 1:4:8 outside the building including cast iron grating in the sink, connecting glazed stoneware pipe, brick masonry chamber with cast iron lid and cast iron grating for the gully trap.	1138.20	EACH	3414.60
		Ref: RA No.59			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.37			
13.00	SSR Item No. 42.20 Page No. 345	Providing and fixing 450mm x 550mm size superior type Belgium mirror with 16mm dia. nickel plated towel rod etc. complete.	687.75	EACH	8940.75
		Ref: RA No.60			
		Item No.38			
		Water Supply			
42.00	SSR Item No. 42.55/ Page No. 350	Providing and fixing on walls/ ceiling/ floor 15 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.	203.70	MTR	8555.40
		Ref: RA No.78			
		Item No.39			
18.00	SSR Item No. 42.56/ Page No. 351	Providing and fixing on walls/ceiling/floor 20 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.	232.05	MTR	4176.90
		Ref: RA No.79			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.40			
27.00	SSR Item No. 42.57/ Page No. 351	Providing and fixing on walls/ ceiling/ floor 25 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.	276.15	MTR	7456.05
		Ref: RA No.80			
		Item No.41			
18.00	SSR Item No. 42.58/ Page No. 351	Providing and fixing on walls/ ceiling/ floor 32 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.	332.85	MTR	5991.30
		Ref: RA No.81			
		Item No.42			
9.00	SSR Item No. 42.59/ Page No. 351	Providing and fixing on walls /ceiling/ floor 40 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.	409.50	MTR	3685.50
		Ref: RA No.82			
		Item No.43			
92.70	SSR Item No. 42.60/ Page No. 351	Providing and fixing on walls/ ceiling/ floor 50 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete.	592.20	MTR	54896.94
		Ref: RA No.83			
		Item No.44			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
16.00	SSR Item No. 42.80 Page No. 353	Providing and fixing C.P.Two way BIB cock of approved make continental including necessary sockets/union nut etc. complete.	1157.10	EACH	18513.60
		Ref: RA No.61			
		Item No.45			
105.60	SSR Item No. 42.87 Page No. 355	Providing and fixing P.V.C. Rain water pipes of 110mm outer diameter and having wall thickness of 2.2 to 2.7 mm confirming to I.S. 13592- 1992 including proper rainwater receiving recess with P.V.C. plug, bend, necessary fittings, such as, offsets, shoes, including fixing the pipe on wall using approved wooden cleats project ing 25mm to 40mm from face of wall a fixing with clips of approved quality and number ,filing the joint using rubber gasket with solvent cement and properly resting the shoe of pipes on C.C. or masonry blocks, including necessary scaffolding and maintenance for 3 yrs for any leakages or dislocations of pipes. All the P.V.C. fi t t ings and addi t ional 2 piece socket clips shall be got approved from engineer in charge etc.complete. (The contractor shall give 3 yrs guarantee bond for payment)	428.40	Rmt	45,239.04
		Ref: RA No.49			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.46			
16.00	SSR Item No. 43.42 Page No. 365	Providing and fixing Wall Mounted European type white glazed earthenware water closet pan with UPVC seat and lid with chromium plated brass hinges and rubber buffers including UPVC and vent pipe up to the outside face of wall 10 liter enameled low level flushing cistern with fittings pipe stop tap brackets for fixing cistern 32 mm dia. UPVC flush pipe with fittings and clamps ,20 mm dia.UPVC overflow pipe ,mosquito proof couplings G.I. chain and pulley,with water Jet and fitting including cutting and making good to the walls and floors testing etc. complete.(prior approval of sample and brand by Ex. Engineer is necessary before use)	10859.10	EACH	173745.60
		Ref: RA No.62			
		Item No.47			
		Chain link			
	SSR Item No. 46.39, Page No. 373	Providing and erecting chain link fencing 1.6 M. height with G.I. chain link of size 50 x 50 mm, 8 gauge thick and fixed 75 mm above ground level on vertical M.S. Angles of 40 x 40 x 6 mm size, including excavating pits for foundation and embedded in C.C. block of 1:4:8 mix of size 450 x 450 x 670 mm. at 1.75 M. c/c with iron bar 16mm dia as hold fast including welding link with angle frame at 30 cm c/c with nuts and bolts and horizontal M.S. Angles at top and bottom of 25 x 25 x 5 mm size and vertical M.S. flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm angles both side at every corner or bend embedded in concrete blocks of 1:4:8 of size 450 x 450 x 670 mm including 3 coats of oil painting etc. complete			
365.16		Ground Floor (Level @ 5.00m to 8.8 m)	1850.10	Sqm	675,582.52
272.64		First Floor (Level @ 8.8 to 12.60 m)	1868.60	Sqm	509,455.38
413.88		Second Floor (Level @ 12.6m to 16.4 m)	1887.10	Sqm	781,033.78
		Ref: RA No.50			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.48			
6.00	SSR Item No. 48.31 Page No. 396	Providing and fixing white glazed urinal of series with Pressmatic auto closing valve of having 32mm diameter P.V.C. flush pipe with fitting and flushing of approved make and arrangement including lead soil pipe, lead trap & soil pipe connection upto the outside face of wall etc.complete as directed by Engineer in charge.	9288.30	EACH	55729.80
		Ref: RA No.63			
		Item No.49			
13.00	SSR Item No. 48.32 Page No. 396	Providing and fixing wall hung white wash basin of size 350x450x165mm with approved make pillar cock, C.P. Angular stop cock long thread approved make continental including SS bottle trap of approved make having necessary pipe connection up to the outside face of the wall etc complete as directed by Engineer in charge	5339.25	EACH	69410.25
		Ref: RA No.64			
		Item No.50			
16.00	SSR Item No. 232/ Page No. 469	C.P.Toilet paper holder jaquar make continental (Cat. No. AQ 7751)	834.75	EACH	13356.00
		Ref: RA No.65			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.51			
42.00	SSR Item No. 251/ Page No. 470	cPVC pipe 50mm dia.	383.25	MTR	16096.50
		Ref: RA No.66			
		Item No.52			
2.00	SSR Item No. 278/ Page No. 470	Ball cock for 25mm dia.	278.25	EACH	556.50
		Ref: RA No.67			
		Item No.53			
2175.00	M. R. (As per quotation)	Supply of the Insulated wall Panels of 2.5 meter Width height 3.2 Meter having Thickness of 150mm Plain or Ribbed finished. External Facing: 0.45 mm TCT / 0.5 mm TCT / 0.6 mm TCI Color coated steel sheet Internal Facing: 0.45 mm TCT / 0.5 mm TCT / 0.6 mm TCT color coated steel sheet. Density of PU Foam: 40 ±2 Kg./Cu.Mtr.Compressive Stress at 10% Relative Deformation : 2.1 Kg/Sq. Cm supplying at Gorai Borivali including all freight and transportation. As per P.I.M. Item Description	4083.80	Sqm	8,882,265.00
		Item No.54			
399.60	M. R. (As per quotation)	Providing , fixing , Supplying Wooden ACP Cladding on 1 inch by 1 inch Aluminium box frame with 600mm centre to centre fixing to the main structure and support and fixing ACP on both the sides and grouting with silicon and completed.	9432.00	Sqm	3,769,027.20

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.55			
	M. R. (As per quotation 15)	Supplying, installation of the Unplasticized polyvinyl chloride (UPVC) Windows & DOORS as per the Plan and profile for the Nature interoperation Center			
81.92	a	3 & 4 TRACK GLASS ; Sliding glass window with mosquito netting,(with arrangement of sliding folding door)- the purpose of the window is to give clear opening and maximum view from the structure, - wooden finish upvc frames with minimum thickness of the frame - 5mm +10mm +5mm dgu clear toughen glass and complete . As per the Dimension as specified	18546.04	Sqm	1,519,291.60
806.05	b	Partly fixed partly openable fixed window with casement panel, wooden finish upvc frames with minimum thickness of the frame 5mm +10mm +5mm dgu clear toughen glass and complete . As per the Dimension as specified	17805.69	Sqm	14,352,276.42
128.25	c	Providing and Fixing UPVU louvers 4ich wide within UPVC door frame and complete as per the dimension and specification of the W8 & W9 & W10 of the PIM	15263.00	Sqm	1,957,479.75
114.93	d	Providing and Fixing UPVU Doors and complete as per the dimension and specification of the D 1 to D 9 of the PIM.	25875.30	Sqm	2,973,848.23
425.46	e	Providing and fixing 5 mm + 10 mm + 5 mm Toughened sandwich glass panel with solar cell infill and UPVU frame skylight and complete as per the dimension and specification of the S1 & S2 of the PIM	3541.26	Sqm	1,506,664.48

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.56			
		Furniture			
319.00	M. R.	Supplying of the Chairs for the NIC Center as per the Specification and design specified	4500.00	Per No	1,435,500.00
85.56	M. R.	Providing the Tabel L and C shape Wooden Tabel as per the Design and Specification for the Nature Interpretation Center	43.90	Per SQM	3,756.08
110.16	M. R.	Providing , fixing , Supplying Wooden ACP Cladding on 1 inch by 1 inch Aluminium box frame with 600mm centre to centre fixing to the main structure and support and fixing ACP on one sides and grouting with silicon and completed.	6455.00	Per SQM	711,082.80
1.00	M. R.	Designing and Development of Art of Kitchen for Café with requirement equipments as below items with respect to the below condition. 1) All Equipment will be made in Stainless Steel in 304 grade. 2) All Equipment Under framing Angle Frame work SS 202 Grade. 3) All Equipment Leg SS Pipe Square 16swg thick with Adjustable Nylon Bullet Feet. 4) Refrigeration Unit will be of 16g, Door's & Outer Body of 20g, Inner Body of 22g with "Emerson Copeland " Make Compressor. as per PIM Published	1748500.00	Per Unit	1,748,500.00

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.57			
20.00	Bd/HES I.N.37 P .N.195	Removing any kind of Debris including loading in truck and conveying day to day basis to approved dumping point etc complete with all lifts and lead of 52Km. (As directed by Engineer-in - Charge. Ref: RA No.51	4669.39	Per Trip	93,387.80
		Item No.58			
638.80	a	FIXED WINDOW, - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND - MAXIMUM VIEW FROM THE STRUCTURE, - Flymesh Shutter may have supporting glasses & MS rods installed as per requirement of strength & stability of shutter - 8MM +18MM +8MM DGU CLEAR TOUGHEN GLASS W1	18546.04	Sqm	11,847,210.35
46.00	d	Providing and Fixing UPVU Doors and complete as per the dimension and specification of the D 1 of the PIM.	25875.30	Sqm	1,190,263.80
		Item No.59			
	M. R. (As per quotation)	Walkway Glass			
131.07		100 mm thick	70000.00	Sqm	9,174,900.00
122.33		50 mm thick	35000.00	Sqm	4,281,522.00

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.60			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.4-4-7 PAGE NO.87	Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. 8 RS/l TR X 2000 ltr	16800.00	EACH	16800.00
		Ref: RA No.68			
		Item No.61			
1.00	PWD (ELECTRICAL WING) 2018-2019, ITEM NO.4-4-7 PAGE NO.87	Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. 8 RS/l TR X 500 ltr	4200.00	EACH	4200.00
		Ref: RA No.69			
		Item No.62			
1.00	PWD (ELECTRICAL WING) 2018-2019, ITEM No 16-6-21; Pg No. 247	Supplying and erecting non return valve 50 mm dia in position made of gun metal complete.	1346.10	EACH	1346.10
		Ref: RA No.70			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.63			
2.00	PWD (ELECTRICAL WING) 2018-2019, SR NO.12-2-1 / PAGE NO -209	Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 55 to 25 m head and (max. efficiency at 41 m head & 50 lpm) discharge & delivery Pipe of Size- 50mm dia. with a necessary H type clamps as per specification no. WP-SMP / 1 WORKING + 1 STAND BY)	24529.05	EACH	49058.10
		Ref: RA No.71			
		Item No.64			
320.00	PWD (ELECTRICAL WING) 2018-2019, ITEM NO ITEM NO. 13-5-9 / PAGE NO -	Providing coating of bitumen paint & 4mm thick wrapping for underground 100 mm ring main of fire fighting system. FOR 50NB PIPE RATE IS 0.5 TIME OF PWD RATE (We are using 50mm dia pipe so cost will be =128/2=64.00 Basic rate)	67.20	MTR	21504.00
		Ref: RA No.72			
		Item No.65			
2.00	PWD (ELECTRICAL WING) 2018-2019, ITEM NO. 13-6-29 / PAGE NO -227	Supplying & erecting gun metal gate valve of size 50 mm dia complete as per specification no. FF-VL/GV	992.25	EACH	1984.50
		Ref: RA No.73			
		Item No.66			
320.00	PWD (ELECTRICAL WING) 2018-2019 ITEM NO. 16-5-12 / PAGE NO -246	Supplying and erecting ISI mark GI pipe 50 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.	719.25	MTR	230160.00
		Ref: RA No.74			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.67			
12.00	PWD (ELECTRICAL WING) 2018-2019, Item No 16-5-18 Pg No 247	Supplying and erecting high density polythene pipe ISI mark 50mm. dia. suitable for pressure of 6 kg. / cm ² connected to jet/submersible pump with required material complete.	106.05	MTR	1272.60
		Ref: RA No.75			
		Fire Fighting			
		Item No.68			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.4-4-7 PAGE NO.87	Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. 8 RS/I TR X5000 I TR	42000.00	EACH	42,000.00
		Ref: RA No.84			
		Item No.69			
48.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 7-1-16 PAGE NO.127	Supplying, erecting & terminating XLPE armoured cable 3½ core 35 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	232.05	MTR	11,138.40
		Ref: RA No.85			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.70			
96.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO, 7-1-28, PAGE NO.128	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	142.80	MTR	13,708.80
		Ref: RA No.86			
		Item No.71			
1.00	PWD CSR (ELECTRICAL WING) 2018-2019 , ITEM NO.9-1-1 PAGE NO.161	Providing earthing with galvanized iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification no. EA-EP	3104.85	EACH	3,104.85
		Ref: RA No.87			
		Item No.72			
12.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 10-2-22 PAGE-189	Providing printed instruction chart for treating persons suffering from electric shock, printed in English & Marathi and duly laminated complete.	109.20	EACH	1,310.40
		Ref: RA No.88			
		Item No.73			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 10-2-24 PAGE-189	Providing Round bottom fire bucket of 9 Litres capacity as per IS : 2546 made out of 24 gauge G.I. sheet with extra handle at bottom duly painted white inside and red outside with FIRE Mark, on provided stand/ wall hook complete.	380.10	SET	380.10
		Ref: RA No.89			
		Item No.74			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
4.00	PWD (ELECTRICAL WING) 2018-2019 , 10-2-27 PAGE-189	Supplying standard first aid box with necessary antiseptic cream, medicine for use on wounds due burn, crepe bandage, gauge bandage, medicated ready to use bandage (Band-Aid) adhesive tape for medicinal use, scissors, anti-septic solution, etc. (All above contents shall be of standard makes)	730.80	EACH	2,923.20
		Ref: RA No.90			
		Item No.75			
		Fire Extinguisher			
10.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 10-2-34 PAGE NO.190	Supplying & erecting Carbon Dioxide (CO2) fire extinguisher of 4.5 kg. capacity cartridge type conform to IS 2878 /15683 complete erected with necessary clamp made from 50 x 6 mm. M. S. flat with nut & bolts grouted in wall complete.	8912.40	EACH	89,124.00
		Ref: RA No.91			
		Item No.76			
10.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 10-2-36 PAGE NO.190	Supplying and erecting ABC powder type fire extinguisher as per IS : 13849 /15683 of 6 kg capacity with necessary clamp for erection on wall.	3455.55	EACH	34,555.50
		Ref: RA No.92			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.77			
1.00	PWD(ELECTRICAL WING) 2018-2019 , ITEM NO.13-2-1 PAGE NO.224	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main multi stage pump, of 2400 LPM at 88 m head centrifugal type, 75 HP (55 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/MS	242962.65	Each	242,962.65
		Ref: RA No.93			
		Item No.78			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-3-1 PAGE NO.224	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of jockey pump of 240 LPM at 56 m head, 15 HP (11 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/JP	63039.90	Each	63,039.90
		Ref: RA No.94			
		Item No.79			
1.00	PWD(ELECTRICAL WING) 2018-2019 , ITEM NO.13-4-1 PAGE NO.224	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of booster pump of 180 LPM at 40 m Head, 5 HP (3.75 KW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/BP	27143.55	Each	27,143.55
	PWD (ELECTRICAL WING) 2018-2019,	13.5 Pipes (FF-PP)			
		Ref: RA No.95			
		Item No.80			
497.20	PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-2 PAGE NO.225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 25 mm dia with necessary fittings complete as per specification no. FF-PP	307.65	MTR	152,963.58
		Ref: RA No.96			
		Item No.81			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
98.00	PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-3 PAGE NO.225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 50 mm dia with necessary fittings complete as per specification no. FF-PP	625.80	MTR	61,328.40
		Ref: RA No.97			
		Item No.82			
449.00	PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-5 PAGE NO.225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 75/80 mm dia with necessary fittings complete as per specification no. FF-PP	992.25	MTR	445,520.25
		Ref: RA No.98			
		Item No.83			
374.50	PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-6 PAGE NO.225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 100 mm dia with necessary fittings complete as per specification no. FF-PP	1410.15	MTR	528,101.18
		Ref: RA No.99			
		Item No.84			
177.00	PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-7 PAGE NO.225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 150 mm dia with necessary fittings complete as per specification no. FF-PP	2136.75	MTR	378,204.75
		Ref: RA No.100			
		Item No.85			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
3.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-6-9 PAGE NO.226	Supplying and erecting cast iron double flange sluice valve 75/80 mm dia. complete as per specification no. FF-VL/SV	5046.30	Each	15,138.90
		Ref: RA No.101			
		Item No.86			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-6-10 PAGE NO.226	Supplying and erecting cast iron double flange sluice valve 100 mm dia. complete as per specification no. FF-VL/SV	7599.90	Each	7,599.90
		Ref: RA No.102			
		Item No.87			
13.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-6-11 PAGE NO.226	Supplying and erecting cast iron double flange sluice valve 160 mm dia. complete as per specification no. FF-VL/SV	11712.75	Each	152,265.75
		Ref: RA No.103			
		Item No.88			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-6-21 PAGE NO.226	Supplying and erecting cast iron double flange NRV of size 150 mm dia complete as per specification no. FF-VL/NRV	11572.05	Each	11,572.05
		Ref: RA No.104			
		Item No.89			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
13.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-6-31 PAGE NO.227	Supplying and erecting stainless steel single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	4912.95	Each	63,868.35
		Ref: RA No.105			
		Item No.90			
13.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-2 PAGE NO.227	Supplying and installing wall mounting swinging Hose reel drum fitted with 19 mm dia. 30m long high pressure polypropylene (Polyhose) fitted with necessary accessories complete as per specification no. FF-FFA/HV	6198.15	Each	80,575.95
		Ref: RA No.106			
		Item No.91			
26.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-4 PAGE NO.227	Supplying fire fighting reinforced rubber lined (R.R.L.) hose pipe, 63mm dia, 15m in length, fitted with necessary accessories complete as per specification no. FF-FFA/RRL	4853.10	Each	126,180.60
		Ref: RA No.107			
		Item No.92			
13.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-8 PAGE NO.227	Supplying & erecting stainless steel branch pipe 63 mm dia fitted with 20 mm dia detachable hexagonal nozzle complete as per specifications no. FF-FFA/NZ	1778.70	Each	23,123.10
		Ref: RA No.108			
		Item No.93			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-10 PAGE NO.228	Supplying and erecting fire brigade header of 150 mm dia, for supplying water in fire tank complete as per specification no. FFFA/ FBC	8185.80	EACH	8,185.80
		Ref: RA No.109			
		Item No.94			
3.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-13 PAGE NO.228	Supplying and erecting 20/25mm dia gun metal air release cock, with necessary G.I. coupling to be fitted on top of air vessel or on wet riser complete as per specification no. FF-FFA/ARV	658.35	EACH	1,975.05
		Ref: RA No.110			
		Item No.95			
3.00	PWD(ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-14 PAGE NO.228	Supplying and installing pressure gauge of 100 mm dia., 0-300 PSI or 0-14 kg per cm square fitted with 12/15 mm dia. pad cock valve, and G.I. pipe, elbow etc. complete as per specification no. FFFFA/ PG	596.40	Each	1,789.20
		Ref: RA No.111			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.96			
13.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-18 PAGE NO.228	Supplying and erecting M.S./CRCA cabinet for housing single hydrant valve (size 400 x 400 x 400mm.) made from 16 SWG sheet and angle iron 25 mm. x 25 mm. x 4 mm. having front doors with viewing glass (8"x6") and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted in post box red colour	4172.70	Each	54,245.10
		Ref: RA No.112			
		Item No.97			
50.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-1 PAGE-229	Supplying, installing, testing and commissioning heat detector complete on box as per specification no. FF-FAS/HD	1432.20	EACH	71,610.00
		Ref: RA No.113			
		Item No.98			
56.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-2 PAGE-229	Supplying, installing, testing and commissioning optical type smoke detector complete on box as per specification EACH FFFAS/ SD	1548.75	EACH	86,730.00
		Ref: RA No.114			
		Item No.99			
4.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-5 PAGE-	Supplying, installing, testing and commissioning manual call point (Pill box) with break glass push button in metal enclosure complete as per specification no. FF-FAAS/MCP	452.55	EACH	1,810.20
		Ref: RA No.115			
		Item No.100			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
4.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-6 PAGE-229	Supplying, installing, testing and commissioning hooters with CRCA enclosure complete as per specification no. FF-FAAS/HTR	501.90	EACH	2,007.60
		Ref: RA No.116			
		Item No.101			
1076.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-8 PAGE-229	Supplying, installing, testing and commissioning FR, XLPE armoured cable 2 core 1.5 sq.mm. copper conductor complete erected on wall/ ceiling complete as per specification no. CBLT/ CU	81.90	EACH	88,124.40
		Ref: RA No.117			
		Item No.102			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-12 PAGE-229	Supplying, installing, testing and commissioning of 2 Zones Microprocessor based conventional fire alarm control panel (FACP) with standard accessories complete as per specification no. FF-FAAS/FACP	16300.20	EACH	16,300.20
		Ref: RA No.118			
		Item No.103			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-9-1 PAGE-230	Supplying, erecting, testing and commissioning amplifier 120 W for public address system suitable to operate on 230 Volts A.C. / 12 Volts D.C. supply complete as per specification Each FFPA/ AFR	16850.40	Each	16,850.40
		Ref: RA No.119			
		Item No.104			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
2.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-9-2 PAGE-230	Supplying, erecting, testing and commissioning sound column 15 Watts complete as per specification No. FFPA/ SOC	2539.95	Each	5,079.90
		Ref: RA No.120			
		Item No.105			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-9-3 PAGE-230	Supplying, erecting, testing and commissioning microphone complete as per specification Each FF-PA/MIC)	4878.30	Each	4,878.30
		Ref: RA No.121			
		Item No.106			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-9-4 PAGE-230	Supplying, erecting, testing and commissioning stand for microphone complete.	1698.90	Each	1,698.90
		Ref: RA No.122			
		Item No.107			
600.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-9-6 PAGE-230	Supplying, erecting, testing and commissioning of 2 core shielded microphone cable complete as per specification no. FF-PA/MCC	119.70	MTRS	71,820.00
		Ref: RA No.123			
		Item No.108			
350.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-9-10 PAGE-230	Supplying, erecting, testing and commissioning of 1.5 sq mm speaker wire complete.	49.35	MTR	17,272.50

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Ref: RA No.124			
		Item No.109			
		Automatic Sprinkler System			
363.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 13-10-1 PAGE NO.230	Supplying, erecting, testing and commissioning of 15 mm (½") dia. NBCM Body chrome finished quartzoid bulb sprinkler having 68° C fixed temperature rating with deflector disc of conventional construction complete as per specification no. FF-SPR	250.95	EACH	91,094.85
		Ref: RA No.125			
		Item No.110			
1.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM, 14-1-33 PAGE- 235	Providing, maintaining and operating temporary public address system on hire consisting 02 Nos. solid state heavy wattage amplifier 250 watts (one for working and another for stand by emergency) working on AC / generator and 24 volt car battery supply, 06 Nos. of matching of 100 volt line (200 watts) box type speakers/sound column, 02 Nos super sensitive microphone with suitable size of microphone holding stand. The system shall be in a fully automatic change over operation in case of failure of supply for one day.	5915.70	Each	5,915.70
		Ref: RA No.126			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.111			
4.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 14-1-35 PAGE-235	Providing and maintaining temporary cordless (Hand type or lape type) super sensitive HUF microphone (1 no stand by) for one day.	2526.30	Each	10,105.20
		Ref: RA No.127			
		Item No.112			
4.00	PWD (ELECTRICAL WING) 2018-2019 , ITEM 15-1-1 PAGE-241	SITC of 220/250 Volts, single phase, 50 Hz Siren of 3.25 km range, Horizontal double mounting type of 1/2 HP 6000 RPM on C. C. foundation complete as per specification no. SRN-AS/SM	11627.70	EACH	46,510.80
		Ref: RA No.128			
		Item No.113			
115.35	PWD (ELECTRICAL WING) 2018-2019 ITEM NO-16-5-10 ,PAGE NO-246	Supplying and erecting ISI mark GI pipe 32 mm. dia 'C" class at position with accessories complete. Specification no. CW-PLB/GP.	449.40	MTR	51,838.29
		Ref: RA No.129			
		Item No.114			
83.30	PWD (ELECTRICAL WING) 2018-2019 ITEM NO-16-5-11 ,PAGE NO-246	Supplying and erecting ISI mark GI pipe 40 mm. dia 'C" class at position with accessories complete. Specification no. CW-PLB/GP.	518.70	MTR	43,207.71
		Ref: RA No.130			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.115			
96.00	PWD (ELECTRICAL WING) 2018-2019 ITEM NO-16-5-13 PAGE NO-246	Supplying and erecting ISI mark GI pipe 65 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.	906.15	MTR	86,990.40
		Ref: RA No.131			
		Item No.116			
1.00	VEMC-21	Supplying, Installing, testing and commisioning of fire hydrant multi stage pump capable of delivering 2850Lpm @ 70.0m head coupled to water cooled diesel engine of adequate HP. It shall be fitted with a radiator on a common base from with complete ancilalary units such as colling system, non return Valve, Y strainer, fuel tank of adequate coapcity, Pressue guage, pressure switch. Control panel shall be per specification stated in Item No.87. (Cost of control pannel is not included)	550000.00	Each	550,000.00
		Ref: RA No.132			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.117			
1.00	MR	Supplying, Installing testing & commissioning COMMON control panel for fire fighting system consisting of electrical motor driven 60 HP Main fire pump, Jockey pump and 12.5 HP consisting of the following INCOMING : 1 No. Set of phase indicing lamps with SFU Rate 350A 1 No. Set of 400 Amps. TPNE Ai.Bus bars 1 No. 0-400 Amps. Ammeter, 1 No.0-600V voltmeter with phase selector switch, Isolating Switch 400A OUTGOING for Main Electrical Pump: 1 No. 200 Amps MCB 1 No. S/D starter suitable for 60 HP 1 No. Single phase preventor suitable for the pump described above 1 No. set of ON/OFF indicating lamps 1 No. Automanual selector switch OUTGOING for Jockey Pump: 1 No. 50 Amps MCB 1 No. DOL starter suitable for 12.50 HP 1 No. Single phase preventor suitable for the pump described above 1 No. of set of ON/OFF indicating lamps 1 No. Automanual selector switch ENGINE CONTROL SECTION NO. 1 Diesel Engine for Standby pump: a) Main switch 2 pole ON/OFF - 1 No. b) Battery charger with transformer with rectifier resistance DC ammeter, DC voltmeter, T/B selector swith - 1 set c) Indicating lamps for fault communication (Battery charger, supply ON,	210000.00	EACH	210,000.00
		Automatic Sprinkler System			
		Item No.118			
1.00	MR	ALARM VALVE WITH COMPLE AVESORIES WHICH ARE INSTALLED AT TARACE AFTER THW PUMP 150mm	15000.00	EACH	15,000.00
		Item No.119			
8.00	MR	Emergency fire ladder and Escape peratute	5000.00	EACH	40,000.00
		Item No.120			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
4.00	MR	FALSE CEILING TYPE SPEAKER (Bosch 6 Watt 6 watt metal grill ceiling speaker)	720.00	Each	2,880.00
		Item No.121			
1.00	MR	SOCKET BOX FOR PORTABLE HANDSET STATION	1000.00	Each	1,000.00

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
		Item No.122			
		For Lift			
1.00	PWD ELECTRICAL CSR 2018-2019 ITEM NO -17-1-3 PAGE NO.252	<p>SITC of Electric Traction Passenger Lift with</p> <ul style="list-style-type: none"> • Rated capacity :- 8 Passenger/544Kg • Floors :- G+1 floor (2Stops/2 Landings) • Travel :- 3 to 4.2 mtrs • Location of Lift Machine:- MR/MRL • Rated speed :- 1.0mps VS • Doors type :- COPO/TOPO Doors with frame having clearopening of 800 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames • Lift car enclosure made from SS 304 grade sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc. • COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with/without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor • Clear Car size ofmm wide xmm deep xmm high • LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator 	1068647.00		1,068,647.00
		Ref: RA No.133			
		Item No.123			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount (Rs.)
2.00	A, page no-271 / A-item no-2, page no-272	Add On A For Lift travelling up to six floors at a speed of 1.0 mps, add as below, For Lift having 800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrows indicators, extension of guide rails, shaft wiring with trunking, traveling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete	143,547.00		287,094.00
		Ref: RA No.134			
		Sub Total Cost of Project for NIC			212,811,236.69
		Sub total Civil works NIC.....			212,811,236.69
		Add 0.5% Insurance		0.5%	1,064,056.18
		Say			213,875,293.00

Detailed Estimate of Measurement Sheet
for Building (G+2)

Mumbai Mangroves Conservation Unit							
Name of Work: Conservation and Development of the Mangrove Park at Dahisar							
Measurement Sheet for Building (G+2)							
e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.1						
SSR Item No. 14.06 Page No. 124	Providing and fixing in position to the exact profile and prestressing the high tensile strands to specified ultimate strength, standard end anchorages, cable ducts, grouting ducts after prestressing and bearing plates with wedges as per detailed drawings including necessary plant and machinery for prestressing etc. complete						
				KG/M	KG	M.T.	
	MAJOR Bridge 24.7 m Span						
	Walkway Main Cable 32mm	4	25.44	6.31	642.11	0.642	
	Fixation Cable 32mm	2	25.44	6.31	321.05	0.321	
	Handrail Cable 32mm	4	25.44	6.31	642.11	0.642	
	Suspension Rod 12mm	50	2.10	0.89	93.45	0.093	
				Total	1.699		
	Add 3% Extra for Anchorage and knotting purpose					0.050	
	MINOR Bridge 12.16 m Span						
	Walkway Main Cable 32mm	4	12.52	6.31	316.00	0.316	
	Fixation Cable 32mm	2	12.52	6.31	158.00	0.158	
	Handrail Cable 32mm	4	12.54	6.31	316.51	0.317	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Suspension Rod 12mm	24	2.10	0.89	44.92	0.045	
				Total	0.835		
	Add 3% Extra for Anchorage and knotting purpose					0.000	
						2.5840	2.584
							M.T.
	Item No.2						
	Excavation for foundation in soft soil ; TOTAL EXCAVATION						
SSR Item No.21.02 Page No. 187	Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete (11 ft upto 1.5 m)	100%					
	Excavation for foundation in soft soil ; TOTAL EXCAVATION						
	Excavation for Pile Caps , Total Excavation						
	PC1	19	4.00	1.50	1.830	208.62	
	PC2	3	7.40	1.50	1.830	60.94	
	walkway						
	Excavation for Pile Caps , Total Excavation						
	PC1	6	4.50	2.30	1.830	113.64	
	PC2	2	4.60	2.30	1.830	38.72	
					152.36		

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	for sanitary & Plumbing pipe line excvn..						
		320	0.50	0	0.50	80.00	
							501.92
							Cum
	Item No.3						
SSR Item No. 21.36 Page No. 191	Filling in plinth and floors with excavated material in layers of 15 cm to 20 cm including water ing and compaction etc. complete.						
i	Total Excavation	1				501.92	
ii	PCC					-17.61	
iii	Soling					-40.50	
iv	RCC						
a	Pile cap					-256.98	
b	Columns below ground					-3.24	
						183.59	183.59
							Cum
	Item No.4						
SSR Item No. 21.40 Page No. 192	Providing soling using 80mm size trap metal in layers of 15 cm each including filling voids with sand, ramming, watering etc. complete. Specs No.						
	PC1	19	4.00	1.50	0.23	26.22	
	PC2	3	7.40	1.50	0.23	7.66	
	Walkway						
	PC1	6	4.50	2.30	0.23	14.28	
	PC2	2	4.60	2.30	0.23	4.87	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	total qty-----					53.03	53.03
							cum
	Item No.5						
SSR Item No. 22.37, Page No.209	Providing and laying cast in si tu / Ready Mix Cement Concrete M-30 for bored piles each of load capacity and as per design and of 1000 mm diameter or as directed placed through steel shells sunk to the required depth through all strata except rock excluding provision of reinforcement as per detail drawings and design approved by the Engineer -in- charge including placing with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer /						
vi)	1000mm diameter		No.	Length			
	Considering 12+2 (sockets) mtrs of depth		47	14.00		658.00	658.00
	For Walkway						Rmt
vi)	1000mm diameter						
	Considering 12+2 (sockets) mtrs of depth		18	14.00		252.00	252.00
							RMT
						Total Length	910.00
	Item No.6						
SSR Item No. 22.42, Page No.170	Chiseling through pile shells in hard strata like boulders, soft and hard rocks Beyond 900 mm and upto and inclusive of 1050 mm dia. including removing and stacking the loose materials etc. complete and disposing of the unserviceable materials outside complete.	consider 8 hrs/pile					
1)	upto and inclusive of 1050 mm diameter.						
	For 1000mm diameter piles						
	Total Piles =47 Nos	Ring	47	8		376	
	Total hours of chiselling in hard rock						
	Walkway						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	For 1000mm diameter piles						
	Total Piles =18 Nos	Ring	18	8		144	
	Total hours of chiselling in hard rock					Total	
							520.00
							Ring Hour
	Item No.7						
	Empty boring for 1000 mm dia						
SSR Item No. 22.54, Page No. 212	Empty boring for 725 to 1050 mm dia. Bored R.C.C. cast Running in situ piles including withdrawal of shell, removal of Metre earth to a distance of 50 metres etc. complete.						
	For 1000mm diameter piles						
	Considering 12+2(socket) mtrs of depth						
	Single Piles		47	12.000		564	
			47				
	Walkway						
	Considering 12+2(socket) mtrs of depth						
	Single Piles		18	12.000		216	780.00
			18				RMT
	Item No.8						
SSR Item No. 22.55, Page No. 212	Chipping and dressing of the R.C.C. piles upto 0.60m. including cleaning reinforcement and removal of dismantled materials upto a distance of 50 meter beyond the building area etc. for providing pile caps. Spec :(As directed by Engineer in Charge						
	Total Piles =47 Nos		47			47	
	Walkway						
	Total Piles =18 Nos		18			18	65.00
							Nos

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.9						
	Providing Bentonite slurry treatment						
SSR Item No. 22.56, Page No.212	Providing bentonite slurry process for various diameter of piles vide Item Nos 1 (i to xxiv) above. Spec : (As directed by Engineer in Charge)						
	a) upto 1050 mm dia						
	Total Piles =47 Nos	47	11.50			540.5	
	Walkway						
	Total Piles =18 Nos	18	11.50			207	747.50
							RMT
	Item No.10						
SSR Item No. 22.57, Page No. 212	Providing, placing and driving in position 6 mm thick permanent M.S. liner upto required depth with 12 mm thick M.S. cutting edge of 0.5metre length of bottom including fabricating, cutting the M.S. sheet to required diameter and shape, welding the joints and driving with the help of required						
	6mm Liner	No.	Length	peremete	wt /sqm	Qty. in kgs	
	Total Piles =47 Nos	47	2.000	3.159	47.10	13985.45	
	12 mm liner						
	Total Piles =47 Nos	47	0.500	3.178	94.20	7034.43	
					kgs		
					Total	21019.88	
	Walkway						
	6mm Liner	No.	Length	peremete	wt /sqm	Qty. in kgs	
	Total Piles =18 Nos	18	2.000	3.159	47.10	5356.13	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	12 mm liner						
	Total Piles =18 Nos	18	0.500	3.178	94.20	2694.04	
					kgs		
	Total Qty.of M.S. liner in M.T.						29070.05
							29.07
							M.T.
	Item No.11						
MR	Conducting Integrity Test of various dia Cast In Situ pile including cost of all necessary excavation, back filling, disposal of material, equipment & labour, and chipping of piles with surface preparation to the complete satisfaction of the						
	Total Piles =47 Nos		47			47	
	Walkway						
	Total Piles =18 Nos		18			18	65.00
							Nos
	Item No.12						
SSR Item No. 22.61, Page No.213	Providing and casting in situ cement concrete M30 of trap metal for R.C.C. pile caps as per detailed designs and drawings, including bailing out water manually, centering, formwork, compacting, finishing and curing etc. complete. (Excluding steel reinforcement) Spec. No.: BdF1 Page No. 297						
	M30 Pile cap						
	PC1	19	3.80	1.30	1.50	140.79	
	PC2	2	7.20	1.30	1.50	21.06	
	Walkway						
	M30 Pile cap						
	PC1	6	4.30	2.10	1.50	81.27	
	PC2	1	4.40	2.10	1.50	13.86	
						256.98	256.98
							cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.13						
SSR Item No. 23.01, Page No.214	Providing and fabricating structural steel work in rolled sections like joist, channels, angles, tees etc. as per detailed design and drawings or as directed by Engineer-In-Charge. including cutting, fabricating, hoisting, erecting, fixing in position making riveted / bolted / welded connections with connecting plates, braces etc. and including one coat of anticorrosive paint and over it two coats of oil painting of approved quality and shade etc. complete.						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	First Floor Plan (Level 5.00 m to 8.80m)						
	Column Dimension		Ht.		Wt Kg/Rmt		
	C1	10	3.80		109.90	4176.20	
	C2	11	3.80		141.3	5906.34	
	FC 1	5	3.80		109.9	2088.10	
	Walkway						
	B8:(Vertical)	6	4.03		293.40	7085.61	
	Inclined	6	7.08		293.40	12463.63	
	Inclined	6	6.49		293.40	11425.00	
	B 12					0.00	
	Bottom Portion Inclined	12	2.00		52.00	1248.00	
	Bottom Portion Hzt	18	3.40		52.00	3182.40	
	Bottom Portion Vrt	18	1.95		52.00	1825.20	
						49400.48	
	add 5% for gusset plate , cleat angles ,splicing	5%				51870.5000	Kgs
					OR	51.871	MT
	Beam (Level 8.80m to 12.6 m)						
	B1 (0.3 x 0.45 x 0.016)	1	8.20		180.36	1478.95	
		2	8.68		180.36	3129.25	
		2	8.70		180.36	3138.26	
		1	2.15		180.36	387.77	
		2	5.15		180.36	1857.71	
		1	15.95		180.36	2876.74	
		1	5.15		180.36	928.85	
		1	10.15		180.36	1830.65	
		1	14.10		180.36	2543.08	
		1	2.80		180.36	505.01	
		1	10.34		180.36	1864.92	
		1	9.34		180.36	1684.56	
		1	3.70		180.36	667.33	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	4.22		180.36	761.12	
		1	9.30		180.36	1677.35	
	B2 (0.3 x 0.45 x 0.016)	2	2.82		180.36	1017.23	
		1	8.40		180.36	1515.02	
		2	2.67		180.36	963.12	
		1	8.40		180.36	1515.02	
		1	2.82		180.36	508.62	
		1	2.87		180.36	517.63	
		1	8.20		180.36	1478.95	
		2	2.87		180.36	1033.46	
		1	8.40		180.36	1515.02	
		2	2.72		180.36	981.16	
		1	8.40		180.36	1515.02	
		2	2.72		180.36	981.16	
		1	8.20		180.36	1478.95	
		5	5.15		180.36	4644.27	
		1	4.60		180.36	829.66	
		1	5.25		180.36	946.89	
		5	5.15		180.36	4644.27	
		1	1.85		180.36	333.67	
		1	5.76		180.36	1038.87	
		1	5.84		180.36	1053.30	
		1	2.46		180.36	443.69	
		1	1.85		180.36	333.67	
		2	3.83		180.36	1381.56	
		1	10.55		180.36	1902.80	
		2	3.83		180.36	1381.56	
		2	2.30		180.36	829.66	
		1	4.98		180.36	898.19	
		1	4.78		180.36	862.12	
		1	4.98		180.36	898.19	
		1	4.83		180.36	871.14	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	9.50		180.36	1713.42	
		1	2.80		180.36	505.01	
		1	2.32		180.36	418.44	
		1	3.70		180.36	667.33	
		2	5.38		180.36	1938.87	
		2	5.08		180.36	1832.46	
		1	6.30		180.36	1136.27	
		1	3.53		180.36	636.67	
		1	8.40		180.36	1515.02	
		1	4.05		180.36	730.46	
		1	1.58		180.36	284.97	
		1	8.40		180.36	1515.02	
	B3: (0.3 x 0.35 x 0.016)	1	2.33		90.43	210.25	
	B4:(0.3 x 0.6 x 0.016)	1	1.70		360.72	613.22	
		3	2.95		360.72	3192.37	
		2	1.85		360.72	1334.66	
		2	1.70		360.72	1226.45	
		3	10.10		360.72	10929.82	
		1	1.85		360.72	667.33	
		1	1.70		360.72	613.22	
		3	6.30		360.72	6817.61	
		2	1.85		360.72	1334.66	
		2	1.70		360.72	1226.45	
		3	3.55		360.72	3841.67	
	Walkway						
	B8:(Vertical)	6	4.03		293.40	7085.61	
	Inclined	6	7.08		293.40	12463.63	
	Inclined	6	6.49		293.40	11425.00	
	B 12						
	Bottom Portion Inclined	12	2.00		52.00	1248.00	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Bottom Portion Hzt	18	3.40		52.00	3182.40	
	Bottom Portion Vrt	18	1.95		52.00	1825.20	
						145776.91	
	add 5% for gusset plate , cleat angles ,splicing	5%				153065.7600	Kgs
					OR	153.066	MT
	Second Floor Plan (Level 12.60 m to 16.4m)						
	Column Dimension		Ht.		Wt Kg/Rmt		
	C1	10	4.00		109.90	4396.00	
	C2	11	4.00		141.3	6217.20	
	FC 1	5	4.00		109.9	2198.00	
	Beam (Level 13.00m)						
	B1 (0.3 x 0.45 x 0.016)	1	8.20		180.36	1478.95	
		2	8.68		180.36	3129.25	
		2	8.70		180.36	3138.26	
		1	2.15		180.36	387.77	
		2	5.15		180.36	1857.71	
		1	15.95		180.36	2876.74	
		1	5.15		180.36	928.85	
		1	10.15		180.36	1830.65	
		1	14.10		180.36	2543.08	
		1	2.80		180.36	505.01	
		1	10.34		180.36	1864.92	
		1	9.34		180.36	1684.56	
		1	3.70		180.36	667.33	
		1	4.22		180.36	761.12	
		1	9.30		180.36	1677.35	
	B2 (0.3 x 0.45 x 0.016)	2	2.82		180.36	1017.23	
		1	8.40		180.36	1515.02	
		2	2.67		180.36	963.12	
		1	8.40		180.36	1515.02	
		1	2.82		180.36	508.62	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	2.87		180.36	517.63	
		1	8.20		180.36	1478.95	
		2	2.87		180.36	1033.46	
		1	8.40		180.36	1515.02	
		2	2.72		180.36	981.16	
		1	8.40		180.36	1515.02	
		2	2.72		180.36	981.16	
		1	8.20		180.36	1478.95	
		5	5.15		180.36	4644.27	
		1	4.60		180.36	829.66	
		1	5.25		180.36	946.89	
		5	5.15		180.36	4644.27	
		1	1.85		180.36	333.67	
		1	5.76		180.36	1038.87	
		1	5.84		180.36	1053.30	
		1	2.46		180.36	443.69	
		1	1.85		180.36	333.67	
		2	3.83		180.36	1381.56	
		1	10.55		180.36	1902.80	
		2	3.83		180.36	1381.56	
		2	2.30		180.36	829.66	
		1	4.98		180.36	898.19	
		1	4.78		180.36	862.12	
		1	4.98		180.36	898.19	
		1	4.83		180.36	871.14	
		1	9.50		180.36	1713.42	
		1	2.80		180.36	505.01	
		1	2.32		180.36	418.44	
		1	3.70		180.36	667.33	
		2	5.38		180.36	1938.87	
		2	5.08		180.36	1832.46	
		1	6.30		180.36	1136.27	
		1	3.53		180.36	636.67	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	8.40		180.36	1515.02	
		1	4.05		180.36	730.46	
		1	1.58		180.36	284.97	
		1	8.40		180.36	1515.02	
	B3: (0.3 x 0.35 x 0.016)	1	2.33		90.43	210.25	
	B4:(0.3 x 0.6 x 0.016)	1	1.70		360.72	613.22	
		3	2.95		360.72	3192.37	
		2	1.85		360.72	1334.66	
		2	1.70		360.72	1226.45	
		3	10.10		360.72	10929.82	
		1	1.85		360.72	667.33	
		1	1.70		360.72	613.22	
		3	6.30		360.72	6817.61	
		2	1.85		360.72	1334.66	
		2	1.70		360.72	1226.45	
		3	3.55		360.72	3841.67	
	Walkway						
	B9: (Vertical)						
		40	3.55		142.68	20260.56	
	B7: (Horizontal)						
		4	66.70		255.72	68226.10	
	B11 (Horizontal)						
	External two sides (15*2)	30	1.98		180.36	10686.33	
	Middle	21	3.55		180.36	13445.84	
	B12 (BRACING)						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Inclined Bracing	8	6.50		52.00	2704.00	
	Inclined Bracing	16	4.80		52.00	3993.60	
	Inclined Bracing	6	5.10		52.00	1591.20	
	B14 (BRACING)						
	Inclined Bracing	4	6.58		70.83	1863.11	
	B15 (BRACING)						
	Glass (External two)	2	32.90		218.04	14347.03	
	B8:						
	Inclined	4	5.75		293.40	6748.20	
	Inclined	4	6.53		293.40	7663.61	
	B13: Under Glass						
	Inclined	2	5.75		207.24	2383.26	
	Inclined	2	6.53		207.24	2706.55	
	B 12 Inclined Bracing	72	4.76		52.00	17821.44	
	B 12 Bottom Portion Horizontal	24	3.90		52.00	4867.20	
						300666.30	
	add 5% for gusset plate , cleat angles ,splicing	5%				315699.62	Kgs
					OR	315.700	MT
	Second Floor Plan (Level 16.40 m to 19.85 m)						
	Column Dimension		Ht.		Wt Kg/Rmt		
	C1	10	3.45		109.90	3791.55	
	C2	11	3.45		141.3	5362.34	
	FC 1	5	3.45		109.9	1895.78	
	Beam (Level 17.00m)						
	B1 (0.3 x 0.45 x 0.016)	1	8.20		180.36	1478.95	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		2	8.68		180.36	3129.25	
		2	8.70		180.36	3138.26	
		1	2.15		180.36	387.77	
		2	5.15		180.36	1857.71	
		1	15.95		180.36	2876.74	
		1	5.15		180.36	928.85	
		1	10.15		180.36	1830.65	
		1	14.10		180.36	2543.08	
		1	2.80		180.36	505.01	
		1	10.34		180.36	1864.92	
		1	9.34		180.36	1684.56	
		1	3.70		180.36	667.33	
		1	4.22		180.36	761.12	
		1	9.30		180.36	1677.35	
					180.36	0.00	
	B2 (0.3 x 0.45 x 0.016)	2	2.82		180.36	1017.23	
		1	8.40		180.36	1515.02	
		2	2.67		180.36	963.12	
		1	8.40		180.36	1515.02	
		1	2.82		180.36	508.62	
		1	2.87		180.36	517.63	
		1	8.20		180.36	1478.95	
		2	2.87		180.36	1033.46	
		1	8.40		180.36	1515.02	
		2	2.72		180.36	981.16	
		1	8.40		180.36	1515.02	
		2	2.72		180.36	981.16	
		1	8.20		180.36	1478.95	
		5	5.15		180.36	4644.27	
		1	4.60		180.36	829.66	
		1	5.25		180.36	946.89	
		5	5.15		180.36	4644.27	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	1.85		180.36	333.67	
		1	5.76		180.36	1038.87	
		1	5.84		180.36	1053.30	
		1	2.46		180.36	443.69	
		1	1.85		180.36	333.67	
		2	3.83		180.36	1381.56	
		1	10.55		180.36	1902.80	
		2	3.83		180.36	1381.56	
		2	2.30		180.36	829.66	
		1	4.98		180.36	898.19	
		1	4.78		180.36	862.12	
		1	4.98		180.36	898.19	
		1	4.83		180.36	871.14	
		1	9.50		180.36	1713.42	
		1	2.80		180.36	505.01	
		1	2.32		180.36	418.44	
		1	3.70		180.36	667.33	
		2	5.38		180.36	1938.87	
		2	5.08		180.36	1832.46	
		1	6.30		180.36	1136.27	
		1	3.53		180.36	636.67	
		1	8.40		180.36	1515.02	
		1	4.05		180.36	730.46	
		1	1.58		180.36	284.97	
		1	8.40		180.36	1515.02	
	B3: (0.3 x 0.35 x 0.016)	1	2.33		90.43	210.25	
	B4:(0.3 x 0.6 x 0.016)	1	1.70		360.72	613.22	
		3	2.95		360.72	3192.37	
		2	1.85		360.72	1334.66	
		2	1.70		360.72	1226.45	
		3	10.10		360.72	10929.82	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	1.85		360.72	667.33	
		1	1.70		360.72	613.22	
		3	6.30		360.72	6817.61	
		2	1.85		360.72	1334.66	
		2	1.70		360.72	1226.45	
		3	3.55		360.72	3841.67	
	Walkway						
	B6 (Horizontal)	4	66.70		218.04	58173.07	
	B6 (Horizontal) (Glass)	2	33.00		218.04	14390.64	
	B8:						
	VRT (Vertical)	4	0.60		293.40	704.16	
	B13:						
	VRT (Vertical) (Glass Portion)	2	0.60		207.24	248.69	
	B10:						
	External two sides (15*2)	30	1.98		180.36	10686.33	
	Middle	21	3.55		180.36	13445.84	
	B12						
	Inclined Bracing	12	6.50		52.00	4056.00	
	Inclined Bracing	16	4.80		52.00	3993.60	
	Inclined Bracing	6	5.10		52.00	1591.20	
						226886.27	
	add 5% for gusset plate , cleat angles ,splicing	5%				238230.58	Kgs
					OR	238.231	MT
	Level 5.00 m to 8.80 m Column					51.8710	M.T
	Level 8.80 m to 12.60 m Column					153.0660	M.T
	Level 12.60 m to 16.4 m Column					315.7000	M.T

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Level 16.40 m to 19.85 m Column					238.2310	M.T
					758.87		
	Item No.14						
SSR Item No. 23.12 Page No. 216	Providing structural steel work in hollow section of various thickness and sizes in square, rectangular and round shape from 25mm to 450mm section as per IS 4923 YST 310 Grade produced from iron ore and blast furnace route etc. as per detailed designs and drawing or as directed including cutting, fabricating, hoisting, erecting, fixing in position, making riveted/bolted/ welded connections and painting complete.						
	Starting and Ending of Bridge 300mm Dia	8	3.76	0.07065	2.125	16.680	
						M.T.	16.680
	ladder			(c/s area)	Volume		
	32 mm Dia Pipe For Steps	8	2.00	0.000804	0.0130	0.100	
	50 mm Dia Pipe For Vrt Support	2	2.30	0.001963	0.0090	0.070	
						M.T.	0.17
							16.850
	Item No.15						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
SSR Item No. 24.04, Page No. 217	Providing and laying Cast in si tu/ Ready Mix cement concrete in M15 of trap/ grani te/ quartzite/ gneiss metal for steps including steel centering, plywood/ steel formwork, laying/ pumping, compacting, roughening them if special finish is to be provided, finishing uneven and honeycombed sur face and cur ing etc. complete. The Cement Mortar 1:3 plaster is considered for render ing uneven and honeycombed surface, only. Newly laid concrete shall be covered by gunny bag, plastic, tarpaulin etc. (Wooden centering will not be allowed.), with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand						
	PCC						
	PC1	19	4.000	1.500	0.10	11.40	
	PC2	3	7.400	1.500	0.10	3.33	
	Walkway						
	PC1	6	4.500	2.300	0.10	6.21	
	PC2	2	4.600	2.300	0.10	2.12	
	total qty---					23.06	23.06
							cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.16						
SSR Item No. 25.13, Page No. 222	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. work in foundations like raft ,strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. columns as per detailed designs and drawing or as directed including centering, formwork, cover blocks laying/ pumping, compact ion finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Ar						
	M25						
	Shear wall						
	Lift wall (Level @ 3.50 to 5.00m)						
		1	2.86	0.20	1.50	0.86	
		2	2.65	0.20	1.50	1.59	
	Lift wall (Level @ 5.00 to 8.80m)						
		2	2.86	0.15	3.80	3.26	
		2	2.86	0.15	3.80	3.26	
	Walkway						
	Staircase 1	1	3.60	0.60	1.50	3.24	
	Staircase 2	1	3.60	0.60	1.50	3.24	
	Lift wall (Level @ 8.80 to 12.60m)						
		2	2.86	0.15	3.80	3.26	
		2	2.86	0.15	3.80	3.26	
	Walkway						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Staircase 1	1	3.60	0.60	3.80	8.21	
	Staircase 2	1	3.60	0.60	3.80	8.21	
	Lift wall (Level @ 12.6 to 16.40m)						
		2	2.86	0.15	3.80	3.26	
		2	2.86	0.15	3.80	3.26	
	Walkway						
	Staircase 1	1	3.60	0.60	3.80	8.21	
	Staircase 2	1	3.60	0.60	3.80	8.21	
	Lift wall (Level @ 16.4 to 19.85m)						
		2	2.86	0.15	3.45	2.96	
		2	2.86	0.15	3.45	2.96	
	Walkway						
	Staircase 1	1	3.60	0.60	0.60	1.30	
	Staircase 2	1	3.60	0.60	0.60	1.30	
	Total qty.....					69.85	
	Pile Cap Top to Level 5.00 m					2.45	cum
	Level 5.00 m to 8.80 m Column					13.00	cum
	Level 8.80 m to 12.60 m Column					22.94	cum
	Level 12.60 m to 16.4 m Column					22.94	cum
	Level 16.40 m to 19.85 m Column					8.52	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.17 (COLOUMN)						
SSR Item No 25.33, Page No.225	Providing and laying Cast in si tu/ Ready Mix cement concrete M-25 of trap / grani te / quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawings or as directed including centering, formwork, cover blocks compacting and roughening if special finish is to be provided and curing etc. complete. (Excluding reinforcement and st ructural steel).with fully automatic micro processor based PLC wi th SCADA enabled reversible Drum Typemixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand						
	(pedestal/ column)						
	Pile Cap Top to Level 5.00 m						
	P 1 Pedestal Size 750 mm x 600 mm	10	0.75	0.60	3.20	14.40	
	P 2 Pedestal Size 750 mm x 700 mm	15	0.75	0.70	3.20	25.20	
	Pedestal Size 1500 mm Dia. (Circular)	6	1.50		1.00	10.60	
					Total		50.20
	Level 5.00 m to 8.80 m Column	4	0.30	0.45	3.80	2.05	
	Near Staircase RC1	4	0.40	0.45	3.80	2.74	
					Total		4.79
	Level 8.80 m to 12.6 m Column	4	0.30	0.45	3.80	2.05	
	Near Staircase RC1	4	0.40	0.45	3.80	2.74	
					Total		4.79
	Level 12.60 m to 16.4 m Column	4	0.30	0.45	3.80	2.05	
	Near Staircase RC1	4	0.40	0.45	3.80	2.74	
					Total		4.79
	Level 16.40 m to 19.85 m Column	4	0.30	0.45	3.45	1.86	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Near Staircase RC1	4	0.40	0.45	3.45	2.48	
					Total		4.34
	Pile Cap Top to Level 5.00 m					50.20	cum
	Level 5.00 m to 8.80 m Column					4.79	cum
	Level 8.80 m to 12.60 m Column					4.79	cum
	Level 12.60 m to 16.4 m Column					4.79	cum
	Level 16.40 m to 19.85 m Column					4.34	cum
	Item No.18 (Beams & lintels)						
	RCC Beams M25						
SSR Item No. 25.52, Page No.225	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including centering, formwork, cover blocks, laying/ pumping, compact ion and roughening the surface if special						
	RCC BEAMS						
	PLINTH BEAM / TIE Beam Quantity						
		NO	L	B	D	QTY	
	Level @ 5.00 m Beams		m	m	m	Cum	
	PB1	2	7.9	0.45	0.75	5.33	
	PB1	2	8.375	0.45	0.75	5.65	
	PB1	1	4.11	0.45	0.75	1.39	
	PB1	1	8.1	0.45	0.75	2.73	
	PB1	1	4.11	0.45	0.75	1.39	
	PB1	2	8.67	0.45	0.75	5.85	
	PB1	1	4.19	0.45	0.75	1.41	
	PB1	1	8.1	0.45	0.75	2.73	
	PB1	1	4.335	0.45	0.75	1.46	
	PB1	1	7.9	0.45	0.75	2.67	
	PB1	1	2	0.45	0.75	0.68	
	PB1	1	21.1	0.45	0.75	7.12	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	PB1	1	2.93	0.45	0.75	0.99	
	PB1	1	10.1	0.45	0.75	3.41	
	PB2	1	1.76	0.45	0.45	0.36	
	PB1	1	3.89	0.45	0.75	1.31	
	PB1	1	10.15	0.45	0.75	3.43	
	PB1	1	1.7	0.45	0.75	0.57	
	PB1	1	10	0.45	0.75	3.38	
	PB1	1	10.3	0.45	0.75	3.48	
	PB1	1	3.74	0.45	0.75	1.26	
	PB1	1	3.9	0.45	0.75	1.32	
	PB1	1	5.6	0.45	0.75	1.89	
	PB1	1	5.7	0.45	0.75	1.92	
	PB1	1	2.46	0.45	0.75	0.83	
	PB1	1	1.7	0.45	0.75	0.57	
	PB2	1	2.56	0.45	0.45	0.52	
	PB1	1	10.25	0.45	0.75	3.46	
	PB1	1	4.8	0.45	0.75	1.62	
	PB1	1	9.85	0.45	0.75	3.32	
	PB1	2	1.55	0.45	0.75	1.05	
	PB1	2	1.4	0.45	0.75	0.95	
	PB1	1	3.33	0.45	0.75	1.12	
	PB1	1	2.5	0.45	0.75	0.84	
	PB1	2	2	0.45	0.75	1.35	
	PB1	2	4.83	0.45	0.75	3.26	
	PB1	4	4.68	0.45	0.75	6.32	
	PB1	1	13.35	0.45	0.75	4.51	
	PB1	1	14.36	0.45	0.75	4.85	
	PB1	1	1.7	0.45	0.75	0.57	
	PB1	1	1.4	0.45	0.75	0.47	
	PB1	1	6	0.45	0.75	2.03	
	PB1	1	2.5	0.45	0.75	0.84	
	PB1	2	2.775	0.45	0.75	1.87	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	PB1	1	2.925	0.45	0.75	0.99	
	PB1	1	10.25	0.45	0.75	3.46	
	PB1	1	10	0.45	0.75	3.38	
	PB1	1	6.1	0.45	0.75	2.06	
	PB1	1	1.4	0.45	0.75	0.47	
	PB1	1	1.7	0.45	0.75	0.57	
	PB1	2	2.775	0.45	0.75	1.87	
	PB1	1	2.925	0.45	0.75	0.99	
	PB1	2	3.25	0.45	0.75	2.19	
	PB1	2	3.55	0.45	0.75	2.40	
	PB1	1	1.7	0.45	0.75	0.57	
	PB1	1	1.4	0.45	0.75	0.47	
	PB1	1	6	0.45	0.75	2.03	
	PB1	2	9	0.45	0.75	6.08	
	PB1	1	4.275	0.45	0.75	1.44	
	PB1	1	4.425	0.45	0.75	1.49	
	PB1	1	8.1	0.45	0.75	2.73	
	PB1	1	7.9	0.45	0.75	2.67	
	PB1	2	4.425	0.45	0.75	2.99	
	Walkway						
	Staircase 1 & 2	4	1.925	0.60	0.75	3.47	
	Staircase 1 & 2	4	3.44	0.60	0.75	6.19	
	End side	1	4.5	0.60	0.75	2.03	
	Building to Staircase	2	16.103	0.60	0.75	14.49	
	Staircase to Staircase	2	30.391	0.60	0.75	27.35	
	Staircase 1 & 2 (Midlanding)	4	1.925	0.60	0.75	3.47	
	SUB TOTAL Level @ 5.00 m BEAMS-----				197.93		

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Level @ 8.80 m to 12.6 m Beams						
	B1	2	3.60	0.30	0.45	0.97	
	B2	2	3.10	0.30	0.45	0.84	
	B3	3	2.95	0.30	0.45	1.19	
	Walkway						
	Staircase 1 & 2	4	1.925	0.60	0.75	3.47	
	SUB TOTAL Level @ 8.80 m to 12.6 m BEAMS-----				6.47		
	Level @ 12.60 m to 16.4 m Beams						
	B1	2	3.60	0.30	0.45	0.97	
	B2	2	3.10	0.30	0.45	0.84	
	B3	3	2.95	0.30	0.45	1.19	
	Walkway						
	Staircase 1 & 2	4	1.925	0.60	0.75	3.47	
	SUB TOTAL Level @ 12.60 m to 16.4 m BEAMS-----				6.47		
	Level @ 16.4 m to 19.85 m Beams						
	B1	2	3.60	0.30	0.45	0.97	
	B2	2	3.10	0.30	0.45	0.84	
	B3	3	2.95	0.30	0.45	1.19	
	B1	2	3.60	0.30	0.45	0.97	
	B2	2	3.10	0.30	0.45	0.84	
	B3	3	2.95	0.30	0.45	1.19	
	Walkway						
	Staircase 1 & 2	4	1.93	0.60	0.75	3.47	
	SUB TOTAL Level @ 16.4 m to 19.85 m BEAMS-----				9.47		

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Level @ 5.00 m Beams					197.93	cum
	Level @ 8.80 m to 12.6 m Beams					6.47	cum
	Level @ 16.4 m to 19.85 m Beams					6.47	cum
	Level @ 16.4 m to 19.85 m Beams					9.47	cum
	Item No.19 (R.C.C. Slabs and landings)						
SSR Item No. 25.72, Page No. 227	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including centering, formwork cover blocks, laying/ pumping, compact ionfinishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural steel).with fully automatic microprocessor based PLC with SCADA enabled reversible Drum Typemixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand	cum					Cum
	200mm thick slab						
			Pline area				
	Tie Level Slab (Level @ 5.00m)						
		1	1.40	1.76	0.20	2.46	
		1	3.74	5.00	0.20	18.70	cum
		1	3.90	2.80	0.20	10.92	cum
		2	3.90	4.85	0.20	37.83	cum
		1	5.69	1.95	0.20	11.10	cum
		1	6.15	2.55	0.20	15.68	cum
		1	3.65	2.55	0.20	9.31	cum
		1	6.15	4.95	0.20	30.44	cum
		1	3.30	4.95	0.20	16.34	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	2.00	2.95	0.20	5.90	cum
		2	3.63	4.83	0.20	35.02	cum
		2	3.63	2.93	0.20	21.21	cum
		2	3.63	4.43	0.20	32.08	cum
		1	3.55	3.55	0.20	12.60	cum
	STAIRCASE MID LANDING	2	3.55	1.93	0.15	13.67	cum
	Walkway						
		1	16.45	1.675	0.15	4.13	cum
		1	32.6	1.675	0.15	8.19	cum
	Staircase Mid Landing (1 & 2)	4	3.55	1.925	0.15	4.10	cum
	Tie Level Slab (Level @ 5.00m)					289.68	cum
	Level @ 8.80 m to 12.6 m Slab						
	S2:	1	3.45	2.82	0.15	9.73	cum
		1	2.48	2.82	0.15	6.99	cum
		1	1.87	2.82	0.15	5.27	cum
		1	3.45	2.67	0.15	9.21	cum
		1	2.48	2.67	0.15	6.62	cum
		1	1.87	2.67	0.15	4.99	cum
		1	3.45	2.82	0.15	9.73	cum
		1	2.48	2.82	0.15	6.99	cum
		1	1.87	2.82	0.15	5.27	cum
		1	3.45	2.87	0.15	9.88	cum
		1	2.48	2.87	0.15	7.11	cum
		1	1.87	2.87	0.15	5.36	cum
		2	3.45	2.72	0.15	18.77	cum
		2	2.48	2.72	0.15	13.49	cum
		2	1.87	2.72	0.15	10.17	cum
		4	1.85	5.15	0.15	38.11	cum
		2	1.35	5.15	0.15	13.91	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		2	0.83	5.15	0.15	8.5	cum
		2	1.53	5.15	0.15	15.71	cum
		1	1.85	2.25	0.15	4.16	cum
		1	5.84	2.25	0.15	13.14	cum
		2	1.85	3.83	0.15	14.17	cum
		2	4.30	3.83	0.15	32.94	cum
		2	3.80	3.83	0.15	29.11	cum
		1	1.85	3.25	0.15	6.01	cum
		1	1.70	3.25	0.15	5.53	cum
		1	2.30	3.25	0.15	7.48	cum
		1	1.85	10.25	0.15	18.96	cum
		1	1.70	10.25	0.15	17.43	cum
		2	2.30	4.98	0.15	22.91	cum
		2	3.80	4.98	0.15	37.85	cum
		2	2.80	4.98	0.15	27.89	cum
		1	1.85	6.45	0.15	11.93	cum
		1	1.70	6.45	0.15	10.97	cum
		1	2.30	10.50	0.15	24.15	cum
		2	2.33	5.08	0.15	23.6	cum
		1	1.70	3.70	0.15	6.29	cum
		1	1.85	3.70	0.15	6.85	cum
		1	4.30	3.53	0.15	15.16	cum
		1	3.80	3.53	0.15	13.4	cum
		1	4.30	4.05	0.15	17.42	cum
		1	3.80	4.05	0.15	15.39	cum
		1	4.30	1.28	0.15	5.48	cum
		1	3.80	1.28	0.15	4.85	cum
	RAMP	2	20.36	2.00	0.15	81.44	cum
		2	4.00	2.00	0.15	16	cum
	Walkway						
	Staircase Mid Landing (1 & 2)	4	3.55	1.925	0.15	4.10	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Ground Floor Slab (Level @8.80 m to 12.6 m)					700.42	cum
			Pline Area				cum
	Level @ 12.60 m to 16.4 m Beams						
	S2	1	3.45	2.82	0.15	9.73	cum
		1	2.48	2.82	0.15	6.99	cum
		1	1.87	2.82	0.15	5.27	cum
		1	3.45	2.67	0.15	9.21	cum
		1	2.48	2.67	0.15	6.62	cum
		1	1.87	2.67	0.15	4.99	cum
		1	3.45	2.82	0.15	9.73	cum
		1	2.48	2.82	0.15	6.99	cum
		1	1.87	2.82	0.15	5.27	cum
		1	3.45	2.87	0.15	9.88	cum
		1	2.48	2.87	0.15	7.11	cum
		1	1.87	2.87	0.15	5.36	cum
		2	3.45	2.72	0.15	18.77	cum
		2	2.48	2.72	0.15	13.49	cum
		2	1.87	2.72	0.15	10.17	cum
		4	1.85	5.15	0.15	38.11	cum
		2	1.35	5.15	0.15	13.91	cum
		2	0.83	5.15	0.15	8.5	cum
		2	1.53	5.15	0.15	15.71	cum
		1	1.85	2.25	0.15	4.16	cum
		1	5.84	2.25	0.15	13.14	cum
		2	1.85	3.83	0.15	14.17	cum
		2	4.30	3.83	0.15	32.94	cum
		2	3.80	3.83	0.15	29.11	cum
		1	1.85	3.25	0.15	6.01	cum
		1	1.70	3.25	0.15	5.53	cum
		1	2.30	3.25	0.15	7.48	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	1.85	10.25	0.15	18.96	cum
		1	1.70	10.25	0.15	17.43	cum
		2	2.30	4.98	0.15	22.91	cum
		2	3.80	4.98	0.15	37.85	cum
		2	2.80	4.98	0.15	27.89	cum
		1	1.85	6.45	0.15	11.93	cum
		1	1.70	6.45	0.15	10.97	cum
		1	2.30	10.50	0.15	24.15	cum
		2	2.33	5.08	0.15	23.6	cum
		1	1.70	3.70	0.15	6.29	cum
		1	1.85	3.70	0.15	6.85	cum
		1	4.30	3.53	0.15	15.16	cum
		1	3.80	3.53	0.15	13.4	cum
		1	4.30	4.05	0.15	17.42	cum
		1	3.80	4.05	0.15	15.39	cum
		1	4.30	1.28	0.15	5.48	cum
		1	3.80	1.28	0.15	4.85	cum
	Ramp	2	20.36	2.00	0.15	81.44	cum
		2	4.00	2.00	0.15	16	cum
	Walkway						
		2	5.33	1.975	0.15	3.16	cum
		1	5.33	3.55	0.15	2.84	cum
		2	3.32	1.975	0.15	1.97	cum
		1	3.32	3.55	0.15	1.77	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		4	3.58	1.975	0.15	4.24	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		2	3.32	1.975	0.15	1.97	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	3.32	3.55	0.15	1.77	cum
		4	5.33	1.975	0.15	6.32	cum
		2	5.33	3.55	0.15	5.68	cum
		2	3.32	1.975	0.15	1.97	cum
		1	3.32	3.55	0.15	1.77	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		4	3.58	1.975	0.15	4.24	cum
		2	3.17	1.975	0.15	1.88	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		2	3.32	1.975	0.15	1.97	cum
		1	3.32	3.55	0.15	1.77	cum
		2	5.33	1.975	0.15	3.16	cum
		1	5.33	3.55	0.15	2.84	cum
	Staircase Mid Landing	2	3.55	1.925	0.15	2.05	cum
	First Floor Slab (Level @ 12.60 m to 16.4 m)					761.97	cum
	Level @ 16.4 m to 19.85 m Beams						
	Without Staircase Slab & Offset	1	3.45	2.82	0.15	1.46	cum
	Walkway	1	2.48	2.82	0.15	1.05	cum
		1	1.87	2.82	0.15	0.79	cum
		1	3.45	2.67	0.15	1.38	cum
		1	2.48	2.67	0.15	0.99	cum
		1	1.87	2.67	0.15	0.75	cum
		1	3.45	2.82	0.15	1.46	cum
		1	2.48	2.82	0.15	1.05	cum
		1	1.87	2.82	0.15	0.79	cum
		1	3.45	2.87	0.15	1.48	cum
		1	2.48	2.87	0.15	1.07	cum
		1	1.87	2.87	0.15	0.80	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		2	3.45	2.72	0.15	2.82	cum
		2	2.48	2.72	0.15	2.02	cum
		2	1.87	2.72	0.15	1.53	cum
		4	1.85	5.15	0.15	5.72	cum
		2	1.35	5.15	0.15	2.09	cum
		2	0.83	5.15	0.15	1.27	cum
		2	1.53	5.15	0.15	2.36	cum
		1	1.85	2.25	0.15	0.62	cum
		1	5.84	2.25	0.15	1.97	cum
		2	1.85	3.83	0.15	2.13	cum
		2	4.30	3.83	0.15	4.94	cum
		2	3.80	3.83	0.15	4.37	cum
		1	1.85	3.25	0.15	0.90	cum
		1	1.70	3.25	0.15	0.83	cum
		1	2.30	3.25	0.15	1.12	cum
		1	1.85	10.25	0.15	2.84	cum
		1	1.70	10.25	0.15	2.61	cum
		2	2.30	4.98	0.15	3.44	cum
		2	3.80	4.98	0.15	5.68	cum
		2	2.80	4.98	0.15	4.18	cum
		1	1.85	6.45	0.15	1.79	cum
		1	1.70	6.45	0.15	1.64	cum
		1	2.30	10.50	0.15	3.62	cum
		2	2.33	5.08	0.15	3.54	cum
		1	1.70	3.70	0.15	0.94	cum
		1	1.85	3.70	0.15	1.03	cum
		1	4.30	3.53	0.15	2.27	cum
		1	3.80	3.53	0.15	2.01	cum
		1	4.30	4.05	0.15	2.61	cum
		1	3.80	4.05	0.15	2.31	cum
		1	4.30	1.28	0.15	0.82	cum
		1	3.80	1.28	0.15	0.73	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Staircase	2	3.25	3.75	0.15	3.66	cum
		1	3.25	2.7	0.15	1.32	cum
		1	2.46	2.35	0.15	0.87	
	Walkway						
		2	5.33	1.975	0.15	3.16	cum
		1	5.33	3.55	0.15	2.84	cum
		2	3.32	1.975	0.15	1.97	cum
		1	3.32	3.55	0.15	1.77	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		4	3.575	1.975	0.15	4.24	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		2	3.32	1.975	0.15	1.97	cum
		1	3.32	3.55	0.15	1.77	cum
		4	5.33	1.975	0.15	6.32	cum
		2	5.33	3.55	0.15	5.68	cum
		2	3.32	1.975	0.15	1.97	cum
		1	3.32	3.55	0.15	1.77	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		4	3.575	1.975	0.15	4.24	cum
		2	3.17	1.975	0.15	1.88	cum
		2	3.17	1.975	0.15	1.88	cum
		1	3.17	3.55	0.15	1.69	cum
		2	3.32	1.975	0.15	1.97	cum
		1	3.32	3.55	0.15	1.77	cum
		2	5.33	1.975	0.15	3.16	cum
		1	5.33	3.55	0.15	3.76	cum
	Staircase Mid Landing	2	3.55	1.925	0.15	2.05	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Terrace Floor Slab (Level @ 16.4 m to 19.85 m)					162.24	cum
	Tie Level Slab (Level @ 5.00m)					289.68	cum
	Level @ 8.80 m to 12.6 m Slab					700.42	cum
	Level @ 12.60 m to 16.4 m Beams					761.97	cum
	Level @ 16.4 m to 19.85 m Beams					162.24	cum
	Item No.20						
SSR Item No. 26.34, Page No. 236	Providing and fixing in position HCRM / CRS (Corrosion Resistant Steel) bar reinforcement of various diameters for R.C.C. pile caps, footings, foundations, slabs, beams columns, canopies, staircase, newels, chajjas, lintels pardis, copings, fins, arches etc. as per detailed designs, drawings and schedules. including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required complete						
		RCC Qty Summary					
		cap+raft	Columns	Beams	Slab+Waist	Wall	Sub Total
	Tie Level Slab (Level @ 5.00m)	256.98	50.20	197.93	289.68	2.45	797.24
	Ground Floor Slab (Level @ 5.00 m to 8.80 m)		4.79			13.00	17.79
	First Floor Slab (Level @ 8.80 m to 12.6 m)		4.79	6.47	700.42	22.94	734.62
	Second Floor Slab (Level @ 12.6 m to 16.4 m)		4.79	6.47	761.97	22.94	796.17
	Terrace Floor Slab (Level @ 16.4 m to 19.85 m)		4.34	9.47	162.24	8.52	184.57
	Consumption	0.080	0.125	0.125	0.090	0.090	
		MT/ cum,					2530.39
	Reinforcement Steel Qty Summary						Sub Total
	Tie Level Slab (Level @ 5.00m)	20.56	6.28	24.74	26.07	0.22	77.87
	Ground Floor Slab (Level @ 5.00 m to 8.80 m)		0.60			1.17	1.77

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	First Floor Slab (Level @ 8.80 m to 12.6 m)			0.81	63.04	2.06	65.91
	Second Floor Slab (Level @ 12.6 m to 16.4 m)			0.81	68.58	2.06	71.45
	Terrace Floor Slab (Level @ 16.4 m to 19.85 m)			1.18	14.60	0.77	16.55
	Total Reinforcement Steel Qty----	20.560	6.880	27.540	172.290	6.280	233.550
	Item No.21						
SSR Item No. 27.13 Page No. 247	Providing fly ash brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in superstructure including striking joints, raking out joints, watering and scaffolding etc. Complete						
	Level @ 5.00 m to 8.80m						
	Staircase 1 & 2						
		2	7.50	0.15	3.80	8.55	
		2	3.55	0.15	3.80	4.05	
	Walkway						
	Staircase 1 & 2	4	8.65	0.15	4.00	20.76	
		4	4.00	0.15	4.00	9.60	
					Sub total		42.96
	Level @ 8.80 m to 12.60m						
	Near Office Staff						
	M . Toilet	1	10.60	0.15	1.20	1.91	
		2	1.50	0.15	3.80	1.71	
	F . Toilet	1	5.90	0.15	3.80	3.36	
		3	1.50	0.15	3.80	2.57	
	Staircase 1 & 2						
		2	7.50	0.15	3.80	8.55	
		2	3.55	0.15	3.80	4.05	
	Near Conference Room						
	M . Toilet	1	6.00	0.15	3.80	3.42	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		3	1.50	0.15	3.80	2.57	
	F . Toilet	1	4.90	0.15	3.80	2.79	
		3	1.50	0.15	3.80	2.57	
	Walkway						
	Level @ 8.80 m to 12.60m	4	8.65	0.15	4.00	20.76	
		4	4.00	0.15	4.00	9.60	
					Sub total		63.86
	Level @ 12.60 m to 16.40m						
	M . Toilet	1	5.90	0.15	3.80	3.36	
		2	1.50	0.15	3.80	1.71	
	F . Toilet	1	5.90	0.15	3.80	3.36	
		3	1.50	0.15	3.80	2.57	
	Staircase 1 & 2						
		2	7.50	0.15	3.80	8.55	
		2	3.55	0.15	3.80	4.05	
	Walkway						
	Level @ 12.60 m to 16.40m	4	8.65	0.15	4.00	20.76	
		4	4.00	0.15	4.00	9.60	
					Sub total		53.96
	Level @ 16.40 m to 19.85m						
	Staircase 1 & 2						
		2	7.50	0.15	3.45	7.76	
		2	3.55	0.15	3.45	3.67	
					Sub total		11.43
					Grand total		172.21
							cum
	Level @ 5.00 m to 8.80m					42.96	cum
	Level @ 8.80 m to 12.60m					63.86	cum

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Level @ 12.60 m to 16.40m					53.96	cum
	Level @ 16.40 m to 19.85m					11.43	cum
	Item No.22						
SSR Item No. 29 Page No. 473	Providing and erecting chain link fencing with G.I. chainlink and gauge with all fixtures and fastening.						
	MAJOR Bridge 24.7 m Span						
	CHAINLINK	2	25.44		2.10	107.00	
	MINOR Bridge 12.16 m Span						
	CHAINLINK	2	12.52		2.10	52.66	
						159.66	159.66
							SQM
	Item No.23						
	Metal Flashing						
SSR Item No. 30.04, Page No. 253	Providing expansion joints in R.C.C. framed structure (at terrace level) with premoulded filler 25 mm thick and 3 mm thick aluminium plate as required, bituminous poured filler, fixing lead, flashing on upper side and T.W. battens on inner face finishing etc. Complete as directed						
	Level @ 9.00 m	1	70.000	0.650		45.50	Sqm
	Level @ 13.00 m	1	70.000	0.650		45.50	Sqm
	Metal Flashing Level @ 15.75 m (For Walkway)	2	66.570	1.000		133.14	Sqm
	Level @ 17.00 m	1	70.000	0.650		45.50	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.24						
SSR Item No. 31.04, Page No.255	Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved water proofing compound and laying the brick bats on bottom						
	TERRACE WATER PROOFING						
	Level @ 16.4 m to 19.85 m Beams	1	162.24			162.24	
	terrace floor						162.24
							Sqm
	Item No.25						
SSR Item No. 31.10 Page No. 257	Providing and laying joint less Polydee-LM, a highly flexible elastomeric coating for RCC / cementitious surface for terrace waterproofing on B.B. Cobia / R.C.C, after application of TP-42 Primer on perfectly clean surface (free from loose dust and foreign matter) application of 1st coat of Polydee-LM @ 700 gms/ sqm and applying	1	4.15	27.65		114.75	114.75
							Sqm
	Item No. 26						
SSR Item No. 33.18, Page No. 268	Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25 mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float, filling joints						
	Kotah Stone Flooring						
	Ground Floor Plan (+ 5.00 m Level)						
	Drop OFF	1	15.15	9.710		147.11	
	Towards NIC (Entrance Area)	1	34.769	4.150		144.29	
	Souvenir Shop	1	10.599	4.700		49.82	
	Entrance & Operation Space	1	8.825	7.903		69.74	
	Souvenir Shop (Beside)	1	7.3	11.900		86.87	497.83

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
							Sqm
	First Floor Plan (+ 8.80 m to 12.6 Level)						
	Office Satff	1	9.00	9.900		89.10	
	Passage	1	2.3	25.180		57.91	
	Toilet Passage (Male & Female)	1	12.02	2.170		26.08	
	Entrance Lobby	1	4.15	7.950		32.99	
	Reception Area	1	6.55	9.645		63.17	
	Passage (Lecture Hall 1, Lecture Hall 2, Toilet)	1	29.296	2.100		61.52	
	Lecture hall 1	1	6.259	9.275		58.05	
	Lecture hall 2	1	6.259	9.275		58.05	
	Conference Room	1	10.5	7.300		76.65	
	Toilet Passage (Male & Female)	1	10.58	2.625		27.77	
							551.29
							Sqm
	Second Floor (Level @ 12.6 m to 16.4 m)						
	Open To Sky	1	9.00	9.900		89.10	
	Passage	1	2.3	25.180		57.91	
	Toilet Passage (Male & Female)	1	12.02	2.170		26.08	
	Entrance Lobby	1	4.15	7.950		32.99	
	Reception Area (Above)	1	6.55	9.645		63.17	
	Passage (Lecture Hall 1, Lecture Hall 2, Toilet)	1	29.296	2.100		61.52	
	Lecture hall 1 (Above)	1	6.259	9.275		58.05	
	Lecture hall 2(Above)	1	6.259	9.275		58.05	
	Utility Storage	1	10.5	7.300		76.65	
	Toilet Passage (Male & Female)	1	10.58	2.625		27.77	
	Walkway						
	Second Floor (Level @ 13.00m)						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		1	66.4	8.60		571.04	
							1122.33
							Sqm
	Second Floor (Level @ 16.4 m to 19.85 m)						
	Entrance Lobby	1	4.15	7.950		32.99	
							32.99
							Sqm
	Tie Level Slab (Level @ 5.00m)					497.83	cum
	First Floor Plan (+ 8.80 m to 12.6 Level)					551.29	cum
	Second Floor (Level @ 12.6 m to 16.4 m)					1122.33	cum
	Second Floor (Level @ 16.4 m to 19.85 m)					32.99	cum
	Item No.27						
SSR Item No. 34.02 Page No. 278	Providing and applying boiled linseed oil in two coats to the new wood work, including knotting, preparing the surface, scaffolding etc. complete as directed.						
	MAJOR Bridge 24.7 m Span						
	WOODEN WALKWAY Deck	2	25.44	2.00		101.76	
		2	25.44		0.075	3.82	
	Wooden Cross Beam	48	2.15		0.175	18.06	
		48	2.15	0.125		12.90	
	MINOR Bridge 12.16 m Span						
	WOODEN WALKWAY Deck	2	12.52	2.00		50.08	
		2	12.52		0.075	1.88	
	Wooden Cross Beam	22	2.15		0.175	8.28	
		22	2.15	0.125		5.91	
						202.69	202.69
							SQM
	Item No.28						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
SSR Item No. 35.01 Page No. 280	Providing and applying two coats of lead/zinc base oil paint/bituminous paint of approved colour and shade to new wood work and fiber boards including preparing the surface, knotting, scaffolding if necessary, excluding primer coat etc. complete						
	MAJOR Bridge 24.7 m Span						
	WOODEN WALKWAY Deck	2	25.44	2.00		101.76	
		2	25.44		0.075	3.82	
	Wooden Cross Beam	48	2.15		0.175	18.06	
		48	2.15	0.125		12.90	
	MINOR Bridge 12.16 m Span						
	WOODEN WALKWAY Deck	2	12.52	2.00		50.08	
		2	12.52		0.075	1.88	
	Wooden Cross Beam	22	2.15		0.175	8.28	
		22	2.15	0.125		5.91	
						202.69	202.69
							SQM
	Item No. 29						
SSR Item No. 35.22, Page No.282	Providing and applying one coat of seal cement primer of approved manufacture and shed including scaffolding preparing the surface by cleaning dirt and other foreign matters, scrapping if necessary including scaffolding etc. complete.						
a)	Two Coat						
	qty same as internal plaster		wall				
	Level @ 5.00 m to 8.80m		83.980			83.98	
	Level @ 8.80 m to 12.60m		223.240			223.24	
	Level @ 12.60 m to 16.40m		157.320			157.32	
	Level @ 16.40 m to 19.85m		76.250			76.25	
			Ceiling				
	Level @ 5.00 m to 8.80m		273.250			273.25	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Level @ 8.80 m to 12.60m		700.120			700.12	
	Level @ 12.60 m to 16.40m		700.120			700.12	
	Level @ 16.40 m to 19.85m		689.380			689.38	
	Total						
	Level @ 5.00 m to 8.80m					357.23	sqm
	Level @ 8.80 m to 12.60m					923.36	sqm
	Level @ 12.60 m to 16.40m					857.44	sqm
	Level @ 16.40 m to 19.85m					765.63	sqm
	Item No.30						
SSR Item No. 36.10, Page No.284	Providing and applying washable oil-bound distemper of approved colour and shade to old and new sur faces in one coat including scaffolding, preparing the surfaces. (excluding the pr imer coat .) etc. complete.						
	qty same as painting		wall			Total	
	Level @ 5.00 m to 8.80m		83.98			83.98	
	Level @ 8.80 m to 12.60m		223.24			223.24	
	Level @ 12.60 m to 16.40m		157.32			157.32	
	Level @ 16.40 m to 19.85m		76.25			76.25	
			Ceiling				
	Level @ 5.00 m to 8.80m		273.250			273.25	
	Level @ 8.80 m to 12.60m		700.120			700.12	
	Level @ 12.60 m to 16.40m		700.120			700.12	
	Level @ 16.40 m to 19.85m		689.380			689.38	
	Level @ 5.00 m to 8.80m					357.23	sqm
	Level @ 8.80 m to 12.60m					923.36	sqm
	Level @ 12.60 m to 16.40m					857.44	sqm
	Level @ 16.40 m to 19.85m					765.63	sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.31						
	Pergola						
SSR Item No. 37.03, Page No. 287	Providing and fixing Indian teak wood joists and girders in timber floors of single, double or framed type including scaffolding if necessary, and one coat of primer etc. complete						
		P LINE AREA					
	(Level @17.00m)	1	234.89		0.100	23.489	
		1	87.72		0.100	8.772	
	Walkway						
	Level @ 13.00 m						
	Wooden Flooring at Glass	1	7.300	8.790		64.17	
		1	27.000	2.450		66.15	
	Cable Truss						
	MAJOR Bridge 24.7 m Span						
	WOODEN WALKWAY Deck	1	25.44	2.00	0.075	3.82	
	Wooden Cross Beam	24	2.15	0.125	0.175	1.13	
	MINOR Bridge 12.16 m Span						
	WOODEN WALKWAY Deck	1	12.52	2.00	0.075	1.88	
	Wooden Cross Bram	11	2.15	0.125	0.175	0.52	
					Total	169.93	169.93
							Cum
	Item No.32						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
SSR Item No. 37.10, Page No. 288	Providing and fixing teak wood hand rail of 60 mm x 75 mm as per detailed drawings or as directed by the Engineer, including french polishing, etc. complete. (Note : The work to be executed on preapproval of Superintending Engineer)						
	Ground Floor Slab (Level @5.00m to 8.8 m)						
	RAMP (INNER)	4	21.10		1.2	101.26	
	RAMP (OUTER)	2	4.40		1.2	10.56	
	RAMP (OUTER)	1	4.50		1.2	5.40	
	Walkway						
	STAIRS Including Walkway	12	3.124		1.2	44.99	
		6	1.600		1.2	11.52	
		3	3.600		1.2	12.96	
	Cable Truss						
	MAJOR Bridge 24.7 m Span						
	CHAINLINK	2	25.44			50.88	
	MINOR Bridge 12.16 m Span						
	CHAINLINK	2	12.52			25.04	
						262.61	Sqm
	First Floor Slab (Level @ 8.8 to 12.60 m)						
	RAMP (INNER)	4	21.095		1.2	101.26	
	RAMP (OUTER)	2	4.40		1.2	10.56	
	RAMP (OUTER)	1	4.500		1.2	5.40	
	Walkway						
	STAIRS Including Walkway	12	3.124		1.2	44.99	
		6	1.600		1.2	11.52	
		3	3.600		1.2	12.96	
						186.69	Sqm
	Second Floor Slab (Level @ 12.6m to 16.4 m)						
	STAIRS Including Walkway	12	3.124		1.2	44.99	
		6	1.600		1.2	11.52	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		3	3.600		1.2	12.96	
	Walkway						
	STAIRS Including Walkway	12	3.124		1.2	44.99	
		6	1.600		1.2	11.52	
		3	3.600		1.2	12.96	
						138.94	Sqm
	Ground Floor Slab (Level @ 5.00m to 8.8 m)					262.61	Sqm
	First Floor Slab (Level @ 8.8 to 12.60 m)					186.69	Sqm
	Second Floor Slab (Level @ 12.6m to 16.4 m)					138.94	Sqm
	Item No.33						
SSR Item No. 41.30 Page No. 337	Providing and fixing 50mm diameter water meter with non-return valve including strainer, sockets/ union nut and including water meter box making locking arrangement and lock. [without chamber]	1	1			1	1
							EACH
	Item No.34						
SSR Item No. 41.48/ Page No. 338	Providing and fixing screw down for 50 mm dia. wheeled stop tap of brass including necessary sockets/ union nut complete.	4				4	4
							EACH
	Item No.35						
SSR Item No. 41.80 Page No. 342	Providing and fixing 10cm C.I. Nahani Trap including C.I. grating bend and piece of C.I. pipe upto the outside face of the wall complete.	22.00				22.00	22.00
	2nd floor	8.00					EACH
	1st floor	14.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.36						
SSR Item No. 42.02 Page No. 343	Providing and fixing 15cm x 10cm salt glazed stoneware gully trap in cement concrete 1:4:8 outside the building including cast iron grating in the sink, connecting glazed stoneware pipe, brick masonry chamber with cast iron lid and cast iron grating for the gully trap	3.00				3.00	3.00
							EACH
	Item No.37						
SSR Item No. 42.20 Page No. 345	Providing and fixing 450mm x 550mm size superior type Belgium mirror with 16mm dia. nickel plated towel rod etc. complete.	13.00				13.00	13.00
							EACH
	Item No.38						
	Water Supply						
SSR Item No. 42.55/ Page No. 350	Providing and fixing on walls/ ceiling/ floor 15 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete	42.00	42.00	1			42
	2nd floor	14.00					MTR
	1st floor	28.00					
	Item No.39						
SSR Item No. 42.56/ Page No. 351	Providing and fixing on walls/ceiling/floor 20 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete	18.00	18.00	1			18
	2nd floor	6.00					MTR
	1st floor	12.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.40						
SSR Item No. 42.57/ Page No. 351	Providing and fixing on walls/ ceiling/ floor 25 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete	27.00	27.00	1			27
	2nd floor	5.00					MTR
	1st floor	10.00					
	watch man cabin	12.00					
	Item No.41						
SSR Item No. 42.58/ Page No. 351	Providing and fixing on walls/ ceiling/ floor 25 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete	18.00	18.00	1			18
	2nd floor	4.00					MTR
	1st floor	8.00					
	watch man cabin	6.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.42						
SSR Item No. 42.59/ Page No. 351	Providing and fixing on walls /ceiling/ floor 40 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete	9.00	9.00	1			9
	2nd floor	3.00					MTR
	1st floor	6.00					
	Item No.43						
SSR Item No. 42.60/ Page No. 351	Providing and fixing on walls/ ceiling/ floor 50 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete.	92.70	92.70	1			92.7
	2nd floor	3.00					MTR
	1st floor	6.00					
	Horigental at terrace	51.00					
	vertival riser	32.70					
	Item No.44						
SSR Item No. 42.80 Page No. 353	Providing and fixing C.P.Two way BIB cock of approved make continental including necessary sockets/union nut etc. complete.	16.00				16.00	16.00

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.45						
SSR Item No. 42.87 Page No. 355	Providing and fixing P.V.C. Rain water pipes of 110mm outer diameter and having wall thickness of 2.2 to 2.7 mm confirming to I.S. 13592- 1992 including proper rainwater receiving recess with P.V.C. plug, bend, necessary fittings, such as, offsets, shoes, including fixing the pipe on wall using approved wooden cleats project ing 25mm to 40mm from face of wall a fixing with clips of approved quality and number ,filing the joint using rubber gasket with solvent cement and properly resting the 110 mm						
		6	0.60			3.60	
	Walkway	6	17.00			102.00	105.60
							Rmt
	Item No.46						
SSR Item No. 43.42 Page No. 365	Providing and fixing Wall Mounted European type white glazed earthenware water closet pan with UPVC seat and lid with chromium plated brass hinges and rubber buffers including UPVC and vent pipe up to the outside face of wall 10 liter enameled low level flushing cistern with fittings pipe stop tap brackets for fixing cistern 32 mm dia.UPVC flush pipe with fittings and clamps ,20 mm dia.UPVC overflow pipe ,mosquito proof couplings G.I. chain and pulley,with water Jet and fitting including cutting and making good to the walls and floors testing etc. complete.(prior approval of sample and brand by Ex Engineer is necessary before use)	16.00				16.00	16.00
	2nd floor	5.00					EACH
	1st floor	10.00					
	Watch man cabin	1.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.47						
SSR Item No. 46.39, Page No. 373	Providing and erecting chain link fencing 1.6 M. height with G.I. chain link of size 50 x 50 mm, 8 gauge thick and fixed 75 mm above ground level on vertical M.S. Angles of 40 x 40 x 6 mm size, including excavating pits for foundation and embedded in C.C. block of 1:4:8 mix of size 450 x 450 x 670 mm. at 1.75 M. c/c with iron bar 16mm dia as hold fast including welding link with angle frame at 30 cm c/c with nuts and bolts and horizontal M.S. Angles at top and bottom of 25 x 25 x 5 mm size and vertical M.S. flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm angles both side at every corner or bend embedded in concrete blocks of 1:4:8 of size 450 x 450 x 670 mm including 3 coats of oil painting etc. complete.						
	Ground Floor (Level @ 5.00m to 8.8 m)						
	From ENTRANCE to Stairs	1	30.700		1.20	36.84	
	From ENTRANCE to Ramp	1	34.800		1.20	41.76	
	From Duct to Mangrooves Lobby	1	22.700		1.20	27.24	
	From Mangrooves Lobby to Stairs	1	39.900		1.20	47.88	
	Walkway						
	Walkwy Portion	1	89.400		1.2	107.28	
	Between 2 Stairs on Waalkwy	1	58.600		1.2	70.32	
	From Waalkwy Stairs to Lift	1	28.200		1.2	33.84	
							365.16
	First Floor (Level @ 8.8 to 12.60 m)						Sqm
	Officer's Balcony	2	1.700		1.20	4.08	
	Officer's Balcony	1	9.000		1.20	10.80	
	Reception Area to Lect. Hall	1	39.900		1.20	47.88	
	Walkway						
	Walkwy Portion	1	174.900		1.2	209.88	
							272.64
							Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Second Floor (Level @ 12.6m to 16.4 m)						
	Observation Deck 1	2	9.800		1.20	23.52	
	Observation Deck 1	1	9.000		1.20	10.80	
	Observation Deck 2	1	39.900		1.20	47.88	
	Observation Deck 2	1	9.000		1.20	10.80	
	Observation Deck 2	1	18.400		1.20	22.08	
	Walkway						
	Walkwy Portion	2	120.000		1.2	288.00	
	Walkwy Portion	1	9.000		1.2	10.80	
							413.88
	Ground Floor (Level @ 5.00m to 8.8 m)					365.16	Sqm
	First Floor (Level @ 8.8 to 12.60 m)					272.64	Sqm
	Second Floor (Level @ 12.6m to 16.4 m)					413.88	Sqm
	Item No.48						
SSR Item No. 48.31 Page No. 396	Providing and fixing white glazed urinal of series with Pressmatic auto closing valve of having 32mm diameter P.V.C. flush pipe with fitting and flushing of approved make and arrangement including lead soil pipe, lead trap & soil pipe connection upto the outside face of wall etc.complete as directed by Engineer in charge	6.00				6.00	6.00
	2nd floor	2.00					EACH
	1st floor	4.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.49						
SSR Item No. 48.32 Page No. 396	Providing and fixing wall hung white wash basin of size 350x450x165mm with approved make pillar cock, C.P. Angular stop cock long thread approved make continental including SS bottle trap of approved make having necessary pipe connection up to the outside face of the wall etc complete as directed by Engineer in charge	13.00				13.00	13.00
	2nd floor	4.00					EACH
	1st floor	8.00					
	Watch man cabin	1.00					
	Item No.50						
SSR Item No. 232/ Page No. 469	C.P.Toilet paper holder jaquar make continental (Cat. No. AQ 7751)	16.00				16.00	16.00
							EACH
	Item No.51						
	OHT to Distribution						0
SSR Item No. 251/ Page No. 470	Providing and fixing Chlorinated Poly Vinyl Chloride (CPVC) pipes 50 NB	1	42			42	42
							EACH.
	Item No.52						
SSR Item No. 278/ Page No. 470	Ball cock for 25mm dia.	2				2	2

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.53						
M. R.	Supply of the Insulated wall Panels of 2.5 meter Width height 3.2 Meter having Thickness of 150mm Plain or Ribbed finished. External Facing: 0.45 mm TCT / 0.5 mm TCT / 0.6 mm TCI Color coated steel sheetInternal Facing: 0.45 mm TCT / 0.5 mm TCT / 0.6 mm TCT color coated steel sheet. Density of PU Foam: 40 ±2 Kg./Cu.Mtr.Compressive Stress at 10% Relative Deformation : 2.1 Kg/Sq. Cm supplying at Gorai Borivali including all freight and transportation. As per P.I.M. Item Description						
	Ground Floor (Level @ 5.00m)						
	Ramp Inner Side Wall	1	25.450		4.00	101.80	
	Near Suviour Shop	1	5.500		4.00	22.00	
	First Floor (Level @ 9.00m)						
	Ramp Inner Side Wall	1	25.450		4.00	101.80	
	Forest Officer	2	9.000		4.00	72.00	
	Curator Officer	3	4.500		4.00	54.00	
	Top of the Balcony	1	9.000		4.00	36.00	
	STAFF'S OFFICE	1	55.400		4.00	221.60	
	Service Area	1	36.800		4.00	147.20	
	W.C. (Including Utility Outer side)	1	122.500		4.00	490.00	
	Lecturer Hall	1	18.600		4.00	74.40	
	Inside W.C.						
		2	1.700		4.00	13.60	
		2	1.000		4.00	8.00	
		2	1.500		4.00	12.00	
		1	2.300		4.00	9.20	
		1	3.000		4.00	12.00	
		4	1.800		4.00	28.80	
	Second Floor (Level @ 13.00m)						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Ramp Inner Side Wall	1	25.450		4.00	101.80	
	W.C.	1	19.700		4.00	78.80	
	Utility Area	1	13.000		4.00	52.00	
	Service Area	1	36.800		4.00	147.20	
	VISUAL Projection Room	2	1.800		4.00	14.40	
		1	24.800		4.00	99.20	
		1	21.800		4.00	87.20	
		1	4.700		4.00	18.80	
		1	1.000		4.00	4.00	
	Inside W.C. (FOR BOTH)						
		4	1.700		4.00	27.20	
		4	1.000		4.00	16.00	
		4	1.500		4.00	24.00	
		2	2.300		4.00	18.40	
		2	3.000		4.00	24.00	
		8	1.800		4.00	57.60	
					Total	2175.00	2175.00
							SQM
	Item No.54						
M. R.	Providing , fixing , Supplying Wooden ACP Cladding on 1 inch by 1 inch Aluminium box frame with 600mm centre to centre fixing to the main structure and support and fixing ACP on both the sides and grouting with silicon and completed.						
	Ground Floor (Level @ 5.00m)						
	Near Entrance	1	4.000		3.50	14.00	
	At Mangrooves Trail Entrance	1	6.000		3.50	21.00	
	RAMP	1	25.400		3.50	88.90	
	IN SUV. SHOP	1	7.900		1.00	7.90	
	First Floor (Level @ 9.00m)						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	DUCT Near W.C.	1	10.600		3.50	37.10	
	RAMP	1	25.400		3.50	88.90	
	Service Aea	1	7.900		1.00	7.90	
	Second Floor (Level @ 13.00m)						
	DUCT Near W.C.	1	10.600		3.50	37.10	
	RAMP	1	25.400		3.50	88.90	
	Service Aea	1	7.900		1.00	7.90	
					Total Qty	399.60	399.60
							Sqm
	Item No.55						
M. R. (As per quotation 15)	Supplying, installation of the Unplasticized polyvinyl chloride (UPVC) Windows & DOORS as per the Plan and profile for the Nature interoperation Center						
a - 1	FULL HEIGHT LOUVERED PANELED WINDOW IN ALUMINUM - WOODEN FINISH ALUMINUM FRAMES WITH MINIMUM THICKNESS TO BE USED FOR THE SERVICING AREA WHICH WILL CONTAIN TANKS AND ETC WILL NEED PROVISION FOR VENTILATION. - INSECTS AND PEST SHOULD NOT BE ALLOWED TO ACCESS THROUGH BUT SHOULD ALLOW VENTILATION	3	10.500	1.823		57.42	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
a - 2	3 TRACK SLIDING GLASS WINDOW WITH MOSQUITO NETTING, - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ALUMINUM FRAMES WITH MINIMUM THICKNESS OF 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W2	2	3.5	3.5		24.50	Sqm
						81.92	Sqm
b - 1	FIXED WINDOW WITH DOOR FOR BALCONY, - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ALUMINUM FRAMES WITH MINIMUM THICKNESS 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W3						
	Ground Floor						
	Near Staircase CW1	1	20.875	3.5		73.06	Sqm
	First Floor						
	Staircase CW1	1	5.82	3.5		20.37	Sqm
	Lecture Hall CW1	1	53.60	3.5		187.59	Sqm
	Second Floor						
	Staircase CW1	1	5.82	3.5		20.37	Sqm
	Obsevation Deck CW2	1	97.6	3.5		341.60	Sqm
b - 2	LOUVERED WINDOW - WOODEN FINISH UPVC FRAMES WITH MINIMUM THICKNESS OF THE FRAME - 5MM CLEAR GLASS W4	3	10.213	0.947		29.02	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
b - 3	2 TRACK- 4 SHUTTER, SLIDING GLASS WINDOW WITH MOSQUITO NETTING - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ ALUMINUM FRAMES WITH MINIMUM THICKNESS OF THE FRAME - 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W5	2	8.675	3.5		60.73	Sqm
b - 4	3 TRACK- CENTRAL FIXED PANEL & 4 SLIDING SHUTTER, SLIDING GLASS WINDOW WITH MOSQUITO NETTING - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ ALUMINUM FRAMES WITH MINIMUM THICKNESS OF THE FRAME - 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W6	1	10.593	3.5		37.08	Sqm
b - 5	3 TRACK- CENTRAL FIXED PANEL & 4 SLIDING SHUTTER, SLIDING GLASS WINDOW WITH MOSQUITO NETTING - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ ALUMINUM FRAMES WITH MINIMUM THICKNESS OF THE FRAME - 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W7	1	10.351	3.5		36.23	Sqm
						806.05	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
c - 1	2 TRACK- 4 SHUTTER, SLIDING GLASS WINDOW WITH MOSQUITO NETTING - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ ALUMINUM FRAMES WITH MINIMUM THICKNESS OF THE FRAME - 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W8	1	10.552	3.5		36.93	Sqm
c - 2	2 TRACK- 4 SHUTTER, SLIDING GLASS WINDOW WITH MOSQUITO NETTING - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ ALUMINUM FRAMES WITH MINIMUM THICKNESS OF THE FRAME - 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W9	2	2.464	3.5		17.25	Sqm
c - 3	2 TRACK- 4 SHUTTER, SLIDING GLASS WINDOW WITH MOSQUITO NETTING - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE, - WOODEN FINISH UPVC/ ALUMINUM FRAMES WITH MINIMUM THICKNESS OF THE FRAME - 5MM +10MM +5MM DGU CLEAR TOUGHEN GLASS W9	4	5.291	3.5		74.07	Sqm
						128.25	Sqm
d - 1	DOUBLE SIDE SLIDING GATE FOR MAIN ENTRANCE. - WOODEN FINISH UPVC/ALUMINUM FRAMES WITH MINIMUM THICKNESS - WOODEN FINISH SOLID BATTENS D 1 of the PIM	4	3.9	3.18		49.61	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
d - 2	SINGLE SHUTTER FRAME LESS GLASS SHUTTER DOOR WITH FLOOR SPRING D 2 of the PIM the details as (same as per W 6)	3	1	3.18		9.54	Sqm
d - 3	SINGLE SHUTTER FIRE RETARDANT WOODEN FINISH - PUSH BAR/ PANIC HANDLE FOR DOOR D 3 of the PIM	2	1.26	3.18		8.01	Sqm
d - 4	SERVICE DOOR , DOUBLE PANEL - THE WOODEN FINISH UPVC FRAMES WITH MINIMUM THICKNESS OF THE FRAME - SOLID PANEL DOOR WITH GLASS CUTOUT (150 X 150) ON BOTH THE SHUTTERS D 4 of the PIM	9	1.26	2.4		27.22	Sqm
d - 5	LIFT DOOR AS PER LIFT DETAILS D 5 of the PIM	1	0.7	2.1		1.47	Sqm
d - 6	DOOR , DOUBLE PANEL UNEQUAL (400 + 1200) - THE WOODEN FINISH UPVC FRAMES WITH MINIMUM THICKNESS OF THE FRAME - SOLID PANEL DOOR WITH GLASS CUTOUT (150 X 150) ON BOTH THE SHUTTERS D 6 of the PIM	1	1.5	3.18		4.77	Sqm
d - 7	SINGLE SHUTTER BATTENED DOOR IN UPVC FRAME AND BATTENS - WOODEN FINISH - FOR TOILET DRY AREA ENTRIES D 7 of the PIM	1	1.5	3.18		4.77	Sqm
d - 8	DOOR , DOUBLE PANEL UNEQUAL (500 + 1500) - THE WOODEN FINISH UPVC FRAMES WITH MINIMUM THICKNESS OF THE FRAME - SOLID PANEL DOOR D 8 of the PIM	1	1.5	3.18		4.77	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
d - 9	SINGLE SHUTTER BATTENED DOOR IN UPVC FRAME AND BATTENS - WOODEN FINISH - FOR SERVICE DOOR D 9 of the PIM	1	1.5	3.18		4.77	Sqm
						114.93	Sqm
e - 1	12 MM SANDWICH GLASS WITH SOLAR CELL INFILL - FIXED GLASS (5MM +10MM GAP WITH SOLAR CELL INFILL +5MM DGU CLEAR LOW E VALUE TOUGHEN GLASS) - 3.15M WIDTH AND 19.5 M LENGTH (3.15 X19.5) CAN BE DIVIDED IN 3 15X3 15 UNITS) (On Ramp) (Level @ 17.00 m)	1	24.852	4.15		103.14	sqm
e - 2	12 MM SANDWICH GLASS WITH SOLAR CELL INFILL - FIXED GLASS (5MM +10MM GAP WITH SOLAR CELL INFILL +5MM DGU CLEAR LOW E VALUE TOUGHEN GLASS) - 4.5M WIDTH AND 26 M LENGTH (4.5 X26) CAN BE DIVIDED IN 4.5M BAY						
	Above Forest Office Cabin (Level @ 17.00 m)	1	8.4	9.375		78.75	sqm
	Above Lecture Hall 1 & 2 (Level @ 17.00 m)	1	28.997	8.4		243.57	sqm
						425.46	sqm
	Item No.56						
	Furniture						
1	Supplying of the Chairs for the NIC Center as per the Specfication and design specfied	319.00				319.00	No
2	Providing the Tabel L and C shape Wooden Tabel as per the Design and Specfication for the Nature Interpertation Center	85.56				85.56	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
3	Providing , fixing , Supplying Wooden ACP Cladding on 1 inch by 1 inch Aluminium box frame with 600mm centre to centre fixing to the main structure and support and fixing ACP on one sides and groutlmg with silicon and completed.	110.16				110.16	Per Sqm
4	Designing and Development of Art of Kitchen for Café with requirement equipments as below items with respect to the below condition. 1. All Equipment will be made in Stainless Steel in 304 grade. 2) All Equipment Under framing Angle Frame work SS 202 Grade. 3) All Equipment Leg SS Pipe Square 16swg thick with Adjustable Nylon Bullet Feet. 4) Refrigeration Unit will be of 16g, Door's & Outer Body of 20g, Inner Body of 22g with "Emerson Copeland " Make Compressor. as per PIM Published	1				1.00	Per No
	Item No.57						
Bd/HES I.N.37 P .N.195	Removing any kind of Debris including loading in truck and conveying day to day basis to approved dumping point etc complete with all lifts and lead of 52Km. (As directed by Engineer- in - Charge.						
	Considered 80% of Total Excavation Quantity	Trip	1.00	0.00			0.00
	Considered 6Cum in One trip						0.00
							Per Trip

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.58						
M. R. (As per quotation 15)	Supplying, installation of the Unplasticized polyvinyl chloride (UPVC) Windows & DOORS as per the Plan and profile for the Nature interoperation Center ``						
a - 1	FIXED WINDOW, - THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND - MAXIMUM VIEW FROM THE STRUCTURE, - Flymesh Shutter may have supporting glasses & MS rods installed as per requirement of strength & stability of shutter - 8MM +18MM +8MM DGU CLEAR TOUGHEN GLASS	2	79.850	4.000		638.80	Sqm
d - 1	Providing and Fixing UPVU Doors and complete as per the dimension and specification of the D 1 of the PIM.	4	2.875	4		46.00	Sqm
	Item No.59						
M. R. (As per quotation 15)	Walkway Glass (100 mm thick)						
	floor	1	29.126	4.5		131.07	
	side Glass wall	2	29.13		2.1	122.33	
						253.40	Sqm

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.60						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.4-4-7 PAGE NO.87	Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. ## 2000 ltr	1				1	1
	Item No.61						EACH
PWD (ELECTRICAL WING) 2018-2019, ITEM NO.4-4-7 PAGE NO.87	Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. ## 500 ltr	1				1	1
	Item No.62						
PWD (ELECTRICAL WING) 2018-2019, ITEM No 16-6-21; Pg No. 247	Supplying and erecting non return valve 50 mm dia in position made of gun metal complete.	1				1	1

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.63						
PWD 2018-19 ELECT WING SR NO.12-2-1 / PAGE NO - 209	Submersible Pump -Supplying and erecting submersible pumpset of required HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 55 to 25 m head & (max efficiency at 41 m head & 50 lpm discharge & delivery pipe of necessary diameter with a necessary H. type clamp as per specification No. WP-SMP	2				2	2
	Item No.64						
PWD 2018-19 ELECT WING ITEM NO ITEM NO. 13-5-9 / PAGE NO - 225	Providing coating of bitumen paint & 4mm thick wrapping for underground 100 mm ring main of fire fighting system. FOR 50NB PIPE RATE IS 0.5 TIME OF PWD RATE (We are using 50mm dia pipe so cost will be =128/2=64.00 Basic rate)	1	320			320	320
							EACH
	Item No.65						
PWD 2018-19 ELECT WING ITEM NO. 13-6-29 / PAGE NO - 227	Supplying & erecting gun metal gate valve of size 50 mm dia complete as per specification no. FF-VL/GV	2	1			2	2
							EACH

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.66						
PWD 2018-19 ELECT WING ITEM NO. 16-5-12 / PAGE NO - 246	Supplying and erecting ISI mark GI pipe 50 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.	1	320			320	320
							EACH
	Item No.67						
PWD 2018-19 ELECT WING Item No 16-5-18 Pg No 247	Supplying and erecting high density polythene pipe ISI mark 50 mm. dia. suitable for pressure of 6 kg. / cm2 connected to jet/submersible pump with required material complete.		12			12	12
	Fire Fighting						
	Item No.68						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.4-4-7 PAGE NO 87	Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. 8 RS/LTR X5000 LTR	1.00		1.00		1.00	1.00

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.69						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 7-1-16 PAGE NO 128	Supplying, erecting & terminating XLPE armoured cable 3½ core 35 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	48.00		1.00		48.00	48.00
	Pump room	48.00					MTR
	Item No.70						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO7-1-28PAGE NO 128	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	96.00		1.00		96.00	96.00
	Pump room	96.00					MTR
	Item No.71						
PWD CSR (ELECTRICAL WING) 2018-2019 , ITEM NO.9-1-1 PAGE NO 228	Providing earthing with galvanized iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification no. EA-EP	1.00		1.00		1.00	1.00
	Pump room						EACH

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.72						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 10-2-22 PAGE-189	Providing printed instruction chart for treating persons suffering from electric shock, printed in English & Marathi and duly laminated complete.						12
	Groundfloor	3		1		3	EACH
	1st floor	3		1		3	
	2nd floor	3		1		3	
	Terrace floor	3		1		3	
						12	
	Item No.73						
PWD (ELECTRICAL WING) 2018- 2189019 , ITEM 10-2-24 PAGE-189	Providing Round bottom fire bucket of 9 Litres capacity as per IS : 2546 made out of 24 gauge G.I. sheet with extra handle at bottom duly painted white inside and red outside with FIRE Mark, on provided stand/ wall hook complete.						1
	per Block	1				1	EACH
	total floors						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.74						
PWD (ELECTRICAL WING) 2018-2019 , 10-2-27 PAGE-189	Supplying standard first aid box with necessary antiseptic cream, medicine for use on wounds due burn, crepe bandage, gauge bandage, medicated ready to use bandage (Band-Aid) adhesive tape for medicinal use, scissors, anti-septic solution, etc. (All above contents shall be of standard makes)	4				1	4
	Ground floor	1		1		1	EACH
	1st floor	1		1		1	
	2nd floor	1		1		1	
	Terrace floor	1		1		1	
	Item No.75					4	
	Fire Extinguisher						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 10-2-34 PAGE NO 190	Supplying & erecting Carbon Dioxide (CO2) fire extinguisher of 4.5 kg. capacity cartridge type conform to IS 2878 /15683 complete erected with necessary clamp made from 50 x 6 mm. M. S. flat with nut & bolts grouted in wall complete.	10.00		1.00		10.00	10.00
	Ground floor	1.00					EACH
	1st floor	3.00					
	2nd floor	5.00					
	3rd floor	1.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.76						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 10-2-36 PAGE NO 190	Supplying and erecting ABC powder type fire extinguisher as per IS : 13849 /15683 of 6 kg capacity with necessary clamp for erection on wall.	10.00		1.00		10.00	10.00
	Ground floor	1.00					EACH
	1st floor	3.00					
	2nd floor	5.00					
	3rd floor	1.00					
	Item No.77						
PWD(ELECTRICAL WING) 2018-2019 , ITEM NO.13-2-1 PAGE NO 224	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main multi stage pump, of 2400 LPM at 88 m head centrifugal type, 75 HP (55 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/MS	1.00		1.00		1.00	1.00
	Pump room						Each
	Item No.78						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-3-1 PAGE NO 224	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of jockey pump of 240 LPM at 56 m head, 15 HP (11 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/JP	1.00		1.00		1.00	1.00
	Pump room						Each

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.79						
PWD(ELECTRICAL WING) 2018-2019 , ITEM NO.13-4-1 PAGE NO 224	Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main multi stage pump, of 2400 LPM at 88 m head centrifugal type, 75 HP (55 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/MS	1.00		1.00		1.00	1.00
	Terrace floor						Each
PWD (ELECTRICAL WING) 2018-2019.	13.5 Pipes (FF-PP)						
	Item No.80						
PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-2 PAGE NO 225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 25 mm dia with necessary fittings complete as per specification no. FF-PP		497.20	1.00		497.20	497.20
	Ground floor		55.00				MTR
	1st floor		117.00				
	2nd floor		199.60				
	3rd floor /Terrace		65.60				
	shaft /hydrant		60.00				

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.81						
PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-3 PAGE NO.225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 50 mm dia with necessary fittings complete as per specification no. FF-PP		98.00	1.00		98.00	98.00
	Ground floor		10.00				MTR
	1st floor		10.50				
	2nd floor		35.00				
	3rd floor /Terrace		20.00				
	vertical /shaft		22.50				
	Item No.82						
PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-5 PAGE NO.225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 75/80 mm dia with necessary fittings complete as per specification no. FF-PP		449.00	1.00		449.00	449.00
	Ground floor		43.00				MTR
	1st floor		81.00				
	2nd floor		151.00				
	3rd floor /Terrace		162.00				
	pump room		12.00				

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.83						
PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-6 PAGE NO 225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 100 mm dia with necessary fittings complete as per specification no. FF-PP		374.50	1.00		374.50	374.50
	Ground floor		19.00				MTR
	1st floor		38.00				
	2nd floor		135.50				
	3rd floor /Terrace		176.00				
	pump room		6.00				
	Item No.84						
PWD (ELECTRICAL WING) 2018-2019 ITEM NO.13-5-7 PAGE NO 225	Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 150 mm dia with necessary fittings complete as per specification no. FF-PP		177.00	1.00		177.00	177.00
	Ground floor						MTR
	1st floor		22.00				
	2nd floor		63.00				
	3rd floor /Terrace		12.00				
	vertical shaft		44.00				
	pump room		36.00				

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.85						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13- 6-9 PAGE NO.226	Supplying and erecting cast iron double flange sluice valve 75/80 mm dia. complete as per specification no. FF-VL/SV	3.00		1.00		3.00	3.00
	Item No.86						Each
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13- 6-10 PAGE NO.226	Supplying and erecting cast iron double flange sluice valve 100 mm dia. complete as per specification no. FF-VL/SV	1.00		1.00		1.00	1.00
	1st floor	1.00					Each
	Item No.87						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13- 6-11 PAGE NO.226	Supplying and erecting cast iron double flange sluice valve 160 mm dia. complete as per specification no. FF-VL/SV	13.00		1.00		13.00	13.00
	Ground floor						Each
	1st floor	1.00					
	2nd floor	2.00					
	3rd floor /Terrace	2.00					
	pump room	8.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.88						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-6-21 PAGE NO 226	Supplying and erecting cast iron double flange NRV of size 150 mm dia complete as per specification no. FF-VL/NRV	1.00		1.00		1.00	1.00
	Ground floor	1.00					Each
	Item No.89						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-6-31 PAGE NO 227	Supplying and erecting stainless steel single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV	13.00		1.00		13.00	13.00
	Ground floor	1.00					EACH
	1st floor	4.00					
	2nd floor	7.00					
	3rd floor /Terrace	1.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.90						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-2 PAGE NO 227	Supplying and installing wall mounting swinging Hose reel drum fitted with 19 mm dia. 30m long high pressure polypropylene (Polyhose) fitted with necessary accessories complete as per specification no. FF-FFA/HV	13.00		1.00		13.00	13.00
	Ground floor	1.00					EACH
	1st floor	4.00					
	2nd floor	7.00					
	3rd floor /Terrace	1.00					
	Item No.91						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-4 PAGE NO 227	Supplying fire fighting reinforced rubber lined (R.R.L.) hose pipe, 63mm dia, 15m in length, fitted with necessary accessories complete as per specification no. FF-FFA/RRL	26.00		1.00		26.00	26.00
	Ground floor	2.00					EACH
	1st floor	8.00					
	2nd floor	14.00					
	3rd floor /Terrace	2.00					

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.92						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-8 PAGE NO 227	Supplying & erecting stainless steel branch pipe 63 mm dia fitted with 20 mm dia detachable hexagonal nozzle complete as per specifications no. FF-FFA/NZ	13.00		1.00		13.00	13.00
	Ground floor	1.00					EACH
	1st floor	4.00					
	2nd floor	7.00					
	3rd floor /Terrace	1.00					
	Item No.93						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-10 PAGE NO 228	Supplying and erecting fire brigade header of 150 mm dia, for supplying water in fire tank complete as per specification no. FFFA/ FBC	1.00		1.00		1.00	1.00
	ground floor	1.00					EACH
	Item No.94						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-13 PAGE NO 228	Supplying and erecting 20/25mm dia gun metal air release cock, with necessary G.I. coupling to be fitted on top of air vessel or on wet riser complete as per specification no. FF-FFA/ARV	3.00		1.00		3.00	3.00
							EACH

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.95						
PWD(ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-14 PAGE NO 228	Supplying and installing pressure gauge of 100 mm dia., 0-300 PSI or 0-14 kg per cm square fitted with 12/15 mm dia. pad cock valve, and G.I. pipe, elbow etc. complete as per specification no. FFFFA/ PG	3.00		1.00		3.00	3.00
	Pump room						Each
	Item No.96						
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO.13-7-18 PAGE NO 228	Supplying and erecting M.S./CRCA cabinet for housing single hydrant valve (size 400 x 400 x 400mm.) made from 16 SWG sheet and angle iron 25 mm. x 25 mm. x 4 mm. having front doors with viewing glass (8"x6") and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted in post box red colour.	13.00		1.00		13.00	13.00
	Ground floor	1.00					EACH
	1st floor	4.00					
	2nd floor	7.00					
	3rd floor /Terrace	1.00					
	Item No.97						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-1 PAGE-229	Supplying, installing, testing and commissioning heat detector complete on box as per specification no. FF-FAS/HD						50
	Groundfloor	4		1		4	EACH
	1st floor	22		1		22	
	2nd floor	23		1		23	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Terrace floor	1		1		1	
						50	
	Item No.98						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-2 PAGE-229	Supplying, installing, testing and commissioning optical type smoke detector complete on box as per specification EACH FFFAS/ SD						56
	Groundfloor	4		1		4	EACH
	1st floor	26		1		26	
	2nd floor	25		1		25	
	Terrace floor	1		1		1	
						56	
	Item No.99						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-5 PAGE-229	Supplying, installing, testing and commissioning manual call point (Pill box) with break glass push button in metal enclosure complete as per specification no. FF-FAAS/MCP						4
	Groundfloor	1		1		1	EACH
	1st floor	1		1		1	
	2nd floor	1		1		1	
	Terrace floor	1		1		1	
						4	
	Item No.100						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-6 PAGE-229	Supplying, installing, testing and commissioning hooters with CRCA enclosure complete as per specification no. FF-FAAS/HTR						4
	Groundfloor	1		1		1	EACH
	1st floor	1		1		1	
	2nd floor	1		1		1	
	Terrace floor	1		1		1	
						4	
	Item No.101						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-8 PAGE-229	Supplying, installing, testing and commissioning FR, XLPE armoured cable 2 core 1.5 sq.mm. copper conductor complete erected on wall/ ceiling complete as per specification no. CBLT/ CU						1076
	Floors	1				1076	MTR
	Floor Height (m)	3					
	No of DU per Floor	1					
	Start Cable from Meter Room (m)	12					
	Avg Lengths from Electrical Duct to MCB board in DU	18					
	Formula = 15 + Avg Lengths from Electrical Duct to MCB board in DU = 15 +18						
	Stilt					148	
	1st floor					358	
	2nd floor					358	
	Terrace floor					60	
	vertical connection					152	

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.102						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-8-12 PAGE-229	Supplying, installing, testing and commissioning of 2 Zones Microprocessor based conventional fire alarm control panel (FACP) with standard accessories complete as per specification no. FF-FAAS/FACP	1				1	1
	Per Block	1		1		1	EACH
	Item No.103						
PWD (ELECTRICAL WING) 2018-2019 , ITEM13-9-1 PAGE230	Supplying, erecting, testing and commissioning amplifier 120 W for public address system suitable to operate on 230 Volts A.C. / 12 Volts D.C. supply complete as per specification Each FFPA/ AFR	1	1			1	1
							Each
	Item No.104						
PWD (ELECTRICAL WING) 2018-2019 , ITEM13-9-2 PAGE230	Supplying, erecting, testing and commissioning sound column 15 Watts complete as per specification No. FFPA/ SOC	2	1			2	2

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.105						Each
PWD (ELECTRICAL WING) 2018-2019 , ITEM13-9-3 PAGE-230	Supplying, erecting, testing and commissioning microphone complete as per specification Each FF-PA/MIC)	1	1			1	1
	Item No.106						Each
PWD (ELECTRICAL WING) 2018-2019 , ITEM13-9-4 PAGE230	Supplying, erecting, testing and commissioning stand for microphone complete.	1	1			1	1
							Each
	Item No.107						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 13-9-6 PAGE230	Supplying, erecting, testing and commissioning of 2 core shielded microphone cable complete as per specification no. FF-PA/MCC	600	1			600	600
							MTRS
	Item No.108						
PWD (ELECTRICAL WING) 2018-2019 , ITEM13-9-10 PAGE230	Supplying, erecting, testing and commissioning of 1.5 sq mm speaker wire complete.	350	1			350	350
	Item No.109						MTRS

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Automatic Sprinkler System					0.00	
PWD (ELECTRICAL WING) 2018-2019 , ITEM NO 13-10-1 PAGE NO 230	Supplying, erecting, testing and commissioning of 15 mm (½") dia. NBCM Body chrome finished quartzoid bulb sprinkler having 68° C fixed temperature rating with deflector disc of conventional construction complete as per specification no. FF-SPR	363.00		1.00		363.00	363.00
	Ground floor	27.00					EACH
	1st floor	78.00					
	2nd floor	120.00					
	3rd floor /Terrace	138.00					
	Item No.110						
PWD (ELECTRICAL WING) 2018-2019 , ITEM14-1-33 PAGE235	Providing, maintaining and operating temporary public address system on hire consisting 02 Nos. solid state heavy wattage amplifier 250 watts (one for working and another for stand by emergency) working on AC / generator and 24 volt car battery supply, 06 Nos. of matching of 100 volt line (200 watts) box type speakers/sound column, 02 Nos super sensitive microphone with suitable size of microphone holding stand. The system shall be in a fully automatic change over operation in case of failure of supply for one day.	1	1			1	1
							Each

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.111						
PWD (ELECTRICAL WING) 2018-2019 , ITEM14-1-35 PAGE230	Providing and maintaining temporary cordless (Hand type or lape type) super sensitive HUF microphone (1 no stand by) for one day.	4	1			4	4
							Each
	Item No.112						
PWD (ELECTRICAL WING) 2018-2019 , ITEM 15-1-1 PAGE-241	SITC of 220/250 Volts, single phase, 50 Hz Siren of 3.25 km range, Horizontal double mounting type of 1/2 HP 6000 RPM on C. C. foundation complete as per specification no. SRN-AS/SM						4
	Groundfloor	1		1		1	EACH
	1st floor	1		1		1	
	2nd floor	1		1		1	
	Terrace floor	1		1		1	
						4	
	Item No.113						
ELECT WING ITEM NO-16-5-10 ,PAGE NO- 246	Supplying and erecting ISI mark GI pipe 32 mm. dia 'C' class at position with accessories complete. Specification no. CW-PLB/GP.		115.35	1.00		115.35	115.35
	Ground floor		16.00				MTR
	1st floor		46.00				
	2nd floor		42.00				
	3rd floor /Terrace		11.35				
	Item No.114						

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
ELECT WING ITEM NO-16-5-11 ,PAGE NO- 246	Supplying and erecting ISI mark GI pipe 40 mm. dia 'C' class at position with accessories complete. Specification no. CW-PLB/GP.		83.30	1.00		83.30	83.30
	Ground floor		6.00				MTR
	1st floor		24.00				
	2nd floor		37.00				
	3rd floor /Terrace		16.30				
	Item No.115						
ELECT WING ITEM NO-16-5-13 ,PAGE NO- 246	Supplying and erecting ISI mark GI pipe 65 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.		96.00	1.00		96.00	96.00
	Ground floor		11.00				MTR
	1st floor		16.00				
	2nd floor		26.00				
	3rd floor /Terrace		43.00				

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.116						
VEMC-21	Supplying, Installing, testing and commissioning of fire hydrant multi stage pump capable of delivering 2850Lpm @ 70.0m head coupled to water cooled diesel engine of adequate HP. It shall be fitted with a radiator on a common base from with complete ancillary units such as colling system, non return Valve, Y strainer, fuel tank of adequate capacity, Pressure guage, pressure switch. Control panel shall be per specification stated in Item No.87. (Cost of control panel is not included)	1.00		1.00		1.00	1.00
	Pump room						Each
	Item No.117						
	Supplying, Installing testing & commissioning COMMON control panel for fire fighting system consisting of electrical motor driven 60 HP Main fire pump, Jockey pump and 12.5 HP consisting of the following INCOMING : 1 No. Set of phase indicating lamps with SFU Rate 350A 1 No. Set of 400 Amps. TPNE Ai.Bus bars 1 No. 0-400 Amps. Ammeter, 1 No.0-600V voltmeter with phase selector switch, Isolating Switch 400A OUTGOING for Main Electrical Pump: 1 No. 200 Amps MCB 1 No. S/D starter suitable for 60 HP 1 No. Single phase preventor suitable for the pump described above 1 No. set of ON/OFF indicating lamps 1 No. Automanual selector switch OUTGOING for Jockey Pump: 1 No. 50 Amps MCB 1 No. DOL starter suitable for 12.50 HP 1 No. Single phase preventor suitable for the pump described above 1 No. of set of ON/OFF indicating lamps 1 No. Automanual selector switch ENGINE CONTROL SECTION NO. 1 Diesel Engine for Standby pump:	1.00		1.00		1.00	1.00

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
VEMC-21	a) Main switch 2 pole ON/OFF - 1 No. b) Battery charger with transformer with rectifier resistance DC ammeter, DC voltmeter, T/B selector switch - 1 set c) Indicating lamps for fault communication (Battery charger, supply ON, Control ON, engine running, low oil pressure, high water pressure and engine overspeed) - 6 Nos. d) Push buttons for starter, stop reset - 4 Nos. e) Selector switches (Engine control, mode selector) - 2 Nos. f) Auxiliary relays/contractors/timer for sequence operating for starting and stopping of the engine - 1 g) Hooter for audio alarm (Industrial type) - 1 No. Accessories for outgoing supply for the motors: GI SWD earthing wire for the above motor Accessories for outgoing supply for Diesel Engine: Copper conductor armoured cable 2.5 sqmm of 12 Core x 2 runs a) Battery 2 strands b) Engine ON/OFF 2 strands c) Low oil pressure 3 strands d) Engine overspeed 2 strands e) Water temperature 2 strands f) Spare 1 strand The cost of control panel shall also include necessary pressure switches with necessary cabling & inter-locked with the panel to						
	Pump room	1.00					EACH
	Item No.118						
MR	ALARM VALVE WITH COMPLETE ACCESSORIES WHICH ARE INSTALLED AT TERRACE AFTER THW PUMP 150mm	1.00		1.00		1.00	1.00
	ground floor	1.00					EACH

e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	Item No.119						
MR	Emergency fire ladder	8.00		1.00		8.00	8.00
	1st floor	2.00					EACH
	2nd floor	6.00					
	Item No.120						
MR	FALSE CEILING TYPE SPEAKER (Bosch 6 Watt 6 watt metal grill ceiling speaker)	4.00		1.00		4.00	4.00
	Item No.121						
MR	SOCKET BOX FOR PORTABLE HANDSET STATION	1	1			1	1
							Each

Rate Analysis for NIC

Mumbai Mangroves Conservation Unit									
Name of Work: Conservation and Development of the Mangrove Park at Dahisar									
RATE ANALYSIS FOR VARIOUS MAJOR DSR ITEMS									
Name of work : Conservation and Development of the Mangrove Park at Gorai									
RATE ANALYSIS for NIC									
Item Description								Amount (Rs.)	Unit
R.A. No.	1								
Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means									
E-SSR 2018-19				I/P	21.02 Page no 187		=	143.00	/Cum
			Corporation Area 5% increase					7.15	
						Total		150.15	
						Say	=	150.15	/Cum
R.A. No.	2								
Filling in plinth and floors with approved excavated murrum in 15cm to 20cm layers including watering and compaction etc. complete.. Specs no									
E-SSR 2018-19				I/P	21.36 Page No.191		=	85.00	/Cum
			Corporation Area 5% increase					4.25	
								89.25	
						Total	=	89.25	
						Say	=	89.25	/Cum
R.A. No.	3								
Providing soling using 80mm size trap metal in layers of 15 cm each including filling voids with sand, ramming, watering etc. complete. Specs no									
E-SSR 2018-19				I/P	21.40 Page No.192		=	969.00	/Cum
			Corporation Area 5% increase					48.45	
								1017.45	
						Sub Total	=	1017.45	
Add lead + royalty charges for									

Item Description							Amount (Rs.)	Unit
					Lead	Royalty		
		a) Rubble	1	979.41	979.41	Rs. 141.34	=	1120.75
						Total		2138.20
						Say	=	2138.20 /Cum
R.A. No.	4	Providing and laying cast in si tu / Ready Mix Cement Concrete M-30 for bored piles each of load capacity and as per design and of 1000 mm diameter or as directed placed through steel shells sunk to the required depth through all strata except rock excluding provision of reinforcement as per detai led drawings and design approved by the Engineer -in- charge includingplacing wi th fully automatic micro processor based PLC wi th SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quali ty Artificial Sand by tremie arrangements, compaction of concrete including chipping and dressing and withdrawal of shell etc. complete. (Excluding steel reinforcement)						
E-SSR 2018-19				I/P	22.37 Page No.209		=	6816.00 RMT
					Corporation Area 5% increase			340.80
						Total	=	7156.80
						Say	=	7156.80 /Rmt
R.A. No.	5	Chiseling through pile shells in hard strata like boulders, soft and hard rocks Beyond 900 mm and upto and inclusive of 1050 mm dia. including removing and stacking the loose mater ials etc. complete and disposing of the unserviceable mater ials outside complete.						
E-SSR 2018-19				I/P	22.42 Page No. 210		=	2077.00 Rig Hour
					Corporation Area 5% increase			103.85
						Total	=	2180.85
						Say	=	2180.85 /Rig Hour
R.A. No.	6	Empty boring for 725 to 1050 mm dia. Bored R.C.C. cast Running in situ piles including withdrawal of shell, removal of Metre earth to a distance of 50 metres etc. complete.						
E-SSR 2018-19				I/P	22.54 Page No.212		=	1094.00 RMT

Item Description							Amount (Rs.)	Unit
			Corporation Area 5% increase				54.70	
						Total	=	1148.70
						Say	=	1148.70 /Rmt

Item Description								Amount (Rs.)	Unit
R.A. No.	7								
Chipping and dressing of the R.C.C. piles upto 0.60m. including cleaning reinforcement and removal of dismantled materials for providing pile caps etc. complete.Spec. No.: As directed by Engineer-in-charge									
E-SSR 2018-19				I/P	22.55 Page No. 212	=		529.00	/No
					Corporation Area 5% increase			26.45	
						Total	=	555.45	
						Say	=	555.45	/Nos
Providing Bentonite slurry treatment									
R.A. No.	8								
Providing bentonite slurry for various diameter of piles wide . Spec. No.: As directed by Engineer-in-charge									
E-SSR 2018-19				I/P	22.56 Page No. 212	=		61.00	/Cum
					Corporation Area 5% increase			3.05	
						Total	=	64.05	
						Say	=	64.05	/Cum
R.A. No.	9								
Providing, placing and driving in position 6 mm thick permanent M.S. liner upto required depth with 12 mm thick M.S. cutting edge of 0 .5metre length of bottom including fabricating, cutting the M.S. sheet to required diametre and shape, welding the joints and driving with the help of required machineries including all materials, labour and lift etc. complete.as directed by the Engineer in charge. Upto 3.00 meter deep liner									
E-SSR 2018-19				I/P	22.57 Page No.212	=		70056.00	MT
					Corporation Area 5% increase			3502.80	
						Total	=	73558.80	
						Say	=	73558.80	/MT
Bd- F : Reinforced Cement Concrete									
R.A. No.	10								

Item Description						Amount (Rs.)	Unit
Providing and laying Cast in situ/ Ready Mix cement concrete M-30 of trap metal for R.C.C. pile caps as per detailed designs and drawings, including bailing out water manually, centering, formwork, laying/ pumping, compacting, finishing and curing etc. with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand complete. (Excluding steel reinforcement)							
E-SSR 2018-19			I/P	22.61	Page No. 213	=	5727.00 /Cum
			Corporation Area 5% increase				286.35
Add lead + royalty charges for							
			8 bags of cement	4.00			
			Sand	0.425	800.560		340.24
			20 mm Metal	0.57	800.56		456.32
			12mm metal	0.28	800.56		224.16
					Total	=	7034.07
					Say	=	7034.07 /Cum
Bd- C : Structural Steel Work							
R.A. No.	11						
Providing and fabricating structural steel work in rolled sections like joist, channels, angles, tees etc. as per detailed design and drawings or as directed by Engineer-In-Charge. including cutting, fabricating, hoisting, erecting, fixing in position making riveted / bolted welded connections with connecting plates, braces etc. and including one coat of anticorrosive paint and over it two coats of oil painting of approved quality and shade etc. complete.							
E-SSR 2018-19			I/P	23.01	Page No. 214	=	71014.00 /M.T.
			Corporation Area 5% increase				3550.7
					Total	=	74564.70
					Say	=	74564.70 /M.T.
R.A. No.	12						

Item Description						Amount (Rs.)	Unit
Providing and laying Cast in si tu/ Ready Mix cement concrete in M15 of t rap/ grani te/ quar tzi te/ gneiss metal for steps including steel center ing, plywood/ steel formwork, laying/ pumping, compact ing,roughening them if special finish is to be provided, finishing uneven and honeycombed sur face and cur ing etc. complete. The Cement Mortar 1:3 plaster is considered for rendering uneven and honeycombed sur face, only. Newly laid concrete shall be covered by gunny bag, plastic, tarpaulin etc. (Wooden center ing wi ll not be allowed.),with fully automatic micro processor based PLCwi th SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quali ty Ar t i ficial Sand							
E-SSR 2018-19			I/P	24.04 Page No. 217	=	4757.00	Cum
			Corporation Area 5% increase			237.85	
						4994.85	
Add lead + royalty charges for							
			6 bags of cement	3.00			
			Sand	0.440	800.56	352.25	
			20 mmMetal	0.78	800.56	624.44	
			12mm metal	0.11	800.56	88.06	
					Total	=	6059.60
					Say	=	6059.60 Cum
R.A. No.	13						
Providing and laying Cast in si tu/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. work in foundations like raft , strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. including bailing out water , formwork ,cover blocks, laying/ pumping, compaction and curing roughening the sur face if special finish is to be provided (Excluding reinforcement and structural steel) etc. complete, wi th fully automat ic micro processor based PLC wi th SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. Wi th natural sand/ V.S.I. quality Artificial Sand							
E-SSR 2018-19			I/P	25.13 Page No. 222	=	5553.00	/Cum
			Corporation Area 5% increase			277.65	
Add lead + royalty charges for							
			Sand	0.425	800.56	340.24	
			Metal	0.85	800.56	680.48	
					Total		6851.37
					Say	=	6851.37 /Cum

Item Description							Amount (Rs.)	Unit
R.A. No.	14							
Providing and laying Cast in situ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. columns as per detailed designs and drawings or as directed including centering, formwork, cover blocks compacting and roughening if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Typemixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand								
E-SSR 2018-19			I/P	25.33 Page No. 225	=		10371.00	/Cum
			Corporation Area 5% increase				518.55	
Add lead + royalty charges for								
			7.5 bags of cement	3.75				
			Sand	0.425	800.56		340.24	
			20 mm Metal	0.57	800.56		456.32	
			12 mm Metal	0.28	800.56		224.16	
						Total	=	11910.27
						Say	=	11910.27 /Cum

Item Description							Amount (Rs.)	Unit
R.A. No.	15							
Providing and laying Cast in situ Ready Mix cement concrete in M-25 of trap/ granite/ quartzite/ gneiss metal for R.C.C. beams and lintels as per detailed designs and drawings or as directed including centering, formwork, cover blocks, laying/ pumping, compaction and roughening the surface if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand								
E-SSR 2018-19			I/P	25.52 Page No. 225	=		9308.00	/Cum
			Corporation Area 5% increase				465.4	
Add lead + royalty charges for								
			7.5 bags of cement	3.75				
			Sand	0.425	800.56		340.24	
			20 mm Metal	0.57	800.56		456.32	
			12 mm Metal	0.28	800.56		224.16	
						Total	=	10794.12
						Say	=	10794.12 /Cum
R.A. No.	16							
Providing and laying Cast in situ Ready Mix cement concrete M-25 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including centering, formwork, cover blocks, compaction, finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand								
E-SSR 2018-19			I/P	25.72 Page No. 227	=		10384.00	Cum
			Corporation Area 5% increase				519.2	
Add lead + royalty charges for								
			7.5 bags of cement	3.75				
			Sand	0.425	800.56		340.24	
			20 mm Metal	0.57	800.56		456.32	
			12 mm Metal	0.28	800.56		224.16	
						Total	=	11923.92
						Say	=	11923.92 /Cum

Item Description							Amount (Rs.)	Unit
R.A. No.	17							
Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap/ granite/ quartzite/ gneiss metal for R.C.C. chajja as per detailed design and drawings including steel centering, formwork, cover blocks compacting , curing , finishing and roughening the surface if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)								
E-SSR 2018-19			I/P	26.07 Page No. 230	=		10249.00	Cum
			Corporation Area 5% increase				512.45	
Add lead + royalty charges for								
		7.5 bags of cement	3.75					
		Sand	0.425	800.56			340.24	
		20 mm Metal	0.57	800.56			456.32	
		12 mm Metal	0.28	800.56			224.16	
					Total	=	11782.17	
					Say	=	11782.17	/Cum
R.A. No.	18							
Providing and laying Cast in situ/Ready Mix cement concrete in M-25 of trap/ granite/ quartzite/ gneiss metal for R.C.C. pardi of required thickness including steel centering, formwork, cover blocks, laying/pumping, compacting and roughening them if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)								
E-SSR 2018-19			I/P	26.19 Page No. 231	=		11550.00	Cum
			Corporation Area 5% increase				577.5	
Add lead + royalty charges for								
		Sand	0.425	800.56			340.24	
		Metal	0.85	800.56			680.48	
					Total	=	13148.22	
					Say	=	13148.22	/Cum
R.A. No.	19							

Item Description						Amount (Rs.)	Unit
Providing and laying Cast in situ/Ready Mix cement concrete M-20 of trap/ granite/ quartzite/ gneiss metal for R.C.C. chajja as per detailed design and drawings including steel centering, formwork, cover blocks compacting , curing , finishing and roughening the surface if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)							
E-SSR 2018-19			I/P	26.26 Page No. 233	=	10313.00	Cum
			Corporation Area 5% increase			515.65	
Add lead + royalty charges for							
		7.5 bags of cement	3.75				
		Sand	0.425	800.56		340.24	
		20 mm Metal	0.57	800.56		456.32	
		12 mm Metal	0.28	800.56		224.16	
					Total	=	11849.37
					Say	=	11849.37 /Cum
R.A. No.	20						
Providing and fixing in position HCRM / CRS (Corrosion Resistant Steel) bar reinforcement of various diameters for R.C.C. pile caps, footings, foundations, slabs, beams columns, canopies, staircase,newels, chajjas, lintels pardis, copings, fins, arches etc. as per detailed designs, drawings and schedules. including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required complete.							
E-SSR 2018-19			I/P	26.34 Page No. 236	=	66672.00	M.T.
			Corporation Area 5% increase			3333.6	
					Total	=	70005.60
					Say	=	70005.60 M.T.
Bd- G : Brick Masonary							
R.A. No.	21						
Providing and laying Cast in situ/Ready Mix cement concrete in M-25 of trap/ granite/ quartzite/ gneiss metal for R.C.C. pardi of required thickness including steel centering, formwork, cover blocks, laying/pumping, compacting and roughening them if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)							
E-SSR 2018-19			I/P	27.13 Page No. 247	=	5158.00	Cum

Item Description							Amount (Rs.)	Unit
			Corporation Area 5% increase				257.9	
Add lead + royalty charges for								
			Sand	0.32	800.56		256.18	
			bricks	475.00	1967.44		934.53	
						Total	=	6606.61
						Say	=	6606.61 /Cum

Item Description								Amount (Rs.)	Unit
R.A. No.	22								
Providing expansion joints in R.C.C. framed structure (at terrace level) with premoulded filler 25 mm thick and 3 mm thick aluminium plate as required, bituminous poured filler, fixing lead, flashing on upper side and T.W. battens on inner face finishing etc. Complete as directed									
E-SSR 2018-19			I/P	30.04 Page No.253	=		3695.00	Sqm	
			Corporation Area 5% increase				184.75		
					Total	=	3879.75		
					Say	=	3879.75	/Sqm	
Bd- J : Water Proofing									
R.A. No.	23								
Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved water proofing compound and laying the brick bats on bottom layer in C.M.1:5 admixed with approved water proofing compound filling up to half depth of brick bats, curing this layer for 3 days, applying cement slurry over this layer joints of brick bats with C.M.1:3 admixed with approved water proofing compound and finally top finishing with average 20 mm. thick layers of same mortar added with jute fiber at 1 Kg per bag including finishing the surface smooth with cement slurry admixed with approved water proofing compound. Marking finished surface with false squares of 300mm x 300 mm. making the junctions at the parapet rounded and tapered top for required height, with drip mould at the junction of plaster and parapet and curing and covering 10 years Guarantee against leakproofness on Court fee stamp paper of Rs. 500/- including ponding test etc. complete.te									
E-SSR 2018-19			I/P	31.04 Page No. 255	=		839.00	Sqm	
			Corporation Area 5% increase				41.95		
Add lead + royalty charges for									
			cement	0.550			0.00		
			sand	0.070	800.560		56.04		
qty =0.08*475=38 nos			bricks	38.000	1967.440		74.76		
						Total	=	1011.75	
						Say	=	1011.75	
								Sqm	
R.A. No.	24								

Item Description						Amount (Rs.)	Unit
Providing and laying joint less Polydee-LM, a highly flexible elastometric coat ing for RCC / cement i t ious sur face for ter race waterproofing on B.B. Coba / R.C.C, after applicat ion of TP-42 Pr imer on per fect ly clean sur face (free from loose dust and foreign mat ter) application of 1st coat of Polydee-LM @ 700 gms/ sqm and applying 2nd coat of Polydee-LM @ 700 gms/ sqm and finishing the same with sprinkling the AG-10 granules on the wet coat ing. (After finishing cover ing the treatment wi th 25mm cement plaster for protection with fibrillated 6mm Plyplast fibre @ 125 gms/ sqm to be paid in separate item.) cover ing 7 years guarantee on Cour t Fee Stamp Paper of Rs.100/ - etc. complete.							
E-SSR 2018-19			I/P	31.10 Page No.257	=	1098.00	Sqm
			Corporation Area 5% increase			54.90	
				Total	=	1152.90	
				Say	=	1152.90	/Sqm
Bd- L : Plastering & Pointing							
R.A. No.	25						
Providing internal cement plaster 6 mm thick in a single coat in cement mor tar 1:4 wi thout neeru finish to concrete sur face in all positions including scaffolding and cur ing etc. complete.							
E-SSR 2018-19			I/P	32.01 Page No. 260	=	150.00	Sqm
			Corporation Area 5% increase			7.5	
Add lead + royalty charges for							
			sand	0.0076	800.56	6.08	
				Total	=	163.58	
				Say	=	163.58	/Sqm
R.A. No.	26						
Providing internal cement plaster 12mm thick in single coat in cement mor tar 1:4 wi thout neeru finish to concrete or brick surfaces, in all positions including scaffolding and cur ing etc. complete.							
E-SSR 2018-19			I/P	32.04 Page No. 260	=	210.00	Sqm
			Corporation Area 5% increase			10.5	
			Sand	0.015	800.56	12.01	
				Total	=	232.51	
				Say	=	232.51	/Sqm
R.A. No.	27						

Item Description						Amount (Rs.)	Unit
Providing sand faced plaster externally in cement mortar using approved screened sand, in all positions including base coat of 15 mm thick in cement mortar 1:4 using waterproofing compound at 1 kg per cement bag curing the same for not less than 2 days and keeping the surface of the base coat rough to receive the sand faced treatment 6 to 8 mm thick in cement mortar 1:4 finishing the surface by taking out grains and curing for fourteen days scaffolding etc.complete.							
E-SSR 2018-19			I/P	32.11 Page No. 261	=	608.00	Sqm
			Corporation Area 5% increase			30.4	
			Sand	0.033	800.56	26.42	
					Total	=	664.82
					Say	=	664.82 /Sqm
R.A. No.	28						
Providing and laying Rough Shahabad Stone Flooring 25mm to 30mm thick and of required width in plain/ diamond pattern on a bed of 1:6 C.M. including cement float, striking joints, pointing in cement mortar 1:3 curing and cleaning etc. complete							
E-SSR 2018-19			I/P	33.01 Page No.265	=	565.00	Sqm
			Corporation Area 5% increase			28.25	
					Total	=	593.25
					Say	=	593.25 /Sqm
R.A. No.	29						
Providing and laying cement concrete flooring 50mm thick with M20 cement concrete laid to proper level and slope in alternate bays including compact ion, filling joints, marking lines to give the appearance of tiles of 30cm x 30cm or other size laid diagonally/ square etc. finishing smooth (with extra cement) in any colour as directed and curing etc. complete. With Natural Sand.							
E-SSR 2018-19			I/P	33.15 Page No.267	=	368.00	Sqm
			Corporation Area 5% increase			18.40	
Ground floor							
					Total	=	386.40
					Say	=	386.40 /Sqm
R.A. No.	30						
Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25 mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float , filling joints with neat cement slurry, curing, polishing and cleaning etc. complete.							
E-SSR 2018-19			I/P	33.18 Page No. 268	=	1180.00	Sqm
			Corporation Area 5% increase			59	

Item Description							Amount (Rs.)	Unit
			Sand	0.020	800.56		16.01	
						Total	=	1255.01
						Say	=	1255.01 /Sqm
R.A. No.	31							
Providing and applying two coats of lead/zinc base oil paint/ bituminous paint of approved colour and shade to to new wood work and fibre boards including preparing the surface, knotting, scaffolding if necessary excluding primer coat etc. complete.Spec. No.:Bd-O-1 Page No.409								
E-SSR 2018-19				I/P	35.01 Page No.280	=	68.00	Sqm
			Corporation Area 5% increase				3.40	
						Total	=	71.40
						Say	=	71.40 /Sqm
R.A. No.	32							
Providing and applying Two coat of synthetic enamel paint of approved colour and quality to new and old structural steel work and wood work in buildings, including scaffolding if necessary and preparing the surface by solvent degreasing and de-rusting by manual methods, preparing the surface (excluding primer coat) etc. complete. Red Book Spec. No:BdO.-5. Page No415 / 2012								
E-SSR 2018-19				I/P	35.07 Page No.280	=	72.00	Sqm
			Corporation Area 5% increase				3.60	
						Total	=	75.60
						Say	=	75.60 /Sqm
R.A. No.	33							
Providing and applying of waterproof cement paint of approved manufacture and colour to the plastered surface, including scaffolding preparing the surface, watering for two days etc. complete								
E-SSR 2018-19				I/P	35.13 Page No.281	=	58.00	Sqm
Three coat			Corporation Area 5% increase				2.90	
						Total	=	60.90
						Say	=	60.90 /Sqm
R.A. No.	34							
Providing and applying one coat of seal cement primer of approved manufacture and shed including scaffolding preparing the surface by cleaning dirt and other foreign matters, scrapping if necessary including scaffolding etc. complete.								

Item Description						Amount (Rs.)	Unit
Refer E-SSR 2018-19			I/P	35.22 Page No. 282	=	15.00	Sqm
				Corporation Area 5% increase		0.75	
					Total =	15.75	
					Say =	15.75	/Sqm
R.A. No.	35						
Providing and applying washable oil bound distemper of approved colour, shade and quality to old/new surface, in Three Coat including scaffolding, preparing the surfaces (excluding primer coat) etc. complete. Red Book Spec. No:BdP.-5. Page No428 / 2012							
E-SSR 2018-19			I/P	36.10 Page No.285	=	23.40	Sqm
				Corporation Area 5% increase		1.17	
					Total =	24.57	
					Say =	24.57	/Sqm
Pergola							
R.A. No.	36						
Providing and fixing Indian teak wood joists and girders in timber floors of single, double or framed type including scaffolding if necessary, and one coat of primer etc. complete							
E-SSR 2018-19			I/P	37.03 Page No.287	=	94079.00	Cum
				Corporation Area 5% increase		4703.95	
					Total =	98782.95	
					Say =	98782.95	/Cum
R.A. No.	37						
Providing and fixing teak wood hand rail of 60 mm x 75 mm as per detailed drawings or as directed by the Engineer, including french polishing, etc. complete.(Note : The work to be executed on preapproval of Superintending Engineer).							
E-SSR 2018-19			I/P	37.10 Page No.288.	=	942.00	Rmt
				Corporation Area 5% increase		47.10	
					Total =	989.10	
					Say =	989.10	/Rmt
R.A. No.	38						
Providing and fixing 20 mm thick superior veneer board pelmet box 150 to 200 mm wide to doors or window frames including 20mm dia. Aluminium curtain rod with sockets and finishing with french polishing (without top)etc. complete.							

Item Description						Amount (Rs.)	Unit
E-SSR 2018-19			I/P	37.14 Page No.288	=	3027.00	Sqm
			Corporation Area 5% increase			151.35	
					Total	=	3178.35
					Say	=	3178.35 /Sqm
R.A. No.	39						
Providing and fixing plain zinc sheeting of 0.80 mm thick (22 B.W.G.)over the ridge hip or valley to galvanized iron sheet roofing including all fastening and bolt galvanised iron screws and bolts, lead and bitumen washers etc. complete.(Weight of 6.8 kg/sq.m.).							
E-SSR 2018-19			I/P	38.05 Page No.291	=	951.00	Sqm
			Corporation Area 5% increase			47.55	
					Total	=	998.55
					Say	=	998.55 /Sqm
R.A. No.	40						
Providing and fixing false ceiling of 15 to 20 mm thick decorative boards of fibre plaster of paris, including scaffolding if necessary, all architectural work like mouldings, cornices, curves, domes, cups as per detailed drawing and three coats of spray painting to boards etc. complete. (excluding frame work, runners & mild steel suspenders) (with the permission of S.E.) Red Book Spec. No:BdR.-18. Page No473 / 2012							
E-SSR 2018-19			I/P	38.17 Page No.293	=	915.00	Sqm
			Corporation Area 5% increase			45.75	
					Total	=	960.75
					Say	=	960.75 /Sqm

Item Description								Amount (Rs.)	Unit
R.A. No.	41								
Providing and fixing False ceiling of 12 mm thick Laminated board with frame of M.S. angle 40 x 40 x 5 mm and Tee of size 40 x 40 x 6mm at 60 cm c/ c including 12 mm dia. hangers, T.W. battens 50 x 25 mm and beading 25 x 15 mm thick scaffolding if necessary, all Iron work etc. complete.									
E-SSR 2018-19			I/P	38.21 Page No.294	=		1863.00	Sqm	
			Corporation Area 5% increase				93.15		
					Total	=	1956.15		
					Say	=	1956.15	/Sqm	
Bd- R : Roofing & Ceiling									
R.A. No.	42								
Providing and fixing sky light in R.C.C. roof including frame made of M.S. angle 50 x 50 x 6 mm with hold fast, sheet glass 12 mm thick, Chicken mesh 24 gauge with all accessories and required fixtures and fastening fitting including painting etc. complete.									
E-SSR 2018-19			I/P	38.31 Page No. 295	=		1053.00	Sqm	
			Corporation Area 5% increase				52.65		
					Total	=	1105.65		
					Say	=	1105.65	/Sqm	
R.A. No.	43								
Providing and fixing frame with / without ventilator of size as specified with Country cut teak wood for doors and windows including chamfering, rounding, rebating, iron holdfast of size 300mm x 40mm x 5mm with oil painting, etc. complete									
E-SSR 2018-19			I/P	39.01 Page No.306	=		151541.00	Cum	
			Corporation Area 5% increase				7577.05		
					Total	=	159118.05		
					Say	=	159118.05	/Cum	
R.A. No.	44								
Providing and fixing solid core flush door shut ter in single leaf 32 mm thick decorat ive type of exter ior grade as per detai led drawings approved face veneers 3 mm thick on both faces or as directed, all necessary beads, mouldings and lipping, wrought iron hold fasts, chromium plated fixtures and fastenings, wi th brass mor t ise lock, chromium plated handles on both sides, and finishing wi th French Polish etc. complete									
E-SSR 2018-19			I/P	39.09 Page No.307	=		2311.00	Sqm	

Item Description							Amount (Rs.)	Unit
			Corporation Area 5% increase				115.55	
						Total	=	2426.55
						Say	=	2426.55 /Sqm
R.A. No.	45							
Providing and fixing rolling shut ter fabr icated from steel laths of minimum thickness 0.9 mm wi th lock plate of 3.15 mm thickness reinforced with 35 x 35 x 5 mm angle sect ion fi t ted wi th sliding bolts and handles for both sides, deep M.S. channel section of depth and thickness not less than 65 mm and 3.15 mm respect ively wi th hold fast arrangements, M.S. Bracket plate 300 x 300 x 3.15 mm minimum size and shape wi th square bar , suspension shaft of minimum 32 mm diameter ,hood cover of M.S. sheet not less than 0.9 mm thickness and of any size at top and safety devices including mechanical gear operat ion ar rangement consist ing of worm gear wheels and worms of high grade cast iron or mi ld steel and one coat of red lead pr imer etc. complete. (I.S. 62481979) (Wi th mechanical gear)								
E-SSR 2018-19			I/P	39.25	Page No. 311	=	3893.00	Sqm
			Corporation Area 5% increase				194.65	
						Total	=	4087.65
						Say	=	4087.65 /Sqm
R.A. No.	46							
Providing and fixing in posi t ion. (as per I.S.1868 / 1982) Aluminium sliding window of two t racks wi th rectangular pipe having overall dimension 63.50 x 38.10 x 1.02 mm at weight 0.547 kg/ Rmt . and window frame bot tom t rack sect ion 61.85 x 31.75 x 1.20 mm at weight 0.695 kg/ Rmt . Top and side t rack sect ion 61.85 x 31.75 x 1.30 mm at weight 0.659 kg/ Rmt . The shut ter should be of bear ing bot tom 40 x 18 x 1.25 mm at weight 0.417 kg/ Rmt . Inter locking sect ion 40 x 18 x 1.10mm at weight 0.469 kg/ Rmt . And handle sect ion 40 x 18 x 1.25 mm at weight 0.417 kg/ Rmt . and top sect ion 40 x 18 x 1.25 mm at weight 0.417 kg/ Rmt . As per detai led drawings and as directed by Engineer in charge wi th all necessary Aluminium sect ions fixtures and fastenings such as roller bear ing in nylon cast ing and self locking catch fitted in vertical section of shutter including 5 mm thick plain glass with all required screws and nuts etc, complete. With colour Anodising with box.								
E-SSR 2018-19			I/P	39.37	Page No.314	=	4831.00	Sqm
			Corporation Area 5% increase				241.55	
						Total	=	5072.55
						Say	=	5072.55 /Sqm
R.A. No.	47							

Item Description						Amount (Rs.)	Unit
Providing and fixing in position (as per 1868 / 1982) Alluminium sliding window of three tracks with rectangular pipe 95 x 38.10 x 0.90 mm at weight 0.637 kg/Rmt. with window frame bottom track section 92 x 31.75 x 1.30 mm at weight 1.070 kg/Rmt.. Top and side track section 92 x 31.75 x 1.30 mm at weight 0.933 kg/Rmt. The shutter should be of bearing bottom 40 x 18 x 1.25 mm at weight 0.417 kg/Rmt. Inter locking section 40 x 18 x 1.10 mm at weight 0.469 kg/Rmt. and handle and top section 40 x 18 x 1.25 mm at weight 0.417 kg/Rmt. As per detailed drawings and as directed by Engineer in charge with all necessary Aluminium sections fixtures and fastenings such as roller bearing in nylon casting and self locking catch fitted in vertical section of shutter including 5 mm thick plain glass and aluminium mosquito net shutter with stainless steel jail with all required screws and nuts etc, complete. With colour Anodising with box							
E-SSR 2018-19			I/P	39.41 Page No.316	=	4889.00	Sqm
			Corporation Area 5% increase			244.45	
					Total	=	5133.45
					Say	=	5133.45 /Sqm
R.A. No.	48						
Providing and fixing mild steel grill railing weighing 20 kg / sqm. with PVC handrail cover and newel post for staircases, including fabricating, fixtures, drilling holes in concrete / other surface, erecting the grill work, necessary welding, fixing by nuts and bolts, fixing PVC handrail cover, with one coat of anticorrosive paint and two coats of oil painting with approved colour and shade, remaking the damaged surface, cleaning, etc. complete. Spec. No. : As directed by Engineer in charge.							
E-SSR 2018-19			I/P	40.11 Page No.331	=	2959.00	Sqm
			Corporation Area 5% increase			147.95	
					Total	=	3106.95
					Say	=	3106.95 /Sqm
R.A. No.	49						
Providing and fixing P.V.C. Rain water pipes of 110mm outer diameter and having wall thickness of 2.2 to 2.7 mm confirming to I.S. 13592- 1992 including proper rainwater receiving recess with P.V.C. plug, bend, necessary fittings, such as, offsets, shoes, including fixing the pipe on wall using approved wooden cleats projecting 25mm to 40mm from face of wall and fixing with clips of approved quality and number, filling the joint using rubber gasket with solvent cement and properly resting the shoe of pipes on C.C. or masonry blocks, including necessary scaffolding and maintenance for 3 yrs for any leakages or dislocations of pipes. All the P.V.C. fittings and additional 2 piece socket clips shall be got approved from engineer in charge etc.complete. (The contractor shall give 3 yrs guarantee bond for payment)							
E-SSR 2018-19							
a) 110 mm			I/P	42.87 Page No.355	=	408.00	R.M
			Corporation Area 5% increase			20.40	

Item Description								Amount (Rs.)	Unit
						Total	=	428.40	
						Say	=	428.40	/R.M
R.A. No.	50								
Providing and erecting chain link fencing 1.6 M. height with G.I. chain link of size 50 x 50 mm, 8 gauge thick and fixed 75 mm above ground level on vertical M.S. Angles of 40 x 40 x 6 mm size, including excavating pits for foundation and embedded in C.C. block of 1:4:8 mix of size 450 x 450 x 670 mm. at 1.75 M. c/c with iron bar 16mm dia as hold fast including welding link with angle frame at 30 cm c/c with nuts and bolts and horizontal M.S. Angles at top and bottom of 25 x 25 x 5 mm size and vertical M.S. flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm angles both side at every corner or bend embedded in concrete blocks of 1:4:8 of size 450 x 450 x 670 mm including 3 coats of oil painting etc. complete.									
E-SSR 2018-19				I/P	46.39 Page No.373		=	1762.00	Rmt
					Corporation Area 5% increase			88.10	
						Total	=	1850.10	
						Say	=	1850.10	/Rmt
R.A. No.	51								
Removing any kind of Debris including loading in truck and conveying day to day basis to approved dumping point etc complete with all lifts and lead of 52Km. (As directed by Engineer - in - Charge.)									
E-SSR 2015-16				I/P	Bd/HES I.N.37 P .N.195		=	4994.00	Trip
					Deductionfor previous taxes,viz.octrai chargesof MCGM 15%			749.10	
								4244.90	
					Add for price escalation 10%			424.49	
						Total	=	4669.39	
						Say	=	4669.39	/Trip
ADDITIONAL ITEM ADDED									
R.A. No.	52								
Providing and fixing in position to the exact profile and prestressing the high tensile strands to specified ultimate strength, standard end anchorages, cable ducts, grouting ducts after prestressing and bearing plates with wedges as per detailed drawings including necessary plant and machinery for prestressing etc. complete.									
E-SSR 2018-19				I/P	14.06 Page No.124		=	153428.00	M.T.
					Corporation Area 5% increase			7671.40	
						Total	=	161099.40	

Item Description							Amount (Rs.)	Unit
						Say	=	161099.40 /M.T.
R.A. No.	53							
Providing structural steel work in hollow section of various thickness and sizes in square, rectangular and round shape from 25mm to 450mm section as per IS 4923 YST 310 Grade produced from iron ore and blast furnace route etc. as per detailed designs and drawing or as directed including cutting, fabricating, hoisting, erecting, fixing in position, making riveted/bolted/ welded connections and painting complete.								
E-SSR 2018-19			I/P	23.12 Page No.216			=	88759.00 M.T.
			Corporation Area 5% increase					4437.95
					Total		=	93196.95
					Say		=	93196.95 /M.T.
R.A. No.	54							
Providing and applying boiled linseed oil in two coats to the new wood work, including knotting, preparing the surface, scaffolding etc. complete as directed.								
E-SSR 2018-19			I/P	34.02 Page No.278			=	32.00 Sqm
			Corporation Area 5% increase					1.60
					Total		=	33.60
					Say		=	33.60 /Sqm
R.A. No.	55							
Providing and applying two coats of lead/zinc base oil paint/ bituminous paint of approved colour and shade to new wood work and fiber boards including preparing the surface, knotting, scaffolding if necessary, excluding primer coat etc. complete								
E-SSR 2018-19			I/P	35.01 Page No.280			=	68.00 Sqm
			Corporation Area 5% increase					3.40
					Total		=	71.40
					Say		=	71.40 /Sqm
R.A. No.	56							
Providing and erecting chain link fencing with G.I. chainlink of size 50 x 50 mm, 8 gauge thick with all fixtures and fastening.								
E-SSR 2018-19			I/P	29 Page No.473			=	177.00 Sqm
			Installation and Fixing charges 15% increase				=	26.55
			Corporation Area 5% increase					8.85

Item Description							Amount (Rs.)	Unit
						Total	=	212.40
						Say	=	212.40 /Sqm
R.A. No.	57							
Providing and fixing 50mm diameter water meter with non-return valve including strainer, sockets/ union nut and including water meter box making locking arrangement and lock. [without chamber]								
E-SSR 2018-19			I/P	41.30	Page No.337	=	11551.00	EACH
			Corporation Area 5% increase				577.55	
						Total	=	12128.55
						Say	=	12128.55 EACH
R.A. No.	58							
Providing and fixing 10cm C.I. Nahani Trap including C.I. grating bend and piece of C.I. pipe upto the outside face of the wall complete.								
E-SSR 2018-19			I/P	41.80	Page No. 342	=	893.00	EACH
			Corporation Area 5% increase				44.65	
						Total	=	937.65
						Say	=	937.65 EACH
R.A. No.	59							
Providing and fixing 15cm x 10cm salt glazed stoneware gully trap in cement concrete 1:4:8 outside the building including cast iron grating in the sink, connecting glazed stoneware pipe, brick masonry chamber with cast iron lid and cast iron grating for the gully trap.								
E-SSR 2018-19			I/P	42.02	Page No. 343	=	1084.00	EACH
			Corporation Area 5% increase				54.20	
						Total	=	1138.20
						Say	=	1138.20 EACH
R.A. No.	60							

Item Description						Amount (Rs.)	Unit
Providing and fixing 450mm x 550mm size superior type Belgium mirror with 16mm dia. nickel plated towel rod etc. complete.							
E-SSR 2018-19			I/P	42.20 Page No.345	=	655.00	EACH
			Corporation Area 5% increase			32.75	
					Total	=	687.75
					Say	=	687.75 EACH
R.A. No.	61						
Providing and fixing C.P.Two way BIB cock of approved make continental including necessary sockets/union nut etc. complete.							
E-SSR 2018-19			I/P	42.80 Page No.353	=	1102.00	EACH
			Corporation Area 5% increase			55.10	
					Total	=	1157.10
					Say	=	1157.10 EACH
R.A. No.	62						
Providing and fixing Wall Mounted European type white glazed earthenware water closet pan with UPVC seat and lid with chromium plated brass hinges and rubber buffers including UPVC and vent pipe up to the outside face of wall 10 liter enameled low level flushing cistern with fittings pipe stop tap brackets for fixing cistern 32 mm dia. UPVC flush pipe with fittings and clamps ,20 mm dia.UPVC overflow pipe ,mosquito proof couplings G.I. chain and pulley,with water Jet and fitting including cutting and making good to the walls and floors testing etc. complete.(prior approval of sample and brand by Ex. Engineer is necessary before use)							
E-SSR 2018-19			I/P	43.42 Page No.365	=	10342.00	EACH
			Corporation Area 5% increase			517.10	
					Total	=	10859.10
					Say	=	10859.10 EACH
R.A. No.	63						
Providing and fixing white glazed urinal of series with Pressmatic auto closing valve of having 32mm diameter P.V.C. flush pipe with fitting and flushing of approved make and arrangement including lead soil pipe, lead trap & soil pipe connection upto the outside face of wall etc.complete as directed by Engineer in charge.							
E-SSR 2018-19			I/P	48.31 Page No.396	=	8846.00	EACH
			Corporation Area 5% increase			442.30	

Item Description							Amount (Rs.)	Unit
						Total	=	9288.30
						Say	=	9288.30 EACH
R.A. No.	64							
Providing and fixing wall hung white wash basin of size 350x450x165mm with approved make pillar cock, C.P. Angular stop cock long thread approved make continental including SS bottle trap of approved make having necessary pipe connection up to the outside face of the wall etc complete as directed by Engineer in charge.								
E-SSR 2018-19			I/P	48.32 Page No.396		=	5085.00	EACH
				Corporation Area 5% increase			254.25	
						Total	=	5339.25
						Say	=	5339.25 EACH
R.A. No.	65							
C.P.Toilet paper holder jaquar make continental (Cat. No. AQ 7751)								
E-SSR 2018-19			I/P	232 Page No.496		=	795.00	EACH
				Corporation Area 5% increase			39.75	
						Total	=	834.75
						Say	=	834.75 EACH
R.A. No.	66							
cPVC pipe 50mm dia.								
E-SSR 2018-19			I/P	251 Page No.470		=	365.00	MTR
				Corporation Area 5% increase			18.25	
						Total	=	383.25
						Say	=	383.25 MTR
R.A. No.	67							
Ball cock for 25mm dia.								
E-SSR 2018-19			I/P	278 Page No.470		=	265.00	EACH

Item Description							Amount (Rs.)	Unit
			Corporation Area 5% increase				13.25	
						Total	=	278.25
						Say	=	278.25
								EACH
R.A. No.	68							
Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. 8 RS/LTR X 2000 ltr								
PWD (ELECTRICAL WING) 2018-19		I/P	4-4-7 Page No.87			=	16000.00	EACH
			Corporation Area 5% increase				800.00	
						Total	=	16800.00
						Say	=	16800.00
								EACH
R.A. No.	69							
Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. 8 RS/LTR X 500 ltr								
PWD (ELECTRICAL WING) 2018-19		I/P	4-4-7 Page No.87			=	4000.00	EACH
			Corporation Area 5% increase				200.00	
						Total	=	4200.00
						Say	=	4200.00
								EACH
R.A. No.	70							
Supplying and erecting non return valve 50 mm dia in position made of gun metal complete.								
PWD (ELECTRICAL WING) 2018-19		I/P	16-6-21 Page No.247			=	1282.00	EACH
			Corporation Area 5% increase				64.10	
						Total	=	1346.10
						Say	=	1346.10
								EACH

Item Description							Amount (Rs.)	Unit
R.A. No.	71							
Supplying and erecting submersible pumpset of 2.25 KW/3 HP with 415 V, 50 c/s AC supply suitable for 150 mm dia. borewell suitable for 20 to 80 LPM discharge at 55 to 25 m head and (max. efficiency at 41 m head & 50 lpm) discharge & delivery Pipe of Size- 50mm dia. with a necessary H type clamps as per specification no. WP-SMP (1 WORKING + 1 STAND BY)								
PWD (ELECTRICAL WING) 2018-19		I/P	12-2-1 Page No.209	=		23361.00	EACH	
			Corporation Area 5% increase			1168.05		
				Total	=	24529.05		
				Say	=	24529.05	EACH	
R.A. No.	72							
Providing coating of bitumen paint & 4mm thick wrapping for underground 100 mm ring main of fire fighting system. FOR 50NB PIPE RATE IS 0.5 TIME OF PWD RATE (We are using 50mm dia pipe so cost will be =128/2=64.00 Basic rate)								
PWD (ELECTRICAL WING) 2018-19		I/P	13-5-9 Page No.225	=		64.00	MTR	
			Corporation Area 5% increase			3.20		
				Total	=	67.20		
				Say	=	67.20	MTR	
R.A. No.	73							
Supplying & erecting gun metal gate valve of size 50 mm dia complete as per specification no. FF-VL/GV								
PWD (ELECTRICAL WING) 2018-19		I/P	13-6-29 Page No.227	=		945.00	EACH	
			Corporation Area 5% increase			47.25		
				Total	=	992.25		
				Say	=	992.25	EACH	
R.A. No.	74							
Supplying and erecting ISI mark GI pipe 50 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.								
PWD (ELECTRICAL WING) 2018-19		I/P	16-5-12 Page No.246	=		685.00	MTR	
			Corporation Area 5% increase			34.25		

Item Description							Amount (Rs.)	Unit
						Total	=	719.25
						Say	=	719.25
								MTR
R.A. No.	75							
Supplying and erecting high density polythene pipe ISI mark 50mm. dia. suitable for pressure of 6 kg. / cm ² connected to jet/submersible pump with required material complete.								
PWD (ELECTRICAL WING) 2018-19			I/P	16-5-18	Page No.247	=	101.00	MTR
			Corporation Area 5% increase				5.05	
						Total	=	106.05
						Say	=	106.05
								MTR
R.A. No.	76							
Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means								
E-SSR 2018-19			I/P	21.02	Page No.187	=	143.00	CUM
			Corporation Area 5% increase				7.15	
						Total	=	150.15
						Say	=	150.15
								CUM
R.A. No.	77							
Providing and fixing screw down for 50 mm dia. wheeled stop tap of brass including necessary sockets/ union nut complete.								
E-SSR 2018-19			I/P	41.48	Page No.338	=	1468.00	EACH
			Corporation Area 5% increase				73.40	
						Total	=	1541.40
						Say	=	1541.40
								EACH
R.A. No.	78							

Item Description							Amount (Rs.)	Unit
Water Supply								
Providing and fixing on walls/ ceiling/ floor 15 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.								
E-SSR 2018-19			I/P	42.55 Page No.350	=		194.00	MTR
			Corporation Area 5% increase				9.70	
					Total	=	203.70	
					Say	=	203.70	MTR
R.A. No.	79							
Providing and fixing on walls/ceiling/floor 20 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.								
E-SSR 2018-19,			I/P	42.56 Page No.351	=		221.00	MTR
			Corporation Area 5% increase				11.05	
					Total	=	232.05	
					Say	=	232.05	MTR
R.A. No.	80							
Providing and fixing on walls/ ceiling/ floor 25 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.								
E-SSR 2018-19			I/P	42.57 Page No.351	=		263.00	MTR
			Corporation Area 5% increase				13.15	
					Total	=	276.15	
					Say	=	276.15	MTR
R.A. No.	81							

Item Description						Amount (Rs.)	Unit
Providing and fixing on walls/ ceiling/ floor 32 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.							
E-SSR 2018-19			I/P	42.58 Page No.351	=	317.00	MTR
				Corporation Area 5% increase		15.85	
					Total	=	332.85
					Say	=	332.85 MTR
R.A. No.	82						
Providing and fixing on walls /ceiling/ floor 40 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete. Including removing existing pipe line if necessary and conveying and stacking the same in PWD chowky or as directed etc. complete.							
E-SSR 2018-19			I/P	42.59 Page No.351	=	390.00	MTR
				Corporation Area 5% increase		19.50	
					Total	=	409.50
					Say	=	409.50 MTR
R.A. No.	83						
Providing and fixing on walls/ ceiling/ floor 50 mm dia. CPVC pipe with necessary fittings, remaking good the demolished portion etc. complete.							
E-SSR 2018-19			I/P	42.60 Page No.351	=	564.00	MTR
				Corporation Area 5% increase		28.20	
					Total	=	592.20
					Say	=	592.20 MTR
R.A. No.	84						
Providing and fixing high-density polyethylene (HDPE) container one piece moulded water tank made out of high density polyethylene and built corrugated inclusive of delivery up to destination hoisting and fixing of accessories such as inlet, outlet overflow pipe inclusive of all tanks capacity up to 20000 litres. 8 RS/LTR X5000 LTR							
PWD (ELECTRICAL WING) 2018-19			I/P	4-4-7 PAGE NO.87	=	40000.00	Each

Item Description							Amount (Rs.)	Unit
			Corporation Area 5% increase				2000.00	
						Total	=	42000.00
						Say	=	42000.00
								Each
R.A. No.	85							
Supplying, erecting & terminating XLPE armoured cable 3½ core 35 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL								
PWD (ELECTRICAL WING) 2018-19				I/P	7-1-16 PAGE NO.127	=	221.00	MTR
			Corporation Area 5% increase				11.05	
						Total	=	232.05
						Say	=	232.05
								MTR

Item Description							Amount (Rs.)	Unit
R.A. No.	86							
Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL								
PWD (ELECTRICAL WING) 2018-19				I/P	7-1-28, PAGE NO.128	=	136.00	MTR
			Corporation Area 5% increase				6.80	
					Total	=	142.80	
					Say	=	142.80	MTR
R.A. No.	87							
Providing earthing with galvanized iron earth plate size 60 x 60 x 0.6 cm complete with all materials, testing & recording the results as per specification no. EA-EP								
PWD (ELECTRICAL WING) 2018-19				I/P	9-1-1 PAGE NO.161	=	2957.00	Each
			Corporation Area 5% increase				147.85	
					Total	=	3104.85	
					Say	=	3104.85	Each
R.A. No.	88							
Providing printed instruction chart for treating persons suffering from electric shock, printed in English & Marathi and duly laminated complete.								
PWD (ELECTRICAL WING) 2018-19				I/P	10-2-22 PAGE-189	=	104.00	Each
			Corporation Area 5% increase				5.20	
					Total	=	109.20	
					Say	=	109.20	Each
R.A. No.	89							
Providing Round bottom fire bucket of 9 Litres capacity as per IS : 2546 made out of 24 gauge G.I. sheet with extra handle at bottom duly painted white inside and red outside with FIRE Mark, on provided stand/ wall hook complete.								
PWD (ELECTRICAL WING) 2018-19				I/P	10-2-24 PAGE-189	=	362.00	SET
			Corporation Area 5% increase				18.10	

Item Description							Amount (Rs.)	Unit
						Total	=	380.10
						Say	=	380.10
								SET
R.A. No.	90							
Supplying standard first aid box with necessary antiseptic cream, medicine for use on wounds due burn, crepe bandage, gauge bandage, medicated ready to use bandage (Band-Aid) adhesive tape for medicinal use, scissors, anti-septic solution, etc. (All above contents shall be of standard makes)								
PWD (ELECTRICAL WING) 2018-19		I/P	10-2-27 PAGE-189			=	696.00	Each
			Corporation Area 5% increase				34.80	
						Total	=	730.80
						Say	=	730.80
								Each
R.A. No.	91							
Supplying & erecting Carbon Dioxide (CO2) fire extinguisher of 4.5 kg. capacity cartridge type conform to IS 2878 /15683 complete erected with necessary clamp made from 50 x 6 mm. M. S. flat with nut & bolts grouted in wall complete.								
PWD (ELECTRICAL WING) 2018-19		I/P	10-2-34 PAGE NO.190			=	8488.00	Each
			Corporation Area 5% increase				424.40	
						Total	=	8912.40
						Say	=	8912.40
								Each
R.A. No.	92							
Supplying and erecting ABC powder type fire extinguisher as per IS : 13849 /15683 of 6 kg capacity with necessary clamp for erection on wall.								
PWD (ELECTRICAL WING) 2018-19		I/P	10-2-36 PAGE NO.190			=	3291.00	Each
			Corporation Area 5% increase				164.55	
						Total	=	3455.55
						Say	=	3455.55
								Each
R.A. No.	93							

Item Description						Amount (Rs.)	Unit
Supplying, installing, testing and commissioning with perfect aligning, proper levelling of fire service main multi stage pump, of 2400 LPM at 88 m head centrifugal type, 75 HP (55 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/MS.							
PWD (ELECTRICAL WING) 2018-19	I/P	13-2-1 PAGE NO.224	=	231393.00	Each		
		Corporation Area 5% increase		11569.65			
			Total	=	242962.65		
			Say	=	242962.65	Each	
R.A. No.	94						
Supplying, installing, testing and commissioning with perfect aligning, proper levelling of jockey pump of 240 LPM at 56 m head, 15 HP (11 kW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/JP							
PWD (ELECTRICAL WING) 2018-19	I/P	13-3-1 PAGE NO.224	=	60038.00	Each		
		Corporation Area 5% increase		3001.90			
			Total	=	63039.90		
			Say	=	63039.90	Each	
R.A. No.	95						
Supplying, installing, testing and commissioning with perfect aligning, proper levelling of booster pump of 180 LPM at 40 m Head, 5 HP (3.75 KW), 3 phase, 415 volt, 50Hz or of suitable HP with suitable stages as per specification no. FF-MFP/BP							
PWD (ELECTRICAL WING) 2018-19	I/P	13-4-1 PAGE NO.224	=	25851.00	Each		
		Corporation Area 5% increase		1292.55			
			Total	=	27143.55		
			Say	=	27143.55	Each	
R.A. No.	96						
Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 25 mm dia with necessary fittings complete as per specification no. FF-PP							
PWD (ELECTRICAL WING) 2018-19	I/P	13-5-2 Page No.225	=	293.00	MTR		
		Corporation Area 5% increase		14.65			

Item Description							Amount (Rs.)	Unit
						Total	=	307.65
						Say	=	307.65
								MTR
R.A. No.	97							
Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 50 mm dia with necessary fittings complete as per specification no. FF-PP								
PWD (ELECTRICAL WING) 2018-19		I/P	13-5-3	Page No.225		=	596.00	MTR
			Corporation Area 5% increase				29.80	
					Total	=	625.80	
					Say	=	625.80	MTR
R.A. No.	98							
Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 75/80 mm dia with necessary fittings complete as per specification no. FF-PP								
PWD (ELECTRICAL WING) 2018-19		I/P	13-5-5	Page No.225		=	945.00	MTR
			Corporation Area 5% increase				47.25	
					Total	=	992.25	
					Say	=	992.25	MTR
R.A. No.	99							
Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 100 mm dia with necessary fittings complete as per specification no. FF-PP								
PWD (ELECTRICAL WING) 2018-19		I/P	13-5-6	PAGE NO.225		=	1343.00	MTR
			Corporation Area 5% increase				67.15	
					Total	=	1410.15	
					Say	=	1410.15	MTR
R.A. No.	100							
Supplying and erecting G.I. pipe above ground of 'C' class ERW of size 150 mm dia with necessary fittings complete as per specification no. FF-PP								

Item Description							Amount (Rs.)	Unit
PWD (ELECTRICAL WING) 2018-19				I/P	13-5-7 PAGE NO.225	=	2035.00	MTR
			Corporation Area 5% increase				101.75	
					Total	=	2136.75	
					Say	=	2136.75	MTR
R.A. No.	101							
Supplying and erecting cast iron double flange sluice valve 75/80 mm dia. complete as per specification no. FF-VL/SV								
PWD (ELECTRICAL WING) 2018-19				I/P	13-6-9 PAGE NO.226	=	4806.00	EACH
			Corporation Area 5% increase				240.30	
					Total	=	5046.30	
					Say	=	5046.30	EACH
R.A. No.	102							
Supplying and erecting cast iron double flange sluice valve 100 mm dia. complete as per specification no. FF-VL/SV								
PWD (ELECTRICAL WING) 2018-19				I/P	13-6-10 PAGE NO.226	=	7238.00	EACH
			Corporation Area 5% increase				361.90	
					Total	=	7599.90	
					Say	=	7599.90	EACH
R.A. No.	103							
Supplying and erecting cast iron double flange sluice valve 160 mm dia. complete as per specification no. FF-VL/SV								
PWD (ELECTRICAL WING) 2018-19				I/P	13-6-11 PAGE NO.226	=	11155.00	EACH
			Corporation Area 5% increase				557.75	
					Total	=	11712.75	
					Say	=	11712.75	EACH
R.A. No.	104							

Item Description						Amount (Rs.)	Unit
Supplying and erecting cast iron double flange NRV of size 150 mm dia complete as per specification no. FF-VL/NRV							
PWD (ELECTRICAL WING) 2018-19	I/P	13-6-21 PAGE NO.226	=			11021.00	EACH
		Corporation Area 5% increase				551.05	
			Total	=		11572.05	
			Say	=		11572.05	EACH
R.A. No.	105						
Supplying and erecting stainless steel single outlet hydrant valve fitted with necessary accessories complete as per specification no. FF-VL/HV							
PWD (ELECTRICAL WING) 2018-19	I/P	13-6-31 PAGE NO.227	=			4679.00	EACH
		Corporation Area 5% increase				233.95	
			Total	=		4912.95	
			Say	=		4912.95	EACH

Item Description							Amount (Rs.)	Unit
R.A. No.	106							
Supplying and installing wall mounting swinging Hose reel drum fitted with 19 mm dia. 30m long high pressure polypropylene (Polyhose) fitted with necessary accessories complete as per specification no. FF-FFA/HV								
PWD (ELECTRICAL WING) 2018-19				I/P	13-7-2 PAGE NO.227	=	5903.00	EACH
			Corporation Area 5% increase				295.15	
					Total	=	6198.15	
					Say	=	6198.15	EACH
R.A. No.	107							
Supplying fire fighting reinforced rubber lined (R.R.L.) hose pipe, 63mm dia, 15m in length, fitted with necessary accessories complete as per specification no. FF-FFA/RRL								
PWD (ELECTRICAL WING) 2018-19				I/P	13-7-4 PAGE NO.227	=	4622.00	EACH
			Corporation Area 5% increase				231.10	
					Total	=	4853.10	
					Say	=	4853.10	EACH
R.A. No.	108							
Supplying & erecting stainless steel branch pipe 63 mm dia fitted with 20 mm dia detachable hexagonal nozzle complete as per specifications no. FF-FFA/NZ								
PWD (ELECTRICAL WING) 2018-19				I/P	13-7-8 PAGE NO.227	=	1694.00	EACH
			Corporation Area 5% increase				84.70	
					Total	=	1778.70	
					Say	=	1778.70	EACH
R.A. No.	109							
Supplying and erecting fire brigade header of 150 mm dia, for supplying water in fire tank complete as per specification no. FFFA/ FBC								
PWD (ELECTRICAL WING) 2018-19				I/P	13-7-10 PAGE NO.228	=	7796.00	EACH
			Corporation Area 5% increase				389.80	

Item Description							Amount (Rs.)	Unit
						Total	=	8185.80
						Say	=	8185.80 EACH
R.A. No.	110							
Supplying and erecting 20/25mm dia gun metal air release cock, with necessary G.I. coupling to be fitted on top of air vessel or on wet riser complete as per specification no. FF-FFA/ARV								
PWD (ELECTRICAL WING) 2018-19		I/P	13-7-13 PAGE NO.228			=		627.00 EACH
			Corporation Area 5% increase					31.35
						Total	=	658.35
						Say	=	658.35 EACH
R.A. No.	111							
Supplying and installing pressure gauge of 100 mm dia., 0-300 PSI or 0-14 kg per cm square fitted with 12/15 mm dia. pad cock valve, and G.I. pipe, elbow etc. complete as per specification no. FFFFA/ PG								
PWD (ELECTRICAL WING) 2018-19		I/P	13-7-14 PAGE NO.228			=		568.00 EACH
			Corporation Area 5% increase					28.40
						Total	=	596.40
						Say	=	596.40 EACH
R.A. No.	112							
Supplying and erecting M.S./CRCA cabinet for housing single hydrant valve (size 400 x 400 x 400mm.) made from 16 SWG sheet and angle iron 25 mm. x 25 mm. x 4 mm. having front doors with viewing glass (8"x6") and locking arrangement with necessary fixing material such as rubber bidding etc. duly painted in post box red colour.								
PWD (ELECTRICAL WING) 2018-19		I/P	13-7-18 PAGE NO.228			=		3974.00 EACH
			Corporation Area 5% increase					198.70
						Total	=	4172.70
						Say	=	4172.70 EACH
R.A. No.	113							

Item Description						Amount (Rs.)	Unit
Supplying, installing, testing and commissioning heat detector complete on box as per specification no. FF-FAS/HD							
PWD (ELECTRICAL WING) 2018-19	I/P	13-8-1 PAGE-229	=	1364.00	EACH		
		Corporation Area 5% increase		68.20			
			Total	=	1432.20		
			Say	=	1432.20	EACH	
R.A. No.	114						
Supplying, installing, testing and commissioning optical type smoke detector complete on box as per specification EACH FFFAS/ SD							
PWD (ELECTRICAL WING) 2018-19	I/P	13-8-2 PAGE-229	=	1475.00	EACH		
		Corporation Area 5% increase		73.75			
			Total	=	1548.75		
			Say	=	1548.75	EACH	
R.A. No.	115						
Supplying, installing, testing and commissioning manual call point (Pill box) with break glass push button in metal enclosure complete as per specification no. FF-FAAS/MCP							
PWD (ELECTRICAL WING) 2018-19	I/P	13-8-5 PAGE-229	=	431.00	EACH		
		Corporation Area 5% increase		21.55			
			Total	=	452.55		
			Say	=	452.55	EACH	
R.A. No.	116						
Supplying, installing, testing and commissioning hooters with CRCA enclosure complete as per specification no. FF-FAAS/HTR							
PWD (ELECTRICAL WING) 2018-19	I/P	13-8-6 PAGE-229	=	478.00	EACH		
		Corporation Area 5% increase		23.90			
			Total	=	501.90		
			Say	=	501.90	EACH	

Item Description								Amount (Rs.)	Unit
R.A. No.	117								
Supplying, installing, testing and commissioning FR, XLPE armoured cable 2 core 1.5 sq.mm. copper conductor complete erected on wall/ ceiling complete as per specification no. CBLT/ CU									
PWD (ELECTRICAL WING) 2018-19				I/P	13-8-8 PAGE-229		=	78.00	EACH
			Corporation Area 5% increase					3.90	
						Total	=	81.90	
						Say	=	81.90	EACH

Item Description							Amount (Rs.)	Unit
R.A. No.	118							
Supplying, installing, testing and commissioning of 2 Zones Microprocessor based conventional fire alarm control panel (FACP) with standard accessories complete as per specification no. FF-FAAS/FACP								
PWD (ELECTRICAL WING) 2018-19		I/P	13-8-12 PAGE-229	=			15524.00	EACH
			Corporation Area 5% increase				776.20	
				Total	=		16300.20	
				Say	=		16300.20	EACH
R.A. No.	119							
Supplying, erecting, testing and commissioning amplifier 120 W for public address system suitable to operate on 230 Volts A.C. / 12 Volts D.C. supply complete as per specification Each FFPA/ AFR								
PWD (ELECTRICAL WING) 2018-19		I/P	13-9-1 PAGE-230	=			16048.00	EACH
			Corporation Area 5% increase				802.40	
				Total	=		16850.40	
				Say	=		16850.40	EACH
R.A. No.	120							
Supplying, erecting, testing and commissioning sound column 15 Watts complete as per specification No. FFPA/ SOC								
PWD (ELECTRICAL WING) 2018-19		I/P	13-9-2 PAGE-230	=			2419.00	EACH
			Corporation Area 5% increase				120.95	
				Total	=		2539.95	
				Say	=		2539.95	EACH
R.A. No.	121							
Supplying, erecting, testing and commissioning microphone complete as per specification Each FF-PA/MIC)								
PWD (ELECTRICAL WING) 2018-19		I/P	13-9-3 PAGE-230	=			4646.00	EACH
			Corporation Area 5% increase				232.30	
				Total	=		4878.30	

Item Description								Amount (Rs.)	Unit
						Say	=	4878.30	EACH

Item Description							Amount (Rs.)	Unit
R.A. No.	122							
Supplying, erecting, testing and commissioning stand for microphone complete.								
PWD (ELECTRICAL WING) 2018-19		I/P	13-9-4 PAGE-230	=			1618.00	EACH
			Corporation Area 5% increase				80.90	
				Total	=		1698.90	
				Say	=		1698.90	EACH
R.A. No.	123							
Supplying, erecting, testing and commissioning of 2 core shielded microphone cable complete as per specification no. FF-PA/MCC								
PWD (ELECTRICAL WING) 2018-19		I/P	13-9-6 PAGE-230	=			114.00	MTR
			Corporation Area 5% increase				5.70	
				Total	=		119.70	
				Say	=		119.70	MTR
R.A. No.	124							
Supplying, erecting, testing and commissioning of 1.5 sq mm speaker wire complete.								
PWD (ELECTRICAL WING) 2018-19		I/P	13-9-10 PAGE-230	=			47.00	MTR
			Corporation Area 5% increase				2.35	
				Total	=		49.35	
				Say	=		49.35	MTR
R.A. No.	125							
Automatic Sprinkler System								
Supplying, erecting, testing and commissioning of 15 mm (½") dia. NBCM Body chrome finished quartzoid bulb sprinkler having 68° C fixed temperature rating with deflector disc of conventional construction complete as per specification no. FF-SPR								
PWD (ELECTRICAL WING) 2018-19		I/P	13-10-1 PAGE NO.230	=			239.00	EACH
			Corporation Area 5% increase				11.95	

Item Description								Amount (Rs.)	Unit
						Total	=	250.95	
						Say	=	250.95	EACH

Item Description							Amount (Rs.)	Unit
R.A. No.	126							
Providing, maintaining and operating temporary public address system on hire consisting 02 Nos. solid state heavy wattage amplifier 250 watts (one for working and another for stand by emergency) working on AC / generator and 24 volt car battery supply, 06 Nos. of matching of 100 volt line (200 watts) box type speakers/sound column, 02 Nos super sensitive microphone with suitable size of microphone holding stand. The system shall be in a fully automatic change over operation in case of failure of supply for one day.								
PWD (ELECTRICAL WING) 2018-19				I/P	14-1-33 PAGE-235	=	5634.00	EACH
			Corporation Area 5% increase				281.70	
					Total	=	5915.70	
					Say	=	5915.70	EACH
R.A. No.	127							
Providing and maintaining temporary cordless (Hand type or lape type) super sensitive HUF microphone (1 no stand by) for one day.								
PWD (ELECTRICAL WING) 2018-19				I/P	14-1-35 PAGE-235	=	2406.00	EACH
			Corporation Area 5% increase				120.30	
					Total	=	2526.30	
					Say	=	2526.30	EACH
R.A. No.	128							
SITC of 220/250 Volts, single phase, 50 Hz Siren of 3.25 km range, Horizontal double mounting type of 1/2 HP 6000 RPM on C. C. foundation complete as per specification no. SRN-AS/SM								
PWD (ELECTRICAL WING) 2018-19				I/P	15-1-1 PAGE-241	=	11074.00	EACH
			Corporation Area 5% increase				553.70	
					Total	=	11627.70	
					Say	=	11627.70	EACH
R.A. No.	129							
Supplying and erecting ISI mark GI pipe 32 mm. dia 'C' class at position with accessories complete. Specification no. CW-PLB/GP.								
PWD (ELECTRICAL WING) 2018-19				I/P	16-5-10 ,PAGE NO-246	=	428.00	MTR

Item Description							Amount (Rs.)	Unit
			Corporation Area 5% increase				21.40	
						Total	=	449.40
						Say	=	449.40
								MTR
R.A. No.	130							
Supplying and erecting ISI mark GI pipe 40 mm. dia 'C' class at position with accessories complete. Specification no. CW-PLB/GP.								
PWD (ELECTRICAL WING) 2018-19		I/P	16-5-11 ,PAGE NO-246		=		494.00	MTR
			Corporation Area 5% increase				24.70	
						Total	=	518.70
						Say	=	518.70
								MTR
R.A. No.	131							
Supplying and erecting ISI mark GI pipe 65 mm. dia 'C' class position with accessories complete. Specification no. CW-PLB/GP.								
PWD (ELECTRICAL WING) 2018-19		I/P	16-5-13 ,PAGE NO-246		=		863.00	MTR
			Corporation Area 5% increase				43.15	
						Total	=	906.15
						Say	=	906.15
								MTR
R.A. No.	132							
Supplying, Installing, testing and commissioning of fire hydrant multi stage pump capable of delivering 2850Lpm @ 70.0m head coupled to water cooled diesel engine of adequate HP. It shall be fitted with a radiator on a common base from with complete ancillary units such as colling system, non return Valve, Y strainer, fuel tank of adequate coapcity, Pressue guage, pressure switch. Control panel shall be per specification stated in Item No.87. (Cost of control pannel is not included)								
PWD (ELECTRICAL WING) 2018-19		I/P	VEMC-21		=			EACH
			Corporation Area 5% increase				0.00	
						Total	=	0.00
						Say	=	0.00
								EACH

Item Description							Amount (Rs.)	Unit
R.A. No.	133							
<p>SITC of Electric Traction Passenger Lift with • Rated capacity :- 8 Passenger/544Kg • Floors :- G+1 floor (2Stops/2 Landings)</p> <p>• Travel :- 3 to 4.2 mtrs • Location of Lift Machine:- MR/MRL • Rated speed :- 1.0mps VS</p> <p>• Doors type :- COPO/TOPO Doors with frame having clearopening of 800 mm wide x 2000 mm high made from SS 304 grade sheet of 1.5mm, thick in hairline finish for car and all landing doors with SS door architraves/frames</p> <p>• Lift car enclosure made from SS 304 grade sheet of 1.5mm, thick with hairline finish with frame made from MS girders, bracing of adequate size with minimum safety factor of 5, with Toe Guard Apron, with necessary false ceiling with adequate LED lights, blower/fan for ventilation & SS chequered plate flooring, handrails, mirror, emergency light etc.</p> <p>• COP with SS face plate having metallic push buttons with Braille Code & luminous indicator around button with FPI, scrolling UP/DN LED indicator & with/without attendant key switch, OWD with audio-visual alarm, VAS in Marathi, Hindi & English with intercom system with telephone instrument in Lift car, LMR & FCC/ground floor • Clear Car size ofmm wide xmm deep xmm high • LOP with SS face plate having recess/surface push button box for all landings with scrolling UP/DN LED indicator having metallic push buttons with Braille Code & luminous indicator around button with CPI, Lift car arrival & next travel direction audio-visual indication at all landings</p> <p>• Lift controller based on microprocessor/ PLC with VVVF Drive having closed loop control system, with IBMS compatible having necessary port, control panel duly wired with proper size & strength copper wire for power & control circuit, with provision for addition of floor/control card & allied accessories control panel having enclosure of 1.5mm CRCA sheet with powder coating with IP54 Protection class</p> <p>• ARD complete with necessary SMF VRLA batteries</p> <p>• Fireman controller having fireman switch at fire Landing,</p> <p>• CCTV surveillance system comprises of 2nos minimum 2.0MP FHD IP based vandal proof Dome camera in lift car & in LMR/inside lift shaft top aimed on Lift machinery & controller with NVR kept in LMR/FCC with HDR data backup for 60 days with 18" FHD TV monitor, to be kept in FCC/LMR as directed by Engineer In Charge.</p> <p>• Lift Machine of Gearless PMSM of suitable kW with Traction pulley, OSG, electromagnetic brakes, entire assembly mounted on adequate size girders duly fixed on LMR floor/ shaft walls complete with main/diverter traction sheaves, suspension wire ropes/belts of adequate size & strength • Other mechanical parts such as 'T' section adequate size guide rails for car & counter weight with brackets fasteners, counter weight frame with necessary blocks, buffers with necessary support arrangement, MS pit ladder etc. erected with necessary steel work</p> <p>• Minor civil work for alteration if any and erection of door frames and accessories, erection buffers, erection of lift machinery, adequate size core cuts if required & scaffolding for erecting guide rails fixing of girders for mounting lift machine etc. complete as per specification no. LFT. • Lift shaft available having clear size ofmm wide xmm deep,mm Pit depth,mm Overhead</p>								
PWD (ELECTRICAL WING) 2018-19				I/P	17-1-3 ,PAGE NO-252	=	1068647.00	EACH

Item Description								Amount (Rs.)	Unit
						Total	=	1068647.00	
						Say	=	1068647.00	EACH
R.A. No.	134								
Add On									
A For Lift travelling up to six floors at a speed of 1.0 mps, add as below, For Lift having 800mm wide x 2000mm high clear entrance in 1.5mm thick SS 304 grade landing door [Two panel], this includes all necessary accessories like LOP's with UP/DN buttons-arrowsindicators,extension of guide rails, shaft wiring with trunking, traveling cables, main hoisting ropes/belts, & OSG rope landing doors with all accessories etc. necessary for the normal safe functioning of lift installation complete									
A, page no-271 / A-item no-2, page no-272							=	143547.00	EACH
						Total	=	143547.00	
						Say	=	143547.00	EACH

Development of the Mangroves Park at Dahisar						
Conference Item						
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Total Amount
1	R2-ME-12-2-a	SITC OF TELEPHONE CABLES : PVC Telephone Cable -2 pair	500	mtr	25	12500
2	R2-ME-12-1-e	SITC OF EPABX : SITC of EPABX 5 x16 P&T	3	Nos	31744	95232
3	R2-ME-12-a	SITC OF ARMoured JELLY FILLED TELEPHONE CABLES : Armoured Telephone Cable -10 pair	200	mtr	115	23000
4	R2-ME-12-3-b	Armoured Telephone Cable -20 pair	100	mtr	169	16900
		SITC OF PUBLIC ADDRESS SYSTEM				0
5	R2-ME-12-10-a	Conference Controller shall have 50 Watt Central Mixer Amplifier minimum 64	6	Nos	22009	132054
6	R2-ME-12-10-b	Delegate unit Microphone	60	Nos	8335	500100
7	R2-ME-12-10-c	Chairman Unit Microphone	3	Nos	9361	28083
8	R2-ME-12-10-d	6W/100V. PA Ceiling Speaker	30	Nos	1221	36630
9	R2-ME-12-10-e	Permanent wiring using superior quality 8 core shielded cable complete with junction box fitted with 8 pin socket(Per junction).	30	Nos	34	1020
10	R2-ME-12-10-q	Supply and installation of 10W recessed ceiling mount speaker with VARIABLE VOLTAGE TAPPING OF 10/5 watt	12	Nos	1726	20712
11	R2-ME-12-10-f	Speaker wiring using 40/36 cable with PVC conduit	100	mtr	101	10100
12	R2-ME-12-10-g	Supply & installation of P.A. Cassette 160 watts Amplifier.	8	Nos	17598	140784
13	R2-ME-12-10-h	Supply & installation of 16 channel zone control panel/ Zone selector to control the output of the amplifier.	3	Nos	7488	22464
14	R2-ME-12-10-j	Supply & installation of Unidirectional Dynamic Vocal & Speech Microphone	6	Nos	3956	23736
		SITC OF CCTV				0
15	R2-ME-12-13-a	Supply, Installation, Testing & Commissioning of InfraRed Analog HD Dome camera, 1/3" CMOS image sensor, Fixed Lens: 3.6mm (2.8mm, 6mm & upto 12mm optional lens),Minimum 720 P lines horizontal resolution, IR Range upto 20m,1 channel BNC HDCVI high definition video output, Minimum Illumination: 0.05Lux/F2.0, 0Lux IR ON; Auto(ICR) / Color / B/W filter, Weatherproof Standard : IP67 and etc. to fulfill the requirement.	20	Nos	5698	113960
16	R2-ME-12-13-b	Supply, Installation, Testing & Commissioning of InfraRed Analog HD Outdoor Bullet camera, 1/3" CMOS image sensor, Fixed Lens: 3.6mm (2.8mm, 6mm & upto 12mm optional lens), Minimum 720 P lines horizontal resolution, IR Range upto 20m,1 channel BNC HDCVI high definition video output, Minimum Illumination: 0.05Lux/F2.0, 0Lux IR ON; Auto(ICR) / Color / B/W filter and etc. to fulfill the requirement.	40	Nos	6186	247440
17	R2-ME-12-13-c	Supply, Installation, Testing & Commissioning of Day & Night Analog HD PTZ CCTV Camera, 1/3" Progressive Scan CMOS image sensor, Minimum 720P lines horizontal resolution, 20x Optical and 12x Digital zoom , Pan: 360° endless, Tilt travel: -15° ~ 90°, IR Range upto 100m, Up to 255 Presets, 8 Tour, 4 Pattern, Privacy Masking upto min. 8 area, Auto(ICR) / Color / B/W filter, BNC HDCVI high definition video output; Weatherproof Standard : IP67 and etc. to fulfill the requirement.	8	Nos	40698	325584
18	R2-ME-12-13-h	Supply, Installation, Testing & Commissioning of HD Digital Video Recorder: 16 CHANNEL AHD frontend real-time encoding, 2 audio inputs and 1 audio outputs, Simultaneous live viewing, recording, playback, and remote streaming, VGA, HDMI, PTZ, USB Interface. 10/100Base-T Ethernet port for local or wide area network connection, RS485 serial port for serial communication to control movable cameras, Keyboard support including loop-through to other DVR's. 16:9 and 4:3 monitor aspect ratio displays for large-format monitor support. Fullscreen, quad and multi-screen display capabilities in live and playback modes. Motion detection. Multiple search modes including smart search (search for motion within recorded images). Pan/tilt/zoom camera control via RS485/PTZ Interface. Local archiving via USB, Local archiving via built-in RWDVD burner (specific models). Built-in web viewer for remote viewing, playback control, and configuration. Frame Per Second: Minimum 25 FPS. Hard disc : 4 SATA ports(4 HDDs or 3HDDs+1 CD/DVD-RW), up to 16TB, 1eSATA port (Max 4 SATA HDDs), upto 16TB. As per storage configuration contractor shall consider the seperate harddiscs.	2	Nos	32558	65116
19	R2-ME-12-13-l	SITC of 8TB Storage (HDD)	2	Nos	35258	70516
20	R2-ME-12-13-m	Supply, Installation,Testing & Commissioning of IP Dome camera with 1/2.8" CMOS, Progressive Scan, HD 720P Horizontal Resolution, Dual H.264 streaming, 25 FPS, 2.8mm-10mm varifocal auto iris lens, 0.01 lux,Tamper detection,Wide dynamic Range, 3D Noise reduction, PoE & standard 12VDC/24VAC power input, Indoor surface mount enclosure, Mounted on True Ceiling / False ceiling as per site requirement (including required accessories), UL Listed Or Equivalent. Camera Shall be ONVIF compliant.	4	Nos	35977	143908

Development of the Mangroves Park at Dahisar						
Conference Item						
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Total Amount
21	R2-ME-12-13-r	Design, Supply, testing, installation and commissioning of modular 64 channel 1080P NVR, Recording: 1920X1080P, 15 FPS, 30 days recording, 24 hours/day; Real time monitoring with 25 FPS. Hard disc : 8 SATA III Ports, Each 6TB, up to 48TB, 1 eSATA port, Disk array: Support RAID 0/1/5/6/10, Two no's of RJ-45 10/100/1000 Mbps self adaptive Ethernet interface, RS 232, RS 485, keyboard interfaces, VGA/HDMI compatible, 2nos front USB 2.0 & 1 no at rear USB 2.0 compatible & 16 TB hard disc and as per storage configuration contractor shall consider the separate hard discs.	1	Nos	146871	146871
22	R2-ME-12-13-t	Supply, Installation, Testing & commissioning of 42inches LED monitor, Full HD Resolution, Backlight LED, Brightness : 400 NITS min., Contrast : 1200 : 1 or better., Power supply : 230 ±10%, 50 Hz.	5	Nos	73859	369295
		Access Control System : Supply, Installation, Testing & Commissioning of following equipments for access control system.				
23	R2-ME-12-15-a	Supply, Installation, Testing & commissioning of Proximity card reader suitable for mounting on metal surface/metal frames/ wooden frames / wall or as required based on site conditions including all accessories.	10	Nos	10744	107440
24	R2-ME-12-15-b	Supply, Installation, Testing & commissioning of Electromagnetic lock : Double leaf Door with feedback - 1200 LBS	4	Nos	11395	45580
25	R2-ME-12-15-c	Supply, Installation, Testing & commissioning of Electromagnetic lock : Single leaf Door with feedback - 600 LBS	8	Nos	5698	45584
26	R2-ME-12-15-d	Supply, Installation, Testing & commissioning of Exit switch: Heavy Duty SS Finish Push Button for Exit	10	Nos	1312	13120
27	R2-ME-12-15-e	Supply, Installation, Testing & Commissioning of 2 Reader Access Control panel with required Power supply unit & Enclosure and Shall maintain a minimum of 25,000 access identity information and 1,00,000 transactions as minimum.	1	Nos	47698	47698
28	R2-ME-12-15-f	Supply, Installation, Testing & commissioning of Time & Attendance software.	1	Nos	73256	73256
29	R2-ME-12-15-g	Supply of 26-BIT proximity cards	30	Nos	326	9780
30	R2-ME-12-15-h	Supply, Installation, Testing & commissioning of Access control management software(Single User)	1	Nos	65117	65117
31	R2-ME-12-15-i	Supply, Installation, Testing & commissioning of Multizone door frame metal detector 6 Zone, Technology : Pulse induction, Walk-through Arch (Outer Frame) Dimensions (H X W X D) : 2200mm x 820mm x 570mm, Walk-through Arch (Inner Frame) Dimensions (H X W X D) : 2000mm x 720mm x 570mm, Detection Area (H X W X D) : 2000mm x 720mm x 570 mm, Detection Zones : Multiple Zones, Number Of Detection Zones : 6, Type Of Usage : Outdoor, "Construction Of Door Frame (Walk-through Arch)" : Light weight, rigid, laminated side panels and cross piece with ABS plastic boots for panel protection, Base Wheels For Easy Mobility, Floor Panel To Attach Both Side Panels To Give Stability & Rigidity To The Structure, Floor Panel - Covered With Synthetic Carpet For Long Life, Weather Proof, 6-8 Operational Frequency Range, 16 Number Of User Selectable Frequencies, Adjustable Sensitivity, 150 Number Of Sensitivity Levels / Steps, Ferrous, Non-Ferrous, Ferrite & Alloys Metals Which Can Be Detected, Audio-Visual Indication On Detection At Side Panels And Control Panel, LCD Back-lit Display, False Alarm Rate less than 3%, Capacity / Throughput Rate: 22 person/min	2	Nos	99303	198606
		Class room projector				
32	R2-ME-12-11-c	Projector, Full Hd Resolution (1920 x 1080 Pixels), 3200 Lumen, 15000 : 1 Contrast Ratio, 2 HDMI Ports, USB , 3D, Rugged design, etc.	3	Nos	122094	366282
33	R2-ME-12-11-d	SITC of 84" Portable Indoor Outdoor Projector Screen, 84 Inch Diagonal Projection and Pull Up Foldable Stand Tripod.	3	Nos	10581	31743
34	R2-ME-12-11-e	Ceiling bracket 1meter for projector including all fitting accessories.	3	Nos	407	1221
35	R2-ME-12-12-b	16 Port Network Switch	3	Nos	3581	10743
36	R2-ME-12-4-b	Cat 6 Gigabyte Cables	200	mtr	32	6400
					Total	3568575

Mangroves Trail

Mumbai Mangroves Conservation Unit						
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar						
Battery Operated Vehicles						
Sr.No	Items	Unit	Quantity	Rate	Amount	Reference
1	Supply of the Electric Battery Operated Car having Capacity of 4 Seater (2 Front and 2 Rear Facing Seats Having Below Technical Specification: Seating Capacity 4 Persons Overall Length 106" (2700 Mm) Overall Width 47.2" (1200 Mm) OVERALL HEIGHT(With Sun top) 70.4" (1790 Mm) OVERALL HEIGHT(Without Sun top) 46.9" (1200 Mm) Wheel Base 64.6" (1640 Mm) Front Wheel Tread 34.3" (870 Mm) Rear Wheel Tread 38.6" (980 Mm) Minimum Ground Clearance 4.3" (110 Mm) Dry Weight 310 Kg DRY WEIGHT(With Suntop) 335 Kg DRY WEIGHT(With Batteries) 495 Kg Batteries GS BV 150Z 12 VOLT X 4 PCS Voltage Rating 48 Volt Output Rating 3.5 HP (2.6 Kw) Charger Stationery Constant Current Charger Forward Speed 0 ~ 19 Km/H Turning Radius 2.8 M Brake System (Main) Mechanical, 2 Rear Wheel Parking Brake Pedal Brake Tire Size 18.00x8.50-8.00 Front Suspension Strut Type Rear Suspension Mono - Linkage Steering Rack And Pinion Windshield Fold-Down Clear Windshield Warranty 1 Year	Number	5	618000	3090000	Approved Rate Anlsyis
				Total	3090000	

Mumbai Mangroves Conservation Unit							
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dhaisar							
Display and Infromation Themes for the Nature Infromation Center							
Sr.No	Items	Unit	Length	B	H	Quantity	Reference
1	Supply of the Electric Battery Operated Car having Capacity of 4 Seater (2 Front and 2 Rear Facing Seats Having Below Technical Specification: Seating Capacity 4 Persons Overall Length 106" (2700 Mm) Overall Width 47.2" (1200 Mm) OVERALL HEIGHT(With Sun top) 70.4" (1790 Mm) OVERALL HEIGHT(Without Sun top) 46.9" (1200 Mm) Wheel Base 64.6" (1640 Mm) Front Wheel Tread 34.3" (870 Mm) Rear Wheel Tread 38.6" (980 Mm) Minimum Ground Clearance 4.3" (110 Mm) Dry Weight 310 Kg DRY WEIGHT(With Suntop) 335 Kg DRY WEIGHT(With Batteries) 495 Kg Batteries GS BV 150Z 12 VOLT X 4 PCS Voltage Rating 48 Volt Output Rating 3.5 HP (2.6 Kw) Charger Stationery Constant Current Charger Forward Speed 0 ~ 19 Km/H Turning Radius 2.8 M Brake System (Main) Mechanical, 2 Rear Wheel Parking Brake Pedal Brake Tire Size 18.00x8.50-8.00 Front Suspension Strut Type Rear Suspension Mono - Linkage Steering Rack And Pinion Windshield Fold-Down Clear Windshield Warranty 1 Year	Unit				5	Rate Analysis

Mumbai Mangroves Conservation Unit						
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dhaisar						
Sr.No	Items	Unit	Quantity	Rate	Amount	Reference
1	<p>Design Supply and Installation of the Mangroves Trail Walk of Section 20 Meter Length and 2.5 Meter Wide as per the Details and Specification of Project Information Memorandum (PIM) attached.</p> <p>Technical Specification :</p> <ul style="list-style-type: none"> • The mangrove trail should be 2.5m wide and should be made in sustainable method. To avoid harm to the environment/ ecosystem. • The all components should be made in wood/ substitute to wood, but the metal too avoids rusting of the members. • Piles are proposed to be in Jambha (Botincial Name: Xylia xylocarpa) wood which should be designed to take the axial load upto 2000 Kg Per pile. These Piles should be drilled in the mud/ marshy land at 2 Meter c/c and then should be made ready to receive the primary beams on them. • Primary beams should be made in first class teak wood/similar quality substitute. The primary beams do run along the trail, and do support the trail deck which should be designed for live load of 500 kg/sqm. • Secondary beams are then rested on primary beam perpendicular to the primary beam are to be made of the Nature fibre Composite Material/ similar quality substitute. These secondary beams support keels in made from secondary Nature fibre Composite Material which then support floor finish. • Floor finish should be made to take wear & tear of the people movement, giving appropriate friction in all the seasons and should be long lasting with minimal maintenance. These floor boards can be made in Nature fibre Composite Material). Designing load of 500 kg/sqm should be considered. • Handrails and brackets supporting them should be made in Nature fibre Composite Material / similar quality substitute. • All of these components should be strictly fixed with nut bolt system made up from high grade stainless steel nut bolts only. • In No Condition Cutting of the Mangroves would be allowed during the Execution of the Work expect Trimming of Branches of the Mangroves. <p>The Material of Nature Fiber Composite Material are to be Fire Retardant</p> <ul style="list-style-type: none"> • Fungal Proof and should be resistant to the Marine Environment. • The Proposed Material for Nature Fiber Composite Material should have minimum 50% of nature material in the Composite. 	Per 20 Meter Length	20	2975000	59500000	Approved Rate Anlysis No
	Cost Inclusive of GST			Total	59500000	

Mangroves Boardwalk Measurment Sheet							
Sr.No	Items	Unit	Length	B	H	Quanity	Reference
1	<p>Design Supply and Installation of the Mangroves Trail Walk of Section 20 Meter Length and 2.5 Meter Wide as per the Details and Specification of Project Information Memorandum (PIM) attached.</p> <p>Technical Specification :</p> <ul style="list-style-type: none"> • The mangrove trail should be 2.5m wide and should be made in sustainable method. To avoid harm to the environment/ ecosystem. • The all components should be made in wood/ substitute to wood, but the metal too avoids rusting of the members. • Piles are proposed to be in Jambha (Botincial Name: Xylia xylocarpa) wood which should be designed to take the axial load upto 2000 Kg Per pile. These Piles should be drilled in the mud/ marshy land at 2 Meter c/c and then should be made ready to receive the primary beams on them. • Primary beams should be made in first class teak wood/similar quality substitute. The primary beams do run along the trail, and do support the trail deck which should be designed for live load of 500 kg/sqm. • Secondary beams are then rested on primary beam perpendicular to the primary beam are to be made of the Nature fibre Composite Material/ similar quality substitute. These secondary beams support keels in made from secondary Nature fibre Composite Material which then support floor finish. 	1	20	2.5	1	unit	Approved Rate Analysis
	<ul style="list-style-type: none"> • Floor finish should be made to take wear & tear of the people movement, giving appropriate friction in all the seasons and should be long lasting with minimal maintenance. These floor boards can be made in Nature fibre Composite Material). Designing load of 500 kg/sqm should be considered. • Handrails and brackets supporting them should be made in Nature fibre Composite Material / similar quality substitute. • All of these components should be strictly fixed with nut bolt system made up from high grade stainless steel nut bolts only. • In No Condition Cutting of the Mangroves would be allowed during the Execution of the Work expect Trimming of Branches of the Mangroves. <p>The Material of Nature Fiber Composite Material are to be Fire Retardant</p> <ul style="list-style-type: none"> • Fungal Proof and should be resistant to the Marine Environment. • The Proposed Material for Nature Fiber Composite Material should have minimum 50% of nature material in the Composite. 						

Mumbai Mangroves Conservation Unit					
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar					
ABSTRACT					
Sr.No.	Description	Unit	Rate	Qty.	Amount
1	RA No. 3:-Excavation for roadway in earth, soil of all sorts,----- including dressing section to the required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m. and spreading for embankment or stacking as directed.	Cu.Mt.	97.30	3825.00	372172.50
2	RA No. 6:-Providing earth work in embankment with approved materials obtained from other sources upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller with V-Sat attachment to achieve not less than 97 % of standard proctor density etc. complete (Material obtained from Other sources)	Cu.Mt.	737.90	6325.00	4667217.50
3	RA No. 37 :-Supplying hard murum/ kankar at the road site, including conveying and stacking complete.	Cu.Mt.	631.80	2805.00	1772199.00
4	RA No. 38 :-Spreading hard murum/ soft murrum/ gravel or kankar for side width complete	Cu.Mt.	59.85	2805.00	167879.25
5	RA No. 39 :- Compacting the hard murum side widths including laying in layers on each side with vibratory roller including artificial watering etc. complete.	Sqm	16.80	9350.00	157080.00
6	RA No. 9:-Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specifications including premixing the material with water to OMC in mechanical mix plant, carriage of mixed material by tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with power / vibratory roller to achieve the desired density including lighting, guarding, barricading and maintenance of diversion, etc. complete.	Cum	2543.50	0.00	0.00
7	RA No.8:-Providing, laying, spreading and compacting of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per MoRT&H specification clause - 401 including all material, labour,machinery, lighting, guarding and maintenance of diversion. Spec. No.: MORT&H-401	Cum	2508.50	1352.00	3391492.00
8	RA No. 49 :-Providing and casting in situ or precast tapering R.C.C. M-20 Mountable type Kerb without gutter (as per IRC 86 1983) embedded 125mm below ground level over M-10 PCC finished neatly with C.M. 1:2, setting the same in C.M. 1:2, including the required excavation in any strata and removing the excavated stuff any where in city and redoing the surface as specified and directed by Engineering In-charge Using Concrete Batching and Mixing Plant	Rmt .	370.65	0.00	0.00
9	RA No. 50 :-Providing and fixing stainless steel bollard of steel pipe 1.00 metre long of 250 mm inner diameter and circular top plate of 350 mm diameter with 5 mm thickness on deck of jetty in cement concrete including necessary fixtures and fastening etc. complete. (Stainless steel of grade S-304)	Nos.	20095.95	0.00	0.00
10	RA No. 22:-Road Marking with Hot Applied Thermoplastic Compound with Reflectorizing Glass Beads on Bituminous Surface- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorizing glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35. The finished surface to be level, uniform and free from streaks and holes.complete.	Sq.Mt.	594.30	510.00	303093.00
11	RA No. 20 C :- Providing and fixing of retro- reflectorised informatory sign board rectangular/Square in shape having area greater than 0.9 square meter made out of ____ mm aluminum sheet bonded with white retro reflective sheeting of Class ____ (Type IV High intensity micro-prismatic grade sheeting-HIP) having pressure sensitive/heat activated adhesive retroreflective specified back ground, border and back side retroreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3, supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with two coats of grey stove enamel paint and supported on two no. mild steel angle iron post 75 mm x 75 mm x 6 mm, 3.5 mt long firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing The angle iron post shall be duly painted with one coat of epoxy primer and two coats of epoxy finish paints having alternate black and white bands of 25 cm width including GI fixtures and transportation etc.complete.The nut bolts of board with angle iron post/supporting structure after fixing at site has to be electrically welded. Class B (Type IV High	/sqm	9881.55	4.00	39526.20

Mumbai Mangroves Conservation Unit					
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar					
ABSTRACT					
Sr.No.	Description	Unit	Rate	Qty.	Amount
12	RA No. 20 D :-Providing and fixing cautionary / warning sign board of size 60 cm. having shape of equilateral triangle with apex point upwards. prepared on 16 gauge M.S. sheet including painting with one coat of zinc chromate stoving primer and two coats each of white back ground, red border and backside gray stove enamelled, bonded with cut out of Retro reflective sheet Engineering grade, symbol / letters / numerals / border / arrow, coated with non pealable crystal clear protective transparent coat retaining 100% reflection including one number of M.S. Angle iron post of size 50 x 50 x 5 mm of 3.65 m. long inflated at bottom drilled on top in one piece without joint painted with white and black bands of 30 cm. fixing board and post with 2 Nos. high strength G.I. bolts and nuts of size 10 mm dia. and 20 mm long including all taxes, conveying, fixing in ground with cement concrete 1:4:8 block of 60 cm x 60 cm x 75 cm size etc.complete. 60 cm. equilateral triangle M.S. sheet with Engineering grade,	/No	3824.10	4.00	15296.40
13	RA No. 20 :- Providing and fixing Mandatory/Regulatory sign boards in circular shape of ____mm dia made out of ____900 ____mm aluminum sheet bonded with white retro reflective sheeting of Class C (Type XI Micro prismatic grade sheeting) having pressure sensitive/heat activated adhesive retoreflective specified back ground, border and back side retoreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3 Supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with grey stove enamel paint and supported on one no. of M. S. angle iron post of size 65 mm X 65 mm X 6 mm, 3.45 m long, duly painted with with flat oil paint having alternate black and white bands of 25 cm width including G.I. fixtures etc; fixing the boards in M25 grade concrete block of size 60cm X 60cm X 75cm including transportation etc; complete. Class C (Type XI Micro prismatic grade sheeting) shall have 10 years written warranty from the manufacturer and authorised distributor/convector issued for field performance including the screen printed areas and cut-out sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier.	/No.	7249.20	3.00	21747.60
14	RA No. 30 :-Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete.	/Cum	2226.80	1150.00	2560820.00
15	RA No. 51 :-Providing first class Burnt Brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in plinth including bailing out water manually, striking joints on unexposed faces, pointing with cement mortar 1:3 on exposed face and watering etc. Complete.	Cu.Mt.	5530.35	50.00	276517.50
16	RA No. 52 :-Providing internal cement plaster 12mm thick in single coat in cement mortar 1:5 without neeru finish to concrete or brick surfaces, in all positions including scaffolding and curing etc. complete.	Sq.Mt.	215.25	50.00	10762.50
17	RA No. 32 :-Providing and casting in situ / ready mix PCC M15 grade of trap metal for coping to head walls / parapet including centering, form work, compaction and curing etc. complete. (with reversible drum type mixer/ concrete batch mix plant (pan mixer) with SCADA with fine aggregates of required specifications (Natural sand / VSI sand finely washed etc)	Cu.Mt.	7528.97	153.00	1151932.87
18	RA No. 24:- Supplying and Fixing of Molded Shank Raised Pavement Markers / Cat's Eye made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 16000 kg tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO II D1 11.06. 1997. The height, width and length shall not exceed 50 mm, 100 mm and 102 +/- 2 mm and with minimum reflective area of 13 Sqcm on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30 +/- 2 mm) from the body is to be a minimum value of 500 Kg. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and complete as directed by the engineer.The contractor shall submit a two year warranty for satisfactory field performance including stipulated retroreflectance of the reflecting panel, to the Engineer.	/No	456.75	340.00	155295.00
19	RA No. 57 :-Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually ,striking joints on un exposed faces and watering etc.complete.	/Cum	5069.20	287.00	1454860.40
20	RA No. 27: Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS: 383, the size of coarse aggregate not exceeding	Sq.m	4067.70	765.00	3111790.50
21	RA No. 28:-Providing and laying in-situ M40 Grade unreinforced plain cement concrete pavement over a prepared sub base with 43 grade cement , coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS 383, using fine and coarse aggregates combined gradation as per Table 600-3 of MORTH Specification 2013, mixed in a batching and mixing plant/ non tilting	/Cum	7048.30	1148.00	8091448.40
22	RA No. 45 :-Providing and laying 125 micron Low Density Polyethylene (LDPE) sheet conforming to IS 3395 : 1997 below concrete pavement including all materials and labour complete.	/Smt.	19.95	7650.00	152617.50

Mumbai Mangroves Conservation Unit					
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar					
ABSTRACT					
Sr.No.	Description	Unit	Rate	Qty.	Amount
23	RA No. 43 :-Cutting transverse contraction joints 3 to 4 mm wide and depth 60mm. In concrete slab using concrete cutting machine with diamond studded saw within 48 hours of casting of bay / slab etc. complete including subsequent widening of the groove 8 to 10 mm. wide at top	/Rmt.	68.25	1706.00	116434.50
24	RA No. 44 :-Providing to contraction joints polysuphide sealent (Pouring grade) confirming to BS : 5212 - 1989 into sawed groove widened at top for sealent reservoir of specified size and shape as per detailed drawing including fixing Polyethylene foam backer rod of required diameter (approx. 25% larger than the initial 3 mm.to 4 mm. joint) overlaid with bond breaking tape as per detailed drawing. RA includes cleaning the joints with water jet / air compressor and allowing joint to become thoroughly dry before sealent is applied and applying primer. (A) Contraction and longitudinal joints (15 mm. deep x 8 mm.wide)	/Rmt.	141.75	1706.00	241825.50
25	RA No. 41 :- Providing and fixing in position TMT FE 500, 32 mm dia dowel bars precoated with anticorrosive epoxy paint of required Dia. 60 cms. Long and at 30.00 cm. C/C and wherever directed including handling, straightening, necessary cutting supported by TMT FE 500, chairs with proper alignment by using properly designed assembly of Bulkheads lubricating half length with bituminous paint as directed etc. complete.	Number	400.05	576.00	230428.80
26	RA No. 58 :-Providing and Laying factory made coloured chamfered edge Cement concrete grass paver blocks of required strength,thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of fine fine aggregate (natural sand/crushed sand VSI grade finely washed etc.), compacting and proper embedding/laying of inter locking paver blocks into the fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) bedding layer through vibratory compaction by using plate vibrator, filling the joints with fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) and cutting of paver blocks as per required size and pattern, finishing and sweeping extra fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) and complete as per manufacturer specifications & direction of Engineer-in-Charge. 60mm thick CC paver block of M-35 grade concrete with approved colour and design & pattern.	Square Metre	742.4	7650.00	5679360.00
27	RA No. 1:-Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm. removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	/Sq Metre	9.45	2700.00	25515.00
28	RA No. 61 :-Providing and laying cement concrete pipe of IS 458:2003 NP-2 class of 600mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.	/Cum	2273.30	270.00	613791.00
				Total	34781102.92
				TOTAL AMOUNT	34781102.92

Name of work :
Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

LEAD CHART

Sr. No.	Material	Location	Lead in Kms	Lead Charges	Initial Lead	Initial Lead Charges	Add royalty rates	Net Lead + Royalty Charges	Unit
1	Sand	Haloli	80.00	957.35	50 meters	0.00	0.00	957.35	Cum
2	Crushed Metal	Nalasopara	55.00	715.43	50 meters	0.00	0.00	715.43	Cum
3	Hand Broken Metal		8.00	241.64	5.00 Kms	0.00	141.34	382.98	Cum
4	Murum / Earth		3.00	181.79	50 mtr	0.00	141.34	323.13	Cum
5	Asphalt	Mahul Chembur	70.00	121.48	0	0.00	0.00	121.48	M.T.
6	Cement/ steel		0.00	0.00	5	0.00	0.00	0.00	M.T.
7	Soling	Nalasopara	55.00	1016.65	5	0.00	141.34	1157.99	Cumt

Mumbai Mangroves Conservation Unit									
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar									
Measurment Sheet									
Sr.No.	Description	Unit	Nos.	Chainage		L	B	D	Qty.
				from	to				
1	RA No. 3:-Excavation for roadway in earth, soil of all sorts,----- including dressing section to the required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m. and spreading for embankment or stacking as directed.	Cu.Mt.							
	Resurfacing Carriage way		1	0.00	1100.00	1100.00	4.500	0.50	2475.00
	Reconstruction Carriage Way		1	1100.00	1700.00	600.00	4.500	0.50	1350.00
								TOTAL	3825.00
								Say	3825.00
2	RA No. 6:-Providing earth work in embankment with approved materials obtained from other sources upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller with V-Sat attachment to achieve not less than 97 % of standard proctor density etc. complete (Material obtained from Other sources)	Cu.Mt.							
	Resurfacing Carriage way		1	0.00	1100.00	1100.00	5.500	0.50	3025.00
	Reconstruction Carriage Way		1	1100.00	1700.00	600.00	5.500	1.00	3300.00
								TOTAL	6325.00
								Say	6325.00
3	RA No. 37 :-Supplying hard murum/ kankar at the road site, including conveying and stacking complete.	Cu.Mt.							
	For Subgrade								
	Resurfacing Carriage way		1	0.00	1100.00	1100.00	5.500	0.30	1815.00
	Reconstruction Carriage Way		1	1100.00	1700.00	600.00	5.500	0.30	990.00
								TOTAL	2805.00
								Say	2810.00
4	RA No. 38 :-Spreading hard murum/ soft murrum/ gravel or kankar for side width complete	Cu.Mt.							
	For Subgrade								
	Resurfacing Carriage way		1	0.00	1100.00	1100.00	5.500	0.30	1815.00
	Reconstruction Carriage Way		1	1100.00	1700.00	600.00	5.500	0.30	990.00
								TOTAL	2805.00
								Say	2805.00
5	RA No. 39 :- Compacting the hard murum side widths including laying in layers on each side with vibratory roller including artificial watering etc. complete.	Sqm							
	For Subgrade								
	Resurfacing Carriage way		1	0.00	1100.00	1100.00	5.500		6050.00
	Reconstruction Carriage Way		1	1100.00	1700.00	600.00	5.500		3300.00
								TOTAL	9350.00
								Say	9350.00
6	RA No. 9:-Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specifications including premixing the material with water to OMC in mechanical mix plant, carriage of mixed material by tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with power / vibratory roller to achieve the desired density including lighting, guarding, barricading and maintenance of diversion, etc. complete.	Cu.Mt.							
	Resurfacing Carriage way		1.00	0.00	1100.00	1100.00	4.500	0.00	0.00
	Reconstruction Carriage Way		1.00	1100.00	1700.00	600.00	4.500	0.00	0.00

Mumbai Mangroves Conservation Unit								
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar								
Measurment Sheet								
Sr.No.	Description	Unit	Nos.	Chainage	L	B	D	Qty.
							TOTAL	0.00
							Say	0.00
7	RA No.8:-Providing, laying, spreading and compacting of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and ompacting with vibratory power roller to achieve the desired density, complete as per MoRT&H specification clause - 401 including all material, labour,machinery, lighting, guarding and maintenance of diversion. Spec. No.: MORT&H-401	Cum						
	Resurfacing Carriage way		1.00	0.00	1100.00	1100.00	5.300	874.50
	Reconstruction Carriage Way		1.00	1100.00	1700.00	600.00	5.300	477.00
							TOTAL	1351.50
							Say	1352.00
8	RA No. 49 :-Providing and casting in situ or precast tapering R.C.C. M-20 Mountable type Kerb without gutter (as per IRC 86 1983) embedded 125mm below ground level over M-10 PCC finished neatly with C.M. 1:2, setting the same in C.M. 1:2, including the required excavation in any strata and removing the excavated stuff any where in city and redoing the surface as specified and directed by Engineering In-charge Using Concrete Batching and Mixing Plant	Rmt .						
			2	0.00	1100.00	1100.00		0.00
							TOTAL	0.00
							Say	0.00
9	RA No. 50 :-Providing and fixing stainless steel bollard of steel pipe 1.00 metre long of 250 mm inner diameter and circular top plate of 350 mm diameter with 5 mm thickness on deck of jetty in cement concrete including necessary fixtures and fastening etc. complete. (Stainless steel of grade S-304)	Nos.						
	Start and End		7.00	0.00	1100.00	1100.00	4.500	0.00
							TOTAL	0.00
10	RA No. 22:-Road Marking with Hot Applied Thermoplastic Compound with Reflectorizing Glass Beads on Bituminous Surface- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorizing glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.complete.	Sq.Mt.						
	Resurfacing Carriage way		2.00	0.00	1100.00	1100.00	0.150	330.00
	Reconstruction Carriage Way		2	1100.00	1700.00	600.00	0.150	180.00
							TOTAL	510.00
							Say	510.00

Mumbai Mangroves Conservation Unit								
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar								
Measurment Sheet								
Sr.No.	Description	Unit	Nos.	Chainage	L	B	D	Qty.
11	RA No. 20 C :- Providing and fixing of retro- reflectorised informatory sign board rectangular/Square in shape having area greater than 0.9 square meter made out of ____mm aluminum sheet bonded with white retro reflective sheeting of Class ____ (Type IV High intensity micro-prismatic grade sheeting-HIP) having pressure sensitive/heat activated adhesive retoreflective specified back ground, border and back side retoreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3, supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with two coats of grey stove enamel paint and supported on two no. mild steel angle iron post 75 mm x 75 mm x 6 mm, 3.5 mt long firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing The angle iron post shall be duly painted with one coat of epoxy primer and two coats of epoxy finish paints having alternate black and white bands of 25 cm width including GI fixtures and transportation etc.complete.The nut bolts of board with angle iron post/supporting structure after fixing at site has to be electrically welded. Class B (Type IV High intensity micro-prismatic grade sheeting-HIP) sheeting shall have 7 years written warranty from the manufacturer and authorised distributor/convector issued for field performance including the screen printed areas and cut-out sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier.	/sqm						
			4.00	0.00	1700.00			4.00
							TOTAL	4.00
12	RA No. 20 D :-Providing and fixing cautionary / warning sign board of size 60 cm. having shape of equilateral triangle with apex point upwards. prepared on 16 gauge M.S. sheet including painting with one coat of zinc cromate stoving primer and two coats each of white back ground, red border and backside gray stove enamelled, bonded with cut out of Retro reflective sheet Engineering grade, symbol / letters / numerals / border / arrow, coated with non pealable crystal clear protective transparent coat retaining 100% reflection including one number of M.S. Angle iron post of size 50 x 50 x 5 mm of 3.65 m. long inflated at bottom drilled on top in one piece without joint painted with white and black bands of 30 cm. fixing board and post with 2 Nos. high strength G.I. bolts and nuts of size 10 mm dia. and 20 mm long including all taxes, conveying, fixing in ground with cement concrete 1:4:8 block of 60 cm x 60 cm x 75 cm size etc.complete. 60 cm. equilateral triangle M.S. sheet with Engineering grade,	/No						
	At Each Junction		4.00	0.00	1100.00			4.00
							TOTAL	4.00

Mumbai Mangroves Conservation Unit									
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar									
Measurement Sheet									
Sr.No.	Description	Unit	Nos.	Chainage		L	B	D	Qty.
13	RA No. 20 :- Providing and fixing Mandatory/Regulatory sign boards in circular shape of ____mm dia made out of ____900__mm aluminum sheet bonded with white retro reflective sheeting of Class C (Type XI Micro prismatic grade sheeting) having pressure sensitive/heat activated adhesive retoreflective specified back ground, border and back side retoreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3 Supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with grey stove enamel paint and supported on one no. of M. S. angle iron post of size 65 mm X 65 mm X 6 mm, 3.45 m long, duly painted with with flat oil paint having alternate black and white bands of 25 cm width including G.I. fixtures etc; fixing the boards in M25 grade concrete block of size 60cm X 60cm X 75cm including transportation etc; complete. Class C (Type XI Micro prismatic grade sheeting) shall have 10 years written warranty from the manufacturer and authorised distributor/convertor issued for field performance including the screen printed areas and cut-out sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier.	/No.							
	turning Direction		3.00	0.00	1700.00				3.00
								TOTAL	3.00
14	RA No. 30 :-Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete.	/Cum							
	Reconstruction Carriage Way		1	1100.00	1700.00	600.00	5.500	0.30	990.00
	UCR Wall		0.50	0.00	1700.00	1700.00	0.750	0.25	159.38
								TOTAL	1149.38
								Say	1150.00
15	RA No. 51 :-Providing first class Burnt Brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in plinth including bailing out water manually, striking joints on unexposed faces, pointing with cement mortar 1:3 on exposed face and watering etc. Complete.	Cu.Mt.							
	Cement mortar 1:3 (1 cement : 3 coarse sand)								
	provision								50.00
								TOTAL	50.00
16	RA No. 52 :-Providing internal cement plaster 12mm thick in single coat in cement mortar 1:5 without neeru finish to concrete or brick surfaces, in all positions including scaffolding and curing etc. complete.	Sq.Mt.							
	provision								50.00
								TOTAL	50.00
17	RA No. 32 :-Providing and casting in situ / ready mix PCC M15 grade of trap metal for coping to head walls / parapet including centering, form work, compaction and curing etc. complete. (with reversible drum type mixer/ concrete batch mix plant (pan mixer) with SCADA with fine agregates of required specifications (Natural sand / VSI sand finely washed etc)	Cu.Mt.							
	UCR PCC		0.50	0.00	1700.00	1700.00	0.750	0.15	95.63
	UCR Coping		0.50	0.00	1700.00	1700.00	0.450	0.15	57.38
								Total	153.00

Mumbai Mangroves Conservation Unit								
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar								
Measurment Sheet								
Sr.No.	Description	Unit	Nos.	Chainage	L	B	D say	Qty. 153.00
18	RA No. 24:- Supplying and Fixing of Molded Shank Raised Pavement Markers / Cat's Eye made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 16000 kg tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO III Dt 11.06. 1997. The height, width and length shall not exceed 50 mm, 100 mm and 102 +/- 2 mm and with minimum reflective area of 13 Sqcm on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30+/- 2 mm) from the body is to be a minimum value of 500 Kg. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and complete as directed by the engineer.The contractor shall submit a two year warranty for satisfactory field performance including stipulated retroreflectance of the reflecting panel, to the Engineer.	/No						
	10 m C/C both side		170.00					340.00
							Total	340.00
19	RA No. 57 :-Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually ,striking joints on un exposed faces and watering etc.complete.	/Cum						
	UCR Wall		0.50	0.00	1700.00	1700.00	0.450	286.88
							Total	286.88
							say	287.00
20	RA No. 27: Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm. , cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant/ Weigh batch mixer, transported to site with all leads and lifts, laid with a paver with electronic sensor /by suitable means as approved by Engineer-in-charge , compacting with vibratory roller, finishing, curing and including preparation of subgrade surface if required etc. complete.	/Cum						
	Resurfacing Carriage way		1.00	0.00	1100.00	1100.00	4.500	495.00
	Reconstruction Carriage Way		1.00	1100.00	1700.00	600.00	4.500	270.00
							Total	765.00
							say	765.00

Mumbai Mangroves Conservation Unit								
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar								
Measurment Sheet								
Sr.No.	Description	Unit	Nos.	Chainage	L	B	D	Qty.
21	RA No. 28:-Providing and laying in-situ M40 Grade unreinforced plain cement concrete pavement over a prepared sub base with 43 grade cement , coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS 383, using fine and coarse aggregates combined gradation as per Table 600-3 of MORTH Specification 2013, mixed in a batching and mixing plant/ non tilting mixer and Weigh batcher as per approved mix design, admixtures, transporting to site,spreading, laying with approved make paver,compacted and finished in a continuous operation, finishing to lines and grades as directed by Engineer-in-charge and curing by curing compound /by providing cement vata in cement Mortar 1:8 @0.6m X 0.6m centre to centre, admeasuring 80 mm at bottom and 40 mm at top with depth of 75mm and maintaining the same throughout curing period by any other method approved by Engineer-in-charge.	/Cum						
	Resurfacing Carriage way		1.00	0.00	1100.00	4.500	0.15	742.50
	Reconstruction Carriage Way		1.00	1100.00	1700.00	4.500	0.15	405.00
							Total	1147.50
							say	1148.00
22	RA No. 45 :-Providing and laying 125 micron Low Density Polyethylene (LDPE) sheet conforming to IS 3395 : 1997 below concrete pavement including all materials and labour complete.	/Smt.						
	Resurfacing Carriage way		1.00	0.00	1100.00	4.500		4950.00
	Reconstruction Carriage Way		1.00	1100.00	1700.00	4.500		2700.00
							Total	7650.00
							say	7650.00
23	RA No. 43 :-Cutting transverse contraction joints 3 to 4 mm wide and depth 60mm. in concrete slab using concrete cutting machine with diamond studded saw within 48 hours of casting of bay / slab etc. complete including subsequent widening of the groove 8 to 10 mm. wide at top having depth of 15 mm. as directed by Engineer incharge.	/Rmt.						
	Resurfacing Carriage way		245.00	0.00	1100.00	4.500		1102.50
	Reconstruction Carriage Way		134.00	1100.00	1700.00	4.500		603.00
							Total	1705.50
							say	1706.00
24	RA No. 44 :-Providing to contraction joints polysuphide sealent (Pouring grade) confirming to BS : 5212 - 1989 into sawed groove widened at top for sealent reservoir of specified size and shape as per detailed drawing including fixing Polyethylene foam backer rod of required diameter (approx. 25% larger than the initial 3 mm.to 4 mm. joint) overlaid with bond breaking tape as per detailed drawing. RA includes cleaning the joints with water jet / air compressor and allowing joint to become thoroughly dry before sealent is applied and applying primer. (A) Contraction and longitudinal joints (15 mm. deep x 8 mm.wide)	/Rmt.						
			245.00	0.00	1100.00	4.50		1102.50
			134.00	1100.00	1700.00	4.50		603.00
							Total	1705.50
							say	1706.00

Mumbai Mangroves Conservation Unit								
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar								
Measurment Sheet								
Sr.No.	Description	Unit	Nos.	Chainage	L	B	D	Qty.
25	RA No. 41 :- Providing and fixing in position TMT FE 500, 32 mm dia dowel bars precoated with anticorrosive epoxy paint of required Dia. 60 cms. Long and at 30.00 cm. C/C and wherever directed including handling, straightening, necessary cutting supported by TMT FE 500, chairs with proper alignment by using properly designed assembly of Bulkheads lubricating half length with bituminous paint as directed etc. complete.	Number						
	Resurfacing Carriage way		23.00	0.00	1100.00	1100.00	16.00	368
	Reconstruction Carriage Way		13.00	1100.00	1700.00	600.00	16.00	208
							Total	576.00
							say	576.00
26	RA No. 58 :-Providing and Laying factory made coloured chamfered edge Cement concrete grass paver blocks of required strength,thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of fine fine aggregate (natural sand/crushed sand VSI grade finely washed etc.), compacting and proper embedding/laying of inter locking paver blocks into the fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) bedding layer through vibratory compaction by using plate vibrator, filling the joints with fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) and cutting of paver blocks as per required size and pattern, finishing and sweeping extra fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) and complete as per manufacturer spspecifications & direction of Engineer-in-Charge. 60mm thick CC paver block of M-35 grade concrete with approved colour and design & pattern.	Square Metre						
	Resurfacing Carriage way		1	0	1100	1100	4.5	4950.00
	Reconstruction Carriage Way		1	1100	1700	600	4.5	2700.00
							Total	7650.00
							say	7650.00
27	RA No. 1:-Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.	/Sq Metre						
	Reconstruction Carriage Way		1	1100	1700	600	4.5	2700.00
							Total	2700.00
							say	2700.00
28	RA No. 61 :-Providing and laying cement concrete pipe of IS 458:2003 NP-2 class of 600mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.	/Cum						
	50 m C/C							
	Resurfacing Carriage way		23	0	1100	1100	7.5	172.5
	Reconstruction Carriage Way		13	1100	1700	600	7.5	97.5
							Total	270.00
							say	270.00

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

R.A. No.1

RA No. 1:-Clearing and grubbing road land including uprooting rank vegetation, grass, bushes, shrubs, saplings and trees girth up to 300 mm, removal of stumps of trees cut earlier and disposal of unserviceable materials and stacking of serviceable material to be used or auctioned up to a lead of 1000 metres including removal and disposal of top organic soil not exceeding 150 mm in thickness.

E-SSR 2018-19	I/P	2.09/28	=	9.00 /Sq Metre
				<hr/>
				9.00
	Corporation Area 5% increase			0.45
			Say =	9.45 /Sq Metre

R.A. No.2

RA No. 2:-Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 metres, stacking serviceable and unserviceable materials separately etc. complete.

E-SSR 2018-19	I/P	3.10/35	=	323.00 /Cum
				<hr/>
				323.00
	Corporation Area 5% increase			16.15
			Total =	339.15
			Say =	339.15 /Cum

R.A. No.3

RA No. 3:-Excavation for roadway in earth, soil of all sorts,----- including dressing section to the required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m. and spreading for embankment or stacking as directed.

By macanical means:

a) Earth soil of all sorts, sand, gravel or soft murum

E-SSR 2018-19	I/P	2.11/29	=	72.00 /Cum
	Corporation Area 5% increase			3.6
				75.60
			Total =	75.60
			Say =	75.60 /Cum

b) Hard murum

E-SSR 2018-19	I/P	2.13/29	=	83.00 /Cum
	Corporation Area 5% increase			4.15
				87.15
			Total =	87.15
			Say =	87.15 /Cum

c) Soft rock

E-SSR 2018-19	I/P	2.14/29	=	123.00 /Cum
	Corporation Area 5% increase			6.15
				129.15
			Total =	129.15
			Say =	129.15 /Cum

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

R.A. No.4

RA No. 4:-Excavation for roadway in hard rock by controll blasting or line drilling including dressing section to the required grade, camber and side slopes and conveying the excavated materials with all lifts upto a lead of 50m. and spreading for embankment or stacking as directed.

E-SSR 2018-19	I/P	2.15/29	=	176.00 /Cum
	Corporation Area 5% increase			8.8
				184.80
			Total =	184.80
			Say =	184.80 /Cum

R.A. No.5

RA No. 5:- Watering & compacting of embankment formed of materials obtained from the road cutting within a lead of 50 m, not less than 97 % of standard Proctor density after laying them in layers of 20 cm. to 30 cm. with vibratory roller.

E-SSR 2018-19	I/P	2.23/30	=	71.00 /Cum
	Corporation Area 5% increase			3.55
				74.55
			Total =	74.55
			Say =	74.55 /Cum

R.A. No.6

RA No. 6:-Providing earth work in embankment with approved materials obtained from other sources upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller with V-Sat attachment to achieve not less than 97 % of standard proctor density etc. complete (Material obtained from Other sources)

a) Vibratory Roller

E-SSR 2018-19	I/P	2.28/31	=	395.00 /Cum
	Corporation Area 5% increase			19.75
Add lead + royalty charges for				
Murum	1.00	323.13	=	323.13
				737.88
			Total =	737.88
			Say =	737.90 /Cum

R.A. No.7

RA No. 7:-Providing earth work in embankment with approved materials obtained from departmental land upto lead of 50m. including all lifts, laying in layers of 20cm. to 30cm. thickness breaking clods, dressing to the required lines, curves, grades & section, watering and compaction with vibratory roller to achieve not less than 97 % of standard proctor density etc. complete. (Material obtained from departmental Land)

b) Vibratory Roller

E-SSR 2018-19	I/P	2.27/31	=	151.00 Cum
	Corporation Area 5% increase			7.55
Murum	1.00	0.00	=	0.00
				158.55
			Total =	158.55
			Say =	158.60 Cum

b) Vibratory Roller

E-SSR 2018-19	I/P	2.28/25	=	0.00 Cum
	Corporation Area 5% increase			0
Murum	1.00	323.13	=	0.00
				0.00

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

Total = 0.00
Say = 0.00 Cum

R.A. No.8

RA No.8:-Providing, laying, spreading and compacting of granular sub-base by providing close graded Material, mixing in a mechanical mix plant at OMC, carriage of mixed Material to work site, spreading in uniform layers with motor grader on prepared surface and compacting with vibratory power roller to achieve the desired density, complete as per MoRT&H specification clause - 401 including all material, labour, machinery, lighting, guarding and maintenance of diversion.
Spec. No.: MORT&H-401

For Grading I:

E-SSR 2018-19		I/P	3.01/33	=	1521.00 /Cum
		Corporation Area 5% increase			76.05
Add lead + royalty charges for					
26.5mm to 9.5mm	Crushed Metal	0.640	715.43	=	457.88
9.5mm to 2.36mm	Crushed Metal	0.250	715.43	=	178.86
Below 2.36mm	Crushed Metal	0.384	715.43	=	274.73
					<hr/> 2508.51
				Total =	2508.51
				Say =	2508.50 /Cum

R.A. No.9

RA No. 9:-Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specifications including premixing the material with water to OMC in mechanical mix plant, carriage of mixed material by tipper to site, laying in uniform layers with paver in sub-base/base course on a well prepared surface and compacting with power / vibratory roller to achieve the desired density including lighting, guarding, barricading and maintenance of diversion, etc. complete.

E-SSR 2018-19		I/P	3.23/37	=	1523.00 /Cum
		Corporation Area 5% increase			76.15
Add lead + royalty charges for					
	Crushed Metal	1.32	715.43	=	944.37
					<hr/> 2543.52
				Total =	2543.52
				Say =	2543.50 /Cum

R.A. No.10

RA No. 10:-BITUMINOUS MACADAM: Providing and laying bituminous macadam using crushed aggregates of Grading 1, premixed with bituminous binder, transported to site with VTS, laid over a previously prepared surface, finished to the required grade, level, alignment, and rolling to achieve the desired compaction for 80/100 mm compacted thickness with 3.3 % using specified grade of Bitumen. -- USING Batch mix type hot mix plant with SCADA, Sensor Paver, vibratory roller.(VG-30 bulk bitumen rates are considered to arrive at rates)

E-SSR 2018-19		I/P	3.40/42	=	4598.00 /Cum
		Corporation Area 5% increase			229.9
Add lead + royalty charges for					
	Bitumen	0.07480	121.48	=	9.09
	Crushed Metal	1.380	715.43	=	987.29
Deduct difference of bitumen market & Basic rate					<hr/>
DSR rate	32204.00				
Market rate 1.06.2017	32889.64				
Net Difference	0	0.07480	0.00		
				Total =	5824.28
				Say =	5824.30 /Cum

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

R.A. No.11

RA No. 11:-DENSE BITUMINOUS MACADAM: Providing and laying dense bituminous macadam using crushed aggregates of Grading 1, premixed with bituminous binder of specified grade of Bitumen @ 4.50 per cent by weight of total mix and filler, transported to site with VTS, laid over a previously prepared surface, finished to the required grade, level, alignment, and rolling to achieve the desired density for 76-100 mm compacted thickness .USING Batch mix type hot mix plant with SCADA, Sensor Paver, Vibratory roller with Stone Dust filler.(VG-30 bulk bitumen rates are considered to arrive at rates)

E-SSR 2018-19	I/P	3.44	42	=	5734.00 /Cum
	Corporation Area 5% increase				286.7
Add lead + royalty charges for					
Bitumen	0.1035	121.48		=	12.57
25-10 mm Crushed Metal	0.442	715.43			316.22
10.-5 mm Crushed Metal	0.412	715.43			294.76
Below 5 mm Crushed Metal	0.589	715.43		=	421.39
Deduct difference of bitumen market & Basic rate					
DSR rate	32204.00				
Market rate 1.06.2017	32889.64				
Net Difference	0	0.1035	0.00	=	0.00
				Total	= 7065.64
				Say	= 7065.60 /Cum

R.A. No.12

RA No. 12:-BITUMINOUS CONCRETE:- Providing and laying bituminous concrete using crushed aggregates of grading 1, premixed with bituminous binder @ 5.20 per cent by weight of total mix and filler, transported to site with VTS, laid over a previously prepared surface, finished to the required grade, level, alignment, and rolling to achieve the desired compaction for 50 mm compacted thickness with specified grade of Bitumen,Excluding prime / tack coat. For Bitumen of specified grade -- USING Batch mix type hot mix plant with SCADA, Sensor Paver, Vibratory roller with Stone Dust filler. (VG-30 bulk bitumen rates are considered to arrive at rates)

E-SSR 2018-19	I/P	3.48/43		=	6003.00 Cum
	Corporation Area 5% increase				300.15
Add lead + royalty charges for					
Bitumen	0.1296	121.48		=	15.74
Crushed Metal	1.572	715.43		=	1124.66
Deduct difference of bitumen market & Basic rate					
DSR rate	32204.00				
Market rate 1.06.2017	32889.64				
Net Difference	0	0.1296	0.00	=	0.00
				Total	= 7443.55
				Say	= 7443.50 Cum

R.A. No.13

RA No. 13:-Providing and applying tack coat on the prepared surface heating by flames in Boiler and spraying bitumen set footed in bitumen boller on B.T. surface -- kg/10 sqm.(VG-30 bulk bitumen rates are considered to arrive at rates)

a) 25 kg / 100 sq.m over B.T. surface

E-SSR 2018-19	I/P	3.30/38		=	10.00 /sqm
	Corporation Area 5% increase				0.5
Add lead + royalty charges for					
Bitumen	0.00025	121.48		=	0.03
Deduct difference of bitumen market & Basic rate					
DSR rate	32204.00				
Market rate 1.06.2017	32889.64				
Net Difference	-685.64	0.00025	-0.17	=	0.00

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

				Total	=	10.53
				Say	=	10.50 /sqm
b) Prime coat 60 kg / 100 sq.m over W.B.M. surface						
E-SSR 2018-19	I/P	3.29/38		=		19.00 /sqm
	Corporation Area 5% increase					0.95
Add lead + royalty charges for						
	Bitumen	0.00060	121.48	=		0.07
Deduct diffrence of bitumen market & Basic rate						
	DSR rate	32204.00				
Market rate 1.06.2017		32889.64				
Net Diifrance		-685.64	0.00060	-0.41	=	0.00
				Total	=	20.02
				Say	=	20.10 /sqm

R.A. No.14

RA No. 14:-Providing and fixing factory made Hydraulically pressed Mechanically vibrated and compacted precast inter locking cement concrete paving blocks 80MM thick in M-40 grade of approved size and shape for City streets, small /medium market roads,low volume roads, utility cuts on arterial roads etc. as specified and as per IS 15658:2006 including cost of all materials, manufacturing, curing, transportation of blocks to work site including loading, unloading and stacking as directed, laying paving blocks in position over prepared bed of natural sand / crushed sand of 50 mm thickness including necessary excavation in all stratas, spreading blndge of fine sand over the prepared bed, compacting blocks by plate vibrator etc. complete.

E-SSR 2018-19	I/P	5.20/55	=	883.00 /sqm
	Corporation Area 5% increase			44.15
Add lead + royalty charges for				
	Sand	0.0400	957.35	=
				38.29 /sqm
				965.44 /sqm

R.A. No.15

RA No. 15:- Providing and fixing 5th km stones as per I.R.C. standard including fixing in standard size _____ block including curing, painting lettering etc. complete.

5th Km. stones

E-SSR 2018-19	I/P	6.02c /57	=	3513.00 /No.
	Corporation Area 5% increase			175.65
				3688.65
			Total	= 3688.65
			Say	= 3688.65 /No.

R.A. No.16

RA No. 16:- Providing R.C.C.(M-15) ordinary kilometre stone of standard design as per IRC:8-1980,fixing in c.c.M15, including painting and printing etc. complete.

E-SSR 2018-19	I/P	6.02b /57	=	2062.00 /No.
	Corporation Area 5% increase			103.1
				2165.10
			Total	= 2165.10
			Say	= 2165.10 /No.

R.A. No.17

RA No. 17:-Providing R.C.C.(M-15) 200 metre stone of standard design as per IRC:8-1980, fixing in c.c.M15, including painting and printing etc. complete.

E-SSR 2018-19	I/P	6.02a /57	=	689.00 /No.
	Corporation Area 5% increase			34.45

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

723.45

Total = 723.45

Say = 723.45 /No.**R.A. No.18**

RA No. 18:-Providing and fixing trap/ granite/ quartzite/ gneiss guard stone/ indicator stones/ boundary stones of standard size and shape including fixing in block of ____ standard size with white washing etc.complete

E-SSR 2018-19	I/P	6.01c /57	=	748.00	/No.
Fixing in M-15 R.C.C. 1:4:8	Corporation Area 5% increase			37.4	
				785.40	
			Total =	785.40	
			Say =	785.40	/No.

R.A. No.19

RA No. 19:- Metal Beam Crash Barrier -- Type - B, THRIE : Metal Beam Crash Barrier (Providing and erecting a Thrie metal beam crash barrier comprising of 3 mm thick corrugated sheet metal beam rail, 85 cm above road/ground level, fixed on ISMC series channel vertical post, 150 x 75 x 5 mm spaced 2 m centre to centre, 2 m high with 1.15 m below ground level, all steel parts and fitments to be galvanised by hot dip process, all fittings to conform to IS:1367 and IS:1364, metal beam rail to be fixed on the vertical post with a space of channel section 150 x 75 x 5 mm, 546 mm long complete as per clause 810)""

E-SSR 2018-19	I/P	7.31/96	=	4504.00	/Rmt
	Corporation Area 5% increase			225.2	
				4729.20	
			Total =	4729.20	
			Say =	4729.20	/Rmt

R.A. No.20

RA No. 20 :- Providing and fixing Mandatory/Regulatory sign boards in circular shape of ____mm dia made out of ____900__mm aluminum sheet bonded with white retro reflective sheeting of Class C (Type XI Micro prismatic grade sheeting) having pressure sensitive/heat activated adhesive retoreflective specified back ground, border and back side retoreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3 Supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with grey stove enamel paint and supported on one no. of M. S. angle iron post of size 65 mm X 65 mm X 6 mm, 3.45 m long, duly painted with with flat oil paint having

E-SSR 2018-19	I/P	6.28 e /68	=	6904.00	/No.
900 mm	Corporation Area 5% increase			345.2	
				7249.20	
			Total =	7249.20	
			Say =	7249.20	/No.

R.A. No.20A

RA No. 20 A :- Providing and fixing of retro reflectorised 300mm x 900mm hazard marker boards made out of retro reflective sheeting of high intensity prismatic grade conforming to IRC-67-2012 & Type IV of ASTM D4956-09 specifications, fixed over 2mm thick Al / 4mm thick ACP sheet supported with back support frame of 25x25x3mm mild steel angle as approved, supported on a mild steel angle iron post 75mm x 75mm x 6mm - 2.7 mtr height, firmly fixed to the ground by means of properly designed foundation with M20 grade cement concrete 45cm x 45cm x 60cm, 60cm below ground level as per approved drawing. 7 years warranty for retro reflective sheeting from the original sheeting manufacturer and a certified copy of three years outdoor exposure report from an independent test lab for the product offered shall be submitted by the contractor.

Rate as per PWD TDSR-2015-16	I/P	50/170	=	3512.00	/No.
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Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

Corporation Area 5% increase		175.6	
		3687.60	
Total	=	3687.60	
Say	=	0.00	/No.

R.A. No.20B

RA No. 20 B :- Providing and fixing Cautionary/Warning sign boards in Octagone size of _____mm made out of _____mm aluminum sheet bonded with white retro reflective sheeting of Class B (Type IV High intensity micro-prismatic grade sheeting-HIP) having pressure sensitive/heat activated adhesive retroreflective specified back ground, border and back side retroreflective symbols, letters, numerals, arrow as per IRC:672012 Table No 8.3 Supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with grey stove enamel paint and supported on one no. of M. S. angle iron post of size 65 mm X 65 mm X 6 mm, 3.45 m long, duly painted with with flat oil paint having alternate black and white bands of 25 cm width including G.I. fixtures etc; fixing the boards in M25 grade concrete block of size 60cm X 60cm X 75cm including transportation etc; complete. Class B (Type IV High intensity micro-prismatic grade sheeting-HIP) shall have 7 years written warranty from the manufacturer and authorised distributor/convertor issued for field performance including the screen printed areas and cut-out sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier.

Foundation concrete block of size 60cm X 60cm : **0.54** Cumt

E-SSR 2018-19	I/P	6.31d /71	=	6337.00	No
900 mm made out of 4mm	Corporation Area 5% increase			316.85	
	Say	=		6653.85	No

R.A. No.20C

RA No. 20 C :- Providing and fixing of retro- reflectorised informatory sign board rectangular/Square in shape having area greater than 0.9 square meter made out of _____mm aluminum sheet bonded with white retro reflective sheeting of Class ____ (Type IV High intensity micro-prismatic grade sheeting-HIP) having pressure sensitive/heat activated adhesive retroreflective specified back ground, border and back side retroreflective symbols, letters, numerals, arrow as per IRC:67-2012 Table No 8.3, supported with back support frame 25mm x 25mm x 3mm, duly painted on back side with two coats of grey stove enamel paint and supported on two no. mild steel angle iron post 75 mm x 75 mm x 6 mm, 3.5 mt long firmly fixed to the ground by means of properly designed foundation with M25 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level as per approved drawing The angle iron post shall be duly painted with one coat of epoxy primer and two coats of epoxy finish paints having alternate black and white bands of 25 cm width including GI fixtures and transportation etc.complete.The nut bolts of board with angle iron post/supporting structure after fixing at site has to be electrically welded. Class B (Type IV High intensity micro-prismatic grade sheeting-HIP) sheeting shall have 7 years written warranty from the manufacturer and authorised distributor/convertor issued for field performance including the screen printed areas and cut-out sheeting and cut-out durable transparent overlay film and this warranty certificate in original should be submitted to the Engineer in charge by the contractor/supplier.

Foundation size 0.45mx0.45mx0.6m*2 nos **0.243** Cumt

E-SSR 2018-19	I/P	6.34 b /74	=	9411.00	/sqm
	Corporation Area 5% increase			470.55	
4mm aluminum composite material of Class B	Say	=		9881.55	/sqm

R.A. No.20D

RA No. 20 D :-Providing and fixing cautionary / warning sign board of size 60 cm.having shape of equilateral triangle with apex point upwards.prepared on 16 gauge M.S. sheet including painting with one coat of zinc cromate stoving primer and two coats each of white back ground, red border and backside gray stove enamelled, bonded with cut out of Retro reflective sheet Engineering grade, symbol / letters / numerals /border / arrow, coated with non peelable crystal clear protective transparent coat retaining 100% reflection including one number of M.S. Angle iron post of size 50 x 50 x 5 mm of 3.65 m. long inflated at bottom drilled on top in one piece without joint painted with white and black bands of 30 cm. fixing board and post with 2 Nos. high strength G.I. bolts and nuts of size 10 mm dia. and 20 mm long including all taxes, conveying, fixing in ground with cement concrete 1:4:8 block of 60 cm x 60 cm x 75 cm size etc.complete. 60 cm. equilateral triangle M.S. sheet with Engineering grade,

Foundation size 0.60mx0.60mx0.75m* 2 nos	0.54	Cumt			
E-SSR 2018-19	I/P	6.38/77	=	3642.00	/No
	Corporation Area 5% increase			182.1	
	Say	=		3824.10	/No

R.A. No.21

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

RA No. 21 :-Road Delineators: Supplying and installation of delineators (Roadway Indicators, Hazard markers, Object markers) 80 to 100 cm high above ground level, painted black and white in 15 cm wide strips, fitted with 80x100mm rectangular or 75mm dia. Circular reflectorised panels at the top, buried or pressed into the ground and confirming to I.R.C. 79 and the drawings

E-SSR 2018-19	I/P	6.15/62	=	990.00	/No.
	Corporation Area 5% increase			49.5	
				1039.50	
			Total =	1039.50	
			Say =	1039.50	/No.

R.A. No.22

RA No. 22:-Road Marking with Hot Applied Thermoplastic Compound with Reflectorizing Glass Beads on Bituminous Surface- Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorizing glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.complete.

a) Yellow 15cm edge line

E-SSR 2018-19	I/P	6.12/60	=	566.00	/sqm
	Corporation Area 5% increase			28.3	
				594.30	
			Total =	594.30	
			Say =	594.30	/sqm

B) White 10cm centre line

E-SSR 2018-19	I/P	6.12/60	=	566.00	/sqm
	Corporation Area 5% increase			566.00	
				28.3	
			Total =	594.30	
			Say =	594.30	/sqm

R.A. No.23

RA No. 23 :-Providing and painting Zebra painting for pedestrain crossing on the carriageway with approved road marking paint in two coats etc. complete.

E-SSR 2018-19	I/P	6.35/58	=	495.00	/sqm
	Corporation Area 5% increase			24.75	
				519.75	
			Total =	519.75	
			Say =	0.00	/sqm

R.A. No.24

RA No. 24:- Supplying and Fixing of Molded Shank Raised Pavement Markers / Cat's Eye made of polycarbonate and ABS moulded body and reflective panels with micro prismatic lens capable of providing total internal reflection of the light entering the lens face and shall support a load of 16000 kg tested in accordance to ASTM D 4280 Type H and complying to Specifications of Category A of MORTH Circular No RW/NH/33023/10-97 DO III Dt 11.06. 1997. The height, width and length shall not exceed 50 mm, 100 mm and 102 +/- 2 mm and with minimum reflective area of 13 Sqcm on each side and the slope to the base shall be 35 +/- 5 degree. The strength of detachment of the integrated cylindrical shanks, (of diameter not less than 19 +/- 2 mm and height not less than 30 +/- 2 mm) from the body is to be a minimum value of 500 Kg. Fixing will be by drilling holes on the road for the shanks to go inside, without nails and using epoxy resin based adhesive as per manufacturer's recommendation and complete as directed by the engineer. The contractor shall submit a two year warranty for satisfactory field performance including stipulated retroreflectance of the reflecting panel, to the Engineer.

E-SSR 2018-19	I/P	6.09/59	=	435.00	/No
	Corporation Area 5% increase			21.75	
			Say =	456.75	/No

R.A. No.25

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

RA No. 38:- Supply & Erection of Gantry mounted Overhead Sign board as per approved drawings and technical specifications clause 801 & 802. Structures as per approved drawing including steel works in trusses, steel tubes cutting, bolting, welding, fixing and installation in cement concrete foundations with holding down bolts complete in all respects. The sign boards made out of 2mm thick aluminium composite sheet face to be fully covered by high intensity grade white retro reflective sheet of encapsulated lens type. The background/ border / symbol / legend / arrows shall be made by transparent overlay fill complete as per IRC 67 -2012 and approved drawings including necessary foundation, etc. complete.

Quotation Rate

a) Signboard	=	5000.00 sqm
b) Overhead Gantry	=	100.00 kg
c) Foundation	=	12000.00 No

R.A. No.26

RA No. 26:- Providing & installing bus shelter unit at specified location along the project road as per drawing & specification. The contractor is required to submit his plan for procurement of different items involved including manufactures name and product specifications for approval of the Consultant/Engineer before procurement and fixing on ground. The unit shall be deliver complete in all respect including testing for lighting, blinking sign boards, name plates including electric service connection from the intake point, etc. all complete.

As per attached reference estimate	=	485000.00 /No
Say	=	485000.00 /No

R.A. No.27

RA No. 27: Construction of dry lean cement concrete Sub- base over a prepared sub-grade with coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS: 383, the size of coarse aggregate not exceeding 25 mm , cement content not to be less than 150 kg/ cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant/ Weigh batch mixer, transported to site with all leads and lifts, laid with a paver with electronic sensor /by suitable means as approved by Engineer-in-charge , compacting with vibratory roller, finishing, curing and including preparation of subgrade surface if required etc. complete.

E-SSR 2018-19	I/P	5.13/54	=	2805.00 /Cum
	Corporation Area 5% increase			140.25
Cement	0.15	0.00		0.00
Sand	0.47	957.35	=	449.95
20mm Cm	0.94	715.43	=	672.50
				<hr/> 4067.71
	Total		=	4067.71
	Say		=	4067.70 /Cum

R.A. No.28

RA No. 28:-Providing and laying in-situ M40 Grade unreinforced plain cement concrete pavement over a prepared sub base with 43 grade cement , coarse and fine aggregate (natural sand/ VSI grade finely washed crushed sand) conforming to IS 383, using fine and coarse aggregates combined gradation as per Table 600-3 of MORTH Specification 2013, mixed in a batching and mixing plant/ non tilting mixer and Weigh batcher as per approved mix design, admixtures, transporting to site,spreading, laying with approved make paver,compacted and finished in a continuous operation, finishing to lines and grades as directed by Engineer-in-charge and curing by curing compound /by providing cement vata in cement Mortar 1:8 @0.6m X 0.6m centre to centre, admeasuring 80 mm at bottom and 40 mm at top with depth of 75mm and maintaining the same throughout curing period by any other method approved by Engineer-in-charge.

E-SSR 2018-19	I/P	5.03/49	=	5746.00 /Cum
	Corporation Area 5% increase			287.3
	lead	Deduct Initial lead	Net lead	
Cement	0.5	0	0.00	0.00
Sand	0.425	0	957.35	= 406.87

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

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RATE ANALYSIS for Road Items

20mm Cm	0.85	0	715.43	=	608.12
					<hr/>
					7048.29
Total					= 7048.29
Say					= 7048.30 /Cum

R.A. No.29

RA No. 29:-Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete. (Lift upto 1.5 m.) By Mechanical Means

Machanical means		I/P	21.02/Page 187	=	143.00 /Cum
E-SSR 2018-19					
					<hr/>
					143.00
Corporation Area 5% increase					7.15
Total					= 150.15
Say					= 150.15 /Cum

R.A. No.30

RA No. 30 :-Providing dry/ trap/ granite/ quartzite/ gneiss rubble stone soling 15 cm to 20 cm thick including hand packing and compacting etc. complete.

E-SSR 2018-19		I/P	21.38/192	=	945.00 /Cum
					<hr/>
					47.25
Corporation Area 5% increase					
Rubble	1	1157.99	1157.99		1157.99
Hand Broken	0.2	382.98	76.596		76.60
Total					= 2226.84
Say					= 2226.80 /Cum

R.A. No31

RA No. 31 :-Providing and laying in situ / ready mix cement concrete of M-10 proportion with trap/ granite/ quartzite/ gneiss metal in foundation including necessary form work, compacting and curing etc. complete. (with reversible drum type mixer with SCADA with fine aggregates of required specifications (Natural sand / VSI sand finely washed etc)

E-SSR 2018-19		I/P	11.02/107	=	4419.00 Cum
					<hr/>
					220.95
Corporation Area 5% increase					
Cement	0.22	0.00	0		
Sand	0.47	957.35	449.9545		
Crush metal	0.89	715.43	636.7327		
					<hr/>
					1086.6872
Total					= 5726.64
Say					= 5726.60 Cum

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

R.A. No.32

RA No. 32 :-Providing and casting in situ / ready mix PCC M15 grade of trap metal for coping to head walls / parapet including centering, form work, compaction and curing etc. complete. (with reversible drum type mixer/ concrete batch mix plant (pan mixer) with SCADA with fine aggregates of required specifications (Natural sand / VSI sand finely washed etc)

E-SSR 2018-19		I/P	11.3/ 110	=	6181.00 Cum
		Corporation Area 5% increase			309.05
Cement	0.33	0.00	0		
Sand	0.45	957.35	430.8075		
Crush metal	0.85	715.43	608.1155		
			1038.923		1038.92
				Total =	7528.97
				Say =	7528.97 Cum

R.A. No.33

RA No. 33 :-Providing and laying Cast in situ/Ready Mix cement concrete M-30 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including steel centering, formwork,cover blocks, laying/pumping, compaction finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)

E-SSR 2018-19		I/P	25.74/228	=	10492.00 Cum
		Corporation Area 5% increase			524.6
Cement	0.40	0.00	0.00		
Sand	0.425	957.35	406.87		
Crush metal	0.85	715.43	608.12		
			1014.99		1014.99
				Total =	12031.59
				Say =	12031.60 Cum

R.A. No.34

RA No. 34 :-Providing and fixing in position TMT - FE - 500 bar reinforcement of various diameters for R.C.C. pile caps, footings, foundations, slabs, beams columns, canopies, staircase, newels, chajjas, lintels pardis,copings, fins, arches etc. as per detailed designs, drawings and schedules. including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required complete.

E-SSR 2018-19		I/P	26.33/ 236	=	63994.00 /MT
		Corporation Area 5% increase			3199.7
steel		1	0.00		0.00
				Total =	67193.70
				Say =	67193.70 /MT

R.A. No.35

RA No. 35 :-Providing and laying weep holes of 100 mm diameter PVC pipes as per drawing for abutment returns, return walls etc. Complete.

E-SSR 2018-19		I/P	17.37/165	=	351.00 /Rmt.
		Corporation Area 5% increase			17.55
				Total =	368.55
				Say =	368.55 /Rmt.

R.A. No.36

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

RA No. 36 :-Providing and laying concrete pipes of I.S.NP. class of 300mm diameter in proper line, level and slope including necessary collars, excavation, laying, fixing with collars in cement mortar 1:1 and refilling the trench complete.

E-SSR 2018-19	I/P	42.09/343	=	973.00 /Rmt.
	Corporation Area 5% increase			48.65
			Total =	1021.65 /Rmt.
			Say =	1021.65 /Rmt.

R.A. No.37

RA No. 37 :-Supplying hard murum/ kankar at the road site, including conveying and stacking complete.

E-SSR 2018-19	I/P	2.29a/ 31	=	294.00 /Cum
	Corporation Area 5% increase			14.7
Murum	1.00	323.13	=	323.13
			Total =	631.83
			Say =	631.80 /Cum

R.A. No.38

RA No. 38 :-Spreading hard murum/ soft murrum/ gravel or kankar for side width complete

E-SSR 2018-19	I/P	2.30/31	=	57.00 /Cum
	Corporation Area 5% increase			2.85
			Total =	59.85
			Say =	59.85 /Cum

R.A. No.39

RA No. 39 :- Compacting the hard murum side widths including laying in layers on each side with vibratory roller including artificial watering etc. complete.

E-SSR 2018-19	I/P	2.31/31	=	16.00 /Smt.
	Corporation Area 5% increase			0.80
			Total =	16.80 /Smt.
			Say =	16.80 /Smt.

R.A. No.40

RA No. 40 :- Dipping excavated balance material from site upto 2.00 km. including all labour, machinery etc. complete

SSR 2018-19	2.00 Km lead for murum	=	169.31	/Cum
	Corporation Area 5% increase		8.47	
		Total =	177.78	
		Say =	177.80	/Cum

R.A. No.41

RA No. 41 :- Providing and fixing in position TMT FE 500, 32 mm dia dowel bars precoated with anticorrosive epoxy paint of required Dia. 60 cms. Long and at 30.00 cm. C/C and wherever directed including handling, straightening, necessary cutting supported by TMT FE 500, chairs with proper alignment by using properly designed assembly of Bulkheads lubricating half length with bituminous paint as directed etc. complete.

	I/P	5.14/54	=	381.00 Number
	Corporation Area 5% increase			19.05
		Total =		400.05
		Say =		400.05 Number

R.A. No.42

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

RA No. 42 :-Providing and fixing in position TMT FE 500, tie bars precoated with anticorrosive epoxy paint of 12 mm dia. 70 cms.long and at 30.00 cm. C/C and wherever directed including handling, straightening wrapping with paper of approved quality for half length, necessary cutting, handling, straightening , supported by assembly of TMT FE 500, chairs with proper alignment etc. complete.

I/P	5.16/54	=	200.00 Number
Corporation Area 5% increase			10.00
Total		=	210.00
Say		=	210.00 Number

R.A. No.43

RA No. 43 :-Cutting transverse contraction joints 3 to 4 mm wide and depth 60mm. .in concrete slab using concrete cutting machine with diamond studded saw within 48 hours of casting of bay / slab etc. complete including subsequent widening of the groove 8 to 10 mm. wide at top having depth of 15 mm. as directed by Engineer incharge.

I/P	5.17/55	=	65.00 /Rmt.
Corporation Area 5% increase			3.25
Total		=	68.25
Say		=	68.25 /Rmt.

R.A. No.44

RA No. 44 :-Providing to contraction joints polysuphide sealent (Pouring grade) confirming to BS : 5212 - 1989 into sawed groove widened at top for sealent reservoir of specified size and shape as per detailed drawing including fixing Polyethylene foam backer rod of required diameter (appraox. 25% larger than the initial 3 mm.to 4 mm. joint) overlaid with bond breaking tape as per detailed drawing. RA includes cleaning the joints with water jet / air compressor and allowing joint to become thoroughly dry before sealent is applied and applying primer. (A) Contraction and longitudinal joints (15 mm. deep x 8 mm.wide)

I/P	5.18/55	=	135.00 /Rmt.
Corporation Area 5% increase			6.75
Total		=	141.75
Say		=	141.75 /Rmt.

R.A. No.45

RA No. 45 :-Providing and laying 125 micron Low Density Polyethylene (LDPE) sheet confirming to IS 3395 : 1997 below concrete pavement including all materials and labour complete.

I/P	5.19/55	=	19.00 /Smt.
Corporation Area 5% increase			0.95
Total		=	19.95
Say		=	19.95 /Smt.

R.A. No.46

RA No. 46 :- Conveying materials obtained from road cutting including all lifts, laying in layers of 20cm to 30cm. breaking clods, dressing to the required lines, curves, grades and section, watering and compacting to not less than 97% of standard Proctor density for a lead of over 50m. to 300m. inclusive from the site of excavation to the site of deposition as directed.

	I/P	2.25/30	=	133.00 Cum
	Corporation Area 5% increase			6.65
Murum	1.00	0.00	=	0.00
				139.65
	Total		=	139.65
	Say		=	139.70 Cum

R.A. No.47

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

RA No 47 :- Providing cast in situ / ready mix M20 grade cement concrete for head walls of CD work / retaining walls etc. including necessary form work, compaction, finishing and curing etc. complete. (with reversible drum type mixer/ concrete batch mix plant (pan mixer) with SCADA

		I/P	11.29/ 110	=	6631.00 Cum
		Corporation Area 5% increase			331.55
Cement	0.850	0.00	0.00		
Sand	0.425	957.35	406.87		
Crush metal	0.400	715.43	286.17		
			693.04575		693.05
				Total =	7655.60
				Say =	7655.60 Cum

R.A. No.48

RA No 48:- Providing and fixing reinforced cement concrete cover of size 60 cm x 45 cm with frame over inspection chamber etc. complete. Heavy duty (160 kg)

		I/P	42.70/ 352	=	3990.00 Number
		Corporation Area 5% increase			199.50
Cement	0.850	0.00	0.00		
Sand	0.425	0.00	0.00		
Crush metal	0.400	0.00	0.00		
			0		0.00
				Total =	4189.50
				Say =	4189.50 Number

R.A. No.49

RA No. 49 :-Providing and casting in situ or precast tapering R.C.C. M-20 Mountable type Kerb without gutter (as per IRC 86 1983) embedded 125mm below ground level over M-10 PCC finished neatly with C.M.1:2, setting the same in C.M. 1:2, including the required excavation in any strata and removing the excavated stuff any where in city and redoing the surface as specified and directed by Engineering In-charge Using Concrete Batching and Mixing Plant

		I/P	7.03/91	=	353.00 /Smt.
		Corporation Area 5% increase			17.65
				Total =	370.65
				Say =	370.65 /Smt.

R.A. No.50

RA No. 50 :-Providing and fixing stainless steel bollard of steel pipe 1.00 metre long of 250 mm inner diameter and circular top plate of 350 mm diameter with 5 mm thickness on deck of jetty in cement concrete including necessary fixtures and fastening etc. complete. (Stainless steel of grade S-304)

		I/P	49.28/411	=	19139.00 /Number
		Corporation Area 5% increase			956.95
				Total =	20095.95
				Say =	20095.95 /Number

R.A. No.51

RA No. 51 :-Providing first class Burnt Brick masonry with conventional/ I.S. type bricks in cement mortar 1:6 in plinth including bailing out water manually, striking joints on unexposed faces, pointing with cement mortar 1:3 on exposed face and watering etc. Complete.

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

I/P	27.02/246	=	5267.00 /Number
Corporation Area 5% increase			263.35
Total		=	5530.35
Say		=	5530.35 /Number

R.A. No.52

RA No. 52 :-Providing internal cement plaster 12mm thick in single coat in cement mortar 1:5 without neeru finish to concrete or brick surfaces, in all positions including scaffolding and curing etc. complete.

I/P	32.03/260	=	205.00 Sq.m
Corporation Area 5% increase			10.25
Total		=	215.25
Say		=	215.25 Sq.m

R.A. No.53

RA No. 53 :-Providing and fixing Ductile iron Man Hole Covers/ Strom Water Grating and Grating with frame of Various sizes, weight and types and load bearing capacity as per EN-124, equivalent NECO with prior approval of concerned Superintending Engineer.

I/P	50.85/456	=	150.00 /Number
Corporation Area 5% increase			7.50
Total		=	157.50
kg	70	Total	= 11025.00
Say		=	11025.00 /Number

R.A. No.54

RA No. 54 :-C.I.Man hole cover 175 kg.Heavy (0.9*0.45m)

I/P	Bd-V /464	=	12500.00 /Number
Corporation Area 5% increase			625.00
Total		=	13125.00
Say		=	13125.00 /Number

R.A. No.55

RA No. 55 :-Providing and erecting chain link fencing 1.6 M. height with G.I. chain link of size 50 x 50 mm, 8 gauge thick and fixed 75 mm above ground level on vertical M.S. Angles of 40 x 40 x 6 mm size, including excavating pits for foundation and embedded in C.C. block of 1:4:8 mix of size 450 x 450 x 670 mm. at 1.75 M. c/c with iron bar 16mm dia as hold fast including welding link with angle frame at 30 cm c/c with nuts and bolts and horizontal M.S. Angles at top and bottom of 25 x 25 x 5 mm size and vertical M.S. flat 35 x 5 mm and 25 x 5 mm horizontal including cross support of 40 x 40 x 6 mm angles both side at every corner or bend embedded in concrete blocks of 1:4:8 of size 450 x 450 x 670 mm including 3 coats of oil painting etc. complete.

I/P	46.39 / 373	=	1762.00 Running Metre
Corporation Area 5% increase			88.10
Total		=	1850.10
Say		=	1850.10 Running Metre

R.A. No.56

RA No. 56 :-Providing Reinforced cement concrete crash barrier at the edges of the road, approaches to bridge structures and medians, constructed with R.C.C. M 20 Grade concrete with HYSD reinforcement conforming to IRC:21 and dowel bars 25 mm dia, 450 mm long at expansion joints filled with pre-moulded asphalt filler board, keyed to the structure on which it is built and installed as per design given in the enclosure to MOST circular No. RW/NH - 33022/1/94-DO III dated 24 June 1994 as per dimensions in the approved drawing and at locations directed by the Engineer, all as specified etc. complete. Spec: MORT and H 2013 CI 811 Page No 360

I/P	7.35 /98	=	2939.00 Running Metre
Corporation Area 5% increase			146.95
Total		=	3085.95

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

RATE ANALYSIS for Road Items

Say = 3085.95 Running Metre

R.A. No.57

RA No. 57 :-Providing uncoursed rubble masonry of trap / granite / quartzite / gneiss stones in cement mortar 1:6 in foundation and plinth of inner walls / in plinth of external walls including bailing out water manually ,striking joints on un exposed faces and watering etc.complete.

RA No. 56 :-Providing Reinforced cement concrete	I/P	28.01/ 249	=	3652.00 /Cum
	Corporation Area 5% increase			182.6
Rubble	1	1157.99	1157.99	1157.99
Hand Broken	0.2	382.98	76.596	76.60
			Total	= 5069.19
			Say	= 5069.20 /Cum

R.A. No.58

RA No. 58 :-Providing and Laying factory made coloured chamfered edge Cement concrete grass paver blocks of required strength,thickness & size/shape, made by table vibratory method using PU mould, laid in required colour & pattern over 50mm thick compacted bed of fine aggregate (natural sand/crushed sand VSI grade finely washed etc.), compacting and proper embedding/laying of inter locking paver blocks into the fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) bedding layer through vibratory compaction by using plate vibrator, filling the joints with fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) and cutting of paver blocks as per required size and pattern, finishing and sweeping extra fine aggregate (natural sand/crushed sand VSI grade finely washed etc.) and complete as per manufacturer specifications & direction of Engineer-in-Charge. 60mm thick CC paver block of M-35 grade concrete with approved colour and design & pattern.

	I/P	48.06	=	707.00 Square Metre
	Corporation Area 5% increase			35.35
			Total	= 742.35
			Say	= 742.40 Square Metre

R.A. No.59

RA No. 59 :-Providing and laying machine cut machine Polished Kota stone flooring 25mm to 30mm thick and required width in plain/ diamond pattern on bed of 1:6 C. M. including cement float, filling joints with neat cement slurry, curing, polishing and cleaning etc. complete.

India mart rates	I/P		=	976.00 Sq.m
	Corporation Area 5% increase			48.8
			Total	= 1024.80
			Say	= 1024.80 Sq.m

R.A. No.60

RA No. 60 :-Providing, transporting and placing in position precast pretensioned concrete girders as per drawings and technical specifications etc. complete.

	I/P		=	19341.00 /Cum
	Corporation Area 5% increase			967.05
			Total	= 20308.05
			Say	= 20308.10 /Cum

R.A. No.61

RA No. 61 :-Providing and laying cement concrete pipe of IS 458:2003 NP-2 class of 600mm diameter in proper line, level and slope including providing and fixing collars in cement mortar 1:2 and curing etc. complete.

	I/P	11.09/107	=	2165.00 /Cum
	Corporation Area 5% increase			108.25

Name of work : Conservation and Development of the Mangroves Park at Dahisar For Mumbai Mangroves Conservation Unit

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RATE ANALYSIS for Road Items

Total = 2273.25

Say = 2273.30 /Cum

Mumbai Mangroves Conservation Unit					
Name of Work : Conservation and Development of the Mangrove Park at Dahisar					
Abstract for Security Cabin and Entrance Structure					
Ref ; PWD State e SSR / 2018-19					
Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
		Item No.1			
		A) Building Works			
	Sr. No. & Item Code 21.02, P. NO.187	Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as directed, dewatering, preparing the bed for the foundation and necessary back filling, ramming, watering including shoring and strutting etc. complete (Lift upto 1.5 m.)			
		a) earth, soils of all types, sand gravel and soft murum			
413.13		Excavation Lift from 0.00 mtr to 1.50 mtr	150.15	Cum	62,031.47
		Ref: RA No.1			
		Item No.2			
238.53	Sr. No. & Item Code 21.36, P. NO.191	Filling in plinth and floors with excavated material in layers of 15 cm to 20 cm including watering and compaction etc. complete.	89.25	Cum	21,288.80
		Ref: RA No.2			
		Item No.3			
82.74	Sr. No. & Item Code 21.40, P. NO.192	Providing soling using 80mm size trap metal in layers of 15 cm each including filling voids with sand, ramming, watering etc. complete. Specs No.	2138.20	Cum	176,914.67
		Ref: RA No.3			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
		Item No.4			
5.150	Sr. No. & Item Code 23.01, P. NO.214	Providing and fabricating structural steel work in rolled sections like joist, channels, angles, tees etc. as per detailed design and drawings or as directed by Engineer-In-Charge. including cutting, fabricating, hoisting, erecting, fixing in position making riveted / bolted / welded connections with connecting plates, braces etc. and including one coat of anticorrosive paint and over it two coats of oil painting of approved quality and shade etc. complete.	74564.70	MT	384,008.21
		Ref: RA No.11			
		Item No. 5			
23.88	Sr. No. & Item Code 24.04, P. NO.217	Providing and laying Cast in si tu/ Ready Mix cement concrete in M15 of trap/ grani te/ quartzite/ gneiss metal for steps including steel centering, plywood/ steel formwork, laying/ pumping, compacting, roughening them if special finish is to be provided, finishing uneven and honeycombed sur face and cur ing etc. complete. The Cement Mortar 1:3 plaster is considered for render ing uneven and honeycombed surface, only. Newly laid concrete shall be covered by gunny bag, plastic, tarpaulin etc. (Wooden centering will not be allowed.), with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand	6059.60	Cum	144,703.25
		Ref: RA No.12			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
		Item No.6			
67.98	Sr. No. & Item Code 25.13, P. NO.222	Providing and laying Cast in si tu/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. work in foundations like raft ,strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. columns as per detai led designs and drawing or as directed including center ing, formwork, cover blocks laying/ pumping, compact ion finishing the formed sur faces with cement mor tar 1:3 of sufficient minimum thickness to give a smooth and even sur face or roughening i f special finish is to be provided and cur ing etc. complete. (Excluding reinforcement and st ructural steel). wi th fully automat ic micro processor based PLC wi th SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. Wi th natural sand/ V.S.I. quality Artificial Sand	6,851.37	Cum	465,756.13
		Ref: RA No.13			
		Item No.7 (R.C.C. Slabs and landings)			
	Sr. No. & Item Code 25.72, P. NO.227	Providing and laying Cast in si tu/ Ready Mix cement concrete M-25 of trap/ grani te / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including centering, formwork cover blocks, laying/ pumping, compact ionfinishing the formed surfaces wi th cement mor tar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding reinforcement and structural steel).with fully automatic microprocessor based PLC with SCADA enabled reversible Drum Typemixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand			
21.28		Plinth Level	11,923.92	Cum	253,741.02
		Ref: RA No.16			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
		Item No.8			
	Sr. No. & Item Code 26.07, P. NO.191	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap/ granite/ quartzite/ gneiss metal for R.C.C. chajja as per detailed design and drawings including centering, formwork, cover blocks, laying/ pumping, compacting and roughening the surface if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer / concrete Batch mix plant (Pan mixer) etc. complete. With natural sand/ V.S.I. quality Artificial Sand			
6.01		Ground Floor	11782.17	Cum	70,810.84
		Ref: RA No.17			
		Item No.9			
	Sr. No. & Item Code 26.19, P. NO.231	Providing and laying Cast in situ/Ready Mix cement concrete in M-25 of trap/ granite/ quartzite/ gneiss metal for R.C.C. pardi of required thickness including steel centering, formwork, cover blocks, laying/pumping, compacting and roughening them if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)			
60.48		Ground Floor	13,148.22	Cum	795,204.35
		Ref: RA No.18			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
		Item No.10			
	Sr. No. & Item Code 26.33, P. NO. 236	Providing and fixing in position HCRM / CRS (Corrosion Resistant Steel) bar reinforcement of various diameters for R.C.C. pile caps, footings, foundations, slabs, beams columns, canopies, staircase, newels, chajjas, lintels, parapets, copings, fins, arches etc. as per detailed designs, drawings and schedules. including cutting, bending, hooking the bars, binding with wires or tack welding and supporting as required complete			
12.10		Ref: RA No.20	70005.60	MT	847,067.76
		Item No.11			
	Sr. No. & Item Code 31.04, P. NO.255	Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved water proofing compound and laying the brick bats on bottom layer in C.M.1:5 admixed with approved water proofing compound filling up to half depth of brick bats, curing this layer for 3 days, applying cement slurry over this layer joints of brick bats with C.M.1:3 admixed with approved water proofing compound and finally top finishing with average 20 mm. thick layers of same mortar added with jute fiber at 1 Kg per bag including finishing the surface smooth with cement slurry admixed with approved water proofing compound. Marking finished surface with false squares of 300mm x 300 mm. making the junctions at the parapet rounded and tapered top for required height, with drip mould at the junction of plaster and parapet and curing and covering 10 years Guarantee against leakproofness on Court fee stamp paper of Rs. 500/- including ponding test etc. complete.			
141.87		Terrace Floor	1011.75	sqm	143,536.97

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
		Ref: RA No.23			
		Item No.12			
	Sr. No. & Item Code 33.18, P. NO.268	Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25 mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float , filling joints with neat cement slurry, curing, polishing and cleaning etc. complete.			
81.75		Ground floor	1255.01	sqm	102,597.07
		Ref: RA No.30			
		Item No.13			
	Sr. No. & Item Code 36.01, P. NO.239	Providing and applying primer coat for internal wall surface and ceiling including scaffoldin to receive oil bound distemper treatment etc. complete.			
	a)	Two Coat			
235.19		Ground floor	15.75	sqm	3,704.24
		Ref: RA No.34			
		Item No.14			
	Sr. No. & Item Code 36.10, P. NO.285	Providing and applying washable oil-bound distemper of approved colour and shade to old and new sur faces in one coat including scaffolding, preparing the surfaces. (excluding the primer coat .) etc. complete.			
480.42		Ground floor	24.57	sqm	11,803.92
		Ref: RA No.35			

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
		Item No.15			
18.00	Item no 42.87 Page no 355	Providing and fixing P.V.C. Rain water pipes of 110mm outer diameter and having wall thickness of 2.2 to 2.7 mm confirming to I.S. 13592-1992 including proper rainwater receiving recess with P.V.C. plug, bend, necessary fittings, such as, offsets, shoes, including fixing the pipe on wall using approved wooden cleats projecting 25mm to 40mm from face of wall a fixing with clips of approved quality and number, filing the joint using rubber gasket with solvent cement and properly resting the shoe of pipes on C.C. or masonry blocks, including necessary scaffolding and maintenance for 3 yrs for any leakages or dislocations of pipes. All the P.V.C. fittings and additional 2 piece socket clips shall be got approved from engineer in charge etc.complete. (The contractor shall give 3 yrs guarantee bond for payment)	428.40	Rmt	7,711.20
		Ref: RA No.49			
		Item No.16			
	M. R. (As per quotation 15)	Supplying, installation of the Unplasticized polyvinyl chloride (UPVC) Windows & Doors as per the Plan and profile for the Nature interoperation Center ``			
14.79	a	Partly fixed partly openable fixed window with casement panel, wooden finish upvc frames with minimum thickness of the frame 5mm +10mm +5mm dgu clear toughen glass and complete . As per the Dimension as specified in W6 W7	0.00	Sqm	0.00
32.00	b	Providing and Fixing UPVU full window and complete as per the dimension and specification of the W 10 TO W 14 of the PIM	35880.93	Sqm	1,148,189.76

Quantity	e SSR 2018-19	Description	Final Rate (Rs.)	Unit	Amount(Rs.)
20.03	c	Providing and Fixing UPVU Doors and complete as per the dimension and specification of the D 3 of the PIM	23649.16	Sqm	473,692.67
		Item No.17.			
55.00	Bd/HES I.N.37 P .N.195	Removing any kind of Debris including loading in truck and conveying day to day basis to approved dumping point etc complete with all lifts and lead of 52Km. (As directed by Engineer- in - Charge.	4669.39	Per Trip	256,816.45
		Sub total Civil works			5,369,578.78
		Add 1% Insurance		1%	53,695.79
		Say			5,423,275.00

Mumbai Mangroves Conservation Unit								
Name of Work : Conservation and Development of the Mangrove Park at Dahisar								
Measurement Sheet for Security Cabin and Entrance Structure								
Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		Item No.1						
		Excavation for foundation in soft soil ; TOTAL EXCAVATION						
Item No.1	Sr. No. & Item Code 21.02, P. NO.153	Excavation for foundation in earth, soil of all types, sand, gravel and soft murum, including removing the excavated material up to a distance of 50 m. beyond the building area and stacking and spreading as	100%					
1		Excavation for foundation in soft soil ; TOTAL EXCAVATION						
		Excavation for Pile Caps , Total Excavation						
		Section xx-ww	1	143.36		1.15	164.86	
		Section yy-zz	1	172.56		1.15	198.44	
		Section VV	1	43.33		1.15	49.83	
							413.13	413.13
								Cum
		Item No.2						
Item No.2	Sr. No. & Item Code 21.36, P. NO.156	Filling in plinth and floors with excavated material in layers of 15 cm to 20 cm including watering and compaction etc. complete.						
	i	Total Excavation	1				413.13	
	ii	PCC	1				-23.88	
	iii	Soling	1				-82.74	
	iv	RCC	1				-67.98	
							238.53	238.53
								Cum
		Item No.3						
Item No.3	Sr. No. & Item Code 21.40, P. NO.157	Providing soling using 80mm size trap metal in layers of 15 cm each including filling voids with sand, ramming, watering etc. complete. Specs No.						
		Section xx-ww	1	112.60		0.30	33.78	

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		Section yy-zz	1	134.54		0.30	40.36	
		Section VV	1	28.67		0.30	8.60	
		total qty-----					82.74	82.74
								cum
		Item No.4						
Item No.4	Sr. No. & Item Code 23.01, P. NO.174	Providing and fabricating structural steel work in rolled sections like joist, channels, angles, tees etc. as per detailed design and drawings or as directed by Engineer-In-Charge. including cutting, fabricating, hoisting, erecting, fixing in position making riveted /						
		Roof Top	As Per Staddpro Quantity for angle sections					
		ISA 45 x 45 x 5					4500.00	
		Pipe 152 4 L					500	
							5000.00	Kgs
		add 3% for gusset plate , cleat angles ,splicing	3%				150.00	
							5150.00	5.150
								M.T
		Item No.5						
Item No.5	Sr. No. & Item Code 24.04, P. NO.176	Providing and laying Cast in si tu/ Ready Mix cement concrete in M15 of trap/ grani te/ quartzite/ gneiss metal for steps including steel centering, plywood/ steel formwork, laying/ pumping, compacting, roughening them if special finish is to be provided,						
		PCC						
		Section xx-ww	1	98.310		0.100	9.83	
		Section yy-zz	1	118.080		0.100	11.81	
		Section VV	1	22.420		0.100	2.24	
		total qty---					23.88	23.88
								cum
		Item No.6						

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
Item No.6	Sr. No. & Item Code 25.13, P. NO.180	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap / granite / quartzite/ gneiss metal for R.C.C. work in foundations like raft ,strip foundations, grillage and footings of R.C.C. columns and steel stanchions etc. columns as per detailed designs and drawing or as directed including centering, formwork, cover blocks laying/ pumping, compact ion finishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness						
		Below Foundation						
		Section xx-ww	1	93.700		0.3	28.11	
		Section yy-zz	1	112.410		0.3	33.72	
		Section VV	1	20.500		0.3	6.15	
		Total qty.....					67.98	67.98
								cum
		Item No.7 (R.C.C. Slabs and landings)						
Item No.7	Sr. No. & Item Code 25.72, P. NO.189	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap/ granite / quartzite/ gneiss metal for R.C.C. slabs and landings as per detailed designs and drawings including centering, formwork cover blocks, laying/ pumping, compact ionfinishing the formed surfaces with cement mortar 1:3 of sufficient minimum thickness to give a smooth and even surface or roughening if special finish is to be provided and curing etc. complete,(Excluding	cum					
		150mm thick slab						
		Ticket Window , Office	1	69.34		0.15	10.4	
		Office 1, 2, 3	1	72.53		0.15	10.88	
							21.28	21.28
								cum
		Item No.8						

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
Item No.8	Sr. No. & Item Code 26.07, P. NO.191	Providing and laying Cast in situ/ Ready Mix cement concrete M-25 of trap/ granite/ quartzite/ gneiss metal for R.C.C. chajja as per detailed design and drawings including centering, formwork, cover blocks, laying/ pumping, compacting and roughening the surface if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel). with fully automatic micro processor based PLC with SCADA enabled						
		Ticket Window , Office	1	40.96	0.75	0.10	3.07	
		Office 1, 2, 3	1	39.18	0.75	0.10	2.94	
		Total					6.01	6.01
								cum
		Item No.9						
Item No.9	Sr. No. & Item Code 26.19, P. NO.231	Providing and laying Cast in situ/Ready Mix cement concrete in M-25 of trap/ granite/ quartzite/ gneiss metal for R.C.C. pardi of required thickness including steel centering, formwork, cover blocks, laying/pumping, compacting and roughening them if special finish is to be provided and curing complete. (Excluding reinforcement and structural steel).with fully automatic micro processor based PLC with SCADA enabled reversible Drum Type mixer/ concrete Batch mix plant (Pan mixer) etc. complete. With fine aggregate (Natural Sand / Crushed sand VSI Grade finely washed etc)						
		Near Pedestrian Entry (Truss Supporting Wall)	1	8.07	0.30	8.70	21.05	
		Near Pedestrian Entry (Pipe Rest Wall)	1	7.11	0.30	3.15	6.72	
		Section XX	1	6.972	0.15	3.00	3.14	
			2	1.5	0.15	3.00	1.35	
			1	1	0.15	0.90	0.14	
			1	6.972	0.15	3.00	3.14	

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		Near Staircase	2	3.3	0.15	3.00	2.97	
			1	3.76	0.15	3.00	1.69	
		Mid wall of glass	1	0.15	0.15	3.00	0.07	
		Left side beside						
		Left side beside RCC	1	1.625	0.15	3.00	0.73	
		Left side beside RCC	1	2.783	0.15	3.00	1.25	
		Left side beside teak wood material	1	2.5	0.15	3.00	1.13	
		Left side beside teak wood material	1	2.239	0.15	3.00	1.01	
		Left side beside teak wood material	1	3.103	0.15	3.00	1.40	
		WALL (Right side Entrance)						
		Front side	1	13.99	0.15	3.00	6.30	
		Backside	1	14.81	0.15	3.00	6.66	
			1	4.63	0.15	3.00	2.08	
			1	2.74	0.15	3.00	1.23	
			1	4.50	0.15	3.00	2.03	
			1	1.46	0.15	3.00	0.65	
			1	2.64	0.60	3.00	4.76	
			1	0.45	0.61	3.00	0.82	
		Small Projection Near Glass	1	0.45	0.15	3.00	0.20	
		Deductions						
		W 6	-1	3.15	0.15	3.00	-1.42	
		W 7	-1	1.50	0.15	3.00	-0.68	
		W 10	-6	1.50	0.15	1.50	-2.03	
		W 11	-1	1.00	0.15	1.00	-0.15	
		W 12	-1	2.00	0.15	1.63	-0.49	
		W 13	-1	2.54	0.15	2.57	-0.98	
		W 14	-1	3.00	0.15	2.57	-1.16	
		Doors (Right side Entrance)						
		D3	-5	1.26	0.15	3.00	-2.84	
		D4	-1	0.65	0.15	3.00	-0.29	
							60.48	60.48
								cum

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		Item No.10						
Item No.10	Sr. No. & Item Code 26.33, P. NO. 196	Providing and fixing in position HCRM / CRS (Corrosion Resistant Steel) bar reinforcement of various diameters for R.C.C. pile caps, footings, foundations, slabs, beams columns, canopies, staircase, newels, chajjas, lintels pardis, copings, fins, arches etc. as per detailed designs, drawings						
		RCC Qty Summary						
					Chajja	Slab	Wall	Sub Total
		Upto Plinth				67.98	60.48	128.460
		Gr Floor			6.01	0.00		6.010
								134.470
		Consumption			0.090	0.090	0.090	
			MT/ cum,					
		Reinforcement Steel Qty Summary						Sub Total
		Upto Plinth				6.12	5.44	11.560
		Gr Floor			0.54	0.00		0.540
		Total Reinforcement Steel Qty----			0.540	6.120	5.440	12.10
								MT
		Item No.11						
Item No.11	Sr. No. & Item Code 31.04, P. NO.218	Providing cement based water proofing treatment to terraces (Indian water proofing or alike) with brick bats laid in required slope to drain the water for any span after cleaning the base surface. Applying a coat of cement slurry admixed with approved water						
		TERRACE WATER PROOFING (First Floor)		Plinth Area				
		Ticket Window , Office	1	69.34			69.34	
		Office 1, 2, 3	1	72.53			72.53	
							141.87	141.87
		terrace floor		1				Sqm

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		Item No. 12						
Item No.12	Sr. No. & Item Code 33.18, P. NO.228	Providing and laying machine cut machine polished machine cut Kota stone slabs 20 to 25 mm thick for treads and risers of steps and staircases, with rounded nosing for the treads on a bed of 1:4 cement mortar including cement float , filling joints with neat cement slurry, curing, polishing and						
		Office 1	1	20.17			20.17	
		Office 2	1	12.96			12.96	
		Office 3	1	23.55			23.55	
		Ticket window	1	3.00	2.39		7.17	
			1	1.40	1.40		1.96	
		Toilet	1	1.35	1.10		1.49	
		Office	1	3.00	3.42		10.26	
			1	2.79	1.50		4.19	
							81.75	81.75
								Sqm
		Item No.13						
Item No.13	Sr. No. & Item Code 36.01, P. NO.239	Providing and applying pr imer coat for internal wall sur face and ceiling including scaffoldin to receive oi l bound distemper t reatment etc. complete.						

[illegible]

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
		Item No.15						
Item No.15	Item no 42.87 Page no 296	Providing and fixing P.V.C. Rain water pipes of 110mm outer diameter and having wall thickness of 2.2 to 2.7 mm confirming to I.S. 13592- 1992 including proper rainwater receiving recess with P.V.C. plug, bend, necessary fittings, such as, offsets, shoes, including fixing the pipe on wall using approved wooden cleats projecting 25mm to 40mm from face of wall a fixing with clips of approved quality and number, filling the joint using rubber gasket with solvent cement and properly resting the shoe of pipes on C.C. or masonry blocks, including necessary scaffolding and maintenance for 3 yrs for any leakages or dislocations of pipes. All the P.V.C. 110 mm	6	3.00			18.00	18.00
								Rmt
		Item No.16						
Item No.16	M. R. (As per quotation 15)	Supplying, installation of the Unplasticized polyvinyl chloride (UPVC) Windows& Doors as per the Plan and profile for the Nature interpretation Center ``						
	a - 1	Partly fixed partly openable 3150 mm x 3180 mm fixed window with casement panel, wooden finish upvc frames with minimum thickness of the frame 5mm +10mm +5mm dgu clear toughen glass and complete . As per the Dimension as specified in W6	1	3.150	3.180		10.02	Sqm
	a - 2	Partly fixed partly top hung 1500 mm x 3180 mm fixed window with casement panel, wooden finish upvc frames with minimum thickness of the frame 5mm +10mm +5mm dgu clear toughen glass and complete . As per the Dimension as specified in W7	1	1.5	3.18		4.77	Sqm
							14.79	Sqm
	b - 1	Providing and Fixing UPVU full window and complete as per the dimension and specification of the W 10 of the PIM	6	1.5	1.5		13.50	Sqm

Item no	e SSR 2018-19	Description	No	Length	Breadth	Depth	Quantity	Total
	b - 2	Providing and Fixing UPVU louvered Window and complete as per the dimension and specification of the W 11 of the PIM	1	1	1		1.00	Sqm
	b - 3	Providing and Fixing UPVU louvered Window and complete as per the dimension and specification of the W 12 of the PIM	1	2	1.63		3.26	Sqm
	b - 4	Providing and Fixing UPVU louvered Window and complete as per the dimension and specification of the W 13 of the PIM	1	2.54	2.57		6.53	Sqm
	b - 5	Providing and Fixing UPVU louvered Window and complete as per the dimension and specification of the W 14 of the PIM	1	3	2.57		7.71	Sqm
							32.00	Sqm
	c	Providing and Fixing UPVU Doors and complete as per the dimension and specification of the D 3 of the PIM	5	1.26	3.18		20.03	Sqm
		Item No.17						
Item No.17	Bd/HES I.N.37 P .N.195	Removing any kind of Debris including loading in truck and conveying day to day basis to approved dumping point etc complete with all lifts and lead of 52Km. (As directed by Engineer- in - Charge.						
		Considered 80% of Total Excavation Quantity	1.00	330.50		330.50	55.00	55.00
		Considered 6Cum in One trip						Trip

Electro Mechanical

MANGROOVS PARK , DAHISAR		
Summary sheet of Electro-mechincal Items		
Sr. No.	Description	Amount
1	Water Pumping System	82,288.00
2	Internal Electrical	5,169,089.00
3	External Electrical	9,151,573.30
4	Lifts	-
5	Substation 22/0.433 KV, 500 KVA	13,499,395.00
6	HVAC	8,491,281.78
7	DG Set	3,424,928.00
8	Earthing system	547,440.00
9	Supply Authority Lisaning Charges	294,300.00
	sub Total	40,365,995.08
	contegency @3%	-
	Total	40,365,995.08
	Composite GST @12%	4,843,919.41
	Grand Total	45,209,914.49

MANGROOVS PARK , DAHISAR										
Subject :- Detailed estimate for electrification. (external)										
PUBLIC WORKS DEPARTMENT (ELECTRICAL WING) 2018 – 2019 (without GST)										
Subject :- Detailed estimate for electrification. (external)										
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/ Erection charges	Total of supply & erection	5% on total rate	Net Rate	Amount
1		LED flexible strip light								
	PWD DSR 18-19 , item no. 2-1-13	Supplying and erecting LED flexible strip light 5m length upto 25W conforming IP 65 of any colour with driver complete.	2	Each	1915	131	2046		2046	4,092.00
2		powder coated housing LED Panel (slim edgelit) 300X1200mm								
	PWD DSR 18-19 , item no. 2-1-12	Supplying and erecting rectangular shaped CRCA /die-cast aluminium powder coated housing LED Panel (slim edgelit) 300X1200mm of suitable for 36 to 40 W with provision for plane front frame with translucent cover fixed to the housing complete.		Each	3285	105	3390		3390	-
3		30W LED wall washers,								
	PWD DSR 18-19 , item no. 2-5-20 (New)	Supplying and erecting Recess mounted 30W LED wall washers, tilted 70° outwards and swivels 360° to offer best illumination on the wall with any colour with driver complete. (Including Compatible Driver)	30	Each			4869		4869	146,070.00
		solar street light pole comprising of 12W x 2 nos. LED fittings,								
4	PWD DSR 18-19 , item no. 4-3-13	Supplying, installing, testing and commissioning solar street light pole comprising of 12W x 2 nos. LED fittings, 12V min. 100Ah maintenance free lithium battery, min. 120Wp SPV module, MS powder coated battery box eather proof, mounted on 75/80 mm dia. B-Grade GI pole of 6 m. height along with brackets, foundation, earthing and necessary accessories complete. Specification no. ESDSOL-STL	143	Each			54180		54180	7,747,740.00
		solar LED mini Hi – Mast 20 W x 5 nos. LED luminaries								
5	PWD DSR 18-19 , item no. 4-3-14	Supplying, installing, testing and commissioning solar LED mini Hi–Mast 20 W x 5 nos. LED luminaries, 2 nos. x 150 AH 12 V lithium battery, min. 400 Wp SPV modules, mounted on GI octagonal pole with bottom of 130 mm A/F, top 70 mm A/F 6 mtr height along with brackets, foundation, earthing and necessary accessories, waterproof battery box, suitable solar inverter, timer setting arrangement, GI / powder coated module structure, with first 6 hr. full intensity light output and following 6 hr. with half intensity light output along with solar and local electrical power supply charging facility complete. (with 5 years warrantee)	4	Each			203995		203995	815,980.00
6		LED street light								
	PWD DSR 18-19 , item no. 5-2-3	Supplying and erecting LED street light fitting suitable above 26W to 36W lamp, including lamp, with PF > 0.95 class IP 65 and above Housing of pressure die cast aluminium alloy and heat sink extruded aluminium complete as per specification No FG-ODF/FLS2	0	Each	2462	143	2605		2605	-
7		Street light bracket								
	PWD DSR 18-19 , item no. 5-2-9-2	Supplying and erecting Street light bracket made from 40 mm. dia/B' class G.I. Pipe, 0.6m. in length along with pole cap of 300 mm length and 80 mm dia duly welded with provided leads as per specification no.FG-BKT/8PC	0	Each	473	118	591		591	-
8	PWD DSR 18-19 , item no. 8-3-10	Providing & erecting 3 m high (clear height) galvanised OCTAGONAL pole with foundation bolts having bottom of 130 mm A/F, top 70 mm A/F on provided foundation as per specification No. OH-PL/OPL	0	Each	8677	914	9591		9591	-
		street light control panel								
9	PWD DSR 18-19 , item no. 5-2-18 (New)	Supplying & erecting street light control panel in powder coated CRCA 14/16 SWG sheet, outdoor type, three phase, 415 Volts consisted of suitable rating contactor, 24 Hrs Digital / Astronomical time switch, TPN MCB 40 Amp, Auto/manual selector switch, ON/OFF push buttons, indicator lamps, control wiring, metering device, etc for automatic operation & overcurrent, short circuit, earth fault protection of street lights upto the max load of 6 Kw on provided iron frame / CC foundation.	0	Each	19646	820	20466		20466	-
10	PWD DSR 18-19 , item no. 5-3-1	Supplying, erecting & marking SPMCB 0.5A to 5A in provided distribution board as per specification No. SWSWR/ MCB under floor ducts/raceways	0	Each	183	35	218		218	-
11	PWD DSR 18-19 , item no. 1-2-33	Supplying and erecting PVC ROHS complied Non flame propagating under floor ducts/raceways of 90mm Width x 35 mm depth x 3000 mm Length including the connectors and the clamps at required intervals. The ducts shall be in trapezoidal shape tested for 750 N point load suitable for inscreed application as per specification no. WG-MA/UFD.	500	m	366	18	384		384	192,000.00
		under floor junction box								
12	PWD DSR 18-19 , item no. 1-2-34	Supplying and erecting under floor junction box of size 150mm x 150mm x 55 mm with flush finish powder coated appearance having knock outs for UPVC duct entry of size 60x25 mm width and 95x35 mm ducts complete as per specification no. WG-MA/UFB	15	Each	4043	18	4061		4061	60,915.00
		water tight terminal box								
13	PWD DSR 18-19 , item no. 7-8-7	Supplying & erecting water tight terminal box of cast iron of size 150 x 100 x 100 mm complete on pole as per specification No. CB-S8	100	Each	450	32	482		482	48,200.00
14	RA OF Watch tower	Security Search light with Motorized system: High intensity long range weather & dust proof motor operated Security Search Light with highly polished stainless steel reflector-cum-body, toughened front glass fitted to the cast aluminum front ring kept in position by special headed captive bolts screwed down to the range of the lower ring (with incorporated steel inserts at threaded portions) recessed on the flange of the body. focussing arrangemell. G.S.lamp holder with lamp locking arrangement, M.S.Cradle and passivated bolts, 'Ole search light fitting would be Suitable for installing on the roof of the watch tower' cabin. The search light would be swiveling type & have both vertical & horizontal operational controls with the help of remote control unit with suitable control cables, The Search light would be supplied with 230 V 400W HPSV I MH Lamp & its control gear in cast aluminum housing, Light Range- 850m	1	No					121110.3	121,110.30
		3 Phase LT Meter for Eneterance structure (each 1)								

MANGROOV'S PARK , DAHISAR										
Subject :- Detailed estimate for electrification. (external)										
PUBLIC WORKS DEPARTMENT (ELECTRICAL WING) 2018 – 2019 (without GST)										
		Subject :- Detailed estimate for electrification. (external)								
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/ Erection charges	Total of supply & erection	5% on total rate	Net Rate	Amount
	PWD DSR 18-19, item no.6-3-5	Supplying and erecting LT CT multifunction DLMS compliance energy meter of accuracy of class 0.5 , 3x240V,50 Hz with optical & RS 232 port, backlit LCD, measures & displays trivector energy, load survey, TOD, tamper detection & logging, power ON /OFF events, instantaneous parameters of rating 1/5 A with display in absence of power complete with zero adjustment & test certificate from manufacturer erected on provided M.S. box and connected to CTs.	2	Each	7265	468	7733		7733	15,466.00

Mumbai Mangroves Conservation Unit (Dhaisar Mangroves Park)							
Estimate of DG Set							
PWD DSR-(ELECTRICAL WING) 2018 – 19 (without GST)							
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/ Erection charges	Total of supply & erection
1	PWD DSR 18-19 , item no. 11-1-21	Supplying, erecting and commissioning of diesel generating set with alternator of 500 kVA output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f. A.C a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722- 2001 with voltage regulation +/- 5 %. Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads with standard control panel comprising of meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite Acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA Sheet. sound absorbina material to restrict	1	no	2891289	14193	2905482
2	PWD DSR 18-19 , item no. 11-2-19 (New)	Supplying, erecting, testing and commissioning of Microprocessor based AMF panel suitable for diesel generating set of above 500 kVA upto 750 kVA capacity Single/Three phase, 230/415 Volts, 50Hz A.C. with all standard features, safeties etc as per specification no. GEN-AMF.	1	no	514383	5063	519446
					Total		3424928

Mumbai Mangroves Conservation Unit (Dhaisar Mangroves Park)								
Estimate OF Earthing System								
PWD DSR-(ELECTRICAL WING) 2018 – 19 (without GST)								
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/ Erection charges	Total of supply & erection	Total
1	PWD DSR 18-19 , item no. 9-1-3	Providing earthing with galvanized iron earth plate size 60 x 60 x 0.6 cm with funnel with a wire mesh for watering and brick masonry block C.I. cover complete with all materials, testing & recording the results as per specification no. EA-EP	9	no	4136	974	5110	45990
2	PWD DSR 18-19 , item no. 9-1-6	Providing earthing with copper earth plate size 60 x 60 x 0.315 cm with funnel with a wire mesh for watering and brick masonry block C.I. cover with minimum 25 kg Carbon based environment friendly back fill Ground Enhancing compound complete with all materials, testing & recording the results as per specification no ESE -LA	4	no	12952	974	13926	55704
3	PWD DSR 18-19 , item no. 9-1-5	Supply, Installation, Testing and commissioning of maintenance free earthing comprising of Electrode of 17.2 mm diameter Low Carbon Steel with 250 micron molecular copper bonded earthing rod of Length 3m along with 25 kg Carbon based environment friendly back fill ground enhancing compound required to fill up the excavated earth with required quantity complete. Specification no. EA-MOBI	2	kg	11109	1064	12173	24346
4	PWD DSR 18-19 , item no. 9-2-8	Supplying and erecting GI strip of required size used for earthing on wall and/or any other purpose with necessary GI clamps fixed on wall painted with insulating and non-corrosive bond in an approved manner with required joints As per specification no. EAEP.	500	kg	323	79	402	201000
5	PWD DSR 18-19 , item no. 9-2-7	Supplying and erecting copper strip of required size used for earthing on wall and/or any other purpose with necessary copper clamps fixed on wall painted with insulating and non-corrosive bond in an approved manner with required joints As per specification no. EA-EP.	200	kg	887	79	966	193200
6	Internal Earthing							
	PWD DSR 18-19 , item no. 9-2-5	Supplying and erecting GI earth wire of high purity of different sizes used for earthing or any other purposes on wall with necessary G. I. Clamps fixed on wall/cable/ conduit with screws in an approved manner.	200	kg	69	67	136	27200
							Total	547440

MANGROOVS PARK , DAHISAR							
Detailed estimate for HVAC							
SR.NO.	Reference no. PWD DSR 18-19	DESCRIPTION	UOM	QTY	RATE	AMOUNT	TOTAL AMOUNT WITH GST
		HVAC					
1.0		SITC OF VRF UNITS					
		ODU					
1.1		Supply, of following capacity Inverter based control VRF / VRV type airconditioning comprising of (fully inverter) compressor single / multiple configuration. The outdoor unit shall be designed to work on variable refrigerant circulation depending on the actual load sensing. The variable capacity compressor shall be of inverter control as per manufacturer's design. The condenser coil and condenser fan shall be sized to work even at 52°C ambient without tripping. The condenser fins shall be coated with anti corrosive material for longer life. The unit shall have oil arrestor to prevent oil migration. Suction accumulator and liquid receiver shall be provided to balance variable refrigerant circulation. The unit shall also meet CPCB norms on noise and Air pollution levels etc., as required. The intelligent microprocessor based control system shall maintain the communication between indoor and outdoor units to operate the compressors in most efficient way and to keep the equal running time for constant speed compressors. The unit shall work with only R410 A refrigerant gas and suitable for 3phase 415V +/-10%, 50HZ AC power supply. Outdoor Unit (ODU) of mentioned cooling Capacity					
1.1.1	PWD DSR 18-19, 3-11-12	ODU127HP (5 units of 28 HP)	NOS	5	621,161	3,105,805	3,105,805
		IDU					
		Ground floor					
1.1		Supply, installation, testing and commissioning of following capacity cassette type Indoor Unit with decorative panel, compact cooling coil, electronic expansion valve, three speed fan motors, dynamically balanced blowers, synthetic washable media filter including insulation and suitable for operation on single AC supply & remote control operation including connection) including Pressure testing, vaccumissing, additional gas charging and commissioning of the VRV / VRF system complete as per specifications as required.					
	PWD DSR 18-19, 3-11-23	3.6 TR machine .	NOS	1	37,775	37,775	37,775
		First Floor					
	PWD DSR 18-19, 3-11-24	4.0 TR machine .	Nos	6	54,990	329,940	329,940
	PWD DSR 18-19, 3-11-23	3.6 TR machine .	Nos	1	37,775	37,775	37,775
	PWD DSR 18-19, 3-11-22	3.0 TR machine .	Nos	3	37,200	111,600	111,600
	PWD DSR 18-19, 3-11-21	2.6TR machine	Nos	2	36,625	73,250	73,250
	PWD DSR 18-19, 3-11-19	1.56TR machine	Nos	2	35,475	70,950	70,950
		Second Floor					
	PWD DSR 18-19, 3-11-24	4.0 TR machine .	Nos	12	54,990	659,880	659,880
	PWD DSR 18-19, 3-11-21	2.6TR machine	Nos	2	36,625	73,250	73,250
		Total				4,500,225	4,500,225




MANGROOVS PARK , DAHISAR							
Detailed estimate for HVAC							
SR.NO.	Reference No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	TOTAL AMOUNT WITH GST
1		ITC OF VRF UNITS					
		IDU Installation					
		installation, testing and commissioning of VRF/VRV based ceiling suspended 4 Way cassette indoor unit (IDU) compact / standard size of nominal cooling capacity 4.0TR (1218 cfm) having EER as per BEE standards and specifications, suitable as per site requirement with swing louvers and adjustable blades from sides. Indoor Units complete with in-built drainage arrangements, fan, refrigerant liquid and refrigerant piping, cordless remote control, and fresh air port etc. IDU shall have anticorrosive coating suitable for coastal area complete in all respects, to operate on 1-phase, 230V, 50Hz, AC input supply, consisting with any additional refrigerant and oil charge as per requirement during installation and connected to the system complete.					
	PWD DSR 18-19, 3-11-24	4.0TR (4 Way)	NOS	18	54990	989,820	989,820
		Supply, installation, testing and commissioning of VRF/VRV based Hi-wall type indoor unit (IDU) of nominal cooling capacity 1.6TR to 2.6TR having EER as per BEE standards and specifications with multiple speed evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, cordless remote control with necessary controls, with 3-core copper flexible cord of required length and electrical terminal to receive power supply, etc. IDU shall have anti-corrosive coating suitable for coastal area. Unit shall be suitable for indoor wall mounting, having an electronic control console, provided with suitable mounting brackets with any additional refrigerant and oil charge as per the requirement during installation, connected to the system complete.					
	PWD DSR 18-19, 3-11-21	2.6TR machine	NOS	6	36,625	219,750	219,750
		installation, testing and commissioning of VRF/VRV based floor mounting / ceiling suspended dual mount type, indoor unit (IDU) having nominal cooling capacity of 3.0TR (1200 cfm) to 3.6TR (1400 cfm) having EER as per BEE standards and specifications with evaporator fan with motor, copper tube aluminium fin evaporator coil, washable air filter, insulated drain tray, expansion device, cordless remote control with necessary controls and electrical terminal to receive power supply, etc. IDU should have anti-corrosive coating suitable for coastal area, with necessary floor mounting or ceiling suspension arrangement having an electronic control console with providing any additional refrigerant and oil charge as per requirement during installation connected with the system complete.					
	PWD DSR 18-19, 3-11-23	3.6TR (4 Way)	NOS	5	37,775	188,875	188,875
2		ODU UNIT Installation					
		Erecting, testing and commissioning 18 HP, VRF / VRV air conditioning system, out door unit (ODU) complying type-IV OEM standards working on HFC free refrigerant R410A or other required/suitable green equivalent refrigerant, for cooling capacity delivering 100% at 47 deg. celsius and non stop cooling even at 56 deg. celsius and coefficient of performance (COP) 3.00 to 4.00, modular type horizontal/vertical hot air discharge suitable for total piping length upto 1000 metre operation in cooling mode with inverter based VRF/VRV technology microprocessor based control compressor starter/control panel complete with scroll compressor, air cooled anti corrosive copper condenser coil of suitable shape for increasing maximum heat transfer area, built in oil separator, accumulator and oil receiver, copper tube aluminium fin air cooled condenser, condenser fan with motor suitable for 415V \pm 10%, 50 Hz, 3 phase power supply, internal copper refrigerant piping, internal wiring and first charge of refrigerant, etc. all housed in powder coated weather proof cabinet on provided angle iron frame					
2.1	PWD DSR 18-19, 3-11-12	ODU127HP (5 units of 28 HP)	NOS	5	621,161	3,105,805	3,105,805

MANGROOVS PARK , DAHISAR							
Detailed estimate for HVAC							
SR.NO.	Reference No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	TOTAL AMOUNT WITH GST
2.2		Refnets (Y-Joints)					
	PWD DSR 18-19, 3-11-86	Supplying and installation of high pressure grade required size copper connection Y or T- Joints / refnet for liquid and suction line complete erected on wall/ceiling with supports/raceways, Nitrile rubber insulation, painting etc. with brazing and testing for leakages confirming the normal operation of the VRV / VRF air conditioning system.	NOS	28	5484	153,552	153,552
4	MR	Additional gas charging for the entire length of copper tube - Refrigerant R410A / Environmental friendly refrigerant.	KG	220	742	163,240	163,240
5		Communication CABLE:					
	MR	Supply, Installation, Testing & Commissioning of armoured communication cables between outdoor units and indoor units and Indoor to Indoor units, ODU and Intelligent Touch Controller with PVC Conduit					
5.1		1.5 sq.mm 2 core non-polarity cable	Rmt	640	128	81,920	81,920
5.2		Electrical Power cable					
	PWD DSR 18-19, 7-2-33	10 sq.mm 4 core copper Armoured Cable	Rmt	80	512	40,960	40,960
		Power cabling between 3 Pin plug top and indoor unit					
	MR	2.5 sq.mm 3 core copper flexible cable	Rmt	120	360	43,200	43,200
6		REFRIGERANT PIPING FOR VRF unit :					
	PWD DSR 18-19, 3-11-90	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 34.9 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19 mm thick elastomeric nitrile rubber along with application of multicoating suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	160	2244	359,040	359,040
	PWD DSR 18-19, 3-11-91	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 28.6 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19 mm thick elastomeric nitrile rubber along with application of multicoating suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	m	190	2183	414,770	414,770
	PWD DSR 18-19, 3-11-92	Supplying, laying / fixing, testing and commissioning of appropriate nominal refrigerant copper pipe of 22.2 mm dia (OD) for liquid line / suction line supply and return piping of suitable gauge (hard drawn copper pipe for liquid main line and for refrigerant) along with necessary supports, hangers, clamps, vibration isolators and fittings such as bends, tees, valves, gauges, strainers with insulation of 19 mm thick elastomeric nitrile rubber along with application of multicoating suitable for use with VRV / VRF piping for protection against mechanical damages, fungal growth, flame spread, water permeance and ultra violet radiations complete with OEM standards of VRV / VRF air conditioning system.	M	260	1468	381,680	381,680
7		Fresh Air Fan					
7.1	MR	Supplying, erecting, testing & commissioning fresh air intake system, ductable circular inline fresh air fan inlet unit having 500 cfm capacity with maintaining the static ressure minimum 20 mm of Hg complete suitable to operate on 1ph, 230 V, 50Hz, A.C. supply.	Each	5	7429	37,145	37,145

MANGROOVS PARK , DAHISAR							
Detailed estimate for HVAC							
SR.NO.	Reference No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	TOTAL AMOUNT WITH GST
7.2	PWD DSR 18-19, 3-11-61	Supplying, erecting, testing & commissioning fresh air intake system, ductable circular inline fresh air fan inlet unit having 1000 cfm capacity with maintaining the static pressure minimum 20 mm of Hg complete suitable to operate on 1ph, 230 V, 50Hz, A.C. supply.	Each	3	14329	42,987	42,987
7.3	PWD DSR 18-19, 3-11-83	Providing adhesive thermal insulation for supply / return air duct with 19 mm nitrile rubber insulation having R-value as per the prevailing provisions in ECBC- 2007.	Sq.m	95	938	89,110	89,110
8		HARD PVC DRAIN PIPING:					
8.1	MR	Supply & laying of Hard PVC drain piping with elbow, bends, tees, clean outs etc with 9 mm Armaflex class 'O' insulation.					
a)		32 mm dia	Mtr	110	140	15,400	15,400
b)		40 mm dia	Mtr	65	180	11,700	11,700
c)		50 mm dia	Mtr	52	223	11,596	11,596
9		CABLE TRAY:					
		SITC of perforated cable tray along with cover and fittings.					
	PWD DSR 18-19, 7-11-8	300 mm x 75 mm X 2 mm thick	Rmt	140	714	99,960	99,960
	PWD DSR 18-19, 7-11-9	400 mm x 75 mm X 2 mm thick	Rmt	75	866	64,950	64,950
10		Sheet Metal Works					
	PWD DSR 18-19, 6-1-4	Supplying and erecting GI sheet 1 mm (20 SWG) to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint.	Sq.m	20	1642	16,420	16,420
	PWD DSR 18-19, 6-1-5	Supplying and erecting GI sheet 0.8 mm (22 SWG) to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint.	Sq.m	25	1189	11,890	11,890
	PWD DSR 18-19, 6-1-6	Supplying and erecting GI sheet 0.6 mm (24 SWG) to be used for fabrication of boxes panel boards etc. including cutting, bending, drilling, welding, riveting etc. and painting with one coat of red lead paint and 2 coats of enamel paint.	Sq.m	40	1143	40,005	40,005
		Total			Sub Total	6,583,775	6,583,775
					Grand Total		11,084,000







MANGROOVS PARK , DAHISAR										
Detailed estimate for electrification. (PS2)										
PWD DSR-ELECTRICAL WING) 2018 – 19 (without GST)										
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/Erection charges	Total of supply & erection	5% on total rate	Net Rate	Amount
		Point Wiring								
1	PWD DSR 18-19, item no. 1-9-3	Point wiring for independent plug in 20 mm metal conduit with 1.5 sq.mm (2+1E) FR grade copper wire, flush type switch, earthing and required accessories as per specification No: WG-PW/SW	772	Point	494	253	747		747	576684
2	PWD DSR 18-19, item no. 1-9-15	Point wiring for light/fan/bell /exhaust fan Hybrid type (Surface type under false ceiling and concealed type for drops & switch boards on walls) in min 20 mm PVC conduit / casing n capping with 1.5 sq.mm. (2+1E) FR grade copper wires, modular type switch, earthing and required accessories as per specification No: WG-PW/CW	20	Point	244	200	444		444	8880
		Telephone Wiring								
3	PWD DSR 18-19, item no. 1-10-1	Supplying & erecting telephone cable 2 pair with 0.5 mm dia. laid in provided PVC casing / conduit as per specification No. WG-TW	0	m	12	9	21		21	0
4	PWD DSR 18-19, item no. 1-10-6	Supplying & erecting telephone cable 20 pair with 0.5 mm dia. laid in provided PVC casing / conduit as per specification No. WG-TW	0	m	110	13	123		123	0
		Telephone Accessories								
5	PWD DSR 18-19, item no. 1-11-1	Supplying, erecting & commissioning Main Distribution Frame (MDF) Box 50x50 pairs as per specification No. WGTW	23	Each	1896	39	1935		1935	44505
6	PWD DSR 18-19, item no. 1-11-22	Supplying & erecting Rosette box RJ type Bakelite box on wall with LED indication duly connected as per specification No. WG-TW	772	Each	80	18	98		98	75656
		Computer Cabling								
7	PWD DSR 18-19, item no. 1-12-1	Supplying and fixing Cat-6A LSZH cable suitable for LAN / WAN as per specification in approved manner	3000	m	30	12	42		42	126000
		Indoor LED Fittings								
8	PWD DSR 18-19, item no. 2-1-2	Supplying and erecting LED square / circular 5 to 8W downlighter having pressure die-cast aluminium housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.		Each	576	79	655		655	0
9	PWD DSR 18-19, item no. 2-1-3	Supplying and erecting LED square / circular 9 to 12W downlighter having pressure die-cast aluminium housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.		Each	660	79	739		739	0
10	PWD DSR 18-19, item no. 2-1-4	Supplying and erecting LED square / circular 13 to 15W downlighter having pressure die-cast aluminium housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.	457	Each	1106	79	1185		1185	541545
11	PWD DSR 18-19, item no. 2-1-5	Supplying and erecting LED square / circular 16 to 20W downlighter having pressure die-cast aluminium housing, opal translucent cover, mounting arrangement with board for surface type or spring loaded mounting clips for flush type complete.		Each	1133	79	1212		1212	0
		LED concealed type foot / step light								
12	PWD DSR 18-19, item no. 2-1-16 (New)	Supplying LED concealed type foot / step light with aluminium body for indoor/outdoor application suitable for upto 4W-6W LED including driver and erecting by making necessary arrangement/recess in wall to make it flush with surface.	114	Each	1709	131	1840		1840	209760
13	PWD DSR 18-19, item no. 2-1-23 (New)	Supplying & erecting LED 20W tube light fitting (4 feet) with aluminium housing, heat sink, integrated HF electronic driver complete.	13	Each	839	39	878		878	11414
		under floor ducts/raceways								
14	PWD DSR 18-19, item no. 1-2-33	Supplying and erecting PVCROHS complied Non flame propagating under floor ducts/raceways of 90mm Width x 35 mm depth x 3000 mm Length including the connectors and the clamps at required intervals. The ducts shall be in trapezoidal shape tested for 750 N point load suitable for inscreed application as per specification no. WG-MA/UFD.	196	m	366	18	384		384	75264
15	AS per RA MCB DB & Switch board	MCB DB & Switch board	5	job					629705	3148525
16	PWD DSR 18-19, item no. 5-4-5	Supplying and erecting triple pole and neutral distribution board (TPNDB) surface/flush mounted SP / TP of 24 ways on iron / GI frame (vertical busbar type) as per specification no. SWSWR/MCDB	5	job	4700	261	4961		4961	24805
17	PWD DSR 18-19, item no. 5-4-4	Supplying and erecting triple pole and neutral distribution board (TPNDB) surface/flush mounted SP / TP MCBs of 12ways on iron / GI frame (vertical busbar type) as per specification no. SW-SWR/MCDB	5	job	3575	261	3836		3836	19180
18	PWD DSR 18-19, 1-8-27	Supplying and erecting PVC Surface modular switch box with double mounting plate for 2 modules duly erected.	0	Nos	98	22	120		120	0
19	PWD DSR 18-19, 1-8-29	Supplying and erecting PVC Surface modular switch box with double mounting plate for 4 modules duly erected.	0	Nos	136	22	158		158	0
20	PWD DSR 18-19, 1-8-30	Supplying and erecting PVC Surface modular switch box with double mounting plate for 6 modules duly erected.	0	Nos	189	22	211		211	0
21	PWD DSR 18-19, 1-8-31	Supplying and erecting PVC Surface modular switch box with double mounting & front plate for 8 modules complete duly connected.	0	Nos	219	22	241		241	0
22	PWD DSR 18-19, 1-8-32	Supplying and erecting PVC Surface modular switch box with double mounting plate for 12 modules duly erected.	0	Nos	278	32	310		310	0
23	PWD DSR 18-19, 1-8-33	Supplying and erecting PVC Surface modular switch box with double mounting plate for 16 / 18 module duly erected.	0	Nos	312	32	344		344	0
24	PWD DSR 18-19, 1-8-35	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 2 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background	0	Nos	100	86	186		186	0
25	PWD DSR 18-19, 1-8-37	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 4 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	0	Nos	144	86	230		230	0
26	PWD DSR 18-19, 1-8-38	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 6 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background	0	Nos	176	100	276		276	0
27	PWD DSR 18-19, 1-8-39	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 8 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	0	Nos	247	100	347		347	0
28	PWD DSR 18-19, 1-8-40	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 12 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	0	Nos	326	115	441		441	0

MANGROOVS PARK , DAHISAR										
Detailed estimate for electrification. (PS2)										
PWD DSR-(ELECTRICAL WING) 2018 – 19 (without GST)										
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/Erection charges	Total of supply & erection	5% on total rate	Net Rate	Amount
29	PWD DSR 18:19, 1-8-41	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 16 / 18 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	0	Nos	384	115	499		499	0
30	PWD DSR 18:19, 5-4-10	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SP / TP MCBs of 12ways, on iron/ Gi frame (vertical busbar type) as per specification no.SW-SWR/MCBDB	0	Nos	4031	261	4292		4292	0
31	PWD DSR 18:19, 5-4-11	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SP / TP MCBs of 24 ways on iron/ Gi frame (vertical busbar type) as per specification no.SW-SWR/MCBDB	0	Nos	5421	261	5682		5682	0
32	PWD DSR 18:19, 5-4-25	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (12 poles) or TP MCB of 4 ways (12 poles) on iron/ Gi frame. (vertical busbar type) as per specification no. SWSWR/MCBDB1	4	Nos	5185	384	5569		5569	22276
33	PWD DSR 18:19, 5-4-26	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (24 poles) or TP MCB of 8 ways (24 poles) , on iron/ Gi frame. (vertical busbar type) as per specification no. SW-SWR/MCBDB1	3	Nos	6225	384	6609		6609	19827
34	PWD DSR 18:19, 5-4-27	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (36 poles) or TP MCB of 12 ways (36 poles) on iron/ Gi frame. (vertical busbar type) as per specification no. SW-SWR/MCBDB1	1	Nos	8307	384	8691		8691	8691
35	PWD DSR 18:19, 5-7-9	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 8 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB. (Excluding MCCB'S)	1	Nos	48370	837	49207		49207	49207
36	PWD DSR 18:19, 5-7-10	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 12 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB. (Excluding MCCB'S)	1	Nos	68453	949	69402		69402	69402
37	PWD DSR 18:19, 7-1-27	Supplying, erecting & terminating XLPE armoured cable 4 core 6 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	300	Nos	111	17	128		128	38400
38	PWD DSR 18:19, 7-1-28	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	200	Nos	136	17	153		153	30600
39	PWD DSR 18:19, 7-1-29	Supplying, erecting & terminating XPLE armoured cable 4 core 16 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	300	Nos	151	28	179		179	53700
40	PWD DSR 18:19, 12-4-10	Supplying and erecting flat flexible 3 core 6 sq mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	0	Nos	206	22	228		228	-
41	PWD DSR 18:19, 7-1-10	Supplying and erecting recess type, 3 pin plug socket 6A with piano switch 6 A combined unit erected on polished double wooden block/ folded or screwed board with top of either wooden or plywood pasted with sunmica and with connecting leads	124	Nos	66	12	78		78	9672
42	PWD DSR 18:19, 1-14-3	Supplying and fixing tool-less shutter keystone jack (RJ-45) in provided Patch Panel complete as per specification no. WGNAS/KJ	28	Nos	47	48	95		95	2660
43	PWD DSR 18:19, 2-13-9	Supplying and erecting electronic type step regulator for ceiling fan 600/ 900/ 1200/ 1400 mm. sweep, complete erected on provided switch board.	12	Nos	190	13	203		203	2436
									Total	5,169,089.00








Mumbai Mangroves Conservation Unit (Dhaisar Mangroves Park)					
Lighting Quantities					
SR.NO.	SYMBOL	DESCRIPTION	QUANTITY	Total Quantity	Total points
1		Concealed Ceiling Lights	1.NIC - 4 2.Entrance Structure -35 3.Entrance (Jetty) -0	12	12
2		Spot Lights	1.NIC - 0 2.Entrance Structure -9 3.Entrance (Jetty) -0	0	0
3		Surface Ceiling Lights	1.NIC - 134 2.Entrance Structure -12 3.Entrance (Jetty) -0	427	427
4		Outdoor Baluster Lights(Bollards)	1.NIC - 13 2.Entrance Structure -0 3.Entrance (Jetty) -0	0	0
5		AC and Fan Ducting			
6		LED T5 Tubelights	TOTAL: 4' - 19	12	12
			2' - 1	1	1
7		Hanging Lights	1.NIC - 3 2.Entrance Structure -0 3.Entrance (Jetty) -3	18	18
8		Street Pole Lights	1.BoardWalk - 204 2.From Entrance -56	335	
9		Ceiling/ Wall Washers	1.NIC - 0 2.Entrance Structure -7 3.Entrance (Jetty) -6	30	30
10		Exhaust Fans (Kitchen and lower ground services)	1.NIC - 5 2.Entrance Structure -0 3.Entrance (Jetty) -0	2	2
11		Air Conditioners	1.NIC - 0 2.Entrance Structure -7 3.Entrance (Jetty) -0	0	0
12		Fans (4')	1.NIC - 3 2.Entrance Structure -8 3.Entrance (Jetty) -1	40	40
13		Strip Lighting	1.NIC - 100 2.Entrance Structure -56 3.Board Walk -1400	7	1.4
14		Staircase Foot lights	1.NIC - 97 2.Entrance Structure -0 3.Entrance (Jetty) -0	114	114
15		LED Track Lights	1.NIC - 65 2.Entrance Structure -0 3.Entrance (Jetty) -0	114	114
			Total	1112	772

**GROUND FLOOR
PLAN**

LEGEND

SR.NO.	SYMBOL	DESCRIPTION	QUANTITY
1.		CONCEALED CEILING LIGHTS	4
2		SURFACE CEILING LIGHTS	59
3		STAIRCASE FOOT LIGHTS	50
4		LED TRACK LIGHTS	12
5		ELECTRICAL SWITCH BOARDS	11
6		MDB	1

**FIRST FLOOR
PLAN**

SR. NO	SYMBOL	DESCRIPTION	QUANTITY
1		CONCEALED CEILING LIGHTS	4
2		SURFACE CEILING LIGHTS	181
3		STAIRCASE FOOT LIGHTS	18
4		CEILING/WALL WASHERS	8
5		FANS (4')	12
6		STRIP LIGHTING	1
7		ELECTRICAL SWITCH BOARDS	43
8		MDB	1

SECOND FLOOR PLAN			
SR. NO	SYMBOL	DESCRIPTION	QUANTITY
1		CONCEALED CEILING LIGHTS	4
2		SURFACE CEILING LIGHTS	123
3		STAIRCASE FOOT LIGHTS	45
4		LED TRACK LIGHTS	12
5		CEILING/WALL WASHERS	6
6		HANGING LIGHT	18
7		LED T5 TUBE LIGHTS	12
8		STRIP LIGHTING	6
9		8 WAY SWITCH SOCKET	41
10		DISTRIBUTION BOARD	3
11		CEILING SWITCH SOCKET	4
12		ELECTRICAL SWITCH BOARDS	25
13		MDB	2

DAHISAR MANGROVE PARK (Power Demand Claculation)									
				100	1.3	2	1000	5	1000
S.No	Area Name	Area Sqmt	Area Sqft	AC Power Demand in Ton	AC Power Demand in KW @ 1.3 kW/Ton	Lighting Power Demand @ 2 w per sqft	Lighting Power Demand in kW	Operative Power Demand @ 5 w per sqft	Lighting Power Demand in kW
	GROUND FLOOR								
1	SERVICE/EVACUATION PASSAGE	201.1	2163.8	-	-	4,327.67	4.33	10,819.18	10.82
2	TOWARDS NIC	139.7	1503.2	-	-	3,006.34	3.01	7,515.86	7.52
3	ENTRANCE AND ORIENTATION SPACE	122.9	1322.4	-	-	2,644.81	2.64	6,612.02	6.61
4	SOUVENIR SHOP	44.1	474.5	4.75	6.17	949.03	0.95	2,372.58	2.37
5	MANGROVE TRAIL LOBBY	54.0	581.0	-	-	1,162.08	1.16	2,905.20	2.91
	FIRST FLOOR								
1	SCL1/161 TO SCL1/178	94.0	1011.4	10.11	13.15	2,022.88	2.02	5,057.20	5.06
2	SCL1/151 TO SCL1/156	31.6	340.0	3.40	4.42	680.03	0.68	1,700.08	1.70
3	ENTRANCE LOBBY	33.0	355.1	3.55	4.62	710.16	0.71	1,775.40	1.78
4	RECEPTION AREA	124.5	1339.6	13.40	17.42	2,679.24	2.68	6,698.10	6.70
5	SERVICE AREA	49.0	527.2	-	-	1,054.48	1.05	2,636.20	2.64
6	LECTURE HALL 2	58.8	632.7	6.33	8.22	1,265.38	1.27	3,163.44	3.16
7	LECTURE HALL 1	58.9	633.8	6.34	8.24	1,267.53	1.27	3,168.82	3.17
8	PASSAGE	48.5	521.9	-	-	1,043.72	1.04	2,609.30	2.61
9	CONFERENCE HALL	74.9	805.9	8.06	10.48	1,611.85	1.61	4,029.62	4.03
10	OFFICE STAFF	40.0	430.4	4.30	5.60	860.80	0.86	2,152.00	2.15
11	FOREST OFFICER	18.0	193.7	1.94	2.52	387.36	0.39	968.40	0.97
12	CURATORS OFFICE	18.0	193.7	1.94	2.52	387.36	0.39	968.40	0.97
13	FIRST FLOOR TOILET-01	27	290.52	-	-	581.04	0.58	1,452.60	1.45
	FIRST FLOOR TOILET-02	27	290.52	-	-	581.04	0.58	1,452.60	1.45
	SECOND FLOOR								
1	LOBBY-01	346.7	3730.5	-	-	7,460.98	7.46	18,652.46	18.65
2	DISPLAY MUSEUM	414.9	4464.3	44.64	58.04	8,928.65	8.93	22,321.62	22.32
3	DISPLAY MUSEUM	142.5	1533.3	15.33	19.93	3,066.60	3.07	7,666.50	7.67
4	ENTRANCE LOBBY	128.2	1379.4	13.79	17.93	2,758.86	2.76	6,897.16	6.90
5	UTILITY STORAGE	46.8	503.6	-	-	1,007.14	1.01	2,517.84	2.52
6	AREA-01	33.7	362.6	-	-	725.22	0.73	1,813.06	1.81
7	AREA-02	33.4	359.4	-	-	718.77	0.72	1,796.92	1.80
8	AREA-03	33.7	362.6	-	-	725.22	0.73	1,813.06	1.81
9	SERVICE AREA	49.1	528.3	-	-	1,056.63	1.06	2,641.58	2.64
10	SECOND FLOOR TOILET-01	27	290.52	-	-	581.04	0.58	1,452.60	1.45
			0.0						
	TOTAL	2521.00	27125.96	137.88	179.24	54251.92	54.25	135629.80	135.63
	TOTAL POWER DEMAND (in KW)								369.12
	Total							369.12	
	10% Contegency							36.91	
	Total							406.04	
	Total power load							406.04	
	Working hr per day							12.00	
	power consupmtion in kwh							4,872.44	
	Transformer Sizing								
	Total power load	406.0							
	1.5 working diversity	270.7							
	Working KVA	338.4							
	80% loading on transformer	423.0							
	Selected Transformer Rating (KVA)	500.0							

MANGROOVS PARK , DAHISAR										
Detailed estimate MCB DB'S & Switch board										
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/Erection charges	Total of supply & erection	5% on total rate	Net Rate	Amount
1	PWD DSR 18-19, 1-8-27	Supplying and erecting PVC Surface modular switch box with double mounting plate for 2 modules duly erected.	9	Nos	98	22	120		120	1080
2	PWD DSR 18-19, 1-8-29	Supplying and erecting PVC Surface modular switch box with double mounting plate for 4 modules duly erected.	5	Nos	136	22	158		158	790
3	PWD DSR 18-19, 1-8-30	Supplying and erecting PVC Surface modular switch box with double mounting plate for 6 modules duly erected.	24	Nos	189	22	211		211	5064
4	PWD DSR 18-19, 1-8-31	Supplying and erecting PVC Surface modular switch box with double mounting & front plate for 8 modules complete duly connected.	32	Nos	219	22	241		241	7712
5	PWD DSR 18-19, 1-8-32	Supplying and erecting PVC Surface modular switch box with double mounting plate for 12 modules duly erected.	5	Nos	278	32	310		310	1550
6	PWD DSR 18-19, 1-8-33	Supplying and erecting PVC Surface modular switch box with double mounting plate for 16 / 18 module duly erected.	3	Nos	312	32	344		344	1032
7	PWD DSR 18-19, 1-8-35	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 2 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background	9	Nos	100	86	186		186	1674
8	PWD DSR 18-19, 1-8-37	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 4 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	5	Nos	144	86	230		230	1150
9	PWD DSR 18-19, 1-8-38	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 6 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background	24	Nos	176	100	276		276	6624
10	PWD DSR 18-19, 1-8-39	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 8 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background	32	Nos	247	100	347		347	11104
11	PWD DSR 18-19, 1-8-40	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 12 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	5	Nos	326	115	441		441	2205
12	PWD DSR 18-19, 1-8-41	Supplying and erecting unbreakable concealed type modular switch box with double mounting plate for 16 / 18 module duly erected flush to wall with required chiselling and finishing with cement mortar / POP as per required to match the background.	3	Nos	384	115	499		499	1497
13	PWD DSR 18-19, 5-4-10	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SP / TP MCBs of 12ways, on iron/ Gi frame (vertical busbar type) as per specification no.SW-SWR/MCBDB	0	Nos	4031	261	4292		4292	0
14	PWD DSR 18-19, 5-4-11	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted SP / TP MCBs of 24 ways on iron/ Gi frame (vertical busbar type) as per specification no.SW-SWR/MCBDB	0	Nos	5421	261	5682		5682	0
15	PWD DSR 18-19, 5-4-25	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (12 poles) or TP MCB of 4 ways (12 poles) on iron/ Gi frame. (vertical busbar type) as perspecification no. SWSWR/MCBDB1	4	Nos	5185	384	5569		5569	22276
16	PWD DSR 18-19, 5-4-26	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (24 poles) or TP MCB of 8 ways (24 poles), on iron/ Gi frame. (vertical busbar type) as per specification no. SW-SWR/MCBDB1	3	Nos	6225	384	6609		6609	19827
17	PWD DSR 18-19, 5-4-27	Supplying & erecting triple pole and neutral distribution board (TPNDB) with door surface/ flush mounted suitable for 3 pole MCCB as incomer & outgoing SP MCB (36 poles) or TP MCB of 12 ways (36 poles) on iron/ Gi frame. (vertical busbar type) as per specification no. SW-SWR/MCBDB1	1	Nos	8307	384	8691		8691	8691
18	PWD DSR 18-19, 5-7-9	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 8 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB. (Excluding MCCB'S)	1	Nos	48370	837	49207		49207	49207
19	PWD DSR 18-19, 5-7-10	Providing & erecting floor / wall mounting, MCCB panel board with door suitable for four pole incoming 400A, 12 ways four pole outgoing upto 100 A MCCB's on iron frame, as per specification no SW-SWR/MCCBPB. (Excluding MCCB'S)	1	Nos	68453	949	69402		69402	69402
20	PWD DSR 18-19, 7-1-27	Supplying, erecting & terminating XLPE armoured cable 4 core 6 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	300	Nos	111	17	128		128	38400
21	PWD DSR 18-19, 7-1-28	Supplying, erecting & terminating XLPE armoured cable 4 core 10 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	200	Nos	136	17	153		153	30600
22	PWD DSR 18-19, 7-1-29	Supplying, erecting & terminating XPLE armoured cable 4 core 16 sq. mm. aluminium conductor with continuous 5.48 sq. mm. (12 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	300	Nos	151	28	179		179	53700
23	PWD DSR 18-19, 12-4-10	Supplying and erecting flat flexible 3 core 6 sq mm PVC sheathed submersible type copper cable suitably clamped at fixed intervals with column pipe assembly complete.	1234	Nos	206	22	228		228	281,352.00
24	PWD DSR 18-19, 1-7-10	Supplying and erecting recess type, 3 pin plug socket 6A with piano switch 6 A combined unit erected on polished double wooden block/ folded or screwed board with top of either wooden or plywood pasted with sunmica and with connecting leads	124	Nos	66	12	78		78	9672
25	PWD DSR 18-19, 1-14-3	Supplying and fixing tool-less shutter keystone jack (RJ-45) in provided Patch Panel complete as per specification no. WGNAS/KJ	28	Nos	47	48	95		95	2660
26	PWD DSR 18-19, 2-13-9	Supplying and erecting electronic type step regulator for ceiling fan 600/ 900/ 1200/ 1400 mm. sweep, complete erected on provided switch board.	12	Nos	190	13	203		203	2436
									SubTotal	629,705.00

Mumbai Mangroves Conservation Unit (Dhisar Mangroves Park)						
MDB Calculation						
Sr.No.	Structures	Floor	Main Distribution Board Numbering		Trippler Number	Description
1	Nature Interpretation Centre(NIC)	GROUND FLOOR	MDB-1	16 WAY TPN	T1	Foot lights
					T2	General lights
					T3	LED general Strip Lighting
					T4	Ramp Strip Lighting
					T5	Ramp foot lights
					T6	Kitchen General lights
					T7	Kitchen power/Load equipments
					T8	Exhaust /Equipments
					T9	Toilet Exhaust(Gents)
					T10	Toilet Lights (Gents)
					T9'	Toilet Lights(Ladies)
					T10'	Toilet Exhaust(Ladies)
					T11	Floor Air Blowers
					T12	Sockets/Switches
		First	MDB-7	36 WAY TPN	T3	LED general Strip Lighting
					T9	Toilet Exhaust(Gents)
					T10	Toilet Lights (Gents)
					T9'	Toilet Lights(Ladies)
					T10'	Toilet Exhaust(Ladies)
					T13	Admin lights/Fans
					T14	Admin Switch /Sockets
					T15	Admin AC
					T16	Floor General Lighting Reception
					T17	Floor General museum
					T18	Floor General museum
					T19	Track lights (museum)
					T20	Track lights (Reception)
					T21	Switch/Sockets
					T22	Interactive touch panels
					T23	Interactive touch panels
					T24	Interactive touch panels
					T25	Reception Air Conditioning
					T26	Museum Air conditioning
		Ground	MDB - 6	4 WAY TPN	T27	Lights Entrance foyer
					T28	Lights entrance lobby
					T29	Switch /Sockets
					T30	Landscape Baluster Lighting
		Lower Ground	MDB - 5	12 WAY TPN	T31	Lower Ramp Foot Lights
					T32	Service Area Lights
					T33	Service Area Switch /Sockets
					T34	All Ducts Switch/Sockets
					T35	Boardwalk Strip Lighting
					T36	Boardwalk Street Lighting
					T37	Watch tower Lighting
					T38	Outer General Lighting
					T39	Power for Lift
					T40	Outdoor Building lights(wall washers)
2	Entrance Structure (Dumping Ground)	Ground	MDB-4	4 WAY TPN	T41	Outdoor Canopy General lights
					T42	Outdoor Canopy Strip lights
			MDB - 3	8 WAY TPN	T43	Lights/Fans
					T44	Switch /Sockets
					T45	Air Conditioning
					T46	Lights/Fans
					T47	Switch /Sockets
					T48	Air Conditioning
					T49	Lights/Fans
					T50	Switch /Sockets
					T51	Air Conditioning
			MDB - 2	4 WAY TPN	T52	Lights/Fans
					T53	Switch /Sockets
					T54	Air Conditioning
					T55	Lights/Fans
					T56	Switch /Sockets
					T57	Air Conditioning
3	Entrance Structure(Jetty)	Ground	MDB - 1	4 WAY TPN	T58	Lights/Fans
					T59	Switch /Sockets
					T60	Part boardwalk till NIC

MANGROOVS PARK , DAHISAR					
Mechanical Estimate					
Sr. No.	Description	Qty	Unit Cost	Total Cost	Reference
	Centrifugal Monoblock Pump set				
1	Supplying & erecting Centrifugal water pump (Monoblock), 415V, three phase 50 cycles A.C. supply of 2 HP with discharge 2.2/4.1 Liters per second (LPS) for head of 8/26 m and 50 mm suction/ 40 mm delivery pipe on provided C.C. foundation as per specification No. WP-CGP				
	1) 2 HP	2	13093	26186	PWD 18-19 , 12-1-5
	Foot Valve:				
2	Providing, erecting C.I. foot valve having single leather flap and gunmetal seating. Valve shall be fixed on suction side of pump as per requirement including jointing material and Flanged type				
	1) 50 mm	2	1428	2856	MJP E/M DSR 2018-19, ITEM NO- PM 13-7
	T Strainer:				
3	Providing, and fixing C.I. Strainer for water meters including cost of all material and labour. of "T" (Basket) Type with flanged ends and with stainless steel or brass mesh with openings of 2.5. mm to 3 mm and suitable for operating pressure of 16 Kg./cm ² and test pressure of 24				
	1) 50 mm	2	3095	6190	MJP E/M DSR 2018-19, ITEM NO- WM-1-C-1
	GI PIPE:				
4	Providing ISI mark G.I. pipe of following class and dia. excluding GST levied by GOI and GOM in all respect including inspection charges, transportation to stores, etc. complete as per IS-1239/2004.				
	1) 50 mm dia B class	50	324	16200	MJP 18-19, 1-C-VI, Page no- 100
	Non Return valve:				
5	Providing and supplying ISI mark CI D/F reflux valves (non-return valves) of following dia including railway freight, inspection charges, unloading from railway wagon, loading into truck, transportation upto departmental stores, unloading, stacking excluding GST levied by GOI & GOM in all respect etc. complete.				
	1) 50 mm	3	2820	8460	MJP 18-19, xii-1-a-1, Page no- 219
	Pump Starters				
6	Supplying & erecting automatic control panel for 3 Ph, 415 volt, A.c. Submersible/centrifugal pump set upto 7.5 HP consisting of DOL starter having relay range 9-14 AMP ,S.P.P., Combined ammeter/voltmeter, phase indicating lamp enclosed in CRCA powder coated Vibration proof enclosure with IP 54 protection. Control Panel should offer single phasing, phase reversal, phase imbalance etc (Similar to LT model no.MU G6/ CAT NO. SS97756)				
	1) Upto 7.5 HP	2	4994	9988	PWD 18-19 , 12-4-17
	water level controller (1 For OHT & 1 For UGT)				
7	Supplying & erecting Float sensor switch for water level controller working on 250V & rated current 8A, with 2 mtr. wire & High quality of wire & plastic body.	2	426	852	PWD 18-19, 12-4-28
	Pump protection relay				
8	Supplying and erecting pump protection relay comprising current sensing phase failure and UV+OV relay with dry run and overload protection suitable for 3 phase pumps.(Similar to Minilec -D2 MPR 2 model)	1	2586	2586	PWD 18-19, 12-4-7
	Pump Foundation				
9	Providing Cement concrete foundation for pump in 1:2:4 with required size and length of foundation bolts and nuts (cost with wooden box is included).	2	4485	8970	PWD 18-19 , 16-3-5
			Total	82288	

RA of SIGMA SEARCH LIGHT LIMITED								
RA of SIGMA SEARCH LIGHT LIMITED								
	Note:- GST FOR WATCH TOWER LIGHT IS 18%. (6 % GST we consider in this estimate & remaining 12 % GST as composite GST in Final abstract sheet.							
Sr No	Description	Qty	Amount	Freight Charges	Installation charges	Total	GST 6%	Grand total
1	Security Search light with Motorized system: High intensity long range weather & dust proof motor operated Security Search Lightwith highly polishcd stainless steel reflector-cum-body, toughened front glass fitted to the cast aluminum front ring kept in position by special headed captive bolts screwed down to the range of the lower ring (with Incorporated steel inserts at threaded portions) recessed on the flange of the body. focussing arrangemelll. G.S.lamp holder with lamp locking arrangement, M.S.Cradle and passivated bolts, 'Ole search light fitting would be Suitable for installing on the roof of the watch tower' cabin. The search light would be swiveling type & have both vertical & horizontal operational controls with the help of remote control unit with suitable control cables, The Search light would be supplied with 230 V 400W HPSV I MH Lamp & its control gear in cast aluminum housing, Light Range- 850m	1	103,255	6,000	5,000	114,255	6855.3	121110.3

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MANGROOVS PARK , DAHISAR										
Detailed estimate for electrification. (Substation works) 22KV/433v										
PWD DSR-(ELECTRICAL WING) 2018 – 19 (without GST)										
Subject :- Detailed estimate for electrification. (Substation works) 22KV/433v										
Sr. No.	Reference	Description	Qty	Unit	Supply Rate	Labour/ Erection charges	Total of supply & erection	5% on total rate	Net Rate	Amount
1	PWD DSR 18-19 , item no. 10-1-59	Supplying and Erecting compact substation with 500 kVA, 3 phase, 50 Hz., ONAN type thermal class K10, 21kA for 3 Sec. SF6 insulated non-extensible compact switchgear (type DV-NE/ RT2- NE) consisting of one no. direct cable module and one no. fixed manual vacuum circuit breaker in SF6 insulated stainless steel enclosure, with series trip, self powered microprocessor based numerical over current relay (IDMTL + Inst.) protection. Interconnection between HT switchgear and transformer shall be using 1Cx3x150 sq.mm aluminium unarmoured XLPE cable. Copper wound transformer 500 kVA 22 kV/433V Dyn11 oil filled, indoor type transformer bushings, hermetically sealed transformer with corrugated wall, without conservator type of design & top normal porcelain bushings for HT & LT with off load tap switch of rating +5% to - 10% @ 2.5%. temp rise - oil/winding 40/45°C losses (subject to IS 1180 energy efficiency level 2) - max @ 50% loading : as per IS 1180 and max @ 100% loading : as per IS 1180 and impedance as per IS 1180 with LV panel;-800 A aluminium busbar (100% for phase and 50% for neutral, current density - 1 amp/sqmm) with Outgoings 800 A 433V 4P 50 Hz 35 kA ICOG, fixed manual type air circuit breaker (ACB) with microprocessor based release for overload , short circuit & earth fault protection., multifunctional meter with class 1.0 accuracy with RS 485 port, RYB,ON/OFF trip indications, outdoor enclosure having IP54 degree of protection for HT & LT switchgear compartment & IP23 degree of protection for Transformer compartment, powder /colour coated enclosure, with interconnection between HT switchgear & transformer using 1Cx3x150 sq.mm XLPE aluminium single core cable. Interconnection between transformer & LT switchgear using aluminium bus bars. internal earthing connections by using 50x6 mm GI strips including transformer neutral, complete with	1	Each	2,128,754.00	27,723.00	2,156,477.00		2,156,477.00	2,156,477.00
2	PWD DSR 18-19 , item no. 7-3-22	Supplying , erecting & terminating 3 x 300 sq. mm. aluminium 22 kV(E), XLPE armoured cable on wall/ceiling or laid in provided trench / pipe in an approved manner as per specification no. CBHT	3600	m	2735	84	2,819.00		2,819.00	10,148,400.00
		Note: 2 run of the 500 m each for 2 independent HT Tapping					-		-	-
3	PWD DSR 18-19 , item no. 7-5-14	Providing and erecting Heat shrinkable indoor termination kit for 22 kV (E) XLPE HT cable 3x240 to 300 sq. mm. with necessary material as per specification no. CB-JT/HT	2	Each	12454	1182	13,636.00		13,636.00	27,272.00
4	PWD DSR 18-19 , item no. 7-5-17	Providing and erecting Heat shrinkable out door termination kit for 22 kV (E) XLPE HT cable 3x240 to 300 sq. mm. with necessary material as per specification no. CB-JT/HT	2	Each	19397	1288	20,685.00		20,685.00	41,370.00
5	PWD DSR 18-19 , item no. 7-5-20	Providing and erecting Heat shrinkable straight through joint kit for 22 kV (E) XLPE HT cable 3x240 to 400 sq. mm. with necessary material as per specification no. CBJT/HT	2	Each	42445	1477	43,922.00		43,922.00	87,844.00
6	PWD DSR 18-19 , item no.7-1-25	Supplying, erecting & terminating XLPE armoured cable 3½ core 400 sq. mm. aluminium conductor with continuous 12.97 sq.mm. (8 SWG) G.I. earth wire complete erected with glands & lugs, on wall/ trusses/pole or laid in provided trench/ pipe as per specification no. CB-LT/AL	500	m	1638	97	1,735.00		1,735.00	867,500.00
7	PWD DSR 18-19 , item no.6-4-4	Supplying, erecting, testing, commissioning 22 KV HT metering cubical (compact type) approved by MSEDCL/licensee fabricated with 2mm.(14 SWG) M.S. sheets with supporting angle and channel, painted with powder coating / epoxy paint of required shade copper bus bar size 25x6 mm electronic security lock and heavy duty mechanical lock, with counter meter for measuring no of times the opening of doors, top side cover (CT,PT cover) interlock with meter doors, epoxy coated 3 nos CT having required ratio between 50/5 A to 100/5 A, VA10, class 0.2S, 2000/V3/110/V3 VA 50, class 0.2 epoxy terminal block suitable for provided trivector meter, and provision for incoming and outgoing cables etc. complete duly tested by licensee with necessary test certificates and erected on provided plinth/ cc foundation	1	Nos	140100	30432	170,532.00		170,532.00	170,532.00
									Total	13,499,395.00

	MSEDCL CHARGES INSPECTION AND TESTING	qnty	Unit	rate	Amount	Reference
1	HT SERVICE CONNECTION CHARGES FOR NEW CONNECTION BELOW 500 KVA (Including rate of 1.30%of the normative charges)	1	Each	202600	202,600.00	schedule of charges - MSEDCL- No.CE/Dist- III/SOC/24500 Annx. 2 date:
2	APPLICATION,REGISTRATION & PROCESSING	1	Each	1700	1,700.00	
3	HT TOD METER TESTING	1	Each	15000	15,000.00	
4	Power Transformer Inspection	2	Each	10000	20,000.00	Ref: Approval of MSEDCL Schedule of charges order Dated: september 8,2006
5	Current Transformer Inspection (CT)	3	Each	5000	15,000.00	
6	Voltage Transformer Inspection (PT)	3	Each	5000	15,000.00	
7	RELAY TESTING	6	Each	1000	6,000.00	
8	HT SWITCH GEAR	3	Each	5000	15,000.00	
9	LT CAPACITOR TESTING	400	KVAR	10	4,000.00	
					294,300.00	

					Description						TOTAL	SWICH BOARD TYPE	MCB DB	
	Sr.No.	Structures	Switch Board Numbering	Quantity	Switch	LAN	light/fan swirrch	Telephone	DP MCB Tripper	Regulator				Remarks
	1	SOUVENIR SHOP	SW1'	1	2		2	0	0	1	7	10	2	
	2		SW2	1	4		10	0	1	1	20	24		
	3		SW3	1	4		10	0	1	1	20	24		
GROUND FLOOR MDB	1	Entrance Structure (Dumping Ground)	SW0/1	1	2		2	1	1	1	9	8	12 WAY	
	2		SW0/2	1	4		12	1	1	1	23	8		
	3		SW0/3	1	4		12	1	1	1	23	8		
	4		SW0/4	1	2		2	1	1	1	9	8		
	5		SW0/5	1	2		10	1	1	1	17	8		
	6		SW0/6	1	2		10	1	1	1	17	8		
	7		SW0/7	1	2		10	1	1	1	17	8		
	8		SW0/8	1	2		10	1	1	1	17	8		
	9		SW0/9	1	2		12	1	1	1	19	8		
	10		SW0/10	1	2		12	1	1	1	19	8		
	11		SW0/11	1	2		16	1	1	1	23	8		
		Board walk	on OD lighting switch						1					63 Amp 4 pole
FIRST FLOOR MDB	1	Nature Interpretation Centre(NIC)	SW1/1	1	2		16	0	1	4	25	8	36 WAY	
	2		SW1/2	1	2		16	0	1	4	25	8		
	3		SW1/3	1	2		10	0	1	2	17	8		Lift inside
	4		SW1/4	1	2		10	0	1	2	17	8		Lift outside
	5		SW1/5	1	2		10	0	1	2	17	8		
	6		SW1/6	1	2		10		1	2	17	8		
	7		SW1/7	1	2		8	0	1	2	15	8		
	8		SW1/8	1	2		8	0	1	8	21	8		
	9		SW1/9	1	2		12	0	0	0	16	8		
	10		SW1/10	1	1		6	0	0	0	8	8		
	11		SW1/11	1	1		4	0	0	0	6	8		Lift inside
	12		SW1/12	1	1		4	0	0	0	6	8		Lift outside
	13		SW1/13	1	1		10	0	0	0	12	8		
	14		SW1/14	1	1		4		0	0	6	8		
	15		SW1/15	1	2		8		1	2		8		
	16		SW1/16	1	2		8		1	2	15	8		
	17		SW1/17	1	2		8		1	2	15	8		
	18		SW1/18	1	1		2	0	0	0	4	8		
	19		SW1/19	1	1		16	0	1	4	23	8		
	19 A		SW1/19 A	1	1		16	1	1	4	24	8		
	20		SW1/20	1	2		4	0	0	1	9	8		
	21		SW1/21	1	2		4	0	0	0	8	8		
	22		SW1/22	1	2		12	0	0	0	16	8		
	23		SW1/23	1	2		8	0	1	2	15	8		
	24		SW1/24	1	2		8	0	1	2	15	8		
	25		SW1/25	1	2		8	0	1	2	15	8		
	26		SW1/26	1	2		8	0	1	2	15	8		
	27		SW1/27	1	2		10	0	0	0	14	8		
	28		SW1/28	1	1		4	0	0	0	6	8		
	29		SW1/29	1	1		4	0	0	0	6	8		
	30		SW1/30	1	2		8	0	0	0	12	8		
	31		SW1/31	1	2		4	0	0	0	8	8		
	32		SW1/32	1	4		4		1	1	14	8		

[illegible]

Detailed Estimate of Virtual Museum

Mumbai Mangroves Conservation Unit						
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar						
Abstract Display and Infomation Themes for the Nature Infomation Center						
Sr.No	Items	Unit	Quantity	Rate	Amount	Reference
1	Research on the selection of Exhibits for the Center for Theme of Mangroves Conservation and Landfill sites	Lumsum	1	100000	100000	To Be Done from the Mangroves Foundation
2	Conceptualizing,Design and Detailing of the Exhibits and Theme for the static / Permanant Center Displays at Nature Interperation Center	Per Theme	5	50000	250000	Approves Rate Analysis of Gorai Project
3	Preparation of Artwork and textual materials including Content writing, Genereation of Story, Artwork for the fixed Panels of the Pause Points for display as per the Themes	Per slide	20	8000	160000	Approves Rate Analysis of Gorai Project
4	Preparation of Artwork and Information textual materials including Content writing for Signaes along the Mangroves Trail	Per Display Board	10	7000	70000	Approves Rate Analysis of Gorai Project
5	Providing and Fixing of Artwork and textual materials including Content writing, Generation of Story, Artwork for the fixed Panels of the Pause Points for display as per the Themes for the Nature Interertation Center	Per Slides	6	7000	42000	Approves Rate Analysis of Gorai Project
6	Content development and preparation of the 1 to 3 Minutes Video for the Motion Display of the Theme for the exhibits including the development of the storyline, Capturing of the still images, 360 Images , videos with ground or Arial Photogragry using of UAV as per the equipment of the Theme and Concepts, required Voice recording, dubbing or record of Natural sounds of the various fauna and fauna by Incorporation of the Photogaametry Virtual Reality scenario and Environment with reference to Selected Themes for making Effective self explanatory and interesting Theme based Videos suitable for the , interactive technological options like kiosks, plasma screens in the Nature Interoperation Center	Per Mintue	2	350000	700000	Approves Rate Analysis of Gorai Project
7	Supplying Installation of the Physical live Model of the Themes pertaining to Environment Awareness as per the Direction of the Project In charge.	Per Model	2	120000	240000	Approves Rate Analysis of Gorai Project
8	Providing & fixing Pole Drops on Street Poles - Horizontal & Vertical (inclusive of display at various places) etc. complete. as per the Themes directed by the Project In Charge	Per Sq feet	10	5500	55000	Approves Rate Analysis of Gorai Project
9	Printing and Fixing of Sun Boards /ACP Panels as per the Themes directed by the Project In Charge in Nature Interpretation Center	Per Sq Meter	210	5000	1050000	Approves Rate Analysis of Gorai Project
10	Printing and Fixing of Acarlrics / ACP Display Panels as per the Themes directed by the Project In Charge in Mangroves Trails	Per Sq Meter	65	7000	455000	Approves Rate Analysis of Gorai Project

Mumbai Mangroves Conservation Unit						
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar						
Abstract Display and Infomation Themes for the Nature Infomation Center						
Sr.No	Items	Unit	Quantity	Rate	Amount	Reference
11	Interactive Touch Panels Items:Touch Capacitive Drop in Touch Models and Equipments with following Specification					Approves Rate Analysis of
11.1	Supply Fixing and instaltn with ready to operate of the 65 inch 80 Touch Capacitive Drop in Touch Monitor with following Specification Monitor Should be of Commercial Grade with Minimum of 4K Technology or upgraded version Resolution of 3840 x 2160 Brightness 350nit having Response Time 8ms Sensor IR of reputed Company like Samsung Sony or equivalent with Processor: Intel Core i5-5250U (1.6GHz turbo up to 2.7GHz Turbo, Dual-core,3 MB smart cache,15W TDP) Memory: 4GB DDR3, Support Two SO-DIMM slots supporting up to 16 GB of 1600/1333 MHz 1.35V DDR3L Graphics: Intel® HD 6000 graphics 1 x Mini HDMI 1.4a Port 1 x Mini Display Port 1.2 supporting ultra-high definition 4K displays and Dual monitor functionality Audio:Up to 7.1 surround audio via Mini HDMI and Mini DisplayPort Intel HD Audio via stereo analog audio jack (microphone in/headphone out/speaker out) Peripheral Connectivity: Four super high-speed USB 2.0 ports (two back panel ports and two front ports) Bluetooth and wi- Fi connectivity possible Storage; 120 GB SSD 2.5-inch SSD Networking:10/100/1000 Mbps Ethernet port Wireless-AC 7265 on board Power adapter 19V, 65W DC-DC power adapter With Overlay Specification as below Technology : High Speed Infrared Glass Type : Toughened 4 MM Glass Response Time : 5-12 ms Touch Durabily for the Period of 25 Years Redundancy : Fault Tolerant and capable for working upto 10% damaged tubes. inclusive of the Software required for Effective self explanatory and interesting Theme based Software System /Videos /infographics. Suitable for the interactive technological options like kiosks, plasma screen in the Nature Interpretation Center with Coding required for the system	Per Number	6	1090560	6543360	Approves Rate Analysis of Gorai Project
11.2	Supply Fixing and instaltn with ready to operate 55 inch 80 Touch Capacitive Drop in Touch Monitor Monitor Should be of Commercial Grade with Minimum of 4K Technology or upgraded version Resolution of 3840 x 2160 Brightness 350 nit having Response Time 8ms Sensor IR of reputed Company like Samsung Sony or equivalent with Processor: Intel Core i5-5250U (1.6GHz turbo up to 2.7GHz Turbo, Dual-core,3 MB smart cache,15W TDP) Memory: 4GB DDR3, Support Two SO-DIMM slots supporting up to 16 GB of 1600/1333 MHz 1.35V DDR3L Graphics: Intel® HD 6000 graphics 1 x Mini HDMI 1.4a Port 1 x Mini Display Port 1.2 supporting ultra-high definition 4K displays and Dual monitor functionality Audio:Up to 7.1 surround audio via Mini HDMI and Mini DisplayPort Intel HD Audio via stereo analog audio jack (microphone in/headphone out/speaker out) Peripheral Connectivity: Four super high-speed USB 2.0 ports (two back panel ports and two front ports) Bluetooth and wi- Fi connectivity possible Storage; 120 GB SSD 2.5-inch SSD Networking:10/100/1000 Mbps Ethernet port Wireless-AC 7265 on board Power adapter 19V, 65W DC-DC power adapter With Overlay Specification as below Technology : High Speed Infrared Glass Type : Toughened 4 MM Glass Response Time : 5-12 msTouch Durability for the Period of 25 Years Redundancy : Fault Tolerant and capable for working upto 10% damaged tubes. with required Software for Effective self explanatory and interesting Theme based Software System /Videos /infographics. Suitable for the interactive technological options like kiosks, plasma screen in the Nature Interpretation Center with Coding required for the system	Per Number	0	599040	0	Approves Rate Analysis of Gorai Project

Mumbai Mangroves Conservation Unit						
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar						
Abstract Display and Infomation Themes for the Nature Infomation Center						
Sr.No	Items	Unit	Quantity	Rate	Amount	Reference
11.3	Supply Fixing and instaltn with ready to operate 32 inch KIOSK 32" HD display, 6 touch overlay, toughened glass, computer, kiosk stand which adjustable and tilted position. kiosk must be easily adjusted into four form factors Table, tilted kiosk/workstation, high Bar table, or as a standing flat display 32" bright LFD display based multi touch table top surface. 6 simultaneous touch detection. Max Scan Rate: 200 Hz Response time: 5-12 ms Touch Method: Finger, gloved hand or any other pointer No pressure should be required for touch. No calibration required just plug n play. Equipped with Intel NUC (128 GB SSD, 4 GB RAM, Intel HD 6000)Effective self explanatory and interesting Theme based Software System /Videos /infographics. Suitable for the interactive technological options like kiosks, plasma screen in the Nature Interpretation Center with Coding required for the system Effective self explanatory and interesting Theme based Software System /Videos /infographics. Suitable for the interactive technological options like kiosks, plasma screen in the Nature Interpretation Center with Coding required for the system	Per Number	2	420000	840000	Approves Rate Analysis of Gorai Project
11.4	Supply and Instalation complete : TABLE 49" Display :- with IR TFCHNOLOGY for interactive based system Technology with High Speed infrared Glass Type : Toughened 4 MM Glass. Response Time 5-12 ms Touch Durabitty for the Period of 25 Years Redundancy Fault Tolerant and capabte for working tyro 10% damaged tubes. Table flat display 49" bright LED display based multi touch table top surface. 6 simultaneous touch detection. Max Scan Rate: 200 Hz Response time.: 5-12 ms Touch Method: Finger, gloved hand Or a Ely other pointer No pressure should be required for touch, No calibration required just plug n play.inclusive of the Software required for Effective self explanatory and interesting Theme based Software System /Videos /infographics. Suitable for the interactive technological options like kiosks, plasma screen in the Nature Interpretation Center with Coding required for the system	Per Number	0	998400	0	Approves Rate Analysis of Gorai Project
11.5	Supply and Instalation complete : TABLE 32" Display kiosk :- with IR TFCHNOLOGY for interactive based system Technology with High Speed infrared Glass Type : Toughened 4 MM Glass. Response Time 5-12 ms Touch Durabitty for the Period of 25 Years Redundancy Fault Tolerant and capabte for working tyro 10% damaged tubes. Table flat display 32" bright LED display based multi touch table top surface. 6 simultaneous touch detection. Max Scan Rate: 200 Hz Response time.: 5-12 ms Touch Method: Finger, gloved hand Or a Ely other pointer No pressure should be required for touch, No calibration required just plug n play. inclusive of the Software required Effective self explanatory and interesting Theme based Software System /Videos /infographics. Suitable for the interactive technological options like kiosks, plasma screen in the Nature Interpretation Center with Coding required for the system	Per Number	2	456000	912000	Approves Rate Analysis of Gorai Project
	* Rates inclusive of the GST as per the PIM					
				Total	11,417,360.00	

Mumbai Mangroves Conservation Unit						
NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar						
Abstract Display and Infomation Themes for the Nature Infomation Center						
Sr.No	Items	Unit	Quantity	Rate	Amount	Reference
	CREATIVE VIDEO / ANIMATION CONTENT CREATION FOR THE VIRTUAL MUSEUM					
1	Video Creation from 60 to 120 seconds in High Defination with Dubbing, Editing etc (final cut Version)	Per Vedio	12	694485	8,333,820.00	Approved NNMC Cost
2	Content development and preparation of the 1 to 3 Minutes Video for the Motion Display of the Theme for the exhibits including the development of the storyline, Capturing of the still images, 360 Images , videos with ground or Arial Photogragry using of UAV as per the equipment of the Theme and Concepts, required Voice recording, dubbing or record of Natural sounds of the various flora and fauna by Incorporation of the Photogaametry Virtual Reality scenario and Environment with reference to Selected Themes for making Effective self explanatory and interesting Theme based Videos suitable for the , interactive technological options like kiosks, plasma screens in the Nature Interoperation Center	Per Nos	8	350000	2,800,000.00	Approved Rate Analysis No
	Development of Software System for the Virtual Museum					
3	Software Licences required for the system Development & integration	Job	1	6,144,000.00	6,144,000.00	Rate Analysis No
	HARDWARE SYSTEM					
4	Supply Instanion of the WALL BASED GESTURE APPLICATION (Magix Box): - unit must be utilized for gesture based interactive wall or gesture based interactive floor also. The unit should be with inbuilt computer with gesture tracking licence for life time, 20 games or effect ,3d gesture tracking sensor Capable of working with any projector should supports. Wall mode and floor mod, should supports all standard LCD projectors, Plasma/LCD Screen, digital video walls, etc. should be inbuilt Head/Hand & body precision tracking, Minimum 6 Ft and max 20 Ft distance area from sensor and detection area equipped with Computer and 3d Sensor integrated includes mount and wireless key board includes 20 games/ effects Aluminium body 19V, 65w , AC-DC Power- adapter Voltage support - 110T220 Volts.	Per Unit	16	499200	7,987,200.00	Approved Rate Analysis No
5	Supply Installtion of the Tunnel Interactive system hardware such as Projecion paint - goo paint to cover wall of 8.5 feet height x 14.22 feet width - 20 liters for each of 5 wall setups , Projector 9000 Lumens - equavelent to PT-RZ 970, 16:09 HDMI in with Ultra short throw lens DLE-030 , Ceiling mount bracket for projector Heavy Duty Custom , Signal Tx & Rx -Extron DTP HD 4K 330 Tx and DTP HD 4K 330 Rx , Content Source PCs, Digital twisted pair cables & Connectors and interfacing patch cords- Extron., Directional Audio speakers sets with mini power amplifier, 12X8 Audio DSP Mixer - BIAMP Tesria Forte AVB T , Audio Line driver Extron BUC202, Audio Cables , Speaker Cables and Connectors, 2 LAN point near Projector and 3 Power point near each projector, 3 LAN point near Rack cabinet , Small rack cabinet for keeping source PC and devices , Val rack 12U ,40" complete	job	1	19997440	19,997,440.00	Rate Analysis No
				Total	45,262,460.00	

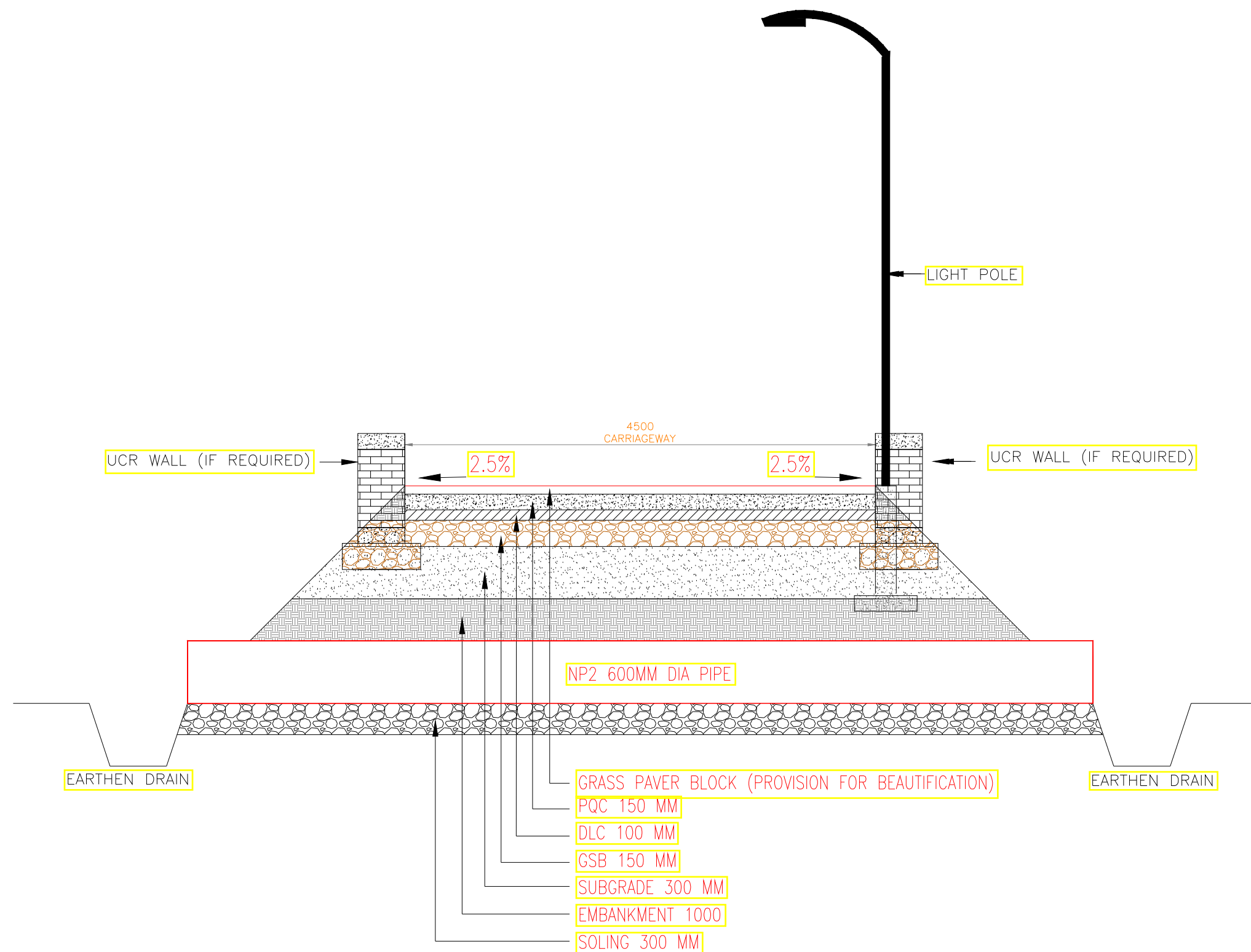
Sr. No	Solution Type	Location as per layout	Image	Sub System with Make/ Model	Qty	Unit	Rate	GST applicable @ 28%	Final Amount	Total
		Second floor		Projection paint - goo paint to cover wall of 8.5 feet height x 14.22 feet width - 20 liters for each of 5 wall setups	6	Set	700,000	196,000	896,000	5,376,000
				Projector 9000 Lumens - Barco Equvleient , 16:09 HDMI in with Ultra short throw lens DLE-030	5	Set	1,650,000	462,000	2,112,000	10,560,000
				Ceiling mount bracket for projector Heavy Duty Custom	5	Set	45,000	12,600	57,600	288,000
				Signal Tx & Rx Extron DTP HD 4K 330 Tx and DTP HD 4K 330 Rx	5	Pair	135,000	37,800	172,800	864,000
				Content Source PCs	5	Set	95,000	26,600	121,600	608,000
				Digital twisted pair cables & Connectors and interfacing patch cords- Extron	2	Lot	110,000	30,800	140,800	281,600
				Directional Audio speakers sets with mini power amplifier	5	Set	175,000	49,000	224,000	1,120,000
				12X8 Audio DSP Mixer - BIAMP Tesria Forte AVB T	1	Set	285,000	79,800	364,800	364,800
				Audio Line driver Extron BUC202	4	Set	22,000	6,160	28,160	112,640
				Audio Cables , Speaker Cables and Connectors	1	Lot	300,000	84,000	384,000	384,000
				2 LAN point near Projector (By client/ IT Vendor) and 3 Power point near each projector	5	Set	-	-	-	-
				3 LAN point near Rack cabinet (By client/ IT Vendor)	2	Set	-	-	-	-
				Small rack cabinet for keeping source PC and devices , Val rack 12U	2	Set	15,000	4,200	19,200	38,400
									Total	19,997,440

Sr. No	Solution Type	Location as per layout	Image	Sub System with Make/ Model	Qty	Unit	Rate	GST applicable @ 28%	Final Amount	Total
		Second floor		Projection paint - goo paint to cover wall of 8.5 feet height x 14.22 feet width - 20 liters for each of 5 wall setups	6	Set	700,000	196,000	896,000	5,376,000
				Projector 9000 Lumens - Barco Equvleient , 16:09 HDMI in with Ultra short throw lens DLE-030	5	Set	1,650,000	462,000	2,112,000	10,560,000
				Ceiling mount bracket for projector Heavy Duty Custom	5	Set	45,000	12,600	57,600	288,000
				Signal Tx & Rx Extron DTP HD 4K 330 Tx and DTP HD 4K 330 Rx	5	Pair	135,000	37,800	172,800	864,000
				Content Source PCs	5	Set	95,000	26,600	121,600	608,000
				Digital twisted pair cables & Connectors and interfacing patch cords- Extron	2	Lot	110,000	30,800	140,800	281,600
				Directional Audio speakers sets with mini power amplifier	5	Set	175,000	49,000	224,000	1,120,000
				12X8 Audio DSP Mixer - BIAMP Tesria Forte AVB T	1	Set	285,000	79,800	364,800	364,800
				Audio Line driver Extron BUC202	4	Set	22,000	6,160	28,160	112,640
				Audio Cables , Speaker Cables and Connectors	1	Lot	300,000	84,000	384,000	384,000
				2 LAN point near Projector (By client/ IT Vendor) and 3 Power point near each projector	5	Set	-	-	-	-
				3 LAN point near Rack cabinet (By client/ IT Vendor)	2	Set	-	-	-	-
				Small rack cabinet for keeping source PC and devices , Val rack 12U	2	Set	15,000	4,200	19,200	38,400
									Total	19,997,440


Mumbai Mangroves Conservation Unit						
NAME OF WORK :- Conservation and Development of the Mangrove Park at Gorai						
Measurment Sheet Display and Infromation Themes for the Nature Infromation Center						
Sr.No	Items	Unit	Length	B	H	Quantity
1	Video Creation from 60 to 120 seconds in High Defination with Dubbing, Editing etc (final cut Version)	Per Vedio				12
2	Content development and preparation of the 1 to 3 Minutes Video for the Motion Display of the Theme for the exhibits including the development of the storyline, Capturing of the still images, 360 Images , videos with ground or Arial Photograqry using of UAV as per the equipment of the Theme and Concepts, required Voice recording, dubbing or record of Natural sounds of the various fauna and fauna by Incorporation of the Photogaametry Virtual Reality scenario and Environment with reference to Selected Themes for making Effective self explanatory and interesting Theme based Videos suitable for the , interactive technological options like kiosks, plasma screens in the Nature Interoperation Center	Per Minute				10
3	Interactive Touch Panels Items:Touch Capacitive Drop in Touch Models and Equipments with following Specification					
	Supply , installation of the WALL BASED GESTURE APPLICATION (Magix Box): - unit must be utitized for gesture based interactive wall or gesture based interactive floor also. The unit should be with inbuilt computer with gesture tracking licence for life time, 20 games or effect ,3d gesture tracking sensor Capable of working with any projector should supports. Wall mode and floor mod, should supports all standard LCD projectors, Plasma/LCD Screen, digital video walls, etc. should be inbuilt Head/Hand & body precision tracking, Minimum 6 Ft and max 20 Ft distance area from sensor and detection area equipped with Computer and 3d Sensor integrated includes mount and wireless key board includes 20 games/ effects Aluminium body 19V, 65w , AC-DC Power- adapter Voltage support - 110T220 Volts.	Per No				12
4	Devlopment of the Software Licences required for the system Development & integration	Job				1
5	Supply Installtion of the Tunnel Interactive system hardware such as Projection paint - goo paint to cover wall of 8.5 feet height x 14.22 feet width - 20 literes for each of 5 wall setups , Projector 9000 Lumens - equavelent to PT-RZ 970, 16:09 HDMI in with Ultra short throw lens DLE-030 , Ceiling mount bracket for projector Heavy Duty Custom , Signal Tx & Rx -Extron DTP HD 4K 330 Tx and DTP HD 4K 330 Rx , Content Source PCs, Digital twisted pair cables & Connectors and interfacing patch cords- Extron., Directional Audio speakers sets with mini power amplifier, 12X8 Audio DSP Mixer - BIAMP Tesria Forte AVB T , Audio Line driver Extron BUC202, Audio Cables , Speaker Cables and Connectors, 2 LAN point near Projector and 3 Power point near each projector, 3 LAN point near Rack cabinet , Small rack cabinet for keeping source PC and devices , Val rack 12U ,40" Holocubes system,	Job				1

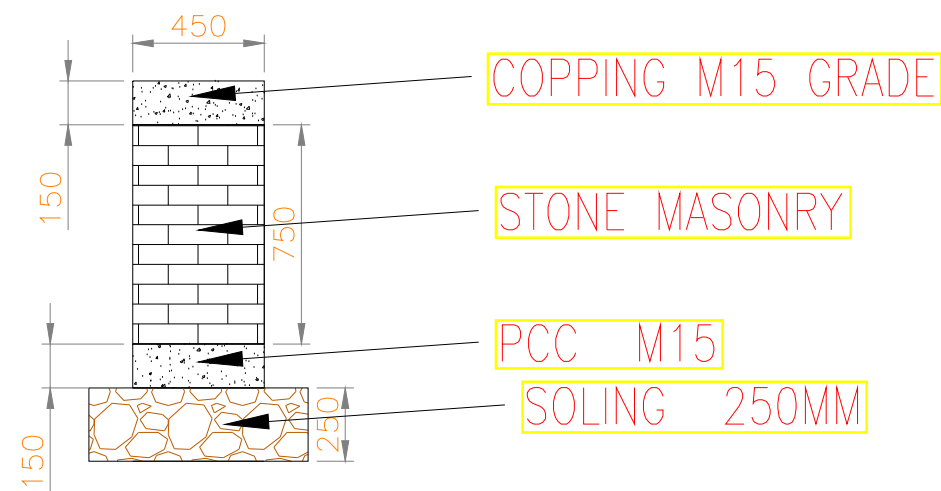
	Mumbai Mangroves Conservation Unit							
	NAME OF WORK :- Conservation and Development of the Mangrove Park at Dahisar							
	Virtual Museum in the Nature Infomation Center							
		Rate analysis Licences						
Sr.No	Items	Unit	Quantity	Rate	Amount	GST applicable @ 28%	Final Amount	Reference
						28%		
1	Supply Design Coding of the Requisite Motion Magix ultimate License for Wall in Vitual Aquarium Complete	Nos	4	400,000.00	1,600,000.00	448,000.00	2,048,000.00	Approved Market rate
2	Supply Design Coding of the Requisite Motion Magix ultimate License for floor	Nos	12	150,000.00	1,800,000.00	504,000.00	2,304,000.00	
3	Supply Design Coding of the Requisite Arene/Aqua/Magixsuite Licences	Nos	1	1,000,000.00	1,000,000.00	280,000.00	1,280,000.00	
4	Windows 10 Licences	Nos	20	20,000.00	400,000.00	112,000.00	512,000.00	
	Total						6,144,000.00	

Drawings

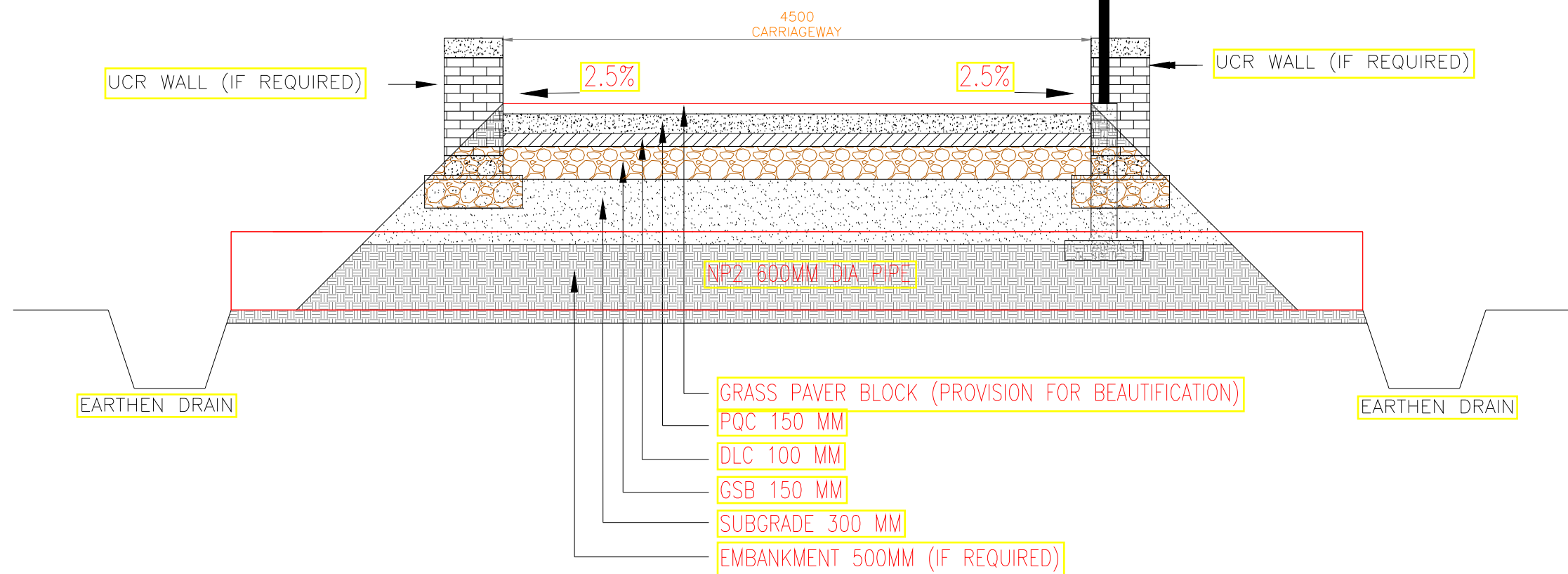


4.5M WIDE ROAD RECONSTRUCTION

NAME OF DRAWING	PROJECT NAME	NAME OF THE CLIENT	NAME OF THE CONSULTANT								
TYPICAL CROSS SECTION OF 4.5 M WIDE RECONSTRUCTION ROAD FOR DAHISAR MANGROVES PARK.	DEVLOPMENT OF THE MANGROVES ECO PARK AT DAHISAR.	MUMBAI MANGROVES CONSERVATION UNIT, FOREST DEPARTMENT.	 TUSPL 701, HARBHAJAN, CST RD, VIDYANAGARI MARG, KALINA , SANTACRUZ (E), MUMBAI - 400 098. Telefax : +91 22 26655335 contact@tandonandassocaies.com www.tandonandassociates.com								
			<table> <tr> <th>DRG NO</th><th>SCALE</th><th>DATE</th><th>DRN BY</th></tr> <tr> <td>MCGM/DS/RD/TCS/01</td><td>SCALE:- NTS</td><td>15-06-2019</td><td>Tejas</td></tr> </table>	DRG NO	SCALE	DATE	DRN BY	MCGM/DS/RD/TCS/01	SCALE:- NTS	15-06-2019	Tejas
DRG NO	SCALE	DATE	DRN BY								
MCGM/DS/RD/TCS/01	SCALE:- NTS	15-06-2019	Tejas								



UCR WALL (850M PROVISION FOR RETAINING OR SITTING PURPOSE)



4.5M WIDE ROAD RESURFACING

NAME OF DRAWING

TYPICAL CROSS SECTION OF 4.5 M WIDE RESURFACING ROAD FOR DAHISAR MANGROVES PARK.

PROJECT NAME

DEVLOPMENT OF THE MANGROVES ECO PARK AT DAHISAR.

NAME OF THE CLIENT

MUMBAI MANGROVES CONSERVATION UNIT,FOREST DEPARTMENT.

NAME OF THE CONSULTANT

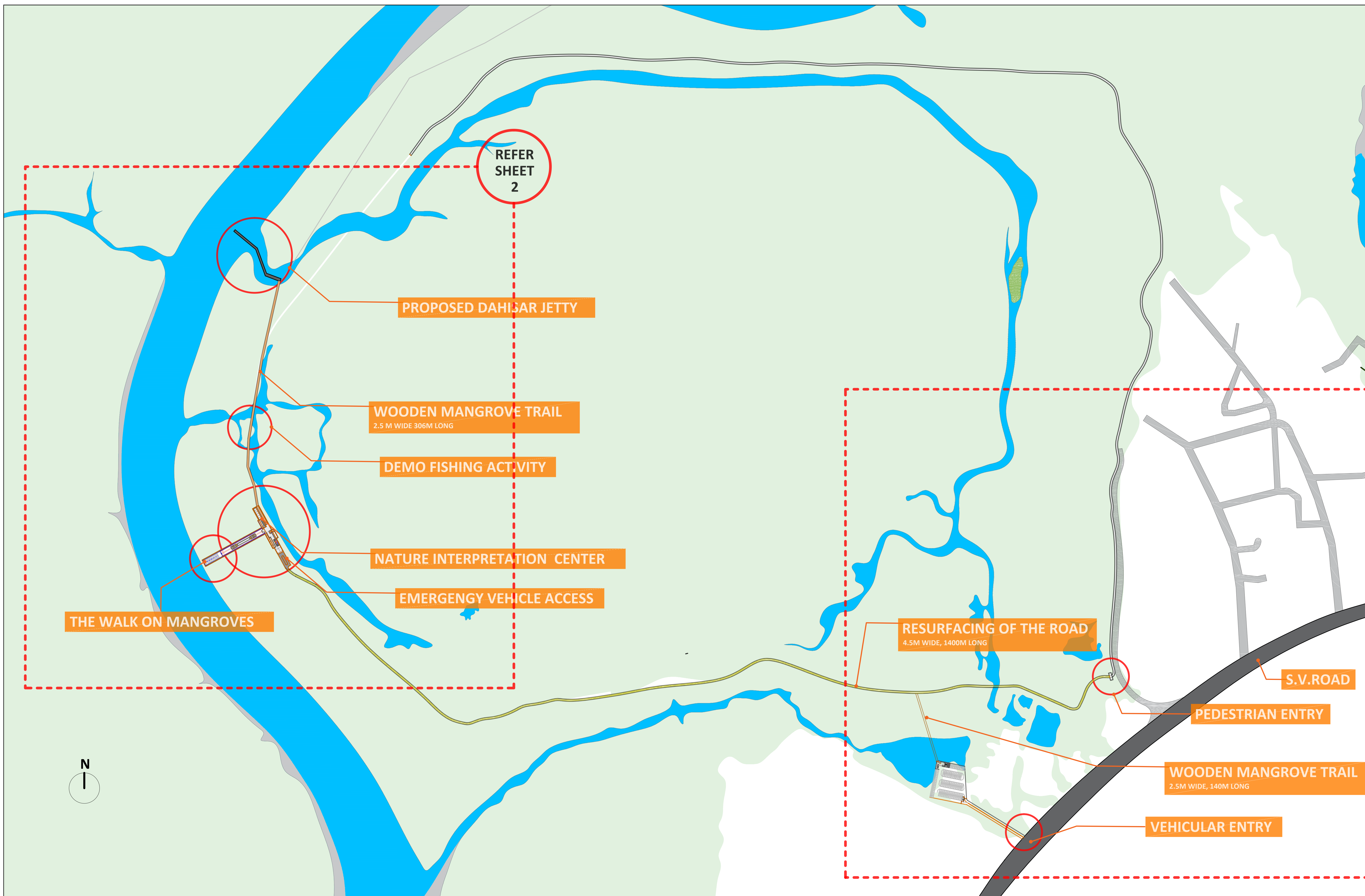


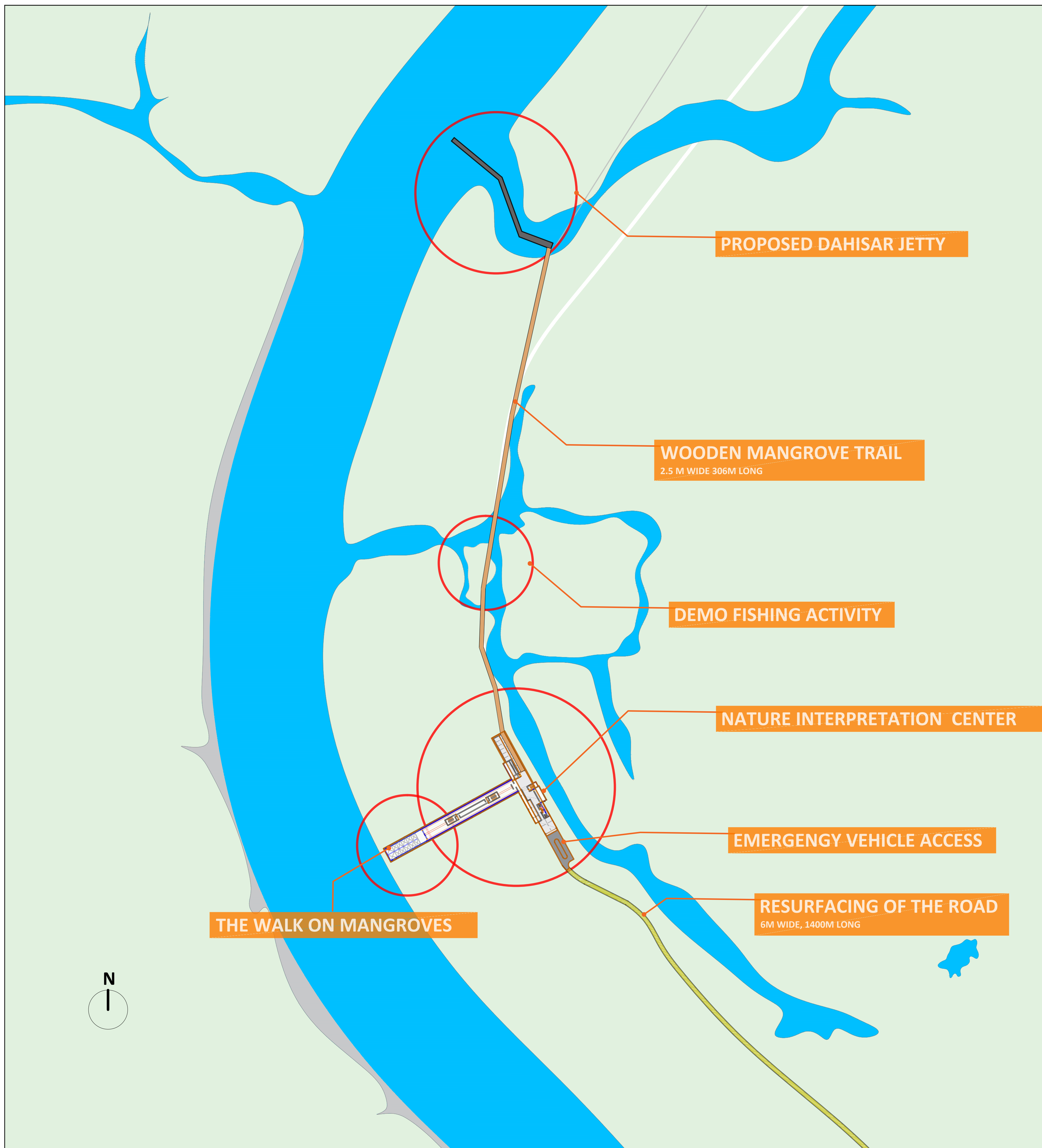
TUSPL

701, HARBHAJAN, CST RD,
VIDYANAGARI MARG, KALINA ,
SANTACRUZ (E), MUMBAI - 400 098.
Telefax : +91 22 26655335

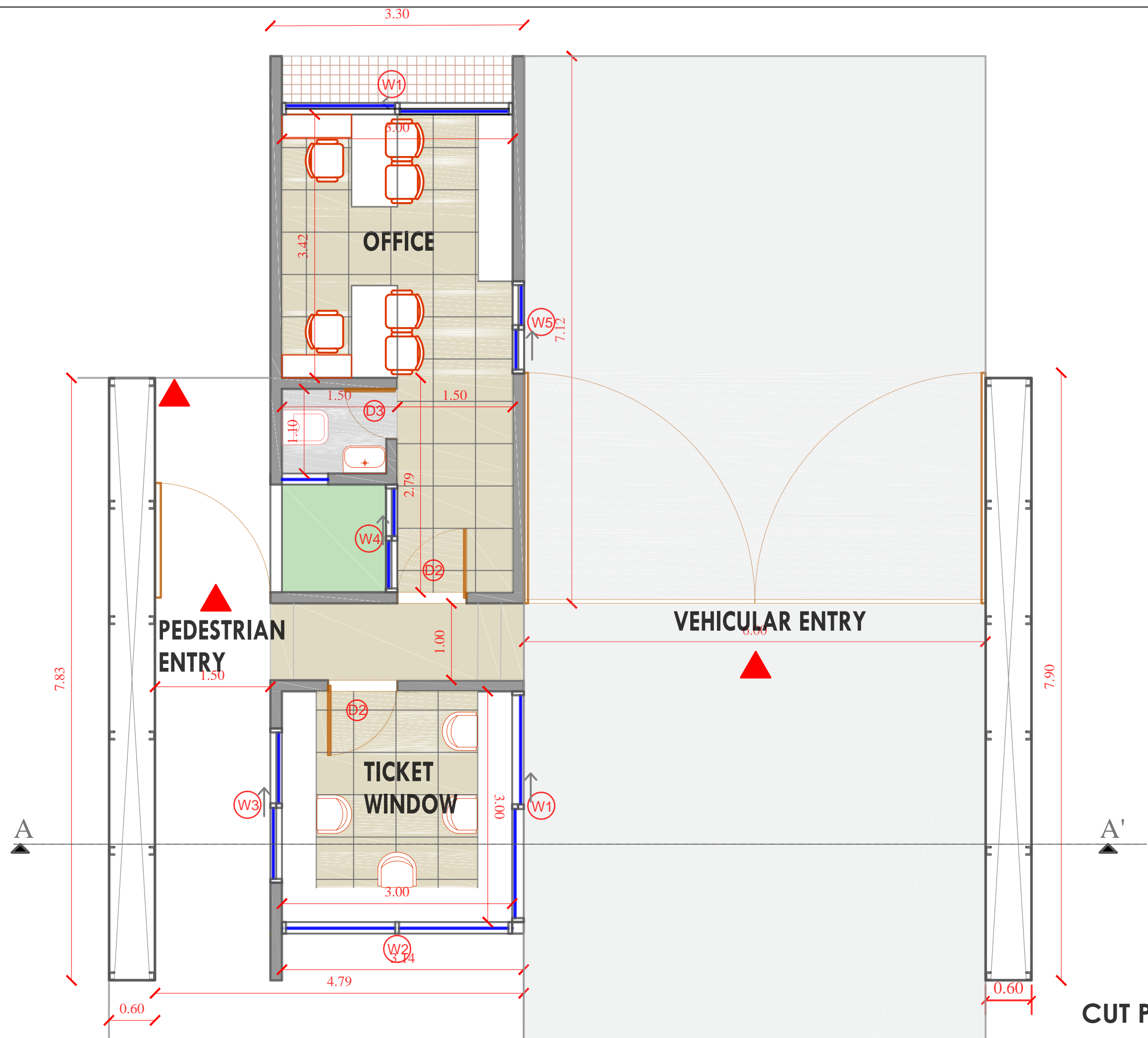
contact@tandonandassociaies.com|www.tandonandassociates.com

DRG NO	SCALE	DATE	DRN BY
MCGM/DS/RD/TCS/02	SCALE:- NTS	15-06-2019	Tejas

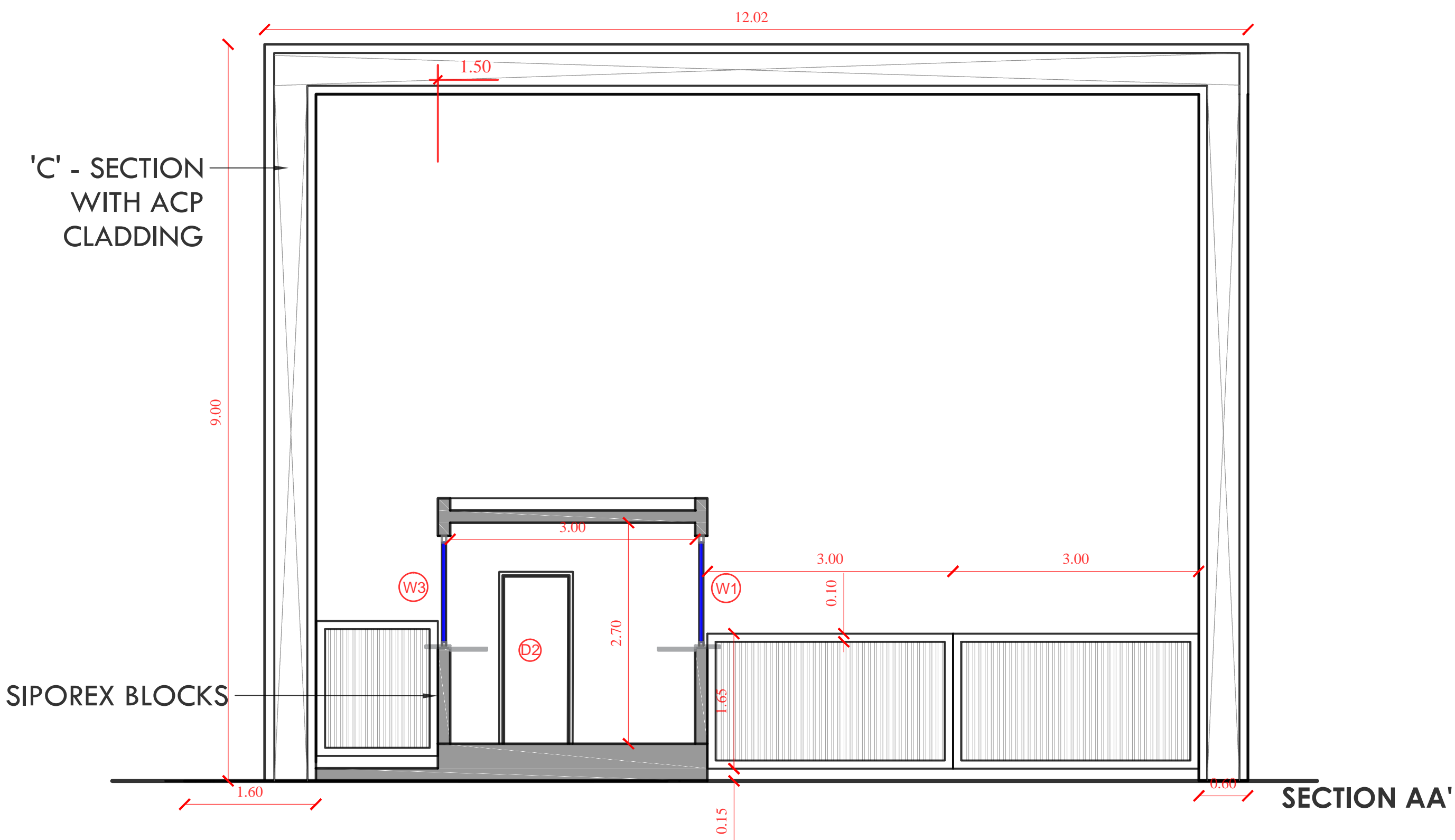




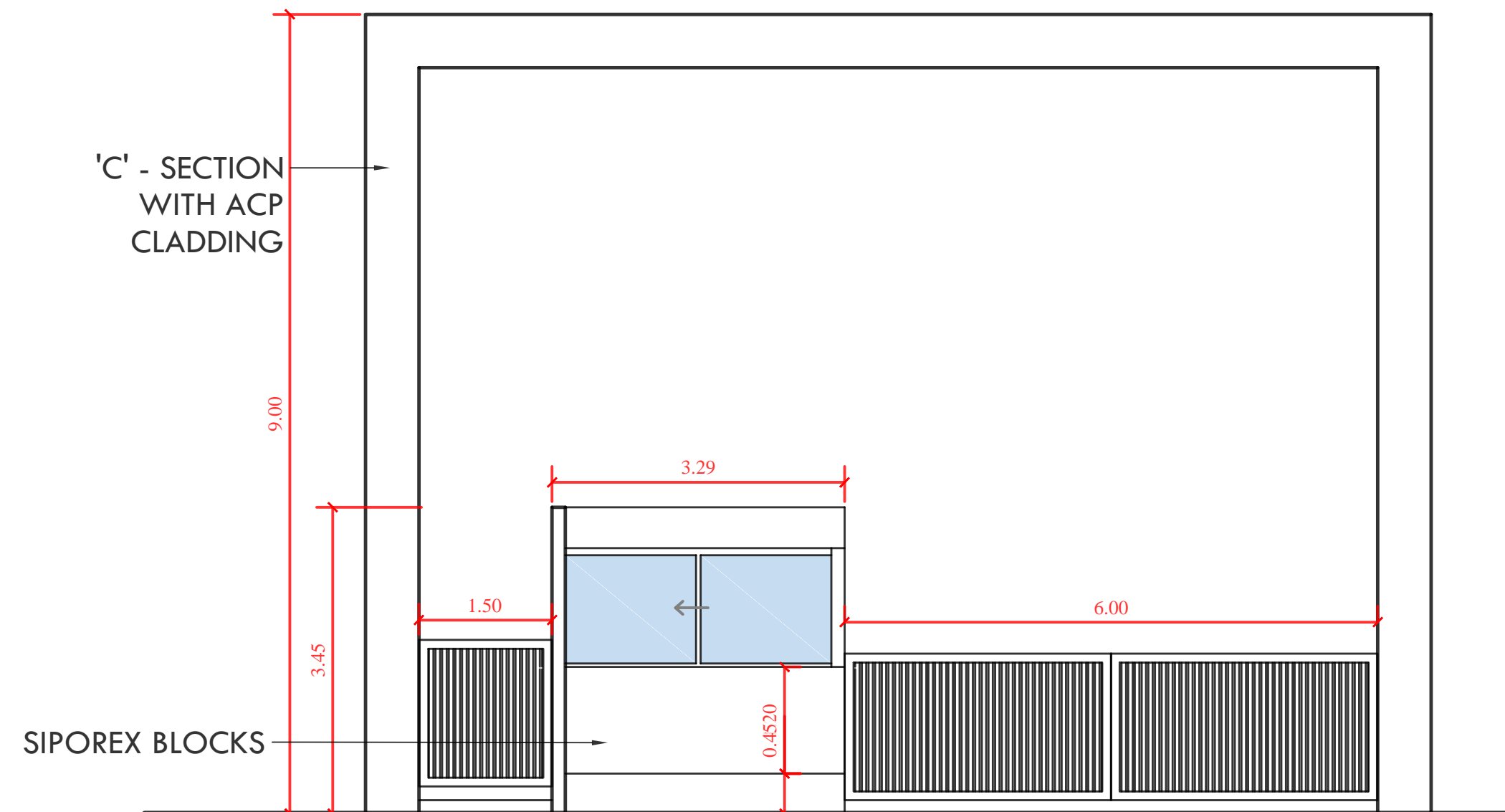




CUT PLAN @ 1.2MTS

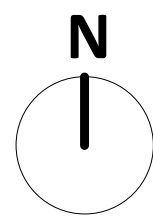
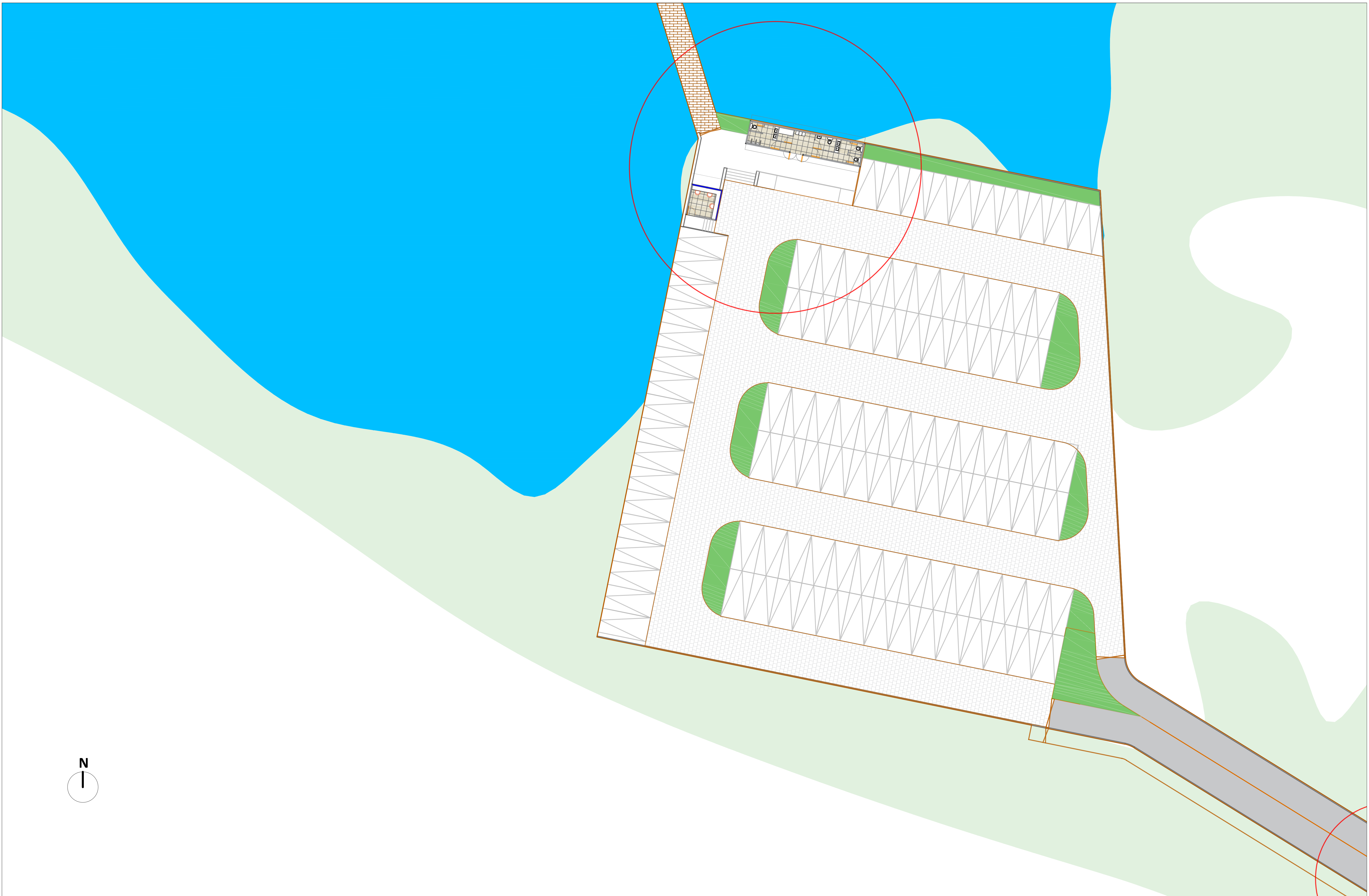


SECTION AA'



FRONT ELEVATION

WINDOW SCHEDULE				
SR.NO	PLAN	ELEVATION	DESCRIPTION	NO.OF UNITS
W1			SLIDING WINDOW, THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE. Flymesh Shutter may have supporting glasses & MS rods installed as per requirement of strength & stability of shutter 8MM + 18MM + 8MM DGU CLEAR TOUGHEN GLASS	2
W2			TWO PANE FIXED WINDOW, THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE. Flymesh Shutter may have supporting glasses & MS rods installed as per requirement of strength & stability of shutter 8MM + 18MM + 8MM DGU CLEAR TOUGHEN GLASS	2
W3			TWO PANE SLIDING WINDOW, THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE. Flymesh Shutter may have supporting glasses & MS rods installed as per requirement of strength & stability of shutter 8MM + 18MM + 8MM DGU CLEAR TOUGHEN GLASS	1
W4			TWO PANE SLIDING WINDOW, THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE. Flymesh Shutter may have supporting glasses & MS rods installed as per requirement of strength & stability of shutter 8MM + 18MM + 8MM DGU CLEAR TOUGHEN GLASS	1
W5			TWO PANE SLIDING WINDOW, THE PURPOSE OF THE WINDOW IS TO GIVE CLEAR OPENING AND MAXIMUM VIEW FROM THE STRUCTURE. Flymesh Shutter may have supporting glasses & MS rods installed as per requirement of strength & stability of shutter 8MM + 18MM + 8MM DGU CLEAR TOUGHEN GLASS	1
DOOR SCHEDULE				
SR.NO	PLAN	ELEVATION	DESCRIPTION	NO.OF UNITS
D1			180° Openable hinged double panel door, THE PURPOSE OF THE DOOR IS MAIN ENTRANCE OF THE TOILET, wooden laminate finish 8mm metal frames.	1
D2			SINGLE shutter openable hinged door, wooden laminate finish 8mm metal frames.	6
D3			SINGLE shutter openable hinged door, wooden laminate finish 8mm metal frames.	5



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CLIENT:
**MUMBAI MANGROVES CONSERVATION
UNIT, FOREST DEPARTMENT**

PROJECT:
**DEVELOPMENT OF MANGROVES
ECO-PARK AT DAHISAR**

ENTRANCE STRUCTURES

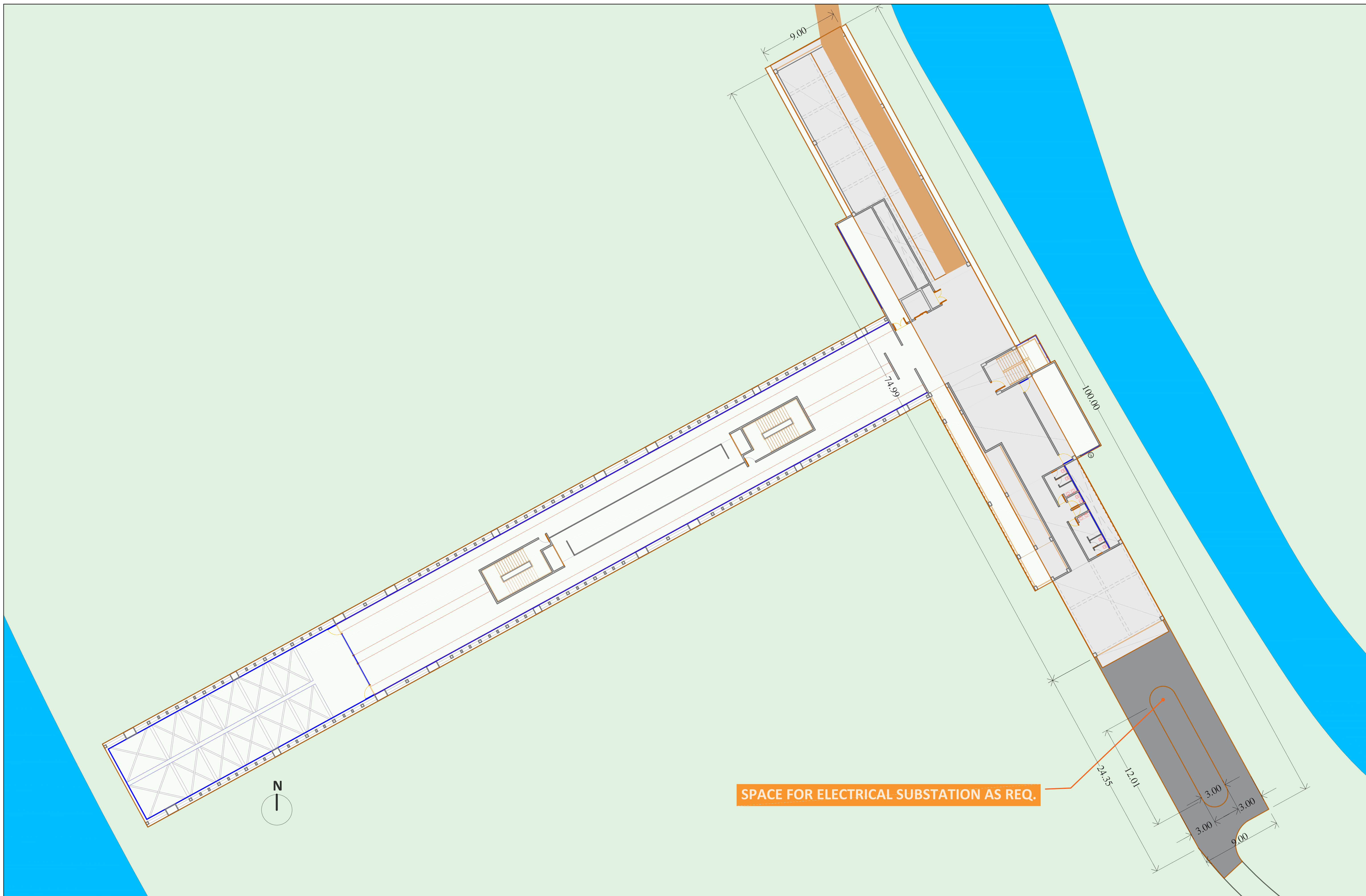
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ONLY FOR ARCHITECTURAL PURPOSE

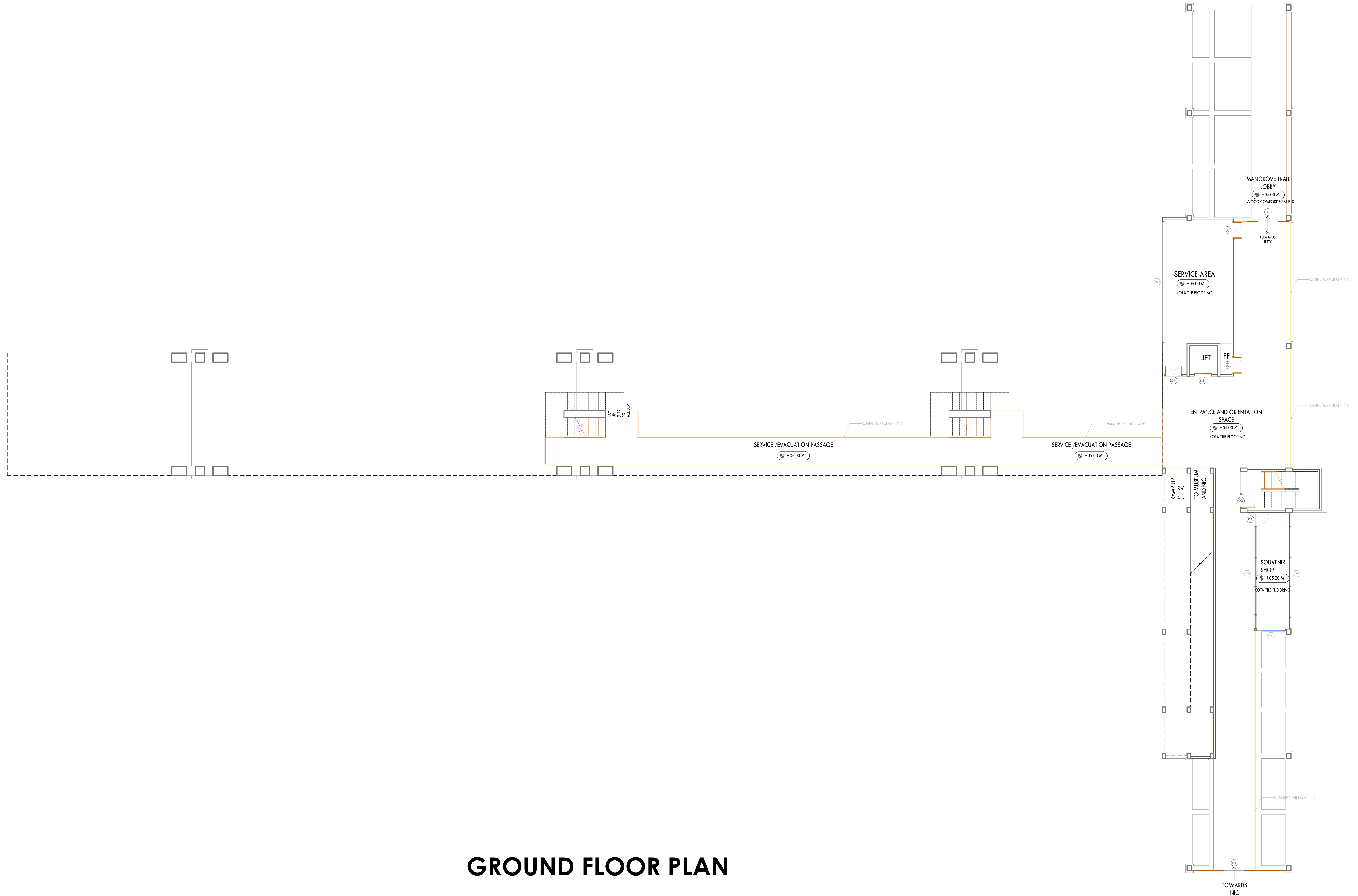
SCALE:

DATE:
10/06/2019

DRAWN BY:
KUSHAN
SHAH

DRAWING NO. :
A-002B-R0





GROUND FLOOR PLAN



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NATURE INTERPRETATION CENTRE

PLANS

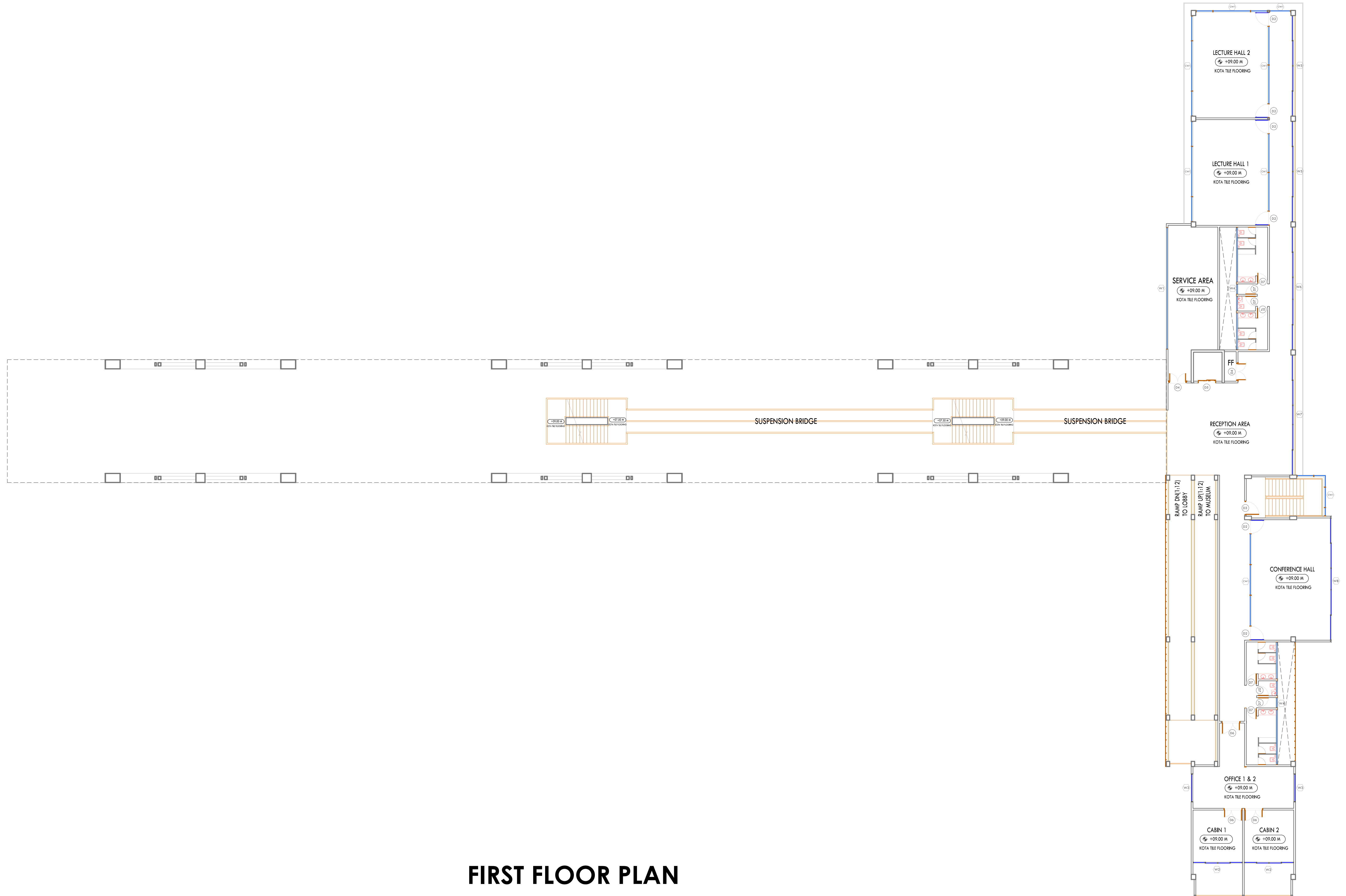
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SCALE:
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DATE:
10/06/2019

DRAWN BY:
KUSHAN
SHAH

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FIRST FLOOR PLAN



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ECO-PARK AT DAHISAR**

NATURE INTERPRETATION CENTRE

PLANS

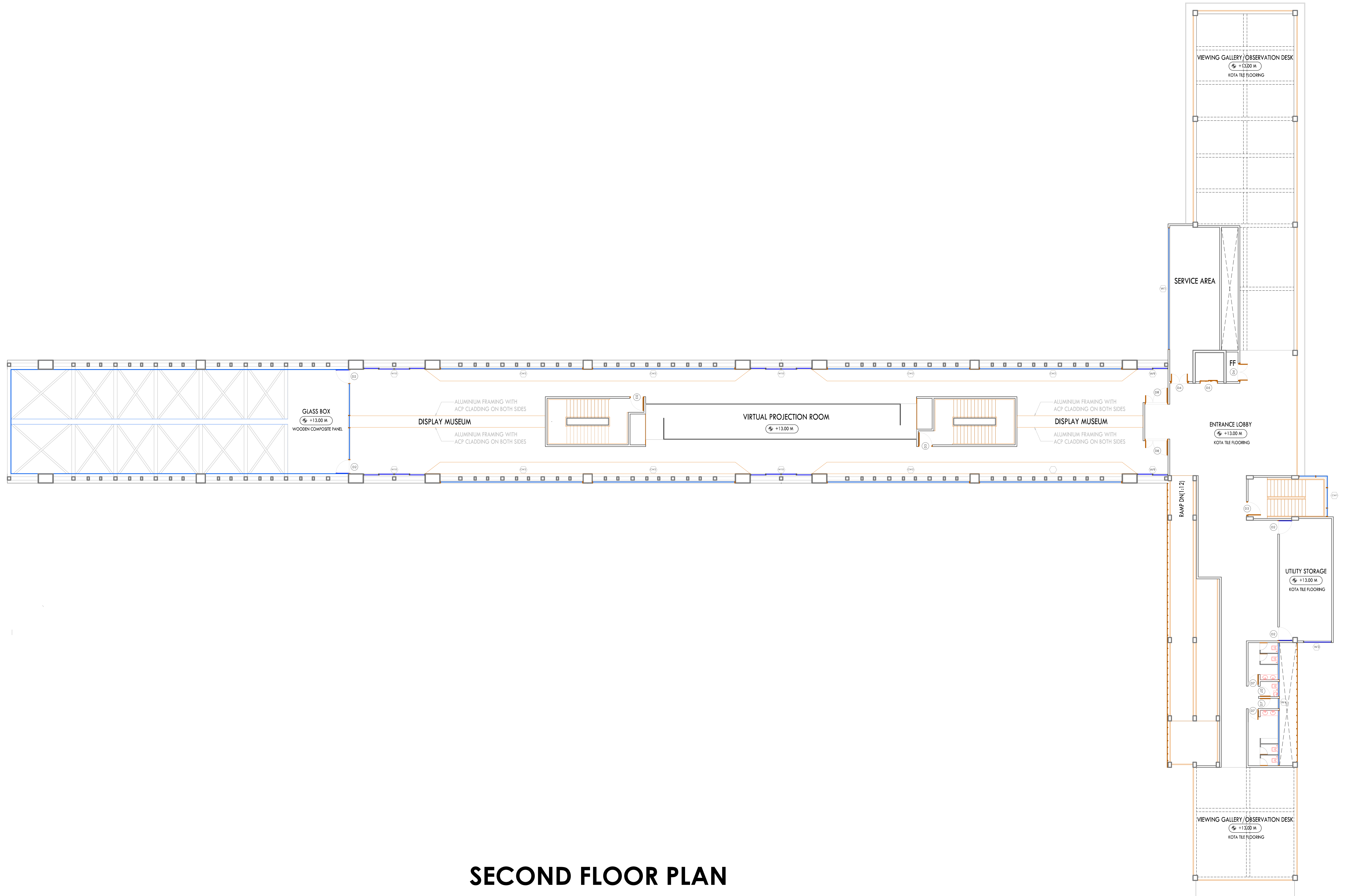
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SCALE:
N

DATE:
10/06/2019

DRAWN BY:
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SHAH

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A-003B-R0



SECOND FLOOR PLAN



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PROJECT:
**DEVELOPMENT OF MANGROVES
ECO-PARK AT DAHISAR**

NATURE INTERPRETATION CENTRE

PLANS

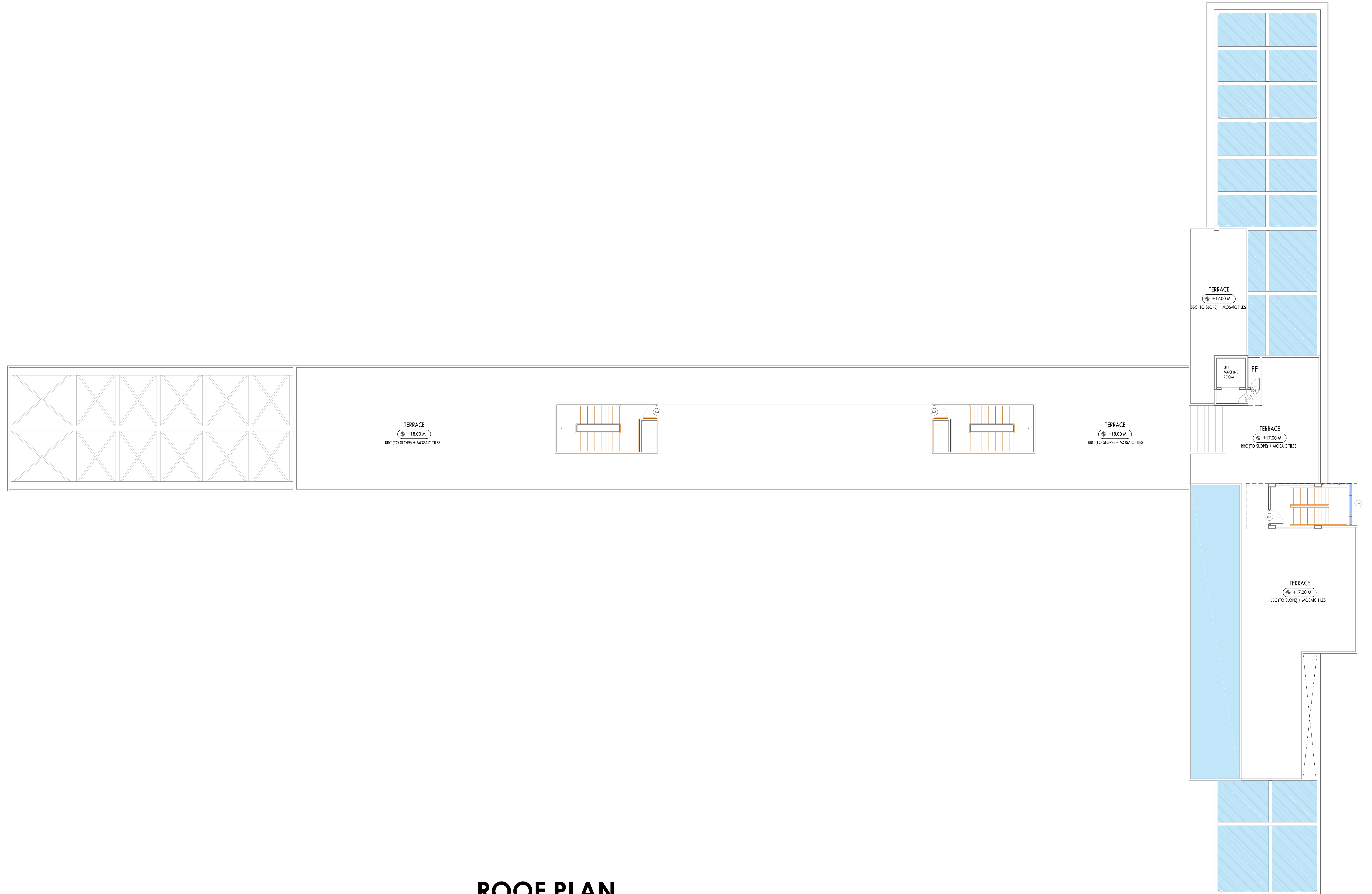
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DATE:
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ROOF PLAN



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PROJECT:
**DEVELOPMENT OF MANGROVES
ECO-PARK AT DAHISAR**

NATURE INTERPRETATION CENTRE

PLANS

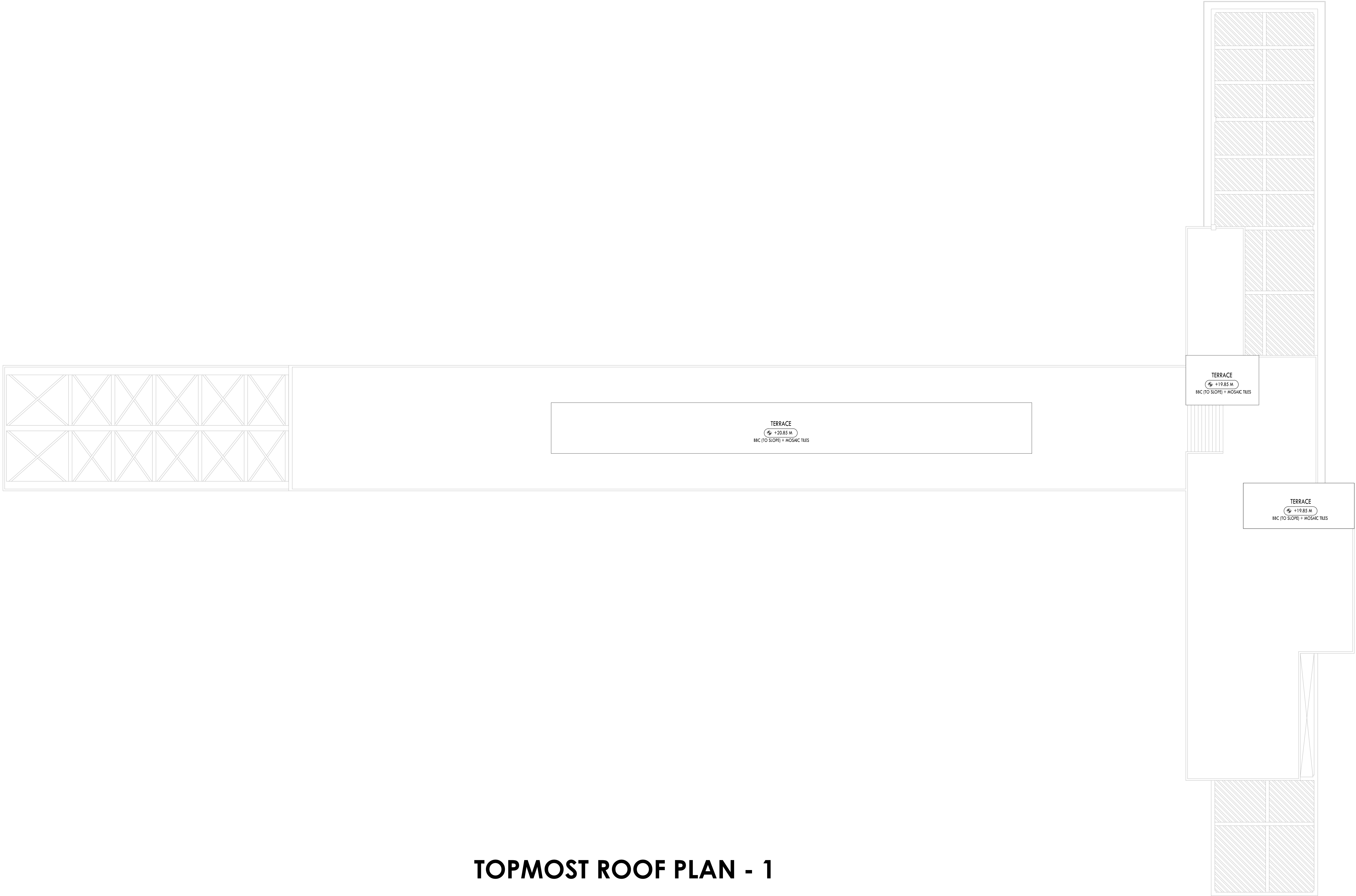
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SHAH

DRAWING NO. :
A-003D-R0



TOPMOST ROOF PLAN - 1



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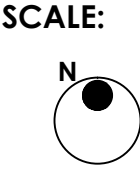


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PROJECT:
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ECO-PARK AT DAHISAR**

NATURE INTERPRETATION CENTRE

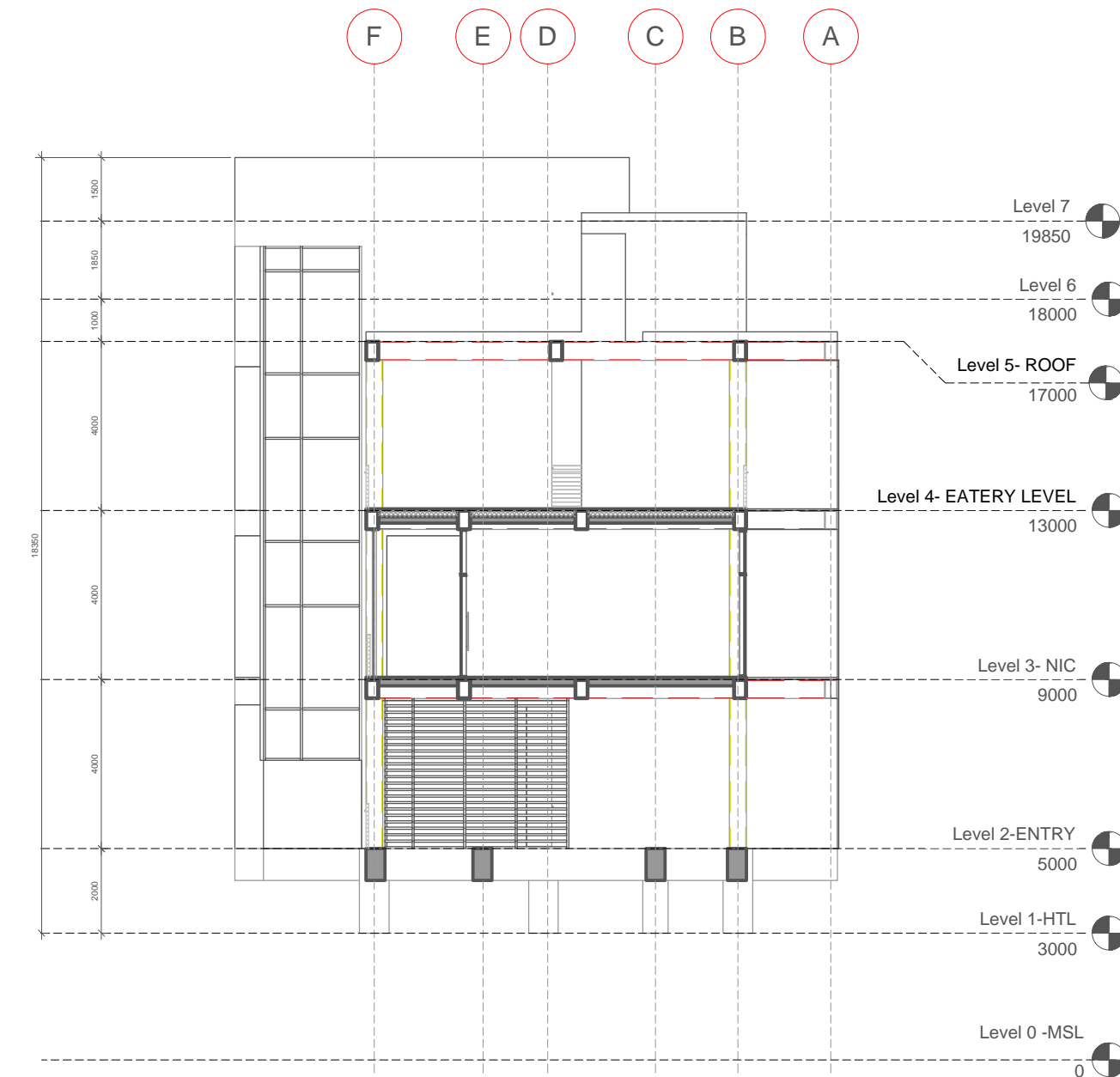
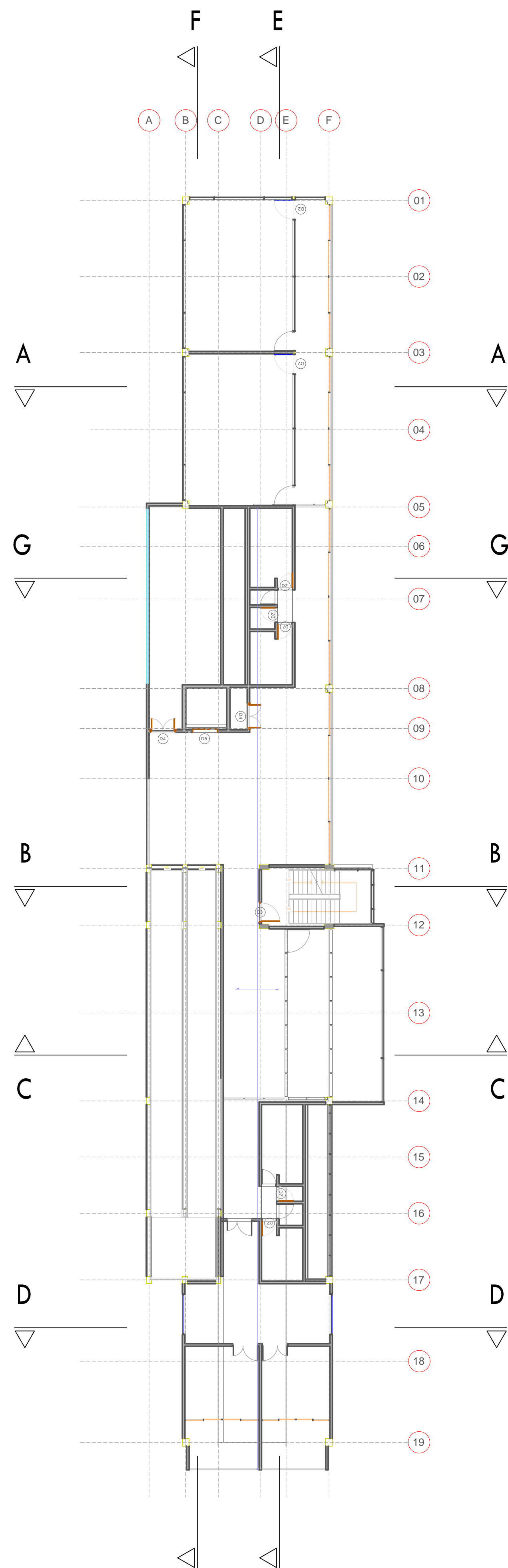
PLANS
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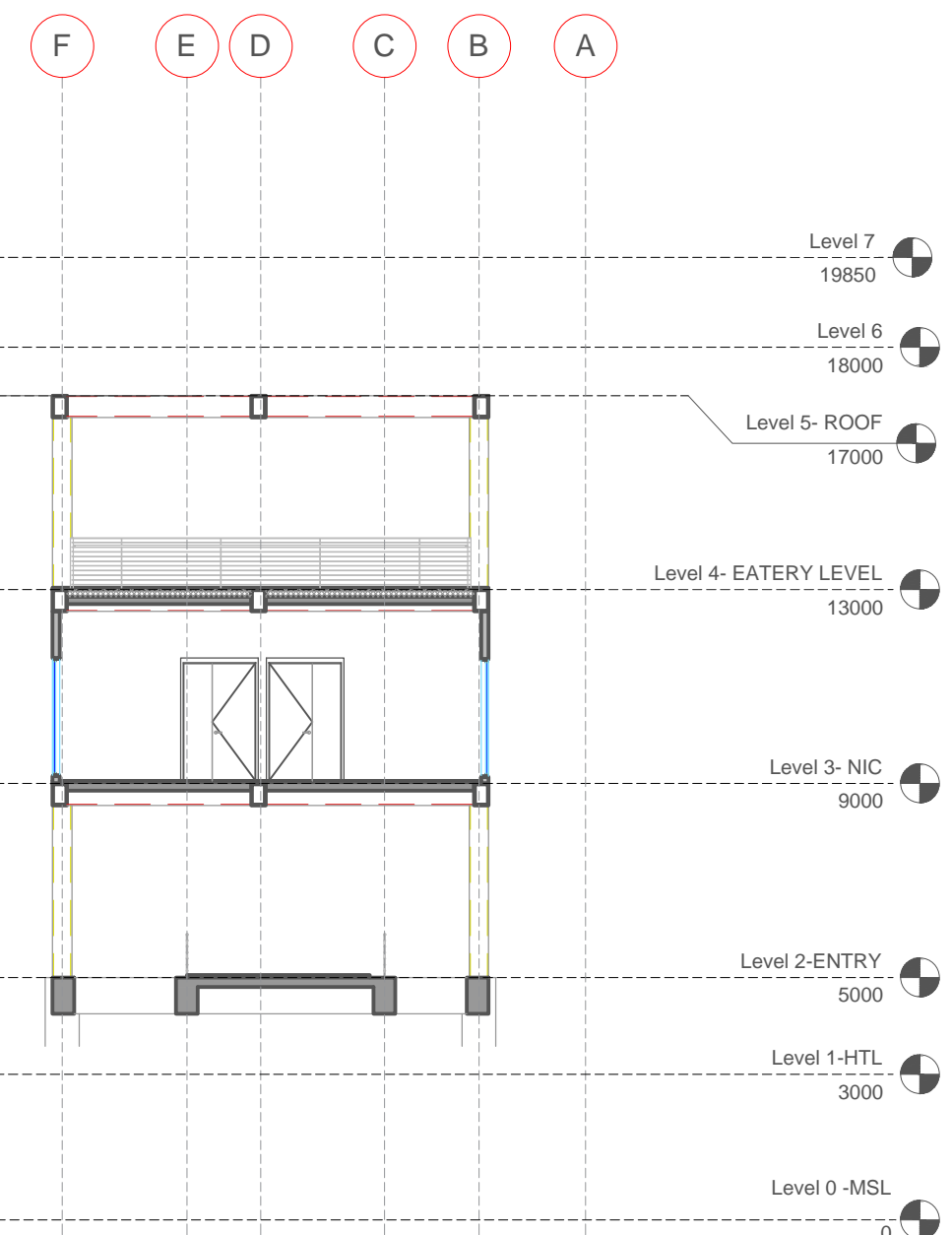
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KUSHAN
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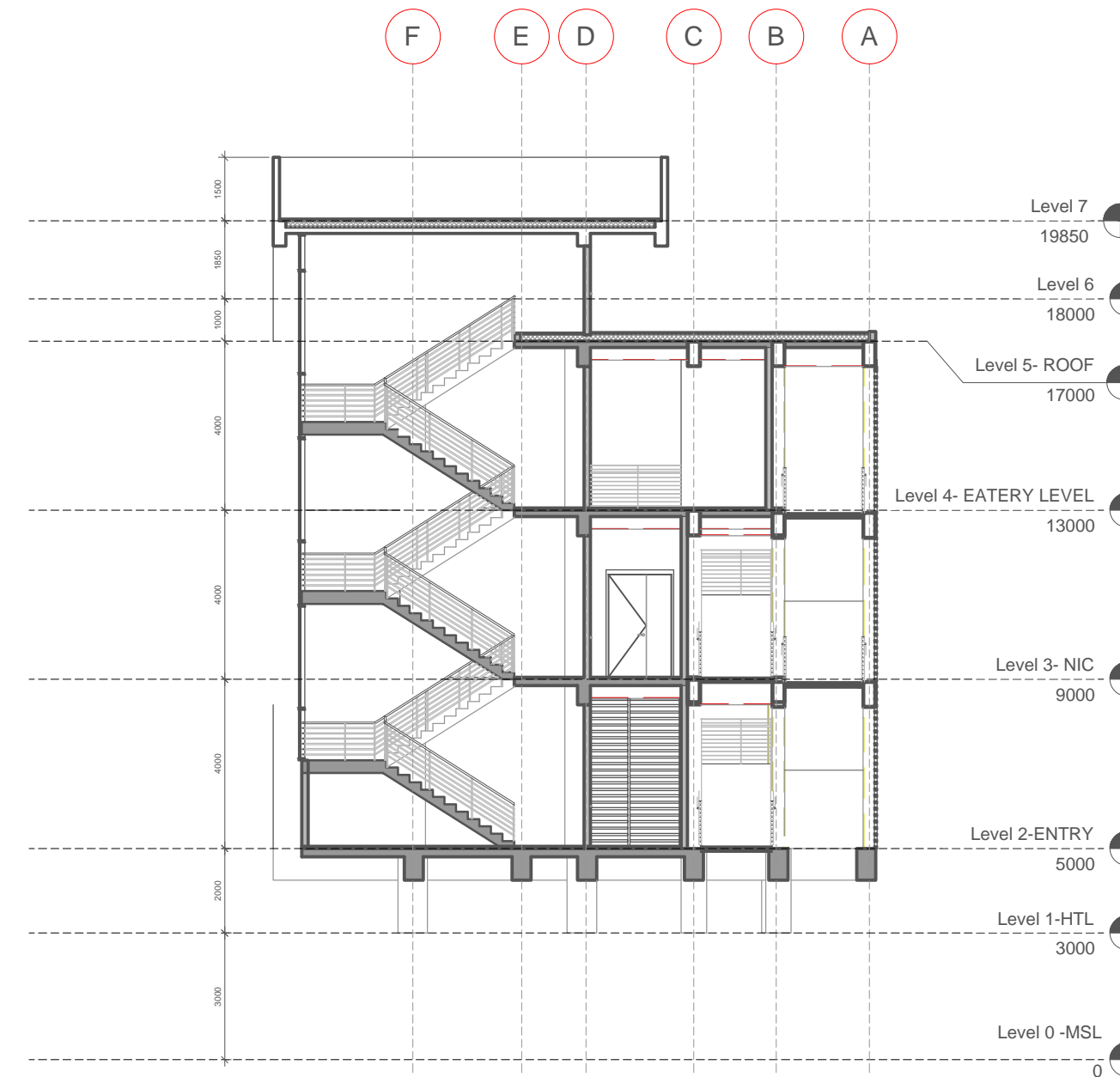
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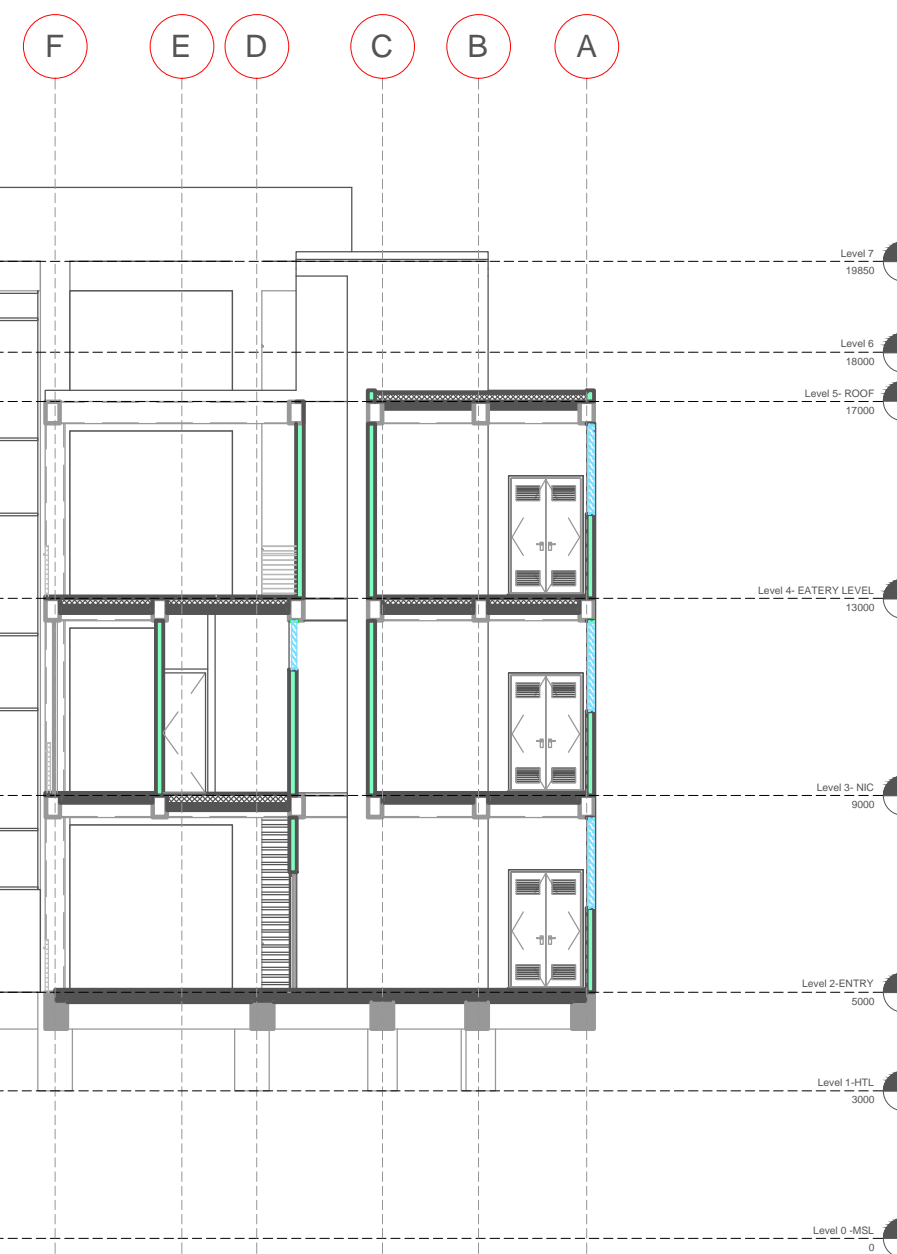
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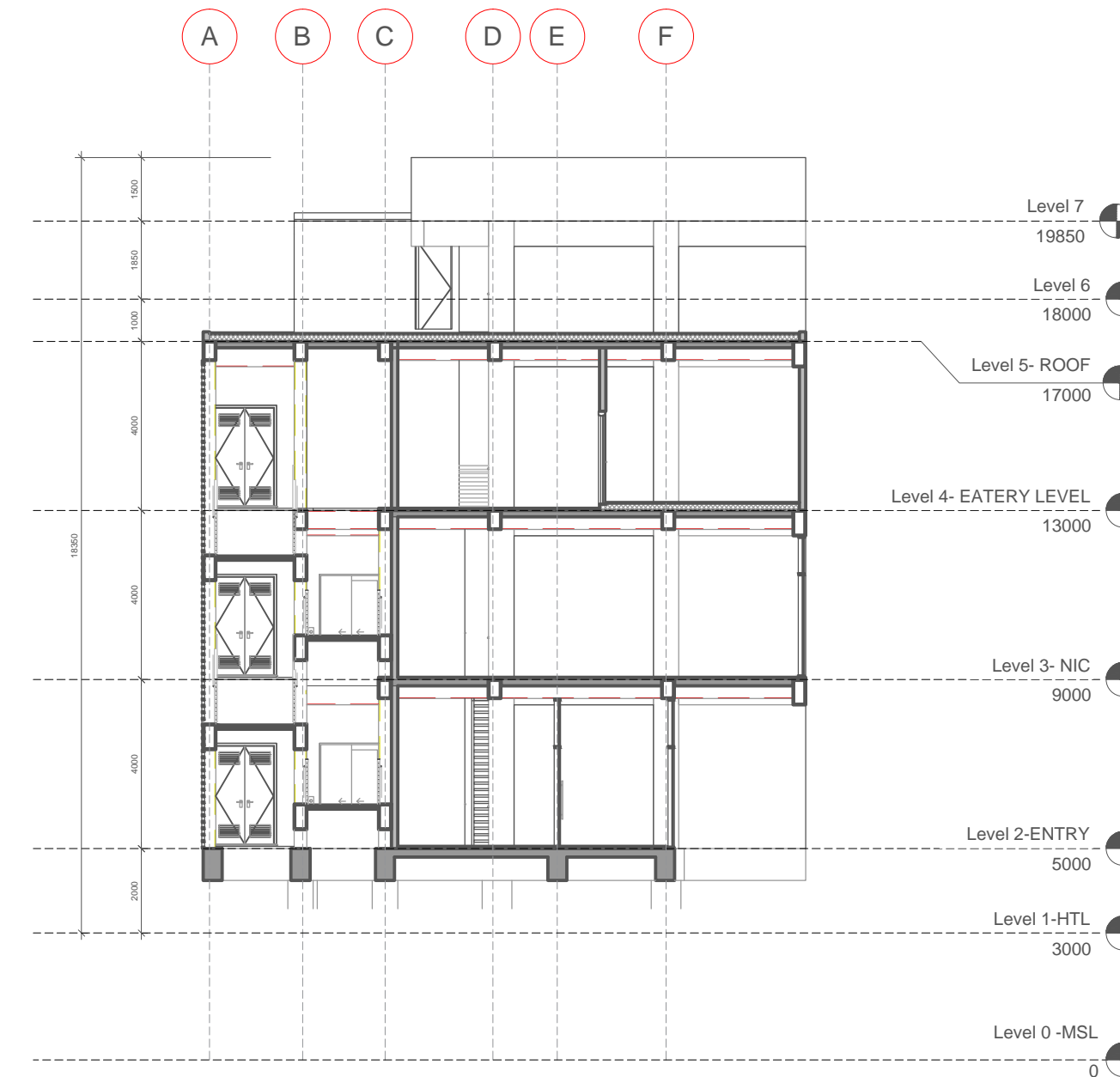
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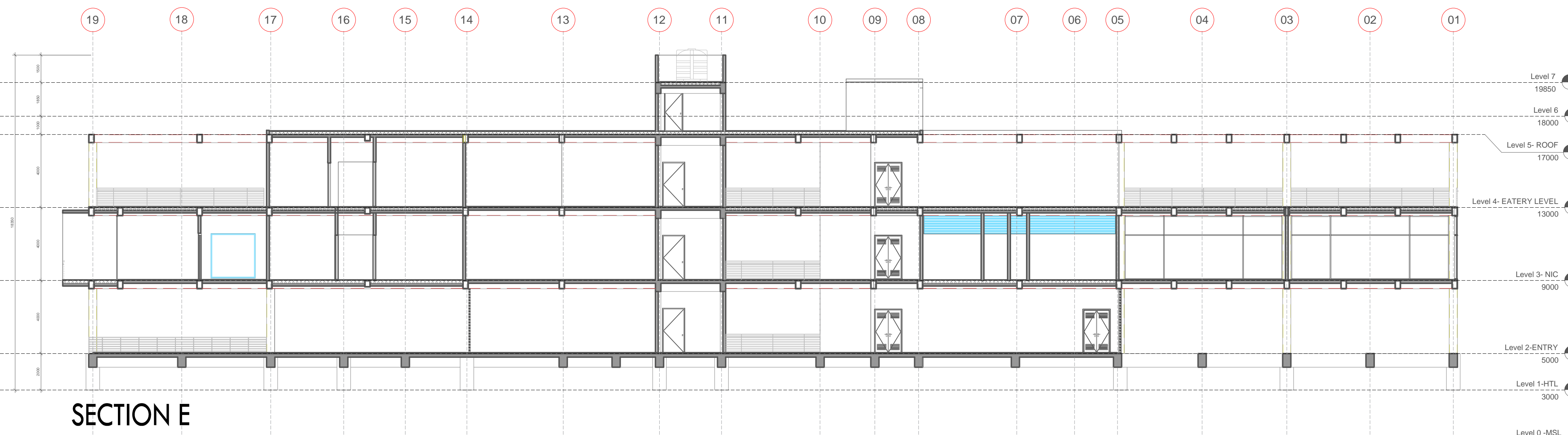
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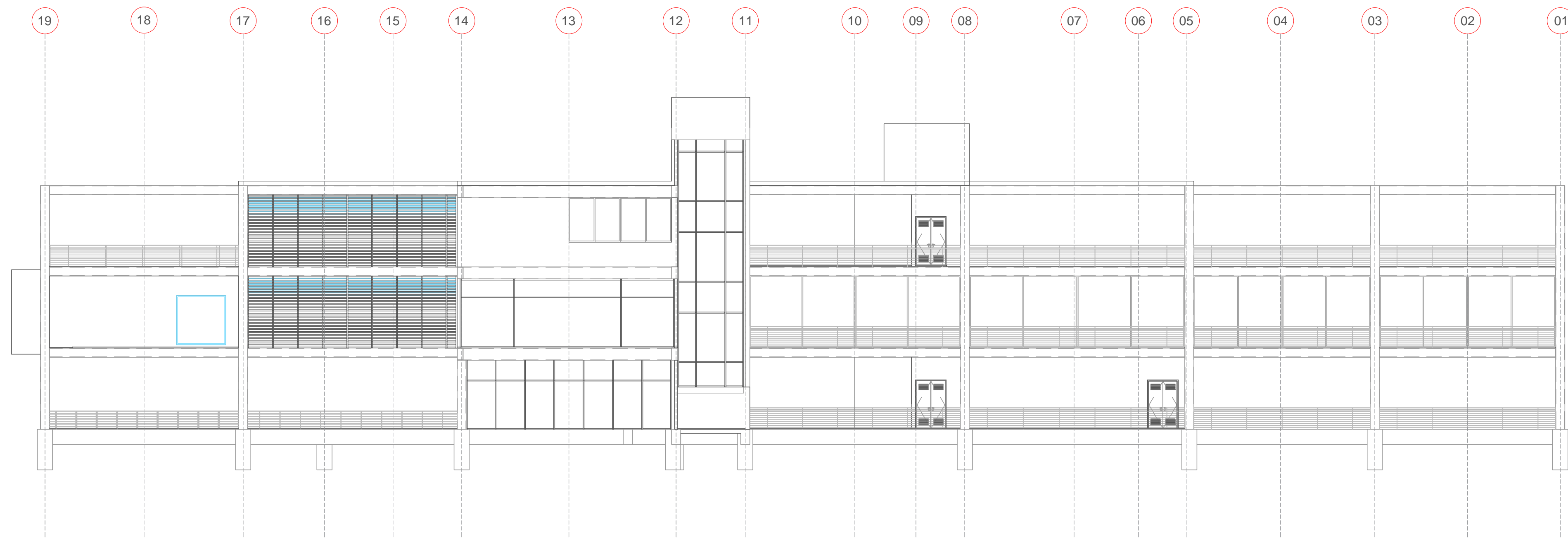
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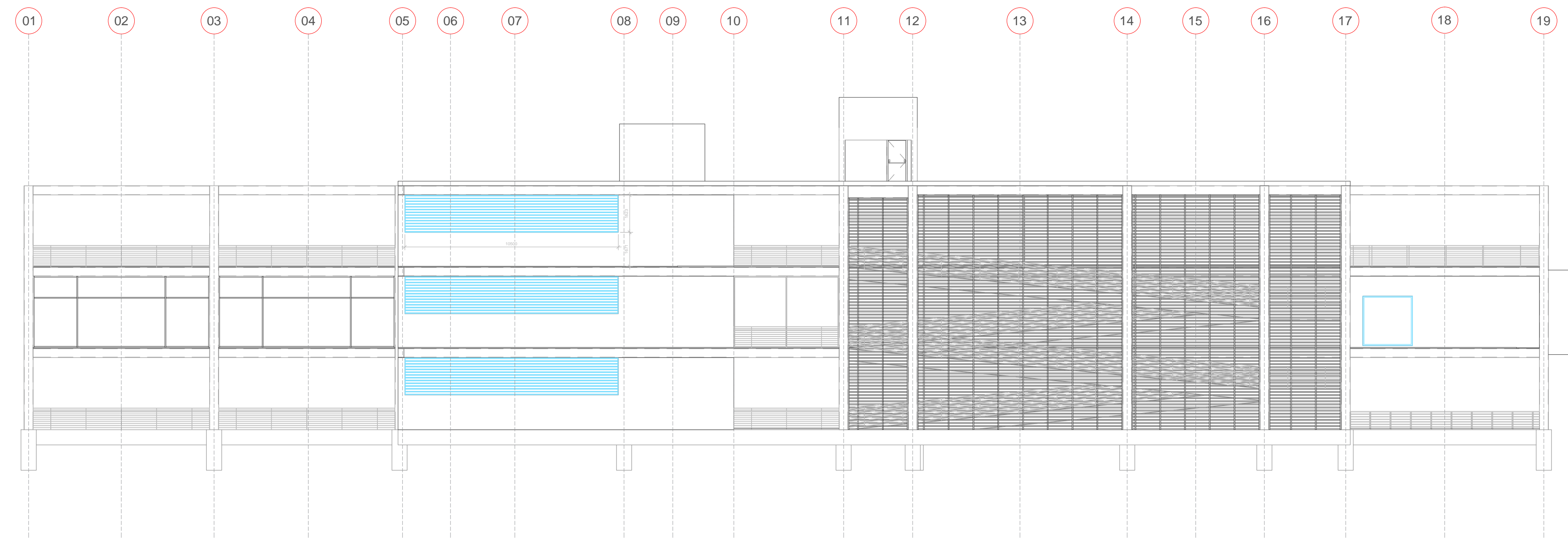
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SECTION E



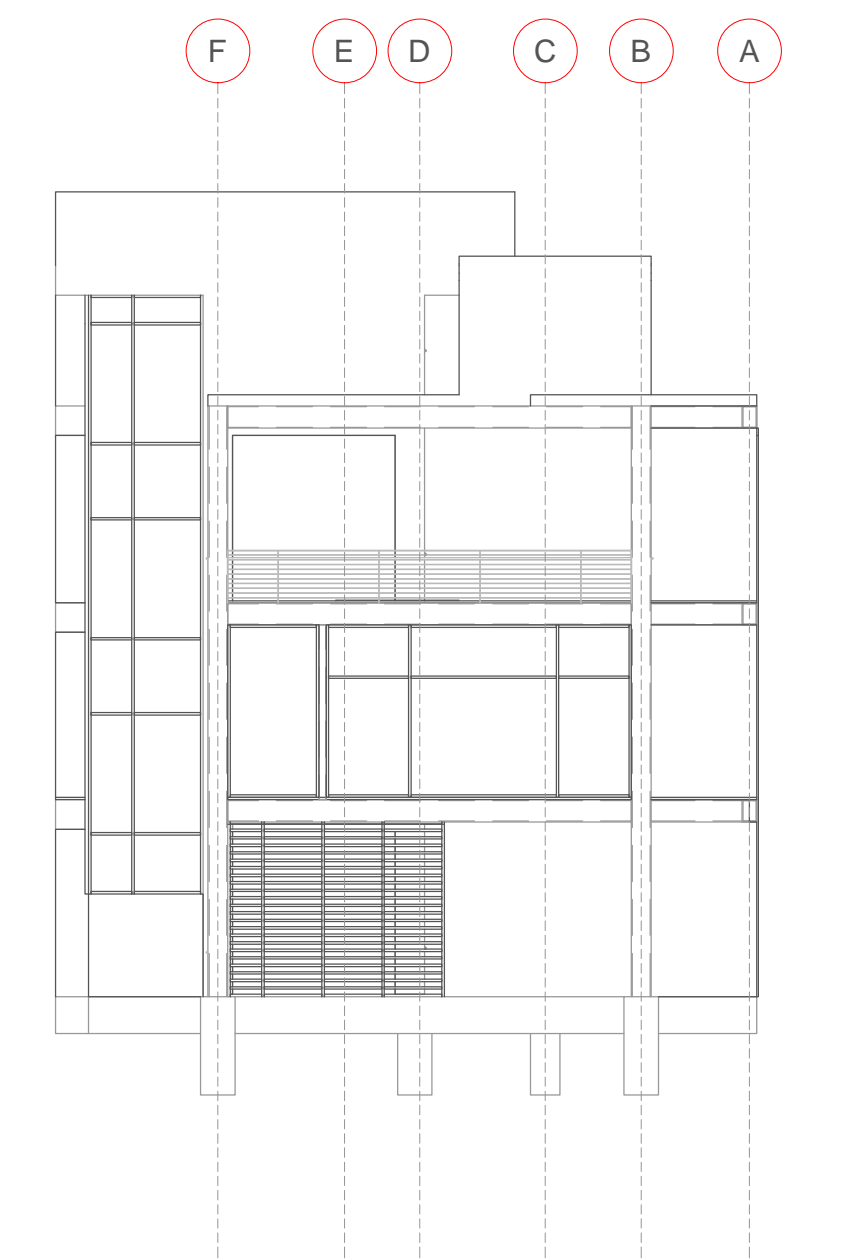
ELEVATION -EAST



ELEVATION -WEST



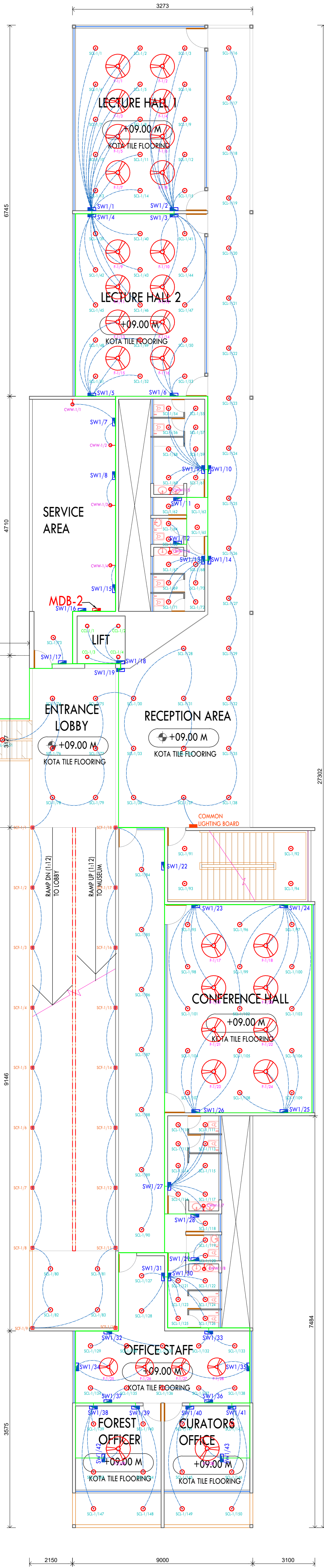
ELEVATION -SOUTH

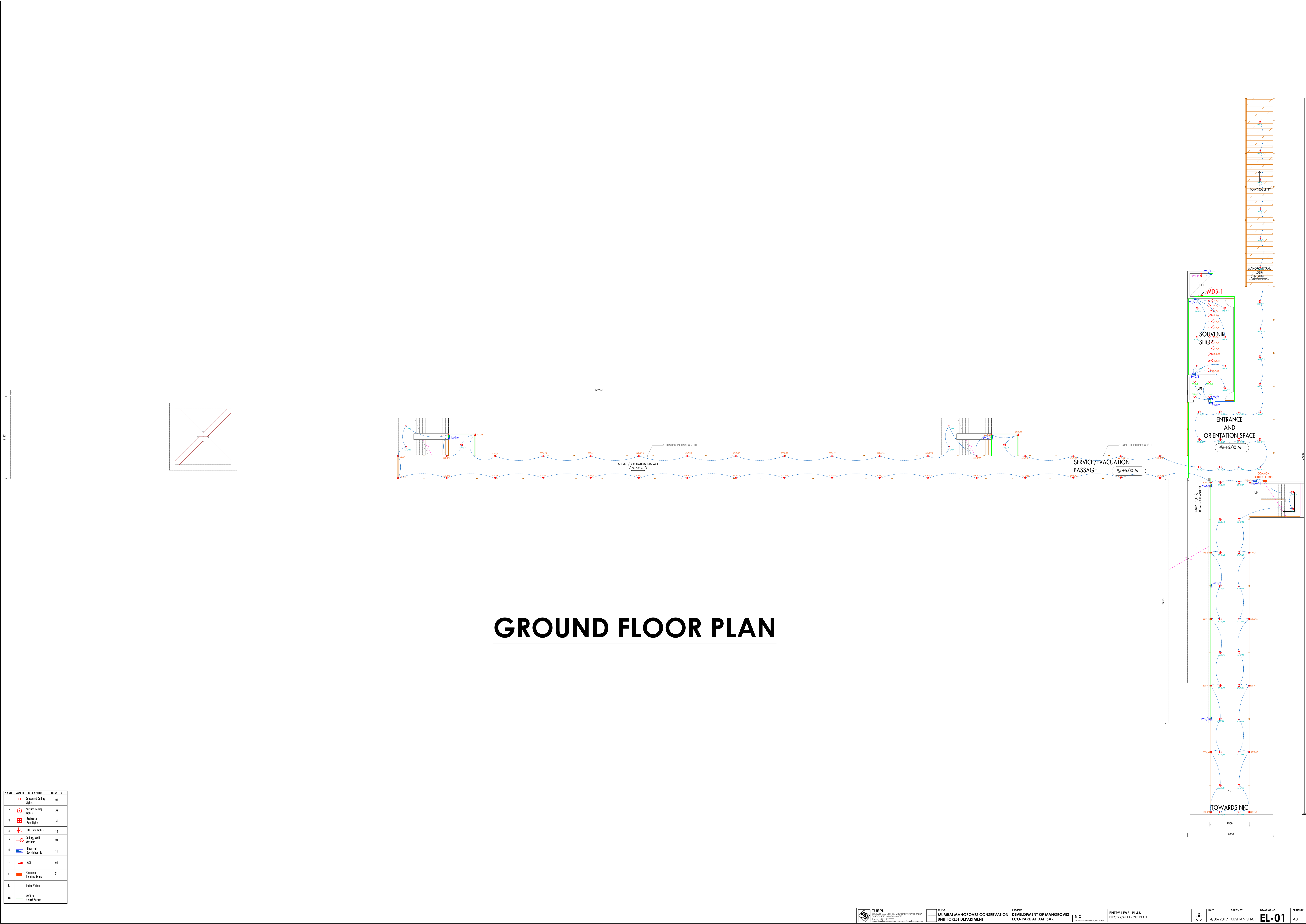


ELEVATION -NORTH

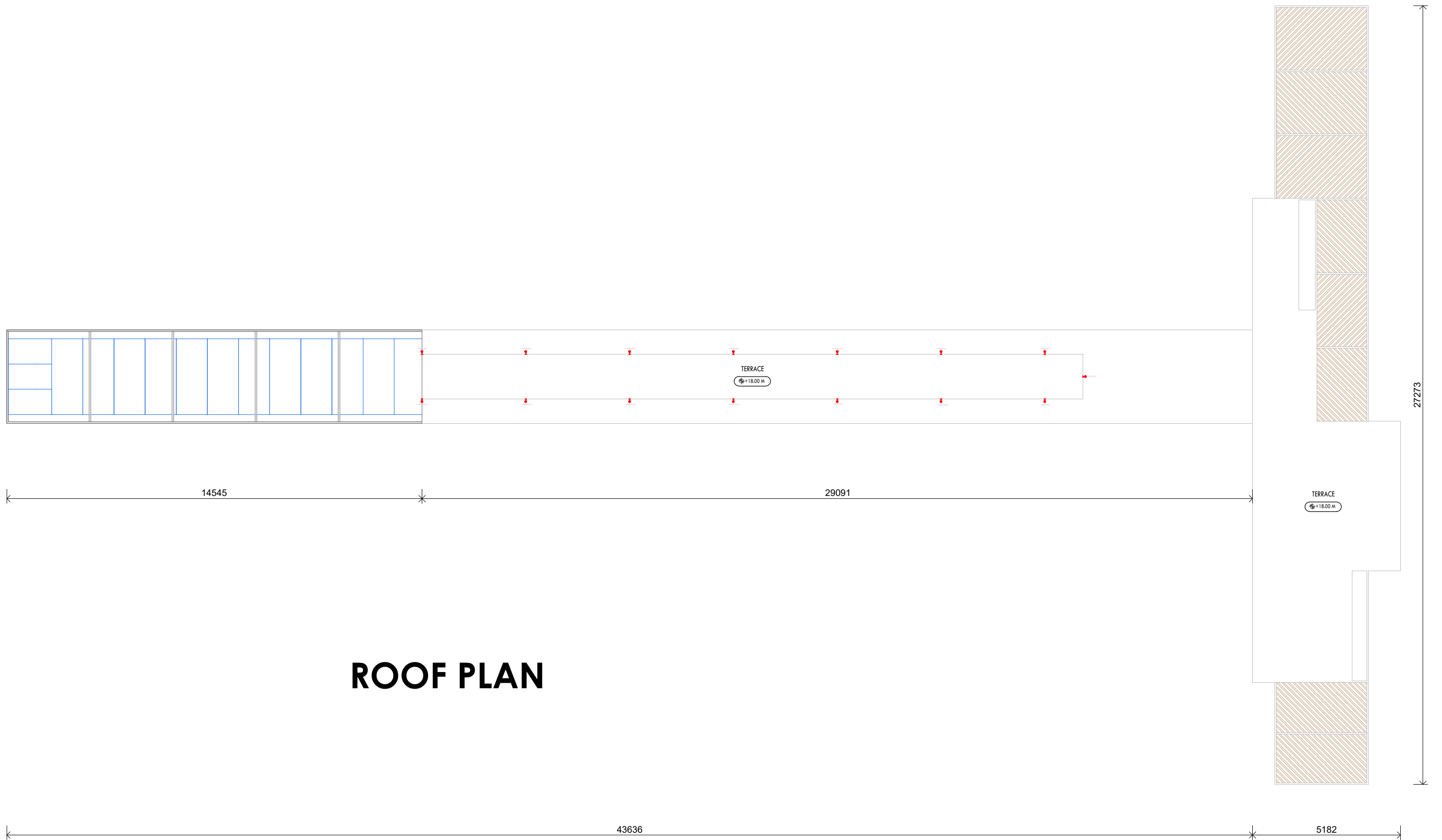
LEGEND			
Sl. No.	Symbol	Description	Quantity
1.	○	Concealed Ceiling Lights	04
2.	○	Surface Ceiling Lights	181
3.	□	Staperson Foot Lights	18
4.	○	Ceiling/Wall Wrenches	08
5.	○	Fans (4")	12
6.	---	Strip Lighting	01
7.	■	Electrical Switch boards	43
8.	■	MDR	01
9.	■	Common Lighting Board	01
10.	---	Power Wiring	
11.	---	MCB to Switch Socket	

FIRST FLOOR PLAN

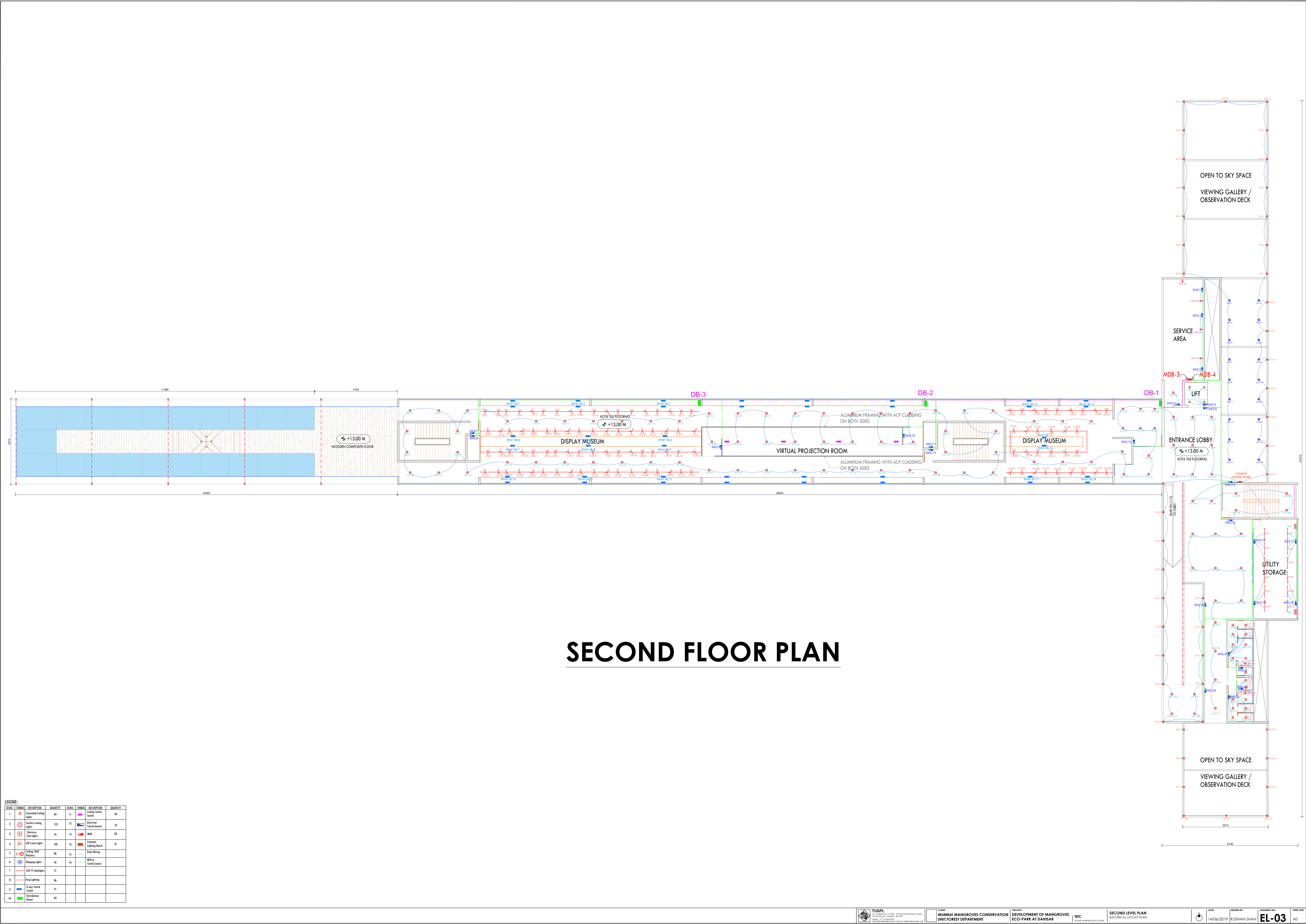




GROUND FLOOR PLAN



ROOF PLAN



SECOND FLOOR PLAN

LEGEND :

SL NO.	SYMBOL	DESCRIPTION	QUANTITY	SL NO.	SYMBOL	DESCRIPTION	QUANTITY
1.		Concealed Ceiling Light	04	11.		Ceiling Switch Socket	04
2.		Surface Ceiling Light	123	12.		Electrical Switch Board	25
3.		Stainless Steel Light	45	13.		MCB	82
4.		LED Track Light	182	14.		Common Lighting Board	81
5.		Ceiling Wall Wires	06	15.		Paint Wiring	
6.		Hanging Light	18	16.		MCB in Switch Socket	
7.		LED 15 Tube Light	12				
8.		Strip Lighting	06				
9.		8 way Switch Socket	41				
10.		Distribution Board	03				

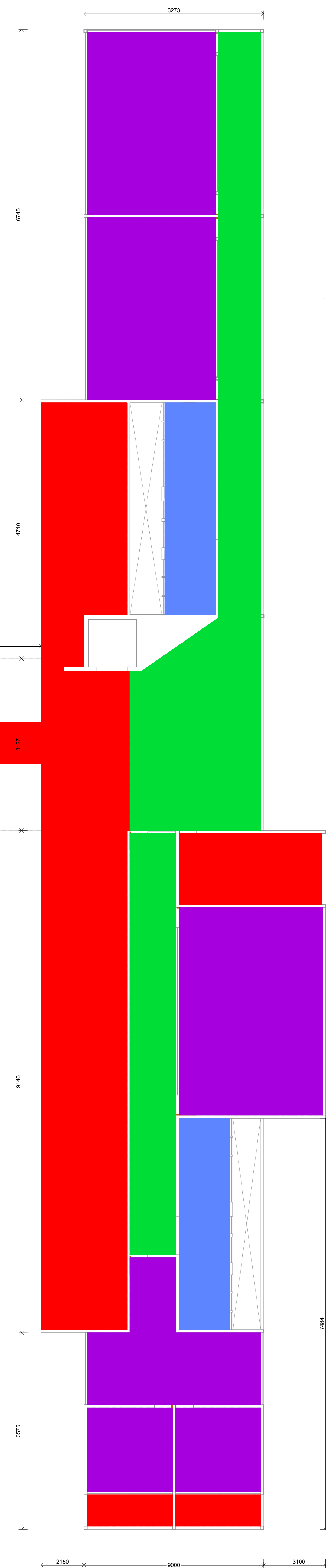
LEGEND

EXHAUST

FAN BLOWER

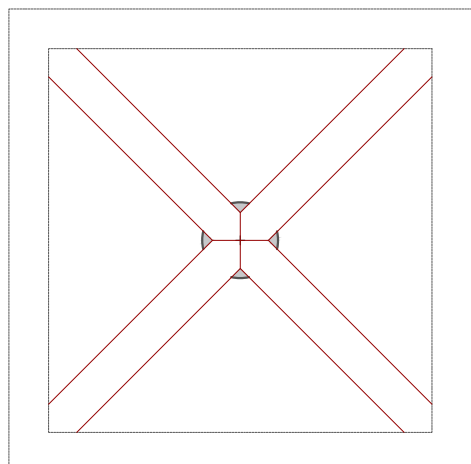
FAN BLOWER

FIRST FLOOR PLAN



LEGEND :

- NATURAL VENTILATION
- EXHAUST
- AIR CONDITION
- FAN BLOWER



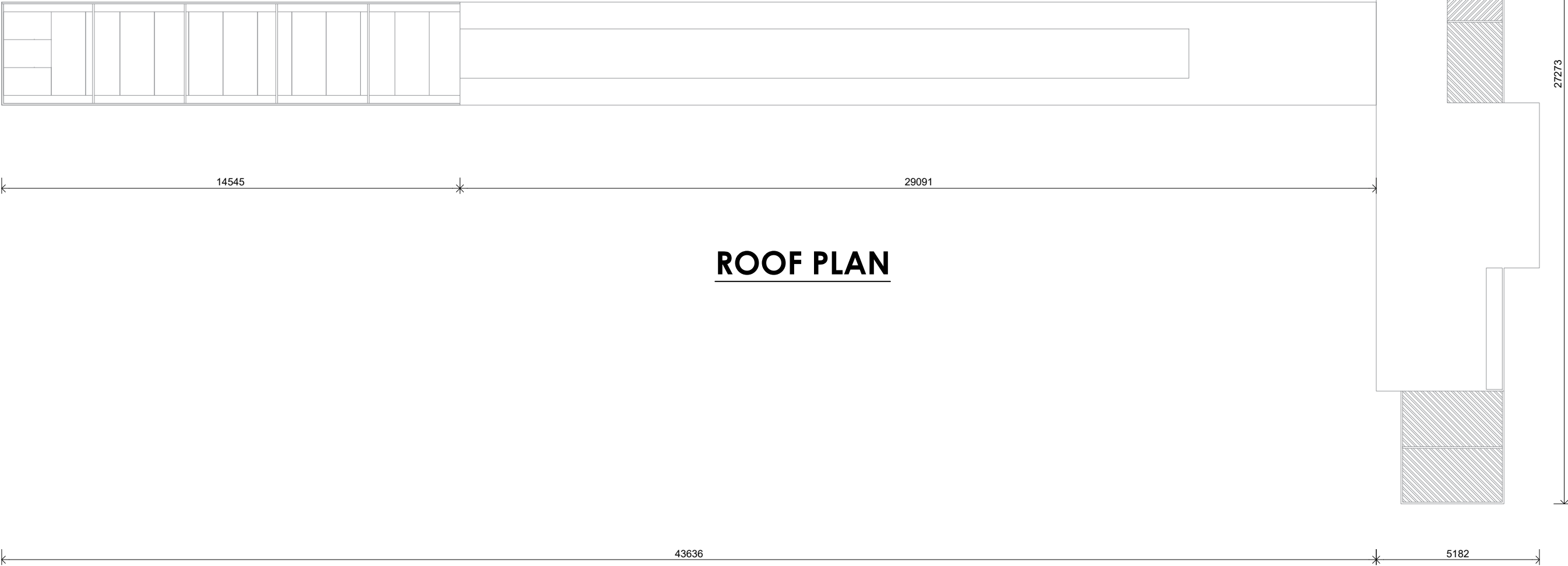
GROUND FLOOR PLAN

1500
9000

LEGEND :



NATURAL VENTILATION
EXHAUST
AIR CONDITION
FAN BLOWER



ROOF PLAN

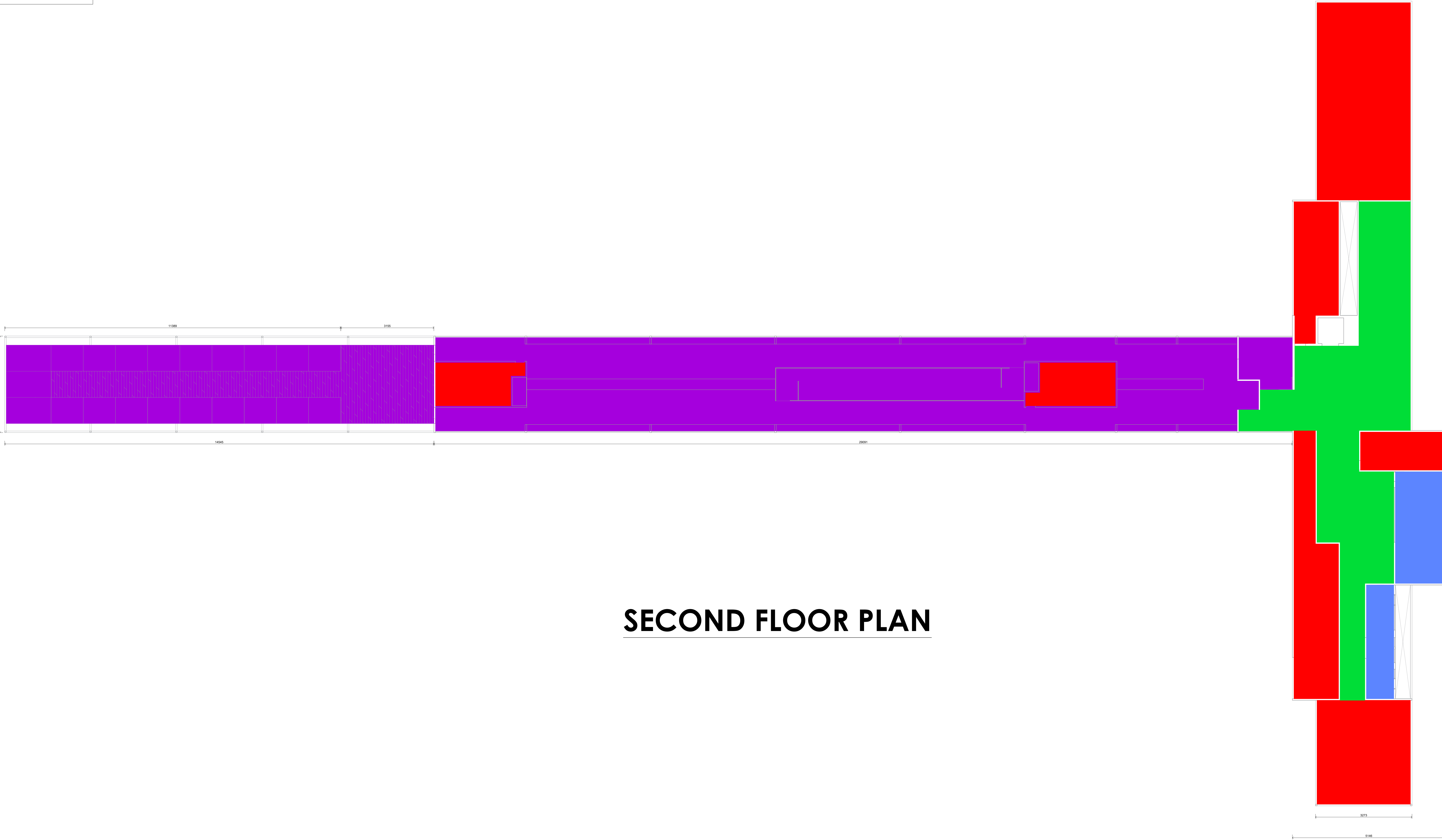
LEGEND :

NATURAL VENTILATION

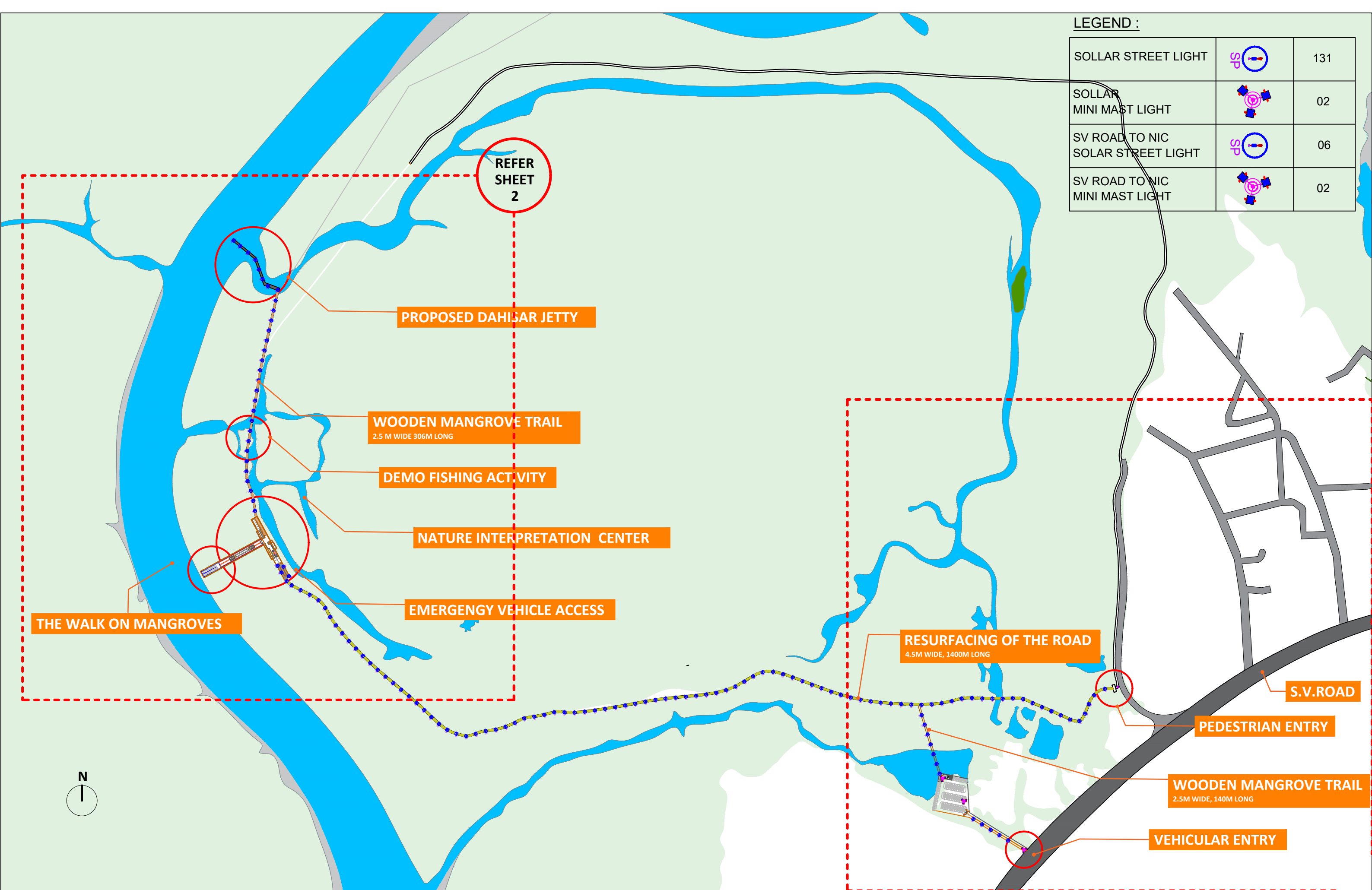
EXHAUST

AIR CONDITION





FAN BLOWER



SECOND FLOOR PLAN



LEGEND :

SOLLAR STREET LIGHT		131
SOLLAR MINI MAST LIGHT		02
SV ROAD TO NIC SOLAR STREET LIGHT		06
SV ROAD TO NIC MINI MAST LIGHT		02