

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

Joint committee Report
OA 191/2024 (PB) AND OA 387/2024 (PB) AND IA 22/2024
MERGED WITH OA 52/2024 (SZ)IN COMPLIANCE TO HON'BLE
NGT ORDERS DATED 05-03-2024

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Mullai Muhilan M.P IAS
Deputy Commissioner &
District Magistrate
Mangalore, Dakshina Kannada

Place: Mangaluru
Date: 20.06.2024

JOINT COMMITTEE REPORT
IN THE MATTER OF OA 191/2024 (PB) AND OA 387/2024 (PB) AND IA
22/2024 MERGED WITH OA 52/2024 (SZ) IN COMPLIANCE TO
HON'BLE NGT ORDERS DATED 05-03-2024

SUBMITTED TO
THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN BENCH. CHENNAI

JUNE 2024

JOINT COMMITTEE REPORT IN THE MATTER OF OA 191/2024 (PB) AND OA 387/2024 (PB) AND IA 22/2024 MERGED WITH OA 52/2024 (SZ) IN COMPLIANCE TO HON'BLE NGT ORDERS DATED 05-03-2024

I. Preamble

National Environment Care Foundation filed a case OA 52/2024 (SZ) on 23-01-2024 in Hon'ble NGT(SZ) against Mangalore Smart City Ltd & Others regarding alleged violations in Water Front Promenade Development on Nethravathi River Bank. In addition, Hon'ble NGT Principal Bench registered Suo moto case OA 191/2024 (SZ) based on News item dated 26-01-2024 titled "Nethravathi Waterfront Promenade project is Hurting Lives of Common People Stakeholders".

In the matter of OA 191/2024 (PB), Hon'ble NGT vide order dated 05-03-2024 constituted a committee comprising of representative of (i) Member Secretary, CPCB (ii) RO, MOEF&CC Mangalore (iii) District Magistrate, Dakshina Kannada Mangalore and (iv) Director, National Centre for Coastal Research (NCCR) to visit the site and ascertain the factual position. In addition, Hon'ble NGT Principal Bench registered Suo-moto case on the basis of the news item titled "Linking Mangaloreans to their rivers" appearing in The Hindu dated 20.10.2023. The news item relates to the development of waterfront around Mangalore, Karnataka. OA 387/2024 was transferred to Southern Bench and directed to hear the matter alongwith OA 52/2024 (SZ). Hon'ble NGT Southern Bench vide order dated 31-05-2024 w.r.t the above said cases directed the committee to submit the report by 24-06-2024.

II. Hon'ble NGT orders

In the matter of O.A. No.191 of 2024, Hon'ble NGT Principal Bench Vide Order dated 05.03.2024, has constituted a Joint Committee comprising of (i) Member Secretary - CPCB, (ii) Regional Office, MoEF&CC, Mangalore, (iii) District Magistrate – Dakshina Kannada Mangalore and (iv) Representative of the Director – National Centre for Coastal Research (NCCR). The District Magistrate – Dakshina Kannada Mangalore was designated as a nodal officer for coordinating the Committee and the Committee was also directed to inspect the site and file a report.

In accordance with the above direction of the Hon'ble NGT, the Joint Committee has been constituted with the following nominated members:

1.	Shri. Mullai Muhilan M.P, District Magistrate, Dakshina Kannada, Mangaluru, Karnataka
2.	Smt. Mahima T, Scientist 'E', Central Pollution Control Board, Regional Directorate, Bengaluru
3.	Dr. R. Sridhar, Scientist 'D',

	Ministry of Environment Forest & Climate Change, Regional Office, Bengaluru
4.	Sh. Satya Kiran Raju, Scientist 'E' National Centre for Coastal Research (NCCR), Chennai

III. Inspection by the Joint Committee:

The committee convened a meeting on 11-06-2024, at 11:00 AM at the DC office in Mangaluru. Following the meeting, the committee inspected the project site along the Netravathi River Bank from the Netravathi railway bridge to Bolara sea face. The committee verified compliance with the CRZ Clearance issued by the Karnataka SCZMA on 07-10-2022. During the meeting and inspection, the committee interacted with representatives from the departments namely 1. Mangaluru Smart City Limited, 2. Regional Director (Environment), Mangalore and 3. Forest Department, Deputy Conservator of Forest, Mangaluru. The committee also interacted with few members of the applicant's organization and other local stake holders present during the inspection.

IV. About the project

According to the Detailed Project Report (DPR) dated August 2022 submitted for project approval, the project activity includes the following components:

1)	Dismantling structure and jungle cleaning (i.e., Clearing of shrubs and grasses)
2)	Promenade
3)	Softscapes
4)	Irrigation
5)	Electrical works
6)	Plumbing works & STP
7)	Pedestrian pathway
8)	Cycle parking-7 no.s
9)	Food Kiosk (3mx 3m)-6 no.s
10)	Kiosk at Jeppu-1no.s
11)	Toilet block-4 no.s
12)	Buggy shed- 1no.s
13)	Facility Management Office-1no.s
14)	Pavilion 3mx9m- 5no.s
15)	Ticket counter-5no.s
16)	Play Equipment & Gym Equipment (I.S)

As per the DPR proposal, the project is being developed along a 2.1 km stretch from Nethravathi Bridge to Bolara Sea Face which consists of non-motorized eco-friendly walk way and cycle path. According to CRZ clearance, the walking track and cycle track must be

realigned from the intertidal area close to the water to the stable river bank (CRZ II area), and all proposed structures such as toilet blocks, food kiosks, buggy sheds, ticket counters, etc., are to be aligned on the landward side of the line corresponding to old structures constructed prior to 1991.

V. Current status of the project as on 11-06-2024.

During the inspection, the project proponent informed the committee that the following activities have been completed so far in around 1.6 km of the proposed 2.1 km stretch. On the day of inspection, no construction activity was taking place. As on 11-06-2024, the project proponent has completed dismantling structures, clearing of shrub and grasses and stone masonry work in segments (not in continuous) along the 1.6 km stretch, out of the total proposed works for the 2.1 km stretch.

	Location along the stretch	Activity	Measurement
1	Nethravathi river Commonwealth tile factory	Size Stone Masonry (SSM) Work near Land side	281m
		SSM work near Riverside	248m + 42m = 290m
		Violation demolished	42m
		Toilet block	1 No
		Pedestrian Shelter	1 No
		laterite pathway	260m
		brick pathway	Length - 40m width 2 to 2.5m
2	Nethravathi river J H Morgan	SSM Work near Land side	155m
		SSM work near Riverside	165m
		Toilet block	1 No
		Office Block	1 No
3	Nethravathi river ICE Factory	SSM work near Riverside	154m
		Viewing block	1 No
4	Nethravathi river Near Boatyard	SSM Work River side	105m
		SSM Work Land side	55.4m
		Toilet Block	1 No

On the day of inspection, the committee observed that no construction activity was taking place. It was noted that the aforementioned works have been executed in patches and not in a continuous stretch.

VI. Observations of the Joint Committee

The committee reviewed the allegations raised by the petitioner. On the basis of site inspection, the committee's observations on the allegations are given below:

Sl. No	Allegations made by the Applicant (as mentioned in OA 191/2024 dated 05/03/2024)	Observation of the Committee
1	Operation of a bulldozer within the ecologically sensitive riverbanks of Netravathi, specifically coordinates (12.842127, 74.851319), an area known for the presence of mangroves and trees	<p>Current Status: On the day of inspection, no construction activities were taking place, and no construction debris were found dumped in the project area. The excavated earth and construction debris have been utilized for backfilling to raise the height above the high flood level (HFL) by approximately 600mm to 750mm, as stated by the project proponent. (Fig. 1)</p> <p>Observation: In November 2023, the applicant submitted a representation to the Regional Director (Environment), Mangalore. Following communications from the RDE, the project proponent cleared all debris dumped in the river and utilized it for backfilling.</p> <p>Further, the committee observed that JCB was used for excavation and bulldozer for levelling the land in the initial stages of the project on the landward side near the railway bridge. During the visit, the committee also observed that at certain points along the project stretch, debris from pre-existing tile industries and broken tiles have been dumped over the years.</p>
2.	The alleged planning of removal of trees and dumping of soil in the intertidal zone by MSCL, to create a 9-meter-wide space for cycle track and walk path.	<p>Out of the total stretch of 2.1 km, currently, a 1.6 km stretch has been completed in patches. It was noted that the Forest Department, based on the representation received by the applicant, counted the number of trees in the project area on 01-01-2024 and found a total of 133 trees. The report of Forest Department dated 22-01-2024 is given in Annexure-I.</p>

		<p>It was observed that the height of the pre-existing stone masonry revetment has been raised above HFL (Fig. 1) to reduce risk on inundation and land filling has been carried out on the land ward side of the revetment wall except at one location and the project proponent has initiated dismantling of the same.</p>
3.	<p>Alleged violation of Coastal Regulation Zone (CRZ) involving unauthorized dumping of some construction site debris into the Netravathi river at Mulihithulu to acquire 9 meters of land for the project</p>	<p>The project proponent constructed a bird-watching area spanning 42 meters abetting the railway bridge by dumping material into CRZ IB area, which is contrary to the approved CRZ clearance. During inspection it was observed that the project proponent has initiated dismantling of this unauthorized construction (Fig. 3).</p> <p>It was noted that stone masonry revetment has been built over the existing masonry revetment, necessitated by the increased height due to land filling on the landward side of the wall.</p>
4.	<p>Pre 2022 Google Maps imagery before the commencement of the project and subsequent to its execution, it has been observed that approximately 30 and more mangroves and significant trees are no longer present in the area.</p>	<p>The project is falling under CRZ-II area and there were only few sporadic mangroves in few patches near to project area. Though a few mangrove plants (sporadic in nature) are noted in some locations, there are no large patches of mangroves meeting the CRZ requirement (Fig. 5). It is evident from the approved CZMP map wherein no such large mangrove patches (including 1000 square meters or more), were recorded. No significant damage was noted w.r.t mangroves during physical observation.</p> <p>Copy of the approved CZMP is given in the Annexure - II.</p> <p>Further, on comparison with historical satellite images before & after execution of project, committee observed that there is loss in vegetation. As part of project proposal, removal of bushes/grasses is included by project proponent (Fig. 4).</p>

		The project proponent has carried out Environment Impact Assessment study before commencement of project through M/s Aditya Environmental Services Pvt Ltd (NABET accredited EIA consultant). Local level CRZ map for the project is prepared by Institute of Remote Sensing, Anna University before start of project. In both reports it is mentioned that no mangroves are present in the vicinity of the project site.
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VII. Compliance status of the conditions of CRZ clearance dated 07-10-2022

The committee reviewed the compliance status of the conditions imposed by the Karnataka SCZMA in its CRZ clearance on 07-10-2022. On the basis of site inspection, the compliance status of the conditions is given below:

Sl. No.	Conditions given in the CRZ clearance	Compliance status as observed by the committee
1)	No permanent / concrete structure should be constructed.	As per EIA report submitted for the project approval, the project proponent had proposed for restoration of old stone masonry along the river to raise up to HFL to protect the area from floods. It was observed that the project proponent has increased the height of the existing old dry boulder revetment wall by 600mm above HFL as per their EIA report. (Photos of revetment wall attached separately). The committee is of the view that increasing height of existing old retaining wall along the river bank is intended to prevent erosion, stabilize the bank, and protect the adjacent areas from inundation.
2)	No sewage should be let into nearby water body.	Currently, the project is under construction, and toilet blocks have not yet been constructed. Therefore, no sewage is being generated at this stage
3)	No dumping of solid wastes into water bodies and shall dispose of waste in scientific manner.	On the day of inspection, it was noted that no solid waste had been dumped into water bodies. Additionally, an existing open stormwater drain

		at one location had been converted into a fully enclosed drain using concrete.
4)	The work should be taken up as per the provisions of CRZ notification 2011.	The committee observed that the project proponent has erected temporary sheds with steel structures on concrete footings to enhance the river view (Fig. 2). These structures are situated on the landward side of the existing buildings. Apart from minimal concrete footings intended for supporting temporary structures, no additional concrete usage was observed. However, at the location where a view gallery being constructed, it was found concrete footing is on the other side of pre-existing building line.

VIII. Concern raised by the local stakeholders

Local stakeholders present during the inspection expressed concern about the livelihoods of individuals involved in shipbuilding activities at three shipyards located adjoining the project area. It was noted that each shipyard employs approximately 50-60 people. As of now, no construction activity has commenced in these locations.

IX. Photos taken during the site visit and satellite images used for analysis are attached. Attached the Annexure-I (The report of Forest Department dated 22-01-2024) and II (Copy of the approved CZMP) along with the report.

The above observations of the Joint Committee are submitted for the kind perusal of the Hon'ble NGT.

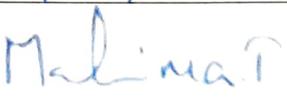
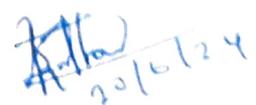
Shri. Mullai Muhilan M.P, District Magistrate, Dakshina Kannada, Mangaluru	
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Fig. 1. Photos taken during the site visit

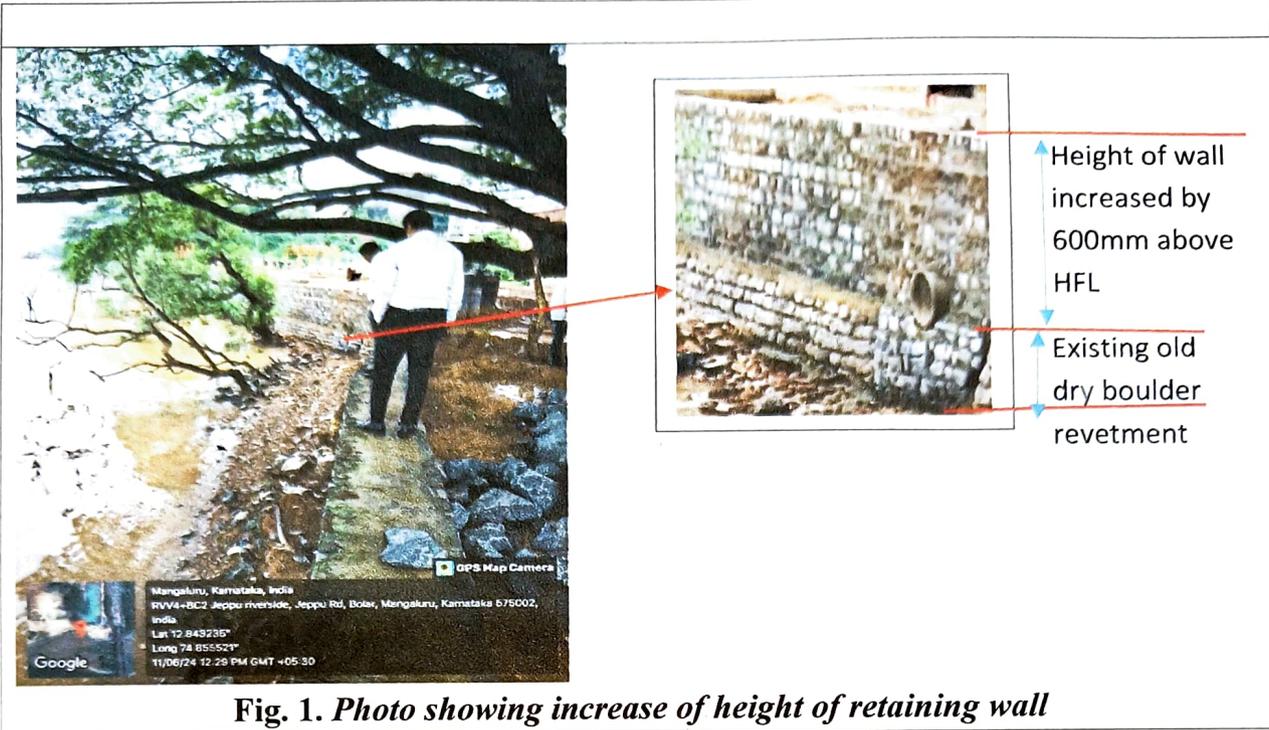


Fig. 1. Photo showing increase of height of retaining wall

Fig. 2. Photos taken during the site inspection



Temporary shed on concrete footing to facilitate river view



Construction of concrete footing

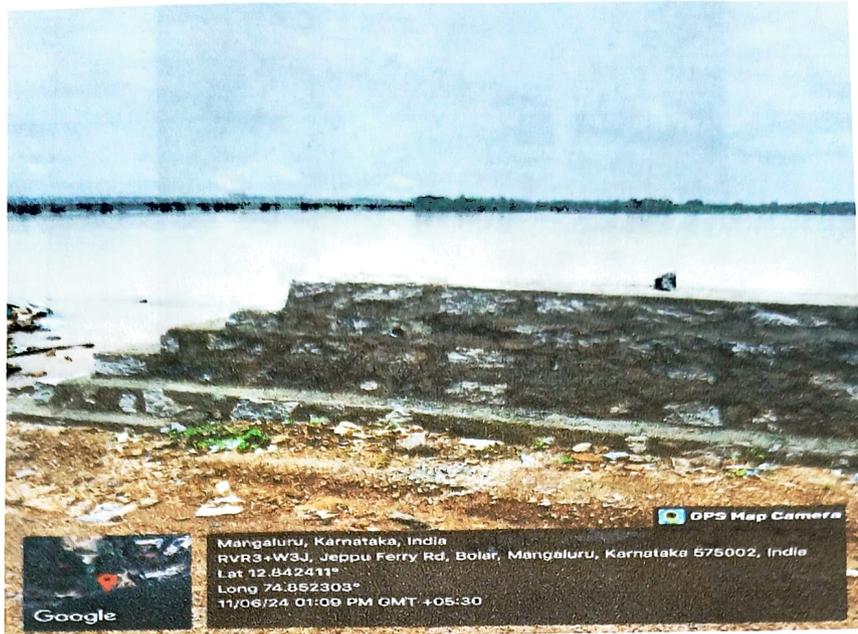


Fig. 3. Photo showing the removal of unauthorized Construction

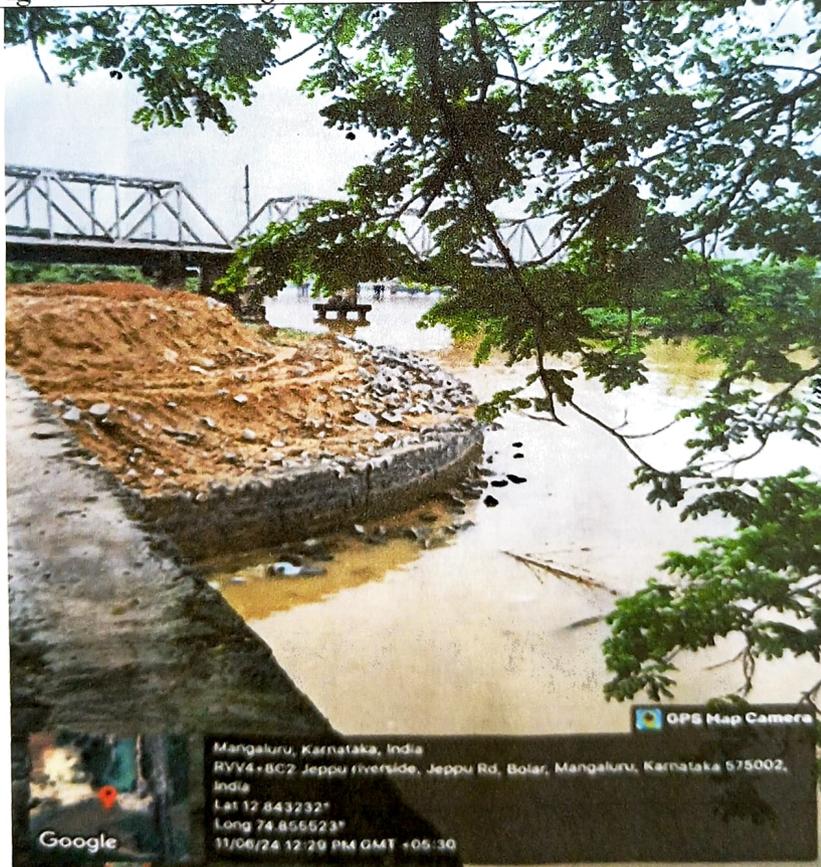


Fig. 3. Photo showing the removal of unauthorized Construction near railway bridge

Fig. 4. Comparison of satellite imageries -project site



Satellite image of 3/2022 (before start of project)

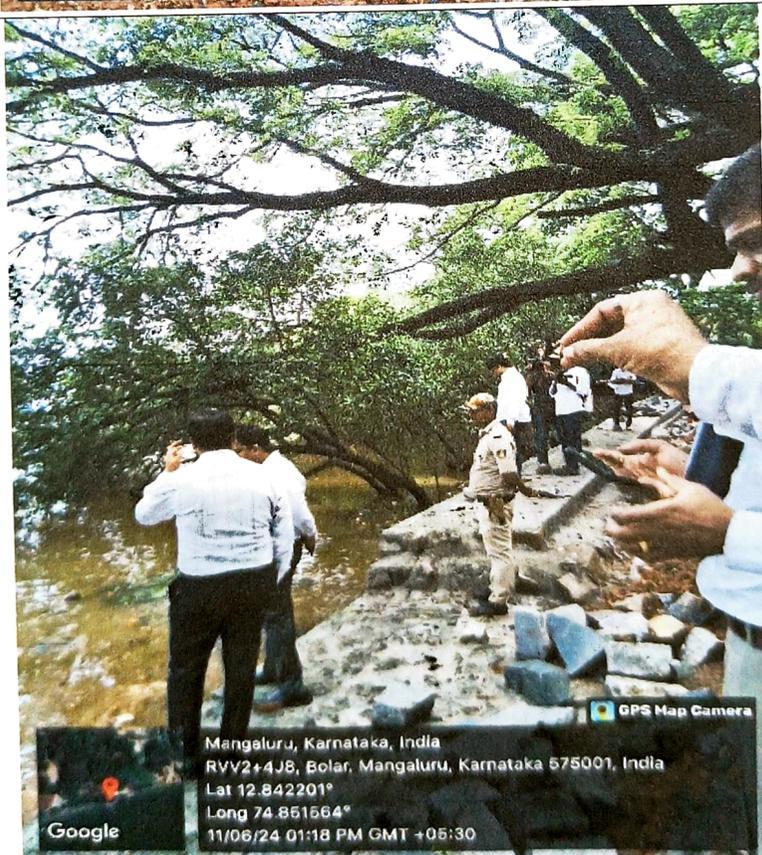
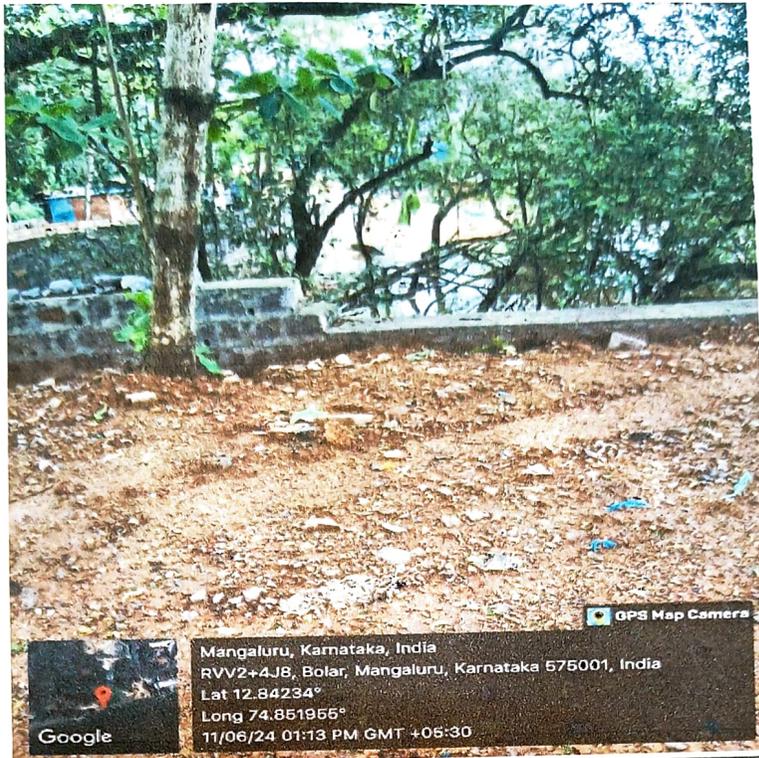


Satellite image 11/2023 (prior to execution of project)



Satellite image of 2/2024 post execution of project

Fig. 5. Few mangrove plants on the project site



Annexure – 1
&
Annexure – 2

Annexure-I

ಸಂಖ್ಯೆ:ಜಿಎಲ್:2302/2023-24.

ವಲಯ ಅರಣ್ಯಾಧಿಕಾರಿಯವರ ಕಛೇರಿ
ಮಂಗಳೂರು ವಲಯ, ಮಂಗಳೂರು.
ದಿನಾಂಕ:22-01-2024.

ಇವರಿಗೆ,

ಸಹಾಯಕ ಉಪ ಅರಣ್ಯ ಸಂರಕ್ಷಣಾಧಿಕಾರಿ
ಹಾಗೂ ಉಪ ಅರಣ್ಯ ಸಂರಕ್ಷಣಾಧಿಕಾರಿಯವರ ತಾಂತ್ರಿಕ
ಸಹಾಯಕರು, ಮಂಗಳೂರು.

ಮಾನ್ಯರೇ,

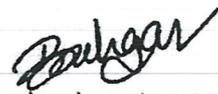
ವಿಷಯ : Appeal for Investigation and Action on Environment Preservation-Netravathi Waterfront Promenade Project being executed by Mangaluru Smart City Ltd.- ರ ಬಗ್ಗೆ ಸಲ್ಲಿಸಿರುವ ಮನವಿಗಳ ಕುರಿತು ಕ್ರಮ ಕೈಗೊಂಡು ವರದಿ ಸಲ್ಲಿಸುವ ಕುರಿತು.

ಉಲ್ಲೇಖ : ತಮ್ಮ ಕಛೇರಿ ಪತ್ರ ಸಂಖ್ಯೆ: ಸಅಸಂ:ಜಿಎಲ್: ದೂರರ್ಜಿ:2023-24.
ದಿನಾಂಕ: 15-12-2023.

ಮೇಲ್ಕಾಣಿಸಿದ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಿಸಿದಂತೆ, ಮಂಗಳೂರು ತಾಲೂಕು ಜಪ್ಪಿನಮೊಗರು ಗ್ರಾಮದ ನೇತ್ರಾವತಿ ಹೊಳೆ ಬದಿ ಸ್ಮಾರ್ಟ್ ಸಿಟಿ ಯೋಜನೆಯಡಿಯಲ್ಲಿ ಜಲಾಭಿಮುಖ ಪ್ರದೇಶ ಅಭಿವೃದ್ಧಿ ಕಾಮಗಾರಿಯನ್ನು ವ್ಯವಸ್ಥಾಪಕ ನಿರ್ದೇಶಕರು, ಮಂಗಳೂರು ಸ್ಮಾರ್ಟ್ ಸಿಟಿ ಲಿಮಿಟೆಡ್, ಮಂಗಳೂರು. ವತಿಯಿಂದ ನಡೆಸುತ್ತಿದ್ದು, ಈ ಬಗ್ಗೆ ರಾಷ್ಟ್ರೀಯ ಪರಿಸರ ಸಂರಕ್ಷಣಾ ಒಕ್ಕೂಟ (ರಿ.), ಅಶೋಕನಗರ, ಮಂಗಳೂರು ಮತ್ತು ನಾಗರಿಕ ಹಿತ ವೇದಿಕೆ(ರಿ), ದಿ ರಿಟ್ರೀಟ್, 2ನೇ ಕ್ರಾಸ್, ಲೋವರ್ ಬೆಂದೂರು, ಮಂಗಳೂರು-575002 ಇವರಿಂದ ಕಾಮಗಾರಿ ನಡೆಯುವ ಸ್ಥಳದಲ್ಲಿರುವ ಮರಗಳಿಗೆ ಹಾನಿಯಾಗುತ್ತಿರುವ ಬಗ್ಗೆ ದೂರುಗಳು ಬಂದಿದ್ದು, ಈ ಬಗ್ಗೆ ಅರ್ಜಿಯಲ್ಲಿನ ವಿಷಯದ ಬಗ್ಗೆ ಸ್ಥಳ ಪರಿಶೀಲಿಸಿ ವರದಿ ಸಲ್ಲಿಸುವಂತೆ ಮತ್ತು ಸದರಿ ಸ್ಥಳದಲ್ಲಿ ಯಾವುದಾದರೂ ಅಕ್ರಮಗಳು ಮರ ಕಡಿತಲೆ ಆದಲ್ಲಿ ಆ ಬಗ್ಗೆ ಕಾನೂನಿನಂತೆ ಪ್ರಥಮ ಮಾಹಿತಿ ವರದಿಯನ್ನು ದಾಖಲಿಸುವಂತೆ ಹಾಗೂ ಪ್ರಸ್ತುತ ಸ್ಥಳದಲ್ಲಿ ಇರುವ ಮರಗಳಿಗೆ ಕೆಂಪು ಪೈಂಟ್‌ನಿಂದ ಗುರುತಿಸಿ ನಂಬ್ರಗಳನ್ನು ನೀಡಿ ಎಣಿಕೆ ಪಟ್ಟಿಯನ್ನು ತುರ್ತಾಗಿ ಸಲ್ಲಿಸುವಂತೆ ಉಲ್ಲೇಖ(1)ರ ಪತ್ರದಲ್ಲಿ ಸೂಚಿಸಲಾಗಿರುತ್ತದೆ.

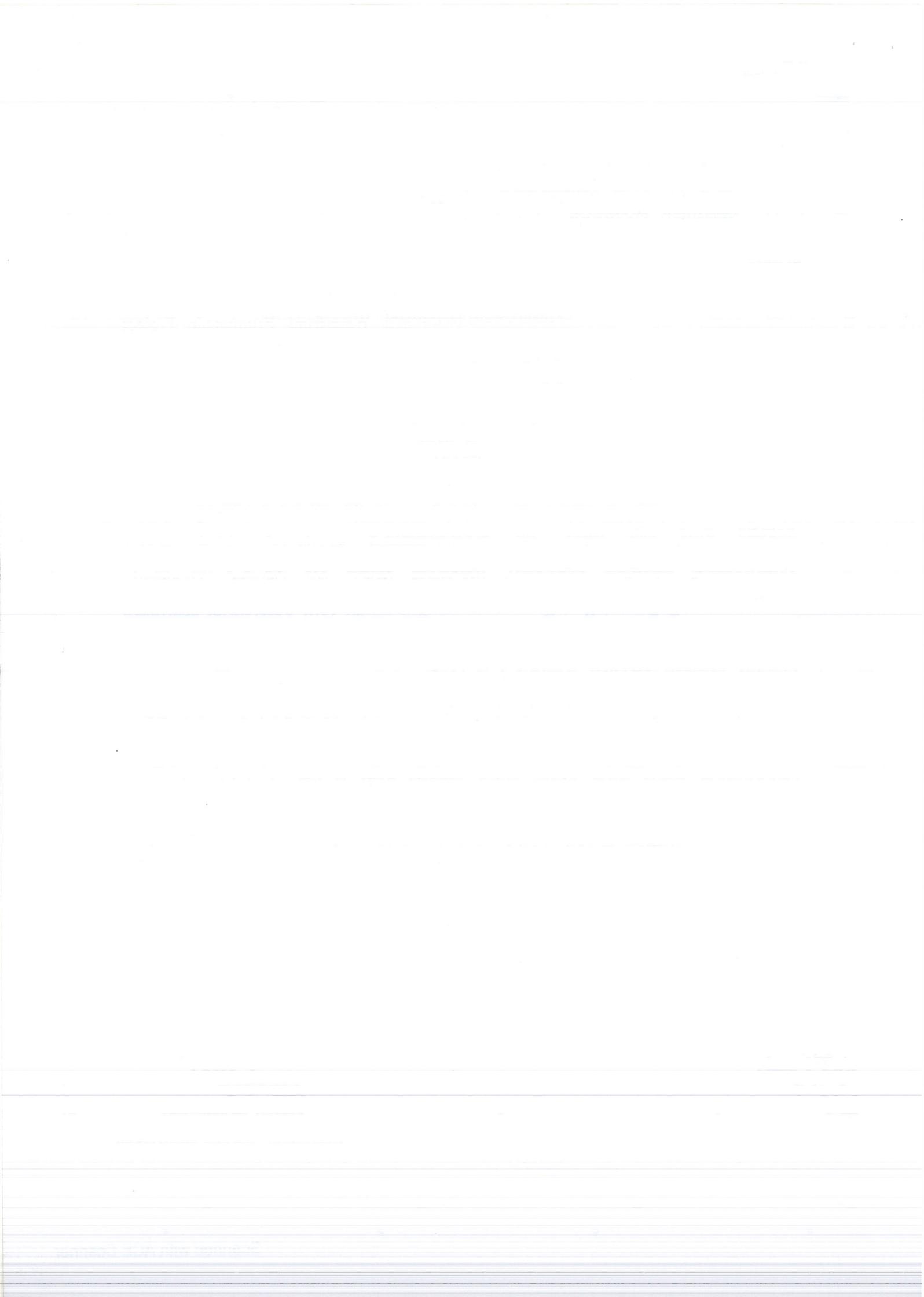
ಅದರಂತೆ ಮೇಲಿನ ಸ್ಥಳವನ್ನು ನಾನು ಸಿಬ್ಬಂದಿಗಳೊಂದಿಗೆ ದಿನಾಂಕ: 01/01/2024 -12-2023 ರಂದು ಪರಿಶೀಲಿಸಿದಾಗ ಸ್ಥಳದಲ್ಲಿ ಯಾವುದೇ ಮರಗಳ ಅಕ್ರಮ ಕಡಿತಲೆ ಮತ್ತು ಮರಗಳಿಗೆ ಹಾನಿಯಾಗಿರುವುದು ಕಂಡು ಬಂದಿರುವುದಿಲ್ಲ. ಅದರಂತೆ ಪ್ರಸ್ತುತ ಸ್ಥಳದಲ್ಲಿ ಇರುವ ಮರಗಳಿಗೆ ಕೆಂಪು ಪೈಂಟ್‌ನಿಂದ ಗುರುತಿಸಿ ನಂಬ್ರಗಳನ್ನು ನೀಡಿ ಎಣಿಕೆ ಪಟ್ಟಿಯನ್ನು ತಯಾರಿಸಿದ್ದು, ಸದರಿ ಮರಗಳ ಎಣಿಕೆ ಪಟ್ಟಿಯನ್ನು ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಈ ಪತ್ರದೊಂದಿಗೆ ಲಗತ್ತಿಸಿ ಮುಂದಿನ ಕ್ರಮಕ್ಕಾಗಿ ಮಂಡಿಸಲಾಗಿದೆ.

ತಮ್ಮ ವಿಶ್ವಾಸಿ,



ವಲಯ ಅರಣ್ಯಾಧಿಕಾರಿ
ಮಂಗಳೂರು ವಲಯ, ಮಂಗಳೂರು.

ರಾಜಿ
01/01/2024



ಮಂಗಳೂರು ತಾಲೂಕು ಜಪ್ಪಿನಮೊಗರು ಗ್ರಾಮದ ನೇತ್ರಾವತಿ ಹೊಳೆ ಬದಿ ಸ್ಮಾರ್ಟ್ ಸಿಟಿ ವತಿಯಿಂದ
ನಡೆಯುವ ಕಾಮಗಾರಿ ಸ್ಥಳದಲ್ಲಿರುವ ಮರದ ಅಳತೆ ಪಟ್ಟಿ

ಕ್ರ. ಸಂ.	ಜಾತಿ	ಅಂದಾಜು ಎತ್ತರ	ಸುತ್ತಳತೆ	ಪರಿಮಾಣ (ಘ.ಮೀ.)	ಷರಾ
1	ದೇವದಾರು	1.00	3.50		
2	ದೇವದಾರು	4.00	1.60		
3	ದೇವದಾರು	2.00	4.40		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
4	ಕಾಡುಜಾತಿ	2.00	0.65		
5	ಕಾಡುಜಾತಿ	8.00	0.50		
6	ಬೈನೆ	3.00	0.35		
7	ದೇವದಾರು	4.00	0.90		
8	ಉಪ್ಪಳಿಗೆ	1.50	0.90		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
9	ಬಾದಾಮ್	2.50	0.65		
10	ತೆಂಗು	6.00	0.80		
11	ಅಂಬಡೆ	2.00	1.40		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
12	ತೆಂಗು	8.00	0.90		
13	ತೆಂಗು	6.00	0.75		
14	ಕಾಂಡ್ಲೆ	1.00	1.20		
15	ಕಾಂಡ್ಲೆ	1.00	0.75		
16	ಕಾಂಡ್ಲೆ	1.00	0.40		
17	ಕಾಂಡ್ಲೆ	1.00	0.30		
18	ಕಾಂಡ್ಲೆ	2.00	0.40		
19	ಬೂರುಗ	1.00	0.60		
20	ಕಾಂಡ್ಲೆ	2.00	0.50		
21	ಕಾಂಡ್ಲೆ	1.00	0.70		
22	ಕಾಂಡ್ಲೆ	2.00	0.55		
23	ಕಾಂಡ್ಲೆ	2.00	0.40		
24	ದೇವದಾರು	4.00	2.20		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
25	ದೇವದಾರು	3.00	2.50		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
26	ತೆಂಗು	12.00	0.80		
27	ಬಾದಾಮ್	10.00	0.70		

28	ತೆಂಗು	6.00	0.75		
29	ನೀರಂಬಡೆ	3.00	0.90		
30	ತೆಂಗು	5.00	0.65		
31	ಫೆಲ್ಟಾಫಾರಂ	1.00	0.65		
32	ಬೂರುಗ	12.00	0.90		
33	ತೆಂಗು	7.00	0.85		
34	ತೆಂಗು	8.00	0.90		ಸತ್ತಿದೆ
35	ದೇವದಾರು	3.00	1.10		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
36	ತೆಂಗು	10.00	0.90		
37	ದೇವದಾರು	2.00	1.60		
38	ಫೆಲ್ಟಾಫಾರಂ	1.00	1.05		
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43	ಕಾಂಡ್ಲಾ	1.00	0.50		
44	ಕಾಂಡ್ಲಾ	1.00	0.45		
45	ಕಾಂಡ್ಲಾ	1.00	0.70		
46	ತೆಂಗು	12.00	0.75		
47	ದೇವದಾರು	5.00	1.20		
48	ತೆಂಗು	8.00	0.75		
49	ತೆಂಗು	9.00	0.75		
50	ತೆಂಗು	9.00	0.85		
51	ದೇವದಾರು	3.00	1.35		
52	ಕಾಂಡ್ಲಾ	4.00	1.25		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
53	ಕಾಂಡ್ಲಾ	3.00	1.35		
54	ಕಾಂಡ್ಲಾ	1.00	0.80		
55	ಕಾಂಡ್ಲಾ	6.00	1.30		
56	ಕಾಂಡ್ಲಾ	2.00	0.85		
57	ಕಾಂಡ್ಲಾ	3.00	0.50		
58	ಕಾಂಡ್ಲಾ	2.00	0.35		
59	ಕಾಂಡ್ಲಾ	3.00	1.15		
60	ಕಾಂಡ್ಲಾ	2.00	0.30		
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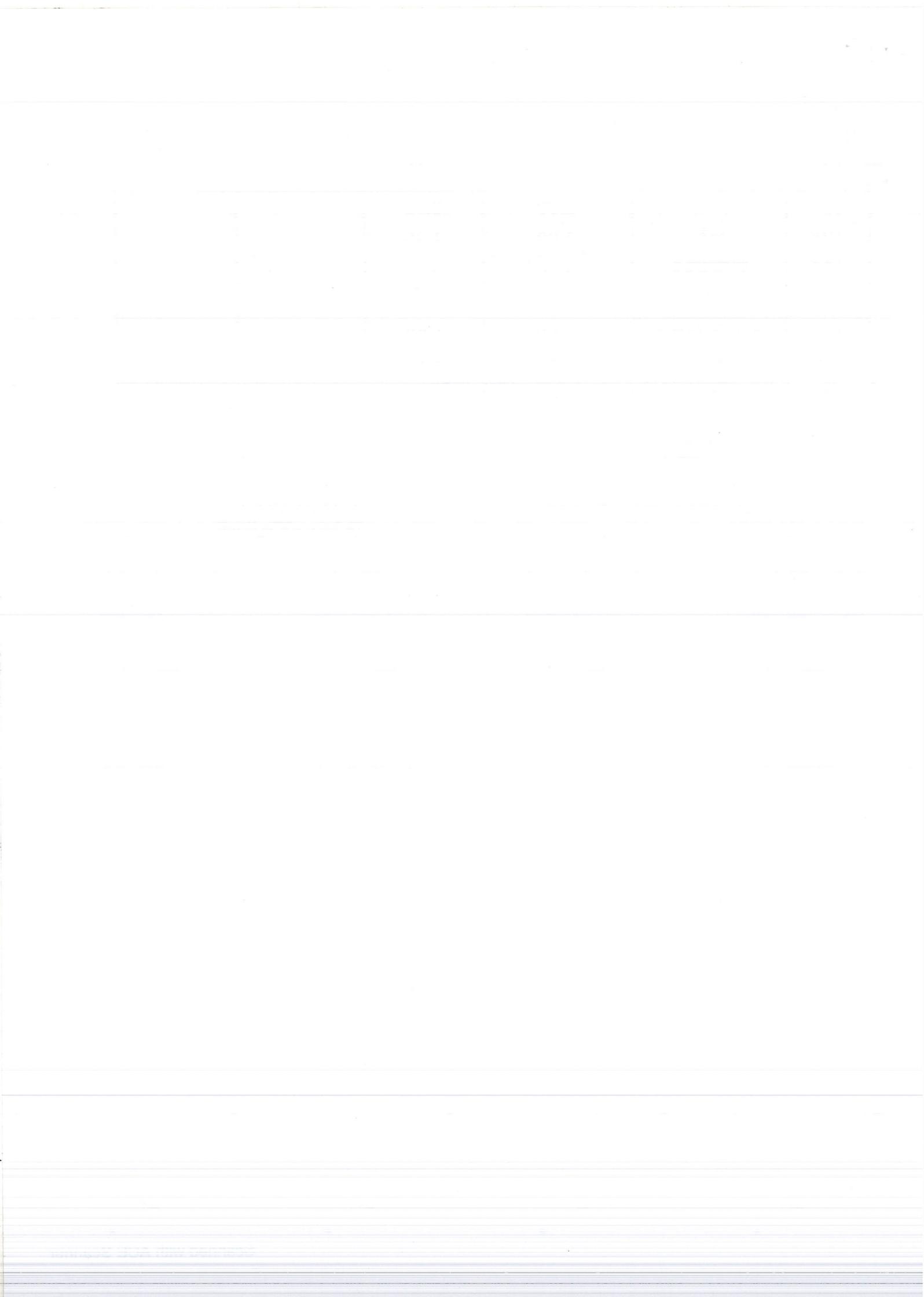
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65	ಕಾಂಡ್ಲಾ	2.00	0.85		
66	ಕಾಂಡ್ಲಾ	2.00	0.25		
67	ಕಾಂಡ್ಲಾ	4.00	0.70		
68	ಕಾಂಡ್ಲಾ	2.00	0.80		
69	ಕಾಡುಜಾತಿ	4.00	0.20		
70	ಉಪ್ಪಳಿಗೆ	4.00	0.25		
71	ಕಾಡುಜಾತಿ	4.00	0.90		
72	ಮಂಜೊಟ್ಟಿ	4.00	0.45		
73	ಶಿವಾನೆ	6.00	1.45		
74	ಹೊಂಗೆ	2.00	0.40		
75	ದೇವದಾರು	6.00	2.65		
76	ಕಾಡುಜಾತಿ	2.00	0.50		
77	ಕಾಡುಜಾತಿ	2.00	0.40		
78	ದೇವದಾರು	6.00	2.10		
79	ದೇವದಾರು	3.00	1.85		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
80	ಬೂರುಗ	3.00	1.10		
81	ದೇವದಾರು	2.00	0.90		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
82	ಫೆಲ್ಚಾಫಾರಂ	1.00	0.70		
83	ದೇವದಾರು	2.00	0.80		
84	ದೇವದಾರು	2.00	1.70		
85	ಫೆಲ್ಚಾಫಾರಂ	2.00	0.90		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
86	ತೆಂಗು	5.00	0.80		
87	ತೆಂಗು	6.00	0.75		
88	ಅಂಬಡೆ	2.00	0.80		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
89	ತೆಂಗು	6.00	0.85		
90	ದೇವದಾರು	2.00	1.15		
91	ಬೂರುಗ	4.00	0.90		
92	ಕಾಡುಜಾತಿ	2.00	0.80		
93	ಕಾಡುಜಾತಿ	2.00	0.80		

94	ಬೂರುಗ	4.00	0.90		
95	ತೆಂಗು	6.00	0.80		
96	ತೆಂಗು	7.00	0.80		
97	ತೆಂಗು	7.00	0.85		
98	ತೆಂಗು	4.00	0.60		
99	ತೆಂಗು	6.00	0.90		
100	ತೆಂಗು	4.00	0.75		
101	ತೆಂಗು	4.00	0.65		
102	ತೆಂಗು	5.00	0.75		
103	ತೆಂಗು	4.00	0.60		
104	ತೆಂಗು	5.00	0.80		
105	ಬೈನೆ	3.00	0.60		
106	ಅಂಬಡೆ	2.00	0.75		
107	ತೆಂಗು	6.00	0.75		
108	ಬಾದಾಮ್	2.00	0.45		
109	ಬಾದಾಮ್	5.00	0.70		
110	ದೇವದಾರು	3.00	3.05		
111	ಅತ್ತಿ	3.00	1.10		
112	ಗೊಬ್ಬರದ ಗಿಡ	1.00	0.70		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
113	ಅತ್ತಿ	4.00	1.30		
114	ಗೊಬ್ಬರದ ಗಿಡ	1.00	0.65		
115	ಗೊಬ್ಬರದ ಗಿಡ	2.00	0.65		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
116	ಗೊಬ್ಬರದ ಗಿಡ	1.00	0.55		
117	ಕಾಡುಜಾತಿ	4.00	0.60		
118	ಬೈನೆ	4.00	1.10		
119	ಬಾದಾಮ್	5.00	0.60		
120	ತೆಂಗು	4.00	0.90		
121	ತೆಂಗು	8.00	1.05		
122	ತೆಂಗು	3.00	0.70		
123	ತೆಂಗು	6.00	0.80		
124	ಅಶ್ವಥ	1.00	2.00		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
125	ಫೆಲ್ಡಾಫಾರಂ	3.00	0.45		

126	ಬಾದಾಮ್	3.00	0.25		ಕವಲುಗಳಿಂದ ಕೂಡಿದೆ
127	ದೇವದಾರು	2.00	0.90		
128	ಅತ್ತಿ	3.00	1.30		
129	ಕಾಡುಜಾತಿ	4.00	0.75		
130	ಬುಗುರಿ	1.00	1.30		ಟೊಳ್ಳಾಗಿದೆ
131	ಕೊಯಮರುವ	1.00	1.30		
132	ಚೆರಿ	1.00	0.25		
133	ಚೆರಿ	1.00	0.35		

ಉಪವಲಯ ಅರಣ್ಯಾಧಿಕಾರಿ
ಮಂಗಳೂರು ಶಾಖೆ, ಮಂಗಳೂರು

ಪಂಚಾಯತ್ ಸಂಸ್ಥೆ
ಪಂಚಾಯತ್ ಅರಣ್ಯಾಧಿಕಾರಿ
ಮಂಗಳೂರು ವಲಯ, ಮಂಗಳೂರು



Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

SPONSORED BY

M/s Mangaluru Smart City Limited
2nd Floor, City Corporation
M.G. Road, Lalbagh
Mangaluru - 575 003



Prepared By



INSTITUTE OF REMOTE SENSING
ANNA UNIVERSITY, CHENNAI-25

November 2022

PROJECT DATA SHEET

Title: Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

Project No : Ref. No. AU/IRS/SJ/ 183-A-2022 Dt.11.10.2022

Coordinator : Dr. S. Jayalakshmi, Associate Professor

Done for : **M/s Mangaluru Smart City Limited**
2nd Floor, City Corporation
M.G. Road, Lalbghah
Mangaluru - 575 003

Survey Team : Mr. S. Sathishkumar, IRS, AU
Mr. S. Dineshkumar, IRS, AU

Mapping Team : Mr. J. Prem Kumar, IRS, AU

Report Preparation : Dr. S. Jayalakshmi, Associate Professor

Quality Check : Dr. R. Vidhya, Professor
Dr. M. Shanmugam, Associate Professor
Ms. M. Navamuniyammal, Assistant Professor

The quality Assessment Committee for consultancy projects has scrutinized the local level CRZ map and corresponding text report of the above project on 08.11.2022. The principal consultant of the project has presented the approach adopted, findings of the study to the committee. The committee has evaluated the CRZ Map and the report for different parameters against the standards prescribed for the mapping. The positional accuracy, attribute accuracy, completeness, semantic accuracy of the output were assessed and found satisfactory. The committee recommends the approval of the map and associated report.



Dr. S. Jayalakshmi (Coordinator)



Dr. R. Vidhya (QA member)



Dr. M. Shanmugam (QA member)



M. Navamuniyammal (QA member)



DIRECTOR

Director

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

ABSTRACT

On the request of **M/s Mangaluru Smart City Limited**, 2nd Floor, City Corporation, M.G. Road, Lalbhagh Mangaluru - 575 003, a survey was carried out to prepare the local level CRZ Map for the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by superimposing on approved CZMP (Map No KA 01 and 04) as per CRZ Notification 2011. The satellite imagery of the study area was interpreted for geomorphic features in the vicinity of the survey site. The cadastral map of the area provided by the client was used as the base map. Based on the geomorphology and topography in the vicinity of project area, HTL indicated on CZMP published as per CRZ notification 2011 has been identified and traced in the field by kinematic GNSS survey. The HTL, LTL and ecologically sensitive areas indicated in approved CZMP along with setback lines as per CRZ notification 2011 were superimposed on to georeferenced cadastral map to prepare a local level CRZ map at 1:4000 scale and CRZ map in 1:25000 scale. The layout of proposed Jetty and Waterfront Promenade as provided by the client was superimposed on the CRZ map as shown in Annexure II. Out of the total area of 812.04 Sq.m of Jetty, 459.96 Sq.m falls in CRZ – I B, 0.3 Sq.m falls in CRZ – II and the remaining area of 351.78 Sq. m falls in CRZ IV B. Out of the total area of 172790.02 Sq.m of Waterfront Promenade, 45896.92 Sq.m falls in CRZ – I B, 113688.16 Sq.m falls in CRZ – II, 3021.73 Sq. m falls in CRZ IV B and the remaining area of 10183.21 Sq.m is in out of CRZ as per CRZ notification 2011. The generated HTL co-ordinates in WGS 84 system, CRZ map in 1:4000 scale, CRZ map in 1:25000 scale, approved CZMP and satellite imagery of the project site are presented in Annexure I, Annexure II, Annexure III, Annexure IV and Annexure V respectively.

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

1. INTRODUCTION

The coastal zone is the area of interaction between land and sea. The coastal Zone of Karnataka has a very high concentration of population along with ecologically sensitive areas like mangroves. There is a spurt of developmental activities arising from huge residential colonies, new industries and tourism centres along the coast and in coastal zone. There is a need to protect the coastal environment while ensuring continuing production and development. This zone is extremely vulnerable and has to be managed judiciously striking a balance between ecological and developmental needs.

Government of India has issued a notification during February 1991 for regulating the developments along the coastal stretches of seas, bays, estuaries, creeks, rivers and backwaters which are influenced by tidal action. The land between 500 meters from the High Tide Line (HTL) and the Low Tide Line (LTL) is identified as Coastal Regulation Zone (CRZ).

The Ministry of Environment, Forest & Climate Change has provided guidelines for demarcation of High Tide Line in the CRZ Notification, 2011. As per the guidelines, Cadastral (village) maps in 1:3960 or the nearest scale shall be used as the base maps. HTL and LTL will be demarcated in the cadastral map based on detailed physical verification using coastal

geomorphological signatures or features in accordance with the CZMP approved by the Central Government. 500 meter and 200 meter lines shall be demarcated with respect to the HTL.

In order to facilitate classification of Coastal Regulation Zones Government of India has approved few agencies/institutions across the Country vide Lr. No. J17011/8/92-1A III, dated 10.05.1999 of Ministry of Environment, Forest & Climate Change. Institute of Remote Sensing, Anna University being one of them, has been carrying out HTL and LTL mapping following the guidelines issued by Ministry of Environment, Forest & Climate Change, Government of India.

2. BACKGROUND OF THE STUDY

M/s Mangaluru Smart City Limited, 2nd Floor, City Corporation M.G. Road, Lalbhagh Mangaluru - 575 003, has requested Institute of Remote Sensing, Anna University for preparation of local level CRZ map for the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by superimposing on approved CZMP as per CRZ Notification 2011 in 1:4,000 scale and 7km radius CRZ map around project site at 1:25000 scale.

3. STUDY AREA

The proposed Jetty and Waterfront Promenade is located in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka. The proposed site is in the vicinity of Netravati River.

4. NEED FOR THE STUDY

The proposed Jetty and Waterfront Promenade of **M/S Mangaluru Smart City Limited**, 2nd Floor, City Corporation, M.G. Road, Lalbhagh Mangaluru - 575 003 needs to be assessed whether the site and the proposed activities are falls under regulations of CRZ Notification, 2011. Keeping in view of the requirements of notification, Institute of Remote Sensing, Anna University under took the project with following agreed scope of work:

- Superimposition of the project site and proposed pipeline on the approved CZMP by conducting field survey using DGPS survey.
- Preparation of local level CRZ map by superimposing HTL, LTL and Ecologically sensitive areas on cadastral map of 1:4000 scale and 7 Km radius CRZ map in 1:25000 scale.

5. METHODOLOGY ADOPTED

The cadastral map of project locations provided by the client has been used for preparation of local level CRZ map. The geomorphic characteristic of the coastal zone has been analyzed from the medium resolution satellite data. Coastal geomorphologic features and existence of permanent vegetation identified from the satellite imagery were used to transfer the HTL demarcated by NCSCM on approved CZMP. The approved CZMP is georeferenced using graticules available on the maps.

The cadastral map of Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka were digitized from approved CZMP to create a vector dataset of survey polygons in the vicinity of project locations. The same is superimposed on satellite imagery to identify the proposed project locations. The HTL, LTL and ecologically sensitive areas in the vicinity of project locations are digitized from georeferenced approved

CZMP. 100m as setback line from HTL for Netravati River is generated using GIS buffering tool. The zones between LTL, HTL and setback lines are delineated to corresponding CRZ as per CRZ Notification 2011.

6. OUTPUT

The HTL was extracted from approved CZMP (Map No KA 01 and 04) in the vicinity of Netravati River which is nearby the proposed site. The generated HTL co-ordinates in WGS 84 system, CRZ map in 1:4000, CRZ map in 1:25000 scale, approved CZMP and satellite imagery of the project site are presented in Annexure I, Annexure II, Annexure III, Annexure IV and Annexure V respectively. The site coordinates are shown in Table 1.

Table 1 Coordinates of Jetty and Waterfront Promenade

Description	Label	Latitude	Longitude
Proposed Jetty	A	12° 50' 32.213" N	74° 51' 7.528" E
	B	12° 50' 32.213" N	74° 51' 8.729" E
	C	12° 50' 30.840" N	74° 51' 9.108" E
	D	12° 50' 30.839" N	74° 51' 8.047" E
Proposed Waterfront Promenade	E	12° 50' 25.886" N	74° 50' 59.207" E
	F	12° 50' 30.303" N	74° 50' 44.400" E
	G	12° 50' 34.413" N	74° 50' 32.154" E
	H	12° 50' 41.238" N	74° 50' 24.261" E
	I	12° 50' 50.292" N	74° 50' 15.309" E
	J	12° 50' 43.458" N	74° 50' 27.091" E
	K	12° 50' 36.819" N	74° 50' 31.407" E
	L	12° 50' 31.770" N	74° 50' 50.579" E
	M	12° 50' 34.290" N	74° 50' 56.037" E
	N	12° 50' 37.960" N	74° 50' 58.038" E
	O	12° 50' 33.767" N	74° 51' 6.491" E
	P	12° 50' 37.026" N	74° 51' 19.251" E
	Q	12° 50' 36.266" N	74° 51' 26.678" E
	R	12° 50' 37.289" N	74° 51' 36.357" E
	S	12° 50' 30.778" N	74° 51' 45.268" E
	T	12° 50' 29.764" N	74° 51' 44.572" E
	U	12° 50' 31.878" N	74° 51' 31.148" E
	V	12° 50' 35.376" N	74° 51' 21.098" E
	W	12° 50' 34.156" N	74° 51' 20.977" E
	X	12° 50' 31.716" N	74° 51' 24.810" E
Y	12° 50' 31.675" N	74° 51' 20.742" E	
Z	12° 50' 33.340" N	74° 51' 17.521" E	

7. CONCLUSION:

The salient conclusions of the study titled "Preparation of local level CRZ map for the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by superimposing on approved CZMP as per CRZ Notification 2011" are;

- The CRZ statement of the proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka as per CRZ notification 2011 is shown in Table 2

Table.2 Proposed Jetty and Waterfront Promenade in various CRZ

Description	CRZ - Classification	Area in Sq.m	Total Area in Sq.m
Proposed Jetty	CRZ - IB	459.96	812.04
	CRZ - II	0.3	
	CRZ - IVB	351.78	
Proposed Waterfront Promenade	CRZ - IB	45896.92	172790.02
	CRZ - II	113688.16	
	CRZ - IVB	3021.73	
	Outside CRZ	10183.21	

- No mangroves were present in the vicinity of the proposed site.


PRINCIPAL CONSULTANT


DIRECTOR, IRS
Director
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Anna University,
Chennai - 600 025.

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

ANNEXURE I

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

COORDINATES OF HTL POINTS(WGS 1984)

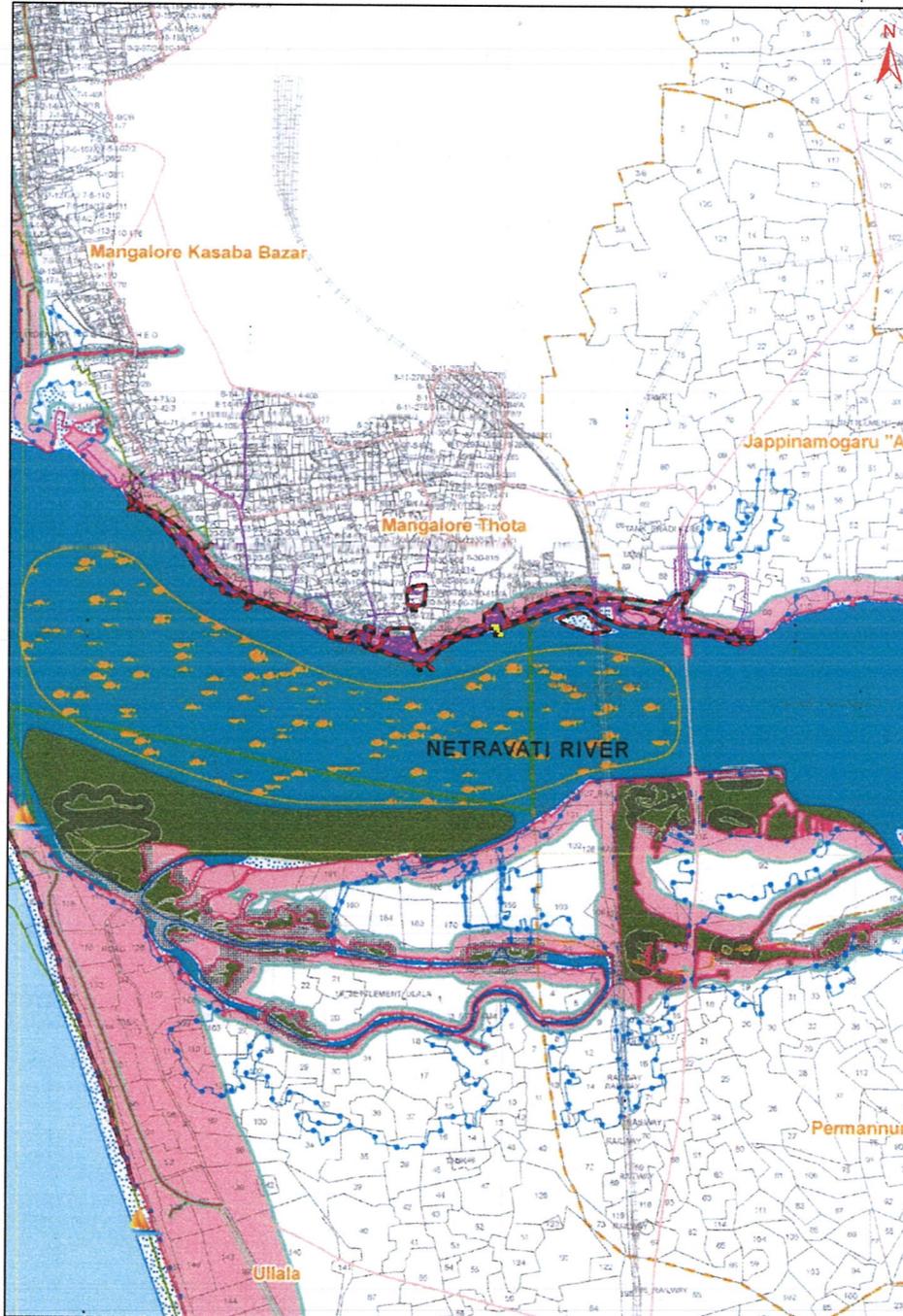
HTL Point	Latitude	Longitude
1	12° 50' 44.758" N	74° 50' 21.466" E
2	12° 50' 40.641" N	74° 50' 24.461" E
3	12° 50' 37.917" N	74° 50' 27.532" E
4	12° 50' 35.637" N	74° 50' 34.044" E
5	12° 50' 32.543" N	74° 50' 41.033" E
6	12° 50' 29.488" N	74° 50' 49.060" E
7	12° 50' 26.950" N	74° 50' 58.086" E
8	12° 50' 31.011" N	74° 51' 5.132" E
9	12° 50' 34.144" N	74° 51' 13.822" E
10	12° 50' 34.286" N	74° 51' 23.100" E
11	12° 50' 32.517" N	74° 51' 31.809" E
12	12° 50' 36.956" N	74° 51' 34.707" E
13	12° 50' 39.876" N	74° 51' 37.917" E
14	12° 50' 34.430" N	74° 51' 33.285" E
15	12° 50' 28.085" N	74° 51' 36.217" E
16	12° 50' 30.752" N	74° 51' 39.952" E
17	12° 50' 30.975" N	74° 51' 46.182" E
18	12° 50' 11.613" N	74° 51' 37.300" E
19	12° 50' 10.679" N	74° 51' 29.872" E
20	12° 50' 5.268" N	74° 51' 16.449" E
21	12° 50' 0.863" N	74° 51' 7.516" E
22	12° 49' 59.353" N	74° 50' 57.348" E


PRINCIPAL CONSULTANT


DIRECTOR, IRS
Director

ANNEXURE IV

PROJECT SITE SUPERIMPOSED ON APPROVED CZMP

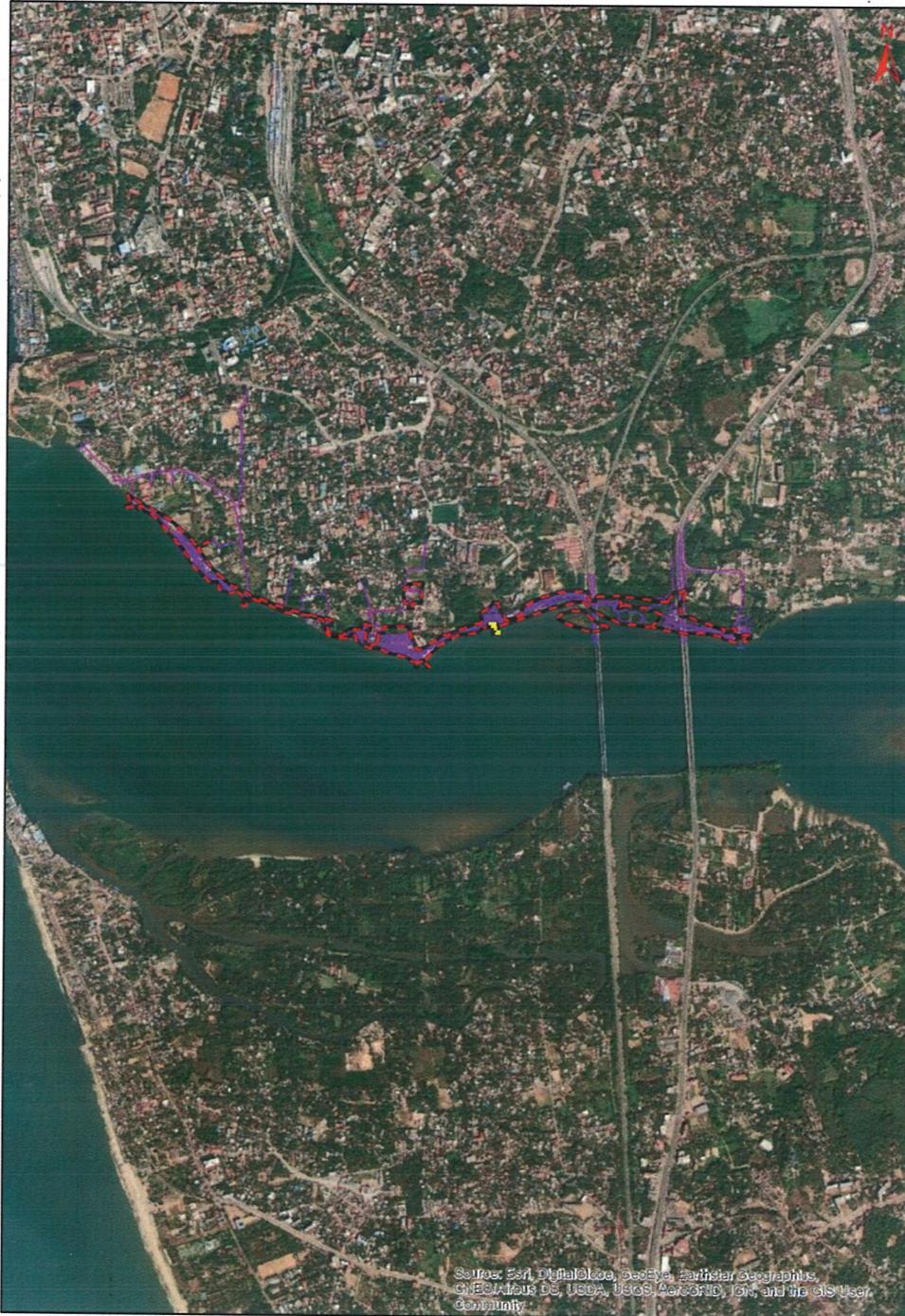


Source: Map No. KA 01 and 04

Preparation of Local Level CRZ Map for the Proposed Jetty and Waterfront Promenade in Jappinamogaru "A" & Mangalore Thota Villages, Mangalore Taluk, Dakshina Kannada District, Karnataka by Superimposing on Approved CZMP as per CRZ Notification 2011

ANNEXURE V

SATELLITE IMAGERY OF PROJECT SITE



Source: Google Earth