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CHIEF SECRETARY
GOVERNMENT OF TELANGANA
Lr.No.4582/For.III/A2/EFS&T/2019, Dated:04-03-2025

To
The Registrar General,
Hon'ble National Green Tribunal,
Faridkot House,
Copernicus Marg,
New Delhi – 110001.

Sir,

Sub: Govt of Telangana -- Hon'ble NGT, New Delhi – Original Application No. 606 of 2018 – Compliance of Solid Waste and Sewage Management -- Hon'ble NGT Order dated 29.09.2022 – 4th Six Monthly Progress Report and Compliance Report – Submitted – Reg.

Ref:
1. Hon'ble NGT Order dated 29.09.2022 in OA No. 606 of 2018.
2. Hon'ble NGT Order dated 30.11.2023 in OA No. 606 of 2018.

* * *

In compliance to the Hon'ble National Green Tribunal Order dated 29.09.2022 in Original Application No. 606 of 2018, the 4th Six Monthly Progress Report and Compliance Report of Solid Waste and Sewage Management for the period from April 2024 to September 2024 (updated upto January 2025) of the State of Telangana is herewith submitted.

Yours faithfully,

CHIEF SECRETARY.

Encl: Report with Annexures.

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(1)

1. Introduction:

The Hon'ble NGT vide order dated: 29-09-2022 in O.A.No.606 of 2018 in the matter of Compliance of Municipal Solid Waste Management Rules, 2016 and sewage management after the personal appearance of Chief Secretary have passed the directions to Telangana.

The directions include the creation of the Ring Fenced Account for depositing Rs.3800 Cr., towards compensation for taking up the works pertaining to the MSW and Sewage management in the state. One of the directions include filing of the Half yearly progress report.

Further, this Hon'ble Tribunal has considered (a) the Second Six Monthly Progress Report dated 14.12.2023 and (b) I.A No. 299 of 2024 at the hearing held on 22.08.2024 and passed an Order dated 12.09.2024 ***(Annexure-A1)*** seeking additional information/clarifications. It is submitted that the progress of the implementation of the directions are briefly mentioned in the following Table.

(Rupees in crores)

Area	No. of STPs	Treatment Capacity	Status of Money	
			Spent	Allocated
Liquid Waste (MLD)				
(i) Hyderabad City (27 ULBs)	36	1435	1985	371
(ii) ULBs (115)	7 (108)*	52.21	104	1188
Solid Waste (MT)				
ULBs (123)	-	16,90,000	51	65
Total			2140	1624
(*) Small capacity STPs in Rural areas.				

The operative portion of the Order along with Report in compliance of each direction is submitted below:

I. **<u>Solid Waste Management:</u>**

(i) There is a gap of 2281.0 TPD in waste processing in 141 ULBs (2475). Therefore, each day, unprocessed waste is added to the legacy waste:

(A) <u>Waste Generation per day in 141 ULBs:</u>

- A total of 4316 TPD of waste is being generated in 141 ULBs which consists of waste from residential, commercial, institutional, etc. Out of the total waste generated, wet waste is 2373 TPD and dry waste is 1943 TPD.

(2)

CPHEEO norms suggest waste generation per capita based on the city profile. Hence, for ULBs where weighment is not conducted, it is estimated as total population multiplied by 250-400 gms per capita.

The above norms shown in the Table 1.5 of Section-1.4.3.3-Quantification & Composition of Waste of CPHEEO Manual (Part-2), waste estimation is being made, as below:

Table 1.5: Per-capita Waste Generation Rates from NEERI Study in 1996[8]

POPULATION RANGE (IN MILLION)	NO. OF CITIES SURVEYED	AVERAGE PER CAPITA VALUE (KG/CAPITA/DAY)
0.1 to 0.5	12	0.21
0.5 to 1.0	15	0.25
1.0 to 2.0	9	0.27
2.0-5.0	3	0.35
>5.0	4	0.50

The same is also considered under **Section-6.1** of Solid Waste Management component of Swachh Bharat Mission (U) 2.0 guidelines:

CHAPTER 6

SOLID WASTE MANAGEMENT

Sets out the overall approach to be taken by ULBs to put in place systems and processes to ensure that Urban India becomes Garbage Free.

6.1 **Municipal Solid Waste and its management**

Approximately 1,32,000 Metric Tonnes of MSW is generated from all urban areas of the country, which translates to about 300-550 grams per person per day. The waste generation is higher in larger cities and lower in smaller cities. The general trend of per capita waste generation is as follows:

S. No.	ULB Population Class	Typical Per Capita Waste Generation (in grams)
1.	>10 Lakh	550
2.	1 to 10 Lakh	450
3.	< 1 Lakh	300

- The total treatment capacity is increased from 2035 TPD (before May'24) to 2272 TPD at present and it is being processed at the existing compost units and Dry Resource Collection Centres (DRCCs). Photographs of Processing Units and ULB wise waste generated, and treatment capacity is provided in ***Annexure-A2.***

- The Overall gap is decreased from 2281 TPD (as per order) to 2044 TPD due to enhanced processing and waste reduction measures implemented across ULBs.

(B) ULB level Waste Processing per day:

(a) To ensure processing of the waste generated, 229 no. of compost sheds have been made operational with a cumulative capacity of 1258 TPD to process the wet waste component.

(b) 3 no. of Bio-methanation plants with a cumulative capacity of 13.5 TPD are in operation in 3 ULBs i.e., Greater Warangal Municipal Corporation (GWMC) (2.5 TPD), Siddipet (10 TPD), and Sircilla (1 TPD).

(c) To process the dry waste, 208 no. of DRCCs centres with a cumulative capacity of 985.5 TPD have also been made operational in 141 ULBs to recover the recyclables that could further be sold for recycling units. Within the existing DRCCs, 87 DRCCs are being maintained by SHG women.

(d) 3 RDF plants are established in 3 ULBs with a cumulative capacity of 15 TPD i.e., Narayanpet (5 TPD), Manikonda (5 TPD), Peerzadiguda (5 TPD).

(e) The method being issued to quantify the total existing wet and dry waste in ULBS:
Wet and dry waste was estimated as per SBM guidelines (Page 47, 6.2.1) as Wet 60% and Dry-40%.

(C) Funding to bridge the gap:

(a) In order to bridge the gap in treatment of waste collected and to address the demand for treatment for the next 5 years of growth, action plans at ULBs level for Solid Waste (Wet & Dry) has been prepared with an estimated cost of Rs. 387.22 Cr. and submitted to MoHUA on 14.10.2022 for funding under SBM (U) 2.0.

(b) The same has been approved by MoHUA on 17.02.2023 with Central share of Rs. 158.44 Cr.& State share of Rs.228.78 Cr.1stinstallment of the approved Central share i.e., Rs.63.38 Crs has already been released by MoHUA.

(c) Tenders issued for establishing 2961 TPD capacities was cancelled (due to no response) and fresh tenders are being called duly reclustering ULBs and capacities. Further, Expression of Interest to be issued by end of January 2025 to establish Waste to Energy plant for Karimnagar and GWMC cluster to process approx 800 TPD of waste.

(d) Meanwhile until finalization of Tenders, Interim measures have been taken up by directing Bio-mining Concessionaires to process the unprocessed Municipal Solid Waste and post Bio-mining process to ensure 100% processing of waste in the respective ULBs. Unprocessed fresh waste is being taken care by the existing biomining agencies till new facilities are created. List of the concessionaires and the Photos of reclaimed sites are herewith attached in ***Annexure-A3.***

(e) Further, startups within the dry Waste Management sector such as Waste Ventures (Narsingi Municipality), ITC WOW(Greater Warangal Municipal Corporation, Siddipet Municipality, Peerzadiguda Municipal Corporation, Husnabad, Kalwakurthy), Globus Waste Management Solutions(ULBs within ORR), Matrik(Vikarabad, Medcvhal, Suryapet), Scrape Q(ULBs within ORR), Recycal(Hyderabad), and Elima Recycling Pvt Ltd(ULBs within ORR) are being encouraged to engage with gated communities/ bulk waste generators in the larger ULBs for collection of dry waste and processing at their tied-up recycling facilities.

(f) This initiative will support in managing further 200-250 TPD of dry waste across ULBs and also reduce the waste being transported to the processing units/ dumping yards.

Thus the present gap of 2044 TPD [Para-A(c)] will be achieved by establishing processing facilities by 31.05.2025.

(D) <u>To achieve 100% waste processing:</u>

(a) RFP was invited to establish scientific processing facilities with a cumulative capacity of 2974 TPD in 130 ULBs on cluster approach (9 clusters) and in response, 7 bidders have submitted the bids.

(b) The Tenders issued were cancelled as :-

- A Waste to Energy (WTE) plant is proposed to treat approx. 800 MT of waste from 9 ULBs in GWMC and Karimnagar Clusters.
- Reclustering of ULBs duly excluding ULBs within ORR and ULBs grouped in WTE cluster.
- Revised Tender with procurement conditions of HAM Model issued/will be issued on 31 Jan 2025.
- Estimated date for establishing processing facilities is May 2025.

(E) **Interim Measures Taken:**

(a) The Bio-mining Concessionaires were directed to process the unprocessed Municipal Solid Waste and post Bio-mining process to ensure 100% processing of waste in the respective ULBs until agencies engaged for establishment and operation of processing facilities.

(b) Further, Startups within the dry waste management sector such as Waste Ventures, ITC WOW, Globus Waste Management Solutions, Matrik, Scrape Q, Recycal, and Elima Recycling Pvt Ltd are being encouraged to engage with gated communities/ bulk waste generators in the larger ULBs for collection of dry waste and processing at their tied-up recycling facilities.

(c) This initiative reduced the work load of the ULB and helped in managing 200-250 TPD of dry waste across ULBs.

(d) Further, the below listed waste reduction measures are being implemented till the processing facilities are established:-

- Home & community level composting is being promoted across Municipal wards.
- Bulk waste generators are being mandated to establish onsite processing of waste generated.
- 154 no. of Reduce, Reuse, Recycle (RRR) centers have also been established across 141 ULBs to ensure that the used items from the households are collected in a systematic manner and promote reuse by the needy citizen.

(e) These initiatives will reduce the waste being transported to the processing units/ dumping yards.

Observation of Hon'ble Tribunal:

(ii) ***There has been a change in the legacy waste figure of 59.0 lakh MT reported earlier which is now reassessed to 38.46 lakh MT. The entire waste is expected to be remediated by 30.06.2025.***

CDMA:

(a) The figure 59.0 lakh MT of Legacy Waste was taken on assumption/adhoc basis (in the wet-status). Now, the realistic survey of Legacy Waste was conducted in a scientific manner and figure is worked out on dry-status basis as 38.46 lakh MT.

(b) True copy of the Survey Report conducted by M/s.Vibhasa Solutions, M/s.HRP Infra Pvt.Ltd., to arrive at the exact quantities at 38,46,000 MT is enclosed as ***Annexure-A4.***

(c) Out of 38.46 Lakh MT –

- 13.43 Lakh MT is remediated at site as on 31-12-2024.
- Another 3.47Lakh MT is scheduled to complete by March 2025
- Balance gap of 21.56 Lakh MT will be achieved by 31.12.2025.

(Qty in lakh MT)

S. No.	Action	April 2024	December 2024	March 2025	June 2025	July 2025	Aug 2025
1	Biomining to be completed ULBs	12	04	15	20	10	10
2	Qty of waste remediated (in **completed and ongoing ULBs)**	7.90	5.53	3.47	5.56	2.12	2.09
3	***Cumulative Quantity***	7.90	13.43	16.90	22.46	24.58	26.67

*Table to be continued.

Sl.no	Action	Sept 2025	Oct 2025	Nov 2025	Dec 2025	Total
1	Biomining to be completed ULBs	8	15	15	14	123
2	Qty of waste remediated (in **completed and ongoing ULBs)**	1.88	2.44	4.66	2.81	38.46
3	***Cumulative Quantity***	**28.55**	**30.99**	**35.65**	**38.46**	-

(d) **Management of Fresh & Legacy Waste:**

- Five (5) agencies i.e., M/s.Cube Bio-energy Pvt ltd, M/s.DS Technologies, M/S Srushti Contech Pvt Ltd, M/s Annapurna Constructions and M/s Sagar Motors have been engaged for completing the biomining project.

- Further, tenders have been invited for engagement of agencies for establishment of scientific processing facilities. Requests have been made to State Govt. vide letter No.E-183458-2020-H1 dt 24.10.2024 & 24.12.2024 and awaiting approval to cancel the tenders issued for establishing processing facilities and to recall fresh tenders due to:

- ❖ A Waste to Energy (WTE) plant is proposed to treat approx. 800 MT of waste form 9 ULBs in GWMC and Karimnagar Clusters.
- ❖ Reclustering of ULBs duly excluding ULBs within ORR and ULBs grouped in WTE cluster.
- ❖ Revised procurement model duly utilising central share under SBM (U) as VGF towards capital under HAM model.

(d) Status of Biomining Process per Year / Timeline for completion:

Bio-mining was initiated during October 2022 with a timeline of 2 years for completion. Status of bio-mining is provided in the table below:

Sl.No	Year	No. of ULBs	Qty of legacy waste remediated (MT)
1	2022	4	133106
2	2023	18	492099
3	2024	24	717953
Total Qty Remediated (MT)			1343158

Due to challenges faced as mentioned below, the timeline is further extended till December 2025.

A. <u>CDMA (Solid Waste Management):</u>

(a) **<u>Power/Electricity:</u>**

One of the main reasons for delay in treatment of the dump-sites is due to low capacity sites like 2000/3000 tons and ranges up to 10,000 tons. Like this there are 20 sites and are located in a very isolated places& outside the habitation areas and low lying sites away from the village. For arranging treatment equipments/machinery at the dump sites, power supply is main factor. It requires a minimum 120 kv power lines. Due to locations at the isolated and & outside the habitation areas, drawing power lines to such sites will be a practical difficulty, and for providing 120 kv power lines, it costs Rs. 30 to 40 lakh. Whereas the actual cost for the treatment will not be more than Rs. 20 lakh. Due to problem in providing power, which will be an additional cost and time consuming, the Projects are not being completed within the time-frame. DG set as alternative arrangements are being provided by the concessionaires for implementing Biomining project.

(b) **Intense Rainfall and Floods:**

The targeted objectives for waste processing and land reclamation could not be achieved due to severe disruptions caused by intense rainfall and flash floods. These unforeseen weather events significantly hampered operations, limiting accessibility to the project sites and delaying the implementation of planned activities. Consequently, the adverse environmental conditions affected the pace and efficiency of the work, resulting in shortfalls in meeting the expected outcomes. Biomining sites with less than 3000 MTs shall be prioritized to undertake biomining during the rainfall with measures including arrangement of temporary covers.

List of ULBs with less than 3000 MTs of Legacy waste:-

1) Adibatla, 2) Alair, 3) Alampur, 4) Amarchinta, 5) Andole-Jogipet, 6)Atmakur, 7) Bhoothpur, 8) Choppandandi, 9) Dubbaka, 10)Kodangal, 11)Maripeda, 12) Narsampet, 13) Nerducherla, 14) Pebbair, 15)Pochampally, 16)Tirumalagiri and17) Yadagirigutta.

(c) **Moisture Content:**

The high moisture content in the waste, persisting even after the monsoon season, has caused frequent machinery jams and breakdowns. This excessive moisture has not only disrupted the smooth functioning of equipment but also slowed down the overall waste processing operations, further impacting productivity and efficiency.

(d) **Seasonal vagaries:-**

As the dump sites are located in the interior process and low laying areas, rain water is likely to accumulate in such places due to gravity, whereby the dump sites are getting totally wet and it will take longer time to get dried up. The contracting Agencies who have undertaken the work, have to wait till the season is passed over.

Similarly, during the winter season, moisture content is heavy due to mist/fog which is very common in the locations and isolated places, heavy greenery, etc. Due to this reason the Contracting Agencies have to wait till the winter season is passed over.

Solid Waste/dump sites are being actively treated mainly during summer season in Telangana viz, March, April and May. This season the Contracting Agencies work more number of hours and the work would also get speeded up and maximum quantity of waste is possible to be treated.

(e) Land Fill Sites in ULBs:

- SLF at regional level is proposed to be established post establishment of scientific processing facilities.
- Dumpsites are Government lands as allocated by the revenue department.
- Each municipality has 1 dumpsite (list attached in **Annexure-A4(i)**

(f) Leachate Handling in Monsoon:

Leachete collected during the monsoon season is stored and is used as bacterial catalyst for decomposition of waste after windrows formation. (refer to the site layout plan attached as **Annexure-A4(ii)**)

Observation of Hon'ble Tribunal:

(iii) ***We could not ascertain the details of waste being processed by GHMC, which is estimated to be 7251 TPD.***
(Claimed by GHMC, 100% treatment of Waste):

GHMC:

(a) 100% of the MSW collected is processed without any gap. The process followed is - mechanical segregation of MSW received results into organic fraction (-70 mm) which goes for conversion into Compost, inorganic material (+70 mm) is utilized as Refuse Derived Fuel for producing electric power in waste to energy (WTE) plants (a part of it also goes to cement plants & recycling plants). The Process rejects are disposed in scientific landfill.

(b) The average quantity of fresh waste collected and processed at Jawaharnagar MSW Processing & Disposal (P&D) facility is 7251 Tons Per Day (TPD) and it is not legacy waste. Details are in ***Annexure-A5.***

(c) The by–products obtained after processing 7251 TPD of MSW is as follows (average TPD):

- Refuse Derived Fuel: 3767 TPD

- Compost:366 TPD
- Inerts disposed at scientific landfill: 1272 TPD
- Recyclable Plastic: 12 TPD
- Moisture & fermentation loss: 1834 TPD

GHMC envisages to establish additional decentralized processing facilities one each at Pyaranagar and Dundigal in the next 18 months.

Approved bill for the month of Feb'2024 is enclosed herewith as proof of 100% processing of the daily quantity of MSW generated (page 04 of the enclosed bill) as ***Annexure-A6.***

Further, the Project is being monitored and certified by a quasi Government Institute viz., Environment Protection Training and Research Institute (EPTRI) as Independent Engineer.

(d) GHMC entered into an MoU with IIT Bombay to conduct assessment studies on suitability of Decomposed Municipal solid waste for Bio-mining at Jawaharnagar capped dumpsite **(Annexure-A6(i)).** The Final Report on the above said study which recommended that the capped legacy dump is not ready for biomining is **enclosed (Annexure-A6(ii)**.

(e) **<u>Fresh Waste</u>**

i. Capacity of fresh waste treatment in GHMC since 29.09.2022 is 8000 TPD [Provisional Readiness Certificate (PRC) copy issued by EPTRI who is the IE for IMSWM Project is enclosed **as Annexure-A6(iii)]**. The capacities are augmented based on the quantity of MSW being received at the processing facility.

ii. The Integrated MSW Management Project of GHMC is being executed by M/s Re-sustainability Ltd through its SPV – M/s Hyderabad Integrated MSW Ltd.

(f) **<u>Legacy Waste</u>**

The legacy waste of 12 million metric tons (MMT) at Jawaharnagar was capped.

(g) GHMC is operating a scientific landfill at Jawaharnagar since Feb' 2012 in government land which is being managed by M/s Hyderabad Integrated MSW Ltd who is the Special Purpose Vehicle of the Concessionaire for the Integrated Municipal Solid Waste Management Project of GHMC.

(h) An average of 7648 TPD of MSW collected from GHMC limits was processed by GHMC for the period of Apr'2024 to Sep'2024 i.e., the period for submission of the 4th half yearly report. If the FY 2024-25 upto Jan'2025 is considered, GHMC has collected and processed an average of 7683 TPD of MSW.

(11)

(i) **Waste to Energy Plant:**

i. GHMC has established and commenced operations of the following Waste to Energy plants of cumulative capacity of 38.5 MW :

S. No.	Location	Capacity	Commencement	Grid connectivity through
1	Jawaharnagar	24 MW	Aug'2020	Malkaram Substation
2	Dundigal	14.5 MW	Mar' 2024	Gummadidala Substation

ii. Further, additional 24 MW capacity WTE is under construction at Jawaharnagar and is expected to commence operations by end of Mar'2025.

iii. Both the plants are connected to the grid. The Power Purchase Agreement of the WTE at Jawaharnagar is enclosed as **Annexure A6(iv).**

iv. The sample copy of the Bills raised by the Concessionaire to TG-SPDCL for the month of Jan'2025 is enclosed as **Annexure-A6(v).**

(j) Monitoring Mechanism:

GHMC:

(a) Fresh Waste

i. The activities under the Municipal Solid Waste Management Project of GHMC are being monitored through inspections, certification of work executed, recording the work and subsequent certification of bills etc by a quasi government Independent Engineer viz., Environment Protection Training and Research Institute (EPTRI). Copy of Government Order notifying EPTRI as Independent Engineer is **enclosed as Annexure-A6(vi).** Copies of certified bills towards collection, transportation, treatment and disposal are **enclosed as Annexure-A6(vii) and Annexure-A6(viii).**

ii. The Bills certified by EPTRI are further scrutinized at the ULB level in the concerned section and subsequently by the audit section before releasing the payments to the Concessionaire.

iii. The Telangana State Pollution Control Board also conducts regular inspections of the facilities and issues consents, permissions, notices on observations during inspections etc.

(b) Legacy Waste

The activity of capping of legacy waste at Jawaharnagar was also supervised by EPTRI such as approval of designs, compliance to the existing rules, monitoring the execution work, recording the measurement and certification of the payments.

Observation of Hon'ble Tribunal:

(iv) ***It has been admitted that 1,20,00,000 MT has been capped (page 2416) and whereas at another place this figure is 12MT (reported at page 2410). Hence, it is to be clarified. It is not disclosed if there is any further dumping or landfilling taking place.***

GHMC:

(a) 12 million MT of legacy waste was capped at Jawaharnagar by GHMC.
(b) The figure of 12 MT is a typographical error, which may please be read as 12 MMT.

From the date of commencement of operations of the Municipal Solid Waste (MSW) Processing and Disposal Facility of GHMC at Jawaharnagar (V) on 18.02.2012, unscientific dumping of MSW generated in GHMC is not taking place. The MSW is completely (100%) being processed and the process rejects are being disposed in sanitary landfill. Details of various activities being carried out in the MSW Processing & Disposal facility are submitted at **Annexure-A5.**

Observation of Hon'ble Tribunal:

II. **Sewage Waste Management:-**

(i) ***No relevant fact can be gathered in respect of sewage management from the data furnished in Annexure III (page 2507) and Annexure IV (page 2525). The data has been given in respect of polluted river stretches. Annexure IV discloses that existing 50 STPs are having treatment capacities of 1273.1 MLD but, it is not disclosed that how much sewage is actually being treated.***

(A) **HMWSSB (within GHMC and upto ORR area):**

(a) Earlier the data furnished in Annexure III is regarding the status of under construction STPs. Due to site constraints, 1259 Mld STPs are taken up at 27 locations out of which 11 STPs of 663 Mld capacity are completed & commissioned. Balance 9 STPs of 443 MLD capacity are in brisk progress and are programmed for completion by April'2025. Out of balance 7 STPs, one STP is under Court Case and 6 STPs are being taken up under AMRUT-2.0 which are in Tender stage. The updated report of under construction STPs within GHMC area is herewith detailed in ***Annexure-A7.***

(b) The data furnished in the earlier Annexure-IV pertains to the existing STPs. In GHMC area as on 31-12-2024, 36 STPs of capacity 1435.30 MLD are in operation with 1104.25MLD (77%) (which is as per OCEMS data shown in **Annexure 17**) of capacity utilization are detailed in ***Annexure-A8***.

(c) After completion of ongoing STPs, the total capacity of STPs in GHMC area would be 1878 MLD as against the sewerage generation of 1950 MLD and accounts for treatment capacity of more than 90% of sewage generated in GHMC area. The gap in treatment capacity of 72 MLD will be achieved by 2027.

Sl. No.	Sewage Generation & Treatment	MLD
1	Sewage Generation in GHMC & upto ORR (as on the date of NGT order 29.09.2022)	1950.00
2	Existing STPs Capacity (25 Nos)	772.30
3	Newly Constructed & commissioned STPs (11 Nos)	663.00
	Total Installed STPs capacity (2) & (3)	**1435.30**
4	Present Utilization Capacity	1104.25 (77%)
5	New STPs under construction (9Nos - nearing completion)	443.00
6	Utilization Capacity after completion of under progress STPs (April'2025)	90%
7	Gap in Treatment Capacity, being taken up under AMRUT-2	72.00

(B) <u>ENC-PH (Entire State of Telangana / 115 ULBs):</u>

(a) Earlier the data furnished in Annexure III is regarding the status of under construction STPs. Out of total 9 Nos of STPs with a capacity of 178.96 MLD, 6 Nos with capacity of 74.91 MLD is programmed to complete by June 2025. Balance 3 Nos of STPs could not be materialized due to various reasons. The updated report of under constructions STPs in ULBs is detailed in ***Annexure-A9.***

(b) In ULBs, as on 31-12-2024, the details of existing 16 Nos of STPs in 10 ULBs, capacity 167.80 MLD, which are in operation with 65.25 MLD capacity utilization & disposal points are as detailed in ***Annexure-A10 & A10(ii)***.

(c) The details of STPs under PHMED taken up under AMRUT 2.0 are enclosed in ***Annexure-A11.***

The gap in treatment 102.55 MLD will be achieved by July'2027.

(d) In the earlier scheme (like Urban Infrastructure Development Scheme for Small and Medium Towns [UIDSSMT]) there was no provision for house service connections. Due to technical constraints in ULBs, the connections could not be given. Hence the expected flow is not reaching STPs. It is proposed to take up the same under AMRUT 2.0.

(e) Government vide G.O. Rt. No. 388, dated 21-08-2024 accorded Administrative Sanction for an amount of Rs.3769.34 Crores (including O&M and Annuity payments and GST on Interest component of Annuity payments) for establishment of 115 No's of STPs in 101 ULBs (including 29 ULBs) other than Ramagundam (which is proposed in AMRUT 2.0. with a total capacity of 455.00 MLD in the State of Telangana under SBM 2.0. Technical sanction accorded and the Tenders will be invited shortly. The details are enclosed in ***Annexure-A11(i) & A11(ii).***

It is to submit that the execution of works are getting delayed due to the following reasons: -

B. HMWSSB & PHED (Liquid Waste Management):

(a) It is submitted that there are certain contingent problems being faced in implementation of the Schemes for setting up of Plants, viz, land acquisition, adjacent owners disputing the border issues in the Government lands with an intention of "Not In My Back Yard" (**NIMBY**)& filing cases in Hon'ble High Court, plant erection, time & cost over-run, etc. Otherwise, there is absolute intention to comply the orders of the Hon'ble NGT in the public interest for abatement of pollution and abiding the guidelines of the Liquid/Sewage Waste Management and Solid Waste Management Rules. That the Applicant undertakes hereunder that the State shall continue to put in all efforts to achieve the 100% treatment facilities in this regard as per schedules committed by the State Government.

(b) Setting up of STPs is mainly dependent on allotment of required land by the Government of Telangana for both HMWSSB and PH&ME Departments. The lands have been allotted by the Government out of the Government land banks available, mostly nearby water bodies. So as it will be easy and viable option for letting treated water into the existing water body(s) so that such water body would get rejuvenated. Further, the STP experts/consultants have also suggested to construct STPs near water bodies. With this, 'dual purpose' will be served viz, capturing small streams of sewage flow and diverting into the STP, will be very easy and after treatment of sewerage, the treated water will also very easy to let into water body(s).

(c) There is an embango that constructions of structures are not allowed within the FTL/Buffer Zone. Though, there is a special exemption sanctioned by the Government of India vide Memo No.F.No.22-39/2020-IA.III, dated 14.02.2022 whereby Para No. 6 (i) Exemption to the Water Developmental Projects (***Annexure-A22***) and STPs are being allowed to construct near water bodies. Despite Government land, some of the private individuals are obstructing the construction of STPs as proposed near the water bodies and filing cases before the Hon'ble Courts (mainly High Cout-15 cases are filed and pending now). For the said reason of litigation of land and court orders, (Government Implementing Agencies - HMWSSB

& PHED) are finding difficult to locate alternate lands for setting up of STPs which is main reason for delay in implementation of the STP Projects.

(d) Further, the STPs which are proposed in the ULBs, they are very small capacities and the Department is facing difficulty in getting the contract Agencies through e-Procurement Platform; because of which earlier (2) Tenders did not get response and the PH&MED has issued the 3rd Tender now.

1. In addition to the above STPs, as part of FSSM, the Public HealthDepartment has taken up 68 FSTPs of 470 KLD capacity in 68 ULBs totreat Septage and progress of work is in different stages of constructionand they are proposed to be completed within the period of 2 years.

A list of 68 FSTPs of 470 KLD capacity in 68 Urban Local Bodiesestablished in Telangana State are annexed as ***Annexure A23***.

Observation of Hon'ble Tribunal:

(ii) On examination of performance data given in Annexure-V regarding functioning of STPs, we find that extent of utilization of treatment capacities and final point/ mode of disposal of treated sewage, has not been disclosed. Further, Telangana PCB is required to clarify on the Standards prescribed in CFO with regard to Fecal Coliform as they are in variance with regard to the Standards set out by the Tribunal in order dated 30.09.2018 passed in OA 1069/2018.

Status of Compliance:

(A) HMWSSB (GHMC & ORR Area):

The functioning of 36 STPs of capacity 1435.30 MLD which are in operation with 1104.25MLD (77%) (as per OCEMS data shown in Annexure 17) of capacity utilization & final disposal points as desired are now detailed in ***Annexure-A12.***

(B) ENC-PH (115 ULBs):

The details of existing 16 Nos. of STPs capacity is 167.80 MLD, whereas operational capacity is 65.25 MLD is detailed in ***Annexure-A10***. The Treated sewage in ULBs is disposed to nearby water bodies/ agricultural fields (**Annexure-A10(i)**).

(C) PCB:

With regard the Faecal Coliform, the standards prescribed in CFO by PCB adopted are as per the CPCB guidelines, which are being adhered by the implementing authorities. The CFO standards for Faecal Coliform of PCB in

compliance with Tribunal standards are placed before the Committee and after its clearance the same will be communicated to the implementing agencies. However, as on today the test results of Faecal Coliform at various STPs are within the limits as shown in the **Annexure-A18(i).**

(i) **Environmental Clearances under the EIA Notification, 2006 – CFE & CFO**

- Municipal Solid Waste Processing Facilities - 2 Nos (Jawhar Nagar, RR District obtained Environmental Clearance (EC), Consent For Establishment (CFE) and Consent for Operation (CFO). The Pyara Nagar, Sangareddy District obtained CFE of the Board) – **Annexure-A18(i)(a, b, c & d).**

(ii) **Transportation, Storage and Distribution facilities (TSDF)**
There is only one TSDF located in Rangareddy District, Telangana which is having CFE and CFO.

Statutory Clearances:

(i) **HMWSSB**
The Consent For Establishment (CFE) & Consent For Operation (CFO) of existing and under construction STPs in GHMC Area is obtained in the name of HMWSSB from Telangana State Pollution Control Board **(CFO-Annexure-A18(i)(e).**

(ii) **ENC-PH:**
Regarding STPs in ULBs outside ORR, Consent for Establishment (CFE) for yet to be started STPs & under construction STPs will be obtained from Telangana State Pollution Control Board. The Consent for Operation (CFO) for 2 STPs in Nizamabad ULB is obtained from the statutory authority (Telangana State Pollution Control Board) and will also be obtained for other STPs.

(iii) **GHMC:**

1. Statutory clearances are obtained in the name of the Concessionaire executing the project. However, as per the Concession Agreement for the Integrated Municipal Solid Waste Management Project, the Concessionaire shall handover all the project facilities to GHMC at the end of Concession Period
2. Sample copy of the Consent for Operation issued by Telangana State Pollution Control Board to M/s Hyderabad Integrated MSW Ltd **is enclosed as Annexure-A18(i)(a, b & c).**

Environmental Clearances:

GHMC:

The following statutory clearances issued for the MSW Processing and Disposal Facility of GHMC at Jawaharnagar are enclosed:

S.No	Document	Remarks
1	Consent order for Operation (Renewed) – 1/TSPCB/MSW- Projects/2023 dated 22.09.2023	**Annexure-A18(i)a**
2	Environmental Clearance -Order no SEIAA/ AP/ RRD-111/ 2009 dated 20.06.2012	**Annexure-A18(i)(b)**
3	Consent Order for Establishment – Order No 128/PCB/MSW/CFE /RR/2012/4224 date 19.12.2012	**Annexure-A18(i)(c)**

(iv) CDMA

For bio-mining projects, CFE and CFO have been obtained (Khammam CFO copy Attached as **Annexure-A18(ii)**). Concessionaires will be directed to obtain CFE and CTO for proposed new projects.

Observation of Hon'ble Tribunal:

(iii) ***Annexure III and Annexure IV need to be further elaborated by giving figures of sewage generation, treatment and gap for each 141 ULB.***

Status of Compliance:

ENC-PH:

The Details of sewage generation, treatment and gap for each 141 ULB are attached in ***Annexure-A13***.

Observation of Hon'ble Tribunal:

(iv) ***Factual status on sewage generation for GHMC, installed capacities and utilisation of existing STPs, performance of STPs and final mode of disposal, has not been disclosed.***

Status of Compliance:

HMWSSB:

The Sewage Generation in GHMC &upto ORR (as on the date of NGT order 29.09.2022) is 1950 MLD. The capacity of existing 36 STPs (25+11) as on 31.12.2024 is 1435.30 MLD (772.30 + 663 MLD). The present utilization capacity at these 36 STPs is 1104.25 MLD (77%). Further another 9 Nos of 443 MLD

capacity STPs in GHMC area are nearing completion. After its completion the total installed capacity of STPs would be 1878 MLD which accounts for more than 90% of sewage treatment.

The STP wise report on Sewage Generation, installed capacity, utilization and performance of STPs, disposal points are detailed in ***Annexure-A8 & A12.***

(19)

Summary of the Treatment Facilities
Government sanctions and Status of STPs, in respect of creation of total treatment facilities equal to the amount of Environmental Compensation out of Rs. 3,800 Crores levied is given below

I. CDMA:

(i) Table-1:Government Sanction:

Sl. No.	Description of Project	No. of ULBs covered	Project Cost (Rs. in Crorers)	Central Share (Rs. in Crorers)	1st instalment released @ 40% of Central Share (Rs. In Crorers)
(1)	(2)	(3)	(4)	(5)	(6)
1.	Remediation of Legacy Waste / Dumpsites @ Rs. 550/MT under SBM-2.0	123 (As per Annexure)	178.60	69.09	27.63

- Copy of sanction is enclosed as ***Annexure-A19.***

Note:

The above sanction includes 5 years O & M Cost.

The State Government has received sanctions from SBM-2.0 from GOI, MoHUA, New Delhi for Rs. 178.60 Crores, which covers the entire cost of Environmental Compensation of Rs. 177.00 Crores levied by the Hon'ble NGT.

(ii) Table -2: Status of Biomining

Sl No	Status of Bio mining	Processing status in ULBs	Qty of Waste in Lakh MT
1	No of ULBs with Zero Legacy waste	18	0*
2	Total Process Completed	16	3.90
3	Stage 1: Spraying of Inoculum bacteria	38	11.12
4	Stage 2: Windrow Formation	39	12.17
5	Stage 3: Screening of waste	19	9.50
6	Retendered	11	1.77
Total No of ULBs		**141**	**38.46**

***Note: Waste from the below18 ULBs are sending to integrated processing facility at Jawaharanagr for further treatment and disposal:**

(i) Shamshabad, (ii) Shankerpally, (iii) Boduppal, (iv) Peerzadiguda, (v)Gundlapochampally, (vi) Manikonda, (vii), (viii) Meerpet, (ix) Turkayamjal, (x) Narsingi, (ix) BandlagudaJagir, (xii) Amangal, (xiii) Kothur, (xiv) Kompally, (xv) Medchal, (xvi) Jawaharnagar, (xvii) Dhammaiguda, (xviii)Badangpet.

Stage 1: Spraying of Inoculum bacteria

All biodegradable waste, like discarded food, fruit, flower, and garden waste, needs air to decompose it in an odorless way without producing leachate by adding Inoculum bacteria. bio-cultures speeds up decomposition and rapidly creates biological heat within the waste

that helps to dry it out and reduce its volume by 35-40%. This happens through loss of moisture and by decomposition of some of the aerated waste to carbon dioxide and water vapour.

Stage 2: Windrow Formation
legacy waste is loose and make windrows so as the leachate can be dried of through solar exposure and all the entrapped methane is removed from the heap, and makes the waste dry enough for screening.

Stage 3: Screening of waste
Screen the stabilized waste in a rotary screen or gravity screens of different size openings, this process will separate waste into different categories like bio solids, RDF, recyclable material, C&D and Inerts.

(iii)Table-3 Action plan for Biomining :

(Qty in lakh MT)

Sl.no	Action	April 2024	December 2024	March 2025	June 2025	July 2025	Aug 2025
1	Biomining to be completed ULBs	12	04	15	20	10	10
2	Qty of waste remediated (in **completed and ongoing ULBs)**	7.90	5.53	3.47	5.56	2.12	2.09
3	***Cumulative Quantity***	7.90	13.43	16.90	22.46	24.58	26.67

*Table to be continued.

Sl.no	Action	Sept 2025	Oct 2025	Nov 2025	Dec 2025	Total
1	Biomining to be completed ULBs	8	15	15	14	123
2	Qty of waste remediated (in **completed and ongoing ULBs)**	1.88	2.44	4.66	2.81	38.46
3	***Cumulative Quantity***	28.55	30.99	35.65	38.46	-

Explanation to Table – 2(Para- I (ii)

- **Zero legacy waste in 18 ULBs:-**
  (i) Shamshabad, (ii) Shankerpally, (iii) Boduppal, (iv) Peerzadiguda, (v) Gundlapochampally, (vi) Manikonda, (vii) Badangpet, (viii) Meerpet, (ix) Turkayamjal, (x) Narsingi, (ix) Bandlaguda Jagir, (xii) Amangal, (xiii) Kothur, (xiv) Kompally, (xv) Medchal, (xvi) Jawaharnagar, (xvii) Dhammaiguda, (xviii) Nakrekal.

(21)

- **Remediation of legacy waste has been completed in 16 ULBs:-**
  (i) Jalpally, (ii) Zaheerabad, (iii) Bhongir, (iv) Naraynapet, (v) Pocharam, (vi) Nizampet, (vii) Dharmapuri, (viii) Yellareddy, (ix) Bheemgal, (x) Ameenpur, (xi) Sircilla, (xii) Jagityal, (xiii) Medak, (xiv) Gajwel, (xv) Mandamarri, and (xvi) Cherial.

- **Stage 1: Spraying of Inoculum bacteria is in progress in 38 ULBs:**
  (i) Alampur, (ii) Armoor, (iii) Atchampet, (iv) Atmakur, (v) Banswada, (vi) Bellampally, (vii) Bhainsa, (viii) Bhoothpur, (ix) Bhupallapally, (x) Chennur, (xi) Choppandandi, (xii) Dornakal, (xiii) Dubbaka, (xiv) Gadwal, (xv) Husnabad, (xvi) Huzurabad, (xvii) Ibrahimpatnam, (xviii) Jadcherla, (xix) Jammikunta, (xx) Khanapur, (xxi) Kothapally, (xxii) Kyathanpally, (xxiii) Luxettipet, (xxiv) Madhira, (xxv) Manthani, (xxvi) Manuguru, (xxvii) Maripeda, (xxviii) Metpally, (xxix) Nagar kurnool, (xxx) Narsampet, (xxxi) Narsapur, (xxxii) Naspur, (xxxiii) Parkal, (xxxiv) Peddaamberpet, (xxxv) Raikal, (xxxvi) Ramagundam, (xxxvii) Wardhannapet, (xxxviii) Wyra.

- **Stage 2: Windrow Formation is in progress in 39 ULBs:-**
  (i) Adibatla, (ii) Alair, (iii) Amarchinta, (iv) AndoleJogipet, (v) Bollaram, (vi) Choutuppal, (vii) Ghatkesar, (viii) Ieeja, (ix) Kalwakurthy, (x) Kamareddy, (xi) Kodangal, (xii) Kollapur, (xiii) Kosgi, (xiv) Kothakota, (xv) Makthal, (xvi) Mothkur, (xvii) Nagaram, (xviii) Narayankhed, (xix) Nirmal, (xx) Palwancha, (xxi) Parigi, (xxii) Pebbair, (xxiii) Pochampally, (xxiv) Ramayampet, (xxv) Sadasivpet, (xxvi) Sangareddy, (xxvii) Sattupalli, (xxviii) Shadnagar, (xxix) Sulthanabad, (xxx) Tandur, (xxxi) Tellapur, (xxxii) Thoopran, (xxxiii) Thorrur, (xxxiv) Thukkuguda, (xxxv) Vemulawada, (xxxvi) Vikarabad, (xxxvii) Waddepalle, (xxxviii) Wanaparthy, (xxxix) Yadagirigutta.

- **Stage 3: Screening of waste is in progress in 19ULBs:-**
  (i) Siddipet, (ii) Adilabad, (iii) Khammam, (iv) Mancherial, (v) Dundigal, (vi) Thumkunta, (vii) Jangaon, (viii) Bhodhan, (ix) Mahabubnagar, (x) Nizamabad Corp., (xi) Suryapet, (xii) Peddapalli, (xiii) Korutla, (xiv) Kazagnagar, (xv) Mahababad, (xvi) GWMC, (xvii) Kothagudem, (xviii) Yellandu, and (xix) Karimnagar.

- **List of 11 ULBs that are under the retendering process:-**
  (i) Miryalguda, (ii) Nalgonda, (iii) Haliya, (iv) Nandikonda, (v) Chandur, (vi) Chityal, (vii) Devarakonda, (viii) Tirumalgiri, (ix) Huzurnagar, (x) Neredcherla, and (xi) Kodad.

I. **HMWSSB**

Table-4: Government sanctions

Sl. No.	G.O.No. and date	Capacity (MLD)	Amount sanctioned (Rs in Crs)	Package No.	Catchment area	No. of STPs	Status
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
1	G.O.Rt.No.669, MAUD, dt: 22.09.2021	402.50	1,230.21	1	North of Musi River	8	• 20 STPs grounded. • 11 completed. • 9 nearing completion • 1 In court case • 6 sanctioned in AMRUT-2
2	-do-	480.50	1,355,13	2	South of Musi River	6	
3	G.O.Rt.No.374, MAUD dt.11.09.2020	376.50	1,280.87	3	Kukatpally-Hussain Sagar Lake	17	
	Sub-Total (A)	**1,259.50**	**3866.21**	-	-	31	
4	G.O.Rt.No.344, MAUD, dt.03.08.2024 (Amrut 2.0)	**972.00**	**3849.10**	3 Packages	ULBs in ORR Area & part GHMC	39	In Tender Stage
	Sub-Total (B)	**972.00**	**3849.10**				
	Grand Total(A+B)	**2,231.50**	**7,715.3**				

*Copies of GOs enclosed as ***Annexure-20(A, B & C)***

Funding Pattern under AMURT-2.0

- GoI Share (25%)
- GoT Share (35%)
- HAM/PPP Agency (40%)
- O&M Cost by HMWSSB – 15 years

Note:

(i) With the construction of 31 STPs (1259.50 MLD) as shown at column No. (7) above, will be able achieve the Sewage Treatment to the extent of 100% in the Hyderabad Projects under HAM mode of contract (60% investment by Agency and 40% by the Government of Telangana) as per the sanctions in place (Col.No.2).

(ii) Another 39 STPs of 972 MLD Capacity are also sanctioned for ULBs of ORR area & part of GHMC under AMURT-2.0 with funding of 25% by GOI, 35% by GoT and 40% by Investor under HAM Mode, which are in tender stage.

Table-5 – Gaps as per Order dated: 29.09.2022:

The estimate sewage generation for the entire Telangana State is 2750 MLD, the Sewage generation in Hyderabad Urban Agglomeration (HUA) is 1950 MLD, balance 800 MLD is in all ULBs of the State.

Status Report on Liquid Waste Management in GHMC Area:
(As on 31.12.2024)

I.	**Sewage Generation & Treatment:**			
1.	Sewage Generation in GHMC &upto ORR		-	1950 MLD
2.	Existing Treatment capacity		-	772 MLD
3.	Gap in treatment (Sep'2022)		-	1178 MLD
II.	**New STPs taken up in GHMC area** to bridge the gap for prospective year		-	1259.50 MLD
III.	**Status of STPs (as on 31.12.2024):**			
1.	STPs completed by 31/12/2024 (11 STPs)		-	663 MLD
	i. Durgamcheruvu	- 7.0 MLD		
	ii. Kokapet	- 15.0 MLD		
	iii. Miralam Site-I	- 41.5 MLD		
	iv. Peddacheruvu	- 17.5 MLD		
	v. Nallacheruvu-1	- 86.5 MLD		
	vi. Miyapur-Patelcheruvu	- 7.0 MLD		
	vii. Safilguda	- 5.5 MLD		
	viii. Khajakunta	- 20.0 MLD		
	ix. Fathenagar-1	- 133 MLD		
	x. Vennelagadda	- 10.0 MLD		
	xi Nagole	- 320.0 MLD		
2.	STPs completion by 31/03/2025 (6 STPs)		-	329.50 MLD
3.	STPs completion by Apr'/2025 (3 STPs)		-	113.50 MLD
4.	Balance STPs under AMRUT-2.0 (2 STPs)*		-	72.00 MLD
		Total of (III)		1178.00 MLD **(Appendix-I)**

Thus with the already completed 11 STPs and another 9 STPs by April'2025, the total installed capacity of STPs (old & new) would be 1878 MLD and it shows more than 90% sewage treatment capacity within GHMC area and 100% treatment capacity would be achieved on completion of balance STPs sanctioned under AMRUT-2.0.

(*) Nallacheruvu-2 & Hyderabad Public School (HPs).

(24)

Appendix-I

HYDERABAD METROPOLITAN WATER SUPPLY AND SEWERAGE BOARD

Status of STPs taken up in GHMC Area as on 31.12.2024

Sl.No.	Location of STP	Capacity (MLD)	Project Cost (Include MoM) (Rs. In Cr.)	Status
1	Durgamcheruvu	7.0	33.71	Completed
2	Kokapet	15.0	68.33	Completed
3	Miralam Site-I	41.5	158.44	Completed
4	Peddacheruvu	17.5	77.40	Completed
5	Nallacheruvu-1	86.5	259.70	Completed
6	Miyapur-Patelcheruvu	7.0	33.72	Completed
7	Safilguda	5.5	28.69	Completed
8	Khajakunta	20.0	79.43	Completed
9	Fathenagar-1	133	360.54	Completed
10	Vennelagadda	10.0	46.09	Completed
11	Nagole	320.0	769.72	Completed
	Total (A)	**663.00**	**1915.77**	[Dec, 2024]
12	Palapitta Park	7.0	34.85	Jan'2025
13	Shivalaynagar	14.0	65.02	Feb'2025
14	Mullakathuwa Cheruvu	25.0	92.82	Feb'2025
15	Nallagandla	7.0	32.15	Feb'2025
16	Attapur-1	64.0	218.58	Feb'2025
17	Amberpet	212.5	588.60	Mar'2025
	Total (B)	**329.50**	**1032.02**	[Jan to Mar, 2025]
18	Rainbow Vista	43.5	142.80	April'2025
19	Ramacheruvu	30.0	119.68	April'2025
20	Attapur-2	40.0	140.07	April'2025
	TOTAL (C)	**113.50**	**402.55**	
21	Balance gap sanctioned under AMRUT-2.0 for Two STPs Nalla Cheruvu -2 (Uppal) & Hyderabad Public School	72.00	281.80	Tenders issued in January-2025. Scheduled to be completed in 24 months

	(HPS), Begumpet			
	TOTAL (D)	**72.00**	**281.80**	
	G.TOTAL (A+B+C+D)	**1,178.00**	**3632.14**	

II. ENC-PH

(i) Table - 6: Government Sanctions:-

Sl. No.	G.O. No. and date	Capacity (MLD)	Amount sanctioned	Package No.	Catchment area/ULB	No. of STPs
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	Govt. G.Os/ Proceedings/ Memos of MAUD issued from 2019 to 2025 ($)	212.15	1062.38	10	10	20
2	G.O. Rt No. 762 Dt: 29-09-2023 MA&UD (UBS) Dept (AMRUT 2.0)	170.30	1956.01 (*)	3	9	16
3	G.O.Rt.No.388, Dt: 21-08-2024 of MA&UD (Engg.) Dept.	455.00	3769.34 (**)	1	101	115
	Total	**837.45**	**6,787.73**	**14**	**120**	**151**

($) There are 10 G.Os for Sl.No.1 above.

(*) out of total sanction of Rs. 5385.05 Crores for WS & UGD, Rs. 1956.01 Crores meant for UGD.

(**) Includes O&M cost plus annuity payments.

Copies of G.Os enclosed as ***Annexure-21(A, B & C)***

Funding Pattern under SBM-2.0

- GoI Share (35%)
- HAM/PPP Agency (65%)
- O&M Cost by ULBs – 10 years

(ii) **The entire State of Telangana, 115 ULBs, maintained by Public Health Department**

(a) The Public Health and Municipal Engineering Department (PH&MED) is dealing with 115 ULBs (outside ORR). The Gap in total Sewage Generation in 115 ULBs is about 646.00 MLD as observed by the NGT in its order dated 29.09.2022.

(b) In respect of balance 27 No's ULBs are being looked after by GHMC/HMWSSB which are located within ORR limits. Thus the total number of ULBs dealt herewith to the extent of 142 (GHMC : 1 HMWSSB –26 and PH &MED : 115 = 142).

(c) In order to achieve 100% Sewage Treatment in 9 ULBs for abatement of Pollution, the Government of Telangana has issued G.O Rt. No. 762, MAUD (UBS) dated 29.09.2023 with a total cost of Rs. 5385.05 Cr. for 9 Sewerage Projects including 98 Water Supply Projects under 3 Packages under AMRUT- 2.0 (for Rs.1956.01 Cr for Sewerage Projects in 9 ULBs) .

Table- :PH&MED – 115 ULBs,
(other 27 ULBs dealt by GHMC:1 & HMWSSB: 26 ULBs)

Total Sewage Generation in ULBs – 800 MLD

Sl. No.	Sewage Generation & Treatment	Capacity in MLD
1.	Gap in Sewage Generation in 115 ULBs (as on 29.09.2022)	646.00
2.	Existing Treatment Capacity (as on date of NGT order 29.09.2022)	132.75
3.	(a) STPs completed and commissioned after the Order i.e., from October 2022 to December 2024.	35.05
	(b) STPs likely to be completed from January 2025 to March 2025	17.16
	Sub-Total (3): (a) + (b)	**52.21**
4.	STPs likely to be completed from April 2025 onwards (ongoing STPs projects under AMRUT 2.0 under SBM 2.0)	593.79
	Sub-Total:(3) + (4):	**646.00**
5.	STPs taken up with additional capacity under AMRUT 2.0/SBM-2.0	69.26
	Grand Total: (2) + (3) + (4) + (5)	**848.01**

- Please see*Annexure – A13.*

Note:

(i) The figures shown above at Sl.No (3) & (4) will tally with the deficiencies observed by NGT. The List of existing, on-going and proposed STPs with capacities is annexed as *Annexure A-13*.
(ii) The Construction of STPs in 115 ULBs is dealt by PHED and will be handed over to ULBs for further Maintenance of STPs on completion.
(iii) STPs of 593.79 MLD capacity to be completed from April 2025.
(iv) Agreements for above works completed and will be completed in 24 months from date of Agreement.

2. Status of compliance of Solid Waste Management Rules, 2016 including Legacy Waste:

2.1 Details of Solid Waste Management in State:

a. Total number of ULBs and their population: 142(including GHMC).

b. Current Municipal Solid Waste Generation in ULBs: 11,999 TPD (GHMC-7683 TPD and remaining 4316 TPD by the 141 ULBs).

c. Number, installed capacity and utilization of existing MSW processing facilities in TPD (bifurcated by type of processing eg- Waste to Energy (Tonnage and Power Output), Compost Plants (Windrow, Vermi, decentralized pit composting), bio-methanation, MRF etc:

Details of the facilities existing in the ULBs

d. The **Greater Hyderabad Municipal Corporation (GHMC)** has an Integrated MSW facility with a capacity of 8000TPD capacity in operation at Sy.No.173, Jawahar Nagar, Medchal-Malkajgiri. The capacities of different facilities are as follows:

S. No.		ITEM	COMPLIANCE
1		**Numbers of ULBs**	142
2		**Over all waste management status**	
	a	Quantity of MSW generated (TPD)	11999
	b	Quantity of MSW Collected (TPD)	11999
	c	Quantity of MSW segregated & transported (TPD)	Segregated at source: 7191 (GHMC: 4818, other ULBs: 2373). Waste Transported: 11999 (GHMC:7683, other ULBs: 4,316)
	d	Quantity of MSW processed (TPD)	9955 (GHMC:7683, other ULBs: 2272)
	e	Quantity of MSW disposed in secured land fill site (TPD)	1264 (GHMC:1264, other ULBs: 0)
	f	Gap in Solid waste Management (TPD) [2(a)-2(d)]	2044 TPD (GHMC:0, other ULBs: 2044)
3		**Waste Collection**	
A		Door-to-door collection is	142 ULBs

S. No.		ITEM	COMPLIANCE
		implemented	
B		% of Segregation of waste implemented	61% (GHMC: 63%, other ULBs: 59%)
C		Transportation of segregation of waste is implemented	142 ULBs
4		**Waste Processing**	
A		**Waste Processing Facility**	
	(i)	Total Capacity (TPD)	8985.5 (GHMC:8,000, other ULBs: 985.5)
	(ii)	Number (DRCC)	226 (GHMC:18, other ULBs: 208)
	(iii)	Number of ULBs Covered	142
B		**Recycling**	
	(i)	Total Capacity (TPD)	20.8 (GHMC:20, other ULBs: 0.80)
	(ii)	Number	3 (GHMC: 20TPD capacity of Plastic to plastic covers and granules; Suryapet:0.20 TPD capacity of Plastic to bricks / tiles; Siddipet: 0.60 TPD capacity Plastic to tiles)
	(iii)	Number of ULBs Covered	3
C		**Composting**	
	(i)	Total Capacity (TPD)	5258 (GHMC:4,000, other ULBs:1258)
	(ii)	Number	230
	(iii)	Number of ULBs Covered	142
D		**Bio-methanation**	
	(i)	Total Capacity (TPD)	18.5 (GHMC:5, other ULBs:13.5)
	(ii)	Number & TPD	4 Nos (GHMC:5 TPD; GWMC:2.5 TPD; Siddipet:10 TPD; Sircilla:1 TPD)
	(iii)	Number of ULBs Covered	4 nos
E		**RDF**	
	(i)	Total Capacity (TPD)	4015 (GHMC-4000 & Other ULBs-15)
	(ii)	Number	4 (1-GHMC+3 ULBs- Narayanpet, Manikonda & Peerzadiguda)
	(iii)	Number of ULBs Covered	4
F		**Waste to Energy Plants**	
	(i)	Total Capacity (TPD)	38.5 MW a. Established one WtE plant (24 MW) at Jawaharnagar @14.5 MW WTE at Dundigal are in operation. b. 24MW WTE at Jawaharnagar (expansion)

S. No.		ITEM	COMPLIANCE
			under progress.
	(ii)	Number	2
	(iii)	Number of ULBs Covered	1
5		**Waste Disposal**	
A		**Landfill**	
	(i)	Total Capacity (TPD)	1430 (in GHMC)
	(ii)	Number	1
6		**Legacy Waste Management**	
	a	Number of Dumpsites	153 (including 2 in GHMC)
	b	Quantity of Waste dumped at dumpsites (Tons)	Other ULBs: 38.46 Lakh Metric Tons GHMC: 13.43 Lakh MT was processed till Dec., 2024. (GHMC:12 Million Metric Tons at Jawaharnagar capped and 1,00,000 at Fatullaguda bio-mined; other ULBs: 38.46 Lakh Metric Tons)
	c	Number of Dumpsites Cleared	18 (GHMC: Jawaharnagar & Fatullaguda) & in 16 ULBs viz., 3,90,459 MTs of legacy waste is remediated in 16 ULBs includes Jalpally (7,666), Zaheerabad (57,104), Bhongir (35,104), Narayanpet (6,345), Medak (40,321), Ameenpur (31,620), Pocharam (470), Nizampet (550), Dharmpuri (470), Bheemgal (350), Yellareddy (1,170), Cherial (550), Sircilla (59,519) Jagtial (89,914), Mandamarri (37,364), and Gajwel (21,942) and another 9,53,095 MTs of waste is being remediated in 19 ULBs. Hence Total Qty is 13,43,554 MTs.
	d	Number of Dumpsites in which bio-mining has commenced	• Stage 1: Spraying of Inoculum bacteria is in progress in 38 ULBs: (i) Alampur, (ii) Armoor, (iii) Atchampet, (iv) Atmakur, (v) Banswada, (vi) Bellampally, (vii) Bhainsa, (viii) Bhoothpur, (ix) Bhupallapally, (x) Chennur, (xi) Choppandandi, (xii) Dornakal, (xiii) Dubbaka, (xiv) Gadwal, (xv) Husnabad, (xvi) Huzurabad, (xvii) Ibrahimpatnam, (xviii) Jadcherla, (xix) Jammikunta, (xx) Khanapur, (xxi)

S. No.		ITEM	COMPLIANCE
			Kothapally, (xxii) Kyathanpally, (xxiii) Luxettipet, (xxiv) Madhira, (xxv) Manthani, (xxvi) Manuguru, (xxvii) Maripeda, (xxviii) Metpally, (xxix) Nagar kurnool, (xxx) Narsampet, (xxxi) Narsapur, (xxxii) Naspur, (xxxiii) Parkal, (xxxiv) Peddaamberpet, (xxxv) Raikal, (xxxvi) Ramagundam, (xxxvii) Wardhannapet, (xxxviii) Wyra. • Stage 2: Windrow Formation is in progress in 39 ULBs:- (i) Adibatla, (ii) Alair, (iii) Amarchinta, (iv) AndoleJogipet, (v) Bollaram, (vi) Choutuppal, (vii) Ghatkesar, (viii) Ieeja, (ix) Kalwakurthy, (x) Kamareddy, (xi) Kodangal, (xii) Kollapur, (xiii) Kosgi, (xiv) Kothakota, (xv) Makthal, (xvi) Mothkur, (xvii) Nagaram, (xviii) Narayankhed, (xix) Nirmal, (xx) Palwancha, (xxi) Parigi, (xxii) Pebbair, (xxiii) Pochampally, (xxiv) Ramayampet, (xxv) Sadasivpet, (xxvi) Sangareddy, (xxvii) Sattupalli, (xxviii) Shadnagar, (xxix) Sulthanabad, (xxx) Tandur, (xxxi) Tellapur, (xxxii) Thoopran, (xxxiii) Thorrur, (xxxiv) Thukkuguda, (xxxv) Vemulawada, (xxxvi) Vikarabad, (xxxvii) Waddepalle, (xxxviii) Wanaparthy, (xxxix) Yadagirigutta. • Stage 3: Screening of waste is in progress in 19ULBs:- (i) Siddipet, (ii) Adilabad, (iii) Khammam, (iv) Mancherial, (v) Dundigal, (vi) Thumkunta, (vii) Jangaon, (viii) Bhodhan, (ix) Mahabubnagar, (x) Nizamabad Corp., (xi) Suryapet, (xii) Peddapalli, (xiii) Korutla, (xiv) Kazagnagar, (xv) Mahabubabad, (xvi) GWMC, (xvii) Kothagudem, (xviii) Yellandu, and (xix) Karimnagar. • List of 11 ULBs that are under the retendering process:- (i) Miryalguda, (ii) Nalgonda, (iii) Haliya,

S. No.		ITEM	COMPLIANCE
			(iv) Nandikonda, (v) Chandur, (vi) Chityal, (vii) Devarakonda, (viii) Tirumalgiri, (ix) Huzurnagar, (x) Neredcherla, and (xi) Kodad.
	e	Time frame for clearing all Dumpsites	31.12.2025

1. ***Solid Waste Management (SWM) in other than GHMC: (Fresh waste Management):***

1.1 Collection and Transportation:*(Fresh waste):*

Government of Telangana is committed to providing clean and safe cities by giving priority to the effective implementation of the Solid Waste Management Rules 2016 and by extending necessary support to the 141 ULBs.4882 no. of Swachh Auto trippers have been engaged in door to door collection from the household in 3468 no of wards across ULBs.

1.2 Collection and Transportation: *(Fresh waste):*

Government of Telangana is committed to providing clean and safe cities by giving priority to the effective implementation of the Solid Waste Management Rules 2016 and by extending necessary support to the 141 ULBs.4882 no. of Swachh Auto trippers have been engaged in door to door collection from the household in 3468 no of wards across ULBs.

1.3 Fresh waste Processing:

(A) Waste Generation per day in 141 ULBs:

- A total of 4316 TPD of waste is being generated in 141 ULBs which consists of waste from residential, commercial, institutional, etc. Out of the total waste generated, wet waste is 2373 TPD and dry waste is 1943 TPD.

- The total treatment capacity is increased from 2035 TPD (before May'24) to 2272 TPD at present and it is being processed at the existing compost units and Dry Resource Collection Centres (DRCCs). Photographs of Processing Units and ULB wise waste generated, and treatment capacity is provided in Annexure-A2.

- The Overall gap is decreased from 2281 TPD (as per order) to 2044 TPD due to enhanced processing and waste reduction measures implemented across ULBs.

(B) ULB level Waste Processing per day:

(f) To ensure processing of the waste generated, 229 no. of compost sheds have been made operational with a cumulative capacity of 1258 TPD to process the wet waste component.

(g) 3 no. of Bio-methanation plants with a cumulative capacity of 13.5 TPD are in operation in 3 ULBs i.e., Greater Warangal Municipal Corporation (GWMC) (2.5 TPD), Siddipet (10 TPD), and Sircilla (1 TPD).

(h) To process the dry waste, 208 no. of DRCCs centres with a cumulative capacity of 985.5 TPD have also been made operational in 141 ULBs to recover the recyclables that could further be sold for recycling units. Within the existing DRCCs, 87 DRCCs are being maintained by SHG women.

(i) 3 RDF plants are established in 3 ULBs with a cumulative capacity of 15 TPD i.e., Narayanpet (5 TPD), Manikonda (5 TPD), Peerzadiguda (5 TPD).

(j) The method being issued to quantify the total existing wet and dry waste in ULBS:
Wet and dry waste was estimated as per SBM guidelines (Page 47, 6.2.1) as Wet 60% and Dry-40%.

(C) Funding to bridge the gap:

(g) In order to bridge the gap in treatment of waste collected and to address the demand for treatment for the next 5 years of growth, action plans at ULBs level for Solid Waste (Wet & Dry) has been prepared with an estimated cost of Rs. 387.22 Cr. and submitted to MoHUA on 14.10.2022 for funding under SBM (U) 2.0.

(h) The same has been approved by MoHUA on 17.02.2023 with Central share of Rs. 158.44 Cr.& State share of Rs.228.78 Cr.1stinstallment of the approved Central share i.e., Rs.63.38 Crs has already been released by MoHUA.

(i) Tenders issued for establishing 2961 TPD capacities was cancelled (due to no response) and fresh tenders are being called duly reclustering ULBs and capacities. Further, Expression of Interest to be issued by end of January 2025 to establish Waste to Energy plant for Karimnagar and GWMC cluster to process approx 800 TPD of waste.

(j) Meanwhile until finalization of Tenders, Interim measures have been taken up by directing Bio-mining Concessionaires to process the

unprocessed Municipal Solid Waste and post Bio-mining process to ensure 100% processing of waste in the respective ULBs. Unprocessed fresh waste is being taken care by the existing biomining agencies till new facilities are created. List of the concessionaires and the Photos of reclaimed sites are herewith attached in Annexure-A3.

(k) Further, startups within the dry Waste Management sector such as Waste Ventures (Narsingi Municipality), ITC WOW(Greater Warangal Municipal Corporation, Siddipet Municipality, Peerzadiguda Municipal Corporation, Husnabad, Kalwakurthy), Globus Waste Management Solutions(ULBs within ORR), Matrik(Vikarabad, Medcvhal, Suryapet), Scrape Q(ULBs within ORR), Recycal(Hyderabad), and Elima Recycling Pvt Ltd(ULBs within ORR) are being encouraged to engage with gated communities/ bulk waste generators in the larger ULBs for collection of dry waste and processing at their tied-up recycling facilities.

(l) This initiative will support in managing further 200-250 TPD of dry waste across ULBs and also reduce the waste being transported to the processing units/ dumping yards.

Thus the present gap of 2044 TPD [Para-A(c)] will be achieved by establishing processing facilities by 31.05.2025.

(D) To achieve 100% waste processing:

(c) RFP was invited to establish scientific processing facilities with a cumulative capacity of 2974 TPD in 130 ULBs on cluster approach (9 clusters) and in response, 7 bidders have submitted the bids.

(d) The Tenders issued were cancelled as :-

- A Waste to Energy (WTE) plant is proposed to treat approx. 800 MT of waste from 9 ULBs in GWMC and Karimnagar Clusters.
- Reclustering of ULBs duly excluding ULBs within ORR and ULBs grouped in WTE cluster.
- Revised Tender with procurement conditions of HAM Model issued/will be issued on 31 Jan 2025.
- Estimated date for establishing processing facilities is May 2025.

(E) Interim Measures Taken:

(f) The Bio-mining Concessionaires were directed to process the unprocessed Municipal Solid Waste and post Bio-mining process to ensure 100% processing of waste in the respective ULBs until agencies engaged for establishment and operation of processing facilities.

(g) Further, Startups within the dry waste management sector such as Waste Ventures, ITC WOW, Globus Waste Management Solutions, Matrik, Scrape Q, Recycal, and Elima Recycling Pvt Ltd are being encouraged to engage with gated communities/ bulk waste generators in the larger ULBs for collection of dry waste and processing at their tied-up recycling facilities.

(h) This initiative reduced the work load of the ULB and helped in managing 200-250 TPD of dry waste across ULBs.

(i) Further, the below listed waste reduction measures are being implemented till the processing facilities are established:-

- Home & community level composting is being promoted across Municipal wards.
- Bulk waste generators are being mandated to establish onsite processing of waste generated.
- 154 no. of Reduce, Reuse, Recycle (RRR) centers have also been established across 141 ULBs to ensure that the used items from the households are collected in a systematic manner and promote reuse by the needy citizen.

(j) These initiatives will reduce the waste being transported to the processing units/ dumping yards.

Details of Bio-mining:

(a) As per the realistic survey of legacy Waste conducted by M/s.Vibhasa Solutions, M/s.HRP Infra Pvt.Ltd., to arrive at the exact quantities was assessed to be 38,46,000 MT is enclosed as ***Annexure-A4*** True copy of the Survey Report

(b) Out of 38.46 Lakh MT –

- 13.43 Lakh MT is remediated at site as on 31-12-2024.
- Another 3.47Lakh MT is scheduled to complete by March 2025
- Balance gap of 21.56 Lakh MT will be achieved by 31.12.2025.

(35)

(Qty in lakh MT)

S. No.	Action	April 2024	December 2024	March 2025	June 2025	July 2025	Aug 2025
1	Biomining to be completed ULBs	12	04	15	20	10	10
2	Qty of waste remediated (in **completed and ongoing ULBs)**	7.90	5.53	3.47	5.56	2.12	2.09
3	***Cumulative Quantity***	7.90	13.43	16.90	22.46	24.58	26.67

Sl.no	Action	Sept 2025	Oct 2025	Nov 2025	Dec 2025	Total
1	Biomining to be completed ULBs	8	15	15	14	123
2	Qty of waste remediated (in **completed and ongoing ULBs)**	1.88	2.44	4.66	2.81	38.46
3	***Cumulative Quantity***	**28.55**	**30.99**	**35.65**	**38.46**	-

(d) **Management of Fresh & Legacy Waste:**

- Five (5) agencies i.e., M/s.Cube Bio-energy Pvt ltd, M/s.DS Technologies, M/S Srushti Contech Pvt Ltd, M/s Annapurna Constructions and M/s Sagar Motors have been engaged for completing the biomining project.

- Further, tenders have been invited for engagement of agencies for establishment of scientific processing facilities. Requests have been made to State Govt. vide letter No.E-183458-2020-H1 dt 24.10.2024 & 24.12.2024 and awaiting approval to cancel the tenders issued for establishing processing facilities and to recall fresh tenders due to:

  - ❖ A Waste to Energy (WTE) plant is proposed to treat approx. 800 MT of waste form 9 ULBs in GWMC and Karimnagar Clusters.
  - ❖ Reclustering of ULBs duly excluding ULBs within ORR and ULBs grouped in WTE cluster.
  - ❖ Revised procurement model duly utilising central share under SBM (U) as VGF towards capital under HAM model.

(c) Status of Biomining Process per Year / Timeline for completion:

Bio-mining was initiated during October 2022 with a timeline of 2 years for completion. Status of bio-mining is provided in the table below:

Sl.No	Year	No. of ULBs	Qty of legacy waste remediated (MT)
1	2022	4	133106
2	2023	18	492099
3	2024	24	717953
Total Qty Remediated (MT)			1343158

Due to challenges faced as mentioned below, the timeline is further extended till December 2025.

C. <u>CDMA (Solid Waste Management):</u>

(e) **<u>Power/Electricity:</u>**

One of the main reasons for delay in treatment of the dump-sites is due to low capacity sites like 2000/3000 tons and ranges up to 10,000 tons. Like this there are 20 sites and are located in a very isolated places& outside the habitation areas and low lying sites away from the village. For arranging treatment equipments/machinery at the dump sites, power supply is main factor. It requires a minimum 120 kv power lines. Due to locations at the isolated and & outside the habitation areas, drawing power lines to such sites will be a practical difficulty, and for providing 120 kv power lines, it costs Rs. 30 to 40 lakh. Whereas the actual cost for the treatment will not be more than Rs. 20 lakh. Due to problem in providing power, which will be an additional cost and time consuming, the Projects are not being completed within the time-frame. DG set as alternative arrangements are being provided by the concessionaires for implementing Biomining project.

(f) **<u>Intense Rainfall and Floods:</u>**

The targeted objectives for waste processing and land reclamation could not be achieved due to severe disruptions caused by intense rainfall and flash floods. These unforeseen weather events significantly hampered operations, limiting accessibility to the project sites and delaying the implementation of planned activities. Consequently, the adverse environmental conditions affected the pace and efficiency of the work, resulting in shortfalls in meeting the expected outcomes. Biomining sites with less than 3000 MTs shall be prioritized to undertake biomining during the rainfall with measures including arrangement of temporary covers.

List of ULBs with less than 3000 MTs of Legacy waste:-

1) Adibatla, 2) Alair, 3) Alampur, 4) Amarchinta, 5) Andole-Jogipet, 6)Atmakur, 7) Bhoothpur, 8) Choppandandi, 9) Dubbaka, 10)Kodangal, 11)Maripeda, 12) Narsampet, 13) Nerducherla, 14) Pebbair, 15)Pochampally, 16)Tirumalagiri and17) Yadagirigutta.

(g) **Moisture Content:**

The high moisture content in the waste, persisting even after the monsoon season, has caused frequent machinery jams and breakdowns. This excessive moisture has not only disrupted the smooth functioning of equipment but also slowed down the overall waste processing operations, further impacting productivity and efficiency.

(h) **Seasonal vagaries:-**

As the dump sites are located in the interior process and low laying areas, rain water is likely to accumulate in such places due to gravity, whereby the dump sites are getting totally wet and it will take longer time to get dried up. The contracting Agencies who have undertaken the work, have to wait till the season is passed over.

Similarly, during the winter season, moisture content is heavy due to mist/fog which is very common in the locations and isolated places, heavy greenery, etc. Due to this reason the Contracting Agencies have to wait till the winter season is passed over.

Solid Waste/dump sites are being actively treated mainly during summer season in Telangana viz, March, April and May. This season the Contracting Agencies work more number of hours and the work would also get speeded up and maximum quantity of waste is possible to be treated.

1. **Process of bio-mining**

Stage 1: Spraying of Inoculum bacteria

All biodegradable waste, like discarded food, fruit, flower, and garden waste, needs air to decompose it in an odourless way without producing leachate by adding Inoculum bacteria. bio-cultures speeds up decomposition and rapidly creates biological heat within the waste that helps to dry it out and reduce its volume by 35-40%. This happens through loss of moisture and by decomposition of some of the aerated waste to carbon dioxide and water vapour.

Stage 2: Windrow Formation

legacy waste is loose and make windrows so as the leachate can be dried of through solar exposure and all the entrapped methane is removed from the heap, and makes the waste dry enough for screening.

Stage 3: Screening of waste

Screen the stabilized waste in a rotary screen or gravity screens of different size openings, this process will separate waste into different categories like bio solids, RDF, recyclable material, C&D and Inerts.

Disposal of By-Products:

- As on 31-12-2024, 13.43 Lakh MT of legacy waste is processed. Treated by-products i..e, RDF 12%-15% (2.01 lakh MT), Bio-soil 60%-65% (8.72 lakh MT), Inert 17%-19%(2.55 lakh MT), and Others 4% (0.15 lakh MT) are being disposed as mentioned below:
    - RDF: RDF (Refused Derived Fuel) is being sent to cement factories for disposal as an alternative fuel. Though GoI issued circular to utilize RDF in road construction, agencies engaged by NHAI are not accepting the RDF processed through bio-mining. Hence, all concessionaires have made MOU with cement plants respectively and list of MOUs entered is presented in Annexure-1.
    - Bio-Soil: Bio-soil is used in Avenue plantations, gardening purposes, and filling up of low-lying areas.
    - Inert: Inert is being stockpiled in a designated place at the dump site and used in road construction as a subbase course.
    - C&D waste: C&D waste is being sent to C&D plan for recycling process.
    - Other waste: Glass, Metal, Plastic, Cardboard, E-waste, etc. are sent to local scrap dealers.)

(59)

2.2 Current status, desirable level of compliance and proposals for attending the gaps:

Item	Current Status	Desirable level of Compliance in terms of statutes	Gap between current statues and desired levels	Proposals for attending the gaps with time lines
Identification of suitable sites for setting up solid waste processing facilities	Complied 142 ULBs have identified suitable sites for setting up of SW processing facilities. All the Gram Panchayats (12770) have identified lands.	To be completed by 31.10.2019	Nil	---
Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	Complied • 100% by ULBs • 100 % by all GPs.	To be completed by 31.10.2019	Nil	---
Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source,	• 58% of source segregation is achieved. • 100% source segregation achieved in all the GPs.	100% of source segregation	42% of source segregation in ULBs.	▪ To conduct regular IEC activities for behavioral change among the citizen to practice the segregation of waste at source level. ▪ Conducting awareness program among the Street vendors, slum dwellers ▪ Involving Media, NGOs, RWAs, senior citizens, local corporators and students to create awareness among citizens.

Item	Current Status	Desirable level of Compliance in terms of statutes	Gap between current statues and desired levels	Proposals for attending the gaps with time lines
Setting up of solid waste processing facility and sanitary landfill facilities	**GHMC:** ▪ Processing & Disposal facility with 8000 TPD capacity is in operation at Sy. No. 173, Jawaharnagar Kapra (M), Medchal Malkagiri (D). ▪ In the present half year, total qty of 13,99,540 MT was processed and disposed. ▪ For disposal of RDF, 24 MW capacity WTE at Jawaharnagar and 14.5 MW capacity WTE at Dundigal are in operation by GHMC. ▪ At present, 16 surrounding ULBs to GHMC are also processing their waste through the above facility at Jawaharnagar **<u>Landfill Site:</u>** ▪ Secured Landfill facility has been in operation at Jawaharnagar, GHMC since Feb'2012.	As per SWM Rules, 2016, processing facilities and landfill have to be provided by -14 ULBs which have more than 100000 population by 31.03.2018 and remaining 126 ULBs, which have less than 100000 population by 31.03.2019	Secured landfills have to be provided by 142 ULBs.	▪ Additional 24 MW WtE plant (phase II) is under construction at Jawharnagar, GHMC. ▪ 14 MW WtE plant at Yacharam is under proposal stage. ▪ GHMC has proposed to establish one more T&D facility at Pyaranagar (V), Sangareddy (D) and TSPCB has issued CFE for 4000 TPD capacity on 06.02.2023 and necessary approach road for construction of the facility, through the diverted forest land is under process. ▪ Tenders were called for all the ULBs (other than GHMC) with cluster approach for establishment of Treatment facilities as per SWM Rules 2016.

Item	Current Status	Desirable level of Compliance in terms of statutes	Gap between current statues and desired levels	Proposals for attending the gaps with time lines
	Total quantity of waste land-filled in the present half year is 2,31,319 MT. **Other 142 ULBs:** 2373 TPD processing facility			**Sanitary Landfill Facilities:** ▪ Regional level Sanitary Landfill facilities are being planned for covering all ULBs other than GHMC.
Bio-remediation or capping of old and abandoned dump sites.	▪ 1,20,00,000 MT of legacy waste was capped at Jawaharnagar. ▪ The Hon'ble NGT in it's order dated 14.02.2020 directed GHMC to do bio-mining and again issued orders dated 29.09.2020 directing CPCB to finalize its viewpoint on whether capping can be retained. ▪ CPCB constituted a 10 member expert committee and the Committee interacted with GHMC & TSPCB on 30.12.2022 and conducted a field visit on 01.09.2023 & 02.09.2023. ▪ The draft Expert Committee Report of CPCB dated 25.09.2023 was filed by CPCB before the Hon'ble	To be completed by 31.03.2021.	Nil	The C&DMA Telangana has floated tender on Dec 2021 and awarded LOAs for 118 ULBs of both the regions in Telangana on 25th March 2022 to 06 concessionaires. All 118 ULBs are grouped into 9 clusters and are divided into 2 regions i.e., Warangal region Multizone-1 comprising 59 ULBs & Hyderabad region Multizone-2 comprising 59 ULBs. The MoHUA, GoI vide F.No.1/1/2022-SBM-I(Computer No.9121894), Dt.18.02.2022 has approved the project proposal for bio-mining of legacy waste in 123 ULBs

Item	Current Status	Desirable level of Compliance in terms of statutes	Gap between current statues and desired levels	Proposals for attending the gaps with time lines
	NGT (SZ) in OA 199 of 2021. ▪ GHMC has filed its response vide Report dated 21.11.2023 in OA 199/2021. The Hon'ble Tribunal (SZ) has passed order dated 01.02.2024 and the case is listed for hearing on 29.04.2024. ▪ Meanwhile, GHMC has engaged IIT Bombay for study of feasibility in biomining of capped Jawaharnagar legacy dump. In the final report dated 05.07.2023, IIT Bombay concluded that Jawaharnagar capped site is not ready for bio-mining. GHMC has filed its latest report dated 28.01.2025 and the case is posted for hearing 25.01.2025. 13.43 Lakh MT was processed till Dec., 2024.			of Qty 32.47 lakh MT at the cost of Rs 178.60 Cr with central share of Rs 69.09 Cr and state share if Rs. 109.51 Crs under SBM 2.0 and for remaining Qty 5.99 lakh MT is taken under smart city funds/ULB funds. Out of Rs 27.63 Cr released, Rs 13.00 Crs has been utilized towards bio-mining under SBM 2.0. Bio-mining is completed in 16no. of ULBs and is in progress in 19 no. of ULBs. Bio-mining in all dumpsites is targeted to be completed by 31.12.2025.

(4-3)

Item	Current Status	Desirable level of Compliance in terms of statutes	Gap between current statues and desired levels	Proposals for attending the gaps with time lines
Ensure separate storage, collection and transportation of construction and demolition wastes.	• Separate collection and transportation points are established for C&D waste and ensured for the same. • Two C&D waste recycling plants are in operation at Jeedimetla and Fatullaguda with 500 TPD capacity each. • Construction of 3rd plant is completed at Shamshabad and undergoing trial runs and 4th plant is under construction at Tumukunta. Both plants shall have the processing capacity of 500 TPD each.	As per SWM Rules Ensuring separate storage, collection and transportation of construction and demolition wastes by 08.04.2018.	Out of 141 ULBs in the State, 127 ULBs have population less than 1,00,000 and the estimated quantity of C&D waste is less and on an average it is 2 to 3 TPD.	For C&D waste management in rest of the ULBs, tenders were invited by CDMAunder DBFOT-PPP mode covering in 3 clusters with 38 ULBsx but no bidders have participated. Re-bidding was carried out and the Technical and Financial evaluations are completed and will be finalized soon.

2.3 Status of compliance with Rule 22 & 24 of the Solid Waste Management Rules, 2016, regarding time frame for implementation.

The Status of compliance with Rule 22 & 24 of the Solid Waste Management Rules, 2016 is as follows:

S. No.	Activity	Time limit from the date of notification of Rules	Present status of compliance by the State of Telangana
1	Identification of suitable sites for setting up solid waste processing facilities	1 year	GHMC has established processing facility and rest of 141 ULBs have identified suitable sites. All the Gram Panchayats have identified lands for setting up solid waste processing facility and sanitary landfill facilities individually or on cluster basis.
2	Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or standalone sanitary landfill facilities by all local authorities having a population of 0.5 million or more.	1 year	GHMC has sanitary landfill and all other ULBs are being clustered (at regional / district level) for setting up Sanitary Landfill facility and tenders for setting up and operating SLF will be tken-up soon. All the 96 identified model Gram Panchayats have identified lands for setting up solid waste processing facilities.All 12770 GPs (100 %) have completed construction of compost cum segregation shed. Details given below the table:
3	Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.	2 years	GHMC has procured and established solid waste processing facility and the sites have been allocated for the rest of the ULBs. Setting up of processing facilities and sanitary landfills is under process. rest of the ULBs are procured the sites. a) Model Cities (3nos): 1. Greater Hyderabad Municipal Corporation 2. Greater Warangal Municipal Corporation 3. Karimnagar Municipal Corporation b) Major Towns (3nos):

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S. No.	Activity	Time limit from the date of notification of Rules	Present status of compliance by the State of Telangana
			1. Siddipet Municipality 2. Sircilla Municipality 3. Boduppal Municipality c) 96 villages @ (3) per one district in all 32 Districts (except Hyderabad District) have been identified. All the above model cities/towns/villages are implementing the SWM rules. All the 96 identified model Gram Panchayats have identified lands for setting up solid waste processing facilities. However, all 12770 no of GPs have completed construction of compost cum segregation shed.
4	Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source,	2 years	59% of segregation of waste at source is achieved in the state on average. IEC activities are regularly conducted to inform, educate and motivate waste generators to practice 100% of segregation of waste .
5	Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.	2 years	Completed.
6	Ensure separate storage, collection and transportation of construction and demolition wastes	2 years	• In GHMC, separate collection and transportation points are established for C&D waste and ensured for the same. Two C&D waste recycling plants are in operation at Jeedimetla and Fatullaguda with 500 TPD capacity each. Construction of 3rd plant is completed at Shamshabad and commenced it's operations soon and 4th plant is under construction at Tumukunta.

S. No.	Activity	Time limit from the date of notification of Rules	Present status of compliance by the State of Telangana
			• In all other 142 ULBs also separate sites for storing C&D waste is earmarked. Action Plan has been prepared for C&D waste management and tenders were invited for the same.
7	Setting up solid waste processing facilities by all local bodies having 100000 or more population	2 years	8000 TPD capacity MSW processing capacity plant is operational at Jawaharnagar (V) GHMC. Processing Plants are established at GWMC, Karimnagar, Manikonda, Siddipet, Suryapet and Vikarabad ULBs. 16 ULBs within surrounding of GHMC are transporting their waste to Jawaharnagar processing facility maintained by GHMC. Tenders issued for establishing 2961 TPD capacities was cancelled (due to no response) and fresh tenders are being called duly reclustering ULBs and capacities. Further, Expression of Interest to be issued by end of January 2025 to establish Waste to Energy plant for Karimnagar and GWMC cluster to process approx 800 TPD of waste.
8	Setting up solid waste processing facilities by local bodies and census towns below 100000 populations.	3 years	
9	Setting up common or standalone sanitary landfills by or for all local bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules.	3 years	ULBs are being clustered (at Regional / district level) for setting up Sanitary Landfill facility. GHMC is disposing inerts generated after processing of MSW in the scientific landfill located at the Integrated Municipal Solid Waste Treatment & Disposal facility at Jawaharnagar and 2,31,319 MT of inerts were land-filled in the present half year.
10	Setting up common or regional sanitary landfills by all local bodies and census towns under 0.5 million population for the disposal of	3 years	

(4-7)

S. No.	Activity	Time limit from the date of notification of Rules	Present status of compliance by the State of Telangana
	permitted waste under the rules.		
11	Bio-remediation or capping of old and abandoned dump sites.	5 years	153 no. of dump sites in 123 ULBs are made into 9 clusters and allotted to (7) agencies on 25.02.2022 in all the 123 ULB. 13.43 Lakh metric tons biomining completed upto Dec., 2024. **GHMC:** 1,00,000 MT at Fatullaguda site was bio-mined and 1,20,00,000 MT of legacy waste was capped at Jawaharnagar site.
12	Legal Frame Work		SWM Policy for the State as per clause 11 (a) of the SWM Rules has been Notified on 24th September, 2018.
13	Annual Report		Annual Report for the year 2023-24 was submitted on 18.07.2024

Solid waste management in rural areas:

S. No	Financial Year	Village Dumping Yards (Segregation Sheds)		Purchase of Tractor Trolley & Tanker		Grand Total
		Completed	Expenditure (Rs. in Cr.)	No.of GPs	Amo unt (Cr.)	
1	**2**	**10**	**11**	**15**	**16**	**17=9+11+14+16**
1	2018-2019	0	0.03	0	0	831.95
2	2019-2020	0	0.05	0	0	453.91
3	2020-2021	28	57.45	12769	1046.77	1230.71
4	2021-2022	6310	200.38	0	0	227.77
5	2022-2023	6415	21.07	0	0	49.8325
6	2023-2024	2466	0.754			1569.244
7	2024-25	569	0.22			57.25
	Total:	15219	279.734	12769	1046.77	4363.416

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3. Status Report on Compliance to Plastic Waste Rules, 2016 (as amended in 2021).

➢ **3.1 Compliance on PWM rules, 2016:**

Rules provision	Plastic Waste Management Rules Provision	Status
6 (1)	Every local body shall be responsible for development and setting up of infrastructure for segregation, collection, transportation, processing and disposal of the plastic waste either on its own or by engaging agencies or producers	➢ 226 no. of Dry Resource Collection Centres (DRCCs), including 18 nos. in GHMC, were established among all ULBs for segregation and channelizing of the plastic waste to the recycling industry. ➢ In GHMC, all the balance plastic waste, after chanalizing through DRCCs, is transported to the T&D facility at Jawharanagar and segregated along with other inorganic items and stored as Refused Derived Fuels (RDF) and used as fuel Waste to Energy plant at the same site. ➢ Useful plastic is recycled and producing plastic covers and granules at the 20 TPD Ton capacity of plastic recycling plant at the same site. ➢ 12770 GPs (100%) have completed construction of compost cum segregation shed.
6(2)a.	Ensuring segregation, collection, storage, transportation, processing and disposal of plastic waste.	Awareness for segregation of plastic waste at primary collection level is being done. Processing & disposal through DRCCs to recyclers/ WtE/ co-processing in cement industries.
6(2)b.	Ensuring that no damage caused to the environment during this process.	➢ Ensuring no damage to environment during the disposal of plastic as per the activities mentioned above. ➢ Ensuring that no open burning of plastic waste take place by conducting various IEC activities and penalizing the violators.
6(2)c.	Ensuring channelization of recyclable plastic waste fraction to recyclers	➢ By disposing the plastic waste through DRCCs and also by processing plant at Jawaharnagar ensuring the channelization of recyclable plastic waste fraction
6(2)d.	Ensuring processing and disposal on non-recyclable fraction of plastic waste in accordance with	➢ Plastic segregated at DRCCs is send to various recyclers for processing as per the CPCB guidelines. ➢ The plastics which cannot be recycled are transported to co-processing. The lighter

	guidelines issued the Central Pollution Control Board	density plastics are stored as Refused Derived Fuels (RDF) and used as fuel in Waste to Energy plant and through cement factories. The remaining inerts produced in the process are disposed in scientific landfills
6(2)(e)	Creating awareness among all stakeholders about their responsibilities	➢ Regularly organizing workshops, campaign and rallies against the use of plastics and constantly creating awareness among waste pickers through the companies working in this field under Extended Producer Responsibility/CSR. Information Education and Behaviour Change Communication (IEBCC) activities are being conducted regularly.
6(2)(f)	Engaging civil societies or groups working with the waste pickers	➢ GHMC supported around 9500 waste pickers by allotting 4500 waste collection autos (Swachh Auto Tippers),
6(2)(g)	Ensuring that open burning of the plastic waste does not take place	➢ Public awareness campaigns are regularly conducted by GHMC in all 30 circles involving Resident Welfare Associations, Schools, Senior Citizens, NGOs ➢ Keeping a strict monitoring on burning of waste (which includes plastics) and imposing penalties on defaulters. 141 ULBs: ➢ C&DMA vide Cir.Roc.No.133211/2021-H2, Dt.11.10.2021 have issued instructions along with Action Plan for Ban and Elimination of Single Use Plastic less than 75 microns of thickness from 14th Oct, 2021 to 30th December 2022 and also for plastic less than 120 microns of thickness from 31st Dec, 2022 onwards. ➢ Based on this teams are formed and raids have been conducted in all the ULBs.
6(3)	The local body for setting up of system for plastic waste management shall seek assistant of producers and such system shall be set up within one year from the date of final publication of	➢ Involved the producers such as ITC and Godrej in plastic waste management and established DRCCs in GHMC.

	these rules in the official gazette of India.	
6(4)	The local body to frame bye-laws incorporating the provisions of these rules.	--
16	State Level Advisory Committee	➢ State Level Advisory Committee constituted vide G.O. (Ms). No. 79 dated 31.12.2016 of EFS&T.
17(3)	Submission of Annual Report	Annual Report for the year 2023-24 submitted on 18.07.2024

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3.2 The Hon'ble NGT in O.A.No.247 of 2017 in the matter of Plastic Waste Management directed to furnish the status:

S.No.		Item	Quantity
1.	a	What is the quantity of plastic waste generated, (Annual Report form VI pt.2,6) (TPD)	**1831 TPD** (1544 TPD from GHMC area + 287 TPD other 141 ULBs)
2.	a	Number of registered plastic manufacturing units	600 (60 units of recyclers & 540 No of units Brand Owners/ Producer)
	b	Capacity of registered plastic manufacturing units (TPD)	
3.	a	Total no. of ULBs	142
	b	Percentage of ULBs which have set-up of plastic waste management system as per **Rule 6(2)**? (including collection, segregation, Channelization & processing of plastic waste)	All 142 ULBs have waste segregation units, that segregate plastic waste from MSW.
	c	Percentage of ULBs having facilities for Collection of Segregated waste	142 ULBs have facilities for collection of segregated waste.
	d	Percentage of ULBs having Material Recovery facility	All 142 ULBs have provided 226 MRF (including 18 by GHMC) units.
4.	a	Total number of Gram Panchayat (GPs)	12,770
	b	Percentage of GPs which have setup of plastic waste management system as per **Rule7**?	All 12770 GPs (100 %) have completed construction of compost cum segregation shed.
	c	Percentage of GPs having facilities for Collection of Segregated waste	All 12770 GPs are having facilities like tricycles with partition for Collection of Segregated waste.
	d	Percentage of GPs having Material Recovery facility	12770 GPs (100 %) have completed construction of compost cum segregation shed.
5.	a	No. of registered Producers/brand owners/ importers as per **Rules 9 & 13** of PWM Rules?	121
	b	Percentage of Producers/brand owners/ importers which have engaged with ULBs for	8 Nos
	c	Percentage of ULBs which have set up system for plastic waste management with assistance of producers been set —up? **Rule (6(3))**?	4 Nos
6	a	Number of registered plastic waste recyclers	60
	b	Capacity of recyclers (TPD)	136.08 TPD
7	a	Status of Utilization of plastic waste (Annual Report form VI pt.4)	Plastic waste collected through DRCCs, WMA and processing plant are channelized for recyclers.

S.No.		Item	Quantity
	b	Quantity of plastic Waste utilized in recycling (TPD)	214 TPD channelized for recycling during present Half year 1.92 TPD at DRCCs/RRR Centres of GHMC + 12 TPD recycled at processing plant of GHMC at Jawaharnagar during present Half year
	c	Quantity of plastic waste utilized in recycling Road Construction	--
	d	Quantity of waste Co-processed in Plastic Waste in Cement kilns	Till now 3,650 MT (average of 20 TPD) during present Half year.
	e	Quantity of waste utilized in production of RDF	One integrated solid waste management facility with processing capacity of 8000 TPD at Jawaharnagar (V). 7648 TPD of MSW was processed to generate 3982 TPD of RDF. 1047 TPD of plastic is part of RDF. 3 RDF based briquetting plants are located at Narayanpet(5 TPD), Manikonda(10 TPD), Peerzadiguda (5TPD).
	f	Quantity of plastic waste used in production of Waste to oil	92 TPD during this half year
	g	Quantity of plastic waste used in other purpose (please specify)	Utilization of Plastic waste in WtE plants as part of RDF – About 523 TPD of plastic as part of 1989 TPD of RDF was utilized. 50 TPD of Present utilisation of Plastic waste in WtE plants as part of RDF – 313 TPD
8.	a	No. of Registered Compostable plastic unit	Three compostable plastic units located in the State
	b	Total Capacity of registered Compostable plastic unit	1800 TPA
9	a	No. of unregistered plastic manufacturing or recycling units **(Annual Report format pt.7)**	Nil
10	a	Whether local bodies have framed bye-laws **[Rule 6(4)]?**	Yes
11	a	Whether plastic carry bags & plastic sheet of thicknesss<120 micron banned or not [Rule 4(c)]?	Completely banned plastic carry bags & plastic sheet of thicknesss<120 micron in the state as per MoEF&CC notification.

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S.No.		Item	Quantity
12	a	Has complete ban on plastic carry bags been imposed **(Annual Report format pt.3)**	Plastic carry bags & plastic sheet of thickness <120 microns banned and implementing prohibition as per MoEF&CC notification from 12.08.2021.
13	a	Status of action taken on non-compliance of PWM Rules **(Annual Report format pt.9)**	Government vide G.O.Rt.No.40, EFS&T, Dept. Dt.01.7.2022 has issued notification & prohibition of certain single use plastic. **GHMC:** During this half year, registered 03 instances for open burning of plastic waste and imposed penalty of Rs.3,500/- and registered 244 cases for using plastic carry bags below minimum prescribed thickness and levied a penalty of Rs. 2,62,600/- **Other ULBs:** During this half year, inspections have been conducted in all 142 ULBs and seized 15 tonnes of banned SUP and plastic covers and imposed Rs 25.2 lakhs as penalty.
14	a	Status of marking & labelling on plastic carrybags & multi layered packaging **(Rule 11)**	Marking & labelling on plastic carry bags & multi layered packaging being enforced.
15	a	Whether State Level Advisory Committee is constituted or not? **[Rule 16]** If yes, details of number of meetings conducted in a year and implementation of suggestions of committee in the last two years.	Yes. No meeting conducted during this Half year.
16	a	Status of phasing out of manufacture and use of multi-layered plastic which is non-recyclable or non-energy recoverable or with no alternate use of plastic in two years time **[Rule 9-3]**	Directions issued to manufacturers for phasing out of manufacture and use of multi-layered plastic which is non-recyclable or non-energy recoverable or with no alternate use of plastic. The same is under implementation.
17		**NGT Directions (para 14 d) of 247/2017 order dated 06.12.2019**	
	a	Has institutional mechanism as per para 14 d been established (Y/N)	Yes.

S.No.		Item	Quantity
	b	Confirmation that no, unregistered plastic manufacturing/recycling unit is operated in the State/UT (Y/N)	Yes
	c	Conformation that no plastic carry bags/films <75 microns thickness is manufactured, stocked, sold and used in cities/towns of State/UT (Y/N)	Yes
	d	Confirmation that thermocol / polystyrene cups, plates, etc are not used extensively and are not haphazardly littered (Y/N)	Yes
	e	Confirmation that has Special Environmental Squad been set up for enforcement to oversee and ensure that no litter of plastic waste takes place at historical, religious, public places.	Special Environmental Squad been set up for enforcement to oversee and ensure that no litter of plastic waste takes place at historical, religious, public places in each ULBs and penalties are being levied on defaulters.
	f	Confirmation that no dumping of plastic waste on drains river bank and on burning of plastics in open take place in State/UT (Y/N)	Yes. Penalties have been imposed for violation of rules.

4. Status of compliance of Construction & Demolition Waste Rules, 2016:

- The Construction and Demolition (C&D) Waste Management Rules, 2016 were notified on 29th March, 2016 by the Ministry of Environment, Forest and Climate Change (MoEF&CC).

IN GHMC :

- Collection & Transportation:
  - 150 wards is divided among 04 collection areas for collection, transportation, processing & management of C&D was waste.
  - Estimated quantity of waste collected: 1,128 MT TPD
  - C&D waste collected & transported: 2,06,414 MT
  - C&D waste processed: 78,978 MT
  - No. of vehicles engaged for C&T: 58
  - No. of instance recorded for unauthorized dumping: 121
  - Penalty imposed for unauthorized dumping : Rs. 6,65,000/-

- Recycling
  - 02 Nos. of processing plants of 1000 TPD capacity are under operation at Jeedimetla & Fathullaguda.
  - 02 Nos. of processing plants are under approval/ Construction stage at Thumkunta & Shamshabad.

In other ULBs:

- Three clusters have been formed with Nalgonda (11 ULBs with a capacity of 100 Tonnes), Sangareddy (11 ULBs with a capacity of 50 Tonnes) and GWMC (16 ULBs with a capacity of 200 Tonnes).
- RFP has been issued to engage agency for establishing C & D waste processing plants.
- During the third call, one bidder has submitted the response and has been qualified the technical evaluation. The financial bid was opened during March 2023 and due to the model code of conduct, the LoA was not issued. The same will be issued by March 2025 and agency shall be directed to establish the processing facilities within 3-4 months from the date of sign of agreement.

5.0 Status of compliance of Bio-Medical Waste Management Rules, 2016

5.1 Status of Health Care Facilities (HCFs) in Telangana:

The total number of Health Care Facilities (HCFs) are 10,292 Nos. Out of which 10,230 HCFs are having Bio-medical Waste (BMW) Authorization. The remaining 62 Nos. of HCFs were issued notices for obtaining BMW authorisation.

5.2 Compliance of the Rules:

5.2.1 Submission of Annual Reports: (Rule 24)

Annual Report in Form – IVA for the calendar year (Jan 2023 to Dec 2023) was submitted to CPCB on 26.07.2024 i.e. with the time frame as prescribed in the Rules.

5.2.2 Status of State Level Advisory Committee: (Rule 11)

The Health Medical & Family welfare Department has Constituted State Advisory Committee vide G.O.Rt.No.329, dt. 15.04.2017 for implementation of BMW Rules in the State. State Advisory Committee meetings are held under the Chairmanship of the Spl. Chief Secretary HM&FW department.

5.2.3 Status of District Level Monitoring Committee (DLC): (Rule 11)

The HM&FW department issued G.O.Ms.No.28, dt.16.01.2018 constituting District Level Monitoring Committee (DLC) with District Collector as the Chairman and DM&HO as the Member Convener and Concerned Regional Officer as the Member for effective implementation of the provisions of the Bio-Medical Waste Management Rules. The DLC meetings are conducted regularly.

5.3 Category wise Bio-Medical Waste:

The details of Daily average Bio Medical Waste generated as per the annual reports (Calendar year) for the year 2023 submitted to CPCB in following year of July respectively are as follows:

Category	Quantity Kgs/Day
Red	5602
Yellow	17183
Blue	2759
White	772
Total:	**26,316**

5.4 Bio-Medical Waste Treatment Facilities (CBMWTFs) in Telangana:

a) In the Telangana, presently there are 11 Common Bio Medical Waste Treatment Facilities (CBMWTF) are in operation in the state, which are presently sufficient to serve the HCFs operating in the state.

b) All the 11 CBMWTFs had upgraded Secondary chamber of Incinerator to meet new emission standards for stack and retention time of 2 sec.

c) All the Common Bio Medical Waste Treatment Facilities (CBMWTFs) have installed online continuous stack emission monitoring system (OCEMS) as per the CPCB guidelines and the data is connected to the CPCB & TSPCB servers. The concentration of CO_2, CO, NO, NO_2, O_2 Primary and Secondary temperatures are monitored and are connected to CPCB & TSPCB servers for continuous monitoring. Further, TSPCB is also carrying out regular monitoring of CBMWTFs to check the compliance. CBMWTFs have provided IP Cameras to record the operation of the Incinerator.

d) TSPCB has communicated design details of modular STPs suitable small, medium and large HCFs to the Stake holder departments.

5.5 Authorization from the Board:

The total number of Health Care Facilities (HCFs) are 10,292. Out of which 10,230 HCFs are having Bio-medical Waste (BMW) Authorization. The remaining 62 were issued notices for obtaining BMW authorisation.

5.6 Hon'ble NGT Orders in the matter of O.A.No.710 of 2017:

The status of implementation of the Hon'ble NGT order dated: 15.07.2019 on key performance indicators for assessing treatment and disposal of BMW and effectiveness in implementation of BMW Rules, 2016 is as follows:

Sl.No.	Key performance indicators	Status
1.	Inventory of all Health Care Facilities and Biomedical waste generation.	In co-ordination with DM&HOs and CBMWTFs inventory of HCFs was carried out. There are 10,292 number of HCFs operating in the State
2.	Authorisation to all Health care facilities including non-bedded HCFs.	TSPCB has implemented online software application developed by NIC, Delhi for grant of BMW Authorisation to HCFs including Non-

		Bedded HCFs. Powers are delegated to Regional Officer and Zonal Officer to grant authorization to HCFs having below 50 beds.
3.	Facilitate setting-up adequate number of common Bio-Medical Waste Treatment Facilities (CBMWTFs) to cover entire state or all HCFs.	11 Common Bio Medical Waste Treatment Facilities (CBMWTFs) are operating for collection and safe disposal of Bio Medical Waste. More number of Hospitals are existing in the districts of Hyderabad, Rangareddy and Medchal-Malkajgiri. Four CBMWTFs are operating for these 3 districts for collection and safe disposal of Bio Medical Waste. Remaining 7 CBMWTFs are providing services to the HCFs located in remaining districts and two facilities have obtained CFE from the Board.
4.	Constitution of State Level Advisory Monitoring Committee and District Level Monitoring Committee.	State Advisory Committee was constituted vide Health Medical & Family welfare Department G.O.Rt.No.329, dt.15.04.2017. State Advisory Committee meetings are conducted as and when needed. District Level Monitoring Committee (DLMC) with District Collector as the Chairman and DM&HO as the Member Convener were constituted vide HM&FW department G.O.Ms. No.28, dt.16.01.2018. DLC meetings are conducted.
5.	Implementation status of Barcode system.	The Board has developed centralized "Online Bio-Medical Waste Manifest and Bar Code System" as per CPCB guidelines. Online tracking of BMW collection vehicles of CBMWTFs is also integrated in this software. All the 11 CBMWTFs are implementing Bar-coding system through the online application of the Board. HCFs have registered in the online Bar-coding Manifest application. 11 CBMWTFs are collecting BMW from their member HCFs using GPS fitted vehicles 71 Nos.
6.	Monitoring of Health Care Facilities other than hospitals/clinics such as veterinary Hospitals, Animal Houses, and AYUSH Hospitals etc.	Authorisations are granted to 13 Animal Houses, 103 Veterinary institutions. 2 AYUSH Hospitals have obtained authorization.

5.7 Follow-up on the Action Points of TSPCB pertaining to compliance of BMWM Rules and NGT orders in Telangana State:

Action Point	Particular	Progress report of the State
1	Complete inventory of HCFs generating biomedical waste.	Inventory is complete
2	SPCB should ensure authorization to all non-bedded HCFs like clinics, laboratories, research institutes as well as veterinary hospitals etc. identified in inventory of HCFs within 3 months.	Telangana SPCB has taken up action to ensure that every HCF is authorized under BMWM Rules, 2016. 10,230 Health care Facilities including non-bedded HCFs have covered under BMWM Rules.
3(i)	Ensure adequate number of Common Facilities and to cover all HCFs in the state. [Also to ensure adequate number of Common Biomedical Waste Treatment Facilities]	At present 11 nos. of CBMWTFs operating in the state are adequate for treatment & disposal of biomedical waste. Two proponents were issued with in principle permission to setup new CBMWTFs for catering Hyderabad & surrounding Districts in addition to the existing 11 Facilities and One new facilities have obtained CFE from the Board and One facility has recently obtained CFO of the Board.
(ii)	Restriction of Deep Burial pits [should be permitted only if necessary and to ensure that they are constructed as per standards given under BMWM Rules, 2016].	Deep burial is not permitted in the State.
4	Constitution of State and District Advisory Committees	Complied & meetings were held.
5	Implement Barcode system in every HCF and CBMWTFs	11 CBMWTFs operating in the state have implemented Bar-coding system developed by the Board. All the HCFs have registered with the online system.
6	Monitoring of Healthcare Facilities other than hospitals/clinics-Veterinary Hospitals, Animal Houses, AYUSH Hospitals, blood blanks, Pathological labs etc.	These HCFs have tie-up with CBMWTFs and registered with online software for disposal of BM Waste. Board Officials are monitoring HCFs, during processing of authorization applications.
7	Ensure availability of adequate infrastructure with SPCBs/PCBs to monitor compliance.	The Board is equipped with adequate laboratory facilities to test efficacy of treatment equipment for disinfection,

Action Point	Particular	Progress report of the State
		compliance to emission and discharge norms by CBMTWFs and HCFs, except for analysis of Dioxins and Furan (Equipment for monitoring is available).
8(i)	Training and capacity Building of officials of Health Department and SPCBs	The Board conducted workshops at District level on "Bio-Medical Waste Management" to all the Stakeholders. Regular hands on training programs on compliance mechanism of BMW Rules are also conducted in all 33 Districts Head Half years to create awareness in management of Biomedical Waste. Stress was made on applying for authorization by all HCFs including veterinary institutes, ayush, clinics & labs. Awareness was created through the means of posters, short films, All India Radio, etc.
8(ii)	To ensure training and capacity Building of Healthcare workers in HCFs	The Board is conducting regular training programs to the HCFs through CBMWTFs with the Field officers of the Board. Officers are designated in Regional offices & Zonal Offices for monitoring of HCFs and compliance of BMWTFs.
9	Installation of OCEMS by CBMWTFs as a tool for self-monitoring and compliance verification by SPCBs/PCCs.	All the 11 CBMWTFs have installed OCEMS and connected to CPCB & TSPCB server and Data transmission is being monitored.
10	Submission of Annual Reports to CPCB	Complied. Annual Reports are submitted within stipulated date of **26.07.2024**.
11	To ensure compliance to standards by CBMWTFs	Monitoring of CBMWTFs is conducted regularly.
12	To monitor compliance of HCFs [for on-site segregation, pre-treatment of infectious waste-yellow, separate storage space for BMW and treatment of wastewater]	Officers are designated in Regional offices for monitoring of HCFs operating in the State.
13	District Magistrates to monitor compliance of BMW Management as per District Environmental Plan	District Level Monitoring Committees constituted for monitoring of compliance of BMW Rules are reviewing the implementation of District Environmental Plan.

- The Hon'ble NGT in OA No.180 of 2021, Orders dated:07.01.2022 issued certain directions for compliance to the Bio-Medical Waste Management (BMWM) Rules. The Hon'ble NGT also constituted committees at state and district levels for monitoring the status of implementation of BMWM Rules.

- In obedience to the orders dated:07.01.2022 of the Hon'ble NGT in the matter of O.A.No.180 of 2021, the State Level Committee was constituted with Officials for monitoring compliance of the BMWM Rules-2016 and amendments thereof vide order dated:06.05.2022. State level Committee reviewed the status of implementation of Rules in the state and as per approval, Action Taken Reports was submitted to CPCB.

- The SLMC meeting was conducted on 02.04.2024 in the chambers of Secretary, HM&FW to review on compliance of BMWM Rules, 2016 and the Hon'ble NGT directions in M.A.98 of 2022 of O.A.No.180/2021, minutes of the meeting was communicated to the Central Monitoring Committee and CPCB.

- The Action Taken Report of Telangana Pollution Control Board on Management of Bio–Medical Waste as per directions dated 23.01.2023 in Hon'ble NGT, New Delhi – MA.No.98/2022 in O.A.No.180/2021 in the format prescribed by the CPCB is submitted to CPCB vide letter dt:05.03.2024.

6. Status of compliance of Hazardous Waste (Management) Rules:

- The Ministry of Environment & Forests (MoEF&CC), Government of India notified Hazardous Waste Management Rules in the year 1989 for management of hazardous waste in the country.
- These Rules were amended from time to time and the MoEF&CC, GoI, vide notification dated 04.04.2016, notified latest Hazardous & Other Wastes (Management and Transboundary Movement) Rules, 2016.
- In the amended Rules focus is on the Reuse & Recycling of hazardous waste.
- The Telangana State is having one Integrated Common Treatment Storage & Disposal Facility (TSDF) for Hazardous Waste, namely M/s. Hyderabad Waste Management Project (HWMP) at Dundigal (V), Medchal-Malkajgiri District. The facility has
  - Incinerator of capacity 1.5 TPH
  - Engineered landfill facility
  - Pre-processing facility for preparing alternate fuel for cement industries.
- The Board has also permitted other five pre-processing facilities with a processing capacity of 2,25,000 TPA and presently four facilities are under operation.
- The Board has permitted 46 recyclers of hazardous waste with authorized capacity of 2,29,965 TPA.
- As per the Hazardous Waste annual report furnished to CPCB for the year 2020-21, the total number of hazardous waste generating industries in the State are 3027 and the following quantities of hazardous wastes is generated:

Recyclable Waste (TPA)	217760.223
Incinerable Waste (TPA)	179146.732
Utilisable waste (TPA)	1452621.51
Landfillable Waste (TPA)	412010.786
Total:	**2261539.246**

The Hon'ble NGT in the matter of OA No. 804 of 2017 filed by Rajiv Naryana & Anr. Vs. Union of India & Ors. vide order dt. 30.07.2018 constituted the Monitoring committee for Management. The Monitoring Committee submitted its report on Management of Hazardous Waste.

The Hon'ble NGT vide order dt 29.01.2021 disposed the matter directing the CPCB and SPCBs to comply with the recommendations of the Monitoring Committee.

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7. Status of compliance of E-Waste (Management) Rules:

- The E-Waste (Management) Rules, 2022 came into force w.e.f. 1st April, 2023 in supersession of the E-Waste (Management) Rules, 2016.
- There are 19 Nos. of E-Waste Recycling units, and 2 refurbishing unit in the State of Telangana. The TSPCB has issued Consents to these units. The details are as follows:

E-WASTE RECYCLING UNITS :

S. No.	Name & Address	Permitted Capacity	CFO Validity
1.	M/s. Earth Sense Recycle Pvt., Ltd., Plot No.37 APIIC Industrial Park, Mankal (V), Maheswaram (M), Rangareddy District.	43,800 TPA	30.06.2029
2.	M/s. Z Enviro Industries Pvt., Ltd., Sy.No.106 & 107, Pulimamidi (V), Kandukur (M), Rangareddy District.	Dismantling & refurbishing - 20,000 TPA Recycling -10,000 TPA	30.06.2025
3.	M/s. EnviroKare Recycling Solutions Pvt. Ltd., Sy. No. 402, Raikal (V), Farooqnagar (M), Rangareddy District.	2,549 TPA	31.05.2026
4.	M/s. Green Enviro E Waste Recycling, Sy.No. 729, Pochampally (V), B. Pochampally (M), Yadadri Bhuvanagiri District	30,000 TPA	30.06.2029
5.	M/s. Elifecycle Management Private Limited., Sy.No.468, 470, 471 & 472, Theegapur, Kothur, Rangareddy District.	17,820 TPA	30.11.2026
6.	M/s. Pure Earth Recyclers Private Limited, Sy. No.924, 994, Rudraram (V), Patancheruvu (M), Sangareddy District	5,050 TPA	30.08.2027
7.	M/s. Green Wave Ewaste Recycling, Sy. No. 1880E, 1880EE, Nandigama (V&M), Rangareddy District.	30,816 TPA	30.06.2029
8.	M/s. E Tech E Waste Recycling, Sy.No.1096, Nandigama (V&M), Rangareddy District	19,800TPA	31.08.2029

9.	M/s. Reboot Resources Private Limited (Unit-2), Sy.No.29, 30 & 31, Ramdaspalle (V), Ibrahimpatnam (M), Rangareddy District	40,000 TPA	30.06.2029
10.	M/s. Resustainability Reldan Refining Private Ltd., Sy. No. 684/1, Dundigal (V), Quthubullapur (M), Medchal-Malkajgiri District	13,572 TPA	28.02.2028
11.	M/s. Recytronics Waste Solutions LLP, Sy.No.96/Part/C, Patelguda, Mangalpalle (V), Ibrahimpatnam (M), Rangareddy District.	10800TPA	30.06.2028
12.	M/s. Kamal Electronics Refurbishing of E-waste Solutions, Atmakur (V), Sadasivpet (M), Sangareddy District.	21,600 TPA	31.08.2029
13.	M/s. Shreem Mythri E-Waste Recycling, Sy.No. 10/A2, 11/A3, 12/A2/3, 12/A3/1 & 12/A4, Narayanapur (V&M), Yadadri Bhuvanagiri District.	3,700 TPA	01.06.2027
14.	M/s. Malpani Antenna Electronics Pvt. Ltd., Plot No. D4, Phase-I, IDA, Pashamailaram, Patancheru (M), Sangareddy District	493 TPA	31.07.2027
15.	M/s. Renavart Recyclers India Private Limited, Sy.No. 183, Deshmukh (V), Pochampally (M), Yadadri Bhuvanagiri District.	1,476 TPA	31.10.2028
16.	M/s. Silicon Planet Recycling Pvt. Ltd., U-II Sy.No. 247 & 248, Thumkunta (V), Bommalaramaram (M), Yadadri Bhuvanagiri District	9000 TPA	31.10.2028
17.	M/s. Enviropro Sustainability Solutions Private Limited, Sy. No. 159U, No. 8-155AA/A1,Kothur (V), Kothur (M), Rangareddy District	1,152 TPA	31.01.2028
18.	M/s. Cynosure Recycling Pvt. Ltd., Sy.No.3/LU/1,3/RU,3/LU,303/AA, Kethireddipalle (V), Balanagar (M), Mahabubnagar District	21,500 TPA	31.07.2029
19.	E Tree Technologies,Plot no. S-65/1, Sy No.76/P & 77/P, E City,	55.6 TPM or 667.2 TPA	30.09.2029

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	Maheshwaram (M), Rangareddy Dist.		
	Total	**3,03,183.6 TPA**	

E-WASTE REFURBISHING UNITS :

S. No.	Name & Address	Permitted Capacity	CFO Validity
1.	M/s Earth Sense Recycle Pvt. Ltd., (U-II) H No 7-2/4, B V Rao Complex, Chattanpalle (V), Farooqnagar (M), Rangareddy District.	1080 TPA	05.12.2027
2.	M/s. Envirokare Recycling Solutions Pvt Limited Unit II, Sy No 475, Elkatta(V), Farooqnagar(M), Rangareddy District	7200 TPA	31.05.2028
	Total	**8280 TPA**	

Extended Producer Responsibility:

- Every producer of Electrical and Electronic Equipments (EEEs) listed in Schedule-I have to obtain EPR (Extended Producer Responsibility) Registration Certificate from the Central Pollution Control Board (CPCB).
- The producers shall have arrangements with authorised recyclers either individually or collectively or through a Producer Responsibility Organisation (PRO) or E-Waste Exchange system as per EPR Plan which is approved/ authorised by CPCB.
- The CPCB has issued EPR Authorizations to 18 Nos. of Recyclers in the State.

➢ The TGPCB carried out Inventorization in the State of Telangana through M/s EPTRI in the year 2016.

➢ As per the Inventorization report, the projection for E-Waste generation in HMDA for five years (in Metric Tons) is as follows:

2017-18	2018-19	2019-20	2020-21	2021-22
33,425.3	37,456.6	40,230.5	44,945.2	50,335.6

7.1 Compliance of Hon'ble NGT Order in OA No. 512 of 2018:

The Hon'ble NGT disposed the case vide order dt. 15.01.2021 directing to take further steps for scientific enforcement of EWMR and to focus on the following major areas:

- Enforcement of EWM Rules,
- Implementation of authorization regime,
- Implementation of EPR regime,
- Bridging the gap between collection target and collection,
- Enhancing the installed dismantled capacity to match the e-waste generation,
- Implementation of environmental compensation regime,
- Constant Vigilance and monitoring,
- Creation of awareness amongst masses and collectors / handlers / dismantlers / recyclers.

The compliance status on the action plan submitted by CPCB to the Hon'ble NGT in OA No. 512 of 2018 is as follows:

S. No.	Challenges/Activities	Stakeholder responsible for implementation	Action	Status of implementation
1	Inventorization of E-waste generation	SPCBs/PCCs	SPCBs /PCCs to complete this activity within one year.	The TGPCB has carried out Inventorization of E-Waste in the State of Telangana through M/s. EPTRI, Hyderabad in the year 2016. The Board will be carried out Inventorization as per the E-Waste (M) Rules 2022.
2	Identification of Producers who have not registered at E-waste EPR Portal	CPCB, Custom Department, Ministry of Commerce and Ministry of Electronics & Telecommunication	This is a continuous activity for which support of SPCBs / PCCs / Custom Department / Ministry of Commerce, Ministry of Electronics and Telecommunication is required.	--

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3	Verification of facilities of recyclers for their infrastructure and records	SPCBs / PCCs / CPCB	This is a continuous activity. All the registered recyclers will be verified per year.	The Telangana PCB has issued Consents to 19 Recycling units. These units are being inspected on regular basis to verify compliance. The Regional Offices of Telangana PCB are also conducting random surprise inspections.
4	Checking of informal trading, dismantling, and recycling of waste	SPCBs/PCCs/ District Administration	SPCBs/PCCs in coordination with District Administration has to carry out quarterly drive for checking of this activity.	The Hon'ble NGT orders communicated to all the District Collectors and the Board is coordinating with District Administration for checking of informal trading, Dismantling & Recycling of E-Waste. Surprise inspections being conducted to verify illegal dismantling, and recycling of E-waste. The Board has made a process of surveillance of e-waste across the State. Surprise Inspections are being conducted by the Regional Offices of the Board to identify / verify on informal E-Waste dismantling & Recycling activities. The Board also

				opened public interface through telephone through Toll free number; Public Grievance or Janavani Kalushya Nivarani Mobile App / Web Portal in the TGPCB website.
5	Facilitate collection and disposal of e-waste	SPCBs/PCCs/ District Administration/ CPCB	State Government to formulate mechanism for collection and for incentivizing setting up of recycling facilities.	The Government of Telangana has introduced E-waste Management Policy, 2017 by giving incentives for setting up of E-waste Recycling facilities.
6	Governance frame work for monitoring compliance	SPCBs/PCCs/ District Administration/ CPCB	Monitoring to be ensured at city/district and state levels for which nodal officers (State Environmental Secretary, District Collector, CMD/ Commissioners) to be designated.	The Telangana PCB has designated Regional Officers as District level Nodal Officers to monitoring at District level and E-waste section at Head office is monitoring by the Regional officers to ensure compliance of E-waste Rules & Hon'ble NGT Directions
7	Capacity building at district/State/CPCB level	SPCBs/PCCs/ District Administration /CPCB	Special workshops to educate functionaries in Government / NGOs be run over one year.	The E-Waste dismantlers & recyclers are directed to conduct awareness programmes. The District Level officers are being sensitized about the E-waste Rules during the review meetings conducted by the District Collectors on NGT issues.

8	IEC plan be firmed up and executed	SPCBs/PCCs/ District Administration /CPCB	State Government to firm up IEC plan for educating public at large about the system of collection, incentive structure and facilities for recycling. The IEC Plan to be executed over one year.	The Telangana PCB has conducted the following Training Programmes to the stake holders Departments: a. Telangana PCB has conducted mass awareness through seminars and awareness programs in colleges and schools. A total of 15 No's of programs have conducted. b. Advertisement issued (Regarding E-Waste Recycling units) in English & Telugu News Papers on 26.06.2024. c. The Telangana PCB is creating E-waste at mass public gathering area at Numaish,Nampally -2025.
9	Strengthen system of enforcement	SPCBs/PCCs/ District Administration/ CPCB	Quarterly review of violations and enforcement actions at city/district/state level and quarterly reports to be filed with CPCB.	The E-waste facilities are being inspected on regular basis to verify compliance. The CPCB is regularly reviewing the action taken on Half yearly basis.

Part II: Compliance to Hon'ble NGT order dated 15.01.2021

S. No.	Direction given	Status of implementation
1	All the State PCBs/PCCs need to identify the hotspots by constant vigil and to coordinate with the District Administration at local levels to prevent damage to the environment and public health and meaningful enforcement of rule of law. The E-waste needs to be shifted to the nearest TSDFs for safe disposal. Dismantlers and recyclers may be located in the conforming areas and provided with proper infrastructure facilities.	There is no identified hotspot within State, where major environmental damage is being done due to un scientific treatment of E waste. However, Telangana PCB is keeping a close vigil with the help of District administration.
2	We also direct the acceptance of recommendations of the Oversight Committee for the State of UP. We record statement of learned counsel for the State PCB for TSDF at Amroha will be functional by 01.03.2021. The State PCB may ensure in setting up of TSDF and its operationalization CPCB guidelines are duly followed. The e-waste on the bank of River Ramganga may be duly shifted in an environmentally sound manner. Banks of river Ramganga should be cleaned and no deposition of E-waste/black powder observed.	Related to UPPCB only
3.	DPCC may continue further efforts in coordination with the concerned Authorities including Delhi Police and East Delhi Municipal Corporation. It is not enough for the DPCC to be content by simply giving directions to other statutory authorities instead of coordinating with them to ensure compliance. Dismantlers and recyclers may be located in the conforming areas and provided with proper infrastructure facilities.	Related to DPCC only

Part: III ATR on CPCB's directions

Directions dated 06.09.2022

S.No	Direction given	Status of implementation
1	To set up robust mechanism of surveillance for addressing the issue of illegal/informal processing of e-waste in their jurisdiction.	The Board has made a process of surveillance of e-waste across the state. The Regional Offices keep a close watch. The Board also opened public interface through telephone help line, website and app, so that

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		anybody can report an illegal activity.
2	To carry out random inspections for auditing of authorized e-waste dismantling and recycling units as per transparent procedure established for such randomized selection of Units approved at the level of Chairman, SPCBs/PCCs for assessing the material balance in terms of quantity of e-waste collected, quantity of e-waste Dismantled / recycled vis a vis quantity reported so as to ascertain leakage of e-waste to informal sector, for checking quantities of different materials produced such as precious/semi-precious and useful metal from e-waste and co-relating it with GST paid, for checking availability of adequate dismantling and recycling facilities and ensuring capacity in line with guidelines of CPCB. SPCB/PCCs to ensure transparency in selection of units for random inspection.	Physical verification is under progress.
3	To carry out random monitoring and compliance of EPR Authorization of EPR Authorized Producers selected as per transparent procedure established for such randomized selection of Units approved at the level of Chairman, SPCBs/PCCs with focus on verification of collection targets.	In Telangana, 18 no. of E-Waste Recycling Units have registered under the EPR portal from CPCB out of 19 units. The Board is pursuing the remaining 1 units to obtain EPR Registration.
4	To implement Action Plan issued in the matter of OA No. 512 of 2018 in Hon'ble NGT (PB) for enforcement of E-Waste (Management) Rules, 2016 with focus on action points related to informal trading, dismantling, and recycling of e-waste, Producer's systems for collection & channelization, quantity of e-waste collected towards fulfillment of collection target and submit reports quarterly on the outcome. Copy of Action Plan is enclosed;	The Hon'ble NGT orders communicated to all the District Collectors and the Board is coordinating with District Administration for checking of informal trading, Dismantling & Recycling of E-Waste. The Board has made a process of surveillance of e-waste across the State. Surprise Inspections are being conducted by the Regional Offices of the Board to identify / verify on informal E-Waste dismantling & Recycling activities. The Board also opened public interface through telephone through

		Toll free number; Public Grievance or Janavani Kalushya Nivarani Mobile App / Web Portal in the TGPCB website.
5	To carry out awareness programme for the stakeholders as per the provisions of E-Waste (Management) Rules, 2016 and to bring informal sector to formal sector through awareness drives, IEC campaign, print media etc. on regular basis.	The Telangana PCB has conducted the following Training Programmes to the stake holders Departments: d. Telangana PCB has conducted mass awareness through seminars and awareness programs in colleges and schools. A total of 15 No's of programs have conducted. e. Advertisement issued (Regarding E-Waste Recycling units) in English & Telugu News Papers on 26.06.2024. The Telangana PCB is creating E-waste awareness at mass public gathering area at Numaish,Nampally -2025.
6	The above referred actions to be treated as continuous activity and be performed on regular basis.	The Board undertakes the above activities on a regular basis.

Directions dated 30.01.2024

S.No	Direction	Compliance status
1	To provide the updated list of entities engaged in the generation, recycling & refurbishing of E-Wastes (Producers, Importers, Recyclers and Refurbishers) and ensure their on boarding on the E-Waste EPR Portal of CPCB(Enclose List)	Current list of Recyclers and Refurbishers in the State of Telangana is provided above.
2	To issue notice to all such entities who are operating without registration, followed by closure of such entities (Enclose Copy)	The Telangana PCB issued directions to all its Regional Officers to issue notice vide order dt. 23.02.2024 to all such entities who are operating without registration. The ROs were instructed to take necessary action

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		including closure of such entities.
3	To immediately physically verify the facilities of E-Waste Recyclers and Refurbishers in the State/UT in terms of various details such as its GPS location, GPS tagged photos/videos, waste category as raw material (EEE code wise), installed plant & machinery and their actual production capacity, capability, etc. as submitted on E-Waste EPR Portal (Enclose details)	The E-waste facilities are being inspected on regular basis to verify compliance.
4	To take action against such Recyclers and Refurbishers who have uploaded their details falsely or not correctly on the EPR Portal as per verification as at point (c) above and to recommend CPCB immediately for correcting details on the EPR portal so as to ensure that no false EPR Certificate is being generated in the State/UT. Further, necessary changes be also done in the CTO accordingly and be informed to CPCB(Enclose details)	---
5	To carry out drives for identifying informal / illegal E-waste recyclers / refurbishers including clusters/areas where such illegal recyclers / refurbishers are operating and to close such informal recycling / refurbishing units immediately (Enclose details)	The Telangana PCB issued directions to all its Regional Officers vide order dt. 23.02.2024 to carry out drives for identifying informal / illegal E- waste recyclers / refurbishers including clusters / areas where such illegal recyclers / refurbishers are operating and refer the cases to the Task Force for Legal Hearing and subsequent action by the Task Force, including closure of such informal recycling / refurbishers units immediately.
6	To facilitate the transformation of such informal/illegal E-waste recyclers / refurbishers into formal recyclers / refurbishers and consent mechanism by way of providing necessary technical support, hand holding, integrating with	The Telangana PCB has not yet identified any such informal / illegal E-waste recyclers / refurbishers in the State.

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	schemes in the SPCB/PCC, etc.;	
7	To also issue advertisements in the newspapers in vernacular language for immediately closing of illegal E-waste recycling/refurbishing operations by the operators who do not have consent to operate, including for the common public to inform the same, if any, to SPCB/PCC and take actions as at point (e) and point (f) above (Enclose details)	Public Notice in the form of advertisement is issued in the leading vernacular language News Papers (3 Nos) and in English Newspapers(2 Nos) on 26.06.2024 and also The Telangana PCB is creating E-waste awareness at mass public gathering area at Numaish,Nampally -2025.

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8. Status of compliance with directions of the NGT passed in O.A.No.673 of 2018, dated 20.09.2018 in the matter of news item published in "The Hindu" authored by Sri Jacob Koshy, titled "more river stretches are now critically polluted".

The following are submitted with regards to actions taken by the Govt. of Telangana for rejuvenation of the Polluted River Stretches.

8.2 Compliance of the Hon'ble NGT order dt.14.02.2020:

The Hon'ble NGT directed the following:

- Interim measures for phyto-remediation / bio-remediation etc., for 100% sewage to reduce pollution load on recipient water bodies by 31.03.2020.
- Untreated / raw sewage discharged into water bodies needs to be stopped. Commencement of STPs shall be taken up by 31.03.2020 and commissioned by 31.03.2021.

➢ The Compliance of the action plan and the Hon'ble NGT directions as on 31.12.2021 are as follows:

Action Points	Compliance status
Interim measures for phyto-remediation / bio-remediation etc., for 100% sewage to reduce pollution load on recipient water bodies.	**In-Situ Remediation:** The NEERI has prepared DPRs for In-situ remediation for 5 drains and for one drain at Kokapet was awarded to NEERI. However, works could not commence. HMWSSB is constructing 27STPs near all most all the drains by adopting decentralized approach. Further, it is to submit that faecal sludge treatment plants are also established as detailed below: **i) Faecal Sludge Septage Management(FSSM) as interim measure:** • The peripheral areas beyond GHMC and within ORR has partial sewerage network. The septage from the septic tanks of individual households and communities are cleaned/emptied periodically and conveyed to nearest FSTP / Co-Treatment at existing STPs through septic tank cleaning vehicles and treated in scientific manner as a

Action Points	Compliance status
	part of Feacal Sludge Septage Management (FSSM). • HMWSSB has empanelled 93 Septic Tank Cleaning Vehicle Operators for transportation of septage and safe disposal at co-treatment facilities at existing STPs. These operators are provided training for safe handling of septage and issued safety equipment. The de-sludging vehicles are fitted with GPS based vehicle tracking system to monitor their movements. **Existing facilities:** • **Co Treatment Facilities:** 7 nos with 70KLD facility in the a. Priority–I stretch (1.Amberpet, 2. Nallacheruvu, 3.Peddacheruvu, 4. Miralam, 5. Khajaguda, 6.Nanakramguda and 7.Nagole). • **FSTPs:** One number with 40KLD capacity at Nalla Cheruvu in Priority-I stretch **39 FSTPs have been established on Priority stretch III-V with 940 KLD capacity**. The details are Ieeja, Gadwal, Mahabubnagar, Narayanpet, Siddipet, Gajwel, Kamareddy, Nizamabad, Medchal, Boduppal, Shadnagar, Peerzadiguda, Meerpet, Badangpet, Dubbaka, Nalgonda, Bhongir, Suryapet, Jangaon, Ramagundam, Adilabad, Korutla, Nirmal, Jagityal, Metpally, Bhainsa, Khammam, Yellandu, Bhupalapally, *Adibhatla, Narsingi, Dundigal, Ghatkesar*, Wardannapet, Kothapally, Chennur, Kyathanpally, Khanapur, Luxettipet. **Under Construction:** • **Co-Treatment Facilities:** 1 no with 10KLD facility in the Priority –I stretch at khajikunta • **Feacal Sludge Treatment facilities on Priority stretch III-V**: ➢ Tenders have been invited in 68 ULBs with overall 495 KLD capacity with a project cost of Rs.177.00 Crs. Four Concessionaries are working in 7 different packages. All administrative approvals, LOAs, agreements and proceedings are completed. **64** Nos as detailed below:

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Action Points	Compliance status
	Nagarkurnool, Kalwakurthy, Achampet, Kollapur, Wanaparthy, Husnabad, Banswada, Bodhan, Armoor ,Sadashivpet , Tandur , Ibrahimpatnam, Miryalaguda, Kodada, Peddapalli, Vemulawada Kaghaznagar, Bellampalli, Mandamarri, Karimnagar, Kothagudem, Manuguru, Palwancha, Jammikunta, Huzurabad, Parkal, Madhira, *Thumkunta, Jawaharnagar, Dhammaiguda, Gundlapochampally, Nagaram, Pocharam, Nizampet, Parigi, Atmakur, Amarchinta, Waddepalli, Bhootpur, Pebbair, Tellapur, Yellareddy, Narayankhed, Narsapur, Ramayanpet, Thoopran, Bollaram, Bandlaguda Jagir, Shamshabad, Turkayamjyal, Tukkuguda, Amangal, Chandur, Haliya Nandikonda, Mothkur, Yadagirigutta, Choppadandi, Sulthanabad, Thorrur, Marripeda, Wyra, Dornakal, Raikal.*
Commencement of STPs shall be taken up by 31.03.2020 and commissioned by 31.03.2021	**Details of existing STP in the State:** A total of 52 STPs with capacity of 1273.1 MLD are under operation. Details are placed at Annex-II. **Details of under construction STPs:** 27 STPs (1105.46 MLD) in the State and complete details are placed as *Annex-II* and the gist of which is as follows: o **Polluted River Stretches:** Works under progress for construction of STPs in HAM model for balance 18 STPs (926.5 MLD) under Priority-I and Priority-II. o **Other than Polluted River Stretches:** 9 STPs with a capacity of 178.96 MLD are under different stages. **Details of proposed STPs in the State: Details of proposed STPs in the State:** Total 141 STPs with a capacity of 965.8 MLD details are placed at **Annex-III.** • 10 STPs with a capacity of 340.5 MLD (by HMWSSB) under Priority-II stretch through HAM mode is in the process of administrative sanction. I. **Details of STPs proposed in the State (Outside ORR limits) under Polluted River Stretches:** ▪ Total 131 No. of STP's of capacity 625.3 MLD in 110 ULB's are proposed to be taken up by the PH&ME Department.

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Liquid waste management in rural areas:

S.No	Financial Year	IHHLs		Community Sanitary Complex (CSC)		SLWM Activities Expenditure (Cr.)	School & Anganwadi Toilets Expenditure (Cr.)	Total Expenditure (Cr.)	Magic Soak Pits		
		No. of IHHLs Completed	Expenditure (Cr.)	No. of CSC Completed	Expenditure (Cr.)				In Progress	Completed works	Expenditure (Rs in Cr.)
1	2	3	4	5	6	7	8	9=4+6+7+8	12	13	14
1	2018 - 2019	445055	809.38	0	0	0	0	809.38		76357	22.54
2	2019 - 2020	573234	383.32	0	0	0	0.41	383.73		263964	70.13
3	2020 - 2021	150653	46.94	0	0.15	2.81	0	49.9		194674	76.59
4	2021 - 2022	11486	0	11	0.20	0	0	0.2		52601	27.19
5	2022 - 2023	1996	16.95	26	0.54	0	0.18	17.67	2294	32188	11.09
6	2023 - 2024	208	0.02	46	0.16	0.754	122.26	122.45	58694	67124	1446.04
7	2024 -25						51.39	51.39	12446	14105	5.64
	Total :	1182632	1256.613	83	1.053	3.564	122.9	1434.72	60988	686908	1653.584

The Hon'ble NGT vide order dt. 29.06.2020 directed the following :

- The monitoring is expected with reference to ensuring that no pollution is discharged in water bodies and any violation by local bodies or private persons are dealt with as per mandate of law as laid down in orders of the Hon'ble Supreme Court and this Tribunal without any deviation from timelines.

- Every State/UT in the first instance must ensure that at least one polluted river stretch in each category is restored so as to meet all water quality standards upto bathing level. This may serve as a model for restoring the remaining stretches.

The Action plan for treating the sewage entering the water bodies is under implementation.

Sewage Management

Overall status of the State:

I. Total Population: Urban Population & Rural Population separately : 3.9 crores

II. Estimated Sewage Generation (MLD) : 2750

III. **Details of Sewage Treatment Plants(STPs):**

- Existing no. of STPs and Treatment Capacity (in MLD) : 52 Nos (1603.1)

  36 nos. (1435.30 MLD) with in GHMC under Priority- I&II + 16 nos. (167.80 MLD) other ULBs
- MLD of sewage being treated through Alternate technology: Nil
- Gap in Treatment Capacity : 1146.9 MLD
- No. of Operational STPs : 52 Nos. (1 in trial run)
- No. of Complying STPs : 44 Nos. (8 STPs commenced recently and need to be evaluated)
- No. of Non-complying STPs : Nil

Details of each existing STP in the State: Details are placed at **Annex-IV**

Earlier the data furnished in Annexure III is regarding the status of under construction STPs. Due to site constraints, 1259 Mld STPs are taken up at 27 locations out of which 11 STPs of 663 Mld capacity are completed & commissioned. Balance 9 STPs of 443 MLD capacity are in brisk progress and are programmed for completion by April'2025. Out of balance 7 STPs, one STP is under Court Case and 6 STPs are being taken up under AMRUT-2.0 which are in Tender stage. The updated report of under construction STPs within GHMC area is herewith detailed in ***Annexure-A7.***

a) The data furnished in the earlier Annexure-IV pertains to the existing STPs. In GHMC area as on 31-12-2024, 36 STPs of capacity 1435.30 MLD are in operation with 1104.25MLD (77%) (which is as per OCEMS data shown in **Annexure 17**) of capacity utilization are detailed in ***Annexure-A8***.

b) After completion of ongoing STPs, the total capacity of STPs in GHMC area would be 1878 MLD as against the sewerage generation of 1950 MLD and accounts for treatment capacity of more than 90% of sewage generated in

GHMC area. The gap in treatment capacity of 72 MLD will be achieved by 2027.

Sl. No.	Sewage Generation & Treatment	MLD
1	Sewage Generation in GHMC & upto ORR (as on the date of NGT order 29.09.2022)	1950.00
2	Existing STPs Capacity (25 Nos)	772.30
3	Newly Constructed & commissioned STPs (11 Nos)	663.00
	Total Installed STPs capacity (2) & (3)	**1435.30**
4	Present Utilization Capacity	1104.25 (77%)
5	New STPs under construction (9Nos - nearing completion)	443.00
6	Utilization Capacity after completion of under progress STPs (April'2025)	90%
7	Gap in Treatment Capacity, being taken up under AMRUT-2	72.00

(C) ENC-PH (Entire State of Telangana / 115 ULBs):

(a) Earlier the data furnished in Annexure III is regarding the status of under construction STPs. Out of total 9 Nos of STPs with a capacity of 178.96 MLD, 6 Nos with capacity of 74.91 MLD is programmed to complete by June 2025. Balance 3 Nos of STPs could not be materialized due to various reasons. The updated report of under constructions STPs in ULBs is detailed in ***Annexure-A9.***

(b) In ULBs, as on 31-12-2024, the details of existing 16 Nos of STPs in 10 ULBs, capacity 167.80 MLD, which are in operation with 65.25 MLD capacity utilization & disposal points are as detailed in ***Annexure-A10 & A10(ii)***.

(c) The details of STPs under PHMED taken up under AMRUT 2.0 are enclosed in ***Annexure-A11.***

The gap in treatment 102.55 MLD will be achieved by July'2027.

(d) In the earlier scheme (like Urban Infrastructure Development Scheme for Small and Medium Towns [UIDSSMT]) there was no provision for house service connections. Due to technical constraints in ULBs, the connections could not be given. Hence the expected flow is not reaching STPs. It is proposed to take up the same under AMRUT 2.0.

(e) Government vide G.O. Rt. No. 388, dated 21-08-2024 accorded Administrative Sanction for an amount of Rs.3769.34 Crores (including O&M and Annuity payments and GST on Interest component of Annuity payments) for establishment of 115 No's of STPs in 101 ULBs (including 29 ULBs) other than Ramagundam (which is proposed in AMRUT 2.0. with a total capacity of 455.00 MLD in the State of Telangana under SBM 2.0. Technical sanction accorded and the Tenders will be invited shortly. The details are enclosed in ***Annexure-A11(i) & A11(ii).***

A) Improvement in river water quality: The consistent efforts and actions initiated by Govt. of Telangana with regards to sewage and solid waste management has resulted in improvement of the water quality in the rivers. The highest BOD concentrations observed, based on the TGPCB analysis of water quality, which is carried out on monthly basis, are as follows:

S. No	River	Stretch	PRS-2018		PRS-2022		PRS-2024		Remark
			Priority	BOD (mg/l)	Priority	BOD (mg/l)	Priority	BOD (mg/l)	
1	Musi	Hyderabad to Nalagonda	I	4.0 – 60.0	I	66.0	II	18	Bapughat to Rudravelly, Kasaniguda to Valigonda
2	Manjeera	Gowdicharla to Nakkavagu	II	5.0-26.0	V	6.0	V	4.1	Sangareddy to Gowdicharla
3	Nakkavagu	Gandilachapet to Sevalal	II	26.0	III	11.0	V	6.0	Along Bachugudem
4	Karakavagu	Along Palwancha	III	18.0	V	4.0	V	2.0	-
5	Maner	Warangal to Somanapalli	III	6.0-20.0	III	16.0	V	3.8	Karimnagar to Somanapalli
6	Godavari	Basar to Khammam	IV	4.0-9.0	II	24.0	V	5.0	Along Basara, Mancherial to Ramagundam, Along Kalehwaram, along Kamalapur, along Bhadrachalam
7	Kinnersani	Along Palwancha	IV	10.0	V	6.0	V	2.8	Along Khammam

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S. No	River	Stretch	PRS-2018		PRS-2022		PRS-2024		Remark
			Priority	BOD (mg/l)	Priority	BOD (mg/l)	Priority	BOD (mg/l)	
8	Krishna	Thangadigi to Wadapally	V	5.0-6.0	V	3.2	V	4.8	Along Wadapally
9	Munneru	Along Khammam	-	-	V	6.0	V	3.2	New River

As per the water quality data of 2024, it is to submit that the River stretches showed improvement.

- River Musi from Priortiy-1 to Priority-2
- River Krishna, is in Priority-5
- River Manjeera from Priority-2 to Priority-5
- Nakkavagu from Priority-2 to Priority-5
- Karakavagu from Priority-3 to Priority-5
- Kinnerasani from Priority-4 to Priority-5
- River Maneru is in the same Priority i.e., 5

Submitted.

Chief Secretary
Government of Telangana

4/4 CHIEF SECRETARY
Govt. of Telangana
Telangana Secretariat,
Hyderabad - 500 022

Item No. 17 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

Original Application No. 606/2018
(IA No. 163/2021 & IA No. 299/2024)
(In respect of State of Telangana)

Compliance of Municipal Solid Waste Management Rules, 2016 and other environmental issues.

Date of hearing: 22.08.2024

Uploaded on: 12.09.2024

CORAM: **HON'BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON**
HON'BLE MR. JUSTICE SUDHIR AGARWAL JUDICIAL MEMBER
HON'BLE DR. A. SENTHIL VEL, EXPERT MEMBER

Respondent: Mr. S. Niranjan Reddy, Senior Advocate with Mr. Sravan Kumar, Ms. Akhila Palem, Mr. Saaketh Kasibhatla, Mr. Tayade Pranali Gowardhan & Mr. Shireesh Tyagi, Advs. alongwith Mr. R. Satyalingam, OSD (F&L), Mr. M. Satyanarayana, Executive Director & Mr. D. Sudershan, Director-Projects-1
Mr. Dhananjay Baijal, Adv. for Telangana PCB

ORDER

1. In this Original Application, Tribunal is examining the issue of solid as well as liquid waste management in respect of different States as per the order of the Hon'ble Supreme Court dated 02.09.2014 in Writ Petition No. 888/1996 in the matter of *Almitra H. Patel vs. Union of India & Ors.*, with regard to solid waste management and order dated 22.02.2017 in W.P. No. 375/2012, reported in (2017) 5 SCC 326 in the matter of *Paryavaran Suraksha vs. Union of India*, with regard to liquid waste management.

2. Today the matter is listed to examine the compliance by the State of Telangana.

3. The half yearly progress report for the period from October 2023 to March 2024 has been filed by the State of Telangana on 09.07.2024 and

the miscellaneous document has been filed on 22.08.2024. After hearing - Mr. S. Niranjan Reddy, Senior Advocate for State of Telangana and examination of the report it is noticed that:

I. Overall analysis indicates that there is no substantial progress in bridging the gap in the treatment, utilisation and disposal of liquid and solid waste management. We have found following deficiencies and gaps based on examination of the Third Six Monthly Progress Report dated 9.7.2024 signed by Chief Secretary reporting progress for a period from October 2023 to March 2024:-

[Solid Waste Management]

(i) There is a gap of 2281.0 TPD in waste processing in 141 ULBs (2475). Therefore, each day, unprocessed waste is added to the legacy waste.

(ii) There has been a change in the legacy waste figure of 59.0 lakh MT reported earlier which is now reassessed to 38.46 lakh MT. The entire waste is expected to be remediated by 30.6.2025.

(iii) We could not ascertain the details of waste being processed by GHMC which is estimated to be 7251 TPD.

(iv) It has been admitted that 1,20,00,000 MT has been capped (page 2416) and whereas at another place this figure is 12 MT (reported at page 2410). Hence, it is to be clarified. It is not disclosed if there is any further dumping or landfilling taking place.

[Sewage Management]

(i) No relevant fact can be gathered in respect of sewage management from the data furnished in Annexure III (page 2507) and Annexure IV (page 2525). The data has been given in respect of polluted river stretches. Annexure IV discloses that existing 50 STPs are having treatment capacities of 1273.1 MLD but, it is not disclosed that how much sewage is actually being treated.

(ii) On examination of performance data given in Annexure-V regarding functioning of STPs, we find that extent of utilisation of treatment capacities and final point/ mode of disposal of treated sewage, has not been disclosed. Further, Telangana PCB is required to clarify on the Standards prescribed in CFO with regard to Fecal Coliform as they are in variance with regard to the Standards set out by the Tribunal in order dated 30.09.2018 passed in OA 1069/2018.

(iii) Annexure III and Annexure IV need to be further elaborated by giving figures of sewage generation, treatment and gap for each 141 ULB.

(iv) Factual status on sewage generation for GHMC, installed capacities and utilisation of existing STPs, performance of STPs and final mode of disposal, has not been disclosed.

II. State of Telangana has sought permission to utilize environment compensation for restoration measures which is estimated to be Rs. 3800 crores but in view of Para 50 to 53 of the

order dated 29.09.2022 and observations made in the order dated 21.12.2023, no further clarification is required.

III. We find that Schedule I of MSW rule is violated and also there is non-compliance with the provisions of Water Act, 1974 and the directions of the Hon'ble Supreme Court in Paryavaran Suraksha.

4. Let fresh action taken report be filed by the Chief Secretary, State of Telangana in light of the observations made above at least one week before the next date of hearing by way of affidavit.

5. List the matter on 06.03.2025 for consideration of report in respect of State of Telangana.

6. For State of Chhattisgarh, matter be listed on 28.08.2024 as per earlier direction.

Prakash Shrivastava, CP

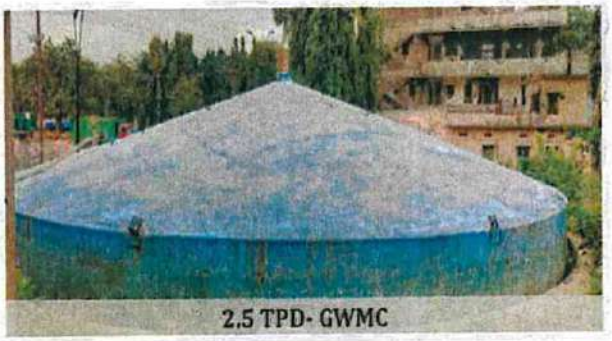
Sudhir Agarwal, JM

Dr. A. Senthil Vel, EM

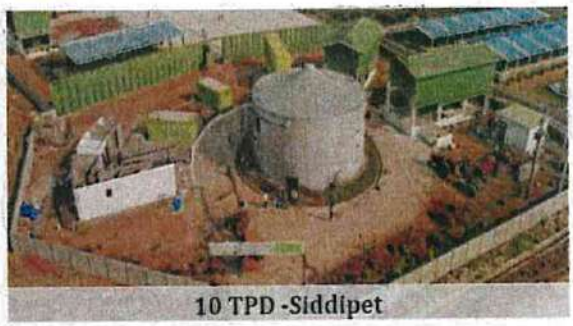
September 12, 2024
Original Application No. 606/2018
(IA No. 163/2021 & IA No. 299/2024)
dv

Annexure- A2

Figure 1 : Wet waste processing- (bio-methanation plants)



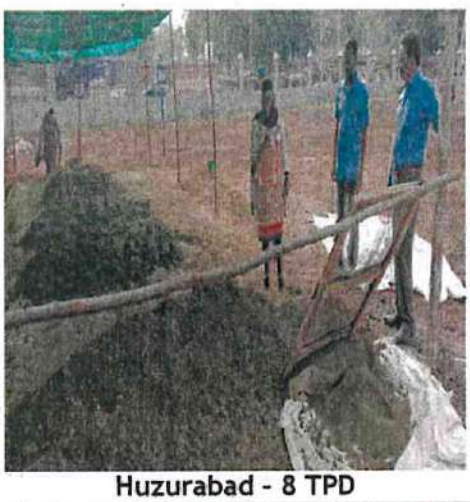
2,5 TPD- GWMC



10 TPD -Siddipet

1 TPD-Siricilla

Figure 2: Compost Sheds in ULBs(windrow composting / vermi composting):

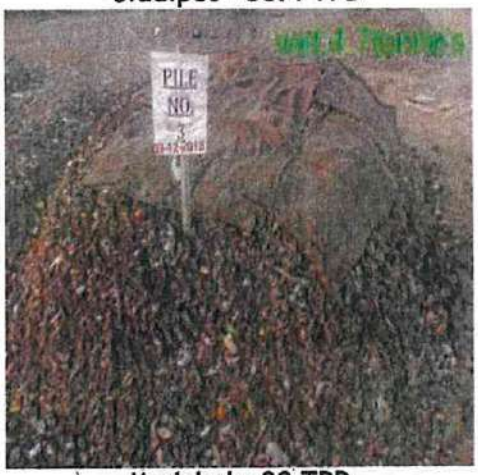


Huzurabad - 8 TPD

Narsingi - 4TPD

Siddipet - 38.4 TPD

Mahabubnagar-50 TPD



Medchal - 22 TPD

Sircilla - 13 TPD

Figure 3: DRCCs in ULBs

Kompally - 3.5 TPD

Korutla-14 TPD

Sircilla - 10 TPD

Mancherial - 35 TPD

Siddipet - 20TPD

Badangpet - 2TPD

Boduppal - 32 TPD

Mahabubnagar-50 TPD

Statement showing ULB-wise waste generation processed and gap in treatment of solid waste:-

S.No	Name of the ULB	Total Waste Generation (TPD)	Bio Degradedable			Non Bio Degradedable		Gap in treatment (TPD)
			Generation (TPD)	Processing - Compost (TPD)	Processing - Bio Gas (TPD)	Dry waste Generated (TPD)	Dry waste processed (TPD)	
		A	B	C	D	E	F	G = (A-C-D-F)
1	Adilabad	90	43.5	19	0	46.5	5	66
2	Kothagudem	50	27.5	8	0	22.5	5	37
3	Manuguru	15	8.25	7	0	6.75	5	3
4	Palvancha	40	16.5	5	0	23.5	15	20
5	Yellandu	15	8.25	7	0	6.75	6	2
6	Dharmapuri	10	5.5	5	0	4.5	5	0
7	Jagityal	70	38.5	34	0	31.5	30	6
8	Korutla	30	16.5	15.5	0	13.5	12	2.5
9	Metpalli	25	13.75	11	0	11.25	10	4
10	Raikal	10	5.5	5	0	4.5	3.5	1.5
11	Jangaon	25	13.75	5	0	11.25	5	15
12	Bhupalpally	25	13.75	5.5	0	11.25	2.5	17
13	Alampur	5	2.75	1	0	2.25	1	3
14	Gadwal	30	16.5	1	0	13.5	1	28
15	Ieeja	15	8.25	5	0	6.75	5	5
16	Waddepalle	7.25	5	4	0	2.25	1.5	1.75
17	Banswada	15	8.25	1	0	6.75	1	13
18	Kamareddy	70	38.5	10	0	31.5	5	55
19	Yellareddy	10	5.5	6	0	4.5	3	1
20	Choppandandi	10	5.5	4.5	0	4.5	4	1.5
21	Huzurabad	20	11	5	0	9	5	10
22	Jammikunta	20	11	4	0	9	4	12
23	Karimnagar MplCorpn	198.5	102	25	0	96.5	35	138.5
24	Kothapally	5	2.75	2.75	0	2.25	2.25	0
25	Khammam MplCorpn	192.25	97.75	15	0	94.5	15	162.25
26	Madhira	15	8.25	1	0	6.75	1	13
27	Sattupalli	15	8.25	5.5	0	6.75	5	4.5
28	Wyra	15	8.25	5	0	6.75	5	5
29	Kagaznagar	25	13.75	5.5	0	11.25	5	14.5
30	Bhoothpur	5	2.75	1.5	0	2.25	1	2.5

S.No	Name of the ULB	Total Waste Generation (TPD)	Bio Degradedable			Non Bio Degradedable		Gap in treatment (TPD)
			Generation (TPD)	Processing - Compost (TPD)	Processing - Bio Gas (TPD)	Dry waste Generated (TPD)	Dry waste processed (TPD)	
		A	B	C	D	E	F	G = (A-C-D-F)
31	Jadcherla	25	13.75	7.5	0	11.25	5	12.5
32	Mahaboobnagar	150	76	35	0	74	50	65
33	Dornakal	5	3	1	0	2	1	3
34	Mahabubabad	25	13.75	12	0	11.25	10	3
35	Maripeda	10	5.5	2.5	0	4.5	2	5.5
36	Thorrur	10	5.5	3	0	4.5	2	5
37	Bellampally	25	13.75	5	0	11.25	5	15
38	Chennur	15	8.25	1	0	6.75	1	13
39	Kyathanpally	15	8.25	1	0	6.75	1	13
40	Luxettipet	15	8.25	1	0	6.75	1	13
41	Mancherial	50	27.5	8	0	22.5	5	37
42	Mandamarri	20	11	1.5	0	9	1	17.5
43	Naspur	30	16.5	1	0	13.5	1	28
44	Medak	20	11	11	0	9	5	4
45	Narsapur	10	5.5	2	0	4.5	2	6
46	Ramayampet	10	5.5	2	0	4.5	2	6
47	Thoopran	10	5.5	3	0	4.5	2	5
48	BoduppalCorpn	20	11	11	0	9	9	0
49	Dhammaiguda	29.5	25	25	0	4.5	4.5	0
50	Dundigal	20	11	11	0	9	9	0
51	Ghatkesar	15	8.25	5.5	0	6.75	6.75	2.75
52	Gundlapochampally	6	2.75	2.75	0	3.25	3.25	0
53	JawaharnagarCorpn	40	20	20	0	20	20	0
54	Kompally	30	15	15	0	15	15	0
55	Medchal	24	15	15	0	9	9	0
56	Nagaram	15	8.25	8.25	0	6.75	6.75	0
57	NizampetCorpn	49	40	40	0	9	9	0
58	PeerzadigudaCorpn	30	15	15	0	15	15	0
59	pocharam	15	8.25	8.25	0	6.75	6.75	0
60	Thumkunta	15	8.25	8.25	0	6.75	6.75	0
61	Atchampet	15	8.25	2	0	6.75	2	11
62	Kalwakurthy	15	8.25	4	0	6.75	5	6

S.No	Name of the ULB	Total Waste Generation (TPD)	Bio Degradedable			Non Bio Degradedable		Gap in treatment (TPD)
			Generation (TPD)	Processing - Compost (TPD)	Processing - Bio Gas (TPD)	Dry waste Generated (TPD)	Dry waste processed (TPD)	
		A	B	C	D	E	F	G = (A-C-D-F)
63	Kollapur	15	8.25	2	0	6.75	5	8
64	Nagarkurnool	20	11	4.5	0	9	4	11.5
65	Chandur	5	2.75	2	0	2.25	2	1
66	Chityal	5	2.75	2	0	2.25	2	1
67	Devarakonda	15	8.25	5	0	6.75	2	8
68	Haliya	10	5.5	1	0	4.5	1	8
69	Miryalguda	70	38.5	9	0	31.5	5	56
70	Nakrekal	15	8.25	5	0	6.75	5	5
71	Nalgonda	100	55	45	0	45	5	50
72	Nandikonda	10	5.5	2.5	0	4.5	2	5.5
73	Kosgi	10	5.5	1	0	4.5	1	8
74	Makthal	15	8.25	3	0	6.75	6.75	5.25
75	Narayanapet	20	11	11	0	9	9	0
76	Bhainsa	20	11	4	0	9	4	12
77	Khanapur	10	5.5	2.5	0	4.5	3.5	4
78	Nirmal	50	27.5	23	0	22.5	22.5	4.5
79	Armur	25	13.75	5	0	11.25	5	15
80	Bheemgal	10	5.5	1	0	4.5	1	8
81	Bodhan	50	27.5	8	0	22.5	6	36
82	Nizamabad MplCorpn	220	137.5	12	0	82.5	40	168
83	Manthani	10	5.5	2.5	0	4.5	2	5.5
84	Peddapalli	20	11	8	0	9	8	4
85	RamagundamMplCorpn	150	82.5	22.5	0	67.5	25	102.5
86	Sulthanabad	10	5.5	1	0	4.5	1	8
87	Sircilla	50	27.5	13	1	22.5	5	31
88	Vemulavada	20	11	10	0	9	8	2
89	Adibatla	10	5.5	5.5	0	4.5	4.5	0
90	Amangal	15	8.25	3	0	6.75	3	9
91	Badangpet	40	25	25	0	15	15	0
92	Bandlaguda Jagir	15	8.25	8.25	0	6.75	6.75	0
93	Ibrahimpatnam	15	8.25	5	0	6.75	5	5
94	Jalpally	25	13.75	13.75	0	11.25	11.25	0

S.No	Name of the ULB	Total Waste Generation (TPD)	Bio Degradedable			Non Bio Degradedable		Gap in treatment (TPD)
			Generation (TPD)	Processing - Compost (TPD)	Processing - Bio Gas (TPD)	Dry waste Generated (TPD)	Dry waste processed (TPD)	
		A	B	C	D	E	F	G = (A-C-D-F)
95	Kothur	5	2.75	2.5	0	2.25	1	1.5
96	Manikonda	35.5	25.5	25.5	0	10	10	0
97	MeerpetMplCorpn	50	27.5	27.5	0	22.5	22.5	0
98	Narsingi	30	15	15	0	15	15	0
99	Pedda Amberpet	15	8.25	8.25	0	6.75	6.75	0
100	Shadnagar	25	13.75	12	0	11.25	5	8
101	Shamshabad	20	11	11	0	9	9	0
102	Shankarpally	10	5.5	1	0	4.5	1	8
103	Thukkuguda	10	5.5	5.5	0	4.5	4.5	0
104	Turkayamjal	20	11	11	0	9	9	0
105	Ameenpur	20	11	11	0	9	9	0
106	Andol-Jogipet	15	8.25	2.5	0	6.75	2	10.5
107	Bollaram	15	8.25	8.25	0	6.75	6.75	0
108	Narayankhed	10	5.5	1	0	4.5	1	8
109	Sadasivapet	20	11	1	0	9	1	18
110	Sangareddy	50	27.5	10	0	22.5	5	35
111	Tellapur	15	8.25	8.25	0	6.75	6.75	0
112	Zaheerabad	50	27.5	8	0	22.5	5	37
113	Cherial	10	5.5	1	0	4.5	1	8
114	Dubbaka	15	8.25	3.5	0	6.75	3	8.5
115	Gajwel	20	11	5	0	9	5	10
116	Husnabad	15	8.25	4	0	6.75	4	7
117	Siddipet	70	38.5	28.5	10	31.5	31.5	0
118	Huzurnagar	15	8.25	1	0	6.75	1	13
119	Kodada	30	16.5	8.5	0	13.5	6	15.5
120	Neredcherla	5	3	1	0	2	1	3
121	Suryapet	100	48.5	36	0	51.5	35	29
122	Tirumalagiri	10	5.5	1	0	4.5	1	8
123	Kodangal	5	2.5	1	0	2.5	1	3
124	Parigi	10	5.5	1.5	0	4.5	1	7.5
125	Tandur	30	16.5	5	0	13.5	5	20
126	Vikarabad	25	13.75	11	0	11.25	5	9

S.No	Name of the ULB	Total Waste Generation (TPD)	Bio Degradedable			Non Bio Degradedable		Gap in treatment (TPD)
			Generation (TPD)	Processing - Compost (TPD)	Processing - Bio Gas (TPD)	Dry waste Generated (TPD)	Dry waste processed (TPD)	
		A	B	C	D	E	F	G = (A-C-D-F)
127	Amarchinta	5	2.75	1	0	2.25	1	3
128	Atmakur	5	2.75	1	0	2.25	1	3
129	Kothakota	10	5.5	2	0	4.5	1	7
130	Pebbair	10	5.5	1	0	4.5	1	8
131	Wanaparthy	30	16.5	1.5	0	13.5	4	24.5
132	Narsampet	20	11	1.5	0	9	1	17.5
133	Parkal	15	8	1.5	0	7	1	12.5
134	Wardhannapet	5	2.75	2	0	2.25	1	2
135	Warangal MplCorpn	424	230	170	2.5	194	100	151.5
136	Alair	10	5.5	1	0	4.5	1	8
137	Bhongir	25	13	9	0	12	6	10
138	Choutuppal	15	8	1	0	7	3	11
139	Mothkur	10	5.5	1	0	4.5	1	8
140	Pochampally	10	5.5	1	0	4.5	1	8
141	Yadagirigutta	10	5.5	2	0	4.5	3	5
Total		4316	2373	1258	13.5	1943	1000.5	2044

94

Annexure-A3

Tie-up of concessionaires with cement industries for disposal of RDF

S.no	Cluster No.	Name of the District	Name of ULBs	Name of the Agency	Tie-up cement factory Name & location
1	C1	Medchal-Malkajgiri, Yadadri-Bhuvanagiri&Janagaon Districts	Nizampet,Thumkunta,Nagaram,Pocharam,Ghatkesar,Jangaon,Yadagirigutta,Mothkur,Alair,Pochampally, Choutuppal,Dundigal,Bhongir	M/s. Sagar Motors Ltd.	ACC Cement factory-Wadi Gulbarga
2	C3	Ranga Reddy District	Thukkuguda,Adibatla,Shadnagar,PeddaAmberpet,Ibrahimpatnam,Jalpalli	M/s. Cube Bio Energy Pvt. Ltd. in joint venture with Suman Realiti and Industrial services and M/s. Sudhakara Infratech Pvt. Ltd.	Ambuja Cement factory-Chandrapur
3	C4	Khammam, BhadradriKothagudem&Mahabubabad Districts	Khammam,Sattupalli ,Madhira,Wyra,Kothagudem,Palwancha,Manuguru,Yellandu,Mahabubabad,Maripeda,Thorrur,Dornakal	M/s Cube Bio Energy Pvt. Ltd.	Maha Cement factory-Ambuja Cement factory- Chandrapur Ultractech Cement factory- Budawada Ultratech Balaji cement factory-Jaggayapet
4	C5	Mahabubnagar, Nagarkurnool, Wanaparthy, Jogulamba-Gadwal&Narayanpet District	Alampur,Ieeja,Gadwal,Waddepalle ,Nagarkurnool,Atchampet,Kollapur ,Kalwakurthy,Kothakota,Kosgi,Bhoothpur,Makthal,Pebbair,Wanaparthy,Amarchinta,Atmakur,Jadcherla, Narayanpet	M/s. SDS Technologies in joint venture with M/s. Neptune Automation and M/s. Virogreen India Pvt. Ltd.	Shree Cement factory-Kalaburagi
5	C6	Karimnagar, Jagtial, Rajanna-Sircilla, Warangal &Hanumakonda Districts.	Wardanapet,Narsampet,Parkal,Dharmpuri,Metpally,Jagitial,Korutla,Raikal,Huzurabad,Kothapally,Choppandandi,Jammikunta,Sircilla,Vemulawada	M/s. Annapurna Constructions in joint venture with M/s. Hind Agro and Chemicals	Dalmia Cement factory-Chandrapur.
6	C7	Kamareddy, Nizamabad & Nirmal Districts	Kamareddy ,Banswada,Yellareddy ,Nizamabad,Bodhan,Armoor,Bheemgal,Nirmal,Bhainsa,Khanapur	M/s Cube Bio Energy Pvt. Ltd.	Maha Cement factory-Ambuja Cement factory- Chandrapur Ultractech Cement factory- Budawada

S.no	Cluster No.	Name of the District	Name of ULBs	Name of the Agency	Tie-up cement factory Name & location
					Ultratech Balaji cement factory- Jaggayapet
7	C8	Adilabad, Mancherial, Peddapalli, Komaram Bheem &JayashankarBhupalapally Districts	Adilabad,Luxettipet,Chennur,Naspur,Bellampally,Kyathanpally,Mancherial,Mandamarri,Bhupallapally,Kagaznagar,Peddapalli,Sulthanabad, Ramagundam,Manthani	M/s. Sagar Motors Ltd.	Ultractech Cement factory- Chandrapur
8	C9	Siddipet, Medak, Sangareddy&Vikarabad Districts.	Vikarabad,Zaheerabad,Kodangal,Parigi,Tandur,Bollaram,Tellapur,Andole-Jogipet,Narayankhed,Sadasivpet,Sangareddy,Thoopran,Medak,Narsapur,Ramayampet,Siddipet,Gajwel, Dubbaka,Husnabad,Cherial	M/s Shrusthi Contech Pvt. Ltd. in joint venture with M/s. Eco India Project Pvt. Ltd. and P.H. Jadhav.	Ultractech Cement factory- Kalaburagi
9	ULB	Warangal, Karimnagar, Sangareddy, Medchal-Malkajgiri, Mahabubnagar, &Suryapet Districts	Mahabubnagar,Suryapet,Dundigal, Ameenpur,Karimnagar,Warangal	M/s Leap Associates M/s Harshitha	Orient cement factory- Basanthnagar ACC cement factory- Mancherial ACC Cement factory- Wadi Gulbarga

Below are the before and after pictures of the reclaimed site.

ZAHEERABAD SITE

Before **After**

2694

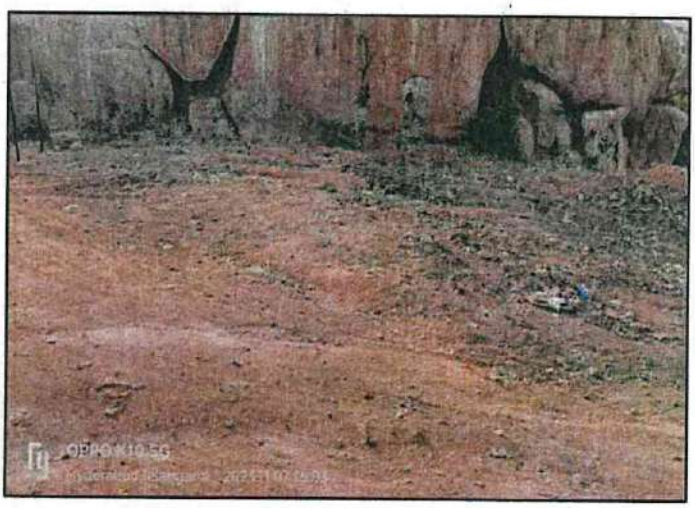
98

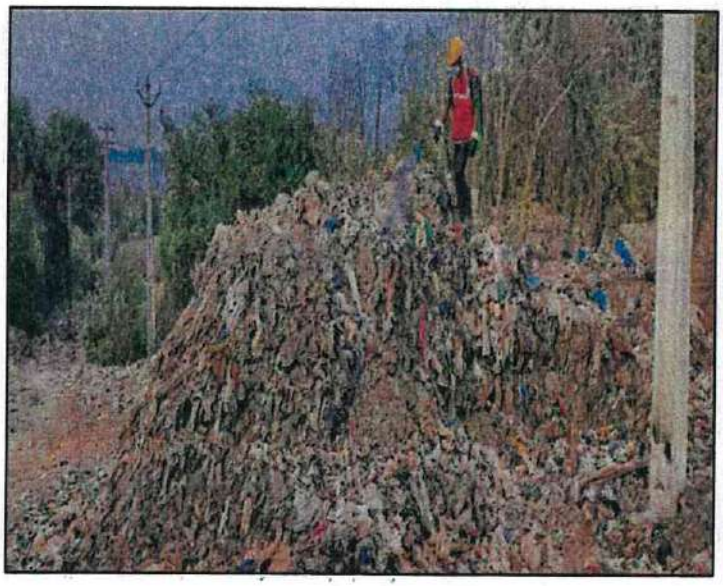
Below are the before and after pictures of reclaimed sites

JALPALLY SITE

Before

After





Below are the before and after pictures of the reclaimed site.

NARAYANPET SITE

Before	After

2696

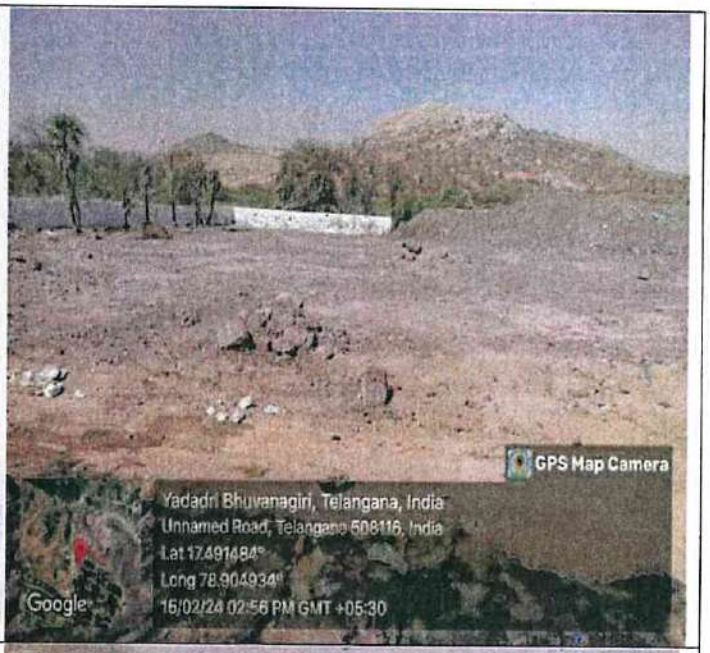
100

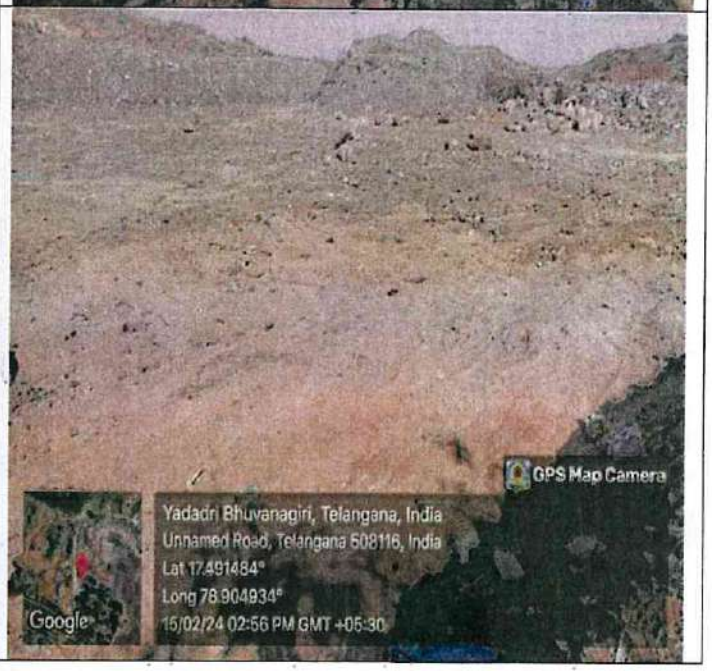
Below are the before and after pictures of the reclaimed site.

BHONGIR SITE

Before

After

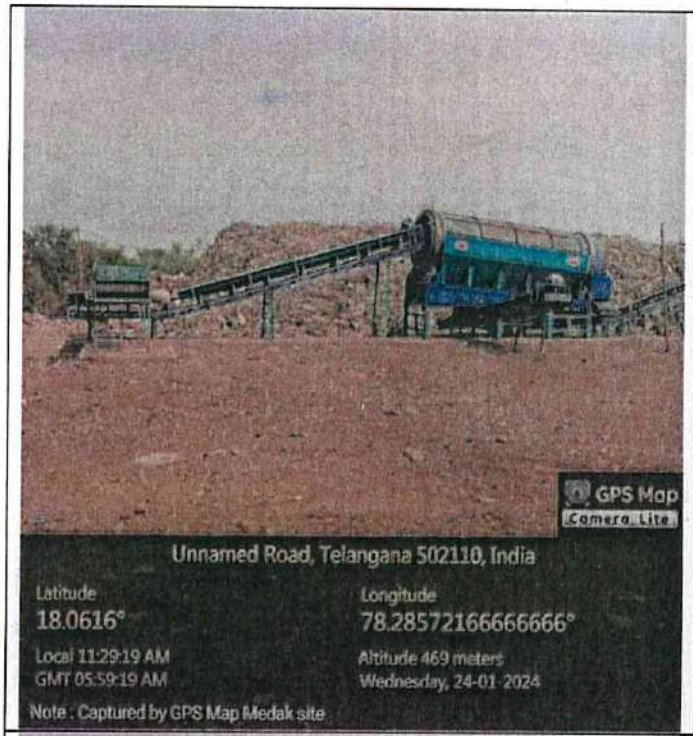


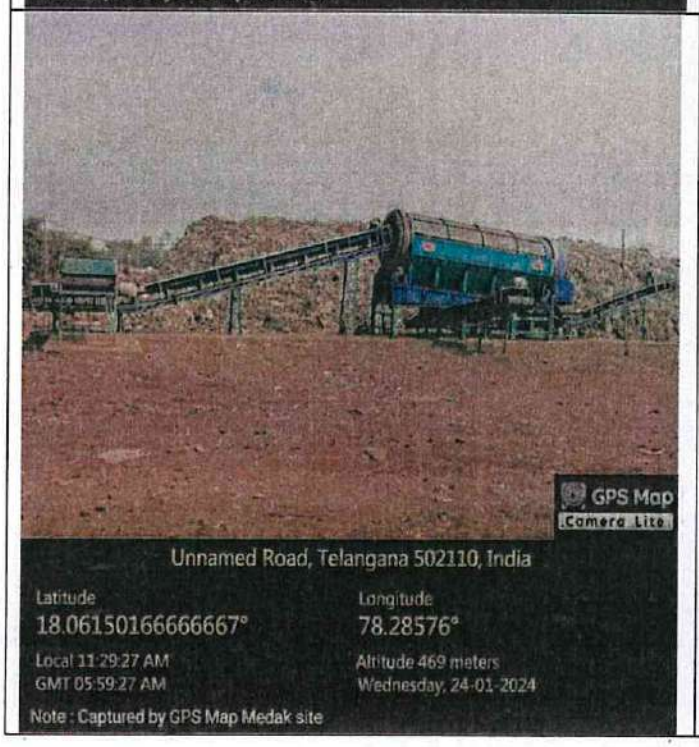


Below are the before and after pictures of the reclaimed site.

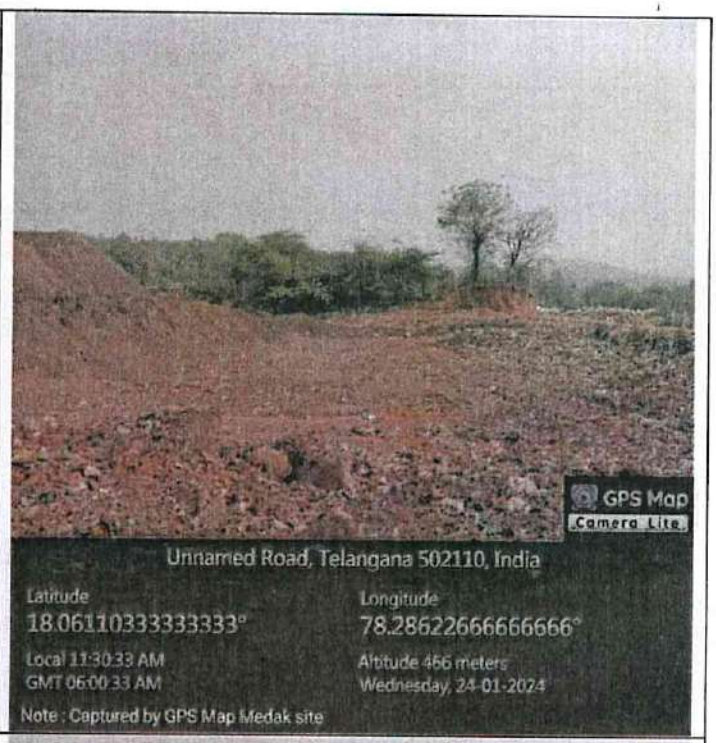
MEDAK SITE

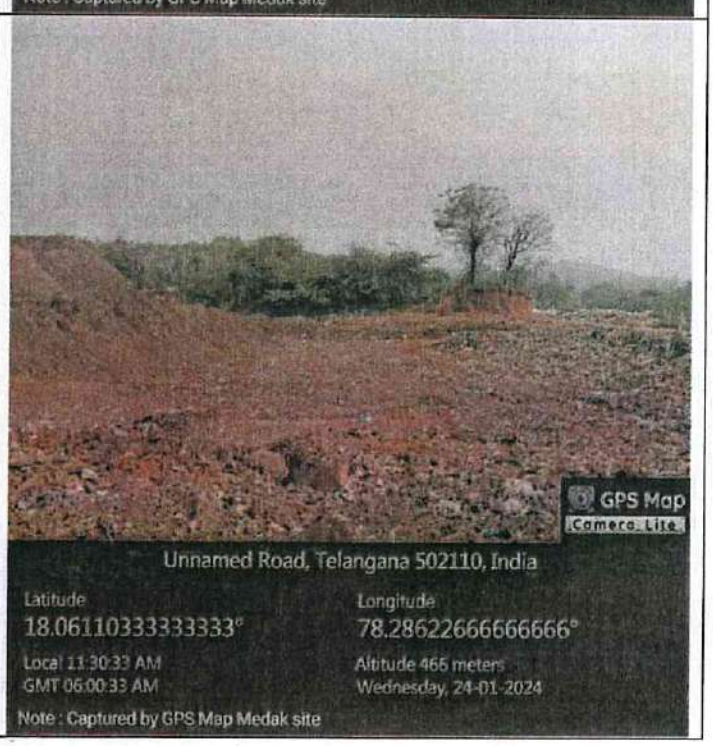
Before





After





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Summary report on Quantification survey of Legacy waste- BioMining, submitted by:

1. M/s. HRP Infra Pvt Ltd. For Multi-zone 1, Warangal region.
2. M/s. Vibhasa Solutions. For Multi-zone 2, Hyderabad region.

- Out of 141 ULBs, biomining is being taken up in 123 ULBs with a legacy waste of 58 Lakh MTs. Out of the 123 ULBs, bio-mining in 05 ULBs ULBs i.e, Karimnagar, GWMC, Ameenpur, Suryapet, and Mahabubnagar is being taken up at ULB level and for 118 ULBs, all 118 ULBs are grouped into 9 clusters and work is being executed by the concessionaries and remaining 18 ULBs there is no legacy waste.
- In November 2022, the engagement of Independent Engineers, a detailed drone/ DGPS/ Total Station survey for all sites was conducted and the exact quantities lying at the dumpsites is arrived at 38.46 lakh MTs. Hence, 38.46 lakh MTs of legacy waste is considered for biomining.
- Due to the spraying of Inoculum bacteria/Bio-culture & Periodic rotations, almost 35% of the legacy waste is reduced, this is due to volume reduction. Decomposition of organic matter & release of moisture content from legacy waste.
- As per the Central Pollution Control Board (CPCB) guidelines,

"Addition of composting bio-cultures speeds up decomposition and rapidly creates biological heat within the waste that helps to dry it out and reduce its volume by 35-40%. This happens through loss of moisture and by decomposition of some of the aerated waste to carbon dioxide and water-vapor. This is called bio-remediation and makes the waste dry enough for screening."- Page-11.

Methodology of Survey:

DGPS (Differential global positioning system)- Distance from minimum 4 satellites determines position.

- Signal travel time from satellite to antenna determines the distance.
- The real-time data exists.
- 3D survey results.
- High accuracy.

Total Station Survey:

- The distance between any two points can be Calculated.
- It consists of theodolite, an EDM, and a control panel.
- High accuracy

Annexures

1. Summary table of Survey report on Quantity reduction.
2. CPCB Guidelines on Legacy Waste Management.

VIBHASA SOLUTIONS HYD

For HRP Infra JV DGES
IAA for Bio-mining
TS-Zone-1.

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S.no	ULB Name	Alotted Cluster	I.E Quantity MT
1	Bhongir	C-1 Sagar Motors Ltd	35,104
2	Dundigal		31,346
3	Choutuppal		16,824
4	Pochampally		1,329
5	Alair		1,185
6	Mothkur		12,572
7	Yadagirigutta		2,196
8	Jangaon		21,121
9	Ghatkesar		3,370
10	Pocharam		0
11	Nagaram		12,430
12	Thumkunta		22,321
13	Nizampet		0
14	Miryalguda	C-2 Cube Bio Energy Pvt Ltd	33,639
15	Nalgonda		64,278
16	Haliya		4,446
17	Nandikonda		4,341
18	Chandur		4,624
19	Chityal		3,681
20	Devarakonda		16,727
21	Tirumalagiri		1,648
22	Huzurnagar		12,344
23	Nerducherla		2,626
24	Kodada		28,540
25	Jalpalli	C-3 Cube Bio Energy Pvt Ltd	7,666
26	Ibrahimpatnam		17,801
27	Pedda Amberpet		13,779
28	Shadnagar		32,550
29	Adibatla		1,363
30	Thukkuguda		8,205
31	Dornakal	C-4 Cube Bio Energy Pvt Ltd	320
32	Thorrur		14,008
33	Maripeda		2,524
34	Mahabubabad		62,685
35	Yellandu		37,602
36	Manuguru		16,410
37	Palwancha		39,914
38	Kothagudem		1,12,117
39	Wyra		13,020
40	Madhira		23,725
41	Sattupalli		12,834
42	Khammam		2,62,241
43	Narayanpet	C-5 SDS Technologies	6,346
44	Jadcherla		53,713
45	Atmakur		1,447
46	Amarchinta		2,150
47	Wanaparthy		22,338
48	Pebbair		2,820
49	Makthal		11,065
50	Bhoothpur		1,719
51	Kosgi		5,640
52	Kothakota		7,651
53	Kalwakurthy		8,712
54	Kollapur		11,113
55	Atchampet		8,816
56	Nagarkurnool		8,592
57	Waddepalle		8,817
58	Gadwal		7,179
59	Ieeja		7,686
60	Alampur		2,497

S.no	ULB Name	Alotted Cluster	I.E Quantity MT
61	Vemulawada	C-6 Annapurna	44,372
62	Sircilla		86,554
63	Jammikunta		12,772
64	Choppandandi		2,217
65	Kothapally		1,231
66	Huzurabad		25,738
67	Raikal		1,913
68	Korutla		65,103
69	Jagitial		1,57,553
70	Metpally		32,343
71	Dharmpuri		0
72	Parkal		1,351
73	Narsampet		2,162
74	Wardanapet		1,711
75	Khanapur	C-7 Cube Bio Energy Pvt Ltd	5,444
76	Bhainsa		11,550
77	Nirmal		33,468
78	Bheemgal		0
79	Armoor		16,097
80	Bodhan		43,906
81	Nizamabad		3,51,532
82	Yellareddy		0
83	Banswada		17,409
84	Kamareddy		77,269
85	Manthani	C-8 Sagar Motors Ltd	11,870
86	Ramagundam		14,609
87	Sulthanabad		8,411
88	Peddapalli		45,479
89	Kagaznagar		34,810
90	Bhupallapally		6,151
91	Mandamarri		41,736
92	Mancherial		62,431
93	Kyathanpally		29,945
94	Bellampally		34,170
95	Naspur		49,003
96	Chennur		14,724
97	Luxettipet		10,153
98	Adilabad		1,16,834
99	Cherial	C-9 Shrushti Contech Pvt Ltd	0
100	Husnabad		6,412
101	Dubbaka		0
102	Gajwel		20,722
103	Siddipet		43,550
104	Ramayampet		5,234
105	Narsapur		7,238
106	Medak		47,116
107	Thoopran		10,036
108	Sangareddy		1,261
109	Sadasivpet		15,648
110	Narayankhed		9,291
111	Andole-Jogipet		1,746
112	Tellapur		22,158
113	Bollaram		16,414
114	Tandur		6,015
115	Parigi		9,984
116	Kodangal		1,842
117	Zaheerabad		53,000
118	Vikarabad		41,557
119	Warangal	By ULB	3,91,390
120	Karimnagar		2,25,800
121	Ameenpur		31,620
122	Suryapet		80,000
123	Mahabubnagar		1,32,400
	Total		38,46,210

VIBHASA SOLUTIONS HYD

For HRP Infra JV DGES
IAA for Bio-mining
TS-Zone-1.

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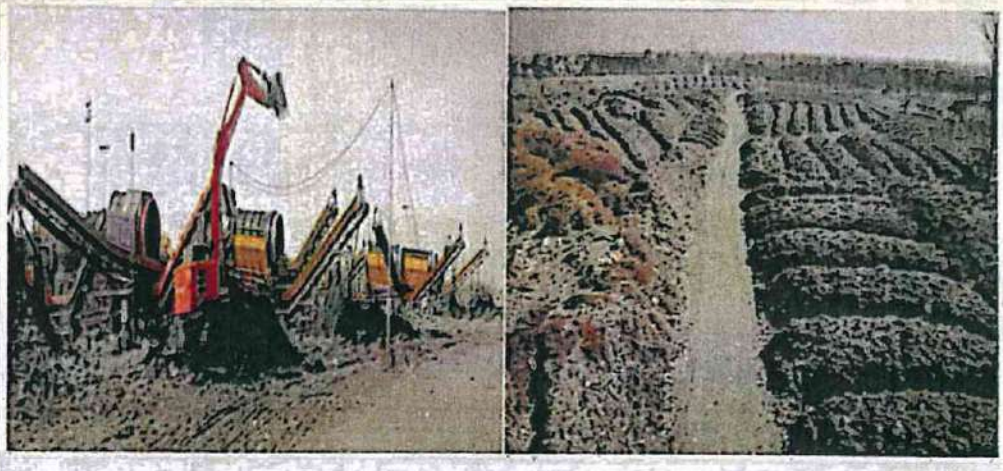
Guidelines for Disposal of Legacy Waste (Old Municipal Solid Waste)



CENTRAL POLLUTION CONTROL BOARD

(Ministry of Environment, Forest and Climate Change, Government of India)

'Parivesh Bhawan' C.B.D. Cum-Office Complex,

East Arjun Nagar, Shahdara, Delhi-110032

(February, 2019)

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(zk) in absence of the potential of bio-mining and bio-remediation of dumpsite, it shall be scientifically capped as per landfill capping norms to prevent further damage to the environment.

The by-laws shall apply to every urban local body, outgrowths in urban agglomerations, Cantonment boards, Panchayat, Industrial and Institutional Townships, railways and defence establishments

Further, provisions under Schedule I (j) are given below:-

3.2 Schedule-I (j) - Closure and Rehabilitation of Old Dumps- Solid waste dumps which have reached their full capacity or those which will not receive additional waste after setting up of new and properly designed landfills should be closed and rehabilitated by examining the following options:

(i) Reduction of waste by bio-mining and waste processing followed by placement of residues in new landfills or capping as in (ii) below.

(ii) Capping with solid waste cover or solid waste cover enhanced with geomembrane to enable collection and flaring / utilisation of greenhouse gases.

(iii)Capping as in (ii) above with additional measures (in alluvial and other coarse grained soils) such as cut-off walls and extraction wells for pumping and treating contaminated ground water.

(iv) Any other method suitable for reducing environmental impact to acceptable level.

4.0 Methodology:

The treatment & disposal of Legacy MSW can be done by Bio-remediation and Bio-mining. A total station survey or drone mapping of any landfill/dumping site must be done prior to start of the project. Hence, it is suggested to ensure precursor study with history of the site, compositional analysis of waste. Site environment parameters such as baseline study of heavy metals in surface and subsurface soils and water, rainfall, soil type, surface hydrology, topography, wind direction etc. shall be studied before and after bio-mining. Periodic study should also to be carried out after completion of biomining to check for any adverse effects in the surrounding area.

4.1 Bio-remediation & Bio-mining of Old Municipal Dumpsites:

It refers to the excavation of old dumped waste and make windrow of legacy waste thereafter stabilization of the waste through bio-remediation i.e. exposure of all the waste to air along with use of composting bio-cultures, i.e. screening of the stabilized waste to recover all

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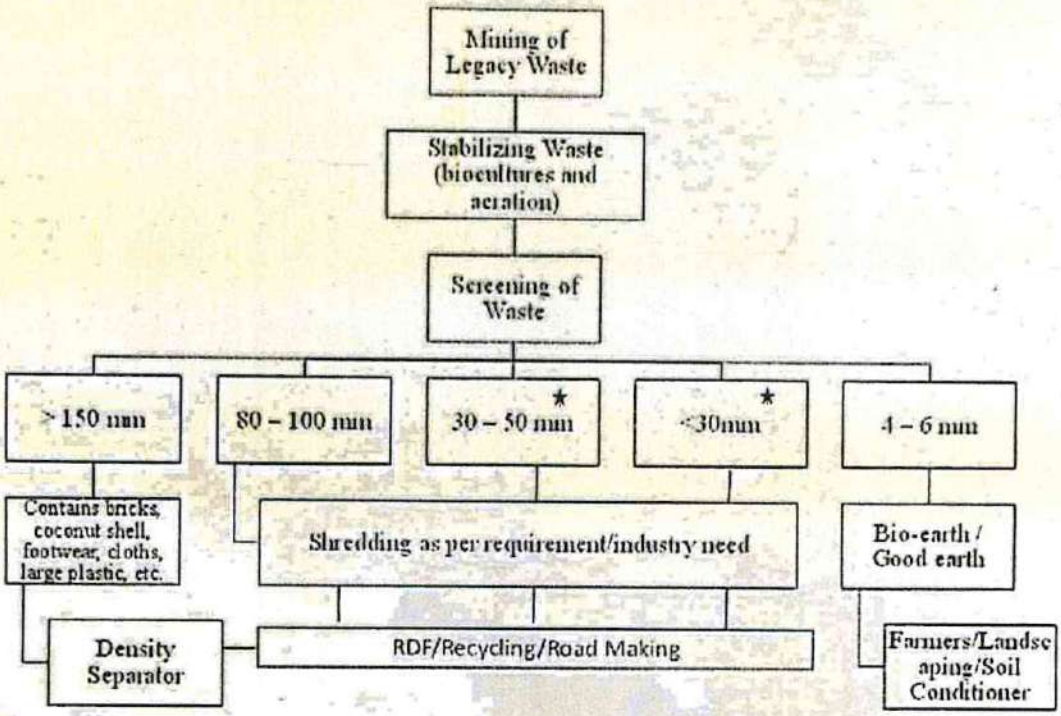
valuable resources (like organic fines, bricks, stones, plastics, metals, clothes, rags etc.) followed by its sustainable management through recycling, co-processing, road making etc.



★ In Case of RDF (With Size Up to 50mm) shredding is not required

Fig. 1. Overview of Bio-remediation and Bio-mining of Legacy Waste

The first step is to excavate legacy waste, loosen it and make windrows so as the leachate can be dried of through solar exposure and all the entrapped methane is removed from the heap. All biodegradable waste, like discarded food, fruit, flower and garden waste, needs air to decompose it in an odourless way without producing leachate. So the first step in stabilizing and bringing down airless legacy waste is to expose as much of it as possible to air (Fig. 1).

Addition of composting bio-cultures speeds up decomposition and rapidly creates biological heat within the waste that helps to dry it out and reduce its volume by 35-40%. This happens through loss of moisture and by decomposition of some of the aerated waste to carbon dioxide and water vapour. This is called **bio-remediation** and makes the waste dry enough for screening. Waste is called stabilized when there is no more generation of heat or landfill gas or leachate, and seeds are able to germinate in it.

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Annexure 5

Processing & Disposal of fresh MSW – GHMC

Processing & Disposal (P&D) of MSW at the Integrated MSW P&D facility located at Jawaharnagar started from 18.02.2012 and 100% of the waste collected from GHMC area and also certain surrounding gram-panchayaths, municipalities, municipal corporation, cantonment board etc is being processed and scientifically disposed.

The facility which is being operated by M/s Hyderabad Integrated MSW Ltd commenced with 2000 tons per day (TPD) treatment capacity and was enhanced over time to 8000 TPD to handle the increase in generation of MSW in the city over the years. As per the Agreement for the project, the Concessionaire is free to sell the by-products of processing and earn revenue. Following are the key activities carried out at this integrated MSW facility:

i. Weighbridge Plaza: The MSW collected from GHMC & other surrounding local bodies is transported to the facility primarily in hermetically sealed container carrying vehicles and a few open tippers covered with tarpaulin sheets. The vehicles pass through RFID based automated weighbridge system while entering and coming out of the facility for maintaining online record of the quantities of MSW reaching the site.

ii. Tipping Floor: The tipping floor is a concrete platform with sheet metal fencing on all sides and concrete drain network to collect leachate. Vehicles entering the facility unload the MSW at the Tipping floor. On the tipping floor, the MSW is left to dry for about a week to avoid clogging of machinery during pre-sorting.

Open tipping floor

Closed Tipping floor

iii. Pre-sorting: The MSW from the tipping floor is transported to the pre-sorting area for processing at shaft-less rotary screens called trommels (with 70 mm diameter holes) for mechanically segregating the waste into organic & inorganic fractions. The undersized material i.e., less than 70 mm in size which is predominantly compostable material is moved to the composting area. Rest of the material which is predominantly inorganic fraction will pass through a magnetic separator for separation of ferrous material and is considered as Refuse Derived Fuel (RDF).

Pre-sorting area

iv. Composting Section: Aerobic Composting followed by sequential screening is done to process the organic fraction of the MSW. Following are the details:

- Biological Process: The segregated organic fraction is rearranged into trapezoidal heaps called windrows. The windrows are sprayed with EM culture (Effective Micro-organisms) and undergo weekly turning operations (for the purpose of aeration) to help bio-degradation of the organic MSW into compost. The degradation process takes about (04) weeks time. After (04) weeks, the material is tested for maturity of composting and is further taken into screening.
- Mechanical Screening: Screening in done in (02) stages:
  - i. Preparatory screening/ Coarse screening: The material is screened through 20 mm diameter holed trommels. The oversized material is sent to cement factories as fuel supplement and any excess material is disposed in the scientific landfill. The undersized material is stored in curing shed for 4 days for moisture reduction.
  - ii. Fine Screening: After curing, the material is taken up for further screening by passing through trommels with holes of 4 mm size. Undersized material below the size of 4 mm is considered as compost. Sand is separated from the compost through gravity separator. The compost so obtained is packed and marketed. The oversized material are inerts and disposed in the scientific landfill.

Windrows in closed PEB shed

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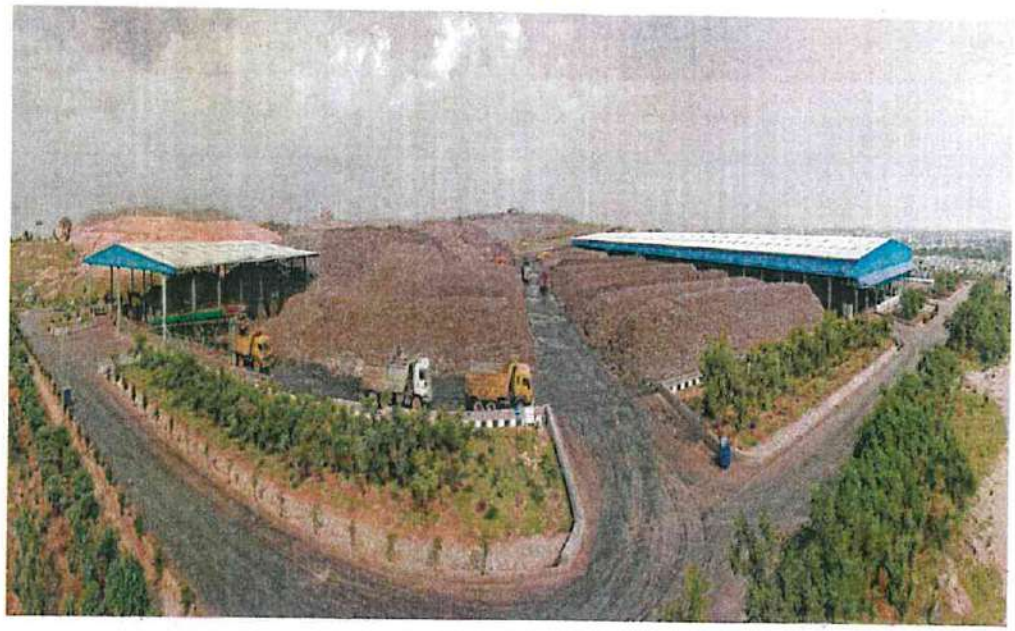


Windrows in open platform

Coarse Screening of organic material

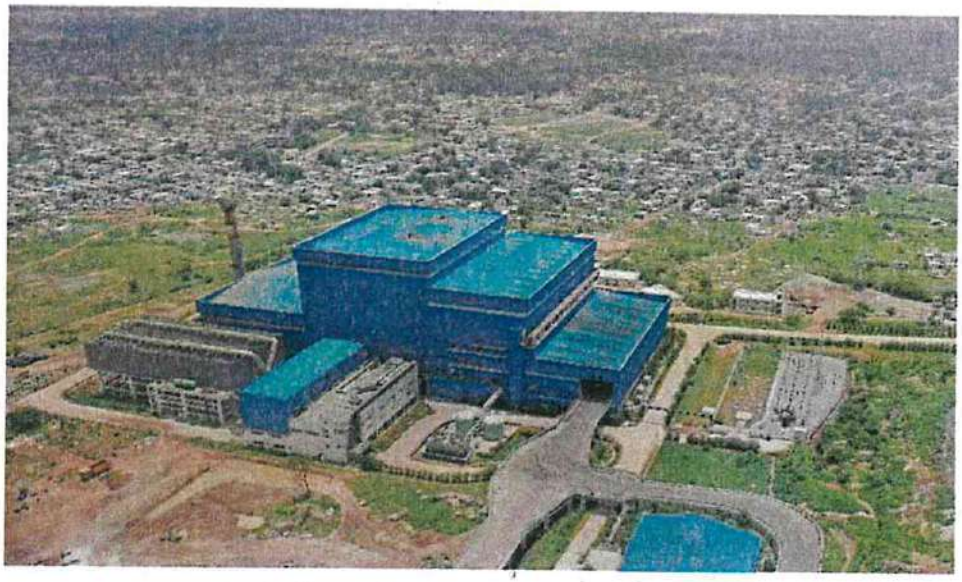
Fine Screening of organic material

Packing of compost

v. Refuse Derived Fuel (RDF) Section: The RDF obtained from pre-sorting is sent to the 24 MW capacity Waste to Energy (WTE) Plant operational at the same site, 14.5 MW capacity WTE plant located at Dundigal and to a few cement plants for co-processing. To increase the off-take of RDF by cement plants a 1000 TPD capacity RDF manufacturing unit has been installed in Aug'2024 at Jawaharnagar for processing the RDF into higher quality material as required by the cement plants. The left over quantity of RDF is stored for future use in upcoming WTE plants.

RDF manufacturing unit

112



24 MW WTE plant at Jawaharnagar

14.5 MW WTE plant at Dundigal

vi. Scientific/ Sanitary Landfill: The rejects/ inerts of the treatment process are disposed in scientific landfill. This landfill is constructed as per SWM Rules 2016 and CPHEEO manual including leachate collection & landfill gas collection network. Following is the quantity of rejects deposited in the scientific landfills for the period from Feb'2012 to Jan'2025:

S No.	Location	Operating period	Quantity (Tons)
1	Landfill - Cell I, II, III	Feb 12 to July 2018	13,22,212
2	Landfill @ south side - Cell I to IV	Aug 2018 to March 2022	13,04,209
		April 2022 October 2022	2,83,756
3	Landfill @ south side - Cell V	November 2022 to October 2023	4,93,884
4	Gap between Cell I-IV to RDF Units at South Side	November 2023 to Jan 2025	6,46,300
		Total :	40,50,361

Operating Landfill

Soil cover on landfill

vii. 1 MW Roof Top Solar Energy Plant: A 1 MW Solar Energy Plant is established at the facility for making effective utilization of the roof tops of the pre-sorting area sheds. The electricity generated though these solar panels is for captive usage.

1MW solar energy plant

viii. Vehicle Maintenance Area: The vehicles being operated for transportation of MSW from city to the processing facility and vehicles operated inside the P&D facility are regularly maintained and cleaned at the Vehicle Maintenance Area established at the facility.

Vehicle maintenance area

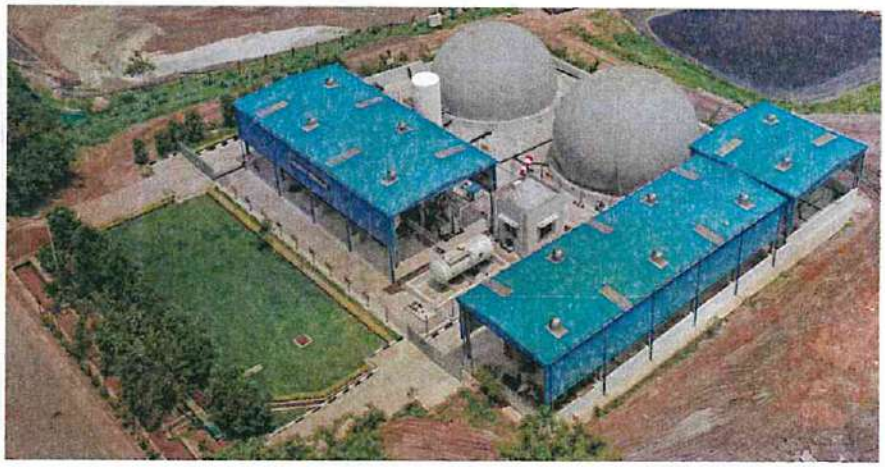
ix. Plastic Waste Recycling Facility: 20 TPD Plastic Waste recycling facility established in 2013 is operational at this integrated facility. The recyclable plastics are segregated, washed and processed into pellets and biomedical waste disposal bags. Presently, about 12 TPD of recyclable plastics are processed into 8 TPD of plastic granules and 3 TPD of biomedical waste disposal bags and the remaining 1 TPD process reject is mixed with RDF for further utilization as fuel in Waste to Energy Plants/co-processing in cement plants.

Extruder – Recycled Granules Making Process

Granules after recycling the plastic material

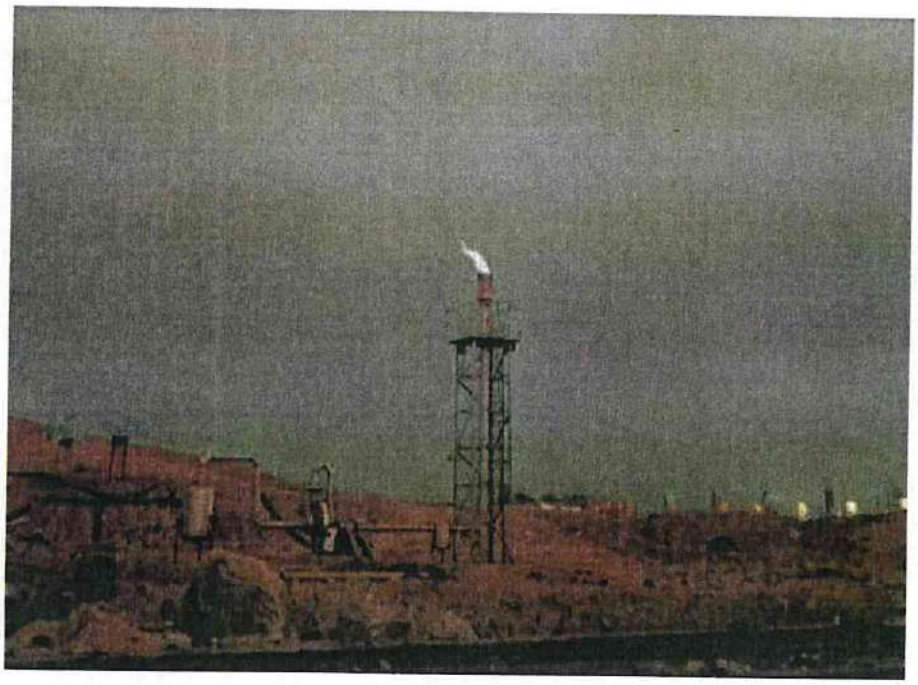
Film molding for production of bags for waste disposal

x. Compressed Biogas plant: To utilize the landfill gas generated from the capped legacy waste dump, a 650 cum per hour input capacity CBG plant is operational since October 2021. The gas generated from the capped site is transported to the CBG plant using a common header line and after processing, it is bottled and sold to Bhagyanagar Gas Ltd under SATAT scheme. Excess gas collected is burnt using a flaring unit established at the site.



CBG plant

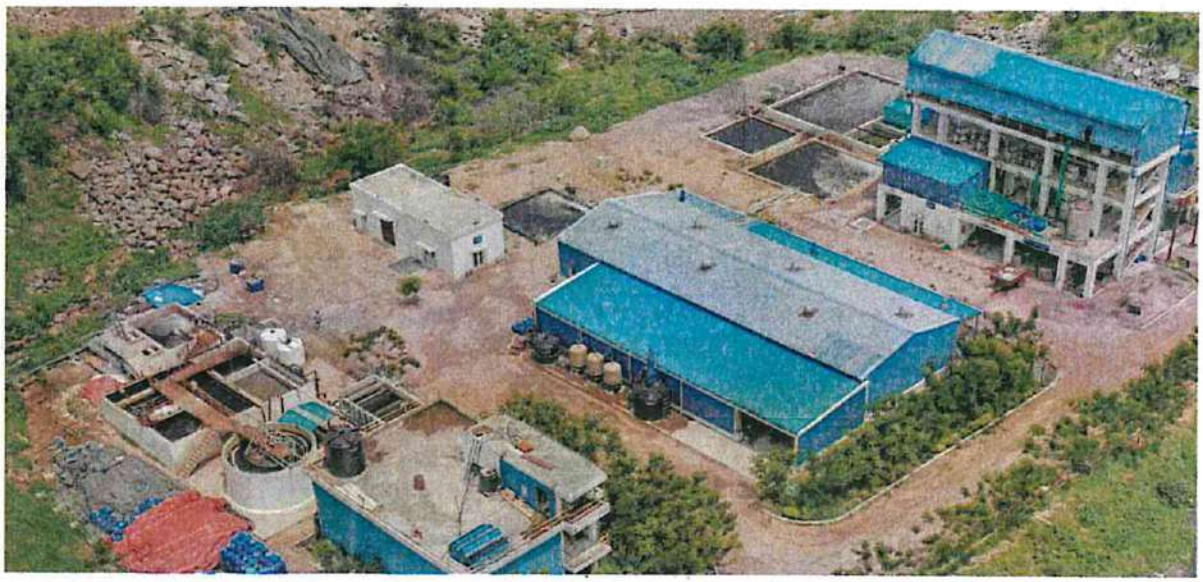
Transportation of the CBG



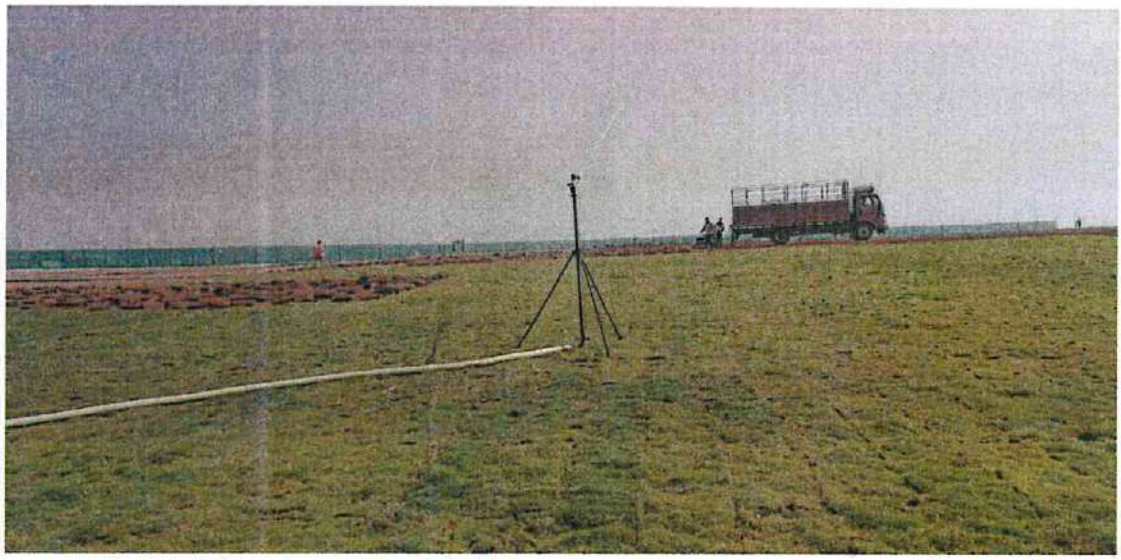
Flaring of excess landfill gas from capped dump

xi. Waste Water Complex: The leachate generated during the waste treatment process i.e., from tipping floor, pre-sorting area, compost area, RDF storage, sanitary landfill, MSW pit of WTE etc is collected at the common leachate collection sumps. The leachate is then pre-treated at the 1000 kLD capacity plant established in the site. Subsequently, the pre-treated leachate is treated in 2- stage Reverse Osmosis system with 600 kLD & 500 k LD capacity. The rejects from the RO process are treated at the 150 kLD Multi Effect Evaporator (MEE) and subsequently in the 45 kLD Agitated Thin

Film Drier (ATFD) system. The permeate from RO is used to maintain greenery at the site and the condensate from MEE-ATFD is used for bottom ash quenching. The reject which is in the form of solid is mixed with RDF and utilized as fuel in the Waste to Energy Plant instead of disposing in the scientific landfill.



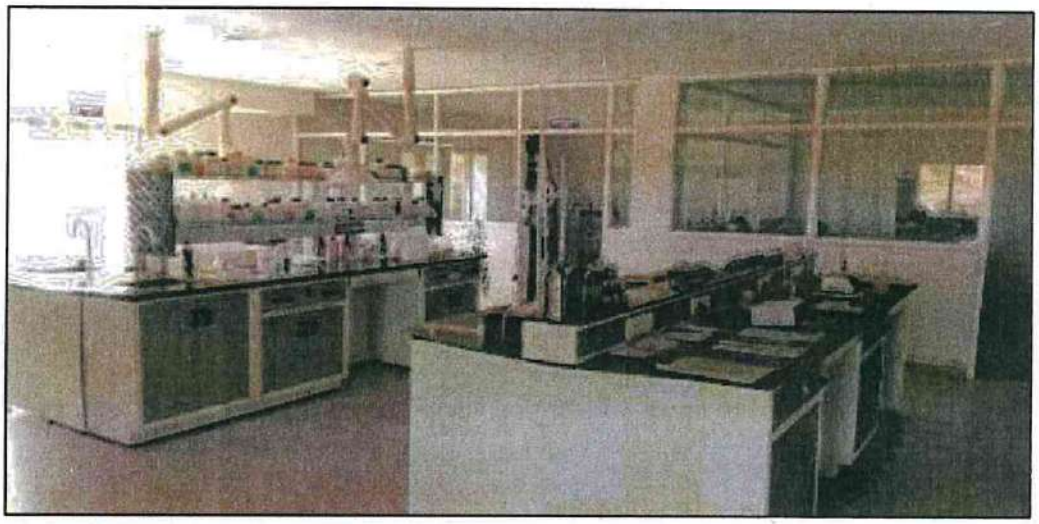
Waste Water Complex: Pretreatment, RO shed, MEE-ATFD system (left to right)



Permeate used for watering green cover on top of capped dump

Permeate used to maintain greenery in the site

xii. Laboratory: An in-house laboratory is established inside the facility for preparation of microbial-cultures, collecting-storing &analyzing leachate samples, air quality analysis, performing waste characterization studies etc.



Laboratory

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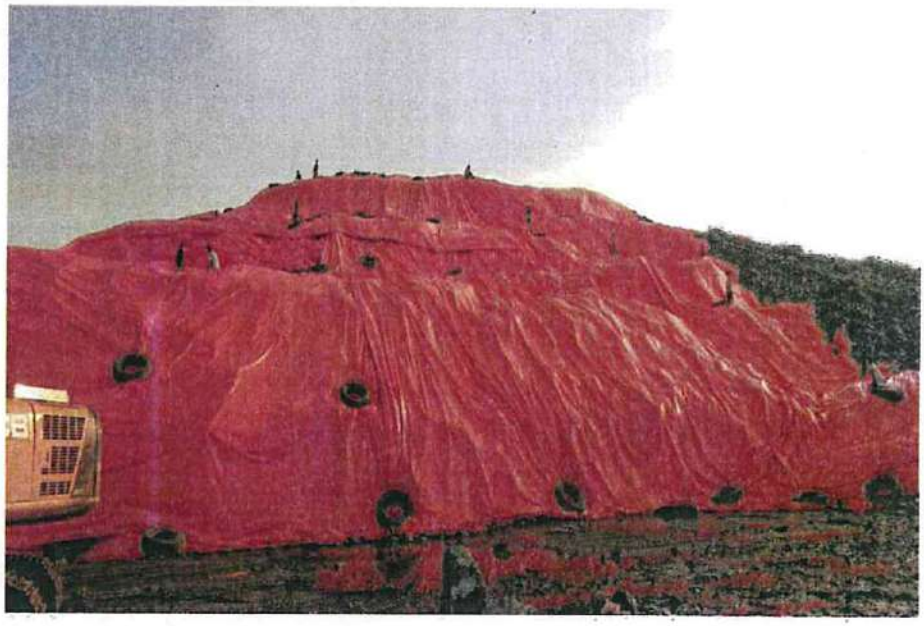
xiii. Odor Management measures in areas of daily operation:

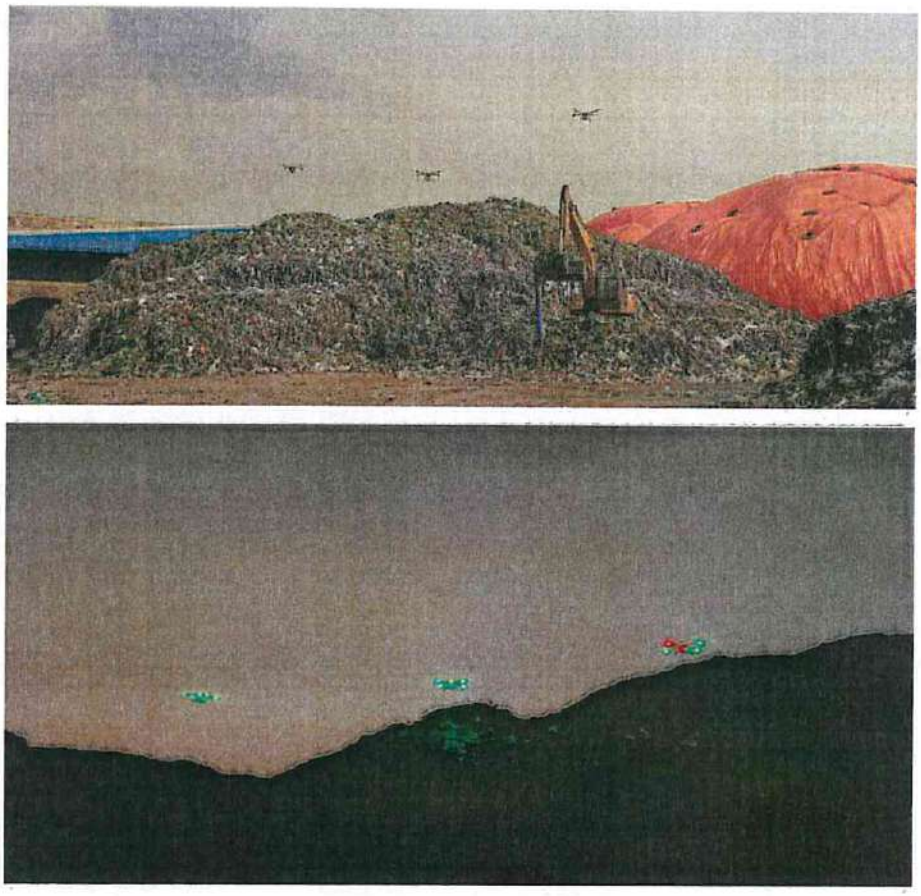
Apart from capping of the legacy dump (completed) to address the major sources of odour issue, the following measures including application of Bio-enzyme through fixed misting system to replace the microorganisms in the MSW responsible for generation of odour causing by-products are being taken to address the odour generated:

a. The daily received waste at tipping floor, RDF storage etc are covered temporarily with tarpaulin sheets, especially during winter.



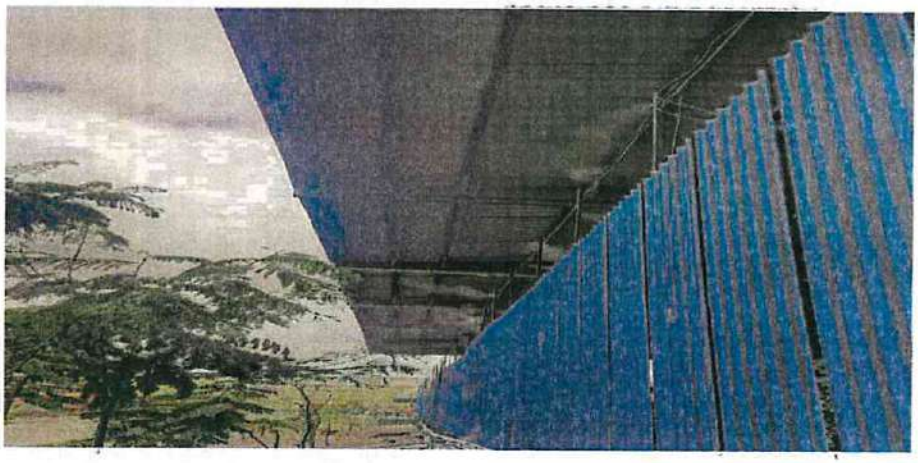
b. Soil cover on the Scientific Landfill after its saturation

c. Spraying through Drones on the tipping floor, RDF storage and operational areas of landfill.



d. Spraying of bio-enzyme through Truck mounted fog cannon at open windrows, tipping floor, RDF storage etc.

e. Fixed Misting system is erected around the entire periphery and inside working areas such as pre-sorting area, tipping floor, composting shed and monsoon shed.



f. GI sheets are placed around the periphery of working areas to prevent suspended particles from dispersing into atmosphere.

g. Spraying of odour masking chemicals such as citronella oil is carried out in case of severe odour complaint from surrounding habitations.

x-x-x-x-x-x

2720

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ANNEXURE-6

To
The Additional Commissioner (SWM),
Greater Hyderabad Municipal Corporation
4th Floor, Head Office, Tank Band Road,
Hyderabad – 500 063

EPTRI
ENVIRONMENT PROTECTION TRAINING & RESEARCH INSTITUTE

Lr.No: EPTRI/ESD/78/T&D/ 2023-24/1288/Dt: 16 .03.2024

Sir,

Sub: EPTRI – HiMSW - Treatment and Disposal of MSW at Jawaharnagar IMSWM site - Tipping Fee for the month of February, 2024 – Reg.

Ref: 1. Lr. No. HiMSW/GHMC/2023-24/2481 /01.03.2024.

2. Lr.No. 703/AC (H&S)/EE (SWM) GHMC/2012 dated 05.10.2017.

******

The Concessionaire vide reference 1st cited has submitted the invoice for T&D bill for the month of February, 2024 for Rs. 32,55,40,679/-.

The bill has been scrutinized with agreement conditions and duly considering the remarks made by the audit team. The penalties were applied as per the above. The detailed observations and calculations are enclosed at Annexure-I.

It is recommended that the GHMC may release Rs. 20, 35, 01,631/- duly considering the penalty towards the T&D of waste for the month of February, 2024. GHMC may take a final decision on payment as deemed fit.

The GHMC shall deduct/withhold the following charges:

i. Statutory deduction, such as income tax and service tax as applicable.
ii. 10% of the treatment and Disposal revenues receivable from GHMC. This amount shall be held in escrow amount towards post-closure Obligation.

Yours faithfully,

Director General 16/03/2024.

Copy to M/s. Hyderabad Integrated Municipal Solid Waste Management, Survey No.173, Jawahar Nagar Dump site, CRPF Road, Near Army Dental College, Jawahar Nagar Grampanchayat village, Shamirpet Mandal, Hyderabad-500087

91/4, GACHIBOWLI, HYDERABAD - 500 032 (T.S.) INDIA TEL : +91 40 67567500, 67567532
• FAX : +91 40 67567535 E-mail : enquiry@eptri.com, eptrihrd@gmail.com
www.eptri.com

Annexure- I

Name of work: GHMC IMSWM project –Treatment & Disposal (T&D) - Tipping Fee (T&D) for month of February, 2024 –Reg.

The Concessionaire has submitted the T&D tipping fee bill for the month of February, 2024 for Rs. 32, 55, 40,679/- on 01.03.2024.

The bill has been scrutinized duly considering the remarks made by the audit team and as per CA. The total penalty on account of performance indicators 11, 12 and 13 worked out to Rs. 82, 58,689 as verified by EPTRI field staff.

The net weight and the amount payable to the concessionaire, as per CA are given below.

Invoice No. & Date	Quantity of waste processed as per IE(Tons)	Rate / Ton (40% of Tipping Fee) as per CA (Rs.)	Amount (Rs.)	Penalty as per Schedule IV of CA (Rs.)	Recommended amount to be paid as per CA (Rs.)
HiMSW/P&D/ GHMC/February ,2024/2023-24 /J'Nagar, dt.29.02 2024.	2, 32,000.000	912.76	21,17,60,320	82,58,689	20,35,01,631

The total net weight considered for the month of February' 2024 is 2,40,466.180 tons, after deduction of Debris, tree trunks, stems waste of 444.860 tons. Details of vehicles carried the silt/ debris materials may be seen at seen Annexure- I. The quantity of waste lying at the tipping floor measured at the beginning of the month was 39,280.105 tons and the quantity of waste lying at the tipping floor as measured at the end of month was 38,522.040 tons by Drone. Therefore, the total net quantity of waste processed during the month comes to {2, 40, 466.180+ (39,280.105 – 38,522.040)} =2, 41,224.245 tons, but as per PRC@ 8000TPD, Net quantity of waste Considered is 2, 32,000 Tons (29Days X 8000TPD = 2, 32,000) for the February, 2024.

As per the arbitration award dated 10.03.2018, the levy of penalty by GHMC was held to be unsustainable. EPTRI being a recommendatory authority has to show the amount of penalty as per Schedule IV of CA. EPTRI being a IE has to ensure the scientific treatment and disposal of the MSW and impartial & fare implementation of CA. It is, therefore, necessary to indicate the lapses and levy penalty as per performance indicator 11, 12&13. However, GHMC has to take a decision how to deal with the penalty indicated by IE.

The recommended amount duly considering the penalty is Rs. 20,35,01,631/- and without levy of penalty is Rs. 21,17,60,320/- GHMC may take a final decision on payment as deemed fit.

16/03/2024.

ESD(I/c)

STATEMENT OF TIPPING FEE FOR TREATMENT AND DISPOSAL (T&D) OF MSW AT JAWAHARNAGAR, FOR THE PERIOD OF 01.02.2024 TO 29.02.2024									
Date	No. of vehicle trips claimed	No. of vehicle trips considere	Net Weight (tons)		Amount (Rs)		Net weight considered by IE	Amount considered for payment (Rs.)	Remarks
	Con*	IE*	Con	IE	Con	IE			
1-Feb-2024	720	716	7925.920	7923.240	10710216.44	7232016.54	2,40,466.18	21,94,87,910.46	Vehicle bearing Numbers in Annexure-1 containsTree trunks waste, debris and Silt waste hence not Considered.
2-Feb-2024	746	739	8354.080	8349.360	11288784.76	7620961.83			
3-Feb-2024	756	749	8421.160	8381.660	11379429.30	7650443.98			
4-Feb-2024	720	717	8057.640	8055.520	10888208.36	7352756.44			
5-Feb-2024	723	719	7995.140	7988.860	10803752.73	7291911.85			
6-Feb-2024	763	758	8527.420	8494.720	11523017.37	7753640.63			
7-Feb-2024	773	769	8666.120	8661.440	11710441.29	7905815.97			
8-Feb-2024	768	764	8709.900	8707.340	11769600.77	7947711.66			
9-Feb-2024	792	785	8757.180	8748.620	11833489.76	7985390.39			
10-Feb-2024	751	746	8424.980	8418.500	11384591.22	7684070.06			
11-Feb-2024	710	707	8255.200	8236.080	11155169.21	7517564.38			
12-Feb-2024	715	713	8197.380	8195.920	11077037.62	7480907.94			
13-Feb-2024	799	791	9166.360	9083.600	12386410.60	8291146.74			
14-Feb-2024	764	760	8470.260	8465.760	11445777.64	7727207.10			
15-Feb-2024	765	757	8415.440	8408.440	11371699.92	7674887.69			
16-Feb-2024	658	650	6672.240	6665.080	9016131.19	6083618.42			
17-Feb-2024	791	788	8729.060	8726.760	11795491.49	7965437.46			
18-Feb-2024	785	782	8744.020	8729.060	11815706.79	7967536.81			
19-Feb-2024	746	742	8223.080	8217.480	11111765.77	7500587.04			
20-Feb-2024	758	752	8175.780	8167.760	11047849.76	7455204.62			
21-Feb-2024	769	765	8385.620	8379.780	11331404.45	7648727.99			
22-Feb-2024	746	742	8253.320	8231.020	11152628.78	7512945.82			
23-Feb-2024	717	714	7911.220	7909.720	10690352.47	7219676.03			
24-Feb-2024	751	744	8202.760	8196.140	11084307.56	7481108.75			
25-Feb-2024	722	720	8233.840	8232.640	11126305.65	7514424.49			
26-Feb-2024	726	722	8052.680	8020.820	10881505.96	7321083.66			
27-Feb-2024	753	748	8272.900	8254.300	11179087.04	7534194.87			
28-Feb-2024	768	762	8466.260	8408.580	11440372.48	7675015.48			
29-Feb-2024	747	743	8244.080	8207.980	11140142.86	7491915.82			
Total	21702	21564	2,40,911.04	2,40,466.18	32,55,40,679.24	21,94,87,910.46			
Net weight considered by I.E for the Month							2,40,466.180		
(+) The unprocessed waste laying on the tipping floor was assessed by flying Drone at beginning of the month.							39,280.105		
(-) The unprocessed waste laying on the tipping floor was assessed by flying Drone at end of the month.							-38,522.040		
Net weight processed							2,41,224.245		
As per PRC 8000TPD Net Quantity Processed 2,32,000 Tons (29 Days X 8000TPD)							2,32,000.000	21,17,60,320	
(-)Penalties imposed for performance indicator nos. 11 as per schedule-4 of CA								82,58,689	
(-)Penalties imposed for performance indicator nos 12 as per schedule-4 of CA								-	
(-)Penalties imposed for performance indicator nos. 13 as per schedule-4 of CA								0	
Net amount considered for payment								20,35,01,631	
*Con – Concessionaire, *IE – Independent Engineer									
IE Rate: Rs.912.76 per ton (40% of Rs. 2281.91) as per article 7.1.b.iii at page 45 of C.A									
Tipping Fee Considered by Concessionaire is Rs.1351.29 per ton (40% of Rs.3378.23)									
Shift duration: 8 hrs.									
Shift timings: 06.00 - 14.00hrs, 14.00 - 22.00hrs, 22.00 - 06.00 hrs									

Site-In-Charge,IE

Team Leader,IE

ESD I/C

13/03/2024.

Date	Net Wt (tons)	Tipping Fee according to rate approved by GHMC (Rs/ton)	Tipping Fee Allowable (TFA in Rs.)	PENALTIES						
				Indicator -11		Indicator -12		Indicator -13		
				Performance Efficiency (%)	0.1*TFA*(100-P)/100 (Rs.)	Performance Efficiency (%)	0.2*TFA*(100-P)/100 (Rs.)	Performance Efficiency (%)	0.1*TFA*(100-P)/100 (Rs.)	Total Penalties (Rs.)
1-Feb-2024	7923.24	2281.91	18080120.59	84.40	282049.88	100.00	0.00	100.00	0.00	282049.88
2-Feb-2024	8349.36	2281.91	19052488.08	84.40	297218.81	100.00	0.00	100.00	0.00	297218.81
3-Feb-2024	8381.66	2281.91	19126193.77	84.40	298368.62	100.00	0.00	100.00	0.00	298368.62
4-Feb-2024	8055.52	2281.91	18381971.64	84.40	286758.76	100.00	0.00	100.00	0.00	286758.76
5-Feb-2024	7988.86	2281.91	18229859.52	84.40	284385.81	100.00	0.00	100.00	0.00	284385.81
6-Feb-2024	8494.72	2281.91	19384186.52	84.40	302393.31	100.00	0.00	100.00	0.00	302393.31
7-Feb-2024	8661.44	2281.91	19764626.55	84.40	308328.17	100.00	0.00	100.00	0.00	308328.17
8-Feb-2024	8707.34	2281.91	19869366.22	84.40	309962.11	100.00	0.00	100.00	0.00	309962.11
9-Feb-2024	8748.62	2281.91	19963563.46	84.40	311431.59	100.00	0.00	100.00	0.00	311431.59
10-Feb-2024	8418.50	2281.91	19210259.34	84.40	299680.05	100.00	0.00	100.00	0.00	299680.05
11-Feb-2024	8236.08	2281.91	18793993.31	84.40	293186.30	100.00	0.00	100.00	0.00	293186.30
12-Feb-2024	8195.92	2281.91	18702351.81	84.40	291756.69	100.00	0.00	100.00	0.00	291756.69
13-Feb-2024	9083.60	2281.91	20727957.68	84.40	323356.14	100.00	0.00	100.00	0.00	323356.14
14-Feb-2024	8465.76	2281.91	19318102.40	84.40	301362.40	100.00	0.00	100.00	0.00	301362.40
15-Feb-2024	8408.44	2281.91	19187303.32	84.40	299321.93	100.00	0.00	100.00	0.00	299321.93
16-Feb-2024	6665.08	2281.91	15209112.70	84.40	237262.16	100.00	0.00	100.00	0.00	237262.16
17-Feb-2024	8726.76	2281.91	19913680.91	84.40	310653.42	100.00	0.00	100.00	0.00	310653.42
18-Feb-2024	8729.06	2281.91	19918929.30	84.40	310735.30	100.00	0.00	100.00	0.00	310735.30
19-Feb-2024	8217.48	2281.91	18751549.79	84.40	292524.18	100.00	0.00	100.00	0.00	292524.18
20-Feb-2024	8167.76	2281.91	18638093.22	84.40	290754.25	100.00	0.00	100.00	0.00	290754.25
21-Feb-2024	8379.78	2281.91	19121903.78	84.40	298301.70	100.00	0.00	100.00	0.00	298301.70
22-Feb-2024	8231.02	2281.91	18782446.85	84.40	293006.17	100.00	0.00	100.00	0.00	293006.17
23-Feb-2024	7909.72	2281.91	18049269.17	84.40	281568.60	100.00	0.00	100.00	0.00	281568.60
24-Feb-2024	8196.14	2281.91	18702853.83	84.40	291764.52	100.00	0.00	100.00	0.00	291764.52
25-Feb-2024	8232.64	2281.91	18786143.54	84.40	293063.84	100.00	0.00	100.00	0.00	293063.84
26-Feb-2024	8020.82	2281.91	18302789.37	84.40	285523.51	100.00	0.00	100.00	0.00	285523.51
27-Feb-2024	8254.30	2281.91	18835569.71	84.40	293834.89	100.00	0.00	100.00	0.00	293834.89
28-Feb-2024	8408.58	2281.91	19187622.79	84.40	299326.92	100.00	0.00	100.00	0.00	299326.92
29-Feb-2024	8207.98	2281.91	18729871.64	84.40	292186.00	100.00	0.00	100.00	0.00	292186.00
Total	2,40,466.180									
Quantity waste excess processed during the month of February-2024	758.065									
Total Net quantity processed	2,41,224.245									
As per PRC 8000TPD Net Quantity Processed 2,32,000 Tons (29 Days x 8000TPD)	2,32,000.000	2281.91		84.40	82,58,689	100.00	-	100.00		82,58,689.00

Site-In-Charge IE

Team Leader IE

SSD-I/C

13/03/2024

EPTRI - AS IE for IWSWM Project of GHMC

Table 1: Performance Indicator No. 11 - Extent of Functioning of Integrated Facility

Extent of Functioning of Integrated Facility

SNO	Date	Integrated Facility components					Fraction of working components = working componts/total componetns	No. Of days integrated facility functioned in a week (b)	No. Of days considered (a)	Performance P= (b/a) X 100
		Complaince to Environment Provision	Complaince to Safety rules	Compalince to Worker's health provisions/rules	House keeping of Integrated Facility	Functioning of Unit Operations				
1	1-Feb-24	84.75					0.85			
2	2-Feb-24	84.63					0.85			
3	3-Feb-24	84.85					0.85			
4	4-Feb-24	84.81					0.85	5.92	7	84.561
5	5-Feb-24	84.26					0.84			
6	6-Feb-24	84.25					0.84			
7	7-Feb-24	84.38					0.84			
8	8-Feb-24	84.50					0.84			
9	9-Feb-24	84.62					0.85			
10	10-Feb-24	84.74					0.85			
11	11-Feb-24	84.47					0.84	5.92	7	84.519
12	12-Feb-24	84.45					0.84			
13	13-Feb-24	84.43					0.84			
14	14-Feb-24	84.41					0.84			
15	15-Feb-24	84.40					0.84			
16	16-Feb-24	84.38					0.84			
17	17-Feb-24	84.36					0.84			
18	18-Feb-24	84.34					0.84	5.90	7	84.338
19	19-Feb-24	84.32					0.84			
20	20-Feb-24	84.30					0.84			
21	21-Feb-24	84.28					0.84			
22	22-Feb-24	84.26					0.84			
23	23-Feb-24	84.24					0.84			
24	24-Feb-24	84.22					0.84			
25	25-Feb-24	84.20					0.84	6.74	8	84.19
26	26-Feb-24	84.18					0.84			
27	27-Feb-24	84.16					0.84			
28	28-Feb-24	84.14					0.84			
29	29-Feb-24	84.13					0.84			
								24.47	29	

Functioning of the integrated facility , P11

$$P_{11} = \left[\frac{\text{b, i.e. Total number of days integrated facility functioned in the month}}{\text{a, i.e. Total number of days in the month}} * 100 \right]$$

P_{11} = 84.40 %

Penalty for Performance Indicator 11 = 0.1*TFA*(100-P)/100

Site-In-Charge,IE

Team Leader,IE

ESD I/C

13/03/2024

Table 2: Performance Indicator No. 12 - Extent of MSW recovered

Date	Total quantum of waste received after deduction of silt (b)	Amount of waste processed or recycled (a)	Excess processed waste (Tons)	Performance Achieved, P=(a/b)X100	Remarks
1-Feb-24	7923.24				
2-Feb-24	8349.36				
3-Feb-24	8381.66				
4-Feb-24	8055.52				
5-Feb-24	7988.86				
6-Feb-24	8494.72				
7-Feb-24	8661.44				
8-Feb-24	8707.34				
9-Feb-24	8748.62				
10-Feb-24	8418.50				
11-Feb-24	8236.08				
12-Feb-24	8195.92				
13-Feb-24	9083.60				
14-Feb-24	8465.76				
15-Feb-24	8408.44				
16-Feb-24	6665.08				
17-Feb-24	8726.76				
18-Feb-24	8729.06				
19-Feb-24	8217.48				
20-Feb-24	8167.76				
21-Feb-24	8379.78				
22-Feb-24	8231.02				
23-Feb-24	7909.72				
24-Feb-24	8196.14				
25-Feb-24	8232.64				
26-Feb-24	8020.82				
27-Feb-24	8254.30				
28-Feb-24	8408.58				
29-Feb-24	8207.98				
Total	2,40,466.180				
	2,40,466.18	2,41,224.245	758.065		Difference in quantity waste between initial Drone assessment at the beginning of the month - quantity of waste lying on tipping floor assessed by drone at the end of month (39,280.105 - 38,522.040 = 758.065) Tons
			Performance	**100.32**	

Extent of MSW recovered , P12 = $\left[\frac{\text{a, i.e. Amount of waste processed or recycled in tons/month}}{\text{b, i.e. Total quantum of waste collected by concessionaire}}\right] \times 100$

P_{12} = **100.32**

Site-In-Charge,IE

Team Leader,IE

ESD I/C 13/03/2024.

Table 3: Performance Indicator No. 13 - Extent of Scientific Disposal of MSW

SNO	Date	Total Daily Disposed in all landfill in tons (b)	Waste being disposed at "complaint" landfill, at the active landfill cell (a)	Performance Achieved, P=(a/b)X100
1	1-Feb-24	1453.04	1453.04	100.00
2	2-Feb-24	1552.14	1552.14	100.00
3	3-Feb-24	944.26	944.26	100.00
4	4-Feb-24	680.96	680.96	100.00
5	5-Feb-24	2465.44	2465.44	100.00
6	6-Feb-24	1768.38	1768.38	100.00
7	7-Feb-24	1544.84	1544.84	100.00
8	8-Feb-24	1762.22	1762.22	100.00
9	9-Feb-24	1920.04	1920.04	100.00
10	10-Feb-24	1629.06	1629.06	100.00
11	11-Feb-24	1936.46	1936.46	100.00
12	12-Feb-24	1044.92	1044.92	100.00
13	13-Feb-24	1293.78	1293.78	100.00
14	14-Feb-24	1877.66	1877.66	100.00
15	15-Feb-24	1335.94	1335.94	100.00
16	16-Feb-24	1330.74	1330.74	100.00
17	17-Feb-24	827.20	827.20	100.00
18	18-Feb-24	1483.16	1483.16	100.00
19	19-Feb-24	1414.36	1414.36	100.00
20	20-Feb-24	980.88	980.88	100.00
21	21-Feb-24	776.52	776.52	100.00
22	22-Feb-24	1676.00	1676.00	100.00
23	23-Feb-24	2303.50	2303.50	100.00
24	24-Feb-24	2306.62	2306.62	100.00
25	25-Feb-24	2287.66	2287.66	100.00
26	26-Feb-24	2077.16	2077.16	100.00
27	27-Feb-24	1790.12	1790.12	100.00
28	28-Feb-24	2162.56	2162.56	100.00
29	29-Feb-24	1662.16	1662.16	100.00
	Total wt.	46287.78	46287.78	

Extent of Scientific Disposal of Municipal Solid Waste , P_{13} = $\left[\frac{\text{a, i.e.Total waste disposed in "complaint" landfills every landfills}}{\text{b, i.e.Total waste disposed in all landfills every month}}\right] \times 100$

P_{13} = 100.00 %

Penalty for Performance Indicator 13 = 0.1*TFA*(100-P)/100

Site-In-Charge,IE

Team Leader,IE

ESD I/C

13/03/2024.

EPTRI - As IE for IMSWM Project of GHMC

SUMMARY OF PENALTIES

SNO	Description	Amount	Remarks
1	Performance Indicator 11 - Functioning of Integrated Facility	₹ 82,58,689	Please see Page 1 of 4
2	Performance Indicator 12 - Extent MSW recovered	₹ 0	Please see Page 2 of 4
3	Performance Indicator 13 - Extent of scientific disposal of MSW	₹ 0.00	Please see Page 3 of 4

Total Deduction = ₹ 82,58,689

Site-In-Charge,IE

Team Leader,IE

ESD I/C 13/03/2024.

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ANNEXURE - 6(i)

MEMORANDUM OF UNDERSTANDING

FOR

"Providing technical advisory services in the bid process for bio-mining of capped legacy dumpsite of GHMC at Jawaharnagar including assessment studies on suitability for Bio-mining by retrieval and characterization of Decomposed Municipal Solid Waste"

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

IIT BOMBAY

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महाराष्ट्र MAHARASHTRA ◑ 2022 ◑ 08AA 770008

प्रधान मुद्रांक कार्यालय, मुंबई.
27 MAY 2022
राक्षम अधिकारी

Memorandum of Understanding

This Memorandum of Understanding (hereinafter referred to as "MoU" is made on this 10th Day of August 2022. श्री. डि. क. गवई

BY AND BETWEEN

Greater Hyderabad Municipal Corporation (GHMC) having its registered/Head Office at CC Complex, Tank Bund road, Hyderabad, Telangana 500063 represented by its Superintending Engineer (SWM), GHMC (hereinafter referred to as **GHMC**, which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assignees) of the **First Part.**

AND

Indian Institute of Technology Bombay located at Powai, Mumbai 400 076, represented by the Dean R&D's office at IITB (hereinafter referred to as **Consultant**, which expression shall, unless it be repugnant to the context thereof, shall be deemed to mean and include its successors and permitted assignees) of the **Second Part.**

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

IIT BOMBAY MUMBAI

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C 0509

जोडपत्र-१ /Annexure-I

फक्त प्रतिज्ञापत्रासाठी/Only for Affidavit

मुद्रांक विक्री नोंद वही अनु. क्रमांक/दिनांक
Sales Register Serial No/Date:

मुद्रांक विकत घेणाऱ्याचे नांव व पत्ता/दिनांक
Stamp Purchaser's Name/Place of Residence & Signature

श्री राजन गणपत शिंदे परवानाधारक मुद्रांक विक्रेता
परवाना क्रमांक एल.ए.एस.व्ही.-८०००००७
जी-३, हे सू क्लासिक इमारत, अल्पना वितार हॉटेलच्या बाजूला,
एस.आय.ई. कार्यालयाच्या मागे, एस.व्ही.रोड,
मालाड (पश्चिम), मुंबई-४०० ०६४.
ज्या कारणासाठी ज्यांनी मुद्रांक खरेदी केला त्यांची त्याच कारणासाठी
मुद्रांक खरेदी केल्याबाबतचे हमीपत्र देणे बंधनकारक आहे
Tel.: 28807359 / Mob.: 9820141066

- 3 JUN 2022

1 - 3 JUN 2022

DEEPAK A. SURVE (ADV.)
1-B, SHIVAJI BULG, SHIV NAGARI,
M. G. RD, KALBAVEBI, M-2.

GHMC and the Consultant are individually referred to as a 'Party' and collectively as the 'Parties' for the purpose of this MoU.

Background:

GHMC being the Urban Local Body for the City of Hyderabad is responsible for management of the Municipal Solid Waste (MSW) as per the Solid Waste Management Rules 2016 (SWM Rules 2016) issued by the MoEF&CC, GoI which includes collection, transportation, treatment and scientific disposal of the MSW. GHMC formulated the Integrated Municipal Solid Waste Management (IMSWM) project in 2008-09 and entrusted to M/s. Ramky Enviro Engineers Ltd (REEL) as PPP partner through the Concession Agreement dated 21.02.2009 and handed over the site(of 339 Acres approx.) at Sy. No:173, Jawahar Nagar(V), Kapra(M), Medchal – Malkajgiri (D), Telangana State, India where the mixed MSW has been dumped for more than a decade without treatment until 2012

GHMC decided to establish the scientific MSW treatment and disposal facility in the same Jawahar Nagar site by reclaiming the existing dumpsite area at Jawahar Nagar by shifting the untreated legacy waste spread all over the 339 acres of the site to a minimum foot print area of 125 acres. Scientific Capping of the legacy dumpsite was proposed as per the Environmental Clearance (EC) issued by the State Environment Impact Assessment Authority (SEIAA) of the Ministry of Environment & Forests, GoI vide Order No. SEIAA/AP/RRD-111/2009 dated 20.06.2012. Further, the then applicable rules such as Municipal Solid Waste (Management & Handling) Rules 2000 and Municipal Solid Waste Management Manual 2000 of the CPHEEO, MoUD, GoI were followed. Scientific capping was taken up as an immediate measure to address the pollution problems caused by the smoke due to frequent incidents of fires and uncontrolled flow of leachate due to infiltration of rain water into the dump. The capping works consist of 300 mm thick soil cover, Geosynthetic clay liner, HDPE liner, 450 mm thick vegetative soil and gas & leachate management network.

After scientific capping works reached about 80 % completion stage, the Hon'ble NGT (Principal Bench) issued directions vide the order dated 14.02.2020 in OA no.606 of 2018 that:

> *"...it is imperative to do bio-mining and bioremediation in the interest of environment and to save valuable scarce public resource in the form of land. The land can be used for setting up integrated waste processing facilities and developing green belt or bio-diversity park. If the State/Corporation does not have funds, the State may consider monetizing a part of the land to raise revenue for the purpose, after following due process of law. In any case, capping cannot be permitted."*

After subsequent hearings on the said matter at the Hon'ble NGT, New Delhi & Chennai and also the Supreme Court of India, GHMC has floated Request for Proposal on 28.03.2022 for bio-mining & bio-remediation of the capped legacy waste at Jawahar Nagar in compliance to the orders of the Hon'ble Court and Tribunal. Further, in view of no specific guidelines on how to deal with the already scientifically capped dumpsite for bio-mining and bioremediation, GHMC approached the Central Pollution Control Board (CPCB) and subsequently, based on the advice of CPCB, GHMC identified Dr. D N Singh, IIT Bombay for providing the technical guidance for bio-mining of the already capped legacy waste dumpsite of GHMC at Jawaharnagar and to assist in technical evaluation of the bids.

LoA was issued for the said consultancy work was issued vide Lr No.SWM/0049/ 2021/ AE-2(SWM)-HO dated 04.06.2022.

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

Accordingly, on mutual understanding, this MoU is entered.

NOW IT IS THEREFORE AGREED BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. **OBJECTIVE:**

   Rendering technical advisory services by the Consultant to GHMC in all aspects on the proposed bio-mining of capped legacy dumpsite at Jawaharnagar, Hyderabad.

2. **SCOPE OF SERVICES:**

   i. Guiding GHMC in bidding process for the work of bio-mining of capped legacy dumpsite including evaluation of the Bids.
   ii. Conducting geophysical investigations (Multichannel Analysis of Surface Waves (MASW) and Electrical Resistivity Tomography (ERT)) on the dumpsite at different locations to understand the sub-surface features.
   iii. Extensive sampling of Decomposed Municipal Solid Waste (DMSW) samples from different locations.
   iv. Segregation and characterization of the DMSW samples for their Physico-chemical parameters.
   v. Establishing the present state of the decomposition of the Municipal solid Waste (MSW).
   vi. Characterization of leachate samples (if any) during the sampling of the DMSW from different boreholes.
   vii. A critical analysis of the way forward.
   viii. Furnishing the preliminary, interim and final report with recommendation on bio-mining.

3. **DURATION OF THE SERVICE:**

   The Consultant shall deliver the entire scope of services in a period of fifteen (15) months from the date of entering into this MoU, or mutually extended period as may be mutually agreed. Both parties understood that certain required ground level activities such as conducting geophysical investigations etc will start within (01) week from the day of receipt of first installment by the Consultant.

4. **DELIVERABLES:**

   i. Guidance to the GHMC on the technical evaluation of the proposals submitted for biomining.
   ii. Submission of preliminary, interim and final reports on the status of MSW decomposition at Jawaharnagar landfill, Hyderabad and its suitability for biomining.

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

IIT BOMBAY MUMBAI - 400076

5. **ROLES AND RESPONSIBILITIES:**

a) **Consultant:**

i. Appointment of third-partyconsultants for performing Geophysical investigations and sampling of MSW and providing required guidance to them during this project.

ii. Supervision of the investigations to be carried out at the site.

iii. Complete analysis of the MSW and leachate characteristics and provision of way forward to the GHMC on the biomining.

iv. Update on the changes, if any, in the sampling methodology and strategies adopted during the studies as per the site conditions.

v. Delays in the work related to provision of technical services in the biomining tendering process is not the responsibility of the consultant as the process is being carried out by GHMC.

b) **GHMC:**

i. Provide relevant information related to the Jawaharnagar landfill viz., location of underground utilities, the height of landfill, thickness of final cover, etc.

ii. Provide adequate number of helpers (unskilled force) at the landfill site during sampling.

iii. Provide refrigerators and sample storage space/facility in a closed room at their site office.

iv. Temporary stay / local travel for the site workers (most probably hailing from Mumbai) at suitable locations (as mutually agreed) to be provided at the site so as to accelerate work and avoid unnecessary commuting.

v. Provide Local transportation/ logistics (within GHMC premises).

vi. GHMC required to appoint a representative during the site investigations to witness and certify the same.

vii. Provide (any and all) documentary, technical other assistance /help that may be requested by the Consultant in order to carry out the implementation or other related activities under this MoU.

6. **PAYMENT SCHEDULE:**

All the payments shall be made by GHMC upon receipt of an invoice from the Consultant. Totalremuneration to the Consultant shall not exceed Rs.1,99,63,125/- (Rupees One Crore Ninety Nine Lakhs Sixty Three Thousand One Hundred and Twenty five Only) plus applicable GST in any case and shall be paid as per the following schedule subject to performance of the Consultant:

i. Sixty (60%) percent payment as 1st installment within (15) days after entering into MoU.

ii. Thirty (30%) percent payment as 2nd installment after (06) months from the date of MoU.

iii. Ten (10%) percent payment after submission of final report.

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

7. **TERMS AND CONDITIONS:**

i. **Job work:** Total scope of the service will be considered as a Job work including technical services and ground level works to be performed to meet the objective of this MOU which is described as follows but not limited to the following:

S.No	Description	Remuneration (in INR)
1	Providing technical advisory services in the bid process for bio-mining of capped legacy dumpsite of GHMC at Jawaharnagar including assessment studies on suitability for Bio-mining by retrieval and characterization of Decomposed Municipal Solid Waste including conducting Geophysical investigations (MASW and ERT) about 1,500 m, mobilization of machinery at the landfill, shifting of drilling rigs, steel casing pipes about 5 no's, borehole drilling and sample collection about 450 no's, testing charges for about 150 samples including consumables, manpower and outsourcing charges and manpower charges including assistance in bid process, travel and dearness allowances, institute overhead charges and contingent charges and furnishing reports and including all taxes, duties as applicable to the Consultant etc. complete	1,99,63,125

ii. The Technical& Advisory services come under the category of pure services and hence GST is exempted as per circular no. 8294/CFA/AC(Fin)/ GHMC/2017-4 dt:19.09.2017 of the Commissioner, GHMC.

iii. List of experiments to be performed:

Sample/test	Parameters
DMSW	Volatile solids, elemental content, total organic carbon, inorganic carbon, ammonium and nitrate nitrogen and heavy metals (total).
Leachate samples	pH, EC, TDS, salinity, TOC, COD, sulfate, phosphate, nitrate-nitrogen, ammonium-nitrogen, heavy metals
Geophysical investigations	MASW and ERT

iv. **INTELLECTUAL PROPERTY RIGHTS:**

All rights pertaining to any intellectual property generated/ created/ invented in the due course of the project, will be the joint property of the Parties. Terms and conditions regarding transferring /assigning /selling these rights to the First Party shall be governed by a separate written and agreed to documents if required. The expenses related to filing, processing and maintenance of the IP(s) will be borne by the Parties as mutually agreed upon

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

v. The Consultant may take up services for other clients also in the same area, provided, to the best of it's knowledge, there is no conflict of interest in undertaking such projects.

8. **FORCE MAJEURE**

a) In the event of either Party being rendered unable to perform any obligation required to be performed by it under this MoU due to a Force majeure event, it shall notify the other Party about the occurrence of such an event. On the notification of the same, the other Party may suspend the affected obligation for the period during which the effect of the Force majeure event lasts.

b) The term Force majeure as employed herein shall mean but not limited to the acts of God (including exceptional adverse weather conditions), earthquake, fire (not caused by the negligence of either Party), war (declared or undeclared), invasion, rebellion, revolt, civil war, epidemic, pandemic, outbreak, plague, act(s) of omission/ commission by any concerned Government(s) or Government Agencies, judicial or quasi-judicial authorities.

9. **CONFIDENTIALITY**

a) Both Parties shall keep confidential any and all information and data concerning these services and the other party's business or its activities that may come to the knowledge of a party hereto, its personnel or appointed representatives during or in connection with the execution of this MoU.

b) Neither Party shall divulge or use or reproduce such data and information or make the same available to third parties without prior written consent of the other party.

c) The obligations referred to in this article shall not apply insofar as the data and information, which is now or hereafter becomes, through no act or omission on the part of the receiving party, generally known or available within the applicable industry or enters the public domain or is disclosed to the receiving party by a third party or is independently developed by the receiving party or is required to be disclosed by the operation of law, regulation or decree.

d) The obligations of this Article shall survive the termination or dissolution of this MOU irrespective of the reason for termination or dissolution, for a period of three (3) years thereafter.

10. **TERMINATION:**

The MoU will be terminated automatically after (15) months from the date of this MoU unless otherwise extended by both parties on mutual terms and conditions or unilaterally terminated by either of them by a thirty (30) days written notice subject to completion of their roles correspondingly.

11. **MISCELLANEOUS**

i. **Notices**

Any notices required or permitted to be given pursuant to this MoU shall be sent via registered post or courier, or by email to the addresses of the Parties as set forth below, or to such other address as may be specified from time to time in writing in accordance with terms of this clause. Mail communication also be sent to the addresses mentioned below:

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

If to GHMC,	If to Consultant,
Superintending Engineer (SWM), Greater Hyderabad Municipal Corporation, 4th floor, CC Complex, GHMC- Head Office, Lower TankbundRoad. Hyderabad. Telangana-500063 Email:eeswmc@gmail.com cc: achealth19.ghmc@gmail.com	Prof. Devendra Narain Singh, D.L. Shah Chair Professor for Innovation, Department of Civil Engineering, Environmental Geotechnology Laboratory, 4th Floor, VMCC Building, Indian Institute of Technology Bombay, Powai, Mumbai- 400 076, Email: dns@civil.iitb.ac.in, Mobile: +91 9820758508.

ii. **Waiver & Modification**

Any waiver, modification or amendment of any provision of this MoU will be effective only if it is in writing and signed by Parties hereto. A waiver in one (1) instance shall not constitute a continuing waiver unless expressly so stated in writing.

iii. **Representation & Warranty**

The Parties represent and warrant that they have all right, power and authority needed to enter into and carry out the obligations under this MoU.

iv. **Limitation of Liability**

Subject to the terms and conditions of this MoU, neither Party shall be liable to the other Party for any incidental, indirect or consequential damages of any kind arising out of or in connection with this MoU.

v. **Jurisdiction:**

This MoU shall be construed and interpreted, in accordance with and governed by Laws and Regulations of India and the Courts in Hyderabad shall have exclusive jurisdiction over any disputes between the Parties relating to this MoU.

vi. **Dispute Resolution**

If any dispute arises out of or in connection with this or derived there from, both parties agree to resolve amicably on mutual discussion at the level of their respective senior Officers appointed by the respective HoD's. If not resolved, the dispute will be referred to arbitration to be conducted under the Arbitration and Conciliation Act, 1996 at Hyderabad in the English language.

vii. **Severability**

The validity of this MoU shall not be affected, should one (1) or more of its stipulations be or become legally invalid so long as such stipulation is severable from and not fundamental to the obligations of either Party to this MoU. In such case, the Parties shall negotiate in good faith to replace the invalid article/ Clause by stipulation which is in accordance with the applicable law.

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

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IN WITNESS WHEREOF, the Parties have signed and executed this MoU on the date and day first above written in the presence of their respective witnesses:

FOR AND ON BEHALF OF Greater Hyderabad Municipal Corporation

Superintending Engineer
Solid Waste Management
Greater Hyderabad Municipal Corporation

Signature:
Name: M. KOTESWARA RAO
Date: 10/08/2022
Designation with stamp and seal:

Witness 1
Name and Address:
C. BHANUSRI
DEPUTY EXECUTIVE ENGINEER (SWM), GHMC
4th floor, CC complex, lower Tank Bund Rd,
Hyderabad - 500063.

Witness 2
Name and Address:
P. PRAVEEN
Assistant Engineer (SWM), GHMC.
4th Floor, CC-Complex
Lower Tankbund Road.
Hyderabad.

FOR AND ON BEHALF OF Indian Institute of Technology, Bombay

संकायाध्यक्ष, शोध एवं विकास
Dean, Research and Development
कृते नि देशक, आय आय टी मुंबई
For Director, IIT Bombay

Signature:
Name: Prof. Milind D. Atrey
Date: 10th August 2022
Designation with stamp and seal:

Witness 1
Name and Address:
Dr. D. N. SINGH
Professor
Department of Civil Engineering
Geotechnical Engineering Division
Indian Institute of Technology, Bombay
Powai, Mumbai - 400 076. INDIA.

Witness 2
Name and Address:
Gvsnagasai
Goli Venkata Siva Naga Sai
Research scholar
C/o Environmental Geotechnology
Laboratory, 4th floor,
VMCC Building,
Dept of Civil Engineering.
IIT Bombay, Powai,
Mumbai - 400 076.

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भारतीय प्रौद्योगिकी संस्थान मुंबई
पवई, मुंबई-400 076, भारत
Indian Institute of Technology Bombay
Powai, Mumbai-400 076, India
दूरभाष/Phone : (+91-22) 2572 2545
फैक्स/Fax : (+91-22) 2572 3480
वेबसाइट/Website : www.iitb.ac.in

July 05, 2023

To,
The Municipal Commissioner
Greater Hyderabad Municipal Corporation
Hyderabad
Telangana

Subject: Providing Technical Advisory Services in the Bid Process for Biomining of Capped Legacy Dumpsite of GHMC at Jawaharnagar Including Assessment Studies on Suitability for Bio-mining by Retrieval and Characterization of Decomposed Municipal Solid Waste

Our Reference: DRD/CE/DNS-11/22-23 dated 15.06.2022

Dear sir,

It was a pleasure to be associated with you and your colleagues on this so very important project.

The proposed studies have been completed successfully, within the stipulated time, and I am submitting the final report **Studies on Suitability of Decomposed Municipal Solid Waste for Bio-mining at Jawaharnagar Capped Dumpsite, Hyderabad** to you for your kind perusal and records.

In case you have any queries/clarification, please contact the undersigned.

Also, as the project has been completed, please release the remaining 10% amount as per the MoU.

Regards!

d. n. singh

Dr. D. N. Singh FNAE, FASCE, FICE(UK)
D.L. Shah Chair Professor for Innovation
Department of Civil Engineering
Cell: +919820758508
Email: dns@civil.iitb.ac.in
www.civil.iitb.ac.in/~dns

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A Report

on

Studies on Suitability of Decomposed Municipal Solid Waste for Bio-mining at Jawaharnagar Capped Dumpsite, Hyderabad

Submitted to

Greater Hyderabad Municipal Corporation (GHMC)

by

Goli Venkata Siva Naga Sai
Mrunal Sunil Bokade
Yogendra Narayanan
Sinny Manohar
Kamran Ilahi
Prithvendra Singh
(Research Scholars)

Pintu Kumar Saw
(Undergraduate student)

and

Prof. D. N. Singh
Principal Investigator
&
D.L. Shah Chair Professor for Innovation

ENVIRONMENTAL GEOTECHNOLOGY LABORATORY
DEPARTMENT OF CIVIL ENGINEERING
INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MUMBAI- 400076, INDIA

July 5, 2023

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1. Background

Landfill biomining (LFM) of existing dumpsites and landfills has been encouraged to avoid the contamination of the geoenvironment (soil, groundwater, and air), recover the precious land occupied by these facilities, and utilization of landfill-mined residues (LMRs) such as plastics, glass, metals and combustibles and soil-like materials for different applications. Nevertheless, to decide on the feasibility of LFM, it is crucial to ascertain the state of decomposition of the MSW in the landfill/dumpsite. This would not only help in understanding the utilization potential of LMRs but also help in finding the answers to questions such as whether the MSW in the landfill is suitable to be mined, ascertaining possible issues that can arise during mining operations, and the methodology to be adopted for landfill mining, etc. In this context, the state of MSW in a landfill/dumpsite can be determined easily by characterizing the samples of DMSW collected from a landfill for their physical and chemical characteristics. Based on these investigations, a further decision on LFM should be taken. Further, geophysical investigations such as Multi-channel Analysis of Surface Waves (MASW) and Electrical resistivity tomography (ERT) would help in understanding the subsurface properties of the landfill. This would also help to identify leachate and gas pockets that could become an issue during mining activity if not known in advance.

As per the directions of the National Green Tribunal (NGT) Principal Bench, Greater Hyderabad Municipal Corporation (GHMC) is prepared to take up the biomining of capped Jawaharnagar Dumpsite, Hyderabad and called for tenders. However, as the dumpsite has been capped recently (i.e., 2018), the GHMC approached Prof. D. N. Singh, Department of Civil Engineering, Indian Institute of Technology Bombay, for help in several technical aspects such as evaluating the readiness of the capped dumpsite for biomining, evaluating the technical proposal received for biomining operation, establishing the methodology for biomining, etc. Keeping these in view, a scientific study on capped dumpsite at Jawaharnagar, Hyderabad, is planned by the Indian Institute of Technology Bombay under the supervision of Prof. D. N. Singh, IIT Bombay. In this regard, to evaluate the readiness of the capped dumpsite at Jawaharnagar, Hyderabad, for biomining, a study has been proposed by IIT Bombay. The technical aspects of the study proposed are mentioned below.

2. Scope of work

The broad scope of this proposal is to help GHMC in the bid process and carry out geophysical investigations, retrieval, and characterization of the decomposed MSW (DMSW) samples at Jawaharnagar landfill Hyderabad (referred to as JLH).

The detailed scope of the work is mentioned below:

- Guiding GHMC in the bidding process for the work of biomining of the capped legacy dumpsite.
- Conducting geophysical investigations, namely Multichannel Analysis of Surface Waves (MASW) and 2-dimensional Electrical Resistivity Tomography (2D-ERT) on the dumpsite at different locations to understand the subsurface features.
- Extensive sampling of DMSW samples from different locations.
- Segregation and characterization of the DMSW samples for their Physico-chemical parameters.
- Establishing the present state of the decomposition of the MSW.
- Characterization of leachate samples (if any) during the sampling of the DMSW from different boreholes.
- A critical analysis of the way forward.

3. Reconnaissance survey

Based on the data shared by GHMC on 22.04.2022, a proposal was prepared by IIT Bombay and shared to conduct the investigations within the scope mentioned above. The study broadly involves conducting geophysical (MASW and ERT) investigations and retrieving and characterizing the DMSW samples.

In this context, the IIT Bombay team, along with the representatives of **M/s. Ramky Enviro Engineers Ltd. (REEL), Environmental Protection Training and Research Institute, Hyderabad (EPRTI)**, and **GHMC** visited the site to select the locations for conducting Geophysical investigations at the JLH site (refer to Plate 3.1). This exercise would help in selecting the subsequent locations for retrieving the samples from the landfill without causing much harm to the existing cover, gas and leachate collection systems.

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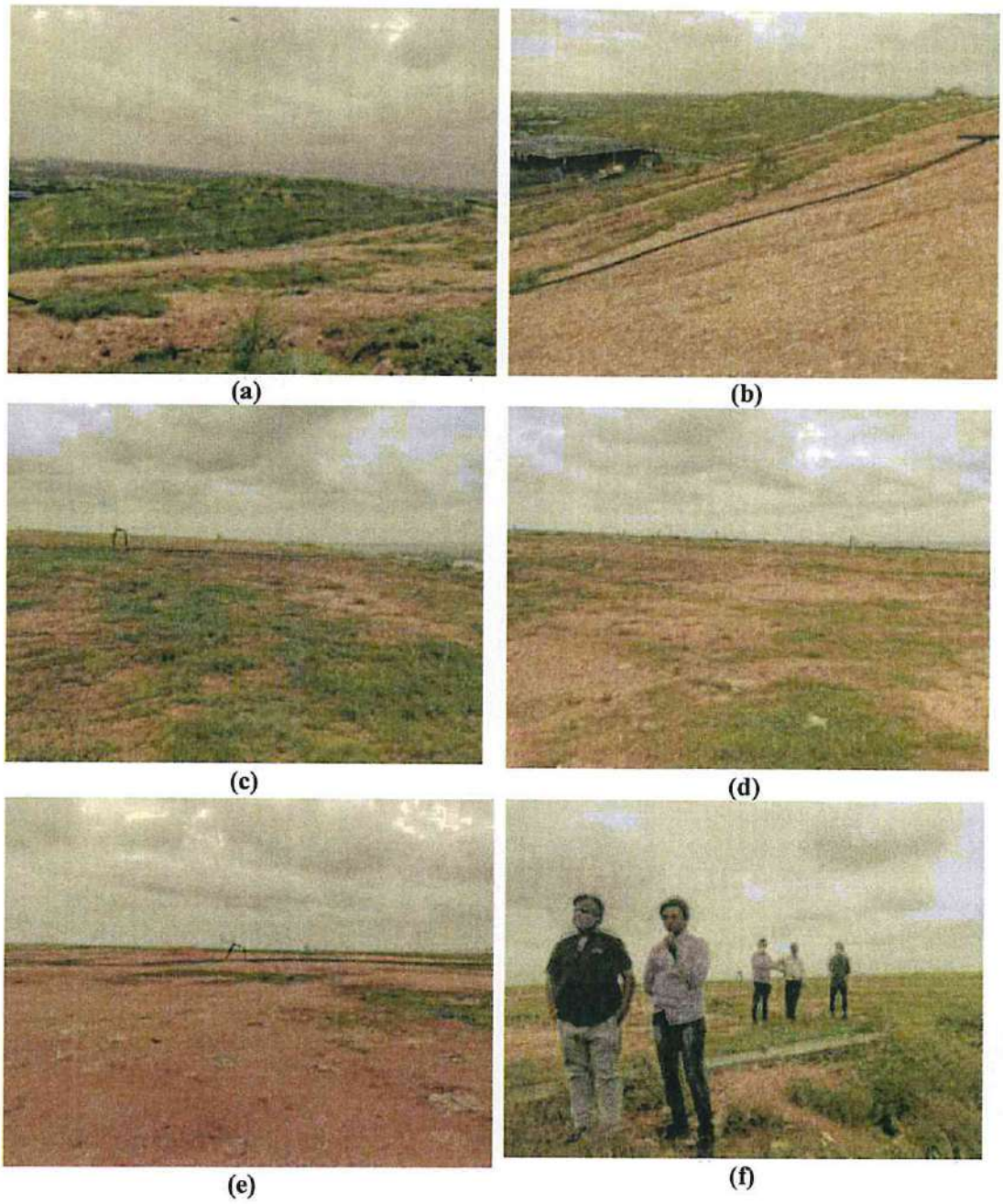


Plate 3.1 Photographs depicting the site visit

4. Proposed Investigations

4.1 Geophysical Investigations

Based on the site visit and the information given by the REEL, EPTRI and GHMC representatives, locations for the Geophysical investigations have been selected, as represented in

Plate *4.1*. Please refer to Lines 1 to 5 (designated as L1 to L5). Lines L1 to L4 have been selected based on the maximum height of the landfill at these locations, whereas L5 has been selected to identify the presence/absence of leachate pockets as it is a low-lying area previously and close to leachate ponds. The preliminary site survey helped us estimate that each MASW and ERT investigation should be conducted for 3000 meters.

Plate 4.1 The Google Earth map of the JLH depicting the locations selected for Geophysical investigations

4.2 Retrieval of Decomposed MSW from JLH and Characterization

The top cover (including vegetative and clay cover) and other geotextile layers will be removed manually. Followed by a flight auger (diameter ranging between 100 and 300 mm), attached to a pile-driving unit, will be inserted in the capped landfill to drill a borehole using hydraulic equipment (Mohammad et al., 2021). The DMSW and leachates obtained at different borehole depths will be collected. Borehole drilling from the top of the landfill will be initiated by inserting a mild steel casing. The casing helps in stabilizing the borehole during the drilling operation. The drilling would be continued as deep as possible based on the site conditions, considering the safety of buried utilities. A sampling of MSW will be done every 2-3 m or

wherever changes in the strata. The landfill operator should seal the boreholes after the sampling is completed. The retrieved samples will be spread on a clean geomembrane (near the borehole on the two loops) and divided into four quarters with the help of a shovel. Furthermore, the MSW samples (≈5-10 kg) would be randomly collected for *three quarters* for laboratory testing. The leftover samples of MSW should be backfilled into the boreholes. Depending upon the state of the exhumed MSW samples, their storage at 4 °C, in a refrigerator at the site will be done. Subsequently, the samples will be transported to the IIT Bombay laboratory for their characterization, as mentioned in the following.

4.3 Characterization of the DMSW samples

4.3.1 Physical Characteristics

The DMSW was proposed to sieve through a 20 mm size sieve followed by the manual segregation of the retained portion into various fractions such as plastics, textiles, metals, glass, paper, etc. Further, the <20 mm fraction considered as soil-like materials was proposed to be tested for moisture content and specific gravity.

4.3.2 Chemical Characteristics

The biochemical processes involved in the decomposition of MSW in a landfill transform the organic matter (OM) present in it. With this in view, the chemical parameters of MSW, namely, volatile solids, elemental content, total organic carbon, ammonium and nitrate nitrogen and heavy metals, were proposed to be performed on the MSW samples retrieved from the landfill. In addition to the characterization of MSW, testing of a few leachate samples for their chemical parameters (viz., pH, EC, TOC, COD, sulfates, phosphates, nitrate-nitrogen, ammonium-nitrogen, and heavy metals) was proposed.

Based on the above-mentioned comprehensive testing protocol, the readiness of the JLH for booming will be established. If the dumpsite can be mined, the recommendations for initiating mining was proposed to be submitted to GHMC.

5. Details of the Investigations and Results

5.1 Geophysical Investigations

IIT Bombay engaged Fugro Geotech India Pvt. Ltd. (FGTL) to conduct MASW and 2-dimensional ERT as a part of geophysical investigations and the results are presented in the following. Please note that the results of geophysical investigations for Line-5 are not generated appropriately. So, data for line-5 is missing from the report.

Different representative locations and stretches on the JLH were selected, refer to Plate ***5.1***, and a total of 3000 m length was covered. The coordinates of the start and end points for each stretch are mentioned in Table 5.1.

Plate 5.1 The Google Earth map exhibiting the actual stretches of the MASW and ERT investigations

Table 5.1 Coordinates for start and end points of MASW and ERT investigations

Line Name	Start Coordinates		End Coordinates		Line Length (m)
	Easting	Northing	Easting	Northing	
Line No 01	244483.17	1939999.8	244554.78	1939725.6	284
Line No 02	244463.67	1939005.7	244538.64	1939657.9	356
Line No 03	244509.12	1939654.7	244453.77	1939005.8	356
Line No 04	244627.65	1939043.2	244724.49	1939854.1	216
Line No 06	244747.97	1939687.1	244769.86	1939790.4	108
Line No 07	244760.09	1939692.5	244799.6	1939793.8	108
Line No 08	244303.79	1939060.6	244330.64	1939704.7	356
Line No 09	244041.55	1939193.8	244004.74	1939094.2	108
Line No 10	244490.79	1939955.8	244357.72	1939962.6	144
Line No 11	244518.41	1939875	244375.79	1939876.6	144
Line No 12	244557.57	1939838.2	244355.08	1939772.7	216
Line No 13	244580.39	1939707.8	244360.13	1939706.5	216
Line No 14	244395.78	1939035.7	244401.63	1939619.3	420

The results obtained from the analysis are depicted in Figure 5.1 to 5.12.

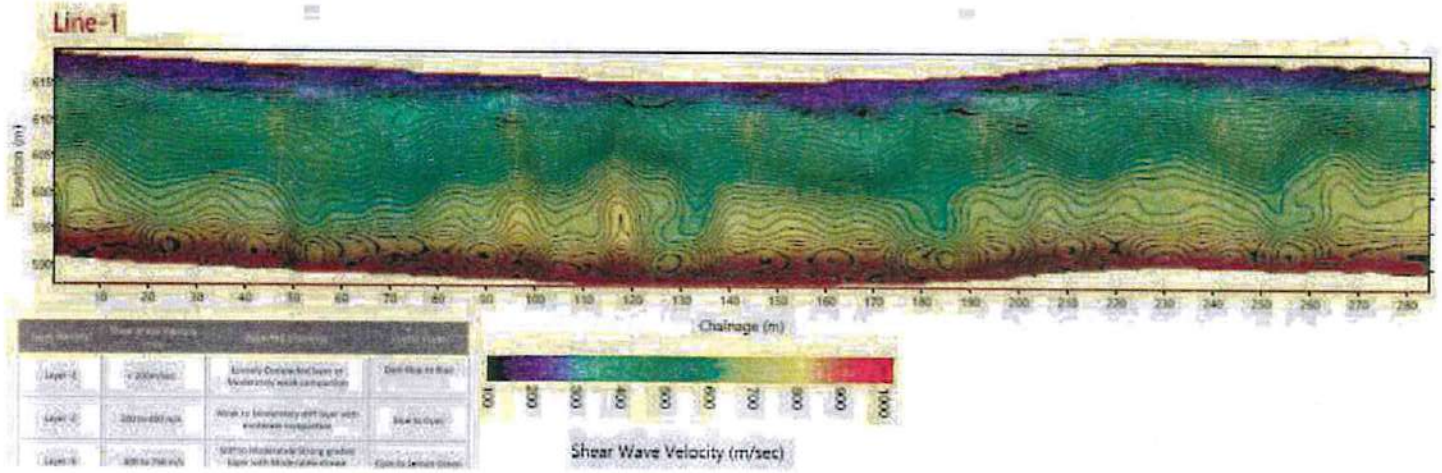


Figure 5.1 MASW analysis results of Line-1

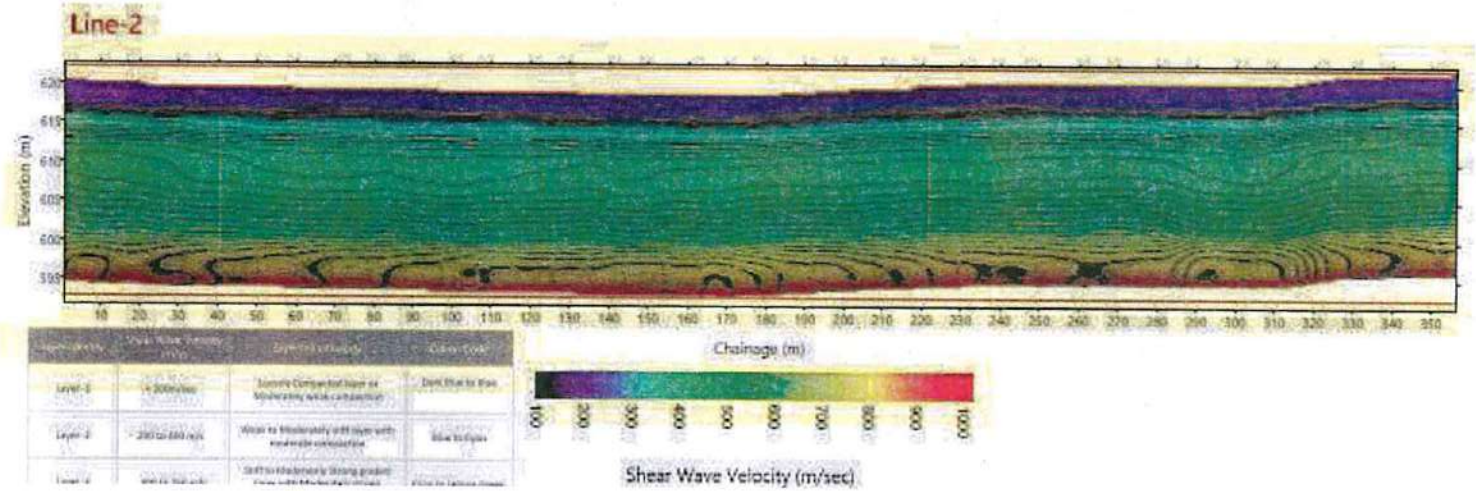


Figure 5.2 MASW analysis results of Line-2

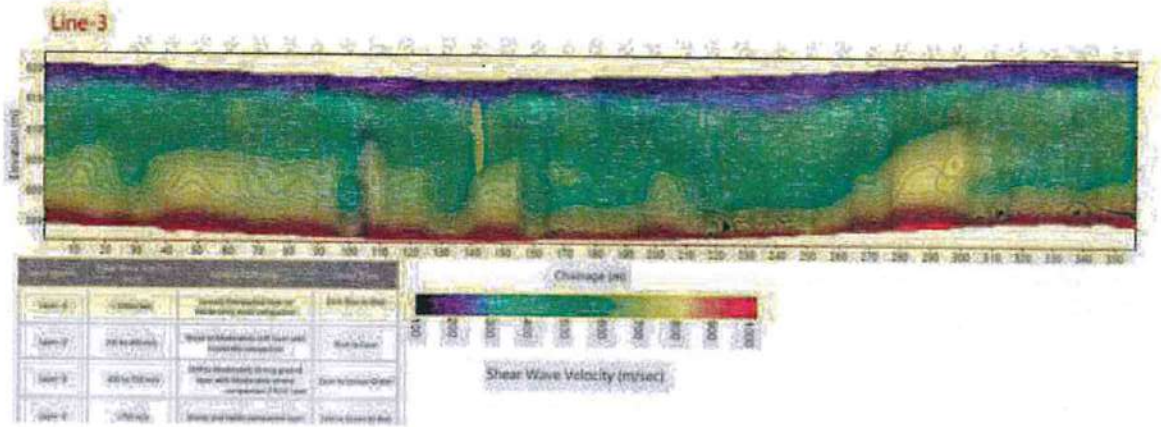


Figure 5.3 MASW analysis results of Line-3

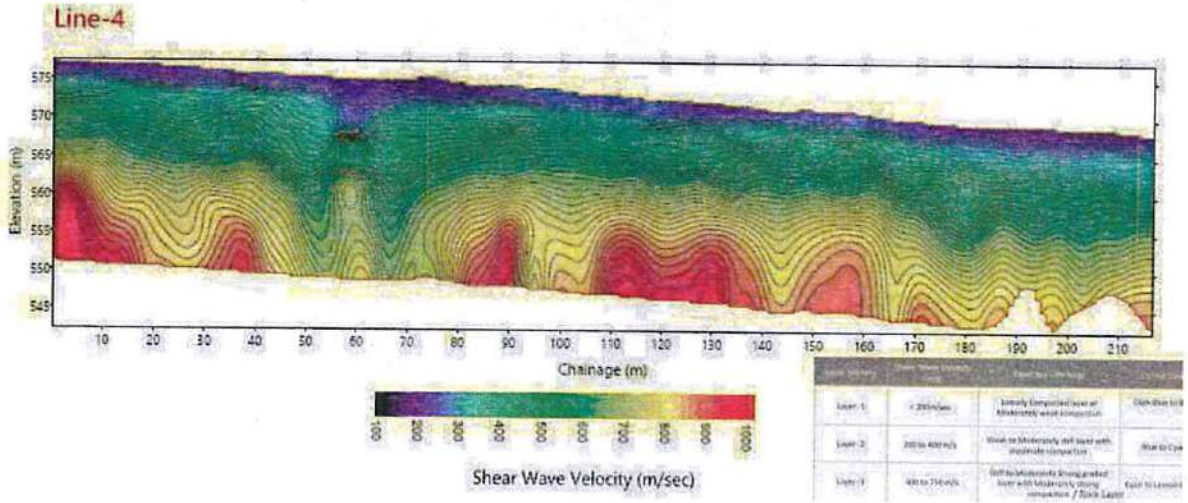


Figure 5.4 MASW analysis results of Line-4

157

2753

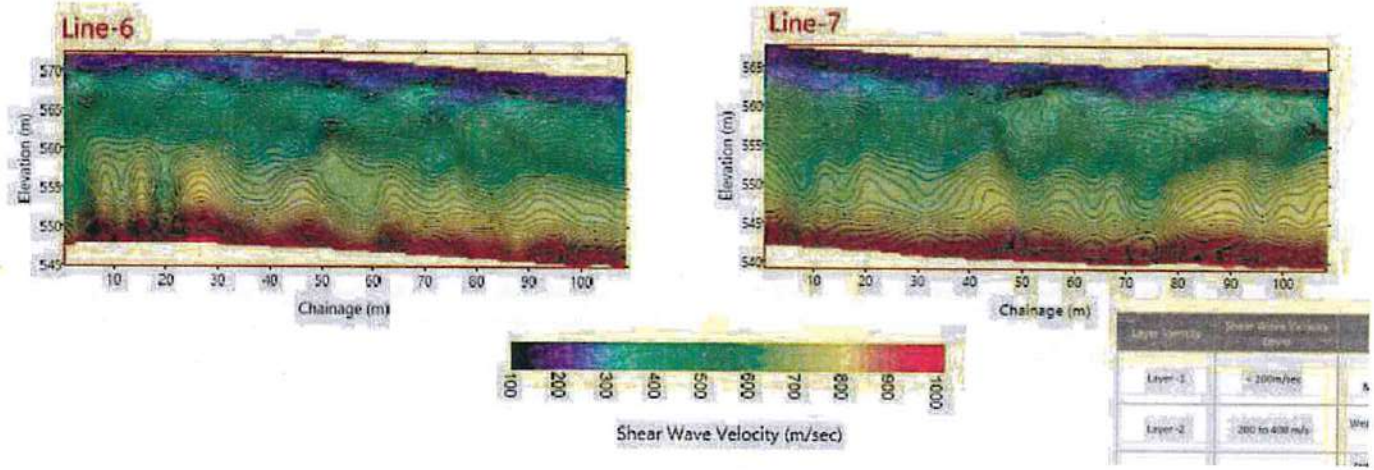


Figure 5.5 MASW analysis results of Lines-6 and 7

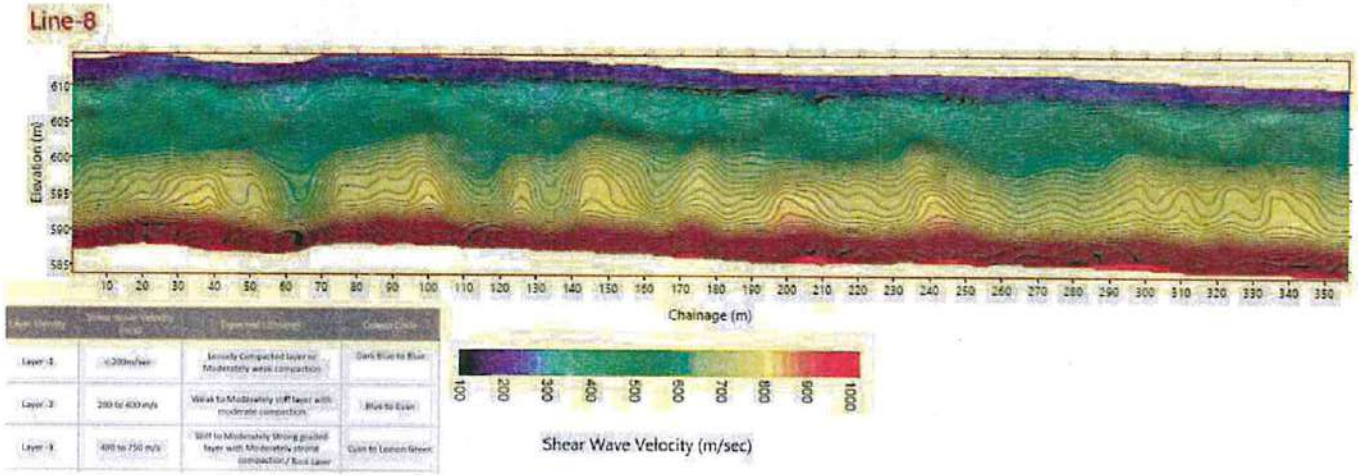


Figure 5.6 MASW analysis results of Line-8

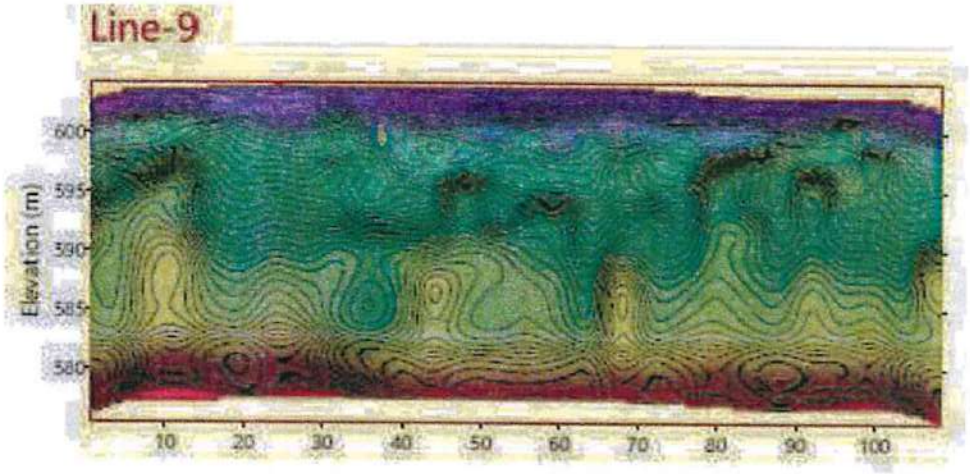


Figure 5.7 MASW analysis results of Line-9

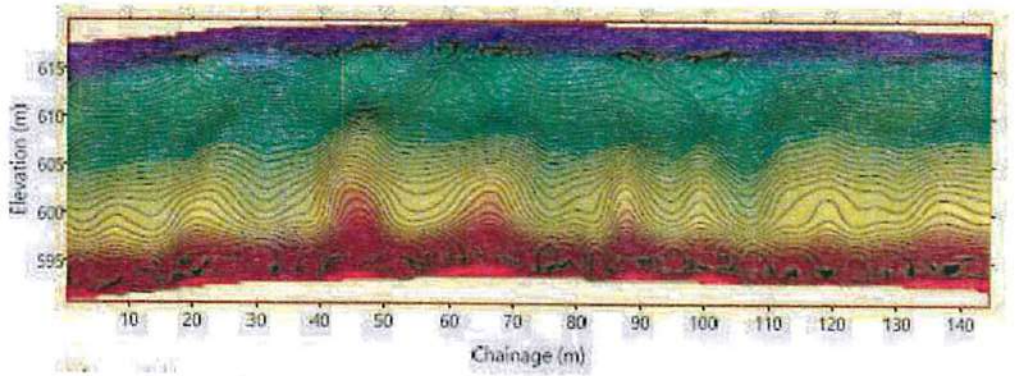


Figure 5.8 MASW analysis results of Line-10

159
2755

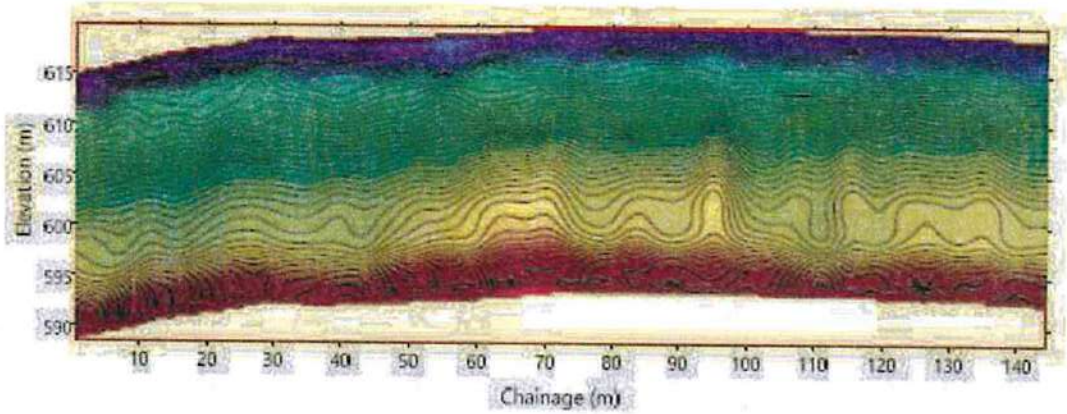


Figure 5.9 MASW analysis results of Line-11

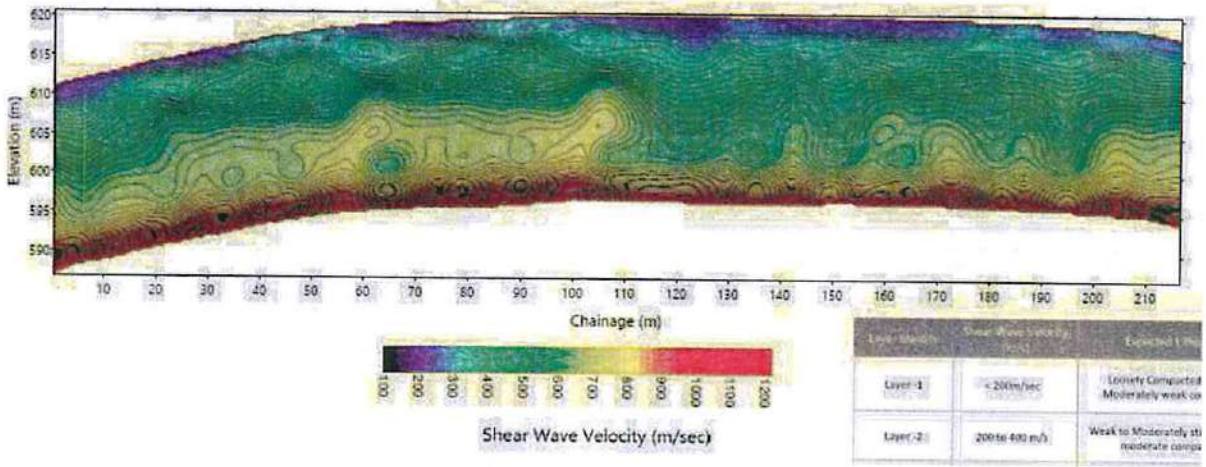


Figure 5.10 MASW analysis results of Line-12

160

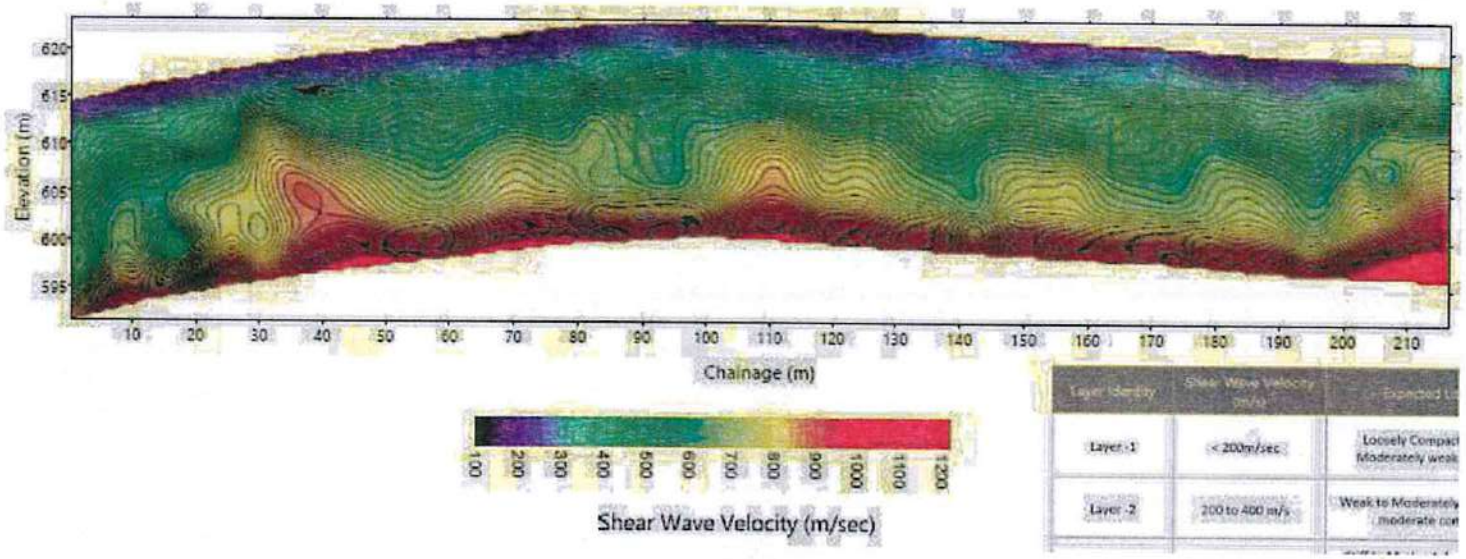


Figure 5.11 MASW analysis results of Line-13

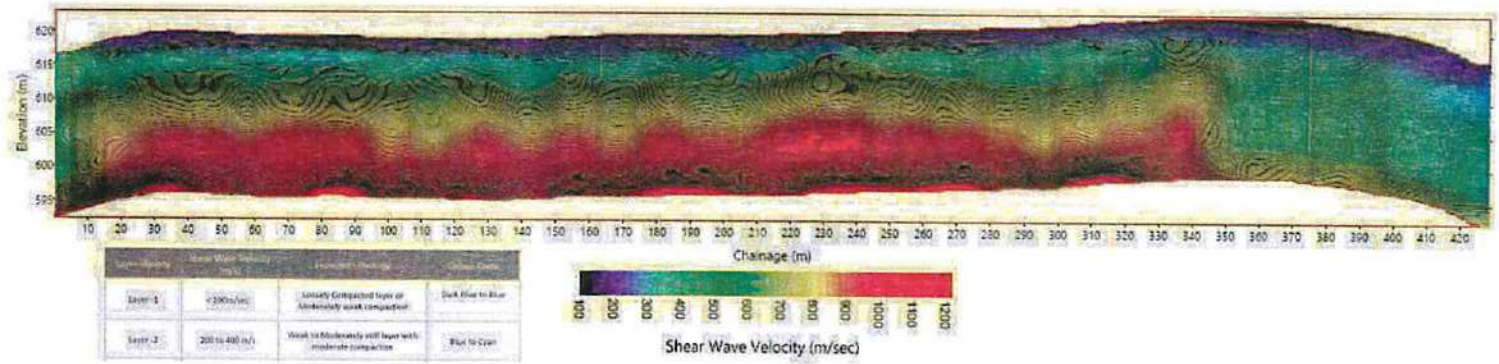


Figure 5.12 MASW analysis results of Line-14

191
27757

Details of the subsurface properties obtained from the MASW are listed in Table 5.2. It can be observed from Table 5.2 and Figure 5.1 to Figure ***5.12*** that the majority portion of the JLH contains loosely compacted material, which can be due to the (i) presence of a high percentage of leachates and (ii) undecomposed MSW.

Table 5.2 The expected lithology for corresponding shear wave velocities provided by FGTL

Layer Identity	Shear Wave Velocity (m/s)	Expected Lithology	Colour Code
Layer -1	< 200m/sec	Loosely Compacted layer or Moderately weak compaction	Dark Blue to Blue
Layer -2	200 to 400 m/s	Weak to Moderately stiff layer with moderate compaction	Blue to Cyan
Layer -3	400 to 750 m/s	Stiff to Moderately Strong graded layer with Moderately strong compaction	Cyan to Lemon Green
Layer -4	>750 m/s	Strong and highly compacted layer	Lemon Green to Red

Further, to identify the presence of leachate and the state of the MSW, 2D-ERT investigations were conducted and the results are presented in the following (Lines 1 to 14 in Figure 5.13 to 5.25).

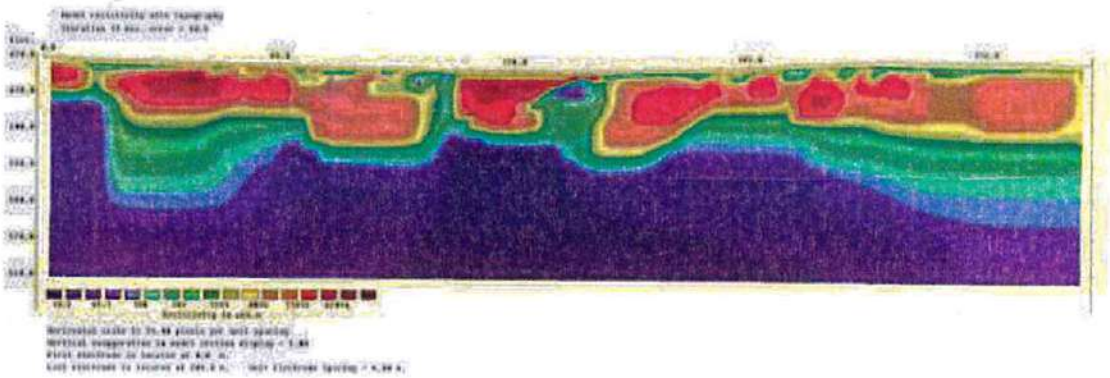


Figure 5.13 2D- electrical resistivity imaging map for Line-1

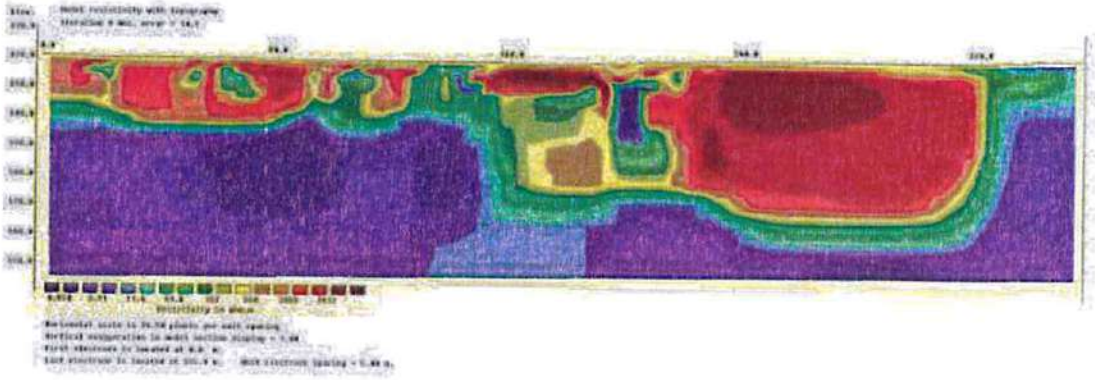


Figure 5.14 2D- electrical resistivity imaging map for Line-2

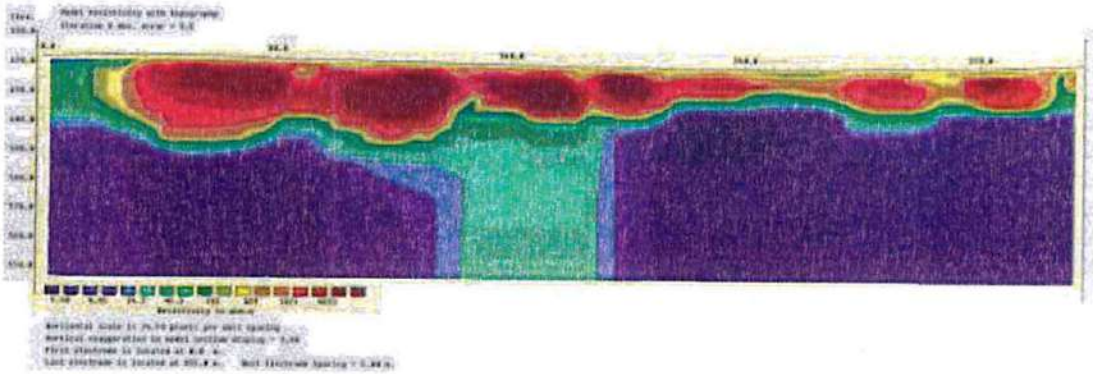


Figure 5.15 2D- electrical resistivity imaging map for Line-3

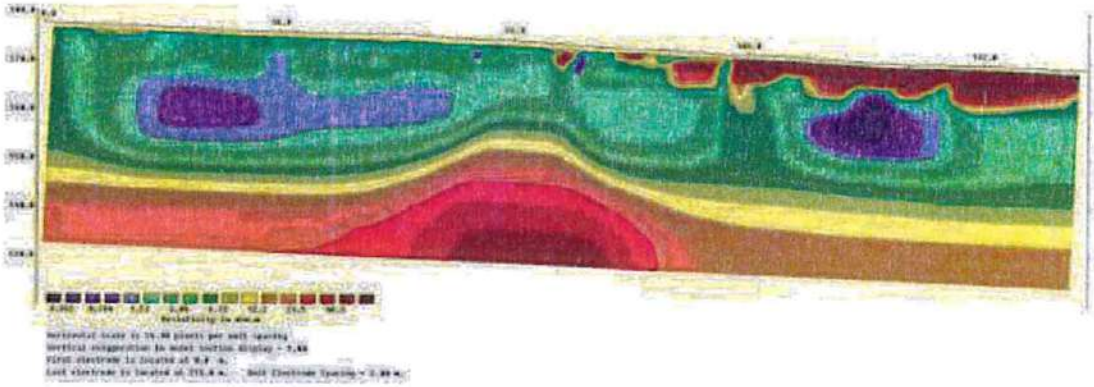


Figure 5.16 2D- electrical resistivity imaging map for Line-4

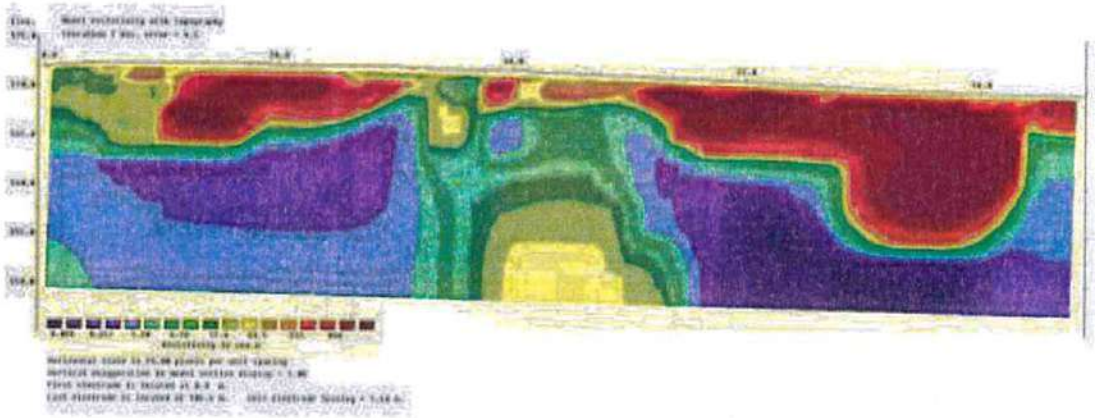


Figure 5.17 2D- electrical resistivity imaging map for Line-6

Figure 5.18 2D- electrical resistivity imaging map for Line-7

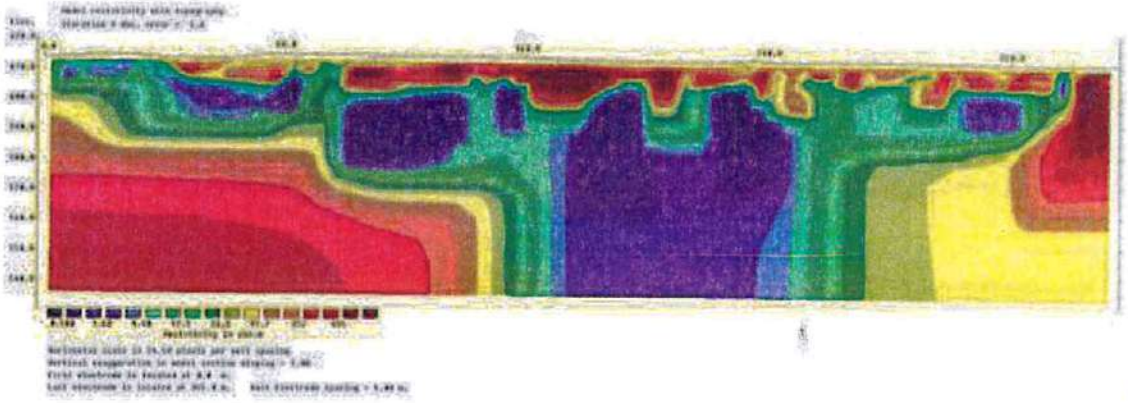


Figure 5.19 2D- electrical resistivity imaging map for Line-8

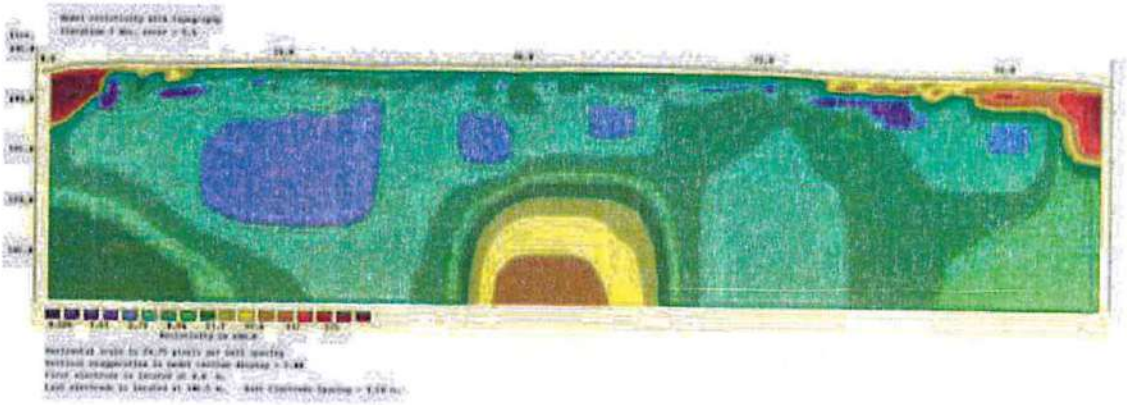


Figure 5.20 2D- electrical resistivity imaging map for Line-9

Figure 5.21 2D- electrical resistivity imaging map for Line-10

Figure 5.22 2D- electrical resistivity imaging map for Line-11

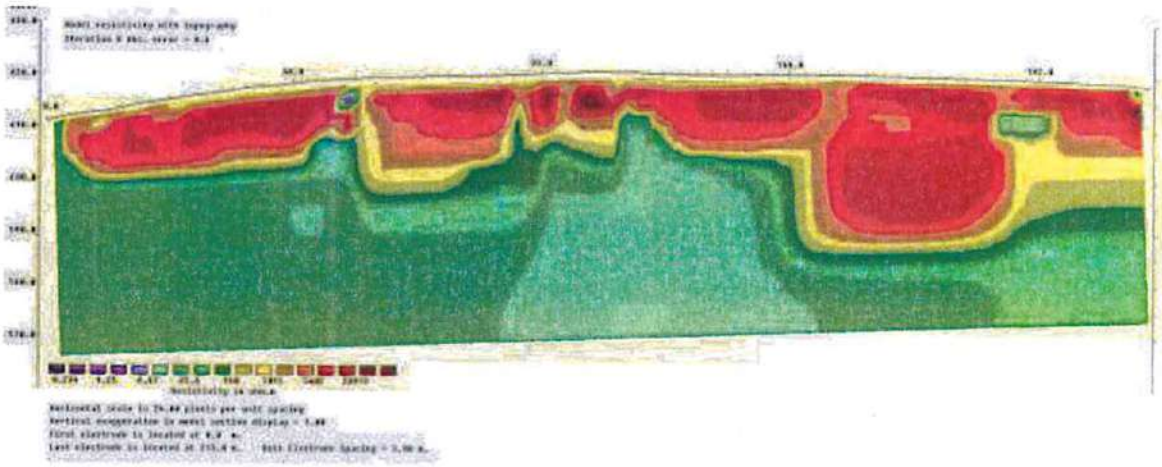


Figure 5.23 2D- electrical resistivity imaging map for Line-12

Figure 5.24 2D- electrical resistivity imaging map for Line-13

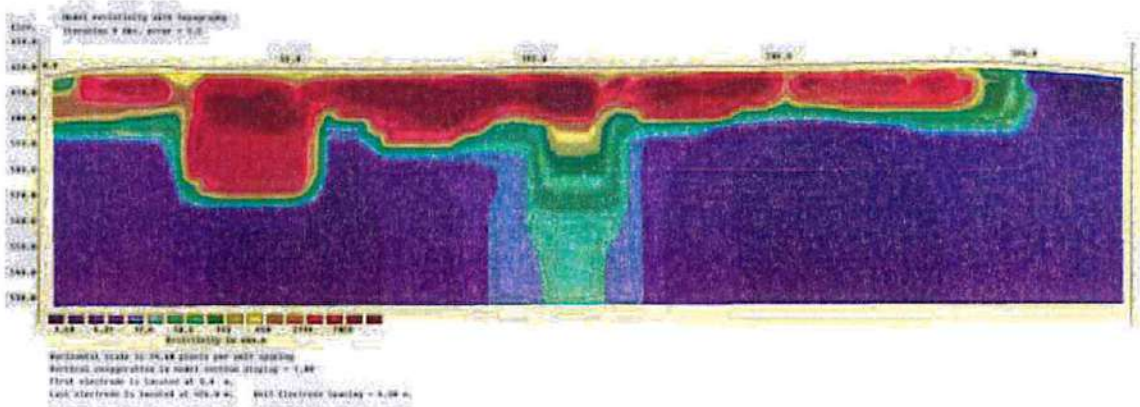


Figure 5.25 2D- electrical resistivity imaging map for Line-14

Based on the 2D ERT imaging results presented in Figures 5.13 to 5.25, it can be observed that the MSW at most of the locations of JLH possesses low electrical resistivity, which is indicative of the presence of saturated MSW with different salts and dissolved compounds. Moreover, Figures 5.12, 5.13, 5.15, 5.17 to 5.21 depict that the JLH consists of several isolated locations with extremely low electrical resistivity. Such isolated low-electrical resistivity locations could be due to the presence of saturated MSW, which is prone to decompose in due course, or conductive materials such as metals. This state of MSW will also be a root cause for the generation of combustible gases such as methane.

6. Details of the MSW sampling and on-site segregation

Before initiating sample collection, the soil cover, followed by geotextile, was removed carefully to avoid damage to the landfill cover system. Subsequently, a flight auger of ≈165 mm diameter attached to a drilling machine was inserted in the specific borehole location (refer to

Plate *6.1*a). Samples were collected from different depths, until the hard strata or the presence of liquid interface is encountered. Details of the borehole location, termination depth, and the number of samples collected are mentioned in Table 6.1. A total of 16 boreholes were executed to retrieve 150 samples. The samples thus obtained were removed manually from the auger (refer to

Plate *6.1*b-d) and sieved through a 10 mm sieve (refer to

Plate *6.2*a). Subsequently, the coarse- and fine- fractions were weighed and the data is tabulated in Table 6.2. These fractions were packed in airtight press-lock bags to prevent moisture loss, if any, (refer to

Plate *6.2*b and c). Subsequently, the airtight bags were packed and transported to IIT Bombay for further testing/analyses (refer to

Plate *6.2*d and f). Later, the boreholes were sealed by the landfill operator (refer to Plate 6.3).

Incidentally, during the sampling, a few of the boreholes released foam/bubbles/liquid (refer to Plate 6.4a to c), which are indicative of the presence of undecomposed MSW.

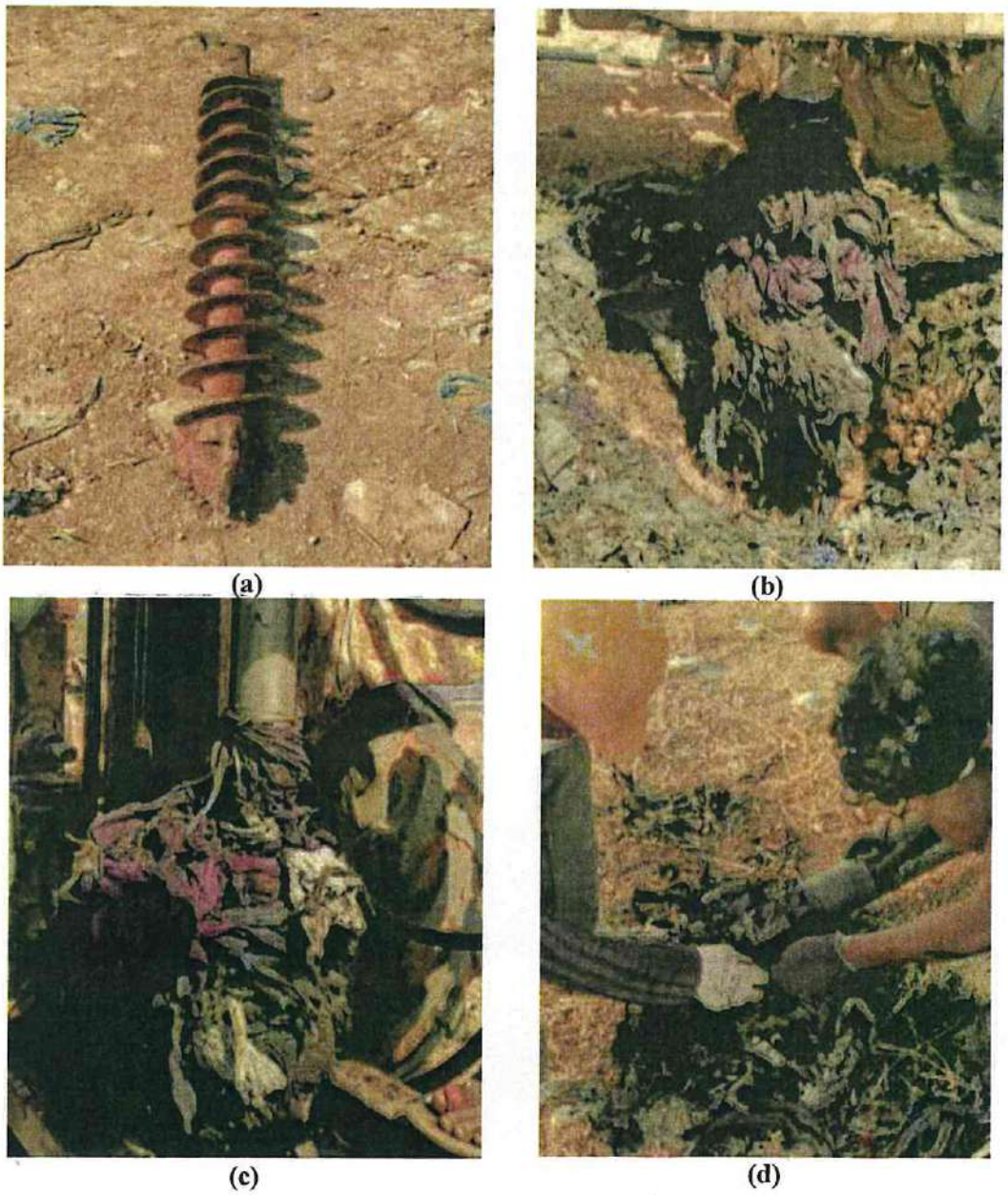


Plate 6.1 Images depicting the flight auger and the sample collection procedure

Table 6.1 Details of the boreholes and number of samples collected

BH	Location	Termination Depth (ft)	Depth till Sample Collected (ft)	Termination depth (m)	Nos. of Samples Retrieved
BH-1	Near Line 13 End	85.50	80	26.06	8
BH-2	Near Line 14 End	105.50	100	32.16	10
BH-3	Near Line 1 End	88.25	80	26.90	8
BH-4	Near Line 2 End	124.50	120	37.95	12
BH-5	Near Line 13 Start	104.50	100	31.85	10
BH-6	Near Line 12 Start	126.25	120	38.48	12
BH-7	Near Line 10 Start	127.50	120	38.86	12
BH-8	Near Line 14 Start	15.75	15	4.80	3
BH-9	Near Line 3 Start	15.50	15	4.72	3
BH-10	Near Line 2 Start / Centre	139.00	139	42.37	14
BH-11	Near Line 1 Start	138.50	130	42.21	13
BH-12	Near Line 10 End / Line 8 Centre	139.00	139	42.37	14
BH-13	Near Line 9 Centre	112.25	120	34.21	13
BH-14	Near Line 9 End	19.25	15	5.87	3
BH-15	Near Line 4 Centre	111.50	110	33.99	12
BH-16	Near Line 4 End	23.50	20	7.16	3
			Total depth	**449.96**	**150**

170

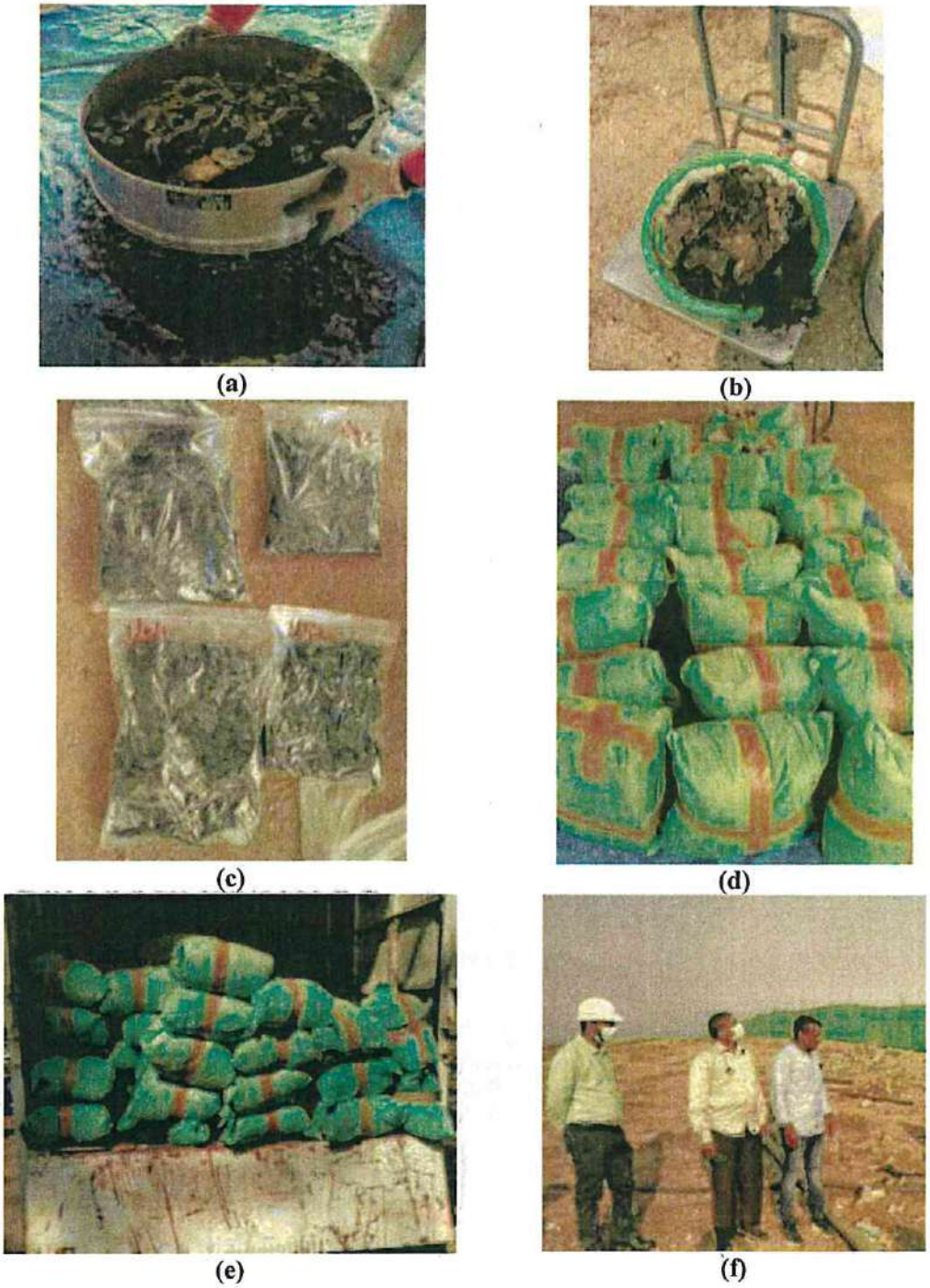


Plate 6.2 Images depicting the on-site segregation, weighing and packing of the samples being witnessed by the GHMC

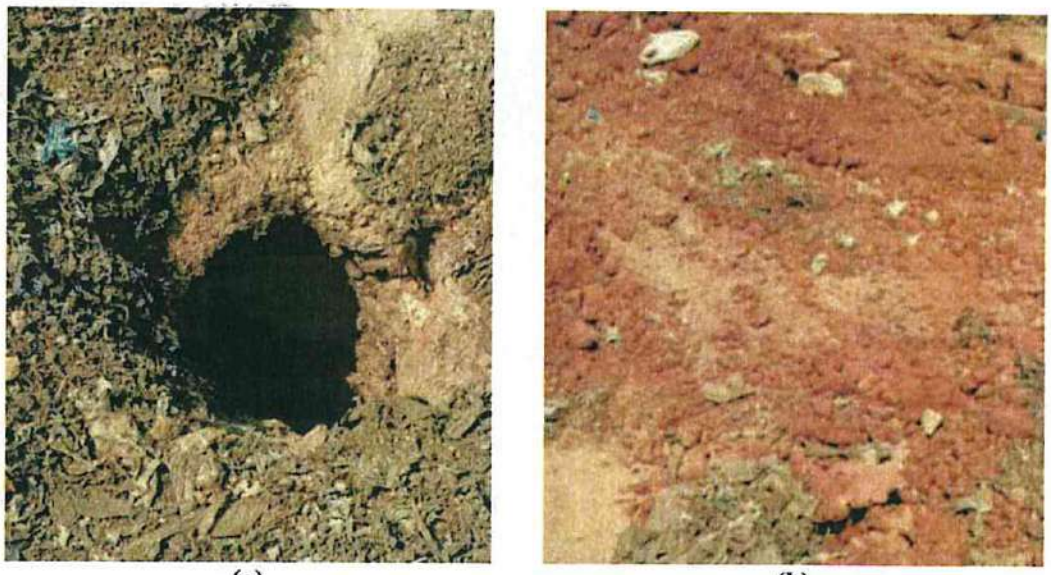
Table 6.2 Details of the coarse- and fine- samples obtained from the in-situ segregation

Sample No.	Depth (m)	Weight of sample (kg)			Percentage weight	
		Total	>10mm	<10mm	>10 mm	<10 mm
Borehole-01						
1	3	4.64	3.89	0.75	83.84	16.16
2	6	4.86	4.02	0.84	82.72	17.28
3	9	4.06	3.60	0.46	88.67	11.33
4	12	7.28	6.30	0.98	86.54	13.46
5	15	4.28	3.52	0.76	82.24	17.76
6	18	6.24	5.02	1.22	80.45	19.55
7	21	3.88	2.99	0.89	77.06	22.94
8	24	6.80	5.35	1.45	78.68	21.32
Borehole-02						
9	3	8	6.89	1.11	86.13	13.88
10	6	8.96	7.62	1.34	85.04	14.96
11	9	6.22	5.4	0.82	86.82	13.18
12	12	6.2	5.36	0.84	86.45	13.55
13	15	6.56	5.58	0.98	85.06	14.94
14	18	6.72	6.05	0.67	90.03	9.97
15	21	6.82	5.55	1.27	81.38	18.62
16	24	6.4	4.95	1.45	77.34	22.66
17	27	6.31	4.68	1.63	74.17	25.83
18	30	4.88	3.79	1.09	77.66	22.34
Borehole-03						
19	3	6.18	5.35	0.83	86.57	13.43
20	6	5.95	4.88	1.07	82.02	17.98
21	9	3.16	2.55	0.61	80.70	19.30
22	12	3.68	2.98	0.7	80.98	19.02
23	15	4.82	3.85	0.97	79.88	20.12
24	18	5.13	4.05	1.08	78.95	21.05
25	21	3.95	3.09	0.86	78.23	21.77
26	24	3.96	3.05	0.91	77.02	22.98
Borehole-04						
27	3	3.1	2.75	0.35	88.71	11.29
28	6	3.05	2.56	0.49	83.93	16.07
29	9	5.31	4.51	0.8	84.93	15.07
30	12	5.22	4.39	0.83	84.10	15.90
31	15	3.82	3.25	0.57	85.08	14.92
32	18	4.48	3.69	0.79	82.37	17.63
33	21	5.04	4.05	0.99	80.36	19.64
34	24	6.02	4.96	1.06	82.39	17.61
35	27	5.25	4.22	1.03	80.38	19.62

36	30	4.32	3.52	0.8	81.48	18.52
37	33	4.25	3.32	0.93	78.12	21.88
38	36	5.92	4.55	1.37	76.86	23.14
Borehole-05						
39	3	6.11	5.15	0.96	84.29	15.71
40	6	5.75	4.78	0.97	83.13	16.87
41	9	3.25	2.68	0.57	82.46	17.54
42	12	3.78	3.05	0.73	80.69	19.31
43	15	4.25	3.35	0.9	78.82	21.18
44	18	5.03	3.96	1.07	78.73	21.27
45	21	5.02	4.01	1.01	79.88	20.12
46	24	4.15	3.29	0.86	79.28	20.72
47	27	4.6	3.58	1.02	77.83	22.17
48	30	5.78	4.48	1.3	77.51	22.49
Borehole-06						
49	3	5.88	4.98	0.9	84.69	15.31
50	6	3.09	2.58	0.51	83.50	16.50
51	9	3.11	2.56	0.55	82.32	17.68
52	12	4.88	3.98	0.9	81.56	18.44
53	15	5.08	4.25	0.83	83.66	16.34
54	18	3.96	3.23	0.73	81.57	18.43
55	21	5.07	4.09	0.98	80.67	19.33
56	24	4.89	3.88	1.01	79.35	20.65
57	27	5.42	4.29	1.13	79.15	20.85
58	30	5.02	4.05	0.97	80.68	19.32
59	33	3.65	2.88	0.77	78.90	21.10
60	36	4.36	3.41	0.95	78.21	21.79
Borehole-07						
61	3	4.25	3.69	0.56	86.82	13.18
62	6	5.12	4.38	0.74	85.55	14.45
63	9	5.88	5.04	0.84	85.71	14.29
64	12	5.16	4.36	0.8	84.50	15.50
65	15	4.55	3.79	0.76	83.30	16.70
66	18	3.89	3.25	0.64	83.55	16.45
67	21	5.88	4.85	1.03	82.48	17.52
68	24	4.96	4.01	0.95	80.85	19.15
69	27	4.02	3.25	0.77	80.85	19.15
70	30	5.95	4.68	1.27	78.66	21.34
71	33	5.68	4.49	1.19	79.05	20.95
72	36	4.25	3.35	0.9	78.82	21.18
Borehole-08						
73	1.5	3.52	2.17	1.35	61.65	38.35
74	3	5.18	1.25	3.93	24.13	75.87

75	4.5	4.30	0.80	3.50	18.60	81.40
Borehole-09						
76	5	5.27	2.16	3.11	40.99	59.01
77	10	6.56	2.16	4.40	32.93	67.07
78	15	7.25	2.80	4.45	38.62	61.38
Borehole-10						
79	3	7.24	6.25	0.99	86.33	13.67
80	6	3.38	2.89	0.49	85.50	14.50
81	9	3.30	2.75	0.55	83.33	16.67
82	12	2.82	2.38	0.44	84.40	15.60
83	15	2.65	2.25	0.40	84.91	15.09
84	18	4.32	3.89	0.43	90.05	9.95
85	21	3.32	2.78	0.54	83.73	16.27
86	24	4.44	3.76	0.68	84.68	15.32
87	27	5.62	4.62	1.00	82.21	17.79
88	30	7.15	5.79	1.36	80.98	19.02
89	33	7.05	5.58	1.47	79.15	20.85
90	36	5.92	4.65	1.27	78.55	21.45
91	39	6.44	4.99	1.45	77.48	22.52
92	41.7	2.65	2.05	0.60	77.36	22.64
Borehole-11						
93	3	4.42	3.80	0.62	85.97	14.03
94	6	5.65	4.75	0.90	84.07	15.93
95	9	5.80	4.88	0.92	84.14	15.86
96	12	4.82	3.95	0.87	81.95	18.05
97	15	6.02	4.96	1.06	82.39	17.61
98	18	5.62	4.88	0.74	86.83	13.17
99	21	4.42	3.91	0.51	88.46	11.54
100	24	5.98	4.90	1.08	81.94	18.06
101	27	4.85	3.85	1.00	79.38	20.62
102	30	5.60	4.68	0.92	83.57	16.43
103	33	6.44	5.05	1.39	78.42	21.58
104	36	4.42	3.39	1.03	76.70	23.30
105	39	5.86	4.36	1.50	74.40	25.60
Borehole-12						
106	3	6.26	5.41	0.85	86.42	13.58
107	6	6.36	5.25	1.11	82.55	17.45
108	9	6.65	5.65	1.00	84.96	15.04
109	12	5.85	4.98	0.87	85.13	14.87
110	15	5.96	5.08	0.88	85.23	14.77
111	18	4.48	3.95	0.53	88.17	11.83
112	21	4.78	3.99	0.79	83.47	16.53
113	24	6.62	5.54	1.08	83.69	16.31

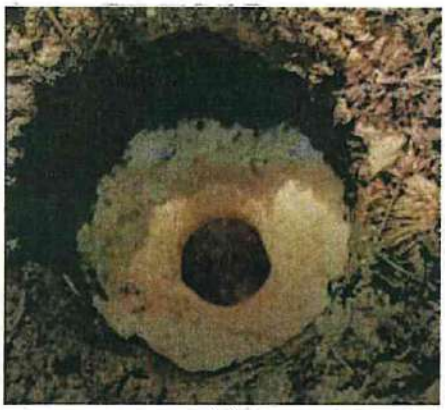
114	27	4.45	3.79	0.66	85.17	14.83
115	30	6.80	5.32	1.48	78.24	21.76
116	33	5.30	4.25	1.05	80.19	19.81
117	36	7.98	6.25	1.73	78.32	21.68
118	39	6.41	5.22	1.19	81.44	18.56
119	41.7	6.84	5.44	1.40	79.53	20.47
Borehole-13						
120	3	5.68	5.04	0.64	88.73	11.27
121	6	5.25	4.36	0.89	83.05	16.95
122	9	4.35	3.79	0.56	87.13	12.87
123	12	3.88	3.25	0.63	83.76	16.24
124	15	5.25	4.65	0.60	88.57	11.43
125	18	6.25	5.58	0.67	89.28	10.72
126	21	6.62	5.65	0.97	85.35	14.65
127	24	7.02	5.78	1.24	82.34	17.66
128	27	5.22	4.22	1.00	80.84	19.16
129	30	3.89	3.18	0.71	81.75	18.25
130	31.5	5.11	4.15	0.96	81.21	18.79
131	33	4.78	3.85	0.93	80.54	19.46
132	33.6	5.88	4.65	1.23	79.08	20.92
Borehole-14						
133	1.5	9.02	2.81	6.21	31.15	68.85
134	3	6.34	2.78	3.56	43.85	56.15
135	4.5	7.96	3.96	4.00	49.75	50.25
Borehole-15						
136	3	4.11	3.69	0.42	89.78	10.22
137	6	5.11	4.38	0.73	85.71	14.29
138	9	5.62	5.04	0.58	89.68	10.32
139	12	3.65	3.15	0.50	86.30	13.70
140	15	4.18	3.59	0.59	85.89	14.11
141	18	5.01	4.19	0.82	83.63	16.37
142	21	4.29	3.72	0.57	86.71	13.29
143	24	6.11	5.02	1.09	82.16	17.84
144	27	3.65	3.02	0.63	82.74	17.26
145	30	5.42	4.38	1.04	80.81	19.19
146	33	4.45	3.55	0.90	79.78	20.22
147	33.6	3.98	3.09	0.89	77.64	22.36
Borehole-16						
148	10	3.05	2.75	0.30	90.16	9.84
149	15	3.12	2.75	0.37	88.14	11.86
150	20	4.35	3.85	0.50	88.51	11.49



(a) (b)

Plate 6.3 The photographs depicting the borehole and its closure

(a) (b)



(c)

Plate 6.4 The photographs depicting the leachate and bubble formation and bursting by landfill gas emission the release of foam/bubbles/liquid from a typical borehole

7. Processing and characterization of the DMSW @ IIT Bombay Laboratory

The coarse fraction, i.e., >10 mm obtained from the site, was further segregated into plastics, textiles, residues (such as fine dirt and mixed waste) and stones, and the weight of each of these fractions was recorded. For this purpose, 1/3rd of the total samples available from each borehole were selected randomly. The coarse-fraction is particularly useful for subsequent estimation of calorific values. The photographs depicting the laboratory segregation process are mentioned in Plate 7.1. Subsequently, each fraction's total weight and percentage are mentioned in Table 7.1. From Table 7.1, it can be observed that a significant fraction of the coarse fraction is plastics, followed by residues and stones. However, it can be observed that combining all together (i.e., coarse- and fine- fractions), fine fractions and residues will be a large fraction that is prone to decomposition. Hence, subsequent characterization of these fractions is a must.

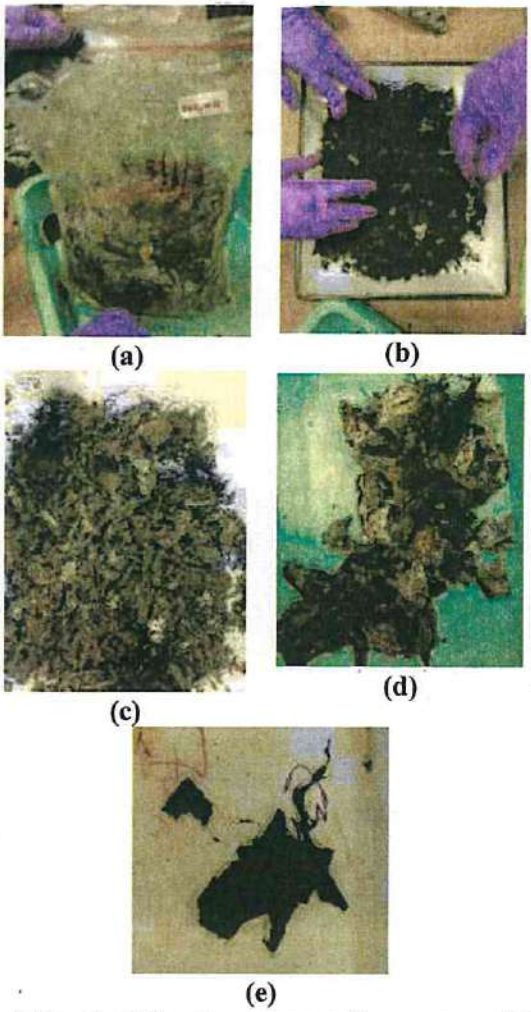


Plate 7.1 Images depicting the laboratory segregation process of the coarse-fractions

Table 7.1 Results obtained for the coarse-fractions of the MSW

BH	Depth (m)	Weight (g)					Percentage weight			
		Plastics	Textile	Residues	Stones	Total	Plastics	Textile	Residues	Stones
BH-01	12	234	157	772	0	1163	20.12	13.50	66.38	0.00
	15	308	163	890	0	1361	22.63	11.98	65.39	0.00
	24	445	177	1243	0	1865	23.86	9.49	66.65	0.00
	Avg	**329**	**166**	**968**	**0**	**1463**	**22.20**	**11.66**	**66.14**	**0.00**
BH-02	3	158	100	679	0	937	16.86	10.67	72.47	0.00
	6	263	202	858	0	1323	19.88	15.27	64.85	0.00
	9	437	104	463	0	1004	43.53	10.36	46.12	0.00
	12	411	104	333	0	848	48.47	12.26	39.27	0.00
	Avg	**317**	**128**	**583**	**0**	**1028**	**32.18**	**12.14**	**55.68**	**0.00**
BH-03	3	284	32	283	32	631	45.01	5.07	44.85	5.07
	21	364	108	30	0	502	72.51	21.51	5.98	0.00
	24	274	221	115	0	610	44.92	36.23	18.85	0.00
	Avg	**307**	**120**	**143**	**11**	**581**	**54.15**	**20.94**	**23.23**	**1.69**
BH-04	15	259	99	298	7	663	39.06	14.93	44.95	1.06
	27	333	79	6	0	418	79.67	18.90	1.44	0.00
	30	226	98	490	79	893	25.31	10.97	54.87	8.85
	36	194	385	87	0	666	29.13	57.81	13.06	0.00
	Avg	**253**	**165**	**220**	**22**	**660**	**43.29**	**25.65**	**28.58**	**2.48**
BH-05	15	245	96	322	0	663	36.95	14.48	48.57	0.00
	27	270	243	315	0	828	32.61	29.35	38.04	0.00
	30	292	57	58	0	407	71.74	14.00	14.25	0.00
	33	361	0	29	0	390	92.56	0.00	7.44	0.00
	Avg	**292**	**99**	**181**	**0**	**572**	**58.47**	**14.46**	**27.07**	**0.00**
BH-06	6	320	20	623	4	967	33.09	2.07	64.43	0.41
	9	244	30	667	149	1090	22.39	2.75	61.19	13.67
	18	659	34	56	0	749	87.98	4.54	7.48	0.00
	36	460	0	56	8	524	87.79	0.00	10.69	1.53
	Avg	**421**	**21**	**351**	**40**	**833**	**57.81**	**2.34**	**35.95**	**3.90**
BH-07	3	227	126	190	0	543	41.80	23.20	34.99	0.00
	12	362	37	822	52	1273	28.44	2.91	64.57	4.08
	18	329	84	723	141	1277	25.76	6.58	56.62	11.04
	27	606	87	152	0	845	71.72	10.30	17.99	0.00
	Avg	**381**	**84**	**472**	**48**	**985**	**41.93**	**10.75**	**43.54**	**3.78**
BH-08	15	22	7	315	431	775	2.84	0.90	40.65	55.61
BH-10	3	231	194	467	16	908	25.44	21.37	51.43	1.76
	6	24	816	23	0	863	2.78	94.55	2.67	0.00
	9	273	29	190	25	517	52.80	5.61	36.75	4.84
	15	178	53	264	41	536	33.21	9.89	49.25	7.65
	18	214	66	130	0	410	52.20	16.10	31.71	0.00

	Avg	**184**	**232**	**215**	**16**	**647**	**33.29**	**29.50**	**34.36**	**2.85**
BH-11	15	204	21	533	85	843	24.20	2.49	63.23	10.08
	18	167	189	475	0	831	20.10	22.74	57.16	0.00
	33	211	49	595	0	855	24.68	5.73	69.59	0.00
	36	232	80	715	0	1027	22.59	7.79	69.62	0.00
	Avg	**204**	**85**	**580**	**21**	**889**	**22.89**	**9.69**	**64.90**	**2.52**
BH-12	9	316	158	347	0	821	38.49	19.24	42.27	0.00
	15	340	59	169	0	568	59.86	10.39	29.75	0.00
	18	188	293	73	6	560	33.57	52.32	13.04	1.07
	24	189	212	354	0	755	25.03	28.08	46.89	0.00
	42	395	182	147	0	724	54.56	25.14	20.30	0.00
	Avg	**286**	**181**	**218**	**1**	**686**	**42.30**	**27.03**	**30.45**	**0.21**
BH-13	6	208	12	462	56	738	28.18	1.63	62.60	7.59
	21	427	61	111	0	599	71.29	10.18	18.53	0.00
	30	309	241	99	0	649	47.61	37.13	15.25	0.00
	39	483	110	223	0	816	59.19	13.48	27.33	0.00
	Avg	**357**	**106**	**224**	**14**	**701**	**51.57**	**15.61**	**30.93**	**1.90**
BH-14	6	270	92	255	3	620	43.55	14.84	41.13	0.48
	9	342	50	296	0	688	49.71	7.27	43.02	0.00
	21	433	64	111	0	608	71.22	10.53	18.26	0.00
	Avg	**348**	**69**	**221**	**1**	**639**	**54.82**	**10.88**	**34.14**	**0.16**
BH-15	12	164	432	137	29	762	21.52	56.69	17.98	3.81
	33	401	100	90	4	595	67.39	16.81	15.13	0.67
	Avg	**283**	**266**	**114**	**17**	**679**	**44.46**	**36.75**	**16.55**	**2.24**
BH-16	6	298	26	273	32	629	47.38	4.13	43.40	5.09
	9	330	56	31	0	417	79.14	13.43	7.43	0.00
	Avg	**314**	**41**	**152**	**16**	**523**	**63.26**	**8.78**	**25.42**	**2.54**
Avg							**42.74**	**16.68**	**37.80**	**2.78**

7.1 Characteristics of the fine-fractions

7.1.1 Moisture Content

Moisture content was determined by keeping the sample in an oven at 110±5°C and its weight loss was recorded intermittently. This procedure was followed until no further weight loss was observed as per the guidelines reported in the literature (ASTM International, 2020; Goli et al., 2022). The results obtained for different samples are listed in Table 7.2 (and in Tables A1 to A16).

Table 7.2 The moisture content of the fine-fractions

BH	Moisture content (%)		
	Avg (±SD)	Maximum	Minimum
BH-01	73.6±38.7	107.6±111.4	48.7±10.7
BH-02	62.4±28.3	75.7±22.2	43.4±7.3
BH-03	40.5±7.4	49.6±3.3	33.2±2
BH-04	50.4±12.3	72.6±2.6	34.7±2.2
BH-05	33.8±11.4	54.7±1.2	19.1±0.9
BH-06	30.7±12.1	55±1.2	20.6±1.1
BH-07	47.0±12.8	63.5±9.0	23.5±0.1
BH-08	10.50±5.80	15.6±1.20	4.30±0.30
BH-09	4.6±0.6	5.1±0.4	4.2±0.4
BH-10	42.5±11.5	60.9±3.6	29.4±3.5
BH-11	43.9±4.9	51.2±2.3	39.0±0.6
BH-12	50.5±7.5	63.1±6.3	41.6±8.7
BH-13	54.9±12.4	67.9±5.2	43.5±2.6
BH-14	20.6±9.3	25.8±0.9	7.4±9.6
BH-15	31.5±6.1	24.4±1.6	39.3±3.8
BH-16	31.2±10.2	42.0±1.6	21.7±9.4

From Table 7.2, it can be observed that the average moisture content of the fine-fractions varies between ≈ 4 and 74%, which is pretty high. In fact, the maximum moisture content of some of the samples is noticed to vary between 54 % to 108 %, which can be attributed to the presence of a very high amount of organic matter. It should be noted that the samples with such high moisture content will be prone to subsequent decomposition (Patil et al., 2017).

7.1.2 Organic Matter

The organic matter (OM) present in fine fractions was determined by resorting to the loss-on-ignition (LOI) test, as suggested by Goli et al. (2022). For this purpose, approx. 25 g of the oven-dried fine fraction was taken in a ceramic crucible and placed in a muffle. The muffle temperature was increased gradually to 440°C and maintained until no further change in the weight of the residue was observed. The results obtained from moisture content determination for all samples are mentioned in Table 7.3. Further, detailed experimental results were mentioned in Tables B1 to B16.

Table 7.3 Borehole-wise variation in the organic matter of fine fractions

Borehole No	Organic matter (%)		
	Avg (±SD)	Max	Min
BH-01	23.49±5.51	33.27±9.47	18.10±1.38
BH-02	25.28±4.63	31.13±0.62	19.64±0.71
BH-03	16.29±2.84	11.29±1.65	18.80±1.83
BH-04	20.53±2.96	17.55±1.49	25.54±3.28
BH-05	15.05±6.27	23.06±4.63	6.26±0.64
BH-06	12.49±4.08	20.65±1.50	8.08±1.83
BH-07	17.82±4.28	22.78±2.29	12.22±1.27
BH-08	4.46±0.81	5.45±0.17	3.89±0.18
BH-09	3.17±0.53	3.21±0.34	3.13±0.77
BH-10	16.83±7.27	36.46±4.51	9.74±0.48
BH-11	16.94±4.03	24.49±4.70	12.26±0.51
BH-12	17.31±3.08	20.32±1.15	14.04±2.56
BH-13	20.74±3.99	30.10±1.99	16.42±0.96
BH-14	8.22±3.61	11.26±1.98	1.63±0.23
BH-15	12.90±3.02	17.31±1.38	10.07±0.80
BH-16	14.58±2.12	15.94±1.02	12.88±2.23

Table 7.2 shows that the organic matter (OM) in fine fractions varied from 1.63±0.23 and 36.46±4.51%, with an average value of ≈20%. Such higher OM suggests that the DMSW is prone to further decomposition when exposed to an external environment. Moreover, the values suggest that the fine fraction is unsuitable for their utilization as structural fill material applications (Goli et al., 2022).

7.1.3 Specific Gravity

The specific gravity of the oven-dried fine fraction of the DMSW was measured by employing a helium gas pycnometer, as per the ASTM standard (ASTM D 5550, 2006). Approximately 20 g of the oven-dried sample was transferred into a pycnometer cell and He gas was purged to measure the volume of the solids. The average specific gravity of the fine fraction collected from each borehole is listed in Table 7.4, while the results for each sample are given in Tables C1 to C10.

Table 7.4 Borehole-wise variation in the specific gravity of fine fractions

Borehole No	Specific gravity		
	Average (±SD)	Max	Min
BH-01	2.26±0.03	2.36±0.02	2.15±0.04
BH-02	2.18±0.02	2.38±0.02	1.92±0.01
BH-03	2.23±0.01	2.34±0.01	2.07±0.01
BH-04	2.21±0.01	2.30±0.00	2.05±0.01
BH-05	2.31±0.02	2.47±0.02	2.13±0.04
BH-06	2.36±0.01	2.47±0.01	2.17±0.04
BH-07	2.28±0.01	2.41±0.02	2.17±0.02
BH-08	2.61±0.02	2.65±0.02	2.58±0.02
BH-09	2.67±0.01	2.69±0.01	2.66±0.01
BH-10	2.32±0.01	2.47±0.00	1.92±0.04
BH-11	2.30±0.01	2.37±0.00	2.18±0.01
BH-12	2.23±0.02	2.30±0.01	2.17±0.02
BH-13	2.26±0.01	2.31±0.02	2.19±0.01
BH-14	2.48±0.01	2.63±0.00	2.40±0.01
BH-15	2.48±0.00	2.46±0.00	2.38±0.00
BH-16	2.33±0.00	2.39±0.01	2.29±0.01

It can be observed that the overall average specific gravity of the fine fraction is 2.30±0.13, which is much lower as compared to the sands, silty clays, and moorum that are being used for structural fill applications. As such, the utilization of fine fractions as structural fill for the low-lying areas is not recommended. The reason being this material will not be getting properly compacted and will always be prone to long-term degradation.

7.1.4 Analysis of Leachates

The characteristics of leachates would help in evaluating the environmental suitability of the fine-fractions for different applications. In this context, the leaching characteristics were established by adopting the methodology developed by Goli et al. (2022). In this context, 10 g of sample was mixed with 200 mL of deionized water to attain a liquid-to-solid (*L/S*) ratio of 20 and stirred for 24 h on a magnetic stirrer. The supernatant was filtered through Whatman No. 42 ashless paper and the filtrate was tested for parameters like pH, electrical conductivity (EC), total dissolved solids (TDS) and salinity. Subsequently, the samples were analyzed for hardness, chlorides and other elements to test their concentrations. The leachate analysis was performed on 34 representative samples and the results are listed in Tables 7.5 and Table *7.6*.

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Table 7.5 The values of pH, EC, TDS, Salinity, Hardness and Chlorides for leachates of the representative samples from different bore-holes

BH	Depth (m)	Parameter							
		pH	EC (ms/cm)	TDS (mg/L)	Salinity (mg/L)	Hardness (mg/L)	Chlorides (mg/L)	TOC (mg/L)	TN (mg/L)
BH-01	12	7.56	1.754	968.5	983.1	400	496.51	144.58	38.97
BH-01	24	7.24	1.607	886.6	895.7	426.67	426.67	120.80	34.19
BH-02	15	7.30	1.261	795.9	695.4	413.33	331.97	107.45	29.96
BH-02	30	7.18	1.731	955.0	969.6	466.67	436.67	127.21	40.13
BH-03	12	7.26	1.142	630.9	627.8	600	280	92.32	36.87
BH-03	24	7.28	1.349	744.9	746.5	426.67	256.67	92.92	35.99
BH-04	12	7.22	1.118	617.1	613.1	506.67	396.70	83.63	32.93
BH-04	24	7.27	1.288	711.4	711.8	446.67	313.33	134.45	40.80
BH-04	36	7.33	1.239	683.6	683.2	400	346.67	116.25	33.92
BH-05	15	7.34	1.121	617.5	612.6	540	290	91.39	30.42
BH-05	30	7.50	0.933	515.4	509	346.67	296.67	79.92	28.89
BH-06	12	7.18	0.799	441.2	432.7	446.67	353.33	68.55	25.74
BH-06	24	7.08	1.507	832.7	838.5	486.67	363.33	92.22	37.14
BH-07	12	7.11	1.424	786	790.1	460	263.33	81.38	37.10
BH-07	24	7.14	1.021	563.7	558.7	340	280	104.84	28.93
BH-07	36	7.37	1.278	705.6	705.7	366.67	210	79.30	22.25
BH-08	06	7.38	0.610	337.2	328.4	466.67	140	38.19	27.76
BH-09	06	7.44	0.457	252.5	243.9	186.67	90	37.87	31.08
BH-10	15	7.37	0.972	563.3	530.4	480	180	76.91	39.89
BH-10	30	7.46	1.012	558.9	553.4	353.33	226.67	83.07	39.26
BH-10	42	7.33	1.592	879.1	888.2	466.67	430	120.83	43.86
BH-11	12	7.68	1.198	661.5	660.4	486.67	280	81.10	35.54
BH-11	24	7.36	1.720	645.4	644.2	480	267.67	54.32	30.69
BH-11	39	7.29	1.284	707.5	707.1	433.33	356.67	54.01	27.16
BH-12	15	6.98	1.293	714.4	715.3	313.33	396.67	85.65	29.16
BH-12	30	7.23	1.300	717.7	718.6	460	436.67	90.28	29.06
BH-12	42	7.25	1.426	787.8	792.5	393.33	530	121.70	39.17
BH-13	12	7.38	0.900	496.8	489.6	226.67	410	69.25	30.46
BH-13	24	7.42	1.366	753.5	755.1	513.33	413.33	93.72	31.49
BH-13	39	7.3	1.376	759.2	762.9	426.67	373.33	94.37	31.86
BH-14	09	7.6	0.636	351.1	342.7	160	167.67	36.81	29.71
BH-15	09	7.29	0.809	446.4	438.9	260	230	53.08	28.88
BH-16	06	7.36	1.110	612.6	609.6	406.67	260	100.29	46.38

Table 7.6 The concentration of leachable elements from the fine-fractions

BH	Depth (m)	Leachable elements concentration (in mg/L)												
		Al	Ba	Ca	Cr	Cu	Fe	K	Mg	Mn	Na	Ni	Zn	S
BH-01	12	0.08	0.01	16.74	BDL	0.16	0.24	101.29	6.79	0.03	320.25	0.04	0.09	21.68
BH-01	24	0.02	0.03	44.08	BDL	0.07	0.12	45.69	8.08	0.07	78.24	0.05	0.07	16.28
BH-02	15	BDL	0.04	25.89	BDL	0.03	0.04	15.41	4.61	BDL	28.38	BDL	0.04	12.98
BH-02	30	BDL	0.01	11.53	BDL	0.15	0.17	73.92	4.74	BDL	108.93	0.02	0.07	15.43
BH-03	12	0.02	0.02	30.02	0.01	0.33	0.22	234.88	9.65	0.05	204.98	0.05	0.21	29.20
BH-03	24	0.05	0.02	23.59	0.01	0.12	0.34	130.92	9.38	BDL	298.98	0.06	0.13	34.22
BH-04	12	0.01	0.03	29.99	0.01	0.13	0.23	116.84	10.01	BDL	222.14	0.04	0.09	37.73
BH-04	24	0.12	0.02	18.45	BDL	0.08	0.08	37.57	3.62	BDL	64.26	0.02	0.04	15.80
BH-04	36	0.02	0.05	63.62	BDL	0.04	0.08	69.41	10.96	0.01	110.59	0.04	0.07	37.43
BH-05	15	0.01	0.02	32.58	BDL	0.13	0.15	86.44	9.63	0.03	207.34	0.04	0.12	33.61
BH-05	30	0.04	0.02	25.53	0.01	0.12	0.30	115.58	7.69	0.02	301.89	0.04	0.12	25.99
BH-06	12	0.07	0.02	22.46	BDL	0.13	0.24	69.54	7.07	0.04	118.81	0.03	0.09	17.86
BH-06	24	0.03	0.03	36.29	BDL	0.08	0.09	64.25	7.89	BDL	101.40	0.03	0.10	19.77
BH-07	12	0.05	0.02	31.61	0.01	0.24	0.34	240.16	10.64	BDL	225.09	0.05	0.12	33.71
BH-07	24	0.06	0.02	36.70	BDL	0.06	0.09	84.07	11.70	0.05	125.90	0.03	0.10	38.28
BH-07	36	0.08	0.01	17.73	BDL	0.25	0.29	88.03	5.28	BDL	130.96	0.04	0.08	24.18
BH-08	06	0.06	0.02	24.06	0.01	0.12	0.37	117.23	7.56	0.03	153.11	0.04	0.12	14.78
BH-09	06	0.07	0.03	36.01	0.01	0.18	0.35	107.11	10.33	0.03	178.62	0.05	0.13	29.21
BH-10	15	0.04	0.03	55.16	BDL	0.22	0.17	109.47	8.67	0.02	199.06	0.04	0.09	40.08
BH-10	30	0.10	0.01	19.22	BDL	0.14	0.21	53.00	5.19	0.03	94.766	0.03	0.08	18.80
BH-10	42	0.03	0.04	39.93	BDL	0.04	0.07	89.45	11.89	BDL	247.20	0.03	0.05	34.41
BH-11	12	0.03	0.03	25.55	BDL	0.10	0.14	61.60	8.09	0.02	113.85	0.03	0.12	18.94
BH-11	24	0.04	0.02	18.48	BDL	0.13	0.24	124.15	5.88	0.02	222.82	0.04	0.11	14.22
BH-11	39	0.03	0.02	37.28	0.01	0.15	0.30	155.45	10.74	BDL	224.47	0.05	0.21	34.09
BH-12	15	0.03	0.02	37.68	BDL	0.17	0.28	110.55	11.10	BDL	218.72	0.06	0.16	21.06
BH-12	30	0.09	0.02	21.13	BDL	0.17	0.45	110.77	6.87	BDL	275.71	0.04	0.32	22.86
BH-12	42	0.03	0.03	40.33	BDL	0.10	0.16	92.18	9.08	0.04	282.03	0.04	0.14	31.92

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BH-13	12	0.02	0.02	36.04	0.01	0.13	0.22	114.72	11.87	0.02	229.52	0.04	0.13	31.05
BH-13	24	0.02	0.03	43.54	BDL	0.08	0.18	83.37	9.82	0.01	242.62	0.04	0.09	24.14
BH-13	39	0.04	BDL	20.61	BDL	0.06	0.21	97.20	7.50	BDL	271.77	0.04	0.07	27.53
BH-14	09	0.05	0.02	24.36	BDL	0.28	0.35	111.48	7.84	0.04	232.84	0.05	0.08	22.79
BH-15	09	0.05	0.02	24.68	BDL	0.28	0.35	112.12	7.80	0.04	194.93	0.05	0.08	22.76
BH-16	06	0.03	0.02	18.20	0.01	0.16	0.16	77.34	7.71	0.04	317.39	0.04	0.09	17.37

Note:

- BDL represents *below detection limit* (i.e., 0.01 mg/L)
- Concentrations of Ag, Co, Cd, Hg, Pb, Ti and Mo in all samples is BDL

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From these results, it can be observed that the concentrations of the leachable heavy metals are within the permissible limits as far as their disposal in land surface waters is concerned. However, the concentrations of metals like Na, K and Cl are high, indicating that the fine-fractions are contaminated with salts. Moreover, the higher concentration of S in all the samples can be attributed to the presence of decomposable organic matter in these fractions, which corroborates the findings from the organic matter determination test. Similarly, the TOC and TN concentrations also indicate the presence of leachable organic matter, which has a potential for further biological degradation due to microbial activities. Based on the characteristics of the leachate obtained from these fractions and the foam/bubble formation, it can also be opined that the leachate present in the JLH is yet to decompose. Hence, treating the leachates obtained from landfills using an appropriate treatment technique becomes mandatory.

7.2 The calorific value of the coarse-fractions

The calorific value of the coarse-fractions was obtained using a portable bomb calorimeter. For this purpose, 2 g of the oven-dried sample was shredded to a size of <10 mm and placed in the sample holder. Subsequently, the experiment was performed following the guidelines proposed in the literature (Goli et al., 2022). Approximately 75 randomly collected samples were tested to get a representative calorific value and ash content and the results are presented in Table 7.7.

Table 7.7 The calorific value and ash content of the coarse-fractions

BH	Depth (m)	Ash content (%)	Calorific Value (kCal/kg)
BH-01	03	37.77	2888.33
	09	37.59	1833.61
	12	54.03	3692.96
	15	28.90	1812.09
	18	41.09	2774.04
	21	36.32	1299.90
BH-02	03	57.93	1554.83
	06	32.70	2145.12
	09	41.07	2462.62
	12	42.05	2554.88
	15	53.18	5828.55
	18	40.02	3280.21
	24	24.67	3653.43
	27	38.27	756.91
	30	41.54	1056.45

BH-03	03	29.29	3198.43
	06	43.27	1292.39
	09	11.25	4579.96
	12	45.80	3344.65
	15	31.94	3528.52
	18	35.17	3184.88
	21	33.72	3288.56
	24	28.28	3328.54
BH-05	03	45.69	2704.60
	06	29.62	3707.45
	09	36.79	1954.29
	12	40.52	4083.77
	15	33.83	1457.86
	18	38.67	4743.62
	21	57.29	2253.79
	27	47.26	4974.84
	30	44.33	3361.18
	33	53.35	2209.93
BH-08	1.5	69.81	3989.55
	3.0	55.33	2142.39
	4.5	50.72	3796.90
BH-09	1.5	38.91	3092.25
	4.5	27.24	2393.13
BH-10	03	28.77	1147.96
	06	42.12	934.39
	09	44.06	3411.75
	12	28.13	2701.66
	15	30.41	3144.37
	18	38.79	5300.08
	21	35.24	2948.88
	24	11.86	1363.64
	27	25.27	3391.50
	30	37.15	3250.11
	33	42.18	1163.73
	36	43.07	2947.22
	39	53.36	2651.48
	41.7	44.46	2039.41
BH-12	03	33.49	3034.28
	09	47.78	3574.57
	15	40.63	3994.90
	18	37.35	3386.92
	21	23.21	4291.47

	24	42.78	4024.64
	27	33.39	1126.19
	30	48.88	2491.54
	33	38.00	2600.81
	36	45.45	2998.08
	39	45.95	2489.12
	41.70	39.28	3168.18
BH-13	03	30.26	4747.82
	06	39.12	1039.74
	09	26.18	1484.19
	15	23.37	3165.62
	18	13.39	3982.31
	21	11.62	4479.63
	24	42.79	5556.29
	27	54.31	3184.01
	30	21.80	3697.30
	31.5	31.68	3361.36
	33	50.42	2182.17
	33.6	50.97	4838.59

The data presented in Table 7.7 indicates that the calorific value of the coarse-fractions varies between 934 to 5556 kCal/kg and for most of the samples, this value is >1500 kCal/kg, which indicates their suitability as a refuse-derived fuel. However, it's noteworthy that the ash content of these samples is >20%, which is a big concern as per the guidelines laid down by the Ministry of Urban Affairs (2018).

8. Conclusions and the way forward

- MASW results indicate the presence of saturated and loosely compacted MSW up to greater depths, which confirms the presence of yet to stabilize MSW.
- ERT results indicate the presence of low-resistivity pockets in the MSW, which can be attributed to the presence of saturated or moist MSW (read the yet-to-decompose waste).
- The segregation of DMSW samples indicates the dominance of plastics and fine-fractions (<10 mm) of the waste matrix up to ≈40 % (each) by weight.
- The organic matter (up to 35%) and moisture content (>100%) of the fine-fractions are very high, which indicates their susceptibility to get decomposed in the long run.
- The specific gravity of the fine fractions is around 2.30, which makes it an unpreferred, if not unsuitable, material for infrastructural development (viz., making foundation pads, reclamation, etc.).
- The emission of foam/gas/leachate from the JLH indicates the ongoing decomposition of the MSW. **Hence, the biomining of JLH at this point in time is not recommended.**
- Though the calorific value of most of the samples of the coarse-fractions is >1500 kCal/kg, their ash content is also about 60%. Such a situation makes these fractions **unsuitable for their application as refuse-derived fuel**.
- Higher Na^+ concentration in fine-fractions would form sodic soil when used as a soil amending agent for agricultural applications.
- Higher TOC, TN and S concentrations in leachate generated from the fine-fractions indicate their potential for subsequent degradation. Hence, it becomes mandatory to **treat the leachates generated in the JLH** appropriately.
- Based on the present state of the decomposed MSW and foam observed during borehole drilling, it can be concluded that the waste is **yet to decompose. Hence, the JLH is not ready for biomining.**

Disclaimer

Results from these investigations are not valid forever, and hence cannot be employed to determine the time for initiation of biomining at the JLH. Periodic sampling followed by extensive testing should be performed to ascertain the threadiness of the JLH for biomining.

Appendix A

Table A.1 Moisture content analysis results for Borehole-01

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	23.01	28.50	26.39	62.5	58.8±8.8
	1B	24.73	30.38	28.53	48.8	
	1C	22.70	26.66	25.10	65.1	
6	2A	22.88	28.98	25.97	97.5	89.8±11.4
	2B	23.86	29.32	26.95	76.7	
	2C	22.68	26.38	24.57	95.3	
9	3A	20.99	28.31	25.42	65.3	64.7±14.5
	3B	35.23	40.19	38.00	78.8	
	3C	19.95	24.87	23.23	49.9	
12	4A	22.53	26.71	24.97	71.3	72.0±12.5
	4B	22.18	25.44	24.22	59.9	
	4C	22.72	26.92	24.99	84.8	
15	5A	21.64	25.66	23.82	84.4	85.9±6.3
	5B	24.80	29.70	27.34	92.8	
	5C	24.63	26.83	25.85	80.5	
18	6A	21.73	26.94	25.55	36.4	48.7±10.7
	6B	22.44	26.40	24.99	55.3	
	6C	25.90	29.87	28.47	54.4	
21	7A	21.99	27.66	25.36	68.3	61.2±11.7
	7B	21.88	26.00	24.67	47.7	
	7C	22.41	25.73	24.39	67.6	
24	8A	22.93	27.77	26.36	41.0	107.6±111.4
	8B	21.49	26.62	25.01	45.7	
	8C	22.97	29.48	24.91	236.3	
				Avg (±SD)	**73.6±38.7**	

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Table A.2 Moisture content analysis results for Borehole-02

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.75	28.08	26.32	49.5	57.0±10.9
	1B	22.60	30.24	27.63	52.1	
	1C	22.27	28.08	25.70	69.5	
6	2A	34.76	42.58	37.68	167.2	74.5±84.2
	2B	33.25	39.87	39.69	2.8	
	2C	35.29	44.82	41.50	53.5	
9	3A	35.35	56.75	51.99	28.7	53.4±24.0
	3B	37.08	62.36	53.40	54.9	
	3C	34.16	61.30	49.53	76.6	
12	4A	36.09	57.41	48.91	66.3	73.8±10.2
	4B	36.59	59.36	48.87	85.4	
	4C	22.98	35.27	30.23	69.7	
15	5A	23.85	37.29	32.79	50.3	52.6±2.5
	5B	23.32	40.84	34.60	55.3	
	5C	20.46	36.47	30.97	52.2	
18	6A	22.62	37.26	30.22	92.7	75.7±22.2
	6B	22.11	39.53	33.68	50.5	
	6C	23.62	40.12	32.59	83.9	
21	7A	27.31	44.12	35.16	114.3	73.4±35.6
	7B	16.07	26.33	22.92	49.7	
	7C	16.75	33.51	27.47	56.2	
24	8A	22.47	41.63	36.64	35.2	43.4±7.3
	8B	22.73	41.30	35.50	45.4	
	8C	22.56	47.08	38.97	49.4	
27	9A	22.34	37.85	31.95	61.4	63.5±9.1
	9B	21.02	33.43	28.18	73.4	
	9C	24.83	42.31	36.06	55.7	
30	10A	16.89	36.27	29.61	52.4	56.5±4.7
	10B	23.03	42.73	35.69	55.6	
	10C	20.52	35.55	29.82	61.7	
				Avg (±SD)	**62.4±28.3**	

Table A.3 Moisture content analysis results for Borehole-03

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	21.75	35.08	30.65	49.7	49.1±2.1
	1B	24.79	38.93	34.42	46.8	
	1C	23.89	36.42	32.20	50.8	
6	2A	19.97	32.04	28.07	49.1	45.8±3.0
	2B	21.51	35.99	31.64	43.0	
	2C	22.21	35.87	31.59	45.5	
9	3A	22.91	38.08	34.74	28.2	32.1±4.8
	3B	22.72	32.72	29.99	37.4	
	3C	22.03	34.96	31.94	30.6	
12	4A	22.95	39.30	34.88	37.0	37.2±1.6
	4B	22.71	35.07	31.82	35.7	
	4C	22.44	33.90	30.69	38.9	
15	5A	21.01	38.93	33.91	38.9	41.5±2.3
	5B	23.03	40.16	34.99	43.2	
	5C	24.75	40.38	35.72	42.5	
18	6A	21.66	41.15	36.35	32.6	33.2±2.0
	6B	22.99	39.98	35.90	31.6	
	6C	22.46	40.74	35.95	35.5	
21	7A	22.74	37.35	32.86	44.4	35.5±7.7
	7B	22.55	41.92	37.36	30.7	
	7C	25.92	42.24	38.33	31.5	
24	8A	24.65	45.31	38.16	52.9	49.6±3.3
	8B	21.91	37.42	32.29	49.3	
	8C	35.25	58.45	51.09	46.4	
				Avg (±SD)	**40.5±7.4**	

Table A.4 Moisture content analysis results for Borehole-04

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	23.62	42.48	38.46	27.1	27.7±0.5
	1B	22.76	39.44	35.80	27.9	
	1C	22.98	38.17	34.85	28.0	
6	2A	20.46	37.22	32.29	41.7	39.9±1.6
	2B	27.31	45.15	40.19	38.5	
	2C	16.78	35.71	30.35	39.5	
9	3A	22.10	39.56	35.27	32.6	34.7±2.2
	3B	22.59	40.11	35.61	34.6	
	3C	23.84	40.85	36.26	36.9	
12	4A	37.09	64.48	56.36	42.1	43.3±1.1
	4B	35.29	71.27	60.24	44.2	
	4C	36.09	63.85	55.42	43.6	
15	5A	34.16	66.94	55.14	56.3	56.8±5.5
	5B	33.27	64.61	52.55	62.5	
	5C	36.60	69.77	58.49	51.5	
18	6A	34.76	65.86	54.91	54.3	52.0±2.0
	6B	35.35	73.00	60.37	50.5	
	6C	16.09	28.72	24.44	51.3	
21	7A	23.35	42.28	35.98	49.9	54.1±3.6
	7B	22.30	41.74	34.77	55.9	
	7C	22.64	40.07	33.77	56.6	
24	8A	21.76	38.63	33.09	48.8	48.9±1.8
	8B	24.82	44.24	37.70	50.8	
	8C	23.92	48.55	40.65	47.3	
27	9A	21.53	41.90	35.03	50.9	54.4±5.1
	9B	23.04	42.56	35.87	52.2	
	9C	21.95	42.31	34.65	60.3	
30	10A	24.68	49.60	40.71	55.5	60.0±4.5
	10B	22.08	42.42	34.44	64.5	
	10C	23.37	49.06	39.43	60.0	
33	11A	23.88	45.71	36.59	71.7	72.6±2.6
	11B	22.51	50.59	38.97	70.6	
	11C	22.81	51.78	39.31	75.6	
36	12A	27.34	50.11	41.33	62.8	60.0±2.4
	12B	25.95	46.73	39.08	58.3	
	12C	23.07	52.56	41.62	58.9	
				Avg (±SD)	**50.4±12.3**	

Table A.5 Moisture content analysis results for Borehole-05

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.71	39.56	33.64	54.1	54.7±1.2
	1B	21.01	38.62	32.29	56.1	
	1C	22.21	40.40	34.03	53.8	
6	2A	24.76	46.00	39.00	47.9	46.4±2.5
	2B	23.91	40.38	35.38	43.6	
	2C	22.72	42.68	36.22	47.8	
9	3A	21.51	38.75	33.95	38.6	38.5±3.2
	3B	24.65	45.14	39.80	35.2	
	3C	23.03	41.35	35.97	41.6	
12	4A	22.92	39.89	35.47	35.2	38.2±3.7
	4B	22.04	38.97	34.08	40.6	
	4C	22.94	42.09	36.75	38.7	
15	5A	25.92	43.32	38.19	41.8	39.5±2.6
	5B	19.97	39.56	34.31	36.6	
	5C	22.54	38.56	33.98	40.1	
18	6A	22.44	49.01	44.03	23.1	24.1±1.4
	6B	21.91	43.04	38.72	25.7	
	6C	22.99	49.06	44.08	23.6	
21	7A	22.44	48.62	44.59	18.2	19.1±0.9
	7B	21.69	54.95	49.59	19.2	
	7C	21.75	50.21	45.48	19.9	
24	9A	22.46	46.91	42.24	23.6	21.8±2.5
	9B	24.79	49.05	45.18	18.9	
	9C	35.25	69.05	62.78	22.8	
27	10A	36.17	84.42	72.45	33.0	29.6±7.4
	10B	35.31	82.59	74.36	21.1	
	10C	35.35	85.64	72.70	34.6	
30	11A	36.67	79.40	70.79	25.3	26.0±0.8
	11B	34.80	79.29	69.89	26.8	
	11C	37.14	81.61	72.48	25.9	
				Avg (±SD)	**33.8±11.4**	

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Table A.6 Moisture content analysis results for Borehole-06

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.78	48.04	40.40	43.3	41.2±2.0
	1B	27.32	47.22	41.59	39.4	
	1C	23.63	46.74	40.04	40.8	
6	2A	34.18	73.99	64.92	29.5	26.5±2.9
	2B	35.31	75.45	67.74	23.8	
	2C	37.10	75.70	67.72	26.1	
9	3A	23.00	49.37	43.95	25.9	24.7±1.2
	3B	20.48	43.92	39.28	24.7	
	3C	22.65	48.72	43.75	23.6	
12	4A	35.37	83.99	75.53	21.1	21.1±0.2
	4B	33.29	78.75	70.91	20.8	
	4C	34.78	82.16	73.83	21.3	
15	5A	22.12	46.67	42.44	20.8	20.7±0.4
	5B	23.34	51.88	47.07	20.3	
	5C	22.31	46.82	42.57	21.0	
18	6A	36.11	82.60	74.32	21.7	21.6±0.0
	6B	36.62	85.59	76.89	21.6	
	6C	16.10	35.70	32.21	21.7	
21	7A	16.81	44.65	39.88	20.6	20.6±1.1
	7B	23.85	54.12	49.20	19.4	
	7C	22.62	47.07	42.73	21.6	
24	8A	33.33	66.72	54.79	55.6	55.0±1.2
	8B	35.41	78.58	63.51	53.6	
	8C	34.21	79.52	63.31	55.7	
27	9A	21.69	49.83	43.24	30.6	30.4±1.4
	9B	22.14	46.70	41.18	29.0	
	9C	22.72	42.66	37.86	31.7	
30	10A	22.23	45.35	41.66	19.0	20.8±5.4
	10B	16.15	31.42	29.26	16.5	
	10C	22.65	45.24	40.47	26.8	
33	11A	20.00	45.51	38.43	38.4	43.8±4.9
	11B	23.67	45.43	38.69	44.9	
	11C	22.67	47.28	39.29	48.1	
36	12A	22.69	54.11	43.63	50.1	48.2±1.8
	12B	22.99	49.30	40.95	46.5	
	12C	22.67	39.29	33.89	48.1	
				Avg (±SD)	**31.2±12.3**	

Table A.7 Moisture content analysis results for Borehole-07

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.78	37.38	31.77	62.4	59.2±3.0
	1B	22.99	40.24	33.85	58.9	
	1C	24.65	41.21	35.24	56.3	
6	2A	19.97	34.25	28.71	63.4	56.3±7.0
	2B	24.76	41.70	35.59	56.3	
	2C	20.99	43.78	36.25	49.3	
9	3A	22.54	41.08	34.79	51.3	48.4±2.6
	3B	24.79	41.99	36.49	47.0	
	3C	21.76	41.08	34.93	46.7	
12	4A	21.51	37.83	31.80	58.5	51.9±5.9
	4B	22.93	40.93	34.95	49.7	
	4C	22.20	37.74	32.74	47.4	
15	5A	21.67	43.93	36.72	47.9	45.6±2.0
	5B	22.05	37.64	32.84	44.5	
	5C	22.44	44.17	37.48	44.5	
18	6A	23.05	43.45	39.59	23.5	23.5±0.1
	6B	23.90	40.11	37.01	23.7	
	6C	21.92	42.90	38.91	23.4	
21	7A	22.71	40.97	35.81	39.4	41.2±2.6
	7B	22.70	45.20	38.78	40.0	
	7C	25.93	47.77	41.07	44.2	
24	8A	22.94	46.05	37.01	64.2	58.7±5.8
	8B	22.46	39.77	33.33	59.3	
	8C	35.25	70.35	58.26	52.6	
27	9A	25.95	53.94	46.44	36.6	36.4±0.6
	9B	23.93	49.80	42.99	35.8	
	9C	21.01	45.79	39.11	36.9	
30	10A	22.74	43.38	35.16	66.1	63.5±9.0
	10B	22.51	44.56	36.88	53.5	
	10C	24.69	46.41	37.39	70.9	
33	11A	23.07	51.34	45.11	28.3	28.2±1.9
	11B	23.39	44.50	39.63	30.0	
	11C	22.81	44.62	40.08	26.3	
36	12A	22.48	45.34	37.12	56.2	51.3±5.4
	12B	22.73	48.22	40.25	45.5	
	12C	24.84	46.54	39.09	52.2	
				Avg (±SD)	**47.0±12.8**	

Table A.8 Moisture content analysis results for Borehole-08

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
1.5	1A	23.86	30.54	29.63	15.8	11.5±6.0
	1B	22.77	46.31	45.26	4.7	
	1C	22.63	34.07	32.65	14.2	
3	2A	34.19	49.28	47.16	16.3	15.6±1.2
	2B	35.32	46.04	44.55	16.2	
	2C	35.26	47.93	46.36	14.2	
4.5	3A	22.06	35.13	34.63	4.0	4.3±0.3
	3B	22.99	34.07	33.58	4.6	
	3C	21.67	30.67	30.29	4.3	
				Avg (±SD)	**10.5±5.8**	

Table A.9 Moisture content analysis results for Borehole-09

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
1.5	1A	23.02	45.84	44.84	4.6	4.2±0.4
	1B	20.50	30.48	30.08	4.2	
	1C	34.78	47.90	47.42	3.8	
4.5	2A	23.65	31.93	31.50	5.5	5.1±0.4
	2B	22.32	30.77	30.39	4.7	
	2C	23.35	36.92	36.27	5.0	
				Avg (±SD)	**4.6±0.6**	

Table A.10 Moisture content analysis results for Borehole-10

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.74	27.39	25.58	64.1	60.9±3.6
	1B	24.66	31.71	29.15	57.0	
	1C	37.12	44.00	41.37	61.7	
6	2A	21.76	30.38	28.23	33.2	43.7±9.1
	2B	22.97	30.36	27.89	50.2	
	2C	23.01	29.11	27.15	47.5	
9	3A	22.20	29.04	27.22	36.4	41.7±5.1
	3B	22.44	40.07	34.47	46.5	
	3C	23.91	38.65	34.28	42.1	
12	4A	22.67	43.88	38.35	35.2	36.0±1.9
	4B	22.12	43.24	37.81	34.6	
	4C	19.98	42.30	36.14	38.1	

15	5A	22.55	48.68	42.61	30.3	29.5±0.6
	5B	24.79	51.79	45.71	29.0	
	5C	23.06	47.53	41.98	29.3	
18	6A	21.01	39.65	34.95	33.7	33.1±0.9
	6B	27.33	46.18	41.46	33.4	
	6C	25.93	45.33	40.63	32.0	
21	7A	22.48	45.56	38.47	44.3	42.3±4.8
	7B	21.92	45.59	39.21	36.9	
	7C	16.84	32.75	27.75	45.8	
24	8A	21.52	44.11	38.63	32.1	29.6±3.3
	8B	22.71	45.80	40.33	31.0	
	8C	24.78	53.66	47.74	25.8	
27	9A	16.13	34.65	28.19	53.5	45.7±10.3
	9B	36.64	56.30	49.78	49.6	
	9C	33.32	55.61	49.95	34.1	
30	10A	36.14	62.46	56.74	27.8	29.4±3.5
	10B	35.38	64.01	56.84	33.4	
	10C	22.71	45.31	40.52	26.9	
33	11A	22.34	43.35	35.99	53.9	41.9±12.7
	11B	14.84	40.40	34.72	28.5	
	11C	24.68	44.25	38.34	43.3	
36	12A	23.08	48.21	40.26	46.3	59.5±11.5
	12B	20.55	33.51	28.41	64.9	
	12C	22.52	40.56	33.30	67.4	
39	13A	22.82	43.89	36.67	52.1	50.0±5.2
	13B	23.39	42.32	35.70	53.8	
	13C	22.09	41.12	35.30	44.0	
41.7	14A	21.02	40.67	34.19	49.1	51.1±11.7
	14B	23.88	41.32	35.32	52.5	
	14C	21.54	41.33	34.59	51.6	
				Avg (±SD)	**42.5±11.5**	

Table A.11 Moisture content analysis results for Borehole-11

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.34	46.22	39.56	38.7	40.5±2.1
	1B	23.37	48.29	40.82	42.8	
	1C	22.72	39.23	34.50	40.1	
6	2A	23.08	48.80	41.47	39.9	39.0±0.8
	2B	20.51	39.62	34.28	38.8	
	2C	25.93	46.29	40.64	38.4	
9	3A	23.92	41.87	36.14	46.8	46.2±1.0
	3B	21.03	40.49	34.30	46.6	
	3C	22.23	43.45	36.87	45.0	
12	4A	21.95	40.23	34.32	47.8	46.8±2.1
	4B	22.07	42.11	35.95	44.3	
	4C	16.89	33.89	28.37	48.1	
15	5A	22.13	47.43	39.60	44.8	39.2±5.0
	5B	21.76	45.70	39.50	34.9	
	5C	24.80	48.37	41.88	38.0	
18	6A	22.47	40.01	35.10	38.9	39.0±0.6
	6B	23.68	46.39	40.07	38.5	
	6C	22.65	43.73	37.75	39.7	
21	7A	20.00	41.45	35.49	38.4	39.7±1.8
	7B	23.02	41.89	36.33	41.8	
	7C	24.81	43.32	38.12	39.0	
24	8A	23.67	44.46	38.07	44.4	43.7±0.9
	8B	21.55	42.15	35.98	42.7	
	8C	22.34	45.35	38.33	43.9	
27	9A	37.14	65.43	55.82	51.4	50.6±4.5
	9B	34.31	63.15	54.09	45.8	
	9C	35.41	67.61	56.23	54.6	
30	10A	34.81	65.65	55.35	50.1	48.2±1.9
	10B	35.32	60.47	52.31	48.0	
	10C	36.49	71.76	60.59	46.3	
33	11A	22.09	43.82	37.21	43.7	42.3±1.7
	11B	23.04	46.52	39.50	42.6	
	11C	20.01	38.04	32.84	40.5	
36	12A	21.76	39.92	34.69	40.4	44.6±5.7
	12B	22.95	46.92	38.81	51.1	
	12C	35.35	63.81	55.35	42.3	
39	13A	36.18	70.78	59.09	51.0	51.2±2.3
	13B	25.39	45.93	39.17	49.0	
	13C	36.67	77.32	63.15	53.6	
				Avg (±SD)	**43.9±4.9**	

Table A.12 Moisture content analysis results for Borehole-12

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.72	40.65	35.01	45.9	49.5±4.0
	1B	23.00	39.88	34.35	48.8	
	1C	21.68	38.91	32.89	53.7	
6	2A	23.76	38.70	33.49	53.5	50.5±2.6
	2B	24.81	40.46	35.33	48.7	
	2C	22.23	45.17	37.60	49.3	
9	3A	21.02	41.49	34.38	53.2	50.6±2.3
	3B	21.53	42.09	35.31	49.2	
	3C	19.98	42.50	35.06	49.3	
12	4A	22.49	43.63	37.15	44.2	44.8±1.6
	4B	24.66	46.75	39.72	46.7	
	4C	22.34	43.22	36.88	43.6	
15	5A	22.13	42.40	35.97	46.5	48.3±4.2
	5B	23.07	44.99	37.39	53.0	
	5C	23.66	51.47	42.80	45.3	
18	6A	22.94	46.41	39.20	44.4	51.5±6.4
	6B	21.76	41.72	34.79	53.2	
	6C	22.72	42.85	35.55	56.9	
21	7A	22.81	42.86	36.22	49.5	47.4±2.1
	7B	23.87	47.18	39.92	45.2	
	7C	16.14	29.74	25.36	47.5	
24	8A	34.20	70.72	59.59	43.8	43.4±1.2
	8B	35.34	69.07	58.71	44.3	
	8C	36.68	79.15	66.60	42.0	
27	9A	23.93	46.47	39.05	49.1	51.4±2.5
	9B	23.67	45.97	38.44	50.9	
	9C	25.95	50.85	42.11	54.0	
30	10A	22.99	45.56	37.47	55.8	63.1±6.3
	10B	22.73	46.77	37.24	65.7	
	10C	22.69	46.59	36.95	67.6	
33	11A	21.76	41.75	34.39	58.3	62.0±5.5
	11B	22.73	40.67	33.39	68.3	
	11C	22.56	44.46	36.31	59.3	
36	12A	27.34	44.80	38.01	63.7	59.2±4.6
	12B	21.68	47.84	38.62	54.5	
	12C	20.00	38.43	31.57	59.4	
39	13A	35.32	68.30	58.98	39.4	41.6±8.7
	13B	37.14	70.69	62.15	34.1	
	13C	34.80	73.89	60.65	51.2	
41.7	14A	33.33	75.21	62.25	44.8	44.6±0.9
	14B	35.35	72.61	60.99	45.4	
	14C	35.41	73.78	62.14	43.5	
				Avg (±SD)	**50.5±7.5**	

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Table A.13 Moisture content analysis results for Borehole-13

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	23.00	44.74	37.98	45.1	44.0±1.0
	1B	23.35	48.16	40.69	43.0	
	1C	22.55	44.24	37.62	44.0	
6	2A	25.93	46.31	39.57	49.5	45.6±3.4
	2B	22.68	45.41	38.52	43.5	
	2C	22.64	45.16	38.30	43.8	
9	3A	20.51	41.11	34.91	43.0	43.5±2.6
	3B	24.73	44.57	38.31	46.3	
	3C	22.07	46.16	39.13	41.2	
12	4A	21.93	43.54	36.75	45.8	45.5±1.6
	4B	22.46	39.85	34.56	43.8	
	4C	23.03	43.27	36.81	46.9	
15	5A	16.85	38.47	32.06	42.2	45.0±2.8
	5B	27.33	47.18	40.75	47.9	
	5C	23.91	43.46	37.42	44.8	
18	6A	33.32	78.35	63.91	47.2	47.5±1.0
	6B	37.12	80.07	66.02	48.6	
	6C	35.29	81.71	66.94	46.7	
21	7A	35.39	74.99	63.13	42.7	46.1±3.1
	7B	35.79	71.83	60.39	46.5	
	7C	36.16	76.79	63.45	48.9	
24	8A	22.99	44.41	35.33	73.7	67.9±5.2
	8B	16.93	43.99	33.21	66.2	
	8C	22.15	38.82	32.33	63.7	
27	9A	22.57	43.69	35.51	63.1	64.0±1.0
	9B	23.02	43.96	35.79	63.9	
	9C	23.54	57.68	44.22	65.1	
30	10A	23.88	56.88	44.66	58.8	56.2±5.7
	10B	27.34	60.69	49.63	49.6	
	10C	20.54	44.50	35.51	60.1	
31.5	11A	22.65	49.39	39.89	55.1	55.6±2.4
	11B	34.20	75.96	60.58	58.3	
	11C	35.84	67.59	56.52	53.5	
33	12A	21.94	38.07	30.69	84.4	80.0±4.8
	12B	22.82	41.73	33.28	80.8	
	12C	24.81	61.91	46.03	74.9	
33.6	13A	16.15	38.96	29.15	75.4	72.3±2.8
	13B	21.68	50.30	38.53	69.9	
	13C	22.24	53.75	40.61	71.6	
				Avg (±SD)	**54.9±12.4**	

Table A.14 Moisture content analysis results for Borehole-14

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
1.5	1A	34.19	93.09	88.01	9.4	22.6±12.8
	1B	35.39	99.19	82.64	35.0	
	1C	33.32	88.88	78.37	23.3	
3	2A	37.13	91.48	79.99	26.8	25.8±0.9
	2B	36.18	94.94	83.00	25.5	
	2C	34.80	94.76	82.72	25.1	
4.5	3A	35.40	87.20	77.99	21.6	21.7±0.4
	3B	36.68	93.11	83.17	21.4	
	3C	35.29	92.80	82.38	22.1	
6	4A	21.69	49.80	44.18	25.0	25.6±0.8
	4B	23.87	49.20	43.90	26.5	
	4C	22.68	48.14	42.99	25.3	
9	5A	27.34	57.13	56.68	1.5	7.4±9.6
	5B	22.98	48.07	44.16	18.5	
	5C	22.77	61.59	60.77	2.2	
				Avg (±SD)	**20.6±9.3**	

Table A.15 Moisture content analysis results for Borehole-15

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	36.49	90.92	80.05	25.0	24.4±1.6
	1B	35.84	84.40	74.49	25.6	
	1C	34.31	89.28	79.12	22.7	
6	2A	25.39	54.47	48.69	24.8	27.3±2.5
	2B	22.83	52.18	45.91	27.1	
	2C	20.63	46.91	40.86	29.9	
9	3A	23.54	52.12	45.10	32.5	30.5±1.8
	3B	22.95	49.64	43.52	29.8	
	3C	22.77	52.99	46.19	29.1	
12	4A	21.94	46.67	40.45	33.6	36.2±2.2
	4B	22.48	46.98	40.33	37.3	
	4C	22.08	44.27	38.19	37.7	
15	5A	23.02	47.02	40.70	35.7	39.3±3.8
	5B	16.92	41.96	34.94	38.9	
	5C	23.03	45.18	38.48	43.4	
				Avg (±SD)	**31.5±6.1**	

Table A.16 Moisture content analysis results for Borehole-16

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Moisture content (%)	Avg. (±SD) Moisture content (%)
3	1A	22.50	48.28	43.60	22.2	21.7±9.4
	1B	23.04	50.46	47.51	12.1	
	1C	22.95	47.18	41.45	30.9	
4.5	2A	21.54	40.29	34.73	42.1	42.0±1.6
	2B	22.56	46.48	39.23	43.5	
	2C	22.81	48.94	41.43	40.4	
6	3A	22.74	46.04	41.10	26.9	29.9±3.2
	3B	24.67	49.79	43.53	33.2	
	3C	16.15	32.97	29.12	29.7	
				Avg (±SD)	**31.2±10.2**	

Appendix B

Table B.1 Organic matter results for Borehole-01

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	93.86	97.84	97.08	19.04	21.52±2.92
	1B	105.87	108.98	108.21	24.74	
	1C	101.33	105.48	104.62	20.79	
6	2A	93.96	97.13	96.43	22.22	22.15±1.02
	2B	101.33	105.60	104.70	21.09	
	2C	105.86	108.22	107.67	23.13	
9	3A	96.32	100.25	99.52	18.46	18.10±1.38
	3B	102.42	105.47	104.88	19.28	
	3C	109.74	113.36	112.76	16.58	
12	4A	102.42	105.37	104.72	21.92	22.05±2.61
	4B	96.33	99.87	99.00	24.72	
	4C	109.74	114.12	113.26	19.51	
15	5A	96.32	100.03	99.10	25.12	25.17±1.45
	5B	102.42	106.19	105.19	26.65	
	5C	109.74	113.32	112.47	23.75	
18	6A	101.33	104.68	103.68	29.81	33.27±9.47
	6B	93.96	96.42	95.34	43.98	
	6C	105.87	111.13	109.76	26.02	
21	7A	102.43	106.60	105.78	19.77	22.14±5.71
	7B	96.32	100.12	99.44	18.00	
	7C	109.74	111.91	111.29	28.65	
24	8A	101.33	104.69	103.85	24.97	23.57±1.26
	8B	105.87	108.72	108.06	23.20	
	8C	93.97	98.50	97.48	22.54	
				Avg (±SD)	**23.49±5.51**	

Table B.2 Organic matter results for Borehole-02

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	93.96	96.40	95.93	19.35	19.64±0.71
	1B	101.33	103.48	103.07	19.11	
	1C	105.87	107.99	107.56	20.45	
6	2A	102.43	105.33	104.74	20.20	21.05±2.14
	2B	96.33	98.98	98.47	19.46	
	2C	109.75	112.50	111.85	23.48	
9	3A	93.97	97.03	96.22	26.30	28.13±4.04
	3B	101.33	104.00	103.13	32.76	
	3C	105.87	108.87	108.11	25.33	
12	4A	109.74	113.03	112.09	28.54	26.881.98
	4B	96.33	99.41	98.65	24.68	
	4C	102.43	105.99	105.01	27.42	
15	5A	101.33	105.21	104.44	19.71	22.92±4.84
	5B	105.86	109.67	108.88	20.56	
	5C	93.96	97.23	96.30	28.49	
18	6A	105.86	108.63	107.85	28.15	30.75±2.25
	6B	93.96	96.57	95.74	32.02	
	6C	101.33	104.39	103.40	32.07	
21	7A	93.96	97.37	96.56	23.92	25.68±2.55
	7B	101.33	104.06	103.28	28.61	
	7C	105.88	107.97	107.46	24.51	
24	8A	101.33	104.17	103.57	21.10	19.87±1.45
	8B	105.87	109.40	108.69	20.23	
	8C	93.97	97.64	96.97	18.27	
27	9A	102.42	105.37	104.64	24.62	26.80±2.20
	9B	96.33	99.83	98.89	26.77	
	9C	109.75	112.38	111.61	29.01	
30	10A	105.87	109.33	108.23	31.84	31.13±0.62
	10B	101.33	103.85	103.08	30.69	
	10C	93.96	97.53	96.43	30.87	
				Avg (±SD)	**25.28±4.63**	

Table B.3 Organic matter results for Borehole-03

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	93.97	97.74	97.03	18.64	17.31±1.16
	1B	101.34	105.12	104.49	16.50	
	1C	105.87	109.62	108.99	16.80	
6	2A	109.75	113.55	112.84	18.57	19.10±0.89
	2B	102.43	106.60	105.83	18.60	
	2C	96.36	100.19	99.42	20.13	
9	3A	93.97	98.05	97.44	14.76	14.88±1.66
	3B	105.87	109.16	108.72	13.29	
	3C	101.34	105.15	104.51	16.60	
12	4A	109.75	113.51	112.85	17.54	18.81±1.83
	4B	102.43	105.64	104.97	20.90	
	4C	96.32	99.72	99.11	17.97	
15	5A	102.43	105.99	105.39	16.88	17.12±0.87
	5B	109.75	113.43	112.83	16.40	
	5C	96.33	100.60	99.83	18.08	
18	6A	101.34	105.26	104.75	13.14	11.30±1.65
	6B	105.87	111.06	110.50	10.81	
	6C	93.97	98.70	98.23	9.94	
21	7A	102.43	106.42	105.93	12.33	13.96±1.41
	7B	109.75	113.93	113.32	14.72	
	7C	96.33	100.27	99.69	14.84	
24	8A	105.87	109.44	108.83	17.06	17.81±1.71
	8B	101.34	105.75	105.02	16.60	
	8C	93.97	98.71	97.78	19.77	
				Avg (±SD)	**16.29±2.84**	

Table B.4 Organic matter results for Borehole-04

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	105.87	109.28	108.68	17.68	17.55±1.49
	1B	93.96	96.84	96.38	16.00	
	1C	101.33	104.49	103.89	18.97	
6	2A	102.42	105.94	105.20	21.04	20.94±0.62
	2B	109.74	112.63	112.01	21.51	
	2C	96.32	100.19	99.41	20.28	
9	3A	93.96	97.21	96.58	19.51	19.23±1.94
	3B	101.33	104.23	103.73	17.16	
	3C	105.87	109.49	108.73	21.01	
12	4A	102.43	106.21	105.53	17.88	18.98±0.95
	4B	96.33	100.15	99.40	19.58	
	4C	109.74	113.83	113.03	19.49	
15	5A	109.75	112.99	112.18	25.15	22.34±2.52
	5B	96.33	100.05	99.25	21.62	
	5C	102.43	106.71	105.84	20.27	
18	6A	102.42	105.25	104.64	21.80	25.54±3.28
	6B	96.32	99.52	98.66	26.89	
	6C	109.75	112.90	112.02	27.93	
21	7A	105.87	109.28	108.55	21.60	22.52±2.37
	7B	93.97	97.59	96.67	25.21	
	7C	101.34	105.93	104.98	20.74	
24	8A	105.87	109.60	108.92	18.06	17.66±2.06
	8B	93.97	97.38	96.72	19.49	
	8C	101.33	106.96	106.09	15.43	
27	9A	96.33	100.18	99.35	21.55	20.01±1.94
	9B	102.43	107.31	106.44	17.82	
	9C	109.75	113.40	112.64	20.65	
30	10A	93.96	99.35	98.52	15.34	20.06±4.24
	10B	105.87	109.00	108.27	23.57	
	10C	101.33	105.69	104.76	21.27	
33	11A	102.43	106.68	105.88	18.82	20.59±2.05
	11B	96.33	100.79	99.77	22.83	
	11C	109.75	114.80	113.78	20.12	
36	12A	102.42	106.81	105.72	24.81	20.88±3.44
	12B	109.75	114.39	113.53	18.47	
	12C	96.31	100.14	99.40	19.36	
				Avg (±SD)	**20.53±2.96**	

Table B.5 Organic matter results for Borehole-05

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	102.42	104.88	104.26	25.12	22.53±2.31
	1B	96.32	99.57	98.86	21.79	
	1C	109.74	113.26	112.53	20.68	
6	2A	109.74	112.71	112.09	20.73	23.07±4.63
	2B	96.32	100.29	99.49	20.08	
	2C	102.43	105.94	104.94	28.40	
9	3A	105.87	108.68	108.02	23.36	20.83±2.64
	3B	93.96	96.28	95.79	21.03	
	3C	101.33	105.41	104.68	18.09	
12	4A	96.32	99.71	99.11	17.78	18.58±1.39
	4B	102.42	105.71	105.05	20.19	
	4C	109.74	113.18	112.57	17.77	
15	5A	93.97	97.09	96.54	17.52	18.52±0.86
	5B	101.33	104.17	103.63	18.98	
	5C	105.87	109.92	109.15	19.05	
18	6A	93.96	98.62	98.11	10.83	10.72±0.67
	6B	101.33	105.68	105.24	10.00	
	6C	105.87	110.70	110.15	11.32	
21	7A	96.32	100.78	100.49	6.46	6.26±0.64
	7B	102.42	107.61	107.26	6.77	
	7C	109.74	114.78	114.50	5.53	
24	9A	102.43	107.93	107.44	8.97	9.15±0.21
	9B	96.33	102.45	101.88	9.39	
	9C	109.74	115.35	114.84	9.10	
27	10A	102.42	106.66	106.32	7.94	9.46±1.89
	10B	96.31	102.03	101.37	11.58	
	10C	109.75	117.03	116.38	8.87	
30	11A	93.96	99.70	99.04	11.40	11.43±0.02
	11B	101.33	106.77	106.14	11.44	
	11C	105.87	110.54	110.00	11.45	
				Avg (±SD)	**15.05±6.27**	

Table B.6 Organic matter results for Borehole-06

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	109.74	113.86	113.14	17.46	16.34±1.15
	1B	102.43	106.48	105.87	15.16	
	1C	96.33	100.57	99.87	16.39	
6	2A	101.33	106.63	106.01	11.77	10.58±1.80
	2B	93.96	98.47	98.09	8.51	
	2C	105.86	110.43	109.91	11.47	
9	3A	109.74	114.95	114.38	10.86	10.68±0.72
	3B	96.32	99.95	99.59	9.89	
	3C	102.42	107.67	107.08	11.30	
12	4A	93.96	100.08	99.48	9.73	8.08±1.83
	4B	101.33	105.62	105.36	6.11	
	4C	105.86	112.63	112.06	8.41	
15	5A	96.32	100.36	99.97	9.60	8.79±0.74
	5B	102.42	107.65	107.20	8.62	
	5C	109.74	115.84	115.34	8.15	
18	6A	105.86	111.19	110.67	9.77	9.67±0.16
	6B	101.33	105.69	105.27	9.75	
	6C	93.96	101.19	100.50	9.49	
21	7A	102.42	108.26	107.69	9.74	9.65±1.15
	7B	109.74	116.02	115.49	8.45	
	7C	96.32	102.09	101.47	10.75	
24	8A	105.86	109.64	108.91	19.30	20.65±1.50
	8B	93.96	98.64	97.59	22.26	
	8C	101.33	105.31	104.49	20.39	
27	9A	109.74	113.90	113.53	8.94	11.24±2.02
	9B	102.43	105.92	105.50	12.04	
	9C	96.33	101.46	100.81	12.75	
30	10A	101.33	105.24	104.78	11.72	11.95±0.35
	10B	93.96	97.13	96.73	12.36	
	10C	105.86	109.31	108.91	11.77	
33	11A	109.75	116.12	115.33	12.44	15.77±4.78
	11B	96.33	98.76	98.24	21.25	
	11C	102.43	107.42	106.74	13.63	
36	12A	101.33	105.73	105.08	14.81	16.48±1.82
	12B	105.87	109.56	108.96	16.22	
	12C	93.97	96.67	96.17	18.42	
				Avg (±SD)	**12.49±4.08**	

Table B.7 Organic matter results for Borehole-07

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	105.86	108.79	108.04	25.40	22.78±2.29
	1B	93.96	96.86	96.25	21.15	
	1C	101.33	104.28	103.64	21.79	
6	2A	96.33	99.29	98.64	21.92	22.19±3.42
	2B	102.42	105.91	105.25	18.90	
	2C	109.74	112.16	111.53	25.73	
9	3A	105.86	109.26	108.73	15.49	17.66±2.15
	3B	101.33	105.25	104.56	17.69	
	3C	93.96	96.88	96.30	19.79	
12	4A	102.42	104.60	104.00	27.44	22.22±4.55
	4B	109.74	112.17	111.68	20.15	
	4C	96.32	99.59	98.96	19.08	
15	5A	93.96	97.63	97.08	14.88	18.63±3.81
	5B	105.86	109.44	108.64	22.50	
	5C	101.33	104.83	104.18	18.50	
18	6A	109.74	114.11	113.44	15.40	14.51±0.92
	6B	96.33	98.48	98.19	13.56	
	6C	102.43	106.59	105.98	14.59	
21	7A	105.86	109.29	108.66	18.35	16.65±1.49
	7B	93.96	97.56	97.00	15.55	
	7C	101.33	104.56	104.04	16.07	
24	8A	102.42	107.57	106.81	14.84	17.24±2.81
	8B	96.32	99.94	99.21	20.33	
	8C	109.74	114.03	113.32	16.55	
27	9A	102.43	107.34	106.76	11.73	12.56±1.27
	9B	96.33	100.75	100.23	11.92	
	9C	109.74	113.52	112.99	14.02	
30	10A	105.87	108.86	108.20	21.92	21.91±2.92
	10B	93.96	97.09	96.49	18.99	
	10C	101.33	104.12	103.43	24.83	
33	11A	102.42	107.96	107.38	10.60	12.22±1.86
	11B	96.33	99.20	98.86	11.83	
	11C	109.74	113.26	112.76	14.25	
36	12A	93.96	97.52	96.96	15.74	15.33±1.36
	12B	105.86	110.18	109.58	13.81	
	12C	101.33	107.54	106.52	16.44	
				Avg (±SD)	**17.83±4.28**	

Table B.8 Organic matter results for Borehole-08

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
1.5	1A	93.96	98.60	98.43	3.68	3.89±0.18
	1B	105.87	111.12	110.91	3.96	
	1C	101.33	105.24	105.08	4.02	
3	2A	105.86	108.95	108.78	5.34	5.45±0.17
	2B	101.33	106.68	106.38	5.64	
	2C	93.97	99.32	99.03	5.36	
4.5	3A	102.42	107.27	107.06	4.34	4.03±0.57
	3B	96.32	100.06	99.89	4.39	
	3C	109.74	113.54	113.41	3.37	
				Avg (±SD)	**4.46±0.81**	

Table B.9 Organic matter results for Borehole-09

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
1.5	1A	109.74	114.27	114.16	2.58	3.13±0.77
	1B	102.42	107.12	106.99	2.81	
	1C	96.32	100.14	99.99	4.01	
4.5	2A	102.43	106.45	106.31	3.53	3.21±0.35
	2B	109.75	114.85	114.70	2.84	
	2C	96.32	101.50	101.33	3.25	
				Avg (±SD)	**3.17±0.53**	

Table B.10 Organic matter results for Borehole-10

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	105.87	109.46	108.28	32.85	36.46±4.51
	1B	101.33	106.06	104.41	35.02	
	1C	93.97	95.72	94.99	41.52	
6	2A	102.42	105.32	104.85	16.10	16.06±2.48
	2B	96.33	100.58	99.80	18.53	
	2C	109.74	114.61	113.95	13.57	
9	3A	102.43	106.82	106.19	14.33	15.67±1.48
	3B	96.33	100.70	100.03	15.42	
	3C	109.75	114.10	113.35	17.26	
12	4A	96.32	100.00	99.47	14.60	13.99±1.70
	4B	102.44	107.76	106.94	15.30	
	4C	109.75	113.39	112.95	12.07	
15	5A	105.87	110.19	109.79	9.34	9.74±0.48
	5B	93.96	99.40	98.88	9.61	
	5C	101.33	105.28	104.88	10.28	
18	6A	102.42	106.59	106.00	14.08	14.58±1.12
	6B	96.32	100.50	99.92	13.80	
	6C	109.74	113.62	113.01	15.86	
21	7A	93.97	98.00	97.45	13.66	14.88±1.19
	7B	101.33	106.07	105.36	14.94	
	7C	105.87	110.68	109.91	16.03	
24	8A	93.96	98.41	97.94	10.56	10.05±1.05
	8B	101.33	104.78	104.41	10.74	
	8C	105.87	110.92	110.47	8.84	
27	9A	101.33	106.03	105.36	14.43	14.08±0.68
	9B	93.97	98.21	97.59	14.52	
	9C	105.87	109.95	109.41	13.30	
30	10A	96.32	102.56	101.85	11.33	10.51±0.71
	10B	109.75	113.92	113.50	10.04	
	10C	102.42	106.95	106.49	10.16	
33	11A	96.33	99.96	99.12	23.15	23.04±1.21
	11B	102.43	105.86	105.03	24.19	
	11C	109.74	113.34	112.55	21.79	
36	12A	105.86	109.20	108.27	27.98	26.17±3.43
	12B	101.33	105.53	104.60	22.21	
	12C	93.96	97.93	96.81	28.31	
39	13A	102.43	106.85	106.21	14.34	16.09±1.52
	13B	109.74	113.27	112.68	16.78	
	13C	96.33	99.81	99.21	17.15	
41.7	14A	105.87	109.18	108.83	10.68	14.35±3.53
	14B	101.33	105.60	104.98	14.65	
	14C	93.97	98.19	97.44	17.71	
				Avg (±SD)	**16.83±7.28**	

Table B.11 Organic matter results for Borehole-11

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	93.96	97.93	97.29	16.13	17.33±2.32
	1B	101.33	104.19	103.62	20.01	
	1C	105.87	111.14	110.30	15.86	
6	2A	96.32	99.62	98.97	19.68	17.87±1.88
	2B	102.42	107.19	106.33	17.99	
	2C	109.74	113.93	113.27	15.92	
9	3A	93.96	99.14	98.34	15.43	17.07±3.23
	3B	105.86	110.40	109.46	20.79	
	3C	101.33	106.37	105.61	15.00	
12	4A	109.74	112.33	111.68	25.44	24.49±4.70
	4B	102.43	104.99	104.25	28.64	
	4C	96.33	100.83	99.96	19.40	
15	5A	109.74	112.91	112.29	19.39	16.75±2.89
	5B	102.43	107.47	106.60	17.21	
	5C	96.33	100.32	99.78	13.65	
18	6A	105.87	111.30	110.54	14.10	13.74±0.83
	6B	93.96	99.07	98.41	12.80	
	6C	101.33	105.91	105.25	14.33	
21	7A	96.32	100.17	99.68	12.80	16.23±3.67
	7B	109.74	114.98	113.93	20.10	
	7C	102.43	108.06	107.17	15.78	
24	8A	105.87	110.07	109.43	15.14	14.02±1.21
	8B	101.33	105.47	104.95	12.73	
	8C	93.97	97.77	97.23	14.20	
27	9A	93.97	99.56	98.45	19.81	21.39±1.39
	9B	101.33	105.83	104.85	21.93	
	9C	105.87	111.52	110.25	22.43	
30	10A	102.43	107.99	107.06	16.70	15.58±0.99
	10B	96.33	103.25	102.20	15.21	
	10C	109.74	113.59	113.02	14.84	
33	11A	105.86	109.86	109.31	13.76	14.19±1.59
	11B	93.96	97.86	97.24	15.95	
	11C	101.33	106.73	106.03	12.86	
36	12A	102.43	105.91	105.08	23.88	19.33±6.00
	12B	96.32	101.40	100.76	12.53	
	12C	109.74	113.39	112.61	21.58	
39	13A	102.43	106.86	106.32	12.03	12.26±0.51
	13B	96.33	100.42	99.93	11.90	
	13C	109.75	114.66	114.03	12.85	
				Avg (±SD)	**16.94±4.03**	

Table B.12 Organic matter results for Borehole-12

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	101.33	105.07	104.27	21.55	20.32±1.15
	1B	93.96	97.04	96.42	20.14	
	1C	105.87	110.11	109.29	19.27	
6	2A	105.87	110.44	109.65	17.25	19.05±3.05
	2B	101.33	105.00	104.36	17.33	
	2C	93.96	96.64	96.03	22.57	
9	3A	96.33	99.07	98.60	17.36	18.17±2.12
	3B	102.42	104.86	104.36	20.57	
	3C	109.74	112.93	112.41	16.57	
12	4A	109.75	113.32	112.83	13.74	15.20±2.33
	4B	102.43	106.03	105.52	13.96	
	4C	96.33	100.57	99.81	17.88	
15	5A	96.32	100.41	99.77	15.70	15.96±1.39
	5B	102.42	107.53	106.78	14.73	
	5C	109.75	113.47	112.82	17.47	
18	6A	105.87	107.99	107.51	22.91	20.19±3.43
	6B	101.32	104.91	104.14	21.34	
	6C	93.95	99.19	98.34	16.34	
21	7A	102.43	105.39	104.90	16.63	18.71±2.22
	7B	96.33	99.50	98.83	21.05	
	7C	109.74	114.05	113.26	18.45	
24	8A	93.97	97.65	96.88	20.84	17.52±2.90
	8B	105.87	110.51	109.76	16.18	
	8C	101.34	106.75	105.91	15.52	
27	9A	102.43	106.93	106.26	14.72	14.30±0.37
	9B	109.75	113.47	112.94	14.14	
	9C	96.33	101.68	100.92	14.05	
30	10A	101.34	105.44	104.86	14.17	16.46±2.54
	10B	93.97	97.25	96.73	16.02	
	10C	105.87	109.55	108.84	19.20	
33	11A	105.87	109.36	108.88	13.80	19.99±3.33
	11B	101.34	105.15	104.40	19.73	
	11C	93.96	98.61	97.38	26.45	
36	12A	96.33	100.38	99.62	18.71	16.90±1.84
	12B	109.75	113.45	112.89	15.04	
	12C	102.43	106.05	105.44	16.94	
39	13A	105.87	110.45	109.75	15.29	15.56±0.43
	13B	101.33	106.75	105.92	15.33	
	13C	93.97	97.70	97.10	16.06	
41.7	14A	96.32	100.71	100.09	14.13	14.04±2.56
	14B	102.42	108.21	107.55	11.44	
	14C	109.74	114.43	113.65	16.56	
				Avg (±SD)	**17.31±3.08**	

Table B.13 Organic matter results for Borehole-13

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	93.96	98.39	97.52	19.58	19.97±2.46
	1B	101.33	104.43	103.88	17.73	
	1C	105.87	108.91	108.22	22.59	
6	2A	109.74	113.95	113.18	18.39	19.81±2.19
	2B	102.43	105.31	104.67	22.33	
	2C	96.32	100.42	99.66	18.70	
9	3A	93.96	96.92	96.39	17.89	17.36±1.55
	3B	101.33	105.03	104.35	18.57	
	3C	105.87	109.92	109.29	15.62	
12	4A	101.33	106.06	105.17	18.95	19.91±1.02
	4B	105.87	110.34	109.40	20.98	
	4C	93.98	98.81	97.86	19.79	
15	5A	96.33	99.63	99.00	19.04	21.46±4.44
	5B	109.74	112.59	111.84	26.59	
	5C	102.42	106.44	105.69	18.76	
18	6A	105.86	111.07	110.21	16.54	18.05±1.35
	6B	93.96	99.26	98.28	18.47	
	6C	101.33	107.26	106.13	19.14	
21	7A	96.33	101.22	100.46	15.40	18.04±3.81
	7B	109.75	116.19	115.14	16.31	
	7C	102.43	107.08	106.04	22.40	
24	8A	101.33	104.11	103.21	32.21	30.10±1.99
	8B	105.87	109.07	108.16	28.25	
	8C	93.96	96.47	95.72	29.85	
27	9A	105.87	109.70	108.86	21.88	20.66±1.74
	9B	93.96	98.90	97.98	18.67	
	9C	101.33	104.63	103.92	21.42	
30	10A	109.75	116.75	115.48	18.09	21.76±3.38
	10B	102.43	108.27	106.96	22.44	
	10C	96.34	100.40	99.39	24.74	
31.5	11A	101.33	107.25	106.34	15.31	16.42±0.96
	11B	93.97	98.46	97.70	16.91	
	11C	105.87	110.20	109.46	17.04	
33	12A	109.74	113.19	112.33	24.83	24.08±1.02
	12B	102.42	107.57	106.39	22.92	
	12C	96.32	99.70	98.87	24.48	
33.6	13A	102.43	106.53	105.75	19.16	22.05±3.03
	13B	109.74	114.26	113.12	25.20	
	13C	96.33	100.77	99.80	21.79	
				Avg (±SD)	**20.74±3.99**	

Table B.14 Organic matter results for Borehole-14

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
1.5	1A	102.42	107.54	107.06	9.37	9.72±0.46
	1B	96.33	100.59	100.15	10.25	
	1C	109.75	113.96	113.56	9.55	
3	2A	93.96	98.11	97.69	9.99	9.86±0.28
	2B	101.33	106.00	105.55	9.54	
	2C	105.87	110.82	110.32	10.04	
4.5	3A	105.86	110.53	110.09	9.29	8.61±0.60
	3B	93.97	99.02	98.61	8.15	
	3C	101.33	107.63	107.10	8.40	
6	4A	96.32	101.26	100.76	10.09	11.26±1.98
	4B	102.42	108.39	107.78	10.14	
	4C	109.74	113.97	113.40	13.54	
9	5A	105.87	112.39	112.27	1.90	1.63±0.23
	5B	101.34	108.51	108.40	1.53	
	5C	93.96	101.06	100.96	1.47	
				Avg (±SD)	8.22±3.61	

Table B.15 Organic matter results for Borehole-15

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	109.75	113.86	113.41	10.78	10.07±0.80
	1B	102.43	107.88	107.33	10.21	
	1C	96.33	100.82	100.41	9.20	
6	2A	101.33	105.27	104.89	9.67	10.80±1.31
	2B	105.87	111.66	111.05	10.49	
	2C	93.97	98.36	97.82	12.24	
9	3A	109.74	113.49	112.89	16.13	12.60±3.28
	3B	96.32	101.05	100.48	11.99	
	3C	102.43	108.53	107.94	9.66	
12	4A	93.96	97.37	96.91	13.44	13.71±0.25
	4B	105.87	111.12	110.40	13.78	
	4C	101.33	106.95	106.16	13.92	
15	5A	102.43	106.38	105.67	18.08	17.31±1.38
	5B	109.75	113.90	113.15	18.13	
	5C	96.33	100.91	100.19	15.72	
				Avg (±SD)	**12.90±3.02**	

Table B.16 Organic matter results for Borehole-16

Depth (m)	Sample No.	W_1 (g)	W_2 (g)	W_3 (g)	Organic matter (%)	Avg. (±SD) Organic matter (%)
3	1A	96.32	100.31	99.66	16.25	14.92±2.16
	1B	102.43	107.09	106.34	16.08	
	1C	109.75	114.69	114.07	12.43	
4.5	2A	101.33	105.11	104.46	17.06	15.94±1.02
	2B	93.97	98.14	97.48	15.71	
	2C	105.87	110.94	110.17	15.05	
6	3A	93.96	98.36	97.70	15.01	12.88±2.23
	3B	105.87	110.93	110.39	10.55	
	3C	101.33	105.42	104.89	13.07	
				Avg (±SD)	**14.58±2.12**	

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Appendix C

Table C.1 Specific gravity results for fine fraction retrieved from Borehole-01

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.18	2.26	2.28	2.24±0.05
6	2.11	2.19	2.15	2.15±0.04
9	2.25	2.27	2.29	2.27±0.02
12	2.29	2.32	2.33	2.32±0.02
15	2.16	2.19	2.20	2.18±0.02
18	2.22	2.31	2.32	2.29±0.05
21	2.34	2.39	2.36	2.36±0.02
24	2.25	2.26	2.26	2.26±0.01

Table C.2 Specific gravity results for fine fraction retrieved from Borehole-02

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.37	2.39	2.39	2.38±0.02
6	2.18	2.24	2.24	2.22±0.03
9	2.10	2.15	2.16	2.14±0.03
12	2.21	2.24	2.26	2.24±0.02
15	2.20	2.24	2.24	2.23±0.02
18	2.08	2.09	2.10	2.09±0.01
21	2.23	2.25	2.25	2.25±0.01
24	2.21	2.23	2.24	2.23±0.02
27	1.91	1.93	1.93	1.92±0.01
30	2.08	2.09	2.11	2.10±0.01

Table C.3 Specific gravity results for fine fraction retrieved from Borehole-03

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.22	2.24	2.25	2.24±0.02
6	2.13	2.16	2.18	2.16±0.03
9	2.26	2.29	2.30	2.29±0.02
12	2.13	2.16	2.16	2.15±0.02
15	2.06	2.07	2.08	2.07±0.01
18	2.33	2.34	2.35	2.34±0.01
21	2.28	2.29	2.29	2.29±0.01
24	2.28	2.28	2.28	2.28±0.00

Table C.4 Specific gravity results for fine fraction retrieved from Borehole-04

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.30	2.30	2.30	2.30±0.00
6	2.23	2.25	2.24	2.24±0.01
9	2.25	2.25	2.26	2.25±0.00
12	2.16	2.17	2.17	2.17±0.01
15	2.12	2.13	2.12	2.12±0.01
18	2.14	2.15	2.14	2.15±0.00
21	2.03	2.06	2.06	2.05±0.01
24	2.24	2.27	2.28	2.26±0.02
27	2.21	2.24	2.25	2.23±0.02
30	2.26	2.28	2.28	2.27±0.01
33	2.19	2.21	2.27	2.22±0.05
36	2.20	2.22	2.23	2.22±0.01

Table C.5 Specific gravity results for fine fraction retrieved from Borehole-05

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.09	2.14	2.16	2.13±0.04
6	2.17	2.20	2.22	2.20±0.02
9	2.20	2.23	2.23	2.22±0.02
12	2.23	2.26	2.27	2.26±0.02
15	2.17	2.21	2.22	2.20±0.03
18	2.42	2.44	2.45	2.44±0.02
21	2.45	2.48	2.48	2.47±0.02
27	2.42	2.44	2.45	2.44±0.01
30	2.42	2.44	2.45	2.43±0.01
33	2.33	2.36	2.36	2.35±0.02

Table C.6 Specific gravity results for fine fraction retrieved from Borehole-06

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.29	2.29	2.30	2.30±0.00
6	2.30	2.32	2.33	2.32±0.01
9	2.42	2.45	2.43	2.44±0.02
12	2.44	2.45	2.47	2.46±0.01
15	2.46	2.47	2.47	2.47±0.01
18	2.45	2.46	2.46	2.46±0.01
21	2.44	2.45	2.45	2.45±0.01
24	2.18	2.19	2.19	2.19±0.01
27	2.38	2.39	2.40	2.39±0.01
30	2.35	2.38	2.39	2.37±0.02
33	2.29	2.32	2.34	2.32±0.02
36	2.21	2.14	2.16	2.17±0.04

Table C.7 Specific gravity results for fine fraction retrieved from Borehole-07

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.15	2.17	2.18	2.17±0.02
6	2.17	2.20	2.20	2.19±0.01
9	2.23	2.24	2.25	2.24±0.01
12	2.18	2.21	2.22	2.21±0.02
15	2.18	2.21	2.21	2.20±0.01
18	2.33	2.34	2.34	2.34±0.01
21	2.30	2.32	2.33	2.32±0.02
24	2.27	2.28	2.25	2.26±0.02
27	2.40	2.41	2.42	2.41±0.01
30	2.25	2.28	2.28	2.27±0.02
33	2.39	2.41	2.42	2.41±0.02
36	2.28	2.30	2.31	2.30±0.01

Table C.8 Specific gravity results for fine fraction retrieved from Borehole-08

Depth (m)	Specific gravity			Avg. (±SD) S/pecific gravity
	Trail-1	Trail-2	Trail-3	
1.5	2.60	2.61	2.62	2.61±0.01
3	2.55	2.58	2.59	2.58±0.02
4.5	2.62	2.66	2.66	2.65±0.02

Table C.9 Specific gravity results for fine fraction retrieved from Borehole-09

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
1.5	2.65	2.66	2.66	2.66±0.01
4.5	2.68	2.69	2.69	2.69±0.01

Table C.10 Specific gravity results for fine fraction retrieved from Borehole-10

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	1.88	1.93	1.95	1.92±0.04
6	2.38	2.40	2.40	2.40±0.01
9	2.36	2.37	2.37	2.37±0.00
12	2.34	2.35	2.35	2.35±0.00
15	2.47	2.48	2.47	2.47±0.00
18	2.38	2.40	2.40	2.40±0.02
21	2.33	2.33	2.34	2.34±0.01
24	2.43	2.45	2.45	2.44±0.01
27	2.23	2.26	2.26	2.25±0.02
30	2.36	2.42	2.42	2.40±0.04
33	2.31	2.34	2.34	2.33±0.02
36	2.23	2.23	2.25	2.24±0.01
39	2.25	2.26	2.26	2.26±0.01
41.7	2.25	2.27	2.29	2.27±0.02

Table C.11 Specific gravity results for fine fraction retrieved from Borehole-11

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.34	2.35	2.36	2.35±0.01
6	2.28	2.30	2.31	2.30±0.01
9	2.15	2.19	2.20	2.19±0.03
12	2.16	2.18	2.19	2.18±0.01
15	2.32	2.35	2.35	2.34±0.02
18	2.31	2.30	2.34	2.32±0.02
21	2.28	2.30	2.32	2.30±0.02
24	2.37	2.37	2.37	2.37±0.00
27	2.31	2.31	2.31	2.31±0.00
30	2.27	2.27	2.27	2.27±0.00
33	2.31	2.34	2.35	2.34±0.02
36	2.30	2.32	2.32	2.32±0.01
39	2.34	2.34	2.34	2.34±0.00

Table C.12 Specific gravity results for fine fraction retrieved from Borehole-12

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.17	2.19	2.20	2.19±0.02
6	2.15	2.18	2.19	2.17±0.02
9	2.23	2.23	2.24	2.24±0.00
12	2.24	2.26	2.27	2.26±0.02
15	2.21	2.25	2.26	2.24±0.03
18	2.18	2.21	2.22	2.21±0.02
21	2.22	2.25	2.25	2.24±0.02
24	2.22	2.25	2.25	2.24±0.02
27	2.29	2.30	2.31	2.30±0.01
30	2.17	2.21	2.23	2.21±0.03
33	2.17	2.19	2.20	2.19±0.02
36	2.17	2.21	2.22	2.20±0.03
39	2.26	2.28	2.27	2.27±0.01
41.7	2.26	2.26	2.26	2.26±0.01

Table C.13 Specific gravity results for fine fraction retrieved from Borehole-13

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.22	2.24	2.24	2.23±0.01
6	2.20	2.22	2.22	2.22±0.01
9	2.31	2.31	2.32	2.31±0.01
12	2.27	2.29	2.29	2.28±0.01
15	2.24	2.25	2.25	2.25±0.01
18	2.26	2.27	2.27	2.27±0.01
21	2.18	2.21	2.22	2.21±0.02
24	2.26	2.28	2.29	2.28±0.01
27	2.28	2.28	2.28	2.28±0.01
30	2.27	2.28	2.29	2.28±0.01
31.5	2.29	2.32	2.33	2.31±0.02
33	2.23	2.25	2.26	2.24±0.02
33.6	2.18	2.19	2.21	2.19±0.01

Table C.14 Specific gravity results for fine fraction retrieved from Borehole-14

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
1.5	2.50	2.51	2.51	2.51±0.00
3	2.42	2.43	2.43	2.43±0.01
4.5	2.45	2.46	2.46	2.46±0.00
6	2.39	2.40	2.40	2.40±0.01
9	2.62	2.63	2.63	2.63±0.00

Table C.15 Specific gravity results for fine fraction retrieved from Borehole-15

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.46	2.45	2.45	2.46±0.00
6	2.47	2.46	2.46	2.46±0.00
9	2.38	2.38	2.37	2.38±0.00
12	2.70	2.70	2.70	2.71±0.00
15	2.38	2.38	2.38	2.38±0.00

Table C.16 Specific gravity results for fine fraction retrieved from Borehole-16

Depth (m)	Specific gravity			Avg. (±SD) Specific gravity
	Trail-1	Trail-2	Trail-3	
3	2.33	2.32	2.32	2.33±0.01
4.5	2.27	2.29	2.29	2.29±0.01
6	2.38	2.39	2.39	2.39±0.01

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ANNEXURE-6(iii)

Lr. No. EPTRI/ESD/78/ Vol. X/ 2023-24/ 847
Dt.06.11.2023

EPTRI
ENVIRONMENT PROTECTION TRAINING & RESEARCH INSTITUTE

PROVISIONAL READINESS CERTIFICATE FOR TREATMENT & DISPOSAL (T&D) OPERATIONS AT JAWAHARNAGAR SITE OF THE HYDERABAD INTEGRATED MUNICIPAL SOLID WASTE MANAGEMENT PROJECT

EPTRI vide Letter dated 11th August, 2023 issued "Provisional Readiness Certificate(PRC)" for 8000 Tons Per Day (TPD) for Jawaharnagar Integrated Waste Management Facility (P&D) for three (03) months w.e.f. 01.06.2023 as per Article 5.4h of C.A on a temporary basis with the punch list items.

As there is no availability of alternative facility in GHMC area and the quantity of waste received to the Jawaharnagar T&D facility is about @ 8000 TPD, the PRC is renewed to 8000 TPD for Jawaharnagar Integrated Facility w.e.f. 01.09.2023 to till the alternative facility is under operation with the following conditions.

Following punch list items has to be completed by the concessionaire as per Article 5.4.h of C.A.

1. Completion of expansion of minimum windrow area about 3,000 sqm to accommodate required number of windrows and for vehicular movement during the windrow operation.
2. Construction of Lined storage ponds to store the leachate generated in the facility
3. Enhancement of required RO rejects treatment capacity.

The other activities (Annexure-I) shall be completed as and when the dispute related to project scope, cost sharing and titular issues are resolved.

A. Vani Prasad
Director General
6/11/2023.

The Project Head,
M/s. Hyderabad Integrated Municipal Solid Waste Management
Survey No.173, Jawahar Nagar Dump site,
CRPF Road, Near Army Dental College,
Jawahar Nagar Grampanchayat village,
Shamirpet Mandal, Hyderabad-500087

The Commissioner,
Greater Hyderabad Municipal Corporation,
4th Floor, Head Office, Tank Bund Road,
Hyderabad – 500 063.

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Annexure-I

Activities mentioned below shall be complete as and when the disputes related to project scope cost sharing and titular issues are resolved.

1. Roads including storm water drainage system shall be laid as per clause 7.9 in schedule 2 of CA.
2. Completion of balance compound wall works.
3. Development of green belt.
4. Reclamation of existing dumpsites of Shamshiguda and Gandhamguda clause 5.17 of C.A.
5. Leachate storage ponds.

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ANNEXURE - 6 (iv)

తెలంగాణ तेलंगाना TELANGANA

Z 553037

S.No. 150 Date 1/2/2020 Rs. 100/-

Sold To K. Vasudeva Reddy

S/o. ~~D/o. W/o.~~ Hanmaiah

For Whom M/s. Hyderabad MSW Energy Solutions Pvt. Ltd R/o. Hyd

Bhagya

V BHAGYA LAKSHMI
LICENSED STAMP VENDOR
License No 16-09-012/2017
Renewal No. 16-09-008/2020
Plot No. 4 & 5, Block-E, 1st Floor, Sail Colony
New Bowenpally, Secunderabad

POWER PURCHASE AGREEMENT
BETWEEN
SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED
AND
M/s. HYDERABAD MSW ENERGY SOLUTIONS PRIVATE LIMITED
NCE PPA No. 01 /2020

(Project: 19.8 MW RDF based Power Project at Jawaharnagar (V),Kapra(M), Medchal District)

This Power Purchase Agreement ("Agreement") made and executed on this 14th day of February 2020, between Southern Power Distribution Company of Telangana Limited, incorporated by the Government of Telangana in accordance with the Telangana Electricity Reform Act 1998 (Act No.30 of 1998), under the provisions of Companies Act, 1956, having its office at 6-1-50, Mint Compound, Hyderabad – 500063, Telangana, India represented by its Chief General Manager (IPC & RAC) (Hereinafter referred to as the "TSSPDCL" or "DISCOM" as the case may be) which expression shall, unless repugnant to the context or meaning thereof, include its successors and assignees as the first party

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TSSPDCL, Corporate Office,
6-1-50, Mint Compound,
HYDERABAD-500 063.

HYDERABAD MSW ENERGY SOLUTIONS PRIVATE LIMITED HYD

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AND

M/s. Hyderabad MSW Energy Solutions Private Limited, having registered under the provisions of Companies Act, 1956, office at 13th Floor, Ramky Grandiose, Ramky Towers, Gachibowli, Hyderabad – 500 032, Telangana, India represented by Mr. Bapanna Sastry Chamarty, aged 56 years, R/o. Lanco Hills, Manikonda, Hyderabad, Additional Director hereinafter referred to as the "Developer" or "Company" as the case may be which expression shall, unless repugnant to the context or meaning thereof, include its successors and assignees as the second party.

2. WHEREAS, the company is establishing the integrated municipal solid waste management with a capacity of 19.8 MW RDF based power project at Jawaharnagar village, Kapra mandal, Medchal District, as detailed in Schedule-1 attached herewith, hereinafter called as the **Project** and state nodal agency that is, Telangana State Renewable Energy Development Corporation Limited (TSREDCO) has accorded approval to the said proposal through Ref: TSREDCO/MSW/HiMSW Ltd/101/2018-19 dated 06.06.2018 and the company entered into an agreement with TSREDCO on 06.06.2018 to execute the project and copies whereof are attached as Schedules -2 and3 respectively.

3. WHEREAS, the company offered to sell power generated by it at the tariff that may be determined by TSERC and whereas the DISCOM agreed to purchase the power from the company in accordance with the tariff determined by TSERC.

4. NOW, this agreement witnesseth:

(i) That the company shall fulfill the conditions of agreement entered with TSREDCO and obtain extensions wherever required till the project is completed. In the event of cancellation of the project allotted to the company by TSREDCO for any reason, the agreement with DISCOM will automatically gets cancelled.

(ii) That it has been agreed by the parties herein that the company shall design, engineer, construct and operate the project with reasonable diligence, subject to all applicable Indian laws, rules, regulations and orders having the force of law including grid code issued by Central and State ERCs;

(iii) That this agreement is enforceable subject to obtaining consent of Telangana State Electricity Regulatory Commission (TSERC) as per section 21 of Telangana Electricity Reform Act 1998 (Act No.30 of 1998);

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(iv) That the company shall not be eligible for obtaining renewable energy certificates (RECs), invoking regulations issued by Central Electricity Regulatory Commission (CERC) and TSERC from time to time, for energy generated from this project and supplied to DISCOM under this agreement and that the DISCOM is entitled to meet the RPPO to the extent of energy received.

(v) Electricity Act, 2003

NOW THEREFORE, in consideration of the foregoing premises and their mutual covenants herein, and for other valuable consideration, the receipt and sufficiency of which are acknowledged, the parties hereto, intending to be legally bound hereby agree as follows:

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ARTICLE 1
DEFINITIONS

Unless the context otherwise expressed in this agreement, the following terms shall have the meanings set forth herein below. Defined terms of singular number shall include the plural and vice-versa.

1.1 **"Act or Act, 2003"** means the Electricity Act, 2003 and includes any modifications, amendments and substitution from time to time;

1.2 **"Agreement"** means this power purchase agreement (PPA), including the articles, schedules, amendments, modifications and supplements made in writing by the parties from time to time;

1.3 **"Appropriate Commission"** means TSERC or CERC under the Electricity Act, 2003 as the case may be;

1.4 **"Billing Date"** means the fifth (5th) day after the meter reading date;

1.5 **"Billing Month"** means the period commencing from 25th of the calendar month and ending on the 24th of the next calendar month;

1.6 **"CERC"** means the Central Electricity Regulatory Commission formed under Section 76 of the Act, 2003;

1.7 **"Change in Law"** means any change or amendment to the provisions of electricity law in force, regulations, directions, notifications issued by the competent authorities and Government of India (GoI), Government of Telangana State (GoTS) from time to time;

1.8 **"Commercial Operation Date (COD)"** means, with respect to each generating unit, the date on which such generating unit is declared by the company to be operational in the presence of TSTRANSCO/DISCOM authorized representatives, provided that the company shall not declare a generating unit to be operational until such generating unit has completed its performance acceptance test as per standards notified in coordination by DISCOM/TSTRANSCO/TDREDCO authorities;

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Explanation: *In respect of renewable energy based power projects, the date of synchronization of the first unit of the project will be treated as the commercial operation date of the project, since Ministry of New and Renewable Energy, GoI has not specified any guidelines for declaration of the COD;*

1.9 **"Contracted Capacity"** means an integrated municipal solid waste management with a capacity of 19.8 MW contracted with DISCOM for supply by the company to the DISCOM at the interconnection point from the project and same shall not be more than the installed capacity. Contracted capacity shall be in MW measured in alternate current (AC) terms and shall not change during the tenure of this agreement.

1.10 **"Delivered Energy"** means with respect to any billing month, the Kilo Watt hours (KWh) of electrical energy generated by the project and delivered to the DISCOM at the interconnection point, as defined in clause 1.18 and as measured by the energy meters at the interconnection point during that billing month at the designated substation of TSTRANSCO or the DISCOM;

Explanation 1: *For removal of doubts, the delivered energy, excludes all energy consumed in the project, by the main plant and equipment, lighting and other loads of the project from the energy generated and as recorded by the energy meter at interconnection point.*

Explanation 2: *The delivered energy in a billing month shall be limited to the energy calculated at 100% PLF of net exportable capacity that is after deducting capacities for auxiliary consumption from the installed capacity as mentioned in this agreement for sale to DISCOM, based on the contracted capacity in KW multiplied with number of hours and fraction thereof, the project is in operation during that billing month. Whenever generation exceeds by installed capacity such energy delivered into the grid by the project above 100% PLF during such period shall be considered payment or otherwise in terms of the rules and regulations in vogue.*

Explanation 3: *The delivered energy shall be purchased by the DISCOM at a tariff for that year stipulated in Article 2.2 of this agreement.*

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1.11 **"Delivery Point"** means the interconnection point at which the power plant delivers power to the TSTRANSCO or DISCOM substation;

1.12 **"Due Date of Payment"** means the date on which the amount payable by the DISCOM to the company hereunder for delivered energy, if any, supplied during a billing month becomes due for payment, which date shall be thirty (30) days from the date of invoice. If the bill is received after 5 days of metering date in a particular month, the due date shall be reckoned from the date of receipt of invoice. In the case of any supplemental or other bill or claim, if any, the due date of payment shall be thirty (30) days from the date of the presentation of such bill or claim to the designated officer of the DISCOM/TSTRANSCO;

1.13 **"Effective Date"** means the date of execution of this power purchase agreement (PPA) by both the parties;

1.14 **"Financial Year"** means with respect to the initial financial year, the period beginning on the commercial operation date and ending at 12.00 midnight on the following 31st of March. Each successive financial year shall begin on 1st of April and end on the following 31st of March, except that the final financial year shall end on the date of expiry of the term or on termination of this agreement as per the provisions contained herein;

1.15 **"Grid Code"** means the Indian Electricity Grid Code issued by CERC and amended or modified from time to time and the TS Grid Code issued by TSERC as modified and amended from time to time. In case of any conflict between the Indian Electricity Grid Code and TS Grid Code, the provisions of TS Grid Code shall prevail;

1.16 **"Installed Capacity"** means 19.8 MW that is the total rated capacity in Mega-Watts of all the generators installed;

1.17 **"Interconnection Facilities"** means all the equipment and facilities, including, but not limited to, all metering facilities, 0.2s class CTs, 0.2 class PTs, switchgear, substation facilities, transmission lines and related infrastructure, to be installed by the company by laying independent line to the designated substation of TSTRANSCO/DISCOM at the voltage specified

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in Article 1.20 at the company's expense from time to time throughout the term of this agreement, necessary to enable the DISCOM/TSTRANSCO to economically, reliably and safely receive delivered energy from the project in accordance with the terms of this agreement;

Explanation: *The company based on renewable energy projects viz; biomass, bagasse, mini hydel and municipal solid waste, RDF, industrial waste based projects, etc., have to bear the entire expenditure of interconnection facilities for power evacuation as per the sanctioned estimate by the respective field officers;*

1.18 **"Interconnection Point"** means the point or points where the project and the TSTRANSCO/DISCOM's grid system are interconnected at designated TSTRANSCO/DISCOM substation. The metering for the project will be provided at the interconnection point as per Article 4.1;

Explanation: *In case of power projects based on waste to energy (RDF based) the interconnection point will be at designated TSTRANSCO/DISCOM substation, based on voltage level of evacuation*

1.19 **"Interconnection Substation"** means the designated substation viz.,400 KV Malkaram SS for connecting the project to the state transmission system;

1.20 **"Injection voltage or voltage of delivery"** means the voltage at which the company injects the power at the interconnection point agreed in the PPA that is 132 KV;

1.21 **"Metering Date"** means mid-day (i.e., noon) of the 24th (twenty-fourth) day of each calendar month, at the interconnection point;

1.22 **"Plant Load Factor (PLF)"** means the ratio of total KWh (units) of power generated by plant in a tariff year, as decided by TSERC and contracted capacity in KW multiplied with number of hours in the same tariff year;

1.23 **"Project"** means an integrated municipal solid waste management with a capacity of 19.8 MW RDF located power project at Jawaharnagar village, Kapra mandal, Medchal District, Telangana, as detailed in Schedule-1 attached herewith, entrusted to the company for construction

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and operation as detailed in agreement entered into with TSREDCO as shown in Schedule-3 attached herewith;

1.24 **"Prudent Utility Practices"** means those practices, methods, techniques and standards, that are generally accepted for use in electric utility industries taking into account conditions in India and commonly used in prudent electric utility engineering and operations to design, engineer, construct, test, operate and maintain equipment lawfully, safely, efficiently and economically as applicable to power stations of the size, service and type of the project and that generally conform to the manufacturers' operation and maintenance guidelines;

1.25 **"Refuse Derived Fuel (RDF) based power project":** A project shall qualify to be termed as a Refuse Derived Fuel (RDF) based power project, if it is using the new plant and machinery based on the Rankine Cycle Technology (RCT) and using the RDF as fuel sources;

Explanation 1: *"Refuse Derived Fuel" means segregated combustible fraction of solid waste other than chlorinated plastics in the form of pellets or fluff produced by drying, de-stoning, shredding, de-hydrating and compacting combustible components of solid waste that can be used as fuel.*

Explanation 2: *The new plant and machinery installed in a RDF based project using the RCT should not have been used for generation of power in a project anywhere in India prior to its installation in a RDF based power project in the state of Telangana.*

1.26 **"Scheduled Commercial Operation Date (SCOD) or Scheduled Date of Commercial Operations"** means the date whereupon the project is required to start injecting power from the power project to the delivery point as per approval of TSREDCO from time to time;

1.27 **"SERC"** means the Telangana State Electricity Regulatory Commission constituted under Section-82 of the Act, 2003 or its successors, and includes a Joint Commission constituted under sub-section (1) of Section 83 of the Act 2003;

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1.28 **"SLDC"** means the State Load Dispatch Center as notified by the Telangana State Government under the provisions of the Act, 2003;

1.29 **"System Emergency"** means a condition affecting the TSTRANSCO/ DISCOM's electrical system, which threatens the safe and reliable operation of such system or which is likely to result in the disruption of safe, adequate and continuous electric supply by the TSTRANSCO/DISCOM, or which endangers life or property, which condition is affected or aggravated by the continued delivery of delivered energy from the project;

1.30 **"Tariff"** shall have the same meaning as ascribed in clause 2.2 of this agreement;

1.31 **"Unit"** when used in relation to the generating equipment, means one set of turbine generator and auxiliary equipment and facilities forming part of the project and when used in relation to electrical energy, means Kilo Watt Hour (KWH);

1.32 **"Voltage of Delivery"** means 132 KV voltage at which the electrical energy generated by the project is required to be delivered to the TSTRANSCO/DISCOM at the interconnection point by erecting an exclusive 132 KV feeder;

1.33 **"Tariff Year"** means each period of 12 months commencing from the COD of the project. The last tariff year of this agreement shall end on the date of expiry of this agreement;

1.34 **"Term of the Agreement"** shall have the same meaning as provided for in Article 8 of this agreement;

1.35 **"TSTRANSCO"** means Transmission Corporation of Telangana Limited, incorporated under the Companies Act, 1956;

All other words and expressions used herein and not defined herein but defined in the Electricity Act, 2003, Electricity Duty Act 1939 and its subsequent amendments and Telangana Electricity Reform Act 1998. shall have the meanings respectively assigned to them in the said Acts and applicable state and central regulations on grid code and others from time to time.

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ARTICLE 2

PURCHASE OF DELIVERED ENERGY AND TARIFF

2.1 All the delivered energy at the interconnection point for sale to DISCOM (net capacity) will be purchased at the tariff provided for in Article 2.2 from and after the date of commercial operation of the project. Title to delivered energy purchased shall pass from the company to the DISCOM at the interconnection point.

2.2 The company shall be paid the tariff for the net energy delivered at the interconnection point for sale to DISCOM at the tariff as determined by TSERC from time to time. No tariff will be paid for the energy delivered at the interconnection point beyond contracted capacity. The orders of TSERC are enforceable in entirety and shall be considered for the purposes of computation of tariff.

2.3 The tariff payable by DISCOM shall be inclusive of all taxes, duties and levies or any other statutory liability, as applicable from time to time.

2.4 No transmission or wheeling charges or other charges or assessments charges shall be levied by the TSTRANSCO/DISCOM on purchased energy.

a) Where in any billing month, the company is entitled to draw the energy from DISCOM/TSTRANSCO grid restricted to its auxiliary consumption during shut down periods, maintenance periods and plant tripping periods only. The company shall not draw any power from DISCOM/TSTRANSCO during plant running period. The contracted load of the plant shall be taken as the auxiliary consumption that is, 11% of installed capacity for RDF based projects. The energy supplied by the DISCOM to the company, shall be billed by the DISCOM and the company shall pay the DISCOM for such electricity supplies, at the DISCOM the then-effective TSERC applicable tariff to high tension category-I consumers as determined by TSERC from time to time.

b) For this purpose, the maximum demand recorded during such periods in a billing cycle shall be considered, in shut down period, the

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billing demand would be 80% of auxiliary consumption or recorded maximum demand whichever is more.

c) **Billing Energy**: 50 KVAH per KVA of billing demand or actual units recorded whichever is more.

d) For the purpose of billing TOD tariff, TOD compatible meters may be installed.

e) However, the minimum HT-I category billing shall be made applicable to the company in a billing cycle that may be decided by TSERC from time to time, based on the voltage of the generator.

Explanation: *The generating plants viz., power projects based on waste to energy during the plant shut down periods, maintenance works, plant tripping periods etc., shall draw the energy from TSTRANSCO/DISCOM only for the essentials loads during no generation periods.*

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ARTICLE 3

INTERCONNECTION FACILITIES, SYNCHRONIZATION, COMMISSIONING AND COMMERCIAL OPERATION

Interconnection Facilities

3.1 Upon receipt of a requisition from the company, TSTRANSCO or DISCOM shall prepare an estimate of cost for arranging the interconnection facilities for power evacuation at the voltage of delivery. The company has to bear the entire cost of the interconnection facilities as per the approved estimate made by TSTRANSCO or DISCOM and also take care of right of way issues. The TSTRANSCO or DISCOM shall evaluate, design, install, own, operate and maintain the interconnection facilities and perform all work, at the company's expense, necessary to economically, reliably and safely connect the DISCOMs existing system to the project switchyard.

Provided that the TSTRANSCO or DISCOM may allow the company to execute the interconnection facilities for power evacuation as per the approved estimate at its discretion duly collecting the supervision charges as per the procedures in vogue.

In case the project connects to a 33/11 KV or EHT interconnection substation where available capacity is subject to bay extension and bay extension is not feasible, then the company shall procure land and undertake bay extension at its own cost.

3.2 The company shall own, operate and maintain interconnection facilities from project to grid substation from time to time and shall bear the necessary expenditure. The maintenance work of the connected bay together with equipment at the grid substation has to be done in coordination with the TSTRANSCO and DISCOM personnel. Where TSTRANSCO or DISCOM carries out the maintenance work, the developer shall pay the expenses to TSTRANSCO or DISCOM as applicable.

3.3 DISCOM has been vested with the right to add any additional loads on the feeder without detrimental to the interests of the existing generating company.

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3.4 Any modifications or procedures or changes in arranging interconnection facilities for power evacuations rests with GoTS/DISCOM/TSTRANSCO.

3.5 The company shall allow entry to the site of the project free of all encumbrances at all times during the term of the agreement to the personnel of TSTRANSCO or DISCOM for inspection and verification of the works being carried out by the company at the site of the project.

3.6 The TSTRANSCO or DISCOM or its representative may verify the construction works or operation of the project being carried out by the company and if it is found that the construction works or operation of the project is not as per the prudent utility practices, it may seek clarifications from the company or require the works to be stopped or to comply with their instructions.

3.7 During the period prior to the commercial operation date, on the request of the company, the DISCOM will supply energy to the project for any purpose, on the terms and conditions and at the tariff rates that are applicable from time to time to the category of consumers of the DISCOM to which the company belongs, provided separate metering arrangements as may be required under the terms and conditions of such tariff have been installed at the project.

Synchronization, Commissioning and Commercial Operation

3.8 The company shall give a notice in writing to the SLDC and DISCOM, at least (15) days before the date on which it intends to synchronize the project to the grid system.

3.9 The project may be synchronized by the company to the grid system when it complies with all the connectivity conditions specified in the grid code in force.

3.10 The synchronization equipment shall be installed by the company at the generation facility of the project at its own cost. The company shall synchronize its system with the grid system only after the approval of synchronization scheme under the supervision of the concerned authorities of the grid system.

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3.11 The company shall immediately after synchronization/tripping of generator, inform the SLDC and substation of the grid system to which the project is electrically connected in accordance with the grid code in force.

3.12 The company shall commission the project within timelines specified in this agreement from the effective date for projects connected and any delay in commissioning of the project shall be subject to the penalties as stipulated. After commissioning of the project, the company shall invariably register the project with SLDC.

3.13 The company may undertake the commissioning of the project in phases and provisions of clauses 3.8 to 3.10 and said clauses shall apply mutatis-mutandis for generating units commissioned in phases. However, prior to the completion of the synchronization of the entire project, the company shall obtain certification for full contracted capacity from the competent authority duly demonstrating the full commissioning of the contracted capacity.

3.14 The company shall ensure the connectivity standards as per technical norms of TSTRANSCO/DISCOM.

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ARTICLE 4

METERING AND PROTECTION

4.1 The company shall install main meters and check meter of static type 0.2s class accuracy having both ABT & trivector features and online data transfer facility (V-SAT) at the interconnection point and the company shall also install standby meter of static type at the same point and of the same accuracy. The connected metering CTs and PTs shall be of 0.2s and 0.2 class of accuracy respectively as per the norms specified in the T.O.O. (CE-Construction-2) Ms.No.488, dated 17.03.2012, metering code by CEA or norms of TSERC and any changes made applicable from time to time. The main meters, check meters and standby meter shall each consist of a pair of export and import parameters with facility for recording meter readings using Meter Recording Instrument and configured with ToD software compatible to TSTRANSCO EBC data base. For the purpose of uniformity the company shall follow metering specification as developed by DISCOM.

4.2 All the meters required to be installed pursuant to Article 4.1 above shall be jointly inspected and sealed on behalf of both parties, that is DISCOM and company and shall not be interfered with, tested or checked except in the presence of representatives of both parties.

4.3 Though all the reading of main, check and standby meters have to be taken, the meter readings from the main meters will form the basis of billing. If any of the meters required to be installed pursuant to Article 4.1 above are found to be registering inaccurately, the affected meter will be replaced immediately.

4.4 Wherein the half yearly meter check indicates an error in one of the main meter/meter(s) beyond the limits of errors, for such meter(s), but no such error is indicated in the corresponding check meter/meters, billing for the month will be done on the basis of the reading on the check meter/meters and the main meter will be replaced immediately.

4.5 If during the half yearly test checks, both the main meters and the corresponding check meters are found to be beyond permissible limits of error, standby meters readings shall be taken into consideration and both

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main and check meters shall be immediately replaced. If all the meters during yearly checking found to be faulty and the correction applied to the consumption registered by the main meter to arrive at the correct delivered energy for billing purposes for the period of the one month up to the time of such test check, computation of delivered energy for the period thereafter till the next monthly meter reading shall be as per the replaced main meter. Alternatively, the energy will be computed on a mutually agreeable basis for that period of defect.

4.6 Corrections in delivered energy billing, whenever necessary, shall be applicable to the period between the previous monthly meter reading and the date and time of the test calibration in the current month when the error is observed and this correction shall be for the full value of the absolute error. For the purpose of determining the correction to be applied to any meter registering inaccurately, the meter shall be tested under conditions simulating 100, 50, 20 and 10 percent load at unity power factor and 0.5 power factor. Of these eight values, the error at the load and power factor nearest to the average monthly load served at the interconnection point during the applicable period shall be taken as the error to be applied for correction.

4.7 If both the main and check meters fail to record or if any of the PT fuses are blown out, then the energy will be computed on a mutually agreeable basis for that period of defect.

4.8 The billing meters, main, check and standby, shall be tested and calibrated utilizing a standard meter. The standard meter shall be calibrated once in every year at the approved laboratory by GoI/GoTS, as per General Terms and Conditions of Supply (GTCS).

4.9 All the billing meters, main, check and standby, tests shall be jointly conducted by the authorized representatives of both parties and the results and correction so arrived at mutually will be applicable and binding on both the parties.

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4.10 On the metering date, each month meter readings shall be taken and an acknowledgement thereof is signed by the authorized representatives of both parties.

4.11 Within six (6) months, following the execution of this agreement, the company and the DISCOM shall mutually agree to technical and performance specifications, including, but not limited to the metering configuration for the project concerning the design and operation of the facilities required to be installed by the company in order for the company to operate in parallel with the TSTRANSCO/DISCOM's grid. Thereafter, any change in such specifications shall be subject to mutual agreement of the parties.

4.12 The project shall be operated and maintained in accordance with good and generally prudent accepted utility standards with respect to synchronizing, voltage, frequency and reactive power control.

4.13 The company shall install communication system involving latest technology on information in the project and at the designated sub-station at the cost of the company, to establish contact with the sub-station to which it is interconnected for co-ordination of the project operation. The regular maintenance of technologies on information is to be carried out by the company at its cost.

4.14 Voltage regulation shall be such as to enable continued paralleling and synchronization with the grid voltage at the point of interconnection.

4.15 The equipment of the company shall be designed for fluctuations in the frequency maintained as per Indian Electricity Grid Code (IEGC) between *49.90 cycles per second to 50.05 cycles per second* of the standard frequency of 50 cycles per second or as amended from time to time.

4.16 The company shall ensure that the power factor of the power delivered to the TSTRANSCO/DISCOM is maintained at or above the minimum power factor as per tariff notification, or otherwise pay surcharge as per tariff notification in force.

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4.17 Any change in rupturing capacity of switch-gear, settings of the relays, etc., shall be subject to approval of the TSTRANSCO/DISCOM as the case may be.

4.18 As the project's generator may carry fault currents that may occur on the TSTRANSCO/DISCOM's grid, the company shall provide adequate generator and switchgear protection against such faults. The DISCOM is not responsible for damage, if any, caused to the project's generator and allied equipment during parallel operation of the generator with the TSTRANSCO/DISCOM's grid.

4.19 The company shall make a good faith effort to operate the project in such a manner as to avoid fluctuations and disturbances to the TSTRANSCO/ DISCOM's grid due to parallel operation with the grid.

4.20 The company shall control and operate the project. The SLDC/TSTRANSCO/DISCOM shall only be entitled to request the company to reduce electric power and energy deliveries from the project during a system emergency and then only to the extent that in the SLDC/TSTRANSCO/DISCOM's reasonable judgment such a reduction will alleviate the emergency. The SLDC/TSTRANSCO/DISCOM shall give the company as much advance notice of such a reduction as is practicable under the circumstances and shall use all reasonable efforts to remedy the circumstance causing the reduction as soon as possible. Any reduction required of the company hereunder shall be implemented in a manner consistent with safe operating procedures.

4.21 The company has to establish protection system, online data scheme, its allied equipment to conform with grid code from time to time. Also, the protection system shall conform with the TSTRANSCO/DISCOM norms.

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ARTICLE 5

CHANGE IN LAW

In this Article, the following terms shall have the following meanings:

5.1 "Change in Law" means the occurrence of any of the following events after the date on which PPA is signed, resulting into any additional recurring/non-recurring expenditure by the company or any income to the company, the enactment, coming into effect, adoption, promulgation, amendment, modification or repeal without re-enactment or consolidation in India, of any law, including rules and regulations framed pursuant to such law and any notifications issued thereunder.

(a) change in the interpretation or application of any law by any Indian governmental instrumentality having the legal power to interpret or apply such law, or any competent court of law, the imposition of a requirement for obtaining any consents, clearances and permits which was not required earlier;

(b) a change in the terms and conditions prescribed for obtaining any consents, clearances and permits or the inclusion of any new terms or conditions for obtaining such consents, clearances and permits; except due to any default of the company;

(c) any change in tax or introduction of any tax made applicable for supply of power by the company as per the terms of this agreement but shall not include:

(i) any change in any withholding tax on income or dividends distributed to the shareholders of the company, or

(ii) change in respect of UI Charges or frequency intervals by CERC or TSERC, or

(iii) any change on account of regulatory measures by the CERC or TSERC including calculation of availability.

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ARTICLE 6
BILLING AND PAYMENT

6.1 For delivered energy purchased, the company shall furnish a bill to the DISCOM calculated at the rate provided for in Article 2.2, in such form as may be mutually agreed between the DISCOM and the company, for the billing month on or before the 5th working day following the metering date.

6.2 Any payment made beyond the due date of payment, the DISCOM shall pay simple interest at prevailing base prime lending rate of State Bank of India and in case this rate is increased / reduced, such an increased / reduced rate is applicable from the date of such notification.

6.3 The DISCOM shall make payment for the bills on monthly basis as per Article 6.1, by opening a revolving Letter of Credit for a minimum period of one year in favour of the company.

6.4 **Letter of Credit:** Not later than 30 days prior to the SCOD of the first generating unit, DISCOM shall cause to be in effect an irrevocable revolving Letter of Credit issued in favour of the company by a scheduled bank for one monthly billing value. Each Letter of Credit shall

a) on the date it is issued, have a term of one year;

b) be payable upon the execution and presentation by an officer of the company of a sight draft to issuer of such Letter of Credit supported by a meter reading statement accepted and signed by both the parties or a certification from the company that the DISCOM failed to sign the meter reading statements within five (5) days of the metering date or that a supplemental bill has been issued and remains unpaid until the due date of payment;

c) provided that the company shall have the right to draw upon such Letter of Credit not withstanding any failure by the DISCOM to reimburse the issue therefore for any draw down made under, and

d) not less than thirty (30) days prior to the expiration of any Letter of Credit, the DISCOM shall provide a new or replacement Letter of

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Credit. Each monthly bill or supplemental bill shall be presented at the said scheduled bank for payment under the Letter of Credit and shall become payable thereunder. The opening charges for Letter of Credit (L/C) and negotiation charges will be borne by the beneficiary that is the company.

e) The DISCOM is entitled for a discount of 1% on exported energy, if the payment is made within the due date.

6.5 **Direct Payment:** Notwithstanding the fact that a Letter of Credit has been opened, in the event that through the actions of DISCOM, the company is not able to make a draw upon the Letter of Credit for the full amount of any bill, the company shall have the right to require in writing the DISCOM to make direct payment of any bill by cheque or otherwise on or before the due date of payment by delivering such requisition to the DISCOM on or prior to the due date of payment of such bill requiring payment in the foregoing manner. Without prejudice to the right of the company to draw upon the Letter of Credit if payment is not received in full, the DISCOM shall have the right to make direct payment by cheque or otherwise of any bill as such, within 30 days after the date of its presentation to the designated officer of the DISCOM, the company shall receive payment in full for such bill. When either such direct payment is made, the company shall not present the same bill to the scheduled bank for payment against the Letter of Credit.

6.6 **Billing disputes:** The DISCOM shall pay the bills of the company promptly subject to the provisions in Article 2 and in accordance with tariff determined by TSERC from time to time.

The DISCOM shall notify the company in respect of any disallowed amount on account of any dispute as to all or any portion of the bill. The company shall immediately take up the issue with all relevant information with the DISCOM which shall be rectified by the DISCOM, if found satisfactory. Otherwise the DISCOM shall notify its rejection of the disputed claim within reasonable time with the reasons recorded in writing there for. The dispute may also be decided by mutual agreement. If the resolution of any dispute requires the DISCOM to reimburse the company, the amount to be reimbursed shall bear simple interest at prevailing base prime lending rate of

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State Bank of India from the date of disallowance to the date of reimbursement.

6.7 All payments by the DISCOM to the company hereunder shall be made to such address as may be designated by the company to the DISCOM in writing from time to time.

Address	:	M/s. Hyderabad MSW Energy Solutions Private Limited, 13th Floor, Ramky Grandiose, Ramky Towers, Gachibowli, Hyderabad – 500032, India.
Telephone No.	:	
Fax No.	:	
Email	:	

6.8 The DISCOM is at liberty to make direct payment using the modern financial online transactional facilities including but not limited to RTGS and NEFT wherever it is permissible and acceptable to company, as are available in the banking and financial sector, for which the company may provide the necessary details as and when requisitioned by the DISCOM.

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ARTICLE 7
UNDERTAKING

7.1 The company shall be responsible:

(i) For the proper maintenance of the project in accordance with established prudent utility practices.

(ii) For the operation, maintenance, overhaul of the plant, equipment, works, switch yard and transmission lines and equipment up to the interconnection point of the project in close coordination with the DISCOM.

(iii) The company shall furnish the generation and maintenance schedules every year.

(iv) For making all payments on account of any taxes, cesses, duties, or levies imposed by any government or competent statutory authority on the land, equipment, material or works of the project or on the energy generated or consumed by the project or the company or on the income or assets of the company.

(v) For obtaining necessary approvals, permits or licenses for operation of the project and sale of energy to TSTRANSCO/DISCOM therefrom under the provision of the relevant laws.

(vi) To share clean development mechanism ("CDM") benefit with the DISCOM as provided in CERC (Terms and Conditions for the Tariff determination from Renewable Energy Sources) Regulations, 2012 and as amended from time to time to the extent indicated below:

The proceeds of carbon credit from the approved CDM project shall be shared between the Company and the DISCOM in the following manner, namely,

a) 100% of the gross proceeds on account of CDM benefit to be retained by the company in the first year after the date of commercial operation of the generating station;

b) in the second year after COD, the share of the DISCOM shall be 10% which shall be progressively increased by 10% every year i.e., in the third year after COD it shall be 20% and so on till it

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reaches 50%, where after the proceeds shall be shared in equal proportion, by the company/power developer and the DISCOM.

(vii) For payment of any charges as fixed by TSERC from time to time and levied by the DISCOM.

(viii) The company has to comply with the provisions of the T.S. Code of Technical Interface (Grid Code).

7.2 The DISCOM agrees:

(i) to make all reasonable efforts for making arrangements for evacuation of power from the project at the company's expense which has been completed prior to the COD of the project subject to Article 3.

(ii) for purchase of delivered energy from the project as per Article 2.2.

(iii) for providing grid support for the essential load of the power plant.

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ARTICLE 8
DURATION OF AGREEMENT

This agreement shall be effective upon its execution and delivery thereof between parties hereto and shall continue in force from the COD and until the twentieth (20th) anniversary that is for a period of twenty years from the COD. This agreement may be renewed for such further period of time on such terms and conditions as may be mutually agreed upon by the parties, 90 days prior to the expiry of the said period of twenty years, subject to the consent of the TSERC. Any tariff and all incentives/conditions envisaged in the Articles of this agreement are subject to modification/amendment as per the directions of TSERC, Government of Telangana and DISCOM, at the rates specified, notified or as fixed from time to time, whichever is lower during the agreement period.

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ARTICLE 9
NOTICES

9.1 Except as otherwise expressly provided in this agreement, all notices or other communications which are required or permitted hereunder shall be in writing and sufficient, if delivered personally or sent by registered post or certified mail, telecopy, telex addressed as follows:

If to the Company:

Attention	:	M/s. Hyderabad MSW Energy Solutions Private Limited., 13th Floor, Ramky Grandiose, Ramky Towers, Gachibowli, Hyderabad – 500032, India.
Telephone No.	:	
Fax No.	:	
E-mail	:	

If to the DISCOM:

Attention	:	Chief General Manager (IPC& RAC) TSSPDCL, Mint Compound, Hyderabad-500 004.
Fax No.	:	040 23431452
Telephone No.	:	040 2343 1008, 2343 1453
E-mail	:	seipc@tssouthernpower.com

9.2 All notices or communications given by fax or email shall be confirmed by depositing a copy of the same in the post office in an envelope properly addressed to the appropriate party for delivery by registered or certified mail having proof of mailing the same. All notices shall be deemed delivered upon receipt, including notices given by fax or email regardless of the date the confirmation of such notice is received.

9.3 Any party may by written notice change the address and/or addresses to which such notices and communications to it are to be delivered or mailed.

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ARTICLE 10
SPECIAL PROVISIONS

10.1 The waiver of any breach or failure to enforce any of the terms, covenants or conditions of this agreement shall not in any way affect, limit, modify or waive the future enforcement of such terms, covenants or conditions.

10.2 No oral or written modification of this Agreement either before or after its execution shall have any force or effect unless such modification is in writing and signed by the duly authorized representatives of the company and the DISCOM, subject to the condition that any further modification of the agreement shall be done only with the prior approval of TSERC. However, the amendments to the agreement as per the respective orders of TSERC from time to time shall be carried out. All the conditions mentioned in the agreement are with the consent of TSERC.

10.3 However, in respect of power evacuation, the voltage levels for interfacing with TSTRANSCO/DISCOM's grid will be as per Article 1.32. The costs of interconnection facilities have to be borne by the company as per Article 3.

10.4 The invalidity or unenforceability for any reason of any provision of this agreement shall not prejudice or affect the validity or enforceability of any other provision of this agreement.

10.5 The failure of any party to insist in one or more instances upon the strict performance of any of the provisions of this agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provisions or relinquishment of any such rights but the same shall continue in full force and effect.

10.6 Unless the context otherwise requires, every arrangement, procedure or any other matter which is, under any of the provisions of this agreement, required to be mutually agreed upon between the parties, shall be concluded by a written agreement between the parties not later than the date specified in the relevant clause of this agreement, subject to the consent of the TSERC.

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10.7 This agreement, including Schedules1, 1A, 2, 3 and 4 attached hereto, constitute the entire agreement between the parties with respect to the subject matter hereof, and there are no oral or written understandings, representations or commitments of any kind, express or implied, not set forth herein.

10.8 The headings contained herein are included solely for the convenience of the parties and are not to be used as a basis for interpreting the various clauses of this agreement.

10.9 That each of the parties agree to act in good faith in implementing the terms and conditions of this agreement and in carrying out their respective obligations hereunder.

10.10 In the event of the merger or reorganization of DISCOM, if the resulting entity is able to perform DISCOM's obligations hereunder in no less a manner than DISCOM, the resulting entity shall take the right and responsibility for performance of DISCOM's obligation.

10.11 In the event of the merger or reorganization of company, if the resulting entity is able to perform company's obligations hereunder in no less a manner than company, the resulting entity shall take the right and responsibility for performance of company's obligation.

10.12 **Assignment and Financing:** Neither party shall assign this agreement or any portion thereof to any third party without the prior written consent of the other party which consent shall not be unreasonably withheld.

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ARTICLE 11

FORCE MAJEURE

11.1 **Definition of Force Majeure:**

(a) "Force Majeure" shall mean any event or circumstance or combination of events or circumstances that materially and adversely affects the performance by either party (the "affected party") of its obligations pursuant to the terms of this agreement (including by preventing, hindering or delaying such performance), but only if and to the extent that such events and circumstances are not within the affected party's reasonable control and were not reasonably foreseeable and the effects of which the affected party could not have prevented by prudent utility practices or, in the case of construction activities, by the exercise of reasonable skill and care. Any events or circumstances meeting the description of force majeure which have the same effect upon the performance of any of the company power project setup and which therefore materially and adversely affect the ability of the project or, as the case may be, the DISCOM to perform its obligations hereunder shall constitute force majeure with respect to the company or the DISCOM, respectively.

(b) Force majeure circumstances and events shall include the following events to the extent, that they or their consequences satisfy the above requirements.

(i) Non political events such as acts of GOD including but not limited to any storm, flood, drought, lightning, earthquake or other natural calamities, fire, accident, explosion, strikes, labour difficulties, epidemic, plague or quarantine, air crash, shipwreck, train wrecks or failure ("Non Political Events").

(ii) Indirect political events such as acts of war sabotage, terrorism or act of public enemy, blockades, embargoes, civil disturbance, revolution or radioactive contamination ("Indirect Political Events").

(iii) Direct political events such as any government agencies' or the DISCOM's unlawful or discriminatory delay, modification,

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denial or refusal to grant or renew, or any revocation of any required permit or change in law ("Direct Political Events").

(iv) In the event of a delay in COD due to:

(a) Force majeure events affecting the company;

or

(b) DISCOM event of default as defined in 11.2, the scheduled COD shall be deferred, for a reasonable period but not less than 'day-to-day' basis subject to a maximum period of 12 months, to permit the company or to overcome the effects of the force majeure events affecting the company or DISCOM, or till such time such event of default is rectified by the Company or the DISCOM, whichever is earlier. Provided further that, the validity of performance bank guarantee shall be extended suitably covering the extended period.

11.2 **DISCOM Event of Default**

11.2.1 The occurrence and the continuation of any of the following events, unless any such event occurs as a result of a force majeure event or a breach by the company of its obligations under this agreement, shall constitute the event of default on the part of defaulting DISCOM ("DISCOM Event of Default"):

(i) DISCOM fails to pay (with respect to payments due to the company according to Article 2), for a period of ninety (90) days after the due date of payment and the company is unable to recover the amount outstanding through the Letter of Credit, or

(ii) DISCOM repudiates this agreement and does not rectify such a breach within a period of thirty (30) days from a notice in writing from the company in this regard; or

(iii) except where due to any company's failure to comply with its obligations, DISCOM is in material breach of any of its obligations pursuant to this agreement and such material breach is not rectified by DISCOM within thirty (30) days of receipt of notice in writing in this regard from the company to DISCOM; or

CHIEF GENERAL MANAGER/IPC & RAC
TSSPDCL, Corporate Office,
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(iv) if:-

- DISCOM becomes voluntarily or involuntarily the subject of any bankruptcy or insolvency or winding up proceedings and such proceedings remain uncontested for a period of thirty (30) days, or any winding up or bankruptcy or insolvency order is passed against DISCOM, or
- DISCOM goes into liquidation or dissolution or a receiver or any similar officer is appointed over all or substantially all of its assets or official liquidator is appointed to manage its affairs, pursuant to law,
- Provided that it shall not constitute a DISCOM Event of Default, where such dissolution or liquidation of DISCOM or DISCOM is for the purpose of a merger, consolidation or reorganization and where the resulting entity has the financial standing to perform its obligations under this agreement and has creditworthiness similar to DISCOM and expressly assumes all obligations of DISCOM and is in a position to perform them; or

(v) If DISCOM is subject to any of the above defaults and DISCOM does not designate another DISCOM for purchase of power; or

(vi) Occurrence of any other event which is specified in this agreement to be a material breach or default of DISCOM.

11.3 **Company Event of Default:**

11.3.1 The occurrence and continuation of any of the following events, unless any such event occurs as a result of a force majeure event or a breach by DISCOM of its obligations under this agreement, shall constitute a company event of default ("Company Event of Default"):

(i) if

(a) the company assigns, mortgages or charges or purports to assign, mortgage or charge any of its assets or rights related to the project in contravention of the provisions of this agreement; or

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TSSPDCL, Corporate Office,
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HYDERABAD-500 063.

(b) the company transfers or novates any of its rights and / or obligations under this agreement, in a manner contrary to the provisions of this agreement; except where such transfer

- is in pursuance of a law; and does not affect the ability of the transferee to perform, and such transferee has the financial capability to perform, its obligations under this agreement or
- is to a transferee who assumes such obligations under this agreement and the agreement remains effective with respect to the transferee;

(ii) if

(a) the company becomes voluntarily or involuntarily the subject of any bankruptcy or insolvency or winding up proceedings and such proceedings remain uncontested for a period of thirty (30) days, or

(b) any winding up or bankruptcy or insolvency order is passed against the company, or

(c) the company goes into liquidation or dissolution or has a receiver or any similar officer appointed over all or substantially all of its assets or official liquidator is appointed to manage its affairs, pursuant to law,

Provided that a dissolution or liquidation of the company will not be a company event of default if such dissolution or liquidation is for the purpose of a merger, consolidation or reorganization and where the resulting company retains creditworthiness similar to the company and expressly assumes all obligations of the company under this agreement and is in a position to perform them; or

(iii) the company repudiates this agreement and does not rectify such breach within a period of thirty (30) days from a notice from DISCOM in this regard; or

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HYDERABAD-500 063.

(iv) except where due to any DISCOM's failure to comply with its material obligations, the company is in breach of any of its material obligations pursuant to this agreement, and such material breach is not rectified by the company within thirty (30) days of receipt of first notice in this regard given by DISCOM; or

(v) occurrence of any other event which is specified in this agreement to be a material breach / default of the company.

(vi) default has occurred under any of the financing agreements and any of the lenders to the project has recalled its financial assistance and demanded payment of the amounts outstanding under the financing documents or any of them as applicable and the lenders shall issue a written notice to the DISCOM to this effect.

11.4 In case of occurrence of an event of default as provided in clauses 11.2 and 11.3 of this agreement, the non-defaulting party shall issue a default notice to the defaulting party in accordance with Article 14 of this agreement.

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HYDERABAD-500 063.

ARTICLE 12

DATA ACQUISITION SYSTEM & DAY-AHEAD SCHEDULES

12.1 The company shall establish data acquisition system with necessary communication facilities in line with TSTRANSCO procedures and ensure that the online data shall be completely integrated with SLDC within one month from date of COD. The company shall furnish block-wise availability on day ahead basis to SLDC and abide by the scheduling procedures as per the orders, regulations, policies, suo-motu orders, directions issued by the Indian Grid Code and State Grid Code, CEA, MNRE any other statutory government agency etc., from time to time.

12.2 The revision of declared capacity by the generator having two part tariff and requisition by beneficiary for the remaining period of the day shall be permitted with advance notice. Revised schedules/declared capacity in such cases shall become effective from the 4th time block, counting the time block in which the request for revision has been received to be the first one.

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ARTICLE 13
OTHER PROVISIONS

The company shall abide by the following conditions as stipulated vide TSERC order in O.P.No.18 of 2016 dated13.06.2016:

13.1 **Usage of Secondary Fuel**: Secondary fuel may be used for giving necessary support during the start-up operations only. The National Tariff Policy issued in January 2016, mandates the must-run status for the waste to energy projects and to demonstrate this requirement, the developer is required to maintain the records of such start-up operations including the secondary fuel consumption for such operations.

13.2 **Inspection of the Project regularly**: The DISCOM in whose jurisdiction, the project is located shall make an inspection of the power project regarding the usage of the fuel by a team of three engineers' once in four months and submit a report that no fossil fuel other than the RDF is being used as a fuel by the generator. Further, the DISCOMs shall ensure that the team which conducts the inspection in the next quarter shall not comprise of the same engineers' who had conducted the previous inspection. In other words, the team should comprise of different engineers' among its employees other than the engineers' who conducted the earlier inspection and a copy of the report prepared by such a team shall also be sent to the Commission for its perusal and verification.

If the company is found to be using coal, or biomass or diesel or any fossil fuel for running the power projects except for starting operations, the DISCOMs shall be at liberty to terminate the PPA with the generator by giving two months' notice or any period as per the suppliers' default covenant in this PPA entered into by a Developer/Generator with the DISCOM(S).

13.3 **Incentives**: Any incentives, including but not limited to tipping fees, interest rates, government grants, generation based incentives shall be passed on to DISCOM.

CHIEF GENERAL MANAGER/IPC & RAC
TSSPDCL, Corporate Office,
6-1-50, Mint Compound,
HYDERABAD-500 063.

13.4 **Income Tax liability**: The DISCOM shall reimburse the income tax liability on the income derived from the power project by the company and it shall not reimburse any tax on income not derived from the power project by the company. In other words, income tax on any income other than the income derived from the power project shall be borne by the company.

13.4 **Scheduling and Dispatch**: The waste-to-energy power projects in the state of Telangana shall be treated as must-run stations, thus are not subjected to the Merit Order Dispatch. The generating company has to furnish the day-ahead schedule and maintain it. However, for the purpose of grid stability and discipline in the event of contingencies arise and when no other means of grid discipline is available, the schedule can be changed by the State Load Dispatch Centre (SLDC) keeping in view the CERC (Indian Electricity Grid Code) Regulation, 2010 as amended from time to time and CERC (Unscheduled Interchange and related matters), Regulations, 2009 as amended from time to time.

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TSSPDCL, Corporate Office,
6-1-50, Mint Compound,
HYDERABAD-500 063.

ARTICLE 14
DEFAULT

14.1 The company shall achieve COD as per approval of TSREDCO from time to time, default of which, the agreement is liable for termination and the same can be done at the option of DISCOM with due notice.

14.2 In the event, DISCOM commits a breach of any of the terms of this agreement, the company shall be entitled to specific performance of this agreement or claim such damages as would be available under law or both, at its option, by giving 30 days notice to DISCOM.

14.3 In the event, company commits a breach of any of the terms of this agreement, the DISCOM shall be entitled to specific performance of this agreement or claim such damages as would be available under law or both, at its option, by giving 30 days notice to the company.

14.4 If the default continues for a period of 30 days or more, either party will have a right to issue a preliminary notice for termination of the this agreement. If the default is not cured within 30 days thereafter, either party can terminate this agreement and can claim damages at its option.

14.5 In the event of cancellation of the project allotted to the company by TSREDCO for any reason, the PPA with DISCOM will automatically stand cancelled.

CHIEF GENERAL MANAGER/IPC & RAC
TSSPDCL, Corporate Office,
6-1-50, Mint Compound,
HYDERABAD-500 063.

ARTICLE 15
DISPUTE RESOLUTION

15.1 Each party shall designate in writing to the other party a representative, who shall be authorized to resolve any dispute arising under this agreement in an equitable manner.

15.2 Following notice by one party to the other setting out the particulars of the dispute, if the designated representatives are unable to resolve a dispute under this agreement within 15 days, such dispute shall be referred by such representatives to a senior officer designated by the company and a senior officer designated by the TSSPDCL respectively, who shall attempt to resolve the dispute within a further period of 15 days.

15.3 The parties hereto agree to use their best efforts to attempt to resolve all disputes arising hereunder promptly, equitably and in good faith and further agree to provide each other with reasonable access during normal business hours to any and all non-privileged records, information and data pertaining to any such dispute.

15.4 Failing resolution of the disputes in terms of above provisions or even otherwise, any party may approach the TSERC to adjudicate upon the dispute in terms of section 86(1)(f) of the Act, 2003.

CHIEF GENERAL MANAGER/IPC & RAC
TSSPDCL, Corporate Office,
6-1-50, Mint Compound,
HYDERABAD-500 063.

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IN WITNESS WHEREOF, the Company and the DISCOM have caused this agreement to be executed as of the date and the year first set forth above.

for and behalf of

(IC. SATYARAJA)
CHIEF GENERAL MANAGER/IPC & RAC
6-1-50, Mint Compound
HYDERABAD-500 063.

SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED

Witness by:

1. (K. SATISH KUMAR) DE/RAC/TSSPDCL

2.

for and behalf of

M/s. HYDERABAD MSW ENERGY SOLUTIONS PRIVATE LIMITED

Witness by:

1. (CV.S. VENKATESAN)
Head - Corporate Affairs
REEL - Hyderabad

2. (K. APPI REDDY)
AVP - REEL Hyderabad.

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SCHEDULE-1

Particulars of the Project

(Referred to in the Preamble to the Agreement)

Name of the Project and Address	Injection Voltage	Interconnection Point/ Interconnection SS	Type of Project	Capacity of the Project
M/s. Hyderabad MSW Energy Solutions Pvt. Ltd., at Jawaharnagar (V), Kapra (M), Medchal District	132 KV	400KV Malkaram SS	RDF based	19.8 MW*

(*) Out of which 2.178 MW is for auxiliary consumption and balance 17.622 MW is for export to grid for sale to DISCOM at interconnection point. Auxiliary consumption is 11% of installed capacity for RDF based projects.

SCHEDULE-1A

The tariff as determined by the TSERC

SCHEDULE-2

TSREDCO Proceedings

SCHEDULE-3

TSREDCO Agreement

SCHEDULE-4

T.O.O. (CE-Construction-2) Ms.No.488, dated 17.03.2012

CHIEF GENERAL MANAGER/IPC & RAC
TSSPDCL, Corporate Office,
6-1-50, Mint Compound,
HYDERABAD-500 063.

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o/c

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ANNEXORE - 6 (V)

HYDERABAD MSW ENERGY SOLUTIONS PRIVATE LIMITED

Survey No. 173, Jawahar Nagar, CRPF Road, Near Army College of Dental Sciences, Kapra Mandal,
Medchal District, Telangana State - 500087. Ph No's - 040 2301 5000 / 9848843266.
HMESPL: GSTIN -36AACCE5754C1ZU - CIN: U93000TG2010PTC071850
E-mail: appireddy.k@resustainability.com/pavankumar.vadapalli@ resustainability.com.

Lr.No:HMESPL/Energy Bill/JAN/2024-25/010. Date : 04.02.2025.

To
Financial Advisor & Chief Controller of Accounts
TGPCC
5th Floor Vidyut Soudha,
HYDERABAD.

Sir,

Sub: Submission of Energy Bill for the Month of January - 2025 Reg.

Ref:1) Power Purchase Agreement

With reference to the above cited subject, Please find enclosed herewith 01 set of Bill Vide Bill No. 010/2024-25, dated: 04.02.2025 for the Month of JANUARY - 2025 for an amount of Rs.11,08,83,472/- (Eleven Crores Eight Lakhs Eighty Three Thousand Four Hundred and Seventy Two Rupees Only.)

Kindly acknowledge the receipt.

Yours faithfully,

For

Hyderabad MSW Energy Solutions Pvt Ltd.

FA & CCA TGPCC
04 FEB 2025
Vidyut Soudha, Hyderabad-82

Encl: 1. Original Joint Meter Reading (JMR) Sheet Januray-2025.
Copy to:

1) Chief Engineer (IPC)/ TGSPDCL, MINT Compound, Hyderabad.
2) Executive Director /Commercial /TGPCC / Vidyut Soudha / Hyderabad.
3) Chief Engineer/SLDC/TGTRANSCO/ Vidyut Soudha / Hyderabad

Executive Director (Comml.)
04 FEB 2025
TGPCC, Vidyut Soudha, Hyd.

Chief Engineer
4 FEB 2025

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HYDERABAD MSW ENERGY SOLUTIONS PRIVATE LIMITED
Survey No. 173, Jawahar Nagar, CRPF Road, Near Army College of Dental Sciences, Kapra Mandal,
Medchal District, Telangana State – 500087. Ph No's – 040 2301 5000 / 9848843266.
HMESPL: GSTIN -36AACCE5754C1ZU - CIN : U93000TG2010PTC071850
E-mail: appireddy.k@resustainability.com/pavankumar.vadapalli@ resustainability.com.

Bill No: **HMESPL/Energy Bill/JAN/2024-25/010.** Date: **04.02.2025.**

Bill for the period from - 03.01.2025 to 03.02.2025

Amount Payable on or before: 03.03.2025.

Bill for power exported to TGSPDCL

Jan-25		
Particulars	**Export**	**Remarks**
Reading of Main Meter on Dated: 03.01.2025	639113.8	
Reading of Main Meter on Dated: 03.02.2025	653257.1	
Difference Units-MWH	14143.3	
Multiplying Factor	1000	
Energy Exported as per Main Meter Readings	14143300	
Unit Cost	7.84	
Cost of Power Purchased by TGSPDCL (Rs)	110883472	

(Eleven Crores Eight Lakhs Eighty Three Thousand Four Hundred and Seventy Two Rupees Only.)

For

Hyderabad MSW Energy Solutions Pvt Ltd.

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SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA STATE LIMITED,

From
Divisional Engineer Elecl.,
Operation, Keesara,
TGSPDCL.

To
The Financial Advisor & Chief Controller of Accounts
TGPCC/TG Transco
Vidyut Soudha/Hyderabad.

Lr. No. DEE/OP/KEESARA/Tech/F.No. /D. No. S234 /2024-25, DT:03/02/2025.

Sir,

Sub : TGSPDCL- Keesara Division- 19.8 MW Waste to Energy plant of M/s Hyderabad MSW Energy Solutions (P) Limited located at Sy. No. 173, Jawahar Nagar, CRPF Road, Near Army College of Dental Sciences, Medchal District- January -2025 – JMR Readings- Submitted- Reg.

****

The readings of Main Meter, Check Meter and Standby Meter of M/s Hyderabad MSW Energy Solutions (P) Limited along with MRI dumps for the month of January -2025 are here with submitted for taking further necessary action please.

Yours faithfully,

Divisional Engineer Elecl,
Operation, Keesara.
TGSPDCL.

Division Engineer Elec
Operation Division, Keesara
TGSPDCL

Copy Submitted to:

1. The Executive Director/TGPCC/Commercial/TGTRANSCO/Vidyut Soudha/Hyd.
2. The Chief Engineer/IPC/TGSPDCL, Mint Compound.
3. The Deputy Chief Controller of Accounts TGPCC/TG Transco/Vidyut Soudha/Hyderabad.
4. The Chief Engineer/SLDC/TGTRANSCO/Vidyut Soudha/Hyderabad-07.
5. The Superintending Engineer/TGSPDCL/Habsiguda Circle/Uppal X Road/Hyderabad.
6. The Superintending Engineer/DPE/TGSPDCL/Corporate Office/Hyderabad.
7. The Chief Engineer/Metro Zone/TGTRANSCO/Erg./Hyd.
8. The Superintending Engineer/EBC /TGTRANSCO/Vidyut Soudha/Hyderabad.
9. The Superintending Engineer/OMC/Metro-East/Hyderabad.
10. The Superintending Engineer/IPC/TGSPDCL/Corporate Office/Hyderabad.

Copy to:

1. The Divisional Engineer/MRT/Habsiguda Circle/Uppal
2. The Divisional Engineer/O&M/Malkaram.
3. M/s Hyderabad MSW Energy Solutions (P) Limited/Jawahar Nagar.

Office of the Superintending Engineer TGSPDCL, Habsiguda Circle 05 FEB 25

O/o. SE/EBC/TGTRANSCO, Vidyut Soudha, Hyderabad 04 FEB 2025

Sr. Divisional Engineer MRT 05 FEB 2025 Habsiguda Circle TGSPDCL

TG Transco Metro Zone Engineer

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READINGS OF MAIN, CHECK & STANDBY METERS FOR THE MONTH OF JANUARY-2025

Name & Location of the Plant :	M/s Hyderabad MSW Energy Solutions Private Limited , Survey No:173, Jawahar Nagar,CRPF Road, Near Army College of Dental Sciences, Kapra Mandal,Medchal District,Telangana - 500087
Location of Metering :	400KV/220KV/132KV/33KV Malkaram Substation
Fuel : RDF	Long term Power Purchase agreement between SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED & HMESPL Dated: 19.02.2020
Date of Reading : 03-02-2025	Time of Reading : 11:18 AM

CT & PT Ratio			Details of Billing Energy Meters			
	CTs	PTs		Main Meter	Check Meter	Standby Meter
Class	0.2S	0.2	Make	Secure	Secure	Secure
Burden	5VA	10 VA	Sl.No. /Year	APZ00677	APZ00678	APZ00679
	Availble	Adopted	Type	APEX 150	APEX 150	APEX 150
CT Ratio	100/1A	100/1A	Meter CT Ratio	100/1A	100/1A	100/1A
PT Ratio	132 KV/√3/110V/√3	132 KV/√3/110V/√3	Meter PT Ratio	132 KV/√3/110V/√3	132 KV/√3/110V/√3	132 KV/√3/110V/√3
			MF for KWh	1000	1000	1000

Readings of Main,Check & Stand by Meters

SL.No	Display ID	Parameters	Main Meter	Check Meter	Standby Meter
1	Meter Serial No.		APZ00677	APZ00678	APZ00679
2	Date &Time		03.02.2025 & 11:18 AM	03.02.2025 & 11:30 AM	03.02.2025 & 11:46 AM
3	L1 Current	A	44.08	41.59	52.37
4	L2 Current	A	42.76	41.24	51.50
5	L3 Current	A	40.31	40.52	50.27
6	L1 Phase	KV	74.56	74.70	74.85
7	L2 Phase	KV	75.16	75.20	75.85
8	L3 Phase	KV	74.81	74.88	74.86
9	All Phase Power Factor		0.956	0.961	0.962
10	Frequency	HZ	50.03	50.039	50.032
11	Active (T) power	MW	-9.11	-9.21	-11.21
12	Active (F) Power	MW	-9.08	-9.39	-11.23
13	Reactive Power	MVAR	-2.88	-2.60	-3.23
14	Apparent Power	MVA	9.00	9.48	11.62
15	Main Energy Active Import	MWH	522.2	522.1	522.1
16	Main Energy Active Export	MWH	-653257.1	-653284.9	-653253.9
17	Main Energy Apparent Import	MVAH	530.6	530.7	530.9
18	Main Energy Apparent Export	MVAH	-661031.3	-661059.4	-661005.2
19	Main Energy Reactive Lag (QI)	MVARH	21.0	21.2	21.8
20	Main Energy Reactive Lead (QII)	MVARH	175.9	175.7	176.3
21	Main Energy Reactive Lag (QIII)	MVARH	-93008.4	-93013.5	-92839.9
22	Main Energy Reactive Lead (QIV)	MVARH	-145.1	-145.2	-140.1
23	Apparent Import (MD)	MVA	1.6536	1.5080	1.6800
24	Apparent Export (MD)	MVA	21.9036	21.9208	21.8664
25	Raising Demand Apparent Import	MVA	0	0	0
26	Raising Demand Apparent Export	MVA	3.8168	1.8440	3.1004
27	Rising Demand Apparent Import 01	MVAH	139.9	139.9	139.7
28	Rising Demand Apparent Import 02	MVAH	92.7	93.1	93.1
29	Rising Demand Apparent Import 03	MVAH	87.7	87.1	87.9
30	Rising Demand Apparent Import 04	MVAH	73.2	73.7	73.0
31	Rising Demand Apparent Import 05	MVAH	84.1	84.0	84.0
32	Rising Demand Apparent Import 06	MVAH	50.9	50.8	51.1
33	Rate Reg Apparent Export 01	MVAH	-166102.4	-166134.4	-166109.8

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34	Rate Reg Apparent Export 02	MVAH	-110706.4	-110726.5	-110708.2
35	Rate Reg Apparent Export 03	MVAH	-109582.8	-109572.5	-109572.6
36	Rate Reg Apparent Export 04	MVAH	-109502.9	-109481.3	-109478.5
37	Rate Reg Apparent Export 05	MVAH	-109899.5	-109904.9	-109899.6
38	Rate Reg Apparent Export 06	MVAH	-55236.2	-55238.7	-55235.5
39	MD Reg Apparent Import 01	MVA	0	0	0
40	MD Reg Apparent Import 02	MVA	1.6536	1.5080	1.6800
41	MD Reg Apparent Import 03	MVA	0	0	0
42	MD Reg Apparent Import 04	MVA	0	0	0
43	MD Reg Apparent Import 05	MVA	0	0	0
44	MD Reg Apparent Import 06	MVA	0	0	0
45	MD Reg Apparent Export 01	MVA	21.8412	21.9012	21.8332
46	MD Reg Apparent Export 02	MVA	21.7112	21.6908	21.7116
47	MD Reg Apparent Export 03	MVA	21.9036	21.9208	21.8664
48	MD Reg Apparent Export 04	MVA	21.2668	21.2468	21.2444
49	MD Reg Apparent Export 05	MVA	21.3100	21.3384	21.3324
50	MD Reg Apparent Export 06	MVA	21.5600	21.6536	21.5500
51	Logger 1 Previous IP Average Frequency	Hz	50.035	50.017	50.038
52	H1, Main Energy Active (Imp-Exp)	MWH	-638593.4	-638619.8	-638589.5
53	% Voltage of All Phases		98.1	98.3	98.7
54	Main Energy Reactive High (Imp-Exp)	MVARH	-35253.7	-35261.1	-35639.5
55	Main Energy Reactive Low (Imp-Exp)	MVARH	-341.9	-343.1	-315.1
56	Power OFF Minutes		391752	391580	391573
57	Line 1 Voltage THD %		0.75	0.75	0.76
58	Line 2 Voltage THD %		0.8	0.81	0.83
59	Line 3 Voltage THD %		0.85	0.81	0.87
60	Line 1 Current THD %		1.59	1.43	1.41
61	Line 2 Current THD %		1.89	1.37	1.52
62	Line 3 Current THD %		1.83	1.46	1.46
63	H1,CMD (0-24 Hrs) Apparent Import (Before)	MVA	51.2504	51.6676	51.1352
64	H1,CMD (0-24 Hrs) Apparent Export (Before)	MVA	1192.3868	1192.3144	1192.3064
65	Billing Count		59	59	59
66	After Reset		60	60	60
67	H1,CMD (0-24 Hrs) Apparent Import (After Reset)	MVA	52.9040	53.1756	52.8152
68	H1,CMD (0-24 Hrs) Apparent Export (After Reset)	MVA	1214.2904	1214.2352	1214.1728

Division Engineer Elec
Operation Division Keesar
TGSPDC

HYDERABAD MSW ENERGY SOLUTIONS PVT LTD. HYDERABAD

Divisional Engineer (Elec.)
400KV/O&M Malkaram,
TGTRANSCO,Hyderabad-79

Divisional Engineer
Operation Division,
Keesara, TGSPDCL

M/s Hyderabad MSW Energy
Solutions Pvt. Ltd.
Representative

ANNEXURE-IIA

Comparitive Statement

FOR THE MONTH OF JANUARY-2025

Name & Location of the Plant :	M/s Hyderabad MSW Energy Solutions Private Limited , Survey No:173, Jawahar Nagar,CRPF Road, Near Army College of Dental Sciences,Kapra Mandal,Medchal District,Telangana -500087
Location of Metering :	400KV/220KV/132KV/33KV Malkaram Substation
Fuel : RDF	Long term Power Purchase agreement between SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED & HMESPL Dated: 19.02.2020
Date of Reading : 03-02-2025	Time of Reading : 11:18 AM

Meter Details	Main Meter (Sl.No.APZ00677)		Check Meter (Sl.No.APZ00678)		Standby Meter (Sl.No. APZ00679)	
	Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO
Readings before Manual Reset of MD						
MD (Present) (A)	1.6536	21.9036	1.5080	21.9208	1.6800	21.8664
CMD (Cumulative MD) (B)	51.2504	1192.3868	51.6676	1192.3144	51.1352	1192.3064
Reset Count (C)	59	59	59	59	59	59
Readings after Manual Reset of MD						
MD (Present) (D)	0	0	0	0	0	0
CMD (Cumulative MD) (E)	52.9040	1214.2904	53.1756	1214.2352	52.8152	1214.1728
Reset Count (F)	60	60	60	60	60	60
Readings of MD after Manual reset in the previous JMR						
CMD (Cumulative MD) (G)	-	-	-	-	-	-
Reset Count (H)	-	-	-	-	-	-

Comparitive Statement (Readings of "Export to TGTRANSCO")	
Cumulative MD reading after RESET in the preset JMR (E)	1214.2904
Cumulative MD reading after RESET in the previous JMR (G)	1192.3868
Difference in cumulative MD (I)= (E)-(G)	21.9036
Whether the different in Cumulative MD (I)=(A)	NO
if YES,the current month MD to be billed = (A)	21.9036
Whether RESET Count difference (F)-(H)- equal to 1	YES
If NO, give the reasons:	

Division Engineer Ele
Operation Division Keesa
TGSPDCL

HYDERABAD MSW ENERGY SOLUTIONS PVT LTD. HYDERABAD

Divisional Engineer (Elec.) 400KV/O&Mmalkaram TGTRANSCO,Hyderabad-79	Divisional Engineer Operation Division, Keesara, TGSPDCL	M/s Hyderabad MSW Energy Solutions Pvt. Ltd. Representative

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ANNEXURE-IIB Comparitive Statement FOR THE MONTH OF JANUARY-2025	
Name & Location of the Plant :	M/s Hyderabad MSW Energy Solutions Private Limited ,Survey No:173, Jawahar Nagar,CRPF Road, Near Army College of Dental Sciences,Kapra Mandal,Medchal District,Telangana -500087
Location of Metering :	400KV/220KV/132KV/33KV Malkaram Substation
Fuel : RDF	Long term Power Purchase agreement between SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED & HMESPL Dated: 19.02.2020
Date of Reading : 03-02-2025	Time of Reading : 11:18 AM

Cumulative MD reading before RESET in the present JMR	(B)	1192.3868
Cumulative MD reading after RESET in the present JMR	(E)	1214.2904
Cumulative MD reading after RESET in the present JMR	(G)	0
Difference (I)= (E)- (B)		21.9036
Compare the Values of (I) & (J) and arrive at the billing MD by taking the value which ever is high.		
Current month MD to be billed		21.9036

Division Engineer Ele
Operation Division Keesa
TGSPDCL

HYDERABAD MSW ENERGY SOLUTIONS PVT. LTD. HYDERABAD

Divisional Engineer (Elec.)
400KV/O&Mmalkaram
TGTRANSCO,Hyderabad-79

Divisional Engineer
Operation Division,
Keesara, TGSPDCL

M/s Hyderabad MSW Energy
Solutions P. Ltd.
Representative

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o/c

DUNDIGAL WASTE 2 ENERGY PRIVATE LIMITED
Survey No. 684/1, Dundigal Vill., Dundigal - Gandimaisamma Mdl.
Medchal-Malkajgiri Dist., Telangana - 500043. Ph No.: +91 40 23015000
Email : wte.hyderabad@resustainability.com
CIN : U90000TG2020PTC146706

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DW2EPL: GSTIN-36AAICD1904F1ZZ
E-mail: wte.hyderabad@resustainability.com

Lr.No:DW2EPL/Energy Bill / JANUARY /2024-25/635 Date: 01.02.2025

To
Financial Advisor & Chief Controller of Accounts
TGPCC
5th Floor Vidyut Soudha,
HYDERABAD.

Sir,

Sub: Submission of Energy Bill for the Month of **JANUARY** - 2025 Reg.

Ref:1) Power Purchase Agreement

With reference to the above cited subject, Please find enclosed herewith 01 set of Bill Vide Bill No 635 /2024-25, dated: 01.02.2025 for the Month of **JANUARY** - 2025 for an amount of Rs.xx(Tariff to be decided by TGERC) /-

The invoice will be submitted after the finalisation of the Tariff by TGERC

O/o. CE/EBC/TGTRANSCO 06 FEB 2025 Vidyut Soudha, Hyderabad

Kindly acknowledge the receipt.

Yours faithfully,

Dundigal Waste 2 Energy Private Limited.

For

Authorized Signature

DUNDIGAL WASTE 2 ENERGY PVT. LTD. HYD.

FA & CCA TGPCC 06 FEB 2025 Vidyut Soudha, Hyderabad-82

Encl: 1. Original Joint Meter Reading (JMR) Sheet JANUARY -2025.
Copy to:

1) Chief General Manager, IPC, TGSPDCL, MINT Compound, Hyderabad.
2) Chief General Manager, RAC, TGSPDCL, MINT Compound, Hyderabad.
3) Executive Director /Commercial /TGPCC / Vidyut Soudha, Hyderabad.
4) Chief Engineer/SLDC/TGTRANSCO/ Vidyut Soudha, Hyderabad

O/o. CHIEF ENGINEER / SLDC Outward 6 FEB 2025 TGTRANSCO

TGSPDCL CRD SECTION 06 FEB 2025 INWARD Corporate Office, 6-1-50, Mint Compound, Hyderabad

Executive Director (Commercial) 06 FEB 2025 TGPCC, Vidyut Soudha, Hyd.

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DUNDIGAL WASTE 2 ENERGY PRIVATE LIMITED
Survey No. 684/1, Dundigal Vill., Dundigal - Gandimaisamma Mdl.
Medchal-Malkajgiri Dist., Telangana - 500043. Ph No.: +91 40 23015000
Email : wte.hyderabad@resustainability.com
CIN : U90000TG2020PTC146706

DW2EPL: GSTIN-36AAICD1904F1ZZ
E-mail: wte.hyderabad@resustainability.com

Bill No: DW2EPL/Energy Bill/ JANUARY /2024-25/ 635 Date: 01.02.2025

Bill for the period from - 01.01.2025 to 01.02.2025

Amount Payable on or before: The Bill may be paid after the declaration of Tariff by TGERC.

Bill for power exported to TGSPDCL

JANUARY -25		
Particulars	Export	Remarks
Reading of Main Meter on Dated: 01.02.2025	96814.2	
Previous Meter Reading on Dated: 01.01.2025	87189.4	
Difference Units-MWH	9624.80	
Multiplying Factor	1000	
Energy Exported as per Main Meter Readings KWH	9624800	
Unit Cost	Tariff To Be decided by TSERC	
Cost of Power Purchased by TGSPDCL (Rs)	do-	

(Invoice will be submitted after finalisation of Tariff by TGERC)

Dundigal Waste 2 Energy Private Limited.

For

Authorized Signature

DUNDIGAL WASTE 2 ENERGY PVT. LTD. ★ HYD.

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SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA STATE LIMITED.

From

Divisional Engineer Elec.,
Operation, Jeedimetla,
TGSPDCL.
Hyderabad

To

The Financial Advisor &
Chief Controller of Accounts
TGPCC / TGTRANSCO
Vidyut Soudha/ Hyderabad.

Lr.No. DEE/OP/JEEDIMETLA/Tech/F.No. /D.No.191 /2024-25, DT: 01/ 02 /2025.

Sir,

Sub: TGSPDCL-Medchal Division-14.5 Waste 2 Energy Plant of M/s Dundigal Waste 2 Energy (P) Limited located at Sy.684/1, Dundigal Village, Dundigal, Medchal Malkajgiri District- JANUARY - 2025-JMR Readings-Submitted- Reg.

****

The readings of the Main Meter, Check Meter, and Stand by Meter of M/s Dundigal Waste 2 Energy (P) Limited along with MRI dumps for the month of JANUARY -2025 are here with Submitted for taking further necessary action please.

Yours faithfully,

MRT Medchal * Divisional Engineer * Circle 886 6/2/25

Divisional Engineer, Electrical
Operation, Jeedimetla
TGSPDCL.

Copy Submitted to:

1. The Executive Director/TGPCC/Commercial/TGTRANSCO/Vidyut Soudha/Hyd.
2. The Chief General Manager/IPC/TGSPDCL, Mint Compound.
3. The Chief General Manager/RAC/TGSPDCL, Mint Compound.
4. The Deputy Chief Controller of Accounts TGPCC/ TS Transco/Vidyut Soudha/Hyderabad
5. The Chief Engineer/SLDC/TGTRANSCO/Vidyut Soudha Hyderabad-07
6. The Superintending Engineer /TGSPDCL/MEDCHAL Circle/Gun Rock/Hyderabad.
7. The Superintending Engineer/DPE/TGSPDCL/Corporate Office/Hyderabad.
8. The Chief Engineer/Metro Zone/TGTRANSCO/Erg/Hyd.
9. The Superintending Engineer/EBC/TGTRANSCO/Vidyut Soudha/Hyderabad.
10. The Superintending Engineer/OMC/Metro-West/Hyderabad.
11. The Superintending Engineer/IPC/TGSPDCL/Corporate Office/Hyderabad.

Copy To:

1. The Divisional Engineer/O&M/TGTRANSCO/Metro-West Division-Gachibowli.
2. The Divisional Engineer/ MRT/TGSPDCL/Medchal,
3. The M/s Dundigal Waste 2 Energy Private Limited.

O/o Superintending Engineer Operation Medchal TGSPDCL 05 FEB 2025

TG Transco CHIEF ENGINEER Metro 06/2/25

SEIOM METRO-WEST ERA GACHIBOWLI HYD TG TRANSCO Date 06/2/25

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READINGS OF MAIN, CHECK & STANDBY METERS FOR THE BILLING MONTH OF JANUARY -2025

Name & Location of the Plant :	M/s Dundigal Waste 2 Energy Private Limited , Survey No:684/1, Dundigal Village, Dundigal - Gandimaisamma Mandal, Medchal-Malkajgiri District,Telangana -500043
Location of Metering :	132 Kv Dundigal Switching Station, Medchal -Malkajgiri District -500043
Fuel : RDF	Long term Power Purchase agreement between TGSPDCL & DW2EPL Dated: 14.02.2024
Date of Reading : 01-02-2025	Time of Reading : 10:14:30 Hrs

CT & PT Ratio			Details of Billing Energy Meters			
	CTs	PTs		Main Meter	Check Meter	Standby Meter
Class	0.2S	0.2	Make	Secure	Secure	Secure
Burden	5VA	10 VA	Sl.No. /Year	APZ01578	APZ01579	APZ01580
	Availble	Adopted	Type	APEX 150	APEX 150	APEX 150
CT Ratio	100/1A	100/1A	Meter CT Ratio	100/1A	100/1A	100/1A
PT Ratio	132 KV/√3/110V/√3	132 KV/√3/110V/√3	Meter PT Ratio	132 KV/√3/110V/√3	132 KV/√3/110V/√3	132 KV/√3/110V/√3
			MF for KWh	1000	1000	1000

Readings of Main,Check & Stand by Meters

Sl.No	Display ID	Parameters	Main Meter	Check Meter	Standby Meter	
1	Meter Serial No.		APZ01578	APZ01579	APZ01580	
2	Date &Time		01-02-2025,10:14:30	01-02-2025,10:19:31	01-02-2025,10:41:38	
3	L1 Current	A	38.90	35.47	34.56	
4	L2 Current	A	40.34	37.30	37.24	
5	L3 Current	A	40.11	37.12	37.63	
6	L1 Phase	KV	74.59	74.89	74.76	
7	L2 Phase	KV	75.24	75.25	75.31	
8	L3 Phase	KV	75.09	74.86	74.62	
9	All Phase Power Factor		0.969	0.966	0.966	
10	Frequency	Hz	50.03	50.02	49.97	
11	Active (T) power	MW	8.71	8.04	7.87	
12	Active (F) Power	MW	8.68	8.09	7.89	
13	Reactive Power	MVAR	2.23	2.10	2.10	
14	Apparent Power	MVA	8.77	8.36	8.23	
15	Main Energy Active Import	MWH	181.7	181.6	180.7	
16	Main Energy Active Export	MWH	96814.2	96781.2	96853.7	
17	Main Energy Apparent Import	MVAH	185.70	185.70	185.00	
18	Main Energy Apparent Export	MVAH	99029.9	98993.1	99060.5	
19	Main Energy Reactive Lag (QI)	MVARH	21.6	21.7	22.4	
20	Main Energy Reactive Lead (QII)	MVARH	1.9	1.7	1.7	
21	Main Energy Reactive Lag (QIII)	MVARH	20750.9	20729.0	20711.5	
22	Main Energy Reactive Lead (QIV)	MVARH	18.5	18.4	17.3	
23	Apparent Import (MD)	MVA	0.01760	0.01752	0.01736	
24	Apparent Export (MD)	MVA	13.87528	13.87648	13.87888	
25	Raising Demand Apparent Import	MVA	0.00000	0.00000	0.00000	
26	Raising Demand Apparent Export	MVA	0.79284	3.49580	6.88244	
27	Rising Demand Apparent Import 01	MVAH	42.0	41.7	41.6	
28	Rising Demand Apparent Import 02	MVAH	21.4	21.7	21.9	
29	Rising Demand Apparent Import 03	MVAH	32.1	32.1	31.4	
30	Rising Demand Apparent Import 04	MVAH	31.1	31.2	31.0	
31	Rising Demand Apparent Import 05	MVAH	59.1	59.0	59.1	
32	Rising Demand Apparent Import 06	MVAH	ND	ND	ND	
33	Rate Reg Apparent Export 01	MVAH	24995.7	24988.2	24997.5	

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SL.No	Display ID	Parameters	Main Meter	Check Meter	Standby Meter	
34	Rate Reg Apparent Export 02	MVAH	16585.5	16579.1	16587.8	
35	Rate Reg Apparent Export 03	MVAH	16397.7	16389.5	16408.7	
36	Rate Reg Apparent Export 04	MVAH	16354.7	16348.4	16362.9	
37	Rate Reg Apparent Export 05	MVAH	24696.6	24688.1	24703.7	
38	Rate Reg Apparent Export 06	MVAH	ND	ND	ND	
39	MD Reg Apparent Import 01	MVA	0.00000	0.00000	0.00000	
40	MD Reg Apparent Import 02	MVA	0.00000	0.00000	0.00000	
41	MD Reg Apparent Import 03	MVA	0.01760	0.01752	0.01736	
42	MD Reg Apparent Import 04	MVA	0.00000	0.00000	0.00000	
43	MD Reg Apparent Import 05	MVA	0.00000	0.00000	0.00000	0
44	MD Reg Apparent Import 06	MVA	0.00000	0.00000	0.00000	
45	MD Reg Apparent Export 01	MVA	13.87528	13.87648	13.87888	
46	MD Reg Apparent Export 02	MVA	13.85976	13.85304	13.85976	
47	MD Reg Apparent Export 03	MVA	13.82084	13.81260	13.81752	
48	MD Reg Apparent Export 04	MVA	13.81220	13.80932	13.82096	
49	MD Reg Apparent Export 05	MVA	13.83868	13.83528	13.85420	
50	MD Reg Apparent Export 06	MVA	13.84644	13.83960	13.84816	
51	Logger 1 Previous IP Average Frequency	Hz	50.01	50.01	50.01	
52	H1, Main Energy Active (Imp-Exp)	MWH	87025.1	86995.3	87048.5	
53	% Voltage of All Phases		98.5	98.5	98.3	
54	Main Energy Reactive High (Imp- Exp)	MVARH	9355.6	9212.3	9403.6	
55	Main Energy Reactive Low (Imp- Exp)	MVARH	22.4	24.4	20.9	
56	Power OFF Minutes		635744	635755	635829	
57	Line 1 Voltage THD %		0.70	9.07	0.66	
58	Line 2 Voltage THD %		0.57	8.91	0.52	
59	Line 3 Voltage THD %		0.44	8.95	0.44	
60	Line 1 Current THD %		1.45	1.85	1.29	
61	Line 2 Current THD %		1.68	1.46	1.24	
62	Line 3 Current THD %		1.26	1.35	1.09	
63	H1,CMD (0-24 Hrs) Apparent Import (Before)	MVA	17.20776	17.63308	17.27180	
64	H1,CMD (0-24 Hrs) Apparent Export (Before)	MVA	143.36256	143.30384	143.37500	
65	Billing Count		12	12	12	
66	After Reset		13	13	13	
67	H1,CMD (0-24 Hrs) Apparent Import (After Reset)	MVA	17.22536	17.65060	17.28916	
68	H1,CMD (0-24 Hrs) Apparent Export (After Reset)	MVA	157.23784	157.18032	157.25388	

Assistant Engineer
Maintenance-132 KVSS
Dundigal, Medchal Dist

Divisional Engineer (Elec.)
OMC/Metro-West,
O&M /TGTRANSCO/Hyderabad

Divisional Engineer / Elec.
Operation Division, Jeedimetla
TGSPDCL

M/s Dundigal Waste 2
Energy Pvt Ltd
Representative

Divisional Engineer
O&M /TGTRANSCO/Hyd
220kV SS Gachibowli
TGTRANSCO, Hyd-500019

Divisional Engineer
Operation TGSPDCL
Jeedimetla Division

DUNDIGAL WASTE 2 ENERGY PVT. LTD. ★ HYD.

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ANNEXURE-IIA
Comparative Statement
For the Billing Month of JANUARY -2025

Name & Location of the Plant :	M/s Dundigal Waste 2 Energy Private Limited , Survey No:684/1, Dundigal Village, Dundigal - Gandimaisamma Mandal, Medchal-Malkajgiri District,Telangana -500043
Location of Metering :	132 Kv Dundigal Switching Station, Medchal -Malkajgiri District -500043
Fuel : RDF	Long term Power Purchase agreement between TGSPDCL & DW2EPL Dated: 14.02.2024
Date of Reading : 01-02-2025	Time of Reading : 10:14:30 Hrs

Meter Details	Main Meter (Sl.No.APZ01578)		Check Meter (Sl.No.APZ01579)		Standby Meter (Sl.No. APZ01580)	
	Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO
Readings before Manual Reset of MD						
MD (Present) (A)	0.01760	13.87528	0.01752	13.87648	0.01736	13.87888
CMD (Cumulative MD) (B)	17.20776	143.36256	17.63308	143.30384	17.27180	143.37500
Reset Count (C)	12	12	12	12	12	12
Readings after Manual Reset of MD						
MD (Present) (D)	0	0	0	0	0	0
CMD (Cumulative MD) (E)	17.22536	157.23784	17.65060	157.18032	17.28916	157.25388
Reset Count (F)	13	13	13	13	13	13
Readings of MD after Manual reset in the previous JMR						
CMD (Cumulative MD) (G)	17.20776	143.36256	17.63308	143.30384	17.27180	143.37500
Reset Count (H)	12	12	12	12	12	12

Comparitive Statement (Readings of "Export to TGTRANSCO")	
Cumulative MD reading after RESET in the preset JMR (E)	157.23784
Cumulative MD reading after RESET in the previous JMR (G)	143.36256
Difference in cumulative MD (I)= (E)-(G)	13.87528
Whether the different in Cumulative MD (I)=(A)	NO
if YES,the current month MD to be billed = (A)	13.87528
Whether RESET Count difference (F)-(H)- equal to 1	YES
If NO, give the reasons:	

Assistant Engineer
Maintenance-132 KVSS
Dundigal, Medchal Dist

Divisional Engineer (Elec.)
OMC/Metro-West,
TGTRANSCO,Hyderabad

O&M / Metro-West
220KV SS Gachibowli
TGTRANSCO, Hyd-500019

Divisional Engineer / Elec.
Operation Division, Jeedimetla, TGSPDCL
Jeedimetla Division

M/s Dundigal Waste 2
Energy Pvt Ltd
Representative

DUNDIGAL WASTE 2 ENERGY PVT. LTD. HYD.

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ANNEXURE-III
STATEMENT OF BILLING PARAMETERS
FOR THE BILLING MONTH OF JANUARY -2025

Name & Location of the Plant :	M/s Dundigal Waste 2 Energy Private Limited , Survey No:684/1, Dundigal Village, Dundigal - Gandimaisamma Mandal, Medchal-Malkajgiri District,Telangana -500043
Location of Metering :	132 Kv Dundigal Switching Station, Medchal -Malkajgiri District -500043
Fuel : RDF	Long term Power Purchase agreement between TGSPDCL & DW2EPL
Date of Reading : 01-02-2025	Dated: 14.02.2024
	Time of Reading : 10:14:30 Hrs

Description		Main Meter		Check Meter		Standby Meter	
		Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO
MWH Final Reading on	01-02-2025	181.7	96814.2	181.6	96781.2	180.7	96853.7
MWH Initial Reading on	01-01-2025	181.7	87189.4	181.6	87160.9	180.7	87228.7
Difference in MWH (A)		0.00	9624.80	0.00	9620.30	0.00	9625.00
% difference between Main and check meters (MWH)							
% difference between Main and Standby meters (MWH)							
MVAH Final Reading on	01-02-2025	185.7	99029.9	185.70	98993.1	185.00	99060.5
MVAH Initial Reading on	01-01-2025	185.7	89189.2	185.70	89157.4	185.0	89220.5
Difference in MVAH (B)		0.00	9840.70	0.00	9835.70	0.00	9840.00
% difference between Main and check meters (MWH)							
% difference between Main and Standby meters (MWH)							
MVARH (Lag) Final Reading on	01-02-2025	21.6	20750.9	21.7	20729.0	22.4	20711.5
MVARH (Lag) Initial Reading on	01-01-2025	21.6	18702.90	21.7	18683.3	22.4	18667.7
Difference in MVARH (Lag) (C)		0.00	2048.00	0.00	2045.70	0.00	2043.80
MVARH (Lead) Final Reading on	01-02-2025	1.9	18.5	1.7	18.4	1.7	17.3
MVARH (Lead) Initial Reading on	01-01-2025	1.9	18.5	1.7	18.4	1.7	17.3
Difference in MVARH (Lead) (D)		0.00	0.00	0.00	0.00	0.00	0.00
TOD MVAH Final Reading on	01-02-2025	0	0	0	0	0	0
TOD MVAH Initial Reading on	01-01-2025	0	0	0	0	0	0
Difference in TOD MVAH (E)		0.00	0.00	0.00	0.00	0.00	0.00
Multiplication Factor (F)		1000	1000	1000	1000	1000	1000
Billing Energy in KWH (AXF)		0	9624800	0	9620300	0	9625000
Billing Energy in KVAH (BXF)		0	9840700	0	9835700	0	9840000
Reactive Energy in KVARH (CXF)		0	2048000	0	2045700	0	2043800
TOD Billing Energy in KVAH (ExF)		0	0	0	0	0	0
Maximum Demand (MD) reading (G)		0.01760	13.87528	0.01752	13.87648	0.01736	13.87888
Multiplication Factor (H)		1000	1000	1000	1000	1000	1000
Billing MD in KVA (GxH)		17.60	13875.28	17.52	13876.48	17.36	13878.88

Assistant Engineer
Maintenance-132 KVSS
Dundigal, Medchal Dist

Divisional Engineer (Elec.)
OMC/Metro-West,
TGTRANSCO,Hyderabad

Divisional Engineer / Elec.
Operation Division, Jeedimetla,
TGSPDCL

M/s Dundigal Waste 2
Energy Pvt Ltd
Representative

Divisional Engineer
Operation (Metro-West)
220KV SS Gachibowli
TGTRANSCO, Hyd-500019

Divisional Engineer / Elec.
Operation TGSPDCL
Jeedimetla Division

DUNDIGAL WASTE 2 ENERGY PVT. LTD. ★ HYD.

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ANNEXURE-III
STATEMENT OF BILLING PARAMETERS
FOR THE MONTH OF JANUARY-2025

Name & Location of the Plant :	M/s Hyderabad MSW Energy Solutions Private Limited , Survey No:173, Jawahar Nagar,CRPF Road, Near Army College of Dental Sciences,Kapra Mandal,Medchal District,Telangana -500087
Location of Metering :	400KV/220KV/132KV/33KV Malkaram Substation
Fuel : RDF	Long term Power Purchase agreement between SOUTHERN POWER DISTRIBUTION COMPANY OF TELANGANA LIMITED & HMESPL Dated: 19.02.2020
Date of Reading : 03-02-2025	Time of Reading : 11:18 AM

Description		Main Meter		Check Meter		Standby Meter	
		Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO	Import From TGTRANSCO	Export To TGTRANSCO
MWH Final Reading on	3/2/2025	522.2	653257.1	522.1	653284.9	522.1	653253.9
MWH Initial Reading on	3/1/2025	521.5	639113.8	521.5	639139.1	521.5	639109.8
Difference in MWH (A)		0.7	14143.3	0.6	14145.8	0.6	14144.1
% difference between Main and check meters (MWH)							
% difference between Main and Standby meters (MWH)							
MVAH Final Reading on	3/2/2025	530.6	661031.3	530.7	661059.4	530.9	661005.2
MVAH Initial Reading on	3/1/2025	529.9	646540.0	530.1	646565.4	530.2	646513.6
Difference in MVAH (B)		0.7	14491.3	0.6	14494	0.7	14491.6
% difference between Main and check meters (MWH)							
% difference between Main and Standby meters (MWH)							
MVARH (Lag) Final Reading on	3/2/2025	21.0	93008.4	21.2	93013.5	21.8	92839.9
MVARH (Lag) Initial Reading on	3/1/2025	20.9	89855.1	21.1	89859.5	21.6	89689.3
Difference in MVARH (Lag) (C)		0.1	3153.3	0.1	3154.0	0.2	3150.6
MVARH (Lead) Final Reading on	3/2/2025	175.9	145.1	175.7	145.2	176.3	140.1
MVARH (Lead) Initial Reading on	3/1/2025	175.9	145.1	175.7	145.1	176.3	140.1
Difference in MVARH (Lead) (D)		0.0	0.0	0.0	0.1	0.0	0
TOD MVAH Final Reading on	3/2/2025	0	0	0	0	0	0
TOD MVAH Initial Reading on	3/1/2025	0	0	0	0	0	0
Difference in TOD MVAH (E)		0	0	0	0	0	0
Multiplication Factor (F)		1000	1000	1000	1000	1000	1000
Billing Energy in KWH (AXF)		700	14143300	600	14145800	600	14144100
Billing Energy in KVAH (BXF)		700	14491300	600	14494000	700	14491600
Reactive Energy in KVARH (CXF)		100	3153300	100	3154000	200	3150600
TOD Billing Energy in KVAH (ExF)		0	0	0	0	0	0
Maximum Demand (MD) reading (G)		1.6536	21.9036	1.5080	21.9208	1.6800	21.8664
Multiplication Factor (H)		1000	1000	1000	1000	1000	1000
Billing MD in KVA (GxH)		1653.6	21903.6	1508	21920.8	1580	21866.4

Division Engineer Elec
Operation Division Keesar
TGSPDCL

Divisional Engineer (Elec.)
400KV/O&Mmalkaram
TGTRANSCO,Hyderabad-79

Divisional Engineer
Operation Division,
Keesara, TGSPDCL

M/s Hyderabad MSW Energy Solutions Pvt. Ltd.
Representative

HYDERABAD MSW ENERGY SOLUTIONS PVT LTD HYDERABAD

Note: Generator & Discom shall Comply with provisions of Clause 13.2 of PPA for Usage of fuel respectively.

HYDERABAD MSW ENERGY SOLUTIONS PVT LTD HYDERABAD

NOTE:- Generator has to ensure the fuel type as "R.D.F" as per the 13.2 clause in PPA.

Division Engineer Elec.
Operation Division Keesar
TGSPDCL

28)

ANNEXURE - 6-(vi)

GOVERNMENT OF ANDHRA PRADESH

ABSTRACT

Municipal Administration and Urban Development Department - Greater Hyderabad Municipal Corporation – H&S – Solid Waste Management – Integrated Solid Waste Management Project – Appointment of Environment Protection Training & Research Institute (EPTRI) as Independent Engineer in place of M/s. Infrastructure Corporation of Andhra Pradesh (INCAP) – Orders – Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (H1) DEPARTMENT

G.O.Rt.No. 843 **Dated the 23rd day of July, 2010.**

Read the following:-

1. G.O.Rt.No.254, MA&UD (H1) Department, dated 14.06.2010.
2. From the Commissioner, Greater Hyderabad Municipal Corporation, Hyderabad, D.O.Letter No.553/ AC(H&S)/ SWM/ GHMC/ 2010, dt:15.07.2010.

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ORDER:-

In the reference 1st read above, Government have appointed M/s. Infrastructure Corporation of Andhra Pradesh (INCAP) as Independent Engineer for Integrated Solid Waste Management Project.

2. In the reference 2nd read above, the Commissioner, Greater Hyderabad Municipal Corporation has stated that M/s.Infrastructure Corporation of Andhra Pradesh (INCAP) is not known to be an organization having domain knowledge of Solid Waste Management and stated that Environment Protection Training & Research Institute (EPTRI), a renowned Government of India Institution in environment protection, EPTRI will be more useful to perform the job of an Independent Engineer and stated that EPTRI has agreed to work as Independent Engineer, the Concessionaire (REEL) has also given consent for appointment of EPTRI as Independent Engineer. The Commissioner, Greater Hyderabad Municipal Corporation has therefore requested the Government to appoint EPTRI as an Independent Engineer for ISWM project for an initial period of three (3) years.

3. Government, after careful examination of the proposal of the Commissioner, Greater Hyderabad Municipal Corporation hereby appoint Environment Protection Training & Research Institute (EPTRI) as Independent Engineer for Integrated Solid Waste Management Project in place of M/s. Infrastructure Corporation of Andhra Pradesh (INCAP) till the Independent Engineer is placed through the bidding process.

4. The Commissioner, Greater Hyderabad Municipal Corporation shall take necessary action in the matter accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF ANDHRA PRADESH)

T.S.APPA RAO,
PRINCIPAL SECRETARY TO GOVERNMENT (UD).

To
The Commissioner, Greater Hyderabad Municipal Corporation, Hyderabad.
The Director General, Environment Protection Training & Research Institute (EPTRI), Gachibowli, Hyderabad.
(through the Commissioner, Greater Hyderabad Municipal Corporation, Hyderabad)
M/s. Infrastructure Corporation of Andhra Pradesh (INCAP)
(through the Commissioner, Greater Hyderabad Municipal Corporation, Hyderabad)

Copy to:
The Advisor to Government, MA&UD Department.
The PS to Principal Secretary to Chief Minister.
The PS to Minister(MA&UD).
The PS to Chief Secretary to Government,
The PS to Principal Secretary to Government(UD), MA&UD Department,
The PS to Principal Secretary to Government(MA), MA&UD Department.
SF/SC.

//FORWARDED::BY ORDER//

SECTION OFFICER

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ANNEXURE-6(VII)

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Ahmad Nadeem, IAS
Prl. Secretary to Govt., &
Director General.

EPTRI
ENVIRONMENT PROTECTION TRAINING & RESEARCH INSTITUTE

To
The Additional Commissioner (SWM),
Greater Hyderabad Municipal Corporation (GHMC)
4th Floor, Head Office, Tank Bund Road
Hyderabad - 500 063.

Lr.No. EPTRI/ESD/C&T/2024-25/703/Dt: 15.10.2024

Sir,

Sub: GHMC IMSWM project –Tipping Fee bill for Secondary Collection & Transportation of waste from Kapra & Uppal Circles, Transfer Stations (TS), Secondary Collection & Transfer Points (SCTPs) and water hyacinth with and without penalty for August, 2024 –Reg. C&T

Ref:
1. Lr.No.HiMSW/GHMC/24-25/2553 dt.02.09.2024, addressed to I.E.and copy marked to the Commissioner, GHMC Hyderabad.
2. Lr.No.SEM/MS/FOA/0020/2021/AE/TRANSSZ/1 dt.04.09.2021.
3. Lr.No.HiMSW/ GHMC/ 2024-25/2554 dt.02.09.2024
4. Lr.No.SWM/0083/2018/AE-2(CS)SWM-HO dt.17.10.2022.
5. Your office email dt.14.11.2022.

****

The Concessionaire vide ref. 1st and 3rd cited has submitted the tipping fee bill for the C&T of waste from Kapra & Uppal Circles, TS & SCTPs and GHMC own Vehicles for an amount of Rs. 48,84,58,948 /- and Rs. 1,60,48,336/- respectively for the month of August, 2024.

The bill has been scrutinized with respect to the Concession Agreement conditions and the EPTRI field staff recordings. The detailed observations and calculations are herewith attached as Annexure-I.

It is recommended that the GHMC is to release payment of Rs. 25, 80, 79,958/- to the Concessionaire towards C&T of waste for the month of August, 2024.

Yours faithfully,

for Director General
15/10/2024.

Encl: a/a

Copy to M/s. Hyderabad Integrated Municipal Solid Waste Management, Survey No.173, Jawahar Nagar Dump site, CRPF Road, Near Army Dental College, Jawahar Nagar Grampanchayat village, Shamirpet Mandal, Hyderabad-500087.

91/4, GACHIBOWLI, HYDERABAD - 500 032 (T.S.) INDIA TEL : +91 40 67567500, 67567532
FAX : +91 40 67567535 E-mail : enquiry@eptri.com, eptrihrd@gmail.com
www.eptri.com

Annexure-I

GHMC IMSWM project –Tipping Fee bill for Secondary Collection & Transportation of waste from Kapra & Uppal Circles, Transfer Stations (TS), Secondary Collection & Transfer Points (SCTPs) with and without penalty and GHMC own vehicles for August, 2024 –Reg.

1. Concessionaire has submitted invoice for the month of August, 2024for C&T of waste from Kapra & Uppal Circles, TS&SCTPs, and Water hyacinth and GHMC own vehicles for **2, 47,134.12** tons vide letter dated 02.09.2024.
2. The daily trip sheets provided by the Concessionaire have been verified with the source document of the weight bridges at Jawahar Nagar by the I.E staff.
3. After scrutiny of the trip sheets the total net weight considered for the month of August, 2024 for the C&T of waste for the following locations are as follows:

Sl. No	Description	Tons
1	TS&SCTP, Kapra & Uppal and RCV with penalty	1,34,297.06
2	Open tippers	1,01,229.70
3	GHMC Vehicles	11,607.36
	Total	**2,47,134.12**

4. **Recommendation on quantity of waste collected under Secondary Collection and Transportation (C&T) from entire GHMC Circles**:

Total quantity of secondary collection and transportation of waste is 2,47,134.12 tons {Total quantity of waste received to the Jawahar Nagar weighbridge during the August'2024 is {(2, 76, 167.24tons. - (Quantity of waste received from ULB's -29,033.12 tons).

To ensure due performance and guard against performance breaches, Schedule 4 sets out certain penalties for noncompliance to the O&M requirements of the Concession Agreement. GHMC shall start levying the penalties only after six (6) months from COD – C&T as per clause 5.22 of CA. As concessionaire has started secondary collection and transportation first time from 6th June, 2022 performance to be evaluated from December, 2022 onwards.

Following are the Performance indicators are applicable:
Performance indicator 02- Number of bins attended daily

Performance indicator 03- Maintenance of bins
Performance indicator 05- MSW management vehicles on the road- Secondary collection & Transportation

It is recommended to withhold the 10% of the secondary collection amount towards the penalty which may be adjusted after finalization of points raised during the project review meeting.

5. The I.E. Certification:

waste quantity received at the weighbridge (Ton)	Tipping Fee Rate@ 30% of TFA	Gross Amount	With hold (10%) of Gross amount towards Penalty	Net amount considered for payment
1	2	3=1*2	4	5 = 3 - 4
2,47,134.12	688.25	17,00,90,058	1,70,09,006	**15,30,81,052**

6. Hence, an amount of **Rs.15, 30, 81,052** /-is recommended for payment.
7. **Recommendation on quantity of waste Collected and Transported (C&T) from TS&SCTPs and RCVwith penalty:**

The total net weight received from the following transfer stations (TS), secondary collection and transportation points (SCTP's) and RVC which have completed six months operation period is**1,34,297.06 tons.**

SL. NO:	Name of the TS/ SCTP's	Quantity of waste received at weigh bridges (Tons)
1	Kapra & Uppal	1,489.16
2	Hastinapuram (SCTP)	2,549.72
3	Auto Nagar (SCTP)	4,880.28
4	Fathe Nagar Nala (SCTP)	979.84
5	Moosapet Metro mall back side (SCTP)	1,393.10
6	Peoples Plaza (SCTP)	1,265.88
7	Khajaguda (SCTP)	1,955.40
8	Vayupuri (SCTP)	

		1,426.28
9	Chachanaheru park (SCTP) (Open Operation)	1,054.64
10	Bandlaguda (SCTP)	2,145.90
11	Jubilee hills #51 (SCTP)	1,381.08
12	Hasmathpet Lake SCTP	1,210.02
13	Devender Nagar (SCTP)	5,271.10
14	Vengalrao Park (SCTP) (Open Operation)	1,161.26
15	Sainikpuri (SCTP)	1,286.84
16	Chandanagar (SCTP)	1,394.36
17	Sanathnagar (SCTP) (Open Operation)	1,322.14
18	Ram Nagar open SCTP	865.12
19	Kukatpally Road No:1 (SCTP)	1,239.40
20	Karmikanagar (SCTP) (Open Operation)	349.50
21	Yellammabanda (SCTP)	1,534.76
22	Mir Alam Tank (SCTP)	5,704.20
23	Jagadgiri Gutta (SCTP)	11,871.30
24	Mallapur (TS)	2,104.24
25	Saket (TS) (Open Operation)	1,076.54
26	Kattedan (TS)	4,208.34
27	Sanjeevaiah park (TS)	3,298.18
28	Amberpet (TS)	2,509.20
29	Jiyaguda (TS)	7,407.96
30	Patancheruvu (TS)	2,346.78
31	Kaitalapur (TS)	14,223.42
32	Tank bund (TS)	14,886.96
33	Yousufguda (TS)	13,042.86
34	Deepthi Sri Nagar (TS)	3,580.24

35	Nagole (TS)	10,952.48
36	RFC- Seetaphal Mandi	207.42
37	RFC- Anutex Malkajgiri	311.80
38	RFC- Kachiguda Railway Station	296.64
39	RFC- Tarnaka Flyover	112.72
	Total:	**1,34,297.06**

8. Performance indicators 06, 07 and 10 to be monitored by I.E. Performance was monitored by IE field staff with respect to the applicable indicators. Accordingly, penalty was levied for the indicators which have not met the performance as per the Schedule 4 of C.A. the details are given in table 1, table2, table 3.
9. Summary of penalties:

SL. NO:	Name of the TS/ SCTP's	Indicator No:06 (MSW Management Vehicles on The Road)	Performance Indicator No. 07-(Hygienic Transportation of MSW)	Performance Indicator No. 10-(Transfer Stations Management)	Net Penalty (Rs)
1	Kapra & Uppal	1,24,899	9,819	-	1,34,718
2	Hastinapuram (SCTP)	-	9,926	11,699	21,625
3	Auto Nagar (SCTP)	-	26,693	27,990	54,683
4	Fathe Nagar Nala (SCTP)	-	6,660	5,620	12,280
5	Moosapet Metro mall back side (SCTP)	-	9,520	6,392	15,912
6	Peoples Plaza (SCTP)	-	5,403	7,260	12,663
7	Khajaguda (SCTP)	-	16,190	11,215	27,405
8	Vayupuri (SCTP)	-	7,113	6,544	13,657
9	Chachanaheru park (SCTP) (Open Operation)	-	5,761	12,098	17,859
10	Bandlaguda (SCTP)	-	16,641	12,308	28,949

11	Jubilee hills #51 (SCTP)	-	7,284	7,921	15,205
12	Hasmathpet Lake SCTP	-	6,798	5,552	12,350
13	Devender Nagar (SCTP)	-	25,684	30,232	55,916
14	Vengalrao Park (SCTP) (Open Operation)	-	6,745	13,321	20,066
15	Sainikpuri (SCTP)	-	6,710	5,904	12,614
16	Chandanagar (SCTP)	-	7,354	6,398	13,752
17	Sanathnagar (SCTP) (Open Operation)	-	6,016	15,166	21,182
18	Ram Nagar open SCTP	-	4,841	9,924	14,765
19	Kukatpally Road No:1 (SCTP)	-	6,935	7,108	14,043
20	Karmikanagar (SCTP) (Open Operation)	10,346	-	13,838	24,184
21	Yellammabanda (SCTP)	-	4,580	8,802	13,382
22	Mir Alam Tank (SCTP)	92,870	20,192	26,173	1,39,235
23	Jagadgiri Gutta (SCTP)	-	61,843	68,086	1,29,929
24	Mallapur (TS)	-	9,133	9,655	18,788
25	Saket (TS) (Open Operation)	15,934	6,333	27,486	49,753
26	Kattedan (TS)	46,716	16,857	24,136	87,709
27	Sanjeevaiah park (TS)	40,680	17,213	18,916	76,809
28	Amberpet (TS)	27,854	14,098	14,391	56,343
29	Jiyaguda (TS)	-	53,930	33,990	87,920
30	Patancheruvu (TS)	8,684	8,672	13,460	30,816
31	Kaitalapur (TS)	10,526	62,288	65,261	1,38,075

32	Tank bund (TS)	48,965	67,463	68,306	1,84,734
33	Yousufguda (TS)	10,725	69,535	74,806	1,55,066
34	Deepthi Sri Nagar (TS)	1,00,683	30,142	16,427	1,47,252
35	Nagole (TS)	16,211	49,377	50,253	1,15,841
36	RFC- Seetaphal Mandi	19,955	-	-	19,955
37	RFC- Anutex Malkajgiri	9,230	-	-	9,230
38	RFC- Kachiguda Railway Station	13,172	-	-	13,172
39	RFC- Tarnaka Flyover	17,518	-	-	17,518
	Total:	**6,14,968**	**6,83,749**	**7,36,638**	**20,35,355**

10.The I.E. Certification:

waste quantity received at the weighbridge (Ton)	Tipping Fee Rate@ 20% of TFA	Gross Amount	Total Penalty	Net amount considered for payment
1	2	3=1*2	4	5=3-4
1,34,297.06	458.83	6,16,19,520	20,35,355	5,95,84,165

11.Hence, an amount of **Rs.5, 95, 84,165/-**is recommended for payment.

12.**Recommendation on quantity of waste Collected and Transported (C&T) from Open Tippers:**

The total net weight received from the following transfer stations through open tippers is **1, 01,229.70 tons.**

SL. NO:	**Name of the TS/ SCTP's**	**Quantity of waste received at weighing bridges (Tons)**	**Date of Commencement of operation by Concessionaire**	**Penalty to be levied from month**
1	TS02- Saket TS (Open Operation)	3,970.02	01.01.2021	Land is not handover by GHMC for construction of
2	TS04-Nagole TS	378.40		
3	TS05-Imlibun TS			

		25,458.48		Transfer stations. As per the 5.ii.i.b of GHMC letter Lr.No.SWM-MIS/1/2014-EE-SWM Dated: .04.2021, performance of the Concessionaire will be evaluated from the date of handover of the site for TS management. Hence, penalties levied for P6, P7 & P10 indicators only.
4	TS06-Katedan TS	6,990.74		
5	TS07-Jiyaguda TS	12,879.68		
6	TS08-Yousafguda TS	2,420.32		
7	TS09-Deepthisri Nagar TS	22,313.66		
8	TS11-Khaitlapur TS	4,151.00		
9	TS13-Machabollaram TS (Open Operation)	8,267.30		
10	TS14-Neredmet TS (Open Operation)	1,755.76		
11	TS16-Tankbund TS	4,155.40		
12	TS17-Amberpet TS	8,488.94		
	Total:	**1,01,229.70**		

13. Summary of penalties:

SL. NO:	Name of the TS/ SCTP's	Indicator No:06 (MSW Management Vehicles on The Road)	Performance Indicator No. 07 – (Hygienic Transportation of MSW)	Performance Indicator No. 10 – (Transfer Stations Management)	Net Penalty (Rs)
1	TS02- Saket TS (Open Operation)	-	17,966	1,01,361	1,19,327
2	TS04-Nagole TS	-	3,110	1,736	4,846
3	TS05-Imlibun TS	-	1,11,449	-	1,11,449
4	TS06-Katedan TS	-	50,151	40,095	90,246
5	TS07-Jiyaguda TS	-	71,799	59,096	1,30,895
6	TS08-Yousafguda TS	-	17,833	13,881	31,714
7	TS09-Deepthisri Nagar TS	-	1,26,985	1,02,382	2,29,367

8	TS11-Khaitlapur TS	27,603	33,247	19,046	79,896
9	TS13-Machabollaram TS (Open Operation)	-	59,709	-	59,709
10	TS14-Neredmet TS (Open Operation)	-	12,855	-	12,855
11	TS16-Tankbund TS	-	36,238	19,066	55,304
12	TS17-Amberpet TS	-	58,187	48,687	1,06,874
	Total:	**27,603**	**5,99,529**	**4,05,350**	**10,32,482**

14.The IE Certification: Open tippers

Quantity of waste collected & transported as per IE(Tons)	Rate / Ton	Gross Amount	Total Penalty	Net amount considered for payment
1	2	3=1*2	4	5=3-4
1,01,229.70	458.83	4,64,47,223	10,32,482	4,54,14,741

15. Hence, an amount of **Rs. 4, 54, 14,741/-**is recommended for payment.

16.**Recommendation on quantity of waste water hyacinth Transported from Open Tippers with penalty:**

GHMC vide letter dt:04.09.2021, informed that HMDA removed water hyacinth from the Mir Alam tank, Rajender Nagar Circle and Kapara lake HiMSW requested to lift the water hyacinth removed by HMDA and transported to MSW T&D facility at Jawahar Nagar for P&D.

It is informed that IMSWM facility has not received water hyacinth during August, 2024 as per the field verification and weighbridge data.

17. **Total amount to be recommended towards the C&T of waste for the month of August, 2024is as follows:**

Sl. No	Description	Net amount Recommended (Rs.)
1	Secondary collection at GVP's	15,30,81,052
2	TS&SCTP, Kapra & Uppal and RCV with penalty	5,95,84,165
3	Open tippers	4,54,14,741
	Total	25,80,79,958

18. An amount of **Rs.25, 80, 79,958/-** is recommended for payment towards the C&T of waste for the month of August, 2024 to Concessionaire.

ESD I/c 15/10/2024.

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ANNEXURE-6-CVIII

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6(viii)

Ahmad Nadeem, IAS
Prl. Secretary to Govt., &
Director General.

EPTRI
ENVIRONMENT PROTECTION TRAINING & RESEARCH INSTITUTE

To
The Additional Commissioner (SWM),
Greater Hyderabad Municipal Corporation
4th Floor, Head Office, Tank Band Road,
Hyderabad – 500 063

Lr.No: EPTRI/ESD/78/T&D/ 2024-25/733/Dt: 19.10.2024.

Sir,

Sub: EPTRI – HiMSW - Treatment and Disposal of MSW at Jawaharnagar IMSWM site - Tipping Fee for the month of September, 2024 – Reg.

Ref: 1. Lr. No. HiMSW/GHMC/2024-25/2567/01.10.2024.

2. Lr.No. 703/AC (H&S)/EE (SWM) GHMC/2012 dated 05.10.2017.

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DEE 22/10

EE(SWM) R 24/10

The Concessionaire vide reference 1st cited has submitted the invoice for T&D bill for the month of September, 2024 for Rs. 37,00,00,593/-.

The bill has been scrutinized with agreement conditions and duly considering the remarks made by the audit team. The penalties were applied as per the above. The detailed observations and calculations are enclosed at Annexure-I.

It is recommended that the GHMC may release Rs. 20, 41, 14,435 /- duly considering the penalty towards the T&D of waste for the month of September, 2024. GHMC may take a final decision on payment as deemed fit.

1823 AE(San) 23/10/24

SE (SWM) 19/10

The GHMC shall deduct/withhold the following charges:

i. Statutory deduction, such as income tax and service tax as applicable.
ii. 10% of the treatment and Disposal revenues receivable from GHMC.This amount shall be held in escrow amount towards post-closure Obligation.

Yours faithfully,

Director General 19/10/2024

Copy to M/s. Hyderabad Integrated Municipal Solid Waste Management, Survey No.173, Jawahar Nagar Dump site, CRPF Road, Near Army Dental College, Jawahar Nagar Grampanchayat village, Shamirpet Mandal, Hyderabad-500087

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Annexure- I

Name of work: GHMC IMSWM project –Treatment &Disposal (T&D) - Tipping Fee (T&D) for month of September, 2024 –Reg.

1. Concessionaire has submitted the tipping fee bill for the month of September, 2024 for T&D vide letter dated 01.10.2024.

2. The bill has been scrutinized duly considering the remarks made by the audit team and as per CA. The total penalty on account of performance indicators 11, 12 and 13 worked out to Rs. 1,61,23,965/- as verified by EPTRI field staff.

3. The net weight and the amount payable to the concessionaire, as per CA are given below.

Invoice No. & Date	Quantity of waste processed as per IE(Tons)	Rate / Ton (40% of Tipping Fee) as per CA (Rs.)	Amount (Rs.)	Penalty as per Schedule IV of CA (Rs.)	Recommended amount to be paid as per CA (Rs.)
HIMSW/P&D/GHMC/September -24/2024-25 /J'Nagar, dt.30.09.2024.	2,40,000	917.66	22,02,38,400	1,61,23,965	20,41,14,435

4. The total net weight considered for the month of September, 2024 is 2, 65, 612.040 tons, after deduction of Ganesh Ideals Immersion, Debris, tree trunks and stems waste of 4169.96 tons. Details of vehicles carried the silt/ debris materials waste may be seen at seen Annexure- I. The quantity of waste lying at the tipping floor measured at the beginning of the month was 74,959.868 tons by Drone and the quantity of waste lying at the tipping floor as measured at the end of month was 92,911.188 tons by Drone measurement. Therefore, the total net quantity of waste processed during the month comes to {2, 65, 612.040+ (74,959.868 – 92,911.188)} =2, 47,660.720 tons. However, As per existing PRC @8000TPD, the net quantity considered for the month of September, 2024 is 2,40,000 Tons (30 Days X 8000TPD).

5. Further, as per the letters received from GHMC on 02.09.2024, 04.09.2024 and the field verification, the concessionaire has failed to contain the overflow of contaminated storm water/Leachate from the facility during rains in September, 2024.

6. Hence, I.E has considered the rainfall data 01.09.2024 to 24.09.2024 for calculating the storm water mixed with leachate generated from open areas of 61,775 sq.m pertaining to IMSWM facility. a total of 27,335.44 Kl of contaminated storm water/Leachate overflow into nearest lakes. The detailed statement is enclosed as Annexure II.

7. As the rate for per KL of leachate treatment is not available in the Concession Agreement, the quotations for rate on per KL treatment of leachate to ZLD is requested from the operators of LTPs. Penalty will be calculated and corresponding amount will be deducted in the next bill after the receipt of the quotations.

8. As per the arbitration award dated 10.03.2018, the levy of penalty by GHMC was held to be unsustainable. EPTRI being a recommendatory authority has to show the amount of penalty as per Schedule IV of CA. EPTRI being a IE has to ensure the scientific treatment and disposal of the MSW and impartial & fare implementation of CA. It is, therefore, necessary to indicate the lapses and levy penalty as per performance indicator 11, 12&13. However, GHMC as to take a decision how to deal with the penalty indicated by IE.

9. The recommended amount duly considering the penalty is Rs. 20,41,14,435/- and without levy of penalty is Rs. 22,02,38,400/- GHMC may take a final decision on payment as deemed fit.

ESD(I/C) 10/2024.

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STATEMENT OF TIPPING FEE FOR TREATMENT AND DISPOSAL (T&D) OF MSW AT JAWAHARNAGAR, FOR THE PERIOD OF 01.09.2024 TO 30.09.2024									
Date	No. of vehicle trips claimed	No. of vehicle trips considere	Net Weight (tons)		Amount (Rs)		Net weight considered by IE	Amount considered for payment (Rs.)	Remarks
	Con*	IE*	Con	IE	Con	IE			
1-Sep-2024	551	545	7308.700	7242.280	10105008.62	6645950.66	2,65,612.04	24,37,41,544.63	Vehicle bearing Numbers in Annexure-1 contains Tree trunks waste,Ganesh ideals immertion waste and debris hence not Considered in T&D bill.
2-Sep-2024	693	680	9085.960	9016.840	12562248.30	8274393.39			
3-Sep-2024	742	736	9530.440	9496.360	13176786.34	8714429.72			
4-Sep-2024	652	646	8288.780	8235.860	11460067.23	7557719.29			
5-Sep-2024	689	684	8877.940	8842.860	12274639.84	8114738.91			
6-Sep-2024	686	678	8356.940	8307.380	11554305.24	7623350.33			
7-Sep-2024	718	700	9081.500	8935.620	12556081.90	8199861.05			
8-Sep-2024	743	730	9038.820	8912.820	12497072.53	8178938.40			
9-Sep-2024	597	592	6803.100	6775.540	9405966.06	6217642.04			
10-Sep-2024	678	677	8205.180	8197.360	11344481.87	7522389.38			
11-Sep-2024	762	757	9501.620	9455.880	13136939.81	8677282.84			
12-Sep-2024	793	791	9634.100	9626.860	13320106.66	8834184.35			
13-Sep-2024	798	796	9367.980	9362.080	12952169.15	8591206.33			
14-Sep-2024	772	771	9386.480	9380.960	12977747.25	8608531.75			
15-Sep-2024	767	755	9207.120	9087.620	12729764.11	8339345.37			
16-Sep-2024	774	759	9377.320	9243.800	12965082.63	8482665.51			
17-Sep-2024	780	709	9434.340	8627.500	13043918.48	7917111.65			
18-Sep-2024	781	747	9118.060	8773.460	12606629.76	8051053.30			
19-Sep-2024	855	847	10193.440	10143.860	14093450.14	9308614.57			
20-Sep-2024	810	796	9444.320	9281.720	13057716.83	8517463.18			
21-Sep-2024	730	712	8793.340	8576.360	12157671.88	7870182.52			
22-Sep-2024	738	676	9315.200	8531.620	12879195.52	7829126.41			
23-Sep-2024	795	787	9909.880	9815.280	13701400.09	9007089.84			
24-Sep-2024	773	724	9583.760	9036.260	13250506.58	8292214.35			
25-Sep-2024	514	509	6584.720	6539.820	9104033.87	6001331.22			
26-Sep-2024	756	751	9198.500	9130.800	12717846.10	8378969.93			
27-Sep-2024	783	781	9570.360	9549.340	13231979.74	8763047.34			
28-Sep-2024	723	722	8531.320	8515.520	11795403.03	7814352.08			
29-Sep-2024	748	740	9016.960	8947.200	12466848.90	8210487.55			
30-Sep-2024	840	839	10035.820	10023.180	13875524.73	9197871.36			
Total	22041	21637	2,69,782.000	2,65,612.040	37,30,00,593.20	24,37,41,544.63			
Net weight considered by I.E for the Month							2,65,612.040		
(+) The unprocessed waste laying on the tipping floor was assessed by flying Drone at beginning of the month.							74,959.868		
(-) The unprocessed waste laying on the tipping floor was assessed by flying Drone at end of the month.							-92,911.188		
Net weight processed							2,47,660.720		
As per PRC 8000TPD Net Quantity Processed 2,40,000 Tons (30 Days X 8000TPD)							2,40,000.000	22,02,38,400	
(-)Penalties imposed for performance indicator nos. 11 as per schedule-4 of CA								86,81,588	
(-)Penalties imposed for performance indicator nos 12 as per schedule-4 of CA								74,42,377	
(-)Penalties imposed for performance indicator nos. 13 as per schedule-4 of CA								0	
Net amount considered for payment								20,41,14,435	
*Con – Concessionaire, *IE – Independent Engineer									
IE Rate: Rs.917.66 per ton (40% of Rs. 2294.15) as per article 7.1.b.iii at page 45 of CA									
Tipping Fee Considered by Concessionaire is Rs.1382.60 per ton (40% of Rs.3456.50)									
Shift duration: 8 hrs.									
Shift timings: 06.00 - 14.00hrs, 14.00 - 22.00hrs, 22.00 - 06.00 hrs.									

Site-In-Charge

B. Koteswara Rao
Team Leader,IE

ESD,I/C

19/10/2024

Date	Net Wt (tons)	Tipping Fee according to rate approved by GHMC (Rs/ton)	Tipping Fee Allowable (TFA in Rs.)	PENALTIES						
				Indicator -11		Indicator -12		Indicator -13		
				Performance Efficiency (%)	0.1*TFA*(100-P)/100 (Rs.)	Performance Efficiency (%)	0.2*TFA*(100-P)/100 (Rs.)	Performance Efficiency (%)	0.1*TFA*(100-P)/100 (Rs.)	Total Penalties (Rs.)
1-Sep-2024	7242.28	2294.15	16614876.66	84.23	261977.05	93.24	224582.42	100.00	0.00	486559.46
2-Sep-2024	9016.84	2294.15	20685983.49	84.23	326168.71	93.24	279611.35	100.00	0.00	605780.06
3-Sep-2024	9496.36	2294.15	21786074.29	84.23	343514.52	93.24	294481.22	100.00	0.00	637995.74
4-Sep-2024	8235.86	2294.15	18894298.22	84.23	297918.10	93.24	255393.24	100.00	0.00	553311.33
5-Sep-2024	8842.86	2294.15	20286847.27	84.23	319875.28	93.24	274216.25	100.00	0.00	594091.53
6-Sep-2024	8307.38	2294.15	19058375.83	84.23	300505.21	93.24	257611.07	100.00	0.00	558116.28
7-Sep-2024	8935.62	2294.15	20499652.62	84.23	323230.71	93.24	277092.73	100.00	0.00	600323.44
8-Sep-2024	8912.82	2294.15	20447346.00	84.23	322405.96	93.24	276385.70	100.00	0.00	598791.66
9-Sep-2024	6775.54	2294.15	15544105.09	84.23	245093.53	93.24	210108.85	100.00	0.00	455202.38
10-Sep-2024	8197.36	2294.15	18805973.44	84.23	296525.43	93.24	254199.36	100.00	0.00	550724.78
11-Sep-2024	9455.88	2294.15	21693207.10	84.23	342050.23	93.24	293225.94	100.00	0.00	635276.17
12-Sep-2024	9626.86	2294.15	22085460.87	84.23	348235.13	93.24	298528.02	100.00	0.00	646763.15
13-Sep-2024	9362.08	2294.15	21478015.83	84.23	338657.17	93.24	290317.21	100.00	0.00	628974.38
14-Sep-2024	9380.96	2294.15	21521329.38	84.23	339340.12	93.24	290902.68	100.00	0.00	630242.80
15-Sep-2024	9087.62	2294.15	20848363.42	84.23	328729.05	93.24	281806.23	100.00	0.00	610535.29
16-Sep-2024	9243.80	2294.15	21206663.77	84.23	334378.60	93.24	286649.36	100.00	0.00	621027.96
17-Sep-2024	8627.50	2294.15	19792779.13	84.23	312085.00	93.24	267537.96	100.00	0.00	579622.96
18-Sep-2024	8773.46	2294.15	20127633.26	84.23	317364.85	93.24	272064.16	100.00	0.00	589429.02
19-Sep-2024	10143.86	2294.15	23271536.42	84.23	366936.72	93.24	314560.14	100.00	0.00	681496.86
20-Sep-2024	9281.72	2294.15	21293657.94	84.23	335750.29	93.24	287825.26	100.00	0.00	623575.54
21-Sep-2024	8576.36	2294.15	19675456.29	84.23	310235.10	93.24	265952.11	100.00	0.00	576187.21
22-Sep-2024	8531.62	2294.15	19572816.02	84.23	308616.71	93.24	264564.73	100.00	0.00	573181.43
23-Sep-2024	9815.28	2294.15	22517724.61	84.23	355050.90	93.24	304370.90	100.00	0.00	659421.80
24-Sep-2024	9036.26	2294.15	20730535.88	84.23	326871.19	93.24	280213.57	100.00	0.00	607084.76
25-Sep-2024	6539.82	2294.15	15003328.05	84.23	236566.76	93.24	202799.20	100.00	0.00	439365.96
26-Sep-2024	9130.80	2294.15	20947424.82	84.23	330291.01	93.24	283145.24	100.00	0.00	613436.26
27-Sep-2024	9549.34	2294.15	21907618.36	84.23	345430.98	93.24	296124.13	100.00	0.00	641555.11
28-Sep-2024	8515.52	2294.15	19535880.21	84.23	308034.32	93.24	264065.47	100.00	0.00	572099.78
29-Sep-2024	8947.20	2294.15	20526218.88	84.23	323649.60	93.24	277451.82	100.00	0.00	601101.42
30-Sep-2024	10023.18	2294.15	22994678.40	84.23	362571.33	93.24	310817.86	100.00	0.00	673389.19
Total	2,65,612.040									
Quantity of waste not processed during the month of September-2024	-17,951.320									
Total Net quantity processed	2,47,660.720									
As per PRC 8000TPD Net Quantity Considered 2,40,000 Tons (30 Days X 8000TPD)	2,40,000.000	2,294.15		84.23	86,81,588	93.24	74,42,377	100.00	0	1,61,23,965.00

Site-In-Charge,IE

B. Kotaswara Rao
Team Leader,IE

ESD/C

19/10/2024

Table 1: Performance Indicator No. 11 - Extent of Functioning of Integrated Facility

SNO	Date	Integrated Facility components					Fraction of working components = working componts/total componetns	No. Of days integrated facility functioned in a week (b)	No. Of days considered (a)	Performance P= (b/a) X 100
		Complaince to Environment Provision	Complaince to Safety rules	Compalince to Worker's health provisions/rules	House keeping of Integrated Facility	Functioning of Unit Operations				
1	1-Sep-24	84.54					0.85			
2	2-Sep-24	84.53					0.85			
3	3-Sep-24	84.77					0.85			
4	4-Sep-24	84.30					0.84	5.92	7	84.594
5	5-Sep-24	84.49					0.84			
6	6-Sep-24	84.69					0.85			
7	7-Sep-24	84.85					0.85			
8	8-Sep-24	84.75					0.85			
9	9-Sep-24	84.75					0.85			
10	10-Sep-24	84.97					0.85			
11	11-Sep-24	85.30					0.85	5.95	7	85.026
12	12-Sep-24	85.09					0.85			
13	13-Sep-24	85.17					0.85			
14	14-Sep-24	85.14					0.85			
15	15-Sep-24	84.54					0.85			
16	16-Sep-24	84.77					0.85			
17	17-Sep-24	84.87					0.85			
18	18-Sep-24	84.45					0.84	5.89	7	84.117
19	19-Sep-24	84.10					0.84			
20	20-Sep-24	81.93					0.82			
21	21-Sep-24	84.16					0.84			
22	22-Sep-24	83.89					0.84			
23	23-Sep-24	83.03					0.83			
24	24-Sep-24	84.07					0.84			
25	25-Sep-24	80.77					0.81			
26	26-Sep-24	81.63					0.82	7.51	9	83.42
27	27-Sep-24	83.71					0.84			
28	28-Sep-24	84.82					0.85			
29	29-Sep-24	84.38					0.84			
30	30-Sep-24	84.51					0.85			
								25.27	30	

Functioning of the integrated facility , P11

$$P_{11} = \left[\frac{\text{b, i.e. Total number of days integrated facility functioned in the month}}{\text{a, i.e. Total number of days in the month}} * 100 \right]$$

P_{11} = 84.23 %

Penalty for Performance Indicator 11 = 0.1*TFA*(100-P)/100

Site-In-Charge,IE

B. Veeraraghava Rao
Team Leader,IE

ESD I/C 19/10/2024

Table 2: Performance Indicator No. 12 - Extent of MSW recovered					
Date	Total quantum of waste received after deduction of silt (b)	Amount of waste processed or recycled (a)	Excess processed waste (Tons)	Performance Achieved, P=(a/b)X100	Remarks
1-Sep-24	7242.28				
2-Sep-24	9016.84				
3-Sep-24	9496.36				
4-Sep-24	8235.86				
5-Sep-24	8842.86				
6-Sep-24	8307.38				
7-Sep-24	8935.62				
8-Sep-24	8912.82				
9-Sep-24	6775.54				
10-Sep-24	8197.36				
11-Sep-24	9455.88				
12-Sep-24	9626.86				
13-Sep-24	9362.08				
14-Sep-24	9380.96				
15-Sep-24	9087.62				
16-Sep-24	9243.80				
17-Sep-24	8627.50				
18-Sep-24	8773.46				
19-Sep-24	10143.86				
20-Sep-24	9281.72				
21-Sep-24	8576.36				
22-Sep-24	8531.62				
23-Sep-24	9815.28				
24-Sep-24	9036.26				
25-Sep-24	6539.82				
26-Sep-24	9130.80				
27-Sep-24	9549.34				
28-Sep-24	8515.52				
29-Sep-24	8947.20				
30-Sep-24	10023.18				
Total	2,65,612.040				
	2,65,612.04	2,47,660.720	-17,951.320		Difference in quantity waste between initial Drone assessment at the beginning of the month - quantity of waste lying on tipping floor assessed by drone at the end of month (74,959.868 - 92,911.188) = -17,951.320) Tons.
			Performance	93.24	

Extent of MSW recovered , P12 = (a, i.e. Amount of waste processed or recycled in tons/month ÷ b, i.e. Total quantum of waste collected by concessionaire) X 100

P_{12} = 93.24

Site-In-Charge,IE

B. Kotaiah Rao
Team Leader,IE

ESD I/C 19/10/2024.

Table 3: Performance Indicator No. 13 - Extent of Scientific Disposal of MSW

SNO	Date	Total Daily Disposed in all landfill in tons (b)	Waste being disposed at "complaint" landfill, at the active landfill cell (a)	Performance Achieved, P=(a/b)X100
1	1-Sep-24	600.24	600.24	100.00
2	2-Sep-24	774.44	774.44	100.00
3	3-Sep-24	279.12	279.12	100.00
4	4-Sep-24	502.62	502.62	100.00
5	5-Sep-24	1353.54	1353.54	100.00
6	6-Sep-24	1190.22	1190.22	100.00
7	7-Sep-24	996.04	996.04	100.00
8	8-Sep-24	600.82	600.82	100.00
9	9-Sep-24	920.90	920.90	100.00
10	10-Sep-24	553.50	553.50	100.00
11	11-Sep-24	1326.00	1326.00	100.00
12	12-Sep-24	1161.98	1161.98	100.00
13	13-Sep-24	614.74	614.74	100.00
14	14-Sep-24	1031.32	1031.32	100.00
15	15-Sep-24	1029.86	1029.86	100.00
16	16-Sep-24	633.78	633.78	100.00
17	17-Sep-24	1129.42	1129.42	100.00
18	18-Sep-24	1205.80	1205.80	100.00
19	19-Sep-24	1164.56	1164.56	100.00
20	20-Sep-24	2164.86	2164.86	100.00
21	21-Sep-24	1160.34	1160.34	100.00
22	22-Sep-24	2273.56	2273.56	100.00
23	23-Sep-24	1916.52	1916.52	100.00
24	24-Sep-24	1817.94	1817.94	100.00
25	25-Sep-24	1694.58	1694.58	100.00
26	26-Sep-24	1438.66	1438.66	100.00
27	27-Sep-24	2070.44	2070.44	100.00
28	28-Sep-24	1781.82	1781.82	100.00
29	29-Sep-24	1547.38	1547.38	100.00
30	30-Sep-24	1805.80	1805.80	100.00
	Total wt.	36,740.80	36,740.80	

Extent of Scientific Disposal of Municipal Solid Waste , P_{13} = $\left[\frac{\text{a, i.e.Total waste disposed in "complaint" landfills every landfills}}{\text{b, i.e.Total waste disposed in all landfills every month}}\right]$ x100

P_{13} = 100.00 %

Penalty for Performance Indicator 13 = 0.1*TFA*(100-P)/100

Site-In-Charge,IE

B. Kotteswara Rao
Team Leader,IE

ESD I/C 19/10/2024.

EPTRI - As IE for IMSWM Project of GHMC

SUMMARY OF PENALTIES

SNO	Description	Amount	Remarks
1	Performance Indicator 11 - Functioning of Integrated Facility	₹ 86,81,588	Please see Page 1 of 4
2	Performance Indicator 12 - Extent MSW recovered	₹ 74,42,377	Please see Page 2 of 4
3	Performance Indicator 13 - Extent of scientific disposal of MSW	₹ 0.00	Please see Page 3 of 4

Total Deduction = ₹ 1,61,23,965

Site-In-Charge,IE

B. Kotaiah Rao
Team Leader,IE

ESD I/C 19/10/2024

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ANNEXURE-I 2897

P&D Field data for the month of September 2024

Serial No	Subset No	Vehicleno	Zone	Transfer Station/location	Transporter	Date IN	Time IN	Gross Weight	Tare Weight	NetWT	Date OUT	Remarks
1	WB1 - 964447	AP11X7256	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 1 2024	2024-09-01 08:49:03.754	19460	10120	9340	2024-09-01 08:58:45.981	Horticulture waste
2	WB1 - 964570	AP11X7256	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 1 2024	2024-09-01 13:19:01.529	18600	10160	8440	2024-09-01 13:30:30.309	Horticulture waste
3	WB1 - 964580	AP29W1691	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 1 2024	2024-09-01 13:33:57.309	13560	7480	6080	2024-09-01 13:44:18.222	Horticulture waste
4	WB1 - 964646	AP39UG6204	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 1 2024	2024-09-01 16:07:22.916	26360	11960	14400	2024-09-01 16:37:41.470	Horticulture waste
5	WB1 - 964757	AP39W7477	SECUNDERABAD ZONE	TS17-AMBERPET TS	PRIVATE	Sep 1 2024	2024-09-01 22:00:30.705	23080	10080	13000	2024-09-01 22:48:51.931	Horticulture waste
6	WB1 - 964793	AP39UG6204	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 1 2024	2024-09-01 23:44:17.270	27420	12180	15240	2024-09-02 00:07:12.707	Horticulture waste
7	WB1 - 964931	AP29W1691	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 2 2024	2024-09-02 06:34:40.769	14340	7460	6880	2024-09-02 06:47:57.368	Horticulture waste
8	WB1 - 965013	AP29W1691	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 2 2024	2024-09-02 09:31:46.195	12880	7480	5400	2024-09-02 09:50:16.922	Horticulture waste
9	WB1 - 965033	TS08UG7123	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 2 2024	2024-09-02 10:09:05.182	9920	3800	6120	2024-09-02 10:21:14.702	Debris
10	WB1 - 965035	TS08UD0178	LB NAGAR ZONE	DAMMAIGUDA	ULB	Sep 2 2024	2024-09-02 10:10:33.138	4420	3640	780	2024-09-02 10:20:12.043	Horticulture waste
11	WB1 - 965115	AP29W1691	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 2 2024	2024-09-02 11:54:18.095	15460	7640	7820	2024-09-02 12:10:33.616	Horticulture waste
12	WB1 - 965165	AP11X7255	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 2 2024	2024-09-02 13:18:04.041	18020	9820	8200	2024-09-02 13:58:27.567	Horticulture waste
13	WB1 - 965166	AP29U3202	SECUNDERABAD ZONE	TS16-TANKBUND TS	GHMC	Sep 2 2024	2024-09-02 13:19:42.860	16420	9680	6740	2024-09-02 13:31:46.948	Horticulture waste
14	WB1 - 965179	TS08UG7132	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 2 2024	2024-09-02 13:34:13.949	4780	3920	860	2024-09-02 14:01:00.954	Horticulture waste
15	WB1 - 965230	AP29W1691	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 2 2024	2024-09-02 15:00:44.367	14420	7420	7000	2024-09-02 16:07:43.548	Horticulture waste
16	WB1 - 965242	AP24X0862	CHARMINAR ZONE	TS06-KATEDAN TS	PRIVATE	Sep 2 2024	2024-09-02 15:07:49.763	20940	10580	10360	2024-09-02 16:09:59.422	C&D waste
17	WB1 - 965305	TS08UG7118	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 2 2024	2024-09-02 17:13:54.641	5260	3900	1360	2024-09-02 17:39:07.805	Horticulture waste
18	WB1 - 965306	TS06APTR1661	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 2 2024	2024-09-02 17:14:22.425	2100	1280	820	2024-09-02 17:29:28.065	Horticulture waste
19	WB1 - 965347	AP31TD7686	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 2 2024	2024-09-02 19:29:05.905	17380	10580	6800	2024-09-02 20:05:17.991	Horticulture waste
20	WB1 - 965851	TS08UG3148	LB NAGAR ZONE	NAGARAM	ULB	Sep 3 2024	2024-09-03 11:40:33.547	1700	1240	460	2024-09-03 12:00:19.367	Horticulture waste
21	WB1 - 965928	AP31TD7686	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 3 2024	2024-09-03 13:18:35.880	15640	10840	4800	2024-09-03 14:09:23.920	Horticulture waste
22	WB1 - 965928	AP31TD7686	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 3 2024	2024-09-03 13:18:35.880	15640	10840	4800	2024-09-03 14:09:23.920	Horticulture waste
23	WB1 - 966041	AP31TD7497	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 3 2024	2024-09-03 16:26:34.824	15420	11060	4360	2024-09-03 17:38:34.223	Horticulture waste
24	WB1 - 966041	AP31TD7497	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 3 2024	2024-09-03 16:26:34.824	15420	11060	4360	2024-09-03 17:38:34.223	Horticulture waste
25	WB1 - 966085	AP39UG3440	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 3 2024	2024-09-03 17:08:30.718	27080	11780	15300	2024-09-03 18:22:25.066	Water hyacinth
26	WB1 - 966349	TS12UE2021	LB NAGAR ZONE	BODUPPAL	ULB	Sep 4 2024	2024-09-04 04:45:18.316	22560	10700	11860	2024-09-04 07:36:55.600	Horticulture waste
27	WB1 - 966367	AP39UG6204	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 4 2024	2024-09-04 05:33:43.192	27040	11940	15100	2024-09-04 08:06:16.057	Horticulture waste
28	WB1 - 966384	TS09UA3009	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 4 2024	2024-09-04 06:52:24.504	17080	11140	5940	2024-09-04 09:31:27.923	Horticulture waste
29	WB1 - 966409	TS08UD0178	LB NAGAR ZONE	DAMMAIGUDA	ULB	Sep 4 2024	2024-09-04 10:11:40.070	4120	3640	480	2024-09-04 10:46:21.027	Horticulture waste
30	WB1 - 966531	TS12UC2582	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 4 2024	2024-09-04 11:17:58.006	13840	9680	4160	2024-09-04 12:32:44.258	Horticulture waste
31	WB1 - 966599	TS12UB1327	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 4 2024	2024-09-04 13:06:09.959	25440	10060	15380	2024-09-04 15:04:05.495	C&D waste
32	WB1 - 966911	TS12UE0670	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 5 2024	2024-09-05 00:40:34.453	15900	10360	5540	2024-09-05 01:57:52.370	Horticulture waste
33	WB1 - 967056	TS12UC3945	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 5 2024	2024-09-05 06:44:24.221	20960	10760	10200	2024-09-05 07:24:16.300	C&D waste
34	WB1 - 967059	AP29W1691	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 5 2024	2024-09-05 06:59:15.899	14720	7520	7200	2024-09-05 07:36:54.310	Horticulture waste
35	WB1 - 967180	AP11X7242	KHAIRATHABAD ZONE	TS08-YOUSUFGUDA TS	GHMC	Sep 5 2024	2024-09-05 10:33:20.975	18020	10380	7640	2024-09-05 11:00:36.714	Debris
36	WB1 - 967232	TS12UC2582	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 5 2024	2024-09-05 11:04:00.073	14480	9980	4500	2024-09-05 12:37:54.311	Horticulture waste
37	WB1 - 967646	TS12UD3006	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 6 2024	2024-09-06 02:11:30.165	19380	10280	9100	2024-09-06 03:39:07.761	Horticulture waste
38	WB1 - 967692	AP16TC9762	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 6 2024	2024-09-06 03:42:07.842	20180	10540	9640	2024-09-06 05:16:08.208	Horticulture waste
39	WB1 - 967706	AP11X7256	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 6 2024	2024-09-06 04:50:00.461	15340	10020	5320	2024-09-06 05:50:19.209	Horticulture waste
40	WB1 - 967727	AP11X7255	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 6 2024	2024-09-06 05:40:22.860	19580	9820	9760	2024-09-06 07:33:09.232	Debris
41	WB1 - 967751	TS08UG7118	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 6 2024	2024-09-06 06:48:26.691	8360	3920	4440	2024-09-06 07:27:15.860	Debris
42	WB1 - 967887	AP31TD7686	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 6 2024	2024-09-06 10:28:57.132	15280	10620	4660	2024-09-06 11:33:28.469	Horticulture waste
43	WB1 - 967920	TS12UC2582	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 6 2024	2024-09-06 11:12:23.492	15080	9920	5160	2024-09-06 12:26:51.272	Horticulture waste
44	WB1 - 967944	TS08UE9033	LB NAGAR ZONE	DAMMAIGUDA	ULB	Sep 6 2024	2024-09-06 11:43:52.468	5130	3640	1490	2024-09-06 11:56:44.670	C&D waste
45	WB1 - 968074	AP31TE2778	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 7 2024	2024-09-07 03:38:19.047	24960	10720	14240	2024-09-07 04:44:40.411	C&D waste
46	WB1 - 968418	TS08UE4918	LB NAGAR ZONE	BODUPPAL	ULB	Sep 7 2024	2024-09-07 04:51:13.155	20980	9660	11320	2024-09-07 07:18:50.462	C&D waste
47	WB1 - 968431	TS12UC2582	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 7 2024	2024-09-07 05:34:07.297	22840	9900	12940	2024-09-07 07:54:30.749	C&D waste
48	WB1 - 968531	TS08UD0178	LB NAGAR ZONE	DAMMAIGUDA	ULB	Sep 7 2024	2024-09-07 09:09:48.075	4420	3560	860	2024-09-07 09:27:02.196	Horticulture waste
49	WB1 - 968546	AP20TA9652	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 7 2024	2024-09-07 09:28:11.084	23240	11300	11940	2024-09-07 10:37:28.214	C&D waste
50	WB1 - 968577	TS08UG7125	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 7 2024	2024-09-07 10:17:51.864	4960	3780	1180	2024-09-07 10:34:22.720	Horticulture waste
51	WB1 - 968584	TS08UD0177	LB NAGAR ZONE	DAMMAIGUDA	ULB	Sep 7 2024	2024-09-07 10:26:17.600	5240	3620	1620	2024-09-07 10:38:19.022	Horticulture waste
52	WB1 - 968587	TS06APTR1665	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 7 2024	2024-09-07 10:59:58.100	2380	1240	1140	2024-09-07 10:43:11.097	Horticulture waste
53	WB1 - 968618	TS08UG7118	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 7 2024	2024-09-07 11:11:53.407	5240	3960	1280	2024-09-07 11:21:20.319	Horticulture waste
54	WB1 - 968648	TS12UD6766	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 7 2024	2024-09-07 11:57:18.143	23800	11440	12360	2024-09-07 13:02:03.799	C&D waste
55	WB1 - 968657	TS12UE0670	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 7 2024	2024-09-07 12:09:17.388	14500	10220	4280	2024-09-07 13:23:58.016	Horticulture waste
56	WB1 - 968734	AP11X7257	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 7 2024	2024-09-07 14:17:38.284	18360	9900	8460	2024-09-07 16:47:36.177	Horticulture waste
57	WB1 - 968754	TS07UP1802	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 7 2024	2024-09-07 14:48:15.481	19480	10840	8640	2024-09-07 17:20:14.080	C&D waste
58	WB1 - 968785	TS08UE7880	SECUNDERABAD ZONE	TS14-NEREDMET TS	PRIVATE	Sep 7 2024	2024-09-07 15:48:59.632	23280	10500	12780	2024-09-07 18:54:31.880	Water hyacinth
59	WB1 - 968870	TS12UB4572	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 7 2024	2024-09-07 20:01:16.401	23380	10720	12660	2024-09-07 22:40:37.773	C&D waste
60	WB1 - 968909	TS12UB6678	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 7 2024	2024-09-07 20:31:07.180	19420	10300	9120	2024-09-07 22:41:36.643	Horticulture waste
61	WB1 - 968946	TS07UA2658	CHARMINAR ZONE	TS06-KATEDAN TS	PRIVATE	Sep 7 2024	2024-09-07 23:28:15.250	24000	10280	13720	2024-09-07 23:44:13.857	C&D waste
62	WB1 - 968968	AP11X7241	CHARMINAR ZONE	TS05-IMLIBUN TS	GHMC	Sep 7 2024	2024-09-07 23:32:37.380	15500	10380	5120	2024-09-07 23:52:12.586	Horticulture waste
63	WB1 - 969054	AP15TA5161	MC NIZAMPET	NIZAMPET	ULB	Sep 8 2024	2024-09-08 02:32:16.380	18440	10940	7500	2024-09-08 02:50:55.934	C&D waste
64	WB1 - 969140	AP39UG3440	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 8 2024	2024-09-08 02:42:04.715	23180	11600	11580	2024-09-08 02:51:42.192	Horticulture waste
65	WB1 - 969237	AP11X7241	CHARMINAR ZONE	TS05-IMLIBUN TS	GHMC	Sep 8 2024	2024-09-08 08:23:19.609	15960	10300	5660	2024-09-08 09:09:14.157	Horticulture waste
66	WB1 - 969282	TS12UC5444	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 8 2024	2024-09-08 09:38:37.484	20480	9940	10540	2024-09-08 09:55:05.716	C&D waste
67	WB1 - 969289	TS13UD6357	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 8 2024	2024-09-08 09:46:44.075	21220	10320	10900	2024-09-08 10:17:26.160	C&D waste
68	WB1 - 969296	TS12UD6212	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 8 2024	2024-09-08 09:55:52.675	20440	10760	9680	2024-09-08 10:21:14.830	C&D waste
69	WB1 - 969316	TS35T1462	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 8 2024	2024-09-08 10:20:26.520	20040	10100	9940	2024-09-08 11:05:17.446	Horticulture waste
70	WB1 - 969340	AP24TC1755	KHAIRATHABAD ZONE	TS07-ZIAGUDA TS	PRIVATE	Sep 8 2024	2024-09-08 10:40:07.845	29660	12520	17140	2024-09-08 11:45:20.854	C&D waste
71	WB1 - 969368	TS08UG7125	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 8 2024	2024-09-08 11:25:49.365	5620	3860	1760	2024-09-08 11:35:09.863	Horticulture waste
72	WB1 - 969374	AP31TE2579	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 8 2024	2024-09-08 11:52:50.555	26260	10900	15360	2024-09-08 12:40:42.819	C&D waste
73	WB1 - 969397	TS12UC5444	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 8 2024	2024-09-08 12:10:41.745	19960	9940	10020	2024-09-08 12:40:32.548	Debris
74	WB1 - 969462	AP31TC9789	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 8 2024	2024-09-08 13:39:53.969	20460	10420	10040	2024-09-08 15:39:52.330	Horticulture waste
75	WB1 - 969494	TS13UB2779	SECUNDERABAD ZONE	TS14-NEREDMET TS	PRIVATE	Sep 8 2024	2024-09-08 14:49:19.224	15600	9640	5960	2024-09-08 16:54:29.801	Debris
76	WB1 - 970107	TS08UE0132	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 9 2024	2024-09-09 14:47:05.971	16740	12540	4200	2024-09-09 17:30:40.077	Horticulture waste
77	WB1 - 970122	TS08UL2577	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 9 2024	2024-09-09 15:08:37.701	20240	10120	10120	2024-09-09 18:19:56.624	Debris
78	WB1 - 970164	TS07UP1802	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 9 2024	2024-09-09 16:29:52.681	19960	10780	9180	2024-09-09 18:00:27.753	C&D waste
79	WB1 - 970184	TS08UG7125	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 9 2024	2024-09-09 17:30:05.441	4440	3780	660	2024-09-09 18:10:16.496	Horticulture waste
80	WB1 - 970264	TS08UE5132	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 9 2024	2024-09-09 22:28:34.220	15200	12500	2700	2024-09-10 00:03:01.565	Horticulture waste
81	WB1 - 970401	TS08UE5132	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 10 2024	2024-09-10 04:28:17.547	20060	12440	7620	2024-09-10 08:07:07.215	Horticulture waste
82	WB1 - 971275	AP11X7241	CHARMINAR ZONE	TS05-IMLIBUN TS	GHMC	Sep 11 2024	2024-09-11 10:35:35.930	15860	10400	5460	2024-09-11 11:28:04.279	Horticulture waste
83	WB1 - 971379	AP15TA3922	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 11 2024	2024-09-11 13:16:31.670	21680	10400	11280	2024-09-11 15:03:30.243	Horticulture waste
84	WB1 - 971450	AP31TD5817	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 11 2024	2024-09-11 15:28:16.377	24220	10140	14080	2024-09-11 18:58:28.279	Horticulture waste
85	WB1 - 971522	TS08UG7118	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 11 2024	2024-09-11 17:52:16.235	4820	3960	860	2024-09-11 18:01:17.512	C&D waste
86	WB1 - 971673	TS13UB2761	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 11 2024	2024-09-11 23:51:07.039	24560	10500	14060	2024-09-12 01:28:11.576	C&D waste
87	WB2 - 1020481	TS06UC1364	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 12 2024	2024-09-12 14:45:55.823	15220	10920	4300	2024-09-12 16:28:00.781	Horticulture waste
88	WB2 - 1020621	AP07TE9089	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 12 2024	2024-09-12 18:23:36.708	13420	10480	2940	2024-09-12 21:09:00.300	Horticulture waste
89	WB3 - 649112	AP35X3466	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 13 2024	2024-09-13 16:12:30.984	13300	10980	2320	2024-09-13 17:58:00.114	Horticulture waste
90	WB3 - 649175	AP31TE2778	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 13 2024	2024-09-13 19:15:31.735	14100	10520	3580	2024-09-13 20:29:43.437	Horticulture waste
91	WB3 - 649711	AP29W1691	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 14 2024	2024-09-14 11:15:52.096	13160	7640	5520	2024-09-14 12:18:18.250	Horticulture waste
92	WB3 - 650027	AP31TC9789	SECUNDERABAD ZONE	TS17-AMBERPET TS	PRIVATE	Sep 15 2024	2024-09-15 03:59:37.116	16100	10400	5700	2024-09-15 04:48:59.447	Post Ganesha festival rejects
93	WB3 - 650259	TS12UC3091	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 15 2024	2024-09-15 06:12:49.437	26320	9960	16360	2024-09-15 06:46:08.491	C&D waste
94	WB3 - 650261	AP05TC5541	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 15 2024	2024-09-15 06:14:11.531	19880	10760	9120	2024-09-15 06:52:59.754	Post Ganesha festival rejects
95	WB3 - 650275	AP31TE9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 15 2024	2024-09-15 06:40:09.108	20240	10860	9380	2024-09-15 07:10:32.108	Post Ganesha festival rejects
96	WB3 - 650302	AP16TC9762	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 15 2024	2024-09-15 06:25:38.142	24540	10260	14280	2024-09-15 07:40:29.872	Post Ganesha festival rejects
97	WB3 - 650333	TS02UA7522	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 15 2024	2024-09-15 06:29:07.143	19960	11180	8780	2024-09-15 07:46:38.332	Horticulture waste
98	WB3 - 650392	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 15 2024	2024-09-15 09:30:57.159	20520	9720	10800	2024-09-15 09:43:38.351	Post Ganesha festival rejects
99	WB3 - 650418	AP20TA5298	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 15 2024	2024-09-15 09:53:35.330	20840	10680	10160	2024-09-15 10:12:01.433	Post Ganesha festival rejects
100	WB3 - 650491	TS08UE9298	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 15 2024	2024-09-15 11:49:24.857	20580	10640	9940	2024-09-15 12:08:06.610	Post Ganesha festival rejects
101	WB3 - 650647	TS36T1997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 15 2024	2024-09-15 16:00:12.843	19360	10660	8700	2024-09-15 18:39:58.604	Post Ganesha festival rejects
102	WB3 - 650648	TS08UD5459	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 15 2024	2024-09-15 16:51:09.107	21540	10520	11020	2024-09-15 19:52:24.576	Post Ganesha festival rejects
103	WB3 - 650806	AP31TC9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 15 2024	2024-09-15 23:58:44.965	15780	10520	5260	2024-09-16 00:54:13.254	Horticulture waste
104	WB3 - 651091	TS12UC3091	SECUNDERABAD ZONE	SECUNDERABAD - CONTONMENT	ULB	Sep 16 2024	2024-09-16 09:44:36.991	20040	10440	9600	2024-09-16 10:30:10.949	Post Ganesha festival rejects
105	WB3 - 651124	TS08UG7118	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 16 2024	2024-09-16 10:23:17.487	5640	3980	1660	2024-09-16 10:43:00.288	Horticulture waste
106	WB3 - 651180	TS12UD6766	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 16 2024	2024-09-16 11:55:29.361	21520	11320	10200	2024-09-16 13:18:06.878	C&D waste
107	WB3 - 651191	AP05TC5541	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 16 2024	2024-09-16 12:09:55.255	22440	10760	11680	2024-09-16 13:38:14.448	Post Ganesha festival rejects
108	WB3 - 651225	TS12UE4178	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 16 2024	2024-09-16 13:05:03.017	22140	10700	11440	2024-09-16 15:04:12.858	Post Ganesha festival rejects
109	WB3 - 651226	TS04UC8369	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 16 2024	2024-09-16 13:06:20.684	19580	10780	8800	2024-09-16 15:05:45.235	Post Ganesha festival rejects
110	WB3 - 651241	TS36T1997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 16 2024	2024-09-16 13:29:51.860	18620	10600	8020	2024-09-16 15:25:07.302	Post Ganesha festival rejects
111	WB3 - 651259	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 16 2024	2024-09-16 14:45:50.307	14640	9660	4980	2024-09-16 15:58:42.149	Post Ganesha festival rejects
112	WB3 - 651315	AP31TE0899	SECUNDERABAD ZONE	SECUNDERABAD - CONTONMENT	ULB	Sep 16 2024	2024-09-16 13:51:47.512	16840	10820	6020	2024-09-16 17:04:08.599	Horticulture waste
113	WB3 - 651320	TS12UB8952	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 16 2024	2024-09-16 15:56:30.495	17740	10220	7520	2024-09-16 16:39:56.808	Post Ganesha festival rejects
114	WB3 - 651322	TS08UE4018	SHERLINGAMPALLY ZONE	AMEENPUR	ULB	Sep 16 2024	2024-09-16 15:58:40.338	21820	9620	12200	2024-09-16 16:37:50.497	Post Ganesha festival rejects
115	WB3 - 651348	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 16 2024	2024-09-16 16:56:06.194	18640	9660	8980	2024-09-16 17:30:47.289	Post Ganesha festival rejects
116	WB2 - 1021033	TS04UC8369	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 16 2024	2024-09-16 17:51:48.384	20400	10820	9580	2024-09-16 18:09:04.420	Post Ganesha festival rejects
117	WB1 - 972019	TS08UE9298	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 16 2024	2024-09-16 18:48:16.397	20540	10620	9920	2024-09-16 19:20:18.200	Post Ganesha festival rejects
118	WB1 - 972054	AP05TM4555	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 16 2024	2024-09-16 20:09:03.132	21520	10600	10920	2024-09-16 20:20:43.064	Post Ganesha festival rejects
119	WB1 - 972159	AP20TA9652	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 00:16:52.374	24700	11320	13380	2024-09-17 01:15:13.411	Post Ganesha festival rejects
120	WB1 - 972259	TS12UC2582	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 17 2024	2024-09-17 02:48:01.487	16680	9740	6940	2024-09-17 03:27:33.168	Horticulture waste
121	WB1 - 972294	AP31TC9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 03:47:19.901	21020	10420	10600	2024-09-17 04:21:56.636	Horticulture waste
122	WB1 - 972349	TG30T0139	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 05:44:39.724	20460	10640	9820	2024-09-17 06:41:06.465	Horticulture waste
123	WB1 - 972358	AP39W7479	KHAIRATHABAD ZONE	TS08-YOUSUFGUDA TS	PRIVATE	Sep 17 2024	2024-09-17 06:20:51.965	17340	10300	7040	2024-09-17 08:36:05.077	Horticulture waste
124	WB1 - 972367	AP31TE6179	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 08:47:47.004	19360	10580	8780	2024-09-17 10:08:14.118	Post Ganesha festival rejects

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125	WB3-651391	TS12UB6368	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 09:24:54.084	28020	11620	16400	2024-09-17 09:39:40.957	Post Ganesha festival rejects
126	WB3-651463	TS12UO4064	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 10:10:14.588	20500	9960	10540	2024-09-17 10:37:24.137	Post Ganesha festival rejects
127	WB3-651474	TS07UL4916	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 10:29:57.251	21300	10340	10960	2024-09-17 10:43:39.626	Post Ganesha festival rejects
128	WB3-651474	TS07UL4916	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 10:29:57.731	21300	10340	10960	2024-09-17 10:43:39.656	Post Ganesha festival rejects
129	WB1-972086	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 10:51:19.943	16920	9740	7180	2024-09-17 11:32:05.184	Post Ganesha festival rejects
130	WB3-651521	TS12UE7392	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 11:24:39.485	19320	10100	9220	2024-09-17 12:26:31.082	Post Ganesha festival rejects
131	WB3-651521	TS12UE7392	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 11:24:27.480	19320	10100	9220	2024-09-17 12:26:51.082	Post Ganesha festival rejects
132	WB3-651522	TS08UE9098	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 11:25:44.380	19760	10660	9100	2024-09-17 12:31:45.811	Post Ganesha festival rejects
133	WB3-651522	TS08UE9098	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 11:25:44.380	19760	10660	9100	2024-09-17 12:31:45.811	Post Ganesha festival rejects
134	WB3-651555	TS08UD5459	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 12:19:52.328	20720	10580	10140	2024-09-17 13:03:36.964	Post Ganesha festival rejects
135	WB3-651555	TS08UD5459	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 12:19:52.328	20720	10580	10140	2024-09-17 13:03:36.964	Post Ganesha festival rejects
136	WB3-651559	TG30T0139	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 12:35:20.088	24080	10760	13320	2024-09-17 13:09:45.730	Post Ganesha festival rejects
137	WB3-651595	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 13:16:35.240	17640	9660	7980	2024-09-17 14:03:38.960	Post Ganesha festival rejects
138	WB3-651600	AP31TC3569	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 13:33:35.881	25940	10540	15400	2024-09-17 14:47:19.191	Post Ganesha festival rejects
139	WB3-651620	TS12UC2993	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 17 2024	2024-09-17 14:02:46.914	25560	10500	15060	2024-09-17 15:14:57.444	Post Ganesha festival rejects
140	WB3-651622	AP15TA3922	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 17 2024	2024-09-17 14:05:18.009	25400	10900	14500	2024-09-17 15:14:39.274	Post Ganesha festival rejects
141	WB3-651627	AP05TM4555	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 14:15:10.290	20340	10580	9760	2024-09-17 15:19:44.604	Post Ganesha festival rejects
142	WB3-651628	AP31TE6629	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 14:16:14.128	24680	11300	13380	2024-09-17 15:20:43.984	Post Ganesha festival rejects
143	WB3-651630	TS26T1997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 14:19:04.809	20200	10700	9500	2024-09-17 15:21:38.184	Post Ganesha festival rejects
144	WB3-651630	TS26T1997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 14:19:04.809	20200	10700	9500	2024-09-17 15:21:38.184	Post Ganesha festival rejects
145	WB3-651630	TS26T1997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 14:19:04.809	20200	10700	9500	2024-09-17 15:21:38.184	Post Ganesha festival rejects
146	WB3-651633	AP20TA5298	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 14:22:42.026	20380	10620	9760	2024-09-17 15:06:07.934	Post Ganesha festival rejects
147	WB3-651633	AP20TA5298	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 14:22:42.026	20380	10620	9760	2024-09-17 15:06:07.934	Post Ganesha festival rejects
148	WB3-651636	TS12UA8643	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 14:55:56.888	25500	10760	14740	2024-09-17 16:16:44.604	Post Ganesha festival rejects
149	WB3-651640	TS12UC3945	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 14:51:06.834	25520	10940	14580	2024-09-17 15:02:31.578	Post Ganesha festival rejects
150	WB3-651648	AP36T5471	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 14:44:44.599	24880	12160	12720	2024-09-17 16:24:57.534	Post Ganesha festival rejects
151	WB3-651649	TS08UA5203	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 14:46:05.919	19360	10240	9120	2024-09-17 15:22:28.824	Post Ganesha festival rejects
152	WB3-651649	TS08UA5203	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 14:46:05.919	19360	10240	9120	2024-09-17 15:22:28.824	Post Ganesha festival rejects
153	WB3-651650	TS12UB5519	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 14:47:43.891	25000	10320	14680	2024-09-17 15:25:57.569	Post Ganesha festival rejects
154	WB3-651650	TS12UB5519	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 14:47:43.891	25000	10320	14680	2024-09-17 15:25:57.569	Post Ganesha festival rejects
155	WB3-651655	TS08UE2822	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 14:54:46.229	24900	10920	13980	2024-09-17 15:23:35.015	Post Ganesha festival rejects
156	WB3-651655	TS08UE2822	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 14:54:46.229	24900	10920	13980	2024-09-17 15:23:35.015	Post Ganesha festival rejects
157	WB3-651657	AP39UQ3440	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 15:05:17.215	24560	11600	12960	2024-09-17 15:27:16.954	Post Ganesha festival rejects
158	WB3-651661	TS12UD9747	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 15:10:34.932	24560	10420	14140	2024-09-17 15:38:36.839	Post Ganesha festival rejects
159	WB3-651665	AP39X0843	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 15:14:58.643	20830	10600	10230	2024-09-17 15:37:23.212	Post Ganesha festival rejects
160	WB3-651666	AP39UQ6204	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 15:16:06.899	26460	11700	14760	2024-09-17 15:45:22.351	Post Ganesha festival rejects
161	WB3-651669	AP28TD6132	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 15:20:18.891	19560	10760	8800	2024-09-17 15:42:32.040	Post Ganesha festival rejects
162	WB3-651670	TS06UB2606	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 16:21:19.261	24480	10600	13880	2024-09-17 15:44:16.086	Post Ganesha festival rejects
163	WB3-651680	TS12UB5402	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 15:44:23.791	23980	9920	14060	2024-09-17 16:10:44.836	Post Ganesha festival rejects
164	WB3-651684	TS06UE5549	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 17 2024	2024-09-17 15:53:24.746	28040	10000	18040	2024-09-17 16:39:31.978	Post Ganesha festival rejects
165	WB3-651692	TS11UB5575	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 16:07:03.640	18800	10700	8100	2024-09-17 16:22:54.168	Post Ganesha festival rejects
166	WB3-651693	TS08UE9388	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 16:09:25.650	21580	10560	11020	2024-09-17 16:23:58.530	Post Ganesha festival rejects
167	WB3-651693	TS08UE9388	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 16:09:25.650	21580	10560	11020	2024-09-17 16:23:58.530	Post Ganesha festival rejects
168	WB3-651701	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 16:47:11.316	18240	9660	8580	2024-09-17 17:00:28.685	Post Ganesha festival rejects
169	WB3-651701	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 16:47:11.316	18240	9660	8580	2024-09-17 17:00:28.685	Post Ganesha festival rejects
170	WB3-651711	AP28TA5133	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 16:51:56.283	23480	12000	11480	2024-09-17 17:20:52.499	Post Ganesha festival rejects
171	WB3-651717	TS12UC6766	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 17:05:25.125	22040	11240	10800	2024-09-17 17:24:31.375	Post Ganesha festival rejects
172	WB3-651736	TS12UB6209	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 17:06:36.307	22760	10740	12020	2024-09-17 17:34:12.014	Post Ganesha festival rejects
173	WB3-651740	TS10UA4122	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 17 2024	2024-09-17 17:58:02.915	18900	9920	8980	2024-09-17 18:11:20.822	Post Ganesha festival rejects
174	WB3-651745	TS12UO4064	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 18:11:36.404	23300	9900	13400	2024-09-17 18:24:51.862	Post Ganesha festival rejects
175	WB3-651751	AP31TC3569	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 18:40:50.639	20980	10540	10440	2024-09-17 18:59:47.829	Post Ganesha festival rejects
176	WB3-651755	TS08UA5203	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 17 2024	2024-09-17 18:51:33.164	14060	10220	3840	2024-09-17 19:08:46.549	Horticulture waste
177	WB3-651785	TS12UB5519	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 19:59:45.016	20640	10300	10340	2024-09-17 20:21:14.279	Post Ganesha festival rejects
178	WB3-651785	TS12UB5519	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 17 2024	2024-09-17 19:59:45.016	20640	10300	10340	2024-09-17 20:21:14.279	Post Ganesha festival rejects
179	WB3-651790	TS12UA4572	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 20:07:22.466	21860	10920	10940	2024-09-17 20:24:01.314	Post Ganesha festival rejects
180	WB3-651803	TS06UB2606	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 20:28:33.614	21960	10560	11400	2024-09-17 20:39:58.637	Post Ganesha festival rejects
181	WB3-651803	TS06UB2606	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 20:28:33.614	21960	10560	11400	2024-09-17 20:39:58.637	Post Ganesha festival rejects
182	WB2-1021044	AP39UQ3440	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 21:40:47.240	29380	11500	17880	2024-09-17 22:34:58.283	Post Ganesha festival rejects
183	WB3-651891	AP31TD6737	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 23:29:30.306	22320	10980	11340	2024-09-17 23:39:58.167	Post Ganesha festival rejects
184	WB3-651891	AP31TD6737	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 23:28:00.306	22320	10980	11340	2024-09-17 23:39:58.167	Post Ganesha festival rejects
185	WB3-651896	AP31TE7777	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 23:42:16.532	23600	10240	13360	2024-09-17 23:55:55.827	Post Ganesha festival rejects
186	WB3-651896	AP31TE7777	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 17 2024	2024-09-17 23:42:16.532	23600	10240	13360	2024-09-17 23:55:55.827	Post Ganesha festival rejects
187	WB3-651899	TS12UA1327	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 23:46:35.484	21580	10120	11460	2024-09-17 23:58:25.894	Post Ganesha festival rejects
188	WB3-651899	TS12UA1327	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 23:46:35.484	21580	10120	11460	2024-09-17 23:58:25.894	Post Ganesha festival rejects
189	WB3-651907	TS12UC5444	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 17 2024	2024-09-17 23:57:19.545	22560	10000	12560	2024-09-18 00:24:58.639	Post Ganesha festival rejects
190	WB3-651910	AP24TD6132	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 00:01:53.977	20880	10760	10120	2024-09-18 00:40:09.868	Post Ganesha festival rejects
191	WB3-651911	TS09RA2577	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 00:03:07.440	22840	10140	12700	2024-09-18 00:43:22.051	Post Ganesha festival rejects
192	WB3-651916	AP16TC9762	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 00:09:54.155	18040	10400	7640	2024-09-18 00:46:34.910	Post Ganesha festival rejects
193	WB3-651926	TS09T3222	KHAIRATHABAD ZONE	TS08-YOUSUFGUDA TS	PRIVATE	Sep 18 2024	2024-09-18 00:24:57.308	17740	10280	7460	2024-09-18 00:57:12.578	Post Ganesha festival rejects
194	WB3-651927	AP39W3699	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 00:28:34.777	20840	10200	10640	2024-09-18 00:50:55.444	Post Ganesha festival rejects
195	WB3-651984	AP31TD4737	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 18 2024	2024-09-18 02:21:24.776	23040	10860	12180	2024-09-18 03:02:44.680	Horticulture waste
196	WB3-652129	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 08:41:29.067	12860	7620	5240	2024-09-18 09:52:47.775	Post Ganesha festival rejects
197	WB3-652238	AP39X0843	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 11:22:50.946	19520	10640	8880	2024-09-18 11:37:31.047	Post Ganesha festival rejects
198	WB3-652302	TS04UC8369	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 12:18:29.877	20960	10800	10160	2024-09-18 12:30:42.877	Post Ganesha festival rejects
199	WB3-652364	AP39UQ6204	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 14:17:20.351	22600	11600	11000	2024-09-18 14:49:23.929	Post Ganesha festival rejects
200	WB3-652370	AP20T8189	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:20:43.891	20720	11240	9480	2024-09-18 14:54:24.039	Post Ganesha festival rejects
201	WB3-652375	AP35W7477	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:25:35.411	17340	10480	6860	2024-09-18 14:52:29.949	Post Ganesha festival rejects
202	WB3-652377	AP31TE6999	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:31:00.491	20720	10640	10080	2024-09-18 15:07:12.128	Post Ganesha festival rejects
203	WB3-652379	AP31TE9949	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:34:23.161	21760	10920	10840	2024-09-18 15:10:53.454	Post Ganesha festival rejects
204	WB3-652384	TS30T2122	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:40:18.971	18040	10220	7820	2024-09-18 15:15:53.847	Post Ganesha festival rejects
205	WB3-652384	TS30T2122	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:40:18.971	18040	10220	7820	2024-09-18 15:15:53.847	Post Ganesha festival rejects
206	WB3-652386	AP31TD5817	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:43:55.631	20680	10240	10440	2024-09-18 15:18:55.467	Post Ganesha festival rejects
207	WB3-652387	TS12UC3945	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 14:45:01.561	22620	10740	11880	2024-09-18 15:27:05.009	Post Ganesha festival rejects
208	WB3-652390	AP36Y2979	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 14:48:23.742	20480	11400	9080	2024-09-18 15:35:11.157	Post Ganesha festival rejects
209	WB3-652401	TS04UC8369	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 15:00:28.161	20300	10340	9960	2024-09-18 15:51:28.454	Post Ganesha festival rejects
210	WB3-652403	TS12UB7397	KHAIRATHABAD ZONE	TS07-JIYAGUDA TS	PRIVATE	Sep 18 2024	2024-09-18 15:03:12.361	24120	10080	14040	2024-09-18 15:54:19.896	Post Ganesha festival rejects
211	WB3-652426	AP39X0843	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 15:44:51.033	21020	10640	10380	2024-09-18 16:21:34.645	Post Ganesha festival rejects
212	WB3-652426	AP39X0843	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 15:44:51.033	21020	10640	10380	2024-09-18 16:21:34.645	Post Ganesha festival rejects
213	WB3-652438	AP15TA5161	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 18 2024	2024-09-18 16:06:50.573	25620	11040	14580	2024-09-18 16:42:33.073	Post Ganesha festival rejects
214	WB3-652440	TS09UE7630	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 16:15:30.993	17360	10480	6880	2024-09-18 16:43:42.874	Post Ganesha festival rejects
215	WB3-652441	TS12UC2582	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 16:16:48.830	13520	9740	3780	2024-09-18 16:46:09.903	Horticulture waste
216	WB3-652452	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 18 2024	2024-09-18 16:30:15.064	18460	9720	8740	2024-09-18 17:10:44.462	Post Ganesha festival rejects
217	WB3-652458	TS08UH7945	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 18 2024	2024-09-18 16:41:53.505	25840	12480	13360	2024-09-18 17:25:11.347	C&D waste
218	WB3-652485	TS08UG7123	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 18 2024	2024-09-18 17:34:52.430	4480	4380	100	2024-09-18 17:57:54.575	Horticulture waste
219	WB3-652486	TS12UD2241	KHAIRATHABAD ZONE	TS07-JIYAGUDA TS	PRIVATE	Sep 18 2024	2024-09-18 17:45:47.847	28100	10740	17360	2024-09-18 18:24:04.484	Post Ganesha festival rejects
220	WB1-972454	AP36Y6471	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 20:27:38.367	22180	12140	10040	2024-09-18 20:57:46.814	Horticulture waste
221	WB1-972483	AP28W9979	MC NIZAMPET	NIZAMPET	ULB	Sep 18 2024	2024-09-18 21:16:57.614	15500	10220	5280	2024-09-18 21:43:00.817	Post Ganesha festival rejects
222	WB1-972504	AP39UQ3440	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 21:47:34.942	30260	11700	18560	2024-09-18 22:46:14.311	Post Ganesha festival rejects
223	WB1-972511	AP39UQ6204	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 18 2024	2024-09-18 22:02:34.592	27980	11820	16160	2024-09-18 22:49:41.663	Post Ganesha festival rejects
224	WB1-972856	TS12UB0396	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 19 2024	2024-09-19 08:28:28.935	22860	9860	13000	2024-09-19 08:35:19.582	Horticulture waste
225	WB1-972918	AP31TD6547	KHAIRATHABAD ZONE	TS08-YOUSUFGUDA TS	PRIVATE	Sep 19 2024	2024-09-19 10:09:10.639	19020	10060	8960	2024-09-19 10:28:34.517	Horticulture waste
226	WB1-972919	TS32T0593	CHARMINAR ZONE	MANIKONDA TS	ULB	Sep 19 2024	2024-09-19 10:10:41.329	18100	10060	8040	2024-09-19 10:29:57.718	C&D waste
227	WB1-972947	AP15TY9835	SECUNDERABAD ZONE	SECUNDERABAD - CONTONMENT	ULB	Sep 19 2024	2024-09-19 10:36:57.702	15100	9800	5300	2024-09-19 11:02:12.165	Horticulture waste
228	WB1-972951	TS08UH0175	LB NAGAR ZONE	DAMMAIGUDA	ULB	Sep 19 2024	2024-09-19 10:40:30.912	4180	3600	580	2024-09-19 10:53:58.645	Horticulture waste
229	WB3-652724	TS07UP1802	KUKATPALLY ZONE	TS11-KHAITLAPUR TS	PRIVATE	Sep 19 2024	2024-09-19 17:09:43.712	22120	10720	11400	2024-09-19 17:26:39.519	Post Ganesha festival rejects
230	WB3-652797	TS08UG7125	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 19 2024	2024-09-19 18:09:17.744	4780	3860	920	2024-09-19 18:51:36.446	Horticulture waste
231	WB3-652800	TS09UA4479	LB NAGAR ZONE	JAWAHARNAGAR	ULB	Sep 19 2024	2024-09-19 18:13:11.467	3140	1760	1380	2024-09-19 19:21:00.421	Horticulture waste
232	WB3-652978	TS12UE2242	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 00:09:05.311	23180	10520	12660	2024-09-20 01:03:33.322	Post Ganesha festival rejects
233	WB3-653042	AP31TE5967	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 01:48:18.308	23000	11060	11940	2024-09-20 02:09:54.910	Post Ganesha festival rejects
234	WB3-653084	AP35W7477	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 03:14:47.807	25160	10600	14560	2024-09-20 03:52:31.664	Post Ganesha festival rejects
235	WB3-653119	AP20TA5299	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 04:38:49.238	28060	11480	16580	2024-09-20 04:49:16.117	Post Ganesha festival rejects
236	WB3-653126	AP11X7256	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 20 2024	2024-09-20 04:36:11.337	16380	9980	6400	2024-09-20 04:57:53.056	Post Ganesha festival rejects
237	WB3-653134	AP31TD5817	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 04:50:33.297	24500	10260	14240	2024-09-20 05:33:38.421	Post Ganesha festival rejects
238	WB3-653141	AP31TE5592	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 05:04:49.427	25620	10920	14700	2024-09-20 06:23:56.699	Post Ganesha festival rejects
239	WB3-653153	TG30T0139	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 06:32:27.958	26440	10700	15740	2024-09-20 06:47:35.446	Post Ganesha festival rejects
240	WB3-653155	AP28TA5135	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 20 2024	2024-09-20 06:30:45.658	25300	11760	13540	2024-09-20 06:39:01.362	Post Ganesha festival rejects
241	WB3-653193	TS06UC9903	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 07:13:42.793	26240	10260	15980	2024-09-20 07:24:36.685	Post Ganesha festival rejects
242	WB3-653194	AP11X7219	SECUNDERABAD ZONE	TS16-TANKBUND TS	GHMC	Sep 20 2024	2024-09-20 07:14:35.331	16500	10220	6280	2024-09-20 07:22:06.941	Post Ganesha festival rejects
243	WB3-653195	AP28W1891	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 20 2024	2024-09-20 07:16:15.771	11780	7380	4400	2024-09-20 07:29:24.215	Post Ganesha festival rejects
244	WB3-653201	TS09UF1430	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 20 2024	2024-09-20 07:25:24.076	19120	9840	9280	2024-09-20 07:38:36.394	Post Ganesha festival rejects
245	WB3-653208	AP11X7257	SECUNDERABAD ZONE	TS16-TANKBUND TS	GHMC	Sep 20 2024	2024-09-20 07:36:32.405	18940	9940	9000	2024-09-20 07:42:57.089	Post Ganesha festival rejects
246	WB3-654285	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 21 2024	2024-09-21 15:10:57.429	21460	9660	11800	2024-09-21 15:44:16.438	Post Ganesha festival rejects
247	WB3-654092	TS12UC5443	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 21 2024	2024-09-21 15:29:39.738	26360	10280	16080	2024-09-21 15:57:14.643	Post Ganesha festival rejects
248	WB3-654310	TG30T0937	LB NAGAR ZONE	HMSW-NAGOLE TS	SCIP	Sep 21 2024	2024-09-21 16:59:04.971	32740	17360	15380	2024-09-22 00:46:13.422	Post Ganesha festival rejects
249	WB3-654312	TS12UB3051	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 21 2024	2024-09-21 16:52:47.173	22920	10420	12500	2024-09-21 16:50:27.315	Post Ganesha festival rejects
250	WB3-654314	AP09TC5541	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 21 2024	2024-09-21 16:35:04.345	20200	10720	9480	2024-09-21 16:57:20.343	Post Ganesha festival rejects

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251	WB3 - 654316	TS13UD4394	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 21 2024	2024-09-21 16:36:50.368	19240	10020	9220	2024-09-21 16:56:20.923	Post Ganesha festival rejects
252	WB3 - 654317	TS06UC9933	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 21 2024	2024-09-21 16:37:50.556	19340	10440	8900	2024-09-21 16:59:01.630	Post Ganesha festival rejects
253	WB3 - 654320	AP30W7277	KUKATPALLY ZONE	TS11-KHAIRLAPUR TS	PRIVATE	Sep 21 2024	2024-09-21 16:47:17.730	23920	11020	12900	2024-09-21 17:06:45.202	Post Ganesha festival rejects
254	WB3 - 654339	TS29T84382	CHARMINAR ZONE	TS06-IMLIBUN TS	PRIVATE	Sep 21 2024	2024-09-21 17:28:22.120	27060	10960	16100	2024-09-21 18:00:26.930	Post Ganesha festival rejects
255	WB3 - 654346	AP15TA5161	KUKATPALLY ZONE	TS11-KHAIRLAPUR TS	PRIVATE	Sep 21 2024	2024-09-21 17:49:42.680	21280	11040	10240	2024-09-21 18:20:15.489	Post Ganesha festival rejects
256	WB3 - 654347	AP31TE6597	KUKATPALLY ZONE	TS11-KHAIRLAPUR TS	PRIVATE	Sep 21 2024	2024-09-21 17:50:52.306	20800	11080	9720	2024-09-21 18:30:36.280	Post Ganesha festival rejects
257	WB3 - 654350	AP31TE6179	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 21 2024	2024-09-21 17:54:14.870	23580	10840	12740	2024-09-21 18:44:43.178	Post Ganesha festival rejects
258	WB3 - 654375	AP30W2477	KUKATPALLY ZONE	TS11-KHAIRLAPUR TS	PRIVATE	Sep 21 2024	2024-09-21 20:02:58.921	22720	10880	11840	2024-09-21 20:22:24.324	Post Ganesha festival rejects
259	WB3 - 654408	AP29UG3440	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 21 2024	2024-09-21 21:02:17.171	31320	11840	19480	2024-09-21 21:15:48.931	Post Ganesha festival rejects
260	WB3 - 654435	TS02UA7522	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 21 2024	2024-09-21 21:29:58.328	21500	11300	10200	2024-09-21 22:49:21.947	Post Ganesha festival rejects
261	WB3 - 654469	TS12UR2242	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 21 2024	2024-09-21 23:24:32.718	23160	10560	12600	2024-09-21 23:34:32.463	Post Ganesha festival rejects
262	WB3 - 654479	AP20TB6149	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 21 2024	2024-09-21 23:40:39.902	19680	10860	8820	2024-09-21 23:56:29.525	Post Ganesha festival rejects
263	WB3 - 654480	AP14TB1639	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 21 2024	2024-09-21 23:41:50.151	19560	10800	8760	2024-09-21 23:57:27.444	Post Ganesha festival rejects
264	WB3 - 654492	TS12UE1306	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 00:22:13.836	26860	11160	15700	2024-09-22 00:47:33.852	Post Ganesha festival rejects
265	WB3 - 654499	AP26TD6132	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 00:45:54.827	25580	10720	14860	2024-09-22 01:00:23.274	Post Ganesha festival rejects
266	WB3 - 654500	AP20TA8652	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 00:47:28.488	28980	11480	17500	2024-09-22 01:06:22.241	Post Ganesha festival rejects
267	WB3 - 654510	AP15TA6165	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 01:01:44.637	29880	13300	16580	2024-09-22 01:23:43.178	Post Ganesha festival rejects
268	WB3 - 654516	TS12UE3088	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 01:13:41.115	29700	10320	19380	2024-09-22 01:26:32.750	Post Ganesha festival rejects
269	WB3 - 654527	TS12UC3349	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 01:37:10.344	26200	10800	15400	2024-09-22 01:52:45.009	Post Ganesha festival rejects
270	WB3 - 654529	AP31TA3029	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 01:39:51.898	24460	10580	13880	2024-09-22 01:54:07.459	Post Ganesha festival rejects
271	WB3 - 654533	TS11UC3780	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 01:50:55.456	21600	10060	11540	2024-09-22 02:10:40.255	Post Ganesha festival rejects
272	WB3 - 654534	AP31TE6597	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 01:52:10.595	21840	11120	10720	2024-09-22 02:08:47.419	Post Ganesha festival rejects
273	WB3 - 654535	TS12UB4368	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 01:53:09.674	24220	11960	12260	2024-09-22 02:09:54.119	Post Ganesha festival rejects
274	WB3 - 654540	TS11UB5575	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 02:04:35.103	20460	10740	9720	2024-09-22 02:23:20.618	Post Ganesha festival rejects
275	WB3 - 654557	AP31TE9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 02:26:30.189	23080	10660	12420	2024-09-22 03:07:45.326	Post Ganesha festival rejects
276	WB3 - 654560	TS12UB6209	KHAIRATHABAD ZONE	TS08-YOUSUFGUDA TS	PRIVATE	Sep 22 2024	2024-09-22 02:34:50.439	16260	10700	5560	2024-09-22 03:08:59.356	Post Ganesha festival rejects
277	WB3 - 654563	TS12UB6678	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 02:47:45.419	24560	10680	13880	2024-09-22 03:12:54.886	Post Ganesha festival rejects
278	WB3 - 654583	AP29UG3440	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 03:45:50.164	26780	11760	15020	2024-09-22 04:19:29.143	Post Ganesha festival rejects
279	WB3 - 654584	AP27TU8669	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 03:44:45.305	30020	10540	19480	2024-09-22 04:23:01.598	Post Ganesha festival rejects
280	WB3 - 654595	AP26TD6132	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 03:47:50.306	25640	10740	14900	2024-09-22 04:26:56.970	Post Ganesha festival rejects
281	WB3 - 654603	AP31TC9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:04:33.920	19120	10580	8540	2024-09-22 04:35:04.926	Post Ganesha festival rejects
282	WB3 - 654606	AP31TE6577	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:14:01.789	20800	10740	10060	2024-09-22 04:39:29.532	Post Ganesha festival rejects
283	WB3 - 654608	AP20TA5298	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:16:03.811	20620	10600	10020	2024-09-22 04:46:17.192	Post Ganesha festival rejects
284	WB3 - 654611	AP30W7429	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:20:14.930	20600	10440	10160	2024-09-22 04:57:43.621	Post Ganesha festival rejects
285	WB3 - 654614	TS08UA7522	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:24:01.900	20920	11260	9660	2024-09-22 04:53:11.474	Post Ganesha festival rejects
286	WB3 - 654621	AP30W7477	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:33:29.879	23500	10360	13140	2024-09-22 05:09:47.342	Post Ganesha festival rejects
287	WB3 - 654622	AP36Y2979	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:34:38.471	22160	11300	10860	2024-09-22 05:11:01.191	Post Ganesha festival rejects
288	WB3 - 654631	TS11UC3780	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:44:40.700	21160	10020	11140	2024-09-22 05:22:19.927	Post Ganesha festival rejects
289	WB3 - 654634	AP31TE6597	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 04:50:58.743	21460	11140	10320	2024-09-22 05:33:20.529	Post Ganesha festival rejects
290	WB3 - 654636	AP29UG6204	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 04:53:58.704	27400	11640	15760	2024-09-22 05:24:31.156	Post Ganesha festival rejects
291	WB3 - 654650	AP31TD0817	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 05:20:37.244	21860	10280	11580	2024-09-22 06:38:20.037	Post Ganesha festival rejects
292	WB3 - 654652	AP15TA6165	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 05:28:50.218	24240	13160	11080	2024-09-22 06:44:26.074	Post Ganesha festival rejects
293	WB3 - 654653	TS12UE3088	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 05:29:46.284	22540	10000	12540	2024-09-22 06:42:03.566	Post Ganesha festival rejects
294	WB3 - 654654	TS11UB5575	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 05:30:48.250	22880	10640	12240	2024-09-22 06:42:50.293	Post Ganesha festival rejects
295	WB3 - 654655	TS12UC3349	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 05:31:57.306	24940	11100	13840	2024-09-22 06:46:18.755	Post Ganesha festival rejects
296	WB3 - 654659	TS12UE1304	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 05:37:42.234	28020	11100	16920	2024-09-22 06:47:24.322	Post Ganesha festival rejects
297	WB3 - 654661	AP36Y6471	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 05:39:30.784	27720	12240	15480	2024-09-22 06:49:15.383	Post Ganesha festival rejects
298	WB3 - 654662	TS12UB9551	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 05:40:32.734	20900	10980	9920	2024-09-22 06:50:56.696	Post Ganesha festival rejects
299	WB3 - 654672	AP20TA8652	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 06:10:04.479	24380	11500	12880	2024-09-22 07:00:58.814	Post Ganesha festival rejects
300	WB3 - 654692	TS12UE2242	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 07:28:01.156	22420	10480	11940	2024-09-22 07:41:30.119	Post Ganesha festival rejects
301	WB3 - 654697	TS12UE0211	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 07:38:49.426	22940	11460	11480	2024-09-22 07:57:11.497	Post Ganesha festival rejects
302	WB3 - 654699	TS06UB5549	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 07:41:11.116	31020	10060	20960	2024-09-22 07:57:56.371	Post Ganesha festival rejects
303	WB3 - 654724	TS12UA8806	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 08:17:26.838	25980	10560	15420	2024-09-22 08:29:34.120	Post Ganesha festival rejects
304	WB3 - 654726	TS12UB1327	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 08:20:19.188	25900	10140	15760	2024-09-22 08:33:29.552	Post Ganesha festival rejects
305	WB3 - 654735	AP11X7753	SECUNDERABAD ZONE	TS16-TANKBUND TS	GHMC	Sep 22 2024	2024-09-22 08:31:45.608	22200	10120	12080	2024-09-22 08:40:04.963	Post Ganesha festival rejects
306	WB3 - 654742	AP30W7277	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 08:39:50.416	20320	10740	9580	2024-09-22 09:01:14.948	Post Ganesha festival rejects
307	WB2 - 1021077	AP28TD5095	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 08:44:00.809	24320	10040	14280	2024-09-22 09:05:18.838	Post Ganesha festival rejects
308	WB3 - 654750	AP11X7257	SECUNDERABAD ZONE	TS16-TANKBUND TS	GHMC	Sep 22 2024	2024-09-22 08:48:50.029	14780	10140	4640	2024-09-22 09:14:24.934	Post Ganesha festival rejects
309	WB3 - 654752	TS08UL2577	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 08:53:14.978	25440	10280	15160	2024-09-22 09:22:20.197	Post Ganesha festival rejects
310	WB3 - 654752	TS08UL2577	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 08:53:14.978	25440	10280	15160	2024-09-22 09:22:20.197	Post Ganesha festival rejects
311	WB3 - 654757	AP31TA3029	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 09:13:01.174	23680	10660	13020	2024-09-22 09:45:20.071	Post Ganesha festival rejects
312	WB3 - 654760	TS12UD4384	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 09:28:10.449	22240	10100	12140	2024-09-22 09:46:34.996	Post Ganesha festival rejects
313	WB3 - 654771	TS12UC5444	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 09:30:08.030	22660	9900	12760	2024-09-22 10:04:27.556	Post Ganesha festival rejects
314	WB3 - 654772	TS12UD8212	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 22 2024	2024-09-22 09:21:17.370	23340	10740	12600	2024-09-22 10:03:15.845	Post Ganesha festival rejects
315	WB3 - 654775	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 22 2024	2024-09-22 09:26:01.610	26380	9580	16800	2024-09-22 10:04:28.379	Post Ganesha festival rejects
316	WB3 - 655161	TS29T64382	KHAIRATHABAD ZONE	TS07-JIYAGUDA TS	PRIVATE	Sep 22 2024	2024-09-22 22:03:24.935	26880	10900	15980	2024-09-22 22:56:50.402	Post Ganesha festival rejects
317	WB3 - 655162	TS12UC3349	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 22:04:45.017	18900	10760	8140	2024-09-22 22:58:03.572	Post Ganesha festival rejects
318	WB3 - 655163	TS12UA8643	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 22:06:06.386	23440	10740	12700	2024-09-22 22:59:13.994	Post Ganesha festival rejects
319	WB3 - 655164	AP31TE6629	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 22:07:33.968	18740	11420	7320	2024-09-22 23:00:40.678	Post Ganesha festival rejects
320	WB3 - 655182	TS12UD4984	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 22:53:36.938	18080	10080	8000	2024-09-22 23:22:47.561	Post Ganesha festival rejects
321	WB3 - 655193	TS12UE0211	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 23:13:58.614	27400	11620	15780	2024-09-22 23:31:29.230	Post Ganesha festival rejects
322	WB3 - 655198	AP31TE9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 22 2024	2024-09-22 23:29:53.574	18520	10920	7600	2024-09-22 23:45:09.600	Post Ganesha festival rejects
323	WB3 - 655202	AP27TU8669	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 23:42:47.833	19400	10800	8600	2024-09-22 23:52:33.570	Post Ganesha festival rejects
324	WB3 - 655203	TS12UE4176	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 23:45:48.315	22220	10800	11420	2024-09-23 00:03:14.160	Post Ganesha festival rejects
325	WB3 - 655204	AP26TD6132	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 22 2024	2024-09-22 23:47:02.442	19160	10960	8200	2024-09-22 23:54:03.750	Post Ganesha festival rejects
326	WB3 - 655220	AP28EA5135	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 23 2024	2024-09-23 00:50:09.014	25520	11820	13700	2024-09-23 00:42:03.597	Post Ganesha festival rejects
327	WB3 - 655221	TS12UD9747	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 23 2024	2024-09-23 00:21:09.845	22560	10720	11840	2024-09-23 00:41:24.168	Post Ganesha festival rejects
328	WB3 - 655223	AP16TC9762	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 23 2024	2024-09-23 00:24:00.622	21420	10340	11080	2024-09-23 00:43:43.177	Post Ganesha festival rejects
329	WB3 - 655232	TG30T0139	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 23 2024	2024-09-23 00:37:54.023	25840	10680	15160	2024-09-23 00:52:42.427	Post Ganesha festival rejects
330	WB3 - 655240	TS12UD6766	MC NIZAMPET	NIZAMPET	ULB	Sep 23 2024	2024-09-23 01:03:37.409	19180	11480	7700	2024-09-23 01:16:20.989	Post Ganesha festival rejects
331	WB3 - 655243	TS12UC3945	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 23 2024	2024-09-23 01:10:55.840	21080	10680	10400	2024-09-23 01:24:39.624	Post Ganesha festival rejects
332	WB3 - 655244	TS12UA7502	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 23 2024	2024-09-23 01:13:31.844	24860	11220	13640	2024-09-23 01:25:27.614	Post Ganesha festival rejects
333	WB3 - 655254	AP29TA9198	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 23 2024	2024-09-23 01:26:35.824	22160	11080	11080	2024-09-23 01:53:06.056	Post Ganesha festival rejects
334	WB3 - 655984	AP31TE9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 00:51:03.760	22880	10960	11920	2024-09-24 01:10:40.950	Post Ganesha festival rejects
335	WB3 - 656002	TS06UB2606	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 00:47:58.079	23440	10680	12760	2024-09-24 01:40:00.687	Post Ganesha festival rejects
336	WB3 - 656005	TS02UA7522	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 00:52:19.005	19760	11260	8500	2024-09-24 01:48:27.447	Post Ganesha festival rejects
337	WB3 - 656010	AP28RA5130	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 01:03:26.230	22340	12060	10280	2024-09-24 01:55:51.580	Post Ganesha festival rejects
338	WB3 - 656013	TS12UD4384	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 01:07:01.910	19460	10180	9280	2024-09-24 02:00:51.926	Post Ganesha festival rejects
339	WB3 - 656017	AP29TA9198	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 01:15:07.515	20920	11100	9820	2024-09-24 02:02:00.319	Post Ganesha festival rejects
340	WB3 - 656018	TG30T0139	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 01:16:25.359	20920	10780	10140	2024-09-24 02:03:37.043	Post Ganesha festival rejects
341	WB3 - 656040	TS12UE0211	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 01:47:26.448	22240	11600	10640	2024-09-24 02:40:05.407	Post Ganesha festival rejects
342	WB3 - 656043	TS12UC3945	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 01:52:23.819	21980	10820	11160	2024-09-24 02:41:28.613	Post Ganesha festival rejects
343	WB3 - 656057	AP31TE5292	MC NIZAMPET	NIZAMPET	ULB	Sep 24 2024	2024-09-24 02:12:08.752	20280	10780	9500	2024-09-24 03:44:17.171	Post Ganesha festival rejects
344	WB3 - 656062	AP20TB6149	MC NIZAMPET	NIZAMPET	ULB	Sep 24 2024	2024-09-24 02:21:25.241	21640	10920	10720	2024-09-24 03:59:37.606	Post Ganesha festival rejects
345	WB3 - 656067	AP20TA5298	MC NIZAMPET	NIZAMPET	ULB	Sep 24 2024	2024-09-24 02:29:57.891	19160	10600	8560	2024-09-24 04:12:28.943	Post Ganesha festival rejects
346	WB3 - 656068	TS12UE4176	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 02:31:26.504	21720	10880	10840	2024-09-24 04:17:27.839	Post Ganesha festival rejects
347	WB3 - 656075	AP31TE6629	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 02:42:07.840	21840	11360	10480	2024-09-24 04:27:18.395	Post Ganesha festival rejects
348	WB3 - 656078	TS12UD6766	MC NIZAMPET	NIZAMPET	ULB	Sep 24 2024	2024-09-24 02:45:45.253	19080	11280	7800	2024-09-24 04:54:24.149	Post Ganesha festival rejects
349	WB3 - 656110	AP31TE9789	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 03:39:31.810	18080	10940	7140	2024-09-24 05:42:11.579	Post Ganesha festival rejects
350	WB3 - 656111	TS12UD4384	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 03:41:08.063	19440	10100	9340	2024-09-24 04:13:30.503	Post Ganesha festival rejects
351	WB3 - 656113	AP31TA3029	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 03:44:22.445	26360	10580	15780	2024-09-24 06:02:09.546	Post Ganesha festival rejects
352	WB3 - 656121	AP27TU8669	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 04:12:29.802	24500	10480	14020	2024-09-24 07:03:32.043	Post Ganesha festival rejects
353	WB3 - 656131	AP11X7256	SECUNDERABAD ZONE	TS14-NEREDMET TS	GHMC	Sep 24 2024	2024-09-24 04:27:16.751	17280	10080	7200	2024-09-24 04:56:34.441	Post Ganesha festival rejects
354	WB3 - 656151	TG30T0139	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 05:19:09.812	21680	10680	11000	2024-09-24 07:10:24.294	Post Ganesha festival rejects
355	WB3 - 656154	AP16TC9762	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 05:24:54.306	24980	10540	14440	2024-09-24 07:14:51.050	Post Ganesha festival rejects
356	WB3 - 656170	AP05RC5541	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 05:59:03.416	20760	10820	9940	2024-09-24 07:30:29.214	Post Ganesha festival rejects
357	WB3 - 656187	TS12UB8952	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 06:50:05.793	18060	10200	7860	2024-09-24 08:00:58.729	Post Ganesha festival rejects
358	WB3 - 656188	TS12UB7382	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 06:52:58.958	20580	9980	10600	2024-09-24 07:59:09.106	Post Ganesha festival rejects
359	WB3 - 656198	TS02UA7522	SECUNDERABAD ZONE	TS16-TANKBUND TS	PRIVATE	Sep 24 2024	2024-09-24 07:20:39.308	20740	11140	9600	2024-09-24 08:05:07.826	Post Ganesha festival rejects
360	WB3 - 656201	TG12T0414	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 07:22:36.854	24820	11140	13680	2024-09-24 08:10:15.752	Post Ganesha festival rejects
361	WB3 - 656362	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 11:28:06.952	19240	9660	9580	2024-09-24 11:41:44.277	Post Ganesha festival rejects
362	WB3 - 656399	TS09T1462	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 12:03:15.150	23200	10100	13100	2024-09-24 12:25:59.946	Post Ganesha festival rejects
363	WB3 - 656393	TS30T2122	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 12:04:28.500	23680	10340	13340	2024-09-24 12:22:45.265	Post Ganesha festival rejects
364	WB3 - 656399	AP31TE6597	KUKATPALLY ZONE	TS11-KHAIRLAPUR TS	PRIVATE	Sep 24 2024	2024-09-24 12:07:14.720	22520	11320	11200	2024-09-24 12:27:27.643	Post Ganesha festival rejects
365	WB3 - 656411	TS07UL4916	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 12:22:58.445	20540	10320	10220	2024-09-24 12:35:58.895	Post Ganesha festival rejects
366	WB3 - 656441	TS12UA8643	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 12:58:17.500	22200	10720	11480	2024-09-24 13:18:14.731	Post Ganesha festival rejects
367	WB3 - 656446	TS02UF1832	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 13:30:06.613	21700	10740	10960	2024-09-24 13:47:57.416	Post Ganesha festival rejects
368	WB3 - 656454	AP16TC9762	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 14:00:56.980	21340	10600	10740	2024-09-24 14:54:15.559	Post Ganesha festival rejects
369	WB3 - 656485	AP31TA3029	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 14:06:54.345	23920	10660	13260	2024-09-24 14:55:20.275	Post Ganesha festival rejects
370	WB3 - 656488	TS02UA7801	CHARMINAR ZONE	TS05-IMLIBUN TS	PRIVATE	Sep 24 2024	2024-09-24 14:10:43.302	25760	10900	14860	2024-09-24 15:11:00.937	Post Ganesha festival rejects
371	WB3 - 656496	AP26TD6132	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 14:20:22.621	22000	11040	10960	2024-09-24 15:24:06.881	Post Ganesha festival rejects
372	WB3 - 656500	TS12UC7997	LB NAGAR ZONE	TS04-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 14:32:55.065	24820	9800	15020	2024-09-24 15:29:48.451	Post Ganesha festival rejects
373	WB3 - 656508	TS12UC5443	KUKATPALLY ZONE	TS13-MACHABOLLARAM TS	PRIVATE	Sep 24 2024	2024-09-24 14:42:27.449	24840	10340	14500	2024-09-24 15:43:22.121	Post Ganesha festival rejects
374	WB3 - 656509	AP20RB9189	KUKATPALLY ZONE	TS11-KHAIRLAPUR TS	PRIVATE	Sep 24 2024	2024-09-24 14:43:24.038	21360	11380	9980	2024-09-24 15:49:58.500	Post Ganesha festival rejects
375	WB3 - 656511	AP31TD7989	KUKATPALLY ZONE	TS11-KHAIRLAPUR TS	PRIVATE	Sep 24 2024	2024-09-24 14:46:29.590	25520	10600	14920	2024-09-24 15:50:11.560	Post Ganesha festival rejects
376	WB3 - 656514	TS12UE3088	SHERLINGAMPALLY ZONE	TS09-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 14:53:40.263	21740	10320	11420	2024-09-24 15:54:44.309	Post Ganesha festival rejects

377	WB3 - 656520	19041/03606	SHERLINGAMPALLY ZONE	1509-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 15:03:09.691	21040	10960	16000	2024-09-24 16:09:54.782	Post Ganesha festival rejects
378	WB3 - 656521	1512/03/5670	SHERLINGAMPALLY ZONE	1509-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 15:06:46.953	22500	10080	11900	2024-09-24 16:10:43.416	Post Ganesha festival rejects
379	WB3 - 656594	AP31ET9949	KUKATPALLY ZONE	1511-KHABLAPUR TS	PRIVATE	Sep 24 2024	2024-09-24 15:06:13.300	23040	10760	12280	2024-09-24 16:43:56.828	Post Ganesha festival rejects
380	WB3 - 656594	1512/03/5670	SHERLINGAMPALLY ZONE	1509-DEEPTHISRI NAGAR TS	PRIVATE	Sep 24 2024	2024-09-24 16:14:55.163	24220	11300	13020	2024-09-24 17:08:42.238	Post Ganesha festival rejects
381	WB3 - 656561	19041/C9369	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 14:02:39.829	20040	10840	9300	2024-09-24 17:55:03.619	Post Ganesha festival rejects
382	WB3 - 656542	19041/09459	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 24 2024	2024-09-24 14:24:36.641	22460	10620	11940	2024-09-24 17:59:02.138	Post Ganesha festival rejects
383	WB2 - 1021181	1507/JP1632	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 25 2024	2024-09-25 14:21:34.966	25680	10620	9960	2024-09-25 14:21:34.003	Post Ganesha festival rejects
384	WB2 - 1021181	1507/JP1632	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 25 2024	2024-09-25 14:21:34.966	25680	10620	9960	2024-09-25 14:21:34.003	Post Ganesha festival rejects
385	WB2 - 1021140	1526/1997	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 25 2024	2024-09-25 16:31:06.606	25740	10620	12140	2024-09-25 16:54:15.310	Post Ganesha festival rejects
386	WB2 - 1021140	1512/JC2997	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 25 2024	2024-09-25 16:54:43.303	18900	9660	8400	2024-09-25 16:57:30.113	Post Ganesha festival rejects
387	WB3 - 657079	AP24X4149	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 25 2024	2024-09-25 17:05:58.037	14340	9880	4360	2024-09-25 19:21:13.354	Horticultural waste
388	WB3 - 657704	19041/C8369	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 26 2024	2024-09-26 15:03:30.178	25340	10780	14580	2024-09-26 16:00:09.896	Post Ganesha festival rejects
389	WB3 - 657704	19041/C8369	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 26 2024	2024-09-26 15:03:30.178	25380	10700	14580	2024-09-26 16:30:29.396	Post Ganesha festival rejects
390	WB3 - 657733	1526/1997	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 26 2024	2024-09-26 15:24:30.057	23220	10620	12800	2024-09-26 17:43:40.091	Post Ganesha festival rejects
391	WB3 - 657747	19041/C7890	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 26 2024	2024-09-26 16:22:32.935	26340	10340	14000	2024-09-26 17:47:04.850	Post Ganesha festival rejects
392	WB3 - 657752	1512/JB9951	SECUNDERABAD ZONE	1516-TANDUR-ND TS	PRIVATE	Sep 26 2024	2024-09-26 16:49:25.220	22940	11000	11940	2024-09-26 17:51:14.020	Post Ganesha festival rejects
393	WB3 - 658047	1512/03/5657	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 27 2024	2024-09-27 09:11:41.104	19020	10400	8620	2024-09-27 09:49:33.807	Horticulture waste
394	WB3 - 658366	19041/C9459	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 27 2024	2024-09-27 11:39:50.960	23000	10600	12400	2024-09-27 12:58:36.319	Horticulture waste
395	WB3 - 659130	19041/C9459	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 28 2024	2024-09-28 11:54:47.618	26360	10840	15000	2024-09-28 13:20:12.193	Post Ganesha festival rejects
396	WB3 - 659986	19041/C9369	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 29 2024	2024-09-29 12:13:07.417	30920	10900	19020	2024-09-29 12:25:36.698	Post Ganesha festival rejects
397	WB3 - 659828	19041/C9459	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 29 2024	2024-09-29 12:41:39.703	21080	10580	10500	2024-09-29 13:03:16.180	Post Ganesha festival rejects
398	WB3 - 659908	1526/1997	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 29 2024	2024-09-29 13:28:16.146	21800	10660	11940	2024-09-29 13:43:45.172	Post Ganesha festival rejects
399	WB2 - 659933	AP39EA9999	KUKATPALLY ZONE	1511-KHABLAPUR TS	PRIVATE	Sep 29 2024	2024-09-29 14:05:55.798	16780	10680	5400	2024-09-29 15:07:00.810	Post Ganesha festival rejects
400	WB3 - 659940	1531/1182	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 29 2024	2024-09-29 14:18:06.908	19420	10400	9020	2024-09-29 15:01:51.292	Post Ganesha festival rejects
401	WB3 - 659955	19041/C8369	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 29 2024	2024-09-29 14:44:05.876	19080	10800	8060	2024-09-29 16:23:52.617	Post Ganesha festival rejects
402	WB3 - 659968	AP11X7243	CHARMINAR ZONE	1505-MUBUN TS	GHMC	Sep 29 2024	2024-09-29 15:00:11.540	14540	9900	4440	2024-09-29 15:39:51.689	Horticultural waste
403	WB3 - 659983	19041/C9459	LB NAGAR ZONE	1504-NAGOLE TS	PRIVATE	Sep 29 2024	2024-09-29 15:25:04.184	21600	10560	11040	2024-09-29 16:43:07.195	Post Ganesha festival rejects
404	WB3 - 660051	1512/JB6678	SHERLINGAMPALLY ZONE	1509-DEEPTHISRI NAGAR TS	PRIVATE	Sep 30 2024	2024-09-30 13:29:13.752	29140	10900	12440	2024-09-30 14:49:50.948	Post Ganesha festival rejects
							TOTAL			4169940		

B. Koteswararao
TL/SE

Total overflow quantity of contaminated storm water/ leachate from IMSWM facility										
Sl. No	Month	Rain Fall in mm	Leachate generation from Tipping Floor A=6,250 sq.m	Leachate generation from Windrows A=28,125 sq.m	Leachate generation from open area Adjoining to finishing shed A=2,800 sq.m	Leachate generation from RDF Storage A=4,800 sq.m	Leachate generation from SanitaryLandfill A=4,800 sq.m	Surface area of Leachate ponds A=15,000 sq.m	Total overflow of Leachate due to non containment during monsoon (in kL)	Remarks
1	1.09.2024	70.90	443.13	1994.06	198.52	340.32	340.32	1063.50	4379.85	
2	2.09.2024	4.10	25.63	115.31	11.48	19.68	19.68	61.50	253.28	
3	3.09.2024	33.30	208.13	936.56	93.24	159.84	159.84	499.50	2057.11	
4	4.09.2024	70.60	441.25	1985.63	197.68	338.88	338.88	1059.00	4361.32	
5	5.09.2024	2.80	17.50	78.75	7.84	13.44	13.44	42.00	172.97	
6	6.09.2024	0.80	5.00	22.50	2.24	3.84	3.84	12.00	49.42	
7	7.09.2024	6.30	39.38	177.19	17.64	30.24	30.24	94.50	389.18	
8	8.09.2024	1.00	6.25	28.13	2.80	4.80	4.80	15.00	61.78	
9	9.09.2024	0.80	5.00	22.50	2.24	3.84	3.84	12.00	49.42	
10	10.09.2024	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15		3.60	22.50	101.25	10.08	17.28	17.28	54.00	222.39	
16		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

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2901

17		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20		73.90	461.88	2078.44	206.92	354.72	354.72	1108.50	4565.17	
21		59.70	373.13	1679.06	167.16	286.56	286.56	895.50	3687.97	
22		3.00	18.75	84.38	8.40	14.40	14.40	45.00	185.33	
23		21.80	136.25	613.13	61.04	104.64	104.64	327.00	1346.70	
24		89.90	561.88	2528.44	251.72	431.52	431.52	1348.50	5553.57	
		442.50	2,765.63	12,445.31	1,239.00	2,124.00	2,124.00	6,637.50	27,335.44	

17/10

B. Koteswara Rao
Teamleader, BE

19/10/2024.
ESD (I/C)

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Annexure-A7

Hyderabad Metropolitan Water Supply and Sewerage Board

Details of under construction STPs in GHMC area

Sl.No	Location	Capacity (MLD)	Technology	Physical Progress	Tentative date of Completion/ Commissioning
1	Palapitta Park	7	SBR	90% work completed	Jan-25
2	Shivalaynagar	14	SBR	90% work completed	Feb-25
3	Mullakathuwa Cheruvu	25	SBR	80% work completed	Feb-25
4	Nallagandla	7	SBR	85% work completed	Feb-25
5	Attapur-1	64	SBR	75% work completed	Feb-25
6	Amberpet	212.5	SBR	75% work completed	Mar-25
7	Rainbow Vista	43.5	SBR	60% work completed	Apr-25
8	Ramacheruvu	30	SBR	65% work completed	Apr-25
9	Attapur-2	40	SBR	45% work completed	Apr-25
Sub Total		**443**			

Annexure-A8

Hyderabad Metropolitan Water Supply and Sewerage Board

Details of each existing STP with utilization capacity under HMWSSB, GHMC,HMDA

Sl.No.	Location	Existing STP Capacity	Technology	Maintained by	Capacity Utilized	Operational Status of STP	Compliance Status of STP by PCB, EPTRI, OCEMS
1	2	3	4	5	6	7	8
1	Amberpet	339	UASB	HMWSSB	314	Working	Complied
2	Nagole	172	UASB	HMWSSB	172	Working	Complied
3	Nallacheruvu	30	UASB	HMWSSB	29.9	Working	Complied
4	Attapur 1	51	SBR	HMWSSB	43	Working	Complied
5	Attapur 2	23	SBR	HMWSSB	18	Working	Complied
6	Pedda Cheruvu, Nacharam	10	Extended	HMWSSB	10	Working	Complied
7	Miralam Tank 1	10	Extended	HMWSSB	8.4	Working	Complied
8	Miralam Tank 2	5	Extended	HMWSSB	4.32	Working	Complied
9	Durgam Cheruvu, SLP	5	Extended	HMWSSB	4.8	Working	Complied
10	Patel Cheruvu, Nacharam	2.5	Extended	HMWSSB	2.5	Working	Complied
11	Saroor Nagar	2.5	Extended	HMWSSB	2.5	Working	Complied
12	Langer House	1.2	Extended	HMWSSB	1.23	Working	Complied
13	Noor Mohammad Kunta	4	Extended	HMWSSB	4	Working	Complied
14	Safilguda, Malkajgiri	0.6	Extended	HMWSSB	0.6	Working	Complied
15	Khajakunta, Metro, KKP	12	MBBR	HMWSSB	12	Working	Complied
16	Khajaguda, Gachibowli	7	MBBR	HMWSSB	7	Working	Complied
17	Nanakramguda,Gachibowli	4.5	MBBR	HMWSSB	4.5	Working	Complied
18	JVR Park, NagarjunaCircle	0.5	Extended	HMWSSB	0.5	Working	Complied
19	Lingam Kunta, BHEL	30	MBBR	HMWSSB	18	Working	Complied
20	Gopanapally, SLP	4.5	MBBR	HMWSSB	4.5	Working	Complied
21	Durgam Cheruvu	7	SBR	HMWSSB	7	Working	Complied
22	Kokapet	15	SBR	HMWSSB	15	Working	Complied
23	Peddacheruvu	17.5	SBR	HMWSSB	15	Working	Complied
24	Nallacheruvu-I	86.5	SBR	HMWSSB	55	Working	Complied
25	Safilguda	5.5	SBR	HMWSSB	4.5	Working	Complied
26	Miralam Site-I	41.5	SBR	HMWSSB	10	Working	Complied
27	Miyapur Patelcheruvu	7	SBR	HMWSSB	3	Working	Complied
28	Nagole	320	SBR	HMWSSB	170	Working	Complied
29	Khajakunta	20	SBR	HMWSSB	6	Working	Complied
30	Fathenagar-I	133	SBR	HMWSSB	100	Working	Complied
31	Vennelagadda	10	SBR	HMWSSB	2	Trial run	Under compliance to PCB OCEMS
32	Necklace Road	20	EA SBR	**HMDA**	20	Working	-
33	Pattigadda	30	EA BNR	**HMDA**	30	Working	-
34	Rangadhamini Lake, KKP	5	Extended	**HMDA**	5	Working	-
35	Krishnakanth Park,	0.5	Extended	**GHMC**	-		-
36	Amber Cheruvu, Pragatinagar	2.5	Extended	**GHMC**	-		-
		1435.3			**1104.25**		

Abstract

Sl. No.	Sewage Generation & Treatment	MLD
1	Sewage Generation in GHMC & upto ORR (as on the date of NGT order 29.09.2022)	1950.00 MLD
2	Existing STPs Capacity (25 Nos)	772.30 MLD
3	Newly Constructed & commissioned STPs (11 Nos)	663.00 MLD
	Total Installed STPs capacity (2) & (3)	**1435.30 MLD**
4	Present Utilization Capacity	1104.25 MLD (77%)
5	New STPs under construction (nearing completion)	443.00 MLD
6	Utilization Capacity after completion of under progress STPs	90%
7	Gap in Treatment Capacity	72 MLD Being taken up under AMRUT-2

Annexure- A9 - PHMED

Details of under Construction STP's in the State (Urban other GHMC)

S.No.	City & Funding	Location of STP	Capacity of STP in MLD	Technology	Physical Progress in %	Tentative date of Completion/ Commissioning	Remarks
1	Miryalguda (UIDSSMT & TUFIDC Rs.85.52 Cr (Rs.45.51 Cr+Rs.33.01Cr.)+ Rs.7.00 (TUFIDC)	Ramnagar Bandam	**5.45**	WSP	Physically Completed. Commissioning under progress. Interconnection and gap closing works pending.	30-06-2025	Agency M/s. Krushi Pvt Ltd not completing the balance works and commissioning. Final noticeS issued to agency to complete and commission the scheme, proposal for termination under process. Commissioning will be completed after replacement of Pump Sets and motors. *Progress of work slowed due to delay in payments and paucity of funds*
2	Nalgonda UIDSSMT & TUFIDC Rs.107.78 Cr (Rs.56.79+Rs.32.99Cr.)+Rs.18.00 Cr (TUFIDC)	Sheshammagudem	**17.16**	WSP	99%	31-03-2025	Interconnection and gap closing works needs to be completed to commission the STP.Commissioning will be completed after replacement of Pump Sets and motors.*Progress of work slowed due to delay in payments and paucity of funds.*
3	Nagar Kurnool SDF+TUFIDC Rs.35.00Cr+30.00Cr	Bus Depot Backside	**3.20**	Phytorid	100%	6/30/2025	STP has been completed and commissioned. Intermittent Pump house to be taken up & completed for sewage pumping to STP. Revised AS awaited.
4	Khammam CM Assurance Rs.100 Cr (Rs.70Cr.+Rs.30Cr)	Dhamsalapuram	20.00	SBR	25%	-	work held up due to paucity of funds. **Being proposed under AMRUT 2.0 depending on funds availability. So not considered.**
5	Suryapet TUFIDC Rs.118.00Cr. (Rs.81.41 Cr. +Rs.36.59 Cr.)	Nalla cheruvu	**10.00**	SBR	85%	6/30/2025	*Progress of work slowed due to delay in payments and paucity of funds.*
6	Sircilla Rs.61.25 Cr MB (Urban)- Subject to reimbursement from RWS&S Dept.	Shanthinagar behind 2BHK Colony	**19.10**	SBR	90%	30-04-2025	*Progress of work slowed due to delay in payments and paucity of funds.*
		Sub-Total	**74.91**				

S.No.	City & Funding	Location of STP	Capacity of STP in MLD	Technology	Physical Progress in %	Tentative date of Completion/ Commissioning	Remarks
Details of sanctioned STPs but not executed.							
7	Devarakonda	Peta Cheruvu	1.50	SBT	0% Will not be executed.		1.50 MLD at peta Cheruvu will be not taken up since intially House Sewerage connections are not proposed in the Scheme due to Paucity of funds. In order to complete the Sewerage connections in Nainoni Kunta catchment and commission the 1.50 MLD at Nainoni Kunta, 1.50 MLD STP at Peta Cheruvu is not taken up.
8	GWMC	Reddypuram	100.00	SBR	Work cancelled due to land acquisition issue under Smart city		Work cancelled due to land acquisition issue. Revised Proposal submitted by Commissioner, GWMC to CDMA, Hyderabad for AS.
9	Nalgonda	Arjalabavi	2.55	MBBR	11% (held up and will not be executed)	-	Submergence of STP Site & due to objection from local people, the construction of STP is stopped.Hence above work is held up and the sewerage generated will be connected to 17.16 MLD STP and treated.
		Sub-Total	**104.05**				
Grand Total In MLD			**178.96**				

Total No.of STPs: 9 Nos (in 8 ULBs)
Total capacity: 178.96 MLD

Annexure -A10- PHMED							
Details of Existing STP's with utilization capacity in the State Under PH&MED							
Before Judgement Order i.e., on 29-09-2022							
S.No.	**City/Town**	**Location of STP**	**Existing Capacity of STP in MLD**	**Technology**	**Capacity utilized in MLD**	**Operational Status**	**Remarks**
1	Karimnagar	Bommakal Road (Near Housing Board Colony)	38.00	MBBR	3.00	Operational	Inspection chambers, Sewerage connections are not taken up in UIDSSMT Scheme due to paucity of funds. Now 19500 Nos of Inspection chambers are proposed in Karimnagar Smart City Project (So that utilization can be improved).It is also proposed to complete the balance and all additional components under AMRUT 2.0.
2	Vikarabad	Chakali Gadda, Allampally	13.00	MBBR	7.50	Operational	STP is designed for prospective year demand (2026).Present requirement is less than 2026 requirement. At present 9.0 MLD water is being supplied and the utilization is matching with 80% of the water supply.
3	Nizamabad	Dubba	31.50	MBBR	7.50	Operational	Network not fully laid due to paucity of funds.It is also proposed to complete the balance, Sewerage connections and all additional components under AMRUT 2.0.
		Yellammagutta	15.00	MBBR	3.50	Operational	
4	Miryalguda	Thallagadda	11.50	WSP	-	Non- Operational	Presently, Motors and pumpsets are under repair and will be replaced soon.To utilise the 11.50 MLD capacity STP, sewerage connections are proposed under AMRUT 2.0 .
5	Siddipet	Chinthala Cheruvu	7.25	MBBR	7.00	Operational	
		Narsapur Cheruvu	11.00	SBR	10.00	Operational	
6 (a)	Gajwel	Rajareddy Pally	1.50	Phytorid	1.50	Operational	
		Pidichedu Road	3.50	Phytorid	3.00	Operational	
		Pandavula Chervu	0.50	Phytorid	0.50	Operational	
		Sub Total	**132.75**		**43.50**		

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ANNEXURE - A10

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S.No.	City/Town	Location of STP	Existing Capacity of STP in MLD	Technology	Capacity utilized in MLD	Operational Status	Remarks
After Judgement Order i.e., on 29-09-2022							
6(b)	Gajwel	Pragnapur (By-Pass Road)	1.25	Phytorid	0.75	Operational	
7	Suryapet	Pullareddy cheruvu	10.00	SBR	3.00	Operational	Network not fully laid due to paucity of funds.It is also proposed to complete the balance, Sewerage connections and all additional components under AMRUT 2.0.
8	GWMC	Ursugutta	5.00	SBR	3.50	Operational	
		Pragathinagar	15.00	SBR	12.50	Operational	
9	Devarakonda	Nainoni Kunta	1.50	SBT	1.00	Operational	
10	Nagar Kurnool	Bus Depot Backside	2.30	Phytorid	1.00	Operational	STP has been commisioned recently.
		Sub Total	**35.05**		**21.75**		
		Total	**167.80**		**65.25**		

Total No.of STPs completed: 16 Nos (in 10 ULBs)

Total installed capacity: 167.80 MLD

Annexure- A10(i)

Details of Status of CFO and disposal of STP's in the State under PH & ME Department (Urban other than ORR)

Sl. No.	City/Town	Location of STP	Capacity of STP in MLD	Technology	Capacity Utilized in MLD	Whether CFO *(Consent for Operation)* obtained (Yes/No)	Remarks	Disposal of treated Sewage
1	Karimnagar	Bommakal Road (Near Housing Board Colony)	38.00	MBBR	3.00	No	To be applied	Gopal Cheruvu
2	Vikarabad	Chakali Gadda, Allampally	13.00	MBBR	7.50	No	To be applied	Use in Golf course greenery
3	Nizamabad	Dubba	31.50	MBBR	7.50	Yes	Valid upto 31.01.2026	Yelliah Cheruvu
		Yellammagutta	15.00	MBBR	3.50	Yes	Valid upto 31.01.2026	Phulong Vagu
4	Siddipet	Chinthala Cheruvu	7.25	MBBR	7.00	No		Surplus Channel of Chinthala Cheruvu
		Narsapur Cheruvu	11.00	SBR	10.00	No		Narsapur Cheruvu
5	Gajwel	Rajareddy Pally	1.50	Phytorid	1.50	No		Rajareddy Pally Cheruvu
		Pidichedu Road	3.50	Phytorid	3.00	No		Local Stream/Vagu
		Pandavula Chervu	0.50	Phytorid	0.50	No		Pandavula Chervu
		Pragnapur (By-Pass Road)	1.25	Phytorid	0.75	No		Existing field channels
6	Miryalguda	Thallagadda	11.50	WSP	0.00	No	To be applied	Local Vagu
7	Nagar Kurnool	Bus Depot Backside	2.30	Phytorid	1.00	No	To be applied	Agricultural field channel
8	Suryapet	Pullareddy cheruvu	10.00	SBR	3.00	No	To be applied	Pullareddy cheruvu
9	GWMC	Ursugutta	5.00	SBR	3.50	No	To be applied	Ursucheruvu
		Pragathinagar	15.00	SBR	12.50	No	To be applied	Bandam Cheruvu
10	Devarakonda	Nainoni Kunta	1.50	SBT	1.00	No	To be applied	Khilla Park

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ANNEXURE - A-10(ii)

Annexure- I (D)

Details of STP's in the State under PH&MED under AMRUT 2.0

Sl. No	ULB	District	Project Cost (including O&M in Cr)	No.of STPs proposed in AMRUT 2.0	Sewage treatment capacity (MLD)	Details of Package in which STP was included and total capacity in package	Remarks
Package-I							
1	ADILABAD	ADILABAD	225.46	4	**31.50**	**Package-I (Total Capacity:65.00 MLD) Project Cost : Rs.560.85 Cr**	**Package-I: LOA issued on 07-03-2024 & agreement concluded. Work grounded.**
2	KARIMNAGAR	KARIMNAGAR	79.57	-	-		
3	RAMAGUNDAM	PEDDAPALLI	255.82	5	**33.50**		
Package-II							
4	MIRYALAGUDA	NALGONDA	173.07	1	**6.00**	**Package-II (Total Capacity:63.30 MLD) Project Cost : Rs.955.55 Cr**	**Package-II: LOA issued on 07-03-2024 & agreement concluded.Work grounded.**
5	NALGONDA		216.19	1	**3.80**		
6	SURYAPET	SURYAPET	316.77	-	-		
7	KHAMMAM	KHAMMAM	249.52	2	**53.50**		
Package-III							
8	NIZAMABAD	NIZAMABAD	162.81	-	-	**Package-III (Total Capacity:42.00 MLD) Project Cost : Rs.439.61 Cr**	**Package-III: LOA issued on 01-07-2024 & agreement concluded. Work grounded.**
9	MAHBUBNAGAR	MAHBUBNAGAR	276.8	3	**42.00**		
Total for 9 ULBs			**1956.01**	**16**	**170.30**		
Total No.of STPs proposed under AMRUT 2.0: 16 Nos (in 9 ULBs)							
Total capacity proposed under AMRUT 2.0: 170.30 MLD							

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GOVERNMENT OF TELANGANA

ABSTRACT

MA&UD Department - Engineering- PH&ME- Hon'ble NGT Directions (not to discharge untreated waste water into water bodies & rivers) - Construction of Sewage Treatment Plants in all Urban Local Bodies of Telangana – Administrative sanction for an amount Rs.3769.34 crores (including O&M and Annuity Payments and GST on Interest Component of Annuity Payments) for "Sewerage Projects in 101 ULBs in the State of Telangana under SBM 2.0" – Accorded – Orders Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (ENGG.) DEPARTMENT

G.O. Rt. No.388 Dated:21.08.2024

Read the following:-

1. From the ENC(PH), Hyderabad, Lr.No.: T1/SBM 2.0/STPs & I&Ds /2022-23,Dt.: 15.04.2023.
2. Govt., Memo No. 6361/Engg.2/2023, Dt.02-02-2024]
3. From the ENC (PH), Hyderabad, Lr.No.T1/SBM 2.0/STPs & I&Ds/2023-24, Dt: 07.02.2024.

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ORDER:

In the reference 1st read above, the Engineer-in-Chief (Public Health) Hyderabad has informed that, the Director (SBM), MoHUA, GoI has communicated the Minutes of Meeting of 7th NARC of SBM Urban duly mentioning that Action Plans submitted by the Govt. of Telangana for Urban Water Management have been aprroved containing proposals costing Rs. 934.60 Crores towards establishment of STPs and I&D for Urban Water Management have been approved in 101 ULBs and requested to issue the RFP for engagement of agencies for establishment, O&M of STPs and construction of I&D structures and to take further action for effective UWM under SBM Urban 2.0.

2. The Engineer-in-Chief (Public Health), Hyderabad has further informed that, the Hon'ble National Green Tribunal have given directions to take measures not to discharge untreated waste water into water bodies & rivers. Government of Telangana has either established or is in the process of establishing STPs in the ULBs of Warangal, Karimnagar, Nizamabad, Siddipet, Nalgonda, Miryalaguda, Suryapet, Sircilla, Gajwel, Vikarabad, Nagar Kurnool, Devarakonda, Alampur, Khammam besides GHMC to meet the requirements of respective prospective years. The ENC (PH) has requested the Government to give suitable directions on taking up STPs in 103 ULBs which are to be funded through SBM 2.0 Scheme.

3. In the reference 2nd read above, Government have requested the ENC (PH) to furnish the proposal, duly revising the installed capacity as per the discussions held in this regard by the Principal Secretary to Government MA&UD Department with the Engineer-in-Chief (Public Health), Hyderabad for taking further action in the matter.

4. In the reference 3rd read above, the Engineer-in-Chief (Public Health) has stated that previously they have submitted the proposals of SBM 2.0 to the Government for construction of 344 No. of STPs (total capacity of 789.20 MLD, considering 2038 as prospective year) along with I&D Structures with 10 years O&M with a tentative financial implication of about Rs. 5503.107 crores, along with a request to accord permission to

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invite tenders with open technology on RFP mode in Hybrid Annuity Model without mentioning Internal Bench Mark, pending Administrative Sanction. It was also indicated therein that Administrative Sanction would be sought along with tender approval after finalization of the tenders.

5. The Engineer-in-Chief (Public Health) has further stated that, during the review meeting with the Principal Secretary to Government, MA&UD Dept. on 11-01-2024; the proposals of SBM 2.0 were placed before the Government and it was instructed to take up the proposals in two phases, duly utilizing the GoI share under SBM 2.0 in Phase-I as upfront payment, keeping in view the financial implication, and in single package in order to create healthy competition among available agencies who have experience in executing similar projects in HAM mode.

6. The Engineer-in-Chief (Public Health) has further stated that, after detailed deliberations, it has been decided in the above meeting on the following proposals under SBM 2.0:-

- Proposals under Phase-I: To consider STPs of only certain catchments of the ULB for the prospective year 2038 satisfying the criteria of SBM 2.0 Guidelines that all towns will need to prepare a DPR containing the provision of minimum one STP (for 70% of current (2025) population).

  Where there is marginal difference in capacity of STP of the catchment corresponding to the prospective year 2038 when compared to the intended capacity in Phase I (corresponding to 70% of current (2025) population of the town), those STP capacities are further reduced to meet the criteria of SBM 2.0 guidelines with a contemplation to take up capacity augmentation of these STPs as and when required on case to case basis.

- Proposals under Phase-II: Capacity augmentation (on modular basis) of the catchments under consideration in Phase I along with the new catchments deferred in Phase I can be considered in Phase II proposals.

7. The Engineer-in-Chief (Public Health) has also informed that, it has been decided to prepare estimates with the same rates as adopted for AMRUT 2.0 projects i.e., SSR 2022-23 with the cement & steel rates for the month of April 2023 and STP rates from GWSSB SOR for the year 2022-23, since the original proposal was submitted to Govt. on Dt. 15-04-2023. The estimated Operation and Maintenance cost of 115 STPs for 10 years is Rs.1608.50 Crores (*considering 5% non compounding increase on each year's O&M cost*) based on CPHEEO Guidelines, Consortium of IITs report of Ganga River Basin Environment Management Plan and common SSR–2022-23 of Government of Telangana.

8. Stating the above position, the Engineer-in-Chief (Public Health) T.G, Hyderabad has finally requested the Govt., to accord permission on the following:-

i. Administrative sanction for an amount Rs.3769.34 crores (including O&M and Annuity Payments and GST on Interest Component of Annuity Payments) for "Sewerage Projects in 101 ULBs in the State of Telangana under SBM 2.0".

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ii. Permission to invite tenders in single package under LS contract system with Hybrid Annuity Model (35% upfront and 65% deferred), duly cancelling the G.O.Rt.No.343, MA&UD (UBS) Department, Dt. 29-05-2023.

iii. Request to address the Govt. of India for permission to utilize the GOI share as upfront payment (35%) during the construction period of initial 2 years and balance (65%) to be paid in 10 annuities by the State Government along with O&M payments, considering the present financial situation of the State Government.

iv. Permission to invite tenders pending acquisition of land, in relaxation of G.O.Ms.No. 94, I&CAD (PW-COD) Department, Dated: 01-07-2023 and G.O.Ms.No. 1, Finance (Works & Projects-F7) Department, Dt. 25-02-2012 and to initiate the Land Acquisition process parallelly. In case the tender process is postponed till completion of land acquisition process, it may have a cascading effect resulting in cost escalation. Also, GoI is pursuing with the State Government constantly regarding award of the projects under SBM 2.0.

v. Land Acquisition costs will be submitted to the Government and administrative sanction for those amounts will be sought in due course.

vi. Permission from State Government to entrust the O&M of sewerage projects under SBM 2.0 for 10 years on completion of capital work at the same tender percentage of capital work, by concluding a separate agreement with the same agency by the ULB.

vii. To give directions to the DMA, Hyderabad to instruct the Commissioners of the respective ULBs (falling in SBM 2.0) to conclude separate agreements with the same agencies (entrusted with the capital works) for O&M of sewerage schemes proposed under Phase I of SBM 2.0.

viii. To give directions to the DMA, Hyderabad to instruct the Commissioners of all the respective ULBs for identification of potential users/ industries of treated waste water (minimum of 20%), which enables ULBs to avail 15th Finance Commission tied grants.

ix. The draft bid document for the LS Contract System with Hybrid Annuity Model is under preparation and the same will be submitted to the Government in due course for approval.

9. Government after careful examination of the matter, hereby accord permission on the following:-

I. Administrative sanction is accorded for an amount Rs.3769.34 Crores (including O&M and Annuity Payments and GST on Interest Component of Annuity Payments) for "Sewerage Projects in 101 ULBs in the State of Telangana under SBM 2.0"

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ii. Permission is accorded to invite tenders in single package under LS contract system with Hybrid Annuity Model (35% upfront and 65% deferred), duly cancelling the G.O.Rt.No.343, MA&UD (UBS) Department, Dt. 29-05-2023.

iii. The Director of Municipal Administration, being the State Mission Director, SBM 2.0 is directed to address the Govt. of India for permission to utilize the GOI share as upfront payment (35%) during the construction period of initial 2 years and balance (65%) to be paid in 10 annuities by the State Government along with O&M payments.

iv. Permission is accorded to invite tenders pending acquisition of land, in relaxation of G.O.Ms.No.94, I&CAD (PW-COD) Dept.,Dt.01-7-2023 and G.O.Ms.No.1, Finance (Works & Projects-F7) Dept., Dt. 25-02-2012 and to initiate the Land Acquisition process parallelly, and to submit the proposals of Administrative Sanction for land acquisition if required.

v. Permission is accorded to entrust the O&M of sewerage projects under SBM 2.0 for 10 years on completion of capital work at the same tender percentage of capital work, by concluding a separate agreement with the same agency by the ULB.

vi. DMA, Hyderabad is directed to instruct the Commissioners of the respective ULBs (falling in SBM 2.0) to conclude separate agreements with the same agencies (entrusted with the capital works) for O&M of sewerage schemes proposed under Phase I of SBM 2.0.

vii. DMA, Hyderabad is directed to instruct the Commissioners of all the respective ULBs for identification of potential users/ industries of treated waste water (minimum of 20%), which enables ULBs to avail 15th Finance Commission tied grants.

10. The Engineer-in-Chief, Public Health/ the Director of Municipal Administration, Telangana, Hyderabad shall take further necessary action accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

M. DANA KISHORE
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Engineer-in-Chief (PH), Telangana, Hyderabad.
The Director of Municipal Administration, Telangana, Hyderabad.
Copy to:
The OSD to Spl. Secretary to Chief Minister.
OSD to Prl. Secretary to Govt., MA&UD Department.
Sf/Sc

// FORWARDED :: BY ORDER //

SECTION OFFICER

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Annexure- A11(ii) - PHMED

:Details of STPs proposed in the State in 101 ULBs under PH&MED under SBM 2.0

Sl No	Name of the ULB	Name of the District	No of STPs	STP 1	STP 2	STP 3	STP 4	STP 5	Total Capacity of STPs in MLD	Remarks
1	Kothagudem	Bhadradi Kothagudem	1	9.0					9.0	•Earlier total 72 No. of STP's of capacity 315.02 MLD in 30 ULB's was proposed to be taken up by the PH&ME Department for a tentative amount of Rs.2828.24 Crores and the same was submitted to the Govt. for according Administrative Sanction vide T/o Lr Dt:13-04-2020 & 03-10-2020. • Further, as per instructions of Govt. Vide Memo Dt:25.05.2021 of MA & UD (TP&E.2), it was proposed to take up the above under Hybrid Annuity Model. •Govt. vide G.O.Rt.No.478, Dt:15-07-2022 accorded administrative sanction for appointment of consultant M/s. Green Design and Engineering Services Pvt., Ltd for preparation of DPRs. (including updating existing DPRs) • Further, it was proposed to take up UGD Scheme in Ramagundam Municipal Corporation (one of the ULB under NGT 30 ULBs under polluted River Stretches) under AMRUT 2.0. • It is to submit that Govt. of India has sanctioned SBM 2.0 for Telangana State which includes construction of STPs and I&D Structures in ULBs. It is proposed to take up STPs in 103 ULBs (other than GHMC, 26 ORR ULBS, 11 AMRUT Towns, Siricilla but including 29 NGT ULBs) under SBM 2.0 in Hybrid Annuity Model. • The funding for STPs under SBM 2.0 is restricted to 2025 population only (that too @70%), whereas as per CPHEEO Manual, STPs are to be designed for 15 years (Prospective) and 30 years (ultimate). Accordingly, STPs capacities are calculated as per Prospective population Demand for 2038 and Ultimate population Demand for 2053. • Hence, the sanctioned amount under SBM 2.0 is not sufficient to meet the construction of STPs as per CPHEEO Manual Design. • Hence, it is proposed to float tenders on Hybrid Annuity Model by utilising the SBM provision as Viability Gap Funding. Addressed to Govt. for according approval to call tenders with open technology on RFP mode pending administrative sanction for taking up construction of 344 Nos of STPs in 103 ULBs for capacity of 789.20 MLD under SBM 2.0. Further, the Govt. vide Memo No. 6361/Engg.2/2023 of MA&UD (Engg.) Dept., Dt. 02-02-2024 has directed to submit revised proposals revising the capacities duly utilizing the GoI share under SBM 2.0 in Phase I as upfront payment, keeping in view the financial implication. Accordingly, this office vide letter Dt:07-02-2024 has submitted revised proposals and requested Govt. to accord Administrative sanction for an amount Rs. 3769.34 crores (including O&M and Annuity Payments and GST on Interest Component of Annuity Payments) for "Sewerage Projects in 101 ULBs in the state of Telangana under SBM 2.0) Govt. vide G.O.Rt.No.388, Dt:21-08-2024 accorded administrative sanction for an amount of Rs.3769.34 Crores (including O&M and Annuity payments and GST on Interest component of Annuity payments) for "sewerage projects in 101 ULBS in the state of Telangana under SBM 2.0"). **Tender invited and no bidders participated in 1st call. Tender is being recalled.**
2	Manuguru		1	4.0					4.0	
3	palvancha		1	10.0					10.0	
4	Yellandu		1	4.00					4.0	
5	Madhira		1	4.00					4.0	
6	Sattupalli	Khammam	2	3.00		1.00			4.0	
7	Wyra		1	4.00					4.0	
8	Mahabubabad		1	8.00					8.0	
9	Dornakal	Mahabubabad	1	1.70					1.7	
10	Maripeda		1	2.50					2.5	
11	Thorrur		1	2.30					2.3	
12	Alampur		1	1.70					1.7	
13	Gadwal	Jogulaba Gadwal	1		8.00				8.0	
14	Ieeja		1		3.30				3.3	
15	Waddepalle		1			2.00			2.0	
16	Bhoothpur	Mahabubnagar	2	0.80	0.90				1.7	
17	Jadcherla		1	7.30					7.3	
18	Atchampet		1	4.00					4.0	
19	Kalwakurthy	Nagarkurnool	1		4.00				4.0	
20	Kollapur		1			3.00			3.0	
21	Nagarkurnool		0						0.0	
22	Kosgi	Narayanpet	1	3.30					3.3	
23	Makthal		1		3.60				3.6	
24	Narayanapet		1		5.00				5.0	
25	Amarchinta		1	2.00					2.0	
26	Atmakur		1	2.90					2.9	
27	Kothakota	Wanaparthy	1	3.20					3.2	
28	Pebbair		1				3.00		3.0	
29	Wanaparthy		1	8.00					8.0	

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ANNEXURE - II (iv)

Sl No	Name of the ULB	Name of the District	No of STPs	STP 1	STP 2	STP 3	STP 4	STP 5	Total Capacity of STPs in MLD	Remarks
30	Banswada	Kamareddy	1	3.50					3.5	
31	Kamareddy		1		12.00				12.0	
32	Yellareddy		2	1.30		1.00			2.3	
33	Armoor	Nizamabad	2	5.30				2.20	7.5	
34	Bhcemgal		1	1.90					1.9	
35	Bodhan		1	10.00					10.0	
36	Jagtial	Jagtial	2		2.00			10.00	12.0	
37	Korutla		1		8.60				8.6	
38	Metpally		1			6.10			6.1	
39	Dharmapuri		1		2.00				2.0	
40	Raikal		2	1.20	1.00				2.2	
41	Huzurabad	karimnagar	2		2.50	3.50			6.0	
42	Jammikunta		1		5.00				5.0	
43	Kothapalli		1		1.40				1.4	
44	Choppadandi	Pedapalli	1	2.40					2.4	
45	Peddapalli		2		4.90			0.80	5.7	
46	Sultanabad		1	3.00					3.0	
47	Manthani		1	3.00					3.0	
48	Vemulawada	Rajanna Sircilla	1	5.50					5.5	
49	Sircilla		0	0.00					0.0	
50	Parkal	Hanamkonda	1		4.00				4.0	
51	Bhupalpally	Jayashankar Bhupalpally	1			7.00			7.0	
52	Jangoan	Jangoan	1		6.00				6.0	
53	Wardhannapet	Warangal	2		1.00		0.60		1.6	
54	Narsampet		1	4.20					4.2	
55	Bhainsa	Nirmal	1			6.00			6.0	
56	Nirmal		2	10.00		1.50			11.5	
57	Khanapur		1	2.30					2.3	
58	Bellampally	Mancherial	1		6.50				6.5	
59	Mandamari		1			6.00			6.0	
60	Manchiriyal		2	8.00			2.00		10.0	

Sl No	Name of the ULB	Name of the District	No of STPs	STP 1	STP 2	STP 3	STP 4	STP 5	Total Capacity of STPs in MLD	Remarks
61	Kethanapally	Mancherial	1		4.00				4.0	
62	Luxettipet		1		3.00				3.0	
63	Chennur		1			3.00			3.0	
64	Naspur		1	8.50					8.5	
65	Kagaznagar	Komaram Bheem Asifabad	1				6.70		6.7	
66	Medak		1		6.00				6.0	
67	Narsapur	Medak	1			2.10			2.1	
68	Ramayampet		1	2.00					2.0	
69	Thoopran		1	3.00					3.0	
70	Andol-Jogipet		1				3.00		3.0	
71	Narayankhed		1	2.50					2.5	
72	Sadasivapet	Sangareddy	2		3.70	1.40			5.1	
73	Sangareddy		1		10.40				10.4	
74	Zaheerabad		1	10.10					10.1	
75	Cherial		1		2.30				2.3	
76	Dubbaka	Siddipet	1					3.50	3.5	
77	Gajwel		0	0.00					0.0	
78	Husnabad		1		2.70				2.7	
79	Chandur		1	1.70					1.7	
80	Chityal		1		1.90				1.9	
81	Devarakonda	Nalgonda	1		2.00				2.0	
82	Haliya		1	2.00					2.0	
83	Nakrekal		1	3.50					3.5	
84	Nandikonda		1	2.00					2.0	
85	Huzurnagar		1				4.50		4.5	
86	Kodada	Suryapet	1		8.50				8.5	
87	Neredcherla		1		1.80				1.8	

Sl No	Name of the ULB	Name of the District	No of STPs	STP 1	STP 2	STP 3	STP 4	STP 5	Total Capacity of STPs in MLD	Remarks
88	Tirumalagiri	Yadadri Bhuvanagiri	1		2.10				2.1	
89	Alair		1	2.30					2.3	
90	Bhongir		2	2.20		4.60			6.8	
91	Choutuppal		1	4.20					4.2	
92	Mothkur		1	2.30					2.3	
93	Pochampally		2		1.20			1.00	2.2	
94	Yadagirigutta		1	2.50					2.5	
95	Amangal	Rangareddy	1	3.00					3.0	
96	Ibrahimpatnam		1	4.50					4.5	
97	Kothur		1		2.00				2.0	
98	Shadnagar		2	2.70	4.30				7.0	
99	Shankarpally		1	3.60					3.6	
100	Kodangal	Vikarabad	1	2.40					2.4	
101	Parigi		1		2.10				2.1	
102	Tandur		1		8.00				8.0	
103	Vikarabad		0		0.00	0.00			0.0	
104	Medchal	Medchal Malkajgiri	1		9.50				9.5	
Total			**115**						**455.0**	

Total No.of STPs proposed under SBM 2.0: 115 Nos (in 101 ULBs excluding Nagarkurnool, Gajwel, Vikarabad & teritary treatment proposed for STP in Siricilla)

Total capacity proposed under SBM 2.0: 455.00 MLD

Annexure-A12

Hyderabad Metropolitan Water Supply and Sewerage Board

Details of Existing STPs with utilization capacities & final disposal points

Sl.No	Location of STP With coordinates (Latitude and Longitude)	Status (Operational/ Non-Operational/ Under Construction)	Technology	Installed Capacity of STP (in MLD)	Actual utilization of installed capacity (in MLD)	Location of disposal of treated sewage
1	**Amberpet – STP** **Latitude :**17.383889 Longitude:78.53778	Operational	UASB	339	314	Disposal to Musi River
2	**Nagole - STP** **Latitude :** 17.2258 **Longitude:** 78.3424	Operational	UASB	172	172	Disposal to Musi River
3	**Nalla Cheruvu - STP** Latitude : 17.40053 Longitude: 78.57617	Operational	UASB	30	29.9	Disposal to Musi River
4	**Miralam Tank – STP-1** **Latitude :**17.33809 **Longitude:**78.44909	Operational	Extended Aeration	10	8.4	Disposal to Miralam tank
5	**Miralam Tank – STP-2** **Latitude :**17.33809 **Longitude:**78.44909	Operational	Extended Aeration	5	4.32	Disposal to Miralam tank
6	**Kharitabad – STP** **Latitude :**17.41675 **Longitude:** 78.46438	Operational	EA SBR ultra filtration Membrane	20	20	Disposal to Hussainsagar Lake
7	**KIMS - STP** (Picket) Begumpet opposite KIMS Hospital **Latitude :**17.43737 **Longitude:** 78.47848	Operational	EA BNR	30	30	Disposal to Hussainsagar Lake.
8	**Nacharam – STP** (Pedda Cheruvu) **Latitude :** 17.42344 **Longitude:** 78.55092	Operational	Extended Aeration	10	10	Disposal to Pedda cheruvu tank
9	**Durgam Cheruvu - STP-1,** Kaveri hills, Madhapur, Hyderabad **Latitude :** 17.4372 **Longitude:** 78.39243	Operational	Extended Aeration	5	4.8	Disposal to Durgam cheruvu and water added to shilpaparam and KBRN park for gardening
10	**Durgam Cheruvu - STP-2,** Kaveri hills, Madhapur, Hyderabad **Latitude :** 17.4365883 **Longitude:** 78.3918677	Operational	SBR	7	7	Disposal to Durgam cheruvu
11	**Saroornagar – STP** Thrimurthy colony, Besides priyadarshini park, kharmanghat road, Hyderabad. **Latitude :**17.35375 **Longitude:** 78.53017	Operational	Extended Aeration	2.5	2.5	Disposal to Saroornagar Cheruvu
12	**Langer House - STP** **Latitude :** 17.38260 **Longitude:** 78.41408	Operational	Extended Aeration	1.2	1.23	Disposal to Langer House Lake
13	**Safilguda - STP** **Latitude :** 17.46655 **Longitude:** 78.53472	Operational	Extended Aeration	0.6	0.6	Disposal to Safilguda lake
14	**Attapur - STP-1,** Pillar No. 123, backside of M/s. SNR Gardens , Attapur, **Latitude :** 17.373 **Longitude:** 78.43308	Operational	SBR	23	18	Disposal to River Musi
15	**Attapur - STP-2,** Pillar No. 123, backside of M/s. SNR Gardens , Attapur, **Latitude :** 17.37309 **Longitude:** 78.4322	Operational	SBR	51	43	Disposal to River Musi
16	**Nanakramguda - STP (Pedda Cheruvu)** Narakramguda, Besides old rama naidu studios.	Operational	MBBR	4.5	4.5	Disposal to Bhagiradha Cheruvu (Manikonda cheruvu)
17	**Khajaguda - STP** **Latitude :** 17.4153 Longitude: 78.35948	Operational	MBBR	7	7	Disposal to Khajaguda lake
18	**Khazakunta 12 MLD, STP** **Latitude** :17.48243 **Longitude:** 78.42365	Operational	MBBR	12	12	Disposal to Khazakunta lake
19	**Pragathi Nagar - STP,** Kukatpally, Medchal, Malkagiri Dist. **Latitude :** **Longitude:**	Operational	Extended Aeration	2.5	-	Disposal to Pragathi Nagar Lake
20	**Lingamkunta - STP,** Chandanagar, Serlingampally, Rangareddy Dist **Latitude :** **Longitude:**	Operational	MBBR	30	18	Disposal to Lingamkunta lake

21	**Rangadhamuni - STP**, Kukatpally (V &M), Medchal District, **Latitude :** 17.47678 **Longitude:** 78.41299	Operational	Extended Aeration	5	5	Disposal to Rangadhamuni Cheruvu
22	**Noor-Mohammed Kunta - STP**, Rajendra Nagar, **Latitude :** 17.31452 **Longitude:** 78.42606	Operational	Extended Aeration	4	4	Disposal To Noor Mohd Kunta lake
23	**Patel Cheruvu - STP** Nacharam , Baba nagar, Rangareddy District. **Latitude:** 17.43494 **Longitude:** 78.548	Operational	Extended Aeration	2.5	2.5	Disposal to Patel cheruvu, nacharam
24	**Krishna Kanth Park - STP** , Yousufguda, Hyderabad. **Latitude :** 17.43921 **Longitude:** 78.42915	Not In Operation	Extended Aeration	0.5	-	
25	**Jalagam Vengal Rao - STP** Park, Road No. 1, Banjara Hills, Hyderabad. **Latitude :** 17.42393 **Longitude:** 78.44639	Operational	Extended Aeration	0.5	0.5	Gardening and discharging Into small lake inside the Park.
26	**Gopannapally - STP** , Serilingampally, Rangareddy District. **Latitude :** 17.4521 **Longitude:** 78.30468	Operational	MBBR	4.5	4.5	Disposal to Gopanpally Cheruvu.
27	**Kokapet** **Latitude-** 17.4060892, **Longitude** -78.3281609	Operational	SBR	15	15	Disposal to kokapet
28	**Miralam Site-1** **Latitude** -17.3373884 **Longitude-** 78.4493804	Operational	SBR	41.5	10	Disposal to Miralam tank
29	**Peddacheruvu** **Latitude** -17.424279 **Longitude-** 78.551428	Operational	SBR	17.5	15	Disposal to peddacheruvu
30	**Nallacheruvu-1** **Latitude** -17.3976436 **Longitude** -78.5762743	Operational	SBR	86.5	55	Disposal to River Musi
31	**Miyapur-Patelcheruvu** **Latitude** -17.496261 **Longitude** 78.349059	Operational	SBR	7	3	Disposal to Lake
32	**Safilguda** **Latitude** -17.2758 **Longitude** 78.3260	Operational	SBR	5.5	4.5	Disposal to Lake
33	**Khajakunta** **Latitude** -17.28595 **Longitude** 78.25265	Operational & OCEMS is under process	SBR	20	6	Disposal to Lake
34	**Fathenagar-1** **Latitude** - 17.455665 **Longitude** 78.452845	Operational & OCEMS is under process	SBR	133	100	Disposal to Hussainsagar Lake
35	**Vennelagadda** **Latitude** - N17°30'26" **Longitude-** E78°28'31"	Operational & OCEMS is under process	SBR	10	2	Disposal to Lake
36	**Nagole** **Latitude** -17.2258 **Longitude** 78.3424	Operational & OCEMS is under process	SBR	320	170	Disposal to River Musi
		Total in (MLD)		**1435.3**	**1104.25**	

Annexure-A13 - PHMED

Details of Sewerage generation, STP details in ULBs outside ORR												
S.No	Name of ULB	Sewage generation (in MLD)	Existing Sewage treatment Plant		Utilization caapcity in MLD	Sewage treatment Plant Under Construction under other Schemes		Sewage treatment Plant approved and to be grounded under AMRUT 2.0		Under tendering/ Awaiting Sanction/ Formulation Stage under SBM 2.0/others (in MLD)		Total Sewage treatment Plant Capacity	
		Present as per DWS	No.s	Capacity in MLD		No.s	Capacity in MLD	No.s	Capacity in MLD	No.s	Capacity in MLD	No.s	Capacity in MLD
1	Adilabad	19.20	0	0.00	0.00	0	0.00	4	31.50	0	0.00	4	31.50
2	Khanapur	2.11	0	0.00	0.00	0	0.00	0	0.00	1	2.30	1	2.30
3	Bhainsa	7.20	0	0.00	0.00	0	0.00	0	0.00	1	6.00	1	6.00
4	Nirmal	15.04	0	0.00	0.00	0	0.00	0	0.00	2	11.50	2	11.50
5	Mancherial	13.60	0	0.00	0.00	0	0.00	0	0.00	2	10.00	2	10.00
6	Bellampalli	8.13	0	0.00	0.00	0	0.00	0	0.00	1	6.50	1	6.50
7	Naspur	5.76	0	0.00	0.00	0	0.00	0	0.00	1	8.50	1	8.50
8	Chennur	1.24	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
9	Mandamarry	4.48	0	0.00	0.00	0	0.00	0	0.00	1	6.00	1	6.00
10	Kyathanpally	2.72	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00
11	Luxettipet	1.76	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
12	Asifabad	3.12	0	0.00	0.00	0	0.00	0	0.00	0	0.00	0	0.00
13	Kaghaznagar	8.80	0	0.00	0.00	0	0.00	0	0.00	1	6.70	1	6.70
14	Jagityal	14.00	0	0.00	0.00	0	0.00	0	0.00	2	12.00	2	12.00
15	Korutla	8.80	0	0.00	0.00	0	0.00	0	0.00	1	8.60	1	8.60
16	Metpalli	4.40	0	0.00	0.00	0	0.00	0	0.00	1	6.10	1	6.10
17	Raikal	0.56	0	0.00	0.00	0	0.00	0	0.00	2	2.20	2	2.20
18	Dharmapuri	2.32	0	0.00	0.00	0	0.00	0	0.00	1	2.00	1	2.00
19	Karimnagar	52.00	1	38.00	3.00	0	0.00	0	0.00	0	0.00	1	38.00
20	Jammikunta	5.36	0	0.00	0.00	0	0.00	0	0.00	1	5.00	1	5.00
21	Huzurabad	4.80	0	0.00	0.00	0	0.00	0	0.00	2	6.00	2	6.00
22	Choppadandi	0.48	0	0.00	0.00	0	0.00	0	0.00	1	2.40	1	2.40
23	Kothapally	0.32	0	0.00	0.00	0	0.00	0	0.00	1	1.40	1	1.40
24	Peddapalli	4.40	0	0.00	0.00	0	0.00	0	0.00	2	5.70	2	5.70
25	Sulthanabad	1.02	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
26	Ramagundam	32.00	0	0.00	0.00	0	0.00	5	33.50	0	0.00	5	33.50
27	Manthani	1.44	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
28	Sircilla	12.00	0	0.00	0.00	1	19.10	0	0.00	0	0.00	1	19.10
29	Vemulawada	5.60	0	0.00	0.00	0	0.00	0	0.00	1	5.50	1	5.50
30	Jangaon	7.36	0	0.00	0.00	0	0.00	0	0.00	1	6.00	1	6.00
31	Bhupalpally	8.00	0	0.00	0.00	0	0.00	0	0.00	1	7.00	1	7.00
32	Parkal	4.80	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00
33	Warangal Corp	164.33	2	20.00	16.00	0	0.00	0	0.00	0	0.00	2	20.00
34	Narsampet	4.40	0	0.00	0.00	0	0.00	0	0.00	1	4.20	1	4.20
35	Wardhannapet	1.00	0	0.00	0.00	0	0.00	0	0.00	2	1.60	2	1.60
36	Khammam Mpl. Corporation	55.20	0	0.00	0.00	0	0.00	2	53.50	0	0.00	2	53.50
37	Madhira	3.60	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00

38	Sathupally	3.80	0	0.00	0.00	0	0.00	0	0.00	2	4.00	2	4.00
39	Wyra	3.44	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00
40	Kothagudem	11.60	0	0.00	0.00	0	0.00	0	0.00	1	9.00	1	9.00
41	Manuguru	4.16	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00
42	Palvancha	11.20	0	0.00	0.00	0	0.00	0	0.00	1	10.00	1	10.00
43	Yellandu	5.20	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00
44	Mahabubabad	10.40	0	0.00	0.00	0	0.00	0	0.00	1	8.00	1	8.00
45	Dornakal	1.09	0	0.00	0.00	0	0.00	0	0.00	1	1.70	1	1.70
46	Maripeda	1.28	0	0.00	0.00	0	0.00	0	0.00	1	2.50	1	2.50
47	Thorrur	1.84	0	0.00	0.00	0	0.00	0	0.00	1	2.30	1	2.30
48	Mahabubnagar	22.40	0	0.00	0.00	0	0.00	3	42.00	0	0.00	3	42.00
49	Jadcherla	9.12	0	0.00	0.00	0	0.00	0	0.00	1	7.30	1	7.30
50	Bhoothpur	1.52	0	0.00	0.00	0	0.00	0	0.00	2	1.70	2	1.70
51	Nagarkurnool	2.16	1	2.30	1.00	1	3.20	0	0.00	0	0.00	2	5.50
52	Achampet	3.20	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00
53	Kollapur	2.40	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
54	Kalwakurthy	3.60	0	0.00	0.00	0	0.00	0	0.00	1	4.00	1	4.00
55	Wanaparthy	10.80	0	0.00	0.00	0	0.00	0	0.00	1	8.00	1	8.00
56	Pebbair	2.02	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
57	Kothakota	3.04	0	0.00	0.00	0	0.00	0	0.00	1	3.20	1	3.20
58	Atmakur	2.40	0	0.00	0.00	0	0.00	0	0.00	1	2.90	1	2.90
59	Amarchintha	1.60	0	0.00	0.00	0	0.00	0	0.00	1	2.00	1	2.00
60	Gadwal	10.00	0	0.00	0.00	0	0.00	0	0.00	1	8.00	1	8.00
61	Alampur	1.28	0	0.00	0.00	0	0.00	0	0.00	1	1.70	1	1.70
62	Waddepally	1.28	0	0.00	0.00	0	0.00	0	0.00	1	2.00	1	2.00
63	Ieeja	3.44	0	0.00	0.00	0	0.00	0	0.00	1	3.30	1	3.30
64	Narayanpet	5.76	0	0.00	0.00	0	0.00	0	0.00	1	5.00	1	5.00
65	Makthal	2.24	0	0.00	0.00	0	0.00	0	0.00	1	3.60	1	3.60
66	Kosgi	1.52	0	0.00	0.00	0	0.00	0	0.00	1	3.30	1	3.30
67	Banswada	5.48	0	0.00	0.00	0	0.00	0	0.00	1	3.50	1	3.50
68	Yellareddy	2.30	0	0.00	0.00	0	0.00	0	0.00	2	2.30	2	2.30
69	Kamareddy	7.67	0	0.00	0.00	0	0.00	0	0.00	1	12.00	1	12.00
70	Nizamabad	36.00	2	46.50	11.00	0	0.00	0	0.00	0	0.00	2	46.50
71	Bodhan	12.00	0	0.00	0.00	0	0.00	0	0.00	1	10.00	1	10.00
72	Armoor	6.43	0	0.00	0.00	0	0.00	0	0.00	2	7.50	2	7.50
73	Bheemgal	1.46	0	0.00	0.00	0	0.00	0	0.00	1	1.90	1	1.90
74	Medchal	3.20	0	0.00	0.00	0	0.00	0	0.00	1	9.50	1	9.50
75	Shadnagar	6.80	0	0.00	0.00	0	0.00	0	0.00	2	7.00	2	7.00
76	Ibrahimpatnam	3.28	0	0.00	0.00	0	0.00	0	0.00	1	4.50	1	4.50
77	Shankerpally	1.20	0	0.00	0.00	0	0.00	0	0.00	1	3.60	1	3.60
78	Amangal	2.00	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
79	Kothur	1.44	0	0.00	0.00	0	0.00	0	0.00	1	2.00	1	2.00
80	Vikarabad	8.24	1	13.00	7.50	0	0.00	0	0.00	0	0.00	1	13.00

81	Tandur	6.40	0	0.00	0.00	0	0.00	0	0.00	1	8.00	1	8.00
82	Parigi	1.76	0	0.00	0.00	0	0.00	0	0.00	1	2.10	1	2.10
83	Kodangal	1.36	0	0.00	0.00	0	0.00	0	0.00	1	2.40	1	2.40
84	Medak	10.28	0	0.00	0.00	0	0.00	0	0.00	1	6.00	1	6.00
85	Narsapur	2.52	0	0.00	0.00	0	0.00	0	0.00	1	2.10	1	2.10
86	Thoopran	2.56	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
87	Ramayampet	1.28	0	0.00	0.00	0	0.00	0	0.00	1	2.00	1	2.00
88	Sangareddy	10.00	0	0.00	0.00	0	0.00	0	0.00	1	10.40	1	10.40
89	Zaheerabad	9.76	0	0.00	0.00	0	0.00	0	0.00	1	10.10	1	10.10
90	Narayankhed	2.00	0	0.00	0.00	0	0.00	0	0.00	1	2.50	1	2.50
91	Sadasivapet	3.52	0	0.00	0.00	0	0.00	0	0.00	2	5.10	2	5.10
92	Andol-Jogipet	3.28	0	0.00	0.00	0	0.00	0	0.00	1	3.00	1	3.00
93	Siddipet	20.87	2	18.25	17.00	0	0.00	0	0.00	0	0.00	2	18.25
94	Husnabad	3.47	0	0.00	0.00	0	0.00	0	0.00	1	2.70	1	2.70
95	Cherial	1.60	0	0.00	0.00	0	0.00	0	0.00	1	2.30	1	2.30
96	Dubbaka	3.01	0	0.00	0.00	0	0.00	0	0.00	1	3.50	1	3.50
97	Gajwel	5.80	4	6.75	5.75	0	0.00	0	0.00	0	0.00	4	6.75
98	Chandur	1.12	0	0.00	0.00	0	0.00	0	0.00	1	1.70	1	1.70
99	Chityala	1.90	0	0.00	0.00	0	0.00	0	0.00	1	1.90	1	1.90
100	Devarkonda	3.20	1	1.50	1.00	0	0.00	0	0.00	1	2.00	2	3.50
101	Haliya	1.20	0	0.00	0.00	0	0.00	0	0.00	1	2.00	1	2.00
102	Miryalaguda	11.60	1	11.50	0.00	1	5.45	1	6.00	0	0.00	3	22.95
103	Nakrekal	1.92	0	0.00	0.00	0	0.00	0	0.00	1	3.50	1	3.50
104	Nandikonda	2.55	0	0.00	0.00	0	0.00	0	0.00	1	2.00	1	2.00
105	Nalgonda	29.60	0	0.00	0.00	1	17.16	1	3.80	0	0.00	2	20.96
106	Huzurnagar	2.40	0	0.00	0.00	0	0.00	0	0.00	1	4.50	1	4.50
107	Kodada	4.80	0	0.00	0.00	0	0.00	0	0.00	1	8.50	1	8.50
108	Nereducherla	0.44	0	0.00	0.00	0	0.00	0	0.00	1	1.80	1	1.80
109	Thirumalagiri	2.08	0	0.00	0.00	0	0.00	0	0.00	1	2.10	1	2.10
110	Suryapet	15.20	1	10.00	3.00	1	10.00	0	0.00	0	0.00	2	20.00
111	Alair	1.00	0	0.00	0.00	0	0.00	0	0.00	1	2.30	1	2.30
112	Bhongir	4.37	0	0.00	0.00	0	0.00	0	0.00	2	6.80	2	6.80
113	Choutuppal	2.00	0	0.00	0.00	0	0.00	0	0.00	1	4.20	1	4.20
114	Mothkur	1.28	0	0.00	0.00	0	0.00	0	0.00	1	2.30	1	2.30
115	Pochampally	0.88	0	0.00	0.00	0	0.00	0	0.00	2	2.20	2	2.20
116	Yadagirigutta	1.20	0	0.00	0.00	0	0.00	0	0.00	1	2.50	1	2.50
Total of ULBs outside ORR		**910.85**	**16**	**167.80**	**65.25**	**5**	**54.91**	**16**	**170.30**	**115**	**455.00**	**152**	**848.01**

**** 100 MLD sanctioned earlier under SMART CITY in GWMC which couldn't be taken up due to land acquistion will be taken up later and not shown in present proposals.**

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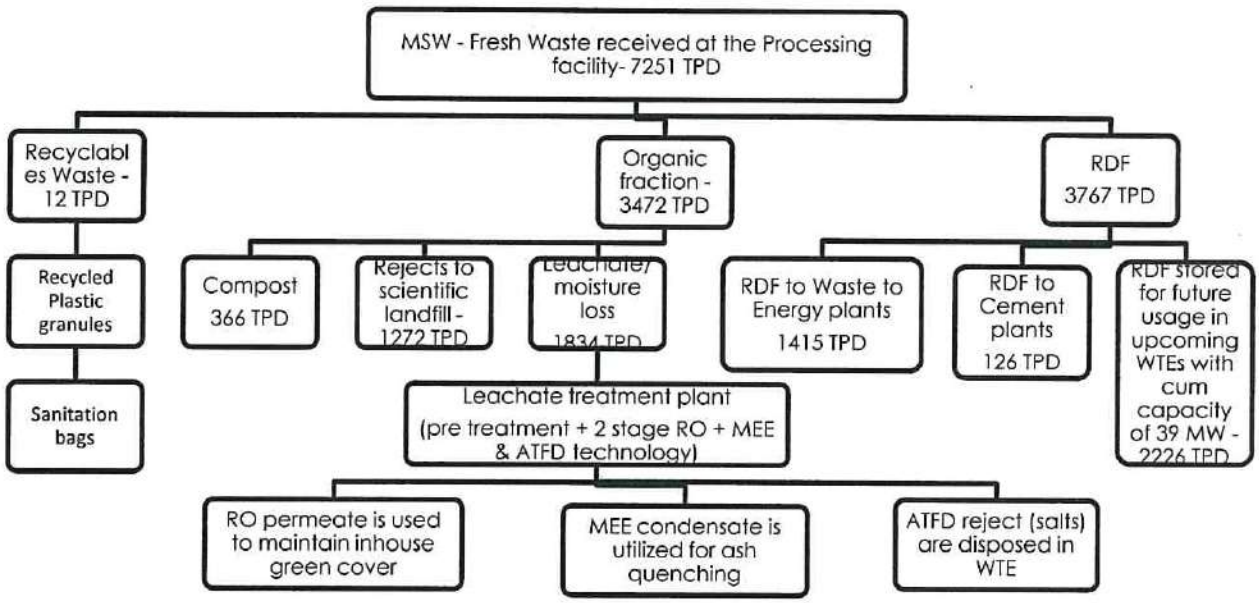
ANNEXURE- A14

Annexure- A14

Greater Hyderabad Municipal Corporation (GHMC)

Flow Chart



Annexure- A15

Hyderabad Metropolitan Water Supply and Sewerage Board

SEWAGE TREATMENT PLANTS – CAPACITIES, TECHNOLOGIES

Sl. No	Name of the STP	Capacity(MLD)	Technology
1	Amberpet	339	UASB
2	Nagole	172	UASB
3	Nallacheruvu	30	UASB
4	Attapur 1	51	SBR
5	Attapur 2	23	SBR
6	Pedda Cheruvu, Nacharam	10	Extended Aeration
7	Miralam Tank 1	10	Extended Aeration
8	Miralam Tank 2	5	Extended Aeration
9	Durgam Cheruvu, SLP	5	Extended Aeration
10	Patel Cheruvu, Nacharam	2.5	Extended Aeration
11	Saroor Nagar	2.5	Extended Aeration
12	Langer House	1.2	Extended Aeration
13	Noor Mohammad Kunta	4	Extended Aeration
14	Safilguda, Malkajgiri	0.6	Extended Aeration
15	Khajakunta, Metro, KKP	12	MBBR
16	Khajaguda, Gachibowli	7	MBBR
17	Nanakramguda, Gachibowli	4.5	MBBR
18	JVR Park, Nagarjuna Circle	0.5	Extended Aeration
19	Lingam Kunta, BHEL	30	MBBR
20	Gopanapally, SLP	4.5	MBBR
21	Durgam Cheruvu	7	SBR
22	Kokapet	15	SBR
23	Peddacheruvu	17.5	SBR
24	Nallacheruvu-I	86.5	SBR
25	Safilguda	5.5	SBR
26	Miralam Site-I	41.5	SBR
27	Miyapur Patelcheruvu	7	SBR
28	Nagole	320	SBR
29	Khajakunta	20	SBR
30	Fathenagar-I	133	SBR
31	Vennelagadda	10	SBR
32	Necklace Road	20	EA SBR ultra filtration Membrane
33	Pattigadda	30	EA BNR
34	Rangadhamini Lake, KKP	5	Extended Aeration
35	Amber Cheruvu, Pragatinagar	2.5	Extended Aeration
36	Krishna Kanth park	0.5	Extended Aeration

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Annexure-A16

Hyderabad Metropolitan Water Supply and Sewerage Board

STPs project in HAM mode for the ULBs between GHMC and ORR area (Sanctioned Under AMRUT-2.0)

Sl.No	Name of the STP Location	Capacity in MLD
1	Ameenpur	28
2	Nerella (Tellapur)	31
3	ICRISAT	24.5
4	Ushkebhavi	100
5	Bachuguda (Pocharam)	12.5
6	Thimakka Cheruvu	98.5
7	Gandigudem	22.5
8	Gowdavalli	1.5
9	Pothaipally Lake	7.5
10	Navakunta Lake	14.5
11	Peerzadiguda	61
12	Korremula	34.5
13	Nagaram Lake	47.5
14	Chiryala Lake	6.5
15	Kundanpally	9
16	Yamnampet	26
17	Kuntloor	31.5
18	Gowrelly	7
19	Edula Cheruvu	23.5
20	Palle Cheruvu	13.5
21	Umda Sagar	23.5
22	Bandla Guda	5.5
23	Gurramcheruvu	19.5
24	Meerpet Talab	18
25	Sandhana Cheruvu	20
26	Raviryal	12
27	Bongulur	5.5
28	Masab Cheruvu	36.5
29	Kothwalguda	1
30	Lake Kamuni	2.5
31	Nallacheruvu-II	36.5
32	Kapra	5.5
33	Hyd Public School	36.5
34	Fatehnagar-II	20
35	Chitrapuri Colony	20
36	Narsing, ORR	34.5
37	Hydershahkote	36.5
38	Sangam, Bapughat	31
39	Patel cheruvu	7
	TOTAL	**972**

GOVERNMENT OF TELANGANA
ABSTRACT

Municipal Administration and Urban Development Department – HMWSSB- Sewerage Projects-Construction of 1STP in PPP mode and 38 STPs in HAM mode-Administrative sanction for an amount of Rs.3849.10 crores under AMRUT 2.0 (TRANCHE-III)-Accorded-Orders-Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (UBS) DEPARTMENT

G.O.Rt.No. 344 Dated: 03 .08.2024

Read the following:

1. Government Memo No 681/UBS/2024, dated:20.1.2024.
2. State Level High Powered Steering Committee CR No:05, dated:5.2.2024.
3. Approval of Appex Committee of AMRUT 2.0, GOI, New Delhi, dated:14.3.2024.
4. From Managing Director, HMWSSB Lr No HMWSSB/MD/Musi Riverfront/AMRUT-2.0/STPs-ORR/AS/2023-24/150, dated:26.4.2024.
5. From Vice Chairman & Managing Director, Hyderabad Lr No 21/TUFIDC/AMRUT 2.0/TRANCHE-III/2024, dated:15.5.2024.

-o0o-

ORDER:

In the circumstances reported in the references 4th and 5th read above and after careful examination , Government hereby accord administrative sanction for an amount of Rs.3849.10 crores (Rupees Three Thousand Eight Hundred Forty Nine crores and Ten lakh only) for construction of STPs for ULBs between GHMC & ORR area under Hyderabad Agglomeration as part of Musi Riverfront-Musi Cleanup in 3 sewerage projects with the following funding pattern

(Rs. In crores)

Sector	No. of projects	Total project cost excluding O&M	Funding Breakup of Project cost			ULB Contribution O&M for 15 years	Total project cost including O&M
			Central share (30%)	State share (30%)	PPP (40%)		
Sewerage Project - 1 STP in PPP	1	51.37	15.41	15.41	20.55	12.74	64.11
Sub Total	1	51.37	15.41	15.41	20.55	12.74	64.11

Sector	No.of projects	Total project cost excluding O&M	Funding Breakup of Project cost			ULB Contribution O&M for 15 years	Total project cost including O&M
			Central share (25%)	State share (35%)	HAM (40%)		
Sewerage Project -16 STPs in HAM (Package.-I)	1	1251.90	312.98	438.18	500.75	626.65	1878.55
Sewerage Project -22 STPs in HAM (Package.-II)	1	1266.54	316.64	443.31	506.60	639.90	1906.44
Sub Total :	2	2518.44	629.61	881.48	1007.35	1266.55	3784.99
Total :	3	2569.81	645.02	896.89	1027.90	1279.29	3849.10

2. Government also accord permission to Managing Director, HMWSSB, Hyderabad to adopt the approved terms and conditions of ongoing STP projects taken up under the HAM mode in HMWSSB.

[P.T.O.]

3. The Managing Director, HMWSSB, Hyderabad / the Vice Chairman & Managing Director, TUFIDC, Hyderabad shall take necessary further action in the matter accordingly.

4. This order issues with the concurrence of Finance Department vide their U.O.No 2558353-A/153/PF/2024, dated: 22.6.2024.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

M.DANA KISHORE
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Managing Director, HMWSSB, Hyderabad
The Vice Chairman & Managing Director, TUFIDC, Hyderabad
Copy to:
The Metropolitan Commissioner, HMDA, Hyderabad
The Commissioner, GHMC, Hyderabad
The Managing Director, MRDCL, Hyderabad
The Director of Municipal Administration, Hyderabad
The Engineer-in-Chief (PH), Hyderabad
The Director, Town & Country Planning, Hyderabad
The Member Secretary, Telangana Pollution Control Board, Hyderabad
The MA&UD (TP&E) Department
The Finance (DCM) Department
The OSD to Spl. Secretary to Hon'ble C.M.
The OSD to Prl.Secretary to Government
Sf/sc

//FORWARDED::BY ORDER//

ASSISTANT DIRECTOR

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Annexure- A17

Hyderabad Metropolitan Water Supply and Sewerage Board

Consolidated Flows from OCEMS

Sl.No	Name of STP	Capacity in MLD	Technology	Flow in the month of JULY'2024	Flow in the month of AUG'2024	Flow in the month of SEP'2024	Flow in the month of Nov'2024	Flow in the month of DEC'2024
Project Division-I								
1	Amberpet	339.00	UASB	308.29	308.06	307.84	314.85	314.91
2	Nallacheruvu	30.00	Extended Aeration	29.6	29.9	29.6	39.21	29.19
3	Peddacheruvu	10.00	Extended Aeration	9.79	9.79	9.79	16.37	9.79
4	Miralam	10.00	Extended Aeration	8.23	8.04	8.23	9.57	5.61
5	Miralam 2	5.00	UASB	3.78	4.32	4.92	12	4.98
6	NM Kunta	4.00	Extended Aeration	3.21	3.21	3.36	6.4	3.51
7	Patelcheruvu	2.50	Extended Aeration	2.5	2.5	2.5	4.99	2.5
8	Saroornagar	2.50	Extended Aeration	2.1	2.1	2.1	4.22	2.31
9	Langer House	1.23	Extended Aeration	1.231	1.231	1.231	2.79	1.232
10	Safilguda	0.60	Extended Aeration	0.6	0.6	0.6	0.6	6.00
	Sub Total	404.83		369.331	369.751	370.171	411	380.032
Project Division-IV								
11	Nagole	172.00	SBR	171.9	171.9	171.9	171.9	150.4
12	Attapur	51.00	SBR	40.34	38.14	43.47	43.13	45.87
13	Lingamkunta	30.00		17.62	17.78	18.04	17.08	16.6
14	Attapur	23.00	MBBR	16.2	19.41	19.03	18.48	21.5
15	Khajakunta	12.00	MBBR	12	12	12	12	12
16	Khajaguda	7.00	UASB	6.7	6.4	6.7	6.4	6.4
17	Durgam Cheruvu	5.00	Extended Aeration	4.36	4.16	4.16	4.99	4.99
18	Goapanpally	4.50	MBBR	3.51	4.3	5.07	4.64	3.38
19	Nanakramguda	4.50	Extended Aeration	4.4	2.03	2.98	3.15	2.85
20	JVR Park	0.50	MBBR	0.5	0.5	0.5	0.5	0.5
	Sub Total	309.50		272.13	269.79	279.8	276.97	257.79
	TOTAL CAPACITY	714.30		635.305	633.988	641.226	644.882	630.322
	Percentage			89%	89%	90%	90%	88%

334. ANNEXURE - 18(i)

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EPTRI
CPCB & DSIR
ISO 14001:2015; ISO 9001:2015; ISO 45001:2018 Certified Laboratory
TC-7709

ANALYSIS REPORT

Registration Number	: 24/WCS-432	Issue Date	: 23.11.2024
Sample Received	: 23.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 23.10.2024	Lr. No & Date	: 23.10.2024,
Date of Completion	: 09.11.2024		

Name & Address of the customer : Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 339 MLD STP division-I at Amberpet, Hyderabad – 500 013

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 339 MLD STP division-I at Amberpet Hyderabad – 500 013 Sri S.Subrahamnyam, G. M (E) (HMWS&SB)

Date of Sampling : 23.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023 & IS Method.

Remarks : NIL

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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EPTRI

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-432

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.4	8.0
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	25.1	1.29
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	78	10
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	12	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	112	8
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	188	28
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	1.6	1.2
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	70	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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EPTRI
TC-7709

ANALYSIS REPORT

Registration Number	: 24/MWC-329	Issue Date	: 23.11.2024
Sample Received	: 23.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 23.10.2024	Lr. No & Date	: 23.10.2024,
Date of Completion	: 25 10.2024		

Name & Address of the customer : Sri S. Subrahmanyam,
General Manager(E),
STP Division –I, HMWS&SB,
Amberpet, Hyderabad – 500 013.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 339 MLD STP division-I at Amberpet, Hyderabad – 500 013

WCS-2 : HMWS SB STPs Treated Sewage water Outlet sample collected from 339 MLD STP division-I at Amberpet Hyderabad – 500 013 Sri S. Subrahmanyam, G. M (E) (HMWS&SB)

Date of Sampling : 23.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.

Remarks : NIL

NABL Web Site

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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EPTRI

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-329

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	4.5

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

Registration Number	: 24/WCS-432	**Issue Date**	: 23.11.2024
Sample Received	: 23.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 23.10.2024	**Lr. No & Date**	: 23.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of thecustomer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 339 MLD STP division-I at Amberpet, Hyderabad – 500 013		
WCS-2	: HMWS SB STPs Treated Sewage water Outlet sample collected from 339 MLD STP division-I at Amberpet, Hyderabad – 500 013 Sri S. Subrahmanyam, G. M (E) (HMWS&SB)		
Date of Sampling	: 23.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-432

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	4.8
2	Colour	Not Accredited by NABL	CU	2120. B, (Visual Comparison)	30	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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EPTRI
TC-7709

ANALYSIS REPORT

Registration Number	: 24/WCS-429	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of thecustomer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 5 MLD STP division-I at Miralam Tank Madhapur,		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 5 MLD STP division-I at Miralam Tank (Amberpet Hyderabad– 500 013) Sri S.Subrahmanyam, G.M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	:Sub-Contracting was not awarded		
Deviation from StandardMethods	:No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-429

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.2	7.7
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	7.99	1.82
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	78	14
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	10	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	118	12
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	198	40
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	5.0	1.2
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	84	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/MWC-326	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt.20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date:**	22.10.2024,
Date of Completion	: 24.10.2024		
Name & Address of thecustomer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 5 MLD STP division-I at Miralam Tank Madhapur,		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 5 MLD STP division-I at Miralam Tank (Amberpet Hyderabad– 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from StandardMethods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Waste water by APHA, 24th Edition, 2023.		
Remarks	: NIL		
NABL Web Site			

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-326

SlNo	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	7.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.

2) The results shall not be reproduced except in full without approval of lab.

3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

Registration Number	: 24/WCS-429	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GA.JA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024.
Date of Completion	: 09.11.2024		
Name & Address of thecustomer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 5 MLD STP division-I at Miralam Tank Madhapur.		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 5 MLD STP division-I at Miralam Tank (Amberpet, Hyderabad– 500 013), Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from StandardMethods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-429

SINo	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	3.3
2	Colour	Not Accredited by NABL	CU	2120. B, (Visual Comparison)	30	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.

2) The results shall not be reproduced except in full without approval of lab.

3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

*****ENDOF THE REPORT*****

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EPTRI
TC-2709

ANALYSIS REPORT

Registration Number	: 24/WCS-431	Issue Date	: 23.11.2024
Sample Received	: 23.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 23.10.2024	Lr. No & Date	: 23.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from10MLD STP division-I at Miralam Tank Madhapur,		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 10 MLD STP division-I at Miralam Tank (Amberpet Hyderabad– 500 013) Sri S.Subrahmanyam, G.M(E)(HMWS&SB)		
Date of Sampling	: 23.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

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Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-431

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.4	7.8
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	13.0	1.12
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	81	13
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	9	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	110	8.4
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	184	28
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	5.0	1.2
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	98	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
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Technical Manager

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TC-7709

ANALYSIS REPORT

Registration Number	: 24/MWC-328	**Issue Date**	: 23.11.2024
Sample Received	: 23.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt.20.10.2024
Date of Commencement	: 23.10.2024	**Lr. No & Date**	: 23.10.2024,
Date of Completion	: 25.10.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 10 MLD STP division-I at Miralam Tank Madhapur,		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 10 MLD STP division-I at Miralam Tank (Amberpet Hyderabad– 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 23.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Waste water by APHA, 24th Edition, 2023.		
Remarks	: NIL		

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Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-328

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	4.5

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

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ANALYSIS REPORT

Registration Number	: 24/WCS-431	Issue Date	: 23.11.2024
Sample Received	: 23.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 23.10.2024	Lr. No & Date	: 23.10.2024,
Date of Completion	: 09.11.2024		

Name & Address of the customer : Sri S. Subrahmanyam,
General Manager(E),
STP Division –I, HMWS&SB,
Amberpet, Hyderabad – 500 013.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 10 MLD STP division-I at Miralam Tank Madhapur,

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 10 MLD STP division-I at Miralam Tank (Amberpet, Hyderabad– 500 013), Sri S.Subrahmanyam, G. M(E)(HMWS&SB)

Date of Sampling : 23.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting :Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.

Remarks : NIL

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-431

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	4.9
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	30	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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ANALYSIS REPORT

Registration Number	: 24/WCS-430	**Issue Date**	: 23.11.2024
Sample Received	: 23.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 23.10.2024	**Lr. No & Date**	: 23.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.Subramanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet,Hyderabad–500013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 1.2 MLD STP division-I at Langer House		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 1.2 MLD STP division-I at Langer House (Amberpet Hyderabad – 500 013. Sri S.Subrahmnyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 23.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

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Lab Representative

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-430

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA,24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.6	8.1
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	11.6	1.19
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	82	10
4	Oil &Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	10	<1
5	Biochemical Oxygen Demand (3 days at 27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	130	10
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	216	36
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	0.6	4.8
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500-Norg.B, (Macro- Kjeldahl)	50	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/MWC-327	**Issue Date**	: 23.11.2024
Sample Received	: 23.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/31, dt.20.10.2024
Date of Commencement	: 23.10.2024	**Lr. No & Date**	: 23.10.2024,
Date of Completion	: 25.10.2024		
Name & Address of the customer	: Sri S.Subramanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet,Hyderabad–500013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 1.2 MLD STP division-I at Langer House		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 1.2 MLD STP division-I at Langer House (Amberpet Hyderabad – 500 013. Sri S. Subrahmnyam, G. M(E) (HMWS&SB)		
Date of Sampling	: 23.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-327

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA,24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	130000	6.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may affect the validity of the test report.

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Project Faculty

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ANALYSIS REPORT

Registration Number	: 24/WCS-430	Issue Date	: 23.11.2024
Sample Received	: 23.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt.20.10.2024
Date of Commencement	: 23.10.2024	Lr. No & Date	: 23.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet,Hyderabad–500013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 1.2 MLD STP division-I at Langer House		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 1.2 MLD STP division-I at Langer House (Amberpet Hyderabad – 500 013. Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 23.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-430

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA,24th Edition,2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	2.4
2	Colour	Not Accredited by NABL	CU	2120.B,(Visual Comparison)	30	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
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ANALYSIS REPORT

Registration Number	: 24/WCS-423	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 4 MLD STP division-I at Noor Mohmad Kunta		
WCS-2	: HMWSSB Treated Sewage water Outlet sample collected from 4MLD STP division-I at Noor Mohmad Kunta (Amberpet Hyderabad – 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-423

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.3	7.9
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	11.6	0.59
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	124	10
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	12	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	172	14
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	288	44
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	0.5	0.4
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	134	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ISO 14001:2015; ISO 9001:2015; ISO 45001:2018 Certified Laboratory
TC-7701

ANALYSIS REPORT

Registration Number	: 24/MWC-320	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024,
Date of Completion	: 24.10.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 4 MLD STP division-I at Noor Mohmad Kunta		
WCS-2	: HMWSSB Treated Sewage water Outlet sample collected from 4 MLD STP division-I at Noor Mohmad Kunta (Amberpet Hyderabad – 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

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Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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EPTRI
TC-7777

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-320

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	140000	7.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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ANALYSIS REPORT

Registration Number	: 24/WCS-423	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt.20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 4 MLD STP division-I at Noor Mohmad Kunta		
WCS-2	: HMWSSB Treated Sewage water Outlet sample collected from 4 MLD STP division-I at Noor Mohmad Kunta (Amberpet Hyderabad – 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-423

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	4.7
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	40	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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EPTRI
TC-7709

ANALYSIS REPORT

Registration Number	: 24/WCS-428	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/31, dt./ 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024,
Date of Completion	: 09.11.2024		

Name & Address of the customer : Sri S. Subrahmanyam,
General Manager(E),
STP Division –I, HMWS&SB,
Amberpet, Hyderabad – 500 013.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 10 MLD STP division-1 at Pedda Cheruvu

WCS-2 : HMWS SB STPs Treated Sewage water Outlet sample collectedfrom 10 MLD STP division-1 at Pedda Cheruvu (Amberpet, Hyderabad – 500 013) Sri S. Subrahmanyam, G. M(E)(HMWS&SB)

Date of Sampling : 22.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & Wastewater by APHA, 23rd Edition, 2017 & IS Method.

Remarks : NIL

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EPTRI
TC-7709

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-428

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.9	8.1
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	7.34	1.34
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	119	14
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	12	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	124	10
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	208	36
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	0.65	0.62
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	67.2	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Technical Manager

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TC-7709

ANALYSIS REPORT

Registration Number	: 24/MWC-325	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr; No & Date**	: 22.10.2024,
Date of Completion	: 24.10.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from10 MLD STP division-1 at Pedda Cheruvu		
WCS-2	: HMWS SB STPs Treated Sewage water Outlet sample collectedfrom 10 MLD STP division-1 at Pedda Cheruvu (Amberpet, Hyderabad–500 013) Sri S. Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

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Reviewed by
Lab Representative

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K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-325

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	4.5

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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ANALYSIS REPORT

Registration Number	: 24/WCS-428	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 22.10.2024,
Date of Completion	: 09.11.2024		

Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.
Sample Particulars	: Waste water samples
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles
Type of Sampling	: Grab samples
Sample condition	: Suitable for analysis
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100
Sample Code	
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 10 MLD STP division-1 at Pedda Cheruvu
WCS-2	: HMWS SB STPs Treated Sewage water Outlet sample collected from 10 MLD STP division-1 at Pedda Cheruvu (Amberpet, Hyderabad– 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)
Date of Sampling	: 22.10.2024
Sampled By	: EPTRI
Industry Representative	: M/s. Ramky Infrastructure Limited
Sub Contracting	: Sub-Contracting was not awarded
Deviation from Standard Methods	: No deviation in the test method
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.
Remarks	: NIL

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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DSIR Recognized Laboratory

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-428

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	5.4
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	40	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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ANALYSIS REPORT

Registration Number	: 24/WCS-427	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GA.IA/HMWSSB/MOM STPs/2024-25/69, dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 22.10.2024,
Date of Completion	: 09.11.2024		

Name & Address of the customer : Sri S. Subrahmanyam,
General Manager(E),
STP Division –I, HMWS&SB,
Amberpet, Hyderabad – 500 013.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 2.5 MLD STP division-1 at Patel Cheruvu

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 2.5 MLD STPdivision-1 at Patel Cheruvu (Amberpet, Hyderabad– 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)

Date of Sampling : 22.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023 & IS Method.

Remarks : NIL

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Lab Representative

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Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-427

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.7	8.2
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	3.05	0.52
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	110	08
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	8	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	136	14
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	228	48
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	0.7	1.07
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	56	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
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Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/MWC-324	**Issue Date** :	23.11. 2024
Sample Received	: 22.10.2024	**Customer Ref :**	Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date :**	22.10.2024,
Date of Completion	: 24.10.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 2.5 MLD STP division-1 at Patel Cheruvu		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 2.5 MLD STPdivision-1 at Patel Cheruvu (Amberpet, Hyderabad– 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

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Lab Representative

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Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-324

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	130000	7.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.

2) The results shall not be reproduced except in full without approval of lab.

3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
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ANALYSIS REPORT

Registration Number	: 24/WCS-427	**Issue Date**	: 23.11.2024.
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024.
Date of Completion	: 09.11.2024		

Name & Address of the customer : Sri S. Subrahmanyam,
General Manager(E),
STP Division –I, HMWS&SB,
Amberpet, Hyderabad – 500 013.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 2.5 MLD STP division-1 at Patel Cheruvu

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 2.5 MLD STPdivision-1 at Patel Cheruvu (Amberpet, Hyderabad– 500 013) Sri S.Subrahmanyam, G. M(E)(HMWS&SB)

Date of Sampling : 22.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.

Remarks : NIL

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-427

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	5.0
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	30	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Technical Manager

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EPTRI
TC-7709

ANALYSIS REPORT

Registration Number	: 24/WCS-426	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 21.09.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 30 MLD STP division-II at Nalla Cheruvu, Goshamahal ,		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 30 MLD STP division-II at Nalla Cheruvu, Goshamahal , Hyderabad – 500 012		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-426

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.5	8.3
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	3.35	0.48
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	91	10
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	11	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	112	8
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	186	28
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	0.15	0.87
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	16.8	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
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Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/MWC-323	Issue Date	:	23.11.2024
Sample Received	: 22.10.2024	Customer Ref	:	Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	:	22.10.2024,
Date of Completion	: 24.10.2024			

Name & Address of the customer : Sri S.A.L Kumar,
General Manager(E),
STP Division –II, HMWS&SB,
Durgam Cheruvu, Hyderabad – 500 081.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 30 MLD STP division-II at Nalla Cheruvu, Goshamahal ,

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 30 MLD STP division-II at Nalla Cheruvu, Goshamahal , Hyderabad – 500 012

Date of Sampling : 22.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.

Remarks : NIL

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Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-323

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	4

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

Registration Number	: 24/WCS-426	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 30 MLD STP division-II at Nalla Cheruvu, Goshamahal ,		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 30 MLD STP division-II at Nalla Cheruvu, Goshamahal , Hyderabad – 500 012		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-426

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	4.5
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	30	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-424	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024.
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad.		

Sample Particulars	: Waste Water Samples
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles
Type of Sampling	: Grab samples
Sample condition	: Suitable for analysis
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100
Sample Code	
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 2.5 MLD STP division-I at Saroor Nagar Cheruvu
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 2.5 MLD STP division-I at Saroor Nagar Cheruvu, Amberpet, Hyderabad– 500 013 Sri S.Subrahmanyam, G. M(E)(HMWS&SB)
Date of Sampling	: 22.10.2024
Sampled By	: EPTRI
Industry Representative	: M/s. Ramky Infrastructure Limited
Sub Contracting	: Sub-Contracting was not awarded
Deviation from Standard Methods	: No deviation in the test method
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.
Remarks	: NIL

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Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-424

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.5	7.9
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	4.78	0.49
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	62	13
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	11	<1
5	Biochemical Oxygen Demand (3 days at 27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	108	8
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	180	26
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	6.6	2.5
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	131	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/MWC-321	Issue Date	:	23.11.2024
Sample Received	: 22.10.2024	Customer Re	:	Your W.O/GA.JA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	:	22.10.2024.
Date of Completion	: 24.10.2024			

Name & Address of the customer : Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpel, Hyderabad – 500 013.

Sample Particulars : Waste Water Samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 2.5 MLD STP division-I at Saroor Nagar Cheruvu

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 2.5 MLD STP division-I at Saroor Nagar Cheruvu, Amberpet, Hyderabad– 500 013 Sri S.Subrahmanyam, G. M(E)(HMWS&SB)

Date of Sampling : 22.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023.

Remarks : NIL

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Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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TC-2709

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-321

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	94000	4.5

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

Registration Number	: 24/WCS-424	**Issue Date** :	23.11.2024
Sample Received	: 22.10.2024	**Customer Ref** :	Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date** :	22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 2.5 MLD STP division-I at Saroor Nagar Cheruvu		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 2.5 MLD STP division-I at Saroor Nagar Cheruvu, Amberpet,Hyderabad – 500 013, Sri S.Subrahmanyam, G. M(E), (HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-424

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	3.9
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	30	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
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Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-413	**Issue Date**	: 23.11.2024
Sample Received	: 21.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 21.10.2024	**Lr. No & Date**	: 21.10.2024,
Date of Completion	: 11.11.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste Water Samples		
Qty Received	: ~2 Ltr + 300 mL+ 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100.		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 0.6 MLD STP division-1 at Safilguda		
WCS-2	: HMWS SB STPs Treated Sewage water Outlet sample collected from 0.6 MLD STP division-I at Safilguda (Amberpet,Hyderabad – 500 013) Sri S.Subrahmanyam, G. M (E) (HMWS&SB)		
Date of Sampling	: 21.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS method		
Remarks	: NIL		

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
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TC-7709

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-413

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.1	8.1
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	19.5	0.57
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	80	10
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	9	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44):1993	112	7
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	320	24
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	5.1	3.6
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	44.8	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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EPTRI
TC-7709

ANALYSIS REPORT

Registration Number	: 24/MWC-314	**Issue Date**	: 23.11.2024
Sample Received	: 21.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 21.10.2024	**Lr. No & Date**	: 21.10.2024,
Date of Completion	: 23.10.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste Water Samples		
Qty Received	: ~2 Ltr + 300mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 0.6 MLD STP division-1 at Safilguda		
WCS-2	: HMWS SB STPs Treated Sewage water Outlet sample collected from 0.6 MLD STP division-I at Safilguda (Amberpet, Hyderabad – 500 013) Sri S.Subrahmanyam, G. M (E) (HMWS&SB)		
Date of Sampling	: 21.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 .		
Remarks	: NIL		

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Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-314

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	4.5

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.

2) The results shall not be reproduced except in full without approval of lab.

3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

Registration Number	: 24/WCS-413	Issue Date	: 23.11.2024
Sample Received	: 21.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 21.10.2024	Lr. No & Date	: 21.10.2024,
Date of Completion	: 11.11.2024		
Name & Address of the customer	: Sri S. Subrahmanyam, General Manager(E), STP Division –I, HMWS&SB, Amberpet, Hyderabad – 500 013.		
Sample Particulars	: Waste Water Samples		
Qty Received	: ~2 Ltr + 300mL+ 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as SOP 100.		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 0.6 MLD STP division-1 at Safilguda		
WCS-2	: HMWS SB STPs Treated Sewage water Outlet sample collected from 0.6 MLD STP division-I at Safilguda (Amberpet,Hyderabad – 500 013) Sri S.Subrahmanyam, G. M (E) (HMWS&SB)		
Date of Sampling	: 21.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023.		
Remarks	: NIL		

Reviewed by
Lab Representative

Authorised by
Dr. U. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-413

Sl No	Test Parameter(s)	Remark	Unit	Test Method	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	6.0
2	Colour	Not Accredited by NABL	CU	2120. B, (Visual Comparison)	30	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
Dr.J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-418	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024,
Date of Completion	: 11.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 5 MLD STP division-II at Durgam Cheruvu		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 5 MLD STP division-II at Durgam Cheruvu (Durgam Cheruvu-Hyd-500081 Sri S.A.L Kumar G. M (E) (HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-418

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.3	8.0
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	13.1	0.56
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	38	10
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	8	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	74	12
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	124	32
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	6.9	2.8
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- N_{org}.B, (Macro-Kjeldahl)	50	BDL

BDL - Below Detection Limit,
Detection Limit - Total Phosphate as PO4 – mg/L; Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-315

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	70000	6.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-418

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	1.2
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	20	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-433	Issue Date	: 23.11.2024
Sample Received	: 23.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt.20.10.2024
Date of Commencement	: 23.10.2024	Lr. No & Date	: 23.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 0.5 MLD STP division-II at JVR Park		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 0.5 MLD STP division-II at JVR Park (Durgam Cheruvu-Hyd-500 081) Sri S.A.L Kumar G. M (E)(HMWS&SB)		
Date of Sampling	: 23.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-433

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.2	7.4
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	17.0	1.3
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	76	13
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	7	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	114	10
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	192	32
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	3.4	0.4
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	64	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-330

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	6.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-433

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	5.3
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	20	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
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Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-425	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 172 MLD STP division-II at Nagole		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 172 MLD STP division-II at Nagole (Durgam Cheruvu-Hyd-500081) Sri S.A.L Kumar G. M (E) (HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & Wastewater APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-425

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.8	8.0
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	9.82	1.14
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	79	16
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	13	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	116	12
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	192	40
7	Total Phosphate as PO^4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	0.8	BDL
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	64	BDL

BDL - Below Detection Limit,

Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L, Total Phosphate as PO^{4-} 0.02 mg/L

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.

2) The results shall not be reproduced except in full without approval of lab.

3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-322

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	6.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-425

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	5.4
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	30	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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TC-7709

ANALYSIS REPORT

Registration Number	: 24/WCS-422	**Issue Date**	: 23.11.2024
Sample Received	: 22.10.2024	**Customer Ref**	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 22.10.2024	**Lr. No & Date**	: 22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 51 MLD STP division-II at Attapur		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 51 MLD STP division-II at Attapur (Durgam Cheruvu-Hyd-500081 Sri S.A.L Kumar G. M (E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-422

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.6	7.8
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	7.55	0.54
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	89	10
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	9	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	106	10
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	176	36
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	2.5	1.8
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	50	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-319

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	94000	6.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl, Report No.24/WCS-422

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	5.6
2	Colour	Not Accredited by NABL	CU	2120. B, (Visual Comparison)	40	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
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Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-420	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 22.10.2024,
Date of Completion	: 11.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 4.5 MLD STP division-II at Nanakramguda		
WCS-2	: HMWS SB STPs Treated Sewage water Outlet sample collected from 4.5 MLD STP division-II at Nanakramguda Durgam Cheruvu-Hyd-500081 Sri S.A.L Kumar G. M (E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: EPTRI		
Industry Representative	: M/s. Ramky Infrastructure Limited		
Sub Contracting	: Sub-Contracting was not awarded		
Deviation from Standard Methods	: No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

NABL Web Site

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-420

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.6	7.9
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	7.06	1.29
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	50	12
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	8	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	86	10
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	144	36
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	2.6	3.1
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	128	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
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Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-317

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	79000	4.5

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.

2) The results shall not be reproduced except in full without approval of lab.

3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-420

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	3.0
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	30	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
Dr. U. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-421	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 22.10.2024,
Date of Completion	: 09.11.2024		
Name & Address of the customer	: Sri S.A.L Kumar, General Manager(E), STP Division –II, HMWS&SB, Durgam Cheruvu, Hyderabad – 500 081.		
Sample Particulars	: Waste water samples		
Qty Received	: ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles		
Type of Sampling	: Grab samples		
Sample condition	: Suitable for analysis		
Sampling Procedure	: Sample collected and submitted by EPTRI as per SOP 100		
Sample Code			
WCS-1	: HMWSSB STPs Raw Sewage water Inlet sample collected from 23 MLD STP division-II at Attapur		
WCS-2	: HMWSSB STPs Treated Sewage water Outlet sample collected from 23 MLD STP division-II at Attapur (Durgam Cheruvu-Hyd-500081 Sri S.A.L Kumar G. M (E)(HMWS&SB)		
Date of Sampling	: 22.10.2024		
Sampled By	: Customer		
Industry Representative	:M/s. Ramky Infrastructure Limited		
Sub Contracting	:Sub-Contracting was not awarded		
Deviation from Standard Methods	:No deviation in the test method		
Sample Tested	: As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.		
Remarks	: NIL		

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-421

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.7	6.9
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	6.39	0.45
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	98	12
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	11	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	112	12
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	188	40
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	1.8	2.1
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	154	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
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Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-318

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	110000	6.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-421

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	5.3
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	40	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

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Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-412	Issue Date	: 23.11.2024
Sample Received	: 21.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59, dt. 20.10.2024
Date of Commencement	: 21.10.2024	Lr. No & Date	: 21.10.2024,
Date of Completion	: 11.11.2024		

Name & Address of the customer : Sri S.A.L Kumar,
General Manager(E),
STP Division –II, HMWS&SB,
Durgam Cheruvu, Hyderabad – 500 081.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 12 MLD STP division-II at Khajakunta

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 12 MLD STP division-II at Khajakunta (Durgam Cheruvu Hyderabad-500081) Sri S.A.L Kumar G. M (E) (HMWS&SB)

Date of Sampling : 21.10.2024

Sampled By : EPTRI

Industry Representative :M/s. Ramky Infrastructure Limited

Sub Contracting :Sub-Contracting was not awarded

Deviation from Standard Methods :No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.

Remarks : NIL

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-412

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.3	7.8
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	16.2	0.56
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	76	08
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	10	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	106	18
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	304	52
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	2.2	3.7
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	53	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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EPTRI

ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-313

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	94000	7.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-412

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	4.3
2	Colour	Not Accredited by NABL	CU	2120. B, (Visual Comparison)	20	10

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-419	Issue Date	: 23.11.2024
Sample Received	: 22.10.2024	Customer Ref	: Your W.O/GAJA/HMWSSB/MOM STPs/2024-25/59,dt. 20.10.2024
Date of Commencement	: 22.10.2024	Lr. No & Date	: 22.10.2024,
Date of Completion	: 11.11.2024		

Name & Address of the customer : Sri S.A.L Kumar,
General Manager(E),
STP Division –II, HMWS&SB,
Durgam Cheruvu, Hyderabad – 500 081.

Sample Particulars : Waste water samples

Qty Received : ~2 Ltr + 300 mL + 300 mL each- in plastic containers and glass bottles

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by EPTRI as per SOP 100

Sample Code

WCS-1 : HMWSSB STPs Raw Sewage water Inlet sample collected from 7 MLD STP division-II at Khajaguda (Durgam Cheruvu-Hyd-500081)

WCS-2 : HMWSSB STPs Treated Sewage water Outlet sample collected from 7 MLD STP division-II at Khajaguda (Durgam Cheruvu-Hyd-500081) Sri S.A.L Kumar G. M (E)(HMWS&SB)

Date of Sampling : 22.10.2024

Sampled By : EPTRI

Industry Representative : M/s. Ramky Infrastructure Limited

Sub Contracting :Sub-Contracting was not awarded

Deviation from Standard Methods :No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.

Remarks : NIL

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-419

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.1	7.6
2	Turbidity	Accredited by NABL	NTU	2130. B, (Nephelometric)	15.0	0.59
3	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540. D, (Gravimetric)	48	10
4	Oil & Grease	Accredited by NABL	mg/L	5520. B, (Partition–Gravimetric)	10	<1
5	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	70	14
6	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	200	40
7	Total Phosphate as PO4	Accredited by NABL	mg/L	4500- P.D, (Spectrophotometric)	1.1	0.95
8	Total Kjeldahl Nitrogen as N	Accredited by NABL	mg/L	4500- Norg.B, (Macro-Kjeldahl)	89.6	BDL

BDL - Below Detection Limit,
Detection Limit - Total Kjeldahl Nitrogen as N-5 mg/L;
Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
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Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-316

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Total Coliforms	Accredited by NABL	MPN/100 ml	9221 B	70000	7.8

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-419

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	Dissolved Oxygen	Not Accredited by NABL	mg/L	4500-O.C	NIL	3.5
2	Colour	Not Accredited by NABL	CU	2120. B, (VisualComparison)	30	20

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

Registration Number	: 24/WCS-403	Issue Date	: 26.10.2024
Sample Received	: 08.10.2024	Customer Ref :	NIL
Date of Commencement	: 08.10.2024	Lr. No & Date :	08.10.2024
Date of Completion	: 24.10.2024		

Name & Address of the customer : Sri Rama Krishna
Plant Engineer
M/s.Ramky Infrastructure Ltd
Ramky Grandiose, 15 th Floor,
Sy. No: 136/2 & 4,
Gachibowli, Hyderabad – 500 032

Sample Particulars : Waste water samples

Qty Received : ~2 Ltrs each in Plastic containers

Type of Sampling : Grab samples

Sample condition : Suitable for analysis

Sampling Procedure : Sample collected and submitted by Customer

Sample Code

WCS-1 : Inlet sample collected 30 MLD Sewage treatment plant at Reddy Colony, Chanda Nagar, Serilingampalli, HMWSSB, Hyderabad.

WCS-2 : Out let sample collected 30 MLD Sewage treatment plant at Reddy Colony, Serilingampalli, Chanda Nagar, HMWSSB, Hyderabad.

Date of Sampling : 08.10.2024

Sampled By : Customer

Industry Representative : Sri Rama Krishna, Plant Engineer
M/s.Ramky Infrastructure Ltd

Sub Contracting : Sub-Contracting was not awarded

Deviation from Standard Methods : No deviation in the test method

Sample Tested : As per the Standard Methods for the Examination of water & wastewater by APHA, 24th Edition, 2023 & IS Method.

Remarks : NIL

NABL Web Site

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/WCS-403

Sl No	Test Parameter(s)	Remark	Unit	Test Method [APHA, 24th Edition, 2023]	WCS-1	WCS-2
1	pH (25°C)	Accredited by NABL	-	4500-H+B, (Electrometric)	7.2	7.7
2	Biochemical Oxygen Demand (3 days at27°C)	Accredited by NABL	mg/L	IS 3025 (Part 44)	110	15
3	Chemical Oxygen Demand	Accredited by NABL	mg/L	5220-B, (open reflux)	180	50
4	Total Suspended Solids at 105°C	Accredited by NABL	mg/L	2540, D, (Gravimetric)	32	12

Opinion and Interpretation: Not Applicable.
Note: 1) The results relate only to the items tested.
2) The results shall not be reproduced except in full without approval of lab.
3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
Dr. J. Sesha Srinivas
Technical Manager

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ANALYSIS REPORT

TEST RESULTS

Encl. Report No.24/MWC-305

S. No.	Test Parameter(s)	Remark	Unit	Test Method (APHA, 24th Edition, 2023)	WCS-1	WCS-2
	Fecal Coliforms	Accredited by NABL	MPN/100 mL	9221 E	33000	2

Opinion and Interpretation: Not Applicable.

Note: 1) The results relate only to the items tested.

2) The results shall not be reproduced except in full without approval of lab.

3) Customer provided information may effect the validity of the test report.

Reviewed by
Lab Representative

Authorised by
K. Vamsi Krishna
Project Faculty

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3025

TELANGANA POLLUTION CONTROL BOARD

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TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/398-399

Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD along with HMWSSB.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/398 - Sample collected from Inlet of Jalagam Vengal Rao 0.5 MLD STP.

24/11/399 - Sample collected from Outlet of Jalagam Vengal Rao 0.5 MLD STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/398	24/11/399	
pH at 25° c	4500-H + B	-	7.40	6.88	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1092	988	-
Total Suspended Solids	2540 - D	mg/L	60	<5	100
Total Dissolved Solids	2540 - C	mg/L	670	592	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	160	44	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	31	9	30
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3026

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TELANGANA POLLUTION CONTROL BOARD

Paryavaran Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/398-399

Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD along with HMWSSB.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/398 - Sample collected from Inlet of Jalagam Vengal Rao 0.5 MLD STP

24/11/399 - Sample collected from Outlet of Jalagam Vengal Rao 0.5 MLD STP

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/398	24/11/399	
Dissolved oxygen	4500 – O C	mg/L	-	5.4	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	110	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	<1.8	-
Heavy Metals					
Copper	3111- B	mg/L	-	ND	3.0
Zinc	3111- B	mg/L	-	0.016	5.0
Cadmium	3111- B	mg/L	-	ND	2.0
Lead	3111- B	mg/L	-	ND	0.1
Nickel	3111 B	mg/L	-	ND	3.0
Total Chromium	3111 D	mg/L	-	0.120	2.0

Note: Results related to sample as received.
BDL – Below Detectable Limit.
ND - Not Detected.

Joint Chief Environmental Scientist

TELANGANA POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/400-401

Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD along with HMWSSB.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/400 - Sample collected from Inlet of Miralam Tank 10.0 MLD STP.

24/11/401 - Sample collected from Outlet of Miralam Tank 10.0 MLD STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/400	24/11/401	
pH at 25° c	4500-H + B	-	6.70	7.11	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1792	1336	-
Total Suspended Solids	2540 - D	mg/L	114	52	100
Total Dissolved Solids	2540 - C	mg/L	1084	840	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	342	32	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	102	17	30
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3028

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TELANGANA POLLUTION CONTROL BOARD

Paryavaran Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/400-401

Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD along with HMWSSB.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : Sample details / collection point

24/11/400 - Sample collected from Inlet of Miralam Tank 10.0 MLD STP.

24/11/401 - Sample collected from Outlet of Miralam Tank 10.0 MLD STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/400	24/11/401	
Dissolved oxygen	4500 – O C	mg/L	-	4.9	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	110	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-
Heavy Metals					
Copper	3111- B	mg/L	-	0.033	3.0
Zinc	3111- B	mg/L	-	0.043	5.0
Cadmium	3111- B	mg/L	-	ND	2.0
Lead	3111- B	mg/L	-	0.072	0.1
Nickel	3111 B	mg/L	-	ND	3.0
Total Chromium	3111 D	mg/L	-	0.068	2.0

Note: Results related to sample as received.
BDL – Below Detectable Limit.
ND - Not Detected.

Joint Chief Environmental Scientist

TELANGANA POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

TC-7123

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/402-403

Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD along with HMWSSB.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/402 - Sample collected from Inlet of Langer House 1.25 MLD STP.

24/11/403 - Sample collected from Outlet of Langer House 1.25 MLD STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/402	24/11/403	
pH at 25° c	4500-H + B	-	7.28	7.11	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1235	875	-
Total Suspended Solids	2540 - D	mg/L	125	5	100
Total Dissolved Solids	2540 - C	mg/L	724	523	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	112	28	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	24	6	30
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3030

9-34

TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/402-403

Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD along with HMWSSB.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code	:	Sample details / collection point
24/11/402	-	Sample collected from Inlet of Langer House 1.25 MLD STP.
24/11/403	-	Sample collected from Outlet of Langer House 1.25 MLD STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/402	24/11/403	
Dissolved oxygen	4500 – O C	mg/L	-	5.1	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	210	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	<1.8	-
Heavy Metals					
Copper	3111- B	mg/L	-	ND	3.0
Zinc	3111- B	mg/L	-	0.078	5.0
Cadmium	3111- B	mg/L	-	ND	2.0
Lead	3111- B	mg/L	-	ND	0.1
Nickel	3111 B	mg/L	-	ND	3.0
Total Chromium	3111 D	mg/L	-	0.068	2.0

Note: Results related to sample as received.
BDL – Below Detectable Limit.
ND - Not Detected.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/404-405

Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD along with HMWSSB.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/404 - Sample collected from Inlet of Amberpet 339 MLD, STP.

24/11/405 - Sample collected from Outlet of Amberpet 339 MLD, STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/404	24/11/405	
pH at 25° c	4500-H + B	-	7.04	7.23	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1388	1365	-
Total Suspended Solids	2540 - D	mg/L	181	10	100
Total Dissolved Solids	2540 - C	mg/L	834	805	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	200	88	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	48	17	30
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3032

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/404-405

Collected by: AES, RO-HYD along with HMWSSB.

Collected on: 16/11/2024

Received on: 18/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Sample code : Sample details / collection point

24/11/404 - Sample collected from Inlet of Amberpet 339 MLD, STP.

24/11/405 - Sample collected from Outlet of Amberpet 339 MLD, STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/404	24/11/405	
Dissolved oxygen	4500 – O C	mg/L	-	0.9	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	540	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	2.0	-
Heavy Metals					
Copper	3111- B	mg/L	-	ND	3.0
Zinc	3111- B	mg/L	-	0.026	5.0
Cadmium	3111- B	mg/L	-	ND	2.0
Lead	3111- B	mg/L	-	0.027	0.1
Nickel	3111 B	mg/L	-	ND	3.0
Total Chromium	3111 D	mg/L	-	0.172	2.0

Note: Results related to sample as received.
BDL – Below Detectable Limit.
ND - Not Detected.

Joint Chief Environmental Scientist

TELANGANA POLLUTION CONTROL BOARD

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TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/392-393
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/392 - Sample collected from Inlet of Khairatabad 20 MLD STP.

24/11/393 - Sample collected from Outlet of Khairatabad 20 MLD STP.

Parameters	Method No.	Unit	Results	
			24/11/392	24/11/393
pH at 25° c	4500-H + B	-	6.89	7.08
Electrical conductivity at 25° c	2510-B	µS/cm	1234	1014
Total Suspended Solids	2540 - D	mg/L	114	<5
Total Dissolved Solids	2540 - C	mg/L	727	601
Chemical Oxygen Demand	5220 - B	mg/L	268	40
BOD 3 at 27°C	IS 3025, 1993	mg/L	66	8
Total Kjeldhal Nitrogen	4500-N_{org} B	mg/L	-	<5
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5
Oil & Grease	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/392-393
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/392 - Sample collected from Inlet of Khairatabad 20 MLD STP.

24/11/393 - Sample collected from Outlet of Khairatabad 20 MLD STP.

Parameters	Method No.	Unit	Results	
			24/11/392	24/11/393
Dissolved oxygen	4500 – O C	mg/L	-	4.2
Free Ammonia	Calculation Method	mg/L	-	BDL
Total coliform	9221 – B, C	MPN/100ml	-	140
Fecal coliform	9221 – B, C	MPN/100ml	-	<1.8
Heavy Metals				
Copper	3111 B	mg/L	-	ND
Nickel	3111 B	mg/L	-	ND
Zinc	3111 B	mg/L	-	0.015
Lead	3111 B	mg/L	-	ND
Cadmium	3111 B	mg/L	-	ND
Total Chromium	3111 D	mg/L	-	0.068

Note: Results related to sample as received.
BDL – Below Detectable Limit.
ND - Not Detected.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/394-395
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code	:	Sample details / collection point
24/11/394	-	Sample collected from Inlet of KIMS (Picket) 30 MLD STP, Begumpet, Opposite KIMS Hospital.
24/11/395	-	Sample collected from Outlet of KIMS (Picket) 30 MLD STP, Begumpet, Opposite KIMS Hospital.

Parameters	Method No.	Unit	Results	
			24/11/394	24/11/395
pH at 25° c	4500-H + B	-	7.44	7.56
Electrical conductivity at 25° c	2510-B	µS/cm	1499	1343
Total Suspended Solids	2540 - D	mg/L	99	<5
Total Dissolved Solids	2540 - C	mg/L	855	808
Chemical Oxygen Demand	5220 - B	mg/L	128	40
BOD 3 at 27°C	IS 3025, 1993	mg/L	27	8
Total Kjeldhal Nitrogen	4500-N_{org} B	mg/L	-	<5
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5
Oil & Grease	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/394-395
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/394 - Sample collected from Inlet of KIMS (Picket) 30 MLD STP, Begumpet, Opposite KIMS Hospital.

24/11/395 - Sample collected from Outlet of KIMS (Picket) 30 MLD STP, Begumpet, Opposite KIMS Hospital.

Parameters	Method No.	Unit	Results	
			24/11/394	24/11/395
Dissolved oxygen	4500 – O C	mg/L	-	5.8
Free Ammonia	Calculation Method	mg/L	-	BDL
Total coliform	9221 – B, C	MPN/100ml	-	220
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8
Heavy Metals				
Copper	3111 B	mg/L	-	ND
Nickel	3111 B	mg/L	-	ND
Zinc	3111 B	mg/L	-	0.022
Lead	3111 B	mg/L	-	ND
Cadmium	3111 B	mg/L	-	ND
Total Chromium	3111 B	mg/L	-	0.094

Note: Results related to sample as received.
BDL – Below Detectable Limit.
ND - Not Detected.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/396-397
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : Sample details / collection point

24/11/396 - Sample collected from Inlet of Miralam Tank 41.5 MLD, STP.

24/11/397 - Sample collected from Outlet of Miralam Tank 41.5 MLD, STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/396	24/11/397	
pH at 25° c	4500-H^+ B	-	6.86	6.68	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	635	627	-
Total Suspended Solids	2540 - D	mg/L	179	<5	100
Total Dissolved Solids	2540 - C	mg/L	405	392	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	196	76	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	39	16	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.
Remarks: BOD value is exceeding the standard limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/396-397
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES, RO-HYD.
Received on: 18/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code	:	Sample details / collection point
24/11/396	-	Sample collected from Inlet of Miralam Tank 41.5 MLD, STP.
24/11/397	-	Sample collected from Outlet of Miralam Tank 41.5 MLD, STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/396	24/11/397	
Dissolved oxygen	4500 – O C	mg/L	-	5.2	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	220	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	<1.8	-
Heavy Metals					
Copper	3111 B	mg/L	-	0.018	3.0
Nickel	3111 B	mg/L	-	0.013	5.0
Zinc	3111 B	mg/L	-	0.070	2.0
Lead	3111 B	mg/L	-	0.052	0.1
Cadmium	3111 B	mg/L	-	ND	3.0
Total Chromium	3111 D	mg/L	-	0.120	2.0

Note: Results related to sample as received.
ND - Not Detected.
BDL - Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/471-472
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/471 - Sample collected from Inlet of Gopanpally 4.5 MLD STP, Gopanpally (V), Serilingampally (M), Rangareddy District.

24/11/472 - Sample collected from Outlet of Gopanpally 4.5 MLD STP, Gopanpally (V), Serilingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/471	24/11/472	
pH at 25° c	4500-H + B	-	6.56	7.22	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1164	1054	-
Total Suspended Solids	2540 - D	mg/L	103	47	100
Total Dissolved Solids	2540 - C	mg/L	675	622	-
Chemical Oxygen Demand	5220 - B	mg/L	148	32	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	31	9	≤10
Total Kjeldhal Nitrogen	4500-N_{org} B	mg/L	-	44	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	15	50
Oil & Grease	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/471-472
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/471 - Sample collected from Inlet of Gopanpally 4.5 MLD STP, Gopanpally (V), Serilingampally (M), Rangareddy District.

24/11/472 - Sample collected from Outlet of Gopanpally 4.5 MLD STP, Gopanpally (V), Serilingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/471	24/11/472	
Dissolved oxygen	4500 – O C	mg/L	-	2.6	-
Free Ammonia	Calculation Method	mg/L	-	0.13	5.0
Total coliform	9221 – B, C	MPN/100ml	-	220	<500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/473-474
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/473 - Sample collected from Inlet of Lingam kunta 30 MLD STP, Lingampally (V), Serilingampally (M), Rangareddy District.

24/11/474 - Sample collected from Outlet of Lingam kunta 30 MLD STP, Lingampally (V), Serilingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/473	24/11/474	
pH at 25° c	4500-H + B	-	6.96	7.21	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1323	1214	-
Total Suspended Solids	2540 - D	mg/L	102	8	100
Total Dissolved Solids	2540 - C	mg/L	766	689	-
Chemical Oxygen Demand	5220 - B	mg/L	76	60	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	16	12	≤10
Total Kjeldhal Nitrogen	4500-N_{org} B	mg/L	-	20	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	7	50
Oil & Grease	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.
Remarks: BOD value is exceeding the CFO limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/473-474
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/473 - Sample collected from Inlet of Lingam kunta 30 MLD STP, Lingampally (V), Serilingampally (M), Rangareddy District.

24/11/474 - Sample collected from Outlet of Lingam kunta 30 MLD STP, Lingampally (V), Serilingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/473	24/11/474	
Dissolved oxygen	4500 – O C	mg/L	-	3.8	-
Free Ammonia	Calculation Method	mg/L	-	0.06	5.0
Total coliform	9221 – B, C	MPN/100ml	-	110	<500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/475-476
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/475 - Sample collected from Inlet of Miyapur 7MLD STP, Serlingampally (M), Rangareddy District.
24/11/476 - Sample collected from Outlet of Miyapur 7MLD STP, Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results	
			24/11/475	24/11/476
pH at 25° c	4500-H + B	-	7.10	7.14
Electrical conductivity at 25° c	2510-B	µS/cm	1300	1162
Total Suspended Solids	2540 - D	mg/L	41	<5
Total Dissolved Solids	2540 - C	mg/L	786	651
Chemical Oxygen Demand	5220 - B	mg/L	188	28
BOD 3 at 27°C	IS 3025, 1993	mg/L	37	6
Total Kjeldhal Nitrogen	4500-N_{org} B	mg/L	-	21
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	7
Oil & Grease	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/475-476
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : Sample details / collection point

24/11/475 - Sample collected from Inlet of Miyapur 7MLD STP, Serlingampally (M), Rangareddy District.
24/11/476 - Sample collected from Outlet of Miyapur 7MLD STP, Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results	
			24/11/475	24/11/476
Dissolved oxygen	4500 – O C	mg/L	-	4
Free Ammonia	Calculation Method	mg/L	-	0.05
Total coliform	9221 – B, C	MPN/100ml	-	280
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/477-478
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/477 - Sample collected from Inlet of Kokapet 15 MLD STP, Gandipet, Rangareddy District.

24/11/478 - Sample collected from Outlet of Kokapet 15 MLD STP, Gandipet, Rangareddy District.

Parameters	Method No.	Unit	Results	
			24/11/477	24/11/478
pH at 25° c	4500-H + B	-	7.41	7.36
Electrical conductivity at 25° c	2510-B	µS/cm	1287	1248
Total Suspended Solids	2540 - D	mg/L	106	18
Total Dissolved Solids	2540 - C	mg/L	805	750
Chemical Oxygen Demand	5220 - B	mg/L	244	16
BOD 3 at 27°C	IS 3025, 1993	mg/L	64	9
Total Kjeldhal Nitrogen	4500-N_{org} B	mg/L	-	<5
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5
Oil & Grease	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/477-478
Collected on: 20/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 28/11/2024

Collected by: AES-II, RO-RRD
Received on: 21/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code	:	Sample details / collection point
24/11/477	-	Sample collected from Inlet of Kokapet 15 MLD STP, Gandipet, Rangareddy District.
24/11/478	-	Sample collected from Outlet of Kokapet 15 MLD STP, Gandipet, Rangareddy District.

Parameters	Method No.	Unit	Results	
			24/11/477	24/11/478
Dissolved oxygen	4500 – O C	mg/L	-	5.2
Free Ammonia	Calculation Method	mg/L	-	BDL
Total coliform	9221 – B, C	MPN/100ml	-	220
Fecal coliform	9221 – B, C	MPN/100ml	-	2.0

Note: Results related to sample as received.
BDL : Below Detectable Limit.

Joint Chief Environmental Scientist

TELANGANA POLLUTION CONTROL BOARD
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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/704-705
Collected on: 28/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 06/12/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 29/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/704 - Sample collected from Inlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.
24/11/705 - Sample collected from Outlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/704	24/11/705	
pH at 25° c	4500-H + B	-	7.37	6.62	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1653	1346	-
Total Suspended Solids	2540 - D	mg/L	106	35	100
Total Dissolved Solids	2540 - C	mg/L	940	760	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	176	72	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	34	14	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	29	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	10	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.
Remarks: BOD value is exceeding the standard limit.

Joint Chief Environmental Scientist

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Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/704-705

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 28/11/2024

Received on: 29/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 06/12/2024

Sample code	:	Sample details / collection point
24/11/704	-	Sample collected from Inlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.
24/11/705	-	Sample collected from Outlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/704	24/11/705	
Dissolved oxygen	4500 – O C	mg/L	-	1.4	-
Free Ammonia	Calculation Method	mg/L	-	0.02	5.0
Total coliform	9221 – B, C	MPN/100ml	-	350	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

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TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/351-352

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code	:	Sample details / collection point
24/11/351	-	Sample collected from Inlet of Durgam Cheruvu 5.0 MLD, STP.
24/11/352	-	Sample collected from Outlet of Durgam Cheruvu 5.0 MLD, STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/351	24/11/352	
pH at 25° c	4500-H + B	-	6.92	7.46	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1441	1301	-
Total Suspended Solids	2540 - D	mg/L	196	5	100
Total Dissolved Solids	2540 - C	mg/L	851	776	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	212	48	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	40	9	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	8	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/351-352

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Page No.: 2 of 2

Sample code	:	Sample details / collection point
24/11/351	-	Sample collected from Inlet of Durgam Cheruvu 5.0 MLD, STP.
24/11/352	-	Sample collected from Outlet of Durgam Cheruvu 5.0 MLD, STP.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/351	24/11/352	
Dissolved oxygen	4500 – O C	mg/L	-	5.1	-
Free Ammonia	Calculation Method	mg/L	-	0.04	5.0
Total coliform	9221 – B, C	MPN/100ml	-	110	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	9.3	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/353-354
Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/353 - Sample collected from Inlet of Durgam Cheruvu 7.0 MLD, STP, Rangareddy District.

24/11/354 - Sample collected from Outlet of Durgam Cheruvu 7.0 MLD, STP, Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/353	24/11/354	
pH at 25° c	4500-H + B	-	6.92	7.22	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1389	1185	-
Total Suspended Solids	2540 - D	mg/L	112	5	100
Total Dissolved Solids	2540 - C	mg/L	778	695	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	184	26	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	35	5	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	12	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/353-354

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Page No.: 2 of 2

Sample code	:	Sample details / collection point
24/11/353	-	Sample collected from Inlet of Durgam Cheruvu 7.0 MLD, STP, Rangareddy District.
24/11/354	-	Sample collected from Outlet of Durgam Cheruvu 7.0 MLD, STP, Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/353	24/11/354	
Dissolved oxygen	4500 – O C	mg/L	-	6.3	-
Free Ammonia	Calculation Method	mg/L	-	0.04	5.0
Total coliform	9221 – B, C	MPN/100ml	-	280	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.
BDL: Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/355-356
Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/355 - Sample collected from Inlet of Khajaguda (Pedda Cheruvu) 7 MLD, STP, Khajaguda (V), Serlingampally (M), Rangareddy District.

24/11/356 - Sample collected from Outlet of Khajaguda (Pedda Cheruvu) 7 MLD, STP, Khajaguda (V), Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/355	24/11/356	
pH at 25° c	4500-H + B	-	6.63	7.33	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1770	1650	-
Total Suspended Solids	2540 - D	mg/L	200	18	100
Total Dissolved Solids	2540 - C	mg/L	1056	924	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	272	56	50
BOD 3 at 27°C	IS 3025, 1993	mg/L	53	9	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/355-356

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Page No.: 2 of 2

Sample code	:	Sample details / collection point
24/11/355	-	Sample collected from Inlet of Khajaguda (Pedda Cheruvu) 7 MLD, STP, Khajaguda (V), Serlingampally (M), Rangareddy District.
24/11/356	-	Sample collected from Outlet of Khajaguda (Pedda Cheruvu) 7 MLD, STP, Khajaguda (V), Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/355	24/11/356	
Dissolved oxygen	4500 – O C	mg/L	-	3.3	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	27	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	8.3	-

Note: Results related to sample as received.
BDL: Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/357-358
Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/357 - Sample collected from Inlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.

24/11/358 - Sample collected from Outlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/357	24/11/358	
pH at 25° c	4500-H + B	-	7.15	7.18	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1395	1229	-
Total Suspended Solids	2540 - D	mg/L	113	10	100
Total Dissolved Solids	2540 - C	mg/L	820	718	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	96	32	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	27	6	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	7	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/357-358

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Page No.: 2 of 2

Sample code	:	Sample details / collection point
24/11/357	-	Sample collected from Inlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.
24/11/358	-	Sample collected from Outlet of Nanakramguda 4.5 MLD STP, Nanakramguda (V), Serlingampally (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/357	24/11/358	
Dissolved oxygen	4500 – O C	mg/L	-	3.1	-
Free Ammonia	Calculation Method	mg/L	-	0.02	5.0
Total coliform	9221 – B, C	MPN/100ml	-	140	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	2.0	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/359-360
Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/359 - Sample collected from Inlet of Attapur 51.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.
24/11/360 - Sample collected from Outlet of Attapur 51.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/359	24/11/360	
pH at 25° c	4500-H + B	-	6.94	7.19	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1126	1067	-
Total Suspended Solids	2540 - D	mg/L	138	5	100
Total Dissolved Solids	2540 - C	mg/L	726	612	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	148	12	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	28	5	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/359-360

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code	:	Sample details / collection point
24/11/359	-	Sample collected from Inlet of Attapur 51.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.
24/11/360	-	Sample collected from Outlet of Attapur 51.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/359	24/11/360	
Dissolved oxygen	4500 – O C	mg/L	-	5.9	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	79	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.
BDL: Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/361-362

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Sample code : Sample details / collection point

24/11/361 - Sample collected from Inlet of Attapur 23.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.

24/11/362 - Sample collected from Outlet of Attapur 23.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/361	24/11/362	
pH at 25° c	4500-H + B	-	6.65	7.26	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1887	1658	-
Total Suspended Solids	2540 - D	mg/L	60	6	100
Total Dissolved Solids	2540 - C	mg/L	1086	917	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	236	46	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	48	9	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/361-362

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Sample code : **Sample details / collection point**

24/11/361 - Sample collected from Inlet of Attapur 23.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.

24/11/362 - Sample collected from Outlet of Attapur 23.0 MLD, STP, Attapur (V), Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/361	24/11/362	
Dissolved oxygen	4500 – O C	mg/L	-	1.7	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	48	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.
BDL: Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/363-364
Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/363 - Sample collected from Inlet of Miralam 5.0 MLD, STP, Shivarampally (V), Rajendranagar (M), Rangareddy District.
24/11/364 - Sample collected from Outlet of Miralam 5.0 MLD, STP, Shivarampally (V), Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/363	24/11/364	
pH at 25° c	4500-H + B	-	6.91	7.34	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1707	1611	-
Total Suspended Solids	2540 - D	mg/L	257	13	100
Total Dissolved Solids	2540 - C	mg/L	968	889	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	231	32	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	49	5	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	10	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	6	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/363-364

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/363 - Sample collected from Inlet of Miralam 5.0 MLD, STP, Shivarampally (V), Rajendranagar (M), Rangareddy District.

24/11/364 - Sample collected from Outlet of Miralam 5.0 MLD, STP, Shivarampally (V), Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/363	24/11/364	
Dissolved oxygen	4500 – O C	mg/L	-	4.2	-
Free Ammonia	Calculation Method	mg/L	-	0.06	5.0
Total coliform	9221 – B, C	MPN/100ml	-	220	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	11	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/365-366

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/365 - Sample collected from Inlet of Noor Mohammed Kunta 4.0 MLD, STP, Rajendranagar (M), Rangareddy District.

24/11/366 - Sample collected from Outlet of Noor Mohammed Kunta 4.0 MLD, STP, Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/365	24/11/366	
pH at 25° c	4500-H + B	-	6.98	7.19	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1952	1895	-
Total Suspended Solids	2540 - D	mg/L	212	7	100
Total Dissolved Solids	2540 - C	mg/L	1196	1075	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	240	36	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	45	5	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3064

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TELANGANA POLLUTION CONTROL BOARD

Paryavaran Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/365-366

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Sample code : **Sample details / collection point**

24/11/365 - Sample collected from Inlet of Noor Mohammed Kunta 4.0 MLD, STP, Rajendranagar (M), Rangareddy District.

24/11/366 - Sample collected from Outlet of Noor Mohammed Kunta 4.0 MLD, STP, Rajendranagar (M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/365	24/11/366	
Dissolved oxygen	4500 – O C	mg/L	-	5.3	-
Free Ammonia	Calculation Method	mg/L	-	BDL	-
Total coliform	9221 – B, C	MPN/100ml	-	430	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.
BDL: Below Detectable Limit.

Joint Chief Environmental Scientist

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TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/367-368

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/367 - Sample collected from Inlet of Saroornagar 2.5 MLD, STP, Saroornagar (V & M), Rangareddy District.

24/11/368 - Sample collected from Outlet of Saroornagar 2.5 MLD, STP, Saroornagar (V & M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/367	24/11/368	
pH at 25° c	4500-H + B	-	6.88	7.02	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1504	1337	-
Total Suspended Solids	2540 - D	mg/L	108	5	100
Total Dissolved Solids	2540 - C	mg/L	836	747	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	175	41	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	49	9	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	03	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3066

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/367-368

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/367 - Sample collected from Inlet of Saroornagar 2.5 MLD, STP, Saroornagar (V & M), Rangareddy District.

24/11/368 - Sample collected from Outlet of Saroornagar 2.5 MLD, STP, Saroornagar (V & M), Rangareddy District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/367	24/11/368	
Dissolved oxygen	4500 – O C	mg/L	-	4.6	-
Free Ammonia	Calculation Method	mg/L	-	BDL	-
Total coliform	9221 – B, C	MPN/100ml	-	110	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	10	-

Note: Results related to sample as received.
BDL: Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/369-370
Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/369 - Sample collected from Inlet of Uppal Nalla cheruvu 30.0 MLD, STP, Uppal (V &M), Medchal District.

24/11/370 - Sample collected from Outlet of Uppal Nalla cheruvu 30.0 MLD, STP, Uppal (V &M), Medchal District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/369	24/11/370	
pH at 25° c	4500-H + B	-	7.24	7.49	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1369	1330	-
Total Suspended Solids	2540 - D	mg/L	41	5	50
Total Dissolved Solids	2540 - C	mg/L	774	738	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	114	73	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	37	23	< 30
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	68	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	22	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3068

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/369-370

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/369 - Sample collected from Inlet of Uppal Nalla cheruvu 30.0 MLD, STP, Uppal (V &M), Medchal District.

24/11/370 - Sample collected from Outlet of Uppal Nalla cheruvu 30.0 MLD, STP, Uppal (V &M), Medchal District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/369	24/11/370	
Dissolved oxygen	4500 – O C	mg/L	-	4.2	-
Free Ammonia	Calculation Method	mg/L	-	0.37	5.0
Total coliform	9221 – B, C	MPN/100ml	-	94	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.
BDL-Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/371-372

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : Sample details / collection point

24/11/371 - Sample collected from Inlet of Uppal Nalla cheruvu 86.5 MLD, STP, Uppal (V &M), Medchal District.

24/11/372 - Sample collected from Outlet of Uppal Nalla cheruvu 86.5 MLD, STP, Uppal (V &M), Medchal District.

Parameters	Method No.	Unit	Results	
			24/11/371	24/11/372
pH at 25° c	4500-H + B	-	7.20	7.22
Electrical conductivity at 25° c	2510-B	µS/cm	1324	1235
Total Suspended Solids	2540 - D	mg/L	48	14
Total Dissolved Solids	2540 - C	mg/L	750	688
Chemical Oxygen Demand (COD)	5220 - B	mg/L	130	73
BOD 3 at 27°C	IS 3025, 1993	mg/L	42	19
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5
Oil & Grease (O&G)	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/371-372

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : Sample details / collection point

24/11/371 - Sample collected from Inlet of Uppal Nalla cheruvu 86.5 MLD, STP, Uppal (V &M), Medchal District.

24/11/372 - Sample collected from Outlet of Uppal Nalla cheruvu 86.5 MLD, STP, Uppal (V &M), Medchal District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/371	24/11/372	
Dissolved oxygen	4500 – O C	mg/L	-	5.2	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	70	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.
BDL-Below Detectable Limit.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/373-374

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 1 of 2

Sample code : Sample details / collection point

24/11/373 - Sample collected from Inlet of Nacharam Patel Cheruvu 2.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

24/11/374 - Sample collected from Outlet of Nacharam Patel Cheruvu 2.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/373	24/11/374	
pH at 25° c	4500-H^+ B	-	7.06	7.10	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1436	1284	-
Total Suspended Solids	2540 - D	mg/L	110	5	100
Total Dissolved Solids	2540 - C	mg/L	789	739	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	293	85	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	90	19	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	05	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.
Remarks: BOD value is exceeding the standard limit.

Joint Chief Environmental Scientist

3072

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/373-374

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/373 - Sample collected from Inlet of Nacharam Patel Cheruvu 2.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

24/11/374 - Sample collected from Outlet of Nacharam Patel Cheruvu 2.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/373	24/11/374	
Dissolved oxygen	4500 – O C	mg/L	-	3.8	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	540	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	6.8	-

Note: Results related to sample as received.
BDL-Below Detectable Limit.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/375-376

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : Sample details / collection point

24/11/375 - Sample collected from Inlet of Nacharam Pedda Cheruvu 10.0 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

24/11/376 - Sample collected from Outlet of Nacharam Pedda Cheruvu 10.0 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/375	24/11/376	
pH at 25° c	4500-H $^+$ B	-	7.11	7.33	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1466	1441	-
Total Suspended Solids	2540 - D	mg/L	141	13	100
Total Dissolved Solids	2540 - C	mg/L	842	788	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	252	85	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	67	21	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	72	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	27	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.
Remarks: BOD value is exceeding the standard limit.

Joint Chief Environmental Scientist

3074

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/375-376

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No.: 2 of 2

Sample code : Sample details / collection point

24/11/375 - Sample collected from Inlet of Nacharam Pedda Cheruvu 10.0 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

24/11/376 - Sample collected from Outlet of Nacharam Pedda Cheruvu 10.0 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/375	24/11/376	
Dissolved oxygen	4500 – O C	mg/L	-	4.6	-
Free Ammonia	Calculation Method	mg/L	-	0.32	5.0
Total coliform	9221 – B, C	MPN/100ml	-	430	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/377-378

Collected on: 14/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: AES-II, RO-RRD officials along with EPTRI Officials
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : Sample details / collection point

24/11/377 - Sample collected from Inlet of Nacharam Pedda Cheruvu 17.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

24/11/378 - Sample collected from Outlet of Nacharam Pedda Cheruvu 17.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

Parameters	Method No.	Unit	Results	
			24/11/377	24/11/378
pH at 25° c	4500-H^+ B	-	6.87	7.17
Electrical conductivity at 25° c	2510-B	µS/cm	1542	1310
Total Suspended Solids	2540 - D	mg/L	2117	08
Total Dissolved Solids	2540 - C	mg/L	918	712
Chemical Oxygen Demand (COD)	5220 - B	mg/L	886	65
BOD_3 at 27°C	IS 3025, 1993	mg/L	261	17
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5
Oil & Grease (O&G)	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3076

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/377-378

Collected by: AES-II, RO-RRD officials along with EPTRI Officials

Collected on: 14/11/2024

Received on: 16/11/2024

Test method: Standard Methods of APHA, 24th Edition

Quantity of the sample: 1 Ltr. sample each

Issue date: 25/11/2024

Page No.: 2 of 2

Sample code : **Sample details / collection point**

24/11/377 - Sample collected from Inlet of Nacharam Pedda Cheruvu 17.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

24/11/378 - Sample collected from Outlet of Nacharam Pedda Cheruvu 17.5 MLD, STP, Nacharam (V), Uppal (M), Medchal District.

Parameters	Method No.	Unit	Results	
			24/11/377	24/11/378
Dissolved oxygen	4500 – O C	mg/L	-	4.8
Free Ammonia	Calculation Method	mg/L	-	BDL
Total coliform	9221 – B, C	MPN/100ml	-	540
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8

Note: Results related to sample as received.
BDL-Below Detectable Limit.

Joint Chief Environmental Scientist

TELANGANA POLLUTION CONTROL BOARD
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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/343-344
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No: 1 of 2

Sample code : Sample details / collection point

24/11/343 - Sample collected from Inlet of Khazakunta Lake 12 MLD, STP, Back side of Metro Mall, Kukatpally, Medchal-Malkajgiri District.

24/11/344 - Sample collected from Outlet of Khazakunta Lake 12 MLD, STP, Back side of Metro Mall, Kukatpally, Medchal-Malkajgiri District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/343	24/11/344	
pH at 25° c	4500-H + B	-	6.78	7.21	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1503	1215	-
Total Suspended Solids	2540 - D	mg/L	60	<5	100
Total Dissolved Solids	2540 - C	mg/L	855	698	-
Chemical Oxygen Demand (COD)	5220 - B	mg/L	132	60	250
BOD 3 at 27°C	IS 3025, 1993	mg/L	26	8	≤10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	65	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	22	50
Oil & Grease (O&G)	5520 – B	mg/L	-	<5	10

Note: Results related to sample as received.

Joint Chief Environmental Scientist

3078

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TELANGANA POLLUTION CONTROL BOARD

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/343-344
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No: 2 of 2

Sample code : **Sample details / collection point**

24/11/343 - Sample collected from Inlet of Khazakunta Lake 12 MLD, STP, Back side of Metro Mall, Kukatpally, Medchal-Malkajgiri District.

24/11/344 - Sample collected from Outlet of Khazakunta Lake 12 MLD, STP, Back side of Metro Mall, Kukatpally, Medchal-Malkajgiri District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/343	24/11/344	
Dissolved oxygen	4500 – O C	mg/L	-	0.9	-
Free Ammonia	Calculation Method	mg/L	-	0.20	5.0
Total coliform	9221 – B, C	MPN/100ml	-	280	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/345-346
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No: 1 of 2

Sample code : Sample details / collection point

24/11/345 - Sample collected from Inlet of Pragathi nagar 2.5 MLD STP, Kukatpally, Medchal-Malkajgiri District

24/11/346 - Sample collected from Outlet of Pragathi nagar 2.5 MLD STP, Kukatpally, Medchal-Malkajgiri District

Parameters	Method No.	Unit	Results	
			24/11/345	24/11/346
pH at 25° C	4500-H^+ B	-	7.09	7.32
Electrical conductivity at 25° C	2510-B	µS/cm	1431	1365
Total Suspended Solids	2540 - D	mg/L	42	<5
Total Dissolved Solids	2540 - C	mg/L	830	781
Chemical Oxygen Demand (COD)	5220 - B	mg/L	144	40
BOD_3 at 27°C	IS 3025, 1993	mg/L	31	8
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	40
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	13
Oil & Grease (O&G)	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

Paryavaran Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/345-346
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No: 2 of 2

Sample code : Sample details / collection point

24/11/345 - Sample collected from Inlet of Pragathi nagar 2.5 MLD STP, Kukatpally, Medchal-Malkajgiri District

24/11/346 - Sample collected from Outlet of Pragathi nagar 2.5 MLD STP, Kukatpally, Medchal-Malkajgiri District

Parameters	Method No.	Unit	Results	
			24/11/345	24/11/346
Dissolved oxygen	4500 – O C	mg/L	-	2.8
Free Ammonia	Calculation Method	mg/L	-	0.16
Total coliform	9221 – B, C	MPN/100ml	-	110
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8

Note: Results related to sample as received.

Joint Chief Environmental Scientist

TELANGANA POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/347-348
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No: 1 of 2

Sample code : Sample details / collection point

24/11/347 - Sample collected from Inlet of Rangadhamuni Lake 5 MLD STP, Kukatpally, Medchal-Malkajgiri District.

24/11/348 - Sample collected from Outlet of Rangadhamuni Lake 5 MLD STP, Kukatpally, Medchal-Malkajgiri District.

Parameters	Method No.	Unit	Results	
			24/11/347	24/11/348
pH at 25° c	4500-H^+ B	-	7.15	7.32
Electrical conductivity at 25° c	2510-B	µS/cm	1623	1325
Total Suspended Solids	2540 - D	mg/L	114	<5
Total Dissolved Solids	2540 - C	mg/L	978	796
Chemical Oxygen Demand (COD)	5220 - B	mg/L	152	52
BOD_3 at 27°C	IS 3025, 1993	mg/L	32	10
Total Kjeldhal Nitrogen (TKN)	4500-N_{org} B	mg/L	-	<5
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5
Oil & Grease (O&G)	5520 – B	mg/L	-	<5

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

Paryavaran Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/347-348
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each

Sample code : **Sample details / collection point**

24/11/347 - Sample collected from Inlet of Rangadhamuni Lake 5 MLD STP, Kukatpally, Medchal-Malkajgiri District.

24/11/348 - Sample collected from Outlet of Rangadhamuni Lake 5 MLD STP, Kukatpally, Medchal-Malkajgiri District.

Parameters	Method No.	Unit	Results	
			24/11/347	24/11/348
Dissolved oxygen	4500 – O C	mg/L	-	2.7
Free Ammonia	Calculation Method	mg/L	-	BDL
Total coliform	9221 – B, C	MPN/100ml	-	110
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8

Note: Results related to sample as received.
BDL – Below Detectable Limit.

Joint Chief Environmental Scientist

TELANGANA STATE POLLUTION CONTROL BOARD
Paryavarana Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

TC-12641

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/349-350
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No: 1 of 2

Sample code : Sample details / collection point

24/11/349 - Sample collected from Inlet of Safilguda lake 0.6 MLD STP, Malkajgiri, Medchal Malkajgiri District.

24/11/350 - Sample collected from Outlet of Safilguda lake 0.6 MLD STP, Malkajgiri, Medchal Malkajgiri District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/349	24/11/350	
pH at 25° c	4500-H^+ B	-	7.25	7.80	5.5 - 9.0
Electrical conductivity at 25° c	2510-B	µS/cm	1920	1666	-
Total Suspended Solids	2540 - D	mg/L	259	<5	100
Total Dissolved Solids	2540 - C	mg/L	1128	1006	-
Chemical Oxygen Demand	5220 - B	mg/L	114	28	250
BOD_3 at 27°C	IS 3025, 1993	mg/L	23	6	≤10
Total Kjeldhal Nitrogen	4500-N_{org} B	mg/L	-	<5	100
Ammonical Nitrogen	4500-NH_3 C	mg/L	-	<5	50
Oil & Grease	5520 – B	mg/L	-	<5	20

Note: Results related to sample as received.

Joint Chief Environmental Scientist

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TELANGANA POLLUTION CONTROL BOARD

Paryavaran Bhavan, A-3, Industrial Estate, Sanathnagar, Hyderabad – 500 018
Ph: 040-23887500

CENTRAL LABORATORY

Analysis Report

Reg. No.SR/05/TGPCB/HO/R00/LAB/2024/11/349-350
Collected on: 16/11/2024
Test method: Standard Methods of APHA, 24th Edition
Issue date: 25/11/2024

Collected by: EE, RO- Medchal.
Received on: 16/11/2024
Quantity of the sample: 1 Ltr. sample each
Page No: 2 of 2

Sample code : Sample details / collection point

24/11/349 - Sample collected from Inlet of Safilguda lake 0.6 MLD STP, Malkajgiri, Medchal Malkajgiri District.

24/11/350 - Sample collected from Outlet of Safilguda lake 0.6 MLD STP, Malkajgiri, Medchal Malkajgiri District.

Parameters	Method No.	Unit	Results		As per CFO Order Standards
			24/11/349	24/11/350	
Dissolved oxygen	4500 – O C	mg/L	-	5.1	-
Free Ammonia	Calculation Method	mg/L	-	BDL	5.0
Total coliform	9221 – B, C	MPN/100ml	-	220	< 500
Fecal coliform	9221 – B, C	MPN/100ml	-	1.8	-

Note: Results related to sample as received.
BDL – Below Detectable Limit.

Joint Chief Environmental Scientist

TELANGANA STATE POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A - 3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018

Phone: 3887500
Fax: 040 –23815631
Website: tspcb.cgg.gov.in

CONSENT & HWA ORDER (RENEWAL)
RED CATEGORY

Consent Order No : 230824566511 **Date:29.09.2023**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof, Operation of the plant under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation / Renewal of Authorisation under Rule 5 of the Hazardous Wastes (Management, Handling & Transboundary Movement) Rules 2016 & Amendments thereof.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974, under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof, and Authorisation under the provisions of HW (MH & TM) Rules, 2016 (hereinafter referred to as 'the Acts', 'the Rules') and amendments thereof and the rules and orders made there under to **M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal- Malkajgiri District** (hereinafter referred to as 'the Applicant / Project') and the project is authorized to operate and to discharge the Effluents and the quantity of Emissions from the chimneys, by operating pollution control equipment, as detailed below,

i) Out lets for discharge of Effluents:

Outlet No.	Description of Outlet	Max Daily Discharge in KLD	Point of Disposal
1	Floor washings	6.0	After treatment in ETP, followed by RO system, the RO rejects shall be sprayed on the waste dump to maintain moisture and RO permeate shall be used onland for gardening, by meeting the standards stipulated at Schedule-B
	Workshop / Vehicle maintenance shed,	18.0	
	Leachate generation (from composting plant – 204 KLD, land fill site – 110 KLD, existing dump site – 330 KLD)	644.0	
2	Domestic wastewater	90.0	After treatment in STP, shall be used onland for gardening, by meeting the standards stipulated at Schedule — B.
	Total	**758.0 KLD**	

ii) Emissions from chimneys:

Chimney No.	Description of Chimney
1	Attached to DG sets of capacity 2 x 500 KVA

iii) HWAuthorisation No. 230824566511 **Date: 29.09.2023**

HAZARDOUS WASTE AUTHORISATION
FORM – II)
[See Rule 6 (2)]

M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal- Malkajgiri District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

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- **Hazardous Wastes With Disposal Option:**

S.No	Name of the Hazardous Waste	Stream	Quantity	Disposal option
1	Soil enricher	-	2400 TPD	Used as manure
2.	Inert material	-	735 TPD	To land fill within their premises.

- **Hazardous Wastes With Recycling Option:**

S.No	Name of the Hazardous Waste	Stream	Quantity	Disposal option
1.	Waste oils	5.1 of Schedule – I	200 Lt/month	Shall be sent to authorised re-processors / Recyclers

This consent order is valid for manufacture of the products along with quantity as mentioned below only.

Sl. No.	Description of the facility	Capacity
1	RDF Plant (2X 1200 TPD)	2400 TPD
2	Compost Plant (3X 680 TPD)	2040 TPD
3	Bio- Methanization (10 X50 TPD)	500 TPD
4	Recycling Complex (Plastic, Paper, Metal, Rubber, Glass etc.)	600 TPD
5	Land fill with leachate collection and treatment system	735 TPD

This order is subject to the provisions of 'the Acts' and the Rules' and amendments made thereunder and further subject to the terms and conditions incorporated in the schedule A, B and C enclosed to this order.

This order of Consents and Authorization is valid for a period ending with the 31st July, 2028.

Sd/-
MEMBER SECRETARY

To
M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal- Malkajgiri District

///T.C.F.B.O///

29/9/23
SENIOR ENVIRONMENTAL ENGINEER
(CFO – UNIT-III)

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SCHEDULE-A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorisation under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorisation of the Board. The applicant can also apply for Auto Renewal of the CFO atleast 30 days before the expiry of this order as per the procedure and eligibility stipulated in the Board Circular dt.19.11.2015 & 08.12.2015 (available in Board's Website: http://tspcb.cgg.gov.in/Pages/Circulars.aspx).

2. This order is issued in line with Board's CFO & HWA order dt. 19.02.2019. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts. The industry shall comply with all other conditions of CFO & HWA order dt. 19.02.2019 is still applicable.

3. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Rules, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

4. The industry may explore the possibility of tapping the solar energy for their energy requirements.

5. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE-B

1. The facility shall comply with all the directions issued vide lr.dt. 26.08.2023.

2. Total Water Consumption shall not exceed : 1675 KLD

S. No	Purpose	Quantity (KLD)
1.	Domestic	100
2	Floor wash	10
3	Vehicle wash	20
4	Compost plant	350
5	RDF plant	25
6	Gardening	1160
7	Recycling Complex	10
	Total	**1675 KLD**

3. After treatment in ETP followed by RO system, the RO rejects shall be evaporated in MEE followed by ATFD. The RO permeate shall be re-used back or shall be used onland for gardening, by meeting the standards stipulated below. The effluent discharged should not contain constituents in excess of the tolerance limits prescribed below:

Outlet No.	Parameter	Limiting Standards for land application
1	pH	5.5 – 9.0
	Suspended Solids max.	200 mg/l
	Dissolved Solids (inorganic) max.	2100 mg/l
	Biochemical Oxygen Demand (BOD 3days at 27°C)	100 mg/l
	Chemical Oxygen Demand (COD)	250 mg/l

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2	pH	5.5 – 9.0
	Suspended Solids max.	200 mg/l
	Dissolved Solids (inorganic) max.	2100 mg/l
	Biochemical Oxygen Demand (BOD 3days at 27°C)	100 mg/l
	Chemical Oxygen Demand (COD)	250 mg/l
	Arsenic (as As)	0.2 mg/l
	Cyanide (as CN)	0.2 mg/l
	Chloride (as Cl)	600 mg/l

4. The emissions shall not contain constituents in excess of the prescribed limits mentioned below.

Chimney No.	Description of Chimney	Parameter	Emission standards
1	Attached to DG sets of capacity 2 x 500 KVA	SPM	115 mg/Nm3

5. The industry shall not manufacture any un-consented products and exceeding capacities without obtaining prior Consent for Establishment (CFE) and Consent for Operation (CFO) of the Board.

4. The industry shall comply with emission limits for DG sets upto 800 KW as per the Notification G.S.R.520 (E), dated 01.07.2003 under the Environment (Protection) Amendment Rules, 2003 and G.S.R.448(E), dated 12.07.2004 under the Environment (Protection) Second Amendment Rules, 2004. In case of DG sets more than 800 KW should comply with emission limits as per the Notification G.S.R.489 (E), dated 09.07.2002 at serial no.96, under the Environment (Protection) Act, 1986.

5. The industry shall comply with ambient air quality standards of PM_{10}(Particulate Matter size less than 10μm) - 100 μg/ m^3; $PM_{2.5}$(Particulate Matter size less than 2.5 μm) - 60 μg/ m^3; SO_2 – 80 μg/ m^3; NO_x - 80 μg/m^3, outside the factory premises at the periphery of the industry.

   Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009

   Noise Levels: Day time - (6 AM to 10 PM) - 75 dB (A)
   Night time - (10 PM to 6 AM) - 70 dB (A).

6. The industry shall pay balance consent fee annually as per rates notified in G.O.Ms.No.22. The payment of annual consent fee shall be made at the concerned RO for every financial year (i.e., April to March) within the stipulated time period i.e., 1st quarter of every financial year (April to June) is mandatory for the industry / project, failing which, the validity of the Consent Order automatically stands cancelled and operation industry / project without valid consent attracts penal action under the provision of Water Act, Air Act & Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.

7. The industry either paying annual fee or total fee for Consented period, shall pay the balance fee as per the revised rates as applicable from time to time.

8. The facility shall maintain water flow meters for recoding water consumption for various purposes and maintain the records for daily consumption.

9. The facility shall carryout treatment and disposal of leachate being generated from old dump site as committed.

10. The facility shall continuously operate the treatment facility for effective treatment of leachate generated from the Scientific Landfill Facility (SLF) and proper disposal of RO permeate on land application and RO reject shall be sprayed on the waste dump to maintain moisture. The facility shall up-grade the existing leachate treatment facility to meet the requirement of the leachate generating from the operation facility / SLF as committed.

11. The facility shall maintain MEE followed by ATFD to treat the RO rejects generated from the leachate treatment plant.

12. The facility shall provide and maintain flow meters for recording the quantity of leachate generated, treated and disposal. They shall also maintain daily records.

13. The facility shall operate the new landfill facility as per the protocol and submit monthly status reports to the RO, RR-II.

14. The facility shall continue the measures for stoppage of burning of waste near to the habitations such as spaying of soil / fire extinguishing chemicals, so as to avoid generation of smoke and causing odour nuisance.

15. The facility shall spray the odour suppressing chemicals to minimize the odour nuisance to the residents.

16. The facility shall provide H2S & Methane gas collection, utilization / incineration system to minimize odour generation.

17. The facility shall develop & maintain thick green belt all along the boundary of the facility and in all the vacant places within the facility with tall growing trees with wide leaf area.

18. A vegetative cover shall be provided over the completed site in accordance with the and following specifications, namely:

    a) Selection of locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be allowed to grow.
    b) The plants grown be such that their roots do not penetrate more than 30 cms. This conditions shall apply till the landfill is stabilized.
    c) Selected plans shall be have ability to thrive on low-nutrient soil with minimum nutrient addition:
    d) Plantation to be made in sufficient density to minimize soil erosion.

19. The facility shall maintain good house keeping.

20. After completion of landfill, a final cover shall be designed to minimize infiltration and erosion. The final cover shall meet the following specification namely:

    a) The final cover shall have a barrier soil layer comprising of 60 cms of clay or amended soil with permeability coefficient less than 1 x 10-7 cm/sec.
    b) On top of the barrier soil layer there shall be a drainage layer of 15 cm.
    c) On top of the drainage layer there shall be a vegetative layer of 45 cm to support natural plant growth and to minimize erosion.

21. In order to prevent pollution problems from landfill operations, the following provisions shall be made:

    a) Diversion of storm water drains to minimize leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions.
    b) Constructions of a non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of wastes processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) minimum liner specifications shall be a composite barrier having 1.5 mm high density polyethylene (HDPE) geomembrane, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1 x 10-7 cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer.
    c) Prevention of run-off from landfill area entering any stream, river, lake or pond.

22. The compost plant and other processing facilities shall follow the conditions as follows:

    i) The incoming solid waste and the wastes storage area of site shall be covered.
    ii) In case of breakdown or maintenance of plant, waster intake shall be stopped and arrangements be worked out for diversion of wastes to the landfill sites.
    iii) Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed

through appropriate vendors. The non-recyclables shall be sent for well designed landfill site(s).

iv) In case of compost plant, the window area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay, 50 cm thick, having permeability coefficient less than 10-7 cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off.

v) The compost quality shall be checked as per MSW Rules before its usage and proper records shall be maintained.

23. The landfill site shall have wastes inspection facility to monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.

24. Safety provisions including health inspections of workers at landfill site shall be periodically made.

25. The post-closure care of landfill shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following namely:

a) Maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover.
b) Monitoring leachate collection system is accordance with the requirement.
c) Monitoring of ground water is accordance with requirement and maintaining ground water quality.
d) Maintaining and operating the landfill gas collection system to meet the standards.

26. The vehicle transporting municipal solid waste shall be covered with tarpaulin covers.

27. The facility shall comply with Task Force directions issued by the Board from time to time.

28. The facility shall comply with MSW Rules for operation of the plant.

29. The applicant shall submit Environment statement in Form V to the Regional office before 30th September of every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.

30. The conditions stipulated in this order are without any prejudice to rights and contentions of this Board in any Hon'ble court of Law.

SCHEDULE - C
[see rule 6(2)]
[SPECIAL CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]

1. The industry shall give top priority for waste minimization and cleaner production practices.

2. The industry shall not store hazardous waste for more than 180 days as per the Hazardous and other Wastes (Management, Handling and Transboundary Movement) Rules, 2016 and amendments thereof. The industry shall maintain 6 copy manifest system for transportation of waste generated and copies of receipt of Consignee shall be submitted to the Concerned Regional office. The industry shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form- 4 as per Rule 20(2) of the Hazardous and other Wastes (Management, Handling & Transboundary Movement) Rules, 2016 and amendments thereof.

3. The industry shall dispose /sell the Hazardous Waste to only industries/agencies authorized by the State Pollution Control Boards. The industry shall verify the authorization of the Board given to the Party before disposing its waste to the External Party.

4. The industry shall maintain proper records for Hazardous Wastes disposal and its concurrence with authorization. In case of variation in generation, industry shall submit explanation and obtain amendment in Environmental Clearance/ CFE/CFO in this regard.

5. The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal. Waste oils shall be disposed to the authorized Reprocessors/ Recyclers and Used Lead Acid Batteries shall be disposed to the manufacturers / dealers on buyback basis. The industry shall take necessary practical steps for prevention of oil spillages and carryover of oil from the premises. The industry shall check the Certificate/ Authorisation/order of MoEF issued to the Re-user/Recycle units while disposing the waste oil.

6. The industry shall dispose of e-waste to the authorised recyclers only.

7. The industry shall maintain good house keeping.

8. The industry shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

Sd/-
MEMBER SECRETARY

To
M/s. Hyderabad Integrated Municipal Solid Waste Management Project, Sy No: 173, Jawaharnagar(V), Shameerpet(M), Medchal- Malkajgiri District

///T.C.F.B.O///

29/9/2023
SENIOR ENVIRONMENTAL ENGINEER
(CFO – UNIT-III)

3092

State Level Environment Impact Assessment Authority (SEIAA)
Andhra Pradesh
Government of India
Ministry of Environment & Forests
A-3, Industrial Estate, Sanathnagar, Hyderabad-500 018.

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REGD.POST WITH ACK.DUE

Annexure - 18(i) D

Order No. SEIAA/AP/RRD-111/2009 - **Dt: 20-06-2012.**

Sub: SEIAA, A.P. – Integrated Municipal Solid Waste Management Project (proposed by GHMC), at Sy. No: 173, Jawaharnagar (V), Shameerpet (M), Ranga Reddy District - Environmental Clearance - Issued - Reg.

I. This has reference to your letters dt.17.02.2009, 27.04.2009, 18.05.2009, 02.07.2010, 04.08.2010, 07.10.2010, 05.01.2011, 15.04.2011, 06.05.2011, 23.05.2011, 24.05.2011, 04.07.2011, 30.08.2011, 07.10.2011, 24.10.2011, 20.12.2011, 26.12.2011, 30.01.2012, 10.04.2012 and 10.05.2012 seeking Environmental Clearance for the proposed **Integrated Municipal Solid Waste Management Project by GHMC, at Sy. No: 173, Jawaharnagar (V), Shameerpet (M), Ranga Reddy District;** by modernizing the existing municipal dumping yard. It is reported that the nearest human habitation viz., Jawaharnagar (V) exists at a distance of 0.7 km from the project site. The Army College of Dental Sciences is situated at a distance of 0.3 km. The Sub-Committee constituted by the SEAC reported that there are some built-up or upcoming housing complexes or housing colonies around the MSW dumping site within a distance of less than 1.0 km. viz., Rajiv Gruhakalpa, Defence colony. It is noted that Dammaiguda RF and Shammeerpet RF exist at 0.67 km and 3.0 km from the proposed project site. The total area of the existing site is Ac. 351.12; Green belt is Ac. 7.12. The total cost of the project is Rs. 778.70 Crores. It is proposed to develop the following facilities in a phased manner to process MSW of 5500 TPD (as per lr.dt. 20.12.2011).

Description of the facility	Total capacity
RDF plant : (2 x 1200 TPD)	2400 TPD
Compost plant : (3 x 680 TPD)	2040 TPD
Power plant : (2 x 24 MW)	48 MW
Bio-Methanization : (10 x 50 TPD)	500 TPD
Recycling complex (Plastic, Paper, Metal, Rubber, Glass etc.,)	600 TPD
Processing of construction and demolition waste :	800 TPD.
Landfill with leachate collection and treatment system:	735 TPD

II. In the process, the Municipal Solid Waste (MSW) from different dump yards in GHMC limits is collected. It is transported in closed and dedicated containers to the Jawaharnagar site. The MSW is processed by segregating the waste into land-filling, composting, recycling and using waste to generate electricity.

III. The proposal has been examined and processed in accordance with EIA Notification, 2006 and its amendments thereof. The State Level Expert Appraisal Committee (SEAC) examined the application in its meetings held on 29.04.2009, 26.06.2009, 07.01.2011, 25.02.2011, 30.05.2011, 28.07.2011, 02.09.2011, 28.10.2011, 25.11.2011, 29.12.2011, 21.04.2012 & 19.05.2012. The public hearing was held on 29.03.2012 at Pachayat Office, Jawaharnagar, RR Dist. The sub-Committee constituted by the SEAC inspected the site on 27.01.2011. The members of SEAC inspected the site again on 28.04.2012. Based on the information furnished, presentation made by the proponent and the consultant M/s. Ramky Enviro Engineers Ltd., Hyderabad; site inspection reports of SEAC; minutes of the public hearing and objections in the public hearing/representations received against the project, the SEAC considered the project proposal

and recommended for issue of Environmental Clearance. The State Level Environment Impact Assessment Authority (SEIAA), in its meetings held on 19.08.2011, 23.11.2011 & 31.05.2012 examined the proposal and the recommendations of SEAC, and decided to issue Environmental Clearance. The EFS&T Department vide lr. dt. 21.05.2012 informed that the SEIAA may issue Environmental Clearances to the projects, which are not falling in the areas of bye-polls. The SEIAA in its meeting held on 31.05.2012 had decided to implement the same. The SEIAA, A.P hereby **accords prior Environmental Clearance to the project** as mentioned at Para no. I under the provisions of the EIA Notification 2006 and its subsequent amendments issued under Environment (Protection) Act, 1986 subject to implementation of the following specific and general conditions:

A. Specific Conditions:

a) The proponent shall comply with the following conditions:

i **The operator and the management shall strictly enforce and implement the Municipal Solid Waste (Management and Handling), Rules of 2000.**

ii Full medical facility shall be provided to all the employees and workers engaged by the integrated MSW facility, irrespective of their income and financial status.

iii Compound wall shall be constructed around the MSW site.

iv The management shall supply drinking water to the affected areas where the water resources are contaminated.

v Alternate fuels shall be used only for heating or re-heating the furnace (as startup fuel) to the extent required, only to facilitate combustion of Municipal Solid Waste as per the norms.

b) Air pollution:

i The particulate emissions from the stack of height 60 m connected to the Boiler of MSW based TPP, shall not exceed 100 mg/Nm^3. ESP & Venturi scrubber shall be provided to control emissions as presented.

ii Sampling Port with removable dummy of not less than 15cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc., shall be provided to monitor stack emissions. Adequate stack height shall be provided for D.G. Sets (2 x 500 kVA) as per CPCB norms.

iii On line Stack monitoring/Ambient air quality Monitoring Stations shall be installed. Energy meters shall be installed for all pollution control systems.

iv The company shall install adequate dust collection and extraction system to control fugitive dust emissions at various transfer points. Appropriate control systems such as bag filters shall be provided at all transfer points, Raw material screen houses, etc.,

v Municipal Solid Waste shall be transported in covered trucks. All the belt conveyors shall be covered with G.I. sheets. Appropriate dust suppression system shall be provided all around the stockpiles and conveyor system. All the roads in the plant area shall be asphalted / concreted and water shall be sprinkled to suppress the dust.

vi The entire MSW collected in a day shall be processed completely, to eliminate the possibility of putrefaction. Herbal Sanitizer shall be sprayed on the MSW to arrest multiplication of pathogenic micro organisms, flies and to control odour.

vii Acoustic enclosures shall be provided around turbine to control noise levels. Ambient air quality including ambient noise levels must not exceed the standards stipulated under Notification dt. 16.11.2009 issued by the MoE&F,GOI. Monitoring of ambient air quality and stack emissions shall be carried out regularly in consultation with APPCB and report submitted to the Board and to the Ministry's Regional Office at Bangalore half yearly.

iv. No change in the process technology and scope of working should be made without prior approval of the SEIAA, A.P. No further expansion or modifications in the plant shall be carried out without prior approval of the SEIAA, AP/ MoE&F, GoI, New Delhi, as applicable.

v. The proponent shall submit half-yearly compliance reports in respect of the terms and conditions stipulated in this order in hard and soft copies to the SEIAA; and CCF, Regional office of MoE&F, GoI, Bangalore on 1st June and 1st December of each calendar year.

vi. Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board.

vii. Data on ambient air quality should be regularly submitted to the Ministry including its Regional Office located at Bangalore and the State Pollution Control Board/ Central Pollution Control Board once in six months.

viii. Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and health aspects.

ix. Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.

x. A separate environmental management cell with suitable qualified personnel should be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.

xi. The funds earmarked for environmental protection measures (Capital cost Rs.34 crores and Recurring Cost Rs. 12 lakhs per annum) and socioeconomics development (Rs. 60 lakhs) should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the SEIAA, Ministry and its Regional Office located at Bangalore.

xii. The Regional Office of MOE&F located at Bangalore monitor compliance of the stipulated conditions. The project authorities should extend full cooperation to the officer(s) of the Regional Office by furnishing the requisite data/information/monitoring reports.

xiii. The project proponent shall submit the copies of the environmental clearance to the Heads of local bodies, Panchayats and Municipal Bodies in addition to the relevant offices of the Government who in turn has to display the same for 30 days from the date of receipt.

xiv. The project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and SEIAA, A.P. This order shall be displayed in the website of the project proponent.

xv. The SEIAA or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xvi. The proponent shall explicitly follow the suggestions and commitments made in the public hearing in protection of the environment.

xvii. Environmental clearance is subject to final order of the Hon'ble Supreme Court of India in the matter of Goa Foundation Vs. Union of India in Writ Petition (Civil) No.460 of 2004 as may be applicable to this project.

c) Water Pollution:

i The source of water is HMWS & SB/ Bore wells within the site. The total water requirement shall not exceed 3100 KLD. Out of that, fresh water requirement is 2575 KLD and 525 KLD is recycled water. Quantity of water used for: Cooling tower makeup is 750 KLD ; DM Plant/ boiler make-up is 675 KLD; floor washing is 10 KLD; vehicle work shop, fire water makeup etc., is 20 KLD; compost plant is 350 KLD; RDF plant is 25 KLD; recycling complex is 10 KLD; development of green belt is 1160 KLD ; domestic purpose is 100 KLD.

ii The total waste water generated is 552 KLD. Out of that, 262 KLD is from cooling tower blow down; 106 KLD from Boiler blow down; 70 KLD from DM regeneration; 90 KLD from domestic section; 6 KLD from floor washing; and 18 KLD from work shop/vehicle maintenance shed.

iii No effluent shall be discharged outside the premises and 'zero' discharge shall be adopted. The waste water generated from the boiler blow down, DM plant regeneration; cooling tower bleed of, floor washings and work shop/vehicle maintenance shed shall be treated to conform to on land for irrigation standards prescribed by the MoE&F, GOI. The treated waste water is to be reused and recycled for various purposes with in the premises including development of green belt. The domestic waste water of 90 KLD shall be treated in an STP and used to develop green belt to conserve fresh water.

iv The leachate generated from the windrow of the compost plant (204 KLD) and leachate generated from the operated landfill (110 KLD) shall be treated and re-used for sprinkling on windrows to maintain the moisture content, as mentioned at page no. 9.9 of the final EIA report. Leachate shall not be discharged into the water bodies existing in and around the project site.

v The company must harvest the rainwater from the rooftops and storm water drains to recharge the ground water.

vi Green belt of adequate width shall be developed along the boundary, approach roads etc., in consultation with the local DFO.

vii The existing dump shall be capped and greenery shall be developed on the same to reduce soil erosion.

d) Solid Waste :

i. The solid waste generated from the MSW viz., Soil Enricher is to be used as manure; The Ash generated from the MSW based thermal power plant and the inert material shall be disposed into the secured land fill.

ii. Waste oils, used oils, hazardous waste generated from the industry shall be disposed as per the Hazardous Wastes (Management, Handling, and transboundary movement) Rules, 2008 and its amendments thereof to the recyclers authorized by APPCB.

B. General Conditions:

i. **This order is valid for a period of 5 years.**

ii. "Consent for Establishment" shall be obtained from Andhra Pradesh Pollution Control Board under Air and Water Act before the start of any activity / construction work at site.

iii. Provision shall be made for the housing of the construction labour within the site with all necessary infrastructure and facilities such as safe drinking water, fuel for cooking, mobile toilets, mobile STP, medical health care, crèche etc., The housing may be in the form of temporary structures to be removed after the completion of the project. The safe disposal of wastewater and solid wastes generated during the construction phase should be ensured.

xviii Any appeal against this Environmental Clearance shall lie with the National Green Tribunal, if preferred, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.

xix. The company shall undertake eco-development measures including community welfare measures in the project area.

xx. The proponent shall obtain all other mandatory clearances from respective departments.

xxi. Concealing the factual data or failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.

xxii. The SEIAA may revoke or suspend the order, if implementation of any of the above conditions is not satisfactory. The SEIAA reserves the right to alter/modify the above conditions or stipulate any further condition in the interest of environment protection.

xxiii The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

Sd/-	Sd/-	Sd/-
MEMBER SECRETARY	MEMBER	CHAIRMAN,
SEIAA, A.P.	SEIAA, A.P.	SEIAA, A.P.

To

The Additional Commissioner (H&S) GHMC,
Municipal Complex, Tank Bund Road,
Hyderabad - 500063.
Ph. No. 040-23222160/23224564.
Fax: 040-23222160/23220430.
E-mail: ac_health@ghmc.gov.in

Copy to:

1. Prof. M. Anji Reddy, Chairman, SEAC, A.P. for kind information.
2. The Member Secretary, APPCB for kind information.
3. The EE, RO-II, APPCB, RR Dist for information.
4. The Zonal Officer, MoE&F, GOI Bangalore for kind information.
5. The Secretary, MoE&F, GOI New Delhi for kind information.

-//T.C.F.B.O//-

20/6/12

SENIOR ENVIRONMENTAL ENGINEER (EC)

501 Annexure -18 (1) C-

3097

ANDHRA PRADESH POLLUTION CONTROL BOARD
Paryavaran Bhavan, A-III, Industrial Estate, Sanathnagar, Hyderabad-500 018

Phones : 23887500
Fax No: 23815631
Grams : "Kalushva Nivarana"
Website : www.appcb.org

REGD.POST WITH ACK.DUE

CONSENT ORDER FOR ESTABLISHMENT

Order.No.128/ PCB/MSW/ CFE/RR/2012 4224 **Date:19-12-2012**

Sub: PCB – CFE – M/s. Integrated Municipal Solid Waste Management Project, (proposed by GHMC) Sy.No.173, Jawaharnagar (V), Shameerpet (M), Rangareddy District - Consent for Establishment of the Board under Sec.25 of the Water: (P&C of P) Act, 1974 and under Sec.21 of the Air (P&C of P) Act, 1981 – Issued – Reg.

Ref:
1) Order No. SEIAA/AP/RRD-111/ 2009, dated.20-06-2012
2) Industry's application dt 11-09-2012
3) R.O Inspection report dt 08-10-2012 & 12-11-2012
4) CFE meeting held on 23-11-2012

1. In the reference 2nd cited, an application was submitted to the Board seeking Consent for Establishment (CFE) to set up integrated municipal solid waste management project (proposed by GHMC) to produce the products, with installed capacities as mentioned at Para (2) with a project cost of Rs. 778 Crores.

   I As per the application, the above activity is to be located at Sy.No.173, Jawaharnagar (V), Shameerpet (M), Rangareddy District in an area of 351 Acrs

   II The above site was inspected by the Asst. Environmental Engineer, Regional Office, Rangareddy-II, A.P. Pollution Control Board on 20-09-2012 and found that the site is surrounded by North: Adrajpalli village is at a distance of about 500, South : Dammiguda village is at a distance of about 2 KMs, East: Houses of Rajeev Gruhakalpa at about 500 mtrs distance, West : Gabbilalpet village is at a distance of about 500 mtrs, South West : Shanthi Nagar Colony, South East: Rajeev Karmika Nagar, North West :Government land.

2. The Board, after careful scrutiny of the application, verification report of Regional Officer & clarifications submitted by the industry hereby issues CONSENT FOR ESTABLISHMENT to your unit / activity Under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under. **This order is issued to develop the following facility in the phased manner.**

Sl. No.	Description of the facility	Total capacity (TPD)
1	RDF Plant (2X 1200 TPD)	2400 TPD
2	Compost Plant (3X 680 TPD)	2040 TPD
3	Bio- Methanization (10 X50 TPD)	500 TPD

4	Recycling Complex (Plastic, Paper, Metal, Rubber, Glass etc.)	600 TPD
5	Processing of construction and demolition waste	800 TPD
6	Land fill with leachate collection and treatment system	735 TPD

3. The proponent is not permitted to install 2 x 24 MW power plant as the area falls within 25km radius of Biotech Park, Turkapally (V), R.R.District as per G.O.Ms.No.148, dated 18.12.2000.
4. This Consent Order now issued is subject to the conditions mentioned in Schedule 'A' and Schedule 'B'.
5. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

Encl: Schedule 'A'
Schedule `B'

Sd/-
MEMBER SECRETARY

To
M/s. Integrated Municipal Solid Waste Management Project,
(proposed by GHMC) Sy.No.173,
Jawaharnagar (V),
Shameerpet (M),
Rangareddy District

//T.C.F.B.O.//

Joint Chief Environmental Engineer
Unit Head-I (FAC)

SCHEDULE - A

1. Progress on implementation of the project shall be reported to the Regional Office, Rangareddy-II, A.P. Pollution Control Board once in six months.
2. Separate energy meters shall be provided for Effluent Treatment Plant (ETP) and Air Pollution Control equipments to record energy consumed.
3. The proponent shall obtain Consents for operation from APPCB, as required Under Sec.25/26 of the Water (P&C of P) Act, 1974 and under sec. 21/22 of the Air (P&C of P) Act, 1981, before commencement of the activity.
4. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec.27(2) of Water (Prevention and Control of Pollution) Act, 1974 and Under Sec.21(4) of Air (Prevention and Control of Pollution) Act, 1981 to review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulate any additional conditions by the Board.
5. The consent of the Board shall be exhibited in the factory premises at a conspicuous place for the information of the inspecting officers of different departments.
6. Compensation is to be paid for any environmental damage caused by it, as fixed by the Collector and District Magistrate as civil liability.
7. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. The industry shall maintain a good housekeeping. All pipe valves, sewers, drains shall be leak proof. Dyke walls shall constructed around storage of chemicals.
8. The rules and regulations notified by Ministry of Law and Justice, GOI, regarding the Public liability insurance Act, 1991 shall be followed.
9. This order is valid for period of 5 years from the date of issue.

SCHEDULE – B

Water:

1. The source of water is Bore well and the maximum permitted water consumption is 1675 KLD

	Source of water supply (River / Bore wells / Public Supply)	**Bore well /HMWS & SB**
S.No.	**Purpose**	**Quantity in KLD**
1.	Domestic	100 KLD
2.	Floor wash	10 KLD
3.	Vehicle wash	20 KLD
4.	Compost plant	350 KLD
5.	RDF Plant	25 KLD
6.	Gardening	1160 KLD
7.	Recycling complex	10 KLD
	Total	**1675 KLD**

2. Before establishing landfill site, baseline data of ground water quality in the area shall be collected and kept in record for future reference. The ground water quality within 50 metres of the periphery of landfill site shall be periodically monitored in piezometeric wells to ensure that the ground water is not contaminated beyond acceptable limits of APPCB. Such monitoring shall be carried out to cover different seasons in a year that is, summer, monsoon and post-monsoon period.

3. The ground water usage in and around landfill sites for any purpose (including drinking and irrigation) is to be considered after ensuring its quality. The following specifications for drinking water quality shall apply for monitoring purpose:

S.No.	Parameters	IS 10500: 1991 Desirable limit (mg/l except for pH)
1.	Arsenic	0.05
2.	Cadmium	0.01
3	Chromium	0.05
4.	Copper	0.05
5.	Cyanide	0.05
6.	Lead	0.05
7.	Mercury	0.001
8.	Nickel	-
9.	Nitrate as NO_3	45.0
10	PH	6.5-8.5
11.	Iron	0.3
12.	Total hardness (as $CaCO_3$)	300.0
13.	Chlorides	250
14.	Dissolved solids	500
15.	Phenolic compounds (as C_6H_5OH)	0.001
16.	Zinc	5.0
17.	Sulphate (as SO_4)	200

4. The maximum Waste Water Generation (KLD) shall not exceed the following:

Sl. No.	Effluents	Quantity in KLD
1.	Domestic	90 KLD
2.	Floor washings	6 KLD
3.	Workshop / vehicle maintenance shed	18 KLD
4.	Leachate generates from, composting plant, Land fill site, existing dump site	(204+110+330) 644 KLD
	Total:	**758 KLD**

5. Treatment & Disposal:

Source of Effluent	Treatment proposed	Mode of final disposal
Floor washing and Workshop / vehicle maintenance shed, leachate	ETP	After treatment in ETP the effluents are proposed to use for on land application and recycle for various purpose. The industry shall provide full pledged treatment system for leachate effluents before commissioning the plant.
Domestic effluents	STP	After treatment in STP of capacity 100 KLD, these effluents shall be used for flushing and greenbelt.

6. The Effluent Treatment Plant (ETP) and Sewage Treatment Plant (STP) shall be constructed and commissioned along with the commissioning of the activity. All the units of the ETP and STP shall be impervious to prevent ground water pollution.

7. The effluents shall be treated in the ETP and STP to the "on land for irrigation" standards, stipulated under Environment (Protection) Rules, 1986, notified and published by Ministry of Environment and Forests, Government of India as specified in schedule VI vide G.S.R.422 (E), dt.19.05.1993 and its amendments thereof.

8. The disposal of treated leachates shall follow the following standards:

S.No	Parameter	Standards
1	Suspended solids, mg/l, max	100
2	Dissolved solids (inorganic) mg/l, max.	2100
3	PH value	5.5 to 9.0
4	Ammonical nitrogen (as N), mg/l, max.	50
5	Total Kjeldahl nitrogen (as N), mg/l, max.	100
6	Biochemical oxygen demand (3 days at 27^0 C) max.(mg/l)	30
7	Chemical oxygen demand, mg/l, max.	250
8	Arsenic (as As), mg/l, max	0.2
9	Mercury (as Hg), mg/l, max	0.01
10	Lead (as Pb), mg/l, max	0.1
11	Cadmium (as Cd), mg/l, max	2.0
12	Total Chromium (as Cr), mg/l, max.	2.0
13	Copper (as Cu), mg/l, max.	3.0
14	Zinc (as Zn), mg/l, max.	5.0
15	Nickel (as Ni), mg/l, max	3.0
16	Cyanide (as CN), mg/l, max.	0.2
17	Chloride (as Cl), mg/l, max.	1000
18	Fluoride (as F), mg/l, max	2.0
19	Phenolic compounds (as C_6H_5OH) mg/l, max.	1.0

9. Separate meters with necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned below.
   a) Domestic purposes.
   b) Processing, whereby water gets polluted and pollutants are easily bio-degradable.
   c) Processing, whereby water gets polluted and the pollutants are not easily bio-degradable.

10. The industry shall install flow meters to quantity the treated effluents utilization for each purpose.

11. **Air Pollution :**

Sl.No	Details of Stack	Stack 2	Stack 3
a)	Attached to:	DG set	DG set
b)	Capacity of D.G. set/ Others	500 KVA	500 KVA
c)	Fuel form: Solid / Liquid/ gaseous	Diesel	Diesel
d)	Fuel quantity: (L / KL per day)	--	--
e)	Stack height:		
	i) Above the roof (m.)	9 mtrs	
	ii) Above the ground (m.)	12 mtrs.	
f)	Diameter / size, in m.	--	--
g)	Details of Air Pollution Control Equipment:	Acoustic enclosure	Acoustic enclosure

12. The generator shall be installed in a closed area with suitable noise absorption systems. The ambient noise level shall not exceed 75 dB(A) during day time and 70 dB(A) during night time.
13. Installation of landfill gas control system including gas collection system shall be made at landfill site to minimize odour generation, prevent off-site migration of gases and to protect vegetation planted on the rehabilitated landfill surface.
14. The concentration of methane gas generated at landfill site shall not exceed 25 per cent of the lower explosive limit (LEL).
15. The landfill gas from the collection facility at a landfill site shall be utilized for either direct thermal applications or power generation, as per viability. Otherwise, landfill gas shall be burnt (flared) and shall not be allowed to directly escape to the atmosphere or for illegal tapping. Passive venting shall be allowed if its utiliztion or flaring is not possible.
16. Ambient air quality at the landfill site and at the vicinity shall be monitored to meet the following specified standards, namely :-

S.No.	Parameters	Acceptable levels
(i)	Sulphur dioxide	120µg/m^3 (24 hours)
(ii)	Suspended Particulate Matter	500µg/m^3 (24 hours)
(iii)	Methane	Not to exceed 25 per cent of the lower explosive limit (equivalent to 650 mg /m^3) (24 hours)
(iv)	Ammonia daily average (sample duration 24 hrs)	o.4mg/m^3 (400 µg/m^3)
(v)	Carbon monoxide	1 hour average : 2 mg/m^3 8 hour average : 1 mg/m^3

17. The ambient air quality monitoring shall be carried out six times in a year
18. Wastes subjected to land filling shall be compacted in thin layers using landfill compactors to achieve high density of the wastes.
19. Wastes shall be covered immediately or at the end of each working day with minimum 10 cm of soil, inert debris or construction material till such time waste processing facilities for composting or recycling or energy recovery are set up.
20. Prior to the commencement of monsoon season, an intermediate cover of 40-65 cm thickness of soil shall be placed on the landfill with proper compaction and grading to prevent infiltration during monsoon. Proper drainage berms shall be constructed to divert run-off away from the active cell of the landfill.
21. After completion of landfill, a final cover shall be designed to minimize infiltration and erosion. The final cover shall meet the following specifications, namely: --
    a. The final cover shall have a barrier soil layer comprising of 60 cms of clay or amended soil with permeability coefficient less that 1 x 10^{-7} cm/sec.
    b. On top of the barrier soil layer there shall be a drainage layer of 15 cm.
    c. On top of the drainage layer there shall be a vegetative layer of 45 cm to support natural plant growth and to minimize erosion.
22. In order to prevent pollution problems from landfill operations, the following provisions shall be made:
    a. Diversion of storm water drains to minimize leachate generation and prevent pollution of surface water and also for avoiding flooding and creation of marshy conditions;
    b. Construction of a non-permeable lining system at the base and walls of waste disposal area. For landfill receiving residues of waste processing facilities or mixed waste or waste having contamination of hazardous materials (such as aerosols, bleaches, polishes, batteries, waste oils, paint products and pesticides) minimum liner specifications shall be a composite

barrier having 1.5 mm high density polyethylene (HDPE) geomembrane, or equivalent, overlying 90 cm of soil (clay or amended soil) having permeability coefficient not greater than 1×10^{-7} cm/sec. The highest level of water table shall be at least two meter below the base of clay or amended soil barrier layer;

c. Provisions for management of leachates collection and treatment shall be made. The treated leachates shall meet the standards specified at point no.8

d. Prevention of run-off from landfill area entering any stream, river, lake or pond.

23. **Solid Waste:**

S.No.	Solid waste	Quantity	Mode of disposal
1	Soil Enricher	2400 TPD	Used as manure
2	Inert material	735 TPD	Disposed to secured landfill

24. The compost plant and other processing facilities shall follow the conditions as follows:

i. The incoming solid wastes and the wastes storage area at site shall be covered.

ii. The facility shall provide a system for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility;

iii. Necessary precautions shall be taken to minimise nuisance of odour, flies, rodents, bird menace and fire hazard;

iv. In case of breakdown or maintenance of plant, waste intake shall be stopped and arrangements be worked out for diversion of wastes to the landfill site;

v. Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclables shall be sent for well designed landfill site(s).

vi. In case of compost plant, the windrow area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay, 50 cm thick, having permeability coefficient less than 10^{-7} cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off;

vii. Ambient air quality monitoring shall be regularly carried out particularly for checking odour nuisance at down-wind direction on the boundary of processing plant.

viii. In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:-

Parameters	Concentration not to exceed * (mg/kg dry basis, except pH value and C/N ratio)
Arsenic	10.00
Cadmium	5.00
Chromium	50.00
Copper	300.00
Lead	100.00
Mercury	0.15
Nickel	50.00
Zinc	1000.00
C/N ratio	20-40
PH	5.5-8.5

* Compost (final product) exceeding the above stated concentration limits shall not be used for food crops. However, it may be utilized for purposes other than growing food crops.

25. Landfill site shall be fenced or hedged and provided with proper gate to monitor incoming vehicles or other modes of transportation.

26. The landfill site shall be well protected to prevent entry of unauthorised persons and stray animals.

27. The landfill site shall have wastes inspection facility to monitor wastes brought in for landfill, office facility for record keeping and shelter for keeping equipment and machinery including pollution monitoring equipments.

28. Provisions like weigh bridge to measure quantity of waste brought at landfill site, fire protection equipments and other facilities as may be required shall be provided.

29. Safety provisions including health inspections of workers at landfill site shall be periodically made.

30. The following Rules and regulations notified by the MOE&F, GOI shall be implemented.

    a) Hazardous waste (Management and Handling), Rules,1989
    b) Municipal Solid Waste (Management and Handling), Rules,2000

31. A vegetative cover shall be provided over the completed site in accordance with the and following specifications, namely: -

    a) Selection of locally adopted non-edible perennial plants that are resistant to drought and extreme temperatures shall be allowed to grow;
    b) The plants grown be such that their roots do not penetrate more than 30 cms. This condition shall apply till the landfill is stabilised;
    c) Selected plants shall have ability to thrive on low-nutrient soil with minimum nutrient addition;
    d) Plantation to be made in sufficient density to minimize soil erosion.

32. The post-closure care of landfill site shall be conducted for at least fifteen years and long term monitoring or care plan shall consist of the following, namely :-

    (a) Maintaining the integrity and effectiveness of final cover, making repairs and preventing run-on and run-off from eroding or otherwise damaging the final cover;
    (b) Monitoring leachate collection system in accordance with the requirement;
    (c) Monitoring of ground water in accordance with requirements and maintaining ground water quality;
    (d) Maintaining and operating the landfill gas collection system to meet the standards.

33. Use of closed landfill sites after fifteen years of post-closure monitoring can be considered for human settlement or otherwise only after ensuring that gaseous and leachate analysis comply with the specified standards.

34. The industry shall obtain necessary permissions from Ground water / Irrigation departments to draw the water.

35. The proponent shall follow the conditions stipulated in Environmental Clearance issued by SEIAA vide order no.SEIAA/AP/RRD-111/2009 dated 20.06.2012.

36. The industry shall allocate a minimum of 1% of its project cost towards CSR (Corporate Social Responsible) activities during construction period and 0.20% of the project cost per year during operational period for 10 years.

37. The proponent shall lay internal cement concrete roads for movements of vehicles within the dump yard.

38. The proponent shall provide G.I. sheets covering for the belt conveyor and also install adequate dust suppression equipment at all around the stockpiles.

39. The proponent shall take adequate measures to control self ignition of municipal solid waste.

40. The proponent shall regularly conduct ground water, ambient air monitoring around the dump site regularly.

41. The vehicles transporting municipal solid waste shall be covered with tarpaulin covers.

42. The proponent is not permitted to install 2 x 24 MW power plant as the area falls within 25km radius of Biotech Park, Turkapally (V), R.R. District as per G.O.Ms.No.148, dated 18.12.2000.

Sd/-
MEMBER SECRETARY

To
M/s. Integrated Municipal Solid Waste Management Project,
(proposed by GHMC)
Sy.No.173,
Jawaharnagar (V),
Shameerpet (M),
Rangareddy District.

//T.C.F.B.O.//

Joint Chief Environmental Engineer
Unit Head-I (FAC)

3106

Annexure-18(i) d.

TELANGANA STATE POLLUTION CONTROL BOARD
PARYAVARAN BHAVAN, A - 3, INDUSTRIAL ESTATE,
SANATHNAGAR, HYDERABAD - 500 018

Phone: 23887500
Fax: 040 – 23815631
Website: www.tspcb.cgg.gov.in

CONSENT ORDER FOR ESTABLISHMENT – RED CATEGORY

Order No. 4258760/ TSPCB/CFE/RO-RCP/SWM/HO/2023 - Dt.06.02.2023

Sub: TSPCB – CFE – M/s. Hyderabad Integrated MSW Ltd., Pyaranagar, Nallavelli Village, Gummadidala Mandal, (GPS Co-ordinates – West side E-78°19'26.49", N-17°43'19.08" and South east – E-78°20'20.68", N-17°42'43.63", South West Side E-78°19'22.92"N-17°42'58.84" Sangareddy District – Consent for Establishment of the Board under Sec.25 of Water (Prevention & Control of Pollution) Act, 1974 and Under Sec.21 of Air (Prevention & Control of Pollution) Act, 1981 – Issued – Reg.

Ref:
1. CFE application received through TS iPASS on 06.01.2023.
2. RO, RC Puram verification report dated 20.01.2023.
3. CFE Committee meeting held on 24.01.2023
4. Industry's letter submitted on 28.01.2023 & 30.01.2023

*****

1. In the reference 1st cited, an application was submitted to the Board seeking Consent for Establishment (CFE) to set up Integrated Municipal Solid Waste Processing facility comprising of Power Plant, Compost plant, Bio Methanization and RDF etc, as mentioned below, with a cost of Rs. 44.550 Lakhs.

A. **Raw Materials :**

Municipal Solid Waste (MSW)	4000 TPD

B. **Products:**

Sl. No.	Products	Capacity
1.	Bio-gas	260 TPD
2.	Compost	200 TPD
3.	RDF	*2035 TPD
4.	Recycled Plastics (Granules and LD Bags)	90 TPD

C. **Waste to energy Plant:**

Sl. No.	Products	Capacity
1.	Electricity	15 MW

***The RDF of 1000 TPD shall be used as Raw Material. The remaining 1035 TPD shall be disposed to other waste to energy plants/Cement plants.**

2. As per the application, the above facility is to be located at Pyaranagar, Nallavelli Village, Gummadidala Mandal, Sangareddy District with a total area of Acres 120.12 Guntas.

3. In the reference 2nd cited, the Environmental Engineer, Regional Office, RC Puram, T.S.Pollution Control Board reported that the above site was inspected on 20.01.2023 and observed that the site is surrounded by:

North	Open Land (covered with forest area) followed by Pyaranagar village at a distance of about 850 meters.
South	Nallavelly Reserved forest followed by Hyderabad – Narsapur High Way at a distance of about 500 meters.
East	Forest land followed by agricultural land followed by Nallavelly village at a distance of about 1.92 km.
West	Forest area.

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4. The Board, after careful scrutiny of the application and verification report of the Regional Officer and after examining in the CFO Committee meeting held on 24.01.2023, hereby issues **CONSENT FOR ESTABLISHMENT** to your facility under Section 25 of Water (Prevention & Control of Pollution) Act, 1974 and under Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under. **This order is issued to the facility as mentioned at Para (1) only.**

5. This Consent Order now issued is subject to the conditions mentioned in Schedule 'A' and Schedule 'B'.

6. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

Encl: Schedule 'A'
Schedule 'B'

Sd/-
MEMBER SECRETARY

To,
M/s. Hyderabad Integrated MSW Ltd.,
Pyaranagar, Nallavelli Village, Gummadidala Mandal,
(GPS Co-ordinates – West side E-78°19'26.49", N-17°43'19.08"
and South east – E-78°20'20.68", N-17°42'43.63",
South West Side E-78°19'22.92"N-17°42'58.84"
Sangareddy District.

//T.C.F.B.O//

06/02/2023

Senior Environmental Engineer

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SCHEDULE – A

1. **This order is valid for a period of 5 years from the date of issue.** Progress on implementation of the project shall be reported to the concerned Regional Office, T.S. Pollution Control Board once in six months. The consent of the Board shall be exhibited in the factory premises at a conspicuous place for information of the inspecting officers.

2. The proponent shall obtain Consent for Operation (CFO) from TSPCB, as required Under Sec.25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and under sec. 21/22 of the Air (Prevention and Control of Pollution) Act, 1981, before commencement of the activity.

3. The proponent shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.

4. Good housekeeping shall be maintained.

5. The industry is liable to pay compensation for any environmental damage caused by it, as fixed by the Hon'ble Courts, Collector and District Magistrate as Civil liability.

6. The rules and regulations notified under Environmental Acts by the MOEF&CC and by the Ministry of Law and Justice, GOI, regarding the Public Liability Insurance Act, 1991 shall be followed.

7. Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and amendments thereof, to review any and/or all the conditions imposed herein, to modify conditions or stipulate any further conditions and to take action including revocation of this order in the interest of public health and environment.

8. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per the State Water Rules, 1976 and Air Rules,1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution) Act,1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

SCHEDULE – B

Water Consumption:

1. The source of water is Borewell. The maximum water consumption shall not exceed the following:

Sl. No.	Purpose	Quantity (KLD)
1.	Process	140
2.	Boiler feed/make up	68
3.	Washing	20
4.	Domestic	35
5.	Cooling water makeup	150
6.	Greenbelt	130 (Recycled water)
7.	Other Flue gas cleaning	50 (Recycled water)
8.	Ash quenching	150 (Recycled water)
9.	Odour Control	100
	Total	**843 KLD**

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2. The maximum waste water generation shall not exceed the following::

Sl. No.	Effluent	Quantity (KLD)	Mode of final disposal
1.	Boiler blow down	40	After treatment shall be used for Ash Quenching
2.	Cooling bleed off	110	
3.	Domestic	30	Shall be treated in STP of 50 KLD capacity and the treated water shall be utilized for on land for gardening duly meeting the standards
4.	Washings (Floor and Vehicle)	18	ZLD treatment system: After treatment in ETP shall be passed through stripper – 600 KLD and then subjected to Mechanical Vapour Recompression Technology of capacity 600 KLD. The permeates of 480 KLD shall be used for the process and the rejects – 120 KLD shall be subject to paddle dryer and salt shall be disposed to waste to energy plant.
5.	Leachate	600	

3. The disposal of treated Leachate shall follow the following standards:

Sl.No.	Parameter	Standards
i.	Suspended solids, mg/l, max	100
ii.	Dissolved solids(inorganic), mg/l, max	2100
iii.	pH value	5.5 to 9.0
iv.	Ammonical Nitrogen (as N), mg/l, max	50
v.	Total kjeldahl nitrogen (as N), mag/l, max.	100
vi.	Biochemical Oxygen Demand (3 days at 27°C. mg/l, max.	30
vii.	Chemical Oxygen Demand, mg/l, max.	250
viii.	Arsenic, (as AS), mg/l. max.	0.2
ix.	Mercury (as Hg), mg/l, max	0.01
x.	Lead (as Pb), mg/l, max	0.1
xi.	Cadmium (as Cd), mg/l, max	2.0
xii.	Total Chromium (as Cr), mg/l, max	2.0
xiii.	Copper (as Cu), mg/l, max	3.0
xiv.	Zinc (as Zn), mg/l, max	5.0
xv.	Nickel (as Ni), mg/l, max	3.0
xvi.	Cyanide (as CN), mg/l, max	0.2
xvii.	Chloride (as Cl), mg/l, max	1000
xviii.	Fluoride (as F), mg/l, max	2.0
xix.	Phenolic compounds (as C_6H_5OH), mg/l, max	1.0

4. **The facility shall obtain NOC from Air Force Academy Dundigal before applying of CFO of the Board.**
5. **The facility shall submit survey no's of the site before applying of CFO of the Board..**
6. **The facility shall not carry any land fill activity within the processing facility as committed by the industry.**
7. The Sewage Treatment Plant (STP) shall be constructed and commissioned along with the commissioning of the activity. All the units of the STP shall be impervious to prevent ground water pollution

8. The domestic effluents shall be treated in the STP to the on land for irrigation standards, stipulated under Environment (Protection) Rules, 1986, notified and published by Ministry of Environment and Forests, Government of India as specified in schedule VI vide G.S.R.422 (E), dt.19.05.1993 and its amendments thereof.

9. The industry shall construct ETP consisting of pre-treatment tank and neutralization pit for treating of boiler blow-down and cooling tower bleed off and the treated water shall be used for ash-quenching.

10. In case of compost plant, the windrow area shall be covered with shed and provided with impermeable base. Such a base shall be made of concrete or compacted clay, 50 cm thick, having permeability coefficient less than 10–7 cm/sec. The base shall be provided with 1 to 2 per cent slope and circled by lined drains for collection of leachate or surface run-off.

11. Composting shall be carried out in a closed shed so as to avoid odour nuisance to the surrounding area.

Air:

12. The facility shall comply with the following for controlling air pollution:

S. No	Details of Stack	Stack 1	Stack 2
a)	Attached to	Boilers	DG Sets
b)	Capacity	2 x 21 TPH	2 x 500 KVA
c)	Fuel	MSW RDF	HSD
d)	Fuel quantity	1000 TPD	--
e)	Stack height (m)	60 meters	15 mtrs
f)	Details of Air Pollution Control Equipment	Bag filters	Acoustic enclosures
g)	Standards to be complied	SPM – 115 mg/Nm3	SPM – 115 mg/Nm3

13. The facility shall install stack of 60 m height for boiler and shall install bagfilters as air pollution control equopment to control the emissions.
The facility shall meet the emisisons standards as as prescribed in Schedule – II (C) of the Solid waste Management Rules, 2016 i.e, Particulate matter – 50 mg/Nm^3 , HCl – 50 mg/Nm^3 ,SO2 – 200 mg/Nm^3 , CO –100 mg/Nm^3 , Total Organic Carbon - 20 mg/Nm^3 HF – 4 mg/Nm^3 ,NOx - 400 mg/Nm^3 (Standard refers to half hourly average)
Total dioxins and furancs – 0.1 ngTEQ/Nm^3 , Cd+Th+ their compounds – 0.05mg/Nm^3 and Sb+As +Pb+ Cr+Co+Cu+Mn+Ni+V+ their compounds – 0.05mg/Nm^3

14. The facility shall provide Continues Emission Monitoring System(OCEMS) for the stack attached to the boilers for parameters SPM, SO2, NOx, HCL & CO and shall connect to TSPCB server.

15. The facility shall lay internal cement concrete roads for movements of vehicles within the processing facility.

16. The facility shall transport the MSW in closed vehicles only and ensure that there is no spillage of MSW during transportation.

17. The incoming wastes at site shall be maintained prior to further processing. To the extent possible, the waste storage area should be covered. If, such storage is done in an open area, it shall be provided with impermeable base with facility for collection of leachate and surface water run-off into lined drains leading to a leachate treatment and disposal facility.

18. The proponent shall ensure compliance of the National Ambient Air quality standards notified by MoE&F, GoI vide notification No. GSR 826(E), dated. 16.11.2009 during construction and regular operational phase of the project.

19. Diesel generators shall be installed in a closed area with silencers and suitable noise absorption systems. The ambient noise level shall not exceed 65 dB(A) during day time and 55 dB(A) during night time.

20. Ambient noise levels should conform to the residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely

monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by the CPCB.

21. Vehicles hired to bring construction material to the site should be in a good condition and should conform to ambient air and noise standards and should be operated only during non peak hours.

Solid / Hazardous Waste:

22. The facility shall comply with the following:

Sl. No.	Name of the Waste	Quantity	Disposal option
1.	Waste Oil / Used Oil	200 LPM	Shall be sent to Board's authorized Recyclers /Repressors
2.	Inert.	400 TPD	Shall be sent to M/s. Jawahar Nagar dump site for land filling/further processing.
3.	Bottom & fly Ash	250 TPD	

The compost plant and other processing facilities shall follow the conditions as follows:

i. The incoming solid wastes and the wastes storage at site shall be covered.

ii. The facility shall provide a system for collection of leachate and surface water run-off in to lined drains leading to leachate treatment and disposal facility.

iii. Necessary precautions shall be taken to minimize nuisance of odor, flies, rodents bird menace and fire hazard.

iv. In case of breakdown or maintenance of plant, waste intake shall be at stopped and arrangements be worked out for diversion of wastes to the landfill site.

v. **Pre-process and post-process rejects shall be removed from the processing facility on regular basis and shall not be allowed to pile at the site. Recyclables shall be routed through appropriate vendors. The non-recyclables shall be sent for well-designed landfill site(s).**

vi. In case of compost plant, the windrow area shall be provided with impermeable base. Such a base shall be made of concrete or compacted clay, 50 cm thick, having permeability coefficient less than 10-7cm/sec. The base shall be provided with 1 to 2 percent slope and circled by lined drains for collection of leachate or surface run-off.

vii. Ambient air quality monitoring shall be regularly carried out particularly for checking odour nuisance at down-wind direction on the boundary of processing plant.

viii. In order to ensure safe application of compost, the following specifications for compost quality shall be met, namely:

Parameters	Concentration not to exceed * (mg/kg dry basis, except pH value and C/N ratio
Arsenic	10.00
Cadmium	5.00
Chromium	50.00
Copper	300.00
Lead	100.00
Mercury	0.15
Nickel	50.00
Zinc	1000.00
C/N ratio	20 – 40
PH	5.5 – 8.5

23. The facility shall construct silos for storage of fly ash and the bottom ash shall be transported through closed system only.

24. The solid waste generated shall be properly collected and segregated before disposal to the municipal facility. Waste paper, cartons, thermocol, plastic waste, glass etc., shall be disposed to recycling units. E-Waste shall be disposed to authorized

recycling units. The organic waste shall be composted.

25. All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the facility site.

26. **The facility shall take the authorization under Rule-16(1)(c) of the Solid Waste Management Rules, 2016.**

27. The following rules and regulations notified by the MoE&F, GoI shall be implemented.
    a) Solid Waste Management Rules, 2016.
    b) Construction and Demolition Waste Management Rules, 2016.
    c) Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.
    d) The Plastic Waste Management Rules, 2016 and amendments thereof.
    e) Batteries Waste Management Rules, 2022.
    f) E-Waste (Management) Rules, 2016 and its Amendment Rules, 2018.
    g) Bio-Medical Waste Management Rules, 2016 and its Amendment Rules, 2018.

Other Conditions:

28. **The facility shall maintain buffer zone on all the sides as committed and develop green belt of 5 to 8 mtrs width with tall growing trees.**

29. **The Bio-gas generated in the facility after operation shall be maximum utilized for captive consumption and the remaining shall be exported to requisite industries.**

30. **The compostable waste after composting shall be sold as compost and maintain records.**

31. **The recyclable plastic waste shall be used for in house granules making/LD Bags.**

32. **The facility shall develop thick green belt with tall growing trees all along the forest area approach road.**

33. Thick Green belt shall be developed along the boundary of the facility in 33% area. Green belt development shall be started along with the construction activity.
    The facility shall not disturb the existing greenbelt provided.

34. The facility shall take proper measures for control of odour nuisance. In case persistent odour exists, necessary measures shall taken otherwise the facility should go for alternate site.

35. The MSW carrying vehicles shall not pass through the village road.

36. The facility shall obtain Plastic Waste Authorization from the Board & Extended Producer Reasonability '(EPR) Registration in the website https://eprplastic.cpcb.gov.in/#/plastic/home

37. The facility shall obtain necessary permissions for the proposed activity, from the concerned Government departments / concerned authorities.

38. The facility shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.

39. The operator of facility shall submit the Annual report to the local body in Form-III on or before the 30th day of April every year

40. The facility shall comply with all the directions issued by the Board from time to time.

41. **The facility shall submit the Survey Nos. after obtaining from the concerned department.**

42. **The industry shall allocate a minimum of 1% of its project cost towards CSR (Corporate Social Responsible) activities during construction period and 0.20% of the project cost per year during operational period for 10 years.**

43. **The proponent shall lay internal cement concrete roads for movement of vehicles within the dump yard.**

44. **The proponent shall provide G.I. sheets for covering for the belt conveyor and**

also install adequate dust suppression equipment at all around the stockpiles.

45. The proponent shall take adequate measures to control self-ignition of municipal solid waste.

46. The proponent shall regularly conduct ground water, ambient air monitoring around the dump site regularly.

47. The vehicles transporting municipal solid waste shall be covered with tarpaulin covers.

48. The facility shall provide compound wall /fencing to avoid entering of animals etc,.

49. The facility should comply with the Solid Waste Management Rules, 2016 and its amendments.

50. The Board may stipulate/delete any other conditions if necessary.

51. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.

Sd/-
MEMBER SECRETARY

To,
M/s. Hyderabad Integrated MSW Ltd.,
Pyaranagar, Nallavelli Village, Gummadidala Mandal,
(GPS Co-ordinates – West side E-78°19'26.49", N-17°43'19.08"
and South east – E-78°20'20.68", N-17°42'43.63",
South West Side E-78°19'22.92"N-17°42'58.84"
Sangareddy District.

//T.C.F.B.O//
M. Praveen 06/02/2023
Senior Environmental Engineer

TELANGANA POLLUTION CONTROL BOARD
ZONAL OFFICE: HYDERABAD
H.No.6-3-1219, TS No.1 Part, Block - C, Ward No.91, Near Country Club,
Uma Nagar, Begumpet, Hyderabad. Phone: 040-23402495
Email: jcee-zhyd-tspcb@telangana.gov.in

CONSENT & AUTHORIZATION ORDER - RED CATEGORY

Order No. 1434-RR-I/TGPCB/ZOH/CFO/2024- 971 **Date:26.09.2024**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof and Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and amendments thereof) and Authorization / Renewal of Authorization under Rule 6 of the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 (hereinafter referred to as 'the Acts') and Authorization under the provisions of HW (M & TM) Rules (herein after referred to as 'the Acts' 'the Rules') the rules and orders made thereunder to

17.5 MLD STP at Pedda Cheruvu Nacharam,
HMT Nagar Colony, Nacharam, Uppal,
Medchal-Malkajgiri District

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant, to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below:

i) Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge	Point of Disposal	Limiting Standards
1.	Domestic effluents	1.0 KLD	Shall be treated in Sewage Treatment Plant (STP).	As per standards mentioned in Schedule-B.

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow	Emission Standards
1.	Attached to DG set of capacity – 1 x 625 kVA	--	SPM – 115 mg/ Nm^3

iii) Hazardous Waste Authorization: (Form – 2) [See Rule 6(2)]:

17.5 MLD STP at Pedda Cheruvu Nacharam, HMT Nagar Colony, Nacharam, Uppal, Medchal-Malkajgiri District is hereby granted an authorization to operate a facility for collection, reception, storage, transport and disposal of the following wastes with quantities as mentioned below:

S. No.	Name of the Hazardous waste	Stream	Quantity	Method of Disposal
1	STP Sludge	--	3850 kgs/day	After decantation, shall be used as manure.
2	Waste oil	5.1 of Sch.-I	20 LPA	Shall be sent to authorized waste oil re-processors/ recycling units.

This order is subject to the provisions of 'the Acts' and 'the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B and C enclosed to this order.

This consent is valid for manufacture the following products along with quantities only:

S. No.	Name of the Products and By-products / Activity	Total Capacity
1.	Sewage Treatment Plant (STP)	17.5 MLD

This combined order of Consent and Authorization is valid for a period ending with the **31.08.2029.**

26/9/2024

JOINT CHIEF ENVIRONMENTAL ENGINEER

Encl: Schedules A, B & C.

T.G. POLLUTION CONTROL BOARD * ZONAL OFFICE, HYDERABAD-16. *

To
17.5 MLD STP at Pedda Cheruvu Nacharam,
HMT Nagar Colony, Nacharam, Uppal,
Medchal-Malkajgiri District - 500076.
E-mail Id: ssmanyam.hmwssb@gmail.com

Copy submitted to the Member Secretary, TGPCB, Board Office, Hyderabad for information
Copy to the Environmental Engineer, TGPCB, Regional Office, Rangareddy for information.

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SCHEDULE – A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board. The applicant can also apply for Auto Renewal of the CFO atleast 30 days before the expiry of this order as per the procedure and eligibility stipulated in the Board Circular dt.19.11.2015 & 08.12.2015 (available in Board's Website: http://tspcb.cgg.gov.in/Pages/Circulars.aspx).
2. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
3. The hotel may explore the possibility of tapping the solar energy for their energy requirements.
4. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Rules, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
5. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE – B

Special Conditions:

1. The industry shall take steps to reduce water consumption to the extent possible and consumption shall not exceed the quantities mentioned below:

S. No.	Purpose	Quantity
1.	Domestic	2.0 KLD
	T O T A L:	2.0 KLD

2. The HMWS& SB shall treat the sewage to the following standards:

S. No.	Parameters	Standards
1	pH	5.5 to 9.0
2	Temperature	Should not exceed 50C above the receiving water temperature
3	Suspended solids	100 mg/l
4	Oil & grease	10 Mg/l
5	Chemical Oxygen Demand (COD)	250 mg/l
6	Biological Oxygen Demand (BOD)	≤10 mg/l
7	Ammonical Nitrogen	50 mg/l
8	Arsenic (as As)	0.2 mg/l
9	Mercury (as Hg)	0.01 mg/l
10	Lead (as Pb)	0.1 mg/l
11	Cadmium (as Cd	2.0 mg/l
12	Hexavalent chromium (as Cr+6)	0.1 mg/l
13	Total chromium	2.0 mg/l
14	Zinc (as Zn)	5.0 mg/l
15	Copper (as Cu)	3.0 mg/l
16	Sulphide (as S)	2.0 mg/l
17	Dissolved Phosphates	5.0 mg/l
18	Total residual chlorine	1.0 mg/l
19	Total Nitrogen (as N)	100 mg/l
20	Free ammonia (as NH3)	5.0 mg/l
21	Bio Assey test	90% survival of fish after 96 hours in 100% effluent

3. The industry should comply with the National ambient air quality standards as per MoEF, GOI notification dated. 18.11.2009 along the premises of the factory as prescribed below:

S. No.	Parameters	Standards in µg/m3;
1	Particulate Matter(PM10)	100
2	Particulate Matter (PM2.5)	60
3	SO2	80
4	NOx	80

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A).

4. The industry shall not increase the capacity beyond the permitted capacity mentioned in this order, without obtaining CFE/CFO of the Board.
5. The HMWS&SB shall also treat the sewage for the other parameters to meet the inland surface waters standards stipulated under the Environmental (Protection) Rules, 1986, notified and published by Ministry of Environment and Forests, Government of India as specified in schedule VI vide G.S.R422 (E), dt.19.05.1993 and its amendments thereof, and additional standards / conditions stipulated by TGPCB.
6. **The HMWS&SB shall provide Online Effluent Monitoring system (OCEMS) at the outlet of the STP and the same shall be connected to TGPCB server and CPCB server and ensure that the data shall be transmitted continuously.**
7. The HMWS&SB shall treat the sewage for total coliform to a standard of < 500 MPN/100 ML to meet the Class – B & Class – C water quality criteria specified by CPCB.
8. The treated sewage shall be discharged into Pedda cheruvu after meeting the prescribed standards. The HMWS&SB shall furnish the exact location of disposal point within one month.
9. The HMWS&SB shall explore the possibility of using the treated sewage for irrigation of crops non-eaten raw, sports fields, public parks, industrial use etc., in order to conserve the fresh water.
10. The HMWS&SB shall take measures such that no perceptible odour is observed outside the STP premises.
11. The HMWS&SB shall provide polishing pond for better performance of STP.
12. The HMWS&SB shall engage trained staff and provide adequate laboratory facility for proper functioning and monitoring of STP.
13. The HMWS&SB shall explore the possibility of providing mechanical de-watering system for the sludge instead of proposed sludge drying beds. This will help proper disposal of sludge even during the rainy days.
14. Mechanically operated Grit removal channel is to be provided instead of manual, to have better performance efficiency in terms of VSS/TSS ratio. The grit separated from the Grit Chamber shall be disposed scientifically.
15. The HMWS&SB shall provide online DO analyzers with recording facility in the aeration system.
16. The HMWS&SB shall conduct a study on impact of treated sewage on crops with the help of Agricultural University / Agricultural Department within a period of one year, if the treated sewage is proposed to be used for irrigation purpose.
17. The solid waste generated from the sludge draining beds shall be used as soil conditioner / manure.
18. The HMWS&SB shall not bypass the sewage and shall dismantle the bypass arrangement provided on other side of the pumping station immediately.
19. The STP discharge shall not contaminate the Ground water in the colony and the surroundings. The HMWS & SB shall monitor the ground water in the surroundings at least once in 3 months and submit the results to Regional Office, T.G. Pollution Control Board, Rangareddy District.
20. The STP shall not dispose any solid waste outside the factory premises and maintain records pertaining to solid waste generation & its disposal.
21. There shall not be any perceptible odour from the STP premises.

22. M/s. HMWS&SB shall develop 33% of the total area as thick green belt all along the boundary of the unit and also in the vacant places with all tall growing trees with wide leaf area.
23. The HMWS & SB shall comply with all the directions issued by the Board from time to time.
24. The Board reserves its right to modify above conditions or stipulate any further conditions in the interest of environment protection.
25. This Order is issued to the STP without prejudice to the action taken by the Task Force of the Board.
26. This order is issued to the STP subject to the outcome of order of Hon'ble NGT O.A. No. 225 of 2017(SZ).
27. The conditions stipulated in this order area without any prejudice to rights and contentions of this order in any Hon'ble court of law.

SCHEDULE - C

(See Rule 6(2))

(Conditions of Authorization for occupier or operator handling hazardous wastes)

1. The HMWS & SB shall give top priority for waste minimization and cleaner production practices.
2. The HMWS & SB shall not store hazardous waste for more than 90 days as per the Hazardous & other wastes (Management and Transboundary Movement) Rules, 2016.
3. The HMWS & SB shall not sell the used empty drums / barrels / liners / bags / Bottle etc. to outside parties & vendors for reuse, instead they shall discard the same to avoid reuse, which is resorting in illegal dumping of Hazardous Waste and shall dispose the same directly to authorized recyclers only.
4. The HMWS & SB shall ensure for proper labelling of Hazardous Waste / other waste containers with particulars of industry & type of Waste along with characteristics, while storage & transporting the waste to Recyclers / TSDF / Cement Industries.
5. The HMWS & SB shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal.
6. The HMWS & SB shall not dispose Waste oils to the traders and the same shall be disposed to the authorized Reprocessors/ Recyclers.
7. The HMWS & SB shall dispose Used Lead Acid Batteries to the manufacturers / dealers on buyback basis.
8. The HMWS & SB shall take necessary practical steps for prevention of oil spillages and carry over of oil from the premises.
9. The HMWS & SB shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to Board Office and concerned Regional Office.
10. The HMWS & SB shall maintain good housekeeping & maintain proper records for Hazardous Wastes stated in Authorisation.
11. The HMWS & SB shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 and file annual returns in Form- 4 Rules 6(5), 13(8), 16(6) and 20(2) as per of the Hazardous & other wastes (Management, Transboundary Movement) Rules, 2016.
12. The HMWS & SB shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.
13. The HMWS & SB shall dispose the e-waste to authorized recyclers / re-processors only.

26/9/2024

JOINT CHIEF ENVIRONMENTAL ENGINEER

To
17.5 MLD STP at Pedda Cheruvu Nacharam,
HMT Nagar Colony, Nacharam, Uppal,
Medchal-Malkajgiri District.

T.G. POLLUTION CONTROL BOARD ★ ZONAL OFFICE, HYDERABAD-16. ★

TELANGANA POLLUTION CONTROL BOARD
ZONAL OFFICE: HYDERABAD
H.No.6-3-1219, TS No.1 Part, Block - C, Ward No.91, Near Country Club,
Uma Nagar, Begumpet, Hyderabad. Phone: 040-23402495
Email: jcee-zhyd-tspcb@telangana.gov.in

CONSENT & AUTHORIZATION ORDER - RED CATEGORY

Order No. 1435-RR-I/TGPCB/ZOH/CFO/2024- 969 **Date:26.09.2024**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof and Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and amendments thereof) and Authorization / Renewal of Authorization under Rule 6 of the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 (hereinafter referred to as 'the Acts') and Authorization under the provisions of HW (M & TM) Rules (herein after referred to as 'the Acts' 'the Rules') the rules and orders made thereunder to

86.5 MLD STP at Nallacheruvu,
Uppal,
Medchal-Malkajgiri District

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant, to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below:

i) Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge	Point of Disposal	Limiting Standards
1.	Domestic effluents	0.5 KLD	Shall be treated in Sewage Treatment Plant (STP).	As per standards mentioned in Schedule-B.

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow	Emission Standards
1.	Attached to DG set of capacity – 1 x 1250 kVA	--	SPM – 115 mg/ Nm^3

iii) Hazardous Waste Authorization: (Form – 2) [See Rule 6(2)]:

86.5 MLD STP at Nallacheruvu, Uppal, Medchal-Malkajgiri District is hereby granted an authorization to operate a facility for collection, reception, storage, transport and disposal of the following wastes with quantities as mentioned below:

S. No.	Name of the Hazardous waste	Stream	Quantity	Method of Disposal
1	STP Sludge	--	18892 kgs/day	After decantation, shall be used as manure.
2	Waste oil	5.1 of Sch.-I	20 LPA	Shall be sent to authorized waste oil re-processors/ recycling units.

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This order is subject to the provisions of 'the Acts' and 'the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B and C enclosed to this order.

This consent is valid for manufacture the following products along with quantities only:

S. No.	Name of the Products and By-products / Activity	Total Capacity
1.	Sewage Treatment Plant (STP)	86.5 MLD

This combined order of Consent and Authorization is valid for a period ending with the **31.08.2029**.

26/9/2024

JOINT CHIEF ENVIRONMENTAL ENGINEER

Encl: Schedules A, B & C.

To
86.5 MLD STP at Nallacheruvu,
Uppal,
Medchal-Malkajgiri District - 500039.
E-mail Id: nallacheruvu86.5mldstp@gmail.com

Copy submitted to the Member Secretary, TGPCB, Board Office, Hyderabad for information
Copy to the Environmental Engineer, TGPCB, Regional Office, Rangareddy for information.

SCHEDULE – A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board. The applicant can also apply for Auto Renewal of the CFO atleast 30 days before the expiry of this order as per the procedure and eligibility stipulated in the Board Circular dt.19.11.2015 & 08.12.2015 (available in Board's Website: http://tspcb.cgg.gov.in/Pages/Circulars.aspx).
2. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
3. The hotel may explore the possibility of tapping the solar energy for their energy requirements.
4. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Rules, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
5. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE – B

Special Conditions:

1. The industry shall take steps to reduce water consumption to the extent possible and consumption shall not exceed the quantities mentioned below:

S. No.	Purpose	Quantity
1.	Domestic	1.0 KLD
	TOTAL:	**1.0 KLD**

2. The HMWS& SB shall treat the sewage to the following standards:

S. No.	Parameters	Standards
1	pH	5.5 to 9.0
2	Temperature	Should not exceed 50C above the receiving water temperature
3	Suspended solids	100 mg/l
4	Oil & grease	10 Mg/l
5	Chemical Oxygen Demand (COD)	250 mg/l
6	Biological Oxygen Demand (BOD)	≤10 mg/l
7	Ammonical Nitrogen	50 mg/l
8	Arsenic (as As)	0.2 mg/l
9	Mercury (as Hg)	0.01 mg/l
10	Lead (as Pb)	0.1 mg/l
11	Cadmium (as Cd	2.0 mg/l
12	Hexavalent chromium (as Cr+6)	0.1 mg/l
13	Total chromium	2.0 mg/l
14	Zinc (as Zn)	5.0 mg/l
15	Copper (as Cu)	3.0 mg/l
16	Sulphide (as S)	2.0 mg/l
17	Dissolved Phosphates	5.0 mg/l
18	Total residual chlorine	1.0 mg/l
19	Total Nitrogen (as N)	100 mg/l
20	Free ammonia (as NH3)	5.0 mg/l
21	Bio Assey test	90% survival of fish after 96 hours in 100% effluent

3. The industry should comply with the National ambient air quality standards as per MoEF, GOI notification dated. 18.11.2009 along the premises of the factory as prescribed below:

S. No.	Parameters	Standards in µg/m3;
1	Particulate Matter(PM10)	100
2	Particulate Matter (PM2.5)	60
3	SO2	80
4	NOx	80

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A).

4. The industry shall not increase the capacity beyond the permitted capacity mentioned in this order, without obtaining CFE/CFO of the Board.
5. The HMWS&SB shall also treat the sewage for the other parameters to meet the inland surface waters standards stipulated under the Environmental (Protection) Rules, 1986, notified and published by Ministry of Environment and Forests, Government of India as specified in schedule VI vide G.S.R422 (E), dt.19.05.1993 and its amendments thereof, and additional standards / conditions stipulated by TGPCB.
6. **The HMWS&SB shall provide Online Effluent Monitoring system (OCEMS) at the outlet of the STP and the same shall be connected to TGPCB server and CPCB server and ensure that the data shall be transmitted continuously.**
7. The HMWS&SB shall treat the sewage for total coliform to a standard of < 500 MPN/100 ML to meet the Class – B & Class – C water quality criteria specified by CPCB.
8. The treated sewage shall be discharged into Musi River after meeting the prescribed standards. The HMWS&SB shall furnish the exact location of disposal point within one month.
9. The HMWS&SB shall explore the possibility of using the treated sewage for irrigation of crops non-eaten raw, sports fields, public parks, industrial use etc., in order to conserve the fresh water.
10. The HMWS&SB shall take measures such that no perceptible odour is observed outside the STP premises.
11. The HMWS&SB shall provide polishing pond for better performance of STP.
12. The HMWS&SB shall engage trained staff and provide adequate laboratory facility for proper functioning and monitoring of STP.
13. The HMWS&SB shall explore the possibility of providing mechanical de-watering system for the sludge instead of proposed sludge drying beds. This will help proper disposal of sludge even during the rain days.
14. Mechanically operated Grit removal channel is to be provided instead of manual, to have better performance efficiency in terms of VSS/TSS ratio. The grit separated from the Grit Chamber shall be disposed scientifically.
15. The HMWS&SB shall provide online DO analysers with recording facility in the aeration system.
16. The HMWS&SB shall conduct a study on impact of treated sewage on crops with the help of Agricultural University / Agricultural Department within a period of one year, if the treated sewage is proposed to be used for irrigation purpose.
17. The solid waste generated from the sludge draining beds shall be used as soil conditioner / manure.
18. The HMWS&SB shall not bypass the sewage and shall dismantle the bypass arrangement provided on otherside of the pumping station immediately.
19. The STP discharge shall not contaminate the Ground water in the colony and the surroundings. The HMWS & SB shall monitor the ground water in the surroundings at least once in 3 months and submit the results to Regional Office, T.G. Pollution Control Board, Rangareddy District.
20. The STP shall not dispose any solid waste outside the factory premises and maintain records pertaining to solid waste generation & its disposal.
21. There shall not be any perceptible odour from the STP premises.

22. M/s. HMWS&SB shall develop 33% of the total area as thick green belt all along the boundary of the unit and also in the vacant places with all tall growing trees with wide leaf area.
23. The HMWS & SB shall comply with all the directions issued by the Board from time to time.
24. The Board reserves its right to modify above conditions or stipulate any further conditions in the interest of environment protection.
25. This Order is issued to the STP without prejudice to the action taken by the Task Force of the Board.
26. This order is issued to the STP subject to the outcome of order of Hon'ble NGT O.A. No. 225 of 2017(SZ).
27. The conditions stipulated in this order area without any prejudice to rights and contentions of this order in any Hon'ble court of law.

SCHEDULE - C
(See Rule 6(2))

(Conditions of Authorization for occupier or operator handling hazardous wastes)

1. The HMWS & SB shall give top priority for waste minimization and cleaner production practices.
2. The HMWS & SB shall not store hazardous waste for more than 90 days as per the Hazardous & other wastes (Management and Transboundary Movement) Rules, 2016.
3. The HMWS & SB shall not sell the used empty drums / barrels / liners / bags / Bottle etc. to outside parties & vendors for reuse, instead they shall discard the same to avoid reuse, which is resorting in illegal dumping of Hazardous Waste and shall dispose the same directly to authorized recyclers only.
4. The HMWS & SB shall ensure for proper labelling of Hazardous Waste / other waste containers with particulars of industry & type of Waste along with characteristics, while storage & transporting the waste to Recyclers / TSDF / Cement Industries.
5. The HMWS & SB shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal.
6. The HMWS & SB shall not dispose Waste oils to the traders and the same shall be disposed to the authorized Reprocessors/ Recyclers.
7. The HMWS & SB shall dispose Used Lead Acid Batteries to the manufacturers / dealers on buyback basis.
8. The HMWS & SB shall take necessary practical steps for prevention of oil spillages and carry over of oil from the premises.
9. The HMWS & SB shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to Board Office and concerned Regional Office.
10. The HMWS & SB shall maintain good housekeeping & maintain proper records for Hazardous Wastes stated in Authorisation.
11. The HMWS & SB shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 and file annual returns in Form- 4 Rules 6(5), 13(8), 16(6) and 20(2) as per of the Hazardous & other wastes (Management, Transboundary Movement) Rules, 2016.
12. The HMWS & SB shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.
13. The HMWS & SB shall dispose the e-waste to authorized recyclers / re-processors only.

26/9/2024

JOINT CHIEF ENVIRONMENTAL ENGINEER

POLLUTION CONTROL BOARD * T.S. * ZONAL OFFICE, HYDERABAD

To
86.5 MLD STP at Nallacheruvu,
Uppal,
Medchal-Malkajgiri District.

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TELANGANA POLLUTION CONTROL BOARD
ZONAL OFFICE: HYDERABAD
H.No.6-3-1219, TS No.1 Part, Block - C, Ward No.91, Near Country Club,
Uma Nagar, Begumpet, Hyderabad. Phone: 040-23402495
Email: jcee-zhyd-tspcb@telangana.gov.in

CONSENT & AUTHORIZATION ORDER - RED CATEGORY

Order No. 1820-MDCL/TGPCB/ZOH/CFO/2024- 1057 **Date:15.10.2024**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof and Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and amendments thereof) and Authorization / Renewal of Authorization under Rule 6 of the Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016.

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act, 1981 (hereinafter referred to as 'the Acts') and Authorization under the provisions of HW (M & TM) Rules (herein after referred to as 'the Acts' 'the Rules') the rules and orders made thereunder to

M/s. HMWSSB - 5.5 MLD capacity of STP,
Safilguda Cheruvu, RK Puram, Malkajgiri (M),
Medchal - Malkajgiri District

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant, to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below:

i) Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge	Point of Disposal	Limiting Standards
1.	Domestic effluents	0.4 KLD	Shall be treated in Sewage Treatment Plant (STP)	As per standards mentioned in Schedule-B.

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow	Emission Standards
1.	Attached to DG set of capacity – 1 x 180 KVA	---	SPM – 115 mg/ Nm^3

iii) Hazardous Waste Authorization: (Form – 2) [See Rule 6(2)]:

M/s. HMWSSB - 5.5 MLD capacity of STP, Safilguda Cheruvu, RK Puram, Malkajgiri (M), Medchal - Malkajgiri District is hereby granted an authorization to operate a facility for collection, reception, storage, transport and disposal of the following wastes with quantities as mentioned below:

S. No.	Name of the Hazardous waste	Stream	Quantity	Method of Disposal
1.	Screening waste (Garbage)	---	1000 Kg/day	Shall be disposed to local municipality for further treatment and disposal.

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2.	STP sludge	---	1260 Kg/day	Shall be disposed as manure to third parties for use as manure / fertilizer.

This order is subject to the provisions of 'the Acts' and 'the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A, B and C enclosed to this order.

This consent is valid for manufacture the following products along with quantities only:

S.No.	Name of the Product /Activity	Total Capacity
1.	Treated water	5.5 MLD

This combined order of Consent and Authorization is valid for a period ending with the **31.08.2029.**

15/10/2024

JOINT CHIEF ENVIRONMENTAL ENGINEER

Encl: Schedules A, B & C.

To
M/s. HMWSSB - 5.5 MLD capacity of STP,
Safilguda Cheruvu, RK Puram, Malkajgiri (M),
Medchal - Malkajgiri District.
E-mail Id: ssmanyam.hmwssb@gmail.com

Copy submitted to the Member Secretary, TGPCB, Board Office, Hyderabad for information
Copy to the Municipal Commissioner, Malkajgiri Municipal Corporation, Medchal-Malkajgiri District for information and shall ensure that the facility shall scientifically collect, handle and dispose the Septage without adversely effecting the environment and public health.
Copy to the Environmental Engineer, TGPCB, Regional Office, Medchal District for information.

SCHEDULE – A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board. The applicant can also apply for Auto Renewal of the CFO atleast 30 days before the expiry of this order as per the procedure and eligibility stipulated in the Board Circular dt.19.11.2015 & 08.12.2015 (available in Board's Website: http://tspcb.cgg.gov.in/Pages/Circulars.aspx).
2. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
3. The hotel may explore the possibility of tapping the solar energy for their energy requirements.
4. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Rules, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
5. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE – B

Special Conditions:

1. The HMWS & SB shall take steps to reduce water consumption to the extent possible and consumption shall not exceed the quantities mentioned below:

S.No.	Purpose	Quantity
1.	Domestic	0.5 KLD
	Total:	**0.5 KLD**

2. The HMWS& SB shall treat the sewage to the following standards:

S.No.	Parameters	Standards
1	pH	5.5 to 9.0
2	Temperature	Should not exceed 50C above the receiving water temperature
3	Suspended solids	100 mg/l
4	Oil & grease	10 Mg/l
5	Chemical Oxygen Demand (COD)	250 mg/l
6	Biological Oxygen Demand (BOD)	≤10 mg/l
7	Ammonical Nitrogen	50 mg/l
8	Arsenic (as As)	0.2 mg/l
9	Mercury (as Hg)	0.01 mg/l
10	Lead (as Pb)	0.1 mg/l
11	Cadmium (as Cd	2.0 mg/l
12	Hexavalent chromium (as Cr+6)	0.1 mg/l
13	Total chromium	2.0 mg/l
14	Zinc (as Zn)	5.0 mg/l
15	Copper (as Cu)	3.0 mg/l
16	Sulphide (as S)	2.0 mg/l
17	Dissolved Phosphates	5.0 mg/l
18	Total residual chlorine	1.0 mg/l
19	Total Nitrogen (as N)	100 mg/l

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20	Free ammonia (as NH3)	5.0 mg/l
21	Bio Assey test	90% survival of fish after 96 hours in 100% effluent

3. The HMWS & SB should comply with the National ambient air quality standards as per MoEF, GOI notification dated. 18.11.2009 along the premises of the factory as prescribed below:

S. No.	Parameters	Standards in µg/m3;
1	Particulate Matter(PM10)	100
2	Particulate Matter (PM2.5)	60
3	SO2	80
4	NOx	80

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A).

4. The HMWS & SB shall not increase the capacity beyond the permitted capacity mentioned in this order, without obtaining CFE/CFO of the Board.
5. The HMWS & SB shall also treat the sewage for the other parameters to meet the inland surface waters standards stipulated under the Environmental (Protection) Rules, 1986, notified and published by Ministry of Environment and Forests, Government of India as specified in schedule VI vide G.S.R422 (E), dt.19.05.1993 and its amendments thereof, and additional standards / conditions stipulated by TGPCB.
6. The HMWS & SB shall treat the sewage for total coliform to a standard of < 500 MPN/100 ML to meet the Class – B & Class – C water quality criteria specified by CPCB.
7. The treated sewage shall be discharged into Safilguda Cheruvu after meeting the prescribed standards.
8. The HMWS&SB shall explore the possibility of using the treated sewage for irrigation of crops non-eaten raw, sports fields, public parks, industrial use etc., in order to conserve the fresh water.
9. The HMWS&SB shall take measures such that no perceptible odour is observed outside the STP premises.
10. The HMWS&SB shall provide polishing pond for better performance of STP.
11. The HMWS&SB shall engage trained staff and provide adequate laboratory facility for proper functioning and monitoring of STP.
12. HMWS & SB shall explore the possibility of providing mechanical de-watering system for the sludge instead of proposed sludge drying beds. This will help proper disposal of sludge even during the rain days.
13. Mechanically operated Grit removal channel is to be provided instead of manual, to have better performance efficiency in terms of VSS/TSS ratio. The grit separated from the Grit Chamber shall be disposed scientifically.
14. The HMWS & SB shall provide online DO analysers with recording facility in the aeration system.
15. The HMWS & SB shall conduct a study on impact of treated sewage on crops with the help of Agricultural University / Agricultural Department within a period of one year, if the treated sewage is proposed to be used for irrigation purpose.
16. The solid waste generated from the sludge drying beds shall be used as soil conditioner / manure.
17. The HMWS&SB shall not bypass the sewage and shall dismantle the bypass arrangement provided on otherside of the pumping station immediately.
18. The STP discharge shall not contaminate the Ground water in the colony and the surroundings. The HMWS & SB shall monitor the ground water in the surroundings at

least once in 3 months and submit the results to Regional Office, T.S. Pollution Control Board, Medchal.

19. The STP shall not dispose any solid waste outside the factory premises and maintain records pertaining to solid waste generation & its disposal.
20. There STP shall not be any perceptible odour from the industry premises.
21. The HMWS & SB shall continuously operate the Sewage Treatment Plant and shall meet Board's standards.
22. M/s. HMWS&SB shall develop 33% of the total area as thick green belt all along the boundary of the unit and also in the vacant places with all tall growing trees with wide leaf area.
23. The HMWS & SB shall comply with all the directions issued by the Board from time to time.
24. The Board reserves its right to modify above conditions or stipulate any further conditions in the interest of environment protection.
25. This Order is issued to the STP without prejudice to the action taken by the Task Force of the Board.
26. This order is issued to the STP subject to the outcome of order of Hon'ble NGT O.A. No. 225 of 2017(SZ).
27. The conditions stipulated in this order area without any prejudice to rights and contentions of this order in any Hon'ble court of law.

SCHEDULE - C
(See Rule 6(2))

(Conditions of Authorization for occupier or operator handling hazardous wastes)

1. The HMWS & SB shall give top priority for waste minimization and cleaner production practices.
2. The HMWS & SB shall not store hazardous waste for more than 90 days as per the Hazardous & other wastes (Management and Transboundary Movement) Rules, 2016.
3. The HMWS & SB shall not sell the used empty drums / barrels / liners / bags / Bottle etc. to outside parties & vendors for reuse, instead they shall discard the same to avoid reuse, which is resorting in illegal dumping of Hazardous Waste and shall dispose the same directly to authorized recyclers only.
4. The HMWS & SB shall ensure for proper labelling of Hazardous Waste / other waste containers with particulars of industry & type of Waste along with characteristics, while storage & transporting the waste to Recyclers / TSDF / Cement Industries.
5. The HMWS & SB shall store Used / Waste Oil and Used Lead Acid Batteries in a secured way in their premises till its disposal.
6. The HMWS & SB shall not dispose Waste oils to the traders and the same shall be disposed to the authorized Reprocessors/ Recyclers.
7. The HMWS & SB shall dispose Used Lead Acid Batteries to the manufacturers / dealers on buyback basis.
8. The HMWS & SB shall take necessary practical steps for prevention of oil spillages and carryover of oil from the premises.
9. The HMWS & SB shall maintain 6 copy manifest system for transportation of waste generated and a copy shall be submitted to Board Office and concerned Regional Office.
10. The HMWS & SB shall maintain good housekeeping & maintain proper records for Hazardous Wastes stated in Authorisation.
11. The HMWS & SB shall maintain proper records for Hazardous Wastes stated in Authorisation in FORM-3 and file annual returns in Form- 4 Rules 6(5), 13(8), 16(6) and

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20(2) as per of the Hazardous & other wastes (Management, Transboundary Movement) Rules, 2016.

12. The HMWS & SB shall submit the condition wise compliance report of the conditions stipulated in Schedule B & C of this Order on half yearly basis to Board Office, Hyderabad and concerned Regional Office.

13. The HMWS & SB shall dispose the e-waste to authorized recyclers / re-processors only.

15/10/2024

JOINT CHIEF ENVIRONMENTAL ENGINEER

POLLUTION CONTROL BOARD * T.S. HYDERABAD * ZONAL OFFICE

To
M/s. HMWSSB - 5.5 MLD capacity of STP,
Safilguda Cheruvu, RK Puram, Malkajgiri (M),
Medchal - Malkajgiri District.

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Annexure -18(ii)
18(ii)

TELANGANA STATE POLLUTION CONTROL BOARD
ZONAL OFFICE: HYDERABAD

H.No.6-3-1219, TS No.1 Part, Block - C, Ward No.91, Near Country Club,
Uma Nagar, Begumpet, Hyderabad. Phone: 040-23402495
Email: jcee-zhyd-tspcb@telangana.gov.in

CONSENT ORDER FOR ESTABLISHMENT – RED CATEGORY

Order No. 430-KGM/TSPCB/ZO-HYD/CFE/2022- 1497 **Date:08.12.2022**

Sub: TSPCB – ZOH – CONSENT FOR ESTABLISHMENT (CFE) – **M/s.Remediation and Reclamation of Existing Dump site through Bio Mining in Khammam Municipal Corporation, Sy.No. 40, 43, 44, 45, Near canal, Danavaigudem, Khammam Urban (M), Khammam District** - Consent for Establishment of the Board under Sec.25 of Water (Prevention and Control of Pollution) Act, 1974 and under Sec.21 of Air (Prevention and Control of Pollution) Act, 1981 – Issued – Reg.

Ref:
1. Industry's CFE application received through TSOCMMS online portal on 22.09.2022 & 31.10.2022 at TSPCB, Regional Office, Kothagudem.
2. TSPCB, Regional Office, Kothagudem verification report dt.18.11.2022, received on 18.11.2022.
3. CFE Committee meeting held on 01.12.2022 at TSPCB, Zonal Office, Hyderabad.

* * *

1. In the reference 1st cited, an application was submitted to the Board seeking Consent for Establishment (CFE) to set up a facility for Bio mining of Legacy Waste with capacities as mentioned below, with a proposed project cost of **Rs.15.0 Lakhs (In words Rupees Fifteen Lakhs only).**

Sl.No	*Name of the Products and By-products/Activity*	*Capacity*
1.	Bio-Mining of Legacy Waste	4,59,000 MT @ 600 Tons/day

2. As per the application, the above activity is to be located at **Sy.No. 40, 43, 44, 45, Near canal, Danavaigudem, Khammam Urban (M), Khammam District.**

3. The above site was inspected by Assistant Environmental Engineer, T.S.Pollution Control Board, Regional Office, Kothagudem on 11.11.2022 and found that the industry is surrounded by **East:** Open dry lands; **West:** dry lands followed by railway track; **North:** dry lands; **South:** NSP Canal.

4. The Board, after careful scrutiny of the application, verification report of Regional Officer, Kothagudem, recommendation by the CFE Committee meeting held on **01.12.2022** at TSPCB, Zonal Office, Hyderabad, hereby issues CONSENT FOR ESTABLISHMENT (CFE) to the industry, under Section 25 of Water (Prevention and Control of Pollution) Act, 1974 and under Section 21 of Air (Prevention and Control of Pollution) Act, 1981 and the rules made there under. This Order is issued to manufacture the products mentioned at para (I) only.

5. This Consent Order now issued is subject to the conditions mentioned in Schedule 'A' and Schedule 'B'.

6. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

JOINT CHIEF ENVIRONMENTAL ENGINEER

Encl: Schedules "A & B".

To
M/s.Remediation and Reclamation of Existing Dump site through Bio Mining in Khammam Municipal Corporation, Sy.No. 40, 43, 44, 45, Near canal, Danavaigudem, Khammam Urban (M), Khammam District.
E-mail: info@cubebiocnergy.co.in

Copy submitted to the Member Secretary, TSPCB, Board Office, Hyderabad for information.
Copy to the Environmental Engineer, TSPCB, RO, Kothagudem for information and necessary action.

SCHEDULE – A

1. This order is valid for a period of 5 years from the date of issue. Progress on implementation of the project shall be reported to the concerned Regional Office, T.S. Pollution Control Board once in six months. The consent of the Board shall be exhibited in the factory premises at a conspicuous place for information of the inspecting officers.
2. The proponent shall obtain Consent for Operation (CFO) from TSPCB, as required Under Sec.25/26 of the Water (Prevention and Control of Pollution) Act, 1974 and under sec. 21/22 of the Air (Prevention and Control of Pollution) Act, 1981, before commencement of the activity.
3. The proponent shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.
4. The industry is liable to pay compensation for any environmental damage caused by it, as fixed by the Hon'ble Courts, Collector and District Magistrate as Civil liability
5. The rules and regulations notified under Environmental Acts by the MOEF&CC and by the Ministry of Law and Justice, GOI, regarding the Public Liability Insurance Act, 1991 shall be followed.
6. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
7. Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers under Section 27(2) of the Water (Prevention & Control of Pollution) Act, 1974 and under Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and amendments thereof, to review any and/or all the conditions imposed herein, to modify conditions or stipulate any further conditions and to take action including revocation of this order in the interest of public health and environment.
8. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per the State Water Rules, 1976 and Air Rules,1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution) Act,1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

SCHEDULE – B

1. The source of water is Bore well and the maximum permitted water consumption shall not exceed the following quantities:

Sl.No.	Purpose	Total Consumption
1.	Process & Spraying	4.0 KLD
2.	Domestic	1.0 KLD
	Total	5.0 KLD

2. The maximum waste water generation (KLD) shall not exceed the following:

Sl.No.	Wastewater generation	Total Wastewater generation
1.	Domestic	0.4 KLD
	Total	0.4 KLD

Effluent source	**Quantity**	**Standards to be complied**	**Mode of final disposal**
Domestic effluents	0.4 KLD	--	Septic tank followed by soak pit.

3. The facility shall provide a system for collection of leachate and surface water run-off into lined drains and treat them properly.
4. Composting shall be carried out in the closed shed so as to avoid odour nuisance to the surrounding area.
5. The facility shall carryout bio-mining of legacy waste as per the guidelines of CPCB.
6. The facility shall carryout treatment of legacy waste by windrow method as committed.

7. The facility shall dispose the compost to Agricultural Department as committed, RDF to Cement Units and Other recyclables to recyclers as committed.
8. The facility shall maintain the records of the Compost generated & disposed, RDF generated & disposed to Cement units, Recyclables generated & disposed and Inerts generated & disposed.
9. The facility shall submit the monthly returns to Regional Office, Kothagudem on monthly basis.

Air Act:

10. The facility shall lay internal metal roads for movements of vehicles within the processing facility.
11. The facility shall provide G.I. sheets covering for the belt conveyor and also install adequate dust suppression equipment all around the stockpiles.
12. The facility shall take adequate measures to control self ignition of municipal solid waste.
13. The facility shall ensure compliance of the National Ambient Air quality standards notified by MoE&F, GoI vide notification No. GSR 826(E), dated. 16.11.2009 during construction and regular operational phase of the project.
14. Diesel generators shall be installed in a closed area with silencers and suitable noise absorption systems. The ambient noise level shall not exceed 65 dB(A) during day time and 55 dB(A) during night time.
15. Ambient noise levels should conform to the residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by the CPCB.

Solid / Hazardous Waste:

16. The facility shall comply with the following:

Sl. No.	Description of the Solid Waste	Quantity	Disposal
1.	Inert waste (Rejects)	120 Tons/day	Shall be dispose rejects into land filling.

17. All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the facility site.
18. The facility shall take the authorization under Rule-16(1)(c) of the Solid Waste Management Rules, 2016.

Other Conditions:

19. The facility shall maintain buffer zone on all the sides and develop green belt of 5 to 8 mtrs width with tall growing trees.
20. Thick Green belt shall be developed along the boundary of the facility in 33% area as committed. Green belt development shall be started along with the construction activity. The facility shall not disturb the existing greenbelt provided.
21. The facility shall take proper measures for control of odour nuisance.
22. The facility shall implement the CPCB guidelines for disposal of legacy waste.
23. The facility shall obtain necessary permissions for the proposed activity, from the concerned Government departments / concerned authorities.
24. The facility shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.
25. The facility shall comply with all the directions issued by the Board from time to time.
26. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from

the date on which the order is communicated to him, prefer an appeal to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

JOINT CHIEF ENVIRONMENTAL ENGINEER

To
M/s.Remediation and Reclamation of Existing Dump site through Bio Mining in Khammam Municipal Corporation, Sy.No. 40, 43, 44, 45, Near canal, Danavaigudem, Khammam Urban (M), Khammam District.

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TELANGANA STATE POLLUTION CONTROL BOARD
ZONAL OFFICE: HYDERABAD
H.No.6-3-1219, TS No.1 Part, Block - C, Ward No.91, Near Country Club,
Uma Nagar, Begumpet, Hyderabad. Phone: 040-23402495
Email: jcee-zhyd-tspcb@telangana.gov.in

CONSENT ORDER – RED CATEGORY

Consent Order No: 430-KGM/TSPCB/ZOH/CFO/2023- 302 **Date: 28.06.2023**

(Consent Order for Existing/New or altered discharge of sewage and/or trade effluents/outlet under Section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and amendments thereof and Operation of the plant under section 21 of Air (Prevention & Control of Pollution) Act, 1981 and amendments thereof).

CONSENT is hereby granted under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21 of Air (Prevention & Control of Pollution) Act 1981 (hereinafter referred to as 'the Acts') and the rules and orders made thereunder to

M/s. Remediation and Reclamation of Existing Dump site through Bio Mining in Khammam Municipal Corporation, Sy.No. 40, 43, 44, 45, Near canal, Danavaigudem, Khammam Urban (M), Khammam District

(hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant, to discharge the effluents from the outlets and the quantity of Emissions per hour from the chimneys as detailed below:

i) Outlets for discharge of effluents:

Outlet No.	Outlet Description	Max Daily Discharge	Point of Disposal
1	Domestic	0.4 KLD	Septic tank followed by soak pit.

ii) Emissions from chimneys:

Chimney No.	Description of Chimney	Quantity of Emissions at peak flow in m^{3}/hr.	Emission Standards
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This order is subject to the provisions of 'the Acts' and 'the Rules' and orders made thereunder and further subject to the terms and conditions incorporated in the schedule A & B enclosed to this order.

This consent is valid for manufacture the following products along with quantities only

S.No.	*Name of the Products and By-products/Activity*	Capacity
1	Bio-Mining of Legacy Waste	4,59,000 MT @ 600 Tons/day

This consent order shall be valid for a period ending with the **31.03.2025.**

JOINT CHIEF ENVIRONMENTAL ENGINEER

Encl: Schedules A & B

M/s.Remediation and Reclamation of Existing Dump site through Bio Mining in Khammam Municipal Corporation, Sy.No. 40, 43, 44, 45, Near canal, Danavaigudem, Khammam Urban (M), Khammam District.
E-mail: info@cubebioenergy.co.in

Copy to the Member Secretary, TSPCB, Board Office, Hyderabad for information.
Copy to the Environmental Engineer, TSPCB, Regional Office, Kothagudem for information.

SCHEDULE – A

1. The applicant shall make applications through online for renewal of Consent (under Water & Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts for obtaining Consent & HW Authorization of the Board. The applicant can also apply for Auto Renewal of the CFO atleast 30 days before the expiry of this order as per the procedure and eligibility stipulated in the Board Circular dt.19.11.2015 & 08.12.2015 (available in Board's Website: http://tspcb.cgg.gov.in/Pages/Circulars.aspx).
2. Concealing the factual data or submission of false information/ fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
3. The industry may explore the possibility of tapping the solar energy for their energy requirements.
4. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Rules, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of the Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.
5. The Board reserves its right to modify above conditions or stipulate any further conditions and to take action including revoke of this order in the interest of protection of public health and environment.

SCHEDULE - B

Special Conditions:

1. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below:

S. No.	Purpose	Total Consumption
1.	Process & Spraying	4.0 KLD
2.	Domestic	1.0 KLD
	Total	5.0 KLD

2. The industry shall comply with all the Rules and Regulations specified in Water (P&C of P) Act, 1974, Air (P&C of P) Act, 1981 and Hazardous and other Wastes (Management, Transboundary Movement) Rules, 2016.
3. The industry should comply with the National ambient air quality standards as per MoEF, GoI notification dated. 18.11.2009 along the premises of the factory as prescribed below:

S. No.	Parameters	Standards in $\mu g/m^3$
1	Particulate Matter(PM_{10})	100
2	Particulate Matter ($PM_{2.5}$)	60
3	SO_2	80
4	NOx	80

Noise Levels: Day time (6 AM to 10 PM) - 75 dB (A)
Night time (10 PM to 6 AM) - 70 dB (A).

4. The industry shall not increase the capacity beyond the permitted capacity mentioned in this consent order, without obtaining CFE/CFO of the Board.
5. The facility shall provide a system for collection of leachate and surface water run-off into lined drains and treat them properly.
6. Composting shall be carried out in the closed shed so as to avoid odour nuisance to the surrounding area.
7. The facility shall carryout bio-mining of legacy waste as per the guidelines of CPCB.
8. The facility shall carryout treatment of legacy waste by windrow method as committed.
9. The facility shall dispose the compost to Agricultural Department as committed, RDF to Cement Units and Other recyclables to recyclers as committed.

10. The facility shall maintain the records of the Compost generated & disposed, RDF generated & disposed to Cement units, Recyclables generated & disposed and Inerts generated & disposed.
11. The facility shall submit the monthly returns to Regional Office, Kothagudem on monthly basis.

Air Act:

12. The facility shall lay internal metal roads for movements of vehicles within the processing facility.
13. The facility shall provide G.I. sheets covering for the belt conveyor and also install adequate dust suppression equipment all around the stockpiles.
14. The facility shall take adequate measures to control self ignition of municipal solid waste.
15. The facility shall ensure compliance of the National Ambient Air quality standards notified by MoE&F, GoI vide notification No. GSR 826(E), dated. 16.11.2009 during construction and regular operational phase of the project.
16. Diesel generators shall be installed in a closed area with silencers and suitable noise absorption systems. The ambient noise level shall not exceed 65 dB(A) during day time and 55 dB(A) during night time.
17. Ambient noise levels should conform to the residential standards both during day and night. Incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by the CPCB.

Solid / Hazardous Waste:

18. The facility shall comply with the following:

Sl.No.	Description of the Solid Waste	Quantity	Disposal
1.	Inert waste (Rejects)	120 Tons/day	Shall dispose rejects into land filling.

19. All the topsoil excavated during construction activities should be stored for use in horticulture/landscape development within the facility site.
20. **The facility shall take the authorization under Rule-16(1)(c) of the Solid Waste Management Rules, 2016.**

Other Conditions:

21. The facility shall maintain buffer zone on all the sides and develop green belt of 5 to 8 mtrs width with tall growing trees.
22. Thick Green belt shall be developed along the boundary of the facility in 33% area as committed. Green belt development shall be started along with the construction activity. The facility shall not disturb the existing greenbelt provided.
23. The facility shall take proper measures for control of odour nuisance.
24. **The facility shall implement the CPCB guidelines for disposal of legacy waste.**
25. The facility shall obtain necessary permissions for the proposed activity, from the concerned Government departments / concerned authorities.
26. The facility shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.
27. The facility shall comply with all the directions issued by the Board from time to time.
28. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

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29. The industry shall submit Environmental Statement in Form V before 30th September every year as per Rule No.14 of Environmental (Protection) Act, 1986.
30. The industry shall comply with all the directions issued by the Board from time to time.
31. The Board reserves its right to modify above conditions or stipulate any further conditions in the interest of environment protection.
32. This Order is issued to the industry without prejudice to the action taken by the Task Force of the Board.

JOINT CHIEF ENVIRONMENTAL ENGINEER

To
M/s. Remediation and Reclamation of Existing Dump site through Bio Mining in Khammam Municipal Corporation, Sy.No. 40, 43, 44, 45, Near canal, Danavaigudem, Khammam Urban (M), Khammam District.

1492802/2022/H2 SEC-CDMA

F.No. 1/1/2022-SBM-I [Computer No. 9121894)
Government of India
Ministry of Housing and Urban Affairs
Nirman Bhawan, New Delhi
******

Dated: 18.02.2022

To

The Pay & Accounts Officer (Sectt.)
Ministry of Housing and Urban Affairs
New Delhi-110 011.

Subject: Release of 1st instalment of funds to the Govt. of Telangana under Solid Waste Management components under Swachh Bharat Mission (Urban) 2.0 during 2021-22.

Sir,

I am directed to convey the sanction of Competent Authority for release of Rs. 35,68,43,610/- (Rupees Thirty Five Crore Sixty Eight Lakh Forty Three Thousand Six Hundred Ten only) to Government of Telangana as 2nd instalments of Central Share (CS) assistance as per below given details for Solid Waste Management (SWM) component during 2021-22, under Swachh Bharat Mission (Urban) 2.0:-

S. No	Description of project	No of ULBs covered	Project Cost (in ₹ Crore)	Central Share (in ₹ Crore)	1st installment released @ 40% of Central Share
1.	Remediation of Legacy Waste Dumpsites @ Rs.550/MT	123 (As per annexure)	178.60	69.09	₹27,63,43,610/-
2.	C&D Waste Processing Facility@ Rs.6 Crore per 100 tonnes	4 (3 NCAP cities + 1 with more than 5 lakh population)	81.00	22.44	₹6,36,00,000/-
3.	Procurement of Mechanical Sweepers @Rs.55 lakh per vehicle	4 (3 NCAP cities + 1 ULB With more than 5 lakh population)	17.05	4.62	₹1,69,00,000/-
		Total=	276.11	96.15	₹35,68,43,610/-

2. This sanction is subject to following conditions:

(i) Submission of O&M arrangements for at least 5 years and its funding arrangements, wherever applicable, as a pre-condition for release of funds for the component under SBM 2.0 guidelines. State may ensure that a viable O&M arrangement, along with funding arrangement, is submitted to this Ministry within a month.

(ii) It may be ensured that the Central share is transferred to the concerned SNA account by the state government within a period of 21 days of its receipt, and that the corresponding State share should be released as early as possible and not later than 40 days of release of the Central share.

(iii) Certificate towards interest earned shall be submitted by Govt. of Telangana, positively by 28.02.2022.

3. The sanction shall be regulated in accordance with the provisions of GFR, 2017.

4. The expenditure is debitable to Major Head 3601 – (Grant-in-Aid to State Govt.) – 06 – (Centrally Sponsored Schemes) – 101 – (Central Assistance/Share) – 22 – Swachh Bharat Mission – 03 – (Project fund) – 35 – Grant-in-Aid for creation of Capital Asset under Demand No. 59 for the year 2021-22 of the Ministry of Housing and Urban Affairs.

5. The amount will be credited to the State Government's account to RBI as per procedure laid down by Ministry of Finance, Department of Expenditure vide O.M No. F-II (45/76/SC) dated 22.02.1977.

...contd/-

1492802/2022/H2 SEC-GDMA

the entire Scheme being governed by the Operational Guidelines of the Swachh Bharat Mission-Urban (SBM-U) 2.0 which is available at http://swachhbharaturban.gov.in/Home.aspx and following the same while releasing funds to the beneficiaries/ULBs, the release of funds for Solid Waste Management Component will be restricted to and governed by SBM (U) 2.0 guidelines.

7. Entry has been made at S.No. 31 of Grant -in-aid Register for the year 2021-22.

8. No U.C. is pending for this project from Govt. of Telangana.

9. This issues with the approval of Finance Division vide their Dy. No. (Computer No. 9121894) dated 17.02.2022.

Yours faithfully,

(R. S. Jayal)
Deputy Secretary to the Govt of India
Tel: (011) 23061157

Copy to:-

1. Director General, Audit Central Revenue and Expenditure, Near ITO. AGCR Building, New Delhi-110002
2. Principal Accounts Officer, Ministry of Urban Development, Nirman Bhawan, New Delhi.
3. Chief Secretary, Govt. of Telangana.
4. Shri T.K Sreedevi, IAS, Director of Municipal Administration, Govt. of Telangana, T.S Hyderabad 500 004.
5. Finance Division.
6. Sanction file.

(R. S. Jayal)
Deputy Secretary to the Govt of India

1492802/2022/H2 SEC-CDMA

Annexure

Detail of 123 ULBs for Legacy Waste Dump site Remediation.

S. No.	ULB Name	Legacy Waste Quantity in MT	Area of dumpsite (in acres)	Total Proposal Cost @ 550/MT (Rs in Crore)	Central Govt. share (Rs in Crore)	1st instalment @40% of ACA (Rs in Crore)
ULBs >1 Lakh Population						
1	Warangal	4,00,000	32	22.00	7.26	2.90
2	Nizamabad	4,59,900	51	25.29	8.35	3.34
3	Karimnagar	2,25,800	9	12.42	4.10	1.64
4	Khammam	2,70,000	38	14.85	4.90	1.96
5	Ramagundam	1,27,890	10	7.03	2.32	0.93
6	Mahbubnagar	1,32,400	25	7.28	2.40	0.96
7	Nalgonda	1,03,009	22	5.67	1.87	0.75
8	Adilabad	96,930	36.2	5.33	1.76	0.70
9	Suryapet	80,000	10.5	4.40	1.45	0.58
10	Siddipet (M)	63,780	7	3.51	1.16	0.46
11	Miryalaguda	72,700	6	4.00	1.32	0.53
12	Jagtial	65,400	5	3.60	1.19	0.47
13	Kamareddy	64,520	16	3.55	1.17	0.47
ULBs < 1 Lakh Population						
14	Nirmal	10,800	13.00	13	0.59	0.30
15	Sircilla	5,400	6.25	6.25	0.30	0.15
16	Zaheerabad	51,840	5.00	5	2.85	1.43
17	Sangareddy	2,352	5.00	5	0.13	0.06
18	Mancherial	19,008	2.00	2	1.04	0.52
19	Bodhan (M)	48,356	22.00	22	2.65	1.33
20	Palwancha	3,840	3.00	3	0.21	0.11
21	Kothagudem	50,650	6.00	6	2.79	1.39
22	Kodada	44,800	8.32	8.32	2.46	1.23
23	Naspur	9,900	10.00	10	0.54	0.27
24	Tandur	40,950	6.00	6	2.25	1.13
25	Gadwal	1,944	6.00	6	0.11	0.05
26	Wanaparthy	1,404	4.00	4	0.07	0.04
27	Kortulla	43,127	5.05	5.05	2.37	1.19
28	Mahabubabad	40,234	10.00	10	2.21	1.11
29	Armoor	41,580	11.00	11	2.29	1.15
30	Vikarabad	39,200	10.01	10.01	2.16	1.08
31	Bhongir	37,200	2.50	2.5	2.05	1.03
32	Bhupalpalli	1,215	3.00	3	0.07	0.04
33	Kagaznagar	1,316	4.00	4	0.07	0.04
34	Bellampalle	35,000	10.00	10	1.93	0.97
35	Shadnagar	1,300	5.00	5	0.07	0.04
36	Metpalli	18,144	3.80	3.8	1.00	0.50
37	Jallpally	1,011	2.00	2	0.06	0.03

38	Jangaon	2,236	10.00	10	0.12	0.06
39	Jadcherla	5,280	6.00	6	0.29	0.15
40	Mandamarri	9,403	5.00	5	0.52	0.26
41	Medak	30,635	7.00	7	1.68	0.84
42	Peddapalli	2,544	6.00	6	0.14	0.07
43	Bhainsa	6,600	5.00	5	0.36	0.18
44	Nizampet	32,000	10.00	10	1.76	0.88
45	Huzurabad	4,200	5.00	5	0.23	0.12
46	Vemulawada	2,160	4.00	4	0.12	0.06
47	Ameenpur	31,620	5.00	5	1.74	0.87
48	Jammikunta	6,120	3.00	3	0.34	0.17
49	Sadasivpet	6,000	5.00	5	0.33	0.17
50	Narayanpet	23,652	8.00	8	1.30	0.65
51	Dundigal	24,000	10.63	10.63	1.32	0.66
52	Narsampet	1,980	1.00	1	0.11	0.06
53	Gajwel	21,815	20.00	20	1.20	0.60
54	Nagarkurnool	3,600	5.00	5	0.20	0.10
55	Huzurnagar	2,640	10.00	10	0.15	0.08
56	Kyathanpally	10,356	28.00	28	0.57	0.29
57	Bollaram	20,250	1.00	1	1.11	0.56
58	Yellandu	1,496	5.00	5	0.08	0.04
59	Sathupalle	6,144	8.00	8	0.34	0.17
60	Manugur	3,720	6.00	6	0.20	0.10
61	Madhira	1,032	5.00	5	0.06	0.03
62	Choutuppal	812	5.00	5	0.04	0.02
63	Wyra	672	1.00	1	0.04	0.02
64	Ibrahimpatnam	1,440	8.04	8.04	0.08	0.04
65	Kalwakurthy	4,944	3.00	3	0.27	0.14
66	Banswada	17,080	8.00	8	0.94	0.47
67	Devarakonda	18,440	6.34	6.34	1.01	0.51
68	Atchampet	3,200	6.00	6	0.18	0.09
69	leeja	2,160	5.00	5	0.12	0.06
70	Pedda Amberpet	560	3.20	3.2	0.03	0.02
71	Dubbaka	2,059	6.13	6.13	0.11	0.06
72	Nagaram	15,299	3.00	3	0.84	0.42
73	Kollapur	14,840	5.00	5	0.82	0.41
74	Parkala	1,584	3.20	3.2	0.09	0.05
75	Tellapur	15,000	5.00	5	0.83	0.42
76	Thumkunta	15,330	40.02	40.02	0.84	0.42
77	Andole-Jogipet	13,248	1.20	1.2	0.73	0.37
78	Chennur	667	10.00	10	0.04	0.02
79	Ghatkesar	2,772	3.00	3	0.15	0.08
80	Makthal	600	2.00	2	0.03	0.02
81	Husnabad	648	2.00	2	0.04	0.02

82	Pocharam	4,050	0.50	0.5	0.22	0.11
83	Luxettipet	450	1.20	1.2	0.02	0.01
84	Kosgi	675	5.18	5.18	0.04	0.02
85	Thoopran	12,689	2.00	2	0.70	0.35
86	Khanapur	3,840	1.20	1.2	0.21	0.11
87	Sultanabad	538	0.20	0.2	0.03	0.02
88	Yallareddy	516	10.00	10	0.03	0.02
89	Thukkuguda	6,720	3.00	3	0.37	0.19
90	Thorrur	924	7.00	7	0.05	0.03
91	Kothakota	1,668	1.00	1	0.09	0.05
92	Narsapur	11,500	2.00	2	0.63	0.32
93	Tirumalagiri	812	0.50	0.5	0.04	0.02
94	Cherial	522	0.45	0.45	0.03	0.02
95	Narayankhed	11,052	2.00	2	0.61	0.31
96	Parigi	7,080	4.00	4	0.39	0.20
97	Ramayampet	750	2.00	2	0.04	0.02
98	Maripeda	2,520	3.50	3.5	0.14	0.07
99	Haliya	540	2.00	2	0.03	0.02
100	Alair	1,400	2.00	2	0.08	0.04
101	Pochampally	1,001	2.00	2	0.06	0.03
102	Choppandandi	493	5.00	5	0.03	0.02
103	Manthani	324	2.00	2	0.02	0.01
104	Mothkur	2,040	5.00	5	0.11	0.06
105	Dharmpuri	1,152	1.00	1	0.06	0.03
106	Nandikonda	4,104	3.00	3	0.23	0.12
107	Yadagirigutta	9,775	2.00	2	0.54	0.27
108	Pebbair	4,800	4.00	4	0.26	0.13
109	Adibatla	4,860	1.00	1	0.27	0.14
110	Bheemgal	320	4.00	4	0.02	0.01
111	Raikal	8,760	0.20	0.2	0.48	0.24
112	Atmakur	392	1.00	1	0.02	0.01
113	Chityal	8,431	2.00	2	0.46	0.23
114	Neredcherla	3,564	3.50	3.5	0.20	0.10
115	Dornakal	288	2.00	2	0.016	0.008
116	Kodangal	8,400	5.00	5	0.462	0.231
117	Wardhannapet	2,250	2.00	2	0.124	0.062
118	Waddepalle	1,760	5.00	5	0.097	0.048
119	Alampur	3,456	0.25	0.25	0.19	0.095
120	Bhootpur	657	1.00	1	0.036	0.018
121	Chandur	7,690	1.09	1.09	0.423	0.211
122	Amarchinta	500	0.25	0.25	0.028	0.014
123	Kothapally	405	5.00	5	0.022	0.011
	Total	32,07,406	842.41	178.6	69.08	27.63

Details of ULBs for C&D Waste Processing

Name of ULB	Population (2011)	Proposed C&D waste capacity (TPD)	Projected C&D waste (TPD) @ 75 gm /capita	Assessed Capacity (TPD)	*Cost @ Rs.6 Cr/100 TPD (Rs in Crore)	Central Share (Rs in Crore)	1st Instalment @ 40% (Rs in Crore)
GHMC	67,31,790	1000	694	695	41.7	10.42	4.17
GWMC with Cluster approach (15 ULBs)	13,92,386	200	144	145	8.7	2.8	1.14
Nalgonda with Cluster approach (10 ULBs)	5,75,366	100	59	60	3.6	1.19	0.47
Sangareddy with Cluster approach (10 ULBs)	4,87,419	50	50	50	3.0	1.50	0.6
Total		1350	947.00	950.00	57.00	15.91	6.36

Details of ULBs for Mechanical Sweeping.

Name of ULB	Population (2011)	No. of Machines proposed	No. of machines considered for fund release	Cost for procurement of required vehicles @ Rs 55 lakhs / vehicle (Rs in Crore)	Central Share as per SBM 2.0 (Rs in Crore)	1 st Instalment @ 40% (Rs in Crore)
GHMC	6731790	25	25	13.75	3.43	1.37
GWMC	819406	4	2	1.1	0.36	0.14
Nalgonda	165328	1	1	0.55	0.18	0.07
Sangareddy	71376	1	1	0.55	0.27	0.11
Total		31	29	15.95	4.24	1.69

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ABSTRACT 558 ANNEXURE-20(A)

Municipal Administration & Urban Development Department - Hyderabad Metropolitan Water Supply and Sewerage Board - Construction of (17) STPs along River Musi and at Kukatpally Nala Catchment (Hussain Sagar Lake catchment) under Sewerage Improvement Project of Sewerage Master Plan of Hyderabad Urban Agglomeration - Administrative Sanction for an amount of Rs.512.87 Crores for two years i.e. Rs.256.175 Crores each year - Orders - Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (ENGG.) DEPARTMENT

G.O.Rt. No.374.

Dated: 11.09.2020

Read:

From the M.D., HMWS&SB, Hyderabad, Lr.No.HMWSSB/MD/STPs-Project/AS/2020-21/dated: 22.08.2020

* * *

ORDER:

In the reference read above the Managing Director, HMWSSB, Hyderabad has submitted a proposal for construction of 17 STPs with a total capacity of 376.5 MLD which will address the issue of pollution from catchment area of Hussain Sagar effectively on a permanent basis. The Total cost of this project including O&M is Rs.1280.87 Crores. The Detailed Project Report along with site locations are ready. It is proposed on HAM model, wherein 40% of the cost is to be borne by the State Government and the balance will be met by the concessionaire agency. The 40% of Government share i.e., Rs.512.35 crores is to be provided in two years i.e. Rs.256.175 Crores each in 1st and 2nd year respectively.

2. After careful examination of the matter Government hereby accords administrative approval for construction of 17 STPs in the catchment nalas of Hussain Sagar, under HAM mode of Contract, along with concurrence to meet the 40% of Government share coming to Rs. 512.35 Crores which is to be provided in two years i.e. Rs. 256.175 Crores each from Hyderabad Urban Agglomeration budget.

3. The Managing Director, Hyderabad Metropolitan Water Supply and Sewerage Board, Hyderabad shall take further action accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

ARVIND KUMAR
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Managing Director, Hyderabad Metropolitan Water Supply and Sewerage Board, Hyderabad.

Copy to:
The Prl. Secretary to Hon'ble C.M.
OSD to Hon'ble M(MA&UD).
P.S. to Principal Finance Secretary, Finance Department.
P.S. to Prl. Secretary to Govt., MA&UD Dept.,
P.A. to Secretary to Government, MA&UD.
The Finance (DCM) Dept.
SF/SC.

//FORWARDED :: BY ORDER//

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ANNEXURE - 2

3145

20(B)

GOVERNMENT OF TELANGANA

ABSTRACT

MA&UD Dept., HMWSSB - Comprehensive Sewerage Master Plan for Hyderabad – Construction of (31) STPs in three Packages under Sewerage Improvement - Administration sanction for Package-I and Package -II (Musi River Catchment) and budget allocation – Orders –Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (ENGG.2) DEPARTMENT

Managing Director Office

25 SEP 2021

CC No: 3300.

25 SEP 2021 No. 19362 MA, Khairatabad, HYD

G.O. Rt. No.669 **Dated:22.09.2021**

Read the following:-

1. G.O.Rt. No. 518, MA&UD(Engg) Dept., Dated 02.07.2018.
2. From the M.D., HMWSSB, Hyderabad Letter No. HMWSSB/MD/STPs-Projects/as/2020-21, Dated: 19.08.2020.
3. G.O.Rt.No. 374, MA&UD(Engg.2) Dept., Dated 11.09.2020.
4. From the MD., HMWSSB, Letter No. HMWSSB/MD/STPs-Projects/as/2020-21/34 and note Dated:04.02.2021.

DP:I:

ORDER:-

It was reported by the Managing Director, Hyderabad Metropolitan Water Supply & Sewerage Board, that the existing sewerage system is having the sewer network and sewage treatment plants. The present sewage generation in GHMC area is 1650 MLD.

2. It was reported that the present sewage treatment capacity is 772MLD through 25 STPs existing in GHMC area which accounts for 46.78% of treatment capacity.

3. It was reported that, in GHMC area, the gap of sewage treatment is 878 MLD which is mostly flowing through river Musi. Further it was reported that, the service area of HMWSSB was extended upto ORR by the Government. After detailed review of sewerage status, the Government has appointed M/s.Shah Technical Consultants, Mumbai for preparation of Comprehensive Sewerage Master Plan for Hyderabad Urban Agglomeration (HUA) vide reference 1st cited.

4. The Managing Director, Hyderabad Metropolitan Water Supply & Sewerage Board reported that, the consultant has conducted the detailed study of planning, survey, investigation, design, estimations and furnished the "Comprehensive Sewerage Master Plan (CSMP)" for HUA. As per the study of M/s.Shah Technical Consultants, Mumbai, it was reported that the total generation of sewage for the year 2021 is 1950 Mld i.e. 1650 MLD in GHMC and 300 MLD in ORR area. The estimated sewage flows for the year 2036 is 2814Mld and for the year 2051 is 3715 Mld. The consultants have recommended for construction of 62 STPs for the estimated sewage flows of year 2036.

5. Further the consultants have prioritized 31 STPs for GHMC in 3 packages for immediate phase as under:-

Package-1: 8 STPs of 402.5MLD capacity at a cost of Rs.1230.21 Crores including O&M for 15 years for North of Musi.

Package-2: 6 STPs of 480.5MLD at a cost of Rs.1355.13 Crores including O&M for 15 years for South of Musi.

Package-3: 17 STPs of 376.5 MLD capacity at a cost of Rs.1280.87 Crores including O&M for 15 years for Kukatpally-H.S.Lake Catchment.

6. The consultants have reported that, by implementation of 3 Packages as above, the 100% sewage treatment will takes place in GHMC area. In the reference 2nd read above, the M.D., HMWSSB, has submitted the proposals for 31 STPs in 3 packages to the Government for administrative sanction to take up under HAM mode of contracts i.e. 60% investment by agency and 40% cost by the Government, with project implementation period of 2 years and O & M

Contd. P.2

Period of 15 years as above. In the reference 3rd read above, Government have accorded administrative approval for construction of 17 STPs in the catchment Nalas of Hussain Sagar, under HAM Mode of contract, to meet the 40% of Government share coming to Rs.512.35 Crores which is to be provided in two years i.e. Rs. 256.175 Crores per year from Hyderabad Urban Agglomeration Budget. In the reference 4th read above, the MD., HMWSSB has requested the Government for Administrative sanction for the Package-I and Package-II STPs of Musi River Catchment with budget allocation of all three packages to the HMWSSB for implementation under HAM mode of contract. It was also reported that, the Hon'ble NGT is constantly issuing directions for establishment of STPs for all urban cities including Hyderabad City. Further MD, HMWSSB reported that, as there is trend of positive responses to the investments by the private agencies to the STPs projects under HAM mode of contracts, it is proposed to consider the implementation of these 2 STP projects under HAM (60:40) mode.

7. The budgetary requirement towards 40% share of the Government to be provided in 2 years during 1st year & 2nd year for all three STP packages is submitted as below:-

STP Project Name & Package	Total Project Cost (Rs. inCr.)	Total Government shares towards 40% cost (Rs.in Cr.)	Government share during 1st year (2021-22) (Rs. In Cr.)	Government share during 1st year (2022-23) (rs. In Cr.)
Package-3 - Hussainsagar Lake Catchment area STPs Project (already accorded administrative sanction vide GO Rt.No.374, dt: 11.9.2020)	1280.87	512.35	256.175	256.175
Package-1 - North of Musi STPs Project	1230.21	492.084	246.042	246.042
Package-2 - South of Musi STPs Project	1355.13	542.052	271.026	271.026
Total	**3866.21**	**1546.486**	**773.243**	**773.243**

The Managing Director, Hyderabad Metropolitan Water Supply & Sewerage Board has requested the Government for Administrative Sanction to the two packages of Package-I and Package-II (Musi River Catchment) for implementation.

8. After careful examination of the entire matter, the Government hereby accord administrative sanction for the STPs of Package-I & Package-II under HAM mode of contract (60% investment by agency & 40% share through Government budget) for implementation of the projects in 2 years period:-

Package-1: Construction of 8 STPs of 402.5MLD capacity at a cost of Rs.1230.21 Crores including O&M for 15 years with budgetary support of Rs.246.042 Cr in 1st year & Rs.246.042 Cr for 2nd year.

Package-2: Construction of 6 STPs of 480.5 MLD capacity at a cost of Rs.1355.13 Crores including O&M for 15 years with budgetary support of Rs.271.026 Cr in 1st year & Rs.271.026 Cr for 2nd year.

9. The Hyderabad Metropolitan Water Supply & Sewerage Board shall ensure that on implementation of the STP projects of Package-I, II & III by construction of 31 STPs, the 100% sewage generated in GHMC area shall be processed, treated and disposed.

10. The Managing Director, Hyderabad Metropolitan Water Supply & Sewerage Board shall take further action accordingly.

11. This order issued with the concurrence of Finance (DCM) Department vide their U.O. No. 2248/227/A2/DCM/2020, Dated :07.01.2021.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

ARVIND KUMAR
SPECIAL CHIEF SECRETARY TO GOVERNMENT

To
The M.D., HMWS&SB, Hyderabad.

Contd.. P.3

Copy to:
The P.S. to Prl. Secretary to C.M.
OSD to Minister (MAUD)
The Finance (DCM) Department,
The G.A.(Cabinet) Department.
P.S. Spl. C.S. to Government, MA&UD Dept.
P.A. to Secretary to Government, MA&UD Dept.
Sf/Sc

//FORWARDED:: BY ORDER//

SECTION OFFICER

GOVERNMENT OF TELANGANA
ABSTRACT

Municipal Administration and Urban Development Department – HMWSSB- Sewerage Projects-Construction of 1STP in PPP mode and 38 STPs in HAM mode-Administrative sanction for an amount of Rs.3849.10 crores under AMRUT 2.0 (TRANCHE-III)-Accorded-Orders-Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (UBS) DEPARTMENT

G.O.Rt.No. 344 — Dated: 03 .08.2024

Read the following:

1. Government Memo No 681/UBS/2024, dated:20.1.2024.
2. State Level High Powered Steering Committee CR No:05, dated:5.2.2024.
3. Approval of Appex Committee of AMRUT 2.0, GOI, New Delhi, dated:14.3.2024.
4. From Managing Director, HMWSSB Lr No HMWSSB/MD/Musi Riverfront/AMRUT-2.0/STPs-ORR/AS/2023-24/150, dated:26.4.2024.
5. From Vice Chairman & Managing Director, Hyderabad Lr No 21/TUFIDC/AMRUT 2.0/TRANCHE-III/2024, dated:15.5.2024.

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ORDER:

In the circumstances reported in the references 4th and 5th read above and after careful examination , Government hereby accord administrative sanction for an amount of Rs.3849.10 crores (Rupees Three Thousand Eight Hundred Forty Nine crores and Ten lakh only) for construction of STPs for ULBs between GHMC & ORR area under Hyderabad Agglomeration as part of Musi Riverfront-Musi Cleanup in 3 sewerage projects with the following funding pattern

(Rs. In crores)

Sector	No. of projects	Total project cost excluding O&M	Funding Breakup of Project cost			ULB Contribution O&M for 15 years	Total project cost including O&M
			Central share (30%)	State share (30%)	PPP (40%)		
Sewerage Project - 1 STP in PPP	1	51.37	15.41	15.41	20.55	12.74	64.11
Sub Total	1	51.37	15.41	15.41	20.55	12.74	64.11

Sector	No.of projects	Total project cost excluding O&M	Funding Breakup of Project cost			ULB Contribution O&M for 15 years	Total project cost including O&M
			Central share (25%)	State share (35%)	HAM (40%)		
Sewerage Project -16 STPs in HAM (Package.-I)	1	1251.90	312.98	438.18	500.75	626.65	1878.55
Sewerage Project -22 STPs in HAM (Package.-II)	1	1266.54	316.64	443.31	506.60	639.90	1906.44
Sub Total :	2	2518.44	629.61	881.48	1007.35	1266.55	3784.99
Total :	3	2569.81	645.02	896.89	1027.90	1279.29	3849.10

2. Government also accord permission to Managing Director, HMWSSB, Hyderabad to adopt the approved terms and conditions of ongoing STP projects taken up under the HAM mode in HMWSSB.

[P.T.O.]

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3. The Managing Director, HMWSSB, Hyderabad / the Vice Chairman & Managing Director, TUFIDC, Hyderabad shall take necessary further action in the matter accordingly.

4. This order issues with the concurrence of Finance Department vide their U.O.No 2558353-A/153/PF/2024, dated: 22.6.2024.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

M.DANA KISHORE
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Managing Director, HMWSSB, Hyderabad
The Vice Chairman & Managing Director, TUFIDC, Hyderabad
Copy to:
The Metropolitan Commissioner, HMDA, Hyderabad
The Commissioner, GHMC, Hyderabad
The Managing Director, MRDCL, Hyderabad
The Director of Municipal Administration, Hyderabad
The Engineer-in-Chief (PH), Hyderabad
The Director, Town & Country Planning, Hyderabad
The Member Secretary, Telangana Pollution Control Board, Hyderabad
The MA&UD (TP&E) Department
The Finance (DCM) Department
The OSD to Spl. Secretary to Hon'ble C.M.
The OSD to Prl.Secretary to Government
Sf/sc

//FORWARDED::BY ORDER//

ASSISTANT DIRECTOR

ANNEXORE-21-A

564.

A21(A)

Sl. No.	G.O.No. and date	Capacity (MLD)	Amount sanctioned (Rs in Crs)	Package No.	Catchment area/ULB	No. of STPs
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1.	MD & CEO, GWSCCL Proc. No. GWSCCL/WGL/ CEO/24/2019, dt: 16-02-2019 • (5.00 MLD, 15.00 MLD & 100.00 MLD)	120	200.00	1	GWMC	3
2.	Govt. Memo No. 2899/Plg.VI/2018, Dt:02.11.2019 G.O.Rt.No.15, Planning (VI) Dept., Dt:19.01.2023 • (1.50 MLD, 3.50 MLD, 1.25 MLD & 0.50 MLD) • 99.00 + 56.00 Addl. Sanction	6.75	155.00	1	Gajwel	04
3.	G.O. Rt. No. 834 of MA&UD (UBS) Dept, Dt: 15-11-2021	11.00	155.13	1	Siddipet	01
4.	G.O.Rt.No.549, Dt: 06-08-2019 of MA&UD (UBS) Department Revised AS - Govt .Memo.No.9138/UBS/2023, Dt.01-07-2023 • (23.20 + 1.80 Addl. Sanction)	1.50	25.00	1	Devarakonda	1
5.	G. O. Rt. No. 558, MA&UD (Engg.-2) Dept., dt: 06-08-2021	19.10	61.25	1	Sircilla	1
6.	G. O. Rt. No. 4, MA&UD (Engg.) Dept., dt: 04-01-2022	20.00	100.00	1	Khammam	1
7.	G.O. Rt. No. 139 of MA&UD (UBS) Dept, Dt: 06-03-2018 Revised AS - G.O. Rt. No. 409 of MA&UD (UBS) Dept, Dt: 22-06-2022 • (10 MLD & 10 MLD) • (81.41 + 36.59 Addl. Sanction)	20	118.00	1	Suryapet	2

8.	GO Rt.No.637, MA & UD (UBS) Dept, dated:23-08-2023	1.50	30.00	1	Devarakonda	1
9.	G. O. Rt. No. 132, MA&UD (UBS) Dept., dt: 12-03-2024 • (5.00 MLD, 0.90 MLD, 0.40 MLD & 0.50 MLD)	6.80	128.00	1	Madhira	4
10.	G. O. Rt. No. 522, MA&UD (UBS) Dept., dt: 02-07-2018 Revised AS - G. O. Rt. No. 22, MA&UD (UBS) Dept., dt: 18-01-2025 • (2.30 MLD & 3.20 MLD) • (65.00 + 25.00 Addl. Sanction)	5.50	90.00	1	Nagarkurnool	2
	Total	**212.15**	**1062.38**	**10**		20

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ANNEXURE - 21(B)

A 21(B)

GOVERNMENT OF TELANGANA

ABSTRACT

Municipal Administration and Urban Development Department - AMRUT 2.0 – 98 Water Supply Projects and 9 Sewerage Projects in three (3) packages under AMRUT 2.0 – Administrative Sanction – Accorded – Orders – Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (UBS) DEPARTMENT

G.O. Rt. No.762

Dated: 29-09-2023

Read the following: -

505

1. G.O. Rt. No. 831, MA&UD (UBS) Department, Dated:12.11.2021.
2. G.O. Rt. No. 832, MA&UD (UBS) Department, Dated:12.11.2021.
3. State High Power Steering Committee CR No. 1, Dated:11.3.2022.
4. 1st APEX Committee, MoHUA, GOI, New Delhi, Dated:16.3.2022.
5. 4th APEX Committee, MoHUA, GOI, New Delhi, Dated:12.8.2022.
6. State Level Technical Committee CR No.1, Dated: 27.8.2022.
7. GoRt No 312, MA&UD (UBS) Department, Dated:20.5.2023
8. From ENC (PH), Hyderabad letter No 21/T1/AMRUT2.0./ General/2023-24, dated: 24.6.2023
9. From ENC (PH), Hyderabad letter No 21/T1/AMRUT2.0./ General/2023-24, dated: 20.7.2023.

<<>><<>>

ORDER:-

In the circumstances reported by the Engineer-in-Chief (Public Health), Telangana Hyderabad in the reference 9th read above and in partial modification of the orders issued in G.O. 7th read above and after careful examination, Government hereby accord administrative sanction for an amount of Rs. 5385.05 crores for the following 98 Water Supply Projects and 9 Sewerage Projects in three packages (3) under AMRUT 2.0. The ULB-wise funding pattern for 98 Water Supply Projects and 9 sewerage projects appended to this order.

Rs. in Crores

Sl. No.	Package No.	Details of the Package	Project Cost as per approved SWAP excluding O&M cost	Central Share	State share	XV FC Grant	ULB Share O&M Cost	Total Project Cost including O&M	Land Acquisition (LA) for STPs	Total Project Cost including O&M and LA
1	I	Water Supply Projects in 30 ULBs and Sewerage projects in 03 ULBs under AMRUT 2.0 under the jurisdiction of Adilabad, Karimnagar and Warangal PH Divisions	1541.630	652.084	726.456	163.090	190.450	1732.080	13.000	1745.080
2	II	Water Supply Projects in 26 ULBs and Sewerage projects in 04 ULBs under AMRUT 2.0 under the jurisdiction of Nalgonda and Khammam PH Divisions	1540.740	607.442	817.558	115.740	210.620	1751.360	7.000	1758.360
3	III	Water Supply Projects in 42 ULBs and Sewerage projects in 02 ULBs under AMRUT 2.0 under the jurisdiction of Sangareddy, Rangareddy, Nizamabad, and Mahabubnagar PH Divisions	1682.550	721.060	782.490	179.000	189.060	1871.610	10.000	1881.610
		Total	4764.920	1980.586	2326.504	457.830	590.130	5355.050	30.000	5385.050

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2. The Government also issues the following:

(1) To accord permission to cancel the tenders invited for 98 Water supply projects in 09 packages.
(2) To accord permission for inviting the tenders of 98 water supply and 09 sewerage projects into 3 packages as per Para above.
(3) Approval for stipulating certain parameters and tender conditions in the bid document, slightly deviating from the standard procedure as per codal rules keeping in view the specific requirements of the water supply projects.
(4) To accord permission to incorporate requisite parameters and tender conditions for Sewerage projects on the similar lines of water supply projects as sought for by the Engineer-in-Chief (PH) vide reference 8th cited.
(5) To entrust the O&M of water supply system and sewerage system for 5 years (for existing infrastructure as well as new infrastructure to be added under AMRUT 2.0) on completion of capital work under AMRUT 2.0 at the same tender percentage of capital work.
(6) Approval for bringing PH division, Khammam under control of SE (PH), TUFIDC, Nalgonda to the extent of AMRUT 2.0 project works.

3. The Telangana Urban Finance and Infrastructure Development Corporation (TUFIDC), Hyderabad shall be the Nodal Agency for release of funds under AMRUT 2.0.

4. The Government direct the Director of Municipal Administration, Telangana, Hyderabad to release the share of 15th FC grants in proportion to GoI & GoTs share to TUFIDC.

5. The Government also direct the Director of Municipal Administration, Telangana, Hyderabad to issue instructions to the Commissioners of AMRUT 2.0 ULBs to conclude separate agreements with the same agencies (entrusted with the capital works) for O&M of water supply system and sewerage system for 5 years (as provided in the bid document of AMRUT 2.0 capital work).

6. This order issues with the concurrence of Finance Department vide their U.O. No. 1696307/239/A2/DCM/2022/Finance (DCM) Department, dated 28.11.2022.

7. The Engineer-in-Chief (PH), Telangana, Hyderabad / Vice Chairman & Managing Director, TUFIDC, Hyderabad / Director of Municipal Administration, Telangana, Hyderabad shall take action accordingly in the matter.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

ARVIND KUMAR
SPECIAL CHIEF SECRETARY TO GOVERNMENT

To
The Engineer-in-Chief (Public Health), Telangana, Hyderabad.
The Vice Chairman & Managing Director, TUFIDC, Hyderabad.
The Director of Municipal Administration, Telangana, Hyderabad.
Copy to:
The Commissioner, Greater Hyderabad Municipal Corporation, Hyderabad.
The Managing Director, HMWSSB, Hyderabad.
The Director of Town & Country Planning, Telangana, Hyderabad.
OSD to Hon'ble Minister (MA&UD).
OSD to Special Chief Secretary to Government, MA&UD Department.
SF/SC.

//FORWARDED :: BY ORDER//

ASSISTANT DIRECTOR

Annexure to G.O. Rt. No. 762, MA& UD (UBS) Department, dated 29-09-2023

Package Wise details of 98 Water Supply and 09 Sewerage Projects under AMRUT 2.0

PACKAGE-I

Sl. No.	PH Division / Old District	New District	ULB	Sector	Project Cost as per approved SWAP excluding O&M	Central Share	State Share	XV FC grant	ULB Share O&M Cost	Total Project Cost including O&M	Land Acquisition (LA) for STPs	Total Project Cost including O&M and LA
1	Adilabad	Nirmal	Khanapur	Water Supply	20.880	10.440	8.710	1.730	1.620	22.500		22.500
2			Nirmal	Water Supply	57.940	28.970	20.970	8.000	4.560	62.500		62.500
		Sub Total for Nirmal District			**78.820**	**39.410**	**29.680**	**9.730**	**6.180**	**85.000**	**0.000**	**85.000**
3		Mancherial	Luxettipet	Water Supply	18.540	9.270	7.450	1.820	1.460	20.000		20.000
4			Naspur	Water Supply	67.650	33.830	27.620	6.200	5.350	73.000		73.000
5			Chennur	Water Supply	28.760	14.380	12.390	1.990	2.240	31.000		31.000
6			Kyathanpally	Water Supply	38.490	19.250	16.310	2.930	3.010	41.500		41.500
7			Mancherial	Water Supply	44.950	22.480	15.150	7.320	3.550	48.500		48.500
8			Bellampalle	Water Supply	56.990	28.500	23.780	4.710	4.510	61.500		61.500
9			Mandamarri	Water Supply	28.270	14.135	9.725	4.410	2.230	30.500		30.500
		Sub Total for Mancherial District			**283.650**	**141.845**	**112.425**	**29.380**	**22.350**	**306.000**	**0.000**	**306.000**
10		Adilabad	Adilabad	Water Supply	88.490	29.497	52.423	6.570	7.010	95.500		95.500
11			Adilabad	Sewerage	177.620	59.200	111.860	6.560	37.840	215.460	10.000	225.460
		Sub Total for Adilabad District			**266.110**	**88.697**	**164.283**	**13.130**	**44.850**	**310.960**	**10.000**	**320.960**
		Total for Adilabad Division			**628.580**	**269.952**	**306.388**	**52.240**	**73.380**	**701.960**	**10.000**	**711.960**

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Sl. No.	PH Division / Old District	New District	ULB	Sector	Project Cost as per approved SWAP excluding O&M	Central Share	State Share	XV FC grant	ULB Share O&M Cost	Total Project Cost including O&M	Land Acquisition (LA) for STPs	Total Project Cost including O&M and LA
12	Karimnagar	Jagtial	Raikal	Water Supply	13.800	6.900	5.610	1.290	1.400	15.200		15.200
13			Dharmpuri	Water Supply	20.800	10.400	9.060	1.340	2.200	23.000		23.000
14			Jagtial	Water Supply	35.000	11.670	14.420	8.910	3.600	38.600		38.600
15			Kortulla	Water Supply	37.750	18.880	13.010	5.860	3.750	41.500		41.500
16			Metpalli	Water Supply	17.600	8.800	4.220	4.580	1.800	19.400		19.400
		Sub Total for Jagtial District			**124.950**	**56.650**	**46.320**	**21.980**	**12.750**	**137.700**	**0.000**	**137.700**
17		Karimnagar	Choppandandi	Water Supply	33.000	16.500	15.110	1.390	3.300	36.300		36.300
18			Kothapally	Water Supply	23.750	11.875	10.945	0.930	2.400	26.150		26.150
19			Jammikunta	Water Supply	30.000	15.000	11.280	3.720	3.000	33.000		33.000
20			Huzurabad	Water Supply	14.750	7.380	4.460	2.910	1.500	16.250		16.250
21			Karimnagar	Water Supply	132.200	44.067	75.743	12.390	13.300	145.500		145.500
22			Karimnagar	Sewerage	72.570	24.190	35.990	12.390	7.000	79.570	0.000	79.570
		Sub Total for Karimnagar District			**306.270**	**119.012**	**153.528**	**33.730**	**30.500**	**336.770**	**0.000**	**336.770**
23		Peddapalli	Sultanabad	Water Supply	16.700	8.350	6.680	1.670	1.700	18.400		18.400
24			Manthani	Water Supply	11.000	5.500	3.970	1.530	1.100	12.100		12.100
25			Peddapalli	Water Supply	23.250	11.625	7.345	4.280	2.350	25.600		25.600
26			Ramagundam	Sewerage	206.660	68.880	118.430	19.350	46.160	252.820	3.000	255.820
		Sub Total for Peddapalli District			**257.610**	**94.355**	**136.425**	**26.830**	**51.310**	**308.920**	**3.000**	**311.920**
27		Rajanna sircilla	Sircilla	Water Supply	94.750	47.375	39.625	7.750	9.500	104.250		104.250
28			Vemulawada	Water Supply	12.100	6.050	2.140	3.910	1.250	13.350		13.350
		Sub Total for Rajanna sircilla District			**106.850**	**53.425**	**41.765**	**11.660**	**10.750**	**117.600**	**0.000**	**117.600**

		Total for Karimnagar Division			795.680	323.442	378.038	94.200	105.310	900.990	3.000	903.990
29	Warangal	Warangal	Wardhannapet	Water Supply	30.980	15.490	14.330	1.160	3.100	34.080		34.080
30			Narsampet	Water Supply	27.710	13.855	10.735	3.120	2.780	30.490		30.490
		Sub Total for Warangal District			58.690	29.345	25.065	4.280	5.880	64.570	0.000	64.570
31		Hanmakonda	Parkala	Water Supply	10.670	5.340	2.410	2.920	1.070	11.740		11.740
		Sub Total for Hanmakonda District			10.670	5.340	2.410	2.920	1.070	11.740	0.000	11.740
32		Jangaon	Jangaon	Water Supply	30.750	15.375	10.935	4.440	3.080	33.830		33.830
		Sub Total for Jangaon District			30.750	15.375	10.935	4.440	3.080	33.830	0.000	33.830
33		Jayshankar bhupalpally	Bhupalpalli	Water Supply	17.260	8.630	3.620	5.010	1.730	18.990		18.990
		Sub Total for Jayshankar bhupalpally District			17.260	8.630	3.620	5.010	1.730	18.990	0.000	18.990
		Total for Warangal Division			117.370	58.690	42.030	16.650	11.760	129.130	0.000	129.130
Grand Total for Package - I					1541.630	652.084	726.456	163.090	190.450	1732.080	13.000	1745.080

[PACKAGE-II Contd...]

PACKAGE-II

Sl. No.	PH Division / Old District	New District	ULB	Sector	Project Cost as per approved SWAP excluding O&M	Central Share	State Share	XV FC grant	ULB Share O&M Cost	Total Project Cost including O&M	Land Acquisition (LA) for STPs	Total Project Cost including O&M and LA
1	Nalgonda	Nalgonda	Chityal	Water Supply	11.600	5.800	4.540	1.260	0.900	12.500		12.500
2			Chandur	Water Supply	9.090	4.550	3.450	1.090	0.710	9.800		9.800
3			Haliya	Water Supply	14.100	7.050	5.590	1.460	1.100	15.200		15.200
4			Nakrekal	Water Supply	23.240	11.620	9.170	2.450	1.760	25.000		25.000
5			Nandikonda	Water Supply	40.780	20.390	19.050	1.340	3.220	44.000		44.000
6			Nalgonda	Water Supply	52.530	17.510	28.050	6.970	4.220	56.750		56.750
7			Miryalaguda	Water Supply	86.500	28.830	53.080	4.590	6.900	93.400		93.400
8			Nalgonda	Sewerage	195.270	65.080	123.230	6.960	20.920	216.190	0.000	216.190
9			Miryalaguda	Sewerage	152.070	50.680	96.810	4.580	21.000	173.070	0.000	173.070
		Sub Total for Nalgonda District			**585.180**	**211.510**	**342.970**	**30.700**	**60.730**	**645.910**	**0.000**	**645.910**
10		Suryapet	Neredcherla	Water Supply	10.210	5.110	3.850	1.250	0.790	11.000		11.000
11			Tirumalagiri	Water Supply	27.810	13.905	12.345	1.560	2.190	30.000		30.000
12			Kodada	Water Supply	23.940	11.970	5.640	6.330	1.860	25.800		25.800
13			Suryapet	Water Supply	41.870	13.960	22.450	5.460	3.130	45.000		45.000
14			Suryapet	Sewerage	266.670	88.880	172 340	5.450	50.100	316.770	0.000	316.770
		Sub Total for Suryapet District			**370.500**	**133.825**	**216.625**	**20.050**	**58.070**	**428.570**	**0.000**	**428.570**
15		Yadadri bhuvanagiri	Alair	Water Supply	11.130	5.570	4.120	1.440	0.870	12.000		12.000
16			Choutuppal	Water Supply	19.470	9.735	7.105	2.630	1.530	21.000		21.000
17			Mothkur	Water Supply	11.120	5.560	4.220	1.340	0.880	12.000		12.000
18			Pochampally	Water Supply	16.240	8.120	6.690	1.430	1.260	17.500		17.500

19	Nalgonda	Yadadri bhuvanagiri	Yadagirigutta	Water Supply	35.800	17.900	16.580	1.320	2.840	38.640		38.640
20			Bhongir	Water Supply	20.250	10.125	5.085	5.040	1.550	21.800		21.800
		Sub Total for Yadadri bhuvanagiri District			**114.010**	**57.010**	**43.800**	**13.200**	**8.930**	**122.940**	**0.000**	**122.940**
		Total for Nalgonda Division			**1069.690**	**402.345**	**603.395**	**63.950**	**127.730**	**1197.420**	**0.000**	**1197.420**
21	Khammam	Khammam	Wyra	Water Supply	24.870	12.440	9.810	2.620	2.000	26.870		26.870
22			Madhira	Water Supply	15.830	7.920	5.220	2.690	1.260	17.090		17.090
23			Sathupalle	Water Supply	17.820	8.910	6.140	2.770	1.420	19.240		19.240
24			Khammam	Sewerage	182.660	60.887	97.653	24.120	59.860	242.520	7.000	249.520
		Sub Total for Khammam District			**241.180**	**90.157**	**118.823**	**32.200**	**64.540**	**305.720**	**7.000**	**312.720**
25		Mahabubabad	Dornakal	Water Supply	23.400	11.700	10.480	1.220	1.870	25.270		25.270
26			Maripeda	Water Supply	23.690	11.845	10.355	1.490	1.890	25.580		25.580
27			Thorrur	Water Supply	25.390	12.700	11.080	1.610	2.030	27.420		27.420
28			Mahabubabad	Water Supply	26.330	13.165	7.325	5.840	2.100	28.430		28.430
		Sub Total for Mahabubabad District			**98.810**	**49.410**	**39.240**	**10.160**	**7.890**	**106.700**	**0.000**	**106.700**
29		Bhadradri kothagudem	Kothagudem	Water Supply	115.280	57.640	50.910	6.730	9.200	124.480		124.480
30			Manuguru	Water Supply	15.780	7.890	5.190	2.700	1.260	17.040		17.040
		Sub Total for Bhadradri Kothagudem District			**131.060**	**65.530**	**56.100**	**9.430**	**10.460**	**141.520**	**0.000**	**141.520**
		Total for Khammam Division			**471.050**	**205.097**	**214.163**	**51.790**	**82.890**	**553.940**	**7.000**	**560.940**
Grand Total for Package - II					**1540.740**	**607.442**	**817.558**	**115.740**	**210.620**	**1751.360**	**7.000**	**1758.360**

[PACKAGE-III Contd...]

PACKAGE-III

Sl. No.	PH Division / Old District	New District	ULB	Sector	Project Cost as per approved SWAP excluding O&M	Central Share	State Share	XV FC grant	ULB Share O&M Cost	Total Project Cost including O&M	Land Acquisition (LA) for STPs	Total Project Cost including O&M and LA
1	Sangareddy	Medak	Narsapur	Water Supply	11.160	5.580	3.990	1.590	0.840	12.000		12.000
2			Thoopran	Water Supply	8.360	4.180	2.400	1.780	0.640	9.000		9.000
3			Ramayampet	Water Supply	6.530	3.270	1.750	1.510	0.470	7.000		7.000
4			Medak	Water Supply	27.820	13.910	9.610	4.300	2.180	30.000		30.000
		Sub Total for Medak District			**53.870**	**26.940**	**17.750**	**9.180**	**4.130**	**58.000**	**0.000**	**58.000**
5		Sangareddy	Narayankhed	Water Supply	12.520	6.260	4.720	1.540	0.980	13.500		13.500
6			Sangareddy	Water Supply	40.830	20.415	12.935	7.480	3.170	44.000		44.000
7			Zaheerabad	Water Supply	61.220	30.610	23.020	7.590	4.780	66.000		66.000
8			Sadasivpet	Water Supply	7.900	3.950	0.260	3.690	0.600	8.500		8.500
		Sub Total for Sangareddy District			**122.470**	**61.235**	**40.935**	**20.300**	**9.530**	**132.000**	**0.000**	**132.000**
9		Siddipet	Cherial	Water Supply	12.520	6.260	4.720	1.540	0.980	13.500		13.500
10			Gajwel	Water Supply	25.980	12.990	9.870	3.120	2.020	28.000		28.000
11			Siddipet	Water Supply	81.130	27.040	49.170	4.920	6.370	87.500		87.500
		Sub Total for Siddipet District			**119.630**	**46.290**	**63.760**	**9.580**	**9.370**	**129.000**	**0.000**	**129.000**
		Total for Sangareddy Division			**295.970**	**134.465**	**122.445**	**39.060**	**23.030**	**319.000**	**0.000**	**319.000**
12	Rangareddy	Vikarabad	Kodangal	Water Supply	4.190	2.100	0.890	1.200	0.310	4.500		4.500
13			Parigi	Water Supply	14.380	7.190	5.650	1.540	1.120	15.500		15.500
14			Vikarabad	Water Supply	11.180	5.590	0.230	5.360	0.820	12.000		12.000
15			Tandur	Water Supply	25.540	12.770	6.790	5.980	1.960	27.500		27.500
		Sub Total for Vikarabad District			**55.290**	**27.650**	**13.560**	**14.080**	**4.210**	**59.500**	**0.000**	**59.500**

16	Ranga Reddy	Ranga Reddy	Shankarpally	Water Supply	32.470	16.240	14.480	1.750	2.530	35.000		35.000
17			Amangal	Water Supply	29.740	14.870	12.730	2.140	2.260	32.000		32.000
18			Kothur	Water Supply	17.180	8.590	7.410	1.180	1.320	18.500		18.500
19			Shadnagar	Water Supply	25.530	12.770	8.170	4.590	1.970	27.500		27.500
		Sub Total for Ranga Reddy District			**104.920**	**52.470**	**42.790**	**9.660**	**8.080**	**113.000**	**0.000**	**113.000**
20		Medchal-malkajgiri	Medchal	Water Supply	35.230	17.615	14.135	3.480	2.770	38.000		38.000
		Sub Total for Medchal-Malkajgiri District			**35.230**	**17.615**	**14.135**	**3.480**	**2.770**	**38.000**	**0.000**	**38.000**
		Total for Ranga Reddy Division			**195.440**	**97.735**	**70.485**	**27.220**	**15.060**	**210.500**	**0.000**	**210.500**
21	Nizamabad	Kamareddy	Banswada	Water Supply	48.250	24.130	21.600	2.520	3.750	52.000		52.000
22			Yallareddy	Water Supply	32.520	16.260	14.600	1.660	2.480	35.000		35.000
23			Kamareddy	Water Supply	86.250	28.750	48.700	8.800	6.750	93.000		93.000
		Sub Total for Kamareddy District			**167.020**	**69.140**	**84.900**	**12.980**	**12.980**	**180.000**		**180.000**
24		Nizamabad	Bheemgal	Water Supply	23.300	11.650	10.350	1.300	1.700	25.000		25.000
25			Bodhan	Water Supply	46.400	23.200	16.230	6.970	3.600	50.000		50.000
26			Armoor	Water Supply	39.960	19.980	14.310	5.670	3.040	43.000		43.000
27			Nizamabad	Water Supply	201.180	67.060	119.150	14.970	15.820	217.000		217.000
28			Nizamabad	Sewerage	148.770	49.590	84.220	14.960	14.040	162.810	0.000	162.810
		Sub Total for Nizamabad District			**459.610**	**171.480**	**244.260**	**43.870**	**38.200**	**497.810**	**0.000**	**497.810**
		Total for Nizamabad Division			**626.630**	**240.620**	**329.160**	**56.850**	**51.180**	**677.810**	**0.000**	**677.810**
29	Mahabubnagar	Jogulamba gadwal	Alampur	Water Supply	13.450	6.730	5.600	1.120	1.350	14.800		14.800
30			Waddepalle	Water Supply	10.370	5.190	4.060	1.120	1.040	11.410		11.410
31			Gadwal	Water Supply	57.500	28.750	22.790	5.960	5.750	63.250		63.250
		Sub Total for Jogulamba Gadwal District			**81.320**	**40.670**	**32.450**	**8.200**	**8.140**	**89.460**	**0.000**	**89.460**

32	Mahabubnagar	Narayanpet	Kosgi	Water Supply	11.390	5.695	3.895	1.800	1.140	12.530		12.530
33			Makthal	Water Supply	13.980	6.990	5.120	1.870	1.400	15.380		15.380
34			Narayanpet	Water Supply	25.150	12.575	9.055	3.520	2.510	27.660		27.660
		Sub Total for Narayanpet District			**50.520**	**25.260**	**18.070**	**7.190**	**5.050**	**55.570**	**0.000**	**55.570**
35		Mahabubnagar	Bhootpur	Water Supply	15.860	7.930	6.840	1.090	1.590	17.450		17.450
36			Jadcherla	Water Supply	41.840	20.920	16.530	4.390	5.160	47.000		47.000
37			Mahabubnagar	Sewerage	204.160	68.050	117.810	18.300	62.640	266.800	10.000	276.800
		Sub Total for Mahabubnagar District			**261.860**	**96.900**	**141.180**	**23.780**	**69.390**	**331.250**	**10.000**	**341.250**
38		Wanaparthy	Atmakur	Water Supply	15.660	7.830	6.560	1.270	1.560	17.220		17.220
39			Amarchinta	Water Supply	11.820	5.910	4.960	0.950	1.180	13.000		13.000
40			Kothakota	Water Supply	13.600	6.800	5.200	1.600	1.350	14.950		14.950
41			Pebbair	Water Supply	9.780	4.890	3.580	1.310	0.980	10.760		10.760
42			Wanaparthy	Water Supply	65.780	32.890	26.960	5.930	6.580	72.360		72.360
		Sub Total for Wanaparthy District			**116.640**	**58.320**	**47.260**	**11.060**	**11.650**	**128.290**	**0.000**	**128.290**
43		Nagarkurnool	Nagarkurnool	Water Supply	32.940	16.470	13.360	3.110	3.290	36.230		36.230
44			Kalwakurthy	Water Supply	21.230	10.620	8.080	2.530	2.270	23.500		23.500
		Sub Total for Nagarkurnool District			**54.170**	**27.090**	**21.440**	**5.640**	**5.560**	**59.730**	**0.000**	**59.730**
		Total for Mahabubnagar Division			**564.510**	**248.240**	**260.400**	**55.870**	**99.790**	**664.300**	**10.000**	**674.300**
Grand Total for Package - III					**1682.550**	**721.060**	**782.490**	**179.000**	**189.060**	**1871.610**	**10.000**	**1881.610**
Grand Total for 98 WS and 09 Sewerage Projects					**4764.920**	**1980.586**	**2326.504**	**457.830**	**590.130**	**5355.050**	**30.000**	**5385.050**

ARVIND KUMAR
SPECIAL CHIEF SECRETARY TO GOVERNMENT

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ANNEXURE-21(C)
A21(C)

GOVERNMENT OF TELANGANA

ABSTRACT

MA&UD Department - Engineering- PH&ME- Hon'ble NGT Directions (not to discharge untreated waste water into water bodies & rivers) - Construction of Sewage Treatment Plants in all Urban Local Bodies of Telangana - Administrative sanction for an amount Rs.3769.34 crores (including O&M and Annuity Payments and GST on Interest Component of Annuity Payments) for "Sewerage Projects in 101 ULBs in the State of Telangana under SBM 2.0" - Accorded - Orders Issued.

MUNICIPAL ADMINISTRATION & URBAN DEVELOPMENT (ENGG.) DEPARTMENT

G.O. Rt. No.388 Dated:21.08.2024

Read the following:-

1. From the ENC(PH), Hyderabad, Lr.No.: T1/SBM 2.0/STPs & I&Ds /2022-23,Dt.: 15.04.2023.
2. Govt., Memo No. 6361/Engg.2/2023, Dt.02-02-2024]
3. From the ENC (PH), Hyderabad, Lr.No.T1/SBM 2.0/STPs & I&Ds/2023-24, Dt: 07.02.2024.

-000-

ORDER:

In the reference 1st read above, the Engineer-in-Chief (Public Health) Hyderabad has informed that, the Director (SBM), MoHUA, GoI has communicated the Minutes of Meeting of 7th NARC of SBM Urban duly mentioning that Action Plans submitted by the Govt. of Telangana for Urban Water Management have been aprroved containing proposals costing Rs. 934.60 Crores towards establishment of STPs and I&D for Urban Water Management have been approved in 101 ULBs and requested to issue the RFP for engagement of agencies for establishment, O&M of STPs and construction of I&D structures and to take further action for effective UWM under SBM Urban 2.0.

2. The Engineer-in-Chief (Public Health), Hyderabad has further informed that, the Hon'ble National Green Tribunal have given directions to take measures not to discharge untreated waste water into water bodies & rivers. Government of Telangana has either established or is in the process of establishing STPs in the ULBs of Warangal, Karimnagar, Nizamabad, Siddipet, Nalgonda, Miryalaguda, Suryapet, Sircilla, Gajwel, Vikarabad, Nagar Kurnool, Devarakonda, Alampur, Khammam besides GHMC to meet the requirements of respective prospective years. The ENC (PH) has requested the Government to give suitable directions on taking up STPs in 103 ULBs which are to be funded through SBM 2.0 Scheme.

3. In the reference 2nd read above, Government have requested the ENC (PH) to furnish the proposal, duly revising the installed capacity as per the discussions held in this regard by the Principal Secretary to Government MA&UD Department with the Engineer-in-Chief (Public Health), Hyderabad for taking further action in the matter.

4. In the reference 3rd read above, the Engineer-in-Chief (Public Health) has stated that previously they have submitted the proposals of SBM 2.0 to the Government for construction of 344 No. of STPs (total capacity of 789.20 MLD, considering 2038 as prospective year) along with I&D Structures with 10 years O&M with a tentative financial implication of about Rs. 5503.107 crores, along with a request to accord permission to

(PTO)

invite tenders with open technology on RFP mode in Hybrid Annuity Model without mentioning Internal Bench Mark, pending Administrative Sanction. It was also indicated therein that Administrative Sanction would be sought along with tender approval after finalization of the tenders.

5. The Engineer-in-Chief (Public Health) has further stated that, during the review meeting with the Principal Secretary to Government, MA&UD Dept. on 11-01-2024; the proposals of SBM 2.0 were placed before the Government and it was instructed to take up the proposals in two phases, duly utilizing the GoI share under SBM 2.0 in Phase-I as upfront payment, keeping in view the financial implication, and in single package in order to create healthy competition among available agencies who have experience in executing similar projects in HAM mode.

6. The Engineer-in-Chief (Public Health) has further stated that, after detailed deliberations, it has been decided in the above meeting on the following proposals under SBM 2.0:-

- Proposals under Phase-I: To consider STPs of only certain catchments of the ULB for the prospective year 2038 satisfying the criteria of SBM 2.0 Guidelines that all towns will need to prepare a DPR containing the provision of minimum one STP (for 70% of current (2025) population).

  Where there is marginal difference in capacity of STP of the catchment corresponding to the prospective year 2038 when compared to the intended capacity in Phase I (corresponding to 70% of current (2025) population of the town), those STP capacities are further reduced to meet the criteria of SBM 2.0 guidelines with a contemplation to take up capacity augmentation of these STPs as and when required on case to case basis.

- Proposals under Phase-II: Capacity augmentation (on modular basis) of the catchments under consideration in Phase I along with the new catchments deferred in Phase I can be considered in Phase II proposals.

7. The Engineer-in-Chief (Public Health) has also informed that, it has been decided to prepare estimates with the same rates as adopted for AMRUT 2.0 projects i.e., SSR 2022-23 with the cement & steel rates for the month of April 2023 and STP rates from GWSSB SOR for the year 2022-23, since the original proposal was submitted to Govt. on Dt. 15-04-2023. The estimated Operation and Maintenance cost of 115 STPs for 10 years is Rs.1608.50 Crores (*considering 5% non compounding increase on each year's O&M cost*) based on CPHEEO Guidelines, Consortium of IITs report of Ganga River Basin Environment Management Plan and common SSR–2022-23 of Government of Telangana.

8. Stating the above position, the Engineer-in-Chief (Public Health) T.G, Hyderabad has finally requested the Govt., to accord permission on the following:-

i. Administrative sanction for an amount Rs.3769.34 crores (including O&M and Annuity Payments and GST on Interest Component of Annuity Payments) for "Sewerage Projects in 101 ULBs in the State of Telangana under SBM 2.0".

Cont.P. 3

ii. Permission to invite tenders in single package under LS contract system with Hybrid Annuity Model (35% upfront and 65% deferred), duly cancelling the G.O.Rt.No.343, MA&UD (UBS) Department, Dt. 29-05-2023.

iii. Request to address the Govt. of India for permission to utilize the GOI share as upfront payment (35%) during the construction period of initial 2 years and balance (65%) to be paid in 10 annuities by the State Government along with O&M payments, considering the present financial situation of the State Government.

iv. Permission to invite tenders pending acquisition of land, in relaxation of G.O.Ms.No. 94, I&CAD (PW-COD) Department, Dated: 01-07-2023 and G.O.Ms.No. 1, Finance (Works & Projects-F7) Department, Dt. 25-02-2012 and to initiate the Land Acquisition process parallelly. In case the tender process is postponed till completion of land acquisition process, it may have a cascading effect resulting in cost escalation. Also, GoI is pursuing with the State Government constantly regarding award of the projects under SBM 2.0.

v. Land Acquisition costs will be submitted to the Government and administrative sanction for those amounts will be sought in due course.

vi. Permission from State Government to entrust the O&M of sewerage projects under SBM 2.0 for 10 years on completion of capital work at the same tender percentage of capital work, by concluding a separate agreement with the same agency by the ULB.

vii. To give directions to the DMA, Hyderabad to instruct the Commissioners of the respective ULBs (falling in SBM 2.0) to conclude separate agreements with the same agencies (entrusted with the capital works) for O&M of sewerage schemes proposed under Phase I of SBM 2.0.

viii. To give directions to the DMA, Hyderabad to instruct the Commissioners of all the respective ULBs for identification of potential users/ industries of treated waste water (minimum of 20%), which enables ULBs to avail 15th Finance Commission tied grants.

ix. The draft bid document for the LS Contract System with Hybrid Annuity Model is under preparation and the same will be submitted to the Government in due course for approval.

9. Government after careful examination of the matter, hereby accord permission on the following:-

I. Administrative sanction is accorded for an amount Rs.3769.34 Crores (including O&M and Annuity Payments and GST on Interest Component of Annuity Payments) for "Sewerage Projects in 101 ULBs in the State of Telangana under SBM 2.0"

Cont. P.4

ii. Permission is accorded to invite tenders in single package under LS contract system with Hybrid Annuity Model (35% upfront and 65% deferred), duly cancelling the G.O.Rt.No.343, MA&UD (UBS) Department, Dt. 29-05-2023.

iii. The Director of Municipal Administration, being the State Mission Director, SBM 2.0 is directed to address the Govt. of India for permission to utilize the GOI share as upfront payment (35%) during the construction period of initial 2 years and balance (65%) to be paid in 10 annuities by the State Government along with O&M payments.

iv. Permission is accorded to invite tenders pending acquisition of land, in relaxation of G.O.Ms.No.94, I&CAD (PW-COD) Dept.,Dt.01-7-2023 and G.O.Ms.No.1, Finance (Works & Projects-F7) Dept., Dt. 25-02-2012 and to initiate the Land Acquisition process parallelly, and to submit the proposals of Administrative Sanction for land acquisition if required.

v. Permission is accorded to entrust the O&M of sewerage projects under SBM 2.0 for 10 years on completion of capital work at the same tender percentage of capital work, by concluding a separate agreement with the same agency by the ULB.

vi. DMA, Hyderabad is directed to instruct the Commissioners of the respective ULBs (falling in SBM 2.0) to conclude separate agreements with the same agencies (entrusted with the capital works) for O&M of sewerage schemes proposed under Phase I of SBM 2.0.

vii. DMA, Hyderabad is directed to instruct the Commissioners of all the respective ULBs for identification of potential users/ industries of treated waste water (minimum of 20%), which enables ULBs to avail 15th Finance Commission tied grants.

10. The Engineer-in-Chief, Public Health/ the Director of Municipal Administration, Telangana, Hyderabad shall take further necessary action accordingly.

(BY ORDER AND IN THE NAME OF THE GOVERNOR OF TELANGANA)

M. DANA KISHORE
PRINCIPAL SECRETARY TO GOVERNMENT

To
The Engineer-in-Chief (PH), Telangana, Hyderabad.
The Director of Municipal Administration, Telangana, Hyderabad.
Copy to:
The OSD to Spl. Secretary to Chief Minister.
OSD to Prl. Secretary to Govt., MA&UD Department.
Sf/Sc

// FORWARDED :: BY ORDER //

SECTION OFFICER

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ANNEXURE-A-22

AN-A19

F. No. 22-39/2020-IA.III
Government of India
Ministry of Environment, Forest and Climate Change
Impact Assessment Division
*****

Indira ParyavaranBhawan
JorBagh Road, Aliganj
New Delhi – 110003
diriapolicy-moefcc@gov.in

Date: 14th February, 2022

Office Memorandum

Subject: Guidelines for siting industries which are in close proximity with the river – reg.

In light of various court directions about the criteria for siting of industries, which are in close proximity to a river, the requirement for framing specific criteria with regards to siting of industries has arisen.

2. The "Environmental guidelines for industries" of the Ministry with regard to siting of industries prescribes that industrial sites shall maintain at least ½ km., from flood plain or modified flood plain affected by dam in the upstream or by flood control systems.

3. The Hon'ble National Green Tribunal while considering restoration measures for Yamuna and Ganga rivers dealt with the issue of flood plains vide judgment dated 13.01.2015 in OA No. 6/2012 and O.A. No. 300/2013, in the context of river Yamuna, observed that, "*it is necessary to call upon the authorities to demarcate the floodplain for the flood of once in 25 years and to prohibit any kind of development activity in the area in question*".

4. Further vide judgement dated 13.07.2017 in OA No. 200/2014, M.C. Mehta vs. Union of India & Ors. reported in 2017 NGTR (3) PB1 in the context of river Ganga, it was observed that "*till the demarcation of the floodplains and identification of permissible and non-permissible activities by the State Government of this judgement, we direct that 100 meters from the edge of the river would be treated as no development/ construction zone in Segment-B of Phase-I (Haridwar to Unnao, Kanpur)*".

5. Based on the above, the aspect related to siting of industries was deliberated in the Ministry and suggestions/comments/observations were sought from different Ministries including Ministry of Jal Shakti (MoJS). Based on the inputs received, it is hereby directed that the following criteria for siting of industries in close proximity to rivers shall be followed:

> *"Industries shall not be located within the river flood plain corresponding to one in 25 years flood, as certified by concerned District Magistrate/ Executive Engineer from state water resource Deptt. or any other officer authorised by State Govt. for this purpose."*

6. This above criterion is subjected to following conditions:

i. The activities undertaken under Namami Gange Programme like construction/development / renovation of STPs, CETPs, RFDs, bathing ghats, crematoria, toilets etc. for pollution abatement of river Ganga and its tributaries are not prohibited. Further, any "developmental project" taken by MoJS under the said program are also exempted from these guidelines.

ii. River Ganga (Rejuvenation, Protection and Management) Authorities Order notified vide Notification no. S.O. 3187(E) dated 07.10.2016 which defines the floodplain as such area of river Ganga and its tributaries which comes under water on either side of it due to floods corresponding to its greatest flow or with water on either side of it due to floods corresponding to its greatest frown or with a flood or frequency once in hundred years, will prevail over any other guideline.

iii. Further, in respect of regulatory activities in floodplain of the river Ganga and its tributaries, prior approval of National Mission on Clean Ganga (NMCG) is required to be taken by the concerned authorities/ departments/agencies /persons.

iv. As per the draft Flood Plain Zoning Bill, 2020 prepared by Central Water Commission (CWC), a Flood Plain Zoning Authority shall, on the basis of the remote sensing/modeling results/ground survey, establish flood plain zones of different frequencies. After its creation, guidelines/decisions/orders of Flood Plain Zoning Authority will prevail over above guidelines.

v. Any other directions/judgments of Courts/Tribunals with regard to siting of Industries in the proximity of rivers and/or demarcation of flood plain.

7. The siting criteria prescribed in "Environmental guidelines for industries" in respect of flood plains of the riverine systems shall get modified to this extent.

8. This is issued with the approval of the competent authority.

(A K Agrawal)
Director

To

1. Chairman of all the Expert Appraisal Committees
2. Chairperson/Member Secretaries of all the SEIAAs/SEACs
3. Chairperson of all State/UT Pollution Control Boards and Pollution Control Committees

Copy for information to

1. PS to Hon'ble Minister for Environment, Forest and Climate Change
2. PS to Hon'ble MoS (EF&CC)
3. PPS to Secretary (EF&CC)
4. PPS to AS (TK)/ AS(RS)/ AS (NPG)/JS (SKB)
5. Website MoEF&CC/Guard file

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ANNEXURE-A-23

Annexure-A23

Construction of FSTPs in 68 new ULBs - 2nd Phase - Status Report

S.No	Package No & Name of the Agency	Name of the District	Name of the ULB	CAPEX Cost including taxes and provisions (in Rs Lakhs)	Design Capacity (in KLD)	Work status	Progress in %
1	2	3	4	5	6	10	11
1	PACKAGE_1 M/s.Earthin Projects Ltd	Nalgonda	Chityal	92.495	5	Yet to be started	-
2			Chandur	92.495	5	In progress	90%
3			Haliya	92.495	5	In progress	5%
4			Nakrekal	184.99	10	Yet to be started	-
5			Nandikonda	92.495	5	In progress	40%
6		Suryapet	Neredcherla	92.495	5	Yet to be started	-
7			Tirumalgiri	92.495	5	Yet to be started	-
8		Yadadri Bhuvangiri	Alair	92.495	5	Yet to be started	-
9			Chotuppal	184.99	10	Yet to be started	-
10		Yadadri Bhuvangiri	Mothkur	92.495	5	In progress	15%
11			Pochampally	92.495	5	Yet to be started	-
12			Yadagirigutta	92.495	5	In progress	80%
13	PACKAGE_2 M/s Envision Env Engg	Medchal Malkajgiri	Jawaharnagar	91.551	10	In progress	55%
14			Nizampet	91.551	10	In progress	15%
15			Dhammaiguda	91.551	10	In progress	10%
16			Dundigal	91.551	10	Completed	100%
17			Ghatkesar	91.551	10	Completed	100%
18			Gundlapochampally	45.776	5	In progress	10%
19			Kompally	91.551	10	Yet to be started	-
20			Nagaram	91.551	10	In progress	5%
21			Pocharam	91.551	10	In progress	30%
22			Thumkunta	91.554	10	In progress	10%

S.No	Package No & Name of the Agency	Name of the District	Name of the ULB	CAPEX Cost including taxes and provisions (in Rs Lakhs)	Design Capacity (in KLD)	Work status	Progress in %
1	2	3	4	5	6	10	11
23	PACKAGE -3 M/s.Revolve Engineers Pvt Ltd	Mahabub-nagar	Bhoothpur	80.155	5	In progress	10%
24		Narayan-pet	Kosgi	80.155	5	Not started	-
25			Makthal	160.312	10	Not started	-
26		Wanaparthy	Atmakur	80.155	5	In progress	95%
27			Amarchintha	80.155	5	In progress	95%
28			Kothakota	80.155	5	Yet to be started	-
29			Pebbair	80.155	5	In progress	10%
30		Jogulamba Gadwal	Alampur	80.155	5	Dropped	-
31			Waddepalli	80.155	5	In progress	60%
32		Vikarabad	Kodangal	80.155	5	Land not identified	-
33			Parigi	80.159	5	In progress	95%
34	PACKAGE -4 M/s.Revolve Engineers Pvt Ltd	Kamareddy	Yellareddy	71.353	5	In progress	85%
35		Nizamabad	Bheemgal	71.353	5	Yet to be started	-
36		Medak	Narsapur	71.353	5	In progress	90%
37			Thoopran	71.353	5	In progress	10%
38			Ramayampet	71.353	5	In progress	10%
39		Sangareddy	Narayankhed	71.353	5	In progress	10%
40			Ameenpur	142.706	10	Yet to be started	-
41			Bollaram	142.706	10	In progress	10%
42			Tellapur	142.706	10	Completed	100%
43		Siddipet	Cherial	71.352	5	Not started	-

S.No	Package No & Name of the Agency	Name of the District	Name of the ULB	CAPEX Cost including taxes and provisions (in Rs Lakhs)	Design Capacity (in KLD)	Work status	Progress in %
1	2	3	4	5	6	10	11
44	PACKAGE -5 M/s Envision Env Engg	Ranga Reddy	Bandlaguda jagir	101.179	10	In progress	20%
45			Shamshabad	101.179	10	In progress	20%
46			Turkayamjal	101.179	10	In progress	25%
47			Adibatla	50.59	5	Completed	100%
48			Shankarpally	50.59	5	Land not identified	-
49			Thukkuguda	50.59	5	In progress	5%
50			Amangal	101.179	10	In progress	5%
51			Manikonda	50.59	5	Dropped	-
52			Narsingi	101.179	10	Completed	100%
53	PACKAGE -6 M/s.Annapurna Constructions	Karimnagar	Choppadandi	95.055	5	In progress	95%
54			Kothapalli	95.055	5	Completed	100%
55		Peddapalli	Manthani	95.055	5	In progress	90%
56			Sultanabad	95.055	5	In progress	15%
57		Khammam	Wyra	190.109	10	In progress	90%
58		Mahabubabad	Dornakal	95.055	5	In progress	95%
59			Marripeda	95.055	5	In progress	95%
60			Thorrur	95.055	5	In progress	95%
61		Warangal Rural	Wardhannapet	95.055	5	Completed	100%
62	PACKAGE -7 M/s.Annapurna Constructions	Nirmal	Khanapur	61.575	5	Completed	100%
63		Mancherial	Chennur	123.149	10	Completed	100%
64			Kyathanpally	123.149	10	Completed	100%
65			Luxettipet	123.149	10	Completed	100%
66			Naspur	184.724	15	Yet to be started	-
67		Jagtial	Dharmapuri	61.575	5	Not started	-
68			Raikal	61.575	5	In progress	10%
			Total	6451.82	470.00		

Annexure-A24

HON'BLE NGT, PRINCIPAL BENCH, NEW DELHI - O.A. No. 606 of 2018 (TELANGANA STATE)

Statement showing calculation of Environmental Compensation (EC)

LIQUID / SEWAGE WASTE

(Rs.in Crores)

Sl. No.	Description	Total EC levied by NGT		Total capacities added from September 2022 to December - 2024			Capacities to be completed from January to March- 2025			Total capacities added from September 2022 to March - 2025			Gap in capacities to be completed from April – 2025 onwards			Remarks
		Qty (MLD/ MT)	Rs. in crores	Qty (MLD/ MT)	%	Amount	Qty (MLD/ MT)	%	Amount	Qty (MLD/ MT)	%	Amount	Quantity (MLD/ MT)	%	EC - Rs. in Crores	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(17)	(18)	(19)	(20)
1	**Gap in treatment of Liquid Waste/Sewage i.e. 1,824 MLD, EC calculated @ Rs.2.00 Cr per MLD for untreated liquid waste.**	**1,824**	**3,648.00**													
	(i) Within the City of Hyderabad Gap is: 1,178 MLD.															
	(a) HMWSSB	**1178**	**2356**	**663**	**56%**	**1326.00**	**329.5**	**28%**	**659**	**992.50**	**84.25%**	**1985.00**	**185.5**	**15.75%**	**371.00**	**(#)**
	Total (A)	**1178**	**2356**	**663**	**56%**	**1326.00**	**329.5**	**28%**	**659**	**992.50**	**84.25%**	**1985.00**	**185.5**	**15.75%**	**371.00**	
	(ii) Within the Telangana State Gap is: 646 MLD, excluding (i) above															
	(a) Public Health Department	**646**	**1292**	**35.05**	**5.43 %**	**70.10**	**17.16**	**2.65%**	**34.32**	**52.21**	**8.08%**	**104.42**	**593.79 (**)**	**91.91%**	**1187.58**	**AMRUT 2.0, SBM 2.0**
	Total (B)	**646**	**1292**	**35.05**	**5.43 %**	**70.10**	**17.16**	**2.65%**	**34.32**	**52.21**	**8.08%**	**104.42**	**593.79 (**)**	**91.91%**	**1187.58**	
	Total: (C)= (A) + (B)	**1,824**	**3648**			**1396.10**			**693.32**			**2089.42**			**1558.58**	

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ANNEXURE - 3171

SOLID WASTE

(Rs. In Crores)

Sl. No.	Description	Total EC levied by NGT		Quantity Processed from September 2022 to December-2024			Quanty to be completed from January to March - 2025			Total Targeted Quantity from September 2022 to March- 2025			Gap in quantity to be completed from April – 2025 onwards			Remarks
		Qty (MT)	Rs. in crores	Qty (LMT)	%	Amount	Qty (LMT)	%	Amou nt	Qty (LMT)	%	Amount	Quantity (LMT)	%	EC - Rs. in Crores	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(17)	(18)	(19)	(20)
2	**Un-remediated/un-processed Legacy Waste of 59,00,000 MT, EC calculated @Rs. 300/- per MT. ($)**	59,00,000 38,46,000 (R)	177.00 115.38 (R)													
	Entire State of Telangana including Hyderabad City Gap 38,46,000 MT (R)															
	(a) CDMA	38,46,000	115.38	13.43	34.92 %	40.29	3.47	9.01%	10.41	16.9	43.94%	50.7	21.56	56.05 %	64.68	
	Total (D)	38,46,000	115.38	13.43	34.92 %	40.29	3.47	9.01%	10.41	16.9	43.94%	50.7	21.56	56.05 %	64.68	
	Grand Total: (C+D)		3763.38			1436.39			703.73			2140.12			1623.26	
	Say Rs.		3800.00									2140.12			1623.26	

Note:

(**)Sewage Waste:includes ongoing 5 STPs of combined capacity of 54.10 MLD which are likely to be completed by June -2025. 16 No's of STPs of combined capacity of 170.30 MLD sanctioned under AMRUT 2.0. Agreements completed and will be completed in 24 months from date of agreement. 115 No's of STPs in 101 ULBs of combined capacity of 455.00 MLD sanctioned under SBM 2.0. Tender invited and no bidders participated in 1st call. Tender is being recalled. Will be completed in 24 months from date of agreement.

($)(i) The figure 59,00,000 MT of Legacy Waste was taken on assumption/adhoc basis (in the wet-status).

(ii)Now, the realistic survey of Legacy Waste was conducted in a scientific manner and figure is worked out on dry-status basis as 38,46,000 MT.

(R) Revised figures. ---

(#) The total capacity of 1106 MLD is programmed to complete by April'2025. The balance 72 MLD capacities could not be materialized due to court cases. In addition to 72 MLD the STPs with the capacity of 900 MLD in ULBs upto ORR are sanctioned under AMRUT 2.0 which are in tender stage. The above STPs capacities will cater to the needs of 2036 requirements in GHMC & upto ORR limits.

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