

NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE SENIOR MANAGER (JAL)-I
SECTOR-5, NOIDA

No: Noida/SM(Jal)-I/2023/379

Dated : 21.07.2023

To

The Consultant –Judicial-NGT (P.B.)
Email ID : judicial-ngt@gov.in

SUBJECT: UPDATES ON THE PROPOSED ACTION PLAN IN COMPLIANCE TO HON'BLE NGT DIRECTION:

Ref: NGT OA No. 1002/2018 titled Abhist Kusum Gupta Vs State of Uttar Pradesh & Others Hon'ble NGT order dated 03.08.2022.

In compliance with the Hon'ble NGT direction on dt. 03.08.2022 for NOIDA. An update on the submitted action plan is hereby furnished for the ready perusal and sympathetic consideration please:

Sr. No.	Direction	Action																																				
1	<p>Point No.-21 of order dt. 03.08.2022 It is clear that out of 95 group housing societiesif without functional STPs, the group housing societies were not allowed to occupied, the situation could have been better handled.</p>	<p>Details of 95 nos. Group Housing Societies STPs as below :-</p> <table border="1"> <thead> <tr> <th>No of GHP</th> <th>STP Installed</th> <th>STP not installed</th> <th>STP under installation</th> <th>Complying STP</th> <th>Not Complying STP</th> </tr> </thead> <tbody> <tr> <td>95</td> <td>83</td> <td>12</td> <td>0</td> <td>69</td> <td>14</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>S. N.</th> <th>Description</th> <th>Status as on Dated 01.03.2023</th> <th>Present Status</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Nos. of Group Housing Installed STPs.</td> <td>83</td> <td>83</td> </tr> <tr> <td>2</td> <td>Environment Clearance cleared & U.P. Pollution Control Board has issued CTO. Their sewage connected to the Central Sewage Treatment Plant (CSTP) of Noida.</td> <td>04</td> <td>04</td> </tr> <tr> <td>3</td> <td>Connected in Noida sewer line and at present their sewer is treated in Sewage Treatment Plant (STP) (Noida) as per Occupancy Certificate.</td> <td>07</td> <td>07</td> </tr> <tr> <td>4</td> <td>Undertaking given by Builder with timeline for operationalization of STP.</td> <td>01</td> <td>01</td> </tr> <tr> <td colspan="2">Total Nos. of Group Housing Societies</td> <td>95</td> <td>95</td> </tr> </tbody> </table> <p>Details enclosed as Annexure-A</p>	No of GHP	STP Installed	STP not installed	STP under installation	Complying STP	Not Complying STP	95	83	12	0	69	14	S. N.	Description	Status as on Dated 01.03.2023	Present Status	1	Nos. of Group Housing Installed STPs.	83	83	2	Environment Clearance cleared & U.P. Pollution Control Board has issued CTO. Their sewage connected to the Central Sewage Treatment Plant (CSTP) of Noida.	04	04	3	Connected in Noida sewer line and at present their sewer is treated in Sewage Treatment Plant (STP) (Noida) as per Occupancy Certificate.	07	07	4	Undertaking given by Builder with timeline for operationalization of STP.	01	01	Total Nos. of Group Housing Societies		95	95
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<p>..There is not effective monitoring by Noida to perform the essential duties. It is surprising that it could not create an environment cell.</p>	<p>In compliance of Hon'ble NGT order dated 23.12.2021, Noida Authority has already created dedicated environmental monitoring cell consisting of environmental professional from the Consulting Firm M/s VMC Management Consulting Pvt. Ltd., 514, DLF Tower-B, Jasola District Center, New Delhi, vide letter no. Noida/CAP/2022/3401 dated. 14.02.2023. The Environmental Cell has commenced its work and conducting the survey of Group Housing Societies. The Environmental Cell will now submit the report & would suggest the remedial action / Preventive measures to be taken which includes reporting of violation to Noida Authority / UPPCB for taking preventive action against the violators as per norms.</p> <p>The Scope of Work for environmental cell is as follows:</p> <ol style="list-style-type: none"> 1. Identify current Environmental status. 2. Identify the Environmental Compliance Gaps and action plan. 3. Develop the standard operative procedures (SOPs) for all the activities like, Integrated Water & waste Water Management including STP, ETP, Road Sweeping machines, Solid Waste Management, Green belt adequacy and to be compliant with the GAPS. 4. Establishing Environmental Monitoring parameters for Noida. 5. Developing strategy to make Noida as a City of 3R (Reduce, Reuse and Recycle). 6. Establishing Required Data Acquisition / Analytics and Reporting framework, which can be made online for the executives of the authority and available on the public domain. 7. Assisting the attorney to present before different Hon'ble Judiciary and other regulatory bodies about the environmental liability of the Authority and its execution status and future issues 8. Representing Noida Authority along with its officials at various forums for environmental policy matter. 9- Defining T&Cs for the residential projects to comply with as per environmental regulatory guidelines and notifications. 10. Capacity Building of the Noida Authority officers for smooth running of the environmental matter pertaining to Noida. 11. Preparation of brief questionnaire for audit and inspection, which shall cover the following: <ol style="list-style-type: none"> a. Compliance check of all EC conditions related to integrated water resource management, i.e., w.r.t. wastewater, freshwater and groundwater management including aspect of RWH. b. Compliance check of all the consents associated with Water (Prevention and Control of Pollution) Act. (CTE/CTO/Municipal supply permission/groundwater abstraction permission/discharge permission) c. Record of STP Monitoring test reports maintained at the site, if any. d. Compliance check of water balance w.r.t. Freshwater demand; wastewater generation; Treated water quantity; Recycle/reuse of treated STP water; Discharge quantity and mode of disposal; sludge handling; Treatment Capacity & technology. 12. Site visit at all the project sites in which environmental clearance is issued by SEIAA for the survey, surveillance, and monitoring for audit and inspection of compliance of EC conditions for water resource management. 13. Sampling of the waste water at the operational STP at inlet and outlet (one sample every 6 months) for compliance to the applicable pollution norms, every 6 months. The sample collected at site shall be sent to the designated laboratory of UPPCB. Waste water quality shall be analysed for pH, Colour, BOD, COD, TDS, Faecal Coliform (FC) & Total Coliform, etc. 14. The sampling and analysis shall also involve the following (about 75-100 random samples, as per field conditions and needs based on audit and inspection): <ol style="list-style-type: none"> a. Analysis of water quality of fresh water sources. b. Water quality of final treated
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	<p>... No coercive steps have been like black listing, cancelling occupancy certificate/ completion certificate.</p>	<p>discharge water for possible reuse/reutilization. 15. Assessment and audit of complete water balance for all the projects for which EC has been issued. 16. Preparation and submission of half yearly Inspection Report.</p> <p>Annexure-B</p> <p>➤ Noida Authority has approved environment compensation procedure, in its 208th board meeting, dated 28.12.2022, for the group housing having area more than 20,000.00 SqM for running operation of their STP and installation of STP. The Noida authority will inform UPPCB to impose Environmental Compensation on such group housing societies as per CPCB guide lines.</p> <p>Annexure-C</p>
2.	<p>Point No.-29 (i) of order dt. 03.08.2022 CPCB may issue The storm water drains, canals and water bodies need to be geo tagged and given UID. In any case, no consent be given for discharging effluents not meeting BOD 28 criteria of Class "B". Drains built exclusively as conveyance system (open sewer) must terminate to STPs.</p>	<p>The 24 drains out of 30 drains geo tagging has been done by the deputed agency NEERI & NIC (National informatics Centre) in compliance of order dt. 03.08.2022.</p>
3	<p>Point No.-29 (ii) of order dt. 03.08.2022 Mode of disposal should not be the drains. Effluents may go to sewers leading to STPs.</p>	<p>The total sewer network of Noida Authority is connected to 8 Nos. main STP of Noida situated in Sector-54 (2 Nos.), Sector-50 (2 Nos.), Sector-123 (2 Nos.) & Sector-168 (2 Nos.).</p>
4	<p>Point No.-29 (iii) of order dt. 03.08.2022 Thirty identified drains or any other such drain carrying sewage be diverted to existing STPs and not to Noida drain. Such drains are to be used for flood management.</p>	<p>In compliance Hon'ble NGT order dated 23.12.2021 regarding 30 drains merging to Kondli drain it to submit that Prof. C.R. Babu has visited and given suggestions as per this to classification of drains into 3 categories based on its with as major, medium and minor. Bio remediation method has been proposed for major and medium drains. In addition to the above, construction of in-situ wetland and plantation in main Kondli drain was also proposed.</p> <p>A) Construction of one no. In-Situ wetland work was awarded to U.P. Irrigation department in consultation with Prof. C R Babu (CEMDE, University of Delhi) on dated 18.02.2021 as a pilot project on Noida Drain. The work has completed on dated 30.04.2022 and is fully functional presently.</p> <p>One No. on line monitoring system (OLMS) is in process to be installed on both end of this completed wetland (upstream & downstream) with a facility of 24 hrs. digital display.</p>

		<p>B) Two nos. In-situ remediation wetlands in Noida irrigation drain also have been awarded as per advise of Prof. C.R. Babu. The construction of wetlands is in progress. Physical progress of both wetlands mention as below:-</p> <table border="1" data-bbox="537 478 1390 688"> <thead> <tr> <th>Location</th> <th>Total cost of project (in Cr.)</th> <th>DOS</th> <th>ADOC</th> <th>Percent Progress (%)</th> </tr> </thead> <tbody> <tr> <td>Near NSEZ, Dadri Crossing, Noida</td> <td rowspan="2">Rs 14.25 Cr.</td> <td>05.01.2022</td> <td>15.04.2023</td> <td>100%</td> </tr> <tr> <td>Near Advant Tower, Sector-142, Noida</td> <td>05.01.2022</td> <td>Work in progress</td> <td>75%</td> </tr> </tbody> </table> <p>Development work of Wetland Sector-142, held up due to rain. Work will be completed by 31.10.2023.</p> <p>Annexure-D</p> <p>Further about 30 drains the Noida Authority has deputed environmental expert i.e., National Environmental Engineering Research Institute (NEERI), Department of Science & Technology, Government of India, for preparation of DPR, for construction of In-situ and Ex-situ wetlands and construction of minor STPs over drains or intercepting of drains to divert to near STP. An MOU has been signed between NOIDA and NEERI on 21.07.2022. It is pertinent to mention here that, as per the said MOU NEERI has started their work at site. NEERI has submitted draft Feasibility report in January-2023. They have also started Topography survey for all drains including main Kondli drain. Detailed DPR for all drains will be submitted in a period of 3 to 6 month phase wise. After the said report Noida Authority will call tenders & get the work done, work executed as will be directed in DPR. NEERI has submitted the final Feasibility Report on dated 16.05.2023 and in continuation of the Feasibility Report NEERI was submitted first DPR for drain on Dated 26.06.2023</p> <p>Reports Annexure- E</p>	Location	Total cost of project (in Cr.)	DOS	ADOC	Percent Progress (%)	Near NSEZ, Dadri Crossing, Noida	Rs 14.25 Cr.	05.01.2022	15.04.2023	100%	Near Advant Tower, Sector-142, Noida	05.01.2022	Work in progress	75%		
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5	<p>Point No.-29 (iv) of order dt. 03.08.2022 All existing STPs and upcoming STPs need to meet standards as directed by this Tribunal vide order dated 30.04.2019 in OA No. 1069/2018, Nitin Shankar Deshpande vs. Union of India & Ors. subject to further directions of Hon'ble Supreme Court in pending proceedings.</p>	<p>A) All existing 08 No. STP (6 fully functional & 2 on trail run) in Noida Located Sector-50, Sector-54, Sector-123 & Setor-168 are running under Design standard SBR technology, as per order dated 30.04.2019 passed by Hon'ble National Green Tribunal, New Delhi in OA No. 1069/2018 Nitin Shankar Deshpandey Vs. UOI & Ors. Accept the parameter of fecal coliform.</p> <p>Monthly examination report enclosed here with for kind perusal. On behalf of online continuous Emission monitoring system report (OCEMS), six no. of STPs have directly connected with CPCB server & rest two OCEMS provision in tendering process. Samples also taken STPs influent/effluent and duly tested by third party quality monitor <u>Sriram Institute for Industrial Research, Delhi</u> as in regular monthly basis, which Reports are as per norms: -</p> <p><u>Results of Quality Analysis at Sriram Institute for Industrial Research, New Delhi</u> (Month June-2023)</p> <table border="1" data-bbox="537 1751 1390 1881"> <thead> <tr> <th>STP & Sector</th> <th>pH</th> <th>Biochemical Oxygen Demand, mg/l (at</th> <th>Chemical Oxygen Demand, mg/l (at 20°C for 5</th> <th>Total Suspended Solids, mg/l</th> <th>MPN Fecal Coliform per 100 ml</th> <th>Total Phosphorous (as P), mg/l</th> <th>Total Nitrogen (as P), mg/l</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	STP & Sector	pH	Biochemical Oxygen Demand, mg/l (at	Chemical Oxygen Demand, mg/l (at 20°C for 5	Total Suspended Solids, mg/l	MPN Fecal Coliform per 100 ml	Total Phosphorous (as P), mg/l	Total Nitrogen (as P), mg/l								
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Analysis At a Glance			20°C for 5 days)	days)				
	33 MLD Sec-54	6.9	8	40	4	<2 Organism s	0.7	4
	54 MLD Sec-54	8.0	8	44	3	<2 Organism s	1.0	2
	34 MLD Sec-50	7.4	8	40	3	221 Organism s	4.2	8
	25 MLD Sec-50	7.2	7	40	3	3.9 X 10 ²	1.7	6
	50 MLD Sec-168	7.4	8	44	4	<2 Organism s	0.4	9
	100 MLD Sec-168	7.4	7	28	4	<2 Organism s	2.9	5
	35 MLD Sec-123	7.4	7	36	3	<2 Organism s	4.2	5
	80 MLD Sec-123	7.8	10	60	8	<2 Organism s	5.5	5
	Effluent discharges standards for Sewage Treatment Plant							
As per NIT/ Tender	7-8	<20	≤100	<10	≤50	≤2	≤100	
As per GO of GOI Dt. 13.10.20 17	6.5 to 9.0	<100	NA	30	NA	NA	<1000	
NGT Order 1069/20 18 dated 21.12.20 18	6.5 to 9.0	<20	<50	<10	≤10	≤5.0	<100	
• Above parameter test reports (Sri ram lab) Annexure- F								
	PH	TSS (mg/ L)	COD (mg/L)	BOD (mg/L)	Total Nitrogen	Total Phospho rus	Fecal coliform (MPN/100ml)	
NGT Order 1069/2018 dated 21.12.2018	6.5 to 9.0	<20	<50	<10	≤10	≤5.0	<100	
Average value of All STPs	7.20	5.38	31.33	6	7.67	2.87	As per attached Details annexure	
Hence it is clear that all parameters are within the range of defined norms.								
Annexure- G								
B) However to control the parameter Fecal Coliform & Out-Let Parameter more effectively Noida has already floated Tender for installation TTP (Tertiary Treatment Plant) as directed by Uttar Pradesh Pollution Control Board, Noida vide letter No. 534, Dated 30.07.2022 which is to be done within five years from dated								

of letter i.e. 30.04.2022.

S.T.P in operation

S.No.	Running STP in Sector	MLD	Status T.T.P. (Tertiary Treatment Plant).	At all running STP (Time Line)
1	54	33	TTP work awarded and work in Progress	December - 2023
2	54	54		
3	50	25		
4	50	34		
5	123	35		
6	168	50		

New STP

S.No.	Running STP in Sector	MLD	Status T.T.P. (Tertiary Treatment Plant).	
1	123	80	TTP work awarded and work in progress.	December - 2023
2	168	100	Tertiary Treatment Plant Installed and operational	Operational

(C) It is also to inform that these S.T.P. has already added to server CPCB (Central Pollution Control Board) server through OCEMS for direct Monitoring of Out-Let Parameter.

OCEMS Status Report

S.No.	Running STP in Sector	MLD	Status OCEMS installation
1	54	33	Incompliance of UPFCB letter no.-533 dated 02.09.2020. OCEMS has been installed and made functional also connected to the CPCB Portal.
2	54	54	
3	50	25	
4	50	34	
5	123	35	OCEMS work awarded and work in progress.
6	168	50	

TTP (Fiber disc filter type Tertiary Treatment Plant) Annexure- H

(D) Treated Water Utilization report are as below:

(i) Details of sold STPs treated water:

Sl	Financial Year	Treated water Quality sold out	Total Annual revenue to Noida Authority (In Laacs)
1	2021-22	293 MLD	14.66
2	2022-23	506 MLD	25.33
3	2023-24	145 MLD As on 30.06.2023	07.25 (As on 30.06 2023)

(ii) Treated water used in irrigation purpose in Noida Area for green belts, parks and in wetlands as below :

STP	Year	MLD Used
Average of all 06 STPs	Month April-2023 to June-2023	51.56 in a day

Details enclosed as Annexure-I

		<p>(iii) <u>Treated water future plan for irrigation system in one year further in noida area as below</u></p> <table border="1"> <thead> <tr> <th>Sl. No.</th> <th>Sector</th> <th>Area/use</th> <th>Quality Proposed (In MLD)</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>54</td> <td>Wetland in polishing pond in premises of STP Sector-54</td> <td>15</td> </tr> <tr> <td>02</td> <td>50</td> <td>I. Supply of treated water in green/belt/Park in Sector-51, Sector-7X, Sector-112 to 122</td> <td>30</td> </tr> <tr> <td>03</td> <td>123</td> <td>To NTPC First Stage</td> <td>35</td> </tr> <tr> <td rowspan="2">04</td> <td rowspan="2">168</td> <td>Golf Course, Sector-151, Sheed Bhagat Singh, Sector-150, Along Noida Greater Noida Express-Way Green belt</td> <td>20</td> </tr> <tr> <td>Green belt, Park & Wetland Sectors Along Noida Greater Noida Express-Way Green belt</td> <td>20</td> </tr> <tr> <td colspan="3">Total 411 MLD STP Capacity</td> <td>120 MLD in a Day</td> </tr> </tbody> </table> <p>Annexure- J (E) <u>Sludge Management</u></p> <p>Noida is in contact with consultant as well as expert for biological treatment and proper use of daily generated sludge by all STPs. EOI will be initiated soon.</p>	Sl. No.	Sector	Area/use	Quality Proposed (In MLD)	01	54	Wetland in polishing pond in premises of STP Sector-54	15	02	50	I. Supply of treated water in green/belt/Park in Sector-51, Sector-7X, Sector-112 to 122	30	03	123	To NTPC First Stage	35	04	168	Golf Course, Sector-151, Sheed Bhagat Singh, Sector-150, Along Noida Greater Noida Express-Way Green belt	20	Green belt, Park & Wetland Sectors Along Noida Greater Noida Express-Way Green belt	20	Total 411 MLD STP Capacity			120 MLD in a Day
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6	<p>Point No.-29 (v) of order dt. 03.08.2022 MoU for utilization for sewage between Power Plant and Noida be executed without delay.</p>	<p>NTPC has to perform its obligation as per MOU which is not being done, therefore following reminders has already been served to NTPC, but still no action has been taken to full fill the MOU clause by NTPC.</p> <ol style="list-style-type: none"> 1. Letter No.-NOIDA/ACEO(M)/2022/SM(JAL-OA)/1047 Dt. 10.08.2022 2. Letter No.-NOIDA/ SM(JAL-OA)/1095 Dt. 30.08.2022 3. Minuts of Meeting-NOIDA/ACEO(M)/2022/ 92 Dt. 05.09.2022 4. Letter No.-NOIDA/ SM(JAL-OA)/1121/22 Dt. 07.09.2022 5. Letter No.-NOIDA/ SM(JAL-OA)/1177/22 Dt. 22.09.2022 6. Letter No.-NOIDA/ACEO(M)/2022/SM(JAL-OA)/1248 Dt. 17.10.2022 7. Letter No.-NOIDA/ACEO(M)/2022/143 Dt. 14.12.2022 8. CEO, Noida has written letter on dt. 27.03.2023 to Director, NTPC to execute MOU between NOIDA, NTPC & U.P. Jal Nigam in Compliance of Hon'ble NGT order. Letter No.-NOIDA/CEO/2023/SM(Jal-OA)/1574 Dt. 27.03.2023 <p>Annexure-K</p>																										
7	<p>Point No.-30 of order dt. 03.08.2022 Pending consideration of action against other authorities and final accountability of NOIDA Authority and DJB, they are directed to deposit respectively a sum of Rs. 100 Crore Rs. 50 Crore in a separate account with CPCB towards interim compensation.</p>	<p>Noida Authority filed civil Appeal No.-8547-8548 of 2022 on 15.11.2022. Upon hearing the Hon'ble Supreme Court passed order on dated 28.11.2022 as below: -</p> <ol style="list-style-type: none"> 1. Permission to file the appeal is granted 2. Delay condoned 3. Issue notice, returnable in eight weeks. 4. Pending further orders, there shall be a stay of the impugned order of the National Green Tribunal dated 03, August 2022, insofar as it directs Noida and the Delhi Jal Board to deposit respectively interim compensation of Rs. 100 crores and Rs. 50 crores. <p>Annexure-L</p>																										

8	ACS, UD of UP need to immediately review and ensure treatment of sewage generated by Khoda-Makanpur.	<p>In compliance of Hon'ble NGT order The Chief Secretary, Govt. of U.P. directed to Noida Authority, U.P. Jal Nigam & Ghaziabad Development Authority in the meeting on dated 14.04.2023 to find availability of land for construction of STP/SPS. further to this, Noida Authority has identified 16000 Sqm. land in Sector-62, Noida suitable for construction of STP/SPS adjacent to Khoda Makanpur. Accordingly, an offer letter was sent by Noida Authority on dated 02.06.2023 to Nagar Palika Parishad and the proposal has been accepted by Executive Officer, Nagar Palika Parishad Khoda Makanpur vide their letter dated 03.06.2023. Allotment of identified land to Khoda Makanpur, Nagar Palika Parishad is under process.</p> <p>Annexure-M</p>
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(SANJAY PARASHAR)
SENIOR MANAGER
JAL DIVISION-I, NOIDA

LIST OF 95 NOS. GROUP HOUSING

Sr No.	Name of Societies	Location	Present status of STPs	Sample Compliant / Remark
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Group Housings Societies Installed and Sample achieving STPs (69 Nos.)

1/2	M/s Paras Season Haven Pvt. Ltd, GH-01D, Sector-168, Noida . (Paras Season Society)	GH-01D, Sector-168	Installed/Operational	YES
2/5	M/s Sunshine Infrawell Pvt. Ltd., Plot No.-GH-05B, Sector-78, Noida (Sunshine Helios)	GH-05B Sector-78	Installed/Operational	YES
3/7	M/s Aims Max Gardenia Developers Pvt. Ltd. (Gardenia Wellington)	GH-01, ECOCITY Sector-75	Installed/Operational	YES
4/8	Aims Max Gardenia Developers Pvt. Ltd., GH-08, Sector-75, Noida	GH-08 ECOCITY Sector-75	Installed/Operational	YES
5/9	Aims Max Gardenia Developers Pvt. Ltd., GH-12, Ecocity, Sector-75, Noida	GH-12 ECOCITY Sector-75	Installed/Operational	YES
6/10	M/s Valuent Developers Pvt. Ltd. Plot No.- H-169, Sector-63, Noida (Valuent Infra Developers)	GH-16 Sector-75	Installed/Operational	YES
7/11	M/s Maxblis Construction Pvt. Ltd., Plot No.-17, Ecocity, Sector-75, Noida (Max Villas GH-17)	GH-17 Sector-75	Installed/Operational	YES
8/12	M/s Paramount Towers Pvt. Ltd., Plot No.- GH-06, Sector-137, Noida (Paramount Floraville)	GH-06 Sector-137	Installed/Operational	YES
9/14	M/s Imperial Housing Venture Pvt. Ltd, 11th Floor, Paras Twin Tower, Sector-54, Gurgaon, Haryana (Paras Tierra)	GH-01 Sector-137	Installed/Operational	YES
10/17	Purvanchal Projects Pvt. Ltd. (Purvanchal Royal Park)	GH-04 Sector-137	Installed/Operational	YES
11/18	M/s Exotica Housing, Pvt. Ltd., GH-05A, Sector-137 (Frecco Prasco)	GH-05A Sector-137	Installed/Operational	YES
12/20	M/s I.V. County Pvt. Ltd., Plot No.-GH-05, Sector-121, Noida (Cleo County) M/s IVRCL INFRASTRUCTURE & PROJECT LTD.	GH-05 Sector-121	Installed/Operational	YES
13/23	M/s Perfect Propbuild Pvt. Ltd. (Antriksh Forest)	GH-03B, Sector-77	Installed/Operational	YES
14/25	M/s Sunworld Developers Pvt. Ltd., Plot No.-GH-01B, Sector-107) Noida (Sunworld Vanalika Society)	GH-01B, Sector-107	Installed/Operational	YES
15/1	M/s Claud-9 Projects Pvt. Ltd, Plot No.-229, Okhla Industrial Estate, New Delhi (Lotus Boulevard Espacia Plot No GH-02)	GH-02 Sector-100	Installed/Operational	YES
16/33	M/s Gulshan Homz Pvt. Ltd. (Gulshan Ikbana)	GH-03A Sector-143	Installed/Operational	YES
17/42	M/s Perfect Propbuild Pvt. Ltd. (Antriksh Kanball)	GH-03B Sector-77	Installed/Operational	YES

18/3	M/s Supertech Ltd. Plot No. -B-28 & 29, Sector-58, Noida (Supertech Capetown Society)	GH-1A Sector-74	Installed/Operational	YES
19/47	M/s ATS Township Pvt. Ltd. (ATS One Hemlet)	GH-01 Sector-104	Installed/Operational	YES
20/49	M/s GSS Procon Pvt. Ltd. (Victory Crossroad)	GH-01/C Sector-143	Installed/Operational	YES
21/51	M/S RANI PROMOTERS PRIVATE LIMITED (Aakriti Shanti Niketan)	GH-01/B Sector-143B	Installed/Operational	YES
22/53	M/S LAUREATE BUILDWELL PVT. LTD. (Parks laureate)	GH-01, 02 & 03, Sector-108	Installed/Operational	YES
23/54	M/S PAN REALTORS PVT. LTD.	GH-01 Sector-70	Installed/Operational	YES
24/56	M/S SUPERTECH LTD.	C-078 SECTOR-34	Installed/Operational	YES
25/60	M/S AIMS RG ANGEL PROMOTERS PVT.LTD.	GH-03 (ECO CITY) Sector-75	Installed/Operational	YES
26/61	M/S J.M. Infotech Pvt. Ltd. (J.M. Aroma)	GH-04 (ECO CITY) Sector-75	Installed/Operational	YES
27/65	M/S APEX DREAM HOMES PVT.LTD. (Apex Athena)	GH-12A (ECO CITY), Sector-75	Installed/Operational	YES
28/66	M/S EXPRESS BUILDERS AND PROMOTERS PRIVATE LIMITED (Express Zenith)	GH-02/A Sector-77	Installed/Operational	YES
29/67	M/S Indosam Infra Pvt. Ltd.	GH-05 (ECO CITY) SECTOR-75	Installed/Operational	YES
30/68	M/S E-HOMES INFRASTRUCTURE PVT. LTD., (Dasnac Jwell)	GH-14 (ECO CITY) Sector-75	Installed/Operational	YES
31/69	M/S AIMS MAX GARDENIA DEVELOPERS PRIVATE LIMITED (Golf City)	GH-11 Sector-75	Installed/Operational	YES
32/89	M/s R.G. Residency Pvt. Ltd., Plot No.- GH-02, Sector-120, Noida (R.G. Buildtech)	GH-02 Sector-120	Installed/Operational	YES
33/1	M/s Granite Great Properties Ltd. C-23, Greater Kailash Enclave, Part-1, New Delhi. Lotus Boulevard	GH-03 Sector-100	Installed/Operational	YES
34/62	M/s Opulent Infradevelopers Pvt. Ltd.	GH-01/B Sector-168	Installed/Operational	YES
35/4	M/s Antriksh Developers & Promoters Pvt. Ltd., Plot No.- GH-05A, Sector-78, Noida (Antriksh Golf View -I)	GH-05A, Sector-78	Installed/Operational	YES
36/13	M/s Gulshan Homes Pvt. Ltd., Plot No.- GH-07A, Sector-137, Noida (Gulsan Vivante)	GH-07A Sector-137	Installed/Operational	YES
37/15	M/s Logix Infrastructure Pvt. Ltd. GH-02, Sector-137, (Logix Blossom County)	GH-02, Sector-137	Installed /Operational	YES
38/16	M/s Supertech Ltd. Plot No.-GH-05, Sector-137, Noida (Supertech Ecocity)	GH-03 Sector-137	Installed/Operational	YES
39/19	M/s M.P.G. Realty Pvt. Ltd., Plot No.-GH-07B, Sector-137, Noida (Ajnara Defodril)	GH-07B Sector-137	Installed/Operational	YES

40/24	M/s Great Value Projects India Ltd. Plot No.-GH-02, Sector-107, NOIDA (Great Value Sharnam Society)	GH-02 Sector-107	Installed/Operational	YES
41/26	Prateek Infraprojects India Pvt. Ltd. GH-01A (Beta-2) Sector-107, Noida (Prateek Edifice Society)	GH-01A (Beta-2) Sector-107	Installed/Operational	YES
42/29	M/s Logix Infratech Pvt. Ltd. Plot No.-GH-01, Sector-143, Noida (Logix Blossom Green)	GH-01 Sector-143	Installed/Operational	YES
43/30	M/s Logix city Developers Pvt. Ltd. Plot No.-GH-02, Sector-143, Noida (Logix Blossom Zest)	GH-02 Sector-143	Installed/Operational	YES
44/32	M/s Eldeco Infrastructure & Properties Ltd., Plot No.-GH-03, Sector-119, Noida (Eldeco Amantran)	GH-03 Sector-119	Installed/Operational	YES
45/34	M/s Prateek Realtors India Pvt. Ltd. (Prateek Wisteria)	GH-01 Sector-77	Installed/Operational	YES
46/35	M/S H R ORACLE DEVELOPERS PVT. LTD. (Elite Homez)	GH-02/B Sector-77	Installed/Operational	YES
47/38	M/s Prateek Buildtech Pvt. Ltd. (Prateek Stylome)	GH-04B Sector-45	Installed/Operational	YES
48/40	M/s Gardenia Aims Developers Pvt. Ltd. (Gardenia Gallaria)	GH-01 Sector-46	Installed/Operational	YES
49/41	M/s PACL India Ltd. (Pearls Gateway Towers)	D-08A Sector-44	Installed/Operational	YES
50/43	M/s Mahagun Real Estate Pvt. Ltd. (Mahagun Society)	GH-02 Sector-78	Installed/Operational	YES
51/45	M/S COLORFUL ESATATES PVT LTD (Antriksh Golf View-II)	GH-04/B, Sector-78	Installed/Operational	YES
52/46	M/s Prateek Realtors India Pv. Ltd. (Prateek loreal)	GH-01 Sector-120	Installed/Operational	YES
53/48	M/s AGC Realty Pvt. Ltd. (Homes-121)	GH-01 Sector-121	Installed/Operational	YES
54/55	M/S HACIENDA PROJECTS PVT. LTD.	GH-01/A (ALPHA) SECTOR-107	Installed/Operational	YES
55/63	M/S IITL-NIMBUS THE HYDE PARK NOIDA	GH-03 Sector-78	Installed/Operational	YES
56/64	M/S CAPITAL INFRAPROJECTS PVT.LTD. (The Golden Palm)	GH-01/E Sector-168	Installed/Operational	YES
57/71	M/S NEXGEN INFRACON PRIVATE LIMITED (Mahagun Mezzaria)	GH-01/A Sector-78	Installed/Operational	YES
58/92	M/s IVRCL Infrastructure & Project Ltd. (Aranya)	GH-002 Sector-119	Installed/ Operational	YES
59/52	M/S GULSHAN HOMES & INFRASTRUCTURE PVT. LTD.	GH-03C, SECTOR-144	Installed/ Operational	YES
60/95	M/S FUTEK SHELTERS PVT LTD.	GH-10 (ECO CITY) SECTOR-75	Installed/Operational	YES
61/22	M/s J.M. Housing Ltd., Plot No.-GH-01C, Sector-76, Noida (JM orchid)	GH-01C, Sector-76	Installed/Operational	YES
62/36	M/s Civitech Developers Pvt. Ltd. (Civitech Sampriti)	GH-02/C Sector-77	Installed/Operational	YES
63/58	M/S THREE C PROJECTS PVT. LTD.	GH-01/A SECTOR-168	Installed/Operational	YES
64/91	M/s Assotech Ltd. (Assotech Windsor Court)	GH-04/A Sector 78	Installed/Operational	YES
65/50	M/s Sikka Infrastructure Pvt. Ltd. (Sikka Karnam Greens)	GH-01/A/1 Sector-143B	Installed/Operational	YES

66/84	M/s Amrapali Silicon City Pvt. Ltd.	GH-01A Sector 76	Installed/ Operational	YES
67/85	M/s Amrapali Shaphire Developers Pvt. Ltd. (Amrapali Shaphire-I)	GH-01 Sector-45	Installed/ Operational	YES
68/86	M/s Amrapali Shaphire Developers Pvt. Ltd. (Amrapali Shaphire-II)	GH-03 Sector-45	Installed/ Operational	YES
69/87	M/S AMRAPALI PRIENCELEY ESTATE PVT. LTD.	GH-02A, Sector-76	Installed/ Operational	YES

Group Housings with installed STPs but non achieving (14 Nos.)

70/6	M/s G.S. Promoters Pvt. Ltd., GH-01C, Sector-78, Noida (Sikka Karmik)	GH-01C, Sector-78	Installed / Not Operational	NO
71/15	Logix Blossom County (M/s Logix Infrastructure Pvt Ltd. GH-02 Sector-137, Noida	GH-02 Sector-137	Installed / Not Operational	NO
72/21	M/s Ajnara India Ltd. Plot No.-GH-01B, Sector-74, Noida (Ajnara Grand Heritage)	GH-01B Sector-74	Installed/Operational	NO
73/29	Logix Blossom Green (M/s Logix Infratech Pvt. Ltd. Plot No GH-01 sector-143, Noida	GH-01 Sector-143	Installed / Not Operational	NO
74/31	M/s Amrapali Zodiac Developers Pvt. Ltd., Plot No.-GH-03, Sector-120, Noida (Amrapali Zodiac)	GH-03 Sector-120	Installed / Not Operational	NO
75/39	M/s S.D.S. Infratech Pvt. Ltd. (NRI City Homes)	GH-04A Sector-45	Installed/ Operational	NO
76/44	M/S AIMS PROMOTERS PVT. LTD. (Golf Avenue-I)	GH-02 (ECO CITY) SECTOR-75	Installed/Operational	NO
77/59	M/S TODAY HOMES NOIDA PVT. LTD.	GH-01 SECTOR-135	Installed / Not Operational	NO
78/70	M/S AIMS PROMOTERS PVT. LTD. (Golf Avenue-I)	GH-02 (ECO CITY) SECTOR-75	Installed/Operational	NO
79/84	M/s Amrapali Silicon City, GH-01 Sector 76, Noida	GH-01 sector-76	Installed / Not Operational	NO
80/85	M/s Amrapali Shaphire Developers Pvt. Ltd. (Amrapali Shaphire-1) Plot No- GH-01 Sector-45, Noida	GH-01 sector-45	Installed / Not Operational	NO
81/86	M/s Amrapali Shaphire Developers Pvt. Ltd. (Amrapali Shaphire-II) Plot No- GH-03 Sector-45, Noida	GH-03 sector-45	Installed / Not Operational	NO
82/87	M/s Amrapali Prienceley Estate Pvt. Ltd. Plot No- GH-02A Sector-76, Noida	GH-02A sector-76	Installed / Not Operational	NO
83/94	M/S GARDENIA INDIA LTD. (Gardenia Gateway)	GH-09 (ECO CITY) SECTOR-75	Installed / Not Operational	NO

Environment Clearance cleared & U.P. Pollution Control Board has issued CTO. Their sewage connected to the Central Sewage Treatment Plant (CSTP) of Noida. (04 Nos.)

STP Not Installed

84/73	M/s Orion Infrabuild Pvt. Ltd., Plot No.-GH-01/B, Sector-78, Noida (Aditya Urban Casa)	GH-01/B Sector 78	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
85/74	M/s Gaursons India Ltd., Plot No.-GH-04, Sector-119, Noida (Gaur Grand)	GH-04 Sector-119	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)

86/75	M/s Celebrity Realcon Pvt. Ltd. (Aditya Celebration)	GH-01B Sector-76	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
87/76	Divine Indian Infrastructure Pvt. Ltd., (Divine Meadows)	GH-04, Sector-108, Noida	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)

Connected in Noida sewer line and at present their sewer is treated in Sewage Treatment Plant (STP) (Noida) as per Occupancy Certificate (07 Nos.)

88/77	Airforce Naval Housing Board (Jalvayu Tower)	A-38A Sector-47	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
89/78	Eden Infrastructure & Properties Ltd. (Eldeco Ananda Apartment)	D-35/1 Sector-48	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
90/79	M/s Steller Venture Ltd. (Steller Green)	D-06 Sector-44	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
91/80	M/S Bestech India (P) Ltd	A-110 Sector-52	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
92/81	M/S MANISHA PROJECT PVT LTD	B-017 Sector-61	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
93/82	M/s PRATEEK BUILDTECH (INDIA) PVT. LTD. (Prateek Fedora)	E-011 Sector-61	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)
94/83	M/S GARDENIA SHELTERS PVT. LTD (Gardenia Grace)	E-016A Sector-61	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP)

STP Not Operational.

95/93	M/s Skytech Construction Pvt. Ltd. Plot No.-GH-01D, Sector-76, Noida (Skytech Matrott)	GH-01D, Sector-76	Not installed	Sewerage connected to main sewer line Noida & Treated in Central Sewage Treatment Plant (CSTP), O.C. issued. FIR have been lodged.
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New Okhla Industrial Development Authority
Head Administrative Building, Sector- 6 Noida.

No. Noida/CAP/2022/3401

Date: 14-2-2022

From,

Additional Chief Executive Officer,
Noida

To,

Sh. Bijan K Mishra
Director - Technical
M/s VMC Management Consulting Pvt. Ltd.
514, DLF Tower-B, Jasola District Centre, New Delhi-110025
bjjan.mishra@vision360.co.in

Sub: Appointment of Consulting firm for creation of dedicated environmental cell in Noida Authority

Dear Sir,

This is with reference to our Expression of Interest vide newspaper advertisement, dated 17/11/2022 for "Appointment of Consulting firm for creation of dedicated environmental cell in Noida Authority" and your bid submitted for the same. We are pleased to inform that the Competent Authority has approved the appointment of M/s VMC Management Consulting Pvt. Ltd., as Consulting firm for creation of a dedicated environmental cell in Noida Authority. The competent authority has also accepted your offer of professional fee of Rs. 8,00,000/- plus GST per month. As per the terms & conditions mentioned in the EOI the period of the engagement of the firm with Noida Authority shall be of one year and it can be extended further on satisfactory performance of the consulting firm. The engagement of the firm shall be for a minimum period of one year.

The terms & conditions of appointment and the scope of the services of the assignment is attached herewith as Annexure-A. The scope of the services is inclusive in nature; therefore, consultant shall guide and assist the authority in implementing and ensuring of all the related compliances as applicable in the related laws thereof. If at any stage it is found that the performance of the professionals assigned to Noida Authority is not satisfactory and they are engaged in the activities detrimental to the interest of Noida Authority, the undersigned will be free to terminate the engagement with the consulting firm. However, an opportunity of hearing shall be provided before taking any action against the firm.

Kindly sign and return the duplicate copy of the award of work within 2 days of the receipt of award of work as a token of acknowledgement and acceptance thereof. The failure, delay or evasion to accept the award of work may result in cancellation of the award of work.

This letter is issued with the approval of Competent Authority.

(Prabir Kumar)
Additional Chief Executive Officer
Noida

Copy to-

1. CEO, Noida Authority for information.

Accepted
15/02/2022
Bijan K Mishra
Director - Technical

Additional Chief Executive Officer
Noida

ANNEXURE - A

The function of environment cell will be as follows:-

1. Identify current Environmental status.
2. Identify the Environmental compliance Gaps and action plan.
3. Develop the standard operative procedures (SOPs) for all the activities like, Integrated Water & Waste Water Management including STP, ETP, Road Sweeping machines, Solid Waste Management, Green belt adequacy and to be compliant with the GAPS.
4. Establishing Environmental Monitoring parameters for Noida.
5. Developing strategy to make Noida as a City of 3R (Reduce, Reuse and Recycle).
6. Establishing Required Data Acquisition / Analytics and Reporting framework, which can be made online for the executives of the authority and available on the public domain.
7. Assisting the attorney to present before different Hon'ble Judiciary and other regulatory bodies about the environmental liability of the Authority and its execution status and future issues.
8. Representing Noida Authority along with its officials at various forums for environmental policy matter.
9. Defining T&Cs for the residential projects to comply with as per environmental regulatory guidelines and notifications.
10. Capacity Building of the Noida Authority officers for smooth running of the environmental matter pertaining to Noida.
11. Preparation of Brief questionnaire for audit and inspection, which shall cover the following:
 - a. Compliance check of all EC conditions related to Integrated water resource management, i.e., w.r.t. wastewater, freshwater and groundwater management including aspect of RWH.
 - b. Compliance check of all the consents associated with Water (Prevention and Control of Pollution) Act. (CTE/CTO/Municipal supply/permission/groundwater abstraction permission/discharge permission)
 - c. Record of STP Monitoring test reports maintained at the site if any.
 - d. Compliance check of water balance w.r.t. Freshwater demand; wastewater generation; Treated water quantity; Recycle/reuse of treated STP water; Discharge quantity and mode of disposal; sludge handling; Treatment Capacity & technology.
12. Site visit at all the project sites in which environmental clearance is issued by SEIAA for the survey, surveillance, and monitoring for audit and inspection of compliance of EC conditions for water resource management.
13. Sampling of the waste water at the operational STP at Inlet and outlet (one sample every 6 months) for compliance to the applicable pollution norms, every 6 months. The sample collected at site shall be sent to the designated laboratory of UPPCB. Waste water quality shall be analysed for pH, Colour, BOD, COD, TDS, Faecal Coliform (FC) & Total Coliform, etc.
14. The sampling and analysis shall also involve the following (about 75-100 random samples, as per field conditions and needs based on audit and inspection):
 - a. Analysis of water quality of fresh water sources,
 - b. Water quality of final treated discharge water for possible reuse/reutilization.
15. Assessment and audit of complete water balance for all the projects for which EC has been issued.
16. Preparation and submission of half yearly inspection Report.



Responsibilities of environment cell: -

1. The environment cell will report to Deputy General Manager (Jal), Noida.
2. Initially the dedicated cell will be created for one year and the term can be extended depending upon the performance of the cell.
3. The environment cell will put up monthly report on the functioning of the STPs in Noida.
4. The environment cell will be responsible for issue of notice in case the STPs are found not functional.
5. The environment cell will also be responsible to collect the sample of treated water and send it to UPPCB for testing the quality of treated water.
6. The environment cell will recommend environment compensation in case of violation of EC conditions.
7. The cell will develop the standard operative procedures (SOPs) for all the activities like, Integrated Water & Waste Water Management including STP, ETP, Road Sweeping machines, Solid Waste Management, Green belt adequacy and to be compliant with the GAPS.
8. The Environmental Cell will also be responsible for establishing required data acquisition / Analytics and Reporting framework, which can be made online for the executives of the authority and available on the public domain.
9. Assisting the attorney to present before different Hon'ble Judiciary and other regulatory bodies about the environmental liability of the Authority and its execution status and future issues.
10. Capacity Building of the Noida Authority officers for smooth running of the environmental matter pertaining to Noida.
11. The personnel of Environmental cell will make site visit at all the project sites in which environmental clearance is issued by SEIAA for the survey, surveillance, and monitoring for audit and inspection of compliance of EC conditions for water resource management.
12. They will also be responsible for sampling of the waste water at the operational STP at inlet and outlet (one sample every 6 months) for compliance to the applicable pollution norms, every 6 months. The sample collected at site shall be sent to the designated laboratory of UPPCB. Waste water quality shall be analysed for pH, Colour, BOD, COD, TDS, Faecal Coliform (FC) & Total Coliform, etc.

Notes:

- GSTIN shall be additional and be applicable as per the prevailing rate.
- Working space for all man powers shall be provided by Noida Authority
- The cost involved for sample testing, sample preservation and transportation shall be paid separately to VMC Management Consulting Pvt. Ltd.
- Any travel out of office specified as base location shall be reimbursed as per actual to VMC Management Consulting Pvt. Ltd.

Department of Infrastructure and Industrial Development, NOIDA Constituted under the U.P. Industrial Area Development Act, 1976.

Whereas Vision360 is an ISO 9001:2015 certified, INDIAN management consulting firm that majorly serves various Govt. Bodies, Indian Public Sector, Private Sector both in India and abroad; in the areas of Environmental Advisory, Climate Change, ESG, Sustainability Reporting, Data Analytics, Policy Advisory, Policy Advocacy, Business Strategy, Circular Economy, SDG Advisory, Smart City Advisory, Risk Management etc.

Whereas Vision360's advisory services specific to the concerned assignment are focused on providing the Environment and Management consulting to client; in areas of Water & Waste Water including STP, ETP, Solid Waste Management, Air Quality as well as assisting with preparation of concerned SOPs (detailed list attached hereafter in the MoU.

Whereas Noida Authority has appointed Vision360 as a consulting firm to create a dedicated Environmental Cell to assist and hand-hold Noida Authority through the scope of the services of the assignment as mentioned below.

NOW THEREFORE, the Parties have reached the following understanding:

1. PURPOSE:

To create and manage dedicated environmental cell for NOIDA Authority

2. Detailed SCOPE and Responsibilities:

The function of environment cell will be as follows: -

1. Identify current Environmental status.
2. Identify the Environmental compliance Gaps and action plan.
3. Develop the standard operative procedures (SOPs) for all the activities like, Integrated Water & Waste Water Management including STP, ETP, Road Sweeping machines, Solid Waste Management, Green belt adequacy and to be compliant with the GAPS.
4. Establishing Environmental Monitoring parameters for Noida.
5. Developing strategy to make Noida as a City of 3R (Reduce, Reuse and Recycle).
6. Establishing Required Data Acquisition / Analytics and Reporting framework, which can be made online for the executives of the authority and available on the public domain.
7. Assisting the attorney to present before different Hon'ble Judiciary and other regulatory bodies about the environmental liability of the Authority and its execution status and future issues
8. Representing Noida Authority along with its officials at various forums for environmental policy matter.
9. Defining T&Cs for the residential projects to comply with as per environmental regulatory guidelines and notifications.
10. Capacity Building of the Noida Authority officers for smooth running of the environmental matter pertaining to Noida.
11. Preparation of brief questionnaire for audit and inspection, which shall cover the following:
 - a. Compliance check of all EC conditions related to Integrated water resource management, i.e., w.r.t. wastewater, freshwater and groundwater management including aspect of RWH.
 - b. Compliance check of all the consents associated with Water (Prevention and Control of Pollution) Act. (CTE/CTO/Municipal supply permission/groundwater abstraction permission/discharge permission)
 - c. Record of STP Monitoring test reports maintained at the site, if any.
 - d. Compliance check of water balance w.r.t. Freshwater demand; wastewater generation; Treated water quantity; Recycle/reuse of treated STP water; Discharge quantity and mode of disposal; sludge handling; Treatment Capacity & technology.

12. Site visit at all the project sites in which environmental clearance is issued by SEIAA for the survey, surveillance, and monitoring for audit and inspection of compliance of EC conditions for water resource management.
13. Sampling of the waste water at the operational STP at inlet and outlet (one sample every 6 months) for compliance to the applicable pollution norms, every 6 months. The sample collected at site shall be sent to the designated laboratory of UPPCB. Waste water quality shall be analysed for pH, Colour, BOD, COD, TDS, Faecal Coliform (FC) & Total Coliform, etc.
14. The sampling and analysis shall also involve the following (about 75-100 random samples, as per field conditions and needs based on audit and inspection):
 - a. Analysis of water quality of fresh water sources.
 - b. Water quality of final treated discharge water for possible reuse/reutilisation.
15. Assessment and audit of complete water balance for all the projects for which EC has been issued.
16. Preparation and submission of half yearly inspection Report.

Responsibilities of environment cell: -

1. The environment cell will report to General Manager (Planning), Noida.
2. Initially the dedicated cell will be created for one year and the term can be extended depending upon the performance of the cell.
3. The environment cell will put up monthly report on the functioning of the STPs in Noida.
4. The environment cell will be responsible for issue of notice in case the STPs are found not functional.
5. The environment cell will also be responsible to collect the sample of treated water and send it to UPPCB for testing the quality of treated water.
6. The environment cell will recommend environment compensation in case of violation of EC conditions.
7. The cell will develop the standard operative procedures (SOPs) for all the activities like, Integrated Water & Waste Water Management including STP, ETP, Road Sweeping machines, Solid Waste Management, Green belt adequacy and to be compliant with the GAPS.
8. The Environmental Cell will also be responsible for establishing required data acquisition / Analytics and Reporting framework, which can be made online for the executives of the authority and available on the public domain.
9. Assisting the attorney to present before different Hon'ble Judiciary and other regulatory bodies about the environmental liability of the Authority and its execution status and future issues.
10. Capacity Building of the Noida Authority officers for smooth running of the environmental matter pertaining to Noida.
11. The personnel of Environmental cell will make site visit at all the project sites in which environmental clearance is issued by SEIAA for the survey, surveillance, and monitoring for audit and inspection of compliance of EC conditions for water resource management.
12. They will also be responsible for sampling of the waste water at the operational STP at inlet and outlet (one sample every 6 months) for compliance to the applicable pollution norms, every 6 months. The sample collected at site shall be sent to the designated laboratory of UPPCB. Waste water quality shall be analysed for pH, Colour, BOD, COD, TDS, Faecal Coliform (FC) & Total Coliform, etc.
13. The Environmental Cell will work in close coordination with the other agencies and consultants, who have been engaged by NOIDA Authority for the purpose of improvement of environment.

4. PERIOD OF MoU:

This MoU shall be valid for 1 year from the date of its signing. All scope and responsibilities as mentioned above shall only apply during the Term of this MoU and to such actions and commitments as may have been undertaken by the Parties during the Term. The MoU may be extended for further multiple periods on the terms and conditions mutually agreed between the parties in writing.

Both the parties agree that the terms and conditions stated in this MoU are indicative only and may require amendments as and when NOIDA deems fit and as the Parties discuss and understand more about the

framework for cooperation between Vision360 and NOIDA Authority.

If at any stage it is found that the Environment Cell is not functioning as per the terms & conditions mentioned in this agreement, the CEO, NOIDA shall have right to terminate the services of Environmental Cell and the present MoU thereof. Before terminating the services, the consulting firm shall be given a show cause notice.

5. MONTHLY DELIVERABLE REPORT

The consultants shall be responsible for submission of monthly reports in the first week of every month. The monthly report shall contain the following items:-

1. Monthly Environmental Report will be submitted by the first week of next month. Report will cover compliance of Relevant Environmental Act With respect to Air Quality, Water Quality, Hazardous waste, E-Waste Etc.
2. Environmental Returned file as per the Schedule.
3. Monthly Inspections of STPs/ETPs.
 - a. Quantity of Sewage water treated.
 - b. Quantity of Sewage Water Utilized.
 - c. Quantity of Treated water discharged to Surface Water.
 - d. Test results of pH, TSS, BOD, COD, Faecal Coliform, etc. conducted in the current month.
4. Monthly inspection report of online Air Quality Monitoring Stations including average, minimum and maximum value of PM 10, PM 2.5, SO₂, NOX, etc.
5. Assessments of environmental parameters.
6. Monthly environmental report of at least two Industrial Sectors.
7. Any other work assigned by GM (Planning), ACEO(Planning) & CEO, Noida.

6. COMMERCIAL ARRANGEMENT:

- a. In lieu of services thus rendered by Vision360 shall be remunerated by NOIDA Authority as below:
- | | | |
|--|---|--|
| (i) Total Value of the assignment | : | INR 96,00,000/- (for a period of 12 months) + GST |
| (ii) Billing Cycle | : | Monthly |
| (iii) Per month indicative invoice value | : | INR 800,000/- + GST (Reimbursements shall be additional) |
| (iv) Invoice Date | : | 1 st of Every Month for Previous Month |
| (v) Payable Date | : | Payment will be done post approval by the department after assessment of monthly report submitted by consultant. |

NOTES:

- GST shall be additional and be applicable as per the prevailing rate.
- Working space for all man powers shall be provided by Noida Authority
- The cost involved for sample testing, sample preservation and transportation shall be paid separately to the designated laboratory either by the builder or AOA, as the case may be.
- Any travel out of NOIDA shall be reimbursed as per actual to VMC Management Consulting Pvt. Ltd. Any travel reimbursement shall be as per TA rules of NOIDA. Site visits within jurisdiction of NOIDA Authority shall not be reimbursed.
- If at any stage it is found that the Environment Cell is not functioning as per the terms & conditions mentioned in this agreement, the CEO, NOIDA shall have right to terminate the services of Environmental Cell

and the present MoU thereof. Before terminating the services, the consulting firm shall be given a show cause notice.

7. CONFIDENTIALITY:

It is agreed that both parties will not disclose the contents of this MoU or any information with regards to pricing, customers, technology, strategy, etc. that may be exchanged mutually to any third party without the consent of the other party. Any information that may be in the public domain is excluded from the purview of this clause.

8. TERMINATION:

This MoU will be terminated by prior notice in writing in the event of: -

- i. Bankruptcy proceedings being initiated against any party
- ii. Mutual agreement between parties to terminate this MoU.
- iii. In case of any material breach of the obligations by the Consultant, then NOIDA will terminate this MoU by giving 7 days' notice.
- iv. If at any stage it is found that the Environment Cell is not functioning as per the terms & conditions mentioned in this agreement, the CEO NOIDA shall have right to terminate the services of Environmental Cell and the present MoU thereof. Before terminating the services, the consulting firm shall be given a show cause notice.

9. MODIFICATION/AMENDMENT:

Any modification or amendment to this MoU shall be valid only if executed by both the parties in writing.

10. ASSIGNMENT:

This MoU shall not be assigned or transferred to any third party and any right under this MoU shall not be parted-with, without previous consent of the other party. The affiliate companies, sister companies, parent companies for the purpose of this agreement are considered one and the same and is not considered as assignment or transfer of the agreement.

11. SEVERABILITY:

If any provisions of this MoU invalid or void under any of the existing provisions of Indian law, then such provisions will not affect other provisions of this MoU.

12. GOVERNING LAWS, JURISDICTION AND ARBITRATION:

In the event of any dispute and /or difference whatsoever arising under this agreement or in connection therewith, including any question relating to the meaning, scope or interpretation of this agreement or its clause or any alleged breach thereof, the same shall be attempted to be settled by mutual discussions and consultation between the parties hereof. In the event of any such dispute any/ or difference is not settled in aforesaid manner, then the dispute(s) shall be referred for arbitration.

The sole Arbitrator shall be appointed by the CEO, NOIDA. The decision of the sole Arbitrator shall be final subject to the above, the provisions of the Arbitration and Conciliation Act, 1996 shall apply.

The Arbitration proceedings shall take place in the city of Noida.

The High Court of Judicature at Allahabad and the District Courts at Gautam Budh Nagar shall alone have territorial jurisdiction to the exclusion of all other District courts.

13. RELATIONSHIP BETWEEN THE PARTIES:

Nothing in this MoU shall constitute, create or give effect or recognize a JV, partnership or business entity of any kind, nor any legal claim on each other except in case of claim for breach of the clauses as mentioned in this MoU.

14. NOTICES:

Where in this MoU any notice, request, direction or other communication is required to be given or made by any of the parties, it shall be in writing and will be effective if sent by registered post, by email or delivered in person, as the case may be, addressed:

8.

In the case of NOIDA Authority

Satish Pal

Additional Chief Executive Officer (Planning)

NOIDA Authority, Noida- 201301

In case of VMC Management Consulting Pvt. Ltd

Bijan Kumar Mishra

Director,

Suite no. 514, 5th Floor, CLF tower B,
Jasola District Centre, Jasola, New Delhi

or to such other addressee as a Party may designate by giving thirty (30) days prior written notice.

IN WITNESS WHERE OF parties hereto set hands, through their authorized representatives on this deed and affixed their seal on date, month and year first above written.

(Satish Pal)

Seal

For and on behalf of

New Okhla Industrial Development Authority

In Presence of witness

Ishfaq Ahmed
GM (Planning)
NOIDA

02/03/2023

(Bijan Kumar Mishra)

Seal

For and on behalf of

VMC Management Consulting Pvt. Ltd.

In Presence of witness

Sanchita Gairola Mishra,
514, DLF Tower B, Jasola District
Jasola, New Delhi - 110025, India

नवीन ओखला औद्योगिक विकास प्राधिकरण

कार्यालय वरिष्ठ प्रबन्धक

जल खण्ड-प्रथम, सैक्टर-5, नौएडा।

पत्र सं० नौएडा/अ०मु०का०अ०(एम)/४०प्र०(जल-1)/23/1258

दिनांक : 18/01/2023

कार्यालय आदेश

प्राधिकरण की बोर्ड की 208वीं बैठक का कार्यवृत्त दिनांक 28.12.2022 के मद्दत सं०-208/10 पर वर्णित नौएडा प्राधिकरण क्षेत्र के अन्तर्गत आवंटित भूखण्डों पर 20,000 वर्ग मीटर से अधिक क्षेत्रफल वाली निर्मित ग्रुप हाउसिंग सोसाईटियों में In-situ Sewerage Treatment Plant का निर्माण एवं संचालन माननीय एन०जी०पी० द्वारा निर्धारित मानकों के अनुरूप न होने की दशा में अर्धदण्ड अधिरोपित किये जाने का प्रस्ताव संचालक मण्डल द्वारा अनुमोदित किया गया है। अनुमोदित प्रस्ताव निम्नवत् है :-

पर्यावरण वन और जलवायु परिवर्तन मंत्रालय ने 2006 में पर्यावरणीय प्रभाव आकलन के लिए अधिसूचना जारी की थी, जिसके उपरान्त बड़े पैमाने की परियोजनाओं के लिए पर्यावरणीय स्वीकृति की शर्तें लागू थी। पर्यावरण वन और जलवायु परिवर्तन मंत्रालय द्वारा वर्ष 2006 में जारी अधिसूचना में निर्माण परियोजनाओं के लिए पर्यावरणीय स्वीकृति 20000 वर्ग मीटर से अधिक निर्मित क्षेत्र वाली परियोजनाओं के लिए प्राथिमिक किया गया है। नौएडा प्राधिकरण द्वारा इस श्रेणी के अंतर्गत आने वाली ग्रुप हाउसिंग परियोजनाओं का निरीक्षण किया गया है, जिसमें कई ग्रुप हाउसिंग द्वारा In-situ सीवेज शोधन और निपटान सुविधा के लिए लागू अधिनियमों और विनियमों (जल अधिनियम 1974 पर्यावरण संरक्षण अधिनियम 1986) का उल्लंघन किया जा रहा है।

वर्तमान में उ०प्र० प्रदूषण नियन्त्रण बोर्ड द्वारा नौएडा क्षेत्र के ग्रुप हाउसिंग सोसाईटियों पर एन०जी०पी० अकियाशील होने की स्थिति में CPCB द्वारा जारी Environmental Compensation and Action Plan के आधार पर अधिभार वसूल किया जाता है। नौएडा प्राधिकरण क्षेत्र के अन्तर्गत वर्तमान में 95 अर्द्ध ग्रुप हाउसिंग सोसाईटियाँ संचालित हैं, जिसमें 78 ग्रुप हाउसिंग सोसाईटी के अन्तर्गत In-situ STPs स्थापित एवं कियाशील है, जिनके सैम्पल की जाँच समय-समय पर उ०प्र० प्रदूषण नियन्त्रण बोर्ड द्वारा प्राधिकरण के साथ की जाती है।

उपरोक्त ग्रुप हाउसिंग सोसाईटी, जिसमें एन०जी०पी० कियाशील न होने के कारण पर्यावरणीय क्षरण होता है एवं नौएडा नियोजित शहर के बुनियादी ढांचे के नियोजन को भी प्रभावित करता है। यहाँ यह भी अवगत कराना है कि ग्रुप हाउसिंग सोसाईटियों के एन०जी०पी० का अनुसंधान मानकों अनुरूप न पाये जाने की स्थिति में समय-समय पर उ०प्र० प्रदूषण नियन्त्रण बोर्ड द्वारा आर्थिक दण्ड अधिरोपित किया जाता है।

7

conviction for the first such failure. के अनुरूप प्रतिदिन रु0 5000/- के Environmental Compensation का प्रावधान UPPCB के माध्यम से अधिरोपित किया जाना प्रस्तावित है।

- अपार्टमेन्ट ऑनर्स एक्ट-2010 के अनुसार अपार्टमेन्ट ऑनर्स एशोसिएशन (AOA) के गठन व प्रभावी होने की दशा में समस्त पैनल्टी का भुगतान AOA के द्वारा ही किया जाएगा। अन्यथा सम्बन्धित विल्डर का दायित्व होगा।

इसके अतिरिक्त ईन्वायरमेंट विलयर्स या किसी अन्य नियामक / नीति / कानूनी आवश्यकता द्वारा एस.टी.पी. की स्थापना / संचालन नहीं करने वाली परियोजनाओं अथवा उ0प्र0 प्रदूषण विभाग द्वारा नियमित रूप से एकत्रित सैम्पल का परिणाम मानक के अनुरूप न पाये जाने पर अतिरिक्त अर्थदण्ड अधिरोपित किये जाने पर किसी प्रकार की कार्यवाही की जाती है, तो उसके लिए नौएडा प्राधिकरण की किसी भी प्रकार की जिम्मेदारी या उत्तरदायी नहीं होगा। सभी निर्माण परियोजनाओं को जारी ईन्वायरमेंट विलयर्स की नियम व शर्तें सर्वमान्य होंगी, जिसका समय-समय पर परीक्षण प्राधिकरण के नियोजन विभाग द्वारा किया जाना है।

अतः उपरोक्त अनुमोदित प्रस्ताव में नियमों के आधार पर दोषी गृप हाउसिंग सोसाईटियों पर गणनानुसार अर्थदण्ड अधिरोपित किये जाने की कार्यवाही सुनिश्चित करें।

उक्त आदेश तत्काल प्रभाव से लागू होंगे।

(मानदेव सिंह)
अपर मुख्य कार्यपालक अधिकारी
नौएडा

प्रतिलिपि :-

1. मुख्य कार्यपालक अधिकारी, नौएडा।
2. अपर मुख्य कार्यपालक अधिकारी (पी0)।
3. विशेष कार्याधिकारी (टी0/ए0/आई0)।
4. वित्त नियन्त्रक।
5. महाप्रबन्धक (नियोजन)।
6. उप महाप्रबन्धक (जल/सिंचित/जन स्वास्थ्य)।

अपर मुख्य कार्यपालक अधिकारी
नौएडा

प्रेषक,

सहायक अभियंता-तृतीय
हैड वर्क्स खण्ड आगरा नहर,
ओखला नई दिल्ली-25

प्रेषित,

वरिष्ठ प्रबन्धक
जल खण्ड प्रथम सैक्टर- 5
नवीन ओखला औद्योगिक विकास प्राधिकरण
जनपद गौतमबुद्धनगर

पत्रांक- 368 /स0अ0तृतीय/

दिनांक: 19/07/2023

विषय-नोएडा मुख्य नाले में सैक्टर 142 एडवान्ट बिल्डिंग के निकट In-Situ Constructed Wetland
के निर्माण के संबंध में।

महोदय,

उपरोक्त विषय के संबंध में अवगत कराना है कि वर्तमान बाढ़काल में यमुना नदी में आयी अत्यधिक बाढ़ के कारण नोएडा मुख्य नाले में जल भराव हो गया था। जल भराव के साथ निर्माणाधीन वैटलैण्ड पर काफी सिल्ट एकत्रित होने के फलस्वरूप वैटलैण्ड का निर्माण कार्य बाधित हो गया है, जिसके कारण कार्य पूर्ण होने में विलम्ब हो रहा है।

अतः उपरोक्त के दृष्टिगत विषयक निर्माणाधीन वैटलैण्ड का कार्य बाढ़काल के उपरान्त माह अक्टूबर 2023 तक पूर्ण किया जाना सम्भव हो पायेगा।

भवदीय

सहायक अभियंता-तृतीय
हैड वर्क्स खण्ड आगरा नहर,
ओखला नई दिल्ली-25

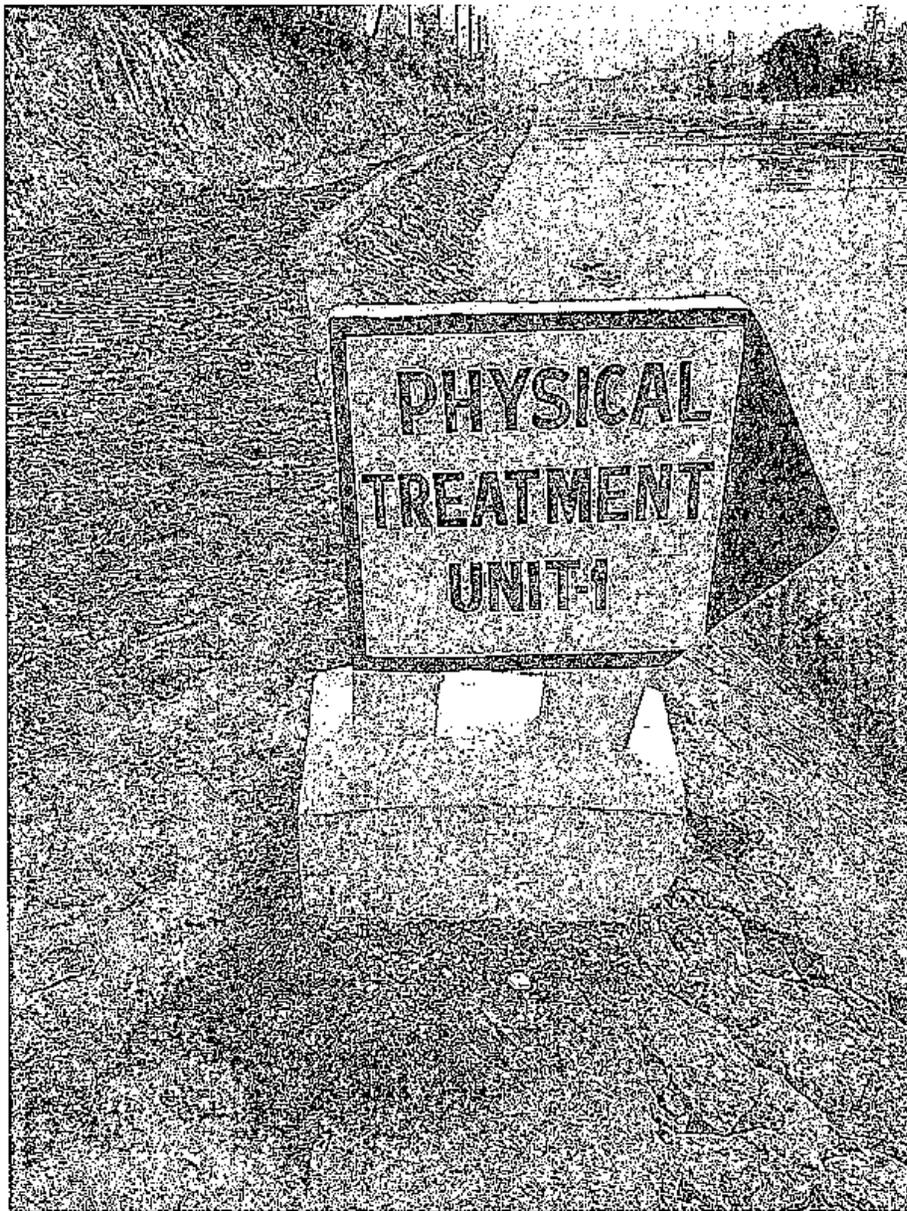
19/07/2023

पत्रांक /स0अ0तृतीय/ तदिनांक

प्रतिलिपि अधिशासी अभियन्ता, हैड वर्क्स खण्ड आगरा नहर, ओखला को सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित है।

सहायक अभियंता-तृतीय
हैड वर्क्स खण्ड आगरा नहर,
ओखला नई दिल्ली-25

WETLAND NEAR NSEZ





WETLAND NEAR NSEZ

○ WETLAND NEAR ADVANT TOWER Sec-142



Feasibility Report
In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city

Sponsor



New Okhla Industrial Development Authority
 An Integrated Industrial Township
 ISO 9001 : 2000 & ISO 14001 : 2004 Certified

**New Okhla Industrial Development Authority
 (NOIDA)**

Submitted By



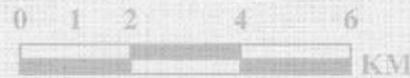
सीएसआईआर
 CSIR
 भारत का नवाचार इंजन
 The Innovation Engine of India



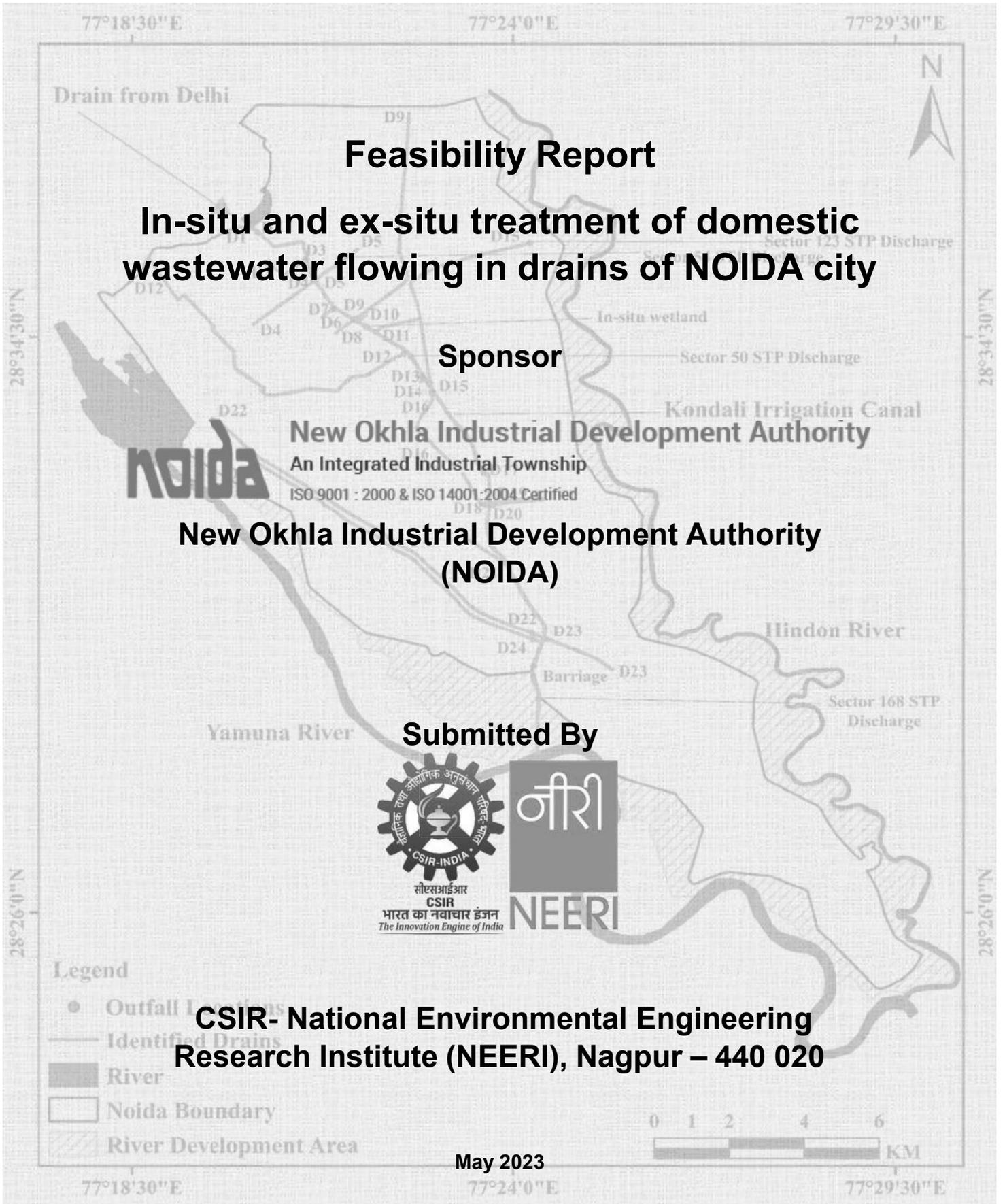
**CSIR- National Environmental Engineering
 Research Institute (NEERI), Nagpur – 440 020**

Legend

- Outfall Locations
- Identified Drains
- River
- Noida Boundary
- ▨ River Development Area



May 2023



Contents

1	Introduction	4
1.1	NOIDA City	4
1.2	Development Plan.....	9
1.3	Population.....	9
1.4	Water Supply Scheme	10
1.5	Drainage Network	11
1.6	Existing sewerage system & sewage treatment plants (STPs)	14
2	Site Visits	19
2.1	First Site Visit.....	19
2.2	Second Site Visit.....	19
2.3	Site observations	19
3	Overlay analysis of identified drains.....	24
4	Classification of Drains.....	26
4.1	Classification as per Drain Geometry	26
4.2	Classification as per flow.....	30
4.3	Classification as per water quality	33
4.4	Classification as per Pollution Load	40
5	Status of Kondali Irrigation Canal	43
5.1	Discharge of wastewater.....	43
5.2	Disposal of Solid Waste	44
5.3	Animal excreta being discharged through drains	45
5.4	Other Observations.....	45
6	Suggestive Measures.....	47
6.1	Immediate measures	49
6.2	Mid-term measures	49
6.3	Long-term measures.....	49
7	Treatment Options	50
7.1	In-situ Treatment.....	50
7.2	Ex-situ Treatment.....	52
8	Proposed Treatment Options	59
9	Summary and recommendations	67
10	Further course of actions:	70

LIST OF TABLES

Table 1: Existing STPs in NOIDA.....	14
Table 2: Future proposed STPs in NOIDA	15
Table 3: Details of identified drains and survey locations	20
Table 4: Drain geometry and classification	27
Table 5: Flow in drains	31
Table 6: Physicochemical characteristics of the drain samples.....	34
Table 7: Characterization of the drain samples as per the water quality parameters	37
Table 8: Physico-Chemical Analysis of identified drains as received from NOIDA Authority.....	38
Table 9: Pollution Load of the identified 24 drains.....	40
Table 10: Categorization of drains based on pollution load.....	41
Table 11: Permissible BOD Loading Rate with respect to altitude	53
Table 12: Delineated treatment options for drains	59
Table 13: Summary on Feasible treatment options of the identified 24 drains.....	68

LIST OF FIGURES

Figure 1: Base Map of NOIDA	5
Figure 2: Study Area Map (NOIDA)	6
Figure 3: Sector Boundaries of NOIDA.....	7
Figure 4: NOIDA Road network	8
Figure 5: Course of Kondali and contributing drains in NOIDA	13
Figure 6: Sewerage scheme and STP demarcation for NOIDA.....	16
Figure 7: Location of STP and SPS in NOIDA	18
Figure 8: Identified drains and survey locations around Kondali Irrigation Canal.....	23
Figure 9: Overlay analysis of course of identified drains over the sectoral boundary Map of NOIDA	25
Figure 10: Identified drains classified on the basis of drain geometry	28
Figure 11: Inset Analysis of identified drains along Kondali canal.....	29
Figure 12: Identified drains classified on the basis of drain flow	32
Figure 13: Identified drains classified on the basis of drain water quality.....	39
Figure 14: Characterization of the identified drains as per the pollution load.....	42
Figure 15: Discharge of wastewater in Kondali irrigation canal.....	43
Figure 16: Solid Waste Dumping.....	44
Figure 17: Sights where flushing cattle wash & excreta was observed	45
Figure 18: Damaged Embankments of Kondali Irrigation Canal	45
Figure 19: Drain (D4) covered by slabs which are being used for commuting	46
Figure 20: STPs and proximity of identified drains	48
Figure 21: In-Situ Drain Treatment.....	51
Figure 26: Membrane Bioreactor.....	58
Figure 27: Meeting of executives from CSIR-NEERI Nagpur and NOIDA Jal Division-I along with ACEO, Noida Authority	67

ANNEXURE

ANNEXURE-I	Site Visit Report 1 (October 2022)	71 – 77
ANNEXURE-II	Site Visit Report 2 (November 2022)	78 – 109
ANNEXURE-III	Catalogue of Identified Drains & Proposed Treatment Options	110 – 162

1 Introduction

New Okhla Industrial Development Authority (NOIDA) has approached CSIR-NEERI, Nagpur vide Letter No. Noida/ACEO(N)/2022/301 dated 21/01/22, to undertake treatment of sewage flowing in 30 drains of NOIDA city and, as per the order of Hon' NGT, NOIDA, to develop a time bound action plan to stop discharge of untreated wastewater to 30 drains. NOIDA has requested CSIR-NEERI for in situ treatment of 18 drains based on Bio and Phyto remediation to strengthen environment.

Accordingly, CSIR-NEERI team from Headquarter (Nagpur) has visited NOIDA during March 2022 to get the first-hand information and preliminary site visit of 18 drains that has to be treated.

Then two consecutive site visits were carried out by CSIR-NEERI in the months of October & November 2022 which accounted for site survey, flow measurements, sample collection, analysis and secondary data collection from NOIDA authority and its analysis.

Based on the subsequent detailed site visits and technical discussion held with officials of NOIDA authority, total 24 drains have been identified that are contributing the maximum amount of pollution load into the Kondali irrigation canal that requires immediate treatment at the earliest.

1.1 NOIDA City

The Government of Uttar Pradesh on April 17, 1976 vide its notification No. 415.7 – Bha-U-18-(II), Lucknow, dated 17.4.1976 under the provisions of U.P. Industrial Development Act, 1976 notified 36 villages of “Yamuna-Hindon-Delhi Border Regulated Area” as New Okhla Industrial Development Area. In order to ensure planned development of the area for industrial and allied uses the State Government also constituted a new statutory body, namely, the New Okhla Industrial Development Authority (NOIDA).

NOIDA, is a planned city located in Gautam Buddha Nagar district of the Indian state of Uttar Pradesh (**Figure 1**). Noida is also known as the Cleanest Medium City of India as per a survey in 2021. It is a satellite city of Delhi and is a part of the National Capital Region (NCR) of India. As per provisional reports of Census of India, the population of Noida in 2011 was 642,381. The city is managed by Noida Authority. The district's

administrative headquarters are in the nearby city of Greater Noida. It is considered to be India's greenest city with nearly 50% green cover, the highest of any city in India. However, sewage is still flowing in city open and closed drains being the best and green city.

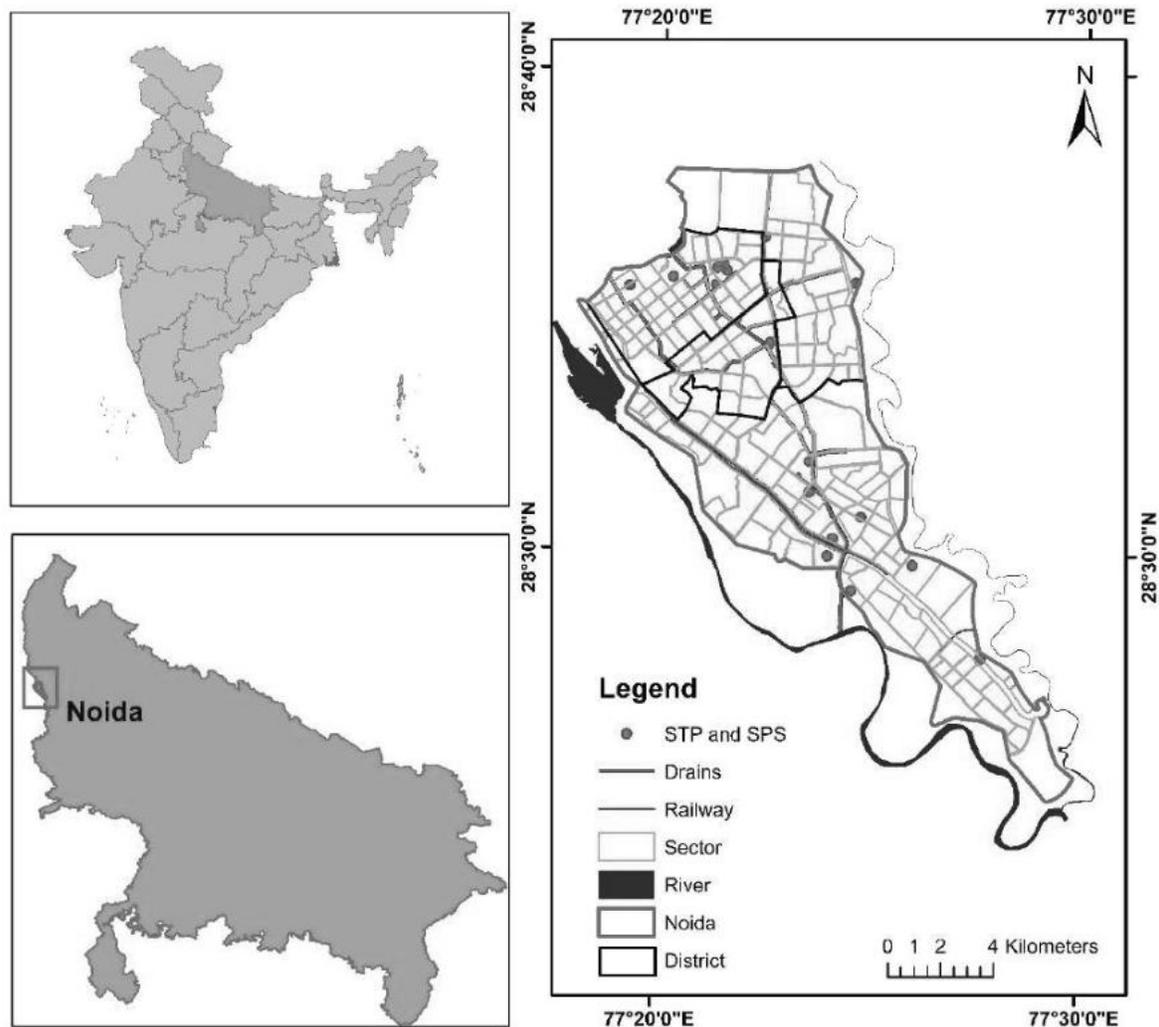


Figure 1: Base Map of NOIDA

The NOIDA city is surrounded by Delhi, Haryana, Faridabad, Greater NOIDA. For efficient transportation, the NOIDA city is equipped with Highways and Expressway supported with vast network of Metro rail as shown in **Figure 2**.

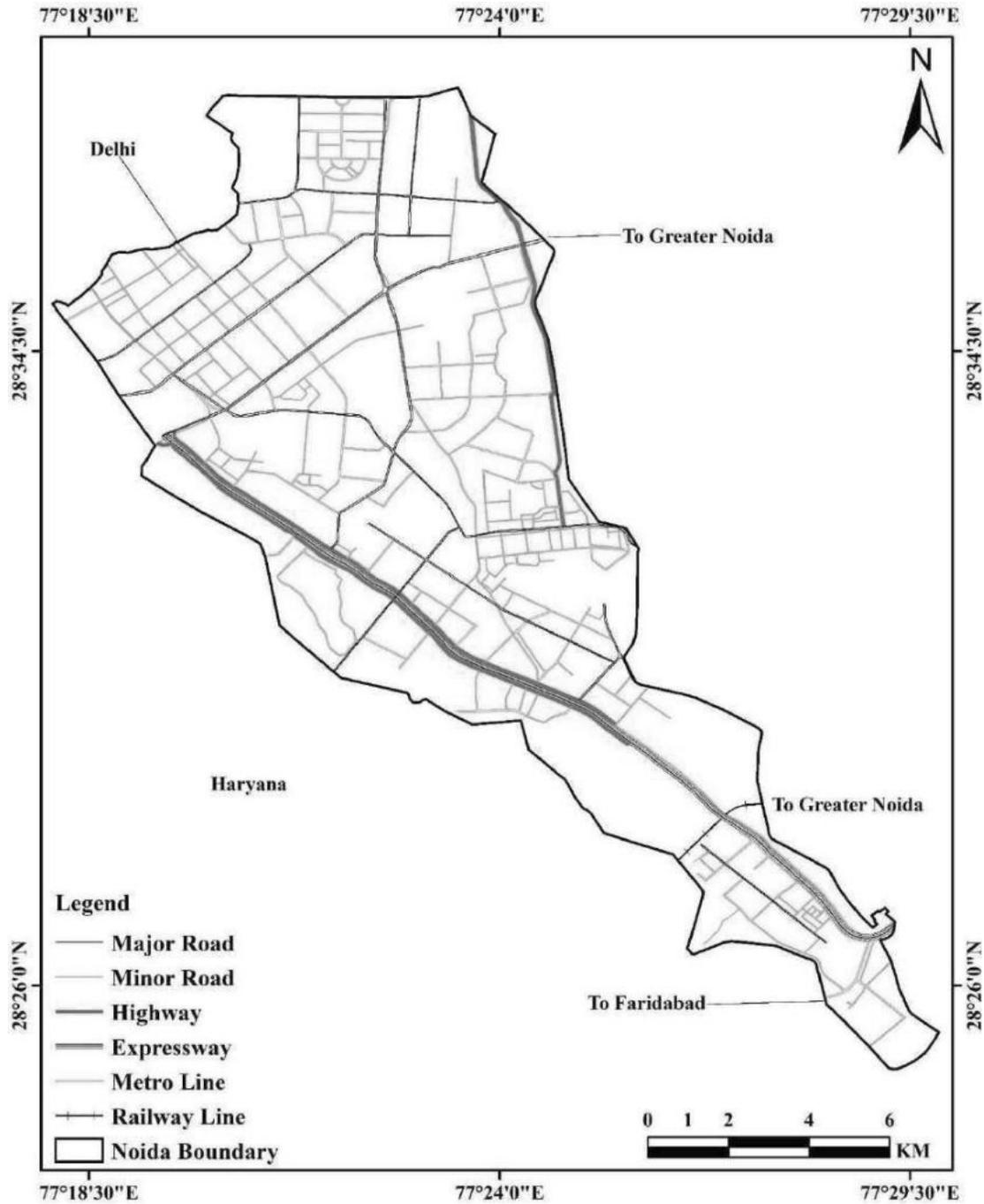


Figure 2: Study Area Map (NOIDA)

The area of Noida is long triangular in shape bounded by the river Yamuna in the west, river Hindon in the east, National Highway no. 24 in the north and the southern portion is demarcated by the confluence of the rivers Yamuna and Hindon. These bounding natural barriers emerge obvious limitations to the future expansion of the town. The

future location pattern and disposition of activities and land uses in future in Noida will be majorly dependent on the rivers bordering on east and west as shown in **Figure 3**.

The NOIDA city is divided into multiple sectors as shown in **Figure 3**.

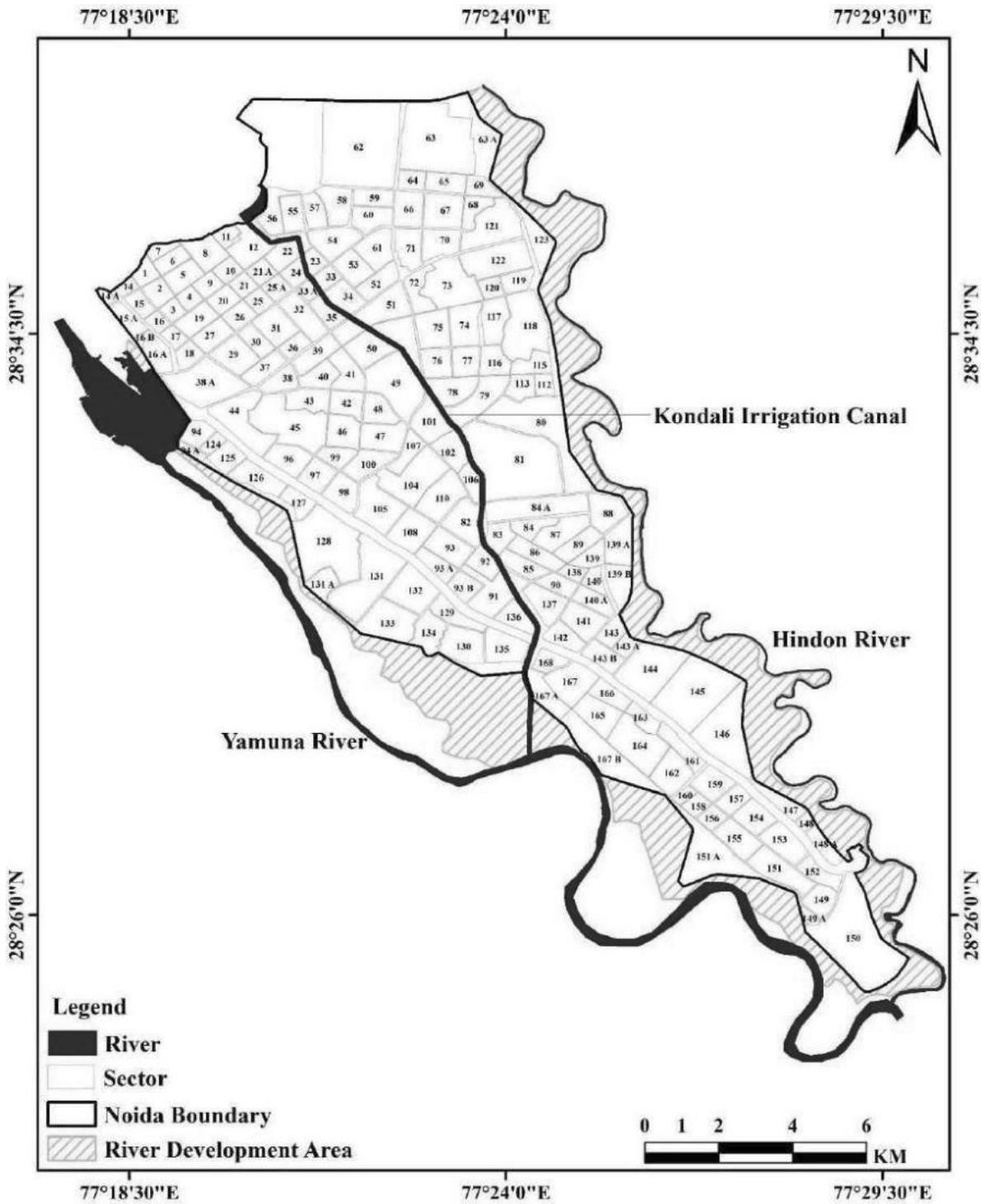


Figure 3: Sector Boundaries of NOIDA

Figure 4 displays the road network of NOIDA as per Master Plan 2031. All the Master Plans prepared & revised by the authority focused/ featured design concept, proposals regarding the integrated physical development of NOIDA and the zoning & subdivision regulations as shown in **Figure 3 & 4**.

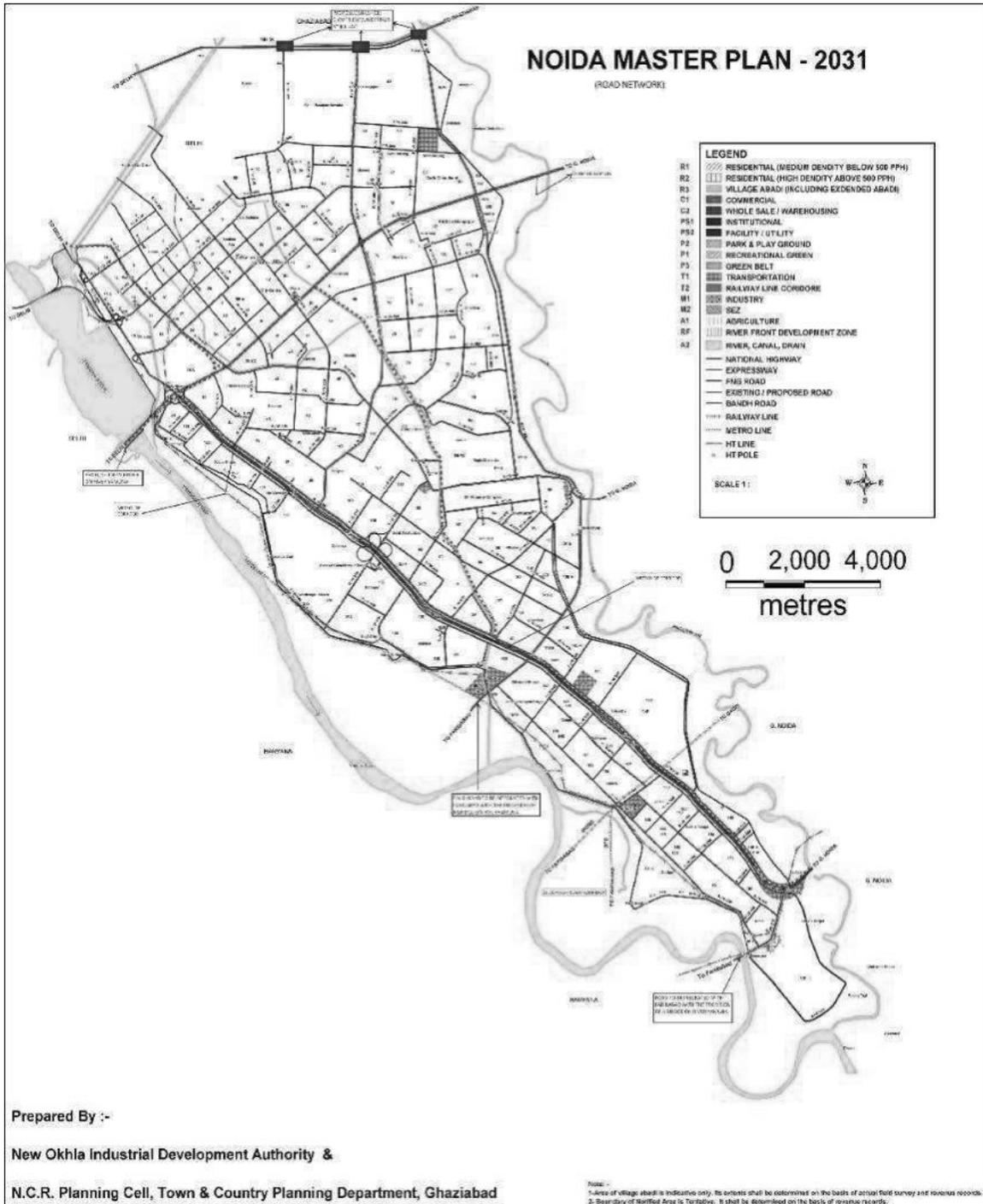


Figure 4: NOIDA Road network

1.2 Development Plan

The New Okhla Industrial Development Authority (NOIDA) for the year 1991 prepared first master plan with following objectives:

- I. Provide developed sites for about 10,000 small-scale industrial units.
- II. Provide employment to about 41,000 industrial workers.
- III. Achieve a conducive living and work environment for the workers engaged in manufacturing and allied activities, and develop an integrated township for an ultimate population of 3,75,000 workers.

This plan was then revised and a new master plan for the year 2001 was prepared; later the authority in the year 1989 again with the revision in earlier plan prepared new master plan for the year 2011. Moreover, the state government of Uttar Pradesh notified the entire area between river Hindon & Yamuna under NOIDA which engulfs 20316 Hectare land & 81 villages. The Noida Master Plan 2011 was revised in 2006 for the perspective year of 2021. In the year 2006 the state government of Uttar Pradesh approved the master plan for year 2021. Lately in the year 2011 the authority also approved the Master plan for the year 2031.

1.3 Population

According to the 1981 Census, the population of Noida was 36,972. Which was the aggregate of population of villages in Noida. Noida in the year 1991 was categorised as a Census Town (CT) housing 29 urbanised villages, with a population of 1,46,514 persons. The 1991 Census revealed that in addition to the population of 29 urbanized villages, 34,489 persons lived in the peripheral villages. Thus, in 1991 the total population of the Notified Area of Noida was 1,81,003. In 2001 a rise in the population up to 3,05,058 whereas about 10 lakhs in 2010 was witnessed. The population growth of Noida city during 1981-91 was nearly 400 per cent and from 1991-2001 it was 108 percent. This is no surprise as this period represented the burgeoning phase of the new town, founded in 1976. As per the findings of School of Planning and Architecture, New Delhi (SPA), the population of Noida had increased to 2,11,534 in 1995 moreover, as much as 20 per cent of the city's population lived in jhuggi clusters, another 48 per cent in the urban villages and only 32 per cent resided in the developed residential sectors. As per the survey by the

Noida Authority and district administration in 2008 NOIDA has about 11000 hutments. Population of Noida, as reported by the Census of India, 2001 was 305058 persons.

The average household size of Noida as per the survey of 1995 works out to 4.2. As per the aforesaid survey 70 per cent of the households have a household size of 4 to 6 persons. Out of the remaining, about 4.25 per cent have more than 6 persons per household and more than 25 per cent have less than 3 persons per household. The average household sizes of Noida Notified Area and Noida Urban Area were 4.77 and 4.44 respectively as per 2001 Census. As per the census of India 2011, the population of NOIDA amounts to 6,37,272. As per the NOIDA Master Plan 2031 projected population of NOIDA for the year 2031 is 30,74,905.

1.4 Water Supply Scheme

The tube wells, Ranney wells and Ganga water is the source of water for NOIDA development area. Presently Noida uptakes 48 MLD of Ganga water and permission from the Government of Uttar Pradesh to uptake 192 MLD of Ganga water has been granted. NOIDA has ample amount of ground water reserves, which are proposed to be exploited to meet the present and future water demands. Planning of water supply in the city is based on catering to the total demand through groundwater sources as Ganga water is not available for about 3 to 4 weeks in a year due to cleaning and maintenance of canals. However, Ganga water is needed to dilute high mineral contents of the ground water to make it potable. WAPCOS (a Government of India undertaking consultancy organization) has prepared the Master Plans of water supply and sewerage system for Noida. WAPCOS also has concluded that the overall quality of water in Noida appears to be good as no toxic substances were found in tube well water. Also, WAPCOS on the basis of available chemical composition records, have observed that the overall quality of water from tube wells / Ranney wells is good. At present in NOIDA, there are 182 tube wells generating 146 MLD water, 6 Ranney wells generating 54 MLD water, and 48 MLD Ganga water for which 40 overhead tanks, 39 underground reservoirs and 38 underground reservoirs for Ganga water. The present demand is 167 MLD and supply available is 248 MLD, thus there is no shortage of water.

The rate of water supply considered for planning of the water supply system of NOIDA is 172.5 lpcd (litres per capita per day) which includes 15% wastage/pilferage in residential

areas as per the Central Public Health and Environmental Engineering Organization (CPHEEO) norms, and at the rate of 45 kl per Ha/day for industrial, institutional and commercial use areas similarly, total requirement of water for the entire Noida amounts to be 590 MLD. It will be necessary to have 330 MLD of Ganga water in 590 MLD water. Noida will have 240 MLD Ganga water by the year 2013, balance 90 MLD Ganga water will be available in the third phase. Considering that the Ganga water will not be available through-out the year because of cleaning and maintenance of canals, ground water sources have been planned to generate 590 MLD water. Accordingly, 430 tube wells have been planned to generate 430 MLD water, and 12 Ranney wells to generate 160 MLD water (presuming 75% capacity), thus totalling 590 MLD water. Keeping in view that one Ranney well generates 12 times more water than a tube well, precedence has been given to Ranney wells.

1.5 Drainage Network

The triangular shaped area of NOIDA is bounded by river Hindon in the east and Yamuna in the west, both flowing southwards. Apart from these two main rivers, the town area consists of numerous perennials as well as non-perennial drains. All the drainage channels naturally follow the northeast to southwest sloping pattern. The adjoining rivers to the town viz. Hindon and Yamuna are in matured stage. One non-perennial channel of Hindon, flows through the central part of the area, near Sharfabadvillage. The storm water of the city mainly drains in river Yamuna and partially in Hindon. The city area also houses a numerous drains and ponds. The **Hindon cut** a major manmade drain, stretching in the north-western portion of Noida, is used by theirrigation authorities to transfer the water of river Hindon into Yamuna. The outfall of this cut on river Yamuna falls on the North - western boundary of the township. The city consists of two more major drains other than Hindon cut. First of which namely **Shahdra drain** spans through the Sectors 14, 15 and 16 and drains into the river Yamuna besides Okhala Barrage. This drain drains water of East Delhi and Shahdra into the Yamuna. The second one, namely **Noida Drain** stretches in the southern partof the city and draining into the river Yamuna at upstream of the Yamuna Hindon confluence point near sector - 168. The NOIDA drain is presently an outfall channel for drains spanning in most parts of Noida city.

Based on the site visits, the drains are classified as minor, medium and major based on the width of the drain. Drain width less than 1.5m are termed as minor drains whereas drains having width between 1.5m – 4m are classified as medium drains. The drains having width more than 4m are classified as major drains. The minor, medium and major drains flowing into the Kondali irrigation canal are shown in **Figure 5**.

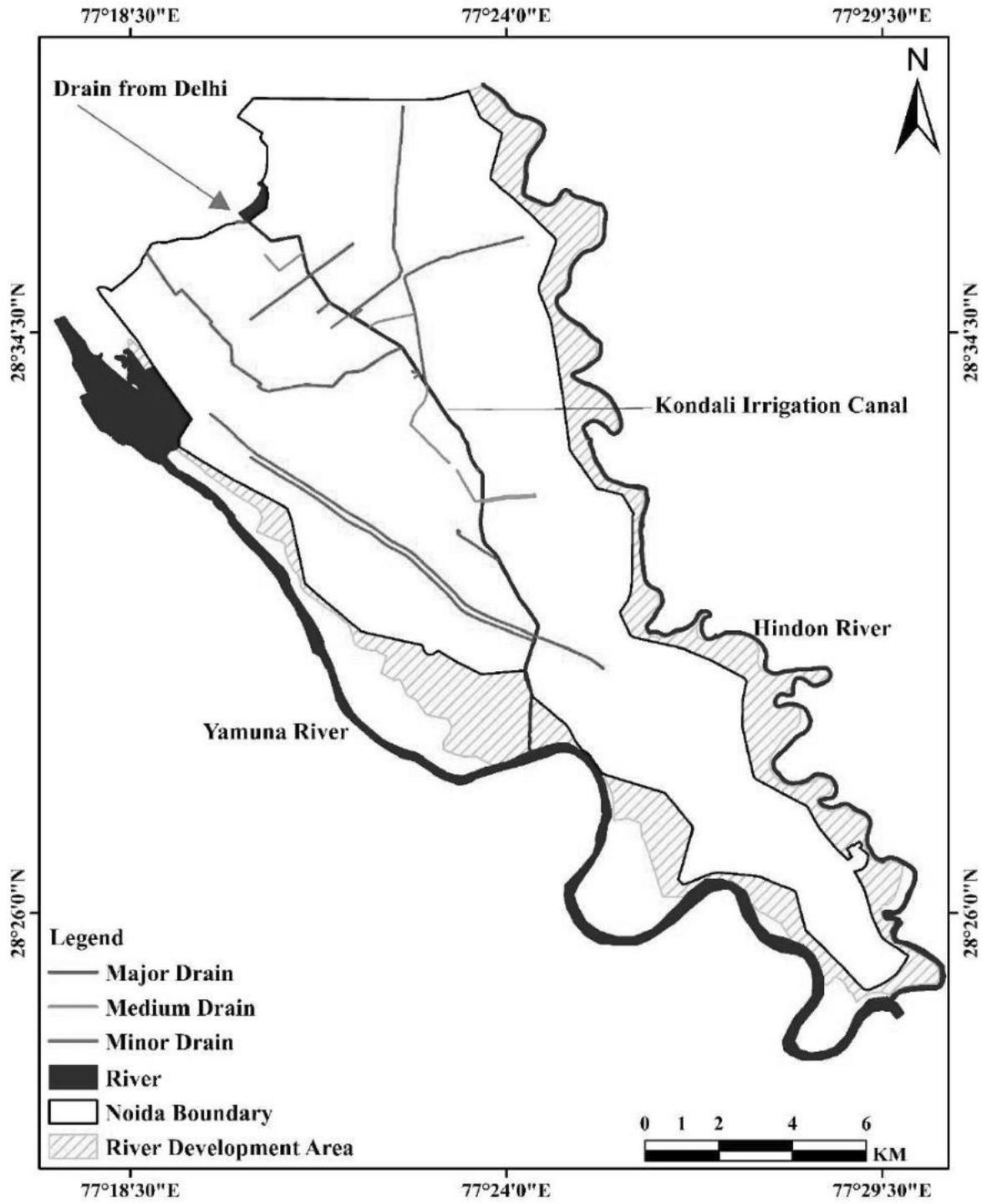


Figure 5: Course of Kondali and contributing drains in NOIDA

1.6 Existing sewerage system & sewage treatment plants (STPs)

The sewage of the NOIDA is diverted towards 4 sewerage districts having total treatment capacity of 231MLD. The sewerage drained from various sectors are collected in STPs located in Sector 54, Sector 50, Sector 123 and Sector 168. Sewerage District A, B, C, D covers 53, 18, 28 and 91 number of sectors respectively which sums up to 190 sectors. STP of Sewerage District **A** is situated in Sector 54 covering sewer from 53 Sectors having total treatment capacity of 87MLD i.e. one unit of 33MLD and another unit of 54MLD. Likewise, STP of sewerage District **B**, **C** and **D** have treatment capacity of 59MLD, 35MLD and 50MLD respectively. As per the information received from NOIDA authority the details of STPs in Noida is presented in **Table 1**.

Table 1: Existing STPs in NOIDA

Sr. No.	Sewerage District	Capacity of STP	Sector Nos.
1	Sewerage District A Sector -54	33 MLD + 54 MLD Total- 87 MLD	1 to 11, 11(i), 12,14,14A,15,15A,16,16A,16B,17 to 20, 21,21A, 22 to 25,25A, 26 to 35,52 to 61,71,72 and all related villages (53 Sectors)
2	Sewerage District B Sector-50	25 MLD + 34 MLD Total- 59 MLD	36,37,38,38A,39,40,41,42,43,44,45,46,47,48 ,49,50A,50B,51 and all related villages (18Sectors)
3	Sewerage District C Sector-123	35 MLD	62,62A,63,64,65,66,67,68,69,70,73,74,75,76 ,77,78,79,112,113,115,116,117,118,119,120 ,121,122,123 and all related villages (28 Sectors)
4	Sewerage District D Sector -168	50 MLD	80 to 84, 84A,85 to 93, 93A,93B,94,94A,95 to 108,110,124 to 139,139A,139B,140,140A,141 to 143,143A,143B,144 to 148,148A, 149, 149A,149B,150,150A,151,151A,152 to 167, 167A,167B,168 and all related villages (91Sectors)

*Note: Total Functional 06 Nos. STP's Capacity=231 MLD

*Source: NOIDA Authority

NOIDA has also proposed 2 new STPs in Sector 123 and Sector 168 having treatment capacity of 80MLD and 100MLD respectively as shown in **Table 2**. **Figure 6** displays the Plan showing existing/ proposed/ under construction sewage treatment plant's locations pumping stations & catchment area of the sewerage districts.

Table 2: Future proposed STPs in NOIDA

Location	Capacity	Remark
Sector-123	80MLD	For Sewerage District C work is 92% completed.
Sector -168	100 MLD	For Sewerage District D work is completed and STP is under trial.

***Note: Total Upcoming New 02 Nos. of STPs Capacity=180 MLD**

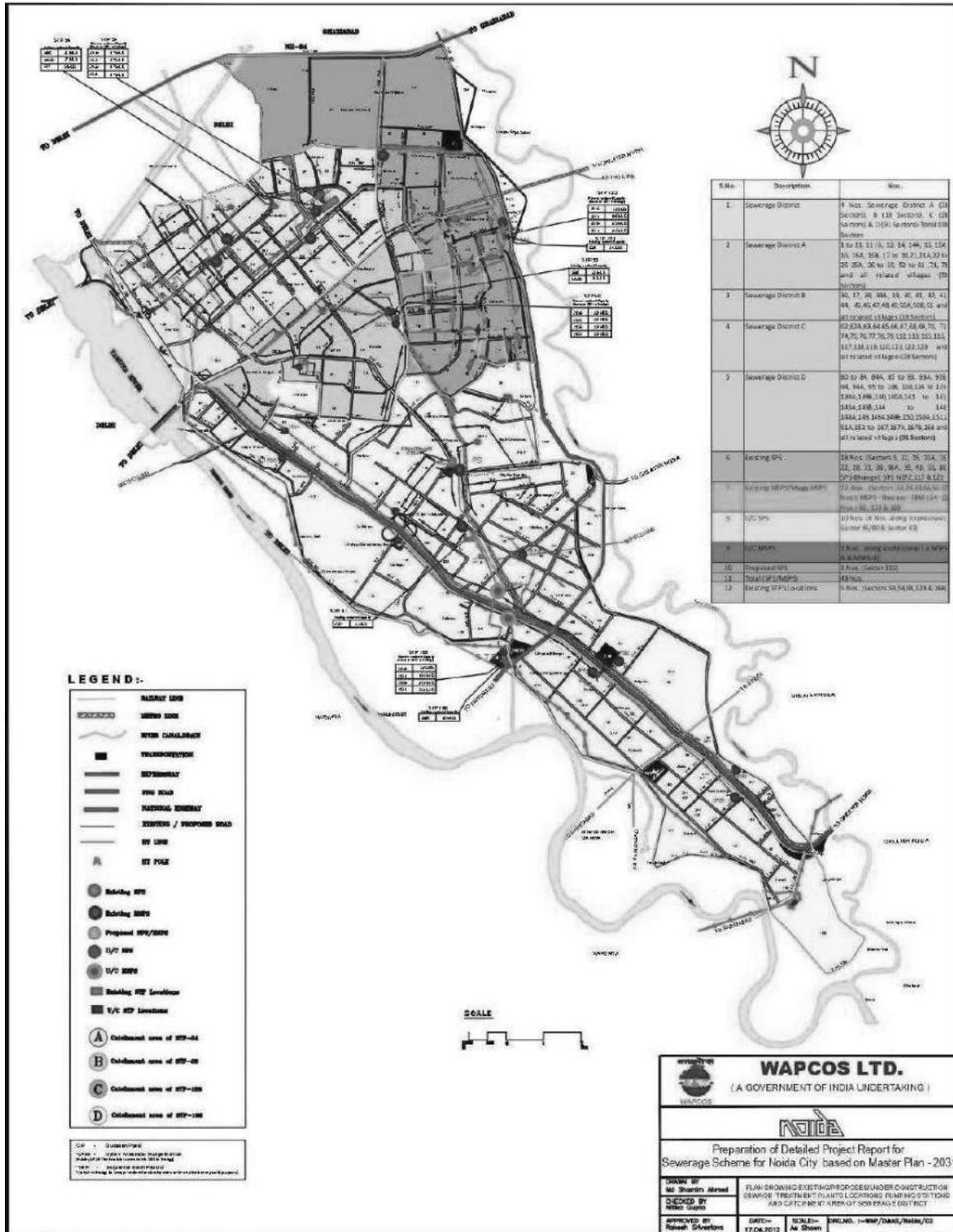


Figure 6: Sewerage scheme and STP demarcation for NOIDA

(*Source: NOIDA Authority)

NOIDA consist of 13 sewage pumping stations and 4 STPS as mentioned above. The locations of STPs and sewage pumping stations are plotted on GIS platform are illustrated in **Figure 7**.

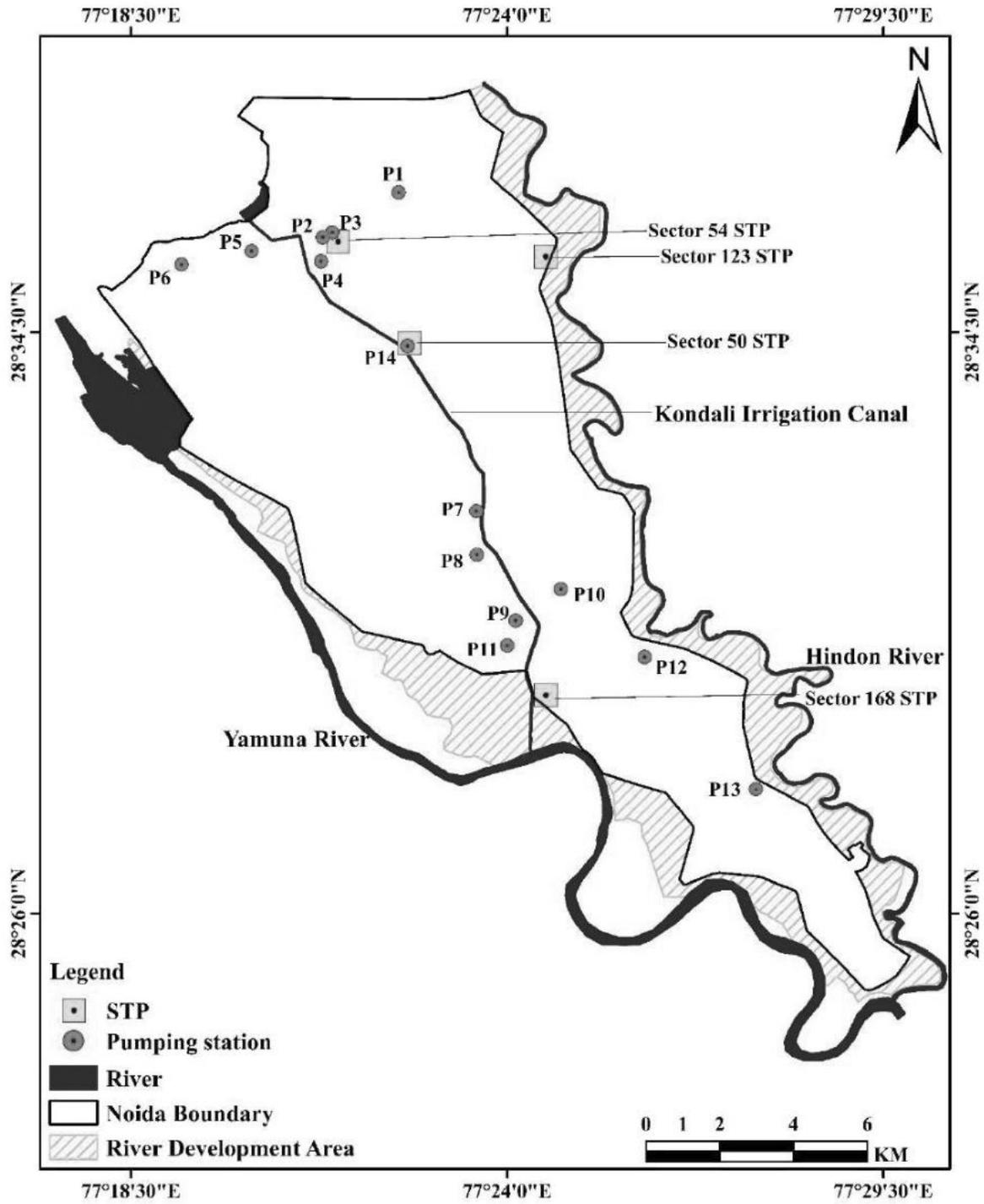


Figure 7: Location of STP and SPS in NOIDA

2 Site Visits

2.1 First Site Visit

On 19/10/2022 & 20/10/2022 team of CSIR-NEERI accompanied by officials from Office of Sr. Manager Jal Division 1, NOIDA Authority, visited and surveyed drains meeting into Kondali irrigation canal in NOIDA, Uttar Pradesh. The main purpose of the site visit was to analyse site-specific conditions, tracing of drains merging into Kondali irrigation canal and its flow measurements. The first site visit report was submitted on 2nd November 2022.

2.2 Second Site Visit

From 10/11/2022 to 12/11/2022, team of CSIR-NEERI accompanied by officials from Office of Jal Division 1, NOIDA Authority, carried out flow measurements, survey, and wastewater sample collection at the identified drains meeting into Kondali irrigation canal of NOIDA, Uttar Pradesh. The second site visit report was submitted 19th November 2022.

2.3 Site observations

The 30 locations in NOIDA around the Kondali irrigation canal were identified and surveyed as shown in **Figure 8**. Amongst these locations, four are the STP's effluent discharge points, one from In-Situ wetland treatment on Kondali canal, twenty-four are drains draining into Kondali irrigation canal & one from barrage on Kondali canal.

The details of surveyed drains consisting of Drain ID, description and co-ordinates are presented in **Table 3**.

Table 3: Details of identified drains and survey locations

Sr. No.	Drain Id	Details of Drain	Coordinates of drain merging into Kondali Canal
1	D1	Drain coming from Delhi/Khora	28°36'7.136" N 77°20'13.02" E
2	D2	Drain from Sector 11 Drain outfall under bridge	28°36'2.4" N 77°20'18.9" E
3	D3	Drain from Chora Sadatpur, Sector 22 Drain outfall near Sommer Ville School	28°35'36.598" N 77°20'57.97" E
4	D4	Drain from Makanpur Sector 26 which runs parallel to Maharaja Agresen Marg Drain outfall near NTPC Right	28°35'18.716" N 77°21'6.144" E
5	D5	Drain from Sector 60 and its outfall near NTPC Left Runs parallel Maharaja Agresen Marg Receives STP effluent from Sector 54	28°35'24.906" N 77°21'14.23" E
6	STP discharge	Sector 54 (33+54=87 MLD) STP Effluent Discharge point in D5.	28°35'42.21"N 77°21'38.13"E
7	D6	Drain from Sector 35 (parallel to Jagannath Mandir Marg) Drain outfall near Kribhko Colony Right	28°34'55.39"N 77°21'24.30"E
8	D7	Drain from Morna & ISBT (parallel to Jagannath Mandir Marg Drain outfall near Kribhko Colony Left	28°34'55.02"N 77°21'24.62"E
9	D8	Drain from Morna & ISBT (parallel to Golf Marg) Drain outfall near Surbhi Hospital Right	28°34'44.80176"N 77°21'41.73275"E
10	D9	Drain from Sector 63, Hazratpur Wajidpur Runs parallel to Vishwakarma Road turns near Sector 53 Drain outfall Surbhi Hospital Left	28°34'48.439" N 77°21'46.126" E

11	D10	Drain from Sector 51, Hoshiarpur (parallel to Captain Shashikant Marg Drain Outfall in In-Situ Wetland Treatment	28°34'44.235" N 77°21'45.231" E
12	In-Situ Wetland Treatment	On Kondali Irrigation Canalin Sector 51.	28°34'44.08"N 77°21'43.94"E To 28°34'35.16"N 77°21'58.79"E
13	D11	Drain from Sector 50 (parallel to Indosam Road) Drain Outfall near Nilgiri Public School	28°34'36.109"N 77°22'2.337"E
14	D12	Drain from Hindon cut that enters NOIDA from Sector 7 Runs parallel to Harola turns at Sector 38 GC again turns at Sector 40 and runs parallel to Agahpur Drain outfall opposite to Sector 50 STP	28°34'9.772" N 77°22'13.359" E
15	STP discharge	Sector 50 (25 + 34 = 59 MLD) STP Effluent Discharge point in Kondali.	28°34'12.89"N 77°22'31.48"E
16	D13	Drain from Sector 49, Baraula Runs parallel to Main Barola Road	28°33'54.68" N 77°22'40.704" E
17	D14	Drain from Sector 49, Baraula Runs parallel to Baanke Bihari Marg	28°33'52.17" N 77°22'42.54" E
18	D15	Drain from Sector 122 parallel to Vikas Marg Drain outfall Near NOIDA metro Sector 76 parking	28°33'49.743" N 77°22'48.425" E
19	STP discharge	Sector 123 (35 MLD) Treated effluent is discharging into Hindon River	28°35'53.11"N 77°24'14.48"E
20	D16	Drain from Sector 102, Salarpur Khadar parallel to Dadri Main Road turns at Sector 101 Drain outfall opposite to D15 Outfall	28°33'41.07" N 77°22'50.27" E
21	D17	Drain from Sector 102, Bhangel Begampur Drain outfall near Street No. 6 and Jeetram Colony road junction	28°32'29.451" N 77°23'34.8" E

22	D18	Drain from Sector 102, Salarpur Khadar, Bhangel Begampur parallel to Dadri Main Road Drain outfall near NSEZ metro Square	28°32'1.997" N 77°23'35.742" E
23	D19	Drain from NEPZ, Phase – 2, Thomson Press India Limited parallel to Dadri Main Road Drain outfall besides NSEZ Metro Station	28°32'3.01" N 77°23'40.981" E
24	D20	Drain from Sector 84A, Hosiery Complex parallel to Dadri Main Road Drain outfall Besides Eagle Forgings	28°32'1.61" N 77°23'42.087" E
25	D21	Drain from Sector 82 & Sector 93, Gejah Talattulabad Runs parallel to Janpath Marg Drain outfall Besides Farm	28°31'12.436" N 77°23'49.171" E
26	D22	Drain from Sector 44 Runs parallel to NOIDA greater NOIDA Expressway Drain outfall Near Pumping Station of Sector 167A STP besides Shahid Mangal Pande Marg	28°30'27.331" N 77°23'30.153" E
27	D23	Drain from Sector 143B, Garhi Runs parallel to Shahid Mangal Pande Marg Drain outfall near Advant IT park	28°30'2.013" N 77°24'29.144" E
28	D24	Drain from Sector 126, Mayoor School, Raipur Khadar Drain Outfall Besides Sardar Vallabhai Patel Marg, Drain on which Gates are installed	28°30'21.633" N 77°23'28.631" E
29	Barrage	Barrage on Kondali	28°29'38.244" N 77°24'17.054" E
30	STP discharge	Sector 168 (50 MLD) STP Effluent Discharge point in Kondali.	28°29'9.64" N 77°24'22.36" E

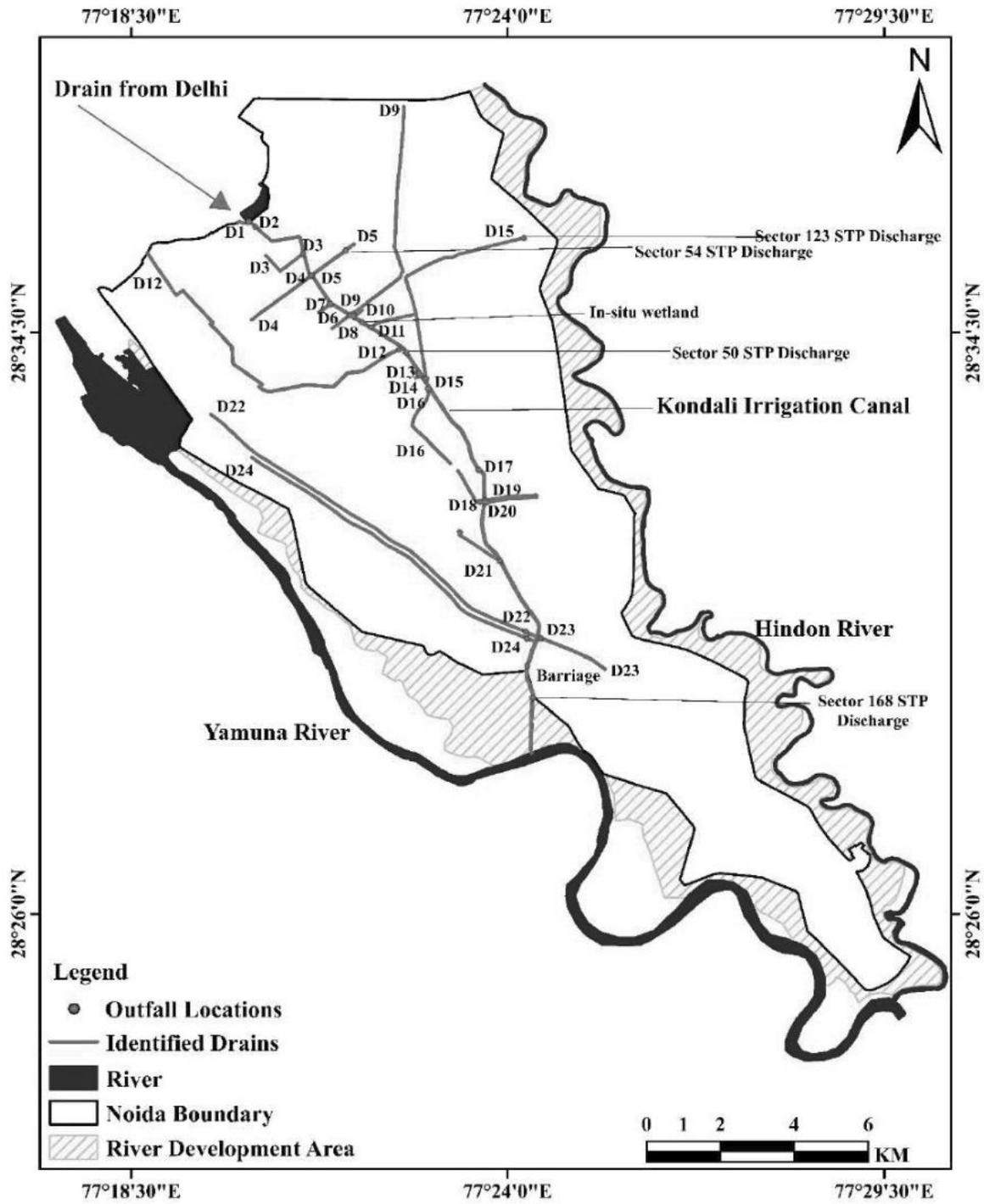


Figure 8: Identified drains and survey locations around Kondali Irrigation Canal

3 Overlay analysis of identified drains

The identified 24 numbers of drains meeting into Kondali irrigation canal were traced on the sectoral boundary map of NOIDA. This exercise brings forward the sectors from which each of the identified drains travel in their course (from upstream to mouth on Kondali). The overlay analysis of course of identified drains over the sectoral boundary Map of NOIDA is presented in **Figure 9**

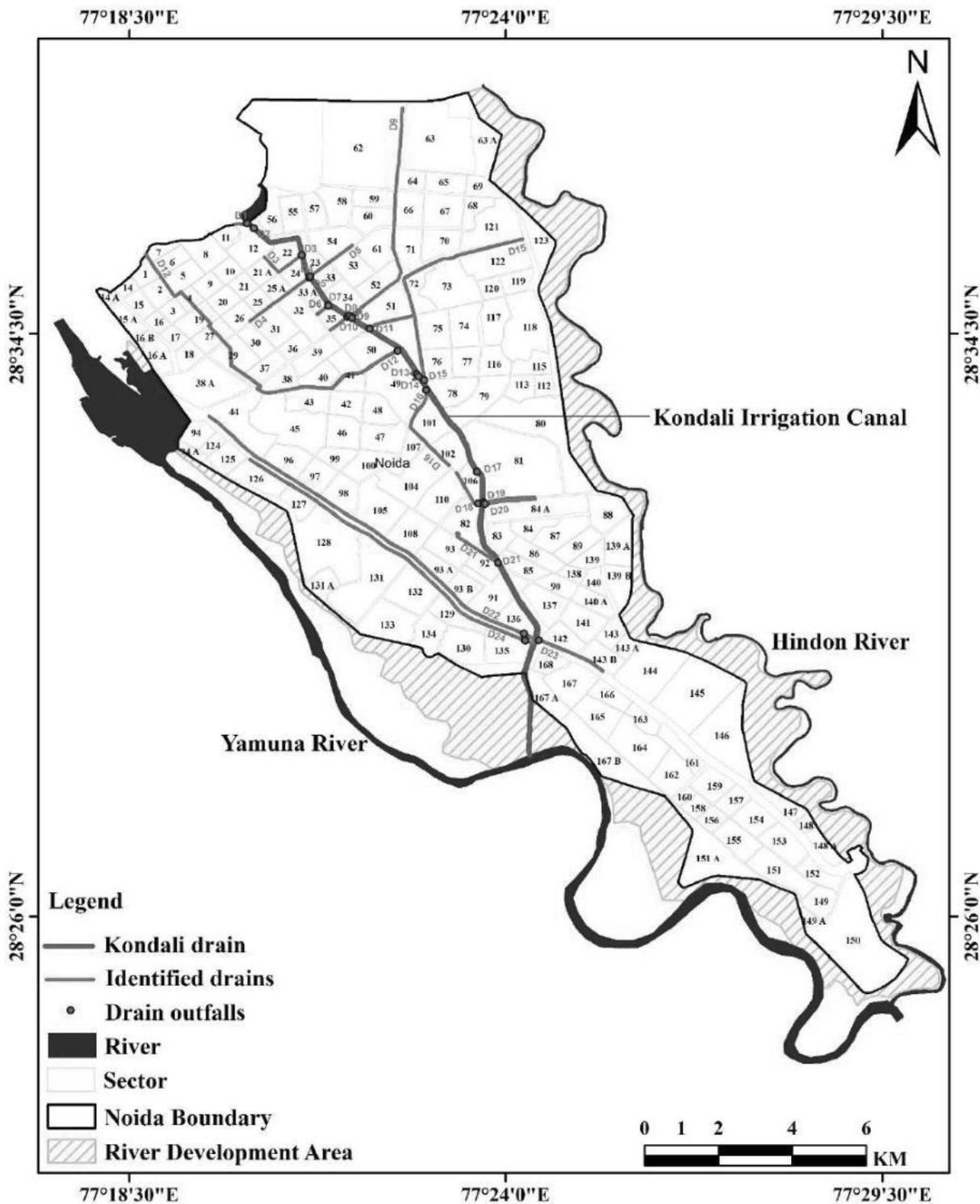


Figure 9: Overlay analysis of course of identified drains over the sectoral boundary Map of NOIDA

4 Classification of Drains

On the basis of detailed site visits, the drains are classified as minor, medium and major based on the width of the drain. Drain width less than 1.5m are termed as minor drains whereas drains having width between 1.5m – 4m are classified as medium drains. The drains having width more than 4m are classified as major drains. Apart from drain geometry i.e. width the drains are also classified on the basis of flow, Physicochemical Parameters of wastewater and the pollution load contributed by the drain

4.1 Classification as per Drain Geometry

Total 24 drains contributing its wastewater load in Kondali Irrigation Canal were identified. The flow in these drains varied in proportion to the catchment of each drain and every drain having different drain geometry.

All the identified drains were hence, categorized in three categories based on their width viz:

1. Minor - Drain width < 1.5 m
2. Medium - Drain width 1.5 m to 4 m
3. Major - Drain width > 4 m.

The drain geometry details and classification is presented in **Table 4** and depicted in **Figure 10**:

Table 4: Drain geometry and classification

Sr	Drain ID	Width (m)	Category
1	D1	4.5	Major
2	D2	1.0	Minor
3	D3	2.0	Medium
4	D4	5.5	Major
5	D5	4.3	Major
6	D6	0.73	Minor
7	D7	0.53	Minor
8	D8	0.8	Minor
9	D9	7	Major
10	D10	Closed Drain	
11	D11	2.9	Medium
12	D12	14	Major
13	D13	1.2	Minor
14	D14	1.2	Minor
15	D15	5	Major
16	D16	4	Medium
17	D17	4	Medium
18	D18	4	Medium
19	D19	4	Medium
20	D20	3.5	Medium
21	D21	5	Major
22	D22	9	Major
23	D23	6.6	Major
24	D24	8.3	Major

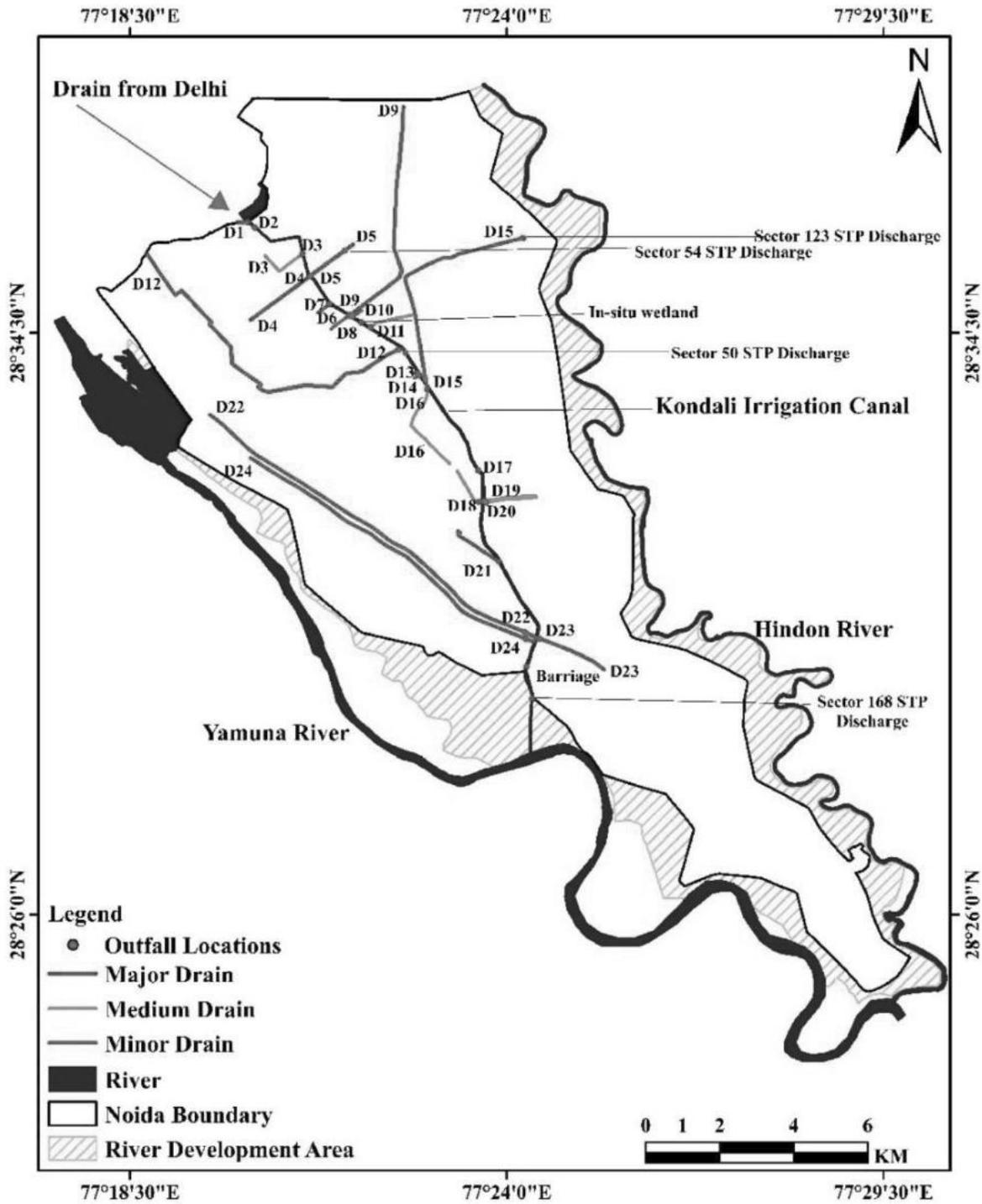


Figure 10: Identified drains classified on the basis of drain geometry

The inset analysis of the drains with their proximity with the Kondali Canal is illustrated in the **Figure 11**.

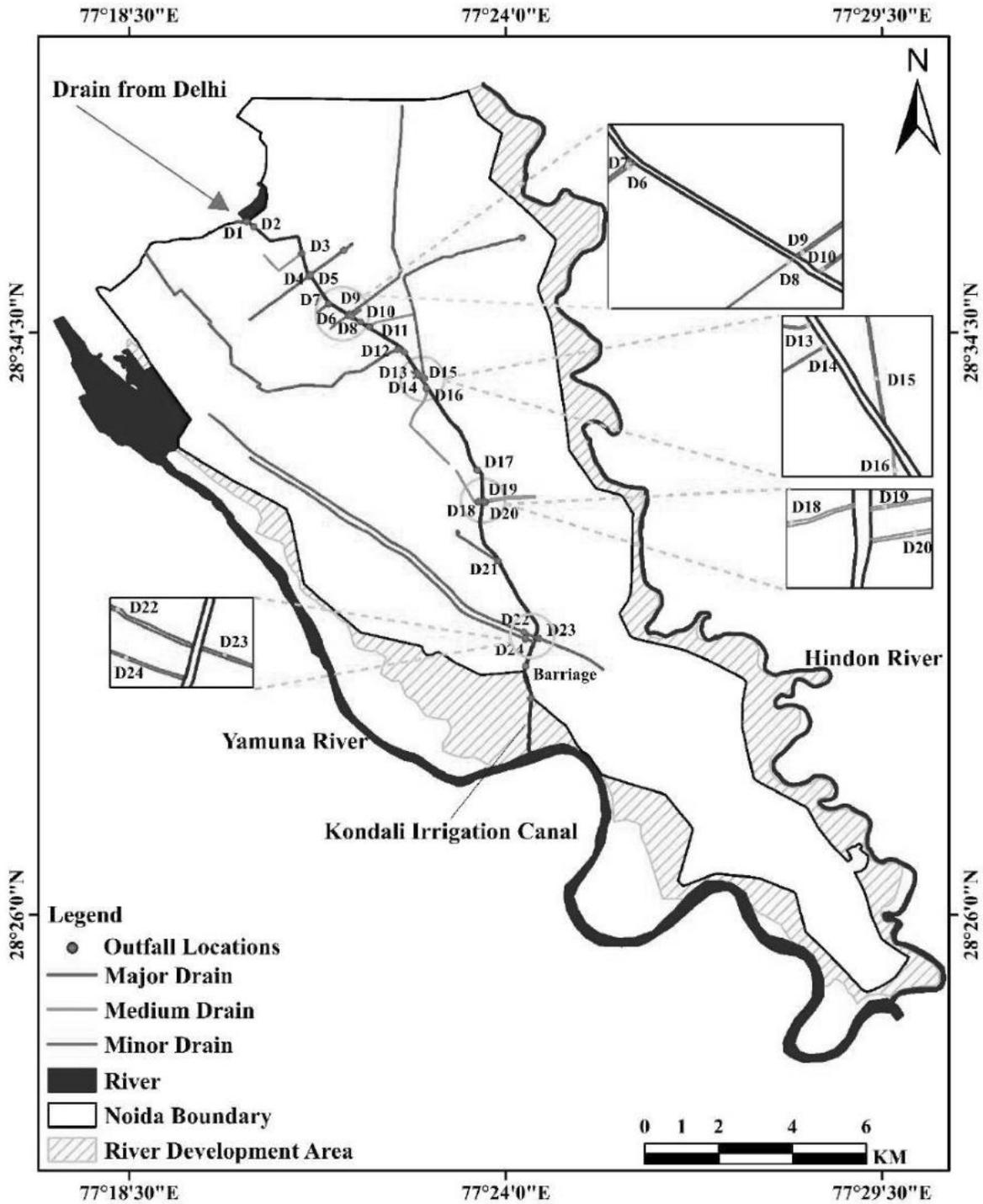


Figure 11: Inset Analysis of identified drains along Kondali canal

4.2 Classification as per flow

The flow in these drains varied in proportion to the catchment of each drain and every drain having different flow values.

Flow measurement of the drains was done through Greyline's Manta Ray Portable Area-Velocity Flow Meter.

Methodology of Greyline's Manta Ray Portable Area-Velocity Flow Meter:

The Area-Velocity method for flow calculation is recommended in CPHEEO's Manual on Water Supply and Treatment – 1999, Chapter 4 – Measurement of Flow, Point No. 4.2.2. This device measure flow in open channels, sewers, partially filled and surcharged pipes without a flume or weir. This device uses QZ02L sensor to capture the required data. For the accuracy of the flow measurement placement of the sensor in relation to flow disturbances needs to be considered. The channel in which the sensor is mounted should be free of bends, tees, sudden changes in slope and there should not be objects in the flow profile in front of the sensor.

All the identified drains were hence, categorized in three categories based on their flow:

1. Low flow – < 5 MLD
2. Medium flow – 5 – 25 MLD
3. High flow > 25 MLD

The flow of the identified 24 drains is presented in **Table 5** and depicted in **Figure 12**

Table 5: Flow in drains

Sr. No.	Drain ID	Flow (MLD)	Category
		November 2022	
1	D1	99.9	High
2	D2	This drain was inaccessible	
3	D3	0.8	Low
4	D4	14.3	Medium
5	D5	125.2	High
6	D6	0.8	Low
7	D7	0.7	Low
8	D8	0.6	Low
9	D9	100.4	High
10	D10	Closed drains	
11	D11	1.4	Low
12	D12	92.1	High
13	D13	1.6	Low
14	D14	3.8	Low
15	D15	74	High
16	D16	19.3	Medium
17	D17	0.3	Low
18	D18	7.8	Medium
19	D19	10.3	Medium
20	D20	4.1	Low
21	D21	5.9	Medium
22	D22	29.7	High
23	D23	21.3	Medium
24	D24	26.4	High

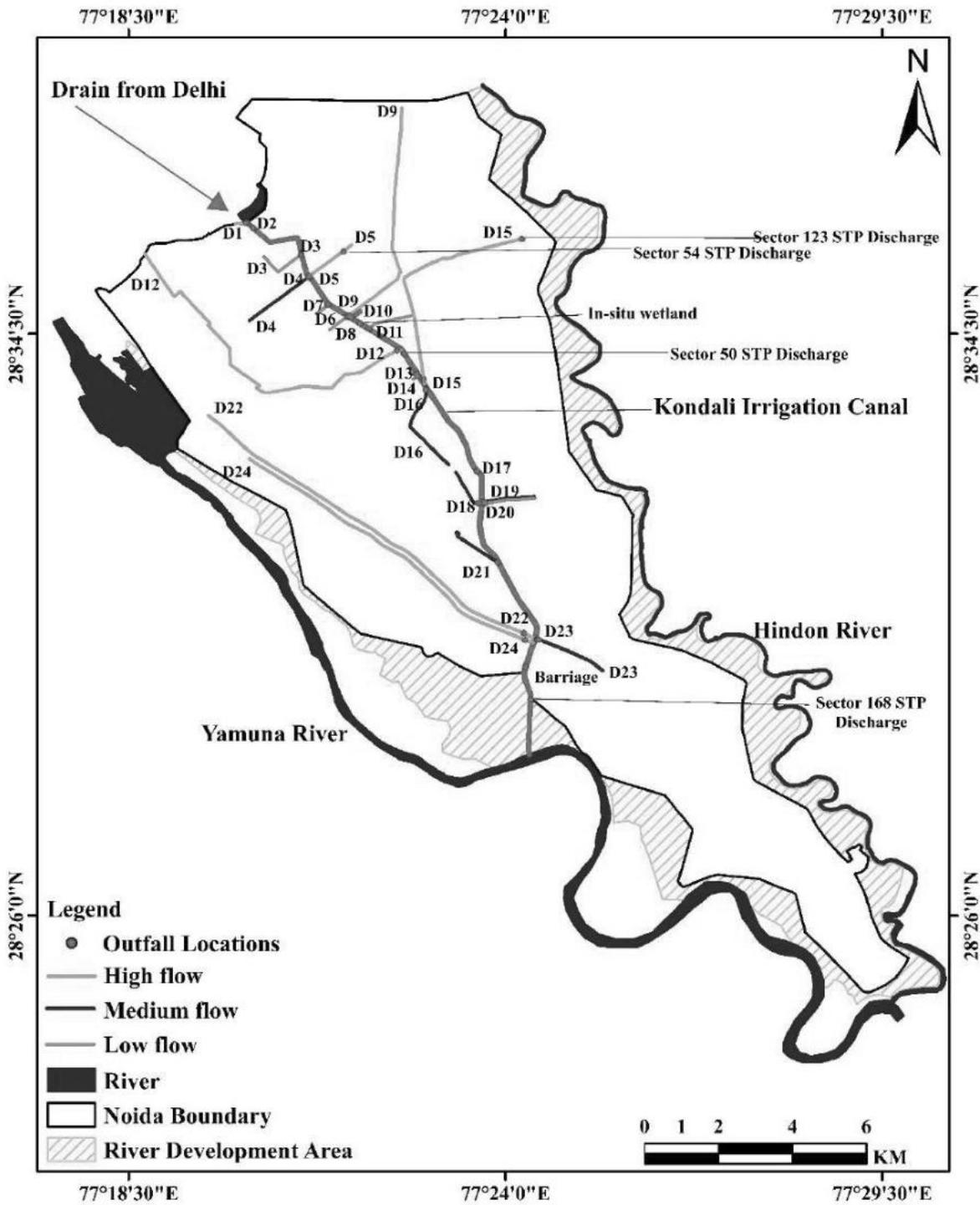


Figure 12: Identified drains classified on the basis of drain flow

4.3 Classification as per water quality

Sampling was carried out during November 10 - 12, 2022. Wastewater samples were collected and preserved from identified drains and locations within NOIDA.

The grab samples were collected from various locations of Noida. All samples were placed directly into acid-rinsed polyethylene bottle without any filtration. Measurements of pH and dissolved solids were made onsite. All other analyses were performed in laboratories at CSIR-NEERI, Nagpur. Sample preservation was performed immediately after sample collection. The samples were preserved, processed and analysed for major ions, trace elements and nutrients according to Standard Methods for the Examination of Water and Wastewater, 23rd. ed., American Public Health Association, American Water Works Association, & Water Environment Federation, Washington, DC, 2012 (APHA 2017).

The physicochemical characteristics of the collected samples in terms of major parameters are presented in **Table 6**.

Table 6: Physicochemical characteristics of the drain samples

Sl. No.	Sampling Points	pH	TDS	TSS	Total Solids	BOD	COD	Chloride	TKN	Nitrate	Sulphate	Phosphate
1	D1	7.6	3082	420	3502	139	307	1050	109	47	391	09
2	D2	7.8	1592	154	1746	82	200	425	52	54	159	04
3	D3	7.6	1297	256	1553	119	263	331	64	31	186	05
4	D4	8	3182	138	3320	63	131	825	104	51	716	05
5	D5	7.9	1968	158	2126	25	61	500	41	23	296	03
6	D6	8.2	1614	79	1693	73	150	682	109	49	115	06
7	D7	7.8	1725	81	1806	64	137	701	94	46	128	04
8	D8	7.7	1567	169	1736	79	181	674	105	38	37	05
9	D9	7.6	1466	172	1638	76	169	650	93	33	29	06
10	D10	Closed drain going into In-situ Wetland Treatment in Sector 51										
11	D11	8.1	1694	66	1760	68	131	700	114	19	95	03
12	D12	8	1808	130	1938	67	131	500	26	09	127	04
13	D13	7.3	2318	314	2632	164	315	825	98	27	278	04
14	D14	7.7	2398	712	3110	283	530	875	119	31	309	04
15	D15	8.1	1184	120	1304	50	108	400	57	13	54	06
16	D16	7.2	2652	136	2788	76	184	895	98	27	251	07
17	D17	7.5	2358	513	2871	224	423	850	109	52	294	08
18	D18	7.5	2652	136	2788	76	184	925	98	61	239	04
19	D19	7.9	1924	74	1998	72	146	675	67	39	83	05
20	D20	7.7	3250	514	3764	78	177	1225	41	58	1767	02
21	D21	8	3002	198	3200	51	108	1100	88	38	199	08
22	D22	7.9	1986	178	2164	52	123	575	93	19	243	05
23	D23	7.7	1716	260	1976	177	346	525	109	24	131	07
24	D24	8.3	2322	208	2530	29	61	675	31	47	284	08
25	In-situ Wetland Treatment	7.5	1592	116	1708	114	238	475	98	51	102	05
26	STP discharge	8.1	1788	138	1926	08	38	525	21	05	275	05
27	Barrage	7.6	1864	208	2072	42	100	675	78	44	185	05

#Grab samples were collected; All parameters are expressed in mg/L except pH;

- Out of Twenty-four identified drains, samples were collected from twenty-three drains that eventually discharge into Kondali irrigation canal. All drains receive wastewater from different point and non-point sources. Each collected sample was characterized in terms of major physicochemical parameters as listed in **Table 6**.
- Values of pH, ranged between 7.2 to 8.3, were within the discharge standard of pH of treated sewage (6.5 – 9.0) as stipulated by the Hon'ble National Green Tribunal (EIA notification, 2019).
- Higher total dissolved solids (TDS) concentrations in drains D1, D4, D16, D18, D20 and D21 (1184 – 3250 mg/L) indicate the presence of inorganic materials including chlorides, sulphates, nitrates etc. in higher concentrations in the drain samples. Discharge of industrial effluents from the small-scale industrial setups in the nearby industries in these drains cannot be ruled out.
- Suspended solids (SS), ranging between 66 – 712 mg/L, were majorly found in the drains D1, D3, D13, D14 D17 and D20. Erosion of soil, direct disposal of trash and untreated biomass (such as cow dung etc.) contribute to higher SS. High SS may lead to reduction in carrying capacity of the drains and poor aesthetics as well.
- Organic pollution can lead to depletion of dissolved oxygen, malodour and can also have adversely affect the aquatic lives of the receiving waterbodies. Chemical oxygen demand (COD) of the analyzed samples ranged between 61 – 530 mg/L whereas biochemical oxygen demand (BOD) was in range of 25 – 283 mg/L. The BOD/COD ratio (>0.40) of the samples indicates that the drain waters can be treated biologically. D1, D13 and D14 drains, passing through the Barola, Bhrahmpal market area, appeared to be highly polluted with COD >300 mg/L and BOD >130 mg/L. These drains were also characterized with high SS (>300 mg/L), and nutrients (TKN: > 100 mg/L). This could be because of discharge of untreated wastewater from cattle sheds and stubbles etc. D3, D17 and D23 effluents were found to have COD (263 – 423 mg/L) and BOD (119 – 224 mg/L) typical of domestic wastewater (sewage).
- Nutrients such as, total Kjeldahl nitrogen (TKN), NO_3^{2-} - N and PO_4^{3-} - P concentration in drains ranged between 26 – 119 mg/L, 9 - 61 mg/L and 2 – 9 mg/L,

respectively. Drains D1, D13, D14 and D17 were found to have high concentration of nitrate-N (~55 mg/L) and phosphate-P (~9 mg/L). Surface runoff from the patches of farm fields and pastures, discharges from septic tanks and feedlots from the semi-urban catchments might have contributed to the high concentration of nutrients in these drains.

- TKN concentration of D1, D4, D6, D8, D11, D13, D14, D17 and D23 drains were found to be in the higher side (> 100 mg/L).
- D5 was found with the lowest organics (COD: 61 mg/L; BOD: 25 mg/L,) moderate TDS (~1900 mg/L), and TKN (41mg/L) among all 25 drains monitored. This could be because of the dilution of drain wastewater with the discharge of treated sewage from the nearest existing sewage treatment plant. The treated sewage discharge from the STP was characterized with (COD: 38 mg/L; BOD: 8 mg/L, TDS: ~1700 mg/L, and TKN: 21 mg/L) complying with the stipulated treated sewage discharge standards in terms of the indicated parameters.

Characterization of the drain samples as per the water quality parameters is given in **Table 7** the same was also traced on NOIDA's map as displayed in **Figure 13**.

Table 7: Characterization of the drain samples as per the water quality parameters

Sl.No.		Sampling Points	pH	TDS	SS	Total Solids	BOD	COD	Chloride	TKN	Nitrate	Sulphate	Phosphate
1	Slightly Polluted	D5	7.9	1968	158	2126	25	61	500	41	23	296	3
2		D24	8.3	2322	208	2530	29	61	675	31	47	284	8
3	Moderately Polluted	D2	7.8	1592	154	1746	82	200	425	52	54	159	4
4		D4	8	3182	138	3320	63	131	825	104	51	716	5
5		D6	8.2	1614	79	1693	73	150	682	109	49	115	6
6		D7	7.8	1725	81	1806	64	137	701	94	46	128	4
7		D8	7.7	1567	169	1736	79	181	674	105	38	37	5
8		D9	7.6	1466	172	1638	76	169	650	93	33	29	6
9		D11	8.1	1694	66	1760	68	131	700	114	19	95	3
10		D12	8	1808	130	1938	67	131	500	25.9	9	127	4
11		D15	8.1	1184	120	1304	50	108	400	57	13	54	6
12		D16	7.2	2652	136	2788	76	184	895	98	27	251	7
13		D18	7.5	2652	136	2788	76	184	925	98	61	239	4
14		D19	7.9	1924	74	1998	72	146	675	67	39	83	5
15		D20	7.7	3250	514	3764	78	177	1225	41	58	1767	2
16		D21	8	3002	198	3200	51	108	1100	88	38	199	8
17	D22	7.9	1986	178	2164	52	123	575	93	19	243	5	
18	Extremely Polluted	D1	7.6	3082	420	3500	139	307	1050	109	47	391	9
19		D3	7.6	1297	256	1553	119	263	331	64	31	186	5
20		D13	7.3	2318	314	2632	164	315	825	108	27	278	4
21		D14	7.7	2398	712	3110	283	530	875	119	31	309	4
22		D17	7.5	2358	513	2871	223.5	422.5	850	108.5	52	293.5	8
23		D23	7.7	1716	260	1976	177	346	525	109	24	131	7

#Grab samples were collected; All parameters are expressed in mg/L except pH;

- Marked drains have COD <75 mg/L; BOD <30 mg/L and TKN <50 mg/L.
- Marked drains have COD:75-200 mg/L; BOD:30-100 mg/L and TKN 50-100 mg/L.
- Marked drains have COD > 200 mg/L; BOD > 100mg/L and TKN > 100 mg/L.

The water quality of 20 drains as per the data received from **NOIDA authority** is presented in **Table 8**. The sampling was conducted during 28-29 January 2022 by the NOIDA authority.

Table 8: Physico-Chemical Analysis of identified drains as received from NOIDA Authority

SL No.	Drain Id	Physico-chemical Parameters						Bacteriological Parameters	
		Colour	Odour	pH	COD mg/L	BOD mg/L	TSS mg/L	Total Coliform (MPN/100 mL)	Faecal Coliform (MPN/100mL)
1.	D3	Turbid	Unpleasant	7.5	448	138	166	21X10 ⁶	17X10 ⁶
2.	D6	Colourless	Odourless	7.2	152	42	116	33X10 ³	14X10 ³
3.	D8	Turbid	Slightly unpleasant	7.4	288	54	134	22X10 ⁷	14X10 ⁷
4.	D15	Slightly Blackish	Unpleasant	7.5	304	66	140	46X10 ⁶	17X10 ⁵
5.	D4	Blackish	unpleasant	7.5	544	162	264	13X10 ⁶	33X10 ⁵
6.	D24	Colourless	odourless	7.4	184	54	106	43X10 ⁷	35X10 ⁷
7.	D21	Slightly Pale	Unpleasant	7.5	336	84	154	49x10 ⁶	33X10 ⁶
8.	D19	Slightly Blackish	Unpleasant	7.4	272	54	128	14x10 ⁷	46x10 ⁶
9.	D18	Blackish	Unpleasant	7.6	440	180	226	32X10 ⁵	21X10 ⁵
10.	D20	Slightly Blackish	Unpleasant	7.4	320	72	152	24x10 ⁷	13x10 ⁷
11.	D12	Turbid	Unpleasant	7.5	272	48	128	22X10 ⁸	27x10 ⁶
12.	D5	Blackish	Unpleasant	7.6	512	132	188	28X10 ⁷	11X10 ⁷
13.	D23	Pale	Unpleasant	7.5	368	60	144	15x10 ⁶	12X10 ⁶
14.	D10	Pale	Unpleasant	7.3	352	66	140	22X10 ⁶	12X10 ⁶
15.	D11	Blackish	Unpleasant	7.4	520	120	205	49x10 ⁶	33X10 ⁶
16.	D17	Blackish	Unpleasant	7.5	440	132	146	35x10 ⁶	14x10 ⁶
17.	-	Turbid	Unpleasant	7.5	304	69	120	28x10 ⁶	12x10 ⁶
18.	D7	Turbid	Slightly Unpleasant	7.3	272	57	138	38 X10 ⁵	26x10 ⁵
19.	-	Slightly Blackish	Unpleasant	7.4	320	54	144	26 X10 ⁶	13X10 ⁶
20.	D13, D14	Pale	Unpleasant	7.5	352	66	152	17X10 ⁶	12X10 ⁶

(Source: Noida Authority)

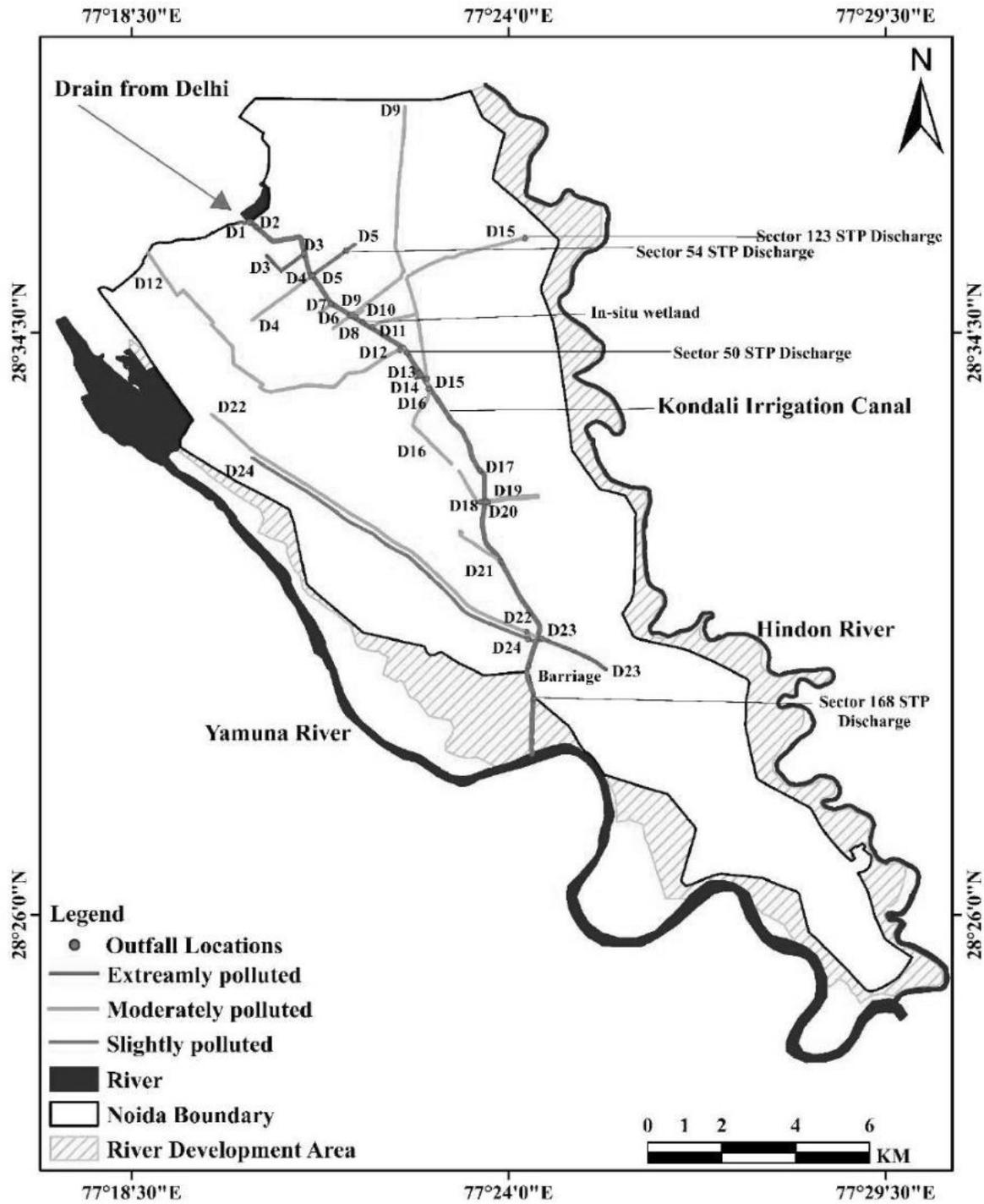


Figure 13: Identified drains classified on the basis of drain water quality

4.4 Classification as per Pollution Load

Pollution load is defined as the mass of a substance that passes a particular point of river or canal (such as a monitoring station on a drain outlet) in a specified amount of time (e.g., daily, annually). In general, load is essentially the product of water discharge and the concentration of a substance in the water.

$$\text{Pollution Load} = \text{Concentration} \times \text{Flow}$$

The pollution load in terms of organic and nutrients parameters (Nitrogen and Phosphorus) are calculated based on the flow measurement and water quality parameters in the month of November 2023 as presented in **Table 9**

Table 9: Pollution Load of the identified 24 drains

Drain ID	Pollution Load in kg/d		
	Organic	Nitrogen	Phosphorus
D1	30669.3	15584.4	899.1
D2	160	84.8	3.2
D3	210.4	76	4
D4	1873.3	2216.5	71.5
D5	7637.2	8012.8	375.6
D6	120	126.4	4.8
D7	95.9	98	2.8
D8	108.6	85.8	3
D9	16967.6	12650.4	602.4
D10	Closed drain		
D11	183.4	186.2	4.2
D12	12065.1	3223.5	368.4
D13	504	200	6.4
D14	2014	570	15.2
D15	7992	5180	444
D16	3551.2	2412.5	135.1
D17	126.9	48.3	2.4
D18	1435.2	1240.2	31.2
D19	1503.8	1091.8	51.5
D20	725.7	405.9	8.2
D21	637.2	743.4	47.2
D22	3653.1	3326.4	148.5
D23	7369.8	2832.9	149.1
D24	1610.4	2059.2	211.2
Total Pollution Load	101214	62455	3589

Pollution load is depended on the amount of flow and wastewater characteristics. Since, flow in the identified drains are varied from 0.6 MLD to 125.2 MLD and varied water quality parameters in terms of organic and nutrients parameters, pollution load is also varied. Based on the pollution load, the identified drains are further categories as less polluted, moderately polluted and heavily polluted. The details of the categorization is presented in **Table 10**.

Table 10: Categorization of drains based on pollution load

Sr. No.	Pollution Category	Pollution Load kg/d	Identified Drains
1	Less polluted	< 1000	D2, D3, D6, D7, D8, D11, D13, D17
2	Moderately polluted	1000 - 10000	D4, D14, D16, D18, D19, D20, D21, D22, D24
3	Heavily polluted	> 10000	D1, D5, D9, D12, D15, D23

The graphical representation of pollution load as Less polluted, moderately polluted and Heavily polluted on the drains is illustrated in **Figure 14**.

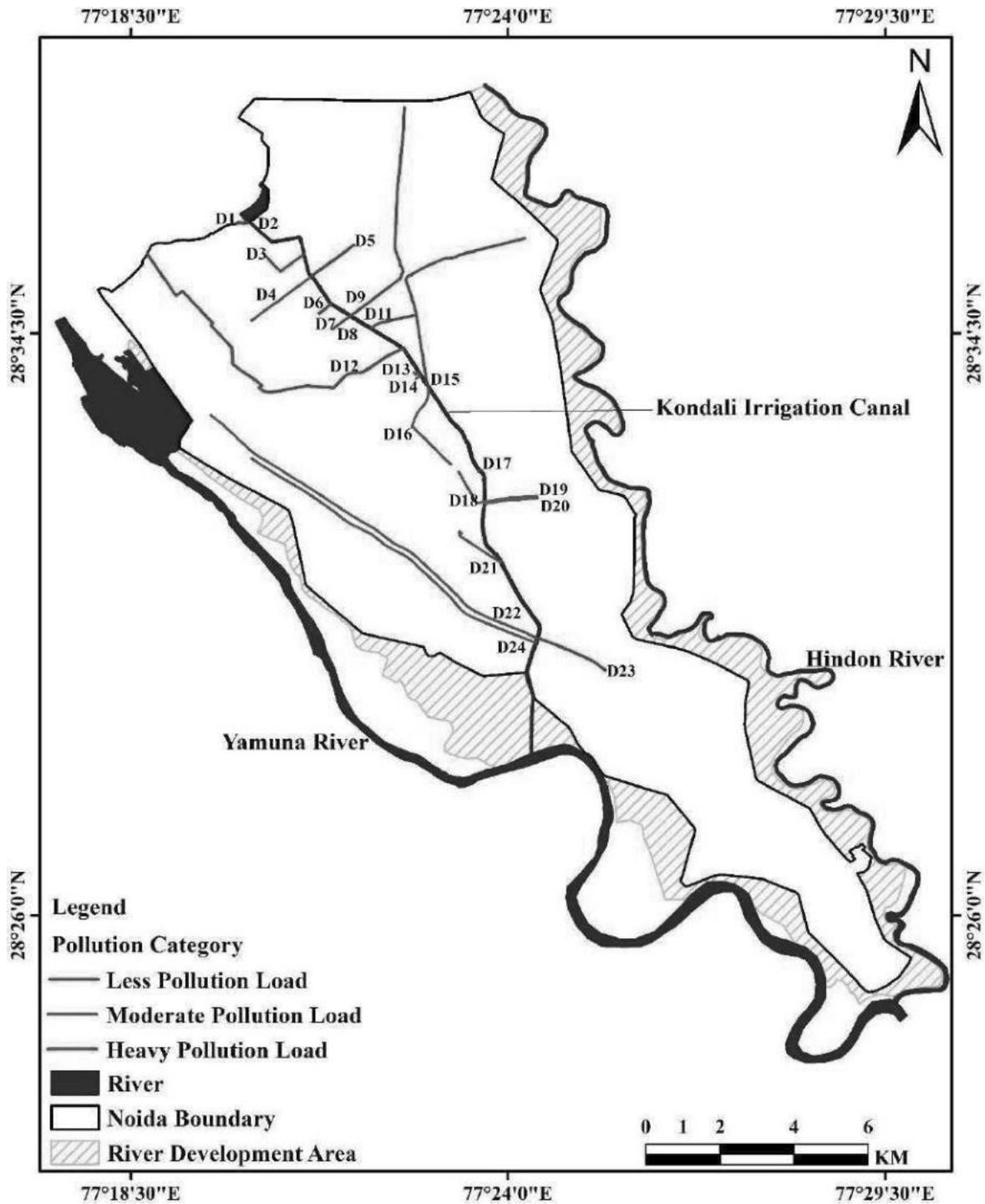


Figure 14: Characterization of the identified drains as per the pollution load

5 Status of Kondali Irrigation Canal

The Kondali irrigation canal faces major degradation due to solid waste dumping, discharge of untreated liquid waste and animal excreta directly into the canal. At many drain locations, solid waste can be seen accumulated in the drain as shown in Figure

10. Also, construction debris can also be observed in the drain which is needed to be arrested by the concerned department.

5.1 Discharge of wastewater

At various locations it was observed that wastewater generated was being discharged into Kondali irrigation canal through various drains and sewer mains (as shown in **Figure 15**). CSIR-NEERI has identified 24 number of such drains that contribute to maximum amount of pollution load.



Drain D3

Kribhko Colony

Figure 15: Discharge of wastewater in Kondali irrigation canal

5.2 Disposal of Solid Waste

At many locations it was found that solid waste was being dumped by inhabitants in Kondali irrigation canal and the contributing drains. This malpractice has resulted in clogging of drain at the mouth of respective drains (as shown in **Figure 16**).



Kondali Irrigation Canal



Drain D9



Drain 13

Figure 16: Solid Waste Dumping

5.3 Animal excreta being discharged through drains

At various locations cattle washing and flushing of excreta was spotted which needs to be controlled as shown in **Figure 17**.



Drain D14

Drain D17

Figure 17: Sights where flushing cattle wash & excreta was observed

5.4 Other Observations

It has been observed that Kondali Irrigation Canal is protected by brick masonry wall which is found to be damaged at various locations (Presented in **Figure 18**).



Figure 18: Damaged Embankments of Kondali Irrigation Canal

At many places it was noticed that major drains have been covered by slabs which are being utilized for commuting that need to be addressed by the concerned department (Figure 19).



Figure 19: Drain (D4) covered by slabs which are being used for commuting

6 Suggestive Measures

Based on the site visits, flow, water quality and pollution load of the drains discharging in Kondali irrigation canal, proper collection and treatment of wastewater flowing through drains is required. In order to minimize the sewage pollution coming from drains in the irrigation canal, the suggestive measures in terms of immediate, mid-term and long-term are delineated to improve the water quality of the Kondali irrigation canal.

NOIDA currently has 231 MLD capacity of commissioned sewage treatment units whereas, 180 MLD capacity of two more plants are in the process of commissioning. The projected population of NOIDA for the year 2031 as per Master plan 2031 is 30,74,905. Considering the current rate of water supply i.e. 172.5 LPCD; the rate of wastewater generation is assumed to be 138 LPCD ($0.8 \times 172.5 = 138$ LPCD). As per the projected population of NOIDA for the year 2031 the estimated quantity of wastewater generated through the town would be 425 MLD. Whereas, in present years NOIDA is equipped with STP's of total capacity 411 MLD installed at various locations. These STP's might be considered as Ex-Situ treatment option wherever possible. **Figure 20** depicts the STP location in proximity to the identified drains.

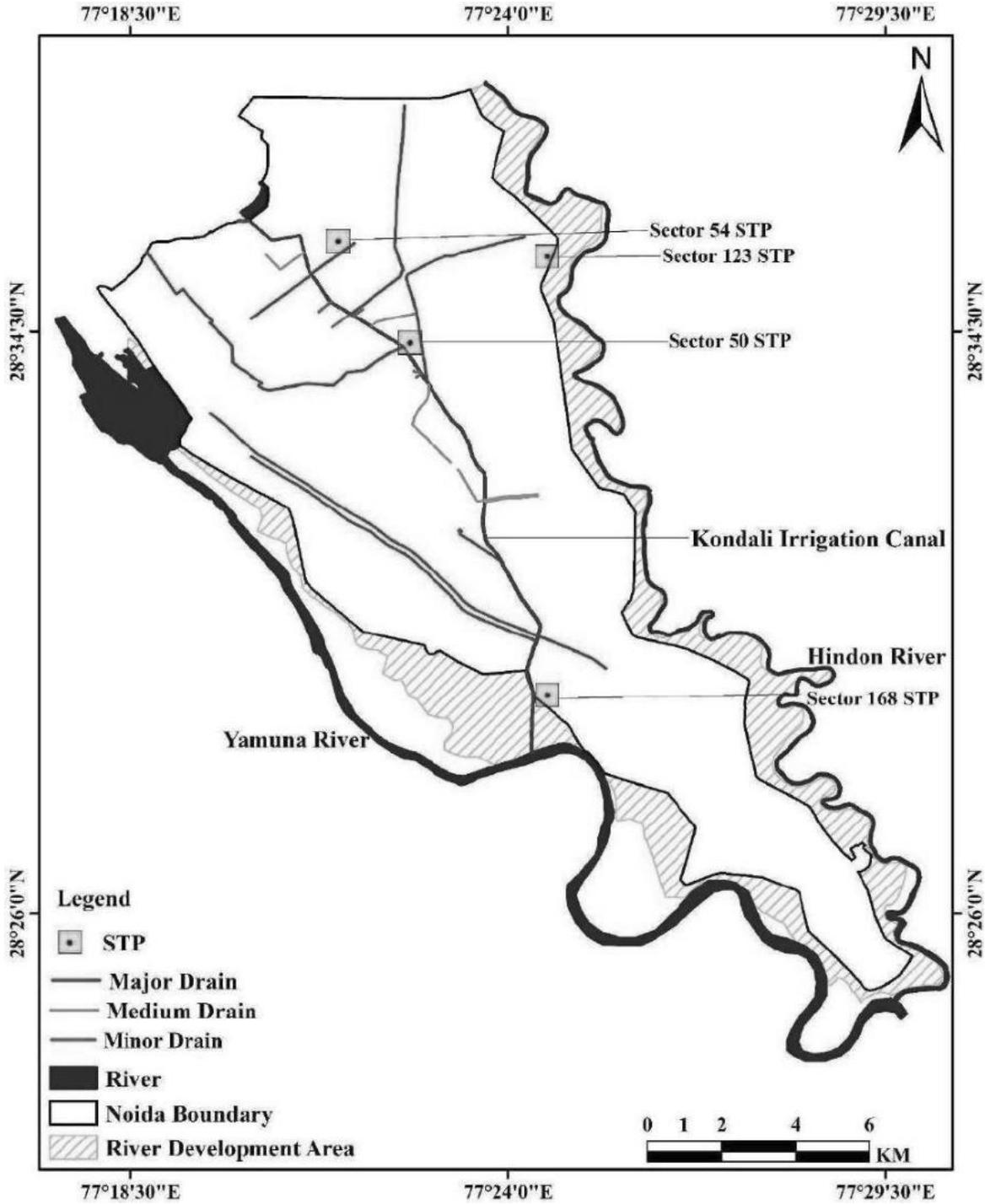


Figure 20: STPs and proximity of identified drains

Following are the details of Immediate, Mid-term and Long-terms measures.

6.1 Immediate measures

- Installation of coarse and medium screens at the identified drains merging into Kondali for the removal of floating solid waste
- Regular cleaning of screens by the concerned department
- Periodical removal of sludge and de-silting of identified drains before monsoon.
- Prohibition of solid waste, garbage and construction & demolition waste dumping in the identified drains and in Kondali irrigation canal.
- The brick masonry wall of the drains as well as Kondali Canal was found to be damaged at various locations. This needed to be looked immediately for its repair and strengthening.
- To avoid the further disposal and discharges, fencing and walkway may be proposed adjacent to the canal.

6.2 Mid-term measures

- Identification of the drains feasible for in-situ drain treatment to reduce the pollution load on Kondali irrigation canal.
- Identification of the minor drains that can be feasibly diverted to the nearest sewerage network, sewage pumping stations and STPs

6.3 Long-term measures

- Recommendation of feasible action plan regarding enhancement of sewerage scheme within the town which includes collection, transportation, treatment, safe disposal/ reuse of generated wastewater (Ex-situ treatment - Decentralised Sewage Treatment Plant).

7 Treatment Options

7.1 In-situ Treatment

In-Situ Drain Treatment refers to treatment of sewage by employing unit operations and unit process within the drain and without displacing/disturbing the shape/structure of Nallah.

Unit operation includes screening, grit trap and sedimentation while unit process includes aeration and phytoremediation. The in-situ treatment has been decided on the basis of flow, drain geometry and physico-chemical characteristics of drain.

Screen & Silt Trap is the first unit of In-situ treatment. **Screens** remove objects such as rags, paper, plastics, metals, and various floating matter to prevent clogging at the downstream of the treatment. Coarse as well as fine screens are provided before Silt Trap. **Silt Trap** is combined with the screening operation, which removes grit from the flowing sewage & allows it to settle down. Grit includes silt, sand, cinder, or other heavy solid materials “heavier” (higher specific gravity) than the organic biodegradable solids in the sewage/wastewater. When the turbulence is retarded, the suspended solids present in sewage/wastewater tend to settle down by gravity. The solid-liquid separation process separates the suspension into two phases (i) Clear supernatant leaving the top of the sedimentation pool (i.e., overflow) and (ii) Suspended Solids settling at the bottom of the sedimentation Pool. The bacteria are incapable of biodegrading organic matter in the drain/nallah within a reasonable time frame when there is no sufficient oxygen. Diffused aeration generated by solar or electric power provides oxygen to bacteria for treating and stabilizing the sewage/wastewater. Bacteria utilize the supplied oxygen in the wastewater to break down the organic matter containing carbon to form carbon dioxide and water. Hence, this self-sustaining solar energy-based aerators are required to increase the dissolved oxygen level in the wastewater and reduce odour formation.

PhytoTrap is an eco-technological horizontal bio-filtration unit which contains both physical and biological filters working together to remove suspended and dissolved impurities. Although PhytoTrap works on the principle similar to the constructed wetland, it is a modular, mobile, and single portable unit which is easy to operate and maintain. It is a small stainless cage filled with light weight filter media and wetlands plants. A zig-zag pattern of phytotraps is placed after the sedimentation unit along the drain. In

PhytoTrap, Phyto stands for “phytoremediation”, a process employed by wetland plants. Concurrently, filter media traps the suspended solids and the organic matter will be degraded by microbes and nutrient uptake by plants. As a result of nutrient removal, the DO level in water increases, facilitating the growth of aerobic organisms who are able to degrade organic pollutants. **Phyto-Florraft** is the modification of constructed wetland, which is applied on the surface of the water. The plant beds are constructed on material that can float on water and then be anchored in the nallah/drain channel. Phyto-Florraft allows the developing roots of aquatic plants to come in contact with the polluted water to degrade the contaminants. It is a three- pronged action – detritus feeding organisms consume the pollutants because they require nutrients. Secondly, wastes generated from this process are useful for green plants and thirdly, carbon is sequestered by green plants along with carbon dioxide that they absorb from the atmosphere. The plant systems act as oxygen diffusers via uptake through the leaves and its transfer through the stem to the roots. Plant roots can also secrete large amount of enzyme and organic acid to accelerate the decomposition of the macromolecular pollutants in water and improve the bioavailability of nitrogen and phosphorus. Phyto-Florraft includes a wide variety of foliage in aquatic, marsh, ornamental, herbs, grasses and terrestrial plants. Finally, disinfection unit at the end allow this treated water for various applications of gardening, floriculture, road washing and flushing.

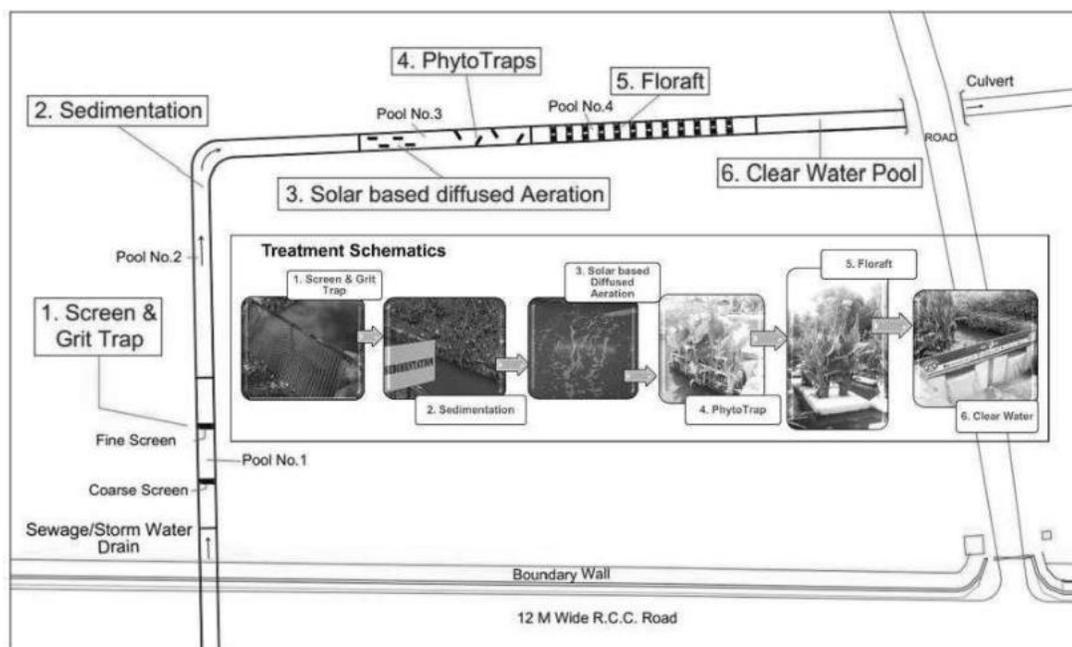


Figure 21: In-Situ Drain Treatment

7.2 Ex-situ Treatment

Ex-situ treatment refers to treating the sewage flowing into the drain by diverting its flow towards conventional Decentralized/ Centralized Sewage Treatment Plant set up in close proximity to the drain. The treatment options available are WSP, ASP, SBR, MBBR, MBR & Constructed Wetland etc.

Waste Stabilization Pond

Waste stabilization pond (WSP) utilizes shallow basins for wastewater treatments through natural processes by integrating autotrophic, heterotrophic, and phototrophic micro-organisms. WSPs are recommended by the World Health Organization (WHO) for treating agricultural and industrial wastewaters since WSPs are sustainable and require very little energy. WSPs comprises of series of ponds like anaerobic and facultative ponds for BOD removal and maturation ponds for pathogens removal. Anaerobic ponds work exceptionally well during warmer seasons. WSPs are uncovered which promotes the algae growth in presence of sunlight and nutrients present in waste which helps in organic and nutrient reduction. It is established that anaerobic ponds are 2-5 m deep with OLR of more than 100 g BOD/m²/d while CPHEEO, 2012 suggested that, anaerobic ponds are designed for OLR between 400 and 3000 kg/ha/d and detention time between 5 and 50 days. Sludge is accumulated at the bottom where it is attacked by anaerobic bacteria to breakdown the organic matter with more than 70% BOD removal at a temperature higher than 25°C and ammonia is released in the air. The facultative pond receives treated wastewater from an anaerobic pond where BOD removal takes place in presence of algal photosynthesis. The facultative pond is designed for a BOD loading rate of 480 kg/ha/d and length to width ratio of 3:1 with detention period between 5-30 days. Maturation ponds are generally 1-1.5 m deep to remove pathogens through solar radiation with OLR between 40-120 kg/ha/d (CPHEEO, 2012). Chikwue et al., 2015 carried out treatment of faecal sludge in the Choba Community, Nigeria using WSP and suggested that anaerobic ponds are not considered in design if BOD is less than 300 mg/L as an anaerobic system are used to treat high strength wastewater. Permissible organic loading rate given by CPHEEO.

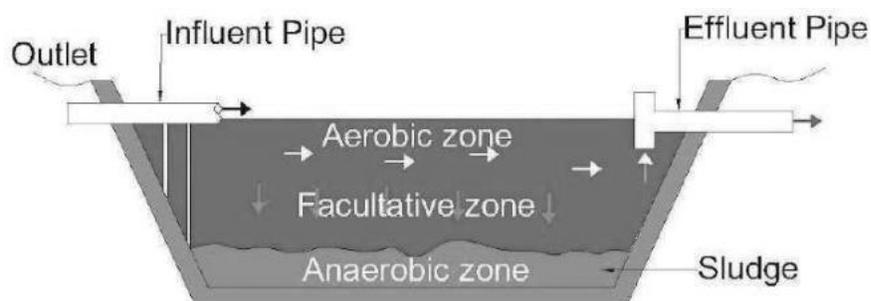
Table 11: Permissible BOD Loading Rate with respect to altitude

Latitude (N) Degree	Organic loading kg BOD/ ha.d
36	150
32	175
28	200
24	225
20	250
16	275
12	300
8	325

*(Source: CPHEEO, 1993)

Additionally, there is no energy consumption for aeration, no need of heavy equipment maintenance and no frequent sludge removal, sludge treatment and disposal.

Ponds require very little maintenance, since there is no heavy electric or mechanical equipment that requires attention. The only routine maintenance needed is on the preliminary treatment (cleaning of screens and removal of sand), routine checking of pipes, weirs and other hydraulic structures, and removal of unwanted vegetation growth in embankments.

**Figure 22: Waste stabilization pond**

Activated Sludge Process

Aerobic suspended growth systems are of two basic types, those which employ sludge recirculation, viz., conventional activated sludge process and its modifications and those which do not have sludge recycle, viz., aerated lagoons. In both cases sewage containing organic matter is aerated in an aeration basin in which micro-organisms metabolize the soluble and suspended organic matter. Part of the organic matter is synthesized into new cells and part is oxidized to carbon dioxide and water to derive energy. In activated sludge systems the new cells formed in the reaction are removed from the liquid stream in the form of a flocculent sludge in clarifiers. A part of this activated sludge is recycled to the aeration basin and the remaining form waste or excess sludge. In aerated lagoons the microbial mass leaves with the effluent stream or may settle down in areas of the aeration basin where mixing is not sufficient. The suspended solids concentration in the aeration tank liquor, also called mixed liquor suspended solids (MLSS), is generally taken as an index of the mass of active micro-organisms in the aeration tank. However, the MLSS will contain not only active micro-organisms but also dead cells as well as inert organic matter derived from the raw sewage. The mixed liquor volatile suspended solids (MLVSS) value is also used and is preferable to MLSS as it eliminates the effect of inorganic matter. Aerobic and facultative bacteria are the predominant micro-organisms which carry out the above reactions of organic matter i.e. oxidation and synthesis. Their cellular mass contains about 12% Nitrogen and 2% Phosphorous. These nutrients should be present in sufficient quantity in the waste or they may be added, as required, for the reactions to proceed satisfactorily. A generally recommended ratio of BOD:N:P is 100:5:1. Domestic sewage is generally balanced with respect to these nutrients.

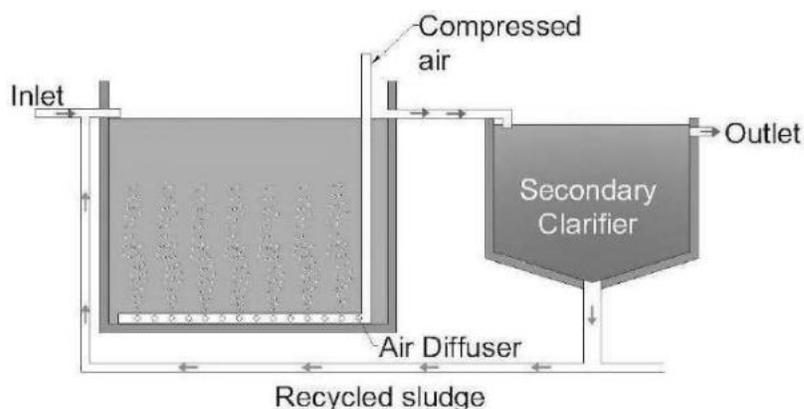


Figure 23: Activated Sludge Process

Sequential Batch Reactor

In its functional process scheme, a Sequencing Batch Reactor (SBR) is the same as the activated sludge process. The only difference is in the activated sludge process, the sewage flows through a primary clarifier, an aeration tank and then through a secondary clarifier continuously whereas in the SBR, the aeration and settling are carried out in batch mode one after the other in the same tank.

Primary clarifiers do not seem to be provided. Consequently, at least two SBR basins are needed in parallel so that when one is in aeration, the other can be in settling and decanting of the supernatant. In fact, the activated process can be referred to as continuous flow reactor (CFR). For this reason, the footprint on like-to-like basis of this type of SBR will be higher. In the CFR the suspended solids in the settling tank are constantly under simultaneous influence of opposing upward hydraulics of the overflowing treated sewage and gravitational setting of the suspended solids. In the SBR, this is got over by batch settling. In fact, the CFR can also be designed with the settling tank alone in parallel modules and in batch settling alternatively. The SBR does have some advantages and they are addressed herein. SBRs are typically configured and operated as multiple parallel basins. It aims to provide process and equipment performance, and variously include an instrumental control system that regulates timed sequences for filling, reaction, settling and effluent decanting. All these are referred to as one cycle of process control operation. It is the time duration between successive decanting sequences during which the liquid level moves from a lower water depth (bottom water level) to its fill depth (top water level) and back to its lower water depth (bottom water level). This volume progression takes place in repetitive sequences that permit reactive filling to be followed by solids liquid separation. The operational and process controls are governed as follows a. A batch reactor consisting of a single tank equipped with an inlet for raw sewage, air diffusers, with associated compressors and piping for aeration; a sludge draw-off mechanism for waste sludge; a decant mechanism to remove the supernatant after settling; and a control mechanism to time and sequence the processes. b. Decanting of the settled supernatant is carried out by equipment called as decanters. These consist of sharp-edged weir plates over which the settled supernatant overflows similar to conventional clarifier weirs.

The scum baffles are provided before these weir plates similar to the primary clarifiers.

The difference between clarifiers and these decanters is that in the case of clarifiers, the water surface remains constant and the weir plates are fixed permanently at that water surface. In the case of SBRs, the water surface will keep going down as the settled sewage is withdrawn because there is no inflow during this period. Hence, the weir plate has to move simultaneously down with the water surface and the collected settled sewage has to be discharged out of the SBR basin through a fixed pipe outlet. This is achieved by unique mechanisms called decanters. There are mainly three types of decanters namely (a) mechanized float controlled, (b) mechanized swing controlled and (c) hydraulically float controlled. These are shown in Figure 5.78 overleaf. The country has very limited experience on the performance of the various type of decanters. While selecting a decanter the competent authority may decide the type of decanter after ascertaining their field performance in the country or elsewhere in the world under similar conditions.

c. Wasting of surplus sludge typically occurs during the non-mixed (aerated) stage. The sequence to take advantage of the higher concentrations of settled mixed liquor; wasting can equally take place in an aerated mixed condition.

d. SBR plants consist of a minimum of two reactors in a plant. When one reactor is in the fill and aeration mode, the other reactor can be in settling and decanting mode of the cycle.

e. In the reaction stage, the oxygen is supplied to the system within the time frame of the reaction cycle.

f. Each single SBR basin has the same floor area for all sequences in each cycle of operation. As with CFRs, there are a number of types of SBRs all of which are easily differentiated. The main differences relate to their cyclic sequencing operation. The SBR efficiency derives from a capacity to maintain good sludge settling through batch settling. As with CFRs, nitrogen removal by biological nitrification-denitrification as also biological phosphorous removal by upstream anaerobiosis can also be built into the SBRs. Generally, the SBRs are reported in F/M ratios bordering on the extended aeration mode for the full quantity of the treated sewage. However, these can also be used with primary settling and F/M ratios like in conventional ASP in CFRs to generate bio-methanation from primary and excess volatile sludges and electricity production from the methane and thus save on electricity costs.

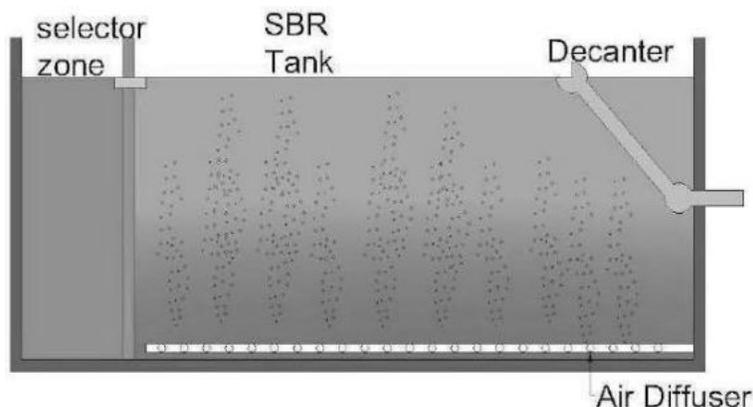


Figure 24: Sequencing Batch Reactor

Moving Bed Biofilm Reactor

The moving bed biofilm reactor (MBBR) is based on the biofilm carrier elements. Several types of synthetic biofilm carrier elements have been developed. These biofilm carrier elements are floated in the mixed liquor in the aeration tank and are kept floating by the air from the diffusers. They have a tendency to accumulate at the top zones. Hence wall mounted mixers propel the media downwards so that they again float and are in circulation in the mixed liquor. They are retained by suitably sized sieves at the outlet.

This process is intended to enhance the activated sludge process by providing a greater biomass concentration in the aeration tank and thus offer the potential to reduce the basin volume requirements. They have also been used to improve the volumetric nitrification rates and to accomplish the denitrification in aeration tanks by having anoxic zones within the biofilm depth. Because of the complexity of the process and issues related to understanding the biofilm area and activity, the processes design is empirical.

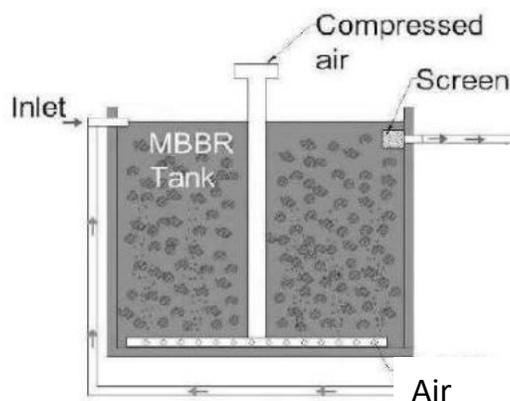


Figure 25: Moving Bed Biofilm Reactor

There are now more than 10 different variations of the processes in which a biofilm carrier material of various types is suspended in the aeration tank of the activated sludge process. There are many examples of such activated sludge treatment process with suspended biofilm carrier in the world. In this section, some of the more widely cited processes such as the Captor®, Linpor®, Pegasus®, and Kaldnes® are described and some design considerations and parameters are cited.

Membrane Bioreactor

The membrane bioreactor (MBR) process is a combination of activated sludge process and membrane separation process. Low pressure membranes (ultrafiltration or microfiltration) are commonly used. Membranes can be submerged in the biological reactor or located in a separate stage or compartment and are used for liquid-solid separation instead of the usual settling process. Primary sedimentation tank, final sedimentation tank and disinfection facilities are not installed in this process. The reaction tanks comprise an anoxic tank and an aerobic tank, and the membrane modules are immersed in the aerobic tank. Pre-treated, screened influent enters the membrane bioreactor, where biodegradation takes place. The mixed liquor is withdrawn by water head difference or suction pump through membrane modules in a reaction tank, being filtered and separated into biosolids and liquid. Surfaces of the membrane are continuously washed down during operation by the mixed flow of air and liquid generated by air diffusers installed at the bottom of the reaction tank. The permeate from the membranes is the treated effluent.

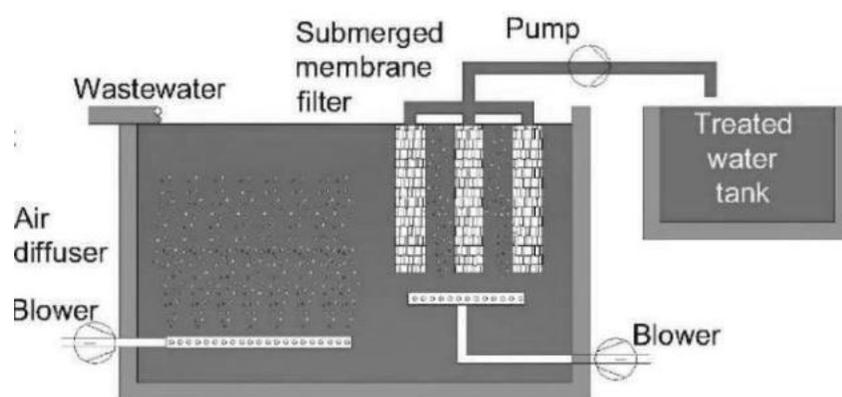


Figure 26: Membrane Bioreactor

8 Proposed Treatment Options

Based on the site visits, drain geometry, flow, characteristics of sewage and pollution load of the drains discharging into Kondali irrigation canal, individual treatment of identified drains is delineated. The details of feasible treatment options of identified drains are shown in **Table 12**. The engineering aspects i.e. Flow, Width of drain, liquid depth, wastewater parameters, brief description of the identified 24 drains and end barrage are presented in **Annexure III**.

Table 12: Delineated treatment options for drains

ID	Drain Details	Proposed Treatment Options
D1	Drain coming from Delhi/Khoda	Huge quantity (90-100MLD) coming from Delhi/Khoda need to be trapped and treated before discharging into Kondali Irrigation Canal in NOIDA
D2	Drain from Sector 11 Drain outfall under bridge	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D3	Drain from Chora Sadatpur, Sector 22 Drain outfall near Sommer Ville School	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain.

ID	Drain Details	Proposed Treatment Options
		<ul style="list-style-type: none"> This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.
D4	<p>Drain from Makanpur Sector 26 which runs parallel to Maharaja Agresen Marg</p> <p>Drain outfall near NTPC Right</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal Regular cleaning and maintenance of screen Removal of sludge from the drains Prohibition of dumping of solid waste into the drain <p>Long Term Measures:</p> <ul style="list-style-type: none"> Ex-situ treatment options comprise of SBR technology
D5	<p>Drain from Sector 60 and its outfall near NTPC Left</p> <p>Runs parallel Maharaja Agresen Marg</p> <p>Receives STP effluent from Sector 54</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal Regular cleaning and maintenance of screen Removal of sludge from the drains Prohibition of dumping of solid waste into the drain <p>Solution:</p> <ul style="list-style-type: none"> Drain need to assessed and back traced for appropriate treatment measures.
D6	<p>Drain from Sector 35 (parallel to Jagannath Mandir Marg)</p> <p>Drain outfall near Kribhko Colony Right</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal Regular cleaning and maintenance of screen Removal of sludge from the drains Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D7	<p>Drain from Morna & ISBT (parallel to Jagannath Mandir Marg)</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal

ID	Drain Details	Proposed Treatment Options
	Drain outfall near Kribhko Colony Left	<ul style="list-style-type: none"> • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D8	Drain from Morna & ISBT (parallel to Golf Marg) Drain outfall near Surbhi Hospital Right	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D9	Drain from Sector 63, Hazratpur Wajidpur Runs parallel to Vishwakarma Road turns near Sector 53 Drain outfall Surbhi Hospital Left	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Solution: <ul style="list-style-type: none"> • Drain need to assessed and back traced for appropriate treatment measures.
D10	Drain from Sector 51, Hoshiarpur (parallel to Captain Shashikant Marg) Drain Outfall in In-Situ Wetland Treatment	Closed Drain (merging in to In Situ Wetland Treatment)
D11	Drain from Sector 50 (parallel to Indosam Road)	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen

ID	Drain Details	Proposed Treatment Options
	Drain Outfall near Nilgiri Public School	<ul style="list-style-type: none"> • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D12	Drain from Hindon cut that enters NOIDA from Sector 7 Runs parallel to Harola turns at Sector 38 GC again turns at Sector 40 and runs parallel to Agahpur Drain outfall opposite to Sector 50 STP	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Solution: <ul style="list-style-type: none"> • Drain need to assessed and back traced for appropriate treatment measures.
D13	Drain from Sector 49, Baraula Runs parallel to Main Barola Road	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D14	Drain from Sector 49, Baraula Runs parallel to Baanke Bihari Marg	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.

ID	Drain Details	Proposed Treatment Options
D15	<p>Drain from Sector 122 parallel to Vikas Marg</p> <p>Drain outfall Near NOIDA metro Sector 76 parking</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Solution:</p> <ul style="list-style-type: none"> • Drain need to assessed and back traced for appropriate treatment measures.
D16	<p>Drain from Sector 102, Salarpur Khadar parallel to Dadri Main Road turns at Sector 101</p> <p>Drain outfall opposite to D15 Outfall</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Long Term Measures:</p> <ul style="list-style-type: none"> • Ex-situ treatment options comprises of SBR technology
D17	<p>Drain from Sector 102, Bhangel Begampur</p> <p>Drain outfall near Street No. 6 and Jeetram Colony road junction</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D18	<p>Drain from Sector 102, Salarpur Khadar, Bhangel Begampur parallel to Dadri Main Road</p> <p>Drain outfall near NSEZ metro Square</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain

ID	Drain Details	Proposed Treatment Options
		<p>Mid Term Measures:</p> <ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain. • This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.
D19	<p>Drain from NEPZ, Phase – 2, Thomson Press India Limited parallel to Dadri Main Road</p> <p>Drain outfall besides NSEZ Metro Station</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Long Term Measures:</p> <ul style="list-style-type: none"> • Ex-situ treatment options comprise of SBR technology
D20	<p>Drain from Sector 84A, Hosiery Complex parallel to Dadri Main Road</p> <p>Drain outfall Besides Eagle Forgings</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D21	<p>Drain from Sector 82 & Sector 93, Gejah Talattulabad</p> <p>Runs parallel to Janpath Marg</p> <p>Drain outfall Besides Farm</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p>

ID	Drain Details	Proposed Treatment Options
		<ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain. • This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.
D22	<p>Drain from Sector 44 Runs parallel to NOIDA greater NOIDA Expressway</p> <p>Drain outfall Near Pumping Station of Sector 167A STP besides Shahid Mangal Pande Marg</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D23	<p>Drain from Sector 143B, Garhi</p> <p>Runs parallel to Shahid Mangal Pande Marg</p> <p>Drain outfall near Advant IT park</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.
D24	<p>Drain from Sector 126, Mayoor School, Raipur Khadar</p> <p>Drain Outfall Besides Sardar Vallabhai Patel Marg, Drain on which Gates are installed</p>	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by

ID	Drain Details	Proposed Treatment Options
		<p data-bbox="760 222 1352 289">CSIR-NEERI, it is not a constructed wetland in the drain.</p> <ul data-bbox="727 302 1352 449" style="list-style-type: none"><li data-bbox="727 302 1352 449">• This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.

9 Summary and recommendations

On the basis of feasibility report approved by NOIDA Authority, CSIR-NEERI will prepare Detailed Project Report (DPR) which will include detailed topographic survey of the identified drains and Kondali Irrigation Canal, detailed engineering design and drawings, bill of quantities and estimates for the proposed in-situ/ex-situ treatment scheme.

The officials from CSIR-NEERI Nagpur and NOIDA Jal Division-I along with ACEO, Noida Authority met on 24th and 25th April 2023 (**Figure 27**) regarding the discussion on the draft feasibility report submitted by CSIR-NEERI, Nagpur and suitable treatment options mentioned in the draft feasibility report of the identified drains so that preparation of Detailed Project Reports (DPRs) can be started. The summary on Feasible treatment options of the identified 24 drains **is presented in Table 13.**



Figure 27: Meeting of executives from CSIR-NEERI Nagpur and NOIDA Jal Division-I along with ACEO, Noida Authority

Table 13: Summary on Feasible treatment options of the identified 24 drains

Sr. No.	Drain Id	Flow and Characteristics	Treatment Option/Suggestions	No of Drains
1	D1 (Drain from Delhi/Khora)	Flow-100 MLD Quality - BOD-139 mg/l SS-420 mg/l TN-150 mg/l P-9 mg/l	Drain coming from Delhi/Khora need to be trapped and treated before discharging into Kondali Irrigation Canal in NOIDA	1
2	D2 (Sector 11) D6 (Sector 35 Kribhco colony right) D7 (Kribhco colony left) D8 (Surbhi hospital) D11 (Nilgiri Public School) D13 (Sector 49, Baraula) D14 (Sector 49, Baraula) D17 (Sector 102 Bhangel) D20 (Hosiery complex) D22 (Sector 44, near pumping station 11) D23 (Advant IT park)	Flow of D2, D6, D8 and D17 is less than 1 MLD Flow of D11, D13 and D14 is 1 to 4 MLD Flow of D20 (Hosiery Sector - 84A) is 4 MLD Flow of D22 and D23 is around 20 to 30 MLD	Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs. Trap and divert to nearest sewer line for further pumping to nearest STP. Divert to nearest sewer line and transfer to nearest STPs through existing SPSs.	11
3	D3 (Sommer Vile School) D18 (Sector 102), D21 (Sector 82 & 93) D24 (Sector 126)	D3 - 1 MLD D18 - 7.8 MLD D21 - 5.9 MLD D24 - 26.4 MLD	In Situ drain treatment In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain. This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.	4

Sr. No.	Drain Id	Flow and Characteristics	Treatment Option/Suggestions	No of Drains
4	D4 (NTPC right Sector 26) D16 (Sector 102) D19 (NSEZ phase 2 outlet at NSEZ metro station)	D4- 14 MLD D16-19.3 MLD D19-10.3 MLD	Decentralized ex-situ treatment options comprises of SBR technology (3 STPs)	3
5	D10 (Sector 51)	Closed drain, merging into in-situ wetland treatment in Kondali		1
6	D5 (NTPC left coming from Sector 60) D9 (Sector 63) D12 (Sector 7) D15 (Sector 122)	D5 - 125 MLD (including 87 MLD treated sewage from STP at Sector 54) D9 - 100 MLD D12 - 92 MLD D15 - 74 MLD	These drains need to assessed and back traced for appropriate treatment measures.	4
TOTAL				24

10 Further course of actions

- Team of CSIR-NEERI will visit NOIDA in the month of May 2023 for back tracing of D5, D9, D12 and D15 drains due to their huge flow in the drains for proper treatment measures.
- For diversion and treatment of sewage in the identified drains, CSIR-NEERI along with Noida Authority will identify the nearest and feasible sewer line, sewage pumping station (SPS) and sewage treatment plant (STP).
- CSIR-NEERI will initiate the process of Topographic Survey of the identified 24 drains as per government procedure for preparing DPRs of the identified drains. The total length of stretch for Topographic Survey is around 160 km including Kondali and identified drains.
- CSIR-NEERI will submit the Standard Operating Procedure (SoP) of implementation of immediate measures (described in draft feasibility report) to be adopted by the concerned department of NOIDA Authority.
- Based on the suitable treatment options suggested in **Table 13**, CSIR-NEERI will submit the DPRs for in-situ and ex-situ treatment of the flowing wastewater in the identified drains.

Site Visit Report – I

In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city

Sponsored By



New Okhla Industrial Development Authority

An Integrated Industrial Township

ISO 9001 : 2000 & ISO 14001:2004 Certified

New Okhla Industrial Development Authority
(NOIDA)

Submitted By



CSIR- National Environmental Engineering Research Institute
Nagpur – 440 020.

October 2022

1. Duration of Site Visit:

On 19/10/2022 & 20/10/2022 team of CSIR-NEERI accompanied by officials from Office of Sr. Manager Jal Division 1, NOIDA Authority, visited and surveyed drains meeting into Kondali irrigation canal in NOIDA, Uttar Pradesh.

2. Purpose of the Site Visit:

This site visit was carried out to view the site-specific conditions, tracing of drains merging into Kondali irrigation canal and its flow measurements.

3. Observations:

- Kondali is an Irrigation Canal that flows through the center of NOIDA.
- The origin/ source of this canal is the depression pool at Smriti Van (As depicted in Figure1: Location: 28°36'9.896" N 77°20'11.722" E).

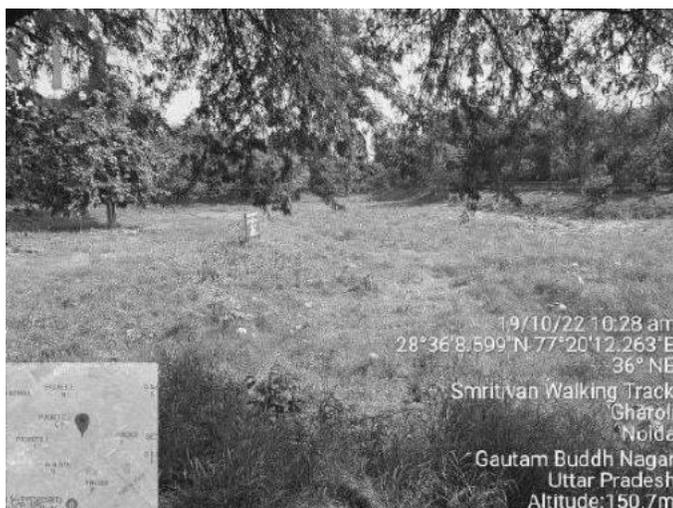
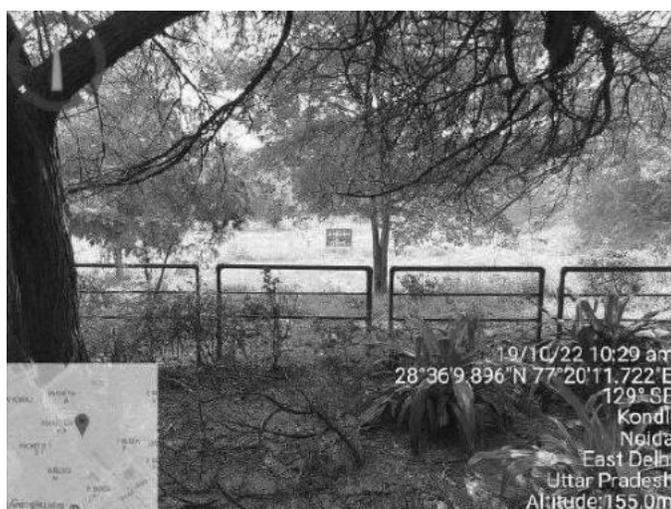


Figure 1: Depression Pool/ origin of Kondali inside Smriti Van

- Presently this irrigational canal is carrying wastewater because the sewer/drains which is flowing within the NOIDA city carrying wastewater, which is ultimately meeting into Kondali irrigational canal and thus the canal is getting polluted
- It has also been observed that one of the drains coming from Delhi and meeting into Kondali irrigation canal in the north (shown in Figure 2)

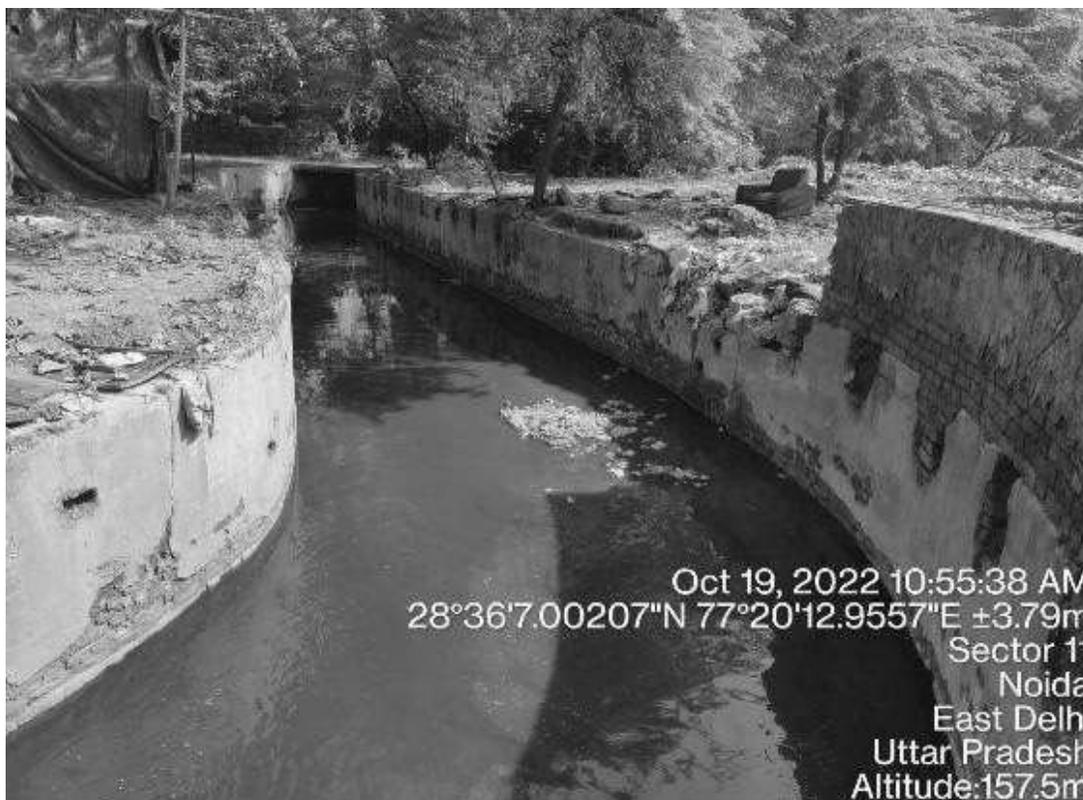


Figure 2: Drain Coming from Delhi and meeting into Kondali Irrigation Canal, Noida

- Kondali on its further journey discharges/ converges into River Yamuna, contributing to the river pollution.
- During the site visit, it was found that solid waste is also being dumped at various locations on Kondali irrigation canal and its periphery.

4. Flow Measurements:

- Flow measurement of the drains was done through Greyline's Manta Ray Portable Area-Velocity Flow Meter. (Shown in Figure 3)
- Methodology of Greyline's Manta Ray Portable Area-Velocity Flow Meter:
 - The Area-Velocity method for flow calculation is recommended in CPHEEO's Manual on Water Supply and Treatment – 1999, Chapter 4 – Measurement of Flow, Point No. 4.2.2.

- This device measure flow in open channels, sewers, partially filled and surcharged pipes without a flume or weir.
- This device uses QZ02L sensor to capture the required data.
- For the accuracy of the flow measurement placement of the sensor in relation to flow disturbances needs to considered. The channel in which the sensor is mounted should be free of bends, tees, sudden changes in slope and there should not be objects in the flow profile in front of the sensor.



Figure 3: Flow Measurement of Drains at various locations.

- While measuring the Flow in different drains, it was found that huge amount Sludge/Silt etc is present at the bottom of Drains. Removal of such solids from the drain is required as it further degrades the Quality of wastewater and create unwanted gases/odour for the surroundings.
- 23 Numbers of drains discharging into Kondali Irrigation canal have been surveyed at various locations as presented in **Table 1**.
- As per the information received from Office of Sr. Manager Jal Division 1, NOIDA Authority; NOIDA has 6 Nos. of functional STPs of Total capacity 231 MLD. The treated effluent through these STPs is presently being discharged into Kondali irrigation canal. More 2 Nos. of STPs of capacity 180 MLD will be installed in the town.
- The various drains entering into Kondali Irrigation Canal is shown in **Figure 4**.

Table 1: Details of Surveyed Drain.

Sr. No.	Drain Details	Coordinates	Remarks
1	Drain Besides Smriti Van Falling into Kondali	28°36'7.021" N 77°20'12.98" E	Open Drain (coming from Delhi)
2	D1	28°35'39.23"N 77°21'1.02"E	Open Drain
3	D2	28°34'44.23" N 77°21'45.23" E	Closed drain and the outfall are at the In-situ treatment site on Kondali.
4	D3	28°33'54.74" N 77°22'42.36" E	Open Drain
5	D4	28°33'52.53" N 77°22'43.18" E	Closed Drain
6	New Drain ND19 prior to STP Outfall	28°34'13.43"N 77°22'21.23"E	Open Drain
7	D5	28°34'15.96" N 77°22'44.62" E	Open Drain
8	D6	28°34'16.10"N 77°22'44.63"E	Open Drain
9	D7	28°32'29.45" N 77°23'34.8" E	Two Open Drain converging.
10	D8	28°32'1.97" N 77°23'39.47" E	Open Drain
11	D9	28°32'2.67" N 77°23'37.68"E	Open Drain
12	D10	28°32'1.34" N 77°23'42.16"E	Open Drain
13	D11A	28°30'7.64" N 77°24'16.58"E	Open Drain
14	D11B	28°30'1.91" N 77°24'29.76" E	Open drain but was dry at the time of visit also various construction

Sr. No.	Drain Details	Coordinates	Remarks
			activities were ongoing along the stretch of this drain. (Advant Drain)
15	New Drain ND20	28°30'20.09" N 77°24'44.92" E	Open Drain
16	New Drain ND21	28°30'12.28" N 77°24'39.01" E	Open Drain
17	D12	28°30'21.70055" N 77°23'28.64864" E	Open Drain
18	D13	28°31'9.618" N 77°23'53.208" E	Open Drain
19	D14	Drain not draining into Kondali canal.	
20	D15	28°34'44.80176" N 77°21'41.73275" E	Open Drain
21	D16	28°34'48.34376" N 77°21'46.09742" E	Open Drain
22	D17	28°34'35.93921" N 77°22'2.16203" E	Open Drain
23	D18	28°34'55.821" N 77°21'24.944" E	Multiple Open storm water drains draining into Kondali (Front of Morna near Kribko colony).

(*Note: NDa11B & NDb11B are new drains a & b merging into D11B (Advant Drain))

4. Meeting and discussions:

The officials from CSIR-NEERI, Nagpur and Office of Sr. Manager Jal Division 1, NOIDA Authority who were present during site visit and meeting are as follows:

CSIR-NEERI, Nagpur	NOIDA Authority
Er. Abhishek Bisarya, Scientist, Wastewater Treatment Division, CSIR-NEERI, Nagpur	Shri Sanjay Parashar, Senior Manager, Office of Sr. Manager Jal Division 1, NOIDA Authority.
Er. Saisaurabh Asoria, Senior Project Associate, Wastewater Treatment Division, CSIR-NEERI, Nagpur.	Mr. R. K. Joshi, Junior Engineer, Office of Sr. Manager Jal Division 1, NOIDA Authority.
Er. Kaustubh Jichkar, Senior Project Associate, Wastewater Treatment Division, CSIR-NEERI, Nagpur.	Mr. Amit Kumar, Manager, Office of Sr. Manager Jal Division 1, NOIDA Authority.
Er. Chaitanya Thakre, Project Associate - II, Wastewater Treatment Division, CSIR-NEERI, Nagpur.	Mr. Virendra Singh, Junior Engineer, Office of Sr. Manager Jal Division 1, NOIDA Authority.

After the site visit and survey of drains i.e. on 19/10/2022 and 20/10/2022, CSIR-NEERI team along with officials of Jal Division 1, NOIDA briefed the progress to Shri R. P. Singh DGM Jal Division 1, NOIDA Authority.

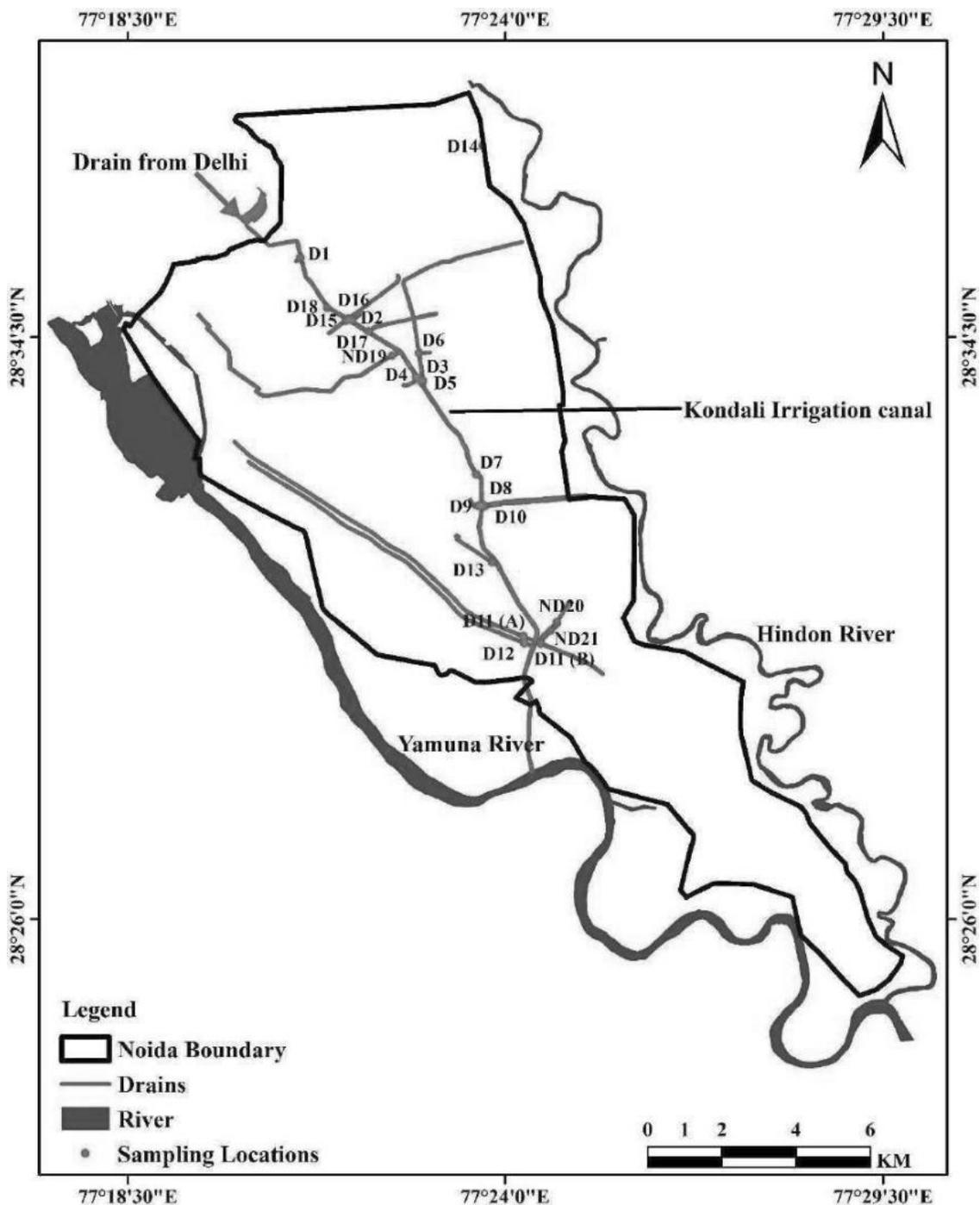


Figure 4: Kondali irrigation canal and its tributaries in NOIDA

*(Drains with Sr. No. 1, 6, 15 & 16 as described in Table 1 were newly traced during site survey)

Site Visit Report – II

In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city

Sponsored By



New Okhla Industrial Development Authority
(NOIDA)

Submitted By



CSIR- National Environmental Engineering Research
Institute (NEERI), Nagpur – 440 020

November 2022

1. Site Visit:

From 10/11/2022 to 12/11/2022, team of CSIR-NEERI accompanied by officials from Office of Jal Division 1, NOIDA Authority, carried out flow measurements, survey, and water sample collection at the identified drains meeting into Kondali irrigation canal of NOIDA, Uttar Pradesh.

2. Purpose:

This site visit was carried out to collect water samples, inspect the site-specific conditions, trace the drains merging into Kondali irrigation canal and measurement of wastewater flowing the drains.

3. Observations:

- During this visit 25 locations along the course of Kondali irrigation canal in NOIDA were visited. The details of drains are presented in **Annexure – II-A**.
- These 25 locations were categorized as:
 - a) 16 Nos. of Major drains,
 - b) 8 Nos. of Medium drains
 - c) 1 End Barrage at Kondali irrigation canal.

Table 1: Survey and Sample Collection locations

Sr. No.	Old Nomenclature	New Nomenclature	Sampling/ Survey Coordinates	Drain Type
1	Drain from Delhi Besides Smriti Van Falling into Kondali	D1	28°36'7.136" N 77°20'13.02"E	Major
2	New drain below bridge.	D2	28°36'2.4" N 77°20'18.9"E	Medium
3	D1	D3	28°35'36.598"N 77°20'57.97"E	Major
4	NTPC Right	D4	28°35'18.716" N 77°21'6.144" E	Major
5	NTPC Left STP effluent Discharge)	D5	28°35'24.906" N 77°21'14.23" E	Major
6	D18 Left	D6	28°34'55.39"N 77°21'24.30"E	Medium
7	D18 Right	D7	28°34'55.02"N 77°21'24.62"E	Medium
8	D15	D8	28°34'44.80176"N 77°21'41.73275"E	Medium

Sr. No.	Old Nomenclature	New Nomenclature	Sampling/ Survey Coordinates	Drain Type
9	D16	D9	28°34'48.439" N 77°21'46.126" E	Major
10	D2	D10	28°34'44.235" N 77°21'45.231" E	Medium
11	D17	D11	28°34'36.109" N 77°22'2.337" E	Major
12	ND19	D12	28°34'9.772" N 77°22'13.359" E	Major
13	D4	D13	28°33'54.68" N 77°22'40.704" E	Medium
14	D3	D14	28°33'52.17" N 77°22'42.54" E	Medium
15	D5	D15	28°33'49.743" N 77°22'48.425" E	Major
16	New Drain outfall opposite to D5	D16	28°33'41.07" N 77°22'50.27" E	Major
17	D7	D17	28°32'29.451" N 77°23'34.8" E	Medium
18	D9	D18	28°32'1.997" N 77°23'35.742" E	Major
19	D8	D19	28°32'3.01" N 77°23'40.981" E	Major
20	D10	D20	28°32'1.61" N 77°23'42.087" E	Major
21	D13	D21	28°31'12.436" N 77°23'49.171" E	Major
22	D11A	D22	28°30'27.331" N 77°23'30.153" E	Major
23	D11B	D23	28°30'2.013" N 77°24'29.144" E	Major
24	D12	D24	28°30'21.633" N 77°23'28.631" E	Major
25	End Barrage	End Barrage	28°29'38.244" N 77°24'17.054" E	Kondali drain

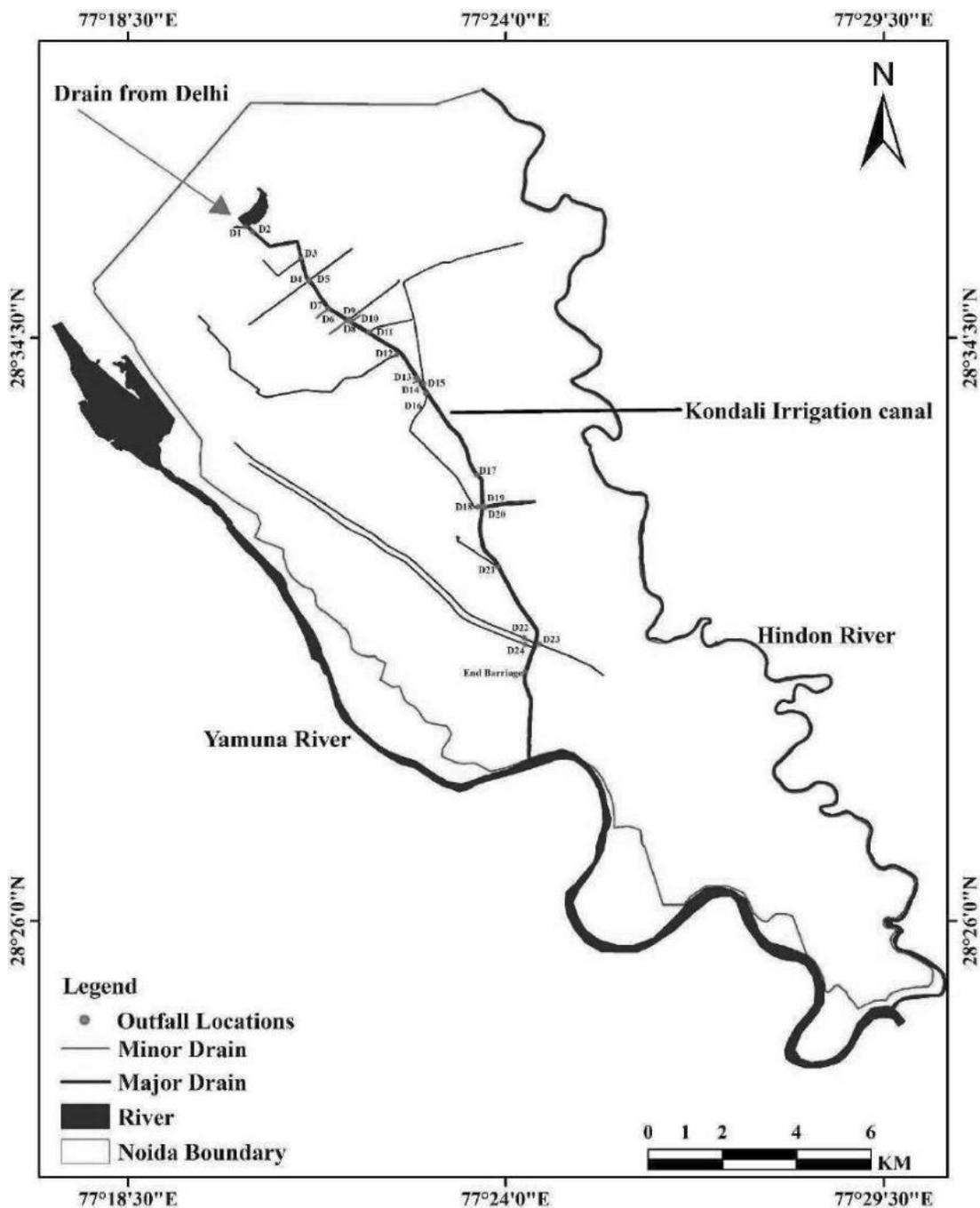


Figure 1: Outfall locations and drains discharging in Kondali irrigation canal NOIDA.

- Wastewater sample collection and flow measurement of all the drains at Kondali irrigation canal were carried out.
- Ground tracing of all the locations mentioned in second bullet have been done.
- While ground tracing, few new drains discharging into Kondali irrigation canal has also been identified which were untraced during earlier visit during 19/10/2022 to 20/10/2022.

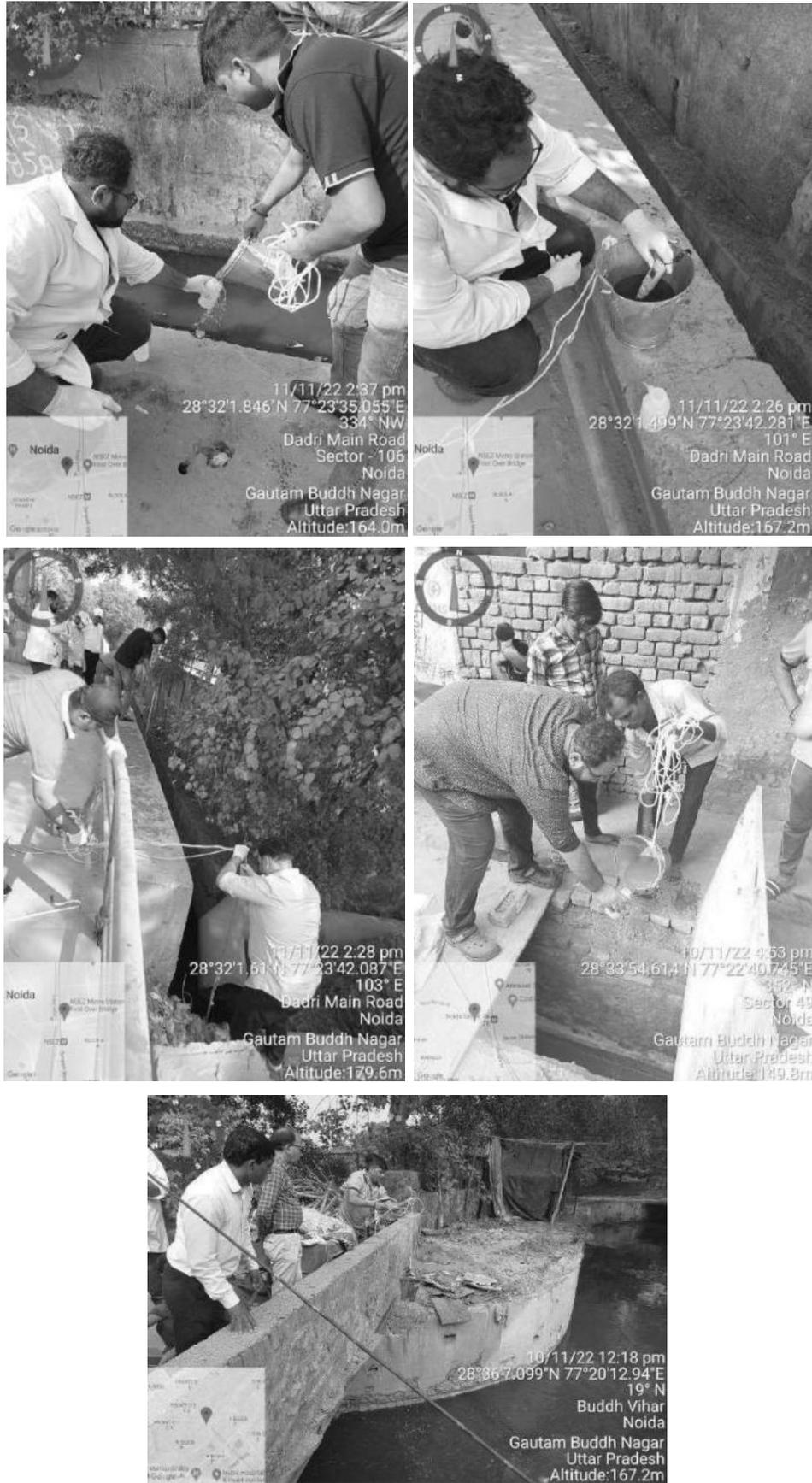


Figure 2: Sampling and Flow Measurement

4. Meeting and discussion:

The officials from CSIR-NEERI, Nagpur and Office of Jal Division 1, NOIDA Authority were presented during the site visit and meetings as follows:

CSIR-NEERI, Nagpur	Office of Jal Division 1, NOIDA Authority
Dr. Ritesh Vijay, Sr. Pr. Scientist	Shri R. P. Singh, Deputy General Manager
Dr. Sukdeb Pal, Pr. Scientist,	Shri. Sanjay Parashar, Senior Manager
Er. Vatsal Khandelwal, Senior Project Associate	Shri. Amit Kumar, Manager
Er. Kaustubh Jichkar, Senior Project Associate,	Shri. R. K. Joshi, Junior Engineer,
Mr. Om Prakash, Project Associate	
Mr. Purushottam Tripathy, Project Associate	

5. Future scope of work:

Draft feasibility report is under preparation and require some more details and discussion to formulate the treatment scheme either in-situ treatment or ex-situ treatment based on the flow and water quality analysis. The flow calculation and water quality analysis in term of physico-chemical, biological and heavy metals parameters of the identified drains are in progress. Based on the site visits and identified drains, it has been observed that there are 16 major drains, 8 medium and many minor drains contributing sewage/wastewater in the Kondali irrigation canal.

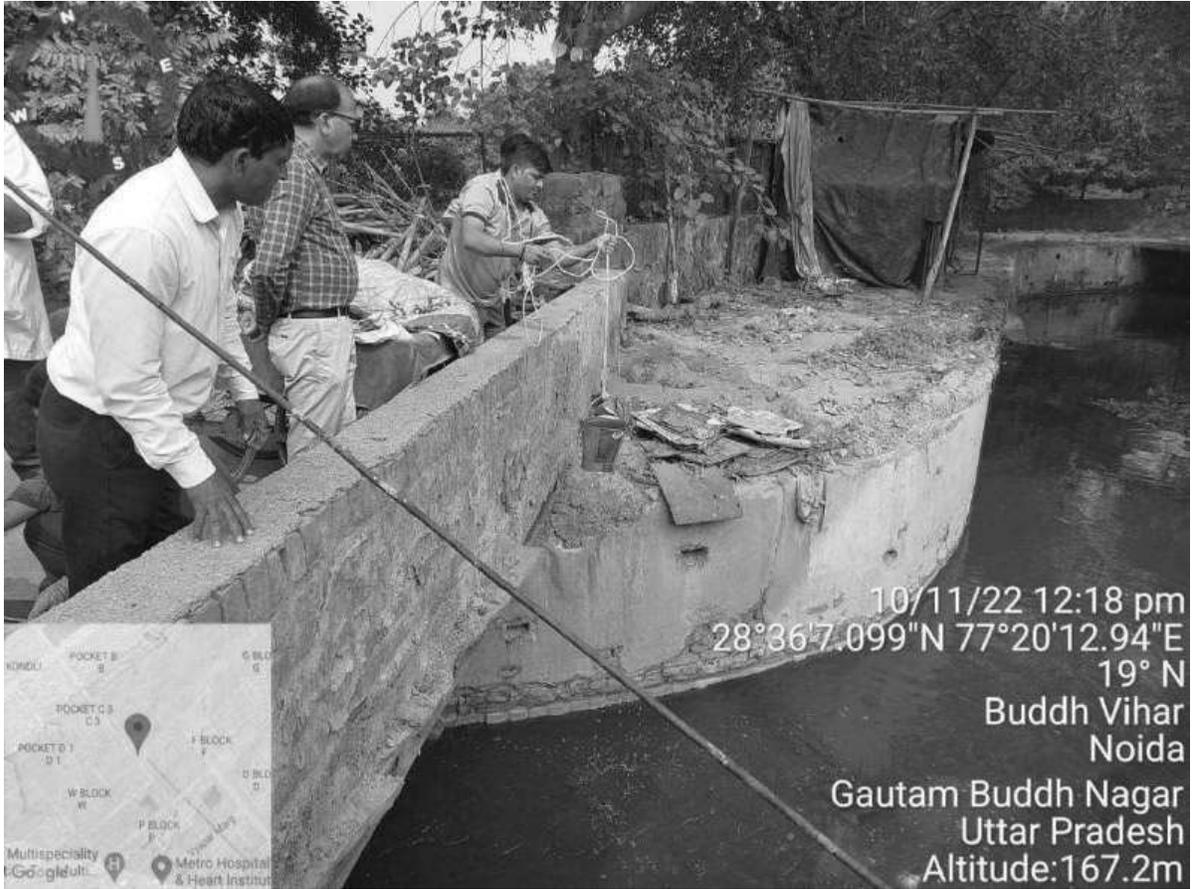
6. Inputs requirement:

For the preparation of the feasibility report, following documents are required from Jal Division, NOIDA Authority:

- Noida city Water supply, sewer network, number of sewage pumping stations, number of STPs (designed and existing treatment capacity).
- Detailed project report for NOIDA city based on Master Plan 2031 (prepared by WAPCOS).
- Master Plan of NOIDA city 2031.
- Flow data at end barrage on Kondali irrigation canal based on installed sensor data.

Dr. Ritesh Vijay
Sr. Pr. Scientist & Head
Wastewater Treatment Division
CSIR-NEERI, Nagpur

Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
1	Drain from Delhi Besides Smriti Van Falling into Kondali	D1	4.5	0.61	28°36'7.136" N 77°20'13.02" E	Major

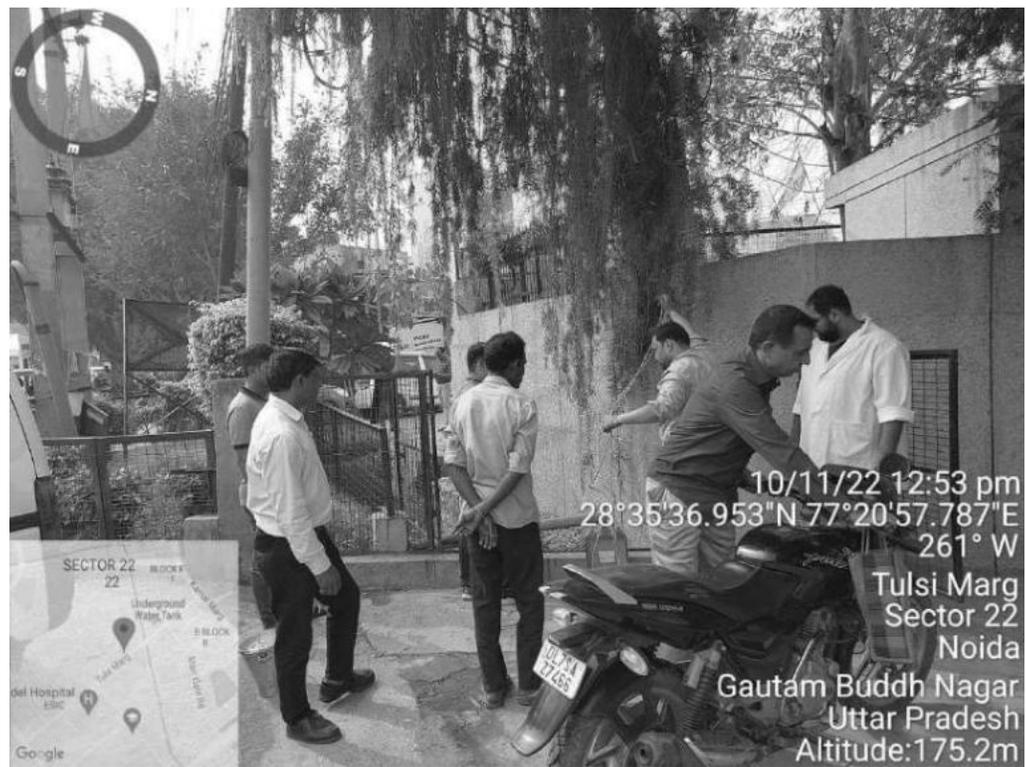


Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
2	New drain below bridge.	D2	This drain was inaccessible as the outfall was below the bridge.	28°36'2.4" N 77°20'18.9" E	Minor	2

Note: This was a closed drain with its outfall located below the bridge hence was inaccessible.



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
3	D1	D3	2	0.16	28°35'36.598" N 77°20'57.97" E	Major

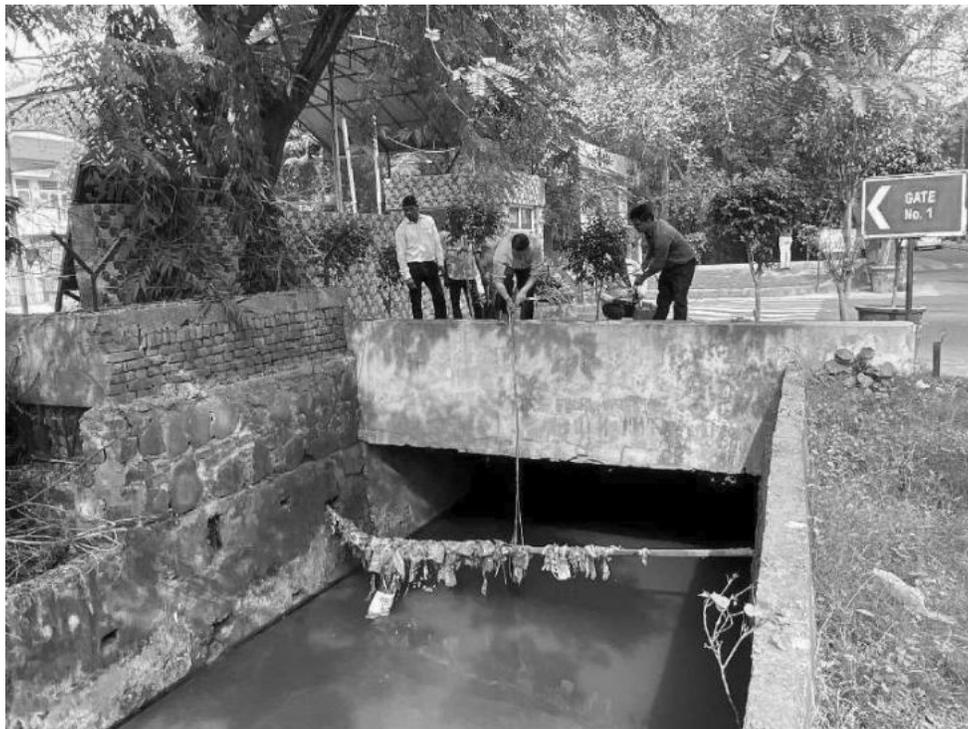


Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
4	NTPC Right	D4	5.5	0.36	28°35'18.716" N 77°21'6.144" E	Major



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
5	NTPC Left	D5	4.3	0.73	28°35'24.906" N 77°21'14.23" E	Major

Note: STP effluent is being discharged into this drain



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
6	D18 Left	D6	0.73	0.08	28°34'55.39"N 77°21'24.30"E	Minor



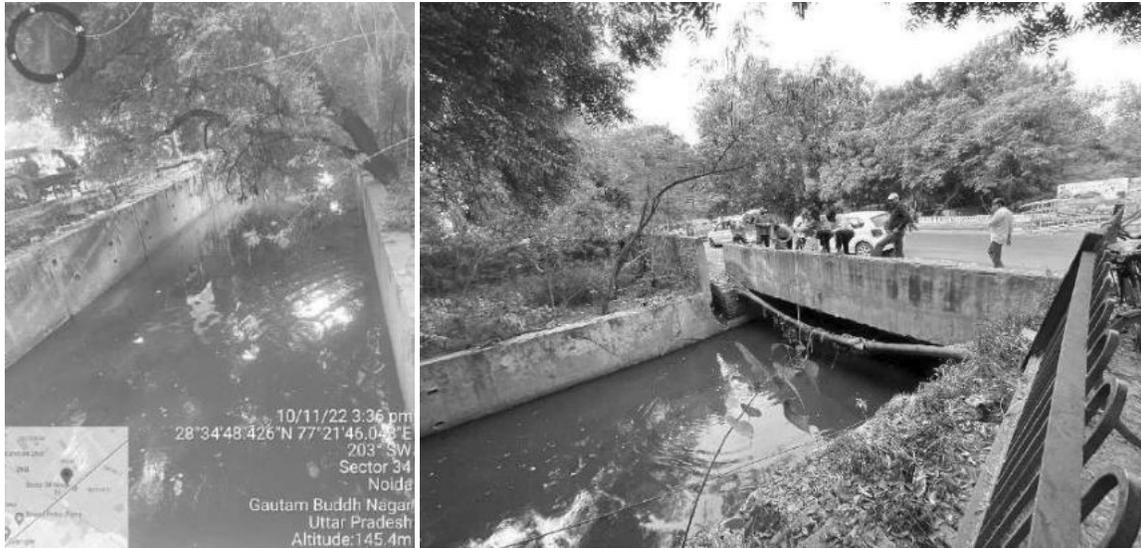
Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
7	D18 Right	D7	0.53	0.05	28°34'55.02"N 77°21'24.62"E	Minor



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
8	D15	D8	0.8	0.14	28°34'44.8017" N 77°21'41.7327" E	Minor

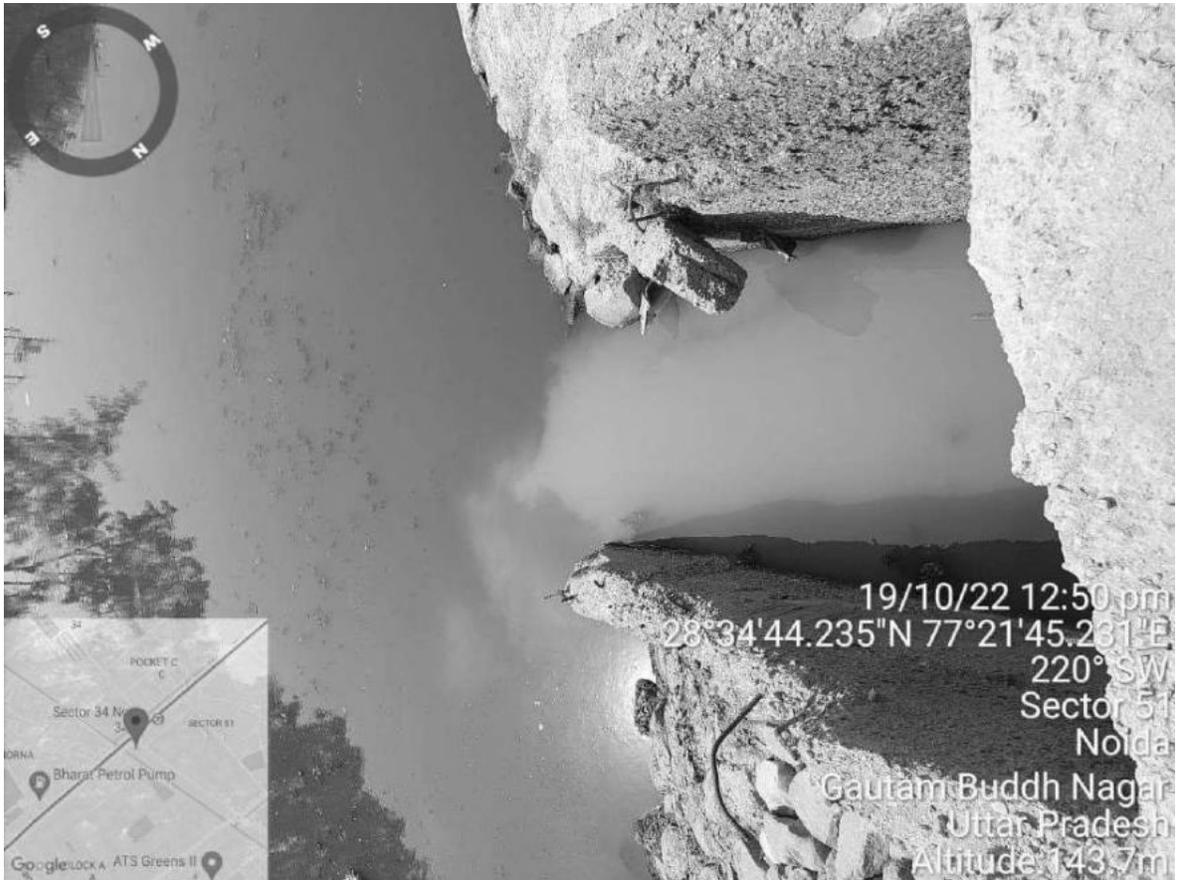


Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
9	D16	D9	7	0.91	28°34'48.439" N 77°21'46.126" E	Major

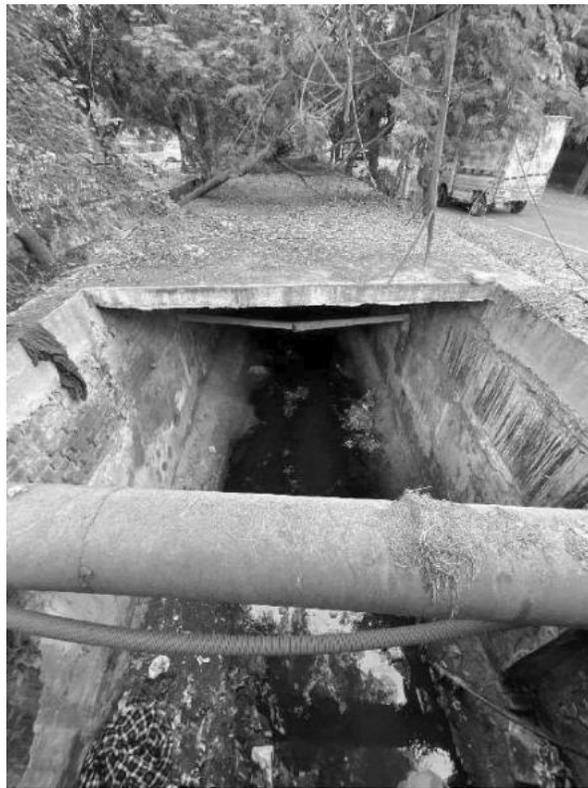


Solid waste dumping near the drain's outfall on Kondali

Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
10	D2	D10	Closed drain and the outfall is at the In-situ treatment site on Kondali.		28°34'44.235" N 77°21'45.231" E	Minor



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
11	D17	D11	2.5	0.04	28°34'36.109" N 77°22'2.337" E	Major



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
12	ND19	D12	7	0.38	28°34'9.772" N 77°22'13.359" E	Major
			7	0.38		



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
13	D4	D13	1.2	0.08	28°33'54.68"N 77°22'40.704"E	Minor



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
14	D3	D14	1.2	0.12	28°33'52.17" N 77°22'42.54" E	Minor



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
15	D5	D15	5	0.31	28°33'49.743" N 77°22'48.425" E	Major



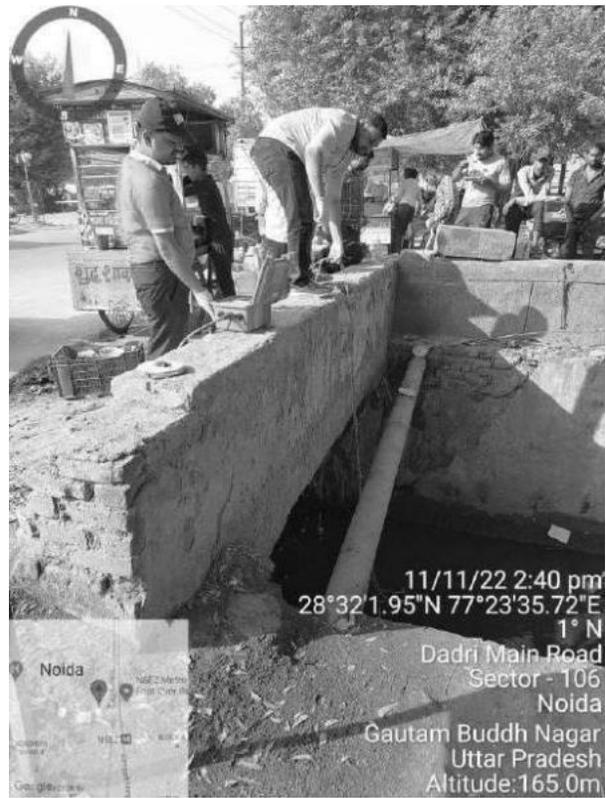
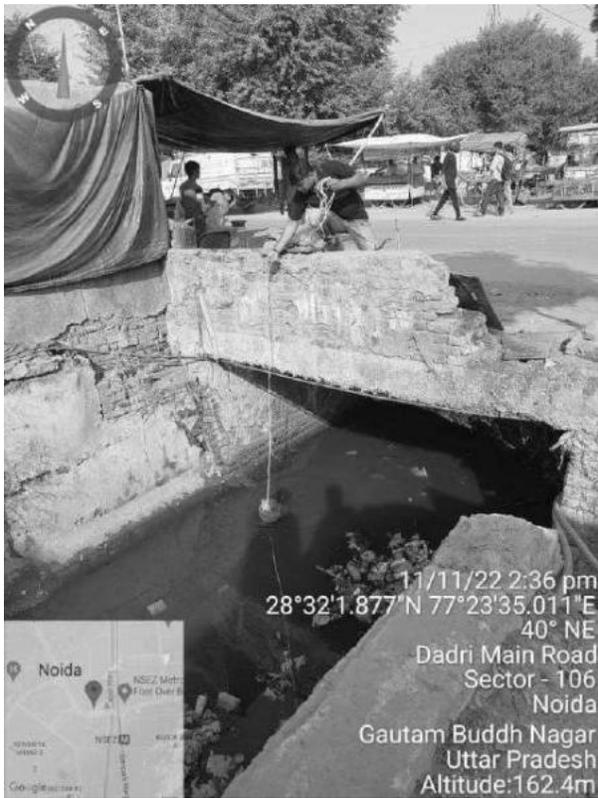
Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
16	New Drain outfall opposite to D5	D16	4	0.57	28°33'41.07"N 77°22'50.27"E	Major



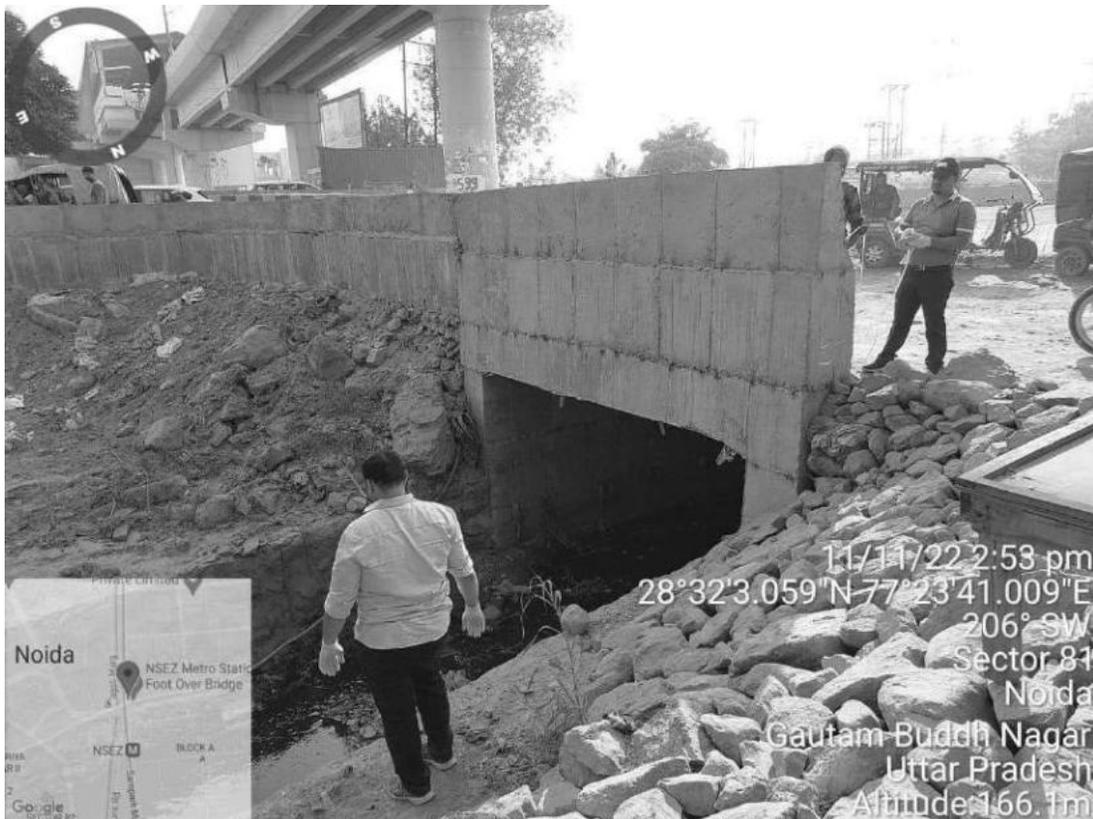
Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
17	D7	D17	0.3	0.06	28°32'29.451" N 77°23'34.8" E	Minor



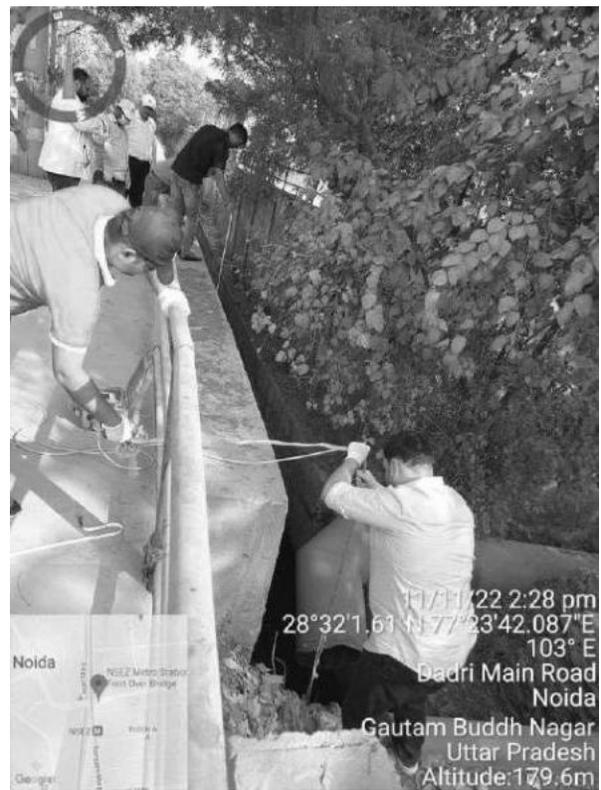
Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
18	D9	D18	4	0.1	28°32'1.997" N 77°23'35.742" E	Major



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
19	D8	D19	4	0.10667	28°32'3.01" N 77°23'40.981" E	Major



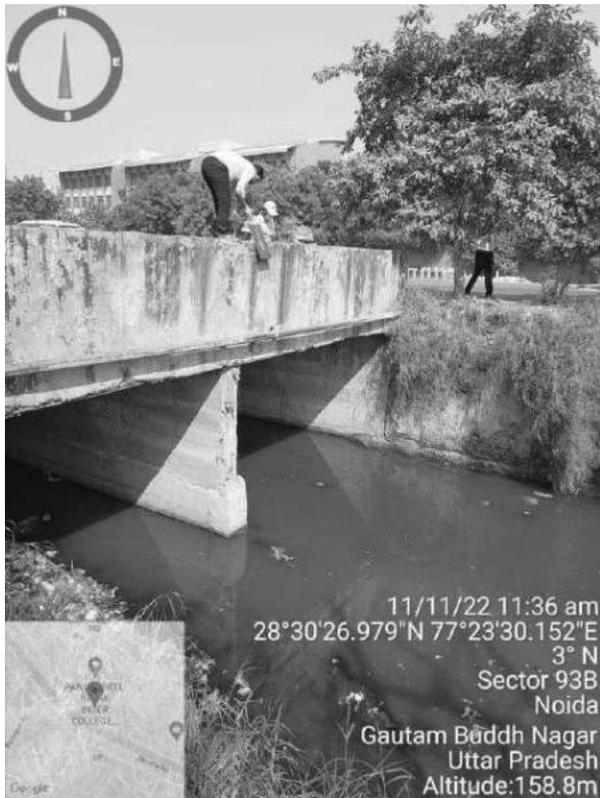
Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
20	D10	D20	1.8	0.18	28°32'1.61" N 77°23'42.087" E	Major



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
21	D13	D21	5	0.12	28°31'12.436" N 77°23'49.171" E	Major



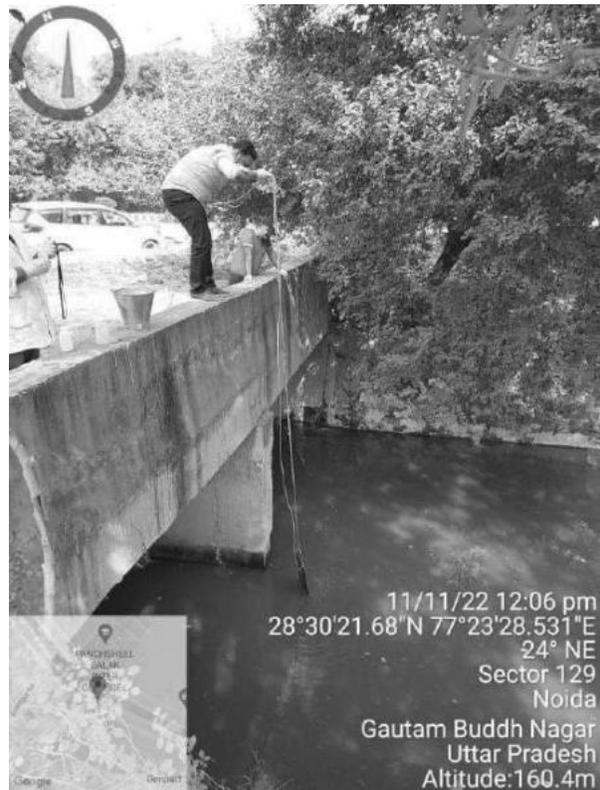
Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
22	D11A	D22	7.4	0.19	28°30'27.331" N 77°23'30.153" E	Major



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
23	D11B	D23	2.4	0.05	28°30'2.013" N 77°24'29.144" E	Major
			4.2	0.10		



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
24	D12	D24	8.3	0.8	28°30'21.633" N 77°23'28.631" E	Major



Sr. No.	Old Drain Label	New Drain Label	Actual Width (m)	Depth (m)	Sampling/ Survey Coordinates	Drain Type
25	Barrage on Kondali Canal	Barrage on Kondali	18	0.3	28°29'38.244" N 77°24'17.054" E	-



Catalogue of Identified Drains & Proposed Treatment Options

Drain 1 (D1)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D1	Drain coming from Delhi/Khoda	28°36'7.136" N 77°20'13.02" E	Major	Huge quantity (90-100MLD) coming from Delhi/Khoda need to be trapped and treated before discharging into Kondali Irrigation Canal in NOIDA



Figure 1: Drain D1 merging in Kondali Irrigation Canal

(Source Google Earth)

Engineering Parameters of D1		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	4.5
2	Liquid Depth (m)	0.61
3	Flow (MLD)	95-100

Wastewater Parameters of D1		
Sr No	Wastewater Parameters	Value
1	pH	7.6
2	TDS (mg/l)	3082
3	SS (mg/l)	420
4	BOD (mg/l)	139
5	COD (mg/l)	307
6	TKN (mg/l)	109
7	Chloride (mg/l)	1050
8	Sulphate (mg/l)	391
9	Phosphate (mg/l)	9

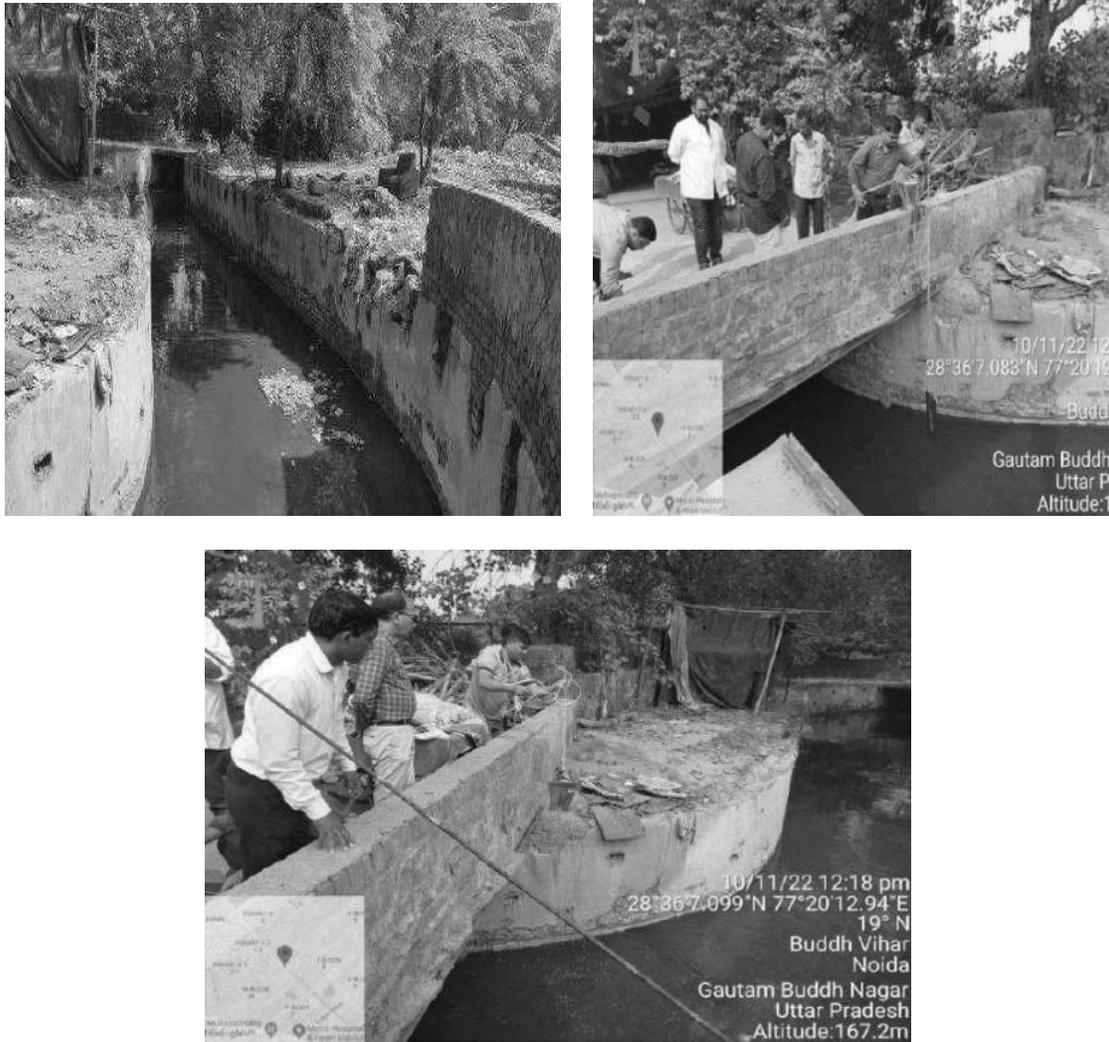


Figure 2: Site Photographs of Drain D1

Drain 2 (D2)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D2	Drain from Sector 11 Drain outfall under bridge	28°36'7.136" N 77°20'13.02" E	Minor	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



Figure 3: Drain D2 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D2			Wastewater Parameters of D2		
Sr No	Engineering Parameters	Value	Sr No	Wastewater Parameters	Value
1	Width of drain (m)	The drain was inaccessible as the outfall was below the bridge.	1	pH	Sample was not taken due to inaccessibility of site
2	Liquid Depth (m)		2	TDS (mg/l)	
3	Flow (MLD)		3	SS (mg/l)	
		4	BOD (mg/l)		
		5	COD (mg/l)		
		6	TKN (mg/l)		
		7	Chloride (mg/l)		
		8	Sulphate (mg/l)		
		9	Phosphate (mg/l)		



Figure 4: Site Photographs of Drain D2

Drain 3 (D3)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D3	Drain from Chora Sadatpur, Sector 22 Drain outfall near Sommer Ville School	28°35'36.598" N 77°20'57.97" E	Medium	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain. • This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.

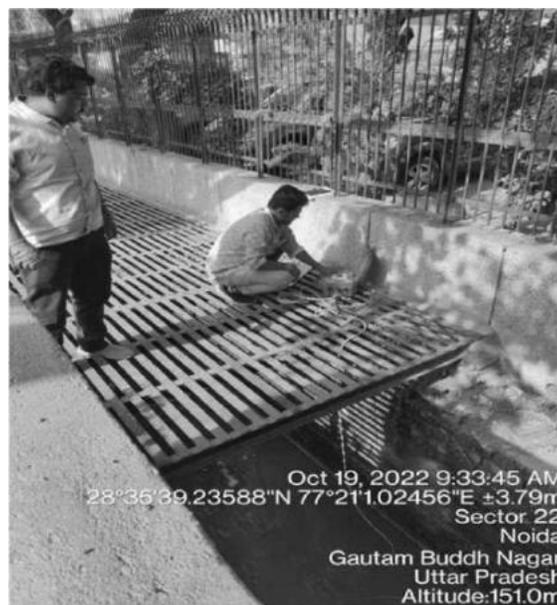


Figure 5: Drain D3 merging in Kondali Irrigation Canal

(Source Google Earth)

Engineering Parameters of D3		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	2
2	Liquid Depth (m)	0.16
3	Flow (MLD)	0.5 - 1

Wastewater Parameters of D3		
Sr No	Wastewater Parameters	Value
1	pH	7.6
2	TDS (mg/l)	1297
3	SS (mg/l)	256
4	BOD (mg/l)	119
5	COD (mg/l)	263
6	TKN (mg/l)	64
7	Chloride (mg/l)	331
8	Sulphate (mg/l)	186
9	Phosphate (mg/l)	5

**Figure 6: Site Photographs of Drain D3**

Drain 4 (D4)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D4	Drain from Makanpur Sector 26 which runs parallel to Maharaja Agresen Marg Drain outfall near NTPC Right	28°35'18.716" N 77°21'6.144" E	Major	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Long Term Measures:</p> <ul style="list-style-type: none"> • Ex-situ treatment options comprise of SBR technology



**Figure 7: Drain D4 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D4		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	5.5
2	Liquid Depth (m)	0.36
3	Flow (MLD)	10-15

Wastewater Parameters of D4		
Sr No	Wastewater Parameters	Value
1	pH	8
2	TDS (mg/l)	3182
3	SS (mg/l)	138
4	BOD (mg/l)	63
5	COD (mg/l)	131
6	TKN (mg/l)	104
7	Chloride (mg/l)	825
8	Sulphate (mg/l)	716
9	Phosphate (mg/l)	5



Figure 8: Site Photographs of Drain D4

Drain 5 (D5)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D5	<p>Drain from Sector 60 and its outfall near NTPC Left</p> <p>Runs parallel Maharaja Agresen Marg</p> <p>Receives effluent from Sector 54</p>	28°35'24.906" N 77°21'14.23" E	Major	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Solution:</p> <ul style="list-style-type: none"> • Drain need to assessed and back traced for appropriate treatment measures.



Figure 9: Drain D5 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D5		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	4.3
2	Liquid Depth (m)	0.73
3	Flow (MLD)	120- 125

Wastewater Parameters of D5		
Sr No	Wastewater Parameters	Value
1	pH	7.9
2	TDS (mg/l)	1968
3	SS (mg/l)	158
4	BOD (mg/l)	25
5	COD (mg/l)	61
6	TKN (mg/l)	41
7	Chloride (mg/l)	500
8	Sulphate (mg/l)	296
9	Phosphate (mg/l)	3

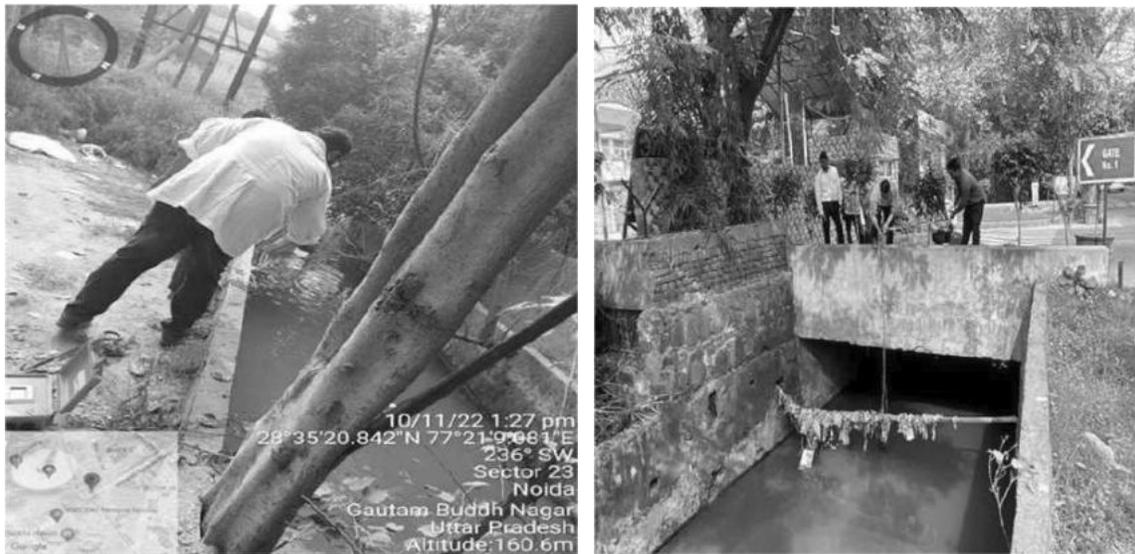


Figure 10: Site Photographs of Drain D5

STP Discharge

ID	Details	Co-ordinates	Type of Drain	Treatment Option
	Sector 54 (33+54=87 MLD) STP Effluent Discharge point in D5.	28°35'42.21"N 77°21'38.13"E	-	-



Figure 11: Sector 54 STP
(Source Google Earth)



Wastewater Parameters of STP outlet		
Sr No	Wastewater Parameters	Value
1	pH	8.1
2	TDS (mg/l)	1788
3	SS (mg/l)	138
4	BOD (mg/l)	8
5	COD (mg/l)	38
6	TKN (mg/l)	21
7	Chloride (mg/l)	525
8	Sulphate (mg/l)	275
9	Phosphate (mg/l)	5

Figure 12: Site Photographs of STP discharge

Drain 6 (D6)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D6	Drain from Sector 35 (parallel to Jagannath Mandir Marg) Drain outfall near Kribhko Colony Right	28°34'55.39"N 77°21'24.30"E	Minor	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



**Figure 13: Drain D6 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D6		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	0.73
2	Liquid Depth (m)	0.08
3	Flow (MLD)	0.5-1.0

Wastewater Parameters of D6		
Sr No	Wastewater Parameters	Value
1	pH	8.2
2	TDS (mg/l)	1614
3	SS (mg/l)	79
4	BOD (mg/l)	73
5	COD (mg/l)	150
6	TKN (mg/l)	109
7	Chloride (mg/l)	682
8	Sulphate (mg/l)	115
9	Phosphate (mg/l)	6



Figure 14: Site Photographs of Drain D6

Drain 7 (D7)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D7	Drain from Morna & ISBT (parallel to Jagannath Mandir Marg Drain outfall near Kribhko Colony Left	28°34'55.02"N 77°21'24.62"E	Minor	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



**Figure 15: Drain D7 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D7		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	0.53
2	Liquid Depth (m)	0.05
3	Flow (MLD)	0.5-1.00

Wastewater Parameters of D7		
Sr No	Wastewater Parameters	Value
1	pH	7.8
2	TDS (mg/l)	1725
3	SS (mg/l)	81
4	BOD (mg/l)	64
5	COD (mg/l)	137
6	TKN (mg/l)	94
7	Chloride (mg/l)	701
8	Sulphate (mg/l)	128
9	Phosphate (mg/l)	4

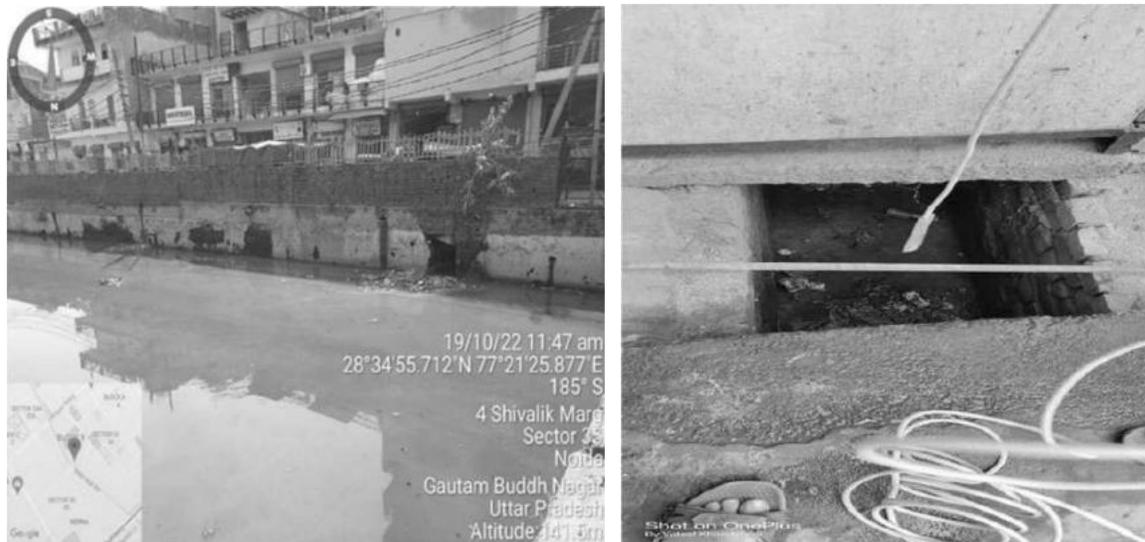


Figure 16: Site Photographs of Drain D7

Drain 8 (D8)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D8	Drain from Morna & ISBT (parallel to Golf Marg) Drain outfall near Surbhi Hospital Right	28°34'55.02"N 77°21'24.62"E	Minor	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



Figure 17: Drain D8 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D8		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	0.8
2	Liquid Depth (m)	0.14
3	Flow (MLD)	0.50-1.00

Wastewater Parameters of D8		
Sr No	Wastewater Parameters	Value
1	pH	7.7
2	TDS (mg/l)	1567
3	SS (mg/l)	169
4	BOD (mg/l)	79
5	COD (mg/l)	181
6	TKN (mg/l)	105
7	Chloride (mg/l)	674
8	Sulphate (mg/l)	37
9	Phosphate (mg/l)	5



Figure 18: Site Photographs of Drain D8

Drain 9 (D9)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D9	Drain from Sector 63, Hazratpur Wajidpur Runs parallel to Vishwakarma Road turns near Sector 53 Drain outfall Surbhi Hospital Left	28°34'48.439" N 77°21'46.126" E	Major	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Solution:</p> <ul style="list-style-type: none"> • Drain need to assessed and back traced for appropriate treatment measures.



Figure 19: Drain D9 merging in Kondali Irrigation Canal

(Source Google Earth)

Engineering Parameters of D9		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	7
2	Liquid Depth (m)	0.91
3	Flow (MLD)	90- 100

Wastewater Parameters of D9		
Sr No	Wastewater Parameters	Value
1	pH	7.6
2	TDS (mg/l)	1466
3	SS (mg/l)	172
4	BOD (mg/l)	76
5	COD (mg/l)	169
6	TKN (mg/l)	93
7	Chloride (mg/l)	650
8	Sulphate (mg/l)	29
9	Phosphate (mg/l)	6



Figure 20: Site Photographs of Drain D9

Drain 10 (D10)

ID	Details	Co-ordinates	Type of Drain	TreatmentOption
D10	Drain from Sector 51, Hoshiarpur (parallel to Captain Shashikant Marg) Drain Outfall in In-Situ Wetland Treatment	28°34'44.235" N 77°21'45.231" E	Minor	Closed Drain (merging into In-Situ Wetland Treatment)



Figure 21: Drain D10 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D10		
Sr No	Engineering Parameters	Value
1	Actual Width (m)	Closed drain; and its outfall is at the In-situ treatment site on Kondali.
2	Wet Width (m)	
3	Depth (m)	
4	Velocity (m/sec)	
5	Flow (MLD)	

Wastewater Parameters of D10		
Sr No	Wastewater Parameters	Value
1	pH	Closed Drain
2	TDS (mg/L)	
3	SS (mg/L)	
4	BOD (mg/L)	
5	COD (mg/L)	
6	TKN (mg/L)	
7	Chloride (mg/l)	
8	Sulphide (mg/l)	
9	Phosphate (mg/l)	



Figure 22: Site Photographs of Drain D10

In-Situ Wetland Treatment

ID	Details	Co-ordinates	Type of Drain	Treatment Option
-	On Kondali Irrigation Canal in Sector 51	In- situ Start: 28°34'44.08"N 77°21'43.94"E In- situ End: 28°34'35.16"N 77°21'58.79"E	-	



Figure 23: In-Situ Wetland treatment in Kondali Irrigation Canal
(Source Google Earth)

Wastewater Parameters of In-situ Wetland Treatment (OUTLET)		
Sr No	Wastewater Parameters	Value
1	pH	7.5
2	TDS (mg/l)	1592
3	SS (mg/l)	116
4	BOD (mg/l)	114
5	COD (mg/l)	238
6	TKN (mg/l)	98
7	Chloride (mg/l)	475
8	Sulphate (mg/l)	102
9	Phosphate (mg/l)	5



Figure 24: Site Photographs of In-Situ Drain Treatment in Kondali Irrigation Canal

Drain 11 (D11)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D11	Drain from Sector 50 (parallel to Indosam Road) Drain Outfall near Nilgiri Public School	28°34'36.109" N 77°22'2.337" E	Medium	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



**Figure 25: Drain D11 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D11		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	2.9
2	Liquid Depth (m)	0.04
3	Flow (MLD)	1.00 – 2.00

Wastewater Parameters of D11		
Sr No	Wastewater Parameters	Value
1	pH	8.1
2	TDS (mg/l)	1694
3	SS (mg/l)	66
4	BOD (mg/l)	68
5	COD (mg/l)	131
6	TKN (mg/l)	114
7	Chloride (mg/l)	700
8	Sulphate (mg/l)	95
9	Phosphate (mg/l)	3



Figure 26: Site Photographs of Drain D11

Drain 12 (D12)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D12	<p>Drain from Hindon cut that enters NOIDA from Sector 7 Runs parallel to Harola turns at Sector 38 GC again turns at Sector 40 and runs parallel to Agahpur</p> <p>Drain outfall opposite to Sector 50 STP</p>	<p>28°34'9.772" N 77°22'13.359" E</p>	Major	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Solution:</p> <ul style="list-style-type: none"> • Drain need to assessed and back traced for appropriate treatment measures.



Figure 27: Drain D12 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D12		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	14
2	Liquid Depth (m)	0.38
3	Flow (MLD)	90 - 95

Wastewater Parameters of D12		
Sr No	Wastewater Parameters	Value
1	pH	8
2	TDS (mg/l)	1808
3	SS (mg/l)	130
4	BOD (mg/l)	67
5	COD (mg/l)	131
6	TKN (mg/l)	25.9
7	Chloride (mg/l)	500
8	Sulphate (mg/l)	127
9	Phosphate (mg/l)	4



Figure 28: Site Photographs of Drain D12

Drain 13 (D13)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D13	Drain from Sector 49, Baraula Runs parallel to Main Barola Road	28°33'54.68"N 77°22'40.704" E	Minor	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



Figure 29: Drain D13 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D13		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	1.2
2	Liquid Depth (m)	0.08
3	Flow (MLD)	1.50-2.00

Wastewater Parameters of D13		
Sr No	Wastewater Parameters	Value
1	pH	7.3
2	TDS (mg/l)	2318
3	SS (mg/l)	314
4	BOD (mg/l)	164
5	COD (mg/l)	315
6	TKN (mg/l)	98
7	Chloride (mg/l)	825
8	Sulphate (mg/l)	278
9	Phosphate (mg/l)	4



Figure 30: Site Photographs of Drain D13

Drain 14 (D14)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D14	Drain from Sector 49, Baraula Runs parallel to Baanke Bihari Marg	28°33'52.17" N 77°22'42.54" E	Minor	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



**Figure 31: Drain D14 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D14		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	1.2
2	Liquid Depth (m)	0.12
3	Flow (MLD)	3-4

Wastewater Parameters of D14		
Sr No	WastewaterParameters	Value
1	pH	7.7
2	TDS (mg/l)	2398
3	SS (mg/l)	712
4	BOD (mg/l)	283
5	COD (mg/l)	530
6	TKN (mg/l)	119
7	Chloride (mg/l)	875
8	Sulphate (mg/l)	309
9	Phosphate (mg/l)	4



Figure 32: Site Photographs of Drain D14

Drain 15 (D15)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D15	Drain from Sector 122 parallel to Vikas Marg Drain outfall Near NOIDA metro Sector 76 parking	28°33'49.743" N 77°22'48.425" E	Major	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Solution: <ul style="list-style-type: none"> • Drain need to assessed and back traced for appropriate treatment measures.



Figure 33: Drain D15 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D15		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	5
2	Liquid Depth (m)	0.31
3	Flow (MLD)	70-75

Wastewater Parameters of D15		
Sr No	Wastewater Parameters	Value
1	pH	8.1
2	TDS (mg/l)	1184
3	SS (mg/l)	120
4	BOD (mg/l)	50
5	COD (mg/l)	108
6	TKN (mg/l)	57
7	Chloride (mg/l)	400
8	Sulphate (mg/l)	54
9	Phosphate (mg/l)	6



Figure 34: Site Photographs of Drain D15

Drain 16 (D16)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D16	<p>Drain from Sector 102, Salarpur Khadar parallel to Dadri Main Road turns at Sector 101</p> <p>Drain outfall opposite to D15 Outfall</p>	<p>28°33'41.07"N 77°22'50.27"E</p>	Medium	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Long Term Measures:</p> <ul style="list-style-type: none"> • Ex-situ treatment options comprise of SBR technology



Figure 35: Drain D16 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D16		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	4
2	Liquid Depth (m)	0.57
3	Flow (MLD)	19-23

Wastewater Parameters of D16		
Sr No	Wastewater Parameters	Value
1	pH	7.2
2	TDS (mg/l)	2652
3	SS (mg/l)	136
4	BOD (mg/l)	76
5	COD (mg/l)	184
6	TKN (mg/l)	98
7	Chloride (mg/l)	895
8	Sulphate (mg/l)	251
9	Phosphate (mg/l)	7



Figure 36: Site Photographs of Drain D16

Drain 17 (D17)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D17	Drain from sector 102, Bhangel Begampur Drain outfall near Street No. 6 and Jeetram Colony road junction	28°32'29.451" N 77°23'34.8" E	Minor	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



**Figure 37: Drain D17 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D17		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	0.3
2	Liquid Depth (m)	0.06
3	Flow (MLD)	0.25-0.75

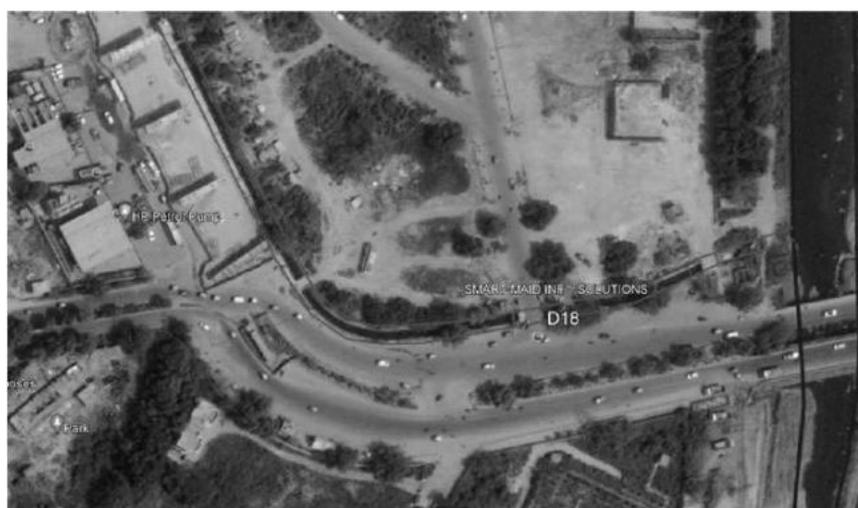
Wastewater Parameters of D17		
Sr No	Wastewater Parameters	Value
1	pH	7.5
2	TDS (mg/l)	2358
3	SS (mg/l)	513
4	BOD (mg/l)	223.5
5	COD (mg/l)	422.5
6	TKN (mg/l)	108.5
7	Chloride (mg/l)	850
8	Sulphate (mg/l)	293.5
9	Phosphate (mg/l)	8



Figure 38: Site Photographs of Drain D17

Drain 18 (D18)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D18	Drain from Sector 102, Salarpur Khadar, Bhangel Begampur parallel to Dadri Main Road Drain outfall near NSEZ metro Square	28°32'1.997"N 77°23'35.742" E	Medium	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain. • This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.



**Figure 39: Drain D18 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D18		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	4
2	Liquid Depth (m)	0.1
3	Flow (MLD)	5-9

Wastewater Parameters of D18		
Sr No	WastewaterParameters	Value
1	pH	7.5
2	TDS (mg/l)	2652
3	SS (mg/l)	136
4	BOD (mg/l)	76
5	COD (mg/l)	184
6	TKN (mg/l)	98
7	Chloride (mg/l)	925
8	Sulphate (mg/l)	239
9	Phosphate (mg/l)	4



Figure 40: Site Photographs of Drain D18

Drain 19 (D19)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D19	Drain from NEPZ, Phase – 2, Thomson Press India Main Road Drain outfall besides NSEZ Metro Station Limited parallel to Dadri	28°32'3.01" N 77°23'40.981" E	Medium	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Long Term Measures:</p> <ul style="list-style-type: none"> • Ex-situ treatment options comprise of SBR technology



**Figure 41: Drain D19 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D19		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	4
2	Liquid Depth (m)	0.11
3	Flow (MLD)	6.00-11.00

Wastewater Parameters of D19		
Sr No	Wastewater Parameters	Value
1	pH	7.9
2	TDS (mg/l)	1924
3	SS (mg/l)	74
4	BOD (mg/l)	72
5	COD (mg/l)	146
6	TKN (mg/l)	67
7	Chloride (mg/l)	675
8	Sulphate (mg/l)	83
9	Phosphate (mg/l)	5



Figure 42: Site Photographs of Drain D19

Drain 20 (D20)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D20	Drain from Sector 84A, Hosiery Complex parallel to Dadri Main Road Drain outfall Besides Eagle Forgings	28°32'1.61" N 77°23'42.087" E	Medium	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSS.

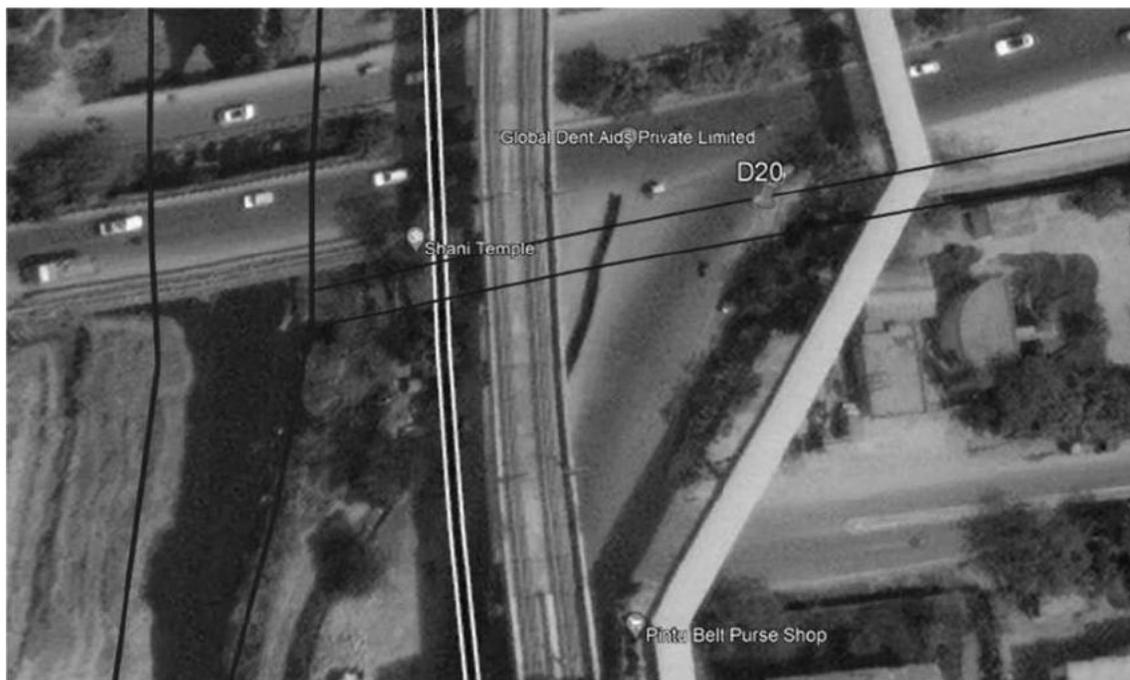


Figure 43: Drain D20 merging in Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of D20		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	3.5
2	Liquid Depth (m)	0.18
3	Flow (MLD)	3.00-5.00

Wastewater Parameters of D20		
Sr No	Wastewater Parameters	Value
1	pH	7.7
2	TDS (mg/l)	3250
3	SS (mg/l)	514
4	BOD (mg/l)	78
5	COD (mg/l)	177
6	TKN (mg/l)	41
7	Chloride (mg/l)	1225
8	Sulphate (mg/l)	1767
9	Phosphate (mg/l)	2



Figure 44: Site Photographs of Drain D20

Drain 21 (D21)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D21	<p>Drain from Sector 82 & Sector 93, Gejah Talattulabad runs parallel to Janpath Marg</p> <p>Drain outfall Besides Farm</p>	<p>28°31'12.436" N 77°23'49.171" E</p>	Major	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal. • Regular cleaning and maintenance of screen. • Removal of sludge from the drains. • Prohibition of dumping of solid waste into the drain. <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain. • This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.



**Figure 45: Drain D21 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D21		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	5
2	Liquid Depth (m)	0.12
3	Flow (MLD)	3.00-8.00

Wastewater Parameters of D21		
Sr No	Wastewater Parameters	Value
1	pH	8
2	TDS (mg/l)	3002
3	SS (mg/l)	198
4	BOD (mg/l)	51
5	COD (mg/l)	108
6	TKN (mg/l)	88
7	Chloride (mg/l)	1100
8	Sulphate (mg/l)	199
9	Phosphate (mg/l)	8

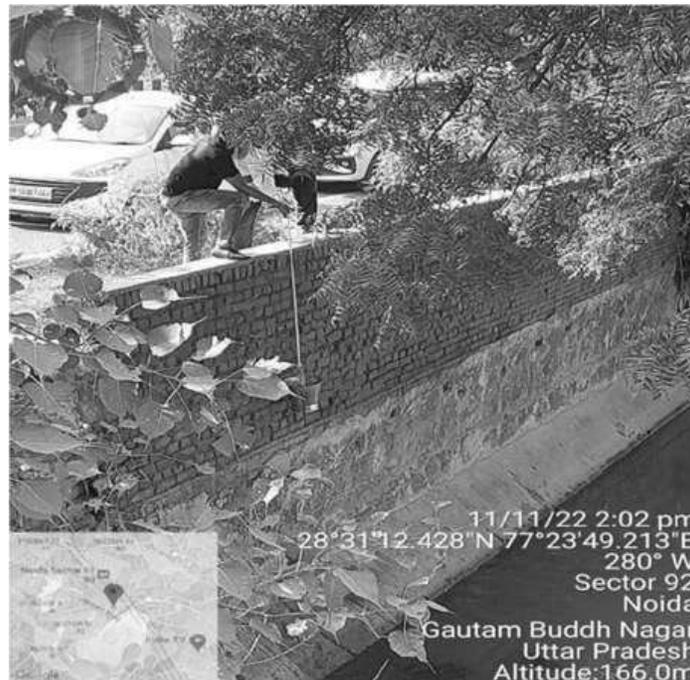


Figure 46: Site Photographs of Drain D21

Drain 22 (D22)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D22	Drain from Sector 44 Runs parallel to NOIDA greater NOIDA Expressway Drain outfall Near Pumping Station of Sector 167A STP besides Shahid Mangal Pande Marg	28°30'27.331" N 77°23'30.153" E	Major	Immediate Measures: <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain Mid Term Measures: <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



**Figure 47: Drain D22 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D22		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	9.0
2	Liquid Depth (m)	0.19
3	Flow (MLD)	25-30

Wastewater Parameters of D22		
Sr No	Wastewater Parameters	Value
1	pH	7.9
2	TDS (mg/l)	1986
3	SS (mg/l)	178
4	BOD (mg/l)	52
5	COD (mg/l)	123
6	TKN (mg/l)	93
7	Chloride (mg/l)	575
8	Sulphate (mg/l)	243
9	Phosphate (mg/l)	5



Figure 48: Site Photographs of Drain D22

Drain 23 (D23)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D23	<p>Drain from Sector 143B, Garhi Runs parallel to Shahid Mangal Pande Marg</p> <p>Drain outfall near Advant IT park</p>	<p>28°30'2.013"N 77°24'29.144" E</p>	Major	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • Divert to nearest sewer line, and transfer to nearest STPs through existing SPSs.



**Figure 49: Drain D23 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D23		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	2.4 + 4.2
2	Liquid Depth (m)	0.05 + 0.1
3	Flow (MLD)	21-27

Wastewater Parameters of D23		
Sr No	Wastewater Parameters	Value
1	pH	7.7
2	TDS (mg/l)	1716
3	SS (mg/l)	260
4	BOD (mg/l)	177
5	COD (mg/l)	346
6	TKN (mg/l)	109
7	Chloride (mg/l)	525
8	Sulphate (mg/l)	131
9	Phosphate (mg/l)	7



Figure 50: Site Photographs of Drain D23

Drain 24 (D24)

ID	Details	Co-ordinates	Type of Drain	Treatment Option
D24	<p>Drain from Sector 126, Mayoor School, Raipur Khadar</p> <p>Drain Outfall Besides Sardar Vallabhai Patel Marg, Drain on which Gates are installed</p>	<p>28°30'21.633" N 77°23'28.631" E</p>	Major	<p>Immediate Measures:</p> <ul style="list-style-type: none"> • Screens should be installed at the outlet of the drain for restricting floatable solid matters in the Kondali Irrigation Canal • Regular cleaning and maintenance of screen • Removal of sludge from the drains • Prohibition of dumping of solid waste into the drain <p>Mid Term Measures:</p> <ul style="list-style-type: none"> • In Situ drain treatment. In situ drain treatment is a technological concept developed by CSIR-NEERI, it is not a constructed wetland in the drain. • This technology comprises of unit operations i.e. screen, grit chamber, sedimentation and unit processes i.e. aeration, Phyto-Trap, Phyto-Floraft and disinfection.



**Figure 51: Drain D24 merging in Kondali Irrigation Canal
(Source Google Earth)**

Engineering Parameters of D24		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	8.3
2	Liquid Depth (m)	0.8
3	Flow (MLD)	24-27

Wastewater Parameters of D24		
Sr No	Wastewater Parameters	Value
1	pH	8.3
2	TDS (mg/l)	2322
3	SS (mg/l)	208
4	BOD (mg/l)	29
5	COD (mg/l)	61
6	TKN (mg/l)	31
7	Chloride (mg/l)	675
8	Sulphate (mg/l)	284
9	Phosphate (mg/l)	8

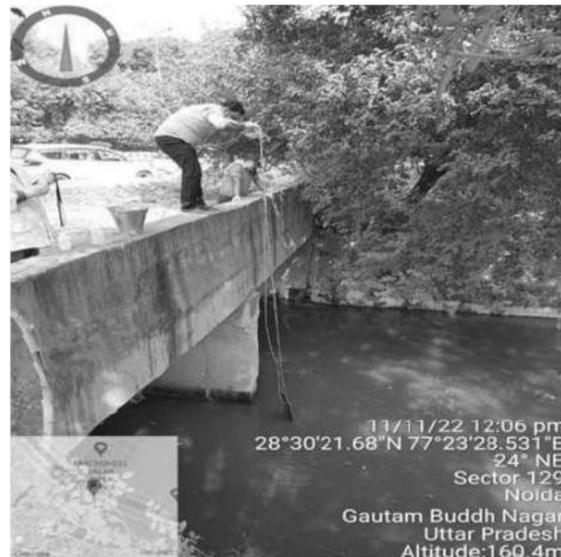


Figure 52: Site Photographs of Drain D24

End Barrage

ID	Details	Co-ordinates	Type of Drain	Treatment Option
	Barrage on Kondali	28°29'38.244" N 77°24'17.054" E		



Figure 53: End Barrage on Kondali Irrigation Canal
(Source Google Earth)

Engineering Parameters of End Barrage		
Sr No	Engineering Parameters	Value
1	Width of drain (m)	18
2	Liquid Depth (m)	0.3
3	Flow (MLD)	680-690

Wastewater Parameters of End Barrage		
Sr No	Wastewater Parameters	Value
1	pH	7.6
2	TDS (mg/l)	1864
3	SS (mg/l)	208
4	BOD (mg/l)	42
5	COD (mg/l)	100
6	TKN (mg/l)	78
7	Chloride (mg/l)	675
8	Sulphate (mg/l)	185
9	Phosphate (mg/l)	5



Figure 54: Site Photographs of End Barrage on Kondali

Draft DPR of Immediate Measures as per Feasibility Report

for

In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city

Sponsor

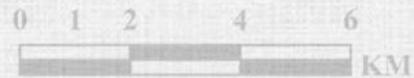
New Okhla Industrial Development Authority (NOIDA)

Submitted By



CSIR-National Environmental Engineering Research Institute
Nagpur – 440 020

June 2023



Legend

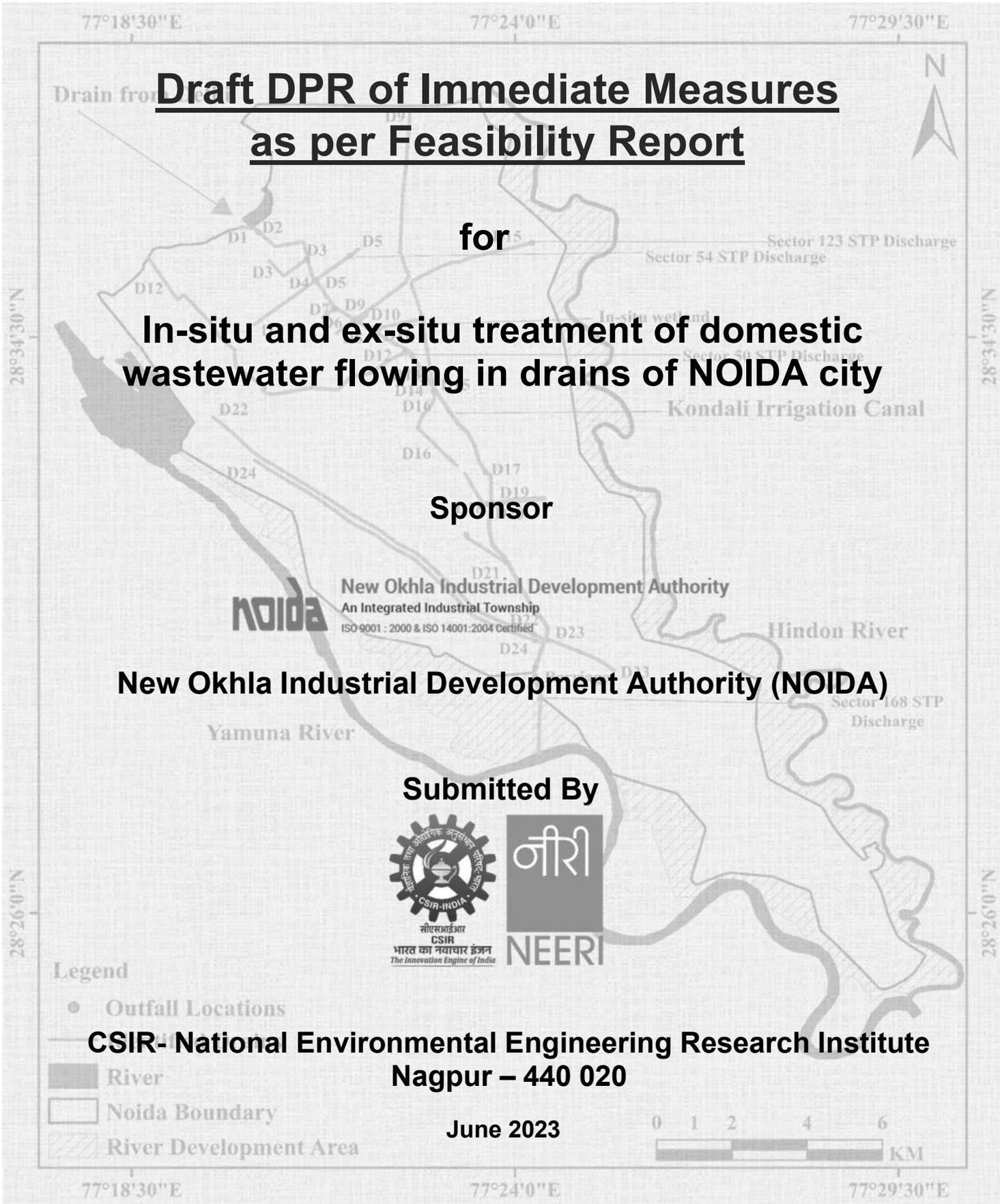
● Outfall Locations

— CSIR-National Environmental Engineering Research Institute

■ River

□ Noida Boundary

▨ River Development Area



Contents

1.0	Introduction:	3
2.0	Immediate measures as per Feasibility Report:	4
2.1	Installation of coarse and medium screens at the identified drains merging into Kondali for the removal of floating solid waste	4
a.	Screening.....	4
b.	General Requirements for Coarse and Medium Screens	4
2.2	Regular cleaning of screens by the concerned department	5
2.3	Periodical removal of sludge and de-silting of identified drains viz. Half-yearly or before monsoon.....	5

Annexure	Details	Page No.
I	Bill of Quantity	07
II	Detailed Estimates	08 – 29
III	Detailed Engineering Drawings (Coarse & Fine Screens)	30 - 52

1.0 Introduction:

Team of CSIR-NEERI accompanied by officials from Office of Sr. Manager Jal Division, NOIDA, visited and surveyed drains meeting into Kondali irrigation canal in NOIDA, (U.P.) during the month of October and November 2022.

The main purpose of site visits was to analyse site-specific conditions, tracing of drains merging into Kondali irrigation canal, flow measurements, wastewater sample collection of the identified drains and collection of secondary data from Office of Sr. Manager Jal Division, NOIDA.

Total number of thirty locations in NOIDA around Kondali irrigation canal were identified and surveyed. Amongst these locations, four are STP effluent discharge points, one In-Situ wetland treatment on Kondali, one Barrage and twenty-four drains merging into Kondali irrigation canal.

Based on the detailed site visits and discussions with officials of Sr. Manager Jal Division, NOIDA, Final Feasibility Report has been submitted to Jal Division, NOIDA entitled “In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city” on May 16, 2023.

As per the site-specific conditions of surveyed drains, suitable/site-specific treatment options have been suggested for respective drains in the feasibility report. In order to minimize the sewage pollution coming from drains in the Kondali irrigation canal, the suggestive measures in terms of immediate, mid-term and long-term are delineated to improve the water quality of the Kondali irrigation canal.

As per immediate measures suggested in Feasibility Report for In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city, the draft detailed project report for immediate measures includes bill of quantity (BOQ), detailed estimates along with detailed engineering drawings as Annexure I, II and III respectively. The estimate is prepared as per CPWD Delhi Schedule of Rates - 2018 since the desired item rate was not available in Schedule of Rates (SOR) of Uttar Pradesh, Lok Nirman Vibhag for districts of Bulandshahar, Gautam Budh Nagar, Ghaziabad and Hapur revised in 2020.

2.0 Immediate measures as per Feasibility Report:

2.1 Installation of coarse and medium screens at the identified drains merging into Kondali for the removal of floating solid waste

a. Screening

A screening device comprises of flats of rectangular or trapezoidal section placed vertically, inclined or curved and spaced at close and equal intervals across a channel through which sewage flows. It is used for removal of certain materials such as pieces of wood, floating debris, leaves, frigs, rags, etc, found in sewage. Depending on the clear spacing between flats, the screens shall be classified as under:

Coarse Screen: 40 mm

Medium Screen: 20 mm

b. General Requirements for Coarse and Medium Screens

- Screening devices are usually located where they are readily accessible because the nature of materials handled requires frequent inspection and maintenance of the installation.
- The top of the screen shall be at least 300 mm above the highest flow level.
- In manually cleaned screens, the top of the screen channel shall be provided with a perforated platform from which the operator may conveniently rake the screenings from the screen. Suitable draining facilities shall be provided in the platform. A hand rake shall be provided.
- The screen shall be embedded in such a manner that the frame, if any, shall offer no obstruction to the flow of sewage.
- The flat shall not be less than 10 mm in thickness and not less than 50 mm deep. The flats shall not have any joints. The spacing between the flats shall be uniform and preferably so maintained by adequate number of spacers, which shall be so located as not to interfere with the raking operation.
- For facility of manual cleaning of the screen inclination shall be between 45° and 60° to the horizontal.
- Provision of a canopy over screen platform is advisable to facilitate operation under all weather conditions.
- Necessary approach road shall be provided to the screen and from the screen to the point of disposal.

- All the corners shall be rounded and the edges shall be chamfered near the screen to facilitate the cleaning of the channel near the screen.

2.2 Regular cleaning of screens by the concerned department

- Bar screens are usually raked clean manually.
- These rakes sweep the entire screen removing the floating substances.
- Hand cleaned racks are set usually at an angle of 45 to 60 degrees to the horizontal to increase the effective cleaning surface and facilitate the raking operations.
- The area of the vertical projections of the space between the bars measured across the direction of the flow should be about twice the area of the feeding sewer.
- The raking operations and maintenance is suggested to be carried out twice in a week for each installed screen and further processing and disposal should be as per guidelines / norms of the local authority/concerned department.
- The screenings should not be left in the open or transported in uncovered conveyors as it would create nuisance due to flies and insects.

2.3 Periodical removal of sludge and de-silting of identified drains viz. Half-yearly or before monsoon.

- The hired machinery must be as per the manual: Sewer, faecal Septage & drain cleaning equipment Manufactured in India; Chapter III - Drain cleaning equipment Pg. No. 48 Published by: Ministry of Housing & Urban Affairs.
- For Desilting of Open Nallahs: Mechanical Grabs mounted on Tractor, Jeep Chassis (Figure a, b, c, d, e, f).



(a)



(b)



(c)



(d)



(e)



(f)

- For Desilting of large Open Drains: Mobile All Terrain Excavator (Figure g & h).



(g)



(h)

- The desilting or removal of sludge operations is suggested to be carried out periodically in each drains and further processing and disposal should be as per guidelines / norms of the local authority/concerned department.
- The removed sludge/ silt should not be left in the open or transported in uncovered conveyors as it would create nuisance due to flies and insects.

Detailed Estimate for immediate measures as per feasibility report for In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city, Uttar Pradesh.

BILL OF QUANTITY

Item No.	DSR Code	Item Description	No.	Quantity	Basic Rate	GST @ 18%	CP @ 10%	Rate	Unit	Amount
1	CPWD DSR 2018 Code No. 10.28 Pg. No. 186	For Stainless Steel works: Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-incharge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	1	31634.55				575.45	kg	18204102.53
Total										₹ 1,82,04,102.53

Detailed Estimate for immediate measures as per feasibility report for In-situ and ex-situ treatment of domestic wastewater flowing in drains of NOIDA city, Uttar Pradesh.

MEASUREMENT SHEET

Item No.	DSR Code	Item Description	No.	Length	Width	Height	Quantity	Unit
1	CPWD DSR 2018 Code No. 10.28 Pg. No. 186	For Stainless Steel works: Providing and fixing stainless steel (Grade 304) railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-incharge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).						
1.1		Coarse Screen with working platform						
		D1 (Coming from Delhi/ Khora)					629.77	kg
		D2 (Sector 11, Under bridge)					126.93	kg
		D3 (Sommer Vile School)					257.29	kg
		D4 (NTPC right Sector 26)					750.40	kg
		D5 (NTPC left coming from Sector 60)					723.92	kg
		D6 (Sector 35 Kribhko colony right)					104.39	kg
		D7 (Morna & ISBT left)					98.03	kg
		D8 (Morna & ISBT, Surbhi Hospital right)					150.28	kg
		D9 (Sector 63, Hazratpur Wajidpur, Surbhi Hospital left)					1137.99	kg
		D11 (Sector 50, Nilgiri Public School)					611.23	kg
		D12 (Sector 7, Drain outfall opposite to Sector 50 STP)					1567.29	kg
		D13 (Sector 49, parallel to Main Baraula road)					199.29	kg
		D14 (Sector 49, parallel to Banke Bihari Marg, Baraula)					250.53	kg
		D15 (Sector 122, Outfall near NOIDA metro Sector 76 parking)					787.11	kg
		D16 (Sector 102, Salarpur Khadar, Outfall opposite to D15 outfall)					831.31	kg
		D17 (Sector 102, Bhangel, Outfall near street no. 6 & Jeetram colony road Junction)					388.63	kg
		D18 (Sector 102, Outfall near NSEZ metro square)					625.62	kg
		D19 (Drain from NEPZ, Phase 2, Outfall besides NSEZ metro station)					546.25	kg
		D20 (Sector 84 A, Outfall besides Eagle forgings)					510.98	kg
		D21 (Sector 82 & 93, Outfall besides farm)					768.37	kg
		D22 (Sector 44, Outfall near pumping station of Sector 167A)					1523.27	kg

Item No.	DSR Code	Item Description	No.	Length	Width	Height	Quantity	Unit
		D23 (Sector 143B, Outfall near Advant IT park)					1045.42	kg
		D24 (Sector 126, Outfall besides Sardar Vallabhai Patel Marg)					1318.29	kg
1.2		Fine Screen with working platform						
		D1 (Coming from Delhi/ Khora)					693.94	kg
		D2 (Sector 11, Under bridge)					128.15	kg
		D3 (Sommer Vile School)					273.10	kg
		D4 (NTPC right Sector 26)					834.78	kg
		D5 (NTPC left coming from Sector 60)					809.63	kg
		D6 (Sector 35 Kribhko colony right)					107.88	kg
		D7 (Morna & ISBT left)					100.79	kg
		D8 (Morna & ISBT, Surbhi Hospital right)					158.03	kg
		D9 (Sector 63, Hazratpur Wajidpur, Surbhi Hospital left)					1292.47	kg
		D11 (Sector 50, Nilgiri Public School)					689.46	kg
		D12 (Sector 7, Drain outfall opposite to Sector 50 STP)					1740.21	kg
		D13 (Sector 49, parallel to Main Baraula road)					208.49	kg
		D14 (Sector 49, parallel to Banke Bihari Marg, Baraula)					264.61	kg
		D15 (Sector 122, Outfall near NOIDA metro Sector 76 parking)					884.09	kg
		D16 (Sector 102, Salarpur Khadar, Outfall opposite to D15 outfall)					939.63	kg
		D17 (Sector 102, Bhangel, Outfall near street no. 6 & Jeetram colony road Junction)					405.87	kg
		D18 (Sector 102, Outfall near NSEZ metro square)					691.62	kg
		D19 (Drain from NEPZ, Phase 2, Outfall besides NSEZ metro station)					595.92	kg
		D20 (Sector 84 A, Outfall besides Eagle forgings)					566.79	kg
		D21 (Sector 82 & 93, Outfall besides farm)					860.93	kg
		D22 (Sector 44, Outfall near pumping station of Sector 167A)					1745.44	kg
		D23 (Sector 143B, Outfall near Advant IT park)					1179.47	kg
		D24 (Sector 126, Outfall besides Sardar Vallabhai Patel Marg)					1510.64	kg
							Total	31634.55
								kg

Item No. 1.1

Weight Calculation

Sr. No.	Item Description	No.	Length	Width	Thickness	Density	Quantity/ meter	Unit
1	Frame of Screen: SS Square Hollow Section (Size: 100 mm x 100 mm x 5 mm)	4	1	0.1	0.005	7930	15.86	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	1	1			7930	0.81	kg
3	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1	1	0.00165	7930	9.16	kg/ sqm

Measurement for one Coarse screen D1

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.55			15.86	kg	80.89	kg
	Bracing (Vertical Support)	2	2.35			15.86	kg	74.54	kg
	Horizontal (Bordering)	2	4.30			15.86	kg	136.40	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	68	2.45			0.81	kg	134.63	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.50			15.86	kg	142.74	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.50	0.7		9.16	kg/ sqm	28.85	kg
Total								629.77	kg

Measurement for one Coarse screen D2

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.13			15.86	kg	35.84	kg
	Horizontal (Bordering)	2	0.80			15.86	kg	25.38	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	14	1.03			0.81	kg	11.72	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.00			15.86	kg	31.72	kg
	Vertical (Bordering)	2	0.5			15.86	kg	15.86	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.00	0.7		9.16	kg/ sqm	6.41	kg
Total								126.93	kg
Measurement for one Coarse screen D3									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.75			15.86	kg	55.51	kg
	Bracing (Vertical Support)	1	1.55			15.86	kg	24.58	kg
	Horizontal (Bordering)	2	1.60			15.86	kg	50.75	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	25	1.65			0.81	kg	34.02	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.80			15.86	kg	57.10	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.80	0.7		9.16	kg/ sqm	11.54	kg
Total								257.29	kg
Measurement for one Coarse screen D4									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.69			15.86	kg	85.33	kg
	Bracing (Vertical Support)	2	2.49			15.86	kg	78.98	kg
	Horizontal (Bordering)	2	5.30			15.86	kg	168.12	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	84	2.59			0.81	kg	176.52	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	5.50			15.86	kg	174.46	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	5.50	0.7		9.16	kg/ sqm	35.27	kg
Total								750.40	kg
Measurement for one Coarse screen D5									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.54			15.86	kg	112.29	kg
	Bracing (Vertical Support)	2	3.34			15.86	kg	105.94	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Horizontal (Bordering)	2	4.10			15.86	kg	130.05	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	65	3.44			0.81	kg	179.95	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.30			15.86	kg	136.40	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.30	0.7		9.16	kg/ sqm	27.57	kg
Total								723.92	kg
Measurement for one Coarse screen D6									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.13			15.86	kg	35.84	kg
	Horizontal (Bordering)	2	0.53			15.86	kg	16.81	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	10	1.03			0.81	kg	8.04	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	0.73			15.86	kg	23.16	kg
	Vertical (Bordering) + Bracing	2	0.5			15.86	kg	15.86	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	0.73	0.7		9.16	kg/ sqm	4.68	kg
Total								104.39	kg
Measurement for one Coarse screen D7									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.41			15.86	kg	44.73	kg
	Horizontal (Bordering)	2	0.33			15.86	kg	10.47	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	6	1.31			0.81	kg	6.77	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	0.53			15.86	kg	16.81	kg
	Vertical (Bordering)	2	0.5			15.86	kg	15.86	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	0.53	0.7		9.16	kg/ sqm	3.40	kg
Total								98.03	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
Measurement for one Coarse screen D8									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.12			15.86	kg	67.25	kg
	Horizontal (Bordering)	2	0.60			15.86	kg	19.03	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	11	2.02			0.81	kg	17.64	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	0.80			15.86	kg	25.38	kg
	Vertical (Bordering)	2	0.5			15.86	kg	15.86	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	0.80	0.7		9.16	kg/ sqm	5.13	kg
Total								150.28	kg
Measurement for one Coarse screen D9									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.82			15.86	kg	121.17	kg
	Bracing (Vertical Support)	3	3.62			15.86	kg	172.24	kg
	Horizontal (Bordering)	2	6.80			15.86	kg	215.70	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	107	3.72			0.81	kg	322.31	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	7.00			15.86	kg	222.04	kg
	Vertical (Bordering) + Bracing	5	0.5			15.86	kg	39.65	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	7.00	0.7		9.16	kg/ sqm	44.88	kg
Total								1137.99	kg
Measurement for one Coarse screen D11									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	4.81			15.86	kg	152.57	kg
	Bracing (Vertical Support)	1	4.61			15.86	kg	73.11	kg
	Horizontal (Bordering)	2	2.70			15.86	kg	85.64	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	43	4.71			0.81	kg	165.52	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
3	Frame of Working Platform								
	Horizontal (Bordering)	2	2.90			15.86	kg	91.99	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	2.90	0.7		9.16	kg/ sqm	18.59	kg
Total								611.23	kg
Measurement for one Coarse screen D12									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.12			15.86	kg	67.25	kg
	Bracing (Vertical Support)	4	1.92			15.86	kg	121.80	kg
	Horizontal (Bordering)	2	13.80			15.86	kg	437.74	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	219	2.02			0.81	kg	359.07	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	14.00			15.86	kg	444.08	kg
	Vertical (Bordering) + Bracing	6	0.50			15.86	kg	47.58	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	14.00	0.7		9.16	kg/ sqm	89.77	kg
Total								1567.29	kg
Measurement for one Coarse screen D13									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.70			15.86	kg	53.92	kg
	Bracing (Vertical Support)	1	1.50			15.86	kg	23.79	kg
	Horizontal (Bordering)	2	1.00			15.86	kg	31.72	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	16	1.60			0.81	kg	20.31	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.20			15.86	kg	38.06	kg
	Vertical (Bordering) + Bracing	3	0.50			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.20	0.7		9.16	kg/ sqm	7.69	kg
Total								199.29	kg
Measurement for one Coarse screen D14									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.55			15.86	kg	80.89	kg
	Bracing (Vertical Support)	1	2.35			15.86	kg	37.27	kg
	Horizontal (Bordering)	2	1.00			15.86	kg	31.72	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	16	2.45			0.81	kg	31.10	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.20			15.86	kg	38.06	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.20	0.7		9.16	kg/ sqm	7.69	kg
Total								250.53	kg
Measurement for one Coarse screen D15									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.4			15.86	kg	107.85	kg
	Bracing (Vertical Support)	2	3.20			15.86	kg	101.50	kg
	Horizontal (Bordering)	2	4.80			15.86	kg	152.26	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	76	3.30			0.81	kg	203.13	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	5.00			15.86	kg	158.60	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	5.00	0.7		9.16	kg/ sqm	32.06	kg
Total								787.11	kg
Measurement for one Coarse screen D16									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	4.81			15.86	kg	152.57	kg
	Bracing (Vertical Support)	2	4.61			15.86	kg	146.23	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	60	4.71			0.81	kg	227.72	kg
3	Frame of Working Platform								

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								831.31	kg
Measurement for one Coarse screen D17									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	0.85			15.86	kg	26.96	kg
	Bracing (Vertical Support)	2	0.65			15.86	kg	20.62	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	60	0.75			0.81	kg	36.26	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								388.63	kg
Measurement for one Coarse screen D18									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.97			15.86	kg	94.21	kg
	Bracing (Vertical Support)	2	2.77			15.86	kg	87.86	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	60	2.87			0.81	kg	138.76	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								625.62	kg
Measurement for one Coarse screen D19									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Vertical (Bordering)	2	2.26			15.86	kg	71.69	kg
	Bracing (Vertical Support)	2	2.06			15.86	kg	65.34	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	60	2.16			0.81	kg	104.43	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								546.25	kg
Measurement for one Coarse screen D20									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.83			15.86	kg	89.77	kg
	Bracing (Vertical Support)	1	2.63			15.86	kg	41.71	kg
	Horizontal (Bordering)	2	3.30			15.86	kg	104.68	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	53	2.73			0.81	kg	117.57	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	3.50			15.86	kg	111.02	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	3.50	0.7		9.16	kg/ sqm	22.44	kg
Total								510.98	kg
Measurement for one Coarse screen D21									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.25			15.86	kg	103.09	kg
	Bracing (Vertical Support)	2	3.05			15.86	kg	96.75	kg
	Horizontal (Bordering)	2	4.80			15.86	kg	152.26	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	76	3.15			0.81	kg	193.89	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	5.00			15.86	kg	158.60	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	5.00	0.7		9.16	kg/ sqm	32.06	kg
Total								768.37	kg
Measurement for one Coarse screen D22									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	4.24			15.86	kg	134.49	kg
	Bracing (Vertical Support)	4	4.04			15.86	kg	256.30	kg
	Horizontal (Bordering)	2	8.80			15.86	kg	279.14	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	138	4.14			0.81	kg	462.57	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	9.00			15.86	kg	285.48	kg
	Vertical (Bordering) + Bracing	6	0.5			15.86	kg	47.58	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	9.00	0.7		9.16	kg/ sqm	57.71	kg
Total								1523.27	kg
Measurement for one Coarse screen D23									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.54			15.86	kg	112.29	kg
	Bracing (Vertical Support)	3	3.34			15.86	kg	158.92	kg
	Horizontal (Bordering)	2	6.40			15.86	kg	203.01	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	100	3.44			0.81	kg	279.88	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	6.60			15.86	kg	209.35	kg
	Vertical (Bordering) + Bracing	5	0.5			15.86	kg	39.65	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	6.60	0.7		9.16	kg/ sqm	42.32	kg
Total								1045.42	kg
Measurement for one Coarse screen D24									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.96			15.86	kg	125.61	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Bracing (Vertical Support)	3	3.76			15.86	kg	178.90	kg
	Horizontal (Bordering)	2	8.10			15.86	kg	256.93	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	128	3.86			0.81	kg	400.71	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	8.30			15.86	kg	263.28	kg
	Vertical (Bordering) + Bracing	5	0.5			15.86	kg	39.65	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	8.30	0.7		9.16	kg/ sqm	53.22	kg
Total								1318.29	kg

Item No. 1.2

Weight Calculation

Sr. No.	Item Description	No.	Length	Width	Thickness	Density	Quantity/ meter	Unit
1	Frame of Screen: SS Square Hollow Section (Size: 100 mm x 100 mm x 5 mm)	4	1	0.1	0.005	7930	15.86	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	1	1			7930	0.81	kg
3	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1	1	0.00165	7930	9.16	kg/ sqm

Measurement for one Fine screen D1

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.55			15.86	kg	80.89	kg
	Bracing (Vertical Support)	2	2.35			15.86	kg	74.54	kg
	Horizontal (Bordering)	2	4.30			15.86	kg	136.40	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	100	2.45			0.81	kg	198.80	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.50			15.86	kg	142.74	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.50	0.7		9.16	kg/ sqm	28.85	kg
Total								693.94	kg

Measurement for one Fine screen D2

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.13			15.86	kg	35.84	kg
	Horizontal (Bordering)	2	0.80			15.86	kg	25.38	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	16	1.03			0.81	kg	12.94	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.00			15.86	kg	31.72	kg
	Vertical (Bordering)	2	0.5			15.86	kg	15.86	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.00	0.7		9.16	kg/ sqm	6.41	kg
Total								128.15	kg
Measurement for one Fine screen D3									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.75			15.86	kg	55.51	kg
	Bracing (Vertical Support)	1	1.55			15.86	kg	24.58	kg
	Horizontal (Bordering)	2	1.60			15.86	kg	50.75	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	37	1.65			0.81	kg	49.83	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.80			15.86	kg	57.10	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.80	0.7		9.16	kg/ sqm	11.54	kg
Total								273.10	kg
Measurement for one Fine screen D4									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.69			15.86	kg	85.33	kg
	Bracing (Vertical Support)	2	2.49			15.86	kg	78.98	kg
	Horizontal (Bordering)	2	5.30			15.86	kg	168.12	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	124	2.59			0.81	kg	260.91	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	5.50			15.86	kg	174.46	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	5.50	0.7		9.16	kg/ sqm	35.27	kg
Total								834.78	kg
Measurement for one Fine screen D5									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.54			15.86	kg	112.29	kg
	Bracing (Vertical Support)	2	3.34			15.86	kg	105.94	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Horizontal (Bordering)	2	4.10			15.86	kg	130.05	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	95	3.44			0.81	kg	265.65	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.30			15.86	kg	136.40	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.30	0.7		9.16	kg/ sqm	27.57	kg
Total								809.63	kg
Measurement for one Fine screen D6									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.13			15.86	kg	35.84	kg
	Horizontal (Bordering)	2	0.53			15.86	kg	16.81	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	14	1.03			0.81	kg	11.53	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	0.73			15.86	kg	23.16	kg
	Vertical (Bordering)	2	0.5			15.86	kg	15.86	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	0.73	0.7		9.16	kg/ sqm	4.68	kg
Total								107.88	kg
Measurement for one Fine screen D7									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.41			15.86	kg	44.73	kg
	Horizontal (Bordering)	2	0.33			15.86	kg	10.47	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	9	1.31			0.81	kg	9.53	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	0.53			15.86	kg	16.81	kg
	Vertical (Bordering)	2	0.5			15.86	kg	15.86	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	0.53	0.7		9.16	kg/ sqm	3.40	kg
Total								100.79	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
Measurement for one Fine screen D8									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.12			15.86	kg	67.25	kg
	Horizontal (Bordering)	2	0.60			15.86	kg	19.03	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	16	2.02			0.81	kg	25.38	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	0.80			15.86	kg	25.38	kg
	Vertical (Bordering)	2	0.5			15.86	kg	15.86	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	0.80	0.7		9.16	kg/ sqm	5.13	kg
Total								158.03	kg
Measurement for one Fine screen D9									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.82			15.86	kg	121.17	kg
	Bracing (Vertical Support)	3	3.62			15.86	kg	172.24	kg
	Horizontal (Bordering)	2	6.80			15.86	kg	215.70	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	158	3.72			0.81	kg	476.79	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	7.00			15.86	kg	222.04	kg
	Vertical (Bordering) + Bracing	5	0.5			15.86	kg	39.65	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	7.00	0.7		9.16	kg/ sqm	44.88	kg
Total								1292.47	kg
Measurement for one Fine screen D11									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	4.81			15.86	kg	152.57	kg
	Bracing (Vertical Support)	1	4.61			15.86	kg	73.11	kg
	Horizontal (Bordering)	2	2.70			15.86	kg	85.64	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	64	4.71			0.81	kg	243.76	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
3	Frame of Working Platform								
	Horizontal (Bordering)	2	2.90			15.86	kg	91.99	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	2.90	0.7		9.16	kg/ sqm	18.59	kg
Total								689.46	kg
Measurement for one Fine screen D12									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.12			15.86	kg	67.25	kg
	Bracing (Vertical Support)	4	1.92			15.86	kg	121.80	kg
	Horizontal (Bordering)	2	13.80			15.86	kg	437.74	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	325	2.02			0.81	kg	532.00	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	14.00			15.86	kg	444.08	kg
	Vertical (Bordering) + Bracing	6	0.50			15.86	kg	47.58	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	14.00	0.7		9.16	kg/ sqm	89.77	kg
Total								1740.21	kg
Measurement for one Fine screen D13									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	1.70			15.86	kg	53.92	kg
	Bracing (Vertical Support)	1	1.50			15.86	kg	23.79	kg
	Horizontal (Bordering)	2	1.00			15.86	kg	31.72	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	23	1.60			0.81	kg	29.51	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.20			15.86	kg	38.06	kg
	Vertical (Bordering) + Bracing	3	0.50			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.20	0.7		9.16	kg/ sqm	7.69	kg
Total								208.49	kg
Measurement for one Fine screen D14									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit

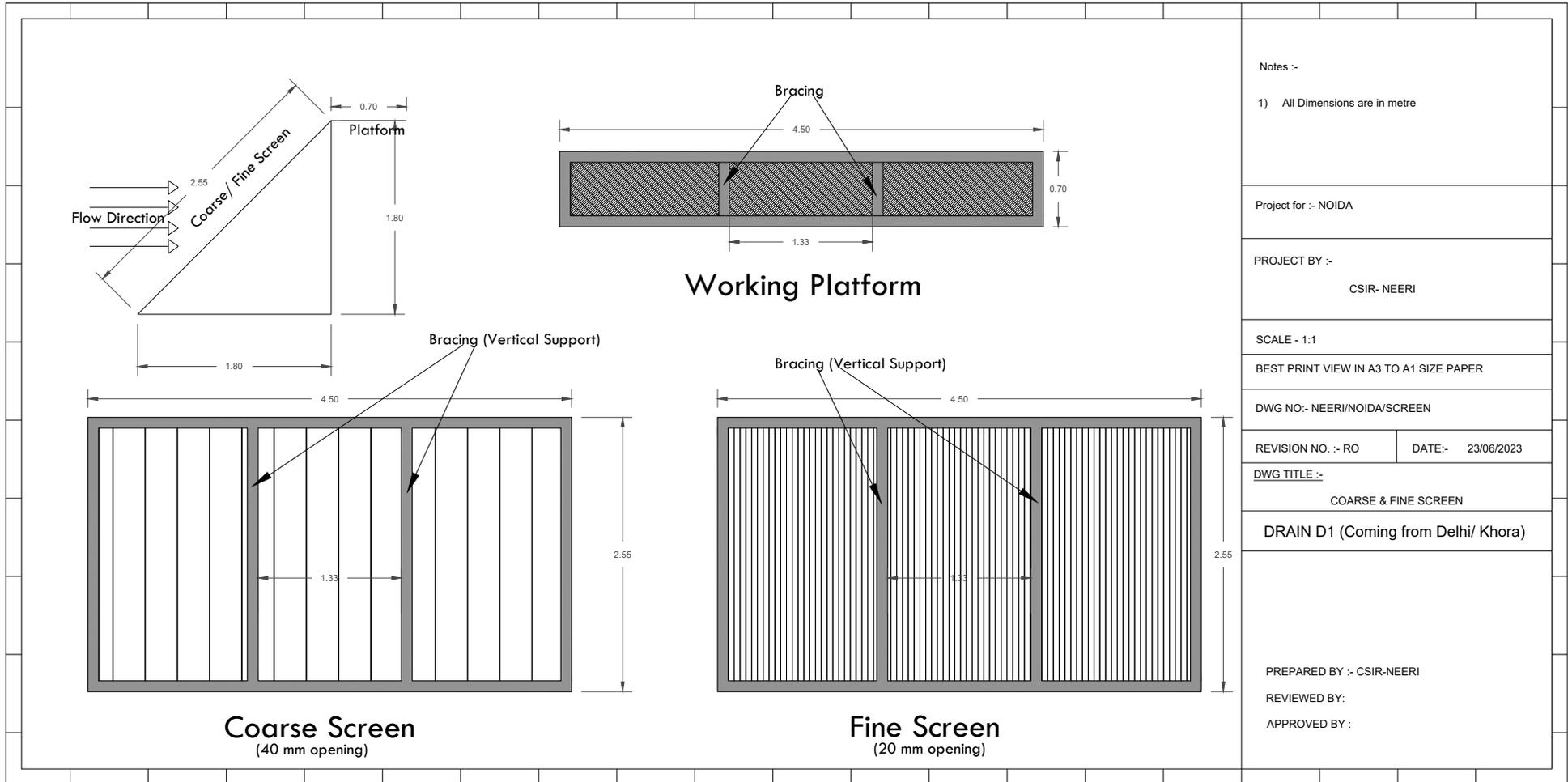
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.55			15.86	kg	80.89	kg
	Bracing (Vertical Support)	1	2.35			15.86	kg	37.27	kg
	Horizontal (Bordering)	2	1.00			15.86	kg	31.72	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	23	2.45			0.81	kg	45.19	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	1.20			15.86	kg	38.06	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	1.20	0.7		9.16	kg/ sqm	7.69	kg
Total								264.61	kg
Measurement for one Fine screen D15									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.4			15.86	kg	107.85	kg
	Bracing (Vertical Support)	2	3.20			15.86	kg	101.50	kg
	Horizontal (Bordering)	2	4.80			15.86	kg	152.26	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	112	3.30			0.81	kg	300.10	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	5.00			15.86	kg	158.60	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	5.00	0.7		9.16	kg/ sqm	32.06	kg
Total								884.09	kg
Measurement for one Fine screen D16									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	4.81			15.86	kg	152.57	kg
	Bracing (Vertical Support)	2	4.61			15.86	kg	146.23	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	88	4.71			0.81	kg	336.04	kg
3	Frame of Working Platform								

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								939.63	kg
Measurement for one Fine screen D17									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	0.85			15.86	kg	26.96	kg
	Bracing (Vertical Support)	2	0.65			15.86	kg	20.62	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	88	0.75			0.81	kg	53.51	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								405.87	kg
Measurement for one Fine screen D18									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.97			15.86	kg	94.21	kg
	Bracing (Vertical Support)	2	2.77			15.86	kg	87.86	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	88	2.87			0.81	kg	204.77	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								691.62	kg
Measurement for one Fine screen D19									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Vertical (Bordering)	2	2.26			15.86	kg	71.69	kg
	Bracing (Vertical Support)	2	2.06			15.86	kg	65.34	kg
	Horizontal (Bordering)	2	3.80			15.86	kg	120.54	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	88	2.16			0.81	kg	154.11	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	4.00			15.86	kg	126.88	kg
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	4.00	0.7		9.16	kg/ sqm	25.65	kg
Total								595.92	kg
Measurement for one Fine screen D20									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	2.83			15.86	kg	89.77	kg
	Bracing (Vertical Support)	1	2.63			15.86	kg	41.71	kg
	Horizontal (Bordering)	2	3.30			15.86	kg	104.68	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	78	2.73			0.81	kg	173.38	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	3.50			15.86	kg	111.02	kg
	Vertical (Bordering) + Bracing	3	0.5			15.86	kg	23.79	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	3.50	0.7		9.16	kg/ sqm	22.44	kg
Total								566.79	kg
Measurement for one Fine screen D21									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.25			15.86	kg	103.09	kg
	Bracing (Vertical Support)	2	3.05			15.86	kg	96.75	kg
	Horizontal (Bordering)	2	4.80			15.86	kg	152.26	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	112	3.15			0.81	kg	286.46	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	5.00			15.86	kg	158.60	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Vertical (Bordering) + Bracing	4	0.5			15.86	kg	31.72	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	5.00	0.7		9.16	kg/ sqm	32.06	kg
Total								860.93	kg
Measurement for one Fine screen D22									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	4.24			15.86	kg	134.49	kg
	Bracing (Vertical Support)	4	4.04			15.86	kg	256.30	kg
	Horizontal (Bordering)	2	8.80			15.86	kg	279.14	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	204	4.14			0.81	kg	684.74	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	9.00			15.86	kg	285.48	kg
	Vertical (Bordering) + Bracing	6	0.5			15.86	kg	47.58	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	9.00	0.7		9.16	kg/ sqm	57.71	kg
Total								1745.44	kg
Measurement for one Fine screen D23									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.54			15.86	kg	112.29	kg
	Bracing (Vertical Support)	3	3.34			15.86	kg	158.92	kg
	Horizontal (Bordering)	2	6.40			15.86	kg	203.01	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	149	3.44			0.81	kg	413.94	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	6.60			15.86	kg	209.35	kg
	Vertical (Bordering) + Bracing	5	0.5			15.86	kg	39.65	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	6.60	0.7		9.16	kg/ sqm	42.32	kg
Total								1179.47	kg
Measurement for one Fine screen D24									
Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
1	Frame of Screen (Size: 100 mm x 100 mm x 5 mm)								
	Vertical (Bordering)	2	3.96			15.86	kg	125.61	kg

Sr. No.	Item Description	No.	Length	Width	Thickness	Weight	Unit	Quantity	Unit
	Bracing (Vertical Support)	3	3.76			15.86	kg	178.90	kg
	Horizontal (Bordering)	2	8.10			15.86	kg	256.93	kg
2	Bars of Screen: SS Circular Hollow Section (Outer Dia: 21.34 mm , Wall thickness: 1.65 mm, Internal Dia: 18.04)	190	3.86			0.81	kg	593.05	kg
3	Frame of Working Platform								
	Horizontal (Bordering)	2	8.30			15.86	kg	263.28	kg
	Vertical (Bordering) + Bracing	5	0.5			15.86	kg	39.65	kg
4	Perforated sheet for working platform (Thickness: 1.65 mm, % open area: 30)	1	8.30	0.7		9.16	kg/ sqm	53.22	kg
Total								1510.64	kg



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

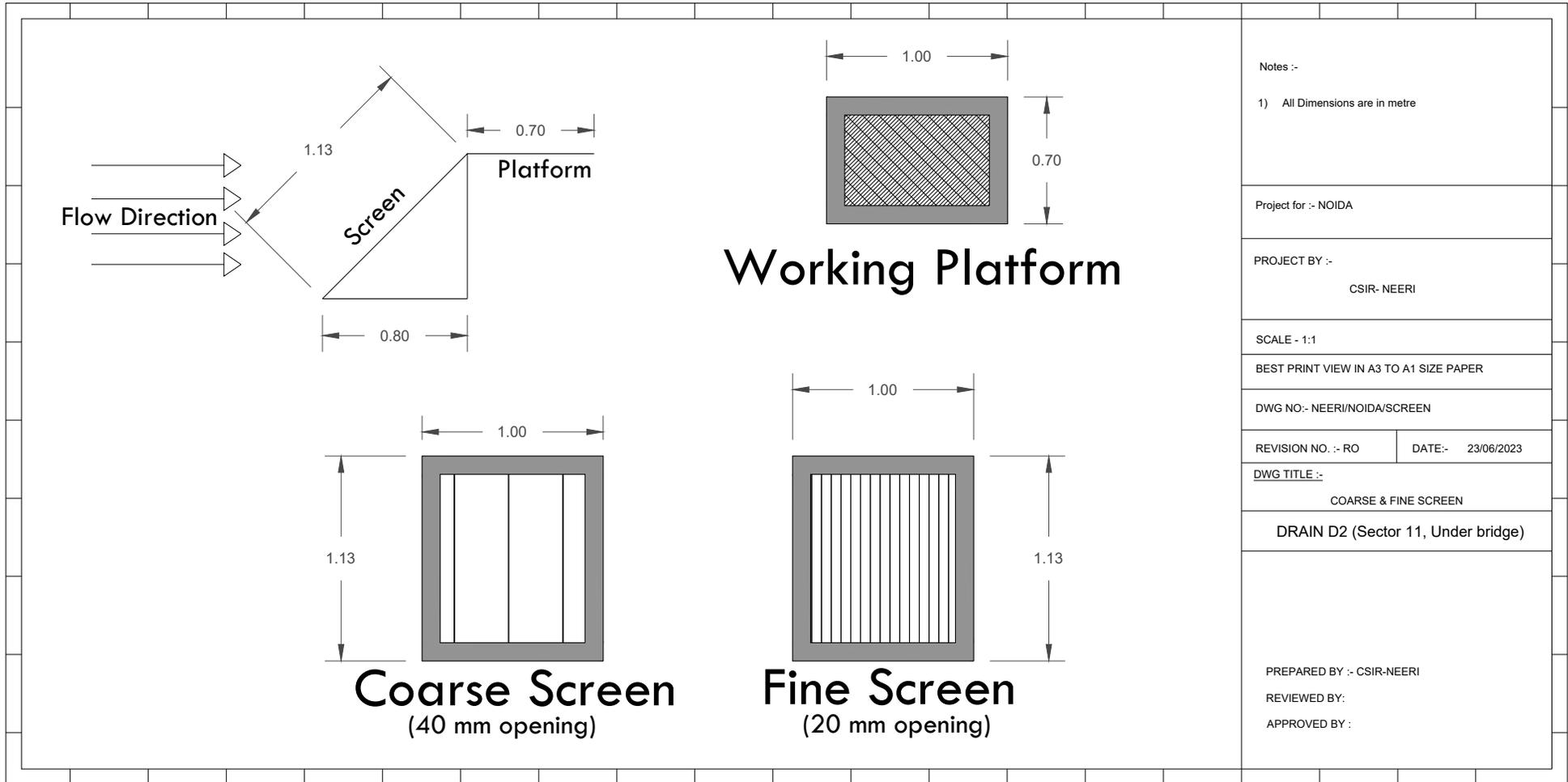
COARSE & FINE SCREEN

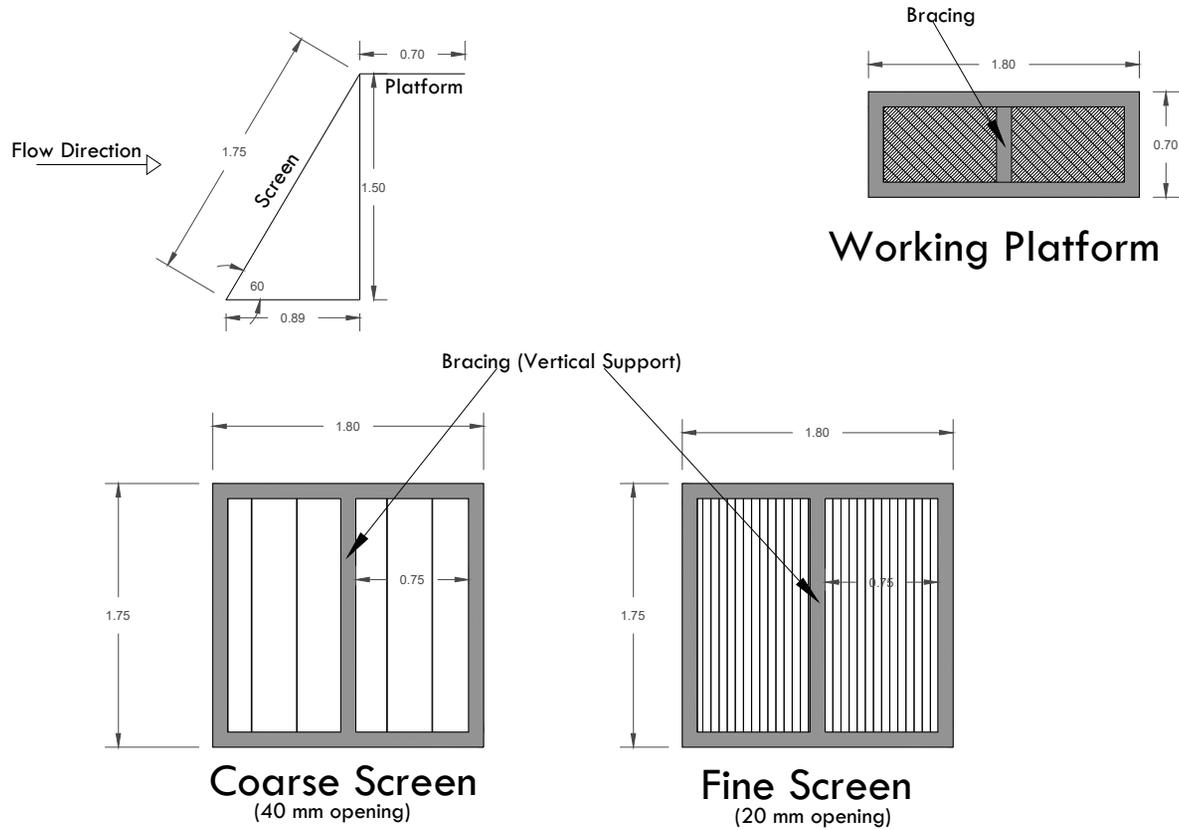
DRAIN D1 (Coming from Delhi/ Khora)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :





Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

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DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

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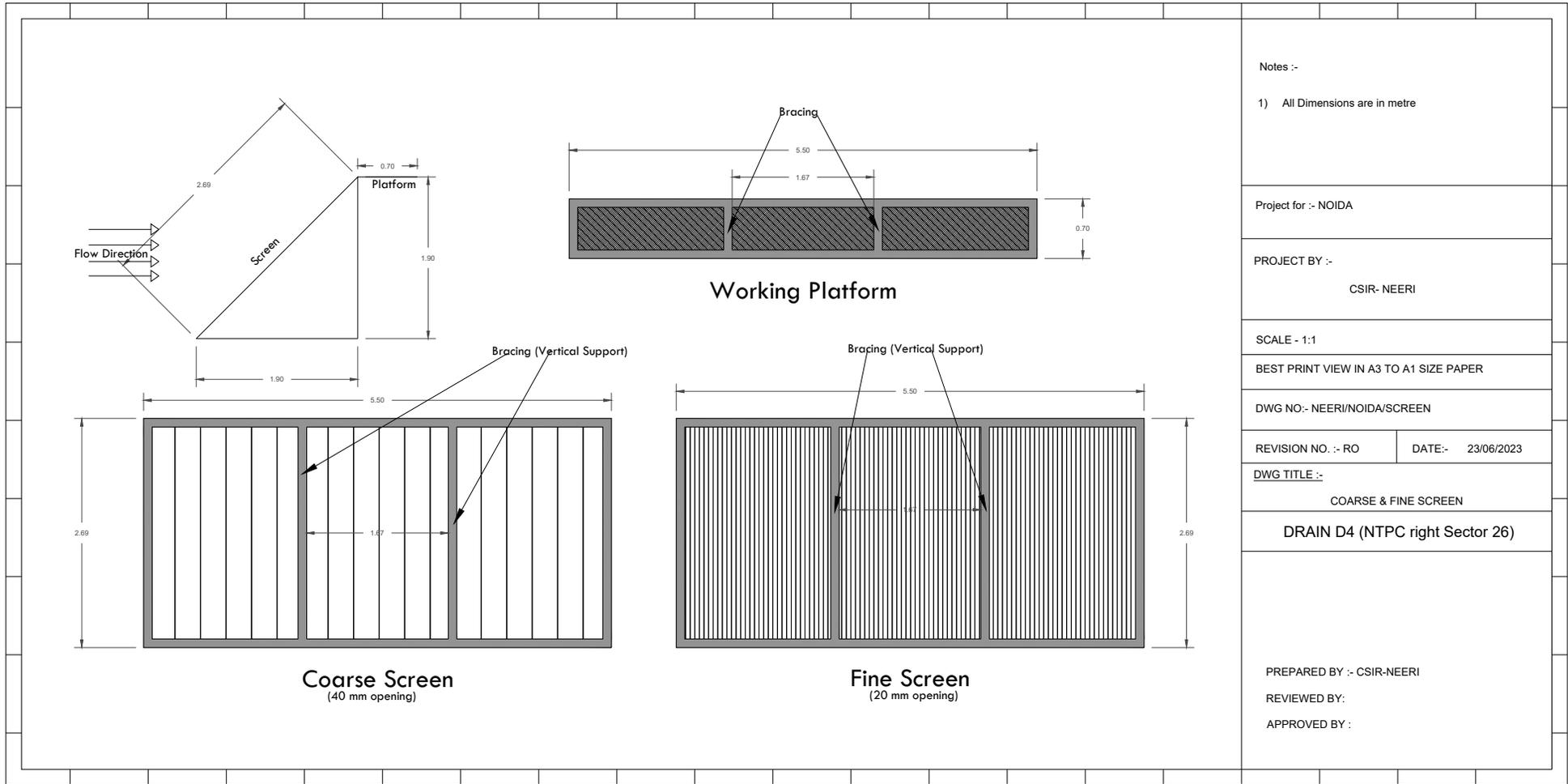
COARSE & FINE SCREEN

DRAIN D3 (Sommer Vile School)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

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DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

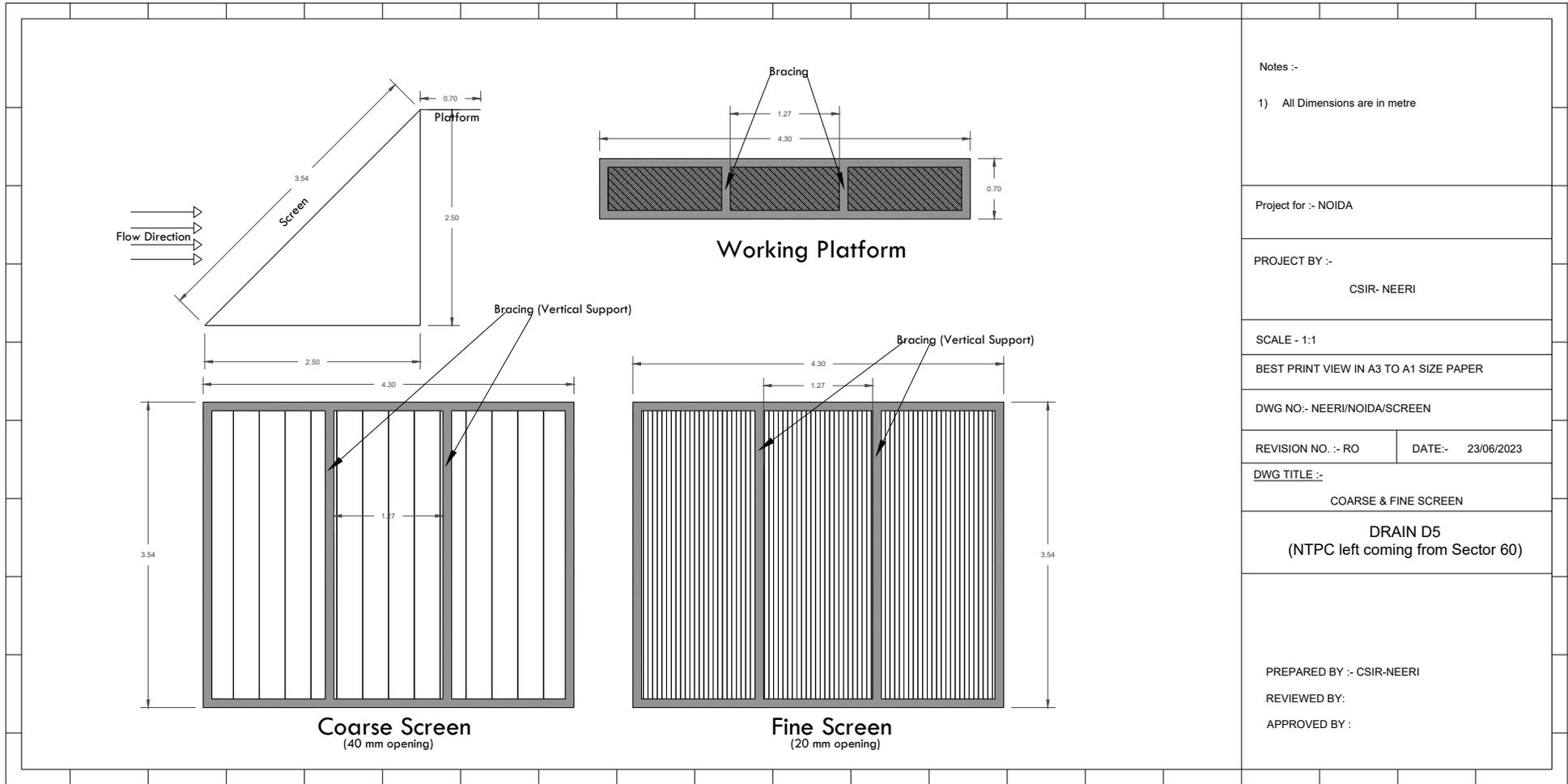
COARSE & FINE SCREEN

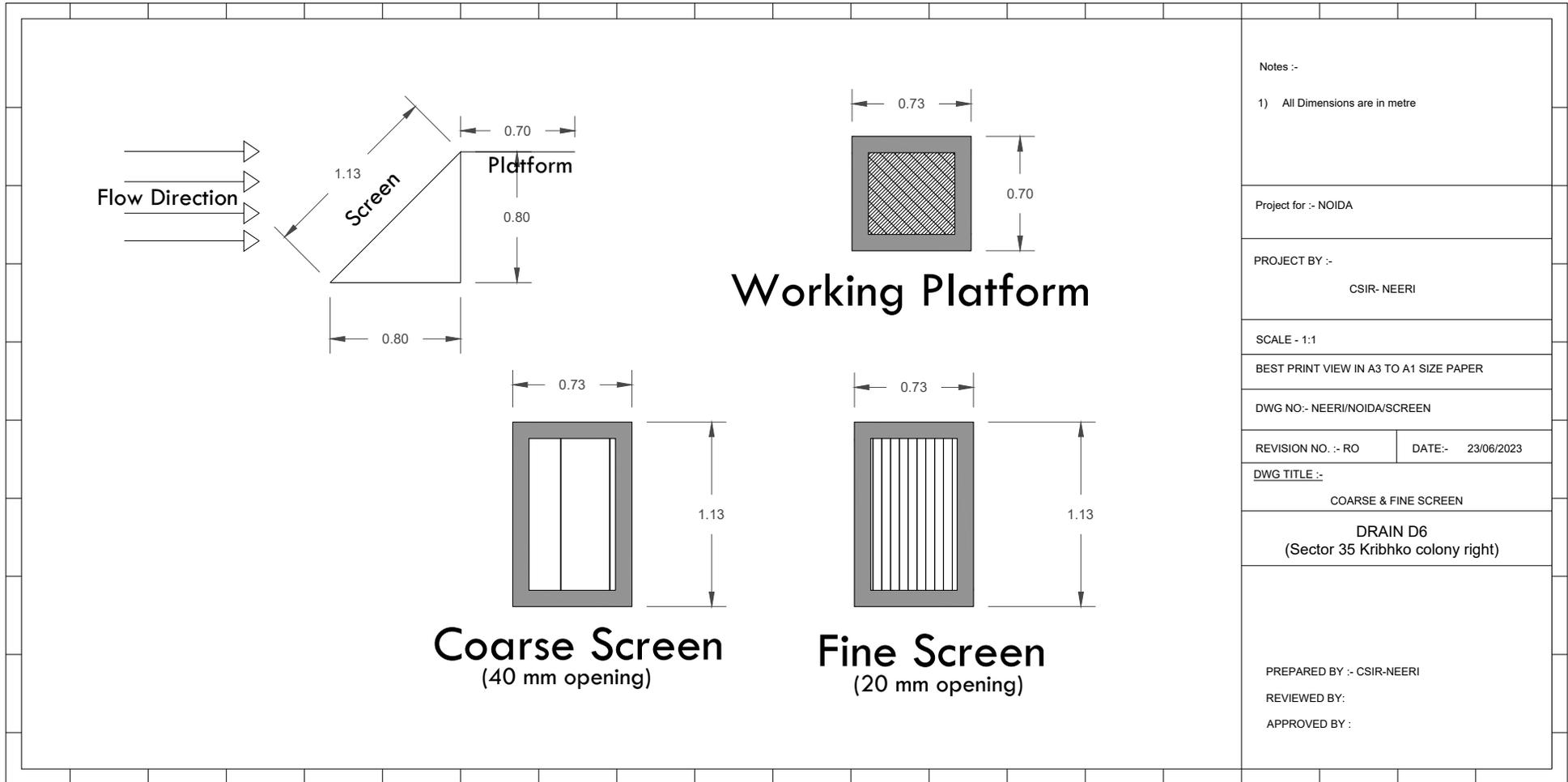
DRAIN D4 (NTPC right Sector 26)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :





Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

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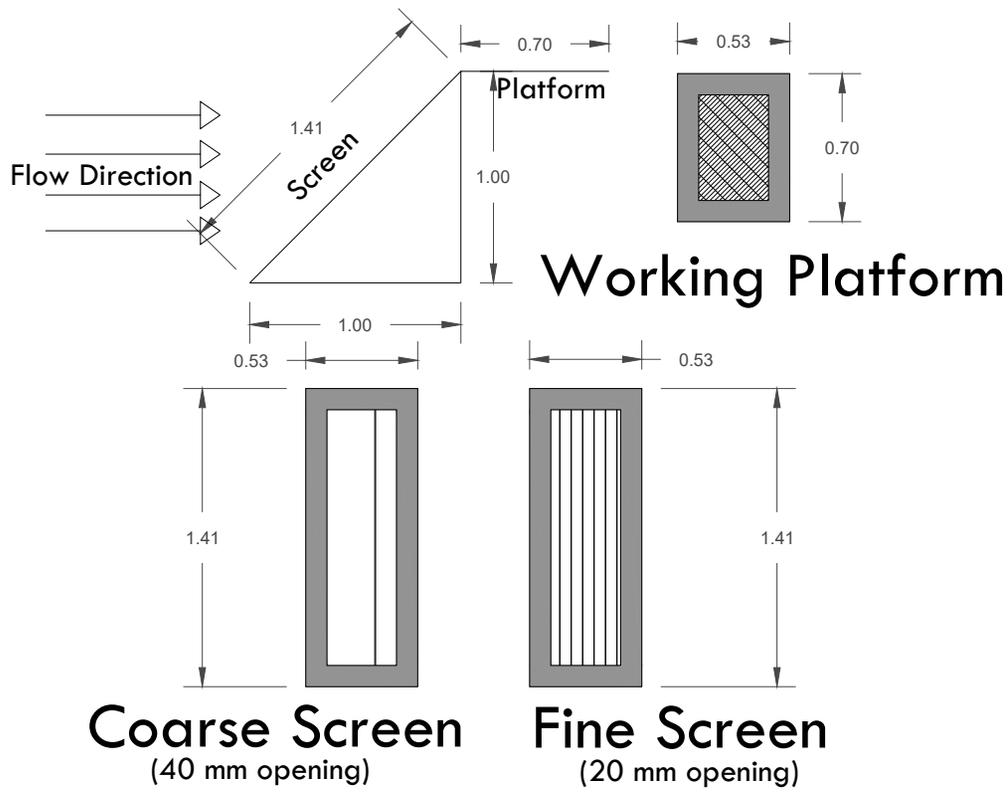
COARSE & FINE SCREEN

DRAIN D6
(Sector 35 Kribhko colony right)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

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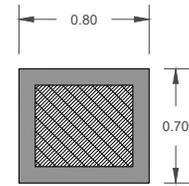
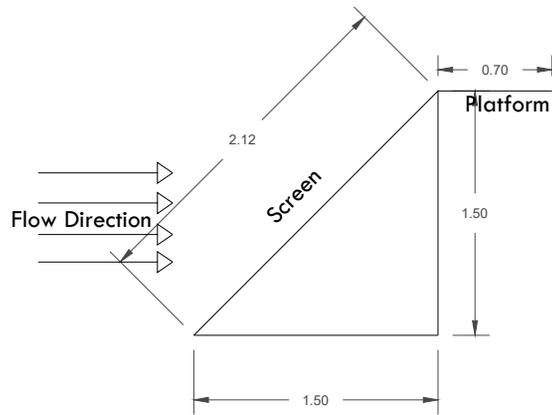
COARSE & FINE SCREEN

DRAIN D7
(Morna & ISBT left)

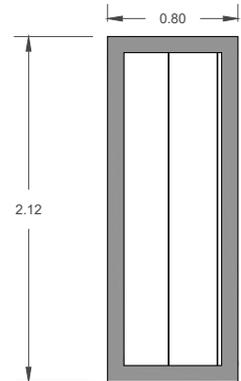
PREPARED BY :- CSIR-NEERI

REVIEWED BY:

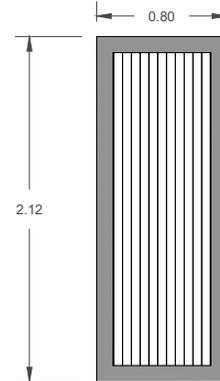
APPROVED BY :



Working Platform



Coarse Screen
(40 mm opening)



Fine Screen
(20 mm opening)

Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

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DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

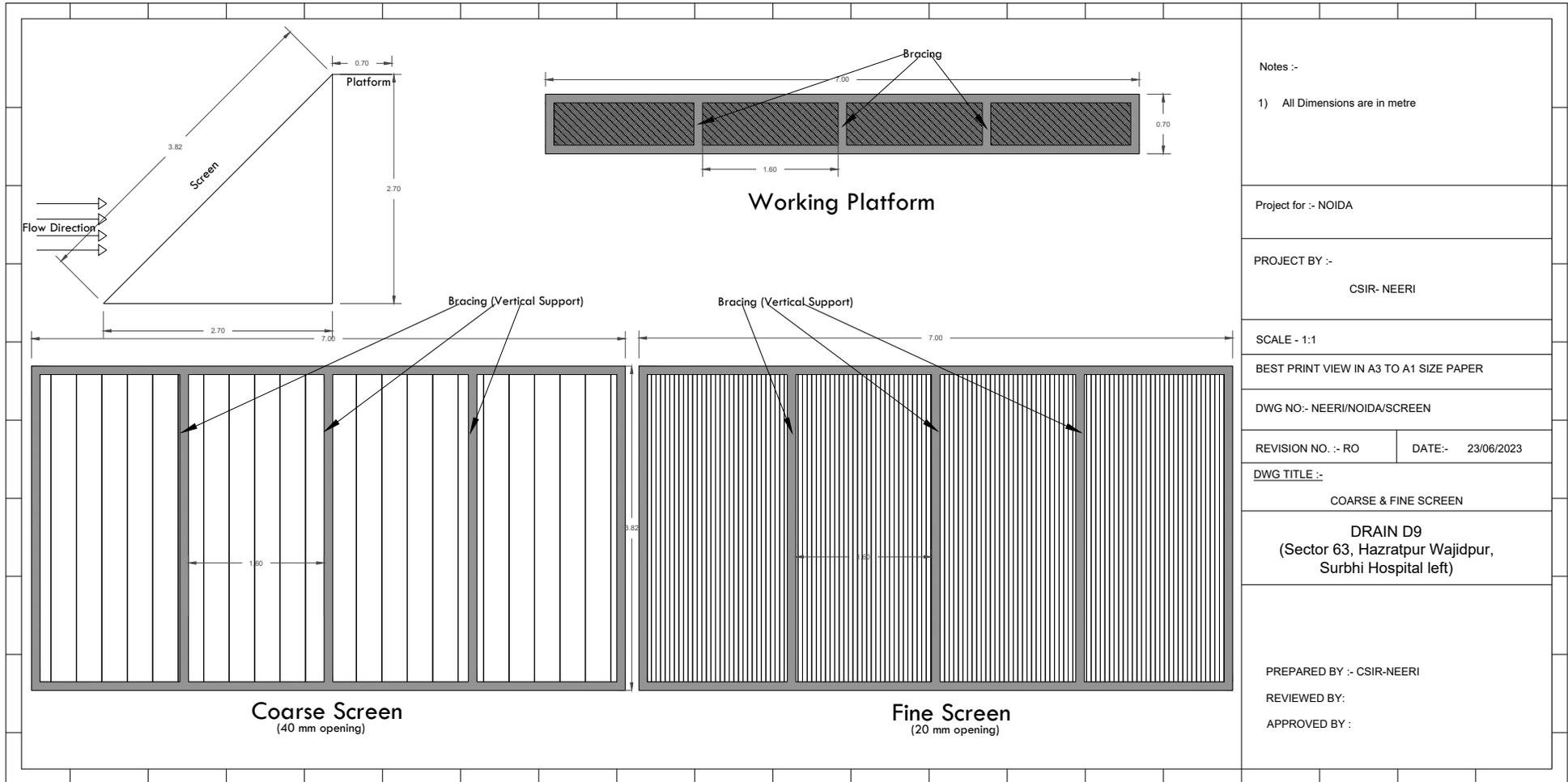
COARSE & FINE SCREEN

DRAIN D8
(Morna & ISBT, Surbhi Hospital right)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

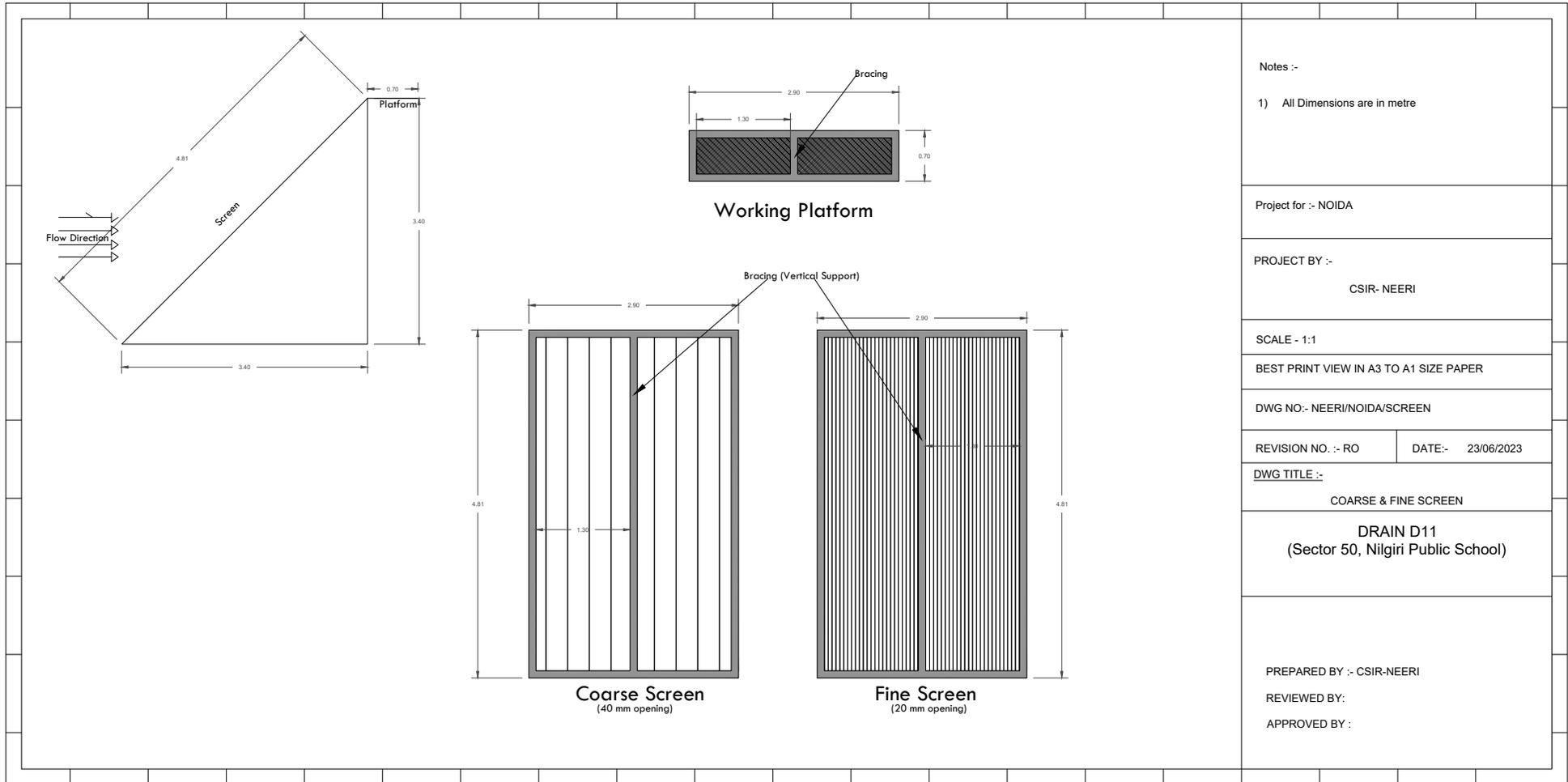
COARSE & FINE SCREEN

DRAIN D9
(Sector 63, Hazratpur Wajidpur,
Surbhi Hospital left)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

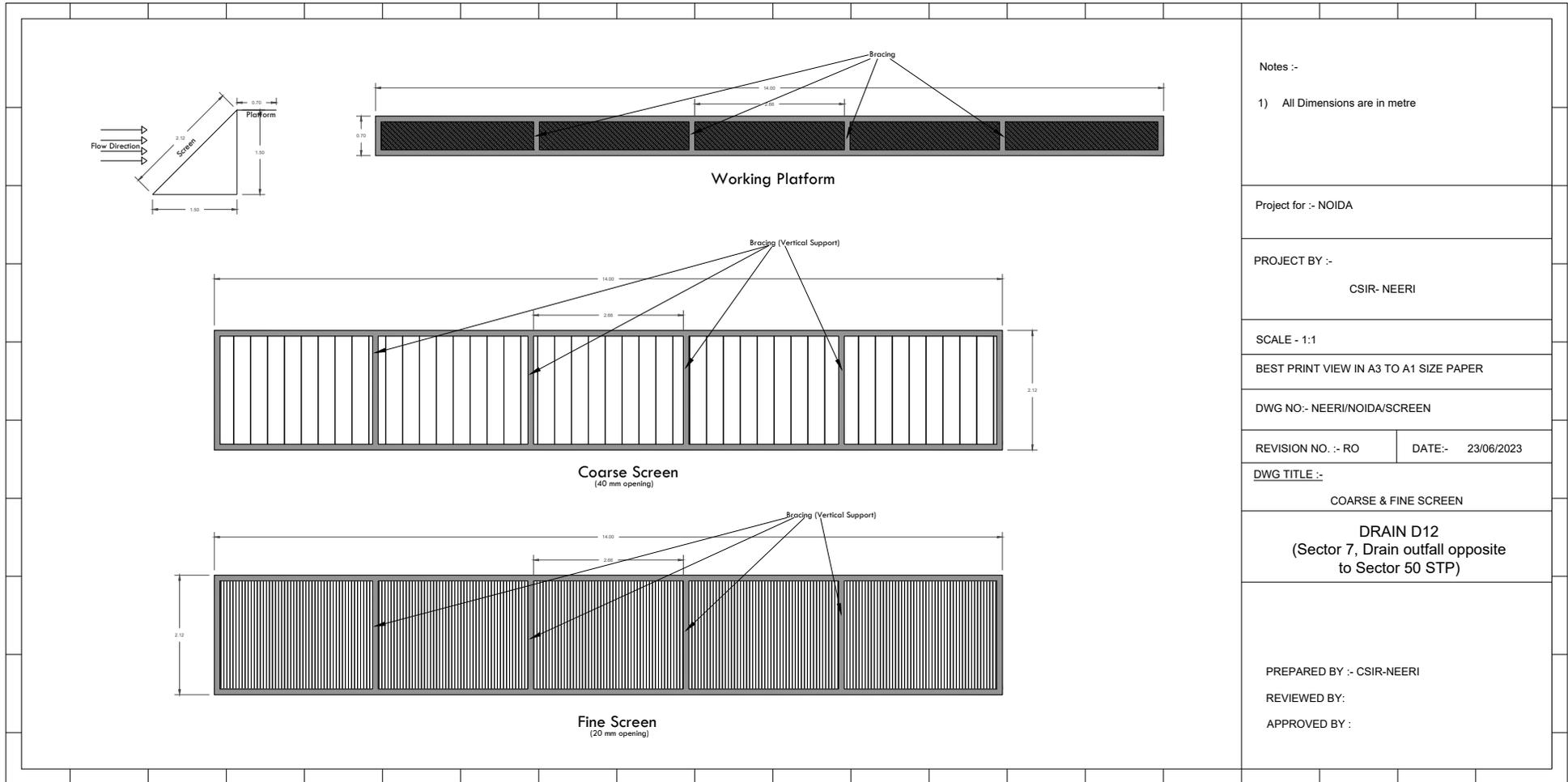
COARSE & FINE SCREEN

DRAIN D11
(Sector 50, Nilgiri Public School)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

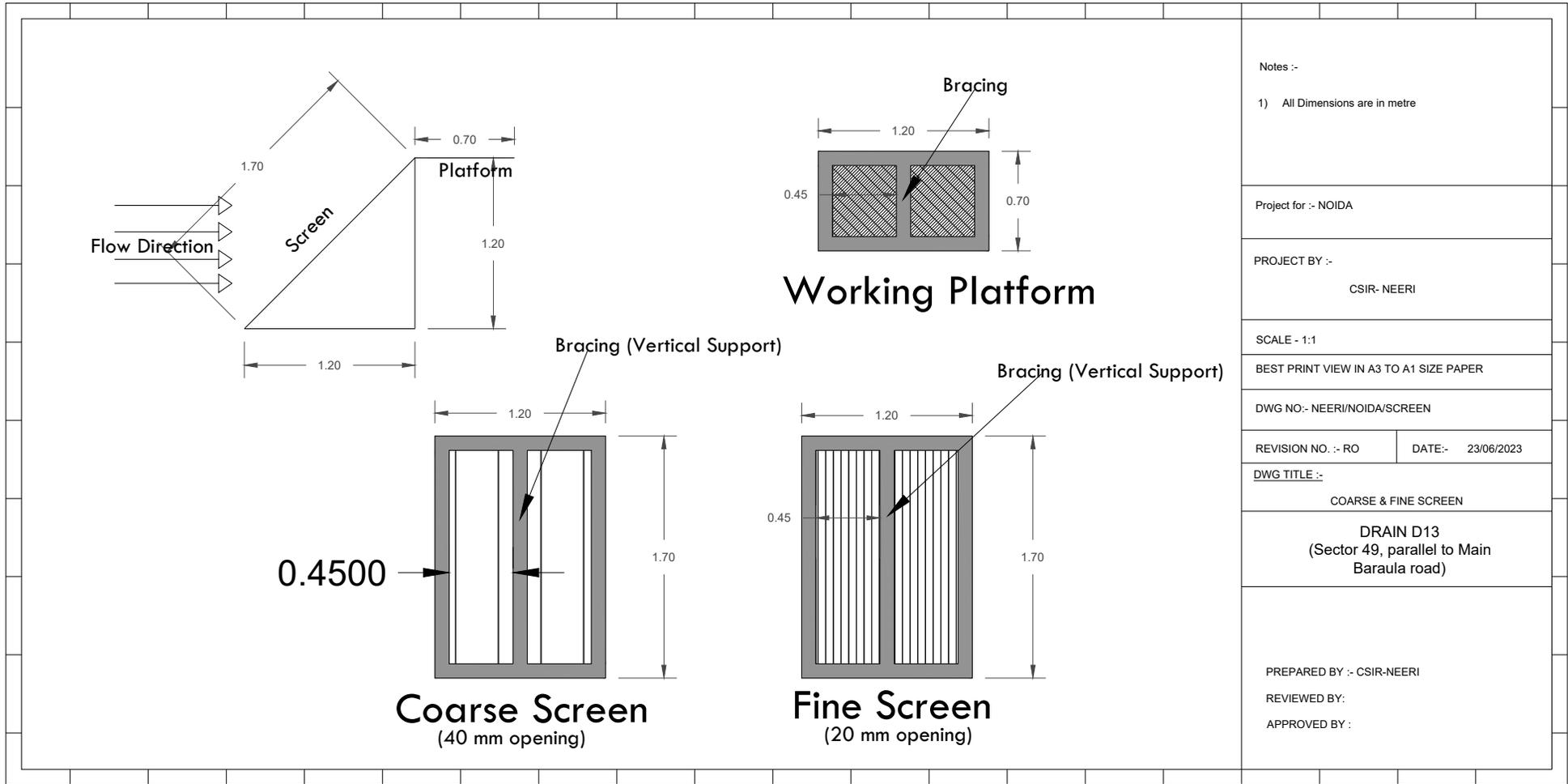
COARSE & FINE SCREEN

DRAIN D12
(Sector 7, Drain outfall opposite
to Sector 50 STP)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

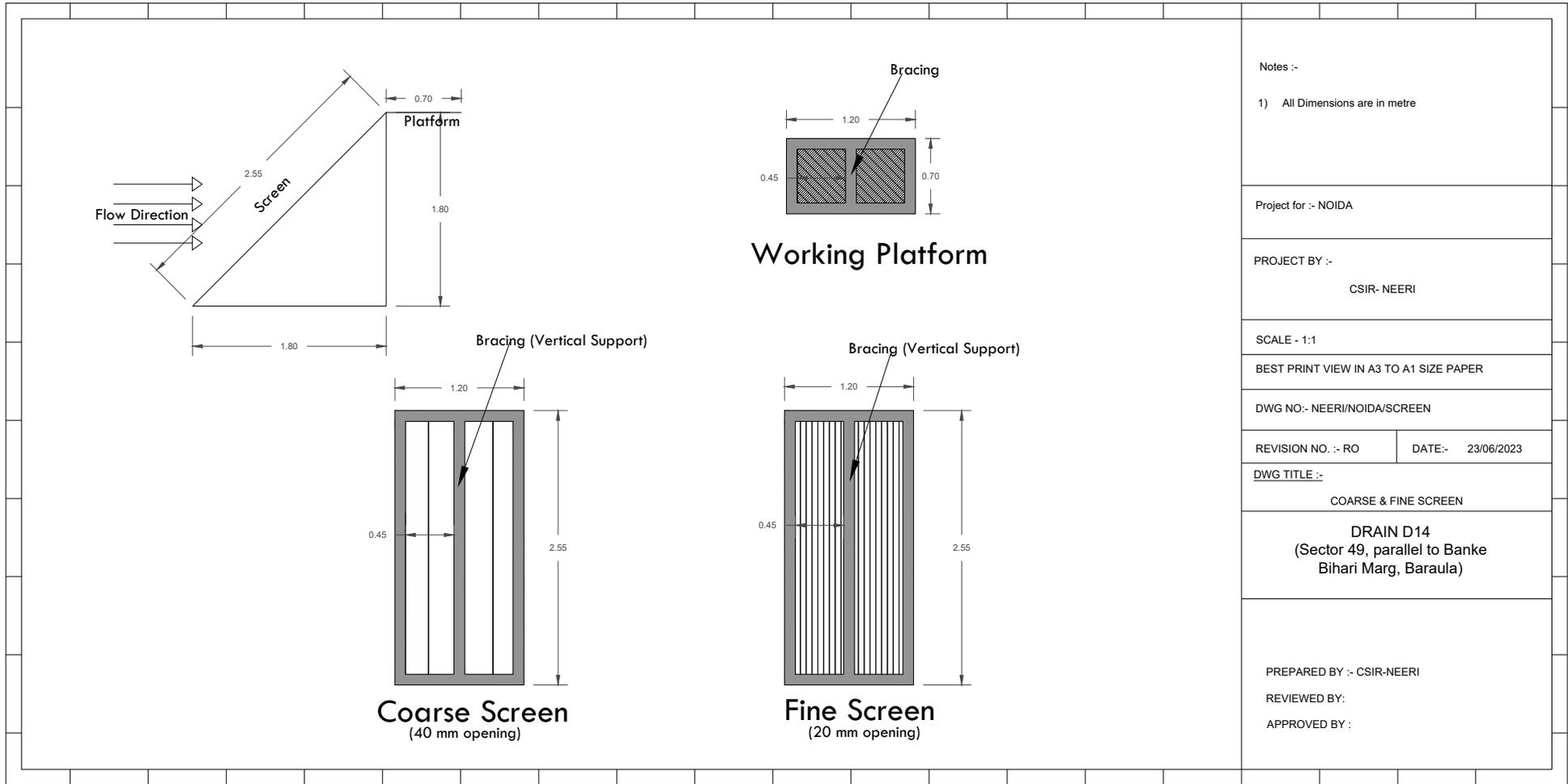
COARSE & FINE SCREEN

DRAIN D13
(Sector 49, parallel to Main Baraula road)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

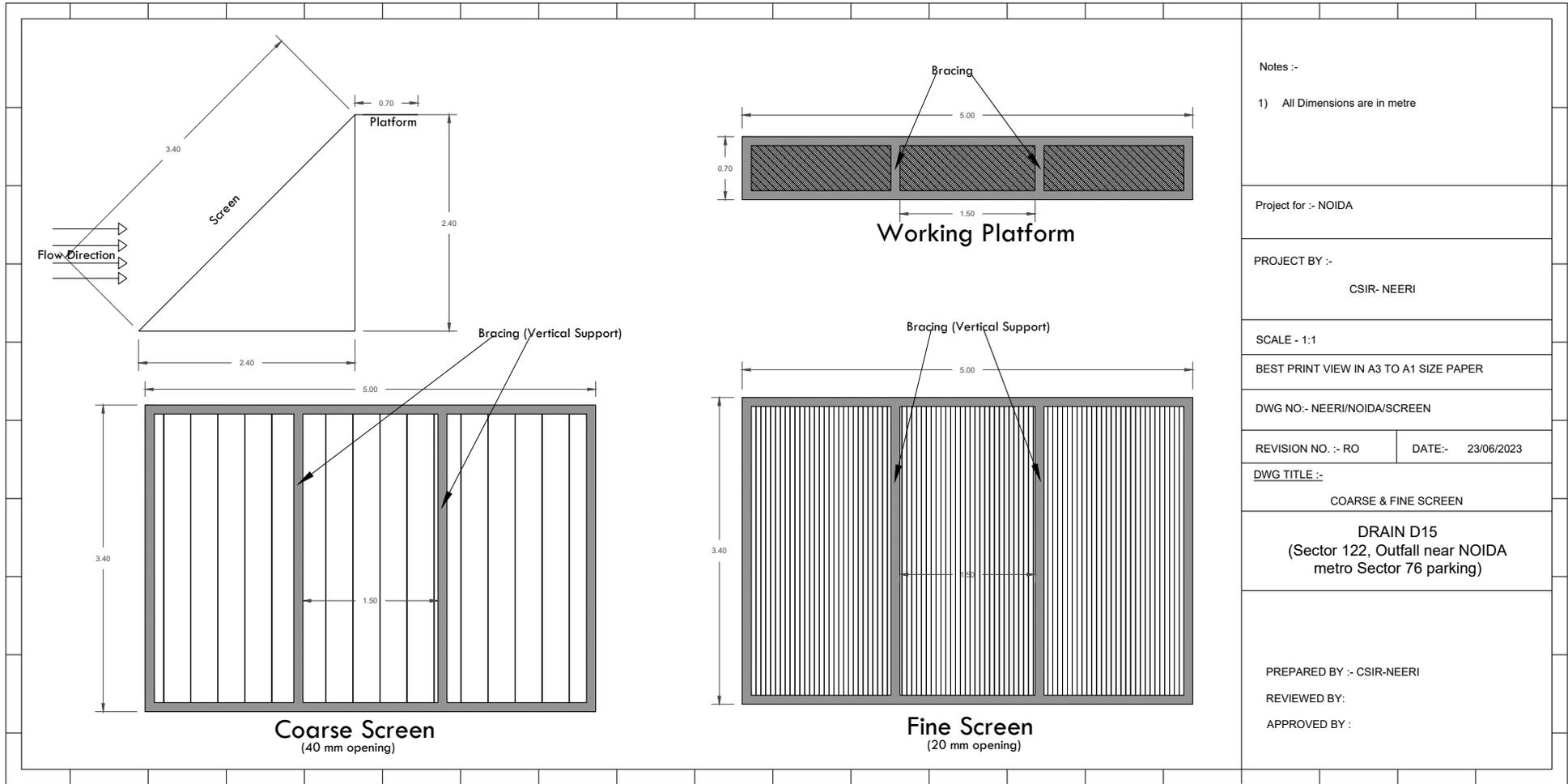
COARSE & FINE SCREEN

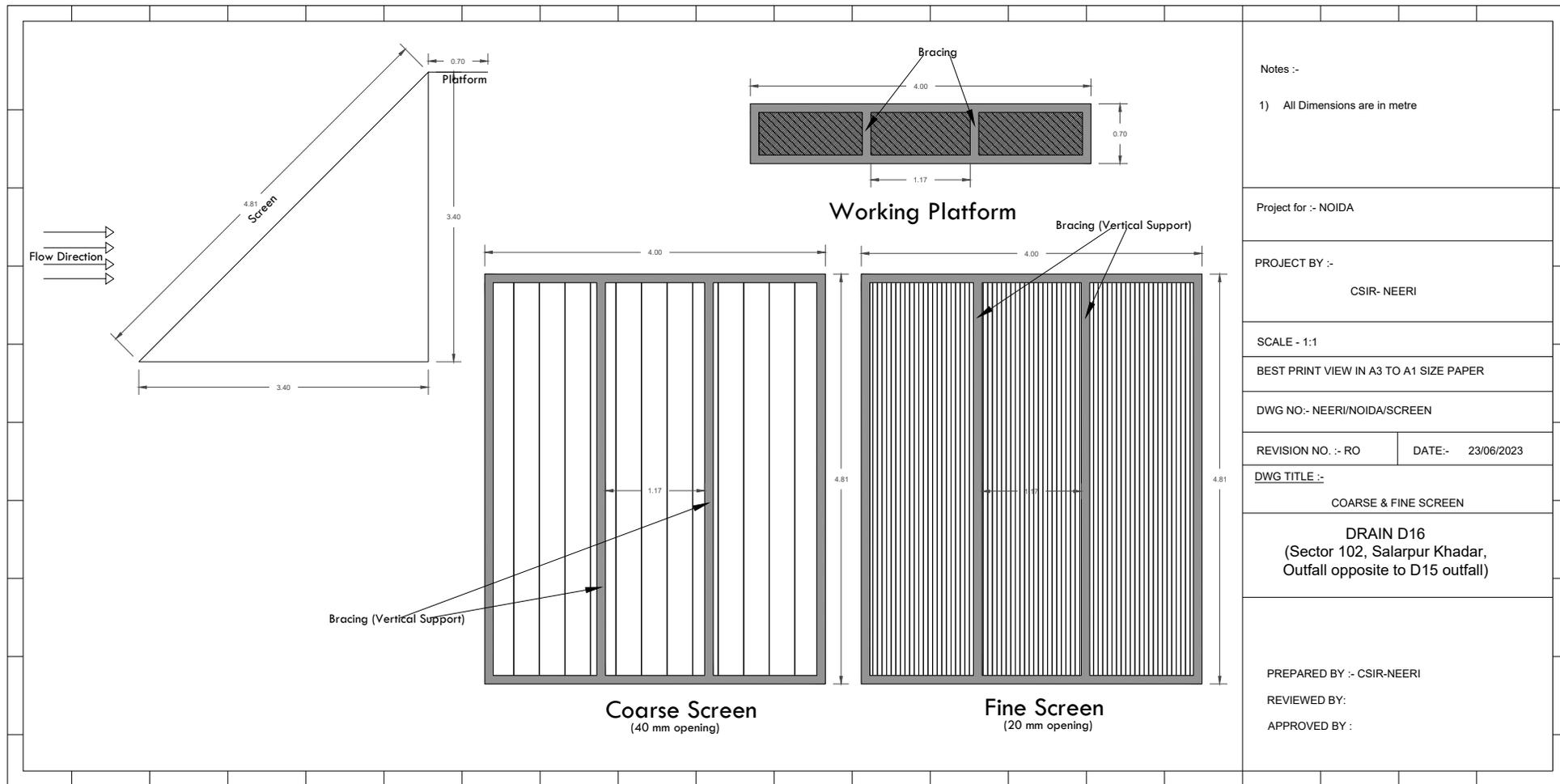
DRAIN D14
(Sector 49, parallel to Banke
Bihari Marg, Baraula)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :





Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

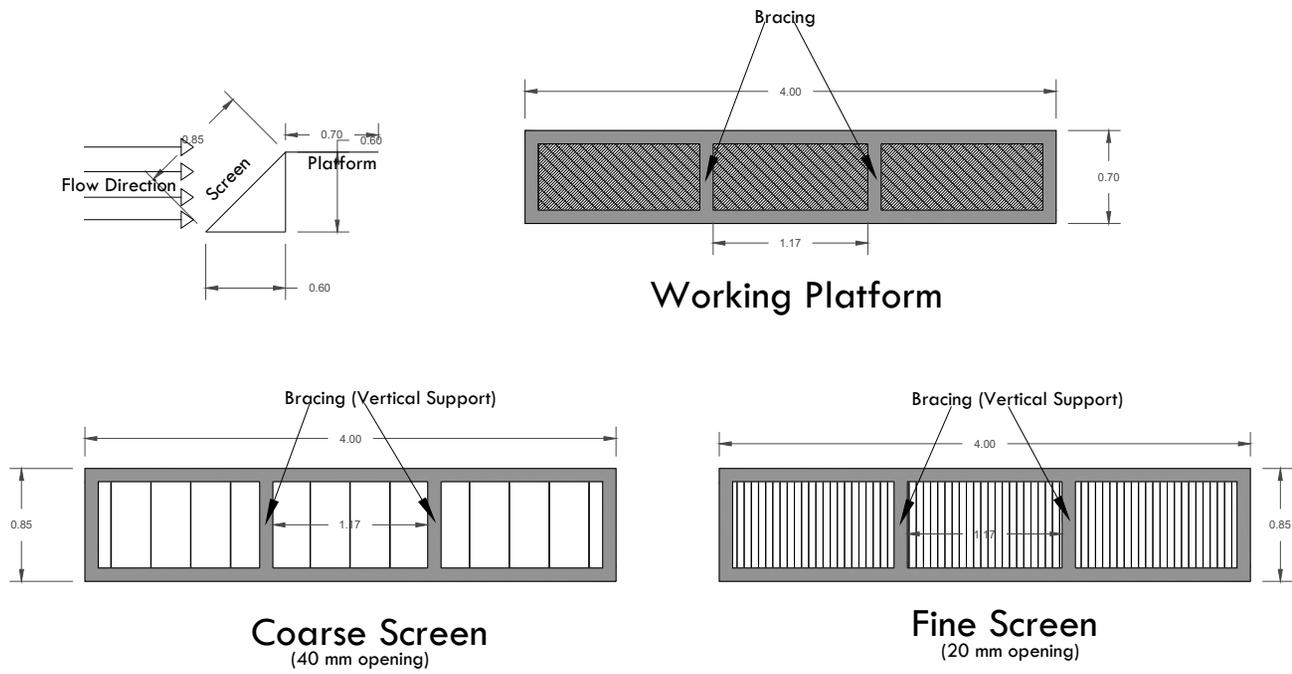
COARSE & FINE SCREEN

DRAIN D16
(Sector 102, Salarpur Khadar,
Outfall opposite to D15 outfall)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

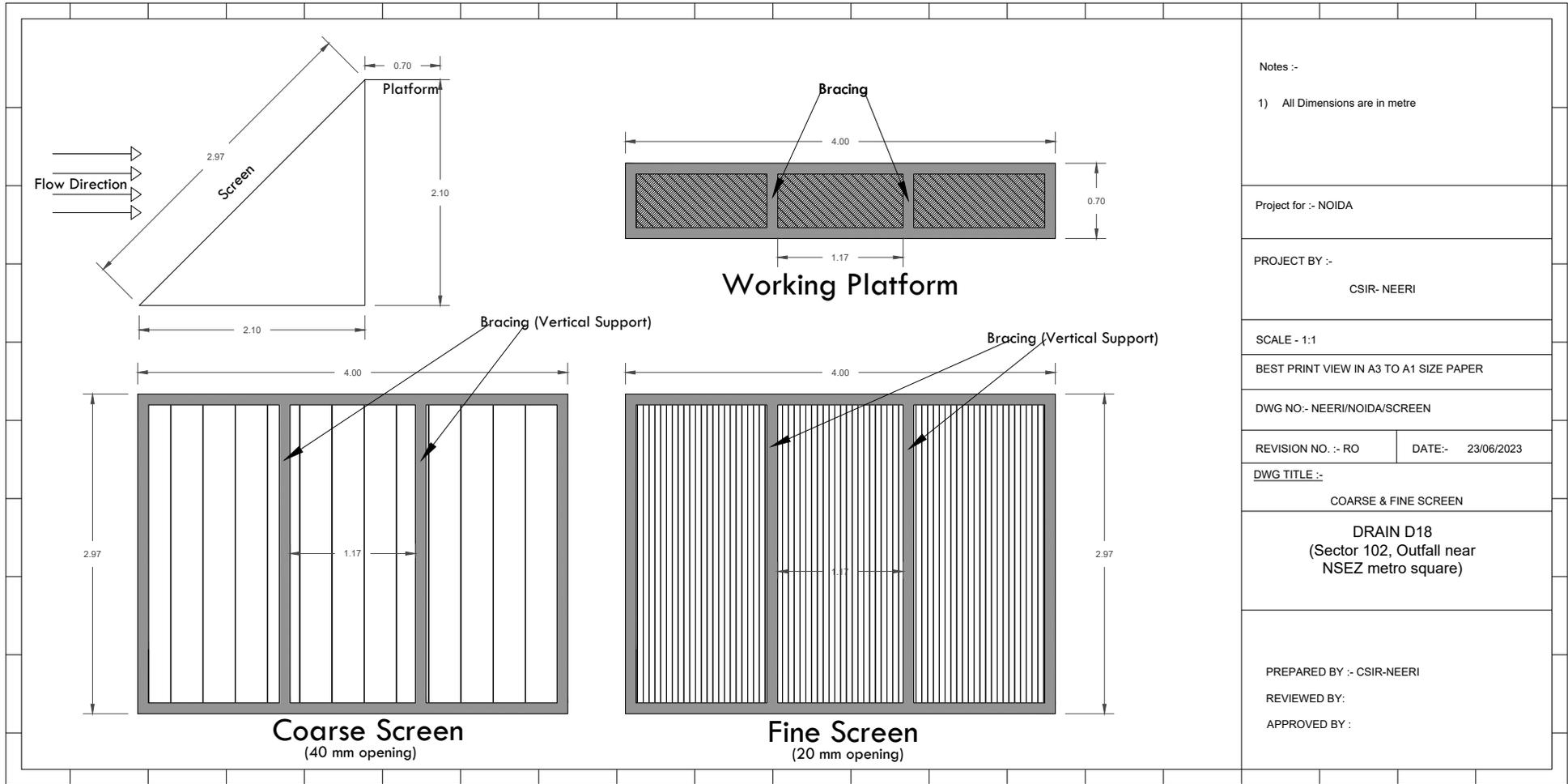
COARSE & FINE SCREEN

DRAIN D17
(Sector 102, Bhangel, Outfall near street no. 6 & Jeetram colony road Junction)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

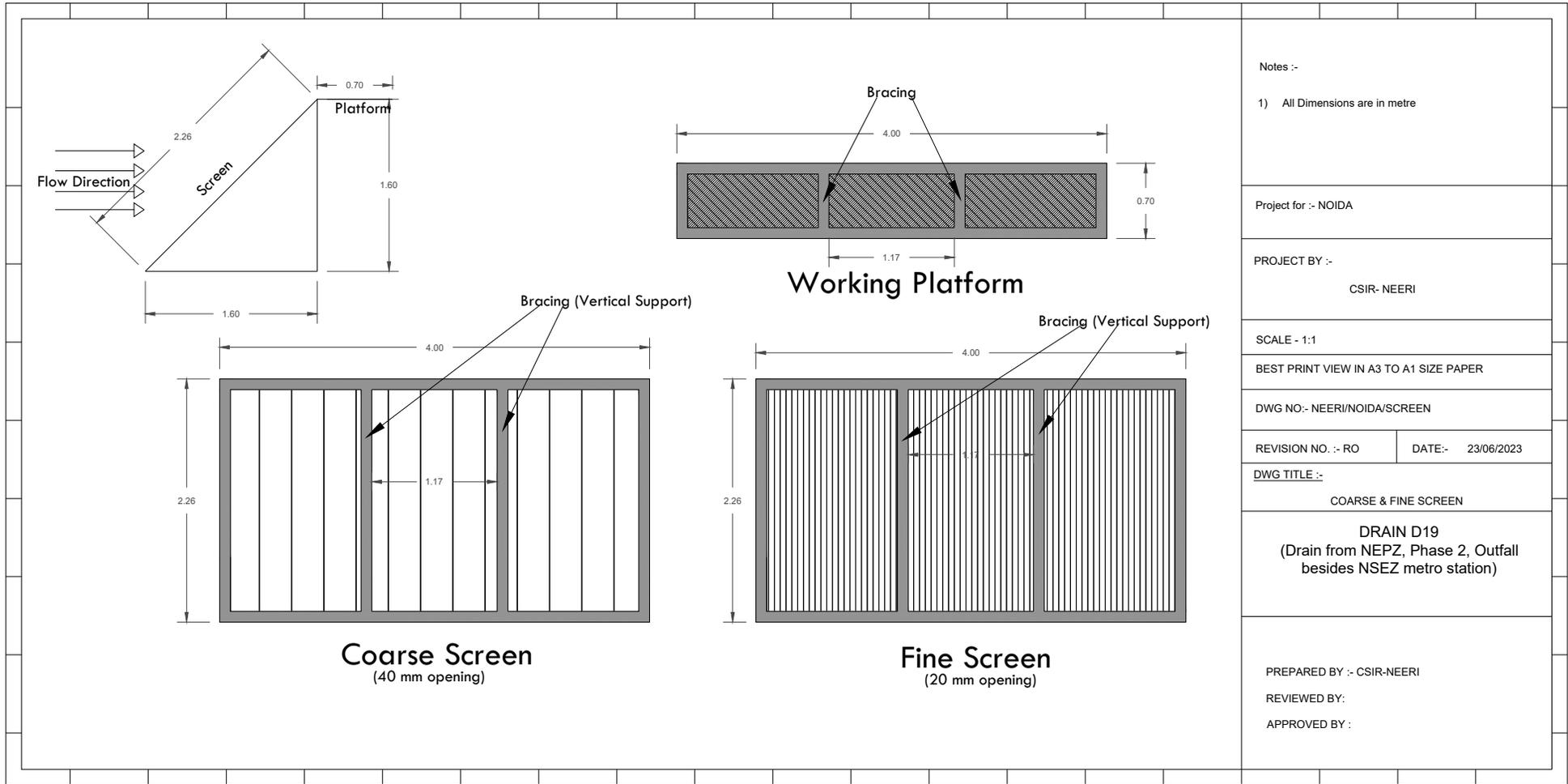
COARSE & FINE SCREEN

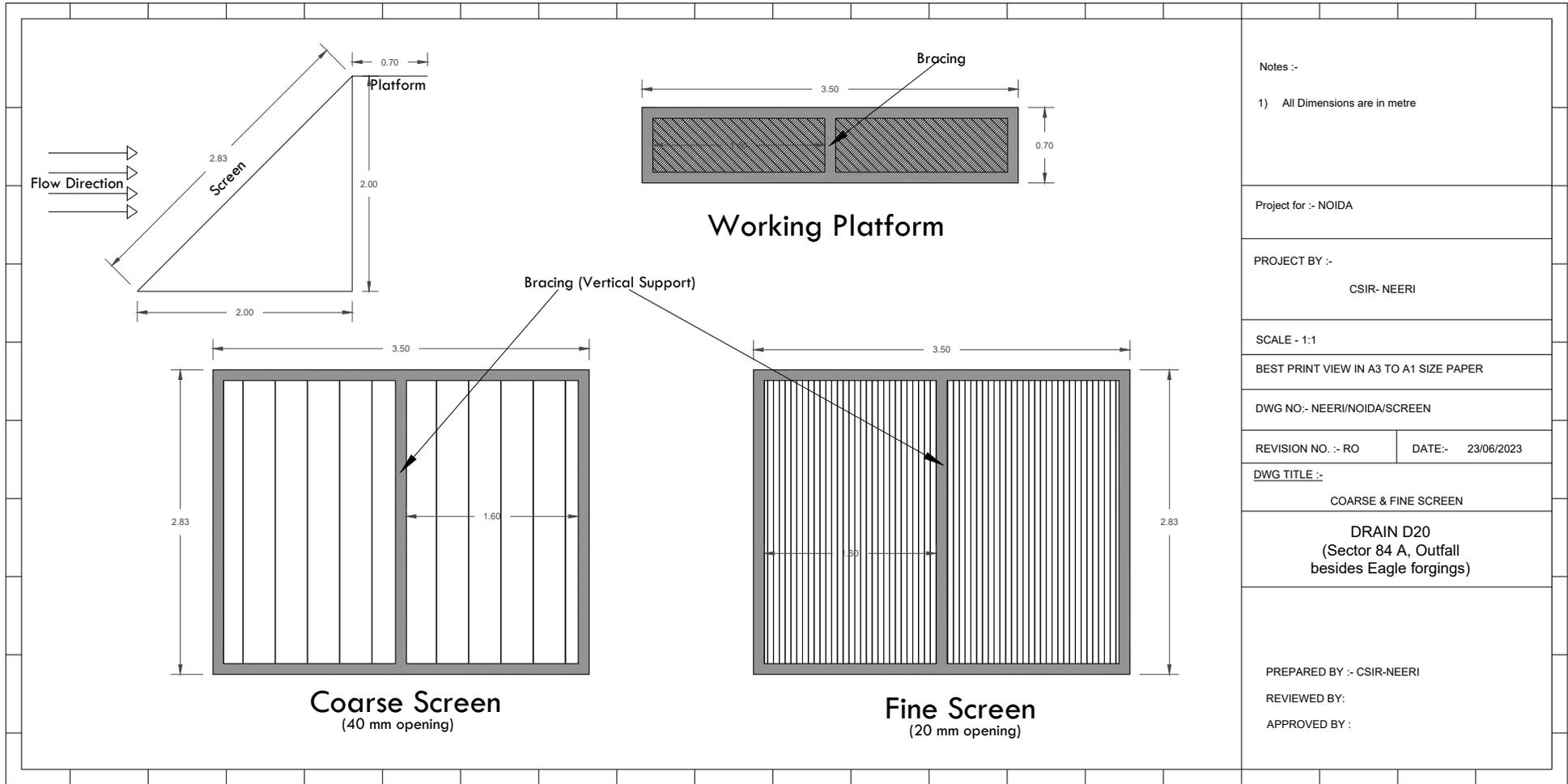
DRAIN D18
(Sector 102, Outfall near
NSEZ metro square)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :





Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

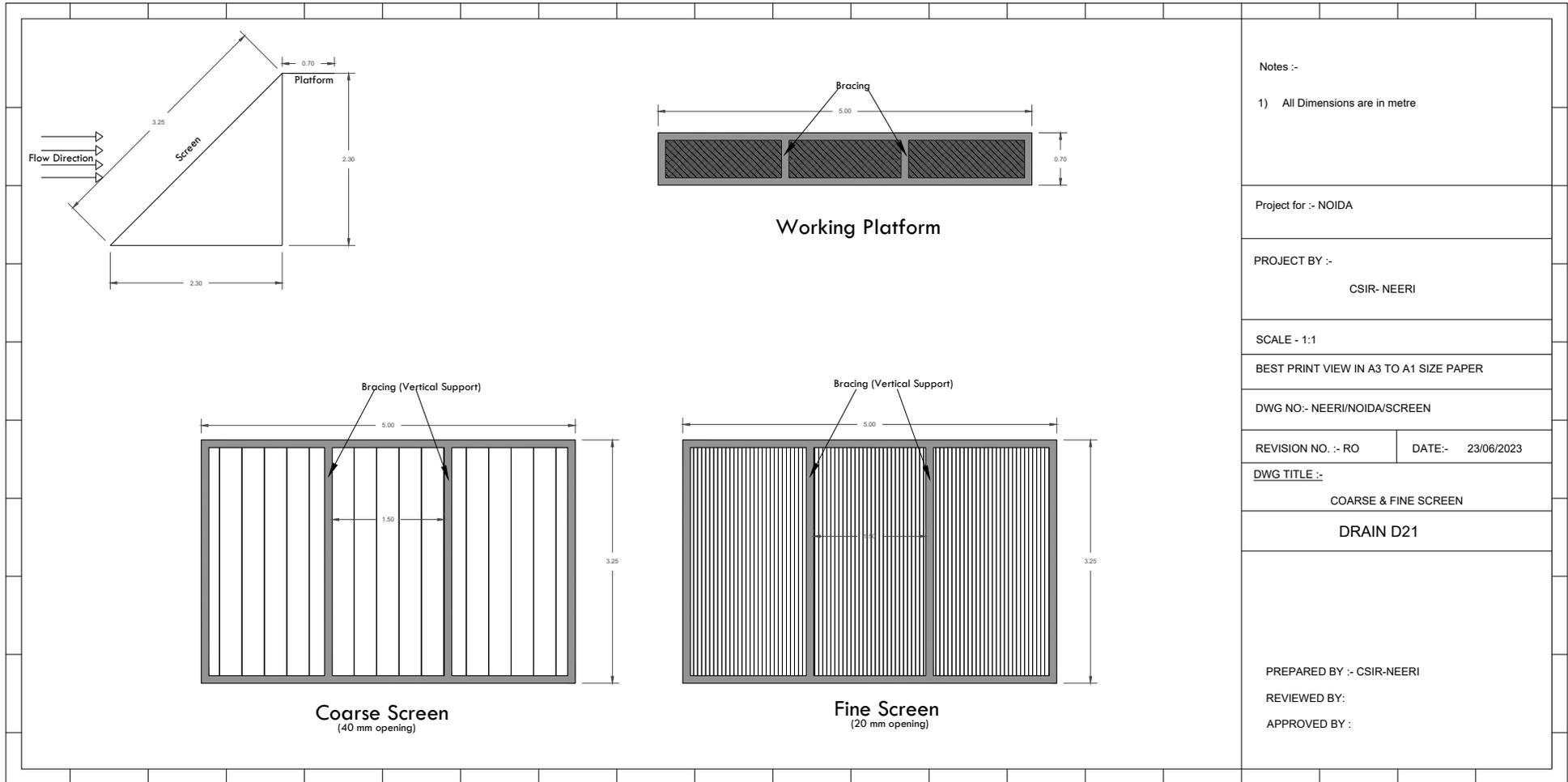
COARSE & FINE SCREEN

DRAIN D20
(Sector 84 A, Outfall
besides Eagle forgings)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

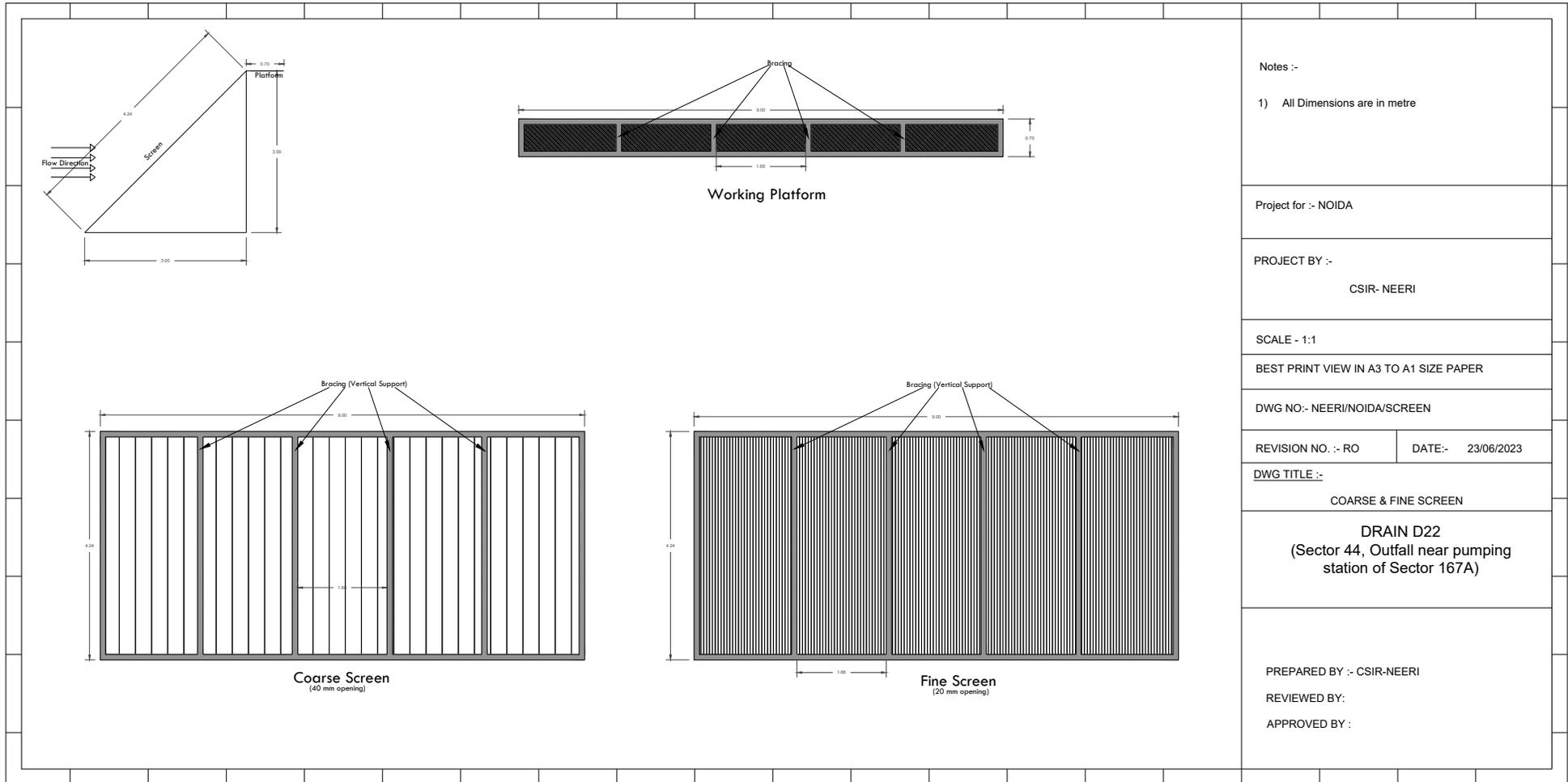
COARSE & FINE SCREEN

DRAIN D21

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :



Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

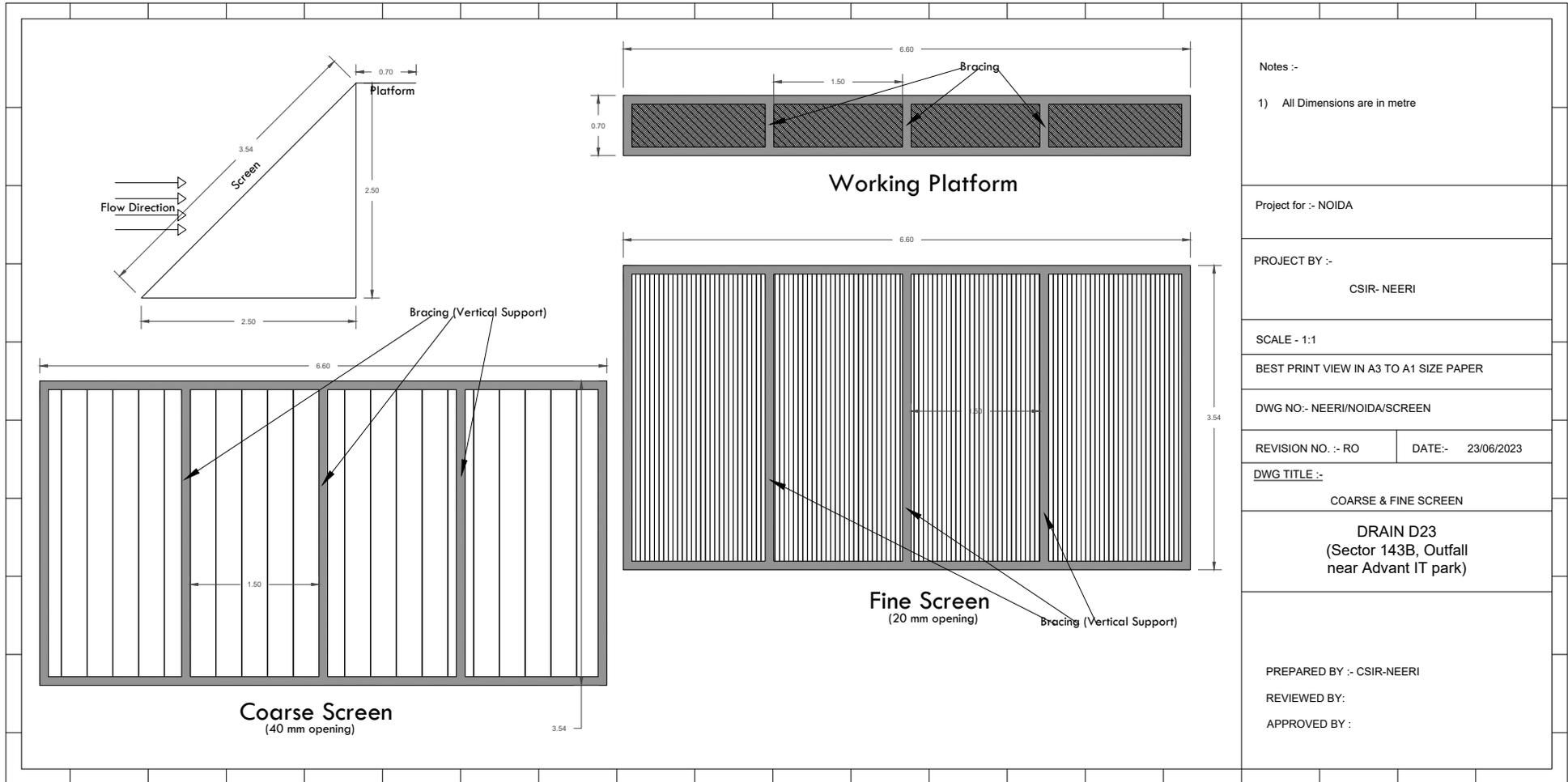
COARSE & FINE SCREEN

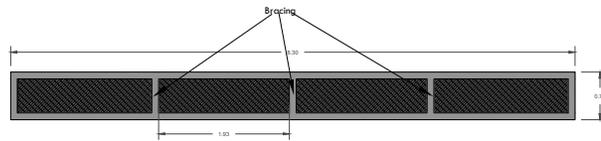
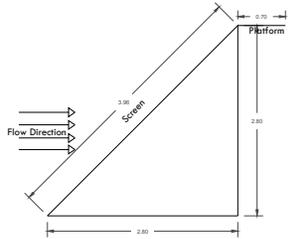
DRAIN D22
(Sector 44, Outfall near pumping station of Sector 167A)

PREPARED BY :- CSIR-NEERI

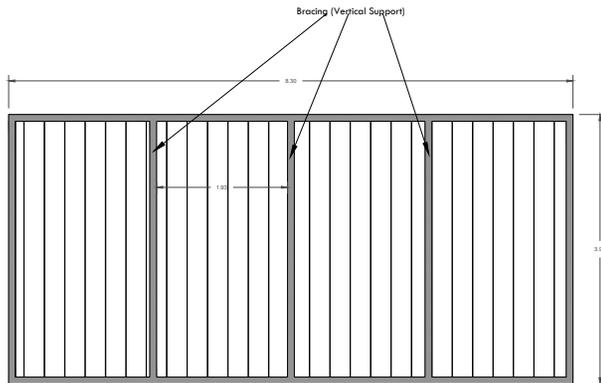
REVIEWED BY:

APPROVED BY :

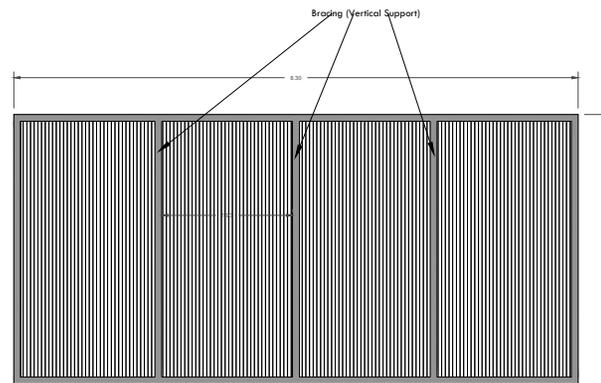




Working Platform



Coarse Screen
(40 mm opening)



Fine Screen
(20 mm opening)

Notes :-

- 1) All Dimensions are in metre

Project for :- NOIDA

PROJECT BY :-

CSIR- NEERI

SCALE - 1:1

BEST PRINT VIEW IN A3 TO A1 SIZE PAPER

DWG NO:- NEERI/NOIDA/SCREEN

REVISION NO. :- RO

DATE:- 23/06/2023

DWG TITLE :-

COARSE & FINE SCREEN

DRAIN D24
(Sector 126, Outfall besides
Sardar Vallabhai Patel Marg)

PREPARED BY :- CSIR-NEERI

REVIEWED BY:

APPROVED BY :

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19, University Road, Delhi - 110007 (India)

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Website: www.shriraminstitute.org

E-mail id: customercare@shriraminstitute.org

dad@shriraminstitute.org

ULR NO.: T0544423000007615F

TEST REPORT

NO.: C1/0000330212

Issued To:

Client Code: (NODA01N0871)

NEW OKPILA INDUSTRIAL DEVELOPMENT AUTHORITY

OFFICE OF THE PROJECT ENGINEER, JAL (O/A)

NOIDA

HAFAR PRADESH, 201301

Kind/Attn: MR. D. MENDRA, NIGAM, Sr. MANAGER (JAL-O/A)

Date : 04-07-2023
 Job No : 2306-1-411-1423
 Booking No : RG2324/1/2214
 Booking Date : 17-06-2023
 Customer Ref No. : NOIDA/SR.MGR(JAL-O/A)/2023/1524
 Customer Ref Dt. : 27-02-2023



Sample Description: Job No. 2306-1-411-1423

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 17.06.2023 FROM NOIDA AUTHORITY. MARKED AS "STEP INLET WATER, 35 MLD, SEC-123, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	6.7	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	72	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	216	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	102	IS: 3025 Pt-44-1993-RA-2019
5	Total Phosphorus (as P), mg/l	5.4	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	38	IS: 3025 Pt-34-1988-RA2019

DOR: 17.06.2023

DOS: 17.06.2023

DOC: 04.07.2023

END OF REPORT

Aaitc
 AUTHORISED SIGNATORY
 EMPLOYEE CODE: (49105)

Note: The results relate only to the items tested & calibrated above.
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SR-CT (Rev.19)

Phone: 91-11-27000100, 27667267, 27667860

Fax: 91-11-27667207

See overleaf for terms & conditions

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Website: www.shriraminstitute.org
 E-mail id: customercare@shriraminstitute.org
qad@shriraminstitute.org

ULR NO: TC544423000007514F

TEST REPORT

NO: CI/0000330214



Issued to:
 Chem Code: (NOIDA)IB/04/11
 NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER, JAL (O/A)
 SECTOR-3
 NOIDA
 UTTAR PRADESH-201301
 Kind Attn: MR. DEVENDRA NIGAM, Sr. Manager (JAL/O/A)

Date: 04-07-2023
 Job No: 2306-1-411-1422
 Booking No: RG2324/1/2214
 Booking Date: 17-06-2023
 Customer Ref No: NOIDA/SR.MGR[JAL-O/A]/2823/1524
 Customer Ref Dt: 27-02-2023

Sample Description: Job No. 2306-1-411-1422
 ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 17.06.2023 FROM NOIDA AUTHORITY MARKED AS "STEP CCT OUTLET WATER, 35 MLD, SEC-123, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1.	pH	7.4	IS: 3025 Pt-11-2022
2.	Total Suspended Solids, mg/l	3	IS: 3025 Pt-17-1984-RA2017
3.	Chemical Oxygen Demand, mg/l	36	APHA 23rd Ed: 5220
4.	Biological Oxygen Demand, mg/l (at 27°C for 5 days)	7	IS: 3025 Pt-44-1993-RA 2019
5.	Total Phosphorus (as P), mg/l	4.2	IS: 3025 Pt-2-2019
6.	Total Nitrogen (as N), mg/l	5	IS: 3025 Pt-34-1988-RA2019

DOR: 17-06-2023
 DOS: 17-06-2023
 DOD: 04-07-2023

END OF REPORT

[Signature]
 AUTHORISED SIGNATORY
 EMPLOYEE CODE: 4105

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Website: www.shriraminstitute.org
E-mail id: customercare@shriraminstitute.org
gad@shriraminstitute.org

ULR NO: TC544423000007652F

TEST REPORT

NO: C/10000330486



Client Code: (NOIDA/IND/271)
NEW DELHI INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (AL/O/A)
SECTOR - 5
NOIDA
BHAR PRADSA 4 201301
Kind Attn: MR. DEVENDRA NIGAM SR. MANAGER (AL-O/A)

Date: 07-07-2023
Job No: 2306-1-411-1424
Booking No: RG2324/1/2214
Booking Date: 17-06-2023
Customer Ref No.: NOIDA/SR.MGR(AL-O/A)/2023/1524
Customer Ref Dt.: 27-02-2023

Sample Description: Job No. 2306-1-411-1424

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 17.06.2023 FROM NOIDA AUTHORITY, MARKED AS "STRICT OULET WATER, 80 MLD, SEC-123, NOIDA" WAS RECEIVED.

S. No.	Tests	Results	Protocol
1	pH	7.8	IS: 3025 Pt. I-2022
2	Total Suspended Solids, mg/l	8	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	60	APHA 23rd Ed. 5220
4	Biological Oxygen Demand, mg/l (at 27°C for 5 days)	10	IS: 3025 Pt-44-1993-RA 2019
5	Total Phosphorus (as P), mg/l	5.5	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	5	IS: 3025 Pt-34-1988-RA2019

DOR: 17.06.2023
DSS: 17.06.2023
DOC: 07.07.2023

END OF REPORT

[Signature]
AUTHORISED SIGNATORY
EMPLOYEE CODE: 4705

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E-mail id: customercare@shriraminstitute.org
qad@shriraminstitute.org

ULR NO.: TC544423009007693F

TEST REPORT

NO.: C1/0000330487

Issued To:
Client Code: (NOIDA010871)
NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (O/A)
SECTOR-3
NOIDA
UTTAR PRADESH-201301
Kind Attn: M/G DEVENDRA NIGAM, SR. MANAGER (IAL-O/A)

Date: 07-07-2023
Job No: 2306-1-411-1425
Booking No: RG2324/1/2214
Booking Date: 17-06-2023
Customer Ref No.: NOIDA/SR.MGR/JAL-O/A/2023/1524
Customer Ref Dt.: 27-02-2023



Sample Description: Job No. 2306-1-411-1425

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 17.06.2023 FROM NOIDA AUTHORITY, MARKED AS "STEP INLET WATER, 80 MLD, SEC-123, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	6.9	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	148	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	236	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 Days)	123	IS: 3025 Pt-44-1993; RA 2019
5	Total Phosphorus (as P), mg/l	5.3	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	21	IS: 3025 Pt-34-1989-RA2019
DOF: 17.06.2023			
DOS: 17.06.2023			
DOC: 07.07.2023			

END OF REPORT

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AUTHORISED SIGNATORY
EMPLOYEE CODE: C1051

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qad@shriraminstitute.org

LULR NO: TC644723000007513F

TEST REPORT

NO: C1/0000330210

Issued To:
Shriram Institute (GDA/01/1997)
NRA/OKTA/INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER, JAL (O/A)
SECTOR-5
NOIDA
UTTAR PRADESH
SRI RAM DEVENDRA NIGAM, Sr. MANAGER (JAL/O/A)

Date: 04-07-2023
Job No: 2306-1-411-1331
Booking No: RG2324/1/2200
Booking Date: 16-06-2023
Customer Ref No: NOIDA/SR.MGR/JAL/O/A/2023/4524
Customer Ref Dt: 27-02-2023



Sample Description: Job No. 2306-1-411-1331
ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY MARKED AS "SEW INLET WATER, 25 MLD, SEC-50, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	7.2	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	92	IS: 3025 Pt-17-1984/RA2017
3	Chemical Oxygen Demand, mg/l	172	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	67	IS: 3025 Pt-44-1995/RA2019
5	Total Phosphorus (as P), mg/l	7.8	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	19	IS: 3025 Pt-34-1988-RA2019

DOR: 17-06-2023
DES: 17-06-2023
DOC: 04-07-2023

END OF REPORT

[Signature]
AUTHORISED SIGNATORY
EMPLOYEE CODE: 41103

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E-mail id: customercare@shriraminstitute.org
gad@shriraminstitute.org

ULR NO: TC5444230000075105

TEST REPORT

NO: C1/0000330207

Client Code: (NOIDA)IN/23
NEW OKHIA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JA) (O/A)
SECTOR-3
NOIDA
UPPAPER/ADSR/2019/1
Kind Attn: MR. DEVEDI ANITA, ASST. MANAGER (JA/O/A)

Date: 04-07-2023
Job No: 2306-I-411-1328
Booking No: RG2324A/2200
Booking Date: 16-06-2023
Customer Ref No.: NOIDA/SR.MGR/JAL/PC/AD/2023/W524
Customer Ref Dt.: 27-02-2023



Sample Description: Job No. 2306-I-411-1328

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MARKED AS "SEWER TREATMENT PLANT OUTLET WATER, 100 MLD, SEC-168, NOIDA" WAS RECEIVED.

S.No.	PARAMETER	Results	Protocol
1	pH	7.4	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	4	IS: 3025 Pt-17-1988/RA2019
3	Chemical Oxygen Demand, mg/l	28	APHA 23rd Eds 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	5	IS: 3025 Pt-44-1993/RA 2019
5	Total Phosphorus (as P), mg/l	2.9	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	5	IS: 3025 Pt-34-1988/RA2019

DCR: 17-06-2023
DOB: 17-06-2023
BOC: 04-07-2023

END OF REPORT

(Signature)
AUTHORISED SIGNATORY
EMPLOYEE CODE: 9105

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ULR NO. : TC644423000807509F

TEST REPORT

NO : C-1/0000330206

Client Code : (NOIDA010017)
 NEW ORHR/INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER JAL (O/A)
 SHCTOR - 5
 NOIDA
 UTTAR PRADESH-201301
 Plant Area Mgr. DEVENDRA NIGAM, Sr. MANAGER (JAL-O/A)

Date : 04-07-2023
 Job No : 2306-1-411-1327
 Booking No : RG2324/1/2200
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR/JAL-O/A/2023/1524
 Customer Ref DL : 27-02-2023



Sample Description: Job No. 2306-1-411-1327

ONE GKAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY MARKED AS "5TH INLET WATER, 50 MLD, SEC-168, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
2	Total Suspended Solids, mg/l	40	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	140	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 20°C for 5 days)	58	IS: 3025 Pt-14-1993-RA 2019
5	Total Phosphorous (as P), µg/l	5.7	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	20	IS: 3025 Pt-24-1988-RA2019

DOR: 17-06-2023
 DOS: 17-06-2023
 DCG: 04-07-2023

END OF REPORT

(Signature)
 AUTHORISED SIGNATORY
 EMPLOYEE CODE: 61105

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 E-mail: Id: customercare@shiram institute.org
 cad@shiram institute.org

ULR NO: TC54442300007508F

TEST REPORT

NO: C/0000330205

Sent To:
 Client Code: (NOIDA/110874)
 NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
 SECTOR-5
 NOIDA
 DISTRICT: GAZIABAD
 Kh. No. 7, Mr. DEVEDRA NIGAM, SR. MANAGER (JAL/O/A)

Date: 04-07-2023
 Job No: 2306-1-411-1326
 Booking No: RG2324/1/2200
 Booking Date: 16-06-2023
 Customer Ref No: NOIDA/SR.MGR(JAL/O/A)/2023/1326
 Customer Ref Dt: 27-02-2023



Sample Description: Job No. 2306-1-411-1326

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MARKED AS "EJECT OUTLET WATER, 50 MLD, SEC-168, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	7.4	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	4	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	44	APHA 23rd Ed-5226
4	Biological Oxygen Demand, mg/l (at 27°C for 5 days)	8	IS: 3025 Pt-44-1993-RA 2019
5	Total Phosphorous (as P), mg/l	0.4	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	9	IS: 3025 Pt-34-1988-RA2019
DOR: 17.06.2023			
DOS: 17.06.2023			
DOC: 04.07.2023			

END OF REPORT

[Signature]
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: 4105

Note: The results are only to the items tested/ calibrated above.
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Phone: 91-11-27000100, 27667267, 27667860

Fax: 91-11-27667207

See overleaf for terms & conditions

SHIRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

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 An ISO 9001, 14001 & 45001 Certified Institute

Website: www.shriraminstitute.org
 E-mail id: customer-care@shriraminstitute.org
qad@shriraminstitute.org

UIR NO: TC64423000007512F

TEST REPORT

NO: C/0000330209

Client Code: N/02/01/0521
 NEW ORIENTAL INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
 SECTOR
 NOIDA
 UTTAR PRADESH 201301
 Kindly Mr. DEVEDRA NIGAM, Sr. MANAGER (JAL/O/A)

Date: 04-07-2023
 Job No: 2306-1-411-1330
 Booking No: RQ2324/1/2200
 Booking Date: 16-06-2023
 Customer Ref No: NOIDA/SR.MGR(JAL-O/A)/2023/1524
 Customer Ref Dt: 27-02-2023



Sample Description: Job No. 2306-1-411-1330

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY'S MARKED AS "WTP CCT OUTLET WATER, 25 MLD, SEC-50, NOIDA" WAS RECEIVED

S.No.	Tests	Results	Protocol
1	pH	7.2	IS: 3025-PA-11-2022
2	Total Suspended Solids, <i>mg/l</i>	5	IS: 3025-PA-17-1984-PA-2017
3	Chemical Oxygen Demand, <i>mg/l</i>	40	APHA 2310 Ed. 520
4	Biochemical Oxygen Demand, <i>mg/l</i> (at 27°C for 5 days)	7	IS: 3025-PA-44-1993-PA-2019
5	Total Phosphorus (as P), <i>mg/l</i>	1.7	IS: 3025-PA-2-2019
6	Total Nitrogen (as N), <i>mg/l</i>	6	IS: 3025-PA-34-1988-PA-2019

DOR: 17-06-2023
 DOS: 17-06-2023
 DDC: 04-07-2023

END OF REPORT

(Signature)
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: (4105)

Note: The results relate only to the items tested/calibrated above.
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E-mail id: customer-care@shriraminstitute.org
qad@shriraminstitute.org

ORDER NO.: TC5444230000075-1/F

TEST REPORT

NO. C/10000330208

Issued to:
Client Code: NODA0100074
NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JAL/OIA)
SPEC FOR S
NODA
GATE RAJRADESH 201901
Kind Attn: MR. DEVENDRA NIGAM, SR. MANAGER (JAL/OIA)

Date : 04-07-2023
Job No : 2306-1-411-1329
Booking No : RG2324/1/2200
Booking Date : 16-06-2023
Customer Ref No. : NODA/SR MGR (JAL/OIA) 2023/0524
Customer Ref Dt. : 27-02-2023



Sample Description: **Job No. 2306-1-411-1329**
ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NODA AUTHORITY, MARKED AS "STP INLET WATER, 100 MLD, SEC-168, NODA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	7.4	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	58	IS: 3025 Pt-17-1984-RA2019
3	Chemical Oxygen Demand, mg/l	132	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	56	IS: 3025 Pt-44-1993-RA2019
5	Total Phosphorus (as P), mg/l	5.5	IS: 3025 Pt-3-2019
6	Total Nitrogen (as N), mg/l	18	IS: 3025 Pt-34-1988-RA2019

DCR: 17-06-2023
DOS: 17-06-2023
DOC: 04-07-2023

END OF REPORT

(Signature)
AUTHORISED SIGNATORY
EMPLOYEE CODE: 1405

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E-mail id: customercare@shriraminstitute.org
gad@shriraminstitute.org

ULR NO: TC544423000007668F

TEST REPORT

NO: C1/0000330442

Issued To:
Client Code: (NOIDA/IND/71)
NEW OKHA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
SECTOR-3
NOIDA
UTTAR PRADESH-201301
KINDLY MR. DEVENDRA NIGAM, Sr. MANAGER (JAL/O/A)

Date : 06-07-2023
Job No : 2306-1-411-1332
Booking No : RG2324/1/2204
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR.MGR/JAL/O/A/2023/1524
Customer Ref Dt. : 27-02-2023



Sample Description: Job No. 2306-1-411-1332

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MARKED AS "SRP/CGI/OUTLET WATER, 34 MLD, SEC-50, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	7.4	IS: 3025 PH-1-2022
2	Total Suspended Solids, mg/l	3	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	40	APHA 2510 Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	8	IS: 3025 Pt-44-1993-RA 2019
5	Total Phosphorus (as P), mg/l	4.2	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	8	IS: 3025 Pt-34-1988-RA2019

DOB: 17.06.2023
DOB: 17.06.2023
DOB: 06.07.2023

END OF REPORT

(Signature)
AUTHORISED SIGNATORY
EMPLOYEE CODE: 1105

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gad@shriraminstitute.org

ULR NO : TC544423000007669F

TEST REPORT

NO : C1/0000330443



Issued To:
Client Code: (NOIDA/110071)
NEW ORPRA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
SECTOR-5
NOIDA
UTTAR PRADESH-201301
Kind Attn: MR. DEVENDRA NIGAM, Sr. MANAGER (JAL/O/A)

Date : 06-07-2023
Job No : 2306-1-411-1333
Booking No : RG2324/1/Z200
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SRLMGR/JAL_O/A/2023/1524
Customer Ref DL : 27-02-2023

Sample Description: Job No. 2306-1-411-1333

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MARKED AS "STP INLET WATER, 34 ML.D, SEC-50, NOIDA" WAS RECEIVED

S.No.	Tests	Results	Protocol
1	pH	7.2	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	188	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	448	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	235	IS: 3025 Pt-44-1993-RA 2019
5	Total Phosphorous (as P), mg/l	8.2	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	21	IS: 3025 Pt-34-1988-RA2019

DDIS: 17.06.2023
DDIS: 17.06.2023
DDC: 06.07.2023

END OF REPORT

Heath
AUTHORISED SIGNATORY
EMPLOYEE CODE: (C/105)

Note: The results relate only to the items tested / calibrated above.
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 qad@shriraminstitute.org

URL NO: TC54423000097670E

TEST REPORT

NO: C1/0000330444



Issue to:
 Chief Officer (NODA/01/06/21)
 NEW DELHI INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
 SECTOR:
 NOIDA
 UTTAR PRADESH-201201
 Krishna Kumar, Deputy General Manager (JAL/O/A)

Date : 06-07-2023
 Job No : 2306-1-411-1334
 Booking No : RG2324/1/2200
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MOR.HAL.O/A/2023/574
 Customer Ref Dt. : 27-02-2023

Sample Description:

Job No. 2306-1-411-1334

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MARKED AS "STP GCT OUTLET WATER, 3J MLD, SEC-54, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	6.9	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	4	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	40	APHA 25rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	8	IS: 3025 Pt-44-1993-RA 2019
5	Total Phosphorus (as P), mg/l	0.7	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	4	IS: 3025 Pt-34-1988-RA 2019

DOR: 17-06-2023

DOE: 17-06-2023

DOC: 06-07-2023

END OF REPORT

Handwritten Signature
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: 4105

Note: The results relate only to the items tested/calibrated above.
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Fax: 91-11-27667207

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E-mail id: customercare@shriraminstitute.org
gad@shriraminstitute.org

ULR NO. : TC544423000607674F

TEST REPORT

NO. : C1/0000330445

Client Name: (NOIDA) N0871
NEW OKHA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (O/A)
SECTOR-5
NOIDA
DISTRICT RAJESHWARI
Kindly Mr. DEVENDRAN, ZONE SUPERVISOR (O/A)

Date : 06-07-2023
Job No : 2306-1-411-1335
Booking No : RG2324/1/2200
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR.MGR/JAL/OIA/2023/1524
Customer Ref Dt. : 27-02-2023



Sample Description: Job No. 2706-1-411-1335

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MAINTAINED AS "STEP OUTLET WATER, 54 MLD, SEC-54, NOIDA" WAS RECEIVED

S.No.	Tests	Results	Protocol
1	pH	8.0	IS: 3025-PH-1-2022
2	Total Suspended Solids, mg/l	3	IS: 3025-PH-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	44	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 20°C for 5 days)	8	IS: 3025-PH-44-1993-RA2019
5	Total Phosphorous (as P), mg/l	1.0	IS: 3025-PL-2-2019
6	Total Nitrogen (as N), mg/l	2	IS: 3025-PL-34-1988-RA2019

DOR: 17.06.2023
DOS: 17.06.2023
DOC: 06.07.2023

END OF REPORT

[Signature]
AUTHORISED SIGNATORY
EMPLOYEE CODE: 4105

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gad@shriraminstitute.org

ULR NO. : TC544423000007672F

TEST REPORT

NO : C1/0000330446

Issued To:
Client Code: (NOIDA) (0873)
NEW OKHA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (O/A)
SECTOR-5
NOIDA
UTTAR PRADESH 20136
Kind Attn: MRS. DEVENDRA SINGH, SR. MANAGER (JAL-O/A)

Date : 06-07-2023
Job No : 2306-1-411-1336
Booking No : RG2324/1/2200
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR.MGR/JAL-O/A/2023/1524
Customer Ref Dt. : 27-02-2023



Sample Description: Job No. 2306-1-411-1336
ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MARKED AS "STP INLET WATER, 54 MLD, SEC-54, NOIDA" WAS RECEIVED.

Sr. No.	Tested	Result	Protocol
1	pH	7.3	IS: 3025 Pt-11-2022
2	Total Suspended Solids, mg/l	140	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	420	APHA-23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	224	IS: 3025 Pt-44-1993-RA2019
5	Total Phosphorus (as P), mg/l	7.6	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	29	IS: 3025 Pt-34-1988-RA2019

DOR: 17-06-2023
DOS: 17-06-2023
DOC: 06-07-2023

END OF REPORT

(Signature)
AUTHORISED SIGNATORY
EMPLOYEE CODE: 4105

Note: The results relate only to the items tested/calibrated above.
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Fax: 91-11-27667207

SRI-01 (Rev. 05)

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gad@shriraminstitute.org

ULR No.: TC54442300007673F

TEST REPORT

NO.: C1/0000330447

Issued To
Client Code: (A)ODAD100871
NEW ORPIL INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JAL-O/A)
SECTOR:
NOIDA
UTTAR PRADESH-201301
Client Name: DEVEDRANICAN, Sr. MANAGER (JAL-O/A)

Date : 06-07-2023
Job No : 2306-1-411-1337
Booking No : RG2324/1/2200
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR.MGR/JAL-O/A/2023/1524
Customer Ref Dt. : 27-02-2023



Sample Description: Job No. 2306-1-411-1337

ONE GRAB SAMPLE OF WATER DRAWN BY OUR REPRESENTATIVE ON 16.06.2023 FROM NOIDA AUTHORITY, MARKED AS "STP INLET WATER, 33 MLD, SEC-54, NOIDA" WAS RECEIVED.

S.No.	Tests	Results	Protocol
1	pH	7.3	IS: 3025 Pt-14-2022
2	Total Suspended Solids, mg/l	148	IS: 3025 Pt-17-1984-RA2017
3	Chemical Oxygen Demand, mg/l	384	APHA 23rd Ed. 5220
4	Biochemical Oxygen Demand, mg/l (at 27°C for 5 days)	205	IS: 3025 Pt-14-1993-RA 2019
5	Total Phosphorus (as P), mg/l	7.3	IS: 3025 Pt-2-2019
6	Total Nitrogen (as N), mg/l	23	IS: 3025 Pt-34-1988-RA2019

DOR: 17.06.2023
DOB: 17.06.2023
DOC: 06.07.2023

END OF REPORT

AUTHORISED SIGNATORY
EMPLOYEE CODE: 4105

Note: The results relate only to the items tested/calibrated above.
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Fax: 91-11-27667207

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Website: www.shiram institute.org
 E-mail id: customercare@shiram institute.org
 dad@shiram institute.org

ULR NO. : TC544423000007198F

TEST REPORT

NO. : C1/0000329396

Issued To
 Client Code: NOIDA/01/00670
 NEW DELHI INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (O/A)
 SEC FOR-5
 NOIDA
 UTTAR PRADESH-201301
 Kind Attn: MR. DEVENDRA NIGAM, SR. MANAGER (JAL-O/A)

Date : 26-06-2023
 Job No : 2306-1-111-1426
 Booking No : RG2324/1/2215
 Booking Date : 17-06-2023
 Customer Ref No. : NOIDA/SR.MGRNAB-O/A/2023/6524
 Customer Ref Dt. : 27-02-2023



Sample Particulars

One Sample of water drawn by Shiram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 17-06-2023 from SFP CCT-OUTLET WATER, 35 MLD, SEC-123, NOIDA sterilized bottle was received.
 The sample details provided in test certificate are based on declaration by the customer.

TEST RESULTS

S. No.	Para	Result	Protocol
1	MPN Pres. (Coliforms/100 ml)	<2 Organism	IS 1622:1981, I.A. 2019

End Of Report

DOR : 17-06-2023
 DOS : 17-06-2023
 DOC : 26-06-2023

menger (A/D)

 S.M. (OAL-OA)

GA
 17/06/23

Dr. Anil
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: (2112)

Note: The results relate only to the items tested / calibrated above.
 Scanned copies/photocopies of any other copies should be authenticated by reference to the original report.

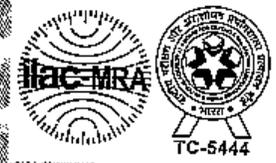
ULR NO : CG544423000007199F

TEST REPORT

NO : C/0000329397

Issued To:
Client Code : (NOIDA)N03215
NEW DELHI INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
SECTOR-5
NOIDA
UTTAR PRADESH-201015
Kind Attn: MR. DEVIENDRA NIGAM, SR. MANAGER (JAL-O/A)

Date : 26-06-2023
Job No : 2306-1-111-1427
Booking No : RG2324/1/2215
Booking Date : 17-06-2023
Customer Ref No. : NOIDA/SR.MGR/JAL/O/A/2023/1524
Customer Ref Dt. : 27-02-2023



Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION 2 SAMPLING/019) on 17-06-2023 from TEP INLET WATER, 35 MLD, SEC-123, NOIDA sterilized bottle was received. The sample details provided in test certificate are based on declaration by the customer*.

TEST RESULTS

S.No.	Test	Result	Protocol
1	MPN Fecal Coliform (100 ml)	2.2 x 10 ⁵ organisms	IS 1622:1981, IFA 2019

End Of Report

DOR : 17-06-2023
DOS : 17-06-2023
DOC : 26-06-2023

Devika
AUTHORISED SIGNATORY
EMPLOYEE CODE: (6192)

Note: The results relate only to the items tested / calibrated above.
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Website: www.shriraminstitute.org
 E-mail id: customercare@shriraminstitute.org
 gad@shriraminstitute.org

ULR-NO. TC544423000007201F

TEST REPORT

NO. C/1/0000329399



Issued to
 Client Code: IN01A03N0874
 NEW OKHIA INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER JAL (O/A)
 SECTOR-5
 NOIDA
 UTTAR PRADESH 201301
 King / Mr. MR. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)

Date : 26-06-2023
 Job No : 2306-1-111-1429
 Booking No : RQ2324/1/2215
 Booking Date : 17-06-2023
 Customer Ref No. : NOIDA/SR.MGR(JAL-O/A)/2023/1524
 Customer Ref Dt. : 27-02-2023

Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 17-06-2023 from SET INLET WATER, 80 MLD, SEC-123, NOIDA sterilized bottle was received.
 (The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S. No.	Test	Result	Protocol
1	TOTAL BACT. Colony/100 ml	1.8 x 10 ⁴ organisms	IS 1622:1981, RA 2019

End Of Report

DOR : 17-06-2023
 DOS : 17-06-2023
 DOC : 26-06-2023

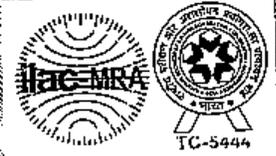
Amal
 AUTHORISED SIGNATORY
 EMPLOYEE CODE: 0192

GC-01(Rev.05)
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ULR NO : TC54442300007200F

TEST REPORT

NO C1/0000329398



Issued To
NEW ORHPA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JAL-O/A)
SECTOR-3
NOIDA
UTTAR PRADESH-201301
Kind Attn: MR. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)

Date : 26-06-2023
Job No : 2306-1-111-1428
Booking No : RG2324/1/2215
Booking Date : 17-06-2023
Customer Ref No. : NOIDA/SR.MGR(JAL-O/A)/2023/1524
Customer Ref Dt. : 27-02-2023

Sample Particulars

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING-01) on 17.06.2023 from SFP CGT OUTLET WATER, 80 MLD, SEC-123, NOIDA sterilized bottle was received.
"The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S.No.	Test	Result	Protocol
1	Microbial Confirmation	<2 organism	IS 1622:1981 RA:2019

End Of Report

DOR : 17-06-2023
DOS : 17-06-2023
DOC : 26-06-2023

(Signature)
AUTHORISED SIGNATORY
EMPLOYEE CODE: 6192

GC-01REV-05
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An ISO 9001, 14001 & 45001 Certified Institute

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E-mail id : customercare@shriraminstitute.org
gad@shriraminstitute.org

ULR NO: TC544423000007148F

TEST REPORT

NO.: C1/0000329263

3924

Issued To
Client Code: (NOIDA/6010674)

Date : 23-06-2023

INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER JAL (O/A)

Booking No : RG2324/1/2199

SECTOR:

Booking Date : 16-06-2023

NOIDA

Customer Ref No. : NOIDA/SR.MGR[JAL-O/A]/2023/1524

UTTAR PRADESH-201001

Customer Ref Dt. : 27-02-2023

Kind Attn: MR. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)



Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING) on 14.06.2023 from SIFJECT OUTLET WATER, 50 MLD, SEC-168, NOIDA sterilized bottle was received.
"The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S. No.	Test
1	MPN Result @ 100 ml

Result

<2 Organism

Protocol

IS 1622:1981-RA 2019

End Of Report

DOR : 16-06-2023

DOS : 16-06-2023

DOC : 23-06-2023

AUTHORISED SIGNATORY

EMPLOYEE CODE: 6192

Note: The results relate only to the items tested / calibrated above.
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SRI-01 (REV-05)

Phone: 91-11-27000100, 27667267, 27667360

Fax: 91-11-27667207

See overleaf for terms & conditions

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Website : www.shriraminstitute.org
 E-mail Id : customercare@shriraminstitute.org
qa@shriraminstitute.org

ULR NO : TC544423000007149F

TEST REPORT

NO : C1/0000329264

Issued To :
 Client Code : NOIDA/10873
 NEW ORCHARD INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER, JAL (O/A)
 SECTOR 5,
 NOIDA
 UTTAR PRADESH-201301
 Kind Attn: MR. DEVENDRA NIGAM, Sr. Manager (JAL-O/A)

Date : 26-06-2023
 Job No : 2306-1-111-1315
 Booking No : RG2324/1/2199
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR[JAL-O/A]/2023/1524
 Customer Ref Dt. : 27-02-2023



Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method: SOP/INSPECTION & SAMPLING/01) on 16-06-2023 from SYP INLET WATER, 50 MLD, SEC-168, NOIDA sterilized bottle was received.
 "The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S. No.	Test	Result	Protocol
1	MPN Fecal Coliform/100 ml	1.7 x 10 ⁶ Organism	IS 1622:1981, RA-2019

End Of Report

DOR : 16-06-2023
 DOS : 16-06-2023
 DOC : 23-06-2023

Quito
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: (692)

Note: The results relate only to the items tested / calibrated above.
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 E-mail id: customercare@shriraminstitute.org
 qad@shriraminstitute.org

ULR NO: TC544423000007150F

TEST REPORT

NO: C1/0000329265

Issued to:
 Client Code: (NOIDA01N0874)
 NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (A/O/A)
 SECTOR-5
 NOIDA
 GATEWAY ENCLAVE, PHASE-III
 KANDANUR, MR. DIVYENDRA NIGAM, SR. MANAGER (JAI -O/A)

Date : 23-06-2023
 Job No : 2306-1-111-1316
 Booking No : RG2324/1/2199
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR/JAI/O/A/2023/1524
 Customer Ref Dt. : 27-02-2023



Sample Particulars:

One sample of water drawn by Shriram institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16-06-2023 from STP C&T OUTLET WATER, 100 MLD, SEC-168, NOIDA sterilized bottle was received. The sample details provided in test certificate are based on declaration by the customer'.

TEST RESULTS

S. No.	Test	Result	Protocol
1	MEN Total Coliform/100 ml	<2 Organism	IS 1622:1981 (RA:2019)

End Of Report

DDO : 16-06-2023
 BOS : 16-06-2023
 DOC : 23-06-2023

Amrita
 AUTHORISED SIGNATORY
 EMPLOYEE CODE: (6172)

QC-01 (Rev. 05)
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Website : www.shriraminstitute.org
 E-mail id : customer.care@shriraminstitute.org
qa@shriraminstitute.org

ULR NO : TC544423000007 / 73F

TEST REPORT

NO : C1/0000329332

Tested To :
 Client Code : NOIDA01N0371
 NEW OCEAN INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER JAL (O/A)
 SECTOR-3
 NOIDA
 OTHER PROJECTS-2013v1
 Gnd. Supt. MR. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)

Date : 23-06-2023
 Job No : 2306-1-111-1317
 Booking No : RG2324/1/2199
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR(JAL-O/A)/2023/1524
 Customer Ref Dt. : 27-02-2023



Sample Particulars:
 One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16-06-2023 from STP INLET WATER, 100 MLD, SEC-163, NOIDA sterilized bottle was received.
 "The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S.No.	Test	Result	Protocol
1	MPN Recal (Coliforms/100 ml)	2.6 x 10 ⁵ Organism	IS 1622:1981; RA-2019

End Of Report

DOR : 16-06-2023
 SOS : 16-06-2023
 DOE : 23-06-2023

(Signature)
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE (6192)



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Website : www.shriraminstitute.org
 E-mail id : customercare@shriraminstitute.org
 qad@shriraminstitute.org

ULR NO. TC544423000007151F

TEST REPORT

NO. C1/0000329266

Tested To
 Client Code: (NOIDA/11074)
 NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER JAL (O/A)
 SECTOR
 NOIDA
 LETTER PRATESH 202301
 Kind Attn: MR. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)

Date : 23-06-2023
 Job No : 2306-1-111-1318
 Booking No : RG2324/1/2199
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR[JAL-O/A]/2023/1524
 Customer Ref Dt. : 27-02-2023



Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16-06-2023 from S.P. CCT OUTLET WATER, 25 MLD, SEC-50, NOIDA sterilized bottle was received.
 "The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S. No.	Test
1	MPN 500ml Conform 100 ml

Result	Protocol
3.9 x 10 ² Organism	IS 1622:1981/IRA-2019

End Of Report

DCS : 16.06.2023
 DOS : 17.06.2023
 DCS : 23.06.2023

Quite
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: 6192

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E-mail id : customercare@shriraminstitute.org
qad@shriraminstitute.org

ULR NO. : TC544423000007179F

TEST REPORT

NO : C1/0000529338

Issued To
Client Code: (NOIDA/01/NOB7)
NEW OKHEA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER JAL (O/A)
SECTOR-5
NOIDA
UTTAR PRADESH-201301
Kind Attn: MR. DEVEN SINGH NIGAM SR. MANAGER (JAL-O/A)

Date : 23-06-2023
Job No : 2306-1-111-1319
Booking No : RG2324/1/2199
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR.MGR[JAL-O/A]/2023/1524
Customer Ref Dt. : 27-02-2023



Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16-06-2023 from STP INLET WATER, 25 MLD, SEC-50, NOIDA sterilized bottle was received.
The sample details provided in test certificate are based on declaration by the customer*.

TEST RESULTS

Sl. No.	Test	Result	Protocol
1	MPN (Total Coliforms) / ml	1.8 x 10 ⁵ Organism	IS 1622:1981, I.A. 2019

End Of Report

DOR : 15.06.2023
DOS : 16.06.2023
DOC : 27.06.2023

(Signature)
AUTHORISED SIGNATORY
EMPLOYEE CODE (6192)

Note: The results relate only to the items tested / calibrated above.
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 An ISO 9001, 14001 & 45001 Certified Institute

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 E-mail id: customercare@shriraminstitute.org
 qad@shriraminstitute.org

ORDER NO: TC544423000007174F

TEST REPORT

NO: C1/0000329333

Issued To:
 Client Code: (NOIDA/JAL/NOBEL)
 NEW ORCHID INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (JAL-O/A)
 SECTOR-5
 NOIDA
 UTTAR PRADESH 201301
 Kind Attn: MR. DEVENDIKA NIGAM, HR. MANAGER (JAL-O/A)

Date : 23-06-2023
 Job No : 2306-1-111-1320
 Booking No : RG2324/1/2199
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR(JAL-O/A)/2023/1524
 Customer Ref Dt. : 27-02-2023



Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16.06.2023 from SFP/CCT OUTLET, 34 MLD, SEC-50, NOIDA sterilized bottle was received.
 (The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

Sr.No.	Test	Result	Protocol
1	MPN/Fecal Coliform/100 ml	221 Organism	IS 1622:1981, RA 2019

End Of Report

DOR : 16-06-2023
 DCS : 16-06-2023
 TTC : 23-06-2023

Authita
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: 6192

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Website : www.shriraminstitute.org
E-mail id : customercare@shriraminstitute.org
qa@shriraminstitute.org

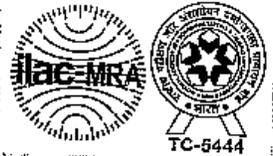
ULR NO. : TC544423000007175F

TEST REPORT

NO : C1/0000329334

Issued To
Client Code : NOIDA011003791
NEW DELHI INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
SECTOR-5
NOIDA
UTTAR PRADESH-201301
Kind Attn: MR. DEVENDRA NIGAM, SR. MANAGER (JAL/O/A)

Date : 23-06-2023
Job No : 2306-1-111-1321
Booking No : RG2324/1/2199
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR.MORHA/O/A/2023/1524
Customer Ref Dt. : 27-02-2023



One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16.06.2023 from STP INLET, 34 MLD, SEC-50, NOIDA sterilized bottle was received.

"The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S. No.	Test	Result	Protocol
1	MPN Feed Chliform/100ml	3.2 x 10 ⁴ Organism	IS 1622:1981, RA 2019

End Of Report

DOR : 16-06-2023
DOS : 16-06-2023
DOC : 23-06-2023

Chaitanya
AUTHORISED SIGNATORY
EMPLOYEE CODE: 16192

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 3001, 14001, & 45001 Certified Institute

Website : www.shriraminstitute.org
 E-mail id : customercare@shriraminstitute.org
qad@shriraminstitute.org

ULR NO.: TC544423000007176F

TEST REPORT

NO : C1/0000329335

Issued To :
 Order Code : NOBA01N08914
 NEW DELHI INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
 SECTOR 5
 NOIDA
 DISTRICT RAJESHWRI
 Kind Attn: Mr. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)

Date : 23-06-2023
 Job No : 2306-1-111-1322
 Booking No : RG2324/1/2199
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR(JAL-O/A)/2023/1524
 Customer Ref Dt. : 27-02-2023



Sample Description:
 One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16-06-2023 from STP GCT OUTLET, 33 MLD, SEC-54, NOIDA sterilized bottle was received.
 "The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

Sl.No.	Test	Result	Protocol
01	MPN/Fecal Coliform/100 ml	<2 Organism	IS 1622:1981 RA 2019

End Of Report

DGR : 16-06-2023
 DOS : 16-06-2023
 DQC : 23-06-2023

(Signature)
 AUTHORISED SIGNATORY
 EMPLOYEE CODE: (692)

Note: The results relate only to the items tested/calibrated above.
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ULR NO : TC544423000007177F

TEST REPORT

NO : C1/0000329336



Issued To:
Client Order No: ODA610871
NEW DELHI INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE PROJECT ENGINEER JAL (O/A)
SECTOR -
NOIDA
UTTAR PRADESH-201301
Gnd. Auth. MR. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)

Date : 23-06-2023
Job No : 2306-1-111-1323
Booking No : RG2324/1/2199
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR.MGR/JAL/O/A/2023/1524
Customer Ref Dt. : 27-02-2023

Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/01) on 16.06.2023 from S/W GCF OUTLET, 54 MLD, SEC-54, NOIDA sterilized bottle was received.

The sample details provided in test certificate are based on declaration by the customer.

TEST RESULTS

S. No.	Test	Result	Protocol
1	MPN Total Cell Form (60 ml)	<2 Organism	IS 1622:1981/RA 2019

End Of Report

DOR : 16-06-2023
DOS : 16-06-2023
DOC : 23-06-2023

Quiter

AUTHORISED SIGNATORY
EMPLOYEE CODE: (6192)

Note: The results given only to the items tested/calibrated above.
Scanned copies/photocopies in any other copies should be signed/signed by reference to the original report.

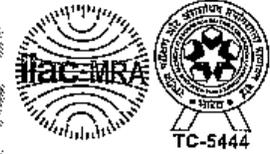
REF NO: TC544423000007178F

TEST REPORT

NO: C110000329337

Issued to
 Client Code: NOIDA/IN03719
 NEW ORHLA INDUSTRIAL DEVELOPMENT AUTHORITY
 OFFICE OF THE PROJECT ENGINEER (JAL/O/A)
 SECTOR-5
 NOIDA
 UTTAR PRADESH 20130
 Kind Attn: Mr. DEVENDRA NIGAM SR. MANAGER (JAL-O/A)

Date : 23-06-2023
 Job No : 2306-1-111-1324
 Booking No : RG2324/1/2199
 Booking Date : 16-06-2023
 Customer Ref No. : NOIDA/SR.MGR[JAL-O/A]2023/1524
 Customer Ref Dt : 27-02-2023



Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method-SOP/INSPECTION & SAMPLING/019) on 16/06/2023 from SURFACE WATER, 54 MLD, SEC-54, NOIDA sterilized bottle was received.
 The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S.No.	Test	Result	Protocol
1	MPN (Total Coliforms) / 100 ml	2.6 x 10 ⁴ Organism	IS 1622:1981/IRA 2019

End Of Report

DOR: 16-06-2023
 BOS: 16-06-2023
 DOC: 23-06-2023

Mitesh
 AUTHORIZED SIGNATORY
 EMPLOYEE CODE: 6192

Note: The results relate only to the items tested / calibrated above.
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JLR NO : TC54442300007180F

TEST REPORT

NO : C1/0000329339



Issued To:
Client Code: (NOIDA/118871)
NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY
OFFICE OF THE CHIEF ENGINEER (O/A)
SECTOR-5
NOIDA
GATE NO. 136
KIND AMR. DEVENDRA NICAM SR. MANAGER (JAL-O/A)

Date : 23-06-2023
Job No : 2306-1-111-1325
Booking No : RG2324/1/2199
Booking Date : 16-06-2023
Customer Ref No. : NOIDA/SR-MGR/JAL-O/A/2023/1634
Customer Ref Dt. : 27-02-2023

Sample Particulars:

One sample of water drawn by Shriram Institute for Industrial Research staff (Sampling method: SOP/INSPECTION & SAMPLING/O/A) on 16/06/2023 from S4P INLET WATER, 33 MLD, SEC-54, NOIDA sterilized bottle was received.
"The sample details provided in test certificate are based on declaration by the customer".

TEST RESULTS

S. No.	Test	Result	Protocol
1	MPN Total Coliform/100 ml	1.7 x 10 ⁵ Organism	IS 1622:1981, Rev-2019

End Of Report

DOR : 16-06-2023
DOS : 16-06-2023
DOC : 23-06-2023

(Signature)
AUTHORISED SIGNATORY
EMPLOYEE CODE: 6192

GC-01 (Rev-05)

Note: The results relate only to the items tested / calibrated above.
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Details of Sriram Test Report Month April-2023 to June-2023

STP & Sector	pH	TSS(mg/l)	COD(mg/l)	BOD(mg/l)	Total Nitrogen (as P), mg/l	Total Phosphorous (as P), mg/l	MPN Fecal Coliform per MPN/100 ml
33 MLD Sec-54	6.87	3.00	24.00	5.33	18.33	1.47	As per attached Details annexure
54 MLD Sec-54	6.63	3.00	20.00	3.33	4.33	2.20	As per attached Details annexure
34 MLD Sec-50	7.43	6.00	29.33	5.67	6.00	0.77	As per attached Details annexure
25 MLD Sec-50	7.40	4.67	22.67	4.33	6.33	3.87	As per attached Details annexure
50 MLD Sec-168	7.40	3.33	32.00	6.00	8.00	3.93	As per attached Details annexure
100 MLD Sec-168	7.40	1.67	24.00	4.33	5.67	3.87	As per attached Details annexure
35 MLD Sec-123	7.23	7.33	37.33	6.67	9.00	3.97	As per attached Details annexure
80 MLD Sec-123	7.23	14.00	61.33	12.33	3.67	2.87	As per attached Details annexure
Total Three Month's value of all STP's	57.60	43.00	250.67	48.00	61.33	22.93	As per attached Details annexure
Average value of all STP's	7.20	5.38	31.33	6.00	7.67	2.87	As per attached Details annexure


 प्रताप सिंह
 प्रबन्धक
 (जल-बांसें), नौएडा

DEVENDRA NIGAM
 Senior Manager
 (Jal Outer Agency), NOIDA

ANNEXURE-G

Item No. 06

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**Original Application No. 1069/2018
(M.A. Nos. 1792/2018 & 1793/2018)

Nitin Shankar Deshpande

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 21.12.2018

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE S.P. WANGDI, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT-MEMBER**For Appellant(s): Mr. Krishnan Venugopal, Senior Advocate,
Mrs. Ekta Sikri and Ms. K. Gayatri, AdvocatesFor Respondents (s): Mr. Divya Prakash Pande, Advocate for
MoEF&CC**ORDER**

I. Challenge in this application is to the Notification dated 13.10.2017, amending the Environment (Protection) Rules, 1986, Schedule - I. In the said Schedule, *inter-alia*, standards for emission or discharge of pollutants are prescribed. Serial number 105 has been added to lay down revised standards for the STPs as follows:-

"G.S.R. 1265(E).—In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:-

1. Short title and commencement -

- (1) These rules may be called the Environment (Protection) Amendment Rules, 2017.
- (2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, in Schedule - I, after serial number 104 and the entries relating thereto, the following serial number and entries shall be inserted, namely:

Sl. No.	Industry	Parameters	Standards	
1	2	3	4	
Effluent discharge standards				
105	Sewage Treatment Plants (STPs)		Location	Concentration not to exceed
			(a)	(b)
		pH	Anywhere in the country	6.5-9.0
		Bio-Chemical Oxygen Demand (BOD)	Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Union Territory of Andaman and Nicobar Islands, Dadar, Nagar Haveli, Daman, Diu and Lakshadweep	20
			Areas/regions other than mentioned above	30
		Total Suspended Solids (TSS)	Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Tripura, Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Union Territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli, Daman, Diu and Lakshadweep	<50
			Areas/regions other than mentioned above	<100
		Fecal Coliform (FC) (Most probable Number per 100 milli liter, MPN/100ml)	Anywhere in the country	<1000
<p>*Metro Cities are Mumbai, Delhi, Kolkata, Bengaluru, Hyderabad, Ahmedabad and Pune</p> <p>Note:</p> <p>(i) All values in mg/l except for pH and Fecal Coliform.</p> <p>(ii) These standards shall be applicable for discharge into water bodies as well as for land disposal/applications.</p> <p>(iii) The standards for Fecal Coliform shall not apply in respect of use of treated effluent for industrial purposes.</p> <p>(iv) These standards shall apply to all STPs to be commissioned on or after the 01st June, 2019 and the old/existing STPs shall achieve</p>				

- these standards within a period of five years from date of publication of this notification in the Official Gazette.
- (v) In case of discharge of treated effluent into sea, it shall be through proper marine outfall and the existing shore discharge shall be converted to marine outfalls, and in cases where the marine outfall provides a minimum initial dilution of 150 times at the point of discharge and a minimum dilution of 1500 times at a point 100 meters away from discharge point, then, the existing norms shall apply as specified in the general discharge standards.
 - (vi) Reuse/Recycling of treated effluent shall be encouraged and in cases where part of the treated effluent is reused and recycled involving possibility of human contact, standards as specified above shall apply.
 - (vii) Central Pollution Control Board/State Pollution Control Boards/Pollution Control Committees may issue more stringent norms taking account to local condition under section 5 of the Environment (Protection) Act, 1986¹.

2. The grievance of the applicant that the standards have been drastically diluted and relaxed which will lead to widespread degradation of water quality, in violation of the Article 21 and 48A of the Constitution and Section 3 (1) of the Environment (Protection) Act, 1986 which envisage protection and improvement of quality of environment.
3. The Environment (Protection) Act, 1986 has been enacted to give effect to the international obligations with reference to Article 253 of the Constitution and powers are conferred to take measures for improvement in the quality of environment. The same are coupled with the duty to uphold such standards as are necessary for protection of the environment.
4. Untreated or partially treated sewage is a major source of pollution. Experts on the subject have recognized huge gap in the sewage generated and treated resulting in untreated sewage being dumped into the water bodies. What is required is to take steps to enhance the treatment capacities.
5. The Hon'ble Supreme Court in the case *Paryavaran Suraksha Samiti & Anr. Vs. Union of India & Ors.*¹ directed taking of steps to achieve the said standards. This has been reiterated in order

¹ (2017) 5 SCC 326

of the Tribunal². Draft notifications based on Expert Committee deliberations were issued by the MoEF&CC on 24.11.2015 proposing standards, *inter-alia*, for BOD, TSS and FC. As against the said standards, there is a huge dilution in the final notification dated 13.10.2017, which is depicted in the following chart:-

Sr. No.	Parameters	Old Norms 1986	Draft Norms Nov., 15	MoEF & CC Notification October 2017
1.	Biochemical Oxygen Demand (BOD) (mg/l)	<30	<10	<30 and <20 (metro cities)
2.	Chemical Oxygen Demand (COD) (mg/l)	<250	50	No limit
3.	Total Suspended Solids (TSS) (mg/l)	<100	<20	<100 and <50 (metro cities)
4.	Total Nitrogen (mg/l)	<100	<10	No limit
5.	Ammonical Nitrogen (mg/l)	<50	<5	No limit
6.	Total Phosphorus (mg/l)	No limit	No limit	No limit
7.	Fecal Coliform MPN/100 ml	No limit	<100	<1000

6. The applicant represented to the Ministry on 16.11.2017. Thereafter, he moved this Tribunal by way of original Application No. 312/2018. Notice was issued on 15.05.2018. The application was disposed of on 17.07.2018 with the direction that representation of the applicant which was filed on 16.11.2017 be decided on or before 31.07.2018 by the Ministry of Environment and Forest and Climate Change (MoEF&CC).

7. Vide order dated 10.08.2018, the MoEF&CC rejected the representation with the observation that adequate due diligence had been applied and the notification was issued

² M.C. Mehta Vs. Union of India, O.A. No. 200 of 2014 order dated 13.07.2017

thereafter detailed technical analysis. Examination of international standards had also been undertaken. The Notification also permits CPCB/State PCBs/ PCCs to issue more stringent norms in the light of the above Notification. It was further stated that:

"vi). While you have compared with the general standards it is to state that new standards have been laid with regard to pH in place of 5.5 to 9.0 STP standards is prescribed 6.5 to 9.0, BOD prescribed in general standards is 350 mg/l (public sewers), while STP standards is prescribed 20 mg/l for metropolitan cities and 30 mg/l for all other regions of the country. With regard to TSS, the STP standards prescribed <50 mg/l for metropolitan cities and <100 mg/l for other regions while general standards prescribed 100 mg/l for inland surface water and 600 mg/l for public sewers and 200 mg/l for Land for irrigation. With regard to fecal coliform standard prescribed, it is mentioned that this standard has been stipulated for the first time in the country which is much stringent than any of the standards for the developed countries which is less than 1000 MPN/100ml."

8. Our attention has been drawn to the directions of the CPCB dated 21.04.2015 under Section 18 (1); (b) of the Water (Prevention and Control of Pollution) Act, 1974 requiring the SPCBs to make it mandatory for local bodies to set up sewerage systems for treatment and disposal of sewage to meet the prescribed standards which are as follows:

EFFLUENT DISCHARGES STANDARDS FOR SEWAGE TREATMENT PLANT

S. No.	Parameters	Parameters Limits (standards for New STPs Design after notification date)*
1.	pH	6.5-9.0
2.	BOD (mg/l)	Not more than 10
3.	COD (mg/l)	Not more than 50
4.	TSS (mg/l)	Not more than 20
5.	NH ₄ N (mg/l)	Not more than 5
6.	N-total (mg/l)	Not more than 10
7.	Fecal Coliform (MPN/100ml)	Less than 100

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9. Further, in the 12th Expert Meeting held on 08.05.2017 in the MoEF&CC the Expert Committee approved as follows:-

"After detailed discussions following was suggested and approved by the Expert Committee:

- i) *In respect of BOD, it was noted that stringent norms of 10 mg/l should be applied to Metropolitan Cities and States Capitals considering the degradation of quality of water bodies. However, the other cities/town may be permitted to the limit of 20 mg/l in treated effluent from STPs. Hence, the proposed standards were approved by the Committee, however, it was suggested that the old/existing STPs may be given 5 years period to achieve compliance from date of publication of notification; whereas the new STPs commissioned on or after 01/06/2017, have to comply from the date of publication of notification. The issue related to applying of proposed standards for cities/town where BOD in receiving water body exceeds 6mg/l was discussed in detail and also approved by the Committee.*
- ii) *In respect Total Suspended Solids (TS), pH, Total-Nitrogen and Fecal Coliform, the proposed standards of <20 mg/l, 6.5-9.0, 10 mg/l and <230 MPC/100 ml respectively were approved by the Expert Committee after detailed discussions.*
- iii) *It was decided that the matter related to Phosphate standards is more relevant to the soap/detergent industries and may be dealt separately. In respect of standard for Ammonical Nitrogen, it was decided that it is not needed to be notified at the moment as notifying the Total Nitrogen to 10mg/l would serve the purpose.*
- iv) *The Expert Committee also suggested that each STP should install Online Monitoring Device for the purpose of better monitoring of the performance of plant. Also, there should be guidelines for the sludge management and handling for the sludge generated while treatment of sewage.*
- v) *In respect of issue related to the disposal of treated effluent in Marine Coastal Water, it was decided that the discharge in to sea should be through proper marine outfall and the effluent should be away from the beaches. The marine outfall shall*

follow the existing general discharge standards. Hence, the Committee approved the footnote proposed in the draft notification.

- vi) It was decided that reuse/recycling of treated effluent shall be encouraged. In cases where part of the treated effluent is reused and recycled involving possibility of human contact, standards as proposed in the draft notification shall be applied."*

10. In view of the above, relaxed standards will deteriorate the water quality which will not be fit for the best designated use. Instead of protecting the environment, impugned notification will degrade the environment. The notification is a retrograde step.

11. The applicant, sums up the adverse effect of the diluted parameters as follows:-

"(i) Effects of Organic Matter (BOD) (Revised from 10 mg/l to 30 mg/l)

<p>Biochemical Oxygen Demand (BOD):</p> <p><i>The organic or polluting strength of wastewater is measured in terms of BOD (Biochemical oxygen Demand), which is the amount of oxygen needed by aerobic (Oxygen using) bacteria for the oxidation (Break-down) of organic matter</i></p>	<p>Effects of excess BOD load on environment:</p> <ul style="list-style-type: none"> <i>i. Due to disposal of partially treated wastewater quality of Surface & Ground water bodies deteriorates to a great extent. Further when the water is used from the same source; it is harmful for human consumption.</i> <i>ii) This excess BOD will consume oxygen present in the water body which will lead to development of bacterial growth and disturbance of ecosystem present in the same (fish death, algal boom etc.)</i>
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(ii) Effects of Chemical Oxygen Demand (Revised from 50 mg/l to No Limit)

(iii) Effects of Total Suspended Solids (revised from 10mg/l to 100 mg/l)

Suspended Solids:	Effects:
The portion of organic material that does not dissolve but remains suspended in the water is known as suspended solids.	i. Provides hiding space for disease causing micro-organisms. ii. Silting in receiving water bodies. iii. Deterioration of water quality and aesthetics of receiving water bodies.

(iv) Effects of Faecal Coliform (Revised from 100 MPN/100 ml to 1000 MPN/100ml)

Effects of microbial contamination
 Use of contaminated water at downstream of disposal point by human communities leads to diseases and epidemics such as Diarrhea, Dysentery, Cholera, gastroenteritis, enteric fever, Hepatitis B etc.

As per the CPCB water quality criteria for streams, for outdoor bathing (Class of water B) the total coliform shall be less than 500 MPN per 100 ml of water and Biochemical oxygen demand (BOD) shall be less than 3 mg/l.

However, as per impugned notification the discharge standards for BOD and coliform are specified as < 20 mg/L and < 1000 MPN/100 mL respectively.

The relaxation given in the above mentioned parameters compared with earlier discharge standards are encouraging the use of receiving water body as a source of dilution for domestic sewage. However, receiving water bodies shall not be used as source of dilution for maintaining its water quality and aesthetics. Also, its use as dilution source can further aggravate the water borne diseases in downstream region and surrounding region of disposal point.

(v) Effects of Fecal Coliform (Revised from 100 MPN/100 ml to 1000 MPN/100ml)

Effects of Nitrogen and Phosphorous:

- i. Eutrophication (Algal boom in receiving water body -- which deteriorates its water quality and aesthetics rendering it unfit for daily use.
- ii. Accumulation of nutrients.

Nitrogen and Phosphorous are limiting nutrients for the growth of micro-organisms in aquatic ecosystem. If the partially treated/untreated domestic wastewater having considerable

amounts of nutrients in it is released into an aquatic ecosystem, it causes algae to grow faster than the ecosystem can handle. Significant increase in algae harm water quality, food resources and habitats, and decreases the oxygen that fish and other aquatic life need to survive. Large growth of algae is called algal blooms and they can severely reduce or eliminate oxygen in the water leading to illness in fish and death of large number of fish. Some algal blooms (eutrophication) are harmful to humans because they produce elevated toxins and bacterial growth that can make people sick if they come into contact with the polluted water, consumed tainted fish or shellfish or drink contaminated water."

12. Reference has been also been made to the report of the CPCB on River Stretches for Restoration of Water Quality published in 2015. In the preface to said report, the Chairman CPCB stated as follows:-

"The Water quality management is one of the many environmental problems in India. Increasing demand of water for human consumption, irrigation and growing industrial activities has impacted the water quality of rivers due to declining flows in rivers and depleting water levels of subsurface resources. Bio-chemical Oxygen Demand (BOD) has been considered as principle parameters for identification of monitoring locations in exceedance to the criteria limit. The present study highlights three water quality issues in 275 rivers comprising of 302 stretches in 27 States in 2 UTs. The water data indicates that organic pollution as indicated by Biochemical Oxygen Demand (BOD) continues to be the major water quality issue. This is mainly due to discharge of untreated domestic wastewater from the urban centres of the country. The municipal corporations at large are not able to treat increasing load of multiple sewage flowing into water bodies. Secondly the receiving water bodies also do not have adequate water for dilution....."

13. Reference has then been made to the order of this Tribunal on the subject of polluted river stretches dated 20.09.2018 in Original Application No. 673/2018 in the matter of News item published in "The Hindu" authored by Shri Jacob Koshy titled "More river stretches are now critically polluted : CPCB".

14. The applicant has also referred to order of this Tribunal dated 13.07.2017 in the case of M.C. Mehta v. Union of India directing as follows:-

"All the existing STPs as well as the STPs to be designed and constructed should satisfy the existing standards. The new STPs should be designed and construed in manner in which

they should be able to achieve more stringent norms, if prescribed in future... the said STP shall be constructed and completed to ensure that it meets the prescribed values, particularly, in relation to BOD, faecal coliform and all other parameters. It should be designed to achieve suggested values of BOD at 10 mg/l and 230 MPN/100 ml of Faecal Coliform, as directed by CPCB and MoEF & CC.

15. Learned counsel for the applicant states that the impugned notification violates Article 21 of the Constitution and its operation is extremely harmful for public at large as well as to the environment, in as much as the notification has diluted three important standards for effluent – BOD, TSS and FC, leaving the environment to the mercy of the increased pollution. It is, thus, prayed that impugned notification be held in abeyance and standards laid down as per directions dated 21.04.2015, 09.10.2015, 15.12.2016 and 19.04.2017 by the CPCB be maintained.

16. Issue Notice to the MoEF&CC. Learned Counsel Mr. Divya Prakash Pande, accepts notice for MoEF&CC and seeks time to reply to the main application as well as interim application. The applicant is directed to furnish a set of papers to MoEF&CC and CPCB and file an affidavit of service within one week from today.

17. To consider the matter further, it is necessary to have a report of Expert Committee. Accordingly, we constitute an Expert Committee as follows:-

1. Director or his nominee (Senior Prof. of Environmental Engineering) IIT Kanpur and IIT Roorkee.
2. Senior representative of NEERI.
3. Senior Scientist nominated by CPCB.

The nodal agency for coordination and follow up will be CPCB.

18. The Expert Committee may give its report within two months after going into various aspects of the alleged dilution of norms and its likely impact on the recipient environment and public health. While examining the matter, the Committee shall examine the issues such as assimilative capacities of our river systems, e-flows and related aspects. The Expert Committee shall also examine the best available technologies and best practices being followed besides the need of its replication in India keeping in view the economic viability and resource position. While making the recommendations, the Committee can refer to the CPCB Report on "River Stretches for Restoration of Water Quality, 2014-15" and the order of this Tribunal on the subject of polluted river stretches dated 20.09.2018 in Original Application No. 673/2018 in the matter of News item published in "The Hindu" authored by Shri Jacob Koshy titled "More river stretches are now critically polluted : CPCB".
19. The report may be furnished by the CPCB to the MoEF&CC as well as to this Tribunal by email at ngt.filing@gmail.com on or before 31.03.2019. It will be open to MoEF&CC to take a fresh view in the light of the report and furnish its comments by e-mail before the next date. The registry may forward the report to the applicant also, who may file his comments, if any, before the next date.
20. We are *prima facie* of the view having regard to the above narration, serious consideration of the subject is necessary. Apart from there being a *prima facie* case in favour of stay of the impugned notification, balance of convenience also is in favour of stay being granted. Operation of the impugned notification will be extremely harmful for public at large. On

stay being granted, pre-revised standards will prevail and grant of stay will cause no harm to anyone. If stay is not granted, there will be irreparable loss to the public health at large as well as to the environment.

21. Till the matter is considered further, operation of the impugned notification will remain stayed.

List for further consideration on 16.04.2019.

Adarsh Kumar Goel, CP

S.P. Wangdi, JM

K. Ramakrishnan, JM

Dr. Nagin Nanda, EM

December 21, 2018
Original Application No. 1069/2018

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भारत का राजपत्र

The Gazette of India

असाधारण

EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)

PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित

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NEW DELHI, FRIDAY, OCTOBER 13, 2017/ASVINA 21, 1939

पर्यावरण, वन और जलवायु परिवर्तन मंत्रालय

अधिसूचना

नई दिल्ली, 13 अक्टूबर, 2017

सा.का.नि. 1265(अ).—केन्द्रीय सरकार, पर्यावरण (संरक्षण) अधिनियम, 1986 (1986 का 29) की धारा 6 और धारा 25 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पर्यावरण (संरक्षण) नियम, 1986 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् :—

- संक्षिप्त नाम और प्रारम्भ :—(1) इन नियमों का संक्षिप्त नाम पर्यावरण (संरक्षण) संशोधन नियम, 2017 है।
(2) ये राजपत्र में उनके प्रकाशन की तारीख को प्रवृत्त होंगे।
- पर्यावरण (संरक्षण) नियम, 1986 की अनुसूची-1 में, क्रम संख्यांक 104 और उससे सम्बन्धित प्रविष्टियों के पश्चात्, निम्नलिखित क्रम संख्यांक और प्रविष्टियां अन्तःस्थापित की जाएगी, अर्थात् :—

क्र. सं.	उद्योग	मानदंड	मानक
1	2	3	4
		बहिर्भाव निम्नारण मानक (निपटान के सभी ढंगों को लागू)	
105	मल उपचार संयंत्र (एमटीपी)		अवस्थान
			भांद्र का निम्नलिखित से अधिक न होना
		पीएम	(क)
		त्रैश्व-रासायनिक श्रान्गीजन (वीओडी)	देश में कहीं भी
		भांस	6.5-9.0
			महानगर अरूणाचल प्रदेश, असम, मणिपुर, मेघालय, मिजोरम, नागालैण्ड, त्रिपुरा, त्रिनिदाद, हिमाचल प्रदेश, उत्तराखण्ड, जम्मू-कश्मीर राज्यों और

विषय : मूल नियम भारत के राजपत्र, अध्याय, भाग II, खंड 3, उप-खंड (1) में का.आ. सं. 844(अ), तारीख 19 नवम्बर, 1986 द्वारा प्रकाशित नियम एवं और गणपत्यात् उमें निरदिधित अधिगूतताओं द्वारा संशोधन नियम एवं, अर्थात् :—
 का.आ. 433(अ), तारीख 18 अप्रैल, 1987; मा.का.नि. 176(अ), तारीख 2 अप्रैल, 1996; मा.का.नि. 97(अ), तारीख 18 फरवरी, 2009; मा.का.नि. 149(अ), तारीख 4 मार्च, 2009; मा.का.नि. 543(अ), तारीख 22 जुलाई, 2009; मा.का.नि. 739(अ), तारीख 9 दिसम्बर, 2010; मा.का.नि. 809(अ), तारीख 4 अक्टूबर, 2010; मा.का.नि. 215(अ), तारीख 15 मार्च, 2011; मा.का.नि. 221(अ), तारीख 18 मार्च, 2011; मा.का.नि. 354(अ), तारीख 2 मई, 2011; मा.का.नि. 424(अ), तारीख 1 जून, 2011; मा.का.नि. 446(अ), तारीख 13 जून, 2011; मा.का.नि. 152(अ), तारीख 16 मार्च, 2012; मा.का.नि. 266(अ), तारीख 30 मार्च, 2012; मा.का.नि. 277(अ), तारीख 31 मार्च, 2012; मा.का.नि. 820(अ), तारीख 9 नवम्बर, 2012; मा.का.नि. 176(अ), तारीख 18 मार्च, 2013; मा.का.नि. 535(अ), तारीख 7 अगस्त, 2013; मा.का.नि. 771(अ), तारीख 11 दिसम्बर, 2013; मा.का.नि. 2(अ), तारीख 2 जनवरी, 2014; मा.का.नि. 229(अ), तारीख 28 मार्च, 2014; मा.का.नि. 232(अ), तारीख 31 मार्च, 2014; मा.का.नि. 325(अ), तारीख 7 मई, 2014; मा.का.नि. 612(अ), तारीख 25 अगस्त, 2014; मा.का.नि. 789(अ), तारीख 11 नवम्बर, 2014; का.आ. 3305(अ), तारीख 7 दिसम्बर, 2015; का.आ. 4(अ), तारीख 1 जनवरी, 2016; मा.का.नि. 35(अ), तारीख 14 जनवरी, 2016; मा.का.नि. 281(अ), तारीख 7 मार्च, 2016; मा.का.नि. 496(अ), तारीख 9 मई, 2016; मा.का.नि. 497(अ), तारीख 10 मई, 2016; मा.का.नि. 978(अ), तारीख 10 अक्टूबर, 2016; और अंतिम बार अधिगूतता संख्यांक मा.का.नि. 1016(अ), तारीख 28 अक्टूबर, 2016 द्वारा संशोधित नियम एवं ।

MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE

NOTIFICATION

New Delhi, the 13th October, 2017

G.S.R. 1265(E).—In exercise of the powers conferred by sections 6 and 25 of the Environment (Protection) Act, 1986 (29 of 1986), the Central Government hereby makes the following rules further to amend the Environment (Protection) Rules, 1986, namely:—

1. **Short title and commencement.**—(1) These rules may be called the Environment (Protection) Amendment Rules, 2017.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Environment (Protection) Rules, 1986, in Schedule - I, after serial number 104 and the entries relating thereto, the following serial number and entries shall be inserted, namely:—

Sl. No.	Industry	Parameters	Standards	
1	2	3	4	
			Effluent discharge standards (applicable to all mode of disposal)	
105	Sewage Treatment Plants (STPs)		Location	Concentration not to exceed
		pH	(a)	(b)
		Bio-Chemical Oxygen Demand (BOD)	Anywhere in the country	6.5-9.0
			Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir, and Union territory of	20

	Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	
	Areas/regions other than mentioned above	30
Total Suspended Solids (TSS)	Metro Cities*, all State Capitals except in the State of Arunachal Pradesh, Assam, Manipur, Meghalaya Mizoram, Nagaland, Tripura Sikkim, Himachal Pradesh, Uttarakhand, Jammu and Kashmir and Union territory of Andaman and Nicobar Islands, Dadar and Nagar Haveli Daman and Diu and Lakshadweep	<50
	Areas/regions other than mentioned above	<100
Focal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100ml)	Anywhere in the country	<1000

*Metro Cities are Mumbai, Delhi, Kolkata, Chennai, Bengaluru, Hyderabad, Ahmedabad and Pune.

Note :

- (i) All values in mg/l except for pH and Fecal Coliform.
- (ii) These standards shall be applicable for discharge into water bodies as well as for land disposal/applications.
- (iii) The standards for Fecal Coliform shall not apply in respect of use of treated effluent for industrial purposes.
- (iv) These Standards shall apply to all STPs to be commissioned on or after the 1st June, 2019 and the old/existing STPs shall achieve these standards within a period of five years from date of publication of this notification in the Official Gazette.
- (v) In case of discharge of treated effluent into sea, it shall be through proper marine outfall and the existing shore discharge shall be converted to marine outfalls, and in cases where the marine outfall provides a minimum initial dilution of 150 times at the point of discharge and a minimum dilution of 1500 times at a point 100 meters away from discharge point, then, the existing norms shall apply as specified in the general discharge standards.
- (vi) Reuse/Recycling of treated effluent shall be encouraged and in cases where part of the treated effluent is reused and recycled involving possibility of human contact, standards as specified above shall apply.
- (vii) Central Pollution Control Board/State Pollution Control Boards/Pollution Control Committees may issue more stringent norms taking account to local condition under section 5 of the Environment (Protection) Act, 1986".

[F. No. Q-15017/2/2008-CPW]

ARUN KUMAR MEHTA, Addl. Secy.

Note : The principal rules were published in the Gazette of India, Extraordinary, Part II, Section 3, Sub-section (i) vide number S.O. 844 (E), dated the 19th November, 1986 and subsequently amended vide the following notifications, namely:—

S.O. 433 (E), dated the 18th April 1987; G.S.R. 176(E) dated the 2nd April, 1996; G.S.R. 97 (E), dated the 18th February, 2009; G.S.R. 149 (E), dated the 4th March, 2009; G.S.R. 543(E), dated the 22nd July, 2009; G.S.R. 739 (E), dated the 9th September, 2010; G.S.R. 809(E), dated the 4th October, 2010, G.S.R.

215 (E), dated the 15th March, 2011; G.S.R. 221(E), dated the 18th March, 2011; G.S.R. 354 (E), dated the 2nd May, 2011; G.S.R. 424 (E), dated the 1st June, 2011; G.S.R. 446 (E), dated the 13th June, 2011; G.S.R. 152 (E), dated the 16th March, 2012; G.S.R. 266(E), dated the 30th March, 2012; and G.S.R. 277 (E), dated the 31st March, 2012; and G.S.R. 820(E), dated the 9th November, 2012; G.S.R. 176 (E), dated the 18th March, 2013; G.S.R. 535(E), dated the 7th August, 2013; G.S.R. 771(E), dated the 11th December, 2013; G.S.R. 2(E), dated the 2nd January, 2014; G.S.R. 229 (E), dated the 28th March, 2014; G.S.R. 232(E), dated the 31st March, 2014; G.S.R. 325(E), dated the 7th May, 2014; G.S.R. 612, (E), dated the 25th August 2014; G.S.R. 789(E), dated the 11th November 2014; S.O. 3305(E), dated the 7th December, 2015; S.O.4(E), dated the 1st January 2016; G.S.R. 35(E), dated the 14th January 2016; G.S.R. 281 (E), dated the 7th March, 2016; G.S.R. 496(E), dated the 9th May, 2016; G.S.R.497(E), dated the 10th May, 2016; G.S.R.978(E), dated the 10th October, 2016; and lastly amended vide notification G.S.R. 1016(E), dated the 28th October, 2016.

Central Pollution Control Board



Welcome Industry user (Logout) | Menu



33 MLD Sewage Treatment Plant (STP236)

Sewage Treatment Plant



Name: 2147601



Sector 54 Noida Gautam Budh Nagar - 201301, Noida, UP-201301, Noida UP PIN - 201301

Station: 1



STP1_Outlet

Flow Outlet			Jul 17, 2023 5:40:00 PM Tide	
TSS			Jul 17, 2023 5:40:00 PM Tide	100 mg/L Prescribed Standard
COD			Jul 17, 2023 5:40:00 PM Tide	250 mg/L Prescribed Standard
pH			Jul 17, 2023 5:40:00 PM Tide	6.5 - 9 pH Prescribed Standard
BOD			Jul 17, 2023 5:40:00 PM Tide	30 mg/L Prescribed Standard





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Central Pollution Control Board

Welcome Industry user (Logout) Menu



54 MLD STP Sector 54 Noida



54 MLD STP Sector 54 Noida (UP 201301)

Sewage Treatment Plant



54 MLD STP Sector 54 Noida, Gautam Budh Nagar - 201301, Noida, UP-201301, Gautam Budh Nagar UP PIN - 201301

Station: 1

STP1_Outlet

BOD			Jul 17, 2023 5:40:00 PM Time	30 mg/L Prescribed Standard	
Flow Outlet			Jul 17, 2023 5:40:00 PM Time		
COD			Jul 17, 2023 5:40:00 PM Time	250 mg/L Prescribed Standard	
pH			Jul 17, 2023 5:40:00 PM Time	6.5 - 9 pH Prescribed Standard	
TSS			Jul 17, 2023 5:40:00 PM Time	100 mg/m ³ Prescribed Standard	





Central Pollution Control Board

Welcome Industry user (Logout) Menu

**NOIDA AUTHORITY Location 34 MLD
STP Sector 50 Noida(48UP236)**

Sewage
Treatment
Plant



Noida authority sector -50 Noida, Gautam Budh Nagar,201301,
Noida UP PIN - 201301
Station: 1

STATION DATA

(Last 30 days)

010

020

030

040

050

060

070

080

090

100

110

120

130

140

150

160

170

180

190

200

210

220

230

240

250

260

270

280

290

300

STP_Outlet

BOD			Jul 17, 2023 6:45:00 PM Time	30 mg/L Prescribed Standard	
pH			Jul 17, 2023 6:45:00 PM Time	6.5 - 9 pH Prescribed Standard	
Env Temp			Jul 17, 2023 6:45:00 PM Time		
COD			Jul 17, 2023 6:45:00 PM Time	250 mg/L Prescribed Standard	
TSS			Jul 17, 2023 6:45:00 PM Time	100 mg/L Prescribed Standard	
NH3			Jul 17, 2023 6:45:00 PM Time		

STATION DATA

(Last 7 Days)

0





Central Pollution Control Board

Welcome Industry user (Logout) Menu

**NOIDA AUTHORITY Location 25 MLD
Sewage Treatment Plant Sector 50
Noida(40UP235)**

Sewage
Treatment
Plant



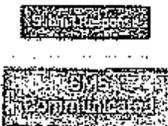
Noida authority Sector - 50, Noida, Gautam Buddha Nagar,
NOIDA, UP-201301, Noida UP PIN - 201301



Station: 1

STP_Outlet

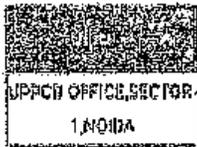
BOD			Jul 17, 2023 6:45:00 PM Time	30 mg/L Prescribed Standard	
COD			Jul 17, 2023 6:45:00 PM Time	250 mg/L Prescribed Standard	
Env Temp			Jul 17, 2023 6:45:00 PM Time		
TSS			Jul 17, 2023 6:45:00 PM Time	100 mg/L Prescribed Standard	
pH			Jul 17, 2023 6:45:00 PM Time	6.5 - 9 pH Prescribed Standard	
NH3			Jul 17, 2023 6:45:00 PM Time		





Central Pollution Control Board

Welcome Industry user (Logout) Menu



Noida Authority 35 MLD Sewage Treatment Plant at Sector 123 Noida(48UP244)

Noida authority Senior Manager, JAL QA , sector 5 Noida.,

Noida UP PIN - 201307

Station: 1

Sewage Treatment Plant



(Last 30 days)



STP1_Outlet

COD			Jul 17, 2023 9:35:00 AM Time	250 mg/L Prescribed Standard	
TSS			Jul 17, 2023 9:35:00 AM Time	100 mg/L Prescribed Standard	
Flow Outlet			Jul 17, 2023 9:35:00 AM Time		
pH			Jul 17, 2023 9:35:00 AM Time	6.5 - 9 pH Prescribed Standard	
BOD			Jul 17, 2023 9:35:00 AM Time	30 mg/L Prescribed Standard	

Submit Response



0

(Last 7 Days)

Central Pollution Control Board

Welcome Industry user (Logout) Menu



Noida Authority 50 MLD sewage Treatment Plant at Sector 168

Noida Authority Senior Manager, Jai OA, Sector E, Noida

Station: 1

Sewage Treatment Plant



Last 10 days

STP1_Outlet

Flow Outlet		Jul 17, 2023 5:40:00 PM	
pH		Jul 17, 2023 5:40:00 PM	6.5 - 9 pH
COD		Jul 17, 2023 5:40:00 PM	250 mg/L
BOD		Jul 17, 2023 5:40:00 PM	30 mg/L
TSS		Jul 17, 2023 5:40:00 PM	100 mg/L

ANNEXURE-I

एस0टी0पी0 नौएडा से शोधित जल आपूर्ति का विवरण

Period:- April-2023 to June -2023

क्र० सं०	शोधित जल आपूर्ति श्रोत	स्थापित मोटर पम्प का विवरण	क्षमता (डिस्चार्ज)	आपूर्ति स्थल(सेक्टर / पार्क)	मोटर पम्प चलाने की अवधि(घण्टों में)	आपूर्ति शोधित जल
Location:- STP SEC.50,54,123,168 (All 6 STPs)						
1	पाईप लाईन द्वारा			As per details		4606456 KL
2	टैंकरों द्वारा (निशुल्क)			सड़क पर छिडकाव / हार्टिकल्चर विभाग /अग्निशमन दमकल विभाग /हैल्थ विभाग /वर्क सर्किल व अन्य कार्य हेतु टैंकर		28960 KL
3	टैंकरों द्वारा (सशुल्क)			याची संविदाकार को / बिल्डर को निर्धारित राजस्व धनराशि जमा करने के उपरान्त शोधित जल की आपूर्ति की जाती है		70320 KL
Total KL =						4705736.00 KL

Total (April-2023 to June -2023) = (4705736 X 1000)/1000000

4705.74 ML/ month

Average/day =

51.56 MLD



प्रताप सिंह
प्रबन्धक
(जल-बा०सं०), नौएडा

DEVENDRA NIGAM
Senior Manager
(Jal Outer Agency), NOIDA

एस0टी0पी0 नौएडा से शोधित जल आपूर्ति का विवरण

Period:- April-2023 to June -2023

क्र० सं०	शोधित जल आपूर्ति श्रोत	स्थापित मोटर पम्प का विवरण	क्षमता (डिस्चार्ज)	आपूर्ति स्थल(सैक्टर्स / पाक)	मोटर पम्प चलाने की अवधि(घण्टों में)	आपूर्ति शोधित जल	
STP SEC.50							
1	पाईप लाईन द्वारा	150 HP Motor -2 Nos	800	Cum / Hr	गोल्फ कोर्स / बॉटनिकल गार्डन	3341.40 Hour	800X3341.40X0.85 2272152 KL
2	टैंकरों द्वारा (निशुल्क)	10 HP Motor 2 Nos	सड़क पर छिडकाव / हार्टिकल्चर विभाग / अग्निशमन दमकल विभाग / हैल्थ विभाग / वर्क सर्किल व अन्य कार्य हेतु टैंकर				10095 KL
2	टैंकरों द्वारा (सशुल्क)		यात्री संविदाकार को / बिल्डर को निर्धारित राजस्व धनराशि जमा करने के उपरान्त शोधित जल की आपूर्ति की जाती है				20410 KL
Total KL =						2302657.00 KL	

Total (April-2023 to June -2023) = (2302657 X 1000)/1000000

2302.66 ML/ month

Average/day =

25.23 MLD



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DEVENDRA NIGAM
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एस0टी0पी0 नौएडा से शोधित जल आपूर्ति का विवरण

Period:- April-2023 to June -2023

क्र० सं०	शोधित जल आपूर्ति श्रोत	स्थापित मोटर पम्प का विवरण	क्षमता (डिस्चार्ज)	आपूर्ति स्थल(सेक्टर / पार्क)	मोटर पम्प चलाने की अवधि(घण्टों में)	आपूर्ति शोधित जल			
STP SEC.54									
1	पाईप लाईन द्वारा	1) 150 HP Motor -2 Nos	800	Cum / Hr	Stadium Sectors 20,21,23,26,33,34,52,53 ,54,55,56 etc & Wet Land Sec-54	1873.00	Hour	800X1873.X0.85 1273640	KL
2	टैंकरों द्वारा (निशुल्क)		सड़क पर छिड़काव / हार्तिकल्चर विभाग / हेल्थ विभाग / वर्क सर्किल व अन्य कार्य हेतु टैंकर					13865	KL
3	टैंकरों द्वारा (सशुल्क)		यात्री संविदाकार को / बिल्डर को निर्धारित राजस्व धनराशि जमा करने के उपरान्त शोधित जल की आपूर्ति की जाती है					5410	KL
Total KL =								1292915.00	KL

Total (April-2023 to June -2023) = (1292915 X 1000)/1000000

1292.92 ML/ month

Average/day =

14.17 MLD



प्रताप सिंह
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DEVENDRA RAM
Senior A
(Jal Outer Ag-) NDA

एस0टी0पी0 नौएडा से शोधित जल आपूर्ति का विवरण

Period:- April-2023 to June -2023

क्र० सं०	शोधित जल आपूर्ति श्रोत	स्थापित मोटर पम्प का विवरण	क्षमता (डिस्चार्ज)	आपूर्ति स्थल(सेक्टर्स / पाकी)	मोटर पम्प चलाने की अवधि(घण्टों में)	आपूर्ति जल	
STP SEC.123							
1	पाईप लाईन द्वारा	1) Booster motor 75/50HP 3 Nos	432	Cum / Hr	Green belt/park Along FNG Road	120.00 Hour	432X120X0.85 44064 KL
2	टैंकरों द्वारा (निशुल्क)		सड़क पर छिडकाव / हार्तिकल्चर विभाग /अग्निशमन दमकल विभाग /हैल्थ विभाग /वर्क सर्किल व अन्य कार्य हेतु टैंकर				4310 KL
3	टैंकरों द्वारा (सशुल्क)		यात्री संविदाकार को / बिल्डर को निर्धारित राजस्व धनराशि जमा करने के उपरान्त शोधित जल की आपूर्ति की जाती है				44500 KL
Total KL =						92874.00	KL

Total (April-2023 to June -2023) = (92874 X 1000)/1000000

92.87 ML/ month

Average/day =

1.02 MLD


प्रताप सिंह
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(जल-बा०सं०), नौएडा

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(Jal Outer Agency), NOIDA

एस0टी0पी0 नौएडा से शोधित जल आपूर्ति का विवरण

Period:- April-2023 to June -2023

क्र० सं०	शोधित जल आपूर्ति श्रोत	स्थापित मोटर पम्प का विवरण	क्षमता (डिस्चार्ज)	आपूर्ति स्थल(सैक्टर्स / पार्क)	मोटर पम्प चलाने की अवधि(घण्टों में)	आपूर्ति जल	
STP SEC.168							
1	पाईप लाईन द्वारा	1)150 HP Motor -2 Nos 2) 90 HP Motor 1 Nos	800	Cum / Hr	Green belt/park Along FNG Road	1495.00 Hour	800X1495X0.85 1016600 KL
2	टैंकरों द्वारा (निशुल्क)		सड़क पर छिडकाव / हार्तिकल्चर विभाग /अग्निशमन दमकल विभाग /हैल्थ विभाग /वर्क सर्किल व अन्य कार्य हेतु टैंकर	690	KL		
3	टैंकरों द्वारा (सशुल्क)		याची संविदाकार को / बिल्डर को निर्धारित राजस्व धनराशि जमा करने के उपशान्त शोधित जल की आपूर्ति की जाती है	0	KL		
Total KL =						1017290.00 KL	

Total (April-2023 to June -2023) = (1017290 X 1000)/1000000

1017.29 ML/ month

Average/day =

11.15 MLD


 प्रताप सिंह
 प्रबन्धक
 (जल-बा०सं०), नौएडा

DEVENDRA NIGAM
 Senior Manager
 (Jal Outer Agency), NOIDA

ANNEXURE-J

7

**Treated water future plan for irrigation system in
one year further in Noida area as below**

S.No.	Sector	Area/Use	Quality Proposed (In MLD)
01	54	Wetland in polishing pond in premises of STP Sec-54	15
02	50	Supply of treated water in Green/belt/park in Sec-51, Sector-7X & Sector-112 to 122	30
03	123	NTPC first Stage	35
04	168	Golf course, Sec-151 Sheed Bhagat Singh Sec-150, along Noida Gr, Noida Expressway-way Green belt	20
		Green belt, Park & Wetland Sectors along Noida Gr. Noida Expressway-way Green belt	20
Total 411 MLD STP Capacity			120 MLD in aDay



प्रताप सिंह
प्रबन्धक
(जल-वा०सं०), नोएडा

DEVENDRA NIGAM
Senior Manager
(Jal Outer Agency), NOIDA

नवीन ओखला औद्योगिक विकास प्राधिकरण

मुख्य प्रशासनिक भवन, सेक्टर-8, नौएडा, जिला-गौतमबुद्धनगर

पत्रांक:- नौएडा/मु0का0अ0/2023/प0प्र0(जल-बा0सं0)1574
दिनांक : 27 मार्च / 2023

प्रेषक,

मुख्य कार्यपालक अधिकारी
नौएडा।

सेवा में,

मुख्य प्रबन्ध निदेशक
एन0टी0पी0सी0 भवन
स्कोप कॉम्प्लैक्स-7, संस्थागत क्षेत्र,
लोधी रोड, नई दिल्ली-110003

विषय:- एन0टी0पी0सी0, दादरी तक नौएडा में स्थित सीवेज शोधन संयंत्रों से शोधित जल ले जाने के सम्बन्ध में।

सन्दर्भ:-

1. एन टीपीसी का मांग पत्र 08/EMG/16/1200 दिनांक 12.04.2016
2. दिनोंक 28/01/2016 को प्रकाशित भारत का राजपत्र
3. पत्रांक नौएडा/प0अ0(जल-बा0सं0)/30/16 दिनांक 25.04.2016
4. जिला अधिकारी गौतमबुद्धनगर के पत्र सं- 411/स0पत्र13/16 दिनांक 12.05.2016
5. एन टीपीसी का मांग पत्र 08/EMG/16/129 दिनांक 23.06.2016
6. पत्रांक नौएडा/प0अ0(जल-बा0सं0)/195/16 दिनांक 12.07.2016
7. नौएडा एवं एन0टी0पी0सी0 के मध्य गठित एम0अ0थू0 दिनांक 03.11.2018
8. एन टीपीसी का मांग पत्र 08/EMG/AU/2017/1267 दिनांक 22.08.2017
9. पत्रांक नौएडा/अ0मु0का0अ0(एम)/2022/जल(बा0सं0)/1047 दिनांक 10.08.2022
10. पत्रांक नौएडा/व0प्र0(जल-बा0सं0)/1095/22 दिनांक 30.08.2022
11. बैठक का कार्यवृत्त पत्रांक नौएडा/अ0मु0का0अ0(एम)/2022/92 दिनांक 05.09.2022
12. पत्रांक नौएडा/व0प्र0(जल-बा0सं0)/1121/22 दिनांक 07.09.2022
13. पत्रांक नौएडा/व0प्र0(जल-बा0सं0)/1177/22 दिनांक 22.09.2022
14. बैठक का कार्यवृत्त पत्रांक नौएडा/अ0मु0का0अ0(एम)/2022/व0प्र0(जल-बा0सं0) 1248 दिनांक 17.10.2022
15. पत्रांक नौएडा/अ0मु0का0अ0(एम)/2022/143 दिनांक 14.12.2022

कृपया एन0टी0पी0सी0 के मांग पत्र 08/EMG/16/1200 दिनांक 12.04.2016 का अवलोकन करने का कष्ट करें, जिसमें थर्मल पावर प्लान्ट हेतु एन0टी0पी0 के शोधित जल की आवश्यकता हेतु भारत के राजपत्र दिनोंक 28/01/2016 के Clause 6.2 (5) का उल्लेख किया है, जो कि निम्नवत है :-

"The thermal power plant(s) including the existing plants located within 50 km radius of sewage treatment plant of Municipality/local bodies/similar organization shall in the order of their closeness to the sewage treatment plant, mandatorily use treated sewage water produced by these bodies and the associated cost on this account be allowed as a pass through in the tariff. Such thermal plants may also ensure back-up source of water to meet their requirement in the event of shortage of supply by the sewage treatment plant. The associated cost on this account shall be factored into the fixed cost so as not to disturb the merit order of such thermal plant. The shutdown of the sewage treatment plant will be taken in consultation with the developer of the power plant".

थर्मल पावर प्लान्ट के लिये एन0टी0पी0 शोधित जल की आपूर्ति के सम्बन्ध में अपर महाप्रबन्धक (पर्यावरण एवं राख उपयोग विभाग) द्वारा नौएडा के एन0टी0पी0 से शोधित जल की नियमित मात्रा की आपूर्ति हेतु अनुरोध किया गया था।

इस सम्बन्ध में उक्त परियोजना के अन्तर्गत 115 एम0एल0डी0 शोधित जल एन0टी0पी0सी0 दादरी को उपलब्ध कराये जाने हेतु दिनांक 17/09/2018 को सक्षम स्तर से अनुमोदन किया गया, तत्कम में दिनांक 03.11.2018 को नौएडा एवं एन0टी0पी0सी0 के मध्य एक एम0ओ0यू0 हस्ताक्षरित हुआ था। गठित एम0ओ0यू0 के अनुसार सीवेज शोधन संयंत्रों से शोधित जल लेकर एन0टी0पी0सी0, दादरी तक जाने वाली डी0आई0 लाईन का कार्य 36 माह में पूर्ण किया जाना था तथा इस कार्य की सम्पूर्ण लागत एन0टी0पी0सी0, दादरी द्वारा वहन की जानी थी तथा कार्य पूर्ण करने के लिए तकनीकी पहलू एवं डी0पी0आर0 आदि का दायित्व उत्तर प्रदेश जल निगम को दिया गया था। हस्ताक्षरित एम0ओ0यू0 के स्कोप ऑफ वर्क संख्या 3.1 के अनुसार एन0टी0पी0सी0, दादरी द्वारा एक मुश्त रू0 75.00 लाख की धनराशि उत्तर प्रदेश जल निगम को डी0पी0आर0 तैयार करने हेतु दी जानी थी ताकि इस योजना पर प्रभावी कार्यवाही हो सके, परन्तु आप के द्वारा धनराशि उपलब्ध नहीं करायी गयी। इसी क्रम में नौएडा प्राधिकरण एवं उत्तर प्रदेश जल निगम द्वारा विभिन्न सन्दर्भित पत्रों के माध्यम से एन0टी0पी0सी0 दादरी को यह धनराशि अवमुक्त करने के लिए आग्रह किया गया।

दिनांक 01.09.2022 को अपर मुख्य कार्यपालक अधिकारी (एम) की अध्यक्षता में एन0टी0पी0सी0 दादरी के प्रतिनिधि उप महाप्रबन्धक श्री पी0 के0 गुप्ता की उपस्थिति में बैठक की गयी, जिसमें श्री गुप्ता द्वारा इस धनराशि को आवश्यक परीक्षण उपरान्त अवमुक्त कराने के लिए एक सप्ताह के समय की मांग की गई थी लेकिन अभी तक एन0टी0पी0सी0 द्वारा वांछित कार्यवाही कर प्राधिकरण को अवगत नहीं कसया गया है, जिसके कारण परियोजना से सम्बन्धित डी0पी0आर0 बनाने में उत्तर प्रदेश जल निगम अनावश्यक विलम्ब हो रहा है। माननीय राष्ट्रीय हरित अधीकरण, द्वारा याचिका संख्या 1002/2018 में दिनांक- 03.08.2022 को पारित आदेश के अनुपालन में CPCB एवं Ministry of Housing and Urban affairs regarding (Reuse of treated used water in Thermal Plan Plan) on 15.11.2022 at 2.00 P.M. अपने पत्रांक संख्या D0 No/K/16011/10/2022-AMRUT Dated 10.11.2022 द्वारा भी आपको निर्देशित किया गया है। अतः अनुरोध है कि कार्य की महत्ता को दृष्टिगत रखते हुए गठित एम0ओ0यू0 में वर्णित कार्य का निष्पादन शीघ्रतापूर्वक कराने का कष्ट करें।

संलग्नक-एम0ओ0यू0 की छायाप्रति।



(रितु माहेश्वरी)

मुख्य कार्यपालक अधिकारी

नौएडा।

प्रतिलिपि:-

1. सचिव महोदय, शक्ति मंत्रालय, भारत सरकार, श्रम शक्ति भवन, रफी मार्ग, नई दिल्ली।
2. मुख्य सचिव महोदय, उत्तर प्रदेश सरकार, 101, बी ब्लॉक, लोक भवन, उत्तर प्रदेश सचिवालय लखनऊ को सादर अवलोकनार्थ।
3. अवस्थापना एवं औद्योगिक विकास आयुक्त महोदय, उ0प्र0 लखनऊ को सादर अवलोकनार्थ।
4. प्रमुख सचिव, अवस्थापना एवं औद्योगिक विकास महोदय, उ0प्र0 लखनऊ को सादर अवलोकनार्थ।
5. अपर मुख्य कार्यपालक अधिकारी (एस0पी0) को सूचनार्थ।
6. उप महाप्रबन्धक (जल) को सूचनार्थ।
7. श्री के0पी0गुप्ता, उप महाप्रबन्धक, एन0टी0पी0सी0, दादरी को आवश्यक कार्यवाही हेतु।
8. वरिष्ठ प्रबन्धक(जल-वा0सं0) को आवश्यक कार्यवाही हेतु।


मुख्य कार्यपालक अधिकारी
नौएडा।



ANNEXURE-L

CA 8547-48/2022

1

ITEM NO.36+65

COURT NO.1

SECTION XVII

S U P R E M E C O U R T O F I N D I A
R E C O R D O F P R O C E E D I N G SCivil Appeal Nos.8547-8548/2022

NEW OKHLA INDUSTRIAL DEVELOPMENT AUTHORITY

Appellant(s)

VERSUS

THE STATE OF UTTAR PRADESH & ORS.

Respondent(s)

(With IA No.176359/2022 - EXEMPTION FROM FILING C/C OF THE IMPUGNED JUDGMENT, IA No.176361/2022 - EXEMPTION FROM FILING O.T. and IA No. 176358/2022 - STAY APPLICATION)

WITH C.A. Diary No.36763/2022

(With IA No.179810/2022 - EX-PARTE STAY, IA No.179808/2022 - PERMISSION TO FILE APPEAL and IA No.179809/2022 - CONDONATION OF DELAY IN FILING APPEAL)

Date : 28-11-2022 These matters were called on for hearing today.

CORAM :

HON'BLE THE CHIEF JUSTICE
HON'BLE MR. JUSTICE PAMIDIGHANTAM SRI NARASIMHA

For Appellant(s)	Mr. Mahesh Jethmalani, Sr. Adv. Mr. Anil Kaushi, Adv. Mr. Abhishek Mishra, Adv. Mr. Rachit Mittal, Adv. Mr. Rajat Rana, Adv. Ms. Anju Kaushik, Adv. Ms. Mugdha Pandey, Adv. Mr. Rajinder Singh, ADR
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CA 8547-48/2022

2

Mr. S.V. Raju, ASG
Ms. Asha Gopalana Nair, AOR
Ms. Shakshi Popli, Adv.
Ms. Nivedita Nair, Adv.

For Respondent(s)

Mr. Rajeev Singh, AOR

UPON hearing the counsel the Court made the following
O R D E R

- 1 Permission to file the appeal is granted.
- 2 Delay condoned.
- 3 Issue notice, returnable in eight weeks.
- 4 Pending further orders, there shall be a stay of the impugned order of the National Green Tribunal dated 3 August 2022, insofar as it directs Noida and the Delhi Jal Board to deposit respectively interim compensation of Rs 100 crores and Rs 50 crores.

(CHETAN KUMAR)
A.R. -cum-P.S.

(SAROJ KUMARI GAUR)
Assistant Registrar

नवीन ओखला औद्योगिक विकास प्राधिकरण

मुख्य प्रशासनिक भवन सैक्टर -06 नोएडा

संस्थागत विभाग

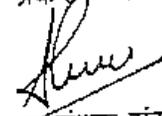
पत्र संख्या: नोएडा/संस्थागत/2023/ 638
दिनांक... 02.06.2023.

नगर पालिका परिषद
खोडा मकनपुर,
गाजियाबाद

विषय:- खोडा मकनपुर नगर पालिका के परिसर में जलापूर्ति हेतु स्थान चिन्हित किये जाने के संबंध में।

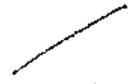
कृपया उपरोक्त विषय का संदर्भ ग्रहण करने का कष्ट करें, जिसके अन्तर्गत आपके द्वारा खोडा मकनपुर नगर पालिका के परिसर में जलापूर्ति हेतु स्थान चिन्हित किये जाने का अनुरोध किया गया है। इस संबंध में सूचित करना है कि सैक्टर 62 में 132के0बी0 विद्युत उपकेन्द्र के पास 16000 वर्ग मी0 एच0टी0 कोरीडोर भूमि उपलब्ध है, जिसपर नियमानुसार आवंटन उपरान्त खोडा-मकनपुर नगर पालिका परिषद द्वारा STP/SPS के निर्माण का कार्य कराया जा सकता है।

नोएडा महायोजना-2031 के अनुसार एच0टी0 लाईन कोरीडोर एक यूटीलिटी है। सर्वेक्षण के अनुसार प्रस्तावित 16000 वर्ग मी की भूमि में 03 पिलर स्थित है। जिसके नीचे की भूमि को यूटीलिटी मानते हुये बिजली विभाग की सहमति प्राप्त कर एस0टी0पी0 व पम्पिंग स्टेशन के संचालन हेतु नियोजन विभाग द्वारा भूमि का चिन्हांकन किया गया है। अतः प्रस्तावित चिन्हांकित भूमि के आवंटन पर अपनी सहमति प्राधिकरण को यथाशीघ्र प्रस्तुत करने का कष्ट करें, ताकि प्रकरण में अग्रिम नियमानुसार कार्यवाही सुनिश्चित की जा सकें।


सहायक महाप्रबंधक-संस्थागत

प्रतिलिपि:-

- 1 विशेष कार्यधिकारी-वी महोदया को सादर अवलोकनार्थ।
- 2 अपर मुख्य कार्यपालक अधिकारी(एस0पी0) महोदय को सादर अवलोकनार्थ ।


सहायक महाप्रबंधक-संस्थागत

कार्यालय नगर पालिका परिषद खोडा-मकनपुर, गाजियाबाद।

पत्रांक: 235/न0पा0परि0खो0म0गा0/2023-24

दिनांक: 02.06.2023

सेवा में,

सहायक महाप्रबन्धक,
संस्थागत, नवीन ओखला,
औद्योगिक विकास प्राधिकरण,
सेक्टर-06, नोएडा।

विषय:— खोडा-मकनपुर नगर पालिका के परिसर में जलापूर्ति हेतु स्थान चिन्हित किये जाने के सम्बन्ध में।

महोदय,

कृपया अपने कार्यालय के पत्र संख्या-नोएडा/संस्थागत/2023/6380 दिनांक-02 जून 2023 का सन्दर्भ ग्रहण करने का कष्ट करें, जिसके क्रम में जलापूर्ति हेतु सेक्टर-62 में 132 के0वी0 विद्युत उपकेन्द्र के पास 16000 वर्ग मीटर एच0टी0 कोरिडोर भूमि के आवंटन पर सहमति दिये जाने के सम्बन्ध में है।

उक्त के क्रम में अवगत कराना है कि निकाय की आगामी बोर्ड बैठक की स्वीकृति की प्रत्याशा में अध्यक्ष महोदया द्वारा आज दिनांक 03.06.2023 के माध्यम से जलापूर्ति एवं एस0टी0पी0 व पम्प स्टेशन के संचालन हेतु 16000 वर्ग मीटर एच0टी0 कोरिडोर भूमि के आवंटन पर सहमति प्रदान कर दी गयी है। इस सम्बन्ध में निकाय को किसी प्रकार की कोई आपत्ति नहीं है। कृपया प्रकरण में अग्रिम कार्यवाही करने की कृपा करें।

(शालिनी गुप्ता)
अधिशासी अधिकारी,
न0पा0परि0खोडा-मकनपुर,
गाजियाबाद।

प्रतिलिपि:—

1. विशेष कार्याधिकारी-वी महोदया, नवीन ओखला औद्योगिक विकास प्राधिकरण को सूचनार्थ सादर प्रेषित।
2. अपर मुख्य कार्यपालक अधिकारी (एस0पी0) महोदय, नवीन ओखला औद्योगिक विकास प्राधिकरण को सूचनार्थ सादर प्रेषित।

(शालिनी गुप्ता)
अधिशासी अधिकारी,
न0पा0परि0खोडा-मकनपुर,
गाजियाबाद।