Environmental Monitoring Report

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July 2023

India: Uttarakhand Integrated and Resilient Urban Development Project

Prepared by Uttarakhand Integrated and Resilient Urban Development Project (UIRUDP), Uttarakhand Urban Sector Development Agency, Government of Uttarakhand for the Asian Development Bank (ADB).

CURRENCY EQUIVALENTS

(As of September 2022)

Currency unit	–	Currency Equivalent
INR 1.00	=	$ 0.0125
$1.00	=	INR. 81.51 (on 28.01.2023)

ABBREVIATIONS

ADB	-	Asian Development Bank
BOD	-	Biochemical Oxygen Demand
COD	-	Chemical Oxygen Demand
CPCB	-	Central Pollution Control Board
CTE	-	Consent to Establish
CTO	-	Consent to Operate
DBOC	-	Design Build Operate Contractor
DO	-	Dissolved Oxygen
EA	-	Executing Agency
EHS	-	Environment, Health & Safety
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Plan
EMR	-	Environment Monitoring Report
ESSR	-	Environment and Social Safeguard Unit
GESI	-	Gender Equality and Social Inclusion
GLSR	-	Ground Level Storage Reservoir
GRC	-	Grievance Redressal Committee
GRM	-	Grievance Redress Mechanism
HDPE		High Density Poly ethylene
IEE	-	Initial Environmental Examination
LOA	-	Letter of Acceptance
LPG	-	Liquefied Petroleum Gas
MoEFCC	-	Ministry of Environment and Forest & Climate Change, Governmentof India
NGO	-	Non-Government Organization
OHT	-	Overhead Tank
O&M	-	Operation and Maintenance
PHED	-	Public Health Engineering Department
PMDSC	-	Project Management Design and Supervision Consultant
PMU	-	Project Management Unit
PUC		Pollution Under Control
RF	-	Resettlement Framework
RP	-	Resettlement Plan
SEMP	-	Site Environment Management Plan
SGS	-	Safeguard and Gender Cell
SPS	-	Safeguard Policy Statement
STP	-	Sewerage Treatment Plant
TMP	-	Traffic Management Plan

USD	-	US Dollar
UKPCB	-	Uttarakhand Pollution Control Board

WEIGHTS AND MEASURES

^{o}C	degree centigrade
dB	Decibels
dia	diameter
kg	kilo gram
Kl	kilolitre
km	kilometre
kmph	kilometre per hour
ha	hectares
HP	Horse Power
LPCD	liters per capita per day
lps	liters per second
m	meter
m^3	Cubic meter
mg	milli gram
mm	milli meter
mcm	million cubic meters
sq.km	Square Kilometre

NOTE

In this report, "$" refers to United States dollars.

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I. INTRODUCTION

A. Project Name: Uttarakhand Integrated Urban Development Project (UIRUDP)

1. The project will support the Government of Uttarakhand (GOU) in enhancing access to high quality and resilient water supply and sanitation (WSS) services in Dehradun; and in upgrading sanitation facilities to ensure continuous sanitation service provision in Nainital. The project applies a range of integrated solutions by (i) combining centralized and decentralized sanitation systems and piloting mobile toilets to achieve city-wide inclusive sanitation (CWIS), (ii) introducing a city-wide intelligent maintenance and management systems for WSS, the first of its kind in India, and (iii) integrating ranges of climate-resilient measures into WSS infrastructure. The project will also focus on (i) behavior changes for water and resource savings, and hygiene practices; (ii) empowering communities for WSS related jobs and entrepreneurship skills; and (iii) strengthening institutional capacity and knowledge of the GOU and local governments for integrated, sustainable, and climate-resilient urban development in Uttarakhand.

2. The project is aligned with the following impacts: (i) universal and equitable access to safe and affordable drinking water improved, and (ii) access enhanced to adequate and equitable sanitation and hygiene for all ending open defecation. The outcome of the project is reliability and efficiency of resilient water supply and sanitation services in Dehradun and Nainital enhanced.

B. Projects Output and Outcome

3. The project has four major outputs as follows:

4. **Output 1: Resilient Water supply system and service in Dehradun improved.** The project will construct around 136 kilometers (km) of water supply networks in newly added wards in South Dehradun, replacing existing networks with leaks to ensure reliable and quality water supply services with a standard norm of 135 liters per capita per day (lpcd); 24 hours a day and 7 days a week (24/7) supply. Together with resilient water supply pipe networks, around 5,400 household connections will be provided by 2028 with water meters that would allow efficient water use and volumetric billing. Thus, nonrevenue water (NRW) in the project area will be reduced from 45–50% to at most 25%, which is higher than the Uttarakhand performance standards. Such resilient water supply systems will lessen the water stress in Dehradun, benefiting around 40,000 population including about 4,000 urban poor and vulnerable people by 2028.

5. **Output 2: Integrated and resilient sanitation systems and drainage enhanced in Dehradun and Nainital**. The project will construct (i) two sewerage treatment plants (STPs) with a total treatment capacity of 29 million litres per day (MLD); (ii) 256 km of enclosed underground sewer networks to stop GHG emissions from untreated wastewater; (iii) 117 km of enhanced storm water drainage networks factoring potential climate risks; and (iv) 17,410 household sewer connections, all in Dehradun. This output will benefit about 138,000 populations, including around 15,000 urban poor and vulnerable people by 2028. The project will include fecal sludge and septage management (FSSM) for the households that are not connected to sewer networks within the project areas. Combining these two, the project will establish cost-effective integrated CWIS solutions in Dehradun that are also climate-friendly. Once households are connected to the new centralized sewer system, existing household and community level soak pits in the project areas would be no longer in use. These soak pits after cleaning and connecting with rainwater capturing system can be re-utilized as ground water recharge pits, which is an innovative solution for climate adaptation and circular economy. In Nainital that has 100% coverage of sewerage system benefiting around 154,000 people, the project will (i) replace around 4 km of an aging trunk and outfall sewers with significant leaks; (ii) construct a new STP with a treatment capacity of 17 MLD with advanced moving bed biofilm reactor (MBBR) technology, replacing existing STP; and (iii)

build five prefabricated compact STPs addressing the challenge of a flood-prone steep hilly town and its limited land space, each of which will have at least 20 kilo liter per day capacity through MBBR and also equipped for reuse of treated wastewater that lessens water stress in Nainital.

6. **Output 3: Computerized maintenance and management systems (CMMS) for water and sanitation developed and implemented in Dehradun and Nainital**. To advance the operation and maintenance (O&M) performance and asset management of WSS in Dehradun and Nainital, the project will procure, install, and implement city-wide CMMS for WSS schemes. Using the internet of things, this information and communication technology (ICT)-based platform will communicate with supervisory control and data acquisition (SCADA) and geographical information system (GIS) to provide real-time data and information.[4] It will also provide a range of functions, including but not limited to the following: (i) present and record operation status; (ii) schedule and track inspections; (iii) plan, implement, and report the results of preventive maintenance; (iv) manage fixed assets across multiple sites; (v) manage inventory, work orders and contract managements; and (vi) provide customer services, which include the establishment of consumer data management system with disaggregated data by sex, age, and other social dimension.[5] The architecture of city-wide CMMSs will be designed so that CMMSs can be expandable and linkable with other smart platforms that are under development and will be developed.

7. **Output 4: Institutional capacity and knowledge strengthened.** This output includes a range of activities such as: (i) developing robust WSS O&M manuals, which will be aligned with the national WSS manuals[7] and customized to the WSS system, governance structure, and specific conditions and needs in the project cities; (ii) providing training on the WSS O&M manuals and CMMS use to UUSDA, UJN, UJS, and project ULBs; (iii) executing community awareness, participation, and behavior changes programs on water conservation, public health and hygiene practices, waste reduction, and making safe, clean, and healthy community environments; (iv) implementing the gender equality and social inclusion action plan (GESI-AP), including the stipend-based women internship program at UUSDA (para. 27); (v) development of 'climate adaptation supporting tools' in Dehradun and Nainital (para. 19); and (vi) strengthening institutional capacities and deepening the knowledge of UUSDA, UJN, UJS, and project ULBs, on sustainable urban infrastructure and services, including WSS tariff re-structuring to enhance the sustainability, green and resilient urban planning for livable and prosperous cities, integrated watershed and water management, ecosystem-based adaptation (EBA) measures, and GESI issues in urban systems and services.

C. Environmental Category

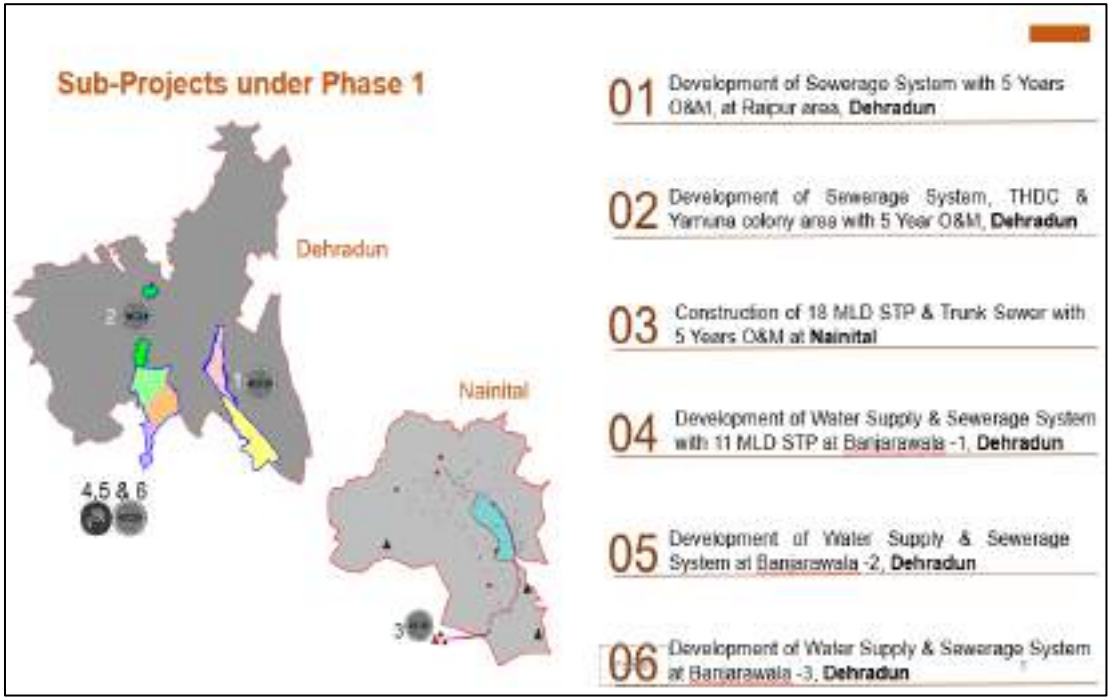
8. Uttarakhand Integrated Resilient Urban Development Project (UIRUDP) is classified as Category B according to ADB Safeguard Policy Statement (SPS), 2009 (project components judged to have some adverse environmental impacts, but of lesser degree and/or significance than those for Category A). All subprojects in UIRUDP are classified as Category B, and the impacts of all subprojects are assessed through Initial Environmental Examination (IEE) as per ADB SPS, 2009.

D. About this Report

9. This is 3rd (Third) Semi-annual Environmental Monitoring Report (SEMR) prepared by Uttarakhand Integrated and Resilient Urban Development Project (UIRUDP), Uttarakhand Urban Sector Development Agency, Government of Uttarakhand for the monitoring period of January 2023 to June 2023. This is the 3rd SEMR since the loan effectiveness on 5th March,2022. This SEMR provides the status of project, presents preparation and implementation of environmental

management, mitigation and monitoring actions, and reports status of compliance with Environmental Management Plans (EMPs) and loan covenants.

Figure 1a & 1b: Location of Project Towns



II. PROJECT IMPLEMENTATION ARRANGEMENTS

A. Project Management Arrangements

10. GOU acting through Urban Development Department (UDD) will be the project executing agency. UDD shall be responsible for overall strategic guidance and for ensuring compliance with ADB's loan covenants. Uttarakhand Urban Sector Development Agency (UUSDA) will be the implementing agency responsible for project management, supervision, and project implementation. GOU issued a government order (No. 685) to formulate various committees for the supervision and implementation of the Project.

11. The General Body under the chairmanship of Chief Secretary of UDD and other committees are formed in order to have full involvement and undertake regular monitoring of project implementation.

12. The Executive Committee under the chairmanship of Principal Secretary/Secretary of UDD will oversee the project implementation and other duties requested by the General Body.

13. The Coordination Committee will have three members, including Managing Director of UJN, Chief General Manager of UJS, and Deputy Project Director of UUSDA. It will facilitate and ensure close coordination and collaboration for the project and the project implementation; and facilitate the handover process of assets, O&M of assets being created under the project to ULBs and support the resolutions of any related issues regarding the handover.

14. The District Level Committee under chairmanship of District Magistrate will review the implementation progress, assist in site clearance activities and obtaining statutory clearances, provide guidance and support to the relevant PIU for ensuring smooth and timely implementation, and help the relevant PIU in seeking support of the stakeholders.

15. The Town Level Committee under the chairmanship of project town Mayor or designated Chairperson will endorse subproject scope of the respective ULB, provide a forum for effective involvement of ULB stakeholders in the project implementation and public awareness activities, and discuss and finalize the proposals for institutional changes if any with assistance of the PMU.

16. The PMU is headed by a dedicated Project Director of UUSDA (a senior officer consistent with the state government policy). The Project Director shall be supported by Additional Project Director (APD)-technical (an officer consistent with the state government policy), APD administration (an officer consistent with the state government policy), Finance Controller, Office Manager, Deputy Project Director (DPD) -1 (project implementation), DPD-2 (procurement, planning, and contract), Project Manager, Assistant Engineer, Deputy Project Manager (DPM)-1 (procurement and contract), DPM-2 (planning), Finance Officer, Account Assistant, Social Development and Gender Officer (SDGO), Environment Officer, Information Education and Communication Officer, Miscellaneous Officer. Deputy Project Director (Administration) who will support PMU in areas of project management, procurement, contract management, consultancy contract administration, trainings, institutional strengthening, safeguard compliance and reporting to Government and ADB. The Project Director will be supported by Financial Advisor and its team in all financial matters including budget management, disbursement claims, etc. For gender and safeguard compliance, PMU has one Social Development and Gender Officer, and one Information Education and Communication

Officer to manage gender inclusion and social safeguards monitoring and compliance requirements including grievance redressal. Environmental Officer will manage the implementation of environmental safeguards, environmental management plans (EMPs), and environmental monitoring and compliance requirements. There are sufficient officials to work on office administration, legal, information technology, Geographic information system (GIS)-based data/information management, project management, asset management, etc. The PMU will act as employer for all the works contracts during design-build period. ULBs will act as Employer during the remaining O&M period once the assets and O&M assets under the Project are handed over to ULBs. PMU will arrange finances, submit withdrawal applications to ADB and submit progress reports to the Government and ADB on a regular basis. PMU will be supported by the PMCBC in all the above activities, including project management.

17. Project implementation will be through PIUs stationed in Dehradun and Nainital. The PIUs will be headed by Project Manager (Executive Engineer level) supported by three Deputy Project Managers of Assistant Engineer (Civil) and Assistant Engineer (electrical and mechanical) rank Junior Engineers (civil), JE (electrical and mechanical), Unit Accountant, Account Assistant, Office Assistant and office attendants. PIU shall be responsible for the quality and quantity execution of all works under the project. Each PIU will be responsible for contract management, measurement of the work done and making payment to the contractors, etc. One of the junior engineers will be designated as social focal point (Social and Gender Officer) and the other as environmental focal point (Assistant Environmental Officer) who will be responsible for safeguards, health and safety requirements, grievance redressal, monitoring and compliance. PIU will be supported by PMDSC in all areas of project implementation and safeguard monitoring and compliance; and supported by PMDSC and CAPPA in the implementation of GESI action plan. PIU will be the Employer's representative for the works contracts during design-build period.

18. ULBs will be the final custodian and user of the created infrastructure under the project and is a major stakeholder in the project. Therefore, ULB representatives as a part of both the Town Level Committee and the District Level Committee members will be closely involved in various project management and implementation issues. Since works contracts include O&M of created infrastructure for 5 years by the same contractor, which will be supervised by UUSDA, PMU, and PIU with close consultation with ULBs in order to facilitate smooth transfer and sustainable O&M for the remaining O&M period.

19. The project activities will be supported by five consultants (firms): (I) project Management, Design and Supervision Consultant (PMDSC);(ii) Community Awareness and Public Participation Agency (CAPPA); (iii) Intelligent Asset and Service Management Consultant (IASMC); (iv) Hydrology and Geo-Technical Consultant (HGTC); and (v) Nainital Watershed Consultant (NWC).

20. **Project Management, Design and Supervision Consultant (PMDSC)** will support PMU in project management and implementation, including preparation/vetting design documents, tendering of contracts, implementation of resettlement, environmental management, grievance redressal and gender equality and social inclusion action plans; setting and managing project performance monitoring systems, planning and managing implementation of training and capacity building and institutional strengthening activities of ULBs and preparing reports as per ADB and Government requirements. PMDSC will support PIUs in overseeing and providing guidance to the project implementation. PMDSC will coordinate the works of other consultants on behalf of PMU and PIUs if required.

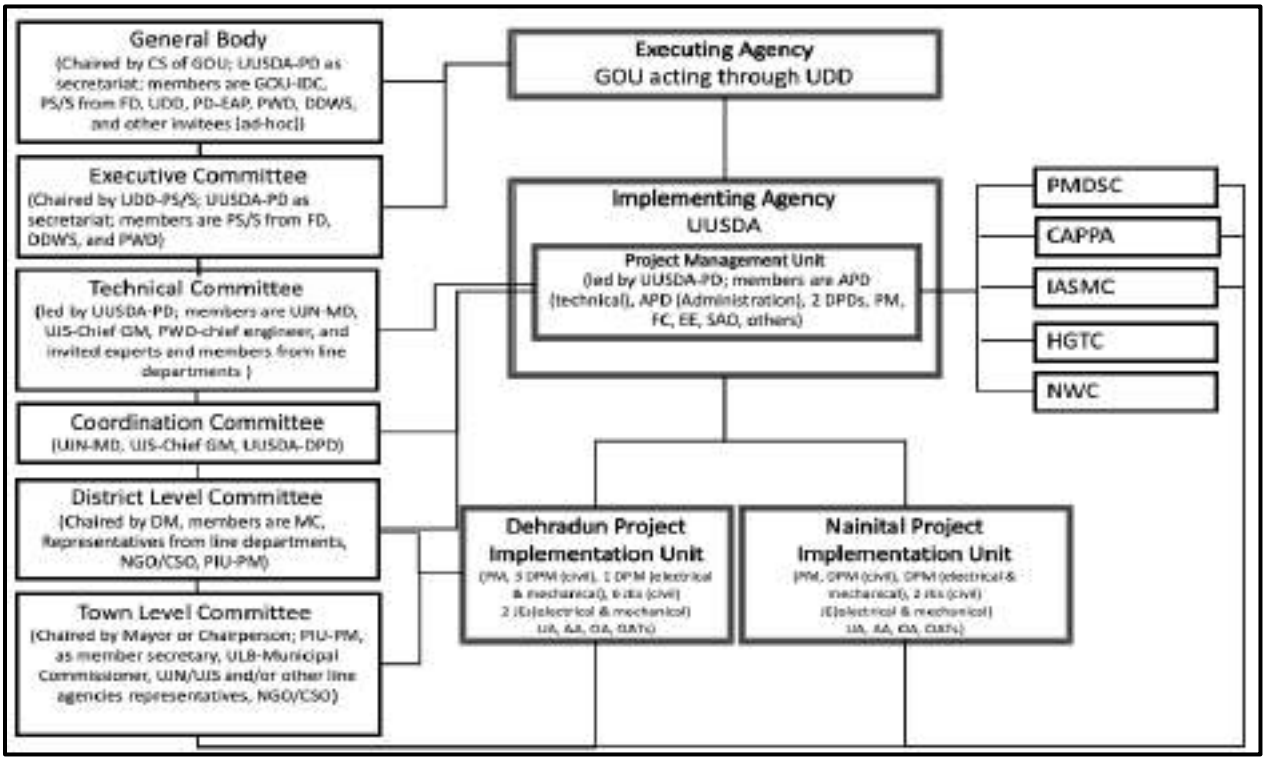
21. **Community Awareness and Public Participation Agency (CAPPA)** will closely work in field (with PMU and PIUs) to create awareness of the project and ensure public participation for all project works at the community level. This shall mainly involve in GESI activities, developing and implementing awareness programs and behavior changes campaigns on efficient resource uses, water saving, reduction of one-time use of plastics and plastic bags, better health and hygiene, aspects of SWM (reduce, reuse, recycle), waste segregation, community empowerment, benefits and do's and don'ts of sewer system etc. Also, CAPPA will plan, design, and implement capacity building training for skill upgrading of sanitation workers in mechanized equipment and safety gear, desludging of septic tanks, on community-based toilet operation, mobile toilet bus entrepreneurship, skills e.g., meter reading, water leak detection using sensor device, plumbing, and bill reading and distribution. CAPPA will also be involved in information dissemination on the project grievance redress mechanism.

22. **Intelligent Asset and Service Management Consultant (IASMC)** will closely work with UUSDA, UJN, UJS, ULBs, contractors to successfully introduce and implement CMMS for water supply and sanitation service improvement and better asset management. As for water supply system, IASMC will also focus on NRW assessment and management using smart water leak detection technology and software program linked to CMMS and carry out the deployment of smart NRW management and capacity building trainings to water supply operators and owners.

23. **Hydrology and Geo-Technical Consultant (HGTC)** will carry out necessary hydrology and geotechnical surveys to set up baseline data for various current and future project towns, including Dehradun, Nainital, Kodtwar, Haldwani, Ramnagar, and/or Roorkee.

24. **Nainital Watershed Consultant (NWC)** will carry out water and ground water qualities sampling and surveys, other relevant surveys to obtain good understanding and initial assessment on the Nainital watershed dynamics and the cause of water pollution in Nainital Lake.

Figure 2: Project organization Structure



AA = accountant assistant, APD=additional project director, CAPPA= community awareness & public participation agency, CS=chief secretary, DPD=deputy project director, DPM=deputy project manager, DDWS=Department of Drinking Water and Sanitation, DPM=deputy project manager, EE=environment engineer, FD=Finance Department, GM= general manager, GOU=government of Uttarakhand, HGTC=Hydrology and geo-technical consultant, IDC= Infrastructure Development Commissioner, IASMC=Intelligent asset and service management consultant, JE=junior engineer, MD=managing director, NWC=Nainital watershed consultant, OA=office assistant, OAT= office attendant, PD&EAP= Planning Department & externally aided project, PM=project manager, PMDSC= Project Management, Design & Construction Supervision Consultant, PS/S=principal secretary or secretary, PWD=Public Works Department, TL=team leader, UA=unit accountant, UDD=Uttarakhand urban department, UJN=Uttarakhand Peyjal Nigam, Uttarakhand Jal Sansthan (UJS).
Source: Government of Uttarakhand.

B. Safeguards Implementation Arrangements

25. **Project Management Unit (PMU).** The PMU will be headed by a Program Director (PD), a senior IAS Officer, of Additional Secretary rank; the Program Director will be supported by Additional Program Director (APD), Technical (an officer of Chief Engineer rank), Additional Program Director (APD), Administration (a State Cadre Level Administrative Officer or a junior IAS Officer) and a Finance Controller (a State Cadre Level Officer from finance discipline). APD Technical will be supported by Deputy Program Directors of Superintendent Engineer rank; DPD 1 will be responsible for Project Implementation and DPD 2 responsible for Procurement Planning and Contracts. DPD 1 is the focal person for coordinating with the PIUs, and for safeguards and GESI implementation. The Deputy Program Directors will be assisted by Project Managers of Executive Engineer rank and Deputy Project Managers (DPMs) of Assistant Engineer rank. PMU will have a position of Social Development and Gender Officer (SDGO) responsible for resettlement and safeguard implementation to assist the PMU, DPD 1 on implementation of resettlement plan and other social issues in compliance with ADB's SPS 2009 and GOI rules, an Environmental Officer and an Information, Education and Communication

(IEC) Officer. The PMU will support two PIUs, one at Dehradun and the other at Nainital; the PIUs will be responsible for planning, implementation, monitoring and supervision, and coordination of all activities under the UIRUDP. Each PIU will be headed by a Project Manager of Executive Engineer (EE) rank, reporting to the DPD 1.

26. **Project Implementation Units (Town/City Level).** Each PIU (one each in Dehradun and Nainital) will be headed by a Project Manager of Executive Engineer rank. The Project Manager of the PIU will be supported by three Deputy Project Managers of Assistant Engineer (Civil) and Assistant Engineer (electrical and mechanical) rank. Further, Junior Engineers will assist the Deputy Project Managers in project implementation. One of the Junior Engineers will be designated as social focal point (Social and Gender Officer) and the other as environmental focal point (Assistant Environmental Officer).

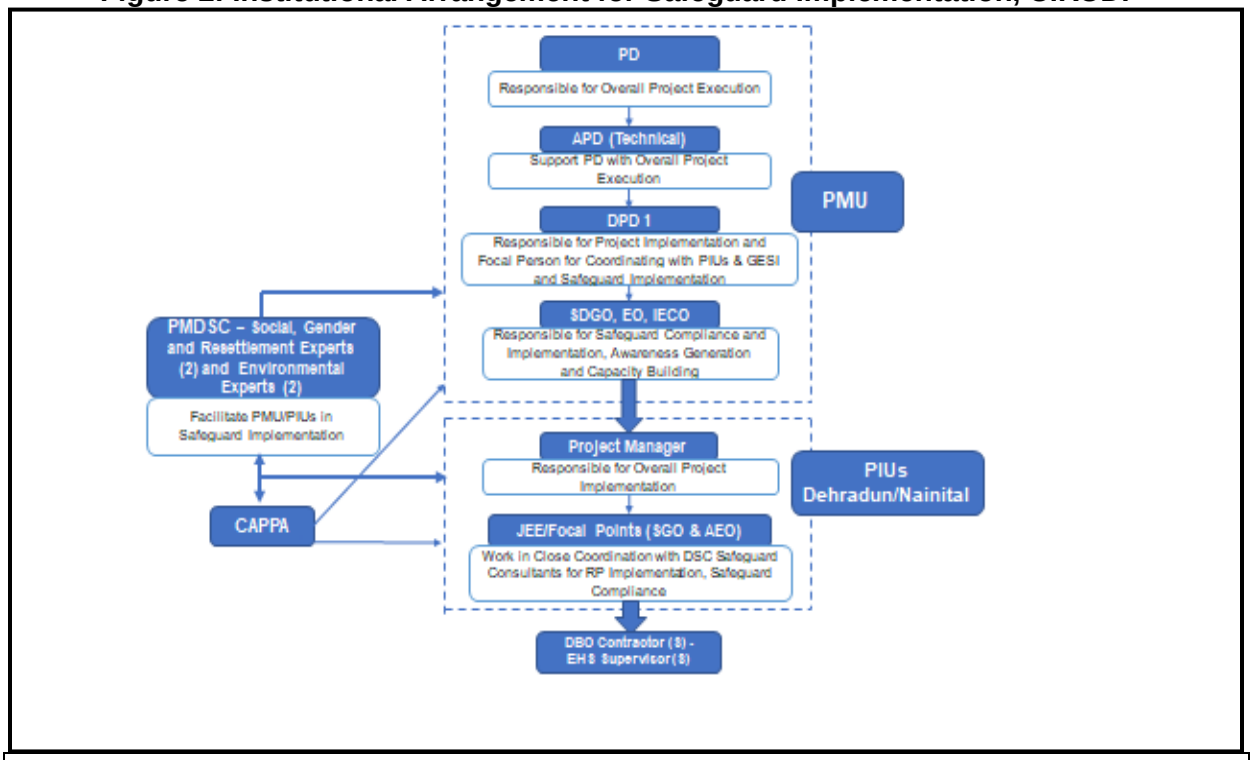
27. **Project Management and Design Supervision Consultant**. PMU will be supported by a Project Management and Design Supervision Consultant (PMDSC) to supervise, monitor and oversee project implementation, support on policy reform related issues and compliance of all the reporting requirements of GOU, other statuary regulatory bodies and Asian Development Bank in line with SPS-2009. PIU will be supported by the PMDSC on supervision monitoring and to oversee the implementation of projects, including compliance of ADB's SPS 2009 and other environmental and social State and GOI rules. There will be two Environmental Experts (EE) and two Social, Gender and Resettlement Experts (SGRE) at the PMDSC. Environment Specialist of PMDSC must visit all construction sites every week and arranged onsite training program for contractors and supervisory staff, instructed contractors for application of corrective action measures to mitigate impacts and assess shortfall if any

28. **Design, Build and Operate (DBO) contractor**. The EMP provisions as per the approved IEEs are to be included in bidding and contract documents and verified by the PIUs and PMU. The implementation of EMP will be made binding i.e. mandatory on contractor as part of the employer's requirement in the bid and contract documents. The contractor will be required to appoint an Environment, Health and Safety (EHS) supervisor to implement the EMP, and prepare and submit to PMU and PIU, for review and approval, Site-specific EMP (SEMP) which includes (i) proposed sites/locations for construction work camps, storage areas, hauling roads, lay down areas, disposal areas for solid and hazardous wastes; (ii) specific mitigation measures following the approved EMP; (iii) monitoring program per EMP; and (iv) budget for S EMP and EMP implementation. No works can commence until SEMP is approved by PMU/PIU. Contractors will carry out all environmental mitigation and monitoring measures outlined in EMP, approved SEMP and their contracts.

29. **Safeguards Compliance Responsibilities**. DPD 1 will be the focal point for both social and environmental safeguard implementation and compliance. The Environmental and Social Development Officers will have the overall responsibility of ensuring compliance with ADB SPS 2009 and will support DPD 1. The Environmental Officer and Social Development Officer will report to the Project Managers at PMU. The PMU will have overall responsibility for implementation of the resettlement plans and appropriate monitoring and reporting responsibilities. The Social Development and Gender Officer (SDGO) will facilitate implementation, monitoring and reporting of resettlement plans and other related compliances, while IECO will oversee the community awareness, public outreach, training, capacity building, preparation of IEC materials, and enhance information, education and communication among the local public, regarding gender, social, environmental related issues of UIRUDP. Community Action and Public Participation Agency, (CAPPA) will assist the PMU and PIUs with community

awareness programs and campaigns, in carrying out meaningful consultations during project implementation. CAPPA will have two units: (i) Core Unit based at central office in Dehradun and (ii) City Level Units based in 2 major project towns - Dehradun and Nainital. Contractor will appoint an Environment, Health and Safety (EHS) supervisor to implement EMP; the EHS Supervisor will have responsibilities related to environmental and social safeguards compliance and grievance redress and management at field level. Figure 3 shows the project safeguard implementation arrangements.

Figure 2: Institutional Arrangement for Safeguard Implementation, UIRUDP



EO = Assistant Environmental Officer; APD = Additional Program Director; CAPPA = Community Awareness and Public Participation Agency; DBO = Design Build and Operate Contractor; DPD = Deputy Program Director; EO = Environmental Officer; IECO = Information Education and Communication Officer; PD = Program Director; PIU = Project Implementation Unit; PMDSC = Project Management, Design & Construction Supervision Consultant; PMU = Project Management Unit; SDGO = Social Development and Gender Officer, SGO = Social and Gender Officer.

Table 1: Project Environmental Safeguards Team

Sr. No	Position	Office	Name	Contact number	Email / Remarks
A. Designated Environment Safeguard Officers in from PMU					
1.	Information Education Communication officer, IPMU, UUSDA	Dehradun	Mr. Rajesh Bahuguna	7055300910	uusdipiec@gmail.com
2.	Assistant Engineer – Civil Designated Head, Environment Safeguards	Dehradun	Mr. Jatin Saini	9411120444	Jatin.uusda@gmail.com
3.	Designated Environment Safeguard Officer (Assistant Engineer)	Nainital	Mr. Anil Parihar	8630205092	uusdipiec@gmail.com
4.	Designated Environment Safeguard Officer (Assistant Engineer)	Dehradun	Mr. Amit Kumar Saini	9456590482	uusdipiec@gmail.com
B. Designated Environment Officer PIU					
5.	Designated Assistant Environment Officer (JE)	Dehradun WS&S-DDN-01	Mr. Anoop Khanduri	9456517077	uusdipiec@gmail.com
6.	Designated Assistant Environment Officer (JE)	Dehradun WS&S-DDN-02	Mr. Prem Prakash Bhadri	7073667375	uusdipiec@gmail.com
7.	Designated Assistant Environment Officer (JE)	Dehradun WS&S-DDN-03	Mr. Jitendra Nautiyal	7983356421	uusdipiec@gmail.com
8.	Designated Assistant Environment Officer (JE)	Dehradun WW-DDN-01	Mr. Saurabh Bisht	9410781222	uusdipiec@gmail.com
9.	Designated Assistant Environment Officer (JE)	Dehradun WW-DDN-02	Mr. Saurabh Bisht	9410781222	uusdipiec@gmail.com
10.	Designated Assistant Environment Officer (JE)	Nainital WW-NTL-01	Mr. Mahesh Kumar Sengar	9557331747	piuntl.uusdip@gmail.com
C. Environmental Safeguard Expert at PMDSC					
11.	Environment Safeguard Expert	Dehradun & Nainital	Dr. Sudhanshu Kaushik	9557279020	kaushiks.phd@gmail.com
12.	Environment Safeguard Expert		Dr. Alok Kumar	9820256264	alokk@tce.co.in
D. Contractor's EHS Supervisors for UIRUDP					
13.	EHS Supervisor	Banjarawala Package 1	Mr. Shakib	8874028800	vprppackage1@gmail.com
14.	EHS Supervisor	Banjarawala Package 2	Mr. Ashish Bhatt	7895331139	bhugan.uk@gmail.com

Sr. No	Position	Office	Name	Contact number	Email / Remarks
15.	EHS Supervisor	Banjarawala Package 3	Kuldeep Kumar	9399945156	vprppackage3@gmail.com
16.	EHS Supervisor	THDC-Yamuna Colony	Sourabh Bindal	9555922256	saurabhbindal001@gmail.com
17.	EHS Supervisor	Nainital	Vandana Khani	9368725050	tirupatinainital@yahoo.com
18.	EHS Supervisor	Raipur	Anamika Rajak	7879382640	bhugan.uk@gmail.com

III. PROJECT IMPLEMENTATION STATUS

30. Details of all subprojects / packages, type of bid/contract and current status of implementation of packages is presented in Table 2, and detailed implementation progress of each of the awarded packages are given in Table 3.

Table 2: Status of All Subprojects / Packages

Package/ Subproject	Subproject / Package components	PIU	Current Status	Bid / contract type
WS&S-DDN-01 **Banjarawala Package 1**	(i) **Water supply**. (a) installation of a tube well (1 nos), (b) disinfection (chlorination) unit at the outlet of each tube well, (c) construction of a over-head tanks (OHT) of 1,000 kilo liter (kl), (d) installation of 27.079 kilometer (km) water supply network (ductile iron pipe Class K7 (DI-K7) of diameter varying from 100mm to 350mm and rising main of 180 m length of DI-K9 pipes with diameter of 150mm) (e) 950 new house service connections, and (g) SCADA and GIS systems. (ii) **Sewerage**. (a) construction of STP of capacity 11 MLD based on sequential batch reactor (SBR) process, (b) installation of 13.327 km sewers (10.679 km, 225-355 mm diameter HDPE pipes, and around 2.648 km 700-800 mm diameter, DI-K7 pipes) including 574 manholes, (b) 900 household sewer connections, and (c) FSSM system – septic tanks and mobile tankers with suction and discharge arrangements for collection from septic tanks and convey to existing Kargi STP **(iii)Storm water drainage**. (a) installation of 7 km drains with precast covers (reinforced cement concrete, RCC), and (b) development of 10 groundwater recharge pits, and 2 rainwater harvesting	Dehradun	under implementation	DBO

Package/ Subproject	Subproject / Package components	PIU	Current Status	Bid / contract type
WS&S-DDN-02 **Banjarawala Package 2**	(i) **Water supply**. (a) installation of tube wells (3 nos.), (b) disinfection (chlorination) unit at the outlet of each tube well, (c) construction of two over-head tanks (OHT) of 650 kilo liter (kl) and 800 kl capacity, (d) installation of 63-kilometer (km) water supply network (62 km with ductile iron pipe Class K7 (DI-K7) and rising main network of 1 km of DI-K9 pipes with diameter ranging from 100 mm to 450 mm), (e) 1,950 new house service connections, (f) rehabilitation of existing tube wells and OHT, and (g) SCADA and GIS systems (ii) **Sewerage.** (a) installation of 50.515 km sewers (50.034 km, 225 - 355 mm diameter, and around 0.481 km 600 mm diameter) including 1,950 manholes, (b) 1,650 household sewer connections, and (c) FSSM system – septic tanks and mobile tankers with suction and discharge arrangements for collection from septic tanks and convey to Kargi STP (iii) **Storm water drainage.** (a) installation of 30 km drains with precast covers (reinforced cement concrete, RCC), and (b) development of 10 groundwater recharge pits, and 2 rainwater harvesting structures,	Dehradun	under implementation	DBO
WS&S-DDN-03 **Banjarawala Package 3**	(i) **Water supply.** (a) installation of tube wells (3 no's), (b) disinfection (chlorination) unit at the outlet of each tube well, (c) construction of two over-head tanks (OHT) of 1,500 kilo liter (kl) and 1,400 kl capacity, (d) installation of 48.261 kilometer (km) water supply network (100 - 400 mm diameter), (e) 2,600 new house service connections, (f) rehabilitation of existing tube wells and OHT, and (g) SCADA and GIS systems (ii) **Sewerage.** (a) installation of 57.507 km sewers (52.592 km, 225 - 355 mm diameter, and around 4.915 km 350-500 mm diameter) including 2,860 manholes, (b) 3,470 household sewer connections, and (c) FSSM system – septic tanks and mobile tankers with suction and discharge arrangements for collection from septic tanks and convey to Kargi STP	Dehradun	under implementation	DBO

Package/ Subproject	Subproject / Package components	PIU	Current Status	Bid / contract type
	(iii) **Storm water drainage.** (a) installation of 30 km drains with precast covers (reinforced cement concrete, RCC), and (b) development of 10 groundwater recharge pits, and 2 rainwater harvesting structures,			
WW-DDN-01 **THDC & Yamuna Colony**	(i) **Sewerage.** (a) installation of 31 km sewers (225 - 355 mm diameter) including 1,168 manholes, (b) 3,000 household sewer connections, and, (c) SCADA and GIS systems (ii) **Storm water drainage.** (a) installation of 35 km drains with precast covers (reinforced cement concrete, RCC), and (b) development of 50 groundwater recharge pits.	Dehradun	under implementation	DBO
WW-DDN-02 Raipur	(i) **Sewerage.** (a) installation of 109.487 km sewers (98.248 km, 225-355 mm diameter, and around 11.239 km 350-1,000 mm diameter) including 4,890 manholes, (b) 9,000 household sewer connections, (c) construction of STP of capacity 18 MLD at Nakraunda based on sequential batch reactor (SBR) process and equipped with co- treatment unit to treat septage, (d) terminal sewage pumping station within STP campus, (e) 626.58 kilo litre (kl) capacity treated wastewater storage tank within STP premises to facilitate reuse, (f) outfall sewer from STP to discharge surplus treated wastewater into a nearby drain, (g) FSSM system – mobile tankers with suction and discharge arrangements to collect and convey septage from septic tanks in FSSM covered area, and septic tanks , and (h) SCADA and GIS systems **(ii) Storm water drainage.** (a) installation of 15 km kerb channel drains with precast covers (reinforced cement concrete, RCC), and (b) development of 45 groundwater recharge pits, and 6 rainwater harvesting structures.	Dehradun	under implementation	DBO
WW-NTL-01 Nainital	**Sewerage:** (i) Installation of new 17.50 MLD STP (replacing existing 10 MLD STP) with sequential batch reactor (SBR) technology at Russi village, including an underground treated effluent storage tank of 630 Kl capacity within the STP premise. Beside this an existing sedimentation tank (5000 m^3) near Russi	Nainital	under implementation As per the Baseline survey the household sewer connections are	DBO

Package/ Subproject	Subproject / Package components	PIU	Current Status	Bid / contract type
	village will be used as alternative/additional storage for excess treated effluent storage for irrigation purposes. (ii) New trunk sewer of around 11.9 km (ductile iron Class K7 (DI-K7) pipes with diameter of 800mm which will be laid entirely using trenchless whereas required and open cut method. (iii) installation of five prefabricated small-scale STPs with the treatment capacity of 20 kilolitersper day (KLD) each at five identified locations within the town (iv) Existing SPS near Children Park will be used after rehabilitation (v) 140 circular manholes, mostly in-situ reinforced cement concrete (RCC) (vi) Around 600 household sewer connections, and (vii) SCADA and GIS system		only 117 confirmed.	

Table 3: Implementation Status of Awarded Subprojects / Packages

Package	Package status 1. Date of Award 2. Date of mobilization 3. Scheduled completion 4. Duration 5. Contractor	Design progress to date	Construction progress to date	Components completed to date	Works conducted during the reporting period
WS&S-DDN-01	**1. 30/10/2021** 2. 17/12/2021 3. 16th June 2025 4. 42 Months 5. VPR Punglia Pvt. Ltd	61.2 %	28.89 %	Labour Camps and Admin office has already been constructed. Preliminary works like leveling of STP site, construction of boundary wall. The construction work is under progress. Installation of water supply lines, constructions of OHT, Installation of sewer line started and completed in some areas. None of the components of the project is completed till date.	Water supply pipeline installation works & OHT construction at New Basti. After Sewer line installation works, road restoration work is underway at Navka Main Road.
WS&S-DDN-02	1. 07/10/2021 2. 01/12/2021 3. 31st May 2025 4. 42 Months 5. DRA-BIPL (JV) Pvt Ltd	62.10 %	50.45 %	The construction work is under progress Installation of water supply lines, Installation of sewer line has been completed in Geetanjali, Aniket Vihar, Mothorowala, Vishnupuram colony. The construction is underway, no any component of the project is completed till date.	Sewerage Pipe laying works ongoing at Canal road, Dandi and Shivam Vihar. Water supply pipe laying works ongoing at Shivam Vihar and Mothorowala area.
WS&S-DDN-03	1. 30/10/2021 2. 17/12/2021 3. 16th June 2025 4. 42 Months 5. VPR Punglia Pvt. Ltd	69.0 %	47.32%	The construction work is under progress Installation of water supply lines, Installation of sewer line has been completed in Rajendra Vihar, Monal Enclave, Gokul Dham and Chanchak. .	Pipe laying work for Water supply and Sewerage Sewer pipeline installation works near Durga Mandir on Kargi Road and Kali mata Mandir near Kargi Road.

Package	Package status 1. Date of Award 2. Date of mobilization 3. Scheduled completion 4. Duration 5. Contractor	Design progress to date	Construction progress to date	Components completed to date	Works conducted during the reporting period
				The construction is underway, no any component of the project is completed till date.	
WW-DDN-01	1. 07/10/2021 2. 01/12/2021 3. 31st May 2024 4. 30 Months 5. EMS Infracon Pvt Ltd	85.60%	57.06%	The construction work is under progress Installation of water supply lines, Installation of sewer line has been started and completed in Saibaba enclave, Vidya Vihar and Raj Rajeshwari colony. The construction is underway, no any component of the project is completed till date.	Sewerage Pipe laying works ongoing at 95 block Dehra Khas and Near Kargi chowk.
WW-DDN-02	1. 23/10/2021 2. 09/12/2021 3. 08th June 2025 4. 42 Months 5. DRA-BIPL (JV) Pvt Ltd	78.3 %	41.93 %	The construction work is under progress Installation of sewer line has been completed in Doon Hills colony, Delhi Farm, Alaknanda Enclave and Laxman Enclave. Sewer line works has been started.	Sewerage Pipe laying works ongoing at Nakraunda. Sewer line works at Ring road, Vivek Vihar, Shiv colony and Shivalik Vihar is underway. At STP, SBR outer wall Ist lift is underway.
WW-NTL-01	1. 06/08/2021 2. 08/11/2021 3. 07th May 2025 4. 42 Months 5. Tirupati Cement Products Pvt. Ltd.	52.00 %	34.00 %	The construction work is under progress Installation of sewer line completed in some areas. STP construction works has been started and Raft work has been completed. the rehabilitation of Sewer Network by CIPP lining has been completed at Mall road.	Sewer line works initiated At Thandi Sadak along the Naini lake and, Construction of RCC wall at STP.

IV. COMPLIANCE STATUS WITH STATUTORY ENVIRONMENTAL REQUIREMENTS

A. Status of Clearances

31. Briefly describe the statutory clearance / approval requirements of the subprojects. Detailed status of each clearance/permission requirements of the subprojects are provided in Table 4. Copies of clearances/permissions attached in Appendix 1.

Table 4: Status of Statutory Clearances

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
WS&S-DDN-01 **Banjarawala Package-1**	Consent to establish (CTE) and consent to operate (CTO) under Water Act, 1974 from Uttarakhand Pollution Control Board (UEPPCB)	Consent to establish already taken and CTE was submitted during the period of Ist SEMR. The updated information submitted to UEPPCB and letter has already shared with 2nd SEMR report.	Date of issue: 17th May 2022 Valid up to 5 years from the issued date.	PMU has consulted with the UEPPCB regarding updating of the CTEs based on detailed design, prior to start of construction and all required information have been submitted to UEPPCB on (i) 22.07.2022 for Banjarawala STP; (ii) 30.12.2022 for Raipur STP and (iii) 10.02 2023 for Nainital STP. Subsequently a meeting was held on this matter with the Joint Director and Scientific Officer of UEPPCB on 10.02.2023. The UEPPCB has informed UUSDA that the corrigendum letter for CTE will be issued before issuance of CTO for the respective STPs.
	Road cutting for Sewer and water pipe laying works	Permission obtained jointly for Banjarawala packages and NOC has been already submitted with 2nd SEMR (June 2022 to Dec. 2022)	-	In Banjarawala package 1 roads in some newly developed areas do not require any additional approval from Nagar Nigam as they are not considered/notified as roads till date.
	Ground Water Abstraction	Process underway	NA	Process for the permission of Ground water abstraction from CGWA has been initiated and application submitted on 23rd February 2021 to the Regional Director, CGWB, Dehradun.
	Utility Shifting	NA	NA	Utility shifting not required till reporting period

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
	Tree Cutting	NA	NA	No tree cutting is required as per the completed design as on 30th June 2022.
	Hot mix plants, Crushers and Batching plants	NA	NA	Permission will be obtained as per requirement by the contractor
	Storage, handling and transport of hazardous materials	-	-	Will be complied
	Material Sourcing- Approval for sourcing stones and sand from quarries and sand mining and borrow areas	-	-	Material shall be procured from already approved Govt. queries. It will be ensured that source quarries and borrow areas comply with government clearance /permits requirements
	New quarries and borrow areas	-	-	Permission not required as DBOC has proposed that the material will be procured from approved vendors from UEPPCB who has complied with government clearance /permits requirements.
	Construction Waste and Demolition Debris Management	Being complied	-	All the C & D waste will be transferred to the Shisambara, a Govt. approved land fill site. Permission will be obtained by the contractor when required.
WS&S-DDN-02 **Banjarawala Package-2**	Ground Water Abstraction	Being Complied	-	Process for the permission of Ground water abstraction from CGWA has been initiated and application submitted on 23rd February 2021 to the Regional Director, CGWB, Dehradun.
	Tree Cutting	-	-	No tree cutting is required as per the completed design as on 30th June 2023.
	Hot mix plants, Crushers and Batching plants	NA	NA	Permission will be obtained as per Requirement by the contractor

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
	Storage, handling and transport of hazardousmaterials	-	-	Will be complied
	Material Sourcing- Approval for sourcing stones and sand from quarries and sand mining and borrow areas	-	-	Not required. Material shall be procured from already approved Govt. queries. It will be ensured that source quarries and borrow areas comply with government clearance/permits requirements
	New quarries and borrow areas	-	-	Permission not required as DBOC has proposed that the material will be procured from approved vendors from UEPPCB who has complied with government clearance/permits requirements
	Temporary traffic diversion measures	-	-	Being complied as suggested
	Road cutting for Sewer and water pipe laying works	Permission obtained jointly for Banjarawala packages (Banjarawala package1, 2 & 3) and NOC submitted in previous SEMR report.	-	Permission obtained
	Construction Waste and Demolition DebrisManagement	Being complied	-	All the C & D waste will be transferred to the Shisambara, a Govt. approved land fill site. Permission will be obtained by the contractor when required.
WS&S-DDN-03 Banjarawala Package-3	Ground Water Abstraction	Being Complied		Process for the permission of Ground water abstraction from CGWA has been initiated and application submitted on 23rd February 2021 to the Regional Director, CGWB, Dehradun.
	Tree Cutting	-	-	No tree cutting is required as per the completed design as on 30th June 2023.

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
	Hot mix plants, Crushers and Batching plants	NA	NA	Permission will be obtained by the contractor as per requirement
	Storage, handling and transport of hazardous materials	-	-	Will be complied
	Material Sourcing-Approval for sourcing stones and sand from quarries and sand mining and borrow areas	-	-	Not required. Material shall be procured from already approved Govt. queries. It will be ensured that source quarries and borrow areas comply with government clearance/permits requirements
	New quarries and borrow areas	-	-	Permission not required as DBOC has proposed that the material will be procured from approved vendors from UEPPCB who has complied with government clearance/permits requirements
	Temporary traffic diversion measures	-	-	Being complied as suggested
	Road cutting for Sewer layingworks	Permission obtained jointly for Banjarawala packages and NOC already submitted with previous SEMR.	-	Permission obtained
	Construction Waste and Demolition DebrisManagement	Being complied	-	All the C & D waste will be transferred to the Shishambada, a Govt. approved land fill site. Permission will be obtained by the contractor when required.
WW-DDN-01 **THDC and Yamuna Colony**	Operation of existing STP including discharge of treated effluents and disposal of sludge	-	-	Under the project, no construction of STP is proposed as existing Kargi STP will be utilized for the sewage treatment. The CTE and CTO of Kargi STP has obtained and the CTO of Kargi STP is valid up to 31st March 2025 vide letter no. UKPCB/HO/Con/U-67/2022/521.

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
	Tree Cutting	-	-	No tree cutting is required as per the completed design as on 30th June 2023.
	Hot mix plants, Crushers and Batching plants	NA	NA	Permission will be obtained as per Requirement by the contractor
	Storage, handling and transport of hazardous materials	-	-	Will be complied
	Material Sourcing-Approval for sourcing stones and sand from quarries and sand miningand borrow areas	-	-	Not required. Material shall be procured from already approved Govt. queries. It will be ensured that source quarries and borrow areas comply with government clearance/permits requirements
	New quarries and borrowareas	-	-	Permission not required as DBOC has proposed that the material will be procured from approved vendors from UEPPCB who has complied with government clearance/permits requirements
	Temporary traffic diversion measures traffic diversion measures	-	-	Being complied as suggested
	Road cutting for Sewerlaying works	NOC submitted with previous SEMR	-	Permission obtained
	Construction Waste and Demolition Debris Management	Being complied	-	All the C & D waste will be transferred to the Shishambada, a Govt. approved land fill site. Permission will be obtained by the contractor when required.
WW-DDN-02 **Raipur**	Construction and Operation of new STP including discharge of treated effluents and disposal of sludge	Consent to Establish for STP of Raipur package has been received and submitted with Ist SEMR (January 2022 to June 2022)	Date of issue: 10th June 2022 Valid up to 5 years from the issued date.	PMU has consulted with the UEPPCB regarding updating of the CTEs based on detailed design, prior to start of construction and all required information have been submitted to UEPPCB on (i) 22.07.2022 for Banjarawala STP; (ii) 30.12.2022 for Raipur STP

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
				and (iii) 10.02 2023 for Nainital STP. Subsequently a meeting was held on this matter with the Joint Director and Scientific Officer of UEPPCB on 10.02.2023. The UEPPCB has informed UUSDA that the corrigendum letter for CTE will be issued before issuance of CTO for the respective STPs. Forest clearance for the use of forest land for the STP site has been obtained on 14th July 2022.
	Tree Cutting	-	-	No tree cutting is required as per the completed design as on 30th June 2023.
	Hot mix plants, Crushers and Batching plants	-	NA	Permission will be obtained as per requirement by the contractor
	Storage, handling and transport of hazardous materials	-	-	Will be complied
	Material Sourcing-Approval for sourcing stones and sand from quarries and sand mining and borrow areas	-	-	Not required. Material shall be procured from already approved Govt. queries. It will be ensured that source quarries and borrow areas comply with government clearance/permits requirements
	New quarries and borrow areas	-	-	Permission not required as DBOC has proposed that the material will be procured from approved vendors from UEPPCB who has complied with government clearance/permits requirements
	Temporary measures for traffic diversion	-	-	Being complied as suggested

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
	Road cutting for Sewer layingworks	Permission obtained and submitted in previous SEMR.	-	Permission obtained
	Use of Railways ROW construction area/ crossing	Permission has been obtained from NorthernRailways of Moradabad Division	-	Northern Railways of Moradabad Division vide their letter dated 11th April 2022 has intimated that administrative approval of competent authority DRM has been obtained and after deposit of necessary fees final approval will be obtained
	Discharge of storm water and construction of outfall structures in different Nallas and Song river	**Underway**	**-**	Process to get permission is underway Application letter already shared with updated IEE.
	Construction Waste and Demolition Debris Management	Being complied	**-**	All the C & D waste will be transferred to the Shimabara, a Govt. approved land fill site.
WW-NTL-01 **Nainital**	Construction and Operation of new STP including discharge of treated effluents and disposal of sludge	Process underway	**-**	Obtained the CTE based on the preliminary design. PMU has consulted with the UEPPCB regarding updating of the CTEs based on detailed design, prior to start of construction and all required information have been submitted to UEPPCB on (i) 22.07.2022 for Banjarawala STP; (ii) 30.12.2022 for Raipur STP and (iii) 10.02 2023 for Nainital STP. Subsequently a meeting was held on this matter with the Joint Director and Scientific Officer of UEPPCB on 10.02.2023. The UEPPCB has informed UUSDA that the corrigendum letter for CTE will be issued before issuance of CTO for the respective STPs.
	Tree Cutting	**-**	**-**	No tree cutting is required as per the preliminary design as on 30th June 2023.
	Hot mix plants,	NA	NA	Permission will be obtained

Package / Subproject	List of Clearances / permission required	Status	Validity period	Remarks
	Crushers ,Batching plants and emergency Diesel Generators			as per Requirement
	Storage, handling and transport of hazardousmaterials	-	-	Will be complied
	Material Sourcing-Approval for sourcing stones and sand from quarries and sand mining and borrow areas	-	-	Not required. Material shall be procured from already approved Govt. quarries. Sample Royalty form (Sample) of Govt. approved quarries is attached as appendix 10 in this SEMR report. It will be ensured that source quarries and borrow areas comply with government clearance/permits requirements
	New quarries and borrow areas	-	-	Permission not required as DBOC has proposed that the material will be procured from approved vendors from UEPPCB who has complied with government clearance/permits requirements
	Temporary traffic diversion measures	Will be applied before start of construction activities	-	Will be complied as suggested
	Road cutting permission from NHAI/ PWD/ Irrigation department for sewerlaying works	Applied as per final design.	-	Permission from PWD has been obtained and submitted with IEE report, and NOC from NHAI and Nagar Palika parishad has been obtained and annexed in this report as Annexure 11 & 12, respectively.
	Construction Waste and Demolition Debris Management	Will be applied before start of construction activities		All the C & D waste will be transferred to the Govt. approved land fill site. Being Complied

B. Compliance with Clearance Conditions

32. The following **Table 5** provides a summary of clearance / consent conditions specified by statutory agencies that are required to be complied with and/or monitored during implementation and/or operation, and the status of compliance.

Table 5: Conditions of Clearances

Package	Clearance / Permission	Conditions of Clearance / Permission	Status of Compliance
WS&S-DDN-01 Banjarawala 1	a. CTE for STP b. Road cutting Permission for water supply and Sewerage network c. Ground Water Abstraction	a. CTE obtained from UEPPCB based on preliminary design on 17th May 2022, PMU has consulted with the UEPPCB regarding updating of the CTEs based on detailed design, prior to start of construction and all required information have been submitted to UEPPCB on (i) 22.07.2022 for Banjarawala STP; (ii) 30.12.2022 for Raipur STP and (iii) 10.02 2023 for Nainital STP. Subsequently a meeting was held on this matter with the Joint Director and Scientific Officer of UEPPCB on 10.02.2023. The UEPPCB has informed UUSDA that the corrigendum letter for CTE will be issued before issuance of CTO for the respective STPs b. Roads cutting permission has been obtained and submitted with previous SEMR. c. Process for the permission of Ground water abstraction from CGWA has been initiated and application submitted on 23rd February 2021 to the Regional Director, CGWB, Dehradun. It's under approval stage.	Complied
WS&S-DDN-02 Banjarawala 2	a. Road cutting Permission for water supply and Sewerage network b. Ground Water Abstraction	a) Road cutting permission has been obtained and the same submitted with previous SEMR report. b) Process for the permission of Ground water abstraction from CGWA has been initiated and application submitted on 23rd February 2021 to the Regional Director, CGWB, Dehradun.	Complied
WS&S-DDN-03 Banjarawala 3	a. Road cutting Permission for water supply and Sewerage network b. Ground Water Abstraction	a) Road cutting has been obtained and submitted with previous SEMR. b) Process for Ground water abstraction from CGWA has been initiated and application submitted on 23rd February 2021 to the Regional Director, CGWB, Dehradun	Complied
WW-DDN-01 THDC and Yamuna colony	a. CTO for 68 MLD Kargi STP b. Road cutting	a) CTO renewed from UEPPCB b) Permission of road cutting from PWD and Nagar Nigam has been obtained submitted with previous SEMR report.	Complied
WW-DDN-02 Raipur	a. CTE for STP b. NH/PWD crossing c. Railway crossing d. Forest Clearance for STP site	a) CTE obtained from UEPPCB based on preliminary design on 10th June 2022, PMU has consulted with the UEPPCB regarding updating of the CTEs based on detailed design, prior to start of construction and all required information have been submitted to UEPPCB on (i) 22.07.2022 for Banjarawala STP; (ii) 30.12.2022 for Raipur STP and (iii) 10.02 2023 for Nainital STP. Subsequently a meeting was held on this matter with the Joint Director and Scientific Officer of UEPPCB on 10.02.2023. The UEPPCB has informed UUSDA that the corrigendum letter for	Complied

Package	Clearance / Permission	Conditions of Clearance / Permission	Status of Compliance
		CTE will be issued before issuance of CTO for the respective STPs b) Applied to PWD/NH and Nagar Nigam on 9th June 2022 and NOC for road cutting has been obtained from PWD, Nagar Nigam, NH and submitted in previous IInd SEMR report. c) Permission has been obtained from Northern Railways of Moradabad Division. NorthernRailways of Moradabad Division vide their letter dated 11th April 2022 has intimated that administrative approval of competent authority DRM has been obtained and after deposit of necessary fees final approval will be awarded. d) Forest clearance for the STP site has been issued on dated 14.07.2022. Please see Appendix 13.	
WW-NTL-01 Nainital	a. CTE for STP b. Road Cutting permission from National Highway Authority of India (NHAI)	a) CTE obtained from UEPPCB based on preliminary design on 05th August 2022., *PMU has consulted* with the UEPPCB regarding updating of the CTEs based on detailed design, prior to start of construction and all required information have been submitted to UEPPCB on (i) 22.07.2022 for Banjarawala STP; (ii) 30.12.2022 for Raipur STP and (iii) 10.02 2023 for Nainital STP. Subsequently a meeting was held on this matter with the Joint Director and Scientific Officer of UEPPCB on 10.02.2023. The UEPPCB has informed UUSDA that the corrigendum letter for CTE will be issued before issuance of CTO for the respective STPs b) Road cutting permission has been obtained from PWD and NOCs for the road cutting permissions from NHAI and Nagar Palika Parishad (NPP) have been obtained and annexed as Annexure 11 & 12, respectively.	Being complied

V. COMPLIANCE WITH LOAN COVENANTS

A. Loan Covenants

33. The loan agreement for UIRUDP was signed on 7th December 2021 and details are available in ADB website (https://www.adb.org/projects/38272-044/main) Table 6 provides a summary of compliance to the loan covenants related to environmental safeguards.

Table 6: Status of Compliance with Loan Covenants

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
Schedule 4 Execution of the Project			
Condition for Issuing Bids **Para no 7**	The Borrower shall ensure or cause the EA to ensure that the relevant drafts of IEEs, RPs, IPPs (as applicable), for each Project contract are submitted ADB for review prior to bidding, and the related EMP is included in the bidding documents.	**Complied.** Draft IEE and EMP submitted to ADB for review and approval prior to bidding and is part of bid and contract documents of each project accordingly	None
Condition of commencement of contracts **Para No .8**	The Borrower shall ensure, or cause the EA to ensure, that no Works contract is awarded by the IA, which involves environmental impacts until the EA has:		
	(i) Prepared submitted and obtained final approval of relevant IEE from ADB and the relevant forest and environment clearances from the statutory authorities of the Borrower and the State as applicable, and	**Complied-** all works are awarded after draft IEEs are approved by ADB. IEEs are being updated as per approved designs Forest clearance has been obtained for the STP site in Raipur on 14-07-2022. vide letter no. 8B/ U.C.P./ 09 /18/2022/533 from MOEF & CC (Please refer Annexure 13).	Complied as suggested
	(ii) Incorporated the relevant provisions from the respective EMP into the related Works contract	**Complied -** Based on environmental assessment's relevant provisions of EMP is attached in the bid document and Works contract	Complied as suggested
Condition for Commencement of Works **Paragraph 9**	The Borrower shall ensure or cause the EA to ensure that the IA shall not allow any commencement of construction, of any Works contract that involves (environmental impacts, involuntary resettlement and/or indigenous peoples impacts until the EA has prepared, submitted and obtained clearance of ADB of the relevant final IEE including the EMP, RP, or IPP, if	**Being Complied -** IEE is being updated component wise after completion of detailed design and approval is given to start work for the approved sub-project component only	Complied as suggested

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
	any, as applicable for such Works based on its detailed design.		
Safeguards - Environment **Para No. 10**	The Borrower shall ensure or cause the EA to ensure that the preparation, design, construction, implementation, operation and decommissioning of all Project facilities comply with (1) all applicable laws and regulations of the Borrower and the State relating to environment, health, and safety. (iii) the Environmental Safeguards; and (iv) all measures, and requirements set forth in the IEEs and EMPs, and any corrective or preventative actions set forth in a safeguard Monitoring Report.	**Being Complied -** Only Category B projects are considered in UIRUDP. Documents were prepared/ or under preparation by complying all relevant State and National Laws, Safeguard Policy Statement (SPS 2009) of ADB, All the norms being followed during preparation, design and construction for concerned packages and will be also followed at the time of Operation and decommissioning of all project facilities. Draft Initial Environmental Examination (IEE), Environment Management Plan (EMP), Site Specific Environment Management Plan prepared and approved by PIU. All reports disclosed to project website. All measures as mentioned in Environment Management Plan (EMP) and Site-Specific Environment Management plan (SEMP) are being followed in Six nos. running packages. Corrective or preventive action plans reflected in Environment Monitoring Report and project implementation authority take care of such actions as per requirement. Observed non-compliances are rectified through agreed corrective and preventive actions	Updating of IEEs continued after completion of design component wise and possession of lands. After completion of design for entire package final IEE will be prepared and to be send to ADB for approval, IEE will be updated further in case of change in project scope and location. Continuation of application of SEMP as per approved IEE and during implementation of the project
Human and Financial Resources to Implement Safeguards Requirements	The Borrower shall ensure or cause the EA to ensure that all necessary budgetary and human resources to fully implement the EMPs, the RPs and IPPs (as applicable) are made available on a timely basis	**Being Complied** Budgetary provisions have been included in EMP. Environment and Social Safeguards staffs are in	Complied as suggested

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
Para No.14		mobilized in Project Management Unit and Project Implementation Units and respective packages. Two Environment Specialists are in place within Project Management Design and Supervision Consultancy (PMDSC for implementation of EMPs, is in place for regular monitoring to secure complete compliance.	
Safeguards-related provisions in bidding documents and works contracts Para No. 15	The Borrower shall ensure or cause the EA to ensure that all bidding documents and contracts for Works contain provisions that require contractors to:	**Being Complied**. EMP, BOQ line items, reinstatement to pre-project conditions included in the contract agreement.	In case of any change of scope, revised IEEs with EMP(s) will be prepared and corrective measures will be disclosed to the contractor
	(a) comply with the measures and requirements relevant to the contractor set forth in the relevant IEE, EMP, RP and IPP, if any (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report:	(a) Approved IEE, EMP is attached in Bidding documents. In case of any change of scope, revised IEEs with EMP(s) will be prepared. and corrective measures will be disclosed to the contractor and same will be reflected in the "Environment Monitoring Report". Contractors done base line pre construction and construction monitoring and survey of pre- works condition. Budget has been allocated for EMP application and monitoring. Pre-construction documents, environment monitoring report submitted by contractors for all the packages. During construction documents submitted by contractors and Environmental monitoring during construction stage has been done. Monitoring will be continued throughout project execution period.	
	(b) make available a budget(s) for all such environmental and social measures	(b) IEE, bidding documents and contracts includes budgetary provisions for implementation of EMP for all the packages. Contractors submit monitoring budget in the SEMP	Complied as suggested
	(c) provide the EA with a written notice of any unanticipated	**(c) Being Complied-** During implementation of any	STP layout in Banjarawala 01

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
	environmental resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the relevant (EE, EMP, RP, or IPP (as applicable).	project if any unanticipated environmental impacts /risks arise due to change in scope/area that will be reflected in the revised IEEs, EMPs and Environment Monitoring Report and accordingly reported to ADB .	and Nainital packages have been updated based on site conditions. IEE report of Banjarawala package -01 has been updated for selected component and IEE report of Nainital has also been updated. Both the updated IEEs are approved from ADB side. Forest clearance has been obtained for the STP site in Raipur on 14-07-2022. vide letter no. 8B/ U.C.P./ 09 /18/2022/533 from MOEF & CC (Please refer Annexure 13).
	(d) adequately record the condition of roads agricultural land and other infrastructure prior to starting to transport materials and construction, and	**Being Complied.** Haul roads have marked properly (by avoiding residential and agricultural land and other infrastructure) before commencement of transportation of materials.	Complied as suggested
	(e) fully reinstate pathways, other local infrastructure, and agricultural land to at least their pre-project condition upon the completion of construction.	**Being Complied.** Pathways, and land which are affected for varying periods during implementation of the sub project restored by concerned construction Contractor after completion of the work. Restoration status has reflected in post construction monitoring report.	Shall be complied after completion of physical works. Presently, pipeline trenches are filled up and initial road restorations are completed on the same day.

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
			Whenever incomplete restoration is observed appropriate corrective and preventive actions are taken.
Safeguards monitoring and reporting **Para no. 16**	The Borrower shall ensure or cause the EA to ensure the following: (a) submit to ADB semi-annual environmental safeguards monitoring reports during construction and annual environmental safeguard monitoring reports during operation until the project completion report is issued, and disclose relevant information from such reports to affected persons promptly upon submission;	**Being Complied** This is the 3rd semi-annual environment monitoring report (SEMR) being submitted for the period January to June 2023. Both SEMRs (1st SEMR during January 2022 to June 2022 and IInd SEMR during July 2022 to December 2022) have been disclosed on ADB and UUSDA website. Disclosure of 3rd SEMR will be at ADB and project website after review and clearance of ADB	Semi Annual Environment Monitoring Reports will be submitted as per schedule
	(c) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the relevant IEE EMP RP or IPP if any, promptly inform ADB of the occurrence of such risks or impacts with detailed description of the event and proposed corrective action plan and	**Being Complied-** During implementation of any project, if additional impacts/risks arise due to change in scope/area, those will be reflected in revised IEEs with EMPs and accordingly Executing Agency (EA) will inform the ADB such changes along with corrective action plans which will be reflected in the subsequent Monitoring Reports.	IEE/ EMP will be revised in case of inclusion of additional impact and change in location/ scope for the project during construction, implementation or operation. Layout of STPs in Banjarawala 01 and Nainital packages have been updated and included in the updated IEEs

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
	(d) report any breach of compliance with the measures and requirements set forth in the relevant EMP RP or IPP any promptly after becoming aware of the breach.	**Will be Complied-** In case of any breach of compliance with the measures and requirements set forth in the EMP, EA will promptly inform ADB and suitable action program will be planned/initiated. Till date no as such breach of compliance	Inform to ADB about any breach of EMP,
Prohibited list of investments Para no. 17	The Borrower shall ensure or cause the EA to ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.	**Complied.** There is no violation of prohibited investment activities as per ADB SPS (2009) Appendix 5.	None
Labour Standards **Para No. 18**	The Borrower shall ensure or cause the EA to ensure that Works contracts under the Project follow all applicable labour laws of the Borrower and the State and that these further include provisions to the effect that contractors (i) carry out HIV/AIDS awareness programs for labour and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction, and (ii) follow and implement all statutory provisions on labour (including not employing or using children as labour, equal pay for equal work), health, safety, welfare, sanitation, and working conditions Such contracts shall also include clauses for termination in case of any breach of the stated provisions by the contractors	**Being Complied** Provision is included (as per EMP & BID document) to carry out HIV/AIDS awareness programs for construction contractor, application of all relevant Labour laws for Health and Safety including child Labour law and engagement of local labors No child Labour engaged in the packages Labour license and health related WC policy for workers available for all the packages. HIV- AIDS training program conducted for all packages Induction training continued for all the awarded packages In case of any breach of provision, necessary corrective measures as per contract clauses shall be taken. All activities including awareness program reflected in “Monitoring Report”.	Timely renewal of WC Policy and Labour license
Communications and participation	The Borrower shall ensure or cause the EA to ensure that the Project is	**Being Complied.**	Ensure continuous

No. (List schedule and paragraph number of Loan Agreement)	Covenant	Status of Compliance	Action Required
Para no. 20	undertaken in conformity with the community awareness and participation, in the Project as agreed between ADB the Borrower, the State and the EA and referred in the PAM.	Meaningful consultations with stakeholders and affected people conducted, and information disclosed in IEE/EMP prepared. Meaningful consultations with affected people and other concerned stakeholders will be carried out on an ongoing basis throughout the project implementation.	public consultation and awareness.

B. Preparation and Approval of Environmental Assessment Reports

34. **Subproject Category**. UIRUDP is category B for environment per ADB Safeguards Policy Statement (SPS) of 2009 as the project is unlikely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. Development of water supply, sewerage and storm water drainage system of six packages in Dehradun and Nainital are proposed for implementation under the design-build-operate (DBO) modality.

35. Package-wise status of preparation, submission, and approval of IEE reports of Category B subprojects up to 30th June 2023, are presented in Table 7 and Table 8.

Table 7: Status of IEEs as on 30th June 2023

Package Number	Bid type	Package Status	Draft IEE submitted to ADB	Draft IEE cleared by ADB	Updated IEE submitted to ADB	Updated IEE cleared by ADB	Remarks
WS&S-DDN-01	DBO Contractor	Detailed design and Construction	Yes	Yes	Yes	Cleared for Sewer & Water supply pipeline laying	IEE was updated based on the Water Supply (Tube well components), and STP odour modelling results and submitted to ADB for review on 30 June 2023.
WS&S-DDN-02	DBO Contractor	Detailed design and Construction	Yes	Yes	Yes	Cleared for Sewer and water supply pipe laying	IEE was updated based on the final design of water supply, Rain water Harvesting Structure and Ground Water Recharge Pit and submitted to ADB for review on 20 June 2023.

Package Number	Bid type	Package Status	Draft IEE submitted to ADB	Draft IEE cleared by ADB	Updated IEE submitted to ADB	Updated IEE cleared by ADB	Remarks
WS&S-DDN-03	DBO Contractor	Detailed design and Construction	Yes	Yes	Yes	Cleared for Sewer and water supply pipe laying	IEE was updated based on water supply components (Tube well discharge) and submitted to ADB for Review on 22 June 2023.
WW-DDN-01	DBO Contractor	Detailed design and Construction	Yes	Yes	No during the period of this SEMR	Cleared for Sewer and pipe laying	- IEE will be updated after finalization of remaining components.
WW-DDN-02	DBO Contractor	Detailed design and Construction	Yes	Yes	No during the period of this SEMR	Cleared for Sewer and pipe laying and updated STP layout	IEE will be updated based on the final design of remaining components and submitted to ADB for review. Odor modelling is being conducted and results will be included in the updated IEE.
WW-NTL-01	DBO Contractor	Detailed design and Construction	Yes	Yes	Yes	Updated IEE cleared for sewer network and updated Sewage Treatment Plant layout	Approval received from ADB for updated component. IEE will be updated based on the final design of remaining components and submitted to ADB for review. Odor modelling is being conducted and results will be included in the updated IEE.

C. Status of Disclosure of Safeguard Documents

36. Status of disclosure of safeguard documents presented in the following Table 9. All the documents have been disclosed on ADB and Project/PMU websites (https://www.uusdip.org/list-technical-documents).

Table 8: Status of Disclosure of IEEs as on 30th June 2023

Package Number	Draft Disclosed on ADB website	Draft Disclosed on Project website	Updated /Final Disclosed on ADB website	Updated[1] /Final Disclosed on Project website
WS&S-DDN-01	Yes	Yes	Yes	Yes
WS&S-DDN-02	Yes	Yes	Yes	Yes
WS&S-DDN-03	Yes	Yes	Yes	Yes
WW-DDN-01	Yes	Yes	Yes	Yes
WW-DDN-02	Yes	Yes	Yes	Yes
WW-NTL-01	Yes	Yes	Yes	Yes

D. Safeguards in Bid Documents and Contracts

37. Safeguard provisions are duly included in the bid documents / contracts, and these are followed uniformly across all the bids and contracts. The following Table shows package-wise details.

Table 9: Package-wise inclusion of EHS Clauses in Bids/Contracts

Package Number	Type of Bid / Contract	Bid / Contract Clauses related to environment, health and safety; labour standards	IEE / EMP included in Bid / contract	Remarks
WS&S-DDN-01	DBO	Yes	Yes	EHS clauses, Section no. 6/ 23.1.1
WS&S-DDN-02	DBO	Yes	Yes	
WS&S-DDN-03	DBO	Yes	Yes	
WW-DDN-01	DBO	Yes	Yes	
WW-DDN-02	DBO	Yes	Yes	
WW-NTL-01	DBO	Yes	Yes	

VI. STATUS OF EMP IMPLEMENTATION

A. Preparation of Site Environmental Management Plan

38. Preparation and submission of Site-specific Environmental Management Plan (SEMP) and Health and Safety Plan (HSP) including Health & Safety COVID-19 Plan by contractor and approval of PMU is a requirement prior to commencement of works. All the documents have been disclosed on Project/PMU websites (https://www.uusdip.org/list-technical-documents Details of awarded packages are presented in the following Table.

Table 10: Status of SEMPs as on 30th June 2023

Package Number	Contractor	Current Status	Status of SEMP	Status of HSP	Remarks
WS&S-DDN-01	VPR Punglia Pvt Ltd.	Detailed Design and Construction underway	Prepared and approved based on completion of final design of Sewer and water supply pipe laying networks	Approved	For approved components only
WS&S-DDN-02	DRA-BIPL Pvt. Ltd	Detailed Design and	Prepared and approved based	Approved	For approved components only

[1] Sectional/components wise updated IEEs disclosed in ADB and Project websites.

Package Number	Contractor	Current Status	Status of SEMP	Status of HSP	Remarks
		Construction underway	on completion of final design of Sewer and water supply pipe laying networks		
WS&S-DDN-03	VPR Punglia Pvt Ltd.	Detailed Design and Construction underway	Prepared and approved based on completion of final design of Sewer and water supply pipe laying networks	Approved	For approved components only
WW-DDN-01	EMS infracon	Detailed Design and Construction underway	Prepared and approved based on completion of final design of Sewer pipe laying networks	Approved	For approved components only
WW-DDN-02	DRA-BIPL Pvt. Ltd	Detailed Design and Construction underway	Prepared and approved based on completion of final design of Sewer pipe laying networks	Approved	For approved components only
WW-NTL-01	TCP Pvt. Ltd.	Detailed Design and Construction underway	Prepared and approved based on completion of final design of Sewer pipe laying networks and STP design.	Approved	For approved components only

B. EMP Implementation Supervision and Monitoring

39. Construction works are being conducted in 06 packages. Package-wise status is presented in the below **Table 11**, and details of site visits conducted by safeguard staffs are given in **Appendix 2.**

Table 11: Status of EHS Staff and Monitoring

Package Number	Current Status	Contractor EHS Supervisor Appointed & Mobilized on Site	Monthly EMP implementation reports submitted by contractor	Site Monitoring/ Verification Conducted by PMDSC
WS&S-DDN-01	EHS deployed and SEMP Prepared	Yes	Yes	Yes
WS&S-DDN-02	EHS deployed and SEMP Prepared	Yes	Yes	Yes
WS&S-DDN-03	EHS deployed and SEMP Prepared	Yes	Yes	Yes
WW-DDN-01	EHS deployed and SEMP Prepared.	Yes	Yes	Yes

Package Number	Current Status	Contractor EHS Supervisor Appointed & Mobilized on Site	Monthly EMP implementation reports submitted by contractor	Site Monitoring/ Verification Conducted by PMDSC
WW-DDN-02	EHS deployed and SEMP Prepared	Yes	Yes	Yes
WW-NTL-01	EHS deployed and SEMP Prepared	Yes	Yes	Yes

C. Contractors Compliance with Statutory and Contractual Requirements

40. The following table shows the compliance with statutory requirements in terms of obtaining licenses, permissions, clearances and insurance coverage etc., required to conduct construction work.

Table 12: Status of Licenses, Permissions, Clearances for Construction Works as on 30th June 2023

Requirement / Contractor	WS&S-DDN-01	WS&S-DDN-02	WS&S-DDN-03	WW-DDN-01	WW-DDn-02	WW-NTL-01
	VPR Punglia Pvt. Ltd.	DRA-BIPL Pvt. Ltd.	VPR Punglia Pvt. Ltd.	EMS infracon Pvt Ltd.	DRA-BIPL Pvt. Ltd.	TCP Pvt Ltd.
Labour license	Available Validity: 16-05-2025	Available Validity: 19-05-2024	Available Validity: 13-07-2024	Available 22-03-2024	Available 19-05-2024	Available 09-11-2023
Workmen compensation policy	Applied for renewal on 22-06-2023	Available Validity: 18-01-2024	Available Validity: 23-06-2024	Available 21-03-2024	Available 18-01-2024	Available Validity: 18-0-2024
Contractor all risk insurance	Available Validity: 16-06-2025	Available Validity 30-05-2025	Available Validity: 17-10-2024	Available Validity: 21-04-2024	Available Validity: 08-06-2025	Available Validity: 21-04-2024
Mining / borrow areas ###	Material shall be procured from existing borrow areas.					
Pollution control certificate for Construction vehicles & equipment	Available	Available	Available	Available	Available	Available

D. Implementation of EMP Measures and Compliance Status

41. Implementation of measures as per the approved IEE & EMP / SEMP are reviewed for each package and status is presented in the following Tables. **Table 13 and 14** presents the implementation and compliance status of design and pre-construction stage mitigation measures. **Table 15** presents the implementation and compliance status of construction stage mitigation measures. This compliance is based on the monthly checklists submitted by Contractors and site verification visits and monitoring conducted by PMDSC, and periodic visits by PIU/PMU safeguard team. Contractor's Monthly EMP Implementation Reports and PMC Site Verification / Monitoring Reports are presented package-wise in **Appendix 3**. For each package one sample monthly

report (latest of reporting period) of contractor and one site visit report of PMC is provided in Appendix 3.

Table 13: Design Stage Mitigation Measures: Compliance Status

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
Location impacts of proposed components	Adequate pollution control measure to be adopted during construction so that nearby community may have no or minimum impact due to proposed works	DBO Contractor / PIU	S	All control measures will be followed to control the pollution and there will be no impact on nearby community of any project activity	S	All control measures will be followed to control the pollution and there will be no impact on nearby community of any project activity	S	All control measures will be followed to control the pollution and there will be no impact on nearby community of any project activity	S	All control measures will be followed to control the pollution and there will be no impact on nearby community of any project activity	S	All control measures will be followed to control the pollution and there will be no impact on nearby community of any project activity	S	All control measures will be followed to control the pollution and there will be no impact on nearby community of any project activity
Sewage Treatment Plant (STP) Odour nuisance and aesthetic	(i) Provide a green buffer zone of 10m wide all around the STP with trees in multi-rows. This will act as a visual screen around the facility and will improve the aesthetic appearance. Treated wastewater shall be used for plantation. (ii) Develop layout plan of STP such that odor generating units (such as inlet/raw water sump, and sludge handling facilities) are	Specialist of DSC and PIU	S	Odour Modelling reports has been completed and attached with this report as Appendix 11.	-	-	-	-	-	-	PS	Odour Modelling reports under preparation stage	PS	Odour modelling to be conducted of the STP as some of the residential houses are very close to the Sewage treatment plant (STP)

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
	located away from the surrounding area with future development potential. Odor sensitive design and standby power arrangements are suggested to safeguard the health and safety of the nearby community. (ii) Odour modelling will be conducted during the detailed design, and any measures that may be required will be undertaken as part of the implementation.													
Physical cultural resources and chance finds	(i) Ensure that worksites are not located in archeologically sensitive areas; liaise and reconfirm with local Archaeological Department during detailed design phase; (ii) Create awareness among	DBOC and PIU/PDMSC	S	No any construction and project site is located near archaeological sensitive area if find any. All the workers are aware about the chance finds protocol, they	S	No any construction and project site is located near archaeological sensitive area if find any. All the workers are aware about the chance finds protocol, they	S	No any construction and project site is located near archaeological sensitive area if find any. All the workers are aware about the chance finds	S	No any construction and project site is located near archaeological sensitive area if find any. All the workers are aware about the chance finds protocol, they	S	No any construction and project site is located near archaeological sensitive area if find any. All the	S	No any construction and project site is located near archaeological sensitive area if find any. All the workers are aware about the chance finds

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
	the workers, supervisors and engineers about the chance finds during excavation work; (iii) Stop work immediately to allow further investigation if any finds are suspected; (iv) Inform local Archaeological Department / Museum office if a find is suspected and take any action, they require to ensure its removal or protection in situ.			will inform to the concerned authority		will inform to the concerned authority,		protocol, they will inform to the concerned authority,		will inform to the concerned authority,		workers are aware about the chance finds protocol, they will inform to the concerned authority,		protocol, they will inform to the concerned authority,
Tree cutting may result loss of aesthetics and increase in air pollution	(i) Minimize removal of trees by adopting to site condition and with appropriate layout design of STP or any other site with trees (ii) Obtain prior permission for tree cutting at STP site or at any other site that may require tree cutting finalized during detailed design (iii) Plant and maintain 3 trees for each tree that is removed	DBO Contractor / PIU	S	Till date no tree cutting is required.	S	Till date no tree cutting is required	S	Till date no tree cutting is required	S	Till date no tree cutting is required	S	Till date no tree cutting is required	S	Till date no tree cutting is required

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
Preparation of plans and protocols	Preparation of Asbestos Cement Management (ACM) Management Plan (ii) Prepare traffic management plan (iii) Prepare occupational health and safety plan (iv) Prepare spoils management plan	DBO Contractor and DSC (for ACM plan	S	Being Complied. Till date no pipes / materials containing asbestos cement has been found	S	Being Complied. Till date no pipes / materials containing asbestos cement has been found	S	Being Complied. Till date no pipes / materials containing asbestos cement has been found	S	Being Complied. Till date no pipes / materials containing asbestos cement has been found	S	Being Complied. Till date no pipes / materials containing asbestos cement has been found	-	Being Complied.

Table 14: Pre-construction Stage Mitigation Measures: Compliance Status

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
To establish base line environmental conditions	Environmental monitoring through NABL accredited laboratory	Construction contractor	S	Baseline monitoring has been conducted as per updated IEE.	S	Baseline monitoring has been conducted as per updated IEE.	S	Baseline monitoring has been conducted as per updated IEE.	S	Baseline monitoring has been conducted as per updated IEE.	S	Baseline monitoring has been conducted as per updated IEE.	S	Baseline monitoring has been conducted as per updated IEE.
Legal compliance	Obtain all consents, clearances (CTE/CTO from UEPPCB), permits NOCs etc. before start of construction works	PIU/Consultants in coordination of	S	Please refer to	S	Please refer to	S	Please refer to	S	Please refer to	S	Please refer to	S	Please refer to

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
	Ensure that all necessary approvals for construction	Nagar Nigam		Table 4 and 5 All completed/ ongoing works are covered by required permits/ clearances/		Table 4 and 5 All completed/ ongoing works are covered by required permits/ clearances/		Table 4 and 5 All completed/ ongoing works are covered by required permits/ clearances/		Table 4 and 5 All completed/ ongoing works are covered by required permits/ clearances/		Table 4 and 5 All completed/ ongoing works are covered by required permits/ clearances/		Table 4 and 5 All completed/ ongoing works are covered by required permits/ clearances/
Utilities	(i) Identify and include locations and operators of these utilities in the detailed design documents to prevent unnecessary disruption of services during construction phase; and (ii) Require construction contractors to prepare a contingency plan to include actions to be taken in case of unintentional interruption of services (iii) inform the local community in advance if utilities will be disrupted during construction). (iv) Require	DBO Contractor in collaboration with PIU and with approval of PMU	S	All the concerned department has informed about the construction work with providing the design and map of the package.	S	All the concerned department has informed about the construction work with providing the design and map of the package.	S	All the concerned department has informed about the construction work with providing the design and map of the package.	S	All the concerned department has informed about the construction work with providing the design and map of the package.	S	All the concerned department has informed about the construction work with providing the design and map of the package.	S	All the concerned department has informed about the constructio n work with providing the design and map of the package.

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
	contractors to prepare spoils management plan.													
Construction work camps, hot mix plants, stockpile areas, storage areas, and disposal areas.	(i) Prioritize areas within or nearest possible vacant space in the project location; (ii) If it is deemed necessary to locate elsewhere, consider sites that will not promote instability and result in destruction of property, vegetation, irrigation, and drinking water supply systems. (iii) Do not consider residential areas; (iv) Take extreme care in selecting sites to avoid direct disposal to water body which will cause inconvenience the community. (v) For excess spoil disposal, ensure (a) site shall be selected preferably from barren, infertile lands. In case agricultural land needs to be selected, written consent from landowners (not lessees) will be obtained.	Contractor to finalize locations in consultation and approval of PIU	S	Being complied	S	Being complied	S	Being complied	S	Being complied	S	Being complied	S	Being complied

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
	(b) debris disposal site shall be at least 200 m away from surface water bodies; (c) no residential areas shall be located within 100 m downwind side of the site; and (d) site is minimum 250 m away from sensitive locations like settlements, ponds/lakes or other water													
Sources of Materials.	(i) Prioritize sites already permitted by the Department of Mines and Geology (ii)If other sites are necessary, inform construction contractor that it is their responsibility to verify the suitability of all material sources and to obtain the approval of PMU and (iii) If additional quarries will be required after construction is started, inform construction contractor to obtain a written approval from PIU.	DBO Contractor to prepare list of approved quarry sites and sources of materials with the approval of PIU	S	Material obtained from existing quarries	S	Material obtained from existing quarries	S	Material obtained from existing quarries	S	Material obtained from existing quarries	S	Material obtained from existing quarries	S	Material obtained from existing quarries
Consents, permits, clearances, NOCs, etc.	(i) Obtain all necessary consents (including CTE for STP from UEPPCB), permits, clearance,	DBO Contractor and PIU	S	All complete	S	All complete	S	All complete	S	All complete	S	All completed/	S	All completed/

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
	NOCs, etc. prior to award of civil works. Following consents are required- Tree cutting- local authority Storage, handling and transport of hazardous materials- UEPPCB Sand mining, quarries, borrow areas- Department of mines and Geology Traffic diversion/road cutting- local authority, traffic police (ii)Ensure that all necessary approvals for construction to be obtained by contractor are in place before start of construction (iii) Acknowledge in writing and provide report on compliance all obtained consents, permits, clearance, NOCs, etc. (iv) Include in detailed design drawings and documents all conditions and provisions if necessary	and Consultant		d/ ongoing works are covered by required permits/ clearances/		d/ ongoing works are covered by required permits/ clearances/		d/ ongoing works are covered by required permits/ clearances/		d/ ongoing works are covered by required permits/ clearances/		ongoing works are covered by required permits/ clearances/		ongoing works are covered by required permits/ clearances/
Storm water Drainage operations	Measures to prevent discharge of domestic wastewater to the storm water drainage system	DBO Contractor and PIU	-	Being complied	-	Being Complied	-	Being complied	-	Being complied	-	Being complied	NA	Not applicable, as SWD not part of

Impact / field	Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for Implementation of EMP Measures 1. **S / Satisfactory -** mitigation measures implemented satisfactorily 2. **PS / Partially Satisfactory -** mitigation measures implemented but requires improvement 3. **US / Unsatisfactory -** Mitigation measures not implemented / poorly implemented											
			WS&S-DDN-01		**WS&S-DDN-02**		**WS&S-DDN-03**		**WW-DDN-01**		**WW-DDN-02**		**WW-NTL-01**	
			Rating	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**	**Rating**	**Remarks**
	and accidents due to the drainage canals	and Consultant												scope under the subproject.
Updating of IEE and SEMP.	(i) Update IEE based on detailed designs, and submit to ADB for review, approval, and disclosure prior to commencement of work. (ii) Formulate SEMP during implementation and get approval from the PIU. (iii) Relevant information shall be disclosed.	PIU and Consultant	S	IEE updated and c approved by ADB for water supply and sewer networks only. SEMP also submitted to PMU and approved.	S	IEE updated and c approved by ADB for water supply and sewer networks only. SEMP also submitted to PMU and approved.	S	IEE updated and c approved by ADB for water supply and sewer networks only. SEMP also submitted to PMU and approved.	S	IEE updated and c approved by ADB for sewer networks only. SEMP also submitted to PMU and approved.	S	updated and c approved by ADB for sewer networks and updated STP layout only. SEMP also submitted to PMU and approved.	S	IEE has been updated for components with completed design. Same was reviewed by ADB and disclosed.
EMP Implementation Training	Project manager and all key workers of contractors will be required to undergo EMP implementation training Including spoils management, Standard operating procedures (SOP) for construction works; health and safety (H&S), core labor laws, applicable environmental laws etc.	Contractor, DSC	S	EHS Supervisor has been deployed and EMP implementation training was also conducted to all the key workers	S	EHS Supervisor has been deployed and EMP implementation training was also conducted to all the key workers	S	EHS Supervisor has been deployed and EMP implementation training was also conducted to all the key workers	S	EHS Supervisor has been deployed and EMP implementation training was also conducted to all the key workers	S	EHS Supervisor has been deployed and EMP implementation training was also conducted to all the key workers	S	EHS Supervisor has been deployed and EMP implementation training was also conducted to all the key workers

Table 15: Construction Stage Mitigation Measures: Compliance Status

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
EMP Implementation i) Contractor is required to depute a qualified and experienced EHS officer/ supervisor for monitoring of EMP implementation measures (ii) Project manager and all key workers will be required to undergo training on EMP implementation including spoils management, Standard operating procedures (SOP) for construction works; occupational health and safety (OH&S), core labor laws, applicable environmental laws, etc.	Construction Contractor	S	EHS supervisors has been deployed on site	S	EHS supervisors has been deployed on site	S	EHS supervisors has been deployed on site	S	EHS supervisors has been deployed on site
Air Quality (i) Plan the work sites properly, and demarcate the sites for stockpiling of, soils, gravel, and other construction materials away from the traffic, vehicle, general worker movement to avoid disturbance of loose materials (ii) Damp down exposed soil and any stockpiled material on site by water sprinkling. (iii) Use tarpaulins to cover sand and other loose material when transported by trucks. (iv) Clean wheels and undercarriage of haul trucks prior to leaving construction site (v) Do not allow access in the work area except workers to limit soil disturbance and prevent access by barricading and security personnel (vi) Fit all heavy equipment and machinery with air pollution control devices which are operating correctly, and limit idling time of construction vehicles to minimize local air pollution. contractor's vehicles and equipment should compulsorily have PUC and submit to PIU before deployment at site (vii) Obtain, CTE and CTO for batching plant, hot mix plant, crushers etc. if specifically established for this project. If contractor procures any material (such as ready-mix concrete, asphalt/macadam, aggregates etc.,) from third party agencies, contractor shall ensure that such agencies have all necessary clearances / permissions as required under the law; these include CTE/CTO from UEPPCB, environmental clearance, etc., contractor shall collect the copy of these certificates and submit to PIU; PIU will approve the source only after all the certificates are submitted (viii) Conduct air quality monitoring according to the Environmental Management Plan (EMP). Beside these mitigation measures the following remedial measures will be follow during the construction activities: • Dust screen will be provided around work sites	Construction Contractor	PS	All measures are taken as per the SEMP. Water sprinkling was suggested on some residential location during the construction work.	S	All measure are taken as per the SEMP.	PS	Improved implementation of EMP measures necessary to avoid/ minimize impacts on air quality	PS	Improved implementation of EMP measures necessary to avoid/ minimize impacts on air quality

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
• Loose soil on work sites, vehicle and worker movement areas will be properly rammed and stabilized to minimize dust generation; it will be ensured that no loose soil surface at working places • Water will be sprinkled adequately (at least daily 3 times in dry weather) to maintain surface in stabilized and damp condition • Prior to any levelling or earth moving activity, water will be sprinkled to avoid dust • Material stocks will be covered with tarpaulins/covers at the sites • Access to work area will be controlled; unnecessary movement of vehicles, workers and public in work areas will be controlled to minimize soil disturbance • Loose material (soil, sand, aggregate etc.,) will be covered with tarpaulins to when transported by open trucks; • Loose material from trucks will be unloaded in a barricaded area and with water sprinkling • Wheels and undercarriage of haul trucks will be cleaned prior to leaving construction site • All the vehicles and equipment's will be used as per the suggested norms.									
Surface water quality (i) Prepare and implement a spoils management plan (ii) Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets; (iii) Prioritize re-use of excess spoils and materials in the construction works. If spoils will be disposed, consult with PIU on designated disposal areas; (iv) Inspect all the drainage at construction site/construction camp/labor camp etc. and clear all the drainage lines so that no water stagnation/flooding may occur during heavy rainfall (v) As for a possible avoid trench works and excavation works (pipe laying) during monsoon season to avoid any water logging and accident due to it (vi) If open trenches are not avoidable during monsoon, keep ready all the mitigations measure to avoid water logging such as dewatering pumps and sufficient pipes, traffic assistance, barricades etc. (vii) Inspect and verify all the emergency measures and emergency control system before start of monsoon, keep the emergency response committee on high alert during monsoon/heavy rain fall (ix) Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; (x) Place storage areas for fuels and lubricants away from any drainage leading to water bodies. (xi) Dispose any wastes generated by construction activities in designated sites; and	Construction Contractor	S	Being complied, as per the plan baseline monitoring and monitoring during construction have been conducted and the monitoring during construction period will be conducted as per plan.	S	Being complied, as per the plan baseline monitoring and monitoring during construction have been conducted and the monitoring during construction period will be conducted as per plan	PS	Improved implementation of EMP measures necessary per site observations	PS	Improved implementation of EMP measures necessary per site observations

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
(xii) Conduct surface quality inspection according to the Environmental Management Plan (EMP).									
Ground Water Quality • Prepare and implement a spoils management plan; • Provide impermeable liner on the ground and place layer of mortar or concrete over it in the oil and lubricants storage areas, provide spillage trap in oil and lubricant store, use dip tray and pump to pour oil from oil and lubricant drums. • Dispose any oil contaminated wastes generated by construction activities in scientific manner; and Conduct ground water quality monitoring according to the Environmental Management Plan (EMP).	Construction Contractor	S	Being complied. as per the Spoil management plan consisting of spoils management plan, baseline monitoring and monitoring during construction have been conducted as per plan.	S	Being complied. as per the Spoil management plan consisting of spoils management plan, baseline monitoring and monitoring during construction have been conducted as per plan.	S	Being complied .as per the Spoil management plan consisting of spoils management plan, baseline monitoring and monitoring during construction have been conducted as per plan. .	S	Being complied. as per the Spoil management plan consisting of spoils management plan, baseline monitoring and monitoring during construction have been conducted as per plan.
Noise and Vibration Levels (i) Plan activities in consultation with PIU/Consultant so that activities with the greatest potential to generate noise are conducted during periods of the day which will result in least disturbance; (ii) Horns should not be used unless it is necessary to warn other road users or animals of the vehicle's approach; (iii) Minimize noise from construction equipment by using vehicle silencers, fitting jackhammers with noise- reducing mufflers, and portable street barriers the sound impact to surrounding sensitive receptor; (iv) Identify any buildings at risk from vibration damage and avoiding any use of pneumatic drills or heavy vehicles in the vicinity (v) Consult local communities in advance of the work to identify and address key issues, and avoid working at sensitive times, such as religious	Construction Contractor	S	Being complied as provisions of Noise and vibration level mitigation plan SEMP, baseline and monitoring during construction has been conducted as per plan.	S	Being complied as provisions of Noise and vibration level mitigation plan SEMP, baseline and monitoring	S	Being complied as provisions of Noise and vibration level mitigation plan SSEMP, baseline and monitori	PS	Noise mitigation measures need to be improved

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
and cultural festivals. (vi) Maximum sound levels should not exceed the WHO guideline for noise levels. (vii) Periodical monitoring of noise quality as per EMP					during construction has been conducted as per plan.		ng during construction has been conducted as per plan.		
Landscape and aesthetics (i) Prepare and implement spoils management plan (ii) Avoid stockpiling of excess excavated soils; (iii) Coordinate with ULB/PIU for beneficial uses of excess excavated soils or immediately dispose to designated areas; (iv) Recover used oil and lubricants and reuse or remove from the sites; (v) Manage solid waste according to the following preference hierarchy: reuse, recycling and disposal to designated areas; Remove all wreckage, rubbish, or temporary structures which are no longer required; and (vii) Request PIU to report in writing that the necessary environmental restoration work has been adequately performed before acceptance of work.	Construction Contractor	S	Being complied as suggested	S	Being complied as suggested	PS	EMP implementation measures to be improved per site observations	S	Being complied as suggested
Existing Infrastructure and Facilities (i) Obtain from PIU the list of affected utilities and operators if any; (ii) Prepare a contingency plan to include actions to be done in case of unintentional interruption of service (iii) Inform the local community in advance if utilities will be disrupted during construction	Construction Contractor	S	Being complied as suggested	S	Being complied as suggested	S	Being complied as suggested	S	Being complied as suggested
Ecological Resources– Flora (i) Minimize removal of vegetation and disallow cutting of trees; (ii) If tree-removal will be required, obtain tree-cutting permit from the concerned department; and Plant three native trees for every one that is removed .	Construction Contractor	S	As per detailed design no tree cutting is required along proposed water supply and sewer networks alignments	S	As per detailed design no tree cutting is required along proposed water supply and sewer networks alignments	S	As per detailed design no tree cutting is required along proposed water supply and sewer networks	S	As per detailed design no tree cutting is required along proposed sewer networks and STP s

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
							alignments		
Ecological Resources– Faunal • Prohibit workers from poaching and fishing in river and make awareness among workers • If any animal or fish is entrapped during construction works, provide safe passage for them, and do not harm them	Construction Contractor	S	Being complied, No interrupt is causing to the faunal diversity in any way	S	Being complied No interrupt is causing to the faunal diversity in any way	S	Being complied No interrupt is causing to the faunal diversity in any way	N/A	Being complied, No interrupt is causing to the faunal diversity in any way
Land use The impact due to change in land use will be negligible due to this project.	Not Applicable	NA	NA	NA	NA	NA	NA	NA	NA
Accessibility (i) Plan sewer line works to minimize traffic disturbance / blockades; as the sewer lines are to be laid in all the roads and streets in the town, (ii) work planning is crucial to minimize the inconvenience to public (iii) Prepare and implement a Traffic Management Plan (iv) Duly consider and select sections for trenchless method of pipe laying based on traffic conditions. Plan transportation routes so that heavy vehicles do not use narrow local roads, except in the immediate vicinity of delivery sites; (iv) Schedule transport and hauling activities during non-peak hours; (v) Locate entry and exit points in areas where there is low potential for traffic congestion; (vi) Keep the site free from all unnecessary obstructions; (vii) Drive vehicles in a considerate manner; (viii) Coordinate with Traffic Police for temporary road diversions and with for provision of traffic aids if transportation activities cannot be avoided during peak hours; (ix) Notify affected sensitive receptors 1-week in advance by providing sign boards informing nature and duration of construction works and contact numbers for concerns/complaints. (x) Plan and execute the work in such a way that the period of disturbance/ loss of access is minimum. (xi) Provide pedestrian access in all the locations until normalcy is restored. Provide wooden/metal planks over the open trenches at each house to maintain the access.	Construction Contractor	S	Complied as suggested Traffic Management Plan included as a part of SEMP	PS	Pedestrian access needs to be improved	PS	Pedestrian access needs to be improved	PS	Pedestrian access needs to be improved

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
Socio-Economic –Income. (i) Prepare and implement spoils management plan. Contractor to Implement RP and to follow mitigation measures prescribed (ii) Leave spaces for access between mounds of soil; (ii) Provide walkways and metal sheets where required for people; (iii) Increase workforce in front of critical areas such as institutions, place of worship, business establishment, hospitals, and schools; Consult businesses and institutions regarding operating hours and factoring this in work schedules; and (v) Provide sign boards for pedestrians to inform nature and duration of construction works and contact numbers for concerns/complaints.	Construction Contractor	S	Compiled as suggested	PS	Pedestrian access needs to be improved	PS	Pedestrian access needs to be improved	PS	Pedestrian access needs to be improved
Occupational Health and Safety (i) Comply with all national, state and local core labor laws Following best practice health and safety guidelines: IFC's General EHS Guidelines[41] and Sector Specific (Sanitation) Guidelines[42] (ii) Develop and implement site-specific occupational health and safety (OH and S) Plan which will include measures such as: (a) excluding public from the site; (b) ensuring all workers are provided with and use personal protective equipment like helmet, gumboot, safety belt, gloves, nose musk and ear plugs; (c) OH and S Training for all site personnel; (d) documented procedures to be followed for all site activities; and (e) documentation of work-related accidents; (iii) Conduct work in confine spaces, trenches, and at height with suitable precautions and using standards and safe construction methods; do not adopt ad hoc methods; all trenches deeper than 1.5 m shall be provided with safety shoring/braces; and avoid open cutting method for trenches deeper than 6-7 m by adopting trenchless technology (iv) Ensure that qualified first-aid can be provided at all times. Equipped first-aid stations shall be easily accessible throughout the site; (v) Provide medical insurance coverage for workers; (vi) Secure all installations from unauthorized intrusion and accident risks; (vii) The project area experiences extreme temperature during summer months of April and May, which may affect the health of workers engaged in construction work. Contractor should take necessary measures during summers including the following: (a) work schedule should be adjusted to avoid peak temperature hours (12 – 3 PM); (b) provide appropriate shade near the workplace; allow periodic resting and provide adequate water, and (c) provide necessary medicine and facilities to take care of dehydration related health issues	Construction Contractor	S	Compiled as suggested	PS	Campsite management to be improved based on site observations	PS	Compiled as suggests. DBO contractor was directed to keep first aid box at construction site during the work.	PS	Campsite management to be improved based on site observations

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
(viii) Provide supplies of potable drinking water; (vi) Provide clean eating areas where workers are not exposed to hazardous or noxious substances; (ix) Provide H and S orientation training to all new workers to ensure that they are apprised of the basic site rules of work at the site, personal protective protection, and preventing injuring to fellow workers; Provide visitor orientation if visitors to the site can gain access to areas where hazardous conditions or substances may be present. Ensure also that visitor/s do not enter hazard areas unescorted; (xi) Ensure the visibility of workers through their use of high visibility vests when working in or walking through heavy equipment operating areas; (xii) Ensure moving equipment is outfitted with audible back-up alarms; (xiii) Mark and provide sign boards for hazardous areas such as energized electrical devices and lines, service rooms housing high voltage equipment, and areas for storage and disposal. Signage shall be in accordance with international standards and be well known to, and easily understood by workers, visitors, and the general public as appropriate; (xiv) Disallow worker exposure to noise level greater than 85 dBA for a duration of more than 8 hours per day without hearing protection. The use of hearing protection shall be enforced actively. (xv) Conduct regular health check-ups for workers (xvi) Provide periodical awareness camps and special trainings for workers for health issues and risks in construction sites (xviii) Provide proper solid and liquid waste management system in workers' campsite, separate from spoils and debris disposal, as their presence can add to existing waste volume at the project sites. **Health risk of construction workers due to COVID-19.** **Prepare the health and safety guidance for COVID-19 at work sites and get approval of PMU;** Prepare the health and safety guidance for COVID-19 at work sites and get approval of PMU ; • Strictly follow and implement the H&S guidance for COVID-19 at worksite; • Everyone entering the worksite must wear a mask • At the entrance of the worksite/camp site every personnel must wash their hands for 20 second with maintaining a distance of at least 1m (3 ft) from each other; • A designated EHS/Medical person should stay all time during work and ensure physical distances (minimum 1m) among workers, disinfecting surfaces that are commonly used and investigate worker/site personnel health and safety. • Discourage site personnel to gather and gossip at any time, rather									

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
encourage physical distance while chatting/discussing. • Ensure sufficient stock of soap, sanitizer, washing facility and safe water at the workers' dwelling (both camp site and home). • Encourage frequent hand washing and social distancing at campsite. • Ensure personal distance at least 1 meter (3 feet), preferably 2m (6ft) during lunch, dinner and prayer. Train workers on how to properly put on, use/wear, and take off protective clothing and equipment. Make these trainings mandatory at worksites and provide 10-15 minutes of a workday for such 'training and encouragement' activities.									
Community Health and Safety. (i)Trench excavation and pipeline works shall be conducted in a safe manner; if the allowing public movement along the work sites (pedestrians or vehicles as the case may be) is likely to cause safety risks, movement should be blocked temporarily and work shall be conducted; in such areas, conducting night work or working in small stretches to avoid blockage of traffic/movement no more than few hours in due consultation with the local community and ULB shall be planned (ii) All trenches deeper than 1.5 m shall be provided with safety shoring/braces; and avoid open cutting method for trenches deeper than 6-7 m by adopting trenchless technology (iii) Survey the surrounding vulnerable buildings for likely issues in structural stability / differential settlement during the excavation works (iv) Provide prior information to the local people about the nature and duration of work. (v) Plan routes to avoid times of peak- pedestrian activities. (vi) Liaise with PIU/ULB in identifying high-risk areas on route cards/maps. (vii) Maintain regularly the vehicles and use of manufacturer-approved parts to minimize potentially serious accidents caused by equipment malfunction or premature failure. Provide road signs and flag persons to warn of on-going trenching activities.	Construction Contractor	S	Being complied as suggested	S	Being complied as suggested.	PS	. Prevention of pedestrian access to work sites need to be improved	PS	Prevention of pedestrian access to work sites need to be improved . .
Safety of sensitive groups (children, elders etc.) and other pedestrians in narrow streets (i) Provide prior information to the local people about the nature and duration of work (ii) Conduct awareness program on safety during the construction work Undertake the construction work stretch-wise; excavation, pipe laying and trench refilling should be completed on the same day	Construction Contractor	S	Being complied All information's related to the project activities are being shared by establishing	S	Being complied All information's related to the project activities are being	PS	Being complied All information's related to the project activities	PS	Being complied All information's related to the project activities are being

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
(iv) Provide barricades, and deploy security personnel to ensure safe movement of people and also to prevent unnecessary entry and to avoid accidental fall into open trenches			the information booth at construction sites		shared by establishing the information booth at construction sites.		are being shared by establishing the information booth at construction sites Prevention of pedestrian access to work sites need to be improved		shared by establishing the information booth at construction sites. Prevention of pedestrian access to work sites need to be improved
Night Works Prepare a night work protocol and obtain prior approval from PIU, and strictly implement and report on implementation of protocol during the workers; Contractors should have handheld noise level meter for measurement of noise during night hours; Contractors should have handheld lux meter for the measurement of illumination during night hours Preferably electrical connection is available for running equipment otherwise soundproof / super silent Diesel Generator set should be available Sound level should not increase as prescribe by CPCB standards; Illumination should be as prescribed in protocol; As far as possible ready-mix concrete from batching plant to be used, otherwise the concrete should be prepared away from residential areas and brought to the site; All the noisy activities like hammering, cutting, crushing, running of heavy equipment should be done in daytime and avoided in nighttime; Workers engaged in night works should have adequate rest/sleep in daytime before start of night works Worker engaged for night works should have previous experience of night works and should be physically fit for	Construction Contractor	NA	To be done if required and all the norms will be complied during the work with prior information and permission from PIU.	NA	To be done if required and all the norms will be complied during the work with prior information and permission from PIU.	NA	To be done if required and all the norms will be complied during the work with prior information and permission from PIU.	NA	To be done if required and all the norms will be complied during the work with prior information and permission from PIU.

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
such works including clear vision in night. All the necessary provisions of traffic aids such as traffic signals, road signage, barricades, cautions boards, traffic diversion boards etc. should be available with fluorescent/retro- reflective arrangements Workers should be trained before start of night works about risks and hazards of night works and their mitigation measures and should be provided all the protective aids (PPEs) including fluorescent/retro-reflective vests. Horns should not be permitted by equipment and vehicles Workers should not shout and create noise First aid and emergency vehicles should be available at site Emergency preparedness plan should be operative during night works Old persons and pregnant women and women having small kids should not work in night-time All the vehicles and equipment being used at night works should have adequate type of silencers/enclosures/mufflers to reduce noise All the vehicles should be checked for working head lamps, tail lamps, inner lights etc. before start of night works PIU/DSC site engineers and contractor's safety personnel should closely monitor the safety of works continuously and noise and illumination levels on hourly basis and maintain photographic and video graphic records as well as register the observations. Night works should be stopped early in the morning at least one hour before start of pedestrian/traffic movement After completion of night works all the site should be cleaned and maintained obstruction free for daytime movement of vehicles and pedestrians Drivers and workers should be alert and responsive during night works All the wages to workers working in night hours should be as per the applicable labor acts. Avoid any nuisance which may create problems to nearby habitants and work peacefully during night hours Night works should not be conducted near hospitals and during peak seasons such as peak tourist season, students' exam times etc									
Work in narrow streets (i) Conduct awareness program on safety during the construction work (ii) Undertake the construction work stretch-wise; excavation, pipe laying and trench refilling should be completed on the same day (iii) Provide barricades, and deploy security personnel to ensure safe movement of people and also to prevent unnecessary entry and to avoid accidental fall into open trenches (iv) Trench excavation and pipeline works shall be conducted in a safe manner; if the allowing public movement along the work sites (pedestrians or vehicles as the case may be) is likely to cause safety risks, movement should be blocked temporarily and work shall be conducted; in such areas,	Construction Contractor	PS	Being complied as suggested. DBO Contractor was directed to provide the ramp for the easy access to their home.	S	Compiled as suggested	PS	Prevention of pedestrian access to work sites need to be improved	PS	Prevention of pedestrian access to work sites need to be improved

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
conducting night work or working in small stretches to avoid blockage of traffic/movement no more than few hours in due consultation with the local community and ULB shall be planned									
Trenchless Pipe installation Pipe shall be installed by the horizontal directional drilling (HDD) methods where required. If the method is not feasible for any road, the contractor shall inform the Project Manager and gain prior approval for an alternative method or for open trench method. • Provide outdoor sound blanket or noise curtain wall to help alleviate the noise impact due to HDD. Monitor the noise level to ensure the maximum levels are not exceeded. Excavation material shall be removed from the conduit as the work progresses. No accumulation of excavated material within the conduit will be permitted. • The contractor shall provide sediment and erosion control measures in accordance with local environmental legislation. • The contractor shall supply portable mud tanks or construct temporary mud pits to contain excess drill fluids during construction. Spent drilling fluids and cuttings shall be confined to the entrance and exit pits. • The contractor shall take all necessary precautions to minimize the damage to the adjacent properties. The contractor shall take all necessary precautions to minimize the damage to the adjacent properties. • Drilling fluid/ bentonite slurry that enters the pipe shall be removed by flushing or other suitable methods. Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6-8m^3 capacities shall be used for settling waste-waters prior to disposal. • The contractor shall be responsible for cleanup and restoration of the site. • Pits excavated to permit connection of bored pipe shall be backfilled, and disturbed areas shall be restored to their original state or better. Sections of sidewalks, curbs, and gutters or other permanent improvements damaged during HDD operations shall be repaired or replaced at the contractor's expense.	Construction Contractor	NA	NA for this SEMR period No trenchless pipe installation conducted during the period	NA	NA for this SEMR period No trenchless pipe installation conducted during the period	NA	NA for this SEMR period No trenchless pipe installation conducted during the period	NA	NA for this SEMR period No trenchless pipe installation conducted during the period
Construction camps and worker facilities (i) Consult with PIU before locating project offices, sheds, and construction plants. (ii) Minimize removal of vegetation and disallow cutting of trees. (iii) Provide drinking water, water for other uses, and sanitation facilities for employees. (iv) Provided temporary rest and eating area at all work sites Ensure conditions of livability at work camps are always maintained at the	Construction Contractor	S	The camp has been constructed for the present need of the workers as per the IFC guidelines. All	PS	The camp has been constructed for the present need of the workers as per the IFC	PS	The camp has been constructed for the present	PS	The camp has been constructed for the present need of the workers as

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
highest standards possible; living quarters and construction camps shall be provided with standard materials (as far as possible to use portable ready to fit-in reusable cabins with proper ventilation); thatched huts, and facilities constructed with materials like GI sheets, tarpaulins, etc., shall not be used as accommodation for workers; accommodation shall meet the IFC standards for workers accommodation which include: provision of safe housing, availability of electricity plumbing, water and sanitation, adequate fire protection and dormitory/room facilities; accommodation shall be in the range from 10 to 12.5 cubic meters (volume) or 4 to 5.5 square meters (surface) per worker, a minimum ceiling height of 2.10 meters; a reasonable number of workers are allowed to share the same room – (standards range from 2 to 8 workers); workers with accompanying families shall be provided with a proper and safe accommodation (vi) Train employees in the storage and handling of materials which can potentially cause soil contamination. (vii) Recover used oil and lubricants and reuse or remove from the site; (viii) Manage solid waste according to the preference hierarchy: reuse, recycling and disposal to designated areas. (ix)Ensure unauthorized persons specially children are not allowed in any worksite at any given time.			the norms will be followed as per requirement		guidelines. All the norms will be followed as per requirement. Proper residence facility, kitchen and washing area shoul be provided at labour camp. Any type of construction material should not be stored in the premises of labour camp.		need of the workers as per the IFC guidelines. Some improvement is needed in hygienity and cleanliness of the camp. LPG should be provided etc. All the norms will be followed as per requirement.		per the IFC guidelines. All the norms will be followed as per requirement. Male and female toilets should be marked at labour camp and hygienity should be maintained labour camp and its premises.
Groundwater exploitation To avoid over exploitation of groundwater resources, judicious use and proper scientific planning is required for further developments by the Government. Prevent pollutants from contaminating the soil and the ground water. • All tube wells, test holes, monitoring wells that are no longer in use or needed shall be properly decommissioned; • Storage of lubricants and fuel at least 50 m from water bodies • Storage of fuel and lubricants in double hulled tanks. Fuel and other petroleum products stored at storage areas away from water drainage and protected by impermeable lining and bonded 110%. • Daily control of machinery and vehicles for leakages Collection of waste during construction activities • Provide uncontaminated water for dust suppression • Monitor groundwater quality according to the environmental monitoring plan.	Construction Contractor	S	Being complied as suggested as Environmental Monitoring is being done as per the Environmental monitoring plan with complying all measures for ground water exploitation.	S	Being complied as suggested as Environmental Monitoring is being done as per the Environmental monitoring	S	Being complied as suggested as Environmental Monitoring is being done as per the Environmental	S	Being complied as suggested as Environmental Monitoring is being done as per the Environmental monitoring

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
					plan with complying all measures for ground water exploitation.		monitoring plan with complying all measures for ground water exploitation.		plan with complying all measures for ground water exploitation.
Social and Cultural Resources (i) Strictly follow the protocol for chance finds in any excavation work; (ii) Create awareness among the workers, supervisors and engineers about the chance finds during excavation work (iii) Stop work immediately to allow further investigation if any finds are suspected; (iv) Inform local Archeological Department / Museum office if a find is suspected and take any action, they require to ensure its removal or protection in situ	Construction Contractor	S	No archaeological site is situated nearby the project activities.	S	No archaeological site is situated nearby the project activities.	S	No archaeological site is situated nearby the project activities.	S	No archaeological site is situated nearby the project activities.
Monsoon preparedness (i) As for a possible avoid trench works and excavation works (pipe laying) during monsoon season to avoid any water logging and accident due to it (ii) if open trenches are not avoidable during monsoon, keep ready all the mitigations measure to avoid water logging such as dewatering pumps and sufficient pipes, traffic assistance, barricades etc. Keep emergency response system ready before monsoon/heavy rain fall	Construction Contractor	S	Will be complied as suggested.	S	Being complied	PS	Being complied as suggested Monsoon preparedness needs to be improved based on site observations	S	Being complied as suggested.
Submission of EMP implementation report (i) Appointment of supervisor to ensure EMP implementation Timely submission of monitoring reports including pictures	Construction Contractor	S	Complied as suggested	S	Complied as suggested	S	Complied as suggested	S	Complied as suggested

Impact fields and Mitigation Measures	Responsible for mitigation	Compliance rating for implementation of EMP Measures 1. S / Satisfactory 2. PS / Partially Satisfactory 3. US / Unsatisfactory							
		WS&S-DDN-01,02 & 03		WW-DDN-01		WW-DDN-02		WW-NTL-01	
		Rating	Remarks	Rating	Remarks	Rating	Remarks	Rating	Remarks
Post-construction clean-up (i) Remove all spoils wreckage, rubbish, or temporary structures (such as buildings, shelters, and latrines) which are no longer required; and (ii) All excavated roads shall be reinstated to original condition. (iii) All disrupted utilities restored (iv) All affected structures rehabilitated/compensated (v) The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint, etc. and these shall be cleaned up. (vi) All hardened surfaces within the construction camp area shall be ripped, all imported materials removed, and the area shall be top soiled and re-grassed using the guidelines set out in the re-vegetation specification that forms part of this document. (vii) The contractor must arrange the cancellation of all temporary services. Request PIU to report in writing that worksites and camps have been vacated and restored to pre-project conditions before acceptance of work.	Construction Contractor	-	Will be complied upon completion of construction activities at work sites	-	Will be complied upon completion of construction activities at work sites	-	Will be complied upon completion of construction activities at work sites	-	Will be complied upon completion of construction activities at work sites

E. Findings on EMP Compliance

42. . **Construction stage measures**. The construction work has been started at all six packages and as per the given detail in table 15 and appended as appendix 3 & 5. The package wise status is following:

43. **Banjarawala Package-01,02 &03 (WS&S-DDN-01, WS&S-DDN-02 and WS&S-DDN-03):** These are the water supply and Sewer projects, **d**uring the construction activities, all the suggestive measures are followed at site but some of the site was found dusty, so water sprinkling was suggested on the site. Beside this some of the work was carried out in narrow street, so the ramp was suggested to provide easy access to homes. All other compliances were found in satisfactory condition as suggested in Construction Stage Mitigation Measures (Refer Table-15). DBO contractor was suggested to comply with all the SEMP provisions.

44. **THDC/Yamuna colony (WW-DDN-01):** This is sewer project and all the suggestive measures are followed and in satisfactory (S) condition at site except some mismanagement at labour camp and categorized as Partially Satisfactory (PS) condition. DBO Contractor was suggested to maintain hygiene, proper residence facilities and disallow storage of construction material at labour camp (Please Refer Table-15).

45. **Raipur (WW-DDN-02):** This is also a sewer project with the construction of 18 MLD STP with co-treatment facility. In this package, it was observed that first aid box was not available at construction site, some Improvement related to cleanliness and hygiene is also needed at labour camp. DBO Contractor was instructed to keep the first-aid box at site during construction work and to maintain the hygiene at labour camp as these components was found in Partially Satisfactory (PS) category, the rest of the parameters was found in satisfactory conditions (Please refer Table-15).

46. **Nainital (WW-NTL-01):** This is sewer project with the construction of 17.5 MLD STP at Russi. All the parameters were found in Satisfactory (S) conditions except some of the compliances at labour camp were found in poor conditions and categorized as Partially Satisfactory (PS). DBO Contractor was suggested to follow the IFC guidelines to maintain the cleanliness and hygiene at labour camp and it was also advised to the contractor that the toilets should be separate for male and female and marked properly (Please Refer Table-16).

Table 16: Package-wise Compliance with Construction stage EMP[2]

S. No.	Package	Overall compliance with Design stage EMP	Overall compliance with preconstruction stage EMP	Overall compliance with construction stage EMP
1	WS&S-DDN-01	Fair	Fair	Good
2	WS&S-DDN-02	Good	Good	Good
3	WS&S-DDN-03	Good	Good	Fair
4	WW-DDN-01	Good	Good	Fair
5	WW-DDN-02	Fair	Fair	Fair
6	WW-NTL-01	Fair	Fair	Fair

[2] Very Good (all measures implemented satisfactorily)
Good (most (>75%) measures implemented satisfactorily & none unsatisfactorily)
Fair (many (50-75%) measures implemented satisfactorily & none unsatisfactorily)
Poor (few (<25%) measures implemented unsatisfactorily)
Very Poor (most (>25%) measures implemented unsatisfactorily or not implemented)

F. IMPLEMENTATION OF HEALTH & SAFETY COVID-19 PLAN

47. **H&S COVID-19 Plan Preparation.** Status of preparation and approval of Health and Safety COVID-19 Plan is provided in the following table.

Table 17: Status of H&S COVID-19 Plan

H&S COVID-19 Plan	Approval	Update	Remarks
WS&S-DDN-01	Yes 23-05-2022	Approved	Implemented, Thermal scanning logs Site Quarantine facility, Medication facilities made available
WS&S-DDN-02	Yes 23-05-2022	Approved	Implemented, Thermal scanning logs Site Quarantine facility, Medication facilities made available
WS&S-DDN-03	Yes 23-05-2022	Approved	Implemented, Thermal scanning logs Site Quarantine facility, Medication facilities made available
WW-DDN-01	Yes 23-05-2022	Approved	Implemented, Thermal scanning logs Site Quarantine facility, Medication facilities made available
WW-DDN-02	Yes 08-06-2022	Approved	Implemented, Thermal scanning logs Site Quarantine facility, Medication facilities made available
WW-NTL-01	Yes 08-06-2022	Approved	Implemented, Thermal scanning logs Site Quarantine facility, Medication facilities made available

48. H&S COVID-19 Plan Implementation.

Screening:

49. Apart from the regular information collected during the screening process, additional self – declaration form shall be obtained to identify the COVID-19 risk level of workmen. Implementation of COVID-19 is appended as Apendix-4 in this SEMR report.

50. This information shall include:

- Place of his latest stay (to identify whether, it is a hotspot).
- Contact with any confirmed or suspected COVID 19 individual.
- Contact with persons who have a travel history to hot spots.
- Download Aarogyam Setu app in their mobile phone.

Medical Check-up by Doctor:

- All workmen shall be subjected to stringent medical check-up by the medical practitioner
- before allowing for EHS Induction.

- The doctor shall consider the additional information provided by the workmen in the
- screening, while checking the workmen.

EHS Induction:

- Number of workmen participating in EHS Induction shall be restricted to maintain the social distance during training.
- In addition to the regular EHS induction, workmen will be trained on COVID 19 risks and the precautionary measures, covering the following topics:
  - Symptoms of COVID 19
  - How virus spreads
  - Importance of maintaining social distancing
  - Importance and DO's and DON'T's of hand washing
  - Overview of the precautionary measure taken at site for COVID 19
  - Roles & Responsibility of workmen specific to the precautions towards COVID 19
  - Reporting in case of symptoms like Flu

Training & Awareness:

- All the staff members, ERT Members, Supervisor & all workmen shall be trained specific to COVID 19 risks and controls measures through regular interval CWT (contractor workmen training), Site specific Trainings & daily PEP talks.

51. Refer appendix-4 for the COVID related activities at sites and package wise photographs are given below.

Medical Camp at Site

WS&S-DDN-01

WS&S-DDN-02

WS&S-DDN-03

WW-DDN-01

WW-DDN-02

WW-NTL-01

G. CONSTRUCTION WORK-RELATED ACCIDENTS

52. During the construction work at all six packages, some of the accidents were happened on the construction site as during the current reporting period 09 (nos.) accidents, 08 accidents, 39 accidents, 03 accidents 08 accidents and 13 accidents were recorded at Banjarawala Package-01, 02, 03, THDC, Raipur and Nainital, respectively. While in the previous reporting period, Total accidents were recorded 210 from which 19 (nos.) was recorded in Banjarawala Package-01, 22 in Banjarawala Pacakge-02, 39 in Banjarawala Package-03, 03 at THDC/Yamuna colony, 28 in Raipur package and 13 accidents were recorded in Nainital Package. Only minor injuries were recorded and all the injured staff has been resumed at work (Please refer Table 17 a).

Table17 a: Details of incidents during January '23 to June '23

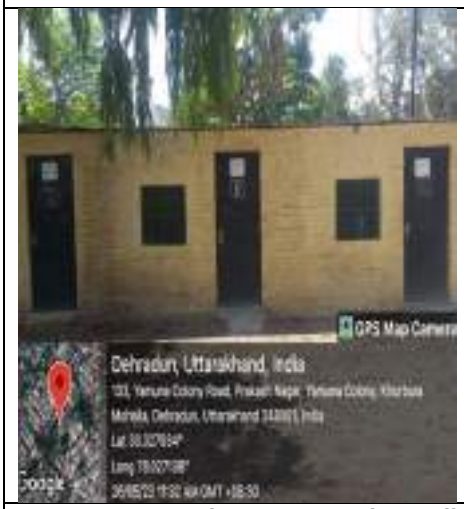
Package	No of incidents occurred			Type of Incidents									Remark
				Current Reporting Period			Previous Reporting periods			Cumulative			
	Current Reporting period	Previous Reporting periods	Cumulative	Major	Minor	Fatal	Major	Minor	Fatal	Major	Minor	Fatal	
WS&S-DDN-01	9	19	28	0	9	0	0	19	0	0	28	0	Minor injuries were occurred during construction work and medicines was given as per the prescription of Doctor, and the staff resumed on the duty now.
WS&S-DDN-02	8	22	30	0	8	0	0	22	0	0	30	0	
WS&S-DDN-03	39	38	77	0	39	0	0	38	0	0	77	0	
WW-DDN-01	3	10	13	0	3	0	0	10	0	0	13	0	
WW-DDN-02	8	28	36	0	8	0	0	28	0	0	36	0	
WW-NTL-01	13	13	26	0	13	0	0	13	0	0	26	0	
Total	80	130	210	0	80	0		130	0	0	210	0	

H. Best practices / environment improvement activities.

53. Details of innovative practices / environmental improvements activities conducted at the sites which are not actually part of EMP like water conservation, waste management, plastic-free sites, tree plantation etc. are given below:

I. Site Specific Issues and Present Compliance Status

54. A few site- specific issues and compliance status as recorded during the report period are shown below.

		
WS&S-DDN-01 Labour camp is in satisfactory condition	**WS&S-DDN-02 Kitchen area at Labour camp in satisfactory condition**	**WS&S-DDN-03 Labour Camp**
		
WW-DDN-01 Labour camp is well maintained	**WW-DDN-02 was in satisfactory condition,**	**WW-NTL-01 Labour camp**

55. **Use of PPEs e.g., safety harness, jacket.** Although the usage of PPEs at work has improved but still some violations were observed on site. Violations such as non-use of helmet, shoes, gloves, goggles, masks etc. while working for excavation, construction of manholes, pipe laying and other works are mentioned below.

Fig: Banjarawala Package-01 work at STP site

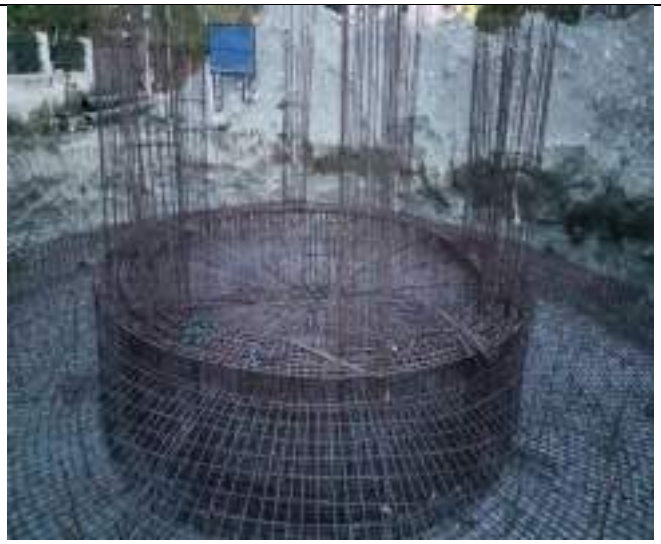


Fig: Banjarawala Package-02 Reinforcement work of footing for OHT

Fig: Banjarawala Package-03 1900KL second time beam concrete work

Fig: THDC package workers carrying out backfilling work after pipe laying.

Fig: At Raipur package Concreting at STP, Kuanwala for SBR

Fig: At Nainital package workers carrying out excavation works.

56. Barricading and caution tapes along pipelines Although barricading and installation of caution tapes are mandatory requirements while laying of pipelines but on many instances

such practices were not seen earlier at sites. However, upon constant supervision and awareness campaigning by PMDSC, such practices are now observed at most sites.

57. Plantation drive was organized on dated 5th June 2023 at Banjarawala THDC and Nainital package. The local trees were planted by the joint efforts of UUSDA, PMDSC and DBO contractor. On the other hand, National Safety Day was organized by the DBO Contractor in the presence of PMDSC, at Raipur package. During the program all the participant were made aware about the safety norms and use of PPEs during the construction work.

58. A program was organized by DBO contractors on the occasion of World Environment Day with the WED theme #Beat Plastic Pollution.

Plantation drive at Banjarawala package-01, Nainital and THDC Yamuna colony on the occasion of World Environment Day 2023.

WW-NTL-01	WS&S-DDN-01
	
WW-DDN-01	

A program organized on National Safety Day (04 th March 2023)

WW-DDN-02 (Raipur Package)

	
Public Information Booth at Banjarawala Package -3	**Public Information Booth at THDC/Yamuna colony package**

VII. ENVIRONMENTAL MONITORING

A. Environmental Quality Monitoring

59. IEE and EMP / SEMR require conduct of ambient environmental quality monitoring throughout implementation. These includes monitoring ambient air, water, noise, etc., in and around project sites to assess the quality and changes with respect to baseline conditions. Per the EMP and contract, Contractors are responsible to conduct the monitoring, and following Table 18 shows the status of environmental monitoring conducted by contractors, package-wise for all awarded contracts.

Table 18: Status Environmental Monitoring of Awarded Packages

Package No	Monitoring during construction		Periodic Monitoring in Reporting Period	
	Date/period of monitoring	Environmental parameters	Dates/period of monitoring	Environmental parameters
WS&S-DDN-01	First Quarter 21-03-2023 to 24-03-2023	**i. Ambient air quality** PM_{10}, $PM_{2.5}$ NO_2, SO_2,CO **ii. Ambient Noise** L_{day} and L_{night} (in Leq dBA) 24 hrs basis as per methods and norms approved by CPCB (Day/Night time monitoring) **iii. Surface Water Quality** pH, Turbidity, Total Hardness, DO, BOD, COD, Chloride, Hg, Iron, TDS, TSS, Calcium, Zn, Cr+6, Magnesium, Copper, Manganese, Sulphate, Cyanide, Nitrate, Sodium, Potassium, Fluoride, Cadmium, Arsenic, Lead, Boron,	The monitoring of Construction period has been conducted for both quarter (January 2023 to March 2023 and April to June 2023). The monitoring will be conducted after monsoon.	
	Second Quarter 17-05-2023 to 21-05-2023			
WS&S-DDN-02	First Quarter 07-02-2023 to 08-02-2023			
	Second Quarter 20-06-2023 to 23-06-2023			
WS&S-DDN-03	First Quarter 15-02-2023 to 22-02-2023			
	Second Quarter			

	17-06-2023 to 23-06-2023	Selenium, Aluminium, Total residual Chlorine. Total and Faecal Coliform **iv. Ground Water Quality** pH, TDS, Total Hardness, Zn, Chloride, Iron, Copper, DO, Manganese, Sulphate, Nitrate, Fluoride, Hg, Cadmium, Cr+6, Arsenic, Lead, Total Alkalinity, Phosphate, Phenolic compound **v. Soil Quality** pH, Elect. Conductivity (at 250C), Moisture (at 1050C), Texture (silt, clay, sand), Calcium (as CaO), Magnesium (as Mg), Permeability, Nitrogen (as N), Sodium (as Na), Phosphate (as PO4), Potassium (as K), Organic Matter, oil and grease	
WW-DDN-01	First Quarter 25-03-2023 to 31-03-2023		
	Second Quarter 21-06-2023 to 26-06-2023		
WW-DDN-02	First Quarter 16-02-2023 to 21-02-2023		
	Second Quarter 04-06-2023 to 08-06-2023		
WW-NTL-01	First Quarter 22-03-2023 to 27-03-2023		
	Second Quarter 14-06-2023 to 17-06-2023		

60. **Monitoring parameters.** Monitoring parameters are considered as per the approved IEE and SEMP and already mentioned in Table 18.

61. **Monitoring Frequency**. Environmental monitoring will be conducted quarterly except Monsoon.

62. **Monitoring Locations**. Number of locations/sampling points considered as specified in the approved IEE and SEMP. Location of monitoring/sampling points are selected based on parameters such as representative locations, meteorological conditions (wind direction), land use, terrain, natural drainage etc.

63. The Package wise monitoring locations for the projects are marked maps and presented below.

Figure 5: Ambient Air Quality, Noise Level and Surface Water, ground water and Soil Monitoring Stations at Banjarawala Package-01 (Package WS&S-DDN-01)

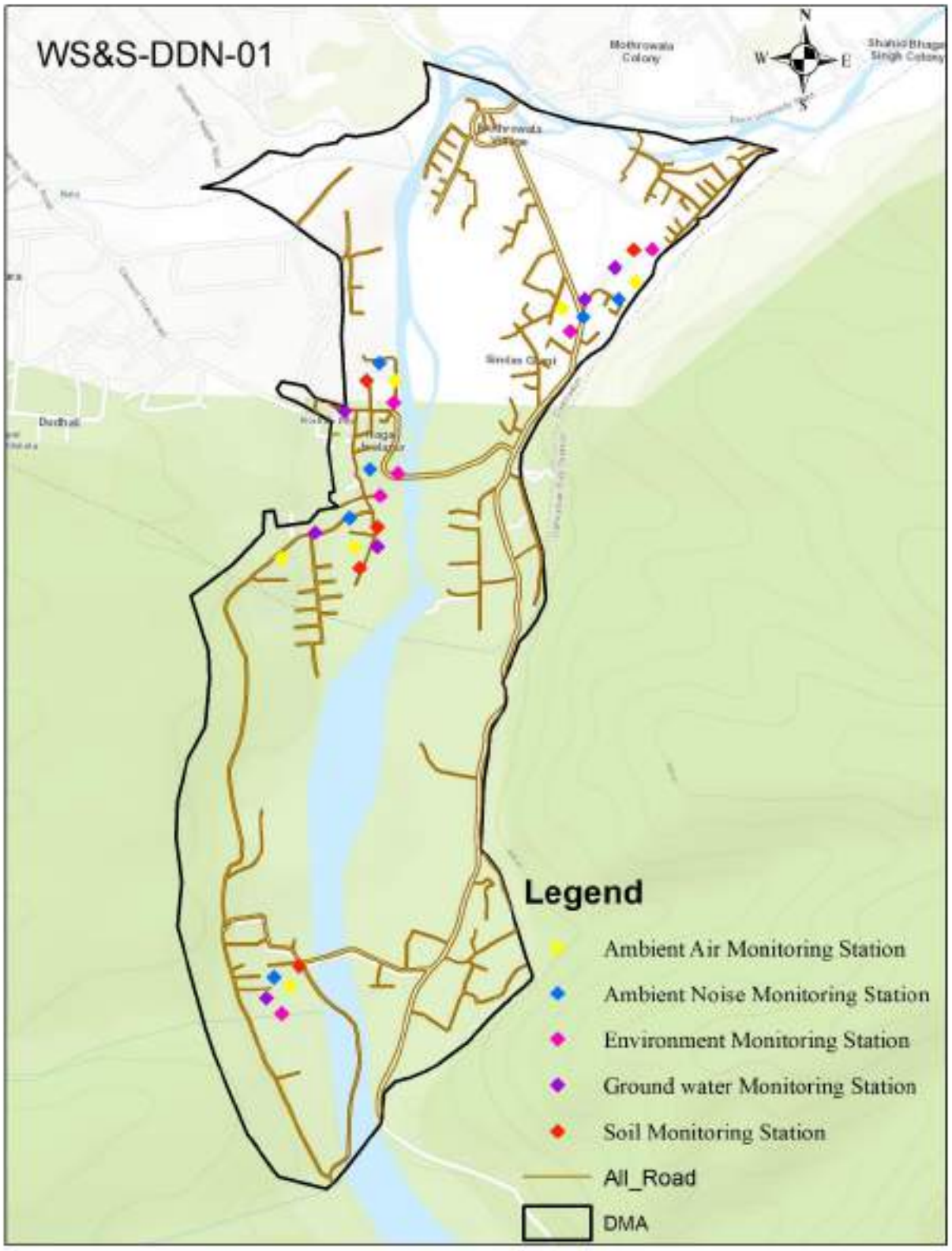


Figure 6: Ambient Air Quality, Noise Level and Surface Water, ground water and Soil Monitoring Stations at Banjarawala Package-02 (Package WS&S-DDN-02)

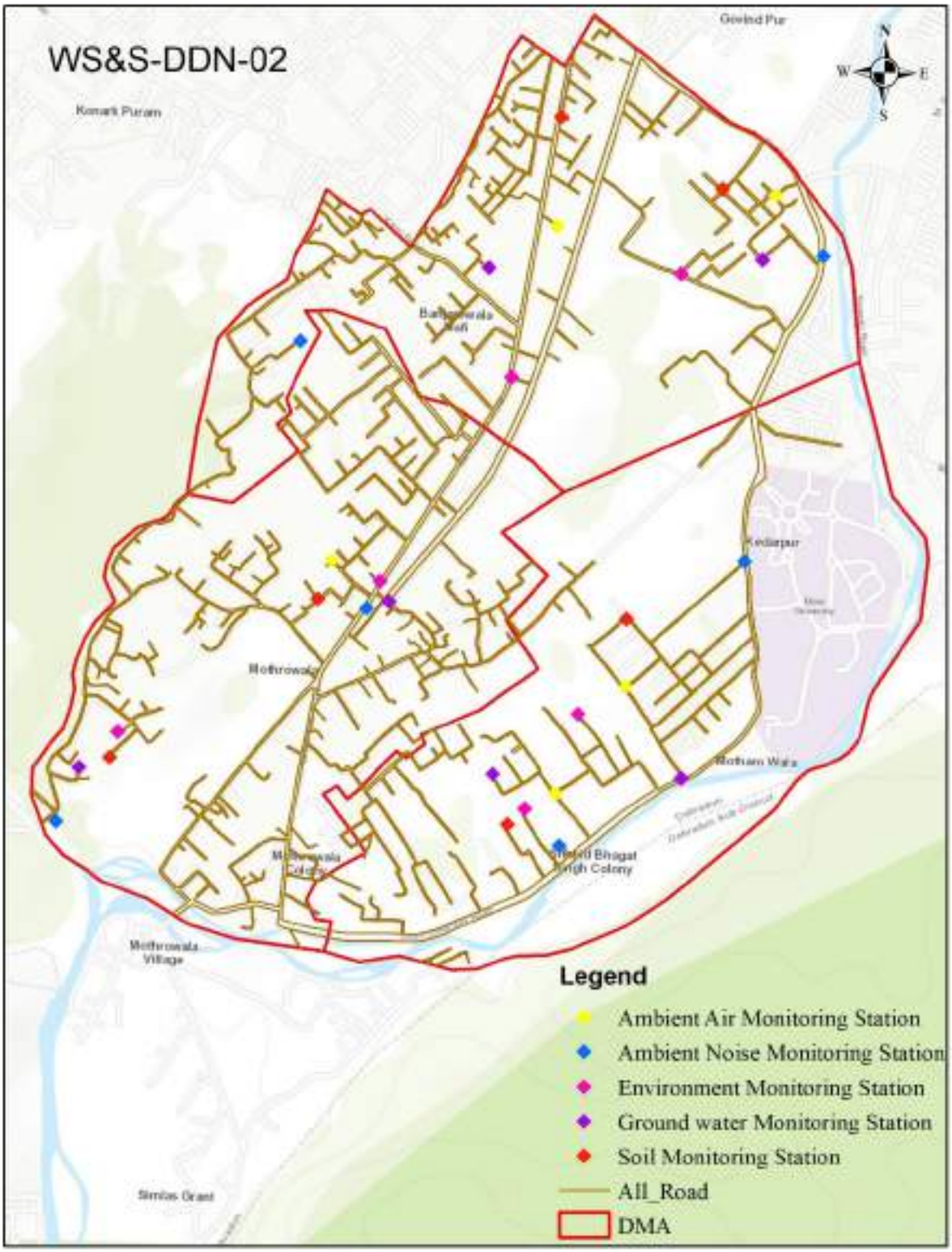


Figure 7: Ambient Air Quality, Noise Level and Surface Water, ground water and Soil Monitoring Stations at Banjarawala Package-03 (Package WS&S-DDN-03)

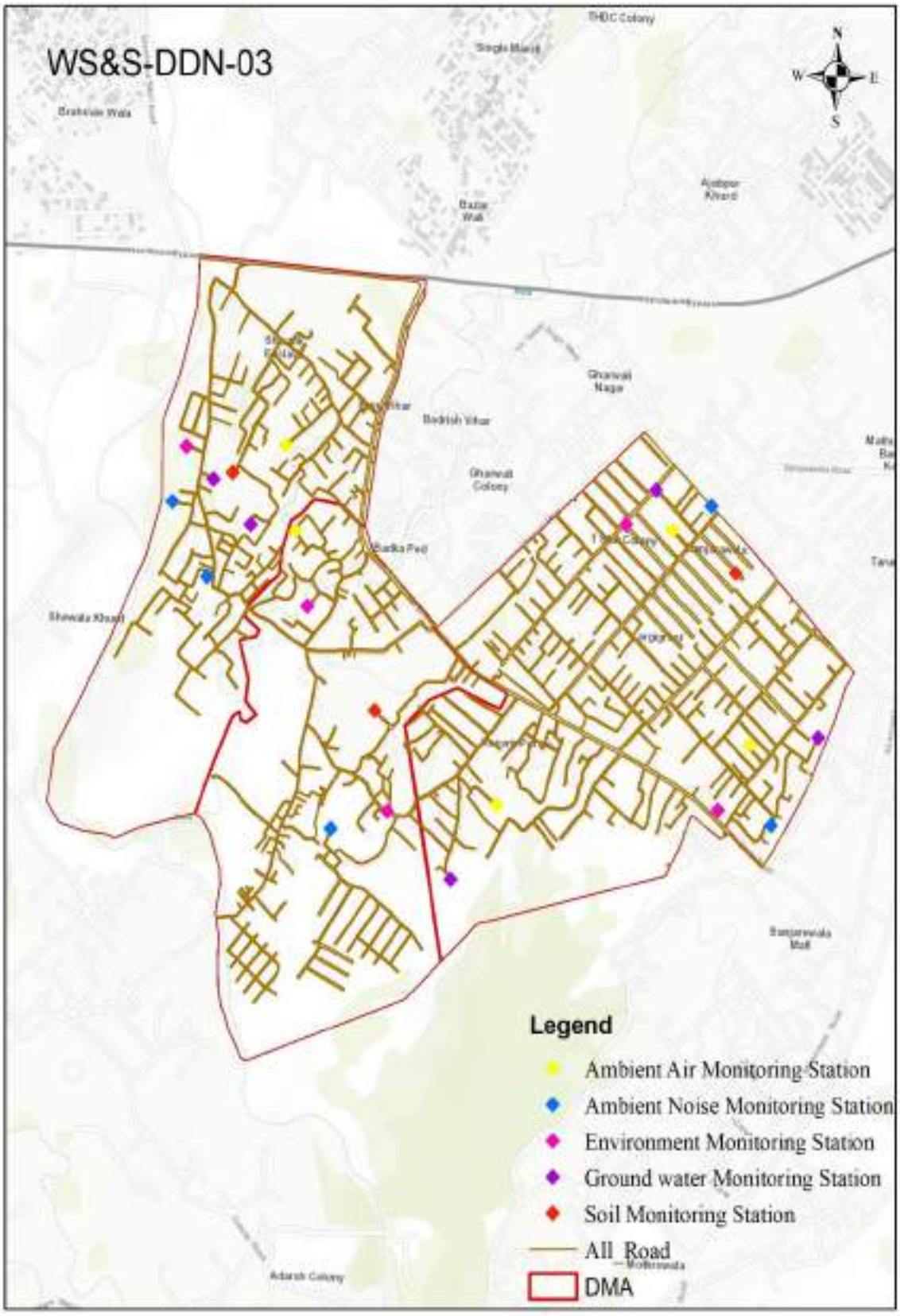


Figure 8: Ambient Air Quality, Noise Level and Surface Water, ground water and Soil Monitoring Stations at Raipur Package (PackageWW-DDN-02)

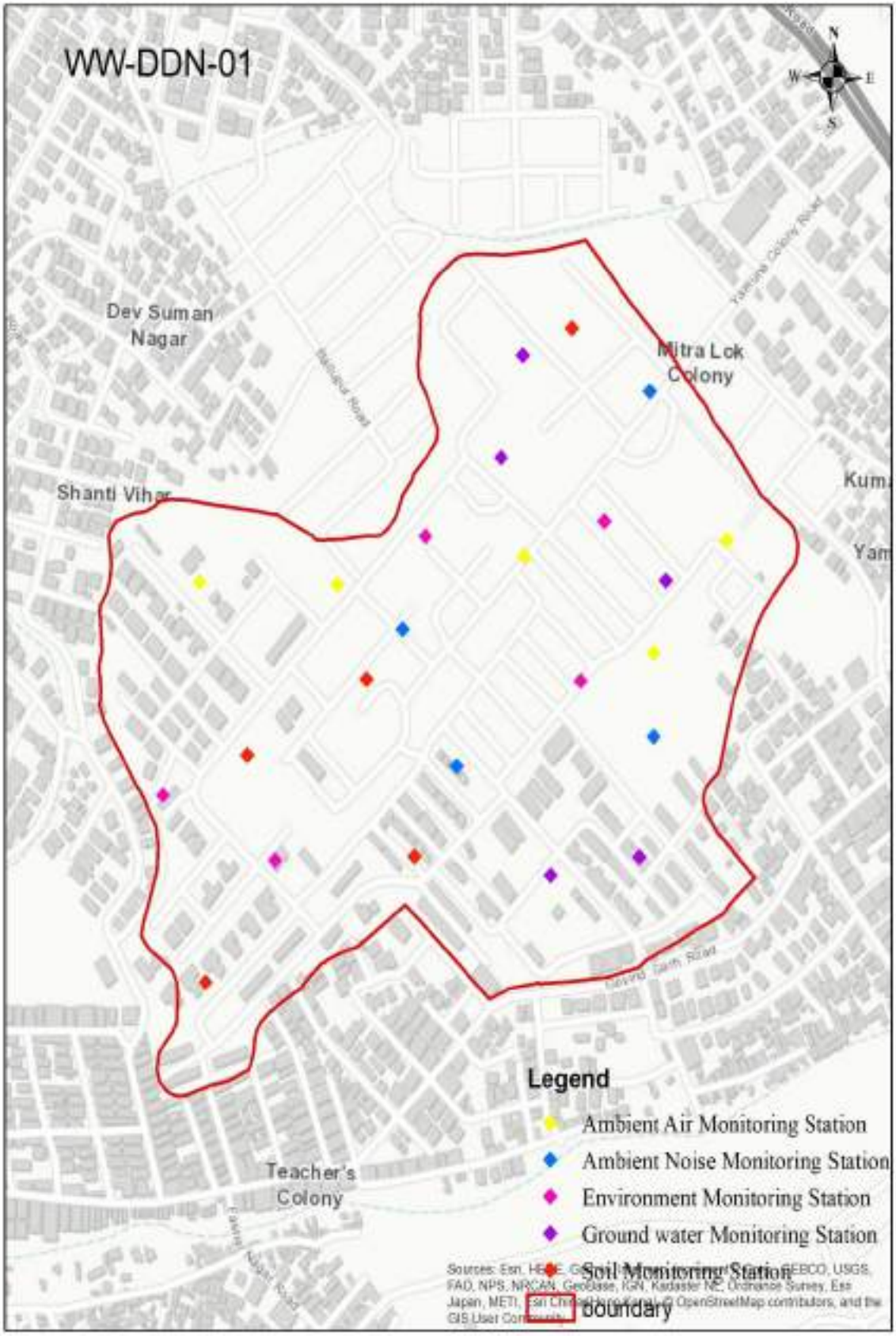


Figure 9: Ambient Air Quality, Noise Level and Surface Water, ground water and Soil Monitoring Stations at Nainital Package (Package WW-NTL-01)

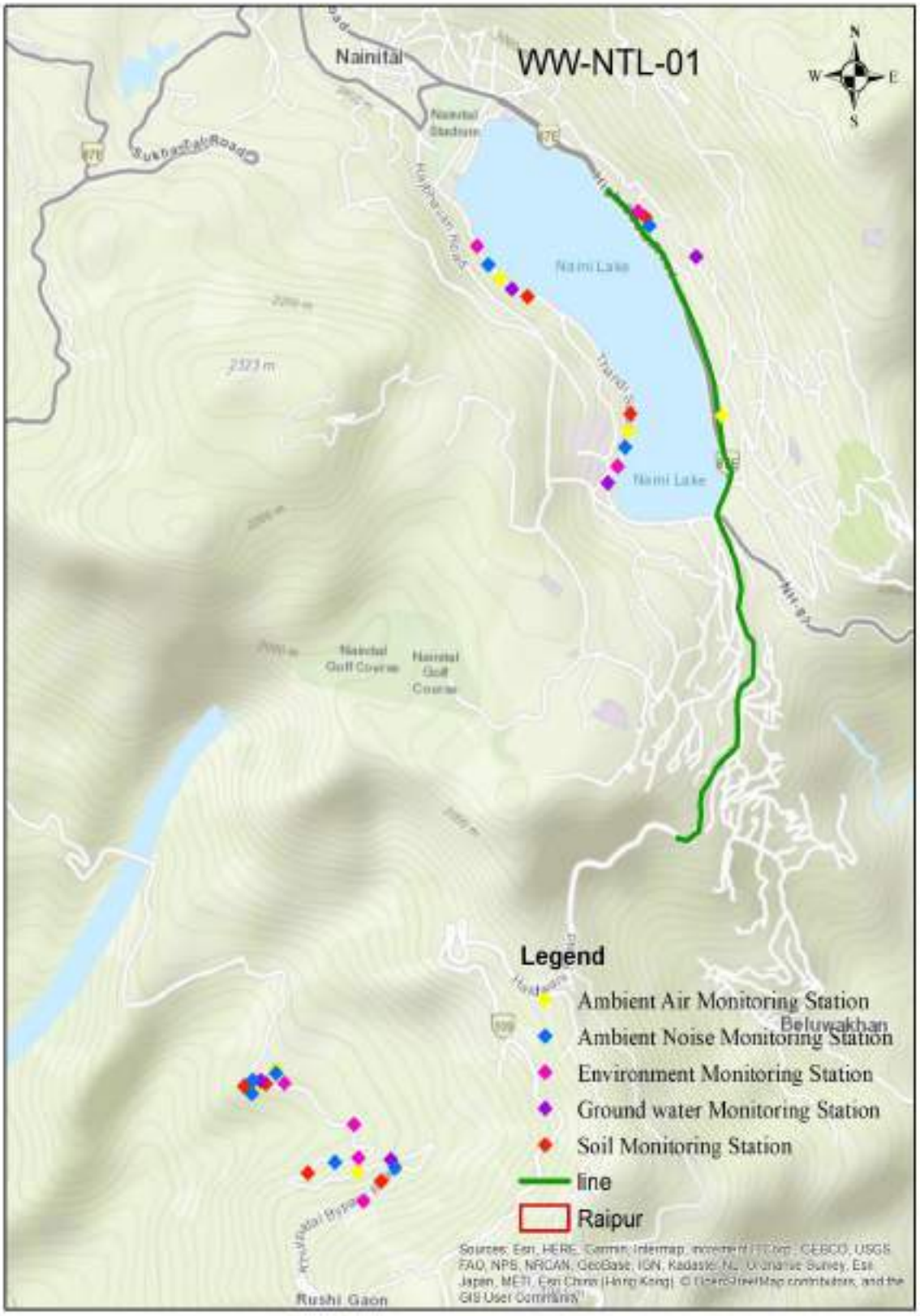
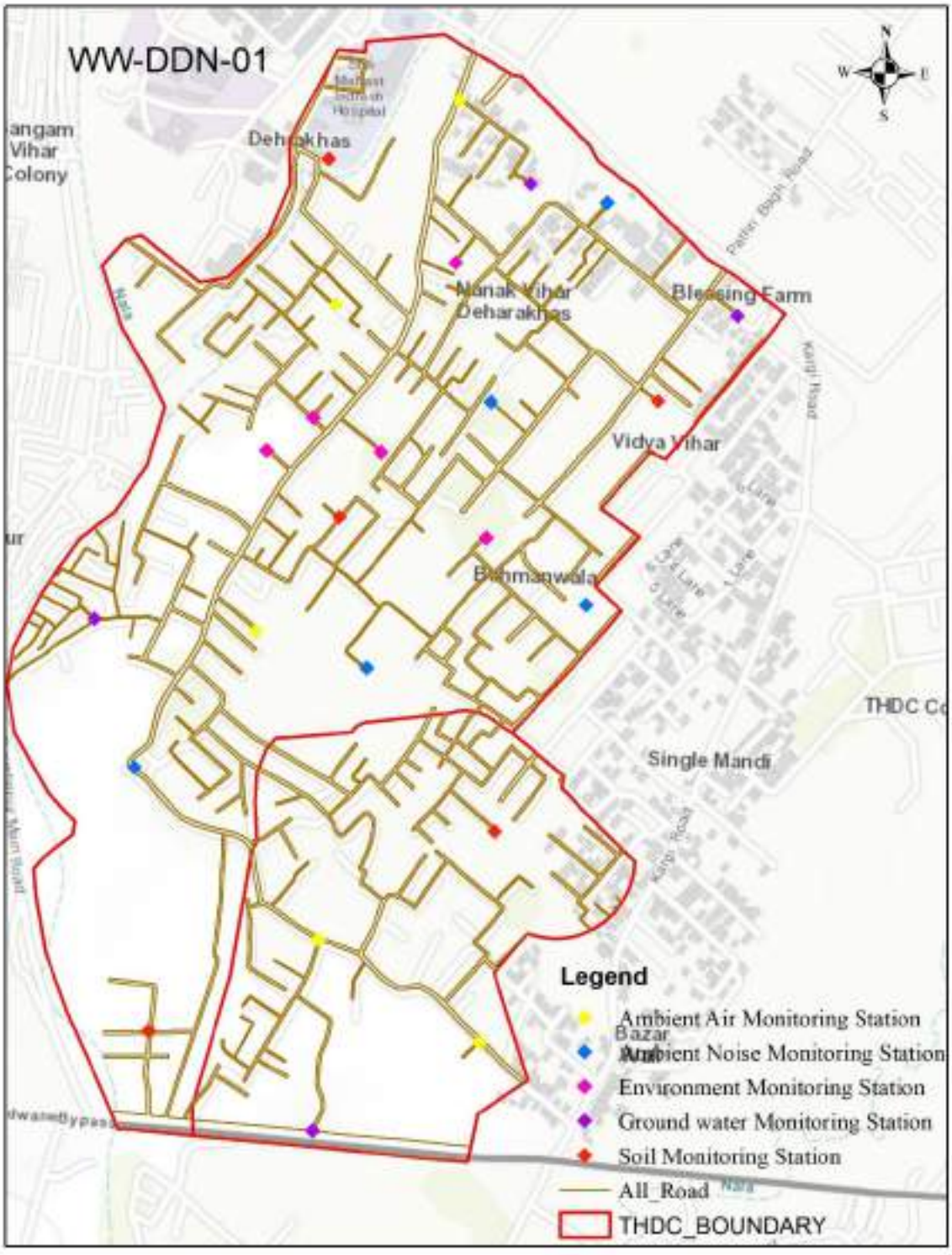


Figure 10A: Ambient Air Quality, Noise Level and Surface Water, ground water and Soil Monitoring Stations at THDC and Yamuna colony (Package WW-DDN-01)



64. **Monitoring (Sampling & Analysis) Methodology**. Sampling and analysis have been carried out by the contractors via the NABL accredited laboratories, which adopted acceptable and standard methods for sampling, analysis, and results. Sampling and adopted monitoring methods are discussed below: are presented in Table 19.

65. Ambient Air Monitoring Respirable Dust Samplers and Fine Dust Samplers (Model no.-IES-MINI COMBO-309) have been used to collect samples for PM (10) and PM (2.5) in

ambient air at a flow rate of 1.2 m^3/min. The ambient air was sucked through the cyclone and filter paper by a blower. Samples of gases were drawn at a flow rate of 0.5 liters per minute and were analyzed in the laboratory. Ambient air qualitymonitoring methodology is given in table below.

Table 19: Methodology for the Ambient Air Monitoring

Sl. No	Parameters	Measurement Method	Analysis Standard
1.	PM_{10}	Gravimetric	IS:5182 Part-23, RA-2017
2.	$PM_{2.5}$	Gravimetric	USEPA CFR-40, Part-50
3.	SO_2	Colorimetric (EPA modified West & Geake Method)	IS:5182 Part-2, 2001, RA-2017
4.	NO_X	Colorimetric (Arsenite modified Jacobs & Hochheiser Method)	IS:5182 Part-6, 2006, RA-2017
5.	CO	Non-Dispersive Infra-Red (NDIR)SpectroscopyTechnique	IS:5182 Part-10, 1999, RA-2014

66. **Methodology of Surface and Ground Water Monitoring.** In order to establish baseline/ during construction conditions, grab samples were collected from water source and were analyzed for various parameters as per the procedures laid down in the BIS. Sampleswere collected as per IS- 2488 (Part I-V). Surface water samples were analyzed as per surface water quality criteria by Central Pollution Control Board (CPCB) for class B and C. Ground watersamples were also analyzed as per method provided by CPCB. Wet chemical, Atomic Absorption Spectrophotometer and UV/VIS Spectrophotometer were used for analysis of water samples according to the necessity.

67. **Methodology of Noise Monitoring**. Precision Sound Meter-BTMETER-BT-882A digital decibel tester was used to monitor the noise levels. Noise level was monitored continuously for 24 hours with one-hour interval. Noise level was measured in the form of Leq dB(A), - Day and Night.

B. Monitoring Results

68. As per the environmental Monitoring plan, the environmental monitoring was conducted in both quarters (Ist quarter, January 2023 to March 2023 and IInd Quarter, April 2023 to June 2023). The package wise findings of both quarter are as follows:

69. Environmental Quality Monitoring Results of **Banjarawala Package-01** and observations

i. Surface Water Quality

During the construction period surface water was collected and analysed for selected parameters as given in the Environmental Monitoring Plan The obtained results clearly shown that Bindal river is fully loaded with the E. Coli and total coliform, due to the waste water which is coming from the nearby households without any prior treatment and also give a rise in the values of BOD and COD while the value of dissolved oxygen was found below the standard.

ii. Ground Water Quality

Ground water was also monitored in the project area for selected parameters as given in Environmental Monitoring Plan and sample were collected from different location for environmental monitoring during construction and it was found that all the studied parameters were within the range in comparison with BIS standard 10500:2012 during both quarter.

iii. Air Quality Monitoring

Air quality for the selected parameters was also carried out as per Environmental Monitoring Plan and it was observed that all the values were within standard limit in comparison of CPCB NAAQS 2009 standard and some hike was recorded in PM10 and PM2.5 in comparison of WHO standards during both quarter due to vehicular movement.

iv. Noise Quality Monitoring

Day and night time noise monitoring was also conducted in the different zones and it was observed that all results were found within the standard limit in comparison of CPCB and WHO during both quarter.

v. Soil Quality

During both quarter, Soil quality was also monitored in the project area for selected parameters to collect the environmental monitoring results during construction period and it was observed that there was no major issue in the soil quality. As per the results the soil was sandy in the particular area.

Table 19A: Surface Water Monitoring results- WS&S-DDN-01

Surface Water Test Results								
S.No	Parameters	Units	Frist Quarter			Second Quarter		
			STP 11 MLD	Near Labour Camp	New Basti, Near-OHT	STP 11 MLD	Near Labour Camp	New Basti ,Near-OHT
1	pH	-	7.51	7.35	7.6	7.47	7.25	7.49
2	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
3	Total Suspended Solid	mg/1	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
4	Biological Oxygen Demand (at 27˚C for 3 days)	mg/1	20.5	17.5	18	20	19	17.5
5	Dissolved Oxygen (as O_2)Min.	mg/1	4.2	5.1	5.5	4.5	4.5	5.8
6	Calcium (as Ca)	mg/1	58.8	104	94.4	56	100.8	88
7	Magnesium (as Mg)	mg/1	20.77	43.92	45.93	19.79	41.04	43
8	Chloride (as Cl)	mg/1	30	90	62	36	94.2	68
9	Iron (as Fe)	mg/1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
10	Fluoride (as F)	mg/1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
11	Total Dissolved Solid	mg/1	410	778	692	384	760	674
12	Total Hardness (as C_aCO_3)	mg/1	230	440	424	221	420	396
13	Sulphate (as SO_4)	mg/1	36.8	49.64	43.2	28.4	45.7	34.8
14	Sodium (as Na)	mg/1	3.04	5.26	4.18	2.74	5.58	3.85
15	Manganese (as Mn)	mg/1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
16	Total Chromium (as Cr)	mg/1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
17	Zink (as Zn)	mg/1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
18	Potassium (as K)	mg/1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
19	Nitrate (as NO_3)	mg/1	3.87	6.31	4.96	3.22	5.99	3.67
20	Cadmium (as Cd)	mg/	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Lead (as Pb)	mg/1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
22	Copper (as Cu)	mg/1	<0.01	<0.01	<0.01	<0.01	<0.1	<0.01
23	Chemical Oxygen Demand (as O_2)	mg/1	112	92	100	108	104	96

Surface Water Test Results								
S.No	Parameters	Units	Frist Quarter			Second Quarter		
			STP 11 MLD	Near Labour Camp	New Basti, Near-OHT	STP 11 MLD	Near Labour Camp	New Basti ,Near-OHT
24	Arsenic (as As)	mg/1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
25	Total Residual Chlorine	mg/1	Nil	Nil	Nil	Nil	Nil	Nil
26	Mercury (as Hg)	mg/1	BDL (MDL-0.01)	BDL (MDL-0.01)	BDL (MDL-0.01)	BDL (MDL-0.01)	BDL (MDL-0.01)	BDL (MDL-0.01)
27	Cyanide (as CN)	mg/1	BDL (MDL-0.002)	BDL (MDL-0.002)	BDL (MDL-0.002)	BDL (MDL-0.002)	BDL (MDL-0.002)	BDL (MDL-0.002)
28	Boron (as B)	mg/1	BDL (MDL-0.50)	BDL (MDL-0.50)	BDL (MDL-0.50)	BDL (MDL-0.50)	BDL (MDL-0.50)	BDL (MDL-0.50)
29	Selenium (as Se)	mg/1	BDL (MDL-0.01)	BDL (MDL-0.01)	BDL (MDK-0.01)	BDL (MDL-0.01)	BDL (MDL-0.01)	BDL (MDL-0.01)
30	Aluminium (as Al)	mg/1	N.D. (MDL-0.001)	N.D. (MDL-0.001)	N.D. (MDL-0.001)	N.D. (MDL-0.001)	N.D. (MDL-0.001)	N.D. (MDL-0.001)

Figure 11a: Graphical representation of Surface Water Characteristic at different location in Banjarawala Package 1 for Ist quarter is shown below:

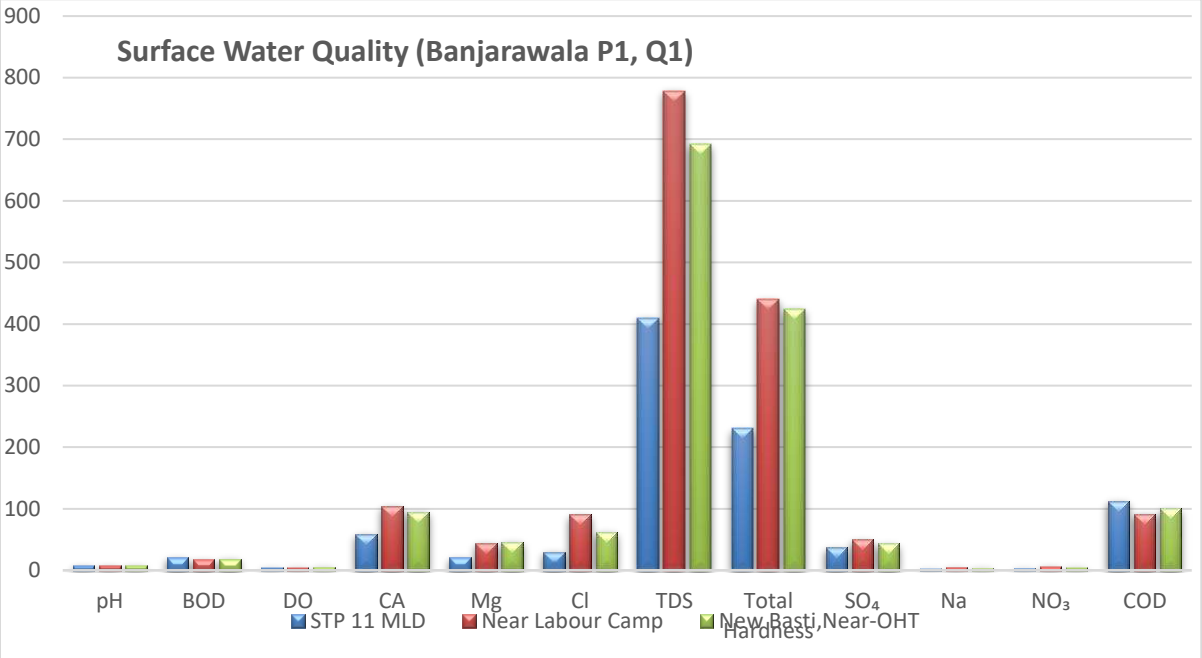


Figure 11b: Graphical representation of Surface Water Characteristic at different location in Banjarawala Package 1 for IInd quarter is shown below:

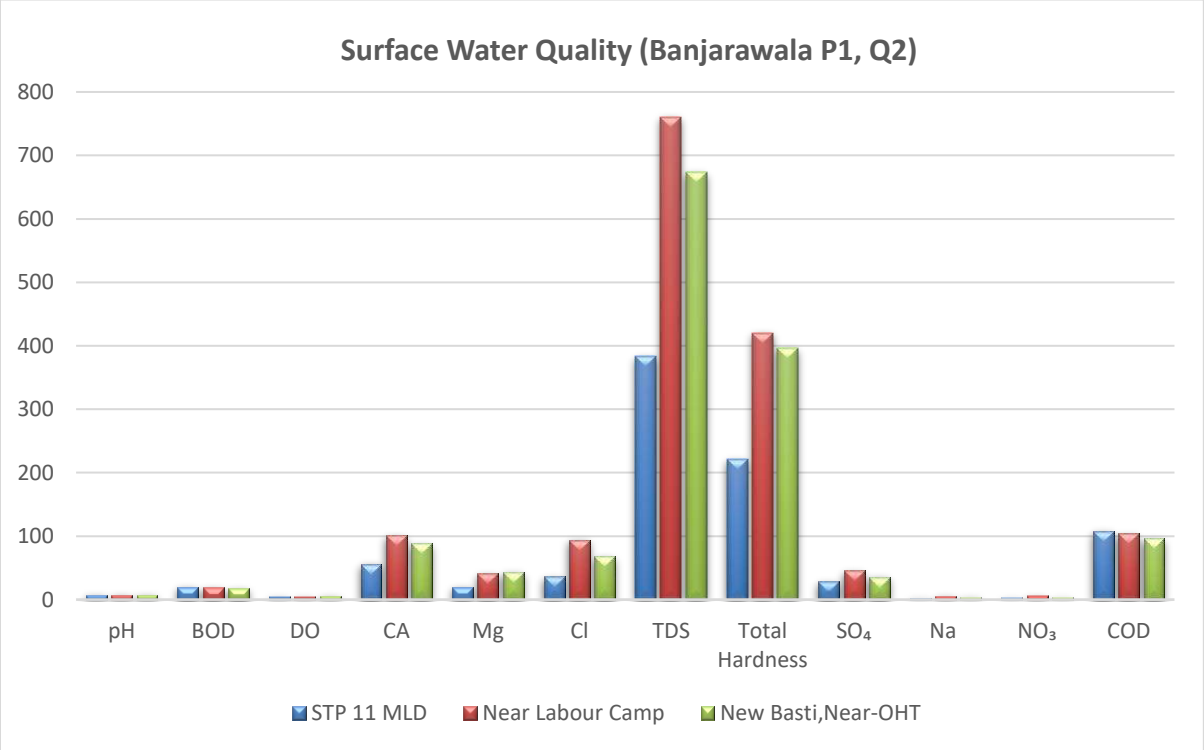


Table 19 B: Physico-chemical analysis of Ground Water during construction period in Banjarawala Package 1

S.No	Parameters	Units	Frist Quarter				Second Quarter			
			STP 11 MLD	New Basti,Near-OHT	Sainik Colony Lane No-3	Dudha Devi,Barkali Road	STP 11 MLD	New Basti,Near-OHT	Sainik Colony Lane No-3	Dudha Devi,Barkali Road
1	pH value	-	7.19	7.2	6.89	7.13	7.15	7.24	7.05	7.19
2	TDS	mg/l	418	396	244	254	406	388	252	280
3	Chloride (as Cl)	mg/l	40	38	23	120	32	43	34	104
4	Fluoride (as F)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
5	Iron (as Fe)	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
6	Nitrate (as NO_3)	mg/l	3.66	3.14	1.66	1.84	2.92	2.98	1.84	1.68
7	Sulphate (as SO_4)	mg/l	32.8	28.3	11.4	13.1	27.4	25.7	9.8	11.6
8	Alkalinity (as $CaCO_3$)	mg/l	272	260	176	158	258	244	162	145
9	Total Hardness(as $CaCO_3$)	mg/l	252	224	152	144	240	212	146	130
10	Copper (as Cu)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
11	Manganese (as Mn)	mg/l	<0.1	<0.1	<0.1	<0.1	<0.1	<0.01	<0.1	<0.1
12	Zink (as Zn)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05
13	Phenolic Compound (as C_6H_5OH)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
14	Cadmium (as Cd)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
15	Lead (as Pb)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
16	Mercury (as Hg)	mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
17	Arsenic (as As)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
18	Total Chromium (as Cr)	mg/l	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
19	Phosphate (as Po_4)	mg/l	4.95	5.61	3.28	2.9	4.68	4.85	2.98	2.58

Figure 11c: Graphical representation of Ground Water Characteristic at different location in Banjarawala Package 1 of Ist quarter is shown below

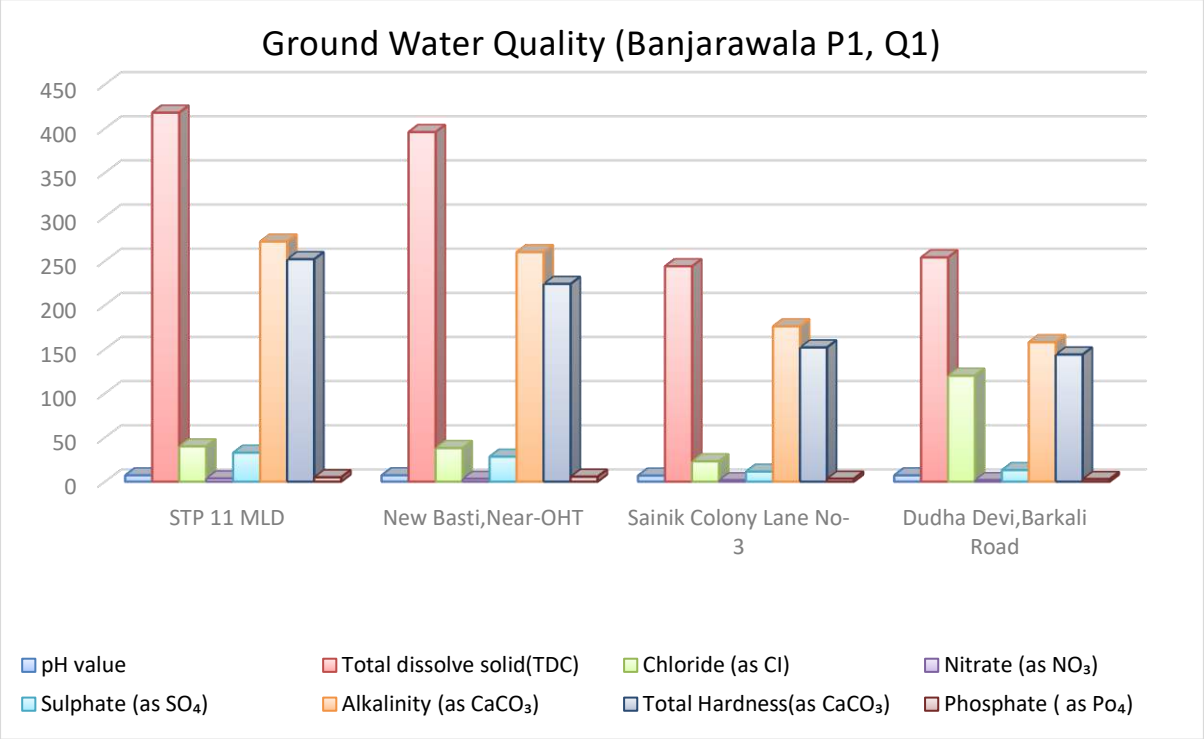


Figure 11d: Graphical representation of Ground Water Characteristic at different location in Banjarawala Package 1 of IInd quarter is shown below

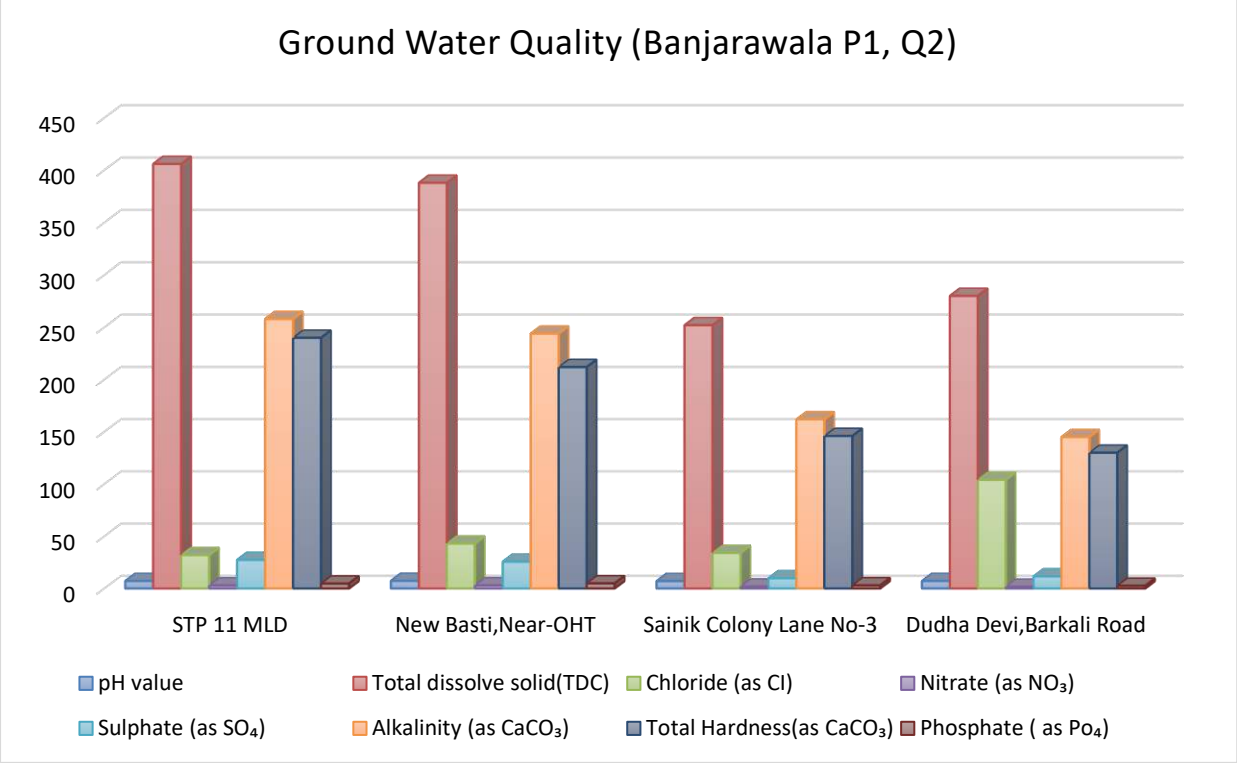


Table 19C: Air Quality monitoring results of construction phase at different location s of the sub-project in Banjarawala Package 1

Table No 1: Ambient Air Quality Test Results (WS&S DDN 01)											
S. No.	Parameters	Units	Frist Quarter					Second Quarter				
			STP 11 MLD	Near Labour Camp	New Basti, Near-OHT	Sainik Colony Lane No-3	Dudha Devi, Barkali Road	STP 11 MLD	Near Labour Camp	New Basti, Near-OHT	Sainik Colony Lane No-3	Dudha Devi,Barkali Road
1	Particulate Matter (PM_{10})	µg/m³	76.9	73.6	80.4	83.7	78.1	70.1	68.9	76.7	79.3	80.4
2	Particulate Matter ($PM_{2.5}$)	µg/m³	49.5	47.5	52.2	50.9	46.5	43.8	41.7	45.4	47.1	49.9
3	Sulphur Dioxide (as SO_2)	µg/m³	16.1	15.7	17.6	18.5	15.8	13.6	11.8	16.2	16.7	17.2
4	Nitrogen Dioxide (as NO_2)	µg/m³	30	28.2	31.8	35.1	27.5	26.8	24.5	27.5	31.9	30.8
5	Carbon Monoxide (as CO)	mg/m³	0.171	0.153	0.182	0.19	0.185	0.145	0.136	0.175	0.175	0.191

Figure 11e: Graphical representation of Air quality monitoring at different location in Banjarawala Package 1 during Ist quarter

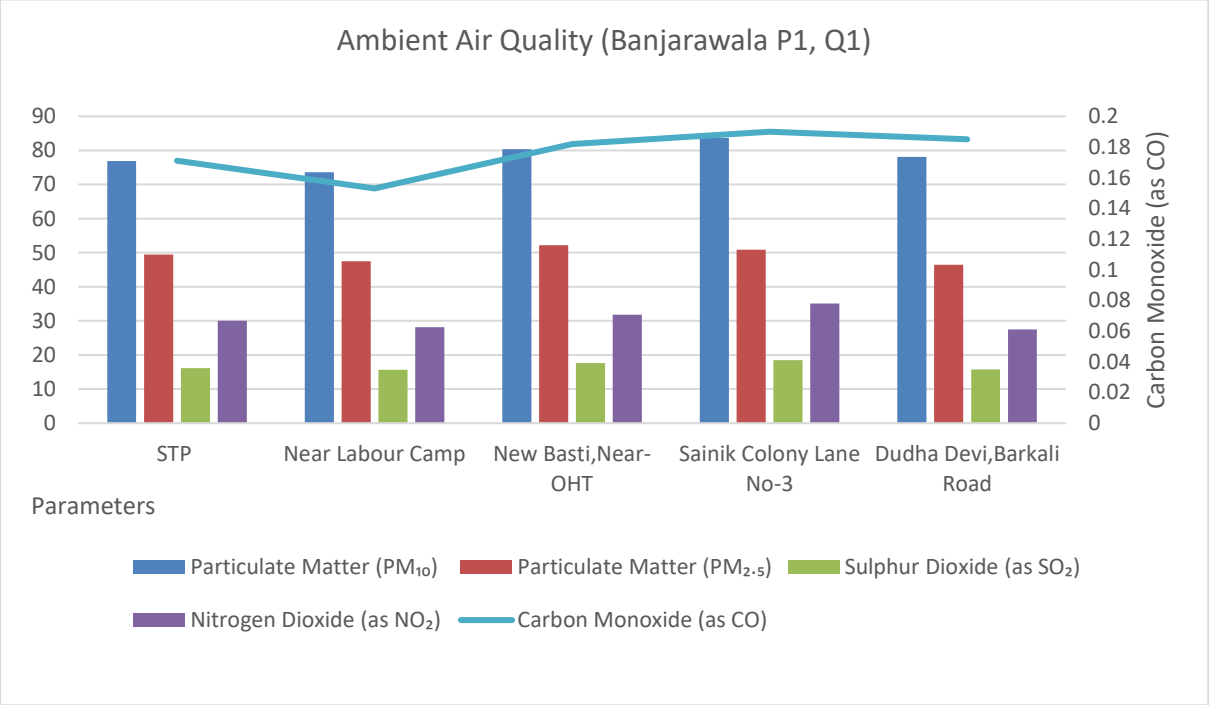


Figure 11f: Graphical representation of Air quality monitoring at different location in Banjarawala Package 1 during Ist quarter is shown below

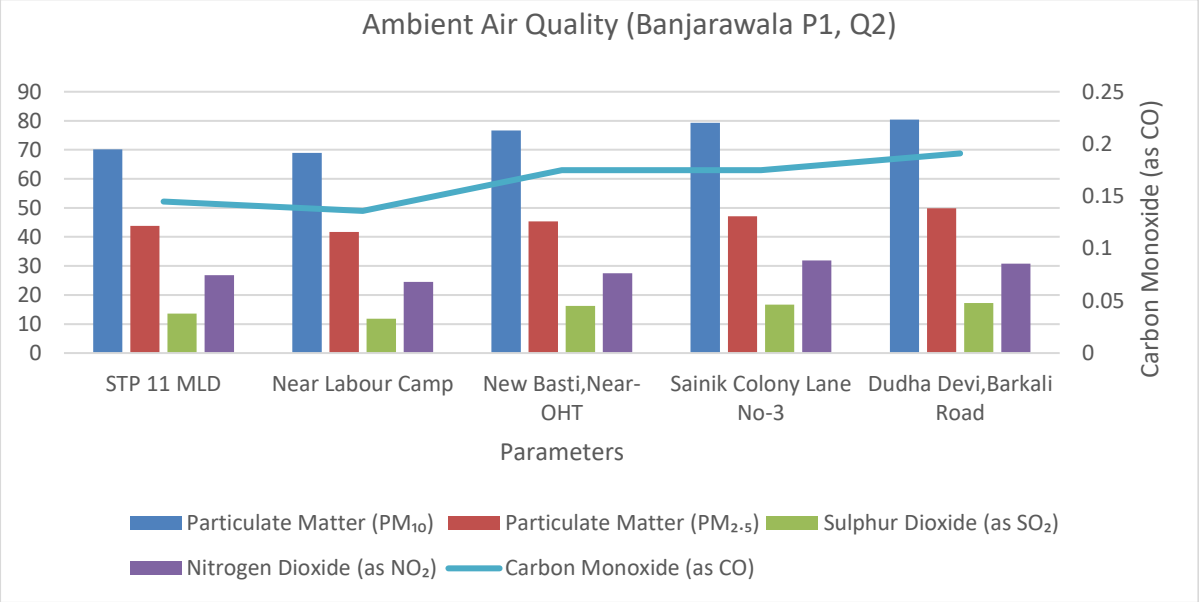


Table 19D: Noise Level during construction environmental monitoring at Banjarawala package 1

Frist Quarter							
S. No	**Parameters**	**Units**	**STP 11 MLD**	**Near Labour Camp**	**New Basti,Near-OHT**	**Sainik Colony Lane No-3**	**Dudha Devi,Barkali Road**
1	**Equivalent noise level (6.0 Am To 10.0 Pm)**	dB(a)	58.1	53.7	65.4	61.3	66.1
2	**Equivalent noise level (10.0 Pm To 6.0 Am)**	dB(a)	42.6	36.2	40.7	38.2	44.2
Second Quarter							
1	**Equivalent noise level (6.0 Am To 10.0 Pm)**	dB(a)	58.1	50.9	62.7	58.7	63.5
2	**Equivalent noise level (10.0 Pm To 6.0 Am)**	dB(a)	42.6	31.5	43.4	40.9	41.8

Figure 11g: Graphical representation of Noise quality of Ist quarter at different location in Banjarawala Package 1

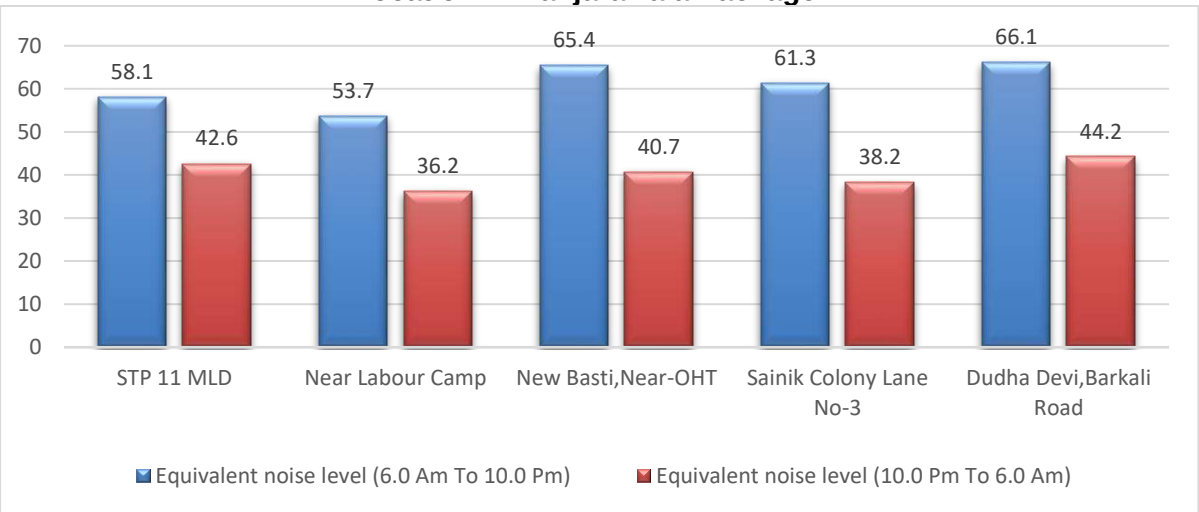


Figure 11h: Graphical representation of Noise quality of IInd quarter at different location in Banjarawala Package 1

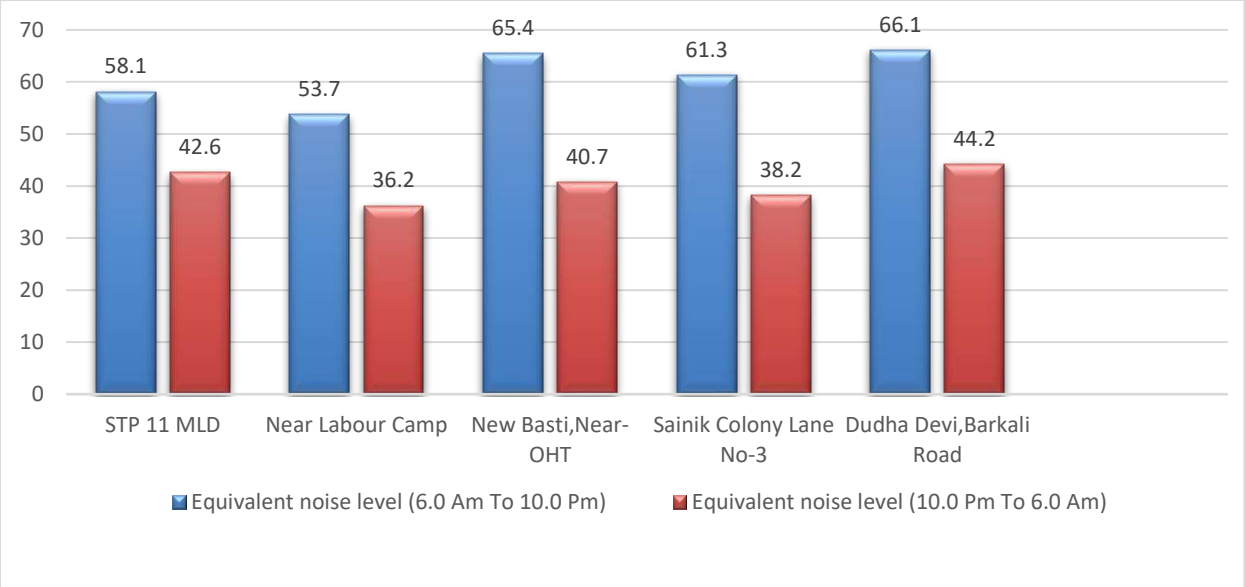


Table 19E: Soil quality parameters at Banjarawala Package-1

Soil Test Results											
S.No	Parameter	Units	Frist Quarter					Second Quarter				
			STP 11 MLD	Near Labour Camp	New Basti, Near-OHT	Sainik Colony Lane No-3	Dudha Devi, Barkali Road	STP 11 MLD	Near Labour Camp	New Basti, Near-OHT	Sainik Colony Lane No-3	Dudha Devi,Barkali Road
1	**pH (1:2)**	-	8.42	8.57	8.24	8.32	8.49	8.35	8.49	8.15	8.24	8.31
2	**Conductivity (1:2)**	(µS/cm)	565	590	582	552	530	551	602	571	576	548
3	**Sodium (as Na)**	(mg/kg)	54.9	60.7	75.6	65.1	80.2	57.2	57.4	70.8	69.6	73.7
4	**Potassium (as K)**	(kg/ha)	190.1	171.9	176.4	160.9	190.7	181.6	166.5	170.9	172.4	176.1
5	**Sand%**	%	39.2	40.8	41.6	40.4	42.8	40	39.4	42.4	38.8	43.1
	Clay % by mass		27.5	26.4	26.9	28.2	31.6	26.9	27.1	27.3	26.9	29.8
	Silt% by mass		33.3	32.8	31.5	31.4	25.6	33.1	33.5	30.3	34.3	27.1
6	**Soil Texture**	-	Loam	Loam	Loam	Loam	Clay Loam	Loam	Loam	Loam	Loam	Clay Loam
7	**Calcium (as Ca)**	(mg/kg)	179.6	168.2	169	172.5	161.9	172.4	163.7	158.6	178.3	165.2
8	**Magnesium (as Mg)**	(mg/kg)	30.2	26.3	32.8	32.6	33.4	26.7	29.5	27.5	35.2	37.8
9	**Total Kjeldahl Nitrogen**	% by mass	0.081	0.071	0.086	0.083	0.074	0.09	0.085	0.09	0.077	0.081
10	**Sodium Absorption Ratio (SAR)**	-	1.26	1.32	1.19	1.3	1.27	1.22	1.27	1.24	1.24	1.22
11	**Moisture Content**	%	18	16.8	15.4	16.37	19.6	16.4	15.5	16.2	15.2	17.1
12	**Permeability**	cm/sec	4.75×10^{4}	4.75×10^{4}	4.43×10^{4}	4.83×10^{4}	4.28×10^{4}	4.51×10^{4}	4.49×10^{4}	4.57×10^{4}	4.59×10^{4}	4.41×10^{4}
13	Phosphate	(mg/kg)	2.77	2.95	2.71	3.08	2.85	2.9	3.04	2.83	2.78	2.73
14	**Organic matter**	%	0.49	0.52	0.42	0.47	0.53	0.42	0.47	0.46	0.51	0.5
15	**Oil and Grease**	(mg/kg)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Figure 11i: Soil Quality Characteristics during Ist quarter at different location of Banjarawala Package 1

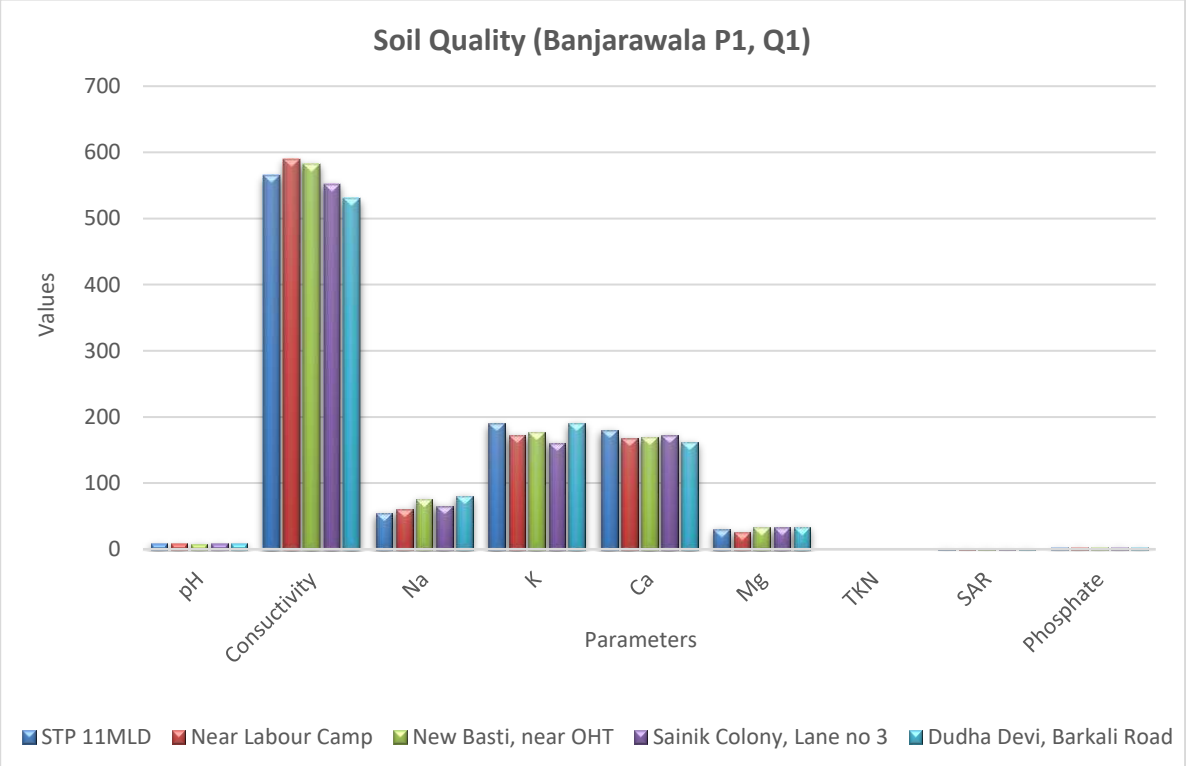


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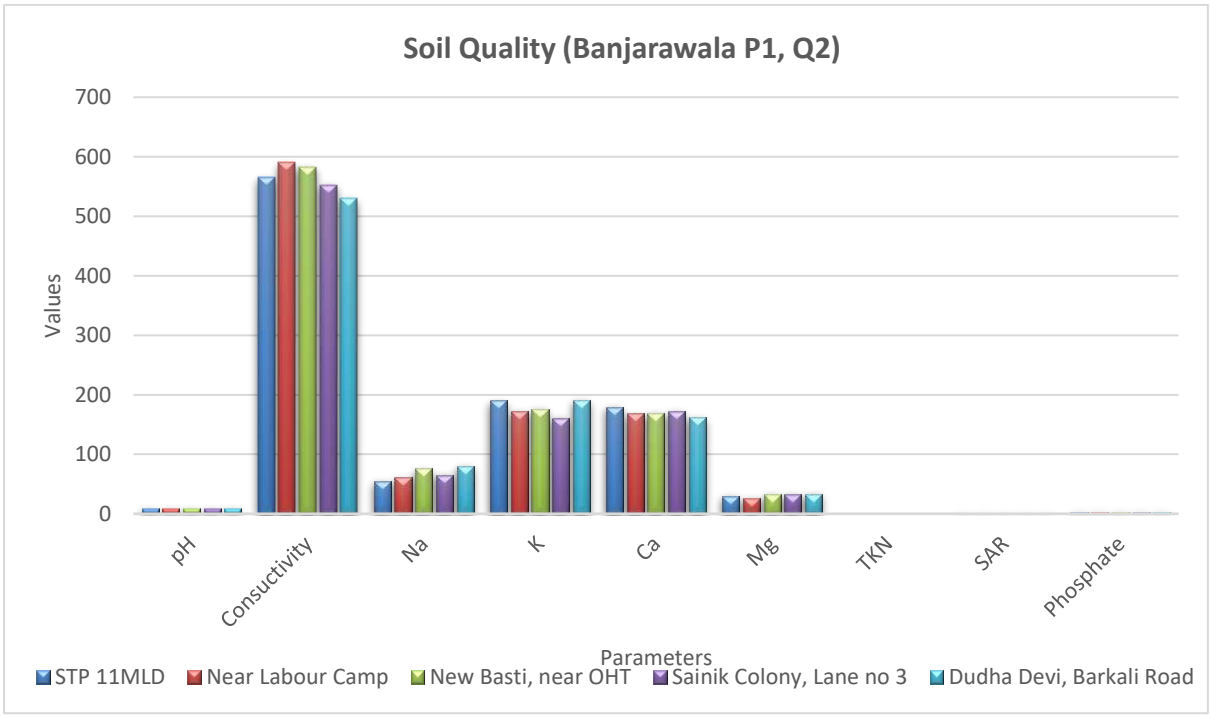
Figure 11j: Soil Quality Characteristics during IInd quarter at different location of Banjarawala Package 1



70. During Construction, air quality, noise level and water quality monitoring will be continued as per Environment Management and Monitoring Plan. All monitoring expenses will be borne by contractors from their project Health safety monitoring budget.

71. Environmental Monitoring Results of Raipur Package and observations.

i. Surface Water Quality

The baseline data for surface was collected for both quarter and found that the Dulhani river have shown the E. Coli and total coliform, due to the waste water which is coming from the nearby households without any prior treatment also give a rise in the values of BOD and COD while the value of dissolved oxygen was found below the standard. All the finding shown below in the table and also depicted in figure also.

ii. Ground Water Quality

Ground water was also monitored in the project area and sample were collected from different location for environmental monitoring during construction and it was found that all the studied parameters were within the range in comparison with BIS standard 10500:2012. All the finding of both quarter are shown below in the table and also depicted in figure also.

iii. Air Quality Monitoring

In both quarters, Air quality for the selected parameters was also carried out and it was observed that all the values were within standard limit in comparison of CPCB NAAQS 2009 standard and some hike was recorded in PM10 and PM2.5 in comparison of WHO standards due to vehicular movement. All the finding shown below in the table and also depicted in figure also.

iv. Noise Quality Monitoring

During both quarter Noise monitoring was also carried out in the different zones in day and night time and it was observed that all results were found within the standard limit in comparison of CPCB and WHO. All the finding shown below in the table and also depicted in figure also.

v. Soil Quality

In the both quarters, Soil quality was also monitored in the project area for selected parameters to know the impact of construction activities during construction time and it was observed that there was no major issue in the soil quality. As per the results the soil was sandy in the particular area. The results are shown in Table and also depicted in the below figure.

Table 20 A: Physico-Chemical analysis of Surface water during construction period

SURFACE WATER MONITORING			First Quarter				Second Quarter			
S.NO	PARAMETER	UNITS	DULHANI RIVER	HARRAWALA	VIVEK VIHAR	ADARSH COLONY	DULHANI RIVER	Harrawala	VIVEK VIHAR	ADARSH COLONY
1.	pH (at 25^0C)	-	6.72	7.20	6.67	7.66	6.64	7.15	6.80	7.42
2.	Dissolved Oxygen	mg/l	4.0	4.0	5.2	6.0	4.2	5.6	6.0	6.4
3.	Turbidity	NTU	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
4.	BOD	mg/l	6.2	6.8	6.8	7.1	8.4	7.4	7.2	7.6
5.	COD	mg/l	26.2	24.6	28.4	30.2	25.6	22.2	30.2	24.4
6.	Total Hardness as $CaCO_3$	mg/l	238	220	240	248	232	215.4	238	256
7.	Calcium as Ca	mg/l	74.5	75.4	76.2	64.2	72.4	78.2	82.2	68.5
8.	TSS	mg/l	32.0	18.0	36.4	16.4	34.5	16.4	32.4	18.4
9.	Chloride as Cl	mg/l	19.0	24.2	32.4	30.2	18.7	20.4	22.3	26.4
10.	Cyanide as CN	mg/l	*BDL. (#DL-0.002)	*BDL. (#DL-0.002)	*BDL. (#DL-0.002)	*BDL. (#DL-0.002)	**BDL(#DL-0.002)	**BDL(#DL-0.002)	**BDL(#DL-0.002)	**BDL(#DL-0.002)
11.	Magnesium as Mg	mg/l	22.4	22.6	22.4	20.4	21.2	21.2	18.5	19.5
12.	Total Dissolved solids	mg/l	396	308	332	356	402	318	344	367
13.	Sulphate as SO_4	mg/l	62.5	60.4	44.2	46.2	64.2	64.2	42.6	49.2
14.	Fluoride as F	mg/l	0.14	0.18	0.12	0.11	0.16	0.16	0.14	0.12
15.	Nitrate as NO_3	mg/l	7.6	9.2	7.0	5.4	8.4	8.4	7.5	6.2
16.	Iron as Fe	mg/l	0.20	0.12	0.18	0.17	0.14	0.14	0.2	0.2
17.	Aluminium as Al	mg/l	*BDL. (#DL-0.03)	*BDL . (#DL-0.03)	*BDL. (#DL-0.03)	*BDL. (#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)
18.	Boron	mg/l	*BDL. (#DL-0.50)	*BDL. (#DL-0.50)	*BDL. (#DL-0.50)	*BDL. (#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)
19.	Hexa Chromium as Cr+6	mg/l	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)
20.	Sodium	mg/l	20.4	16.4	20.2	18.4	18.5	12.6	19.4	20.4
21.	Potassium	mg/l	14.6	8.8	15.4	12.6	12.4	9.4	16.2	17.4
22.	Total Residual Chlorine	mg/l	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)

SURFACE WATER MONITORING			First Quarter				Second Quarter			
S.NO	PARAMETER	UNITS	DULHANI RIVER	HARRAWALA	VIVEK VIHAR	ADARSH COLONY	DULHANI RIVER	Harrawala	VIVEK VIHAR	ADARSH COLONY
23.	Zinc as Zn	mg/l	*BDL . (#DL-0.07)	*BDL. (#DL-0.07)	*BDL. (#DL-0.07)	*BDL. (#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)
24.	Copper as Cu	mg/l	*BDL. (#DL-0.02)	*BDL. (#DL-0.02)	*BDL. (#DL-0.02)	*BDL. (#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)
25.	Manganese as Mn	mg/l	*BDL. (#DL-0.10)	*BDL. (#DL-0.10)	*BDL. (#DL-0.10)	*BDL. (#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)
26.	Cadmium as Cd	mg/l	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)
27.	Lead as Pd	mg/l	*BDL. . (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	*BDL. (#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)
28.	Selenium as Se	mg/l	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)
29.	Arsenic as As	mg/l	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)
30.	Mercury as Hg	mg/l	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	*BDL. (#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)
31.	Total Coliform	MPN/100ml	12250	13240	11490	12560	12345	14240	12490	13420
32.	E. Coli	MPN/100ml	7205	5470	5320	6280	7332	6470	5480	6160

Fig 12a: Graphical representation of Surface Water Characteristic at different location in Raipur package in Ist quarter

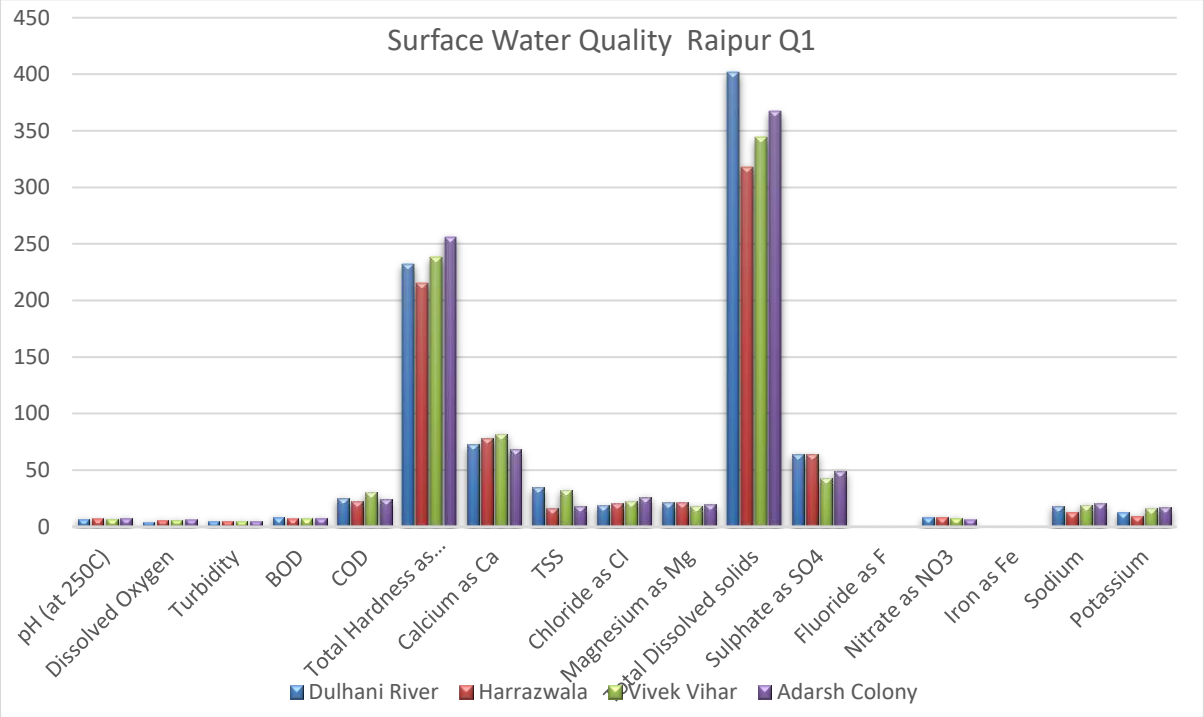


Fig 12b: Graphical representation of Surface Water Characteristic at different location in Raipur package in IInd quarter

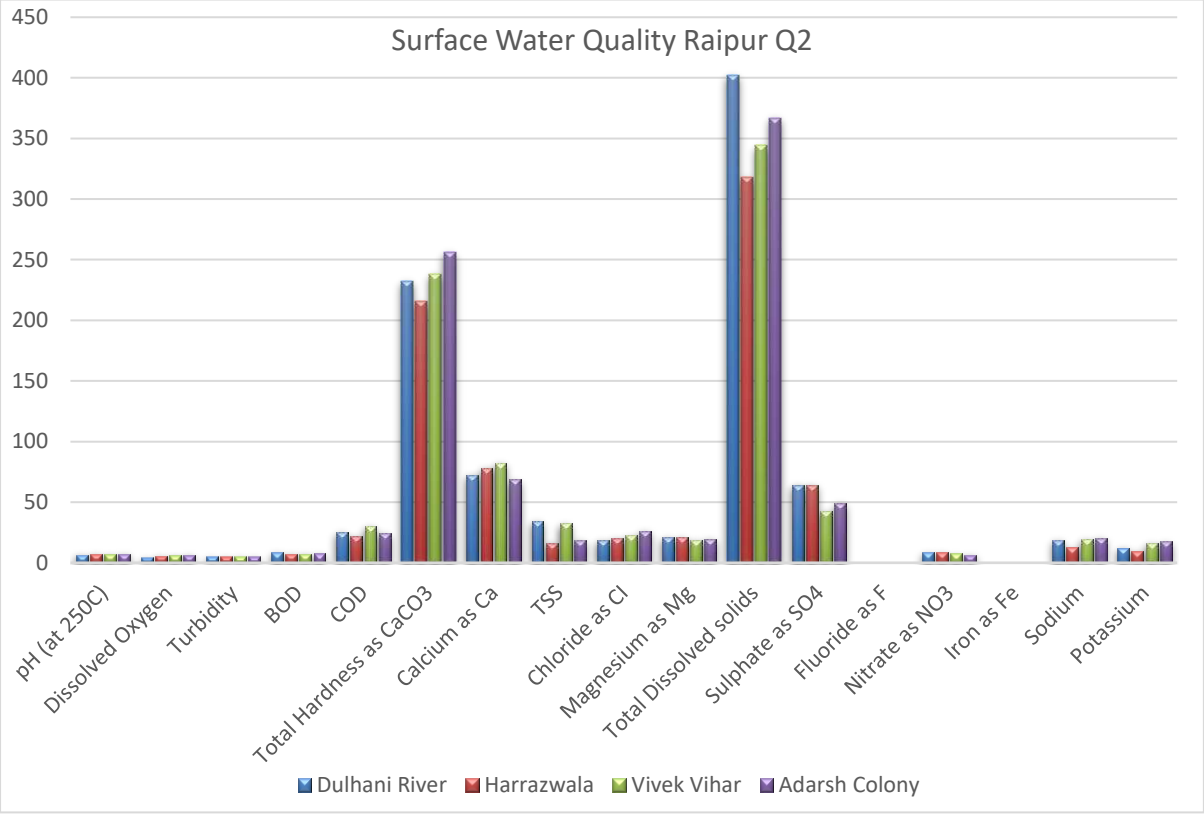


Table 20 B: Physico-chemical analysis of Ground water during Construction period

GROUND WATER M			FIRST QUARTER						SECOND QUARTER					
S.NO	PARAMETER	UNITS	Harrawala 735Q+RPW	Harrawala 736Q+P65	Nakraunda 64W5+8XG	SI-5, CSIR II P COLONY, II P, MOKHAMPUR	433 Jogiwala, Dehradun	Office Area Inside Canteen (R.O. Water)	Harrawala 735Q+RPW	Harrawala 736Q+P65	Nakraunda 64W5+8XG	SI-5, CSIR II P COLONY, II P, MOKHAMPUR	433 Jogiwala, Dehradun	Office Area Inside Canteen (R.O. Water)
1.	pH (at 25^{0}C)	-	6.89	6.77	7.21	7.34	7.56	7.08	6.75	6.68	6.82	6.74	7.84	7.20
2.	Color	Hazen	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
3.	Turbidity	NTU	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
4.	Odour	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
5.	Taste	-	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable	Agreeable
6.	Total Hardness as $CaCO_3$	mg/l	190	182	194	178	188	78.4	202	178	184	172	190.4	82.2
7.	Calcium as Ca	mg/l	38.2	38.2	52.4	36.2	42.4	14.2	40.4	36.2	48.2	32.5	44.2	12.4
8.	Alkalinity as $CaCO_3$	mg/l	48.2	40.2	46.4	58.4	48.2	70.2	45.4	46.2	40.2	52.4	40.2	67.2
9.	Chloride as Cl	mg/l	36.2	42.5	34.2	28.2	28.4	26.1	38.4	39.4	30.4	26.4	23.5	24.5
10.	Cyanide as CN	mg/l	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)	**BDL (#DL0.002)
11.	Magnesium as Mg	mg/l	22.4	22.4	24.6	24.0	18	8	21.4	24.0	28.6	24.2	18.4	8.4
12.	Total Dissolved solids	mg/l	282	292	262	242	270	122	287	288	256	236	278	125
13.	Sulphate as SO_4	mg/l	26.2	24.5	22.6	18.4	28.2	3.6	28.4	20.2	26.4	16.8	26.4	4.2
14.	Fluoride as F	mg/l	0.07	0.09	0.11	0.08	0.06	**BDL(#DL-0.05)	0.09	0.08	0.12	0.07	0.04	**BDL(#DL-0.05)
15.	Nitrate as NO_3	mg/l	3.6	3.2	2.2	3.4	4.2	**BDL(#DL-0.05)	4.2	2.4	2.1	2.3	3.2	**BDL(#DL-0.05)
16.	Iron as Fe	mg/l	0.12	0.08	0.07	0.16	0.06	**BDL(#DL-0.03)	0.10	0.09	0.06	0.12	0.05	**BDL(#DL-0.03)
17.	Aluminium as Al	mg/l	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)
18.	Boron	mg/l	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)	**BDL(#DL-0.50)

GROUND WATER M			FIRST QUARTER						SECOND QUARTER					
S.NO	PARAMETER	UNITS	Harrawala 735Q+RPW	Harrawala 736Q+P65	Nakraunda 64W5+8XG	SI-5, CSIR II P COLONY, II P, MOKHAMPUR	433 Jogiwala, Dehradun	Office Area Inside Canteen (R.O. Water)	Harrawala 735Q+RPW	Harrawala 736Q+P65	Nakraunda 64W5+8XG	SI-5, CSIR II P COLONY, II P, MOKHAMPUR	433 Jogiwala, Dehradun	Office Area Inside Canteen (R.O. Water)
19.	Hexa Chromium as Cr+6	mg/l	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)
20.	Phenolic Compound	mg/l	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)
21.	Mineral Oil	mg/l	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)	**BDL(#DL-0.03)
22.	Anionic Detergents as MBAS	mg/l	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)	**BDL(#DL-0.04)
23.	Zinc as Zn	mg/l	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)	**BDL(#DL-0.07)
24.	Copper as Cu	mg/l	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)	**BDL(#DL-0.02)
25.	Maganese as Mn	mg/l	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)	**BDL(#DL-0.10)
26.	Cadmium as Cd	mg/l	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)
27.	Lead as Pd	mg/l	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)	**BDL(#DL-0.001)
28..	Selenium as Se	mg/l	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)
29.	Arsenic as As	mg/l	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)
30.	Mercury as Hg	mg/l	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)	**BDL(#DL-0.01)
31.	Total Coliform	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent
32.	E. Coli	MPN/100ml	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Fig 12c: Graphical representation of Ground Water Characteristic at different location in Raipur package in Ist quarter

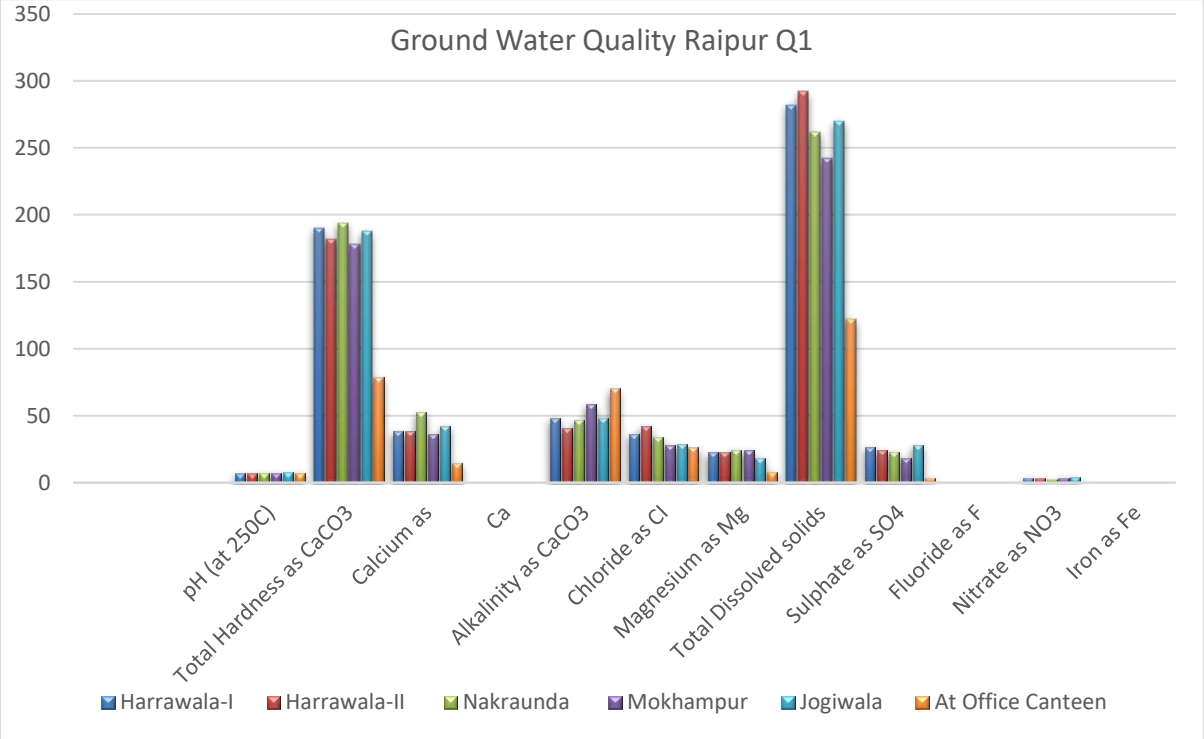


Fig 12d: Graphical representation of ground Water Characteristic at different location in Raipur package in IInd quarter

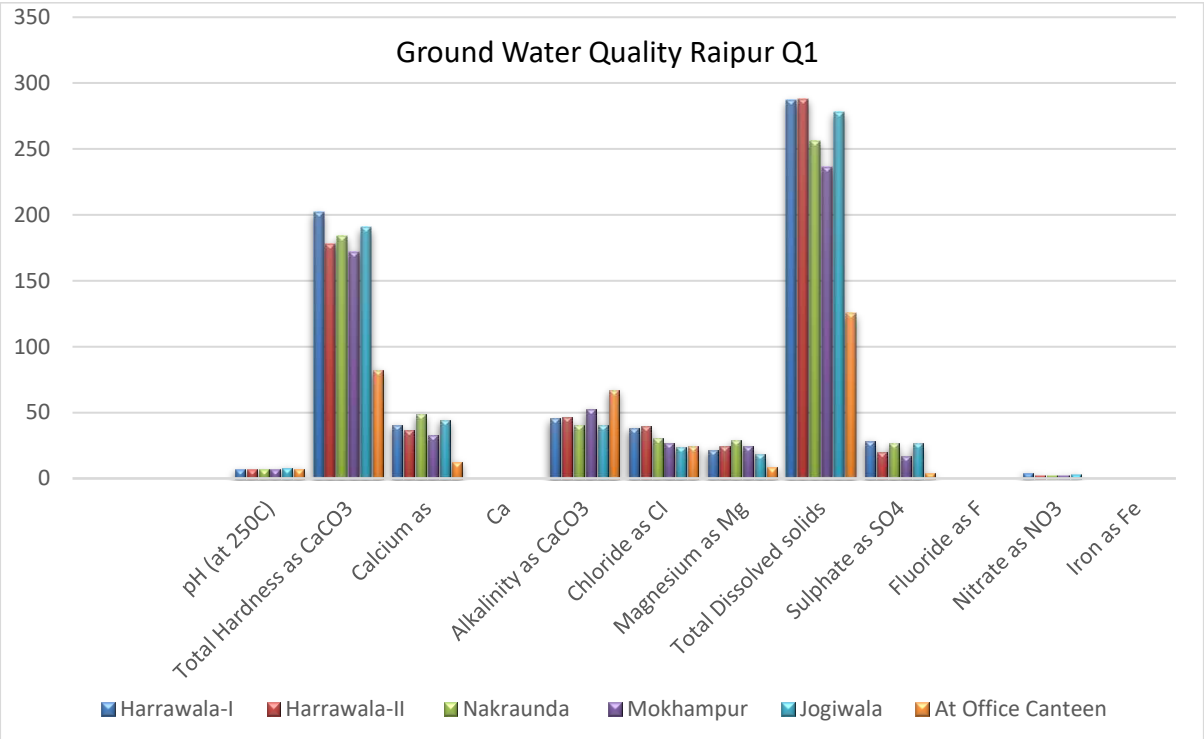


Table 20 C. Air Quality monitoring results of construction phase at different locations of the sub-project

Ambient Air Quality Monitoring (Raipur)							
First Quarter							
S.NO	**PARAMETER**	**UNITS**	**HARRAWALA 735Q+RPW**	**HARRAWALA 736R+P65**	**NAKRAUNDA 64W5+3K4**	**SI-5, CSIR II P COLONY, II P, MOKHAMPUR**	**433 JOGIWALA, DEHRADUN**
1.	**Particulate matter (PM_{10})**	µg/m^3	74.2	75.2	76.2	76.5	73.2
2.	**Particulate matter ($PM_{2.5}$)**	µg/m^3	44.6	42.6	40.2	43.2	42.4
3.	**Sulphur Dioxide (SO_2)**	µg/m^3	12.5	12.8	13.4	13	14.5
4.	**Nitrogen Dioxide (NO_2)**	µg/m^3	24.2	23.4	22.5	22.6	23.2
5.	**Carbon Monoxide (CO)**	Mg/m^3	0.78	0.80	0.74	0.78	0.81
Second Quarter							
1.	**Particulate matter (PM_{10})**	µg/m^3	76.4	74.2	74.2	78.2	74.2
2.	**Particulate matter ($PM_{2.5}$)**	µg/m^3	46.2	44.2	38.4	44.4	43.4
3.	**Sulphur Dioxide (SO_2)**	µg/m^3	12.4	13.2	13.6	13.6	14.2
4.	**Nitrogen Dioxide (NO_2)**	µg/m^3	23.4	25.2	24.2	21.4	22.4
5.	**Carbon Monoxide (CO)**	Mg/m^3	0.72	0.70	0.80	0.82	0.70

Figure 12e: Air Quality Characteristics at different location of Raipur Package during Ist quarter

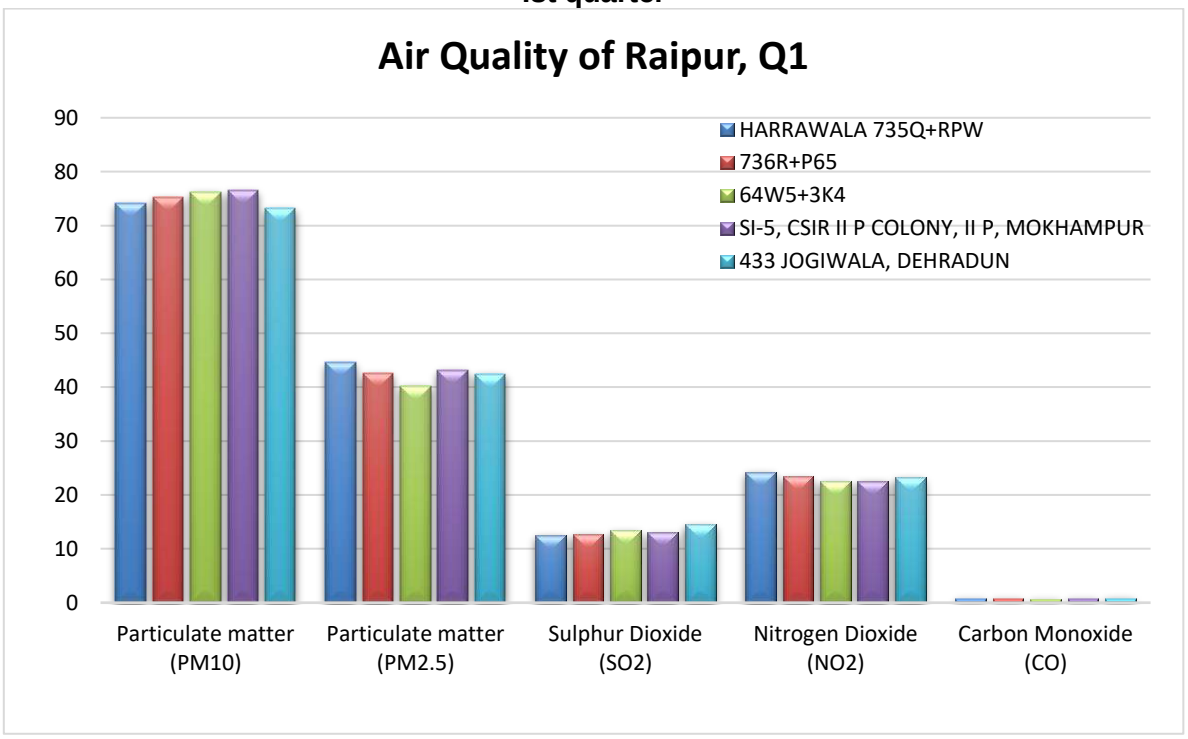


Figure 12e: Air Quality Characteristics at different location of Raipur Package during IInd quarter

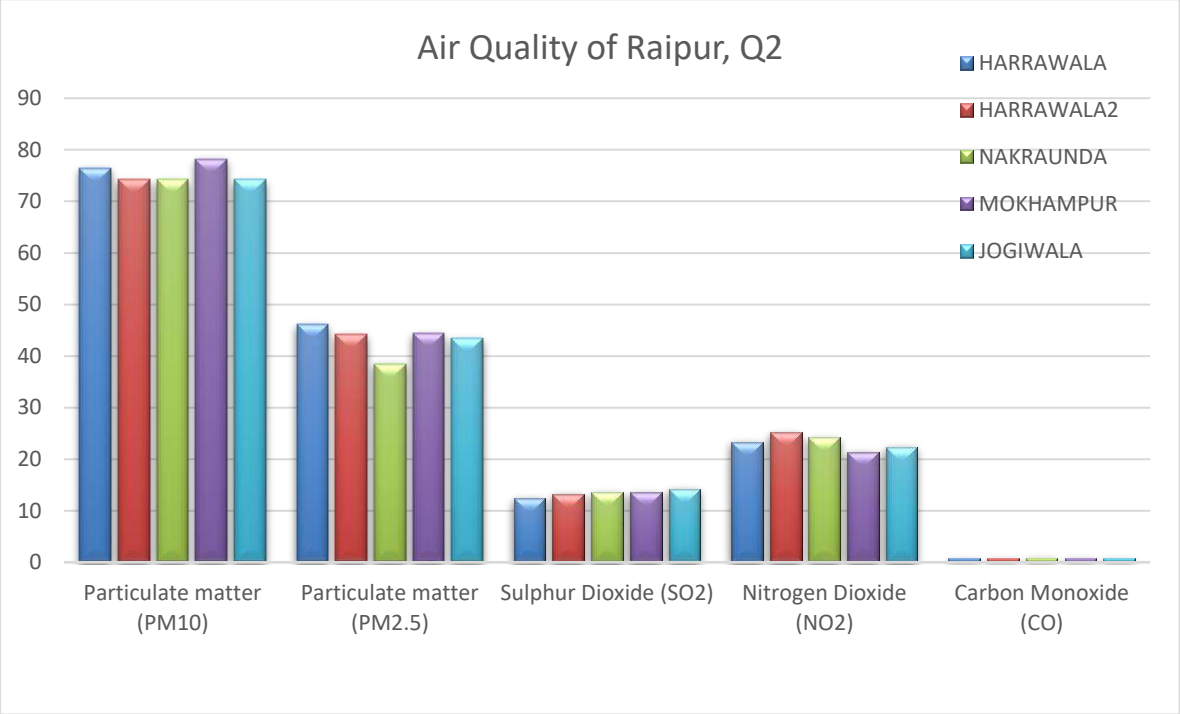


Table 20 D: Noise level monitoring during the construction phase of the sub-project

Noise Level Monitoring Raipur								
First Quarter								
S.No.	**Parameters**		**Units**	**HARRAWALA 735Q+RPW**	**HARRAWALA 736R+P65**	**NAKRAUNDA**	**SI-5, CSIR II P COLONY, II P, MOKHAMPUR**	**433 JOGIWALA, DEHRADUN**
1.	EQUVALENT NOISE LEVEL	(6.00 AM to 10.00 PM)	dB	53.2	54	52.6	50.2	52.4
2.		(10.00 PM to 6.00 AM)	dB	45	41.2	42.2	42.4	43.8
Second Quarter								
1.	EQUVALENT NOISE LEVEL	(6.00 AM to 10.00 PM)	dB	54.6	52.4	53.6	53.5	52.6
2.		(10.00 PM to 6.00 AM)	dB	46.5	42.4	44.2	41.7	43.2

Source: Environmental Monitoring

Figure 12f: Noise Level Characteristics at different location in Raipur Package in Ist quarter

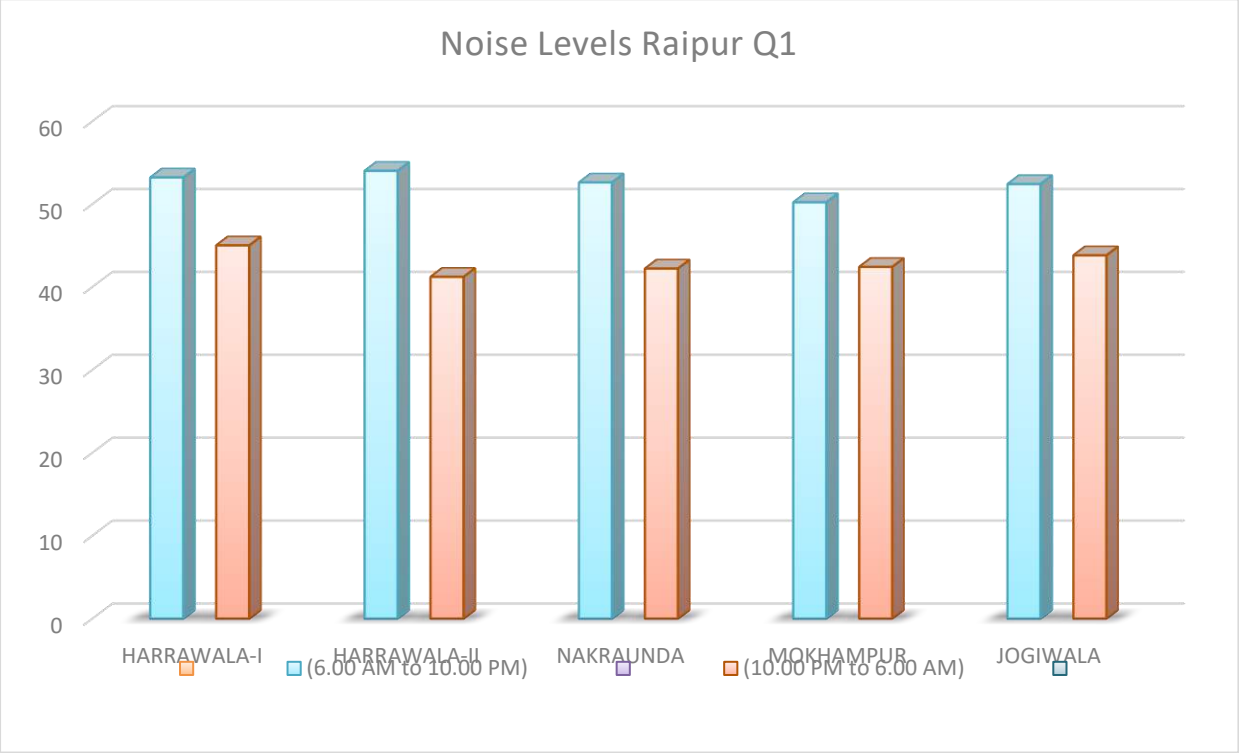


Figure 12g: Noise Level Characteristics at different location in Raipur Package in Ist quarter

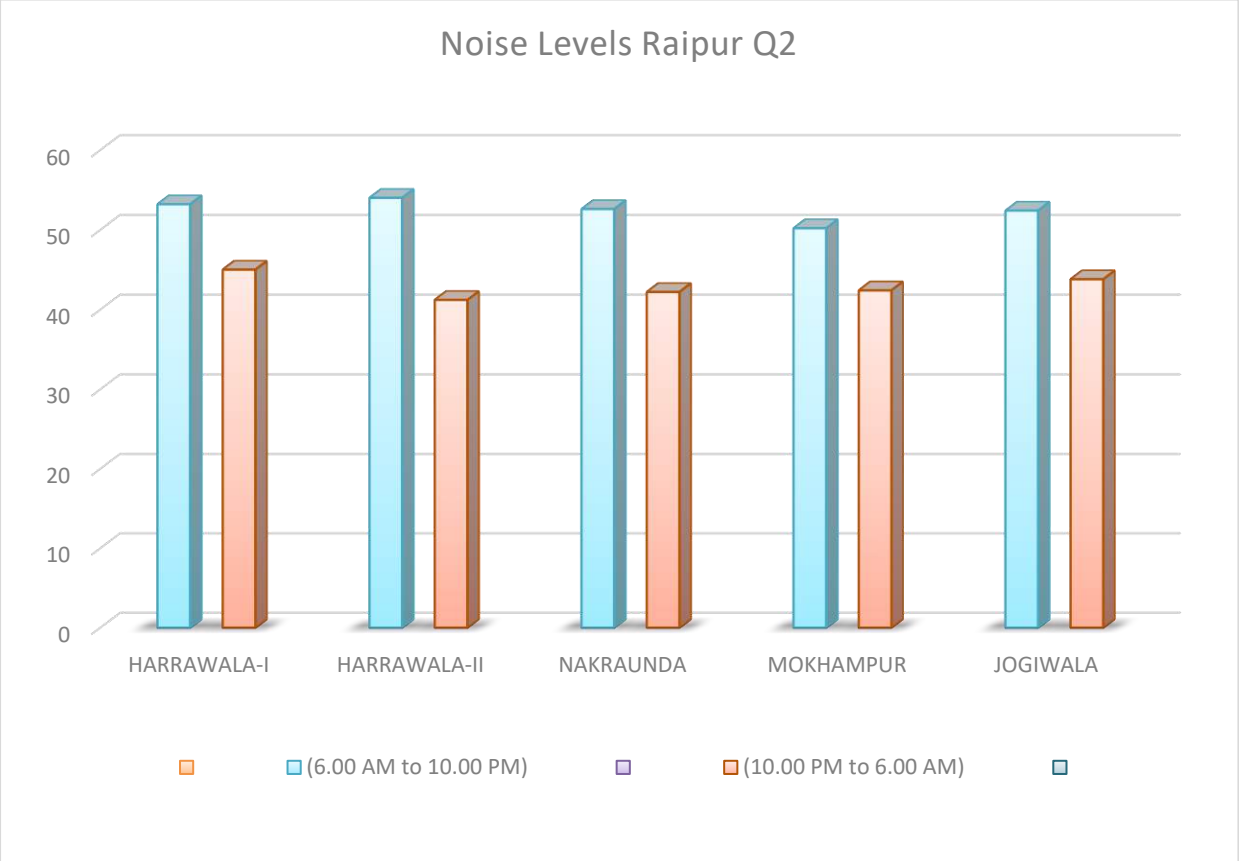


Table 20E: Soil Analysis Results for Raipur Package-01

SOIL SAMPLE							
First Quarter							
S.No.	**Parameters**	**Units**	**Harrawala 735Q+RPW**	**Harrawala 736R+P65**	**Nakrounda 64W5+8XG**	**SI-5, CSIR II P COLONY, II P, MOKHAMPUR**	**433 Jogiwala, Dehradun**
1	**pH (at 25° C**	-	7.34	7.62	7.52	7.45	7.48
2	**Conductivity**	µs/cm	160	172	164	168	160
3	**Soil Texture**	-	Sandy	Sandy	Sandy	Sandy	Sandy
	Sand %	%	53	57	47	61	54
	Silt %	%	26	22	29	23	26
	Clay %	%	21	21	24	16	20
4	**Chloride as Cl**	mg/kg	326	382	26	26	20.2
5	**Potassium as K**	kg/hec	110	102	124	132	124
6	**Organic Matter**	%	3.4	3	2	3.4	2.1
7	**Nitrogen as N**	kg/hec	0.4	0.4	0.24	0.26	0.21
8	**Sodium as Na**	mg/kg	90.2	96.2	85	80.4	82.4
9	**Phosphate**	kg/hec	0.32	0.4	0.3	0.32	0.6
10	**Sulphate as SO_4**	mg/kg	5.4	6.2	5.6	6.4	8.0
11	**Water Holding Capacity**	%	22.0	25	26	22.6	23.0
12	**Porosity**	%	21	20	22	20.5	22.4
Second Quarter							
1	**pH (at 25° C**	-	7.54	7.54	7.68	7.89	7.51
2	**Conductivity**	µs/cm	158.2	180.2	162.2	178.5	162.4
3	**Soil Texture**	-	Sandy	Sandy	Sandy	Sandy	Sandy
	Sand %	%	54.0	56.0	57.0	60.0	52.0
	Silt %	%	25.0	24.0	29.0	24.0	28.0
	Clay %	%	21.0	20.0	14.0	16.0	20.0
4	**Chloride as Cl**	mg/kg	332.0	402.0	22.3	24.4	16.2
5	**Potassium as K**	kg/hec	102.0	112.0	126.0	130.2	120.0
6	**Organic Matter**	%	3.2	3.5	2.0	2.6	2.1
7	**Nitrogen as N**	kg/hec	0.24	0.2	0.24	0.24	0.21
8	**Sodium as Na**	mg/kg	96.2	106.2	76.0	78.2	78.4
9	**Phosphate**	kg/hec	0.26	0.2	0.24	0.32	0.4
10	**Sulphate as SO_4**	mg/kg	4.2	5.2	5.2	6.2	8.2
11	**Water Holding Capacity**	%	21.2	24.2	26.4	22.4	23.4
12	**Porosity**	%	20.6	20.2	22.5	20.5	21.6

Figure 12h: Soil Quality at different location in Raipur Package-01 during Ist quarter

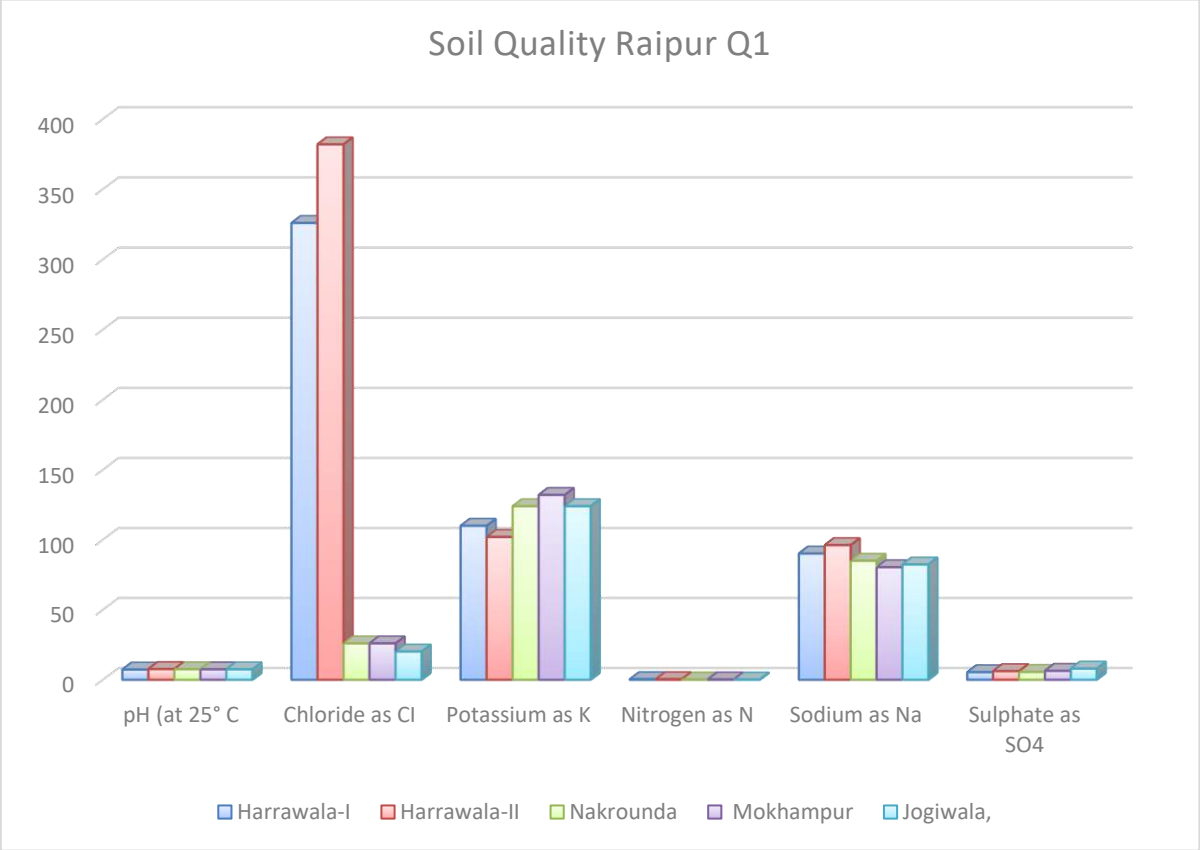
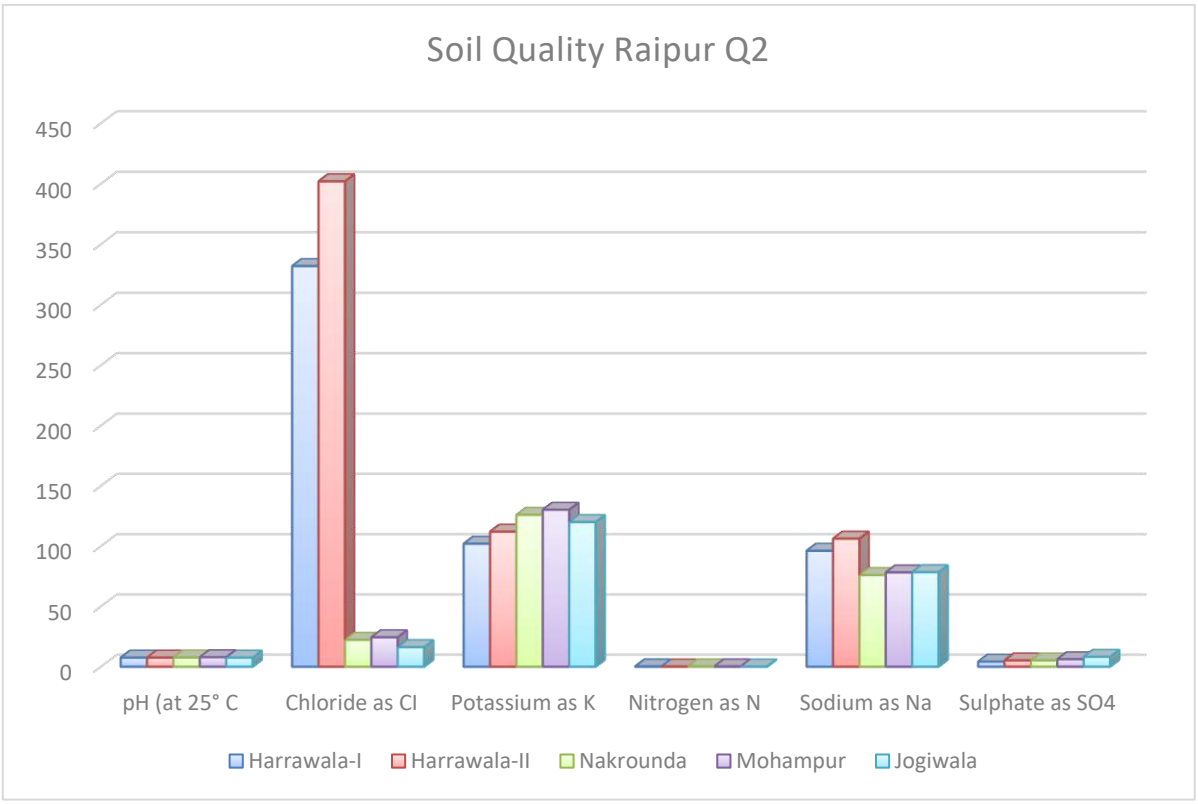


Figure 12h: Soil Quality at different location in Raipur Package-01 during IInd quarter



72. Environmental Monitoring Results of THDC/Yamuna colony and observations

i. Surface Water Quality

During the both quarters, the surface water was collected and found that the Bindal river is polluted river and the results were shown the significant rise in the E. Coli and total coliform, due to the waste water which is coming from the nearby households without any prior treatment also give a rise in the values of BOD and COD. All the finding shown below in the table and also depicted in figure also.

ii. Ground Water Quality

Ground water was also monitored in the project area in both quarters for which sample were collected from different location for environmental monitoring during construction and it was found that all the studied parameters were within the range in comparison with BIS standard 10500:2012. All the finding shown below in the table and also depicted in figure also.

iii. Air Quality Monitoring

Air quality for the selected parameters was also carried out and it was observed that all the values were within standard limit in comparison of CPCB NAAQS 2009 standard and some hike was recorded in PM10 and PM2.5 in comparison of WHO standards during both quarter due to vehicular movement in the particular area. All the finding shown below in the table and also depicted in figure also.

iv. Noise Quality Monitoring

During both quarters, Day and night time noise monitoring was also conducted in the different zones and it was observed that all results were found within the standard limit in comparison of CPCB and WHO. All the finding shown below in the table and also depicted in figure also.

v. Soil Quality

In both quarters, Soil quality was also monitored in the project area for selected parameters during the construction activities and it was observed that there was no major issue in the soil quality. As per the results the soil was sandy in the particular area.

Table 21 A: Surface Water results of Bindal River during construction

S. No.	Parameters	1st Quarter Results	2nd Quarter Results	Class C Surface water Quality Standard
1	**pH (at 25°C)**	7.3	7.58	**8.5**
2	**Dissolved Oxygen**	4.22	3.8	**-**
3	**Turbidity (NTU)**	5.23	6.2	**-**
4	**BOD**	18.12	21.4	**-**
5	**COD**	56.29	60.2	**-**
6	**Total Hardness as CaC03**	325.24	308	**-**
7	**Calcium as Ca**	64.24	68.4	**-**
8	**TSS**	16	20.4	**-**
9	**Chloride as Cl**	64.12	60.4	**600**
10	**Cyanide as CN**	** BDL(#DL-0.002)	** BDL(#DL-0.002)	**-**
11	**Magnesium as Mg**	16.23	18.4	**-**

12	**Total Dissolved Solids**	456	478	**1500**
13	**Sulphate as SO4**	44.16	48.2	**400**
14	**Fluoride as F**	0.11	0.14	**1.5**
15	**Nitrate as NO3**	4.62	4.5	**50**
16	**Iron as Fe**	0.08	0.1	**50**
17	**Aluminum as Al**	** BDL(#DL-0.03)	** BDL(#DL-0.03)	**-**
18	**Boron**	** BDL(#DL-0.50)	** BDL(#DL-0.50)	**-**
19	**Hexa Chromium as Cr+6**	** BDL(#DL-0.001)	** BDL(#DL-0.001)	**0.05**
20	**Sodium**	40.28	38.5	**-**
21	**Potassium**	11.1	10.6	**-**
22	**Total Residual Chlorine**	BDL(#DL-0.001)	BDL(#DL-0.001)	**-**
23	**Zinc as Zn**	** BDL(#DL-0.07)	** BDL(#DL-0.07)	**15**
24	**Copper as Cu**	** BDL(#DL-0.02)	** BDL(#DL-0.02)	**1.5**
25	**Manganese as Mn**	** BDL(#DL-0.10)	** BDL(#DL-0.10)	**-**
26	**Cadmium as Cd**	** BDL(#DL-0.001)	** BDL(#DL-0.001)	**0.01**
27	**Lead as Pb**	** BDL(#DL-0.001)	** BDL(#DL-0.001)	**0.1**
28	**Selenium as Se**	** BDL(#DL-0.01)	** BDL(#DL-0.01)	**0.05**
29	**Arsenic as As**	** BDL(#DL-0.01)	** BDL(#DL-0.01)	**0.2**
30	**Mercury as Hg**	** BDL(#DL-0.01)	** BDL(#DL-0.01)	**-**
31	**Total Coliform**	72,247	68,340	**-**
32	**E.coli**	18,248	16,450	**5,000**

Figure 13 a: Surface Water Quality Standard of Bindal River in THDC Package in Ist and IInd quarter

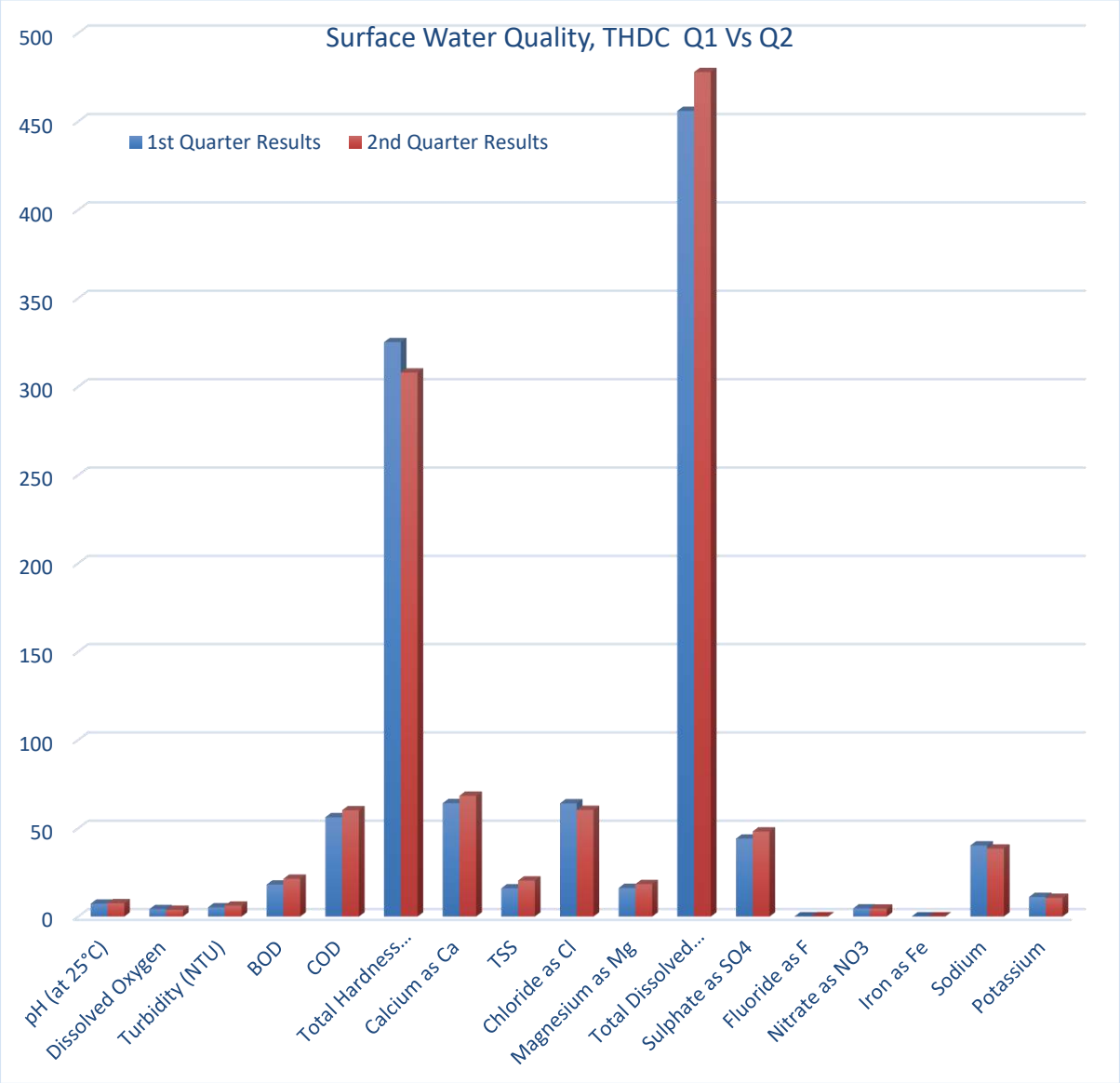


Table 21 B: Ground water characteristics in Environmental Monitoring during construction stage

S. No.	Parameters	I - Quarter				II - Quarter					
		THDC Sai Baba Enclave	Yamuna Colony Near Store	Vidhya Vihar Phase-3	Pathribagh	THDC Sai Baba Enclave	Yamuna Colony Near Store	THDC Colony Near Store	Near Patel Nagar Police Station	Desirable Limits	Permissible Limits
1	**pH (at 25°C)**	7.3	7.2	7.27	7.2	7.42	7.38	7.45	7.67	6.5 to 8.5	No relaxation
2	**Total Hardness as CaC03**	298.2	316.5	297.85	254.4	256.2	305	282.4	246	200	600
3	**Alkalinity as CaCO3**	188.5	192.6	176.22	152.3	192.4	198.2	182.2	158.4	200	600
4	**Chloride as Cl**	28.17	32.6	28.14	26.14	32.7	36.8	34.6	32.4	250	1000
5	**Phosphate**	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	-	-
6	**Total Dissolved Solids**	542	592	678	570	492	520	530	467	500	2000
7	**Sulphate as SO4**	48.9	54.29	55.31	52.52	46.2	56.2	48.6	42.6	200	400
8	**Fluoride as F**	0.06	0.07	0.07	0.06	0.08	0.06	0.06	0.04	1.0	1.5
9	**Nitrate as NO3**	2.08	1.88	1.89	2.88	2.6	2.1	2.2	3.2	45	No relaxation
10	**Iron as Fe**	0.09	0.12	0.08	0.1	0.1	0.18	0.14	0.12	0.3	No relaxation
11	**Hexavalent Chromium as Cr+6**	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	0.05	No relaxation
12	**Phenolic Compound**	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	0.001	0.002
13	**Zinc as Zn**	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	5	15
14	**Copper as Cu**	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	0.05	1.5
15	**Manganese as Mn**	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	0.1	0.3
16	**Cadmium as Cd**	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	0.003	No relaxation
17	**Lead as Pb**	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	0.01	No relaxation
18	**Arsenic as As**	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	0.01	0.05
19	**Mercury as Hg**	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	0.001	No relaxation

Figure 13 b: Ground Water Characteristic at different location in THDC Package in Ist quarter

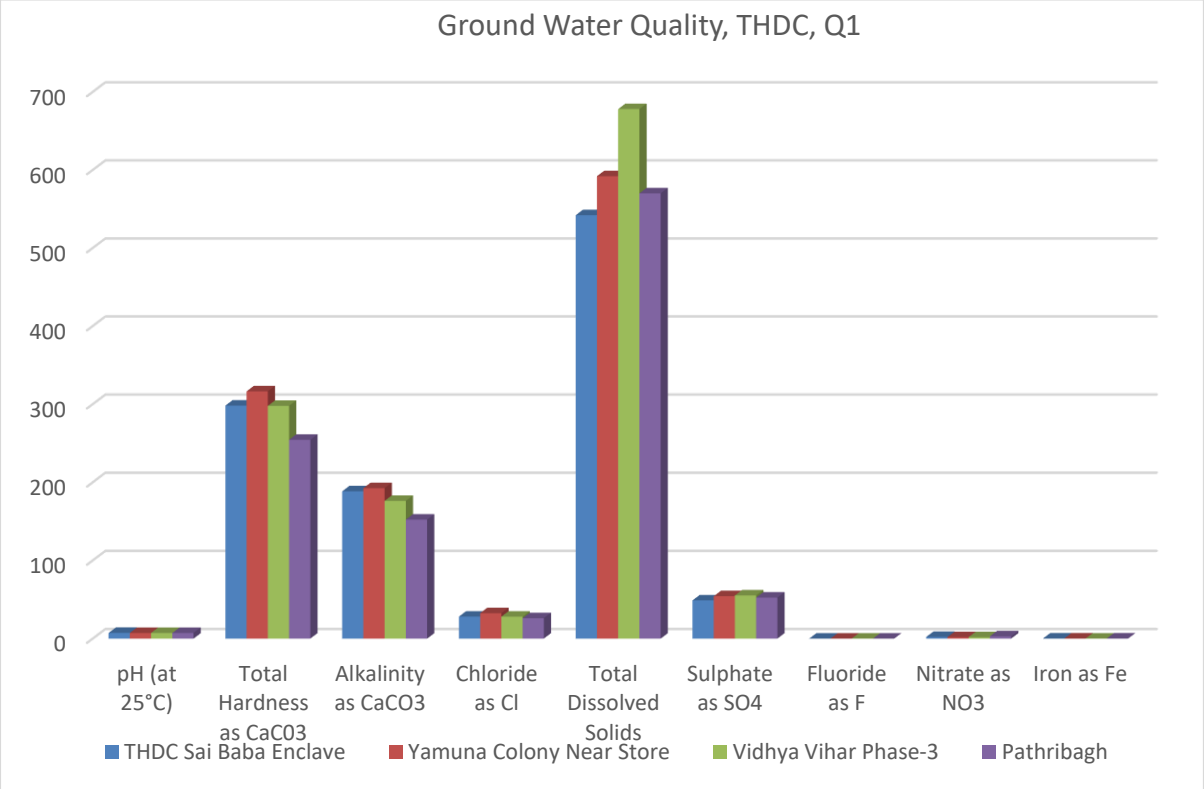


Figure 13 c: Ground Water Characteristic at different location in THDC Package in Ist quarter

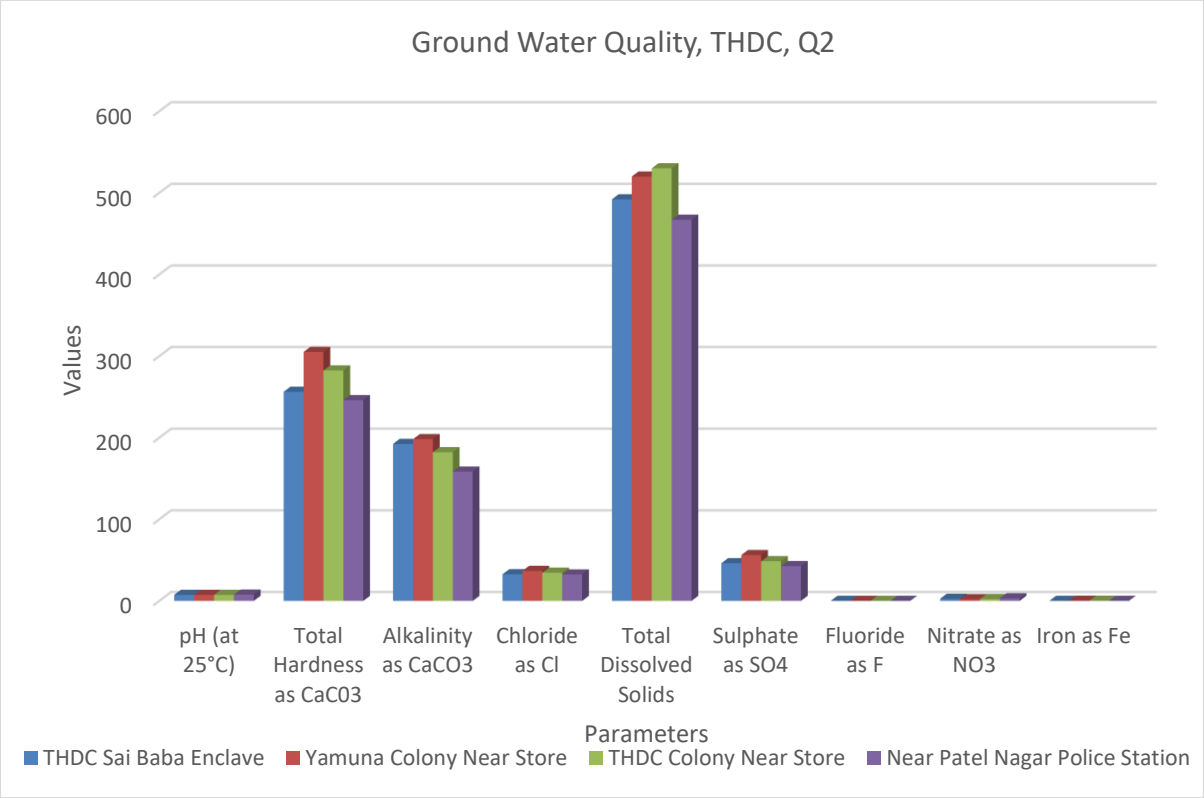


Table 21 C: Ambient Air Characteristics during Construction Phase

Quarter 1						
S. No.	**Parameters**	**THDC Sai Baba Enclave**	**Yamuna Colony Near Store**	**Vidhya Vihar Phase-3**	**Pathribagh**	**NAAQS µg/m³**
1	**Particulate Matter(PM10)**	67.24	61.22	65.2	70.19	**100**
2	**Particulate Matter(PM2.5)**	40.23	40.29	34.25	40.27	**60**
3	**Sulphur Dioxide (SO2)**	12.13	12.11	14.23	10.2	**80**
4	**Nitrogen Dioxide (NO2)**	28.27	26.26	26.13	32.27	**80**
5	**Carbon Monoxide (CO) mg/m³**	0.72	0.76	0.78	0.8	**4**
Quarter 2						
S. No.	**Parameters**	**THDC Sai Baba Enclave**	**Yamuna Colony Near Store**	**THDC Colony Near Store**	**Near Patel Nagar Police Station**	**NAAQS µg/m**
1	**Particulate Matter(PM10)**	68.3	65.4	63.5	66.5	**100**
2	**Particulate Matter(PM2.5)**	42.5	44.2	32.5	42.6	**60**
3	**Sulphur Dioxide (SO2)**	12.4	12.6	12.2	13.2	**80**
4	**Nitrogen Dioxide (NO2)**	26.4	24.2	24.2	34.2	**80**
5	**Carbon Monoxide (CO) mg/m³**	0.82	0.74	0.8	0.74	**4**

Figure 13 d: Ambient Air Quality Characteristics at different location in THDC Package in Ist quarter

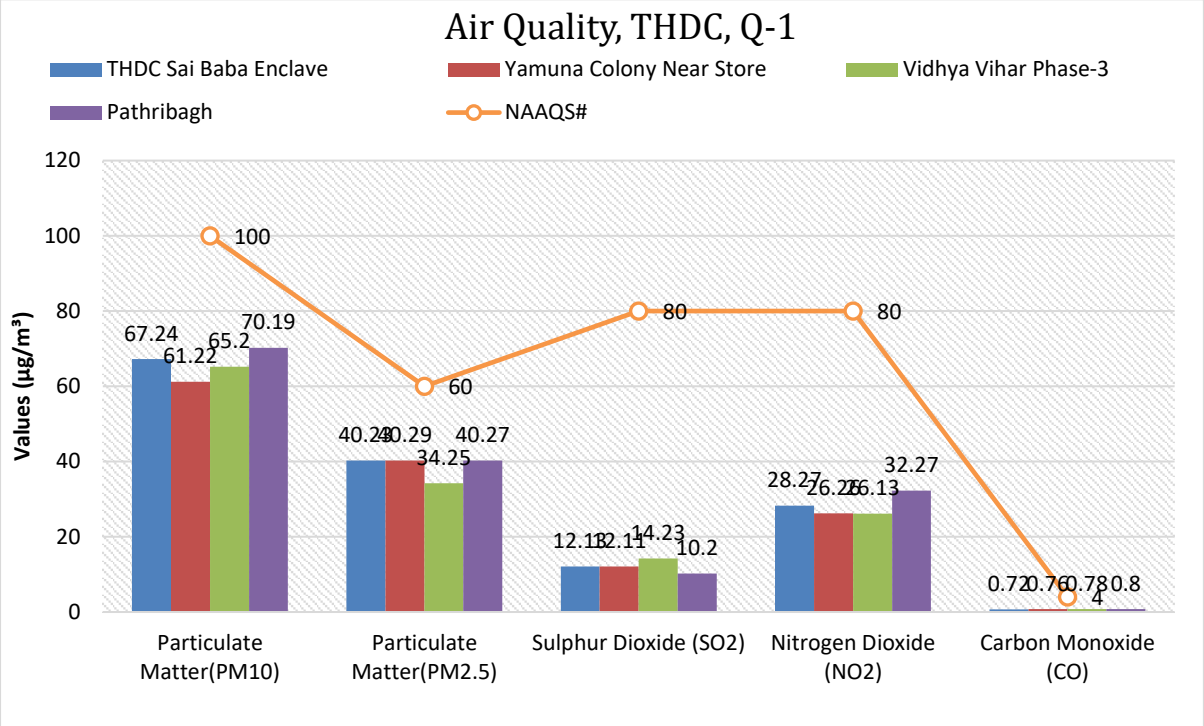


Figure 13 e: Ambient Air Quality Characteristics at different location in THDC Package in Ist quarter

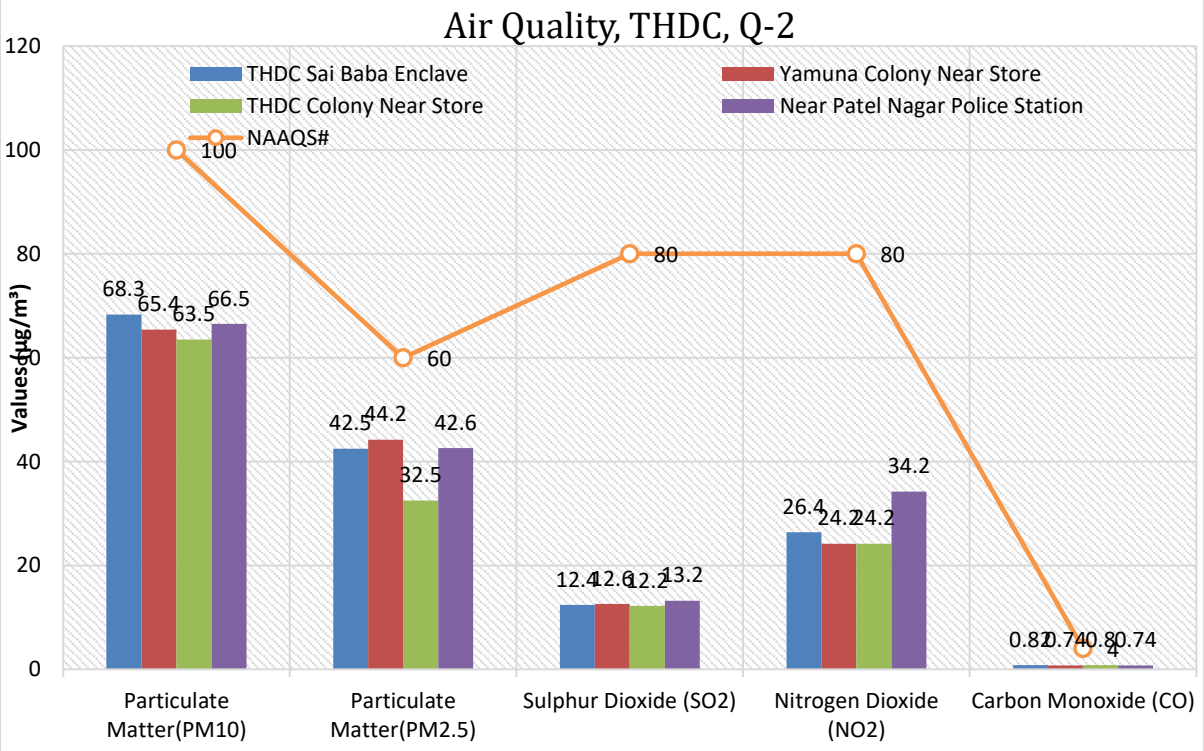


Table 21 D: Noise characteristics during construction phase

First Quarter						
S. No.	**Parameters**	**THDC Sai Baba Enclave (Residential Area)**	**Yamuna Colony Near Store (Residential Area)**	**Vidhya Vihar Phase-3 (Residential Area)**	**Pathribagh (Residential Area)**	**Standard as per Residential Area**
1	**Equivalent Noise Level (6:00 AM to 10:00 PM)**	51.4	53.2	50.1	53.6	**55**
2	**Equivalent Noise Level (10:00 PM to 6:00 AM)**	42.2	43.2	41.4	41.2	**45**
Second Quarter						
S. No.	**Parameters**	**THDC Sai Baba Enclave (Residential Area)**	**Yamuna Colony Near Store (Residential Area)**	**THDC Colony Near Store (Residential Area)**	**Near Patel Nagar Police Station (Residential Area)**	**Standard as per Residential Area**
1	**Equivalent Noise Level (6:00 AM to 10:00 PM)**	52.5	54.6	52.2	53.2	**55**
2	**Equivalent Noise Level (10:00 PM to 6:00 AM)**	41.4	42.4	42.7	42.1	**45**

Figure 13 f: Noise Quality Characteristics at different location in THDC Package in Ist quarter

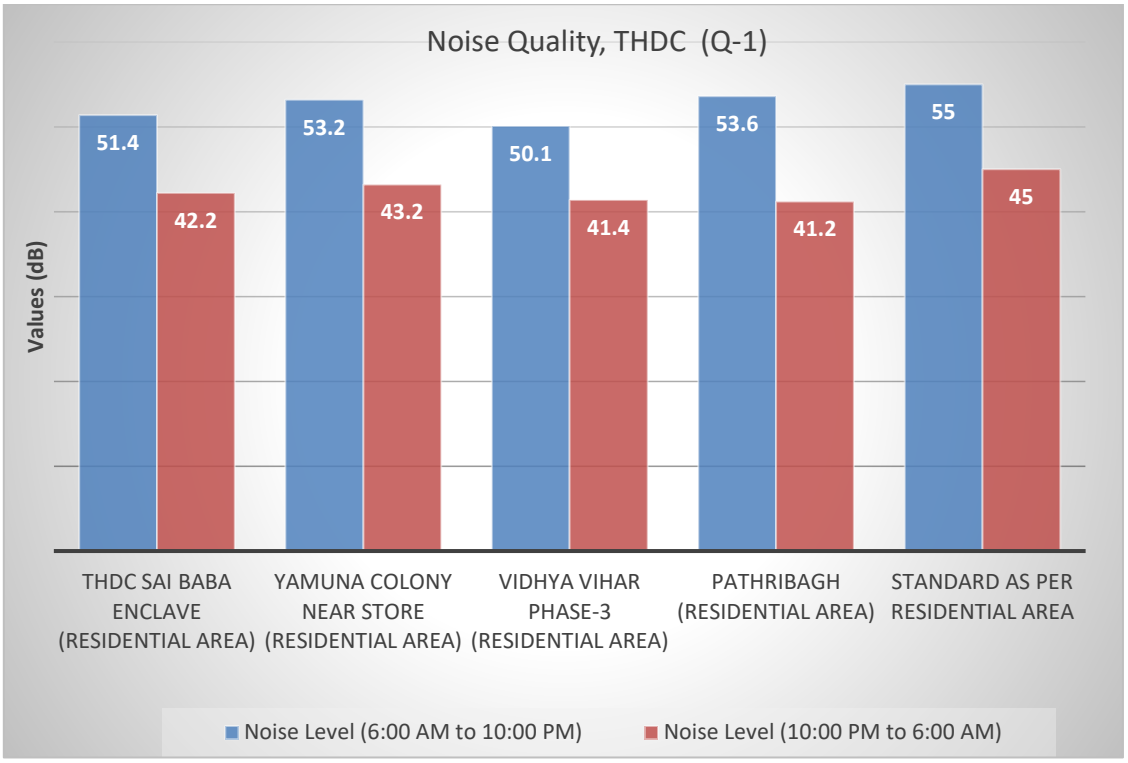


Figure 13 g: Noise Quality Characteristics at different location in THDC Package in IInd quarter

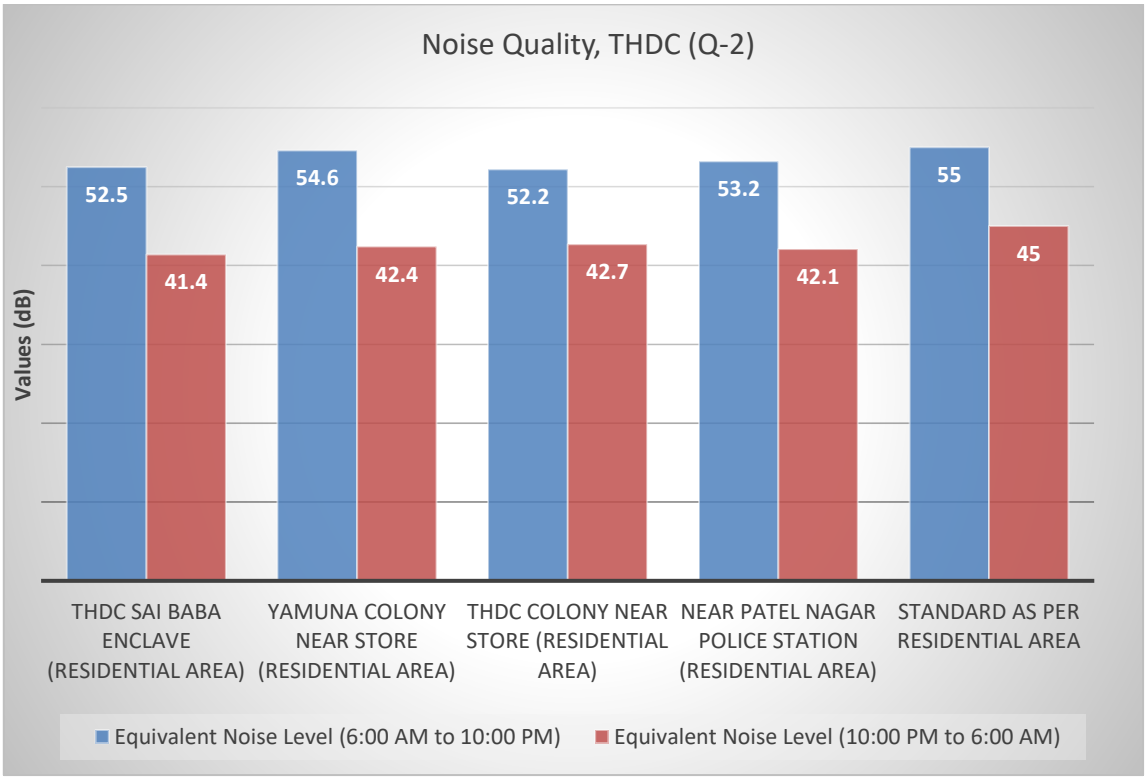


Table 21E: Soil Characteristic during construction phase

S. No.	Parameters	Units	First Quarter				Second Quarter			
			THDC Saibaba Enclave	Yamuna Colony Near Store	Vidhya Vihar Phase-3	Pathribagh	THDC Saibaba Enclave	Yamuna Colony Near Store	THDC Colony Near Store	Near Patel Nagar Police Station
1	pH (at 25° C	-	7.89	8.3	6.5	6.40	7.42	8.3	6.56	6.78
2	Conductivity	µs/cm	133.12	136.27	30.24	136.20	132.5	136.27	32.5	135.6
3	Soil Texture	-	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay
	Sand %	%	25	27.09	30.4	30.27	43.6	27.9	32.8	34.1
	Silt %	%	50	48.0	20.40	16.29	53.0	48.0	45.00	18.5
	Clay %	%	2.50	24.91	49.2	53.44	3.4	24.1	22.5	47.4
4	Moisture (1050°C)	%	72	68.25	76.26	65.16	70.4	68.25	76.4	66.4
5	Potassium as K	kg/hec	70.20	76.16	80.20	65.28	74.60	76.16	88.40	62.4
6	Organic Matter	%	0.12	0.96	0.16	0.15	0.17	0.96	0.19	0.17
7	Nitrogen as N	kg/hec	3.20	7.8	5.08	5.90	4.2	7.8	7.2	6.4
8	Sodium as Na	mg/hec	62.25	52.23	68.22	65.26	64.2	52.23	72.4	66.4
9	Phosphate	kg/hec	20.28	28.2	26.12	24.14	24.2	28.2	25.2	27.2
10	Calcium (as Cao)	mg/kg	850.3	868.28	809.31	760.8	845	868.28	789	755
11	Magnesium (as Mg)	mg/kg	52.0	64.25	54.28	60.20	57	64.25	54.2	64.20
12	Permeability	Cm/sec	312	368	372	402	320	368	380	398
13	Oil & Grease	-	-	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Figure 13 h: Soil Quality Characteristics at different location in THDC Package in Ist quarter

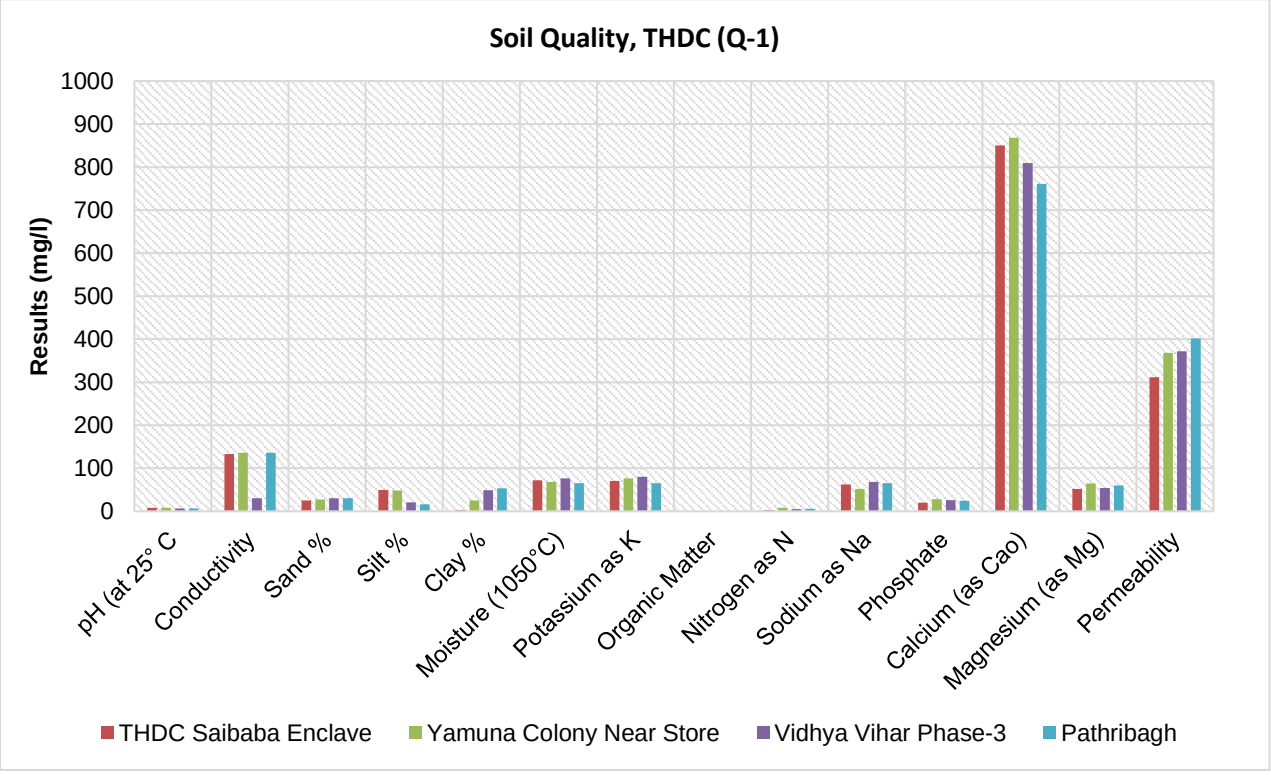
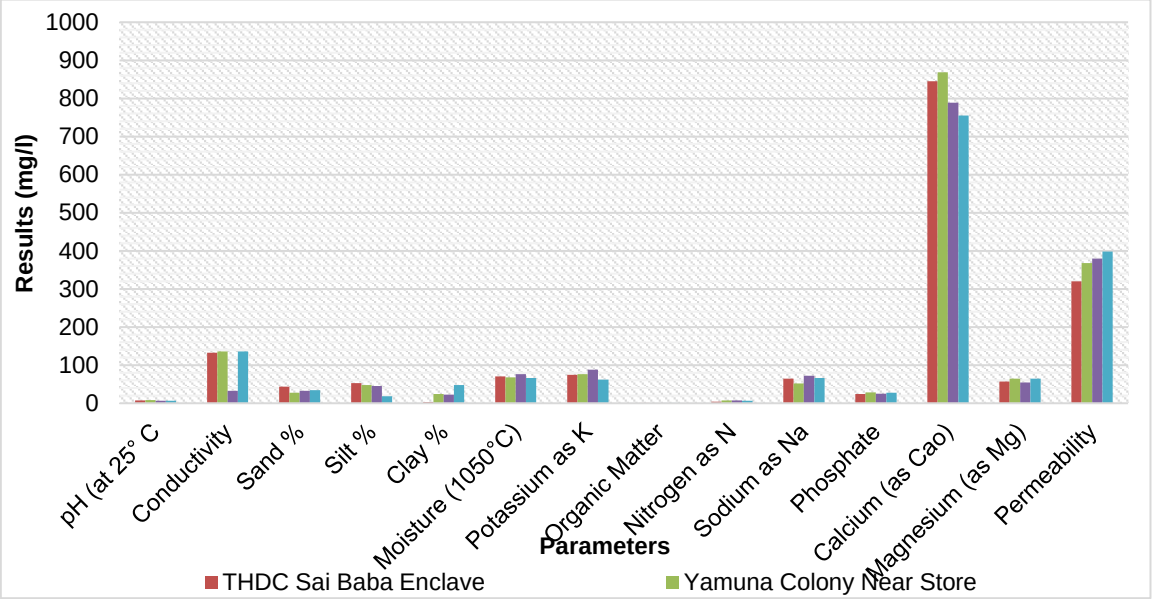


Figure 13 i: Soil Quality Characteristics at different location in THDC Package in IInd quarter



73. Environmental Monitoring Results of Banjarawala Package-02 and observations

i. Surface Water Quality

The surface was collected and found that the Rispana river is polluted river and the results were shown the significant rise in the E. Coli and total coliform, due to the waste water which is coming from the nearby households without any prior treatment also give a rise in the values of BOD and COD during Ist and IInd quarter. All the finding shown below in the table and also depicted in figure also.

ii. Ground Water Quality

Ground water was also monitored in the project area and sample were collected from different location for environmental monitoring during construction and it was found that all the studied parameters were within the range in comparison with BIS standard 10500:2012 in both quarter. All the finding shown below in the table and also depicted in figure also.

iii. Air Quality Monitoring

Air quality for the selected parameters was also carried out and it was observed that all the values were within standard limit in comparison of CPCB NAAQS 2009 standard and some hike was recorded in PM10, PM2.5 and SO_2 in comparison of WHO standards in both quarter due to vehicular movement in particular area. All the finding shown below in the table and also depicted in figure also.

iv. Noise Level Monitoring

Day and night time noise monitoring was also conducted in the different zones and that some hikes were recorded in the Leq day in comparison of standard limit in comparison of CPCB and WHO due to vehicular movement in day time, the values of Leq night were found within the range in both quarter. All the finding shown below in the table and also depicted in figure also.

V. Soil Quality

Soil quality was also monitored in the project area for selected parameters to know the impact of activities during construction and it was observed that there was no major issue in the soil quality in Ist and IInd quarter of 2023. As per the results the soil was

sandy in the particular area. All the finding shown below in the table and also depicted in figure also.

Table 22 A: Physico-Chemical analysis of Surface water during construction phase

S. No.	Parametres	Units	First Quarter (January2023 to March2023)			Second Quarter (April to June)			
			Geetanjali enclave no 05 OHT	Near shaheed udham singh park	Rispana river near STP plant Mothrowala	Nala near doon university Mothrowala	Nala near PNB Bank ATM,OHT	Rispana river near STP plant mothrowala	Nala near shaheed udham singh park,OHT
1	pH value	-	4.33	8.70	8.93	8.83	7.96	8.65	8.86
2	Turbidity(NTU)	-	<0.1	<0.1	<0.01	<0.1	<0.1	<0.1	<0.1
3	Total Hardness (as CaCO3)	(mg/l)	433	423	459	448	468	427	447
4	Iron (as Fe)	(mg/l)	Nil	Nil	Nil	Nil	Nil	Nil	Nil
5	Chloride(as CI)	(mg/l)	68	53.1	76	86	84	82	56.8
6	Total Dissolved Soilds	(mg/l)	652	822.0	646	638	661	618	805.5
7	Total Suspended Soild,	(mg/l)	67.4	47.9	69.2	77.3	77.1	73.5	45.2
8	BOD	(mg/l)	21.3	6.6	25.1	29.2	28.0	23.4	11.5
9	COD,	(mg/l)	124.5	28.4	136.2	131.7	141.5	117.9	75.0
10	Oil & Grease,	(mg/l)	-	-	-	-	-	-	-
11	Dissolve Oxygen	-	3.7	3.4	3.1	3.9	4.4	2.4	3.1
12	Lead(pd)	(mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
13	Sulphate(as SO3)	(mg/l)	8.6	9.1	8.5	9.3	8.7	8.2	9.4
14	Calcium (as Ca)	(mg/l)	153	153.2	177	184	186	167	170.4
15	Magnesium)asMg)	(mg/l)	11.30	14.0	12.21	12.31	12.09	11.40	15.3
16	Total Residual Chlorine,	(mg/l)	Nil	Nil	Nil	Nil	Nil	Nil	Nil
17	Fuloride (as No3)	(mg/l)	0.30	0.33	0.48	0.46	0.57	0.40	0.37
18	Nitrate (as No3)	(mg/l)	6.81	7.85	6.92	7.49	7.36	6.33	8.10
19	Potassium as K	(mg/l) -	1.06	1.15	1.11	1.40	1.57	1.37	1.28
20	Manganese as Mn	mg/1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Sodium (as Na)	-	170	173	163	173	161	163	168
22	Cyanide (as Cn)	-	BDL(DL-0.002)	BDL(DL-0.002)	BDL(DL-0.002)	BDL(DL-0.002)	BDL(DL-0.002)	BDL(DL-0.002)	BDL(DL-0.002)
23	Total Chromium as Cr	mg/1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Selenium (as Se)	(mg/l)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
25	Mercury (as Se)	(mg/l)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
26	Boron	(mg/l)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)

S. No.	Parametres	Units	First Quarter (January2023 to March2023)			Second Quarter (April to June)			
			Geetanjali enclave no 05 OHT	Near shaheed udham singh park	Rispana river near STP plant Mothrowala	Nala near doon university Mothrowala	Nala near PNB Bank ATM,OHT	Rispana river near STP plant mothrowala	Nala near shaheed udham singh park,OHT
27	Copper(asCu)	**-**	**<0.05**	**<0.05**	**<0.05**	<0.05	<0.05	<0.04	<0.05
28	Zinc (as AS)	**-**	**<0.05**	**<0.05**	**<0.05**	<0.05	<0.05	<0.04	<0.05
29	Arsenic (as AS)	**-**	**Nil**	**Nil**	**Nil**	NIL	Nil	Nil	Nil
30	Cadmium (as AS)	**-**	**BDL(DL-.001)**	**BDL(DL-.001)**	**BDL(DL-0.001)**	BDL(DL-0.001	BDL (DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)
31	Aluminium (asAI)	(mg/l)	**ND**	**ND**	**ND**	ND	ND	ND	ND
32	Total Coliform Organisms (MPN)	**-**	**Absent**	**Absent**	**Absent**	**Absent**	**Absent**	**Absent**	**Absent**
33	E. coli	**-**	**Absent**	**Absent**	**Absent**	**Absent**	**Absent**	**Absent**	**Absent**

Figure 14 a: Surface Water Characteristics at different location of Banjarawala Package-2 during Ist quarter

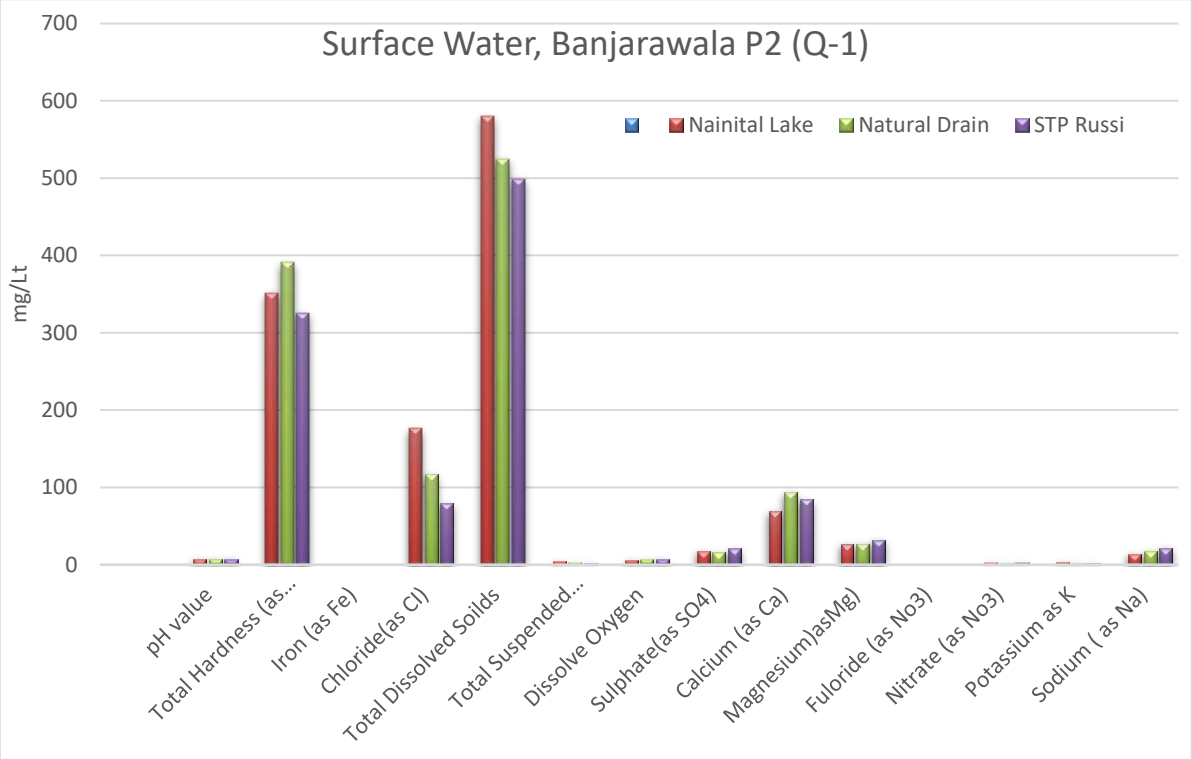


Figure 14 b : Surface Water Characteristics at different location of Banjarawala Package-2 during IInd quarter

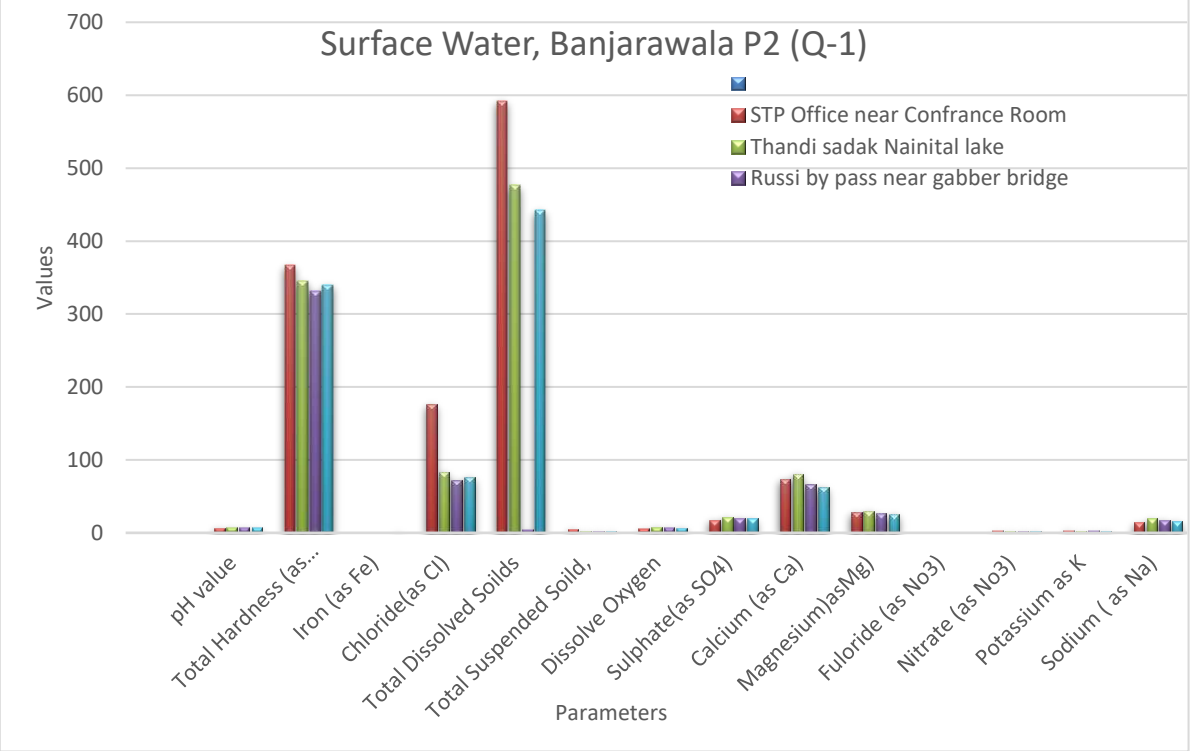


Table 22 B. Physico-chemical analysis of Ground Water during Construction phase

S.No.	Parameters	Units	First Quarter (January2023 to March2023)				Second Quarter (April2023 to June2023)				
			Geetanjali enclave no 05 OHT	Near Shaheed Udham singh PARK	RK puram, near STP	Krishna puram, Edify school Bridge	Near Shaheed Udham singh PARK	Tarun vihar near jal sansthan office	Shivam vihar	Dwarika puram	Geetanjali enclave lane no 05,OHT
1	pH value	-	7.50	7.35	7.29	7.60	7.51	7.37	7.50	7.18	7.42
2	Total Hardness, (as $CaCO_3$)	mg/1 Max	168	172	173	160	176	167	157	153	175
3	Iron (as Fe),	mg/l	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
4	Chloride (as Cl)	mg/l	77	73	72	81	78	71	70	62	79
5	Total Dissolved Solids.	mg/l	325	351	372	374	376	374	346	325	350
6	Sulphate (as SO3)	mg/l	25.20	26.35	25.50	27.71	27.02	25.90	25.74	22.34	27.00
7	Total Alkalinity, ($CaCO_3$)	mg/l	7.9	7.6	7.7	7.3	7.5	7.6	7.0	7.2	7.5
8	Lead as PB,	mg/l	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
9	Manganese (as Mn)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10	Fluoride (as f)	mg/l	0.62	0.58	0.75	0.52	0.65	0.64	0.71	0.65	0.56
11	Nitrate (as No3)	mg/l	1.11	1.15	1.23	1.35	1.28	1.12	1.04	1.30	1.37
12	Dissolved Phosphate (as P)	mg/l	6.22	6.17	6.38	6.47	6.30	5.91	6.64	5.88	6.48
13	Phenolic Compound (asC_6H_5OH),	mg/l	BDL(DL-.001)	BDL(DL-.001)	BDL(DL-0.001)	BDL(DL-.001)	BDL(DL-.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)
14	Chromium (Cr^{+6})	mg/l	BDL(DL-.001)	BDL(DL-.001)	BDL(DL-0.001)	BDL(DL-.001)	BDL(DL-.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)
15	Mercury (as Hg)	mg/l	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
16	Copper (as Cu)	mg/l	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)
17	Zinc (as Zn)	-	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)
18	Arsenic (as AS)	-	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
19	Cadmium (as CD)	-	BDL(DL-.001)	BDL(DL-.001)	BDL(DL-0.001)	BDL(DL-.001)	BDL(DL-.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)

Figure 14 c: Physico-chemical Analysis of Ground Water at different location of Banjarawala Package 2 in Ist quarter

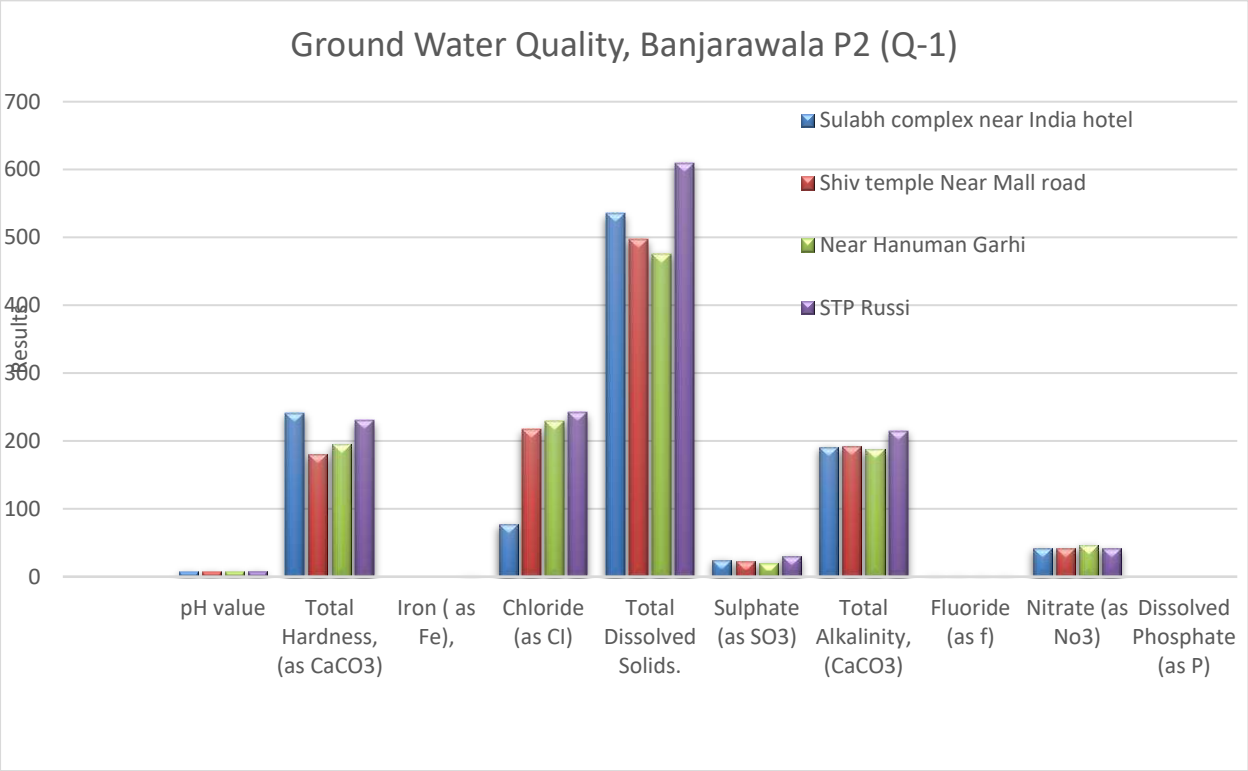


Figure 14 d: Physico-chemical Analysis of Ground Water at different location of Banjarawala Package 2 in IInd quarter

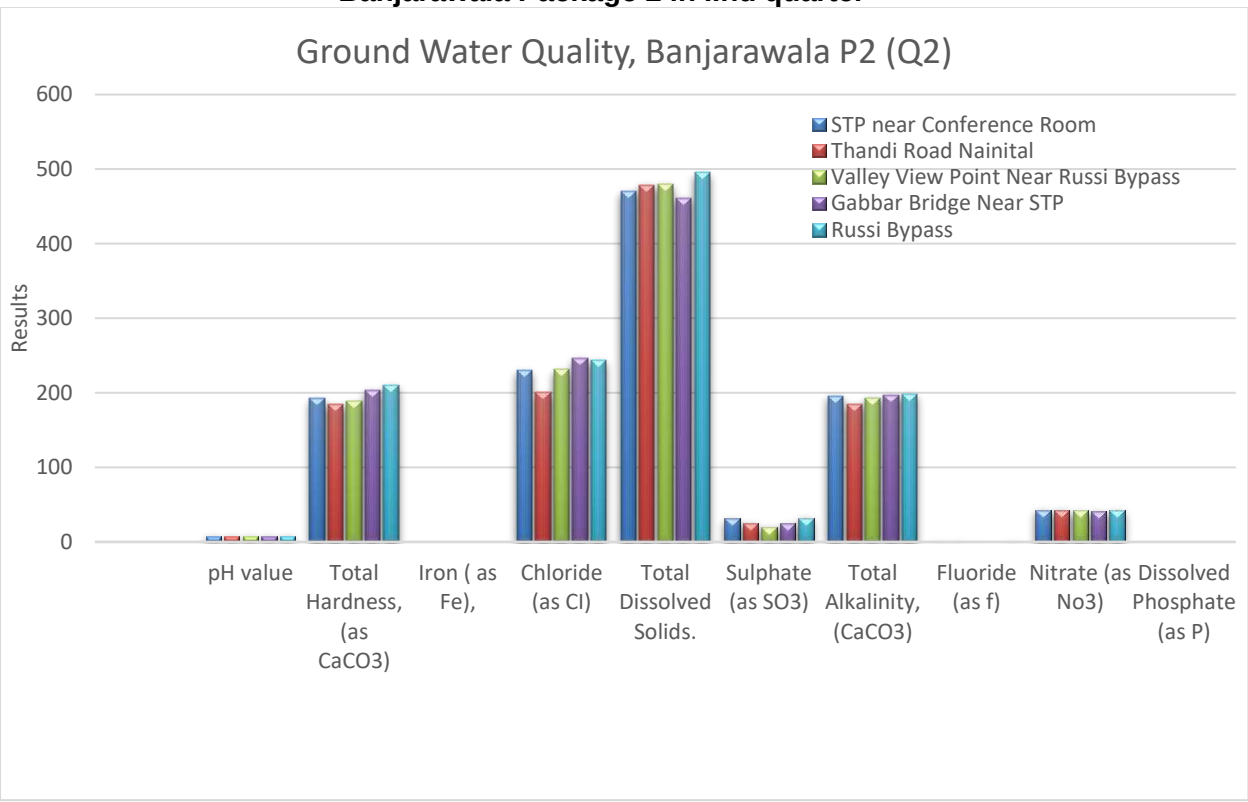


Table 22 C. Air Quality monitoring results of construction phase at different locations of the sub-project

I- Quarter (January2023 to March2023)							
S.No.	**Parameters**	**Units**	**Geetanjali enclave lane no 05 ,OHT**	**Near Shaheed Udham singh park**	**RK puram near STP**	**Krishna puram, Edify school bridge**	**Brinda garden**
1	**Particulate Matter (PM_{10} 24hrs)**	**µg/m³**	70.3	69.2	70.5	71.8	72.6
2	**Particulate Matter ($PM_{2.5}$ 24hrs)**	**(µg/m³)**	46.2	44.9	46.1	45.4	46.5
3	**Sulphur dioxide (SO_2)**	**µg/m³**	15.2	16.0	16.2	16.3	16.5
4	**Oxides of Nitrogen (NO_2)**	**µg/m³**	11.5	12.2	12.3	11.8	12.0
5	**Carbon mono Oxide (CO)**	**µg/m³**	N.D	N.D	N.D	N.D	N.D
II- Quarter (April 2023 to June2023)							
S.No.	**Parameters**	**Units**	**Near Shaheed udham singh park, OHT**	**Tarun vihar near jal sansthan office**	**Shivam vihar**	**Dwarika puram**	**Geetanjali enclave lane no 05, OHT**
1	**Particulate Matter (PM_{10} 24hrs)**	**µg/m³**	71.6	75.1	73.3	72.7	74.0
2	**Particulate Matter ($PM_{2.5}$ 24hrs)**	**(µg/m³)**	45.4	47.4	46.7	45.2	47.8
3	**Sulphur dioxide (SO_2)**	**µg/m³**	16.3	16.5	16.6	16.2	15.7
4	**Oxides of Nitrogen (NO_2)**	**µg/m³**	12.5	12.0	12.6	12.4	12.1
5	**Carbon mono Oxide (CO)**	**µg/m³**	N.D	N.D	N.D	N.D	N.D

Figure 14 e: Physico-chemical Analysis of Ground Water at different location of Banjarawala Package 2 in Ist quarter

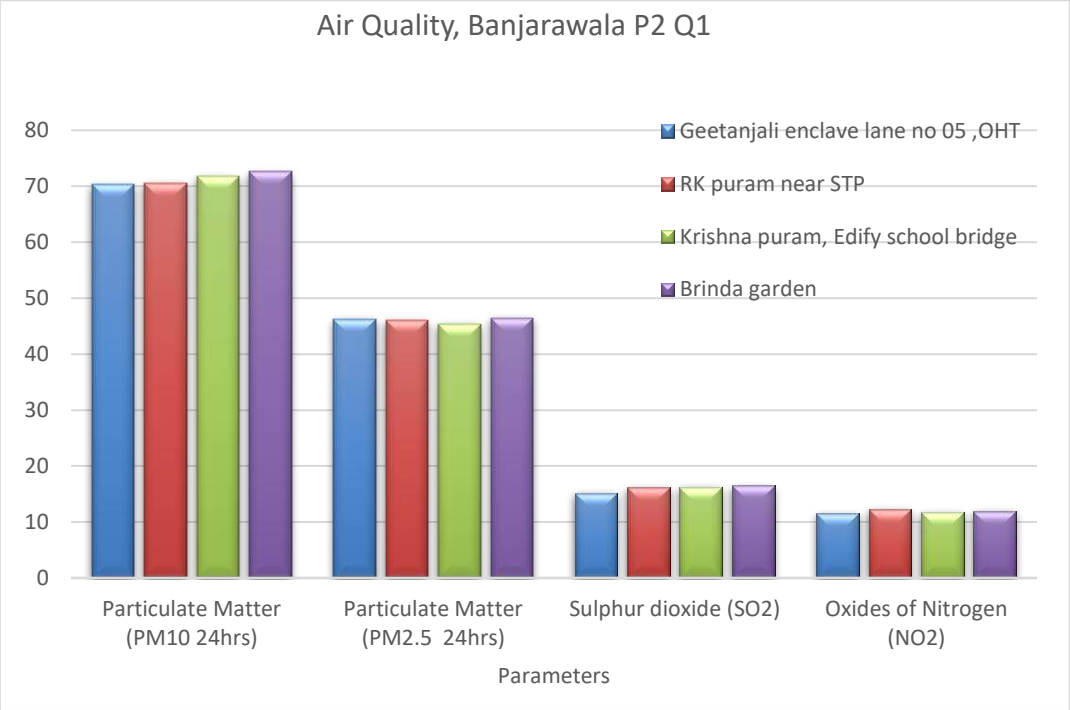


Figure 14 f: Physico-chemical Analysis of Ground Water at different location of Banjarawala Package 2 in IInd quarter

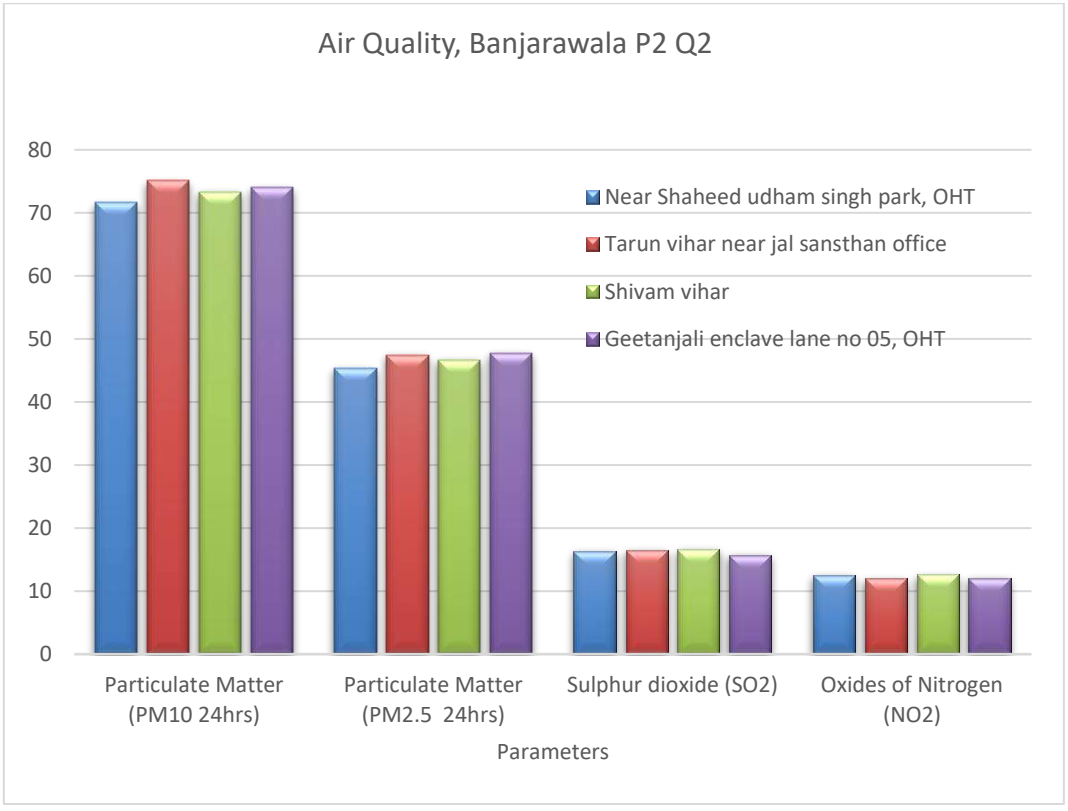


Table 22 D - Noise Level in Banjarawala Package 2

I- Quarter (January2023 to March2023)							
S. No.	**Parameters**		**Geetanjali enclave lane no 05, OHT**	**Near Shaheed Udham singh Prk**	**RK puram near STP**	**Krishna puram, Edify school bridge**	**Brinda garden**
1	**Equivalent Noise Level**	**(6:00 AM to 10:00 PM)**	53.5dB	52.0dB	52.7dB	53.0 dB	53.2dB
2		**(10:00 PM to 6:00 AM)**	43.0dB	42.0dB	41.6dB	40.4dB	42.1dB
II- Quarter (April 2023 to June2023)							
S. No.	**Parameters**		**Geetanjali enclave lane no 05, OHT**	**Near shaheed udham singh park**	**Tarun vihar near jal sansthan office**	**Shivam vihar**	**Dwarika puram**
1	**Equivalent Noise Level**	**(6:00 AM to 10:00 PM)**	52.2dB	53.2dB	54.0dB	52.6dB	54.3 dB
2		**(10:00 PM to 6:00 AM)**	41.8dB	42.5dB	43.3dB	42.0dB	40.7 dB

Receptor/ Source	**India National Noise LevelStandards (dBA)[a]**		**WHO Guidelines Value for Noise Levels Measured Out of Doors (One Hour Leq in dBA)**	
	Day	**Night**	**07:00 – 22:00**	**22:00 – 07:00**
Industrial area	75	70	70	70
Commercial area	65	55	70	70
Residential Area	55	45	55	45
Silent Zone	50	40	55	45

Figure 14 g: Physico-chemical Analysis of Ground Water at different location of Banjarawala Package 2 in IInd quarter

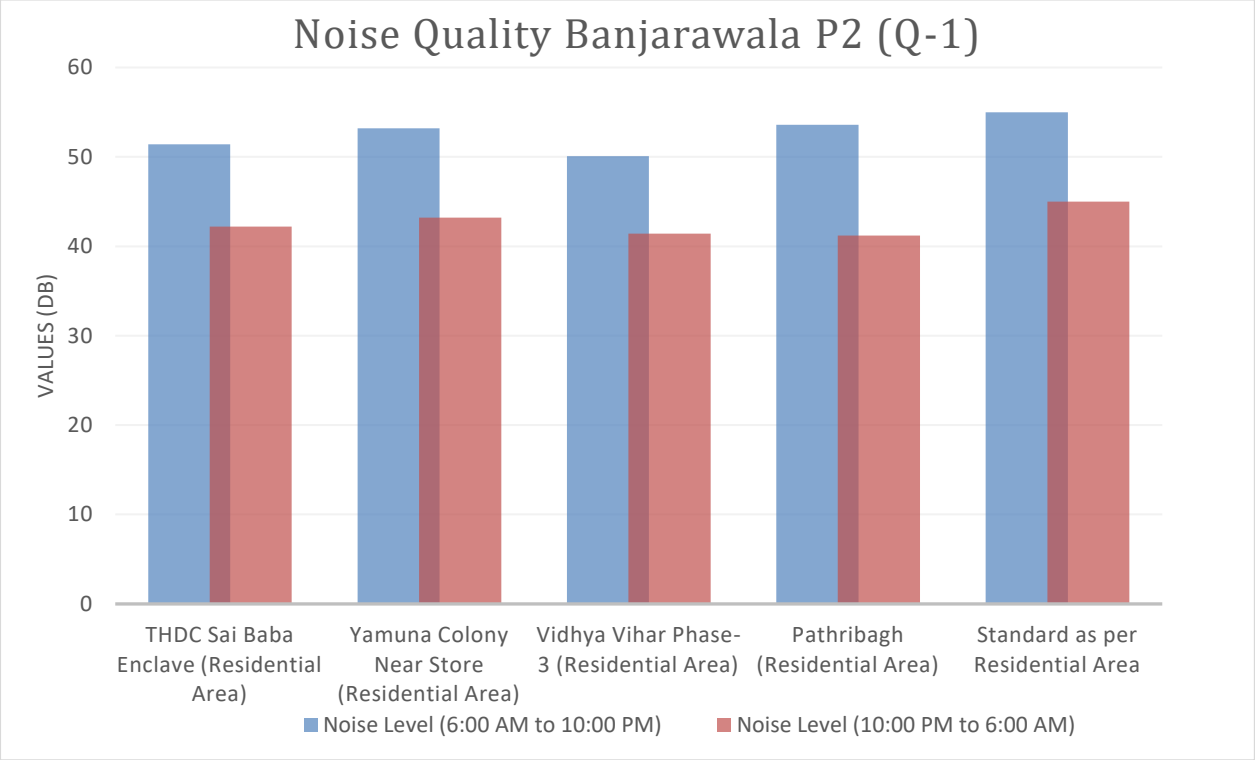


Figure 14 h: Physico-chemical Analysis of Ground Water at different location of Banjarawala Package 2 in IInd quarter

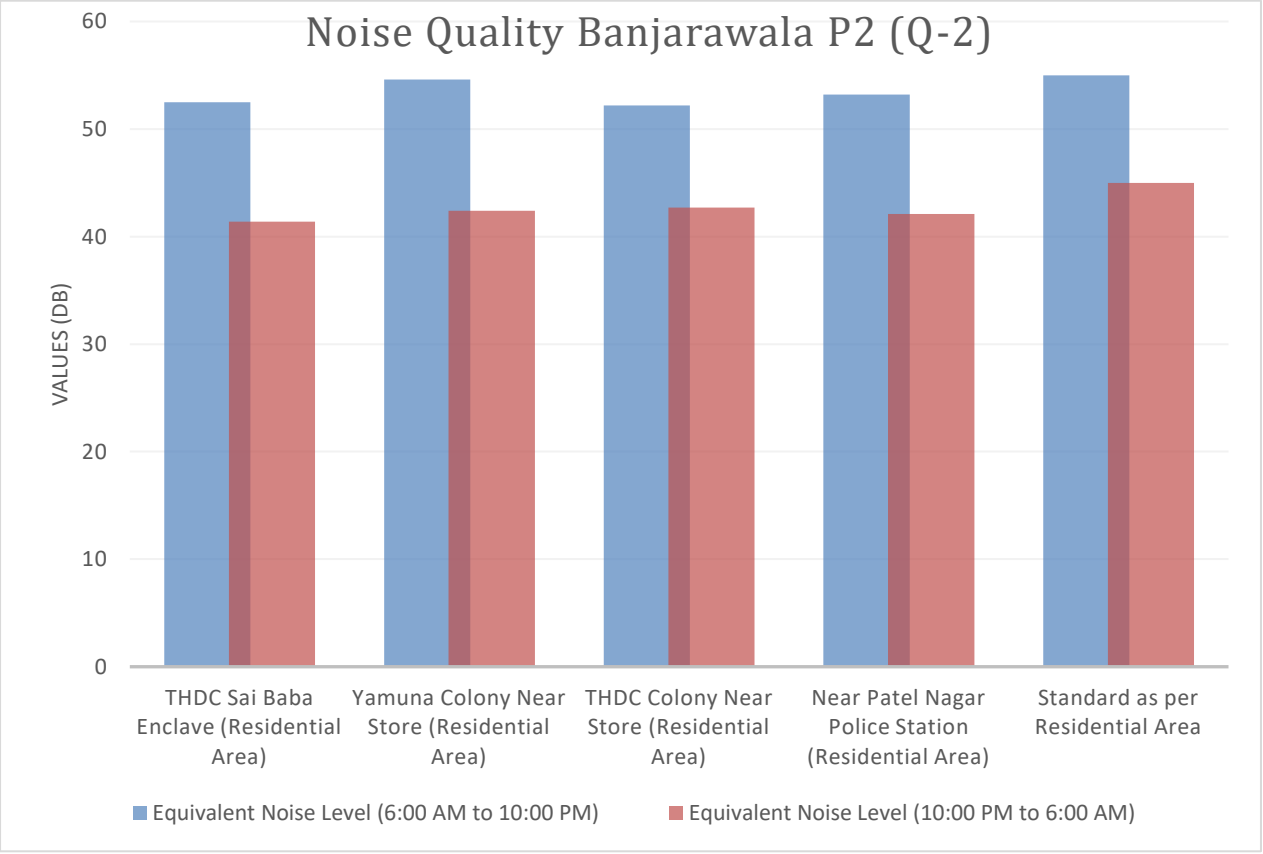


Table 22 E: Physico-chemical Parameters of Soil during construction stage

Table: Soil Quality at Banjarawala P2

I-Quarter (January2023 to March2023)							
S. No.	**Parameters**	**Units**	**Geetanjali enclave lane no 05, OHT**	**Near Shaheed Udham Singh park**	**RK puram Near Stp**	**Krishna puram, Edify school Bridge**	**Brinda garden**
1	**pH**	-	7.84	8.40	8.73	7.94	8.10
2	**Nitrogen (as N)**	%	-	-	-	-	-
3	**Electrical conductivity, (at25^{0}C),(1:2 Ratio)**	µsohs/cm	0.410	0.464	0.455	0.432	0.403
4	**Soil Texture**	-	SLIT	SLIT	SLIT	SLIT	SLIT
5	**Moisture (at105^{0}C),**	(wt/wt)	3.72	4.06	4.14	3.90	3.95
6	**Calcium,**	(mg/kg	170.8	175.2	166.2	163.7	174.2
7	**Magnesium**	mg/kg	94.1	92.0	88.8	89.4	91.6
8	**Phosphate (as PO4) ,**	mg/kg	2.44	2.29	3.11	2.45	2.75
9	**Total Organic Matter**	(wt/wt)	0.36	0.41	0.38	0.34	0.41
10	**Sodium (as Na) ,**	mg/kg	219	232	222	211	235
11	**Potassium as K**	Mg/kg	38	35	38	32	38
12	**Oil &Grease,**	-	Nil	Nil	Nil	Nil	Nil
13	**Permeability at 27^{0}C**	cm/h	5.80×10^{-4}	5.74×10^{-4}-	5.86×10^{-4}	5.70×10^{-4}	5.85×10^{-4}
II-Quarter (April2023 to June2023)							
S. No.	**Parameters**	**Units**	**Geetanjali enclave lane no 05, OHT**	**Near Shaheed Udham Singh park**	**RK puram Near Stp**	**Krishna puram, Edify school Bridge**	**Brinda garden**
1	**pH**	-	8.21	7.80	8.50	8.67	8.15
2	**Nitrogen (as N)**	%	-	-	-	-	-
3	**Electrical conductivity, (at25^{0}C),(1:2 Ratio)**	µsohs/cm	0.434	0.408	0.431	0.387	0.442
4	**Soil Texture**	-	SLIT	SLIT	SLIT	SLIT	SLIT
5	**Moisture (at105^{0}C),**	(wt/wt)	3.95	3.55	4.07	3.69	3.65
6	**Calcium,**	(mg/kg	168.3	157.2	161.6	171.7	173.2
7	**Magnesium**	mg/kg	90.7	92.8	90.4	88.5	92.9
8	**Phosphate (as PO4) ,**	mg/kg	2.22	2.40	2.82	2.52	2.51
9	**Total Organic Matter**	(wt/wt)	0.46	0.39	0.46	0.34	0.39
10	**Sodium (as Na) ,**	mg/kg	228	257	250	227	230
11	**Potassium as K**	Mg/kg	33	340	35	34	41
12	**Oil &Grease,**	-	NIL	NIL	NIL	NIL	NIL
13	**Permeability at 27^{0}C**	cm/h	5.69×10^{-4}	5.77×10^{-4}	5.81×10^{-4}	5.70×10^{-4}	5.74×10^{-4}-

Figure 14 i: Soil quality monitoring at different location of Banjarawala Package 2 in Ist quarter

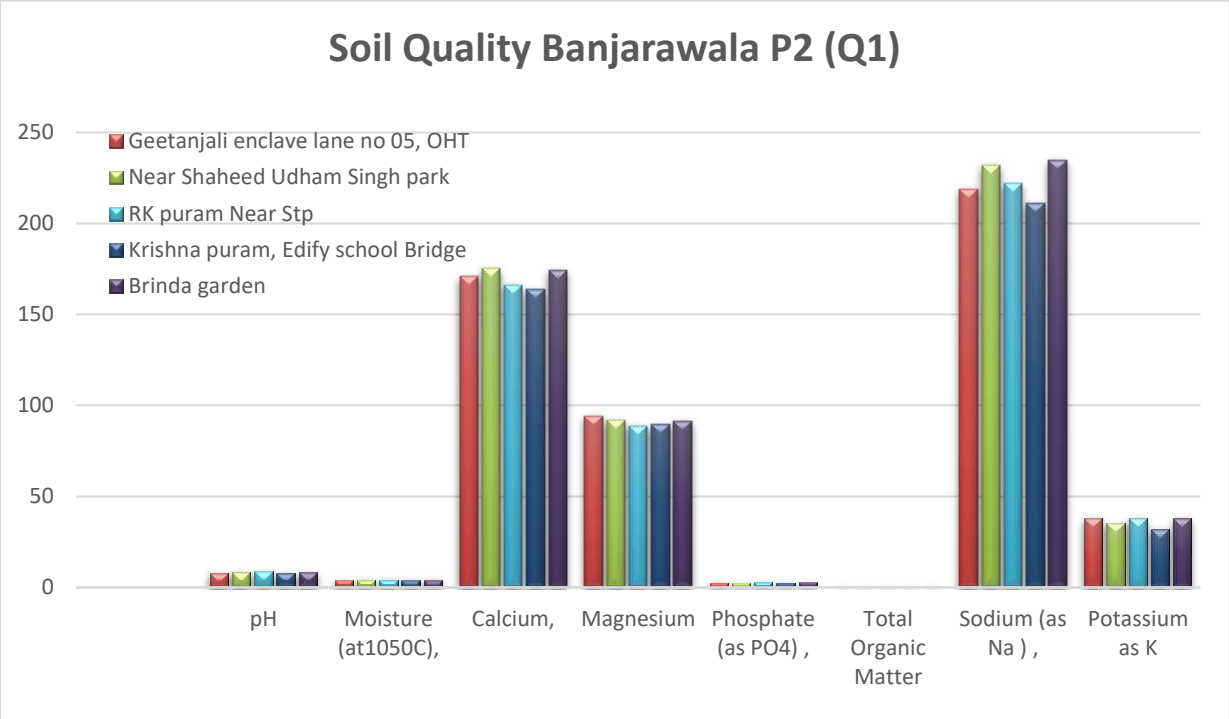
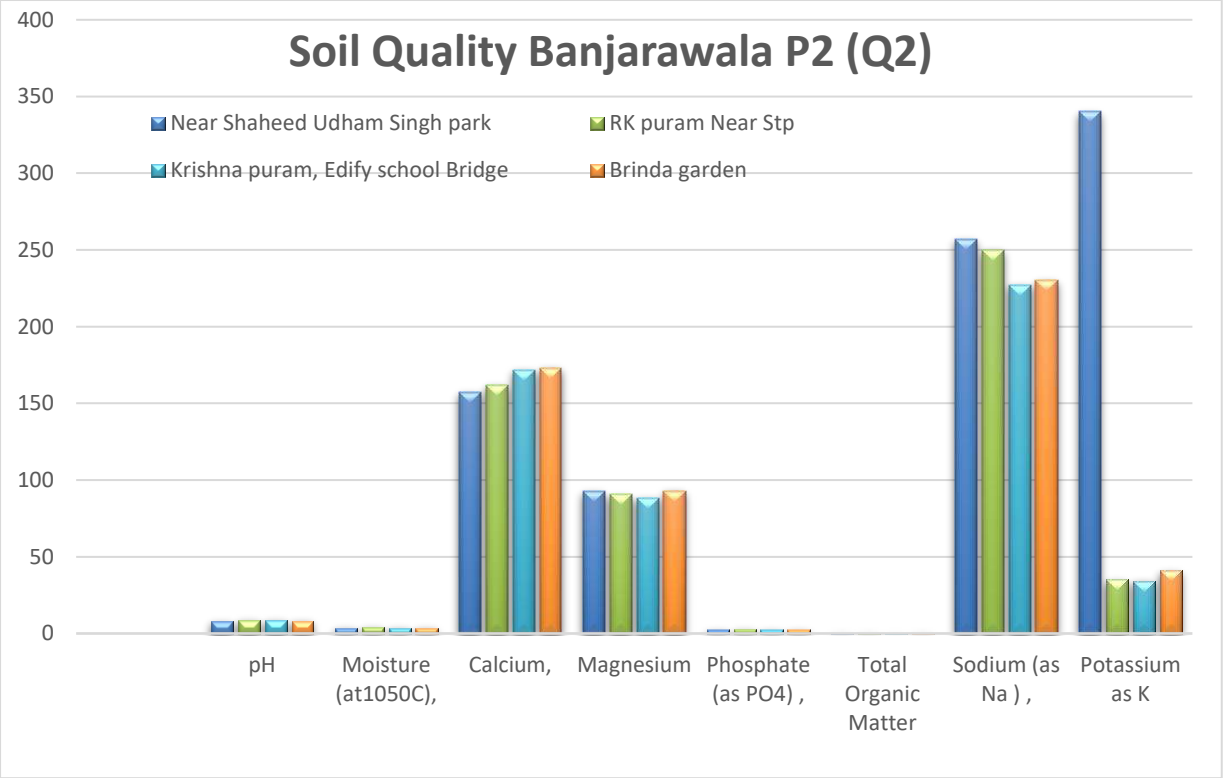


Figure 14 k: Soil quality monitoring at different location of Banjarawala Package 2 in IInd quarter



74. Environmental Monitoring Results of Nainital and observations

Surface Water Quality

75. Environmental monitoring was done at Nainital; and the samples were collected from the Naini lake and other nearby surface water bodies and it was recorded the water contain E. coli and Total coliform with higher BOD value. All the finding shown below in the table and also depicted in figure also for both of the quarters.

Ground Water Quality

76. In both quarter, ground water was also monitored in the project area and sample were collected from different location for environmental monitoring during construction and it was found that all the studied parameters were within the range in comparison with BIS standard 10500:2012. All the finding shown below in the table and also depicted in figure also.

Air Quality Monitoring

77. During both of the quarter, Air quality for the selected parameters was also carried out and it was observed that all the values were within standard limit in comparison of CPCB NAAQS 2009 standard and some hike was recorded in PM10, PM2.5 and SO_2 in comparison of WHO standards due to vehicular movement. All the finding shown below in the table and also depicted in figure also.

Noise Level Monitoring

78. Day and night time noise monitoring was also conducted in the different zones and that some hikes were recorded in the Leq day in comparison of standard limit in comparison of CPCB and WHO due to vehicular movement in day time, the values of Leq night were found within the range during both of the quarter. All the finding shown below in the table and also depicted in figure also.

Soil Quality

79. Soil quality was also monitored in the project area for selected parameters to know the impact of construction activities and it was observed that there was no major issue in the soil quality in both of the quarter. As per the results the soil was sandy in the particular area. All the finding shown below in the table and also depicted in figure also.

Table 23 A: Surface water monitoring during the construction phase									
S.No.	Parameters	First Quarter(January2023 to March2023)				Second Quarter(April to June)			
		Units	Nainital Lake	Natural Drain	STP Russi	STP Office near Conference Room	Thandi sadak Nainital lake	Russi by pass near gabber bridge	Vally home stay near Russi by pass
1	pH value	-	7.15	7.3	7.10	6.50	7.20	7.15	7.03
2	Turbidity(NTU)	-	Nil	Nil	Nil	NIL	Nil	Nil	Nil
3	Total Hardness (as CaCO3)	(mg/l)	351	391	325	367	345	331	340
4	Iron (as Fe)	(mg/l)	0.18	0.04	0.03	0.13	0.05	0.08	1.09
5	Chloride(as Cl)	(mg/l)	176	117	79	176	83	72	76
6	Total Dissolved Soilds	(mg/l)	580	525	499	592	476	4.5	442
7	Total Suspended Soild,	(mg/l)	4.44	2.86	2.55	4.81	2.47	2.28	2.34
8	BOD	(mg/l)	2.2	1.5	1.4	2.0	1.4	1.1	1.2
9	COD,	(mg/l)	4.7	2.3	2.5	4.9	2.3	2.2	2.0
10	Oil & Grease,	(mg/l)	Nil	Nil	Nil	Nil	Nil	Nil	Nil
11	Dissolve Oxygen	-	5.6	6.60	7.2	5.8	7.5	7.2	6.9
12	Lead(pd)	(mg/l)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
13	Sulphate(as SO4)	(mg/l)	17.25	15.75	20.5	17.44	21.1	20.2	19.5
14	Calcium (as Ca)	(mg/l)	69	93.4	84.0	74	80.2	65.8	62.5
15	Magnesium)asMg)	(mg/l)	27.0	26.6	31.6	28.8	29.7	26.4	25.7
16	Total Residual Chlorine,	(mg/l)	Nil	Nil	Nil	Nil	Nil	Nil	Nil
17	Fuloride (as No3)	(mg/l)	0.16	0.09	0.07	0.15	0.05	0.07	0.04
18	Nitrate (as No3)	(mg/l)	2.70	2.36	2.66	2.81	2.39	2.58	2.22
19	Potassium as K	(mg/l) -	3.3	2.2	2.59	3.4	2.54	2.91	2.40
20	Manganese as Mn	mg/1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
21	Sodium (as Na)	-	14.15	17.65	21.25	14.41	19.50	17.46	16.00
22	Cyanide (as Cn)	-	BDL(DL-.002)	BDL (DL-.002)	BDL (DL-.002)	BDL (DL-0.002)	BDL (DL-0.002)	BDL (DL-0.002)	BDL (DL-0.002)
23	Total Chromium as Cr	mg/1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
24	Selenium (as Se)	(mg/l)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
25	Mercury (as Se)	(mg/l)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
26	Boron	(mg/l)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)	BDL(DL-0.50)
27	Copper(asCu)	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.04	<0.05
28	Zinc (as AS)	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.04	<0.05
29	Arsenic (as AS)	-	Nil	Nil	Nil	NIL	Nil	Nil	Nil
30	Cadmium (as AS)	-	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)
31	Aluminium (asAI)	(mg/l)	ND	ND	ND	ND	ND	ND	ND
32	Total Coliform Organisms (MPN)	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent
33	E. coli	-	Absent	Absent	Absent	Absent	Absent	Absent	Absent

Figure 15 a: Physico Chemical Parameter of surface water at different location in Nainital in Ist quarter

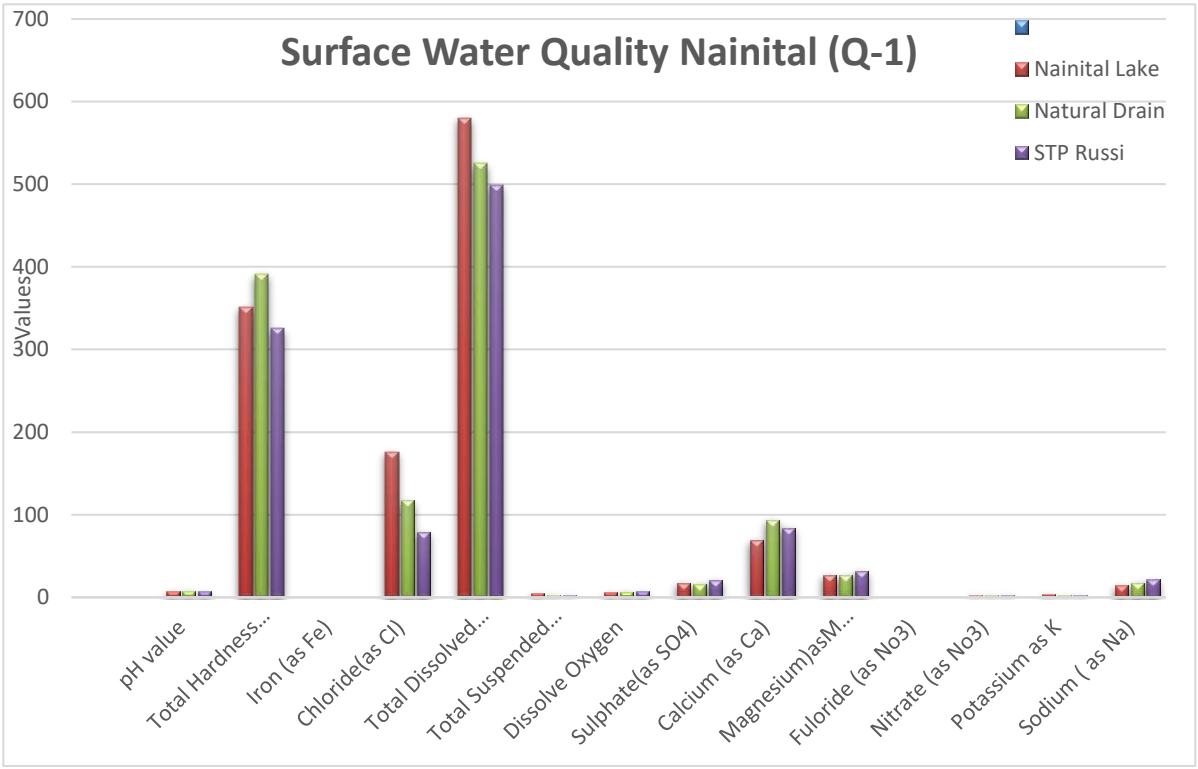


Figure 15 b: Physico Chemical Parameter of surface water at different location in Nainital in IInd quarter

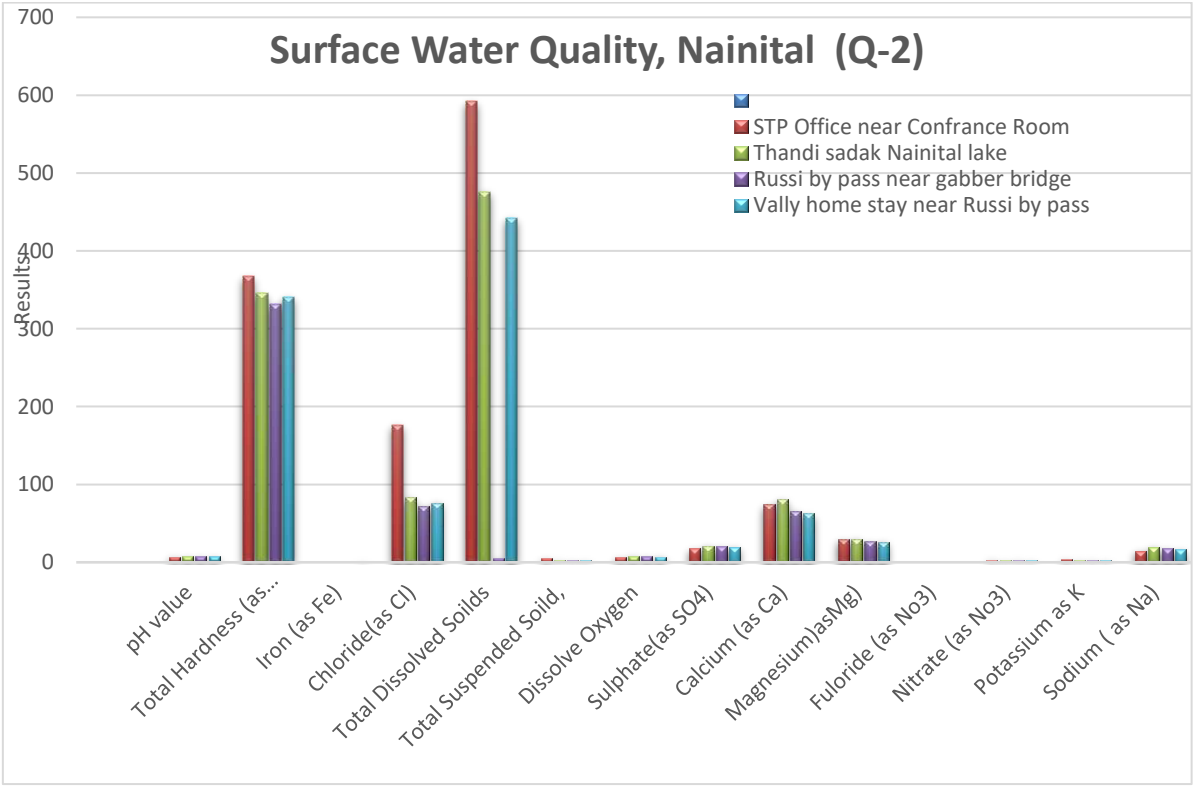


Table 23 B: Ground water monitoring during construction phase

			First Quarter (January2023 to March2023)				Second Quarter (April2023 to June2023)				
S. No.	**Parameters**	**Units**	**Sulabh complex near India hotel**	**Shiv temple Near Mall road**	**Near Hanuman Garhi**	**STP Russi**	**STP near Conference Room**	**Thandi Road Nainital**	**Valley View Point Near Russi Bypass**	**Gabbar Bridge Near STP**	**Russi Bypass**
1	pH value	-	7.44	7.41	7.31	7.60	7.45	7.40	7.50	7.27	7.52
2	Total Hardness, (as $CaCO_3$)	mg/1 Max	241	180	195	230	192	185	188	203	210
3	Iron (as Fe),	mg/l	0.28	0.40	0.30	0.74	0.51	0.40	0.27	0.29	0.55
4	Chloride (as Cl)	mg/l	77	217	229	242	230	200	231	246	244
5	TDS	mg/l	535	497	476	610	470	479	480	461	495
6	Sulphate (as SO3)	mg/l	24.39	23.0	20.3	30.7	31.1	25.2	20.0	24.6	31.6
7	Total Alkalinity, (CaCO3)	mg/l	191	192	187	215	196	185	193	197	198
8	Lead as PB,	mg/l	NIL	NIL	NIL	NIL	Nil	Nil	Nil	Nil	Nil
9	Manganese (asMn)	mg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
10	Fluoride (as f)	mg/l	0.79	0.88	0.89	0.89	0.85	0.83	0.75	0.18	0.86
11	Nitrate (as No3)	mg/l	42.0	41.4	46.0	41.4	42.5	42.8	41.6	40.8	42.0
12	Dissolved Phosphate (as P)	mg/l	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
13	Phenolic Compound (as C6H5OH),	mg/l	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)
14	Chromium (Cr+6)	mg/l	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)
15	Mercury (as Hg)	mg/l	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
16	Copper (as Cu)	mg/l	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)	BDL(DL-0.02)
17	Zinc (as Zn)	-	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)	BDL(DL-0.07)
18	Arsenic (as AS)	-	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)	BDL(DL-0.01)
19	Cadmium (as CD)	-	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)	BDL(DL-0.001)

Figure 15 c: Physico Chemical Parameter of Ground water at different location in Nainital in Ist quarter

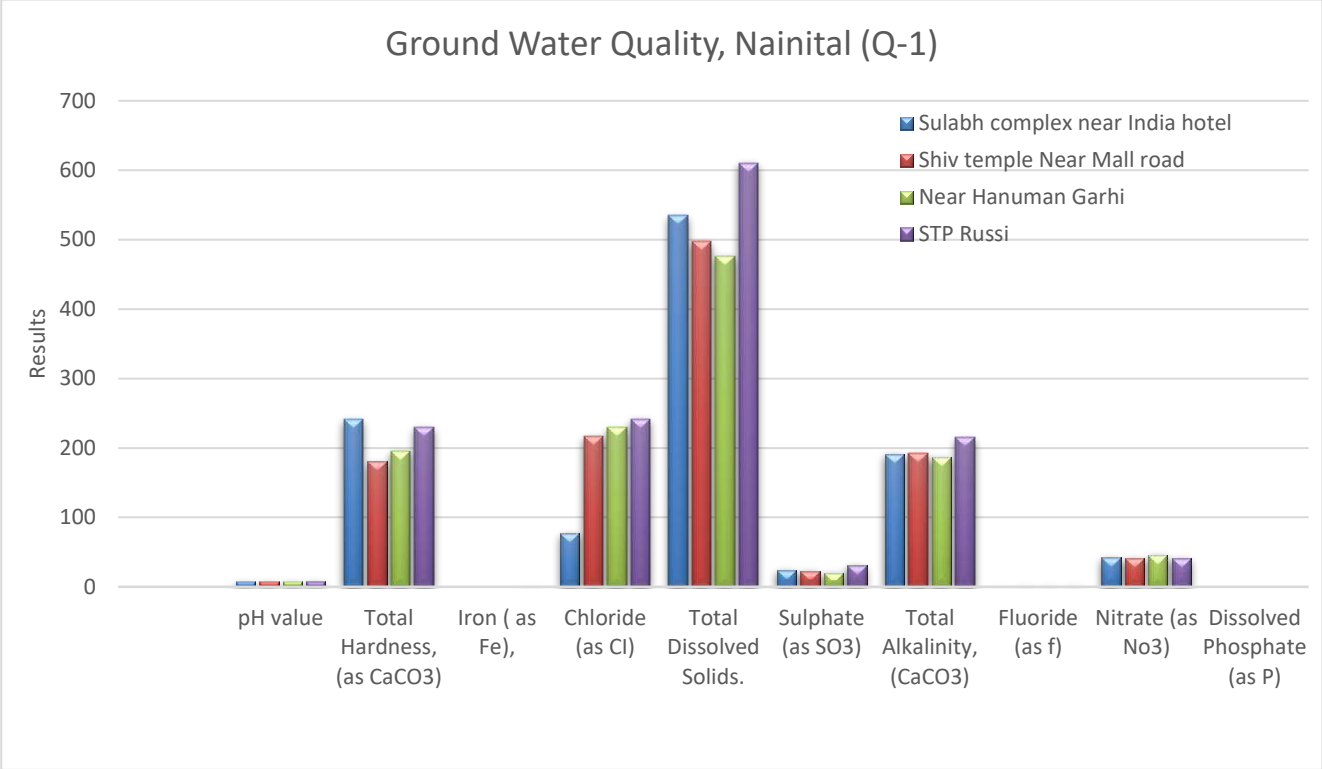


Figure 15 d: Physico Chemical Parameter of Ground water at different location in Nainital in IInd quarter

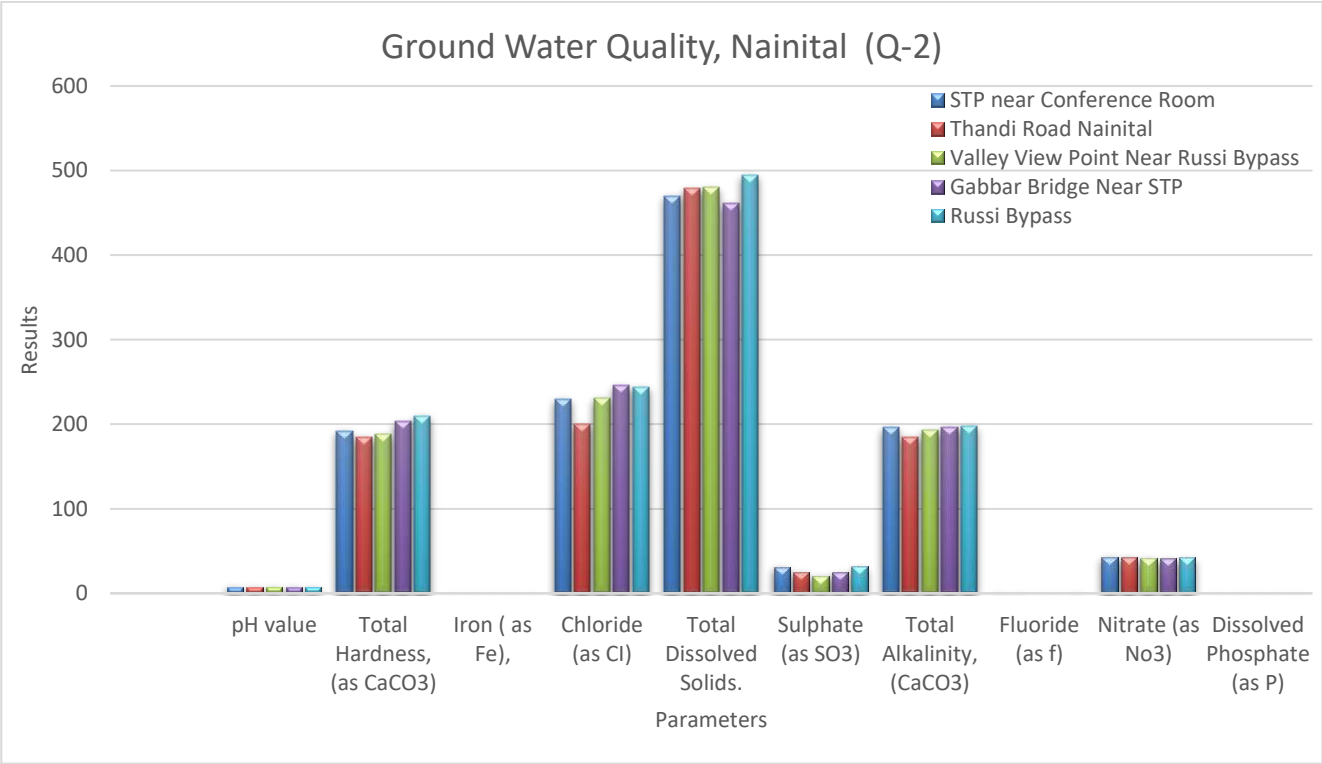


Table 23 C: Air Quality Monitoring at selected location of Nainital Parameters

First Quarter (January2023 to March2023)							
S.No.	**Parameters**	**Units**	**STP Russi village**	**Nainital city Tallital daat**	**STP Russi**	**Upper mall road near Classic hotal**	**Russi by pass**
1	Particulate Matter PM10 (24hrs)	µg/m³	70.5	67.9	71.3	72.0	69.5
2	Particulate Matter PM2.5 (24hrs)	(µg/m³)	34.1	33.7	35.7	37.5	36.1
3	Silphur dioxide	µg/m³	28.2	28.1	26.8	29.1	28.4
4	Oxides of Nitrogen	µg/m³	42.4	42.0	41.2	45.0	43.8
5	Carbon mono Oxide	µg/m³	1.00	1.00	1.01	1.09	1.02
Second Quarter (April2023 to June 2023)							
S.No.	**Parameters**	**Units**	**Staff quarter STP Russi**	**Upper SBR STP Russi**	**Thandi Sadak Nainital**	**Valley view point near Russi by pass**	**Russi by pass near Gabbar bridge**
1	Particulate Matter PM10 (24hrs)	µg/m³	72.1	70.3	71.0	73.3	74.2
2	Particulate Matter PM2.5 (24hrs)	(µg/m³)	36.2	3405	36.4	37.6	38.4
3	Silphur dioxide	µg/m³	28.7	28.6	27.1	30.5	28.7
4	Oxides of Nitrogen	µg/m³	42.7	42.3	43.0	45.3	44.3
5	Carbon mono Oxide	µg/m³	1.02	1.11	1.04	1.07	1.06

Figure 15 e: Ambient Air Quality monitoring at different location in Nainital in Ist quarter

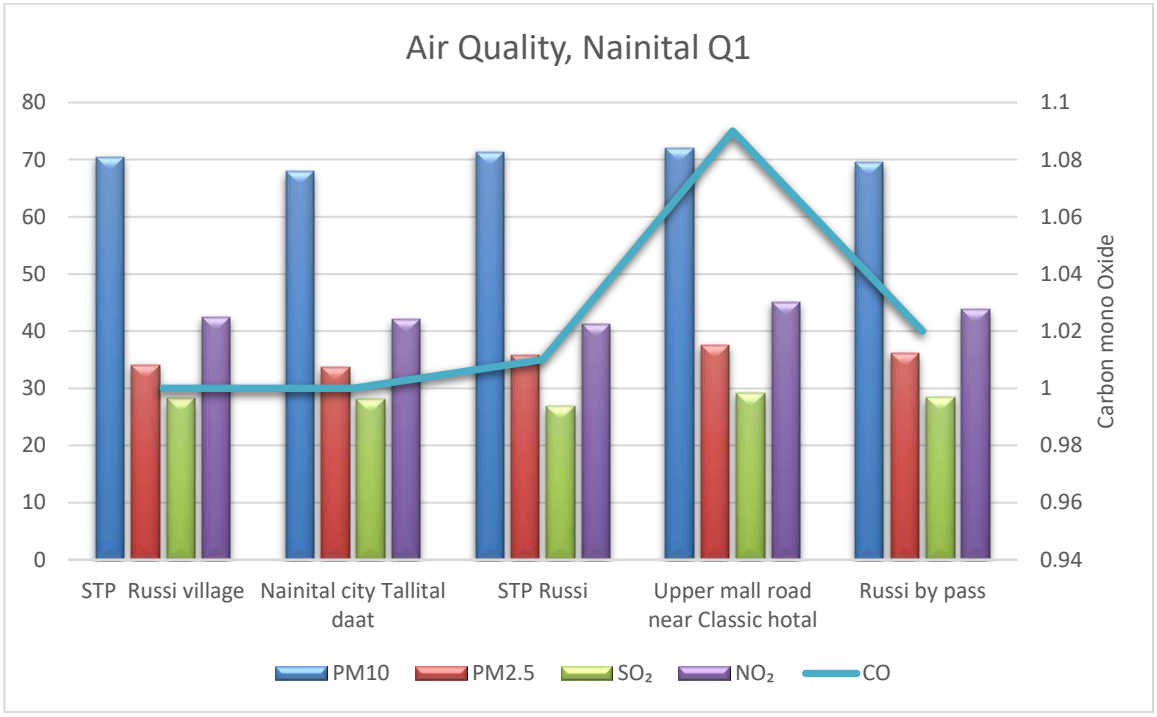


Figure 15 f: Ambient Air Quality monitoring at different location in Nainital in IInd quarter

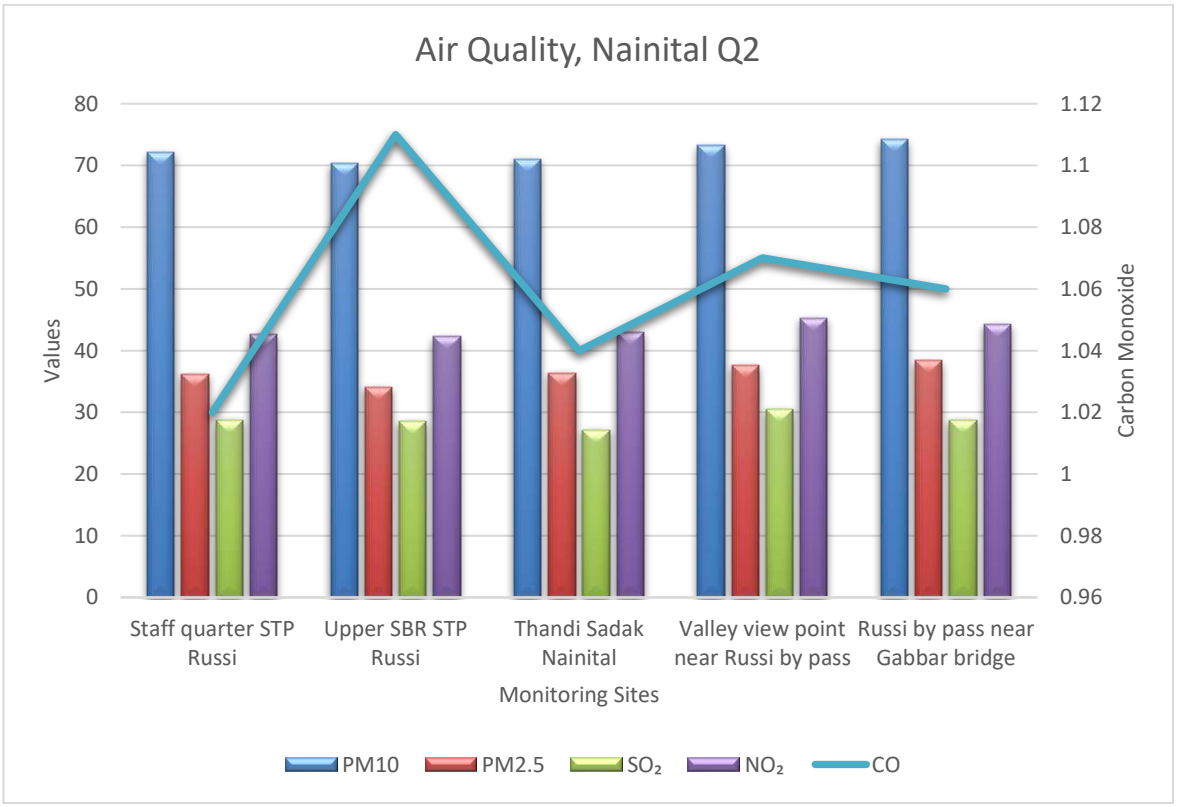


Table 23 D: Noise Level monitoring results at Nainital

Quarter -I							
S. No.	Parameters	Units	STP Russi Village	Nainital City Tallital daat	STP Russi	Upper Mall road near Classis Hotel	Russi by pass.
1	Leq Day	dB (A)	65.0	70.5	75.0	69.0	71.0
	L_{max} Day		69.5	74.2	79.1	72.5	75.2
	L_{min} Day		61.4	67.0	71.7	66.3	67.5
2	Leq Day	dB (A)	63.0	68.5	75.5	66.5	68.5
	L_{max} Day		64.9	71.3	78.8	70.3	73.2
	L_{min} Day		61.1	66.2	72.2	63.5	64.7
3	Leq Night	dB (A)	53.0	58.5	66.5	53.3	54.5
	L_{max} Night		55.0	65.0	70.2	56.4	57.1
	L_{min} Night		51.7	52.4	63.5	51.3	52.5
4	Leq Night	dB (A)	50.0	53.0	62.0	51.0	52.5
	L_{max} Night		52.3	56.2	68.3	54.1	55.0
	L_{min} Night		47.9	50.5	55.9	48.5	50.1

Quarter -II							
S. No.	Parameters	Units	Staff Quarters STP Russi	SBR STP site Russi.	Thandi sadak Nainital	Russi by pass near valley view resort.	Russi Bridge
1	Leq Day	dB (A)	59.0	54.0	51.5	61.5	62.5
	L_{max} Day		66.5	58.6	55.6	64.6	65.8
	L_{min} Day		53.3	50.3	47.4	58.6	59.3
2	Leq Day	dB (A)	49.5	42.5	46.0	45.0	46.5
	L_{max} Day		54.2	44.6	47.8	46.5	50.1
	L_{min} Day		45.6	40.7	44.3	43.7	43.8
3	Leq Night	dB (A)	67.0	51.5	59.0	62.5	62.0
	L_{max} Night		70.4	57.4	64.5	73.4	66.1
	L_{min} Night		64.4	46.4	55.3	52.4	58.0
4	Leq Night	dB (A)	62.0	55.5	52.5	53.0	61.0
	L_{max} Night		66.2	64.4	56.0	65.6	63.5
	L_{min} Night		58.4	46.5	49.4	40.7	58.5

Figure 15 g: Noise Level monitoring results at different location in Nainital during Ist quarter

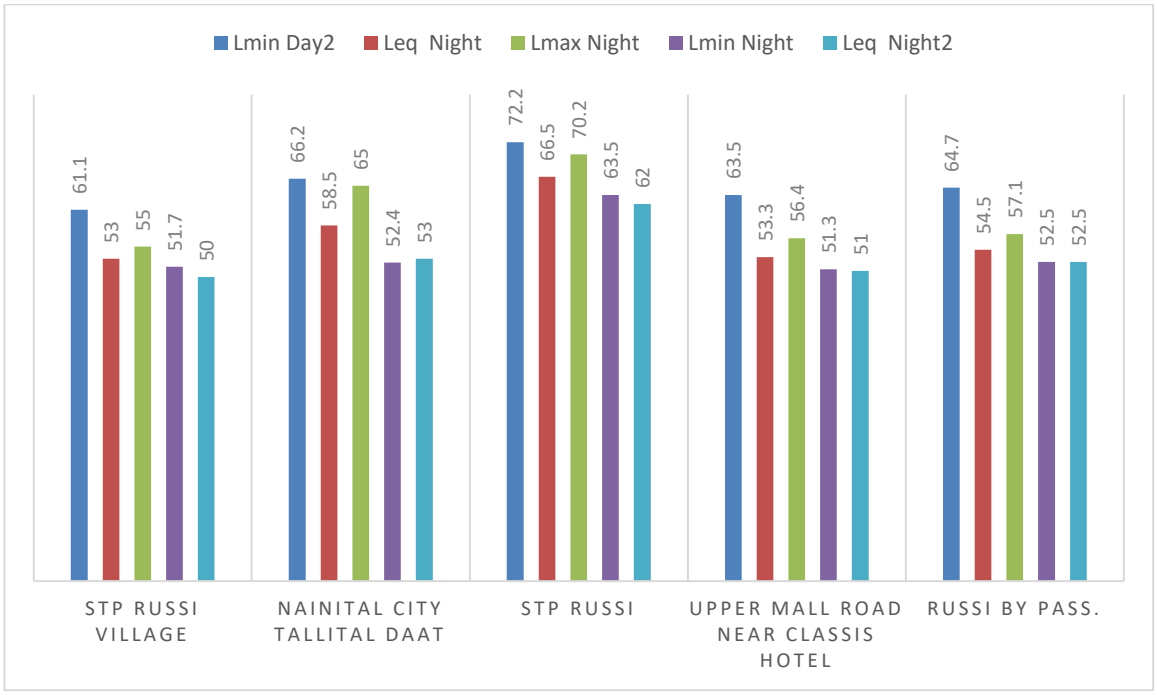


Figure 15 h: Noise Level monitoring results at different location in Nainital during IInd quarter

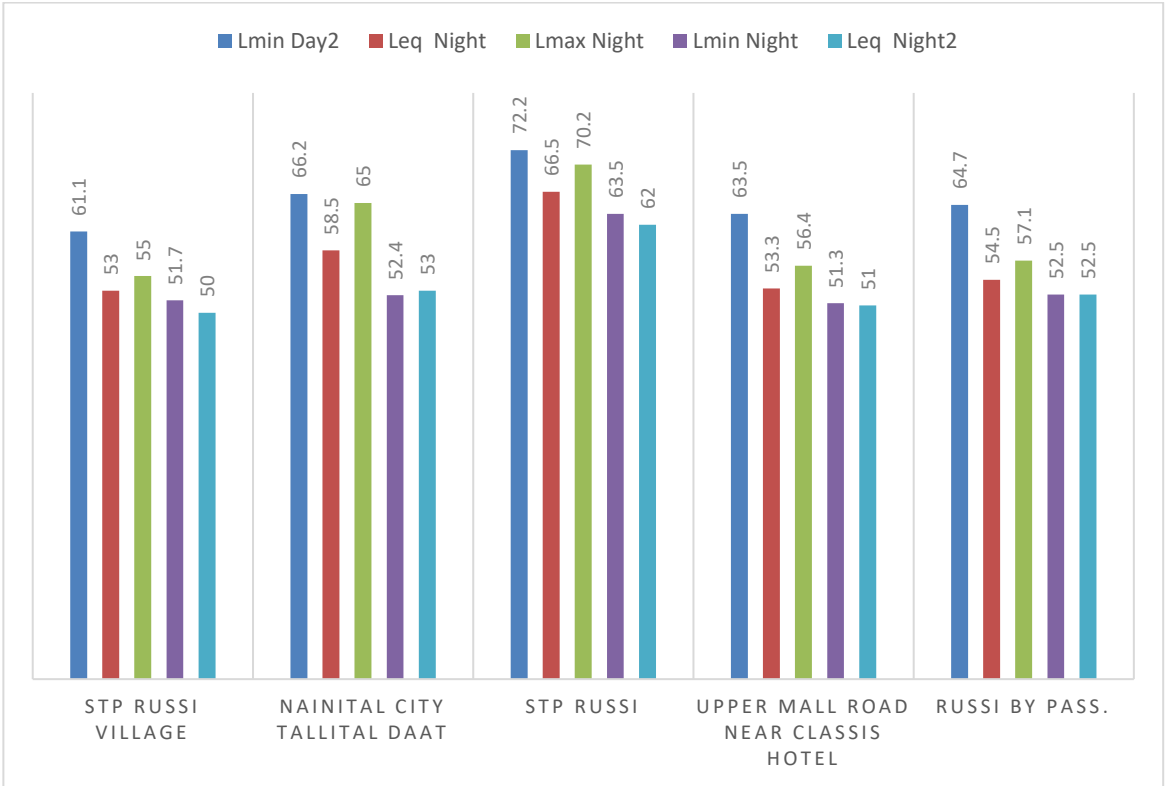


Table 23 E: Physico-Chemical analysis of Soil Quality during construction phase

Quarter-I							
S. No.	**Parameters**	**Units**	**Thandi sadak**	**STP Russi near Staff quarter**	**STP Russi CCT**	**India hotel (Mall road)**	**Russi by pass**
1	pH	**-**	7.44	7.20	7.52	7.50	7.16
2	Nitrogen (as N)	**%**	0.81	1.32	1.03	0.88	1.18
3	Electrical conductivity, (at25^{0}C),(1:2 Ratio)	**µsohs/cm**	169	212	238	190	272
4	Soil Texture	**-**	Sandy	Sandy	Sandy	Sandy	Sandy
5	Moisture (at105^{0}C),	**(wt/wt)**	7.75	10.5	9.3	8.5	10.4
6	Calcium,	**(mg/kg**	674.5	505.7	465	863	137
7	Magnesium	**mg/kg**	465	320	292	620	380
8	Phosphate (as PO4) ,	**mg/kg**	527	540	379	379	722.3
9	Total Organic Matter,(wt,wt)	**(wt/wt)**	1.20	1.21	1.26	1.49	1.29
10	Sodium (as Na) ,	**mg/kg**	673	422	445	228	467
11	Potassium as K	**Mg/kg**	865	688	680	379	870
12	Oil &Grease,	**-**	ND	ND	ND	ND	ND
13	Permeability at 27^{0}C	**mg/kg**	433	434	364	414	408
Quarter-II							
S. No.	**Parameters**	**-**	**Upper SBR STP Russi**	**Near Staff quarter STP Russi**	**Thandi road Nainital**	**Valley view point near Russi by pass**	**Russi by pass near Gabbar brigde**
1	pH	**%**	7.62	7.12	7.88	7.66	7.35
2	Nitrogen (as N)	**µsohs/cm**	0.85	1.46	1.18	0.97	1.20
3	Electrical conductivity, (at25^{0}C),(1:2 Ratio)	**-**	173	203	256	195	299
4	Soil Texture	**(wt/wt)**	Sandy	Sandy	Sandy	Sandy	Sandy
5	Moisture (at105^{0}C),	**(mg/kg**	7.82	11.2	9.5	8.8	9.5
6	Calcium,	**mg/kg**	682.1	522.0	430	410	237
7	Magnesium	**mg/kg**	474	304	287	325	395
8	Phosphate (as PO4) ,	**(wt/wt)**	525	568	388	415	403.3
9	Total Organic Matter,(wt,wt)	**mg/kg**	1.25	1.44	1.21	1.53	1.20
10	Sodium (as Na) ,	**Mg/kg**	682	438	461	257	320
11	Potassium as K	**-**	873	669	637	390	507
12	Oil &Grease,	**mg/kg**	ND	ND	ND	ND	ND
13	Permeability at 27^{0}C		440	463	359	449	457

Figure 15 i: Physico Chemical Parameter of Soil quality at different location in Nainital in Ist quarter

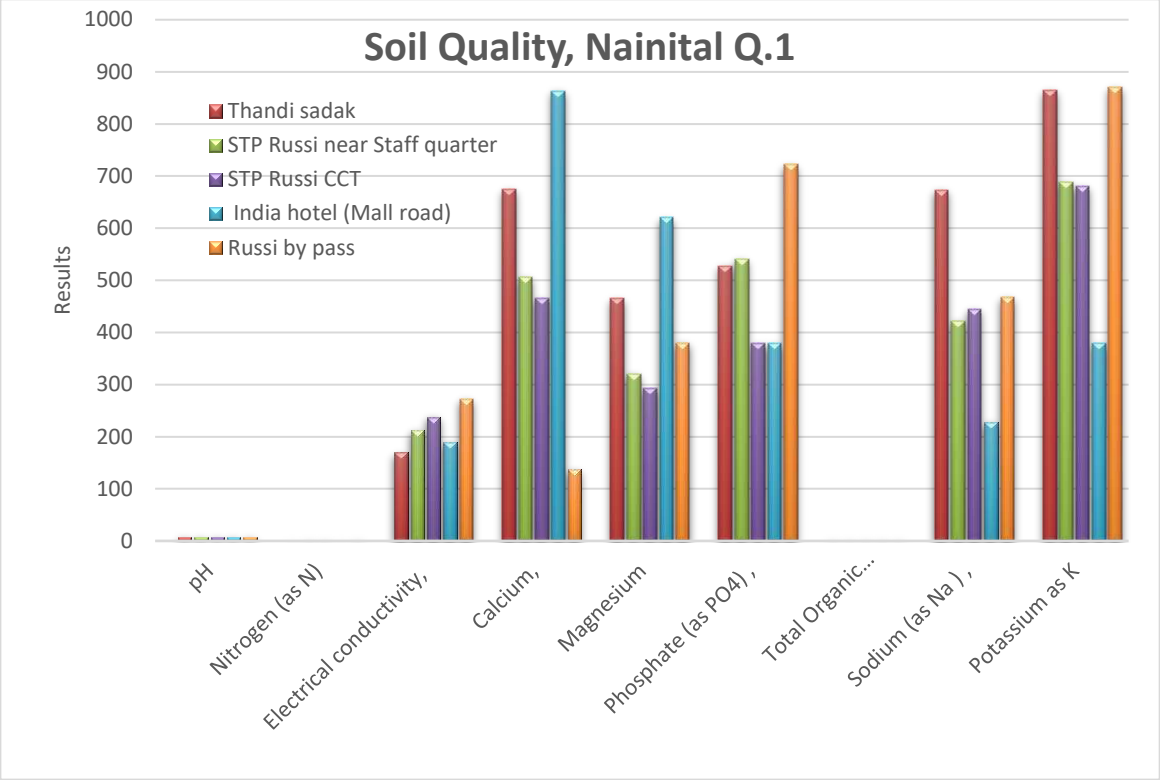
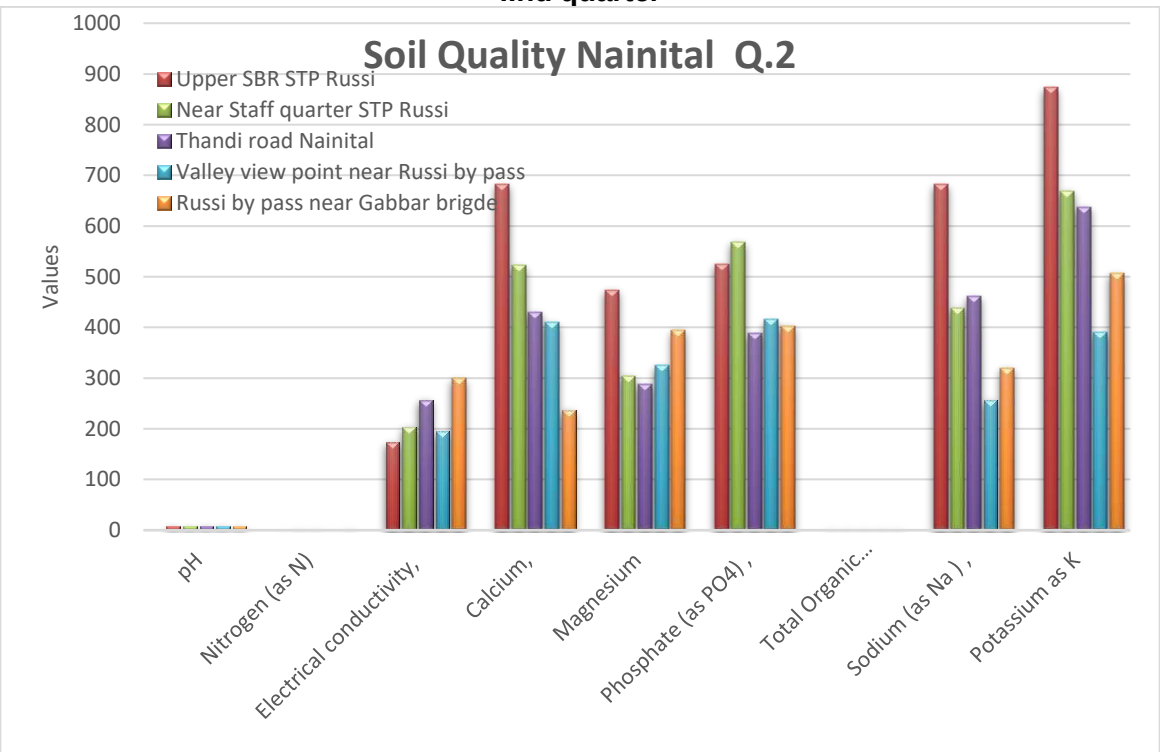


Figure 15 j: Physico Chemical Parameter of Soil quality at different location in Nainital in IInd quarter



80. Environmental Monitoring Results of Banjarawala Package-03 and observations

i. Surface Water Quality

During both quarter Environmental monitoring was done at Banjarawala package-03 during construction phase; and the samples were collected from Bindal river and nearby irrigation channels and it was recorded the water contain E. coli and Total coliform with higher BOD value. All the finding shown below in the table and also depicted in figure also.

ii. Ground Water Quality

Ground water was also monitored in the project area and sample were collected from different location for baseline environmental monitoring and it was found that all the studied parameters were within the range in comparison with BIS standard 10500:2012 in both quarter. All the finding shown below in the table and also depicted in figure also.

iii. Air Quality Monitoring

During both quarter, Air quality for the selected parameters was also carried out and it was observed that all the values were within standard limit in comparison of CPCB NAAQS 2009 standard and some hike was recorded in PM10, PM2.5 in comparison of WHO standards due to vehicular movement. All the finding shown below in the table and also depicted in figure also.

iv. Noise Level Monitoring

In both quarters, Day and night time noise monitoring was also conducted in the different zones and that some hikes were recorded at Durga mata mandir chowk, Tikona park, Monal enclave and kargi grant in the Leq day in comparison of standard limit in comparison of CPCB and WHO, the values of Leq night were also shown some hike than the limit of WHO/National standard due to busy intersection in these particular places. All the finding shown below in the table and also depicted in figure also.

v. Soil Quality

Soil quality was also monitored in the project area for selected parameters know the impact of construction activities and it was observed that there was no major issue in the soil quality during both of the quarter. As per the results the soil was sandy in the particular area. All the finding shown below in the table and also depicted in figure also.

Table 24 A: Physico-Chemical analysis of Surface water during Construction period

S.No.	Parameters	First Quarter (January2023 to march2023)						Second Quarter (April2023 to June2023)				
		Units	Punarvas Khand (Bindal River)	Durga Mata Mandir (Irrig. Channel)	Tikona Park (Irrig. Channel)	Labour Camp (Irrig. Channel)	Kargi Grant (Irrig. Channel)	Punarvas Khand (Bindal River)	Durga Mata Mandir (Irrig. Channel)	Tikona Park (Irrig. Channel)	Labour Camp (Irrig. Channel)	Kargi Grant (Irrig. Channel)
1	pH (at 25^{0}C)	-	7.35	7.28	7.33	7.46	7.25	7.42	7.66	7.40	7.32	7.42
2	Dissolved Oxygen	mg/l	3.1	2.7	3.9	4.0	4.8	3.0	2.0	2.6	3.2	3.2
3	Turbidity	NTU	6.9	4.9	5.7	5.3	5.0	5.8	5.2	6.0	5.4	6.2
4	BOD	mg/l	18.7	22.5	19.5	21.7	20.6	16.4	24.2	20.4	22.4	18.4
5	COD	mg/l	61.9	64.7	60.3	56.9	54.1	58.4	68.2	62.4	52.5	52.4
6	TotalHardness as $CaCO_3$	mg/l	350.8	280	350.1	350	350	348.2	284	348	348	342
7	Calcium as Ca	mg/l	71.3	68.4	74.0	67.3	50.9	69.4	62.4	70.2	70.4	52.4
8	TSS	mg/l	25.9	28.6	19.6	18.0	17.5	26.2	30.0	22.4	20.4	18.4
9	Chloride as Cl	mg/l	88.6	79.2	70.3	65.4	73.0	82.4	74.2	68.4	68.4	76.4
10	Cyanide as CN	mg/l	** BDL (#DL-0.002)	** BDL #DL-0.002)	** BDL (#DL-.002)	** BDL (#DL-0.002)	** BDL DL-0.002)	** BDL (#DL-0.002)	** BDL (#DL-0.002)	** BDL (#DL-0.002)	** BDL (#DL-0.002)	** BDL (#DL-.002)
11	Magnesium as Mg	mg/l	19.7	18.0	10.2	16.8	17.3	20.2	20.4	12.4	18.2	16.2
12	Total Dissolved Solids	mg/l	470	460	456	445	468	468	458	448	432	456
13	Sulphate as SO_4	mg/l	46.3	40.9	35.9	39.0	40.3	42.4	38.4	42.4	40	44.2
14	Fluoride as F	mg/l	0.10	0.15	0.20	0.16	0.19	0.16	0.16	0.18	0.18	0.16
15	Nitrate as NO_3	mg/l	7.10	6.39	5.8	5.3	5.2	7.04	7.2	7.40	4.2	6.2
16	Iron as Fe	mg/l	0.09	0.17	0.13	0.19	0.16	0.12	0.14	2.6	0.20	0.18
17	Aluminum as Al	mg/l	** BDL(#DL-0.	**BDL (#DL-0.03)	** DL(#DL-0.03)	** BDL (#DL-0.03)	** BDL (#DL-0.50)	**BDL (#DL-0.01)	** BDL (#DL-0.03)	6.0	** BDL(#DL-0.03)	**BDL(#DL-0.03)
18	Boron	mg/l	** BDL (#DL-0.50)	** BDL (#DL-0.50)	** BDL (#DL-0.50)	** BDL (#DL-0.50)	**BDL(#DL-0.001)	** BDL (#DL-0.01)	** BDL (#DL-0.50)	20.4	** BDL (#DL-0.50)	**BDL(#DL-0.50)
19	Hexa hromium as Cr+6	mg/l	**BDL(#DL-0.001)	** BDL(#D 0.001)	**BDL(#DL-0.001)	** BDL(#DL-0.001)	**BDL(#DL-0.001)	** BDL (#DL-0.01)	** BDL(#DL-0.001)	62.4	** BDL(#DL-0.001)	**BDL(#DL-0.001)
20	Sodium	mg/l	49.7	46.0	45.9	36.0	38.2	52.4	48.2	348	42.0	44.2
21	Potassium	mg/l	13.5	10.6	10.6	9.7	9.1	14.2	12.4	70.2	10.0	10.4
22	Total Residual Chlorine	mg/l	BDL (#DL-0.001)	BDL(#DL-0.001)	BDL(#DL-0.001)	BDL(#DL-0.001)	**BDL (#DL-0.07)	** BDL (#DL-0.01)	BDL(#DL-0.001)	22.4	BDL(#DL-0.001)	BDL(#DL-0.001)

S.No.	Parameters	First Quarter (January2023 to march2023)						Second Quarter (April2023 to June2023)				
		Units	Punarvas Khand (Bindal River)	Durga Mata Mandir (Irrig. Channel)	Tikona Park (Irrig. Channel)	Labour Camp (Irrig. Channel)	Kargi Grant (Irrig. Channel)	Punarvas Khand (Bindal River)	Durga Mata Mandir (Irrig. Channel)	Tikona Park (Irrig. Channel)	Labour Camp (Irrig. Channel)	Kargi Grant (Irrig. Channel)
23	Zinc as Zn	mg/l	** BDL (#DL-0.07)	** BDL (#DL-0.07)	** BDL (#DL-0.07)	** BDL (#DL-0.07)	** BDL (#DL-0.02)	** BDL (#DL-0.01)	** BDL (#DL-0.07)	68.4	** BDL (#DL-0.07)	** BDL (#DL-0.07)
24	Copper as Cu	mg/l	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.10)	** BDL (#DL-0.01)	** BDL (#DL-0.02)	** BDL (#DL-0.002)	** BDL (#DL-0.02)	** BDL (#DL-0.02)
25	Manganese as Mn	mg/l	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	**BDL(#DL-0.001)	** BDL (#DL-0.01)	** BDL (#DL-0.10)	12.4	** BDL (#DL-0.10)	** BDL (#DL-0.10)
26	Cadmium as Cd	mg/l	** BDL (#DL-0.001)	** BDL (#DL-.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.01)	** BDL (#DL-0.001)	448	** BDL (#DL-0.001)	** BDL (#DL-0.001)
27	Lead as Pb	mg/l	** BDL (#DL-0.001)	** BDL (#DL-.001)	**BDL(#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.001)	42.4	** BDL (#DL-0.001)	**BDL(#DL-0.001)
28	Selenium as Se	mg/l	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	0.18	** BDL (#DL-0.01)	** BDL (#DL-0.01)
29	Arsenic as As	mg/l	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	7.40	** BDL (#DL-0.01)	** BDL (#DL-0.01)
30	Mercury as Hg	mg/l	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	2.6	** BDL (#DL-0.01)	** BDL (#DL-0.01)
31	Total Coliform	MPN/100ml	80210	72490	68550	66590	58530	76820	68432	6.0	62420	60240
32	E.coli	MPN/100ml	20440	18220	17260	16247	15341	22403	16344	20.4	17340	16230

Figure 16 a: Physico-chemical parameters of Surface water at Banjarawala Package-03 in Ist quarter

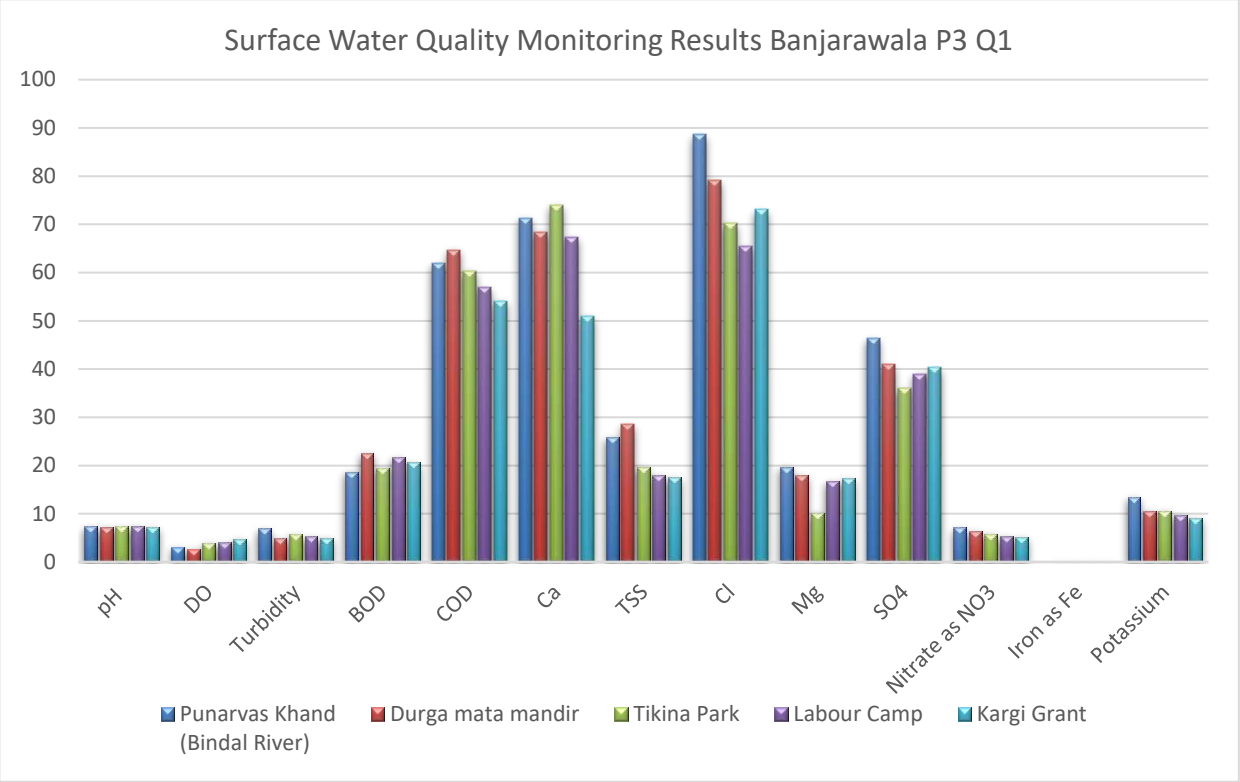


Figure 16 b: Physico-chemical parameters of Surface water at Banjarawala Package-03 in IInd quarter

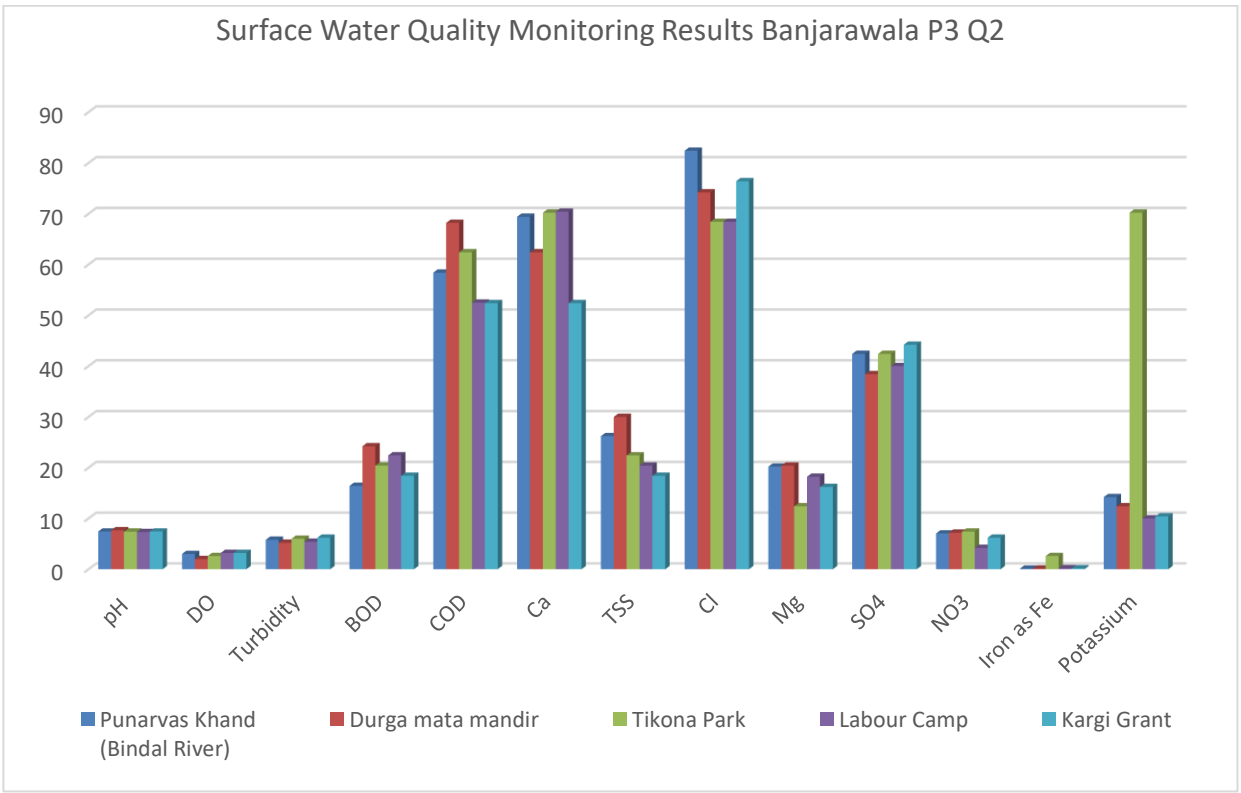


Table 24 B: Physico-Chemical analysis of Ground water during Construction period

Sr. No.	Parametres	units	I-Quarter					II-Quarter				
			From Hand Pump Punarvas Khand	Ground Tank Durga Mata Mandir	From Hand pump Tikona Park	Labour Camp	Kargi Grant Near Vigilance Office	From Hand Pump Punarvas Khand	Ground Tank Durga Mata Mandir	From Hand pump Tikona Park	Labour Camp	Kargi Grant Near Vigilance Office
1	pH (at 25^0C)	-	7.28	7.21	7.20	7.31	7.41	7.34	7.56	7.45	7.29	7.55
2	Total Hardness as $CaCO_3$	mg/l	297.3	315.6	280.9	258.1	286.3	284	298	278	262	272
3	Alkalinity as $CaCO_3$	mg/l	180.5	203.76	160.5	155.9	182.9	178	198	168	162	176
4	Chloride as Cl	mg/l	30.9	34.76	30.4	32.6	35.8	32.4	38.4	38.2	34.2	38.4
5	Phosphate	mg/l	** BDL (#DL-0.05)	** BDL(#DL0.05)	** BDL(#DL0.05)	** BDL(#DL0.05)	** BDL(#DL0.05)	** BDL (#DL-0.05)	** BDL(#DL0.05)	** BDL(#DL0.05)	** BDL(#DL0.05)	** BDL(#DL0.05)
6	Total Dissolved Solids	mg/l	540	610	657	570	588	532	592	662	560	576
7	Sulphate as SO_4	mg/l	52.9	60.5	58.3	51.3	46.2	50.2	64.2	60.2	54.2	50.2
8	Fluoride as F	mg/l	0.05	0.09	0.06	0.07	0.16	0.06	0.10	0.07	0.08	0.18
9	Nitrate as NO_3	mg/l	2.0	1.80	2.5	2.6	2.8	2.4	2.4	2.0	2.7	2.4
10	Iron as Fe	mg/l	0.13	0.14	0.08	0.10	0.09	0.16	0.16	0.06	0.12	0.12
11	Hexavalent Chromium as Cr+6	mg/l	** BDL(#DL-0.001)	** BDL(#DL-0.001)	** BDL(#DL-0.001)	** BDL(#DL-0.001)	** BDL(#DL-0.001)	** BDL(#DL-0.001)	** BDL(#DL-0.001)	** BDL(#DL0.001)	** BDL(#DL-0.001)	** BDL(#DL-0.001)
12	Phenolic Compound	mg/l	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)
13	Zinc as Zn	mg/l	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)	** BDL (#DL-0.05)
14	Copper as Cu	mg/l	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)	** BDL (#DL-0.02)
15	Manganese as Mn	mg/l	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)	** BDL (#DL-0.10)

Sr. No.	Parametres	units	I-Quarter					II-Quarter				
			From Hand Pump Punarvas Khand	Ground Tank Durga Mata Mandir	From Hand pump Tikona Park	Labour Camp	Kargi Grant Near Vigilance Office	From Hand Pump Punarvas Khand	Ground Tank Durga Mata Mandir	From Hand pump Tikona Park	Labour Camp	Kargi Grant Near Vigilance Office
16	Cadmium as Cd	mg/l	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)
17	Lead as Pb	mg/l	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)	** BDL (#DL-0.001)
18	Arsenic as As	mg/l	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)
19	Mercury as Hg	mg/l	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)	** BDL (#DL-0.01)
20	Dissolved Oxygen	mg/l	** BDL (#DL-0.01)	** BDL	** BDL	** BDL	** BDL	** BDL (#DL-0.01)	** BDL	** BDL	** BDL	** BDL

Figure 16 c: Physico-chemical parameters of Ground water at Banjarawala Package-03 during Ist quarter

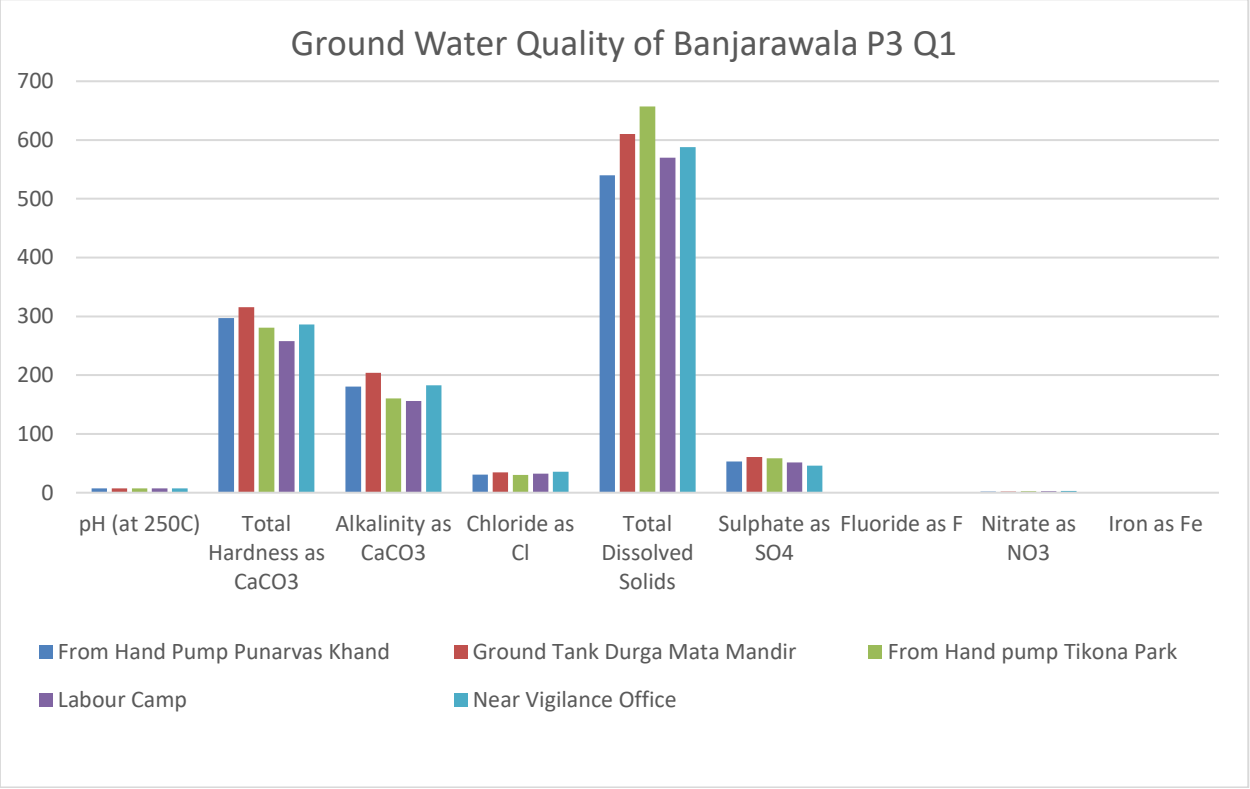


Figure 16 d: Physico-chemical parameters of Ground water at Banjarawala Package-03 during IInd quarter

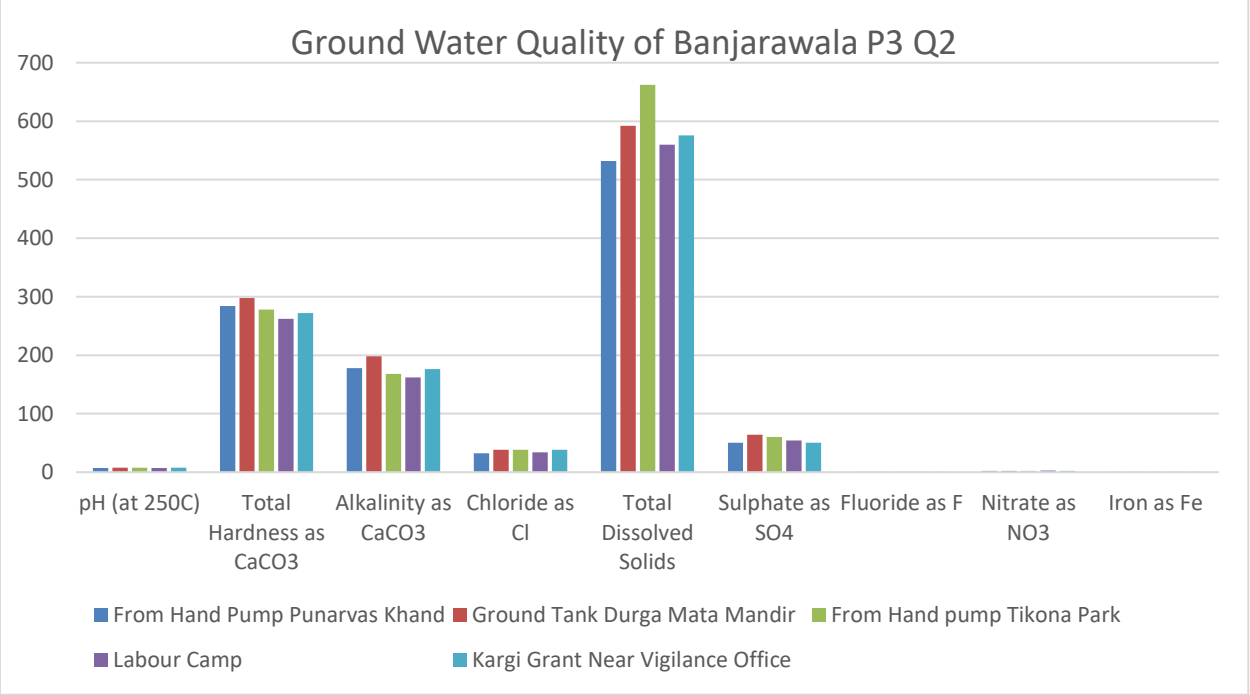


Table 24 C: Air monitoring during Construction period

Air Quality Monitoring Results- Banjarawala P3							
Quarter 1 (January to March 2023)							
S.No.	**Parameters**	**Units**	**Punarvas Khand**	**Durga Mata Mandir**	**Tikona Park**	**Labour Camp**	**Kargi Grant**
1	**Particulate Matter (PM10)**	µg/m3	66.9	64.2	68.1	70.4	72.6
2	**Particulate Matter (PM 2.5)**	µg/m3	37.5	40.0	41.6	43.8	44.1
3	**Sulphur Dioxide (SO2)**	µg/m3	13.8	12.9	15.0	14.2	16.9
4	**Nitrogen Dioxide ($N0_2$)**	µg/m3	25.1	27.3	28.1	37.5	29.3
5	**Carbon Monoxide (CO)**	mg/m3	0.63	0.70	0.78	0.70	0.75
Quarter 2 (April 2023 to June 2023)							
S.No.	**Parameters**	**Units**	**Punarvas Khand**	**Durga Mata Mandir**	**Tikona Park**	**Labour Camp**	**Kargi Grant**
1	**Particulate Matter (PM_{10})**	µg/m3	65.2	65.0	64.1	69.2	70.2
2	**Particulate Matter ($PM_{2.5}$)**	µg/m3	35.4	43.2	42.0	44.2	46.0
3	**Sulphur Dioxide (SO2)**	µg/m3	14.2	13.4	15.0	16.6	16.2
4	**Nitrogen Dioxide ($N0_2$)**	µg/m3	26.4	26.0	26.4	38.6	28.2
5	**Carbon Monoxide (CO)**	mg/m3	0.67	0.80	0.78	0.60	0.76

Figure 16 e: Ambient Air quality at Banjarawala Package-03 during Ist quarter

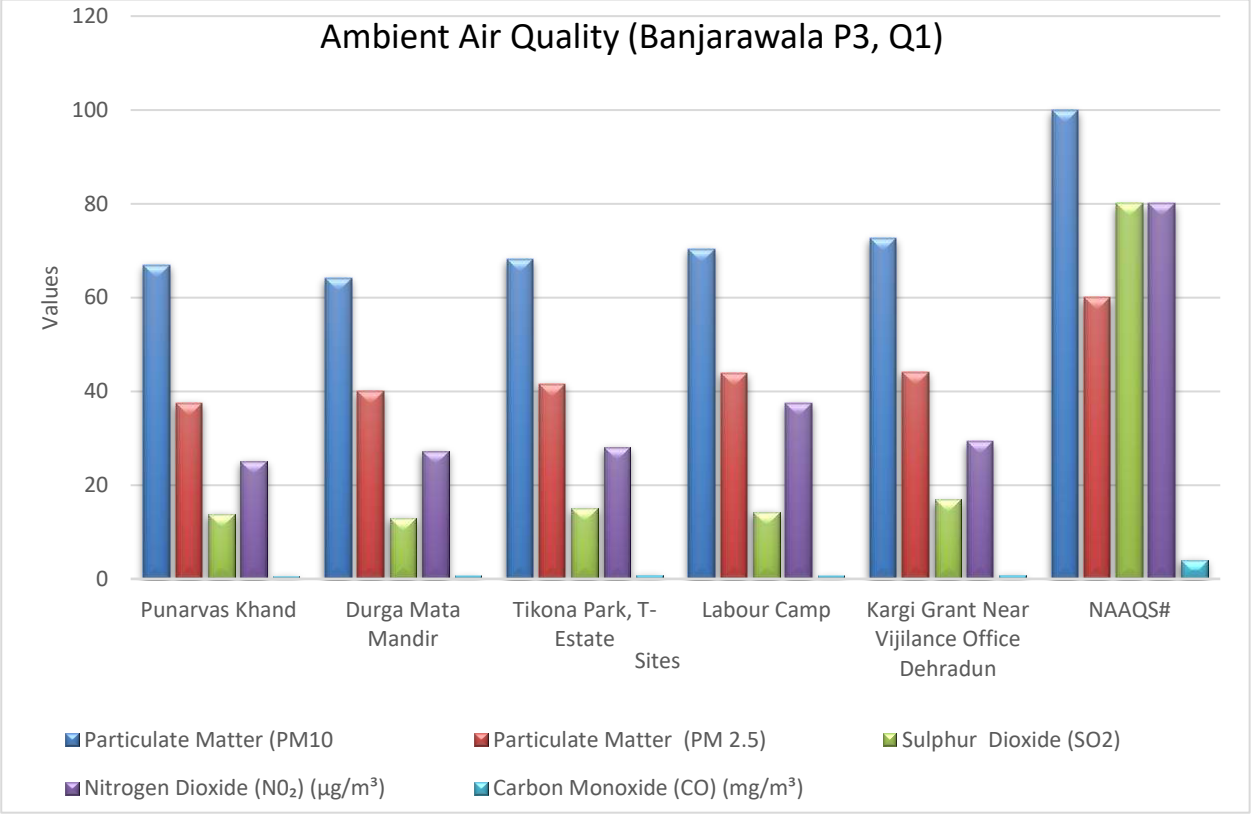


Figure 16 f: Ambient Air quality at Banjarawala Package-03 during IInd quarter

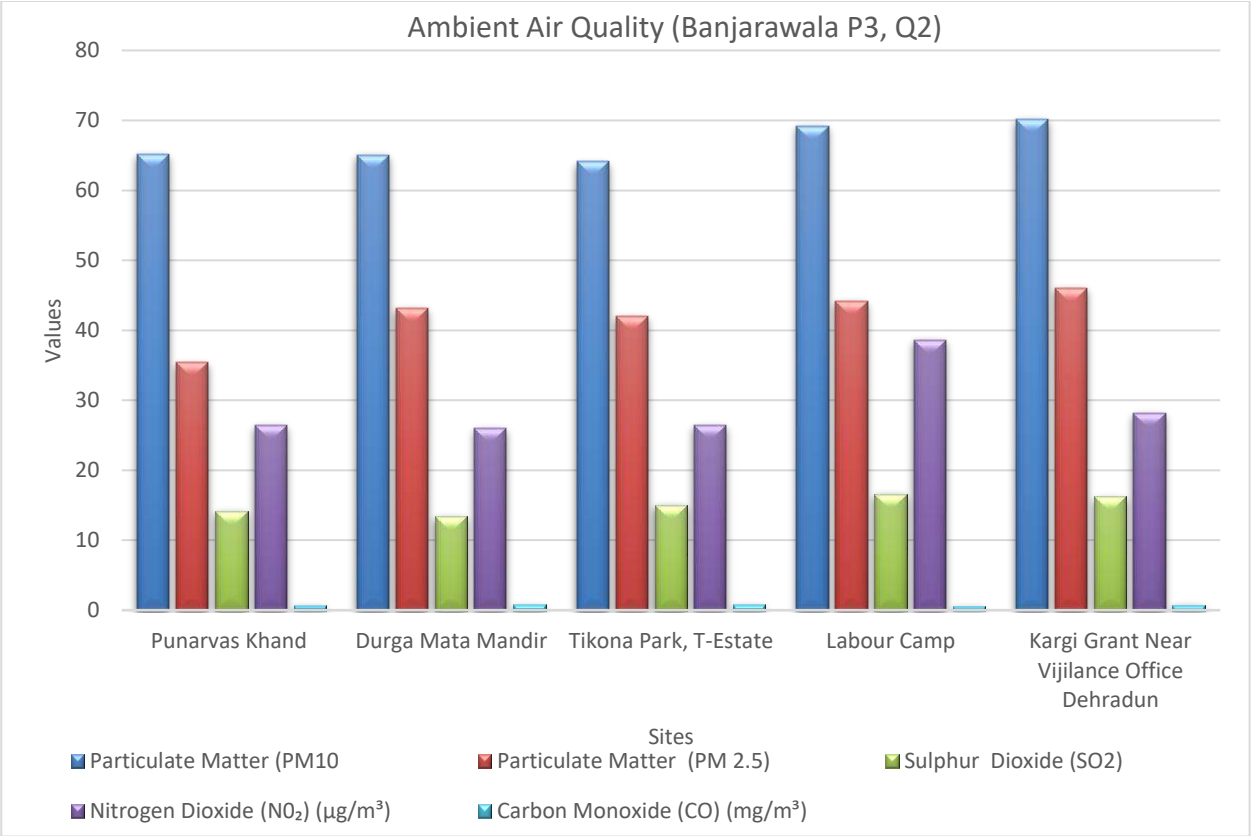


Table 24 D: Noise Level during Construction period

First Quarter							
S. No	**Parameters**	**Units**	**Punarvas Khand**	**Durga Mata Mandir**	**Tikona Park**	**Labour Camp**	**Kargi Grant**
1	**Equivalent noise level (6.0 Am To 10.0 Pm)**	dB(a)	52.9	53.1	54.0	54.7	52.9
2	**Equivalent noise level (10.0 Pm To 6.0 Am)**	dB(a)	44.1	44.0	43.9	44.2	43.0
Second Quarter							
1	**Equivalent noise level (6.0 Am To 10.0 Pm)**	dB(a)	50.2	52.0	53.2	52.4	53.4
2	**Equivalent noise level (10.0 Pm To 6.0 Am)**	dB(a)	45.2	43.6	42.6	43.0	45.2

Figure 16 g: Ambient Air quality at Banjarawala Package-03 during IInd quarter

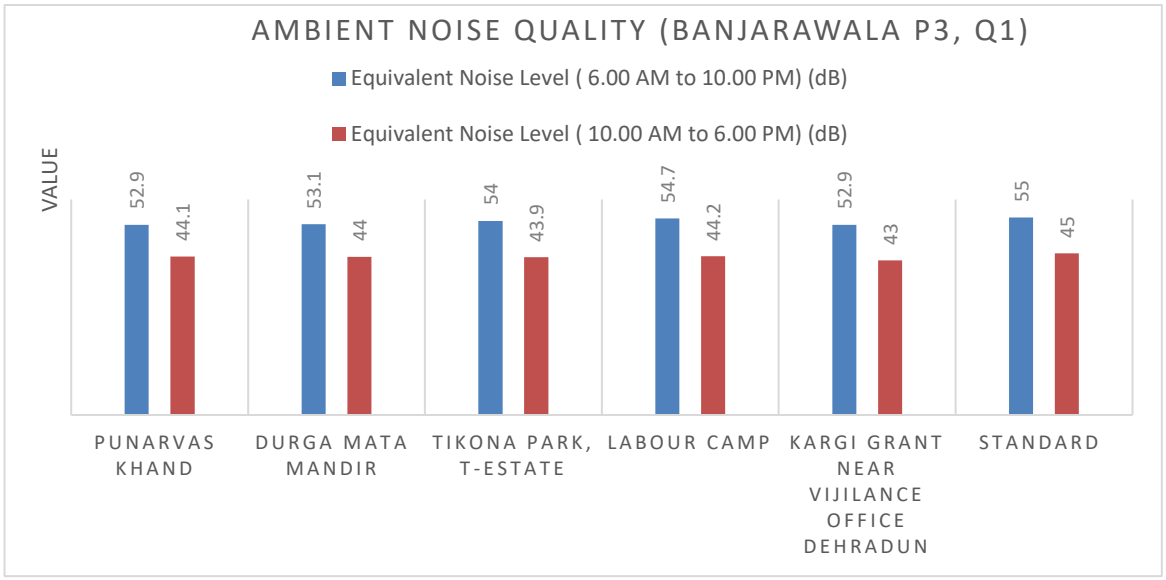


Figure 16 h: Ambient Air quality at Banjarawala Package-03 during IInd quarter

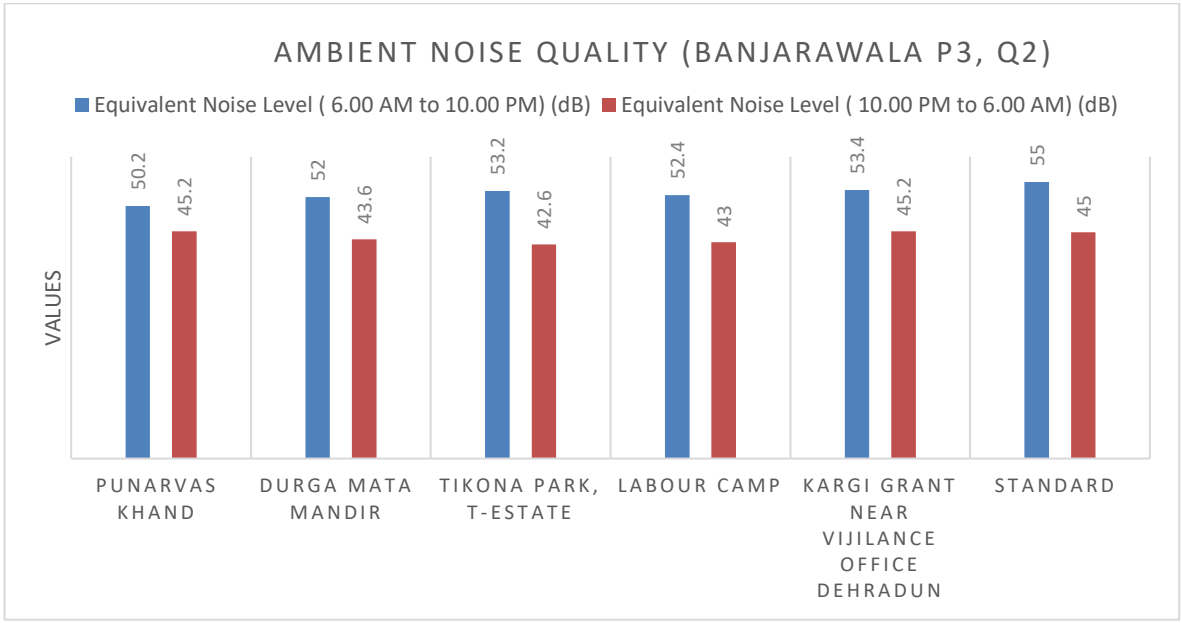


Table 24E: Physico-Chemical analysis of Soil quality during construction period

S.No.	Parameters	First Quarter (January2023 to march2023)						Second Quarter (April2023 to June2023)				
		Units	Inside Park, Punarvas Khand	Inside Park, Durga Mata	Inside Tikona Park	Labour Camp	Kargi Grant Near Vigilance Office	Inside Park, Punarvas Khand	Inside Park, Durga Mata	Inside Tikona Park T-	Labour Camp	Kargi Grant Near
1	pH (at 25^0C)	--	7.75	8.10	6.78	6.58	6.59	7.56	7.82	7.89	6.62	7.34
2	Conductivity	µs/cm	31.6	34.2	30.9	34.6	33.0	34.2	48.2	34.2	36.2	36.2
3	Soil Texture	--	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay	Silty Clay
	Sand %	%	23.0	23.1	35.0	33.0	24.0	28.2	23.4	34.2	35.4	28.0
	Silt %	%	46.0	51.0	24.0	20.4	26.3	45.2	51.4	25.2	22.2	26.0
	Clay %	%	27.0	25.2	40.0	45.0	44.0	26.6	25.2	40.6	42.4	46.0
4	Moisture (1050^0C)	%	70	67.0	78.2	63.4	68.1	78	62.4	80.2	65.2	66.2
5	Potassium as K	kg/hec	73.5	75.0	85.7	65.0	73.6	82.4	72.0	88.2	68.4	76.4
6	Organic Matter	%	0.12	0.9	0.16	0.20	0.17	0.20	1.2	0.20	0.22	0.18
7	Nitrogen as N	kg/hec	3.5	7.4	5.21	5.9	4.0	6.2	8.2	6.2	6.2	5.2
8	Sodium as Na	mg/kg	59.4	54.1	58.6	66.0	4.6	62.5	60.4	62.4	68.2	4.2
9	Phosphate	kg/hec	22.7	29.6	27.0	24.1	26.3	26.2	30.2	28.0	26.2	4.2
10	Calcium (as Cao)	mg/kg	850.6	880	815	775	790	832	874	820	768	82.4
11	Magnesium (as Mg)	mg/kg	50	63.6	53.7	60.9	64.0	52.4	64.2	55.2	58.4	67.2
12	Permeability	Cm/sec	318	370	380	405	448	332	368	372	410	450
13	Oil & Grease	-	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Figure 16 i: Physico-chemical parameters of Soil quality at Banjarawala Package-03 in Ist quarter

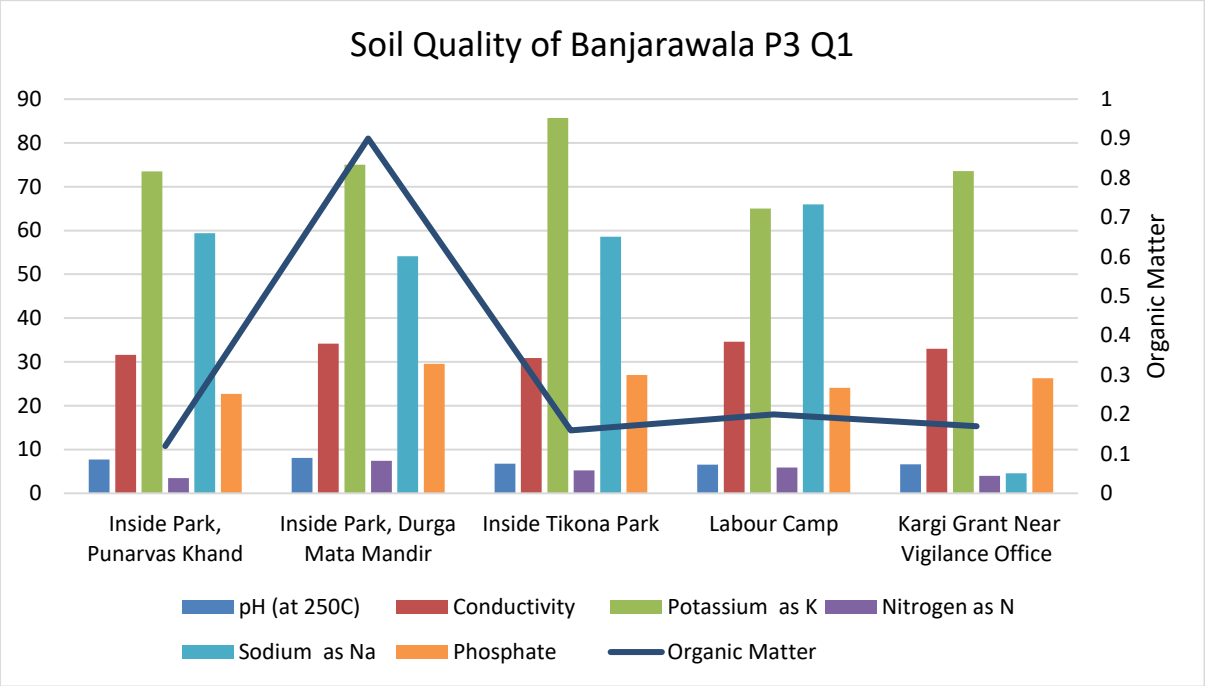
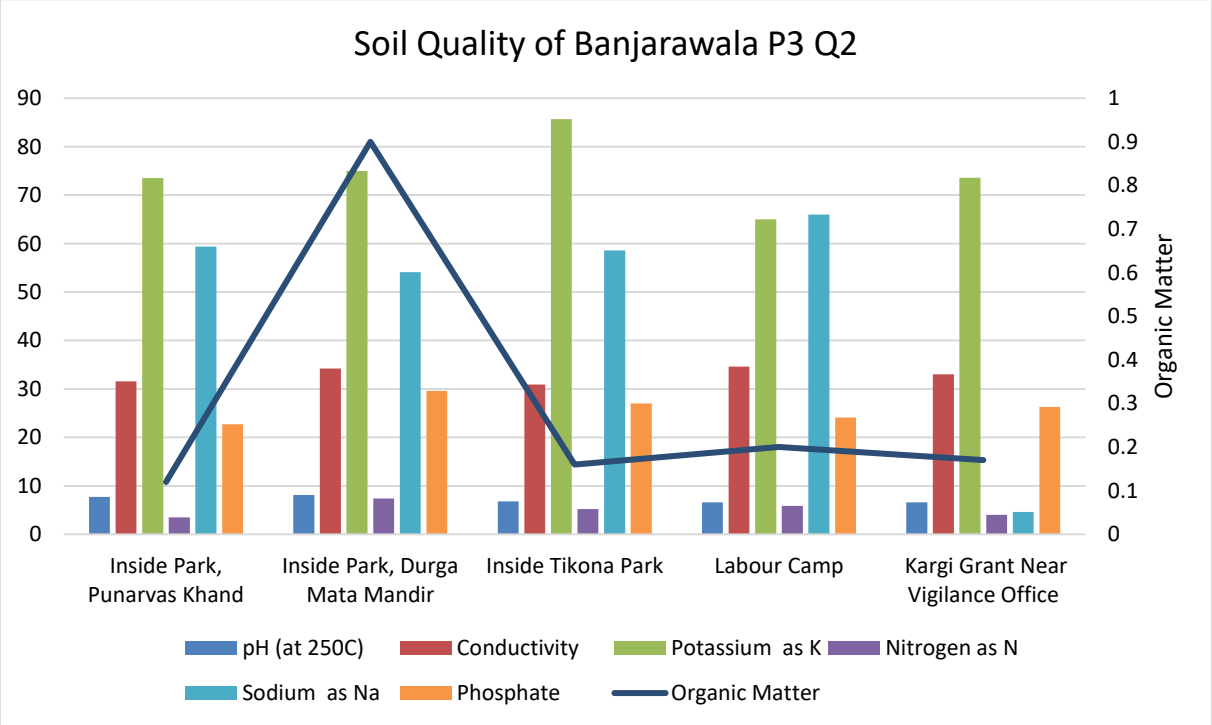


Figure 16 j: Physico-chemical parameters of Soil quality at Banjarawala Package-03 in IInd quarter



VIII. TRAINING AND CAPACITY BUILDING ACTIVITES

81. Training and capacity building programs (workshops, seminars, on/off-site trainings, awareness etc.,) related to environmental safeguards, implementation of EMPs, health and safety etc., conducted during the report period of presented in the Table below. All the programs are documented, and details are included **Appendix 6**.

Table 25: Training / Capacity Building Activities Conducted

Package No.	Date	Training activity	Venue & duration	Trainer	Target Group	Number of participant (M / F)
WS&S-DDN-01	02.01.2023	Safeguard Training on the use of Personal Protective Equipments (PPEs), Health and Hygiene, Discussed about First-aid box, HIV-AIDS, Safety during construction activities, SEMP.	Conference Hall, IPMU Duration: 45min	Suresh Chandra Khanduri	Staff	T=39 F=0
WS&S-DDN-02						
WS&S-DDN -03						
WS&S-DDN-03	01.02.2023		Contractor Office	Suresh Chandra Khanduri	Staff	T=19 F=01
WW-DDN-02	27.03.2023		Labour Camp	Suresh Chandra Khanduri, Sudhanshu Kaushik	Staff, Labour	T=11 F=04
WW-NTL-01	25.05.2023		STP Site	J.D Singh, Anjali Semwal	Staff, Labour	T=37 F=02

IX. PUBLIC CONSULTATION

82. Public consultation activities continued during the reporting period, and details are provided in the below Table. All the consultations are documented, and details are included in **Appendix 7**.

Table 26: Public Consultations Conducted

Package No.	Date	Venue	Target group	Number of participants (M/F)	Details (purpose, and main feedback/outcome)
Banjarawala Package 01					
WS&S-DDN-01	03.04.2023	Dudha Devi	Affected Person, Vulnerable Person, local public	M=09 F=05	Discussed about the Project Objectives and Awareness
	21.04.2023	Barkali	Affected Person, Vulnerable Person, local public	M=04 F=06	Discussed about the provision of PPEs
	15.05.2023	Sanik Colony	Affected Person, Vulnerable Person, local public	M=09 F=06	Discussed about the details of project benefits
	15.05.2023	Barkali	Affected Person, Vulnerable Person, local public	M=04 F=07	Need for improvements to present system.
	18.05.2023	Indrapurifarm	Affected Person, Vulnerable Person, local public	M=11 F=08	HIV/AIDS Awareness Programme including COVID-19

Package No.	Date	Venue	Target group	Number of participants (M/F)	Details (purpose, and main feedback/outcome)
	07.06.2023	Sainik Colony	Affected Person, Vulnerable Person, local public	M=07 F=05	Inconveniences due to the project during the construction period.
	21.06.2023	Mahinder Gali	Affected Person, Vulnerable Person, local public	M=13 F=04	Ensuring no income loss.
					Total Participants: 98 (M-57, F-41)
			Banjarawala Package-02		
WS&S-DDN-02	19.01.2023	Geetanjali Enclave Lane No. (1to6)	Affected Person, Vulnerable Person, local public	M=09 F=01	Discussed about the benefits of sewer project and storm water drainage
	20.01.2023	Shivam Vihar	Affected Person, Vulnerable Person, local public	M=09 F= 04	HIV/AIDS Awareness Programme including COVID-19
	28.03.2023	Vrinda Garden	Affected Person, Vulnerable Person, local public	M=19 F= 02	Discussed about the impact on business entities during construction period.
	04.04.2023	Shivam Vihar	Affected Person, Vulnerable Person, local public	M=09 F= 03	Ensuring no income loss.
	06.04.2023	Dandi Road	Affected Person, Vulnerable Person, local public	M=05 F= 02	Discussed about the COVID-19 awareness
	07.04.2023	Geetanjali Enclave	Affected Person, Vulnerable Person, local public	M=04 F= 04	Discussed about the provision of PPEs
	08.05.2023	Unnati Vihar	Affected Person, Vulnerable Person, local public	M=03 F= 10	Inconveniences due to the project during the construction period.
	25.05.2023	Shakti Vihar	Affected Person, Vulnerable Person, local public	M=14 F= 12	Discussed about the impact on business entities during construction period.
	26.06.2023	Bank Colony	Affected Person, Vulnerable Person, local public	M=14 F= 02	HIV/AIDS Awareness Programme including COVID-19
					Total Participants: 66 (M-86, F-40)
			Banjarawala Package-03		
WS&S-DDN-03	04.01.2023	Madhur Vihar Phase-2	Affected Person, Vulnerable Person, local public	M=06 F= 03	Discussed about the benefits of sewer project and storm water drainage
	04.01.2023	Dev Residency	Affected Person, Vulnerable Person, local public	M=04 F= 03	Discussed about the provision of PPEs
	04.01.2023	T-Estate, Gali No.7	Affected Person, Vulnerable Person, local public	M=04 F= 01	HIV/AIDS Awareness Programme including COVID-19

Package No.	Date	Venue	Target group	Number of participants (M/F)	Details (purpose, and main feedback/outcome)
	06.01.2023	Nagendra Saklani Marg	Affected Person, Vulnerable Person, local public	M=05 F= 03	Discussed about the impact on business entities during construction period.
	06.01.2023	Vishal Residency	Affected Person, Vulnerable Person, local public	M=03 F= 0	Inconveniences due to the project during the construction period.
	06.01.2023	Near Max School	Affected Person, Vulnerable Person, local public	M=02 F=01	Discussed about the provision of PPEs
	25.01.2023	Kargi Grant, Muslim Basti	Affected Person, Vulnerable Person, local public	M=07 F=10	Discussed about the benefits of sewer project and storm water drainage
	25.01.2023	Rajendra Vihar	Affected Person, Vulnerable Person, local public	M=06 F=06	Discussed about the details of project benefits.
	28.03.2023	Bhagirathipuram	Affected Person, Vulnerable Person, local public	M=18 F=02	Ensuring no income loss.
	28.03.2023	Madhur Vihar, Phase-2	Affected Person, Vulnerable Person, local public	M=04 F= 0	Discussed about the Grievance Redress Mechanism
	12.05.2023	Nagendra Saklani Marg	Affected Person, Vulnerable Person, local public	M=08 F=14	Discussed about the Resettlement related provisions for the vulnerable Affected Families.
	13.05.2023	Near May School	Affected Person, Vulnerable Person, local public	M=05 F= 04	Discussed about the Impact on business entities during construction period.
	13.05.2023	Nagendra Saklani Marg Lane No. 7	Affected Person, Vulnerable Person, local public	M=17 F= 05	Discussed the activities related to the sub-project.
	19.05.2023	Kalika Vihar	Affected Person, Vulnerable Person, local public	M=06 F= 01	Discussed about the provision of PPEs
	19.05.2023	Bhagirathipuram	Affected Person, Vulnerable Person, local public	M=11 F= 02	Discussed about the provision of PPEs
				Total Participants:169 (M-114, F-55)	
			THDC Colony		
WW-DDN-01	16.04.2023	Rajrajeswari Colony	Affected Person, Vulnerable Person, local public	M=29 F= 0	Discussed about the benefits of sewer project and storm water drainage
	13.05.2023	DBOC- Office	Affected Person, Vulnerable Person, local public	M=07 F= 02	Discussed about the provision of PPEs

Package No.	Date	Venue	Target group	Number of participants (M/F)	Details (purpose, and main feedback/outcome)
	13.05.2023	Vidhya Vihar Phase-3	Affected Person, Vulnerable Person, local public	M=06 F= 01	Discussed about the impact on business entities during construction period.
	16.05.2023	Sai Enclave	Affected Person, Vulnerable Person, local public	M=13 F= 07	Inconveniences due to the project during the construction period.
	28.06.2023	THDC Colony	Affected Person, Vulnerable Person, local public	M=08 F= 0	Ensuring no income loss.
				Total Participants: 73 (M-63, F-10)	
			Raipur		
WW-DDN-02	12.05.2023	Krishna Vihar, Miyawala	Affected Person, Vulnerable Person, local public	M=08 F= 02	Discussed about the details of project benefits.
	15.05.2023	Saini Colony, Doon Enclave	Affected Person, Vulnerable Person, local public	M=02 F=04	Discussed about the Resettlement related provisions for the vulnerable Affected Families.
	24.05.2023	Raipur	Affected Person, Vulnerable Person, local public	M=04 F=01	Discussed about the Impact on business entities during construction period.
	09.06.2023	Vivekananda Gram	Affected Person, Vulnerable Person, local public	M=03 F=06	Discussed about the Grievance Redress Mechanism
	19.06.2023	Rajeshwari Puram	Affected Person, Vulnerable Person, local public	M=17 F=04	Discussed the activities related to the sub-project.
	28.06.2023	Vivek Vihar, Lane No. -3	Affected Person, Vulnerable Person, local public	M=15 F=04	Discussed the impact on business entities during construction period.
				Total Participants: 70 (M-49, F-21)	
			Nainital		
WW-NTL-01	07.01.2023	Mall Road	Affected Person, Vulnerable Person, local public	M=19 F= 01	Discussed about the Project Objectives and Awareness
	09.01.2023	STP Site	Affected Person, Vulnerable Person, local public	M=22 F= 01	Discussed about the provision of PPEs
	03.02.2023	Mall road	Affected Person, Vulnerable Person, local public	M=17 F= 02	Discussed about the impact on business entities during construction period.
	05.02.2023	Mall Road	Affected Person, Vulnerable Person, local public	M=28 F= 02	HIV/AIDS Awareness Programme including COVID-19

Package No.	Date	Venue	Target group	Number of participants (M/F)	Details (purpose, and main feedback/outcome)
	13.02.2023	Mall road	Affected Person, Vulnerable Person, local public	M=18 F= 02	Ensuring no income loss.
	15.02.2023	Mall Road	Affected Person, Vulnerable Person, local public	M=37 F=0	Discussed about existing Sewerage facility in area.
	02.03.2023	Malla krishnapur	Affected Person, Vulnerable Person, local public	M=05 F=0	Discussed about the Impact on business entities during construction period.
	03.03.2023	Roadways Bus stand	Affected Person, Vulnerable Person, local public	M=08 F=06	HIV/AIDS Awareness Programme including COVID-19
	03.03.2023	Tallital Dharamshala	Affected Person, Vulnerable Person, local public	M=04 F=02	Discussed the activities related to the sub-project.
	04.03.2023	Tallit al Rickshaw stand	Affected Person, Vulnerable Person, local public	M=05 F=11	Discussed about the Provision of PPEs
	04.03.2023	Malla Krishnapur	Affected Person, Vulnerable Person, local public	M=05 F=01	Discussed about the details of project benefits.
	25.04.2023	Thandi Sadak	Affected Person, Vulnerable Person, local public	M=05 F=01	Discussed the activities related to the sub-project.
Total Participants: 202 (M-173, F-29)					

PHOTOGRAPHS OF CONSULTATIONS

WS&S-DDN-01

WS&S-DDN-02

WS&S-DDN-03

WW-DDN-01

WW-DDN-02

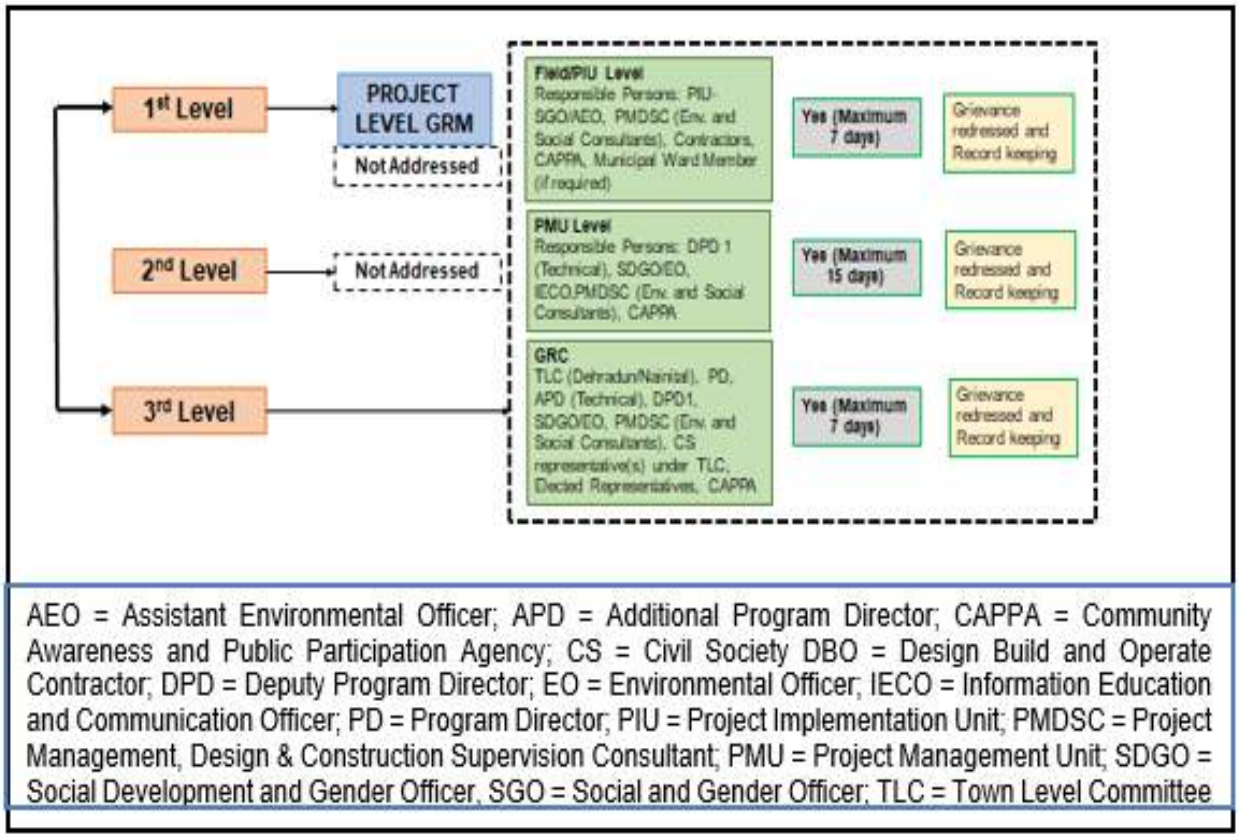
WW-NTL-01

X. GRIEVANCE REDRESS

A. Grievance Redress Mechanism

83. A Project-specific grievance redress mechanism (GRM) is established in to provide a time bound and transparent mechanism to voice and resolve social and environmental concerns linked with the project. GRM is notified by PMU by an Officer Order No. Social/UUSDA/IEC/182 issued on 10-02-2022 (Notification is attached at **Appendix 8**). Project GRM is presented in the following Figure. Accordingly, responsibilities are allocated to project agencies, consultants and contractors, and grievance redress committee(s) established at subproject/town level or project level. Status of establishment of GRCs are presented in **Table 26.**

Figure 3: Project GRM



AEO = Assistant Environmental Officer; APD = Additional Program Director; CAPPA = Community Awareness and Public Participation Agency; CS = Civil Society DBO = Design Build and Operate Contractor; DPD = Deputy Program Director; EO = Environmental Officer; IECO = Information Education and Communication Officer; PD = Program Director; PIU = Project Implementation Unit; PMDSC = Project Management, Design & Construction Supervision Consultant; PMU = Project Management Unit; SDGO = Social Development and Gender Officer, SGO = Social and Gender Officer; TLC = Town Level Committee

Table 27: GRM Operationalization

Package No.	Subproject level GRM Notified	GRM responsibilities assigned	GRM Operational to receive, register & redress complaints	Date of GRC Formation	Public informed of GRM
(WS&S-DDN-01)	Yes	Yes	Yes	10/02/2022 Letter appended as appendix-8	Yes
(WS&S-DDN-02)	Yes	Yes	Yes		Yes
(WS&S-DDN-03)	Yes	Yes	Yes		Yes
(WW-DDN-01)	Yes	Yes	Yes		Yes
(WW-DDN-02)	Yes	Yes	Yes		Yes
WW-NTL-01)	Yes	Yes	Yes		Yes

B. Complaints Received during Reporting Period

84. A total of 936 complaints received and reported during this period, from 06 - packages under construction/implementation. All the complaints are almost resolved with a period of 1 day after the receipt of the complaint. Summary of complaints received and resolved are presented **Table 28**, and details are provided in **Appendix 9**.

Table 28: Details of Complaints Resolved

Package No	No. of complaints received			No. of complaints pending		Type of Common and Major Grievances	Time taken for resolution (days)
	Upto Last Reporting Period	In this Reporting period	Cumulative	Previously Pending	In this Reporting period		
WS&S-DDN-01	**325**	176	501	None	None	All the received complaints were common in nature and no major complaint was received during the SEMR period/up to last reporting period. The complaints were related to the following: • Home Vehicle Ramp damages. • Water line damage. • Water logging issues • Shortage in water supply. • Sewerage Line Issues. • Damaged Water connection and valves. • Deposition of soil muck on road and home entrance. • Sewer line damage • Request for Road dressing	1 day
WS&S-DDN-02	**65**	27	92	None	None		1 day
WS&S-DDN-03	**125**	586	711	None	None		1-2 days
WW-DDN-01	44	42	86	None	None		1 day
WW-DDN-02	126	103	229	None	None		1 day
WW-NTL-01	-	02	02	None	None		4 days

XI. FINDINGS, KEY ISSUES & REMEDIAL MEASURES

A. Findings

85. This Semi-annual Environmental Monitoring Report (SEMR) for the period of January/2023 to June/2023 is prepared as per the ADB SPS requirements. This SEMR described progress with the implementation of the subproject-wise EMPs, and compliance status. This is IIIrd SEMR prepared for Uttarakhand Integrated Resilient Urban Development Project (UIRUDP). Project includes 06 contract packages. At the end of this report period (June/2023), All 06 packages are awarded, of the awarded contracts, all 06 packages are in construction phase. Construction works of 06 packages has been started. Findings of this SEMR are presented in the following table along with key issues and remedial measures.

Table 29: Findings and Key Issues

Monitoring aspect	Findings & Key issues
Availability safeguards personnel (PMU, PIU, Consultants and contractors)	**Complied**, all safeguard personnel have been designated at PMU, PIU, PMDSC and DBO Contractors level.
Compliance with statutory requirements (clearance / permissions etc.,)	Being complied. PMU has consulted with the UEPPCB regarding updating of the CTEs based on detailed design, prior to start of construction and all required information have been submitted to UEPPCB on (i) 22.07.2022 for Banjarawala STP; (ii) 30.12.2022 for Raipur STP and (iii) 10.02 2023 for Nainital STP. Subsequently a meeting was held on this matter with the Joint Director and Scientific Officer of UEPPCB on 10.02.2023. The UEPPCB has informed UUSDA that the corrigendum letter for CTE will be issued before issuance of CTO for the respective STPs. Road cutting permissions for all ongoing/completed works have been obtained. CGWB permit application for groundwater abstraction is ongoing.
Compliance with ADB loan covenants	Being Complied
Compliance with preparation, approval, disclosure of draft IEEs	Complied
Compliance with preparation, approval, disclosure of updated/final IEEs	Being complied. The updated IEEs based on sectional/component wise detailed design for six works packages under construction were submitted to ADB and disclosed on ADB and UUSDA websites. IEE of Banjarawala Package 1 has been recently updated on the basis of odour modelling of the 11 MLD STP and is under review with ADB. Updated IEEs for Banjarawala 02 and 03 packages were also submitted to ADB in June 2023.
Contractor compliance with preconstruction requirements	Complied All SEMPs for ongoing construction works are submitted and disclosed on UUSDA website.

EMP implementation, monitoring, reporting	Being complied. EMP measures implementation needs improvements in condition of construction camp and worker facilities, use of PPE, barricading. A regular monitoring was conducted during the SEMR period and all the remedial measures as per SEMP were implemented at site. Nevertheless, some discrepancies were observed at sites. The DBO contractor was reminded to follow all the measures as per the SEMP. •
Implementation of COVID19 health and safety measures	Being Complied
Training and capacity building activities	Being complied
Public consultation	Being complied
GRM establishment, operationalization and complaint resolution	Complied. Several complaints were received during the period (damage of ramps, water connections, sewer lines, pedestrian access, dumping of soil, water logging, road restoration). All complaints were resolved, and no complaint resolution is pending.
Odour Modelling	Being complied. Odor modelling has been completed for the STP under Banjarawala 01 package and included in the updated IEE submitted to ADB for review. Odor modelling for other two STPs in Raipur and Nainital are underway.

B. Corrective Action Plan

78. Following action plan is developed to address the issues of concerns raised in this report. Please refer Table 30.

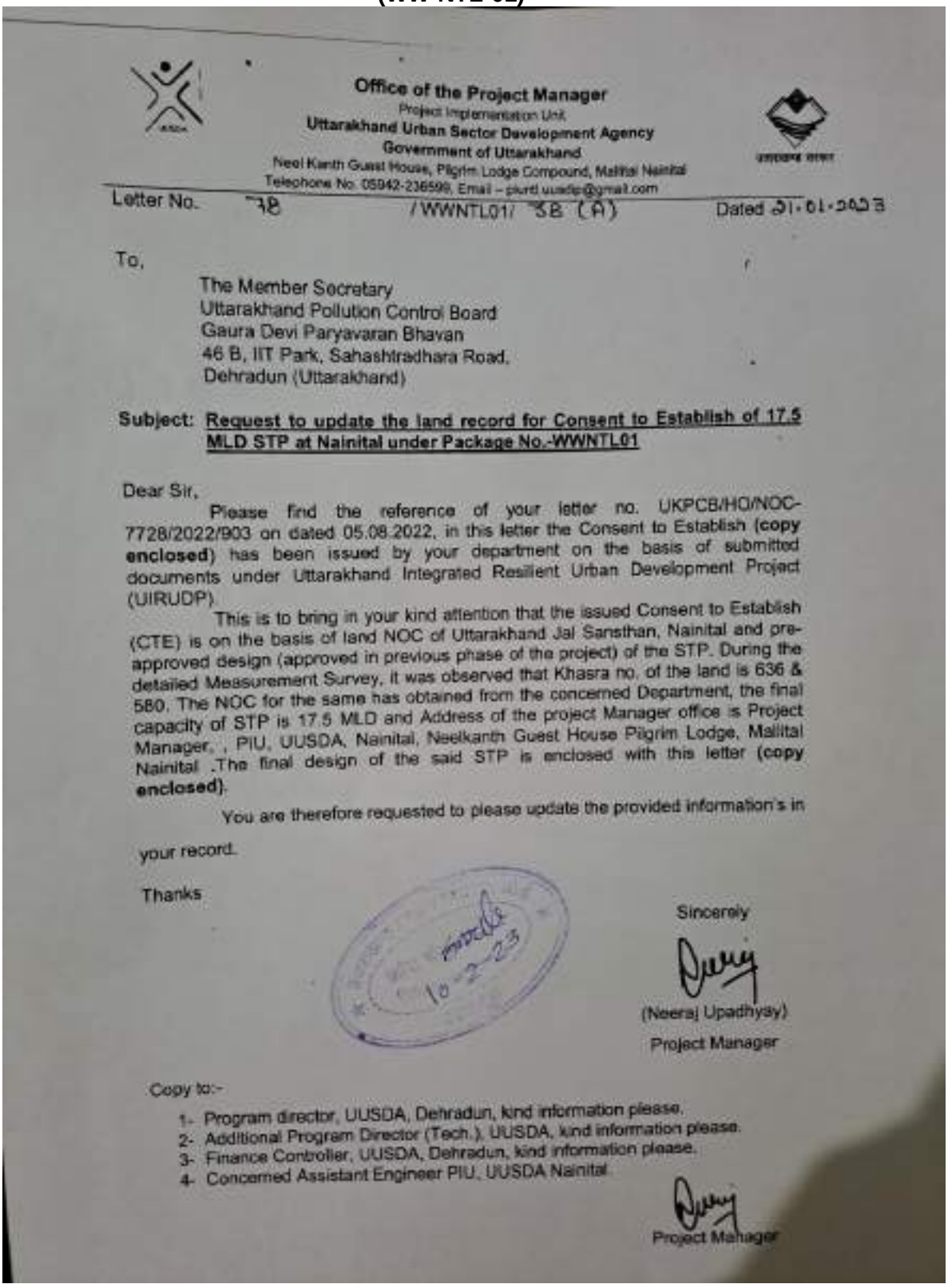
Table 30: Corrective Action Plan

Issue/concern	Proposed Remedial Measure	Responsibility of Implementation	Target date	Remarks
EMP measures implementation needs improvements (condition of construction camp and worker facilities, use of PPE, barricading,	Improve implementation of EMP including health and safety measures at the labor camps and work sites Conduct of daily site inspections by Contractor EHS Officer Continued site verification of PIU/PMDSC	Contractor, with support of PIU/PMDSC	Immediate and continuous compliance	Being complied

Issue/concern	Proposed Remedial Measure	Responsibility of Implementation	Target date	Remarks
Complaints- A number of complaints received during the period (damage of ramps, walls, water connections, public access, dumping of soil, road cutting, restoration of road,)	Implement EMP measures to avoid public nuisance, damage to properties and ensure community health and safety	Contractor, with support of PIU/PMDSC	Immediate and continuous compliance	Being complied
Minor incidents resulting in minor injuries were recorded during the period	Improve HS management at the work sites to avoid and/or minimize occurrence of safety incidents	Contractor, with support of PIU/PMDSC	Immediate and continuous compliance	

Appendix Section

Appendix 1: CTE Revision Letter FOR SEWAGE TREATMENT PLANT of Nainital Package (WW-NTL-01)



Office of the Project Manager
Project Implementation Unit
Uttarakhand Urban Sector Development Agency
Government of Uttarakhand
Neel Kanth Guest House, Pilgrim Lodge Compound, Malital Nainital
Telephone No. 05942-236599, Email – piuntl.uusdp@gmail.com

Letter No. 78 /WWNTL01/ SB (A) Dated 31-01-2023

To,

The Member Secretary
Uttarakhand Pollution Control Board
Gaura Devi Paryavaran Bhavan
46 B, IIT Park, Sahashtradhara Road,
Dehradun (Uttarakhand)

Subject: Request to update the land record for Consent to Establish of 17.5 MLD STP at Nainital under Package No.-WWNTL01

Dear Sir,

Please find the reference of your letter no. UKPCB/HO/NOC-7728/2022/903 on dated 05.08.2022, in this letter the Consent to Establish **(copy enclosed)** has been issued by your department on the basis of submitted documents under Uttarakhand Integrated Resilient Urban Development Project (UIRUDP).

This is to bring in your kind attention that the issued Consent to Establish (CTE) is on the basis of land NOC of Uttarakhand Jal Sansthan, Nainital and pre-approved design (approved in previous phase of the project) of the STP. During the detailed Measurement Survey, it was observed that Khasra no. of the land is 636 & 580. The NOC for the same has obtained from the concerned Department, the final capacity of STP is 17.5 MLD and Address of the project Manager office is Project Manager, , PIU, UUSDA, Nainital, Neelkanth Guest House Pilgrim Lodge, Malital Nainital .The final design of the said STP is enclosed with this letter **(copy enclosed)**.

You are therefore requested to please update the provided information's in your record.

Thanks

Sincerely

(Neeraj Upadhyay)
Project Manager

Copy to:-

1- Program director, UUSDA, Dehradun, kind information please.
2- Additional Program Director (Tech.), UUSDA, kind information please.
3- Finance Controller, UUSDA, Dehradun, kind information please.
4- Concerned Assistant Engineer PIU, UUSDA Nainital

Project Manager

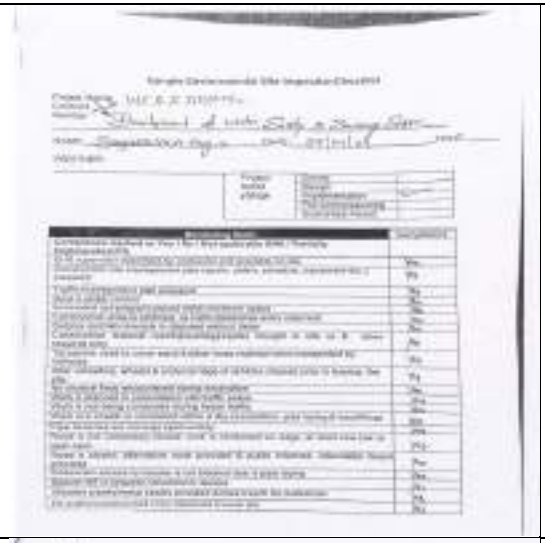
Appendix 2: Details of Site Visits conducted by PMC, PIU & PMU Safeguard Staff in the Reporting Period

Package	Visit date	Expert visited*	Sites visited
WS&S-DDN-01 Banjarawala-1	12.01.2023	Sudhanshu Kaushik, Env..Exp. PMDSC, Mr. Anoop Khanduri, JE PIU, Amit Kumar Saini AE PIU	New Basti (OHT and Tube Well are proposed in this area)
	22.02.2023	Mr. Vinay Mishra, APD, Sanjay Tiwari, PMPIU, Mr. Rajiv Kumar, TLDSC, Sudhanshu Kaushik, Env. Exp. PMDSC	Mahindra Gali (Water supply and Sewer pipeline laying is proposed)
	21.03.2023	Mr. Sanjay Tiwari, PMPIU, Mr. Anoop Khanduri, JE PIU	Kavita Marg (Water supply and Sewer pipeline laying is proposed)
	04.04.2023	Sudhanshu Kaushik , Env..Exp. PMDSC, Mr. Sanjay Tiwari, PIUDSC	Nauka Village (Water supply and Sewer pipeline laying is proposed)
	17.05.2023	Sudhanshu Kaushik , Env..Exp. PMDSC	Sainik Colony, Lane No.-6 (Water supply and Sewer pipeline laying is proposed)
	09.06.2023	Mr. Sanjay Tiwari, PMPIU, Mr. Amit Kumar Saini AE PIU	Sapera Basti (Near the new location of proposed TW near Sangharsh Vihar)
WS&S-DDN-02 Banjarawala-2	20.03.2023	Sudhanshu Kaushik , Env..Exp. PMDSC Mr. Sanjay Tiwari, PMPIU	Dandi Road (Sewer Pipeline proposed in this location)
	07.04.2023	Mr. Vinay Mishra, APD, Mr. Sanjay Tiwari, PMPIU	Shiv Kunj (Water and sewer pipeline laying is proposed in this area)
	08.05.2023	Sudhanshu Kaushik Env..Exp. PMDSC Mr. Amit Kumar Saini AE PIU	Mothrowala Village (Water and sewer pipeline laying is proposed in this area)
	12.06.2023	Sudhanshu Kaushik Env..Exp. PMDSC, Mr. Sanjay Tiwari, PMPIU	Trimurti Enclave (Water and sewer pipeline laying is proposed in this area)
WS&S-DDN-03 Banjarawala-3	06.03.2023	Mr. Sanjay Tiwari, PMPIU, Mr. Amit Kumar Saini AE PIU	T-State & Bhagirathipuram (Water and sewer pipeline laying is proposed in this area)
	28.04.2023	Sudhanshu Kaushik Env..Exp. PMDSC	THDC Colony (Water and sewer pipeline laying is proposed in this area)
	20.05.2023	Mr. Sanjay Tiwari, PMPIU, Mr. Jitendra Nautiyal JE PIU	Chandchak Colony (Water and sewer pipeline laying is proposed in this area)
	16.06.2023	Sudhanshu Kaushik Env..Exp. PMDSC, Mr. Amit Kumar Saini AE PIU	Kalika Vihar & Kanhaiya Vihar (Water and sewer pipeline laying is proposed in this area)
WW-DDN-01 THDC,Yamuna Colony	10.01.2023	Mr. Saurabh Bisht, JE PIU, Sudhanshu Kaushik Env..Exp. PMDSC	Sai Baba Enclave (Sewer Pipeline laying is proposed)
	08.02.2023	Sudhanshu Kaushik Env..Exp. PMDSC	THDC Colony (Sewer pipe line and Storm water drainage proposed)
	05.03.2023	Mr. Jatin Saini AE, PIU, Mr. Saurabh Bisht , JE PIU	Yamuna Colony (Sewer Pipeline proposed)

Package	Visit date	Expert visited*	Sites visited
	04.04.2023	Mr. Shailendra Bhatt, JE PIU, Mr. Amit Kumar Saini AE PIU	Rajeshwari Colony (Sewer Pipeline proposed)
	02.05.2023	Sudhanshu Kaushik Env. Exp. PMDSC	Patel Nagar Thana (Sewer Pipeline proposed)
	08.06.2023	Mr. Shailendra Bhatt, JE PIU, Mr. Amit Kumar Saini AE PIU	THDC Colony (Sewer pipe line and Storm water drainage proposed)
WW-DDN-02 Raipur	18.01.2023	Mr. Shailendra Bhatt, JE PIU, Sudhanshu Kaushik Env..Exp. PMDSC	Ring Road (Laying of Sewer pipeline proposed)
	21.02.2023	Mr. Shailendra Bhatt, JE PIU, Mr. Amit Kumar Saini AE PIU	Shanti Vihar- Lane No.-3 (Laying of Sewer pipeline proposed)
	19.03.2023	Mr. Jatin Saini AE, PIU Sudhanshu Kaushik Env..Exp. PMDSC	Rajeshwari Puram (Laying of Sewer pipeline proposed)
	07.05.2023	Mr. Shailendra Bhatt, JE PIU, Sudhanshu Kaushik Env..Exp. PMDSC	Vivek Vihar, Lane No.-6 (Laying of Sewer pipeline proposed)
	19.06.2023	Mr. Shailendra Bhatt, JE PIU, Sudhanshu Kaushik Env. Exp. PMDSC	Near Ring road (Laying of Sewer pipeline proposed)
WW-NTL-01 Nainital	15.04.2023	Mr. Anil Parihar AE,PIU,Mr. Mahesh Kumar Sengar JE, PIU	STP Site, Russi Village (STP site)
	25.05.2023	Mr. Anil Parihar AE, PIU, Mr. Mahesh Kumar Sengar JE, PIU	STP Site, Russi Village (STP site)
	28.06.2023	Mr. Anil Parihar AE,PIU, Mr. Mahesh Kumar Sengar JE,PIU	Mall Road (Rehabilitation of Sewer Pipeline with CIPP)

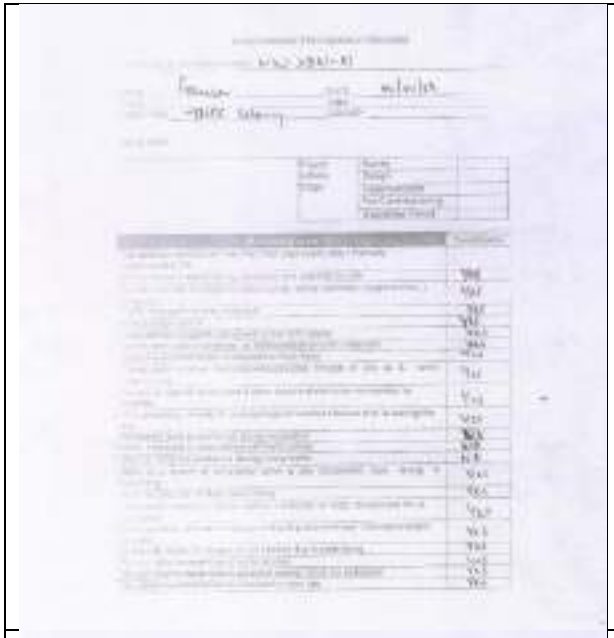
Appendix 3: PMDSC Site Visit Report

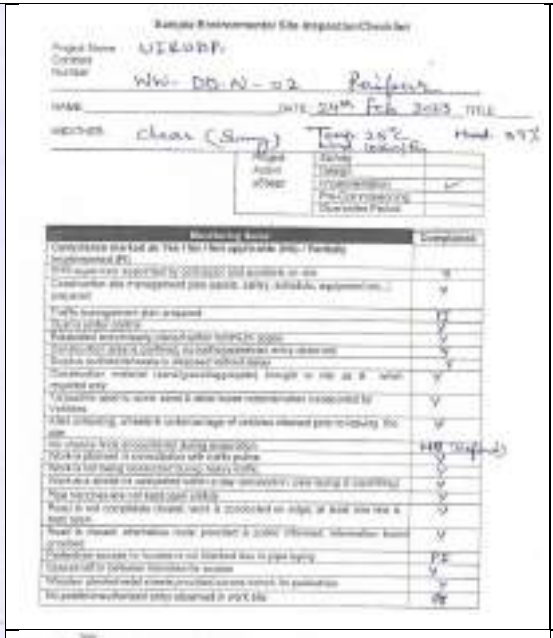
WS&S-DDN-01

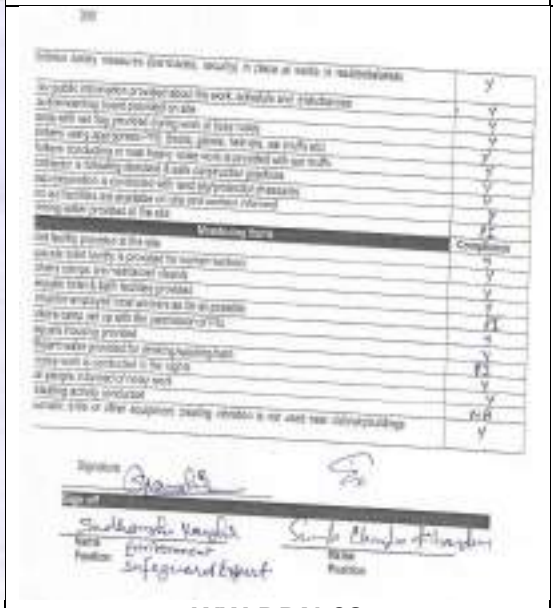


WS&S-DDN-02

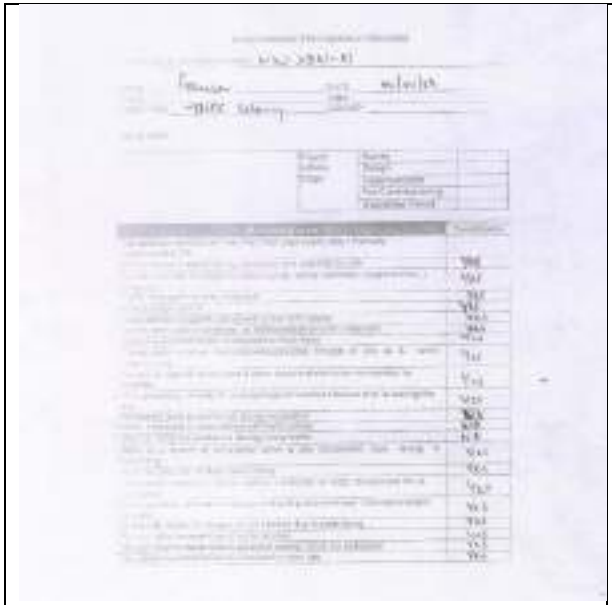
WS&S-DDN-03

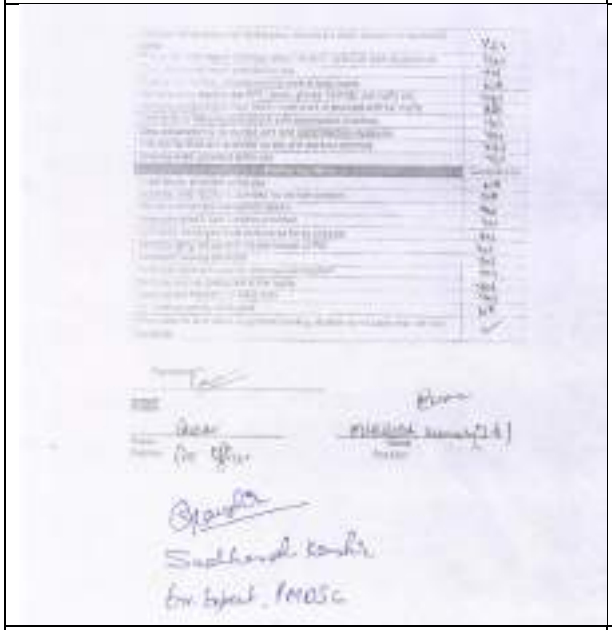


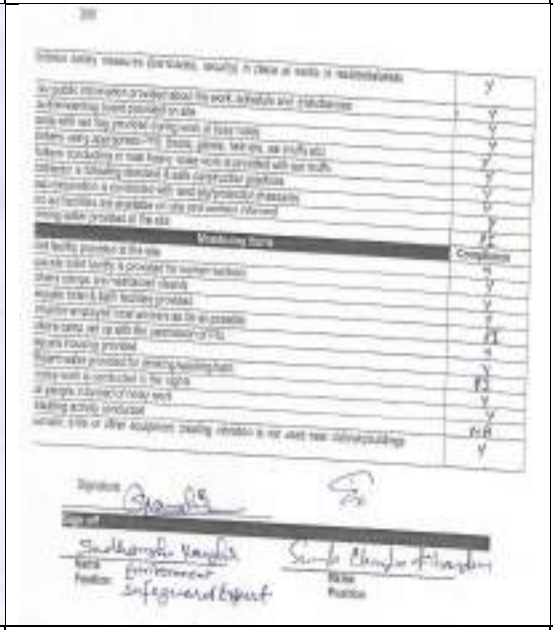




WW-DDN-01 | **WW-DDN-02** | **WW-NTL-01**







WW-DDN-01	WW-DDN-02	WW-NTL-01

Appendix 4: Implementation of COVID-19 Health & Safety Measures
COVID Compliance

Important protocols or measures in the H&S Plan which are followed and complied on regular basis at the offices and worksites of the project:

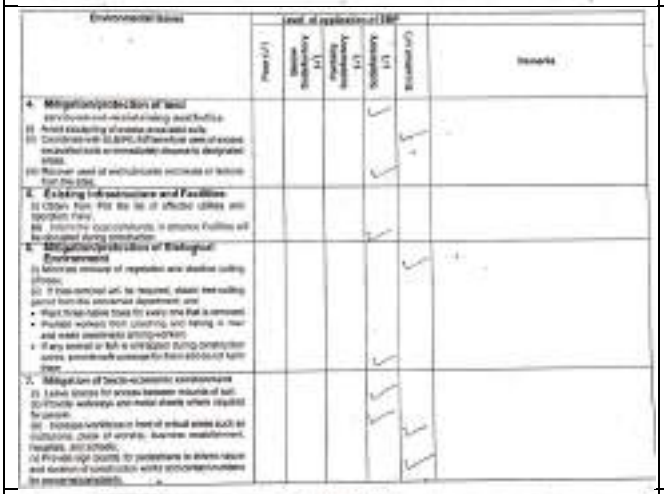
- Thermal screening of employees and workers;
- Record keeping of screening results including thermal scanning;
- Availability and use of appropriate PPEs;
- Maintain social distancing;
- Sanitization at camp, office on regular basis;
- Arrangement of disinfectant, hand wash etc. at office, camp;
- Proper office set up reconfiguration to ensure social distancing;
- New office and work site meeting arrangements;
- COVID 19 awareness & training on regular basis; and
- Regular disinfection of work areas, vehicles and equipment; among others.

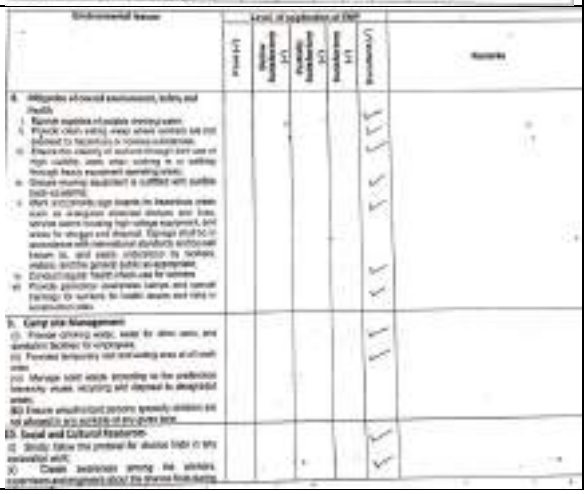
Photographic evidence as follows

		
Thermal Scanning for the visitors	**Provision of hand sanitizer Banjarawala Package-03**	**Isolation room at site at Banjarawala Package-03**

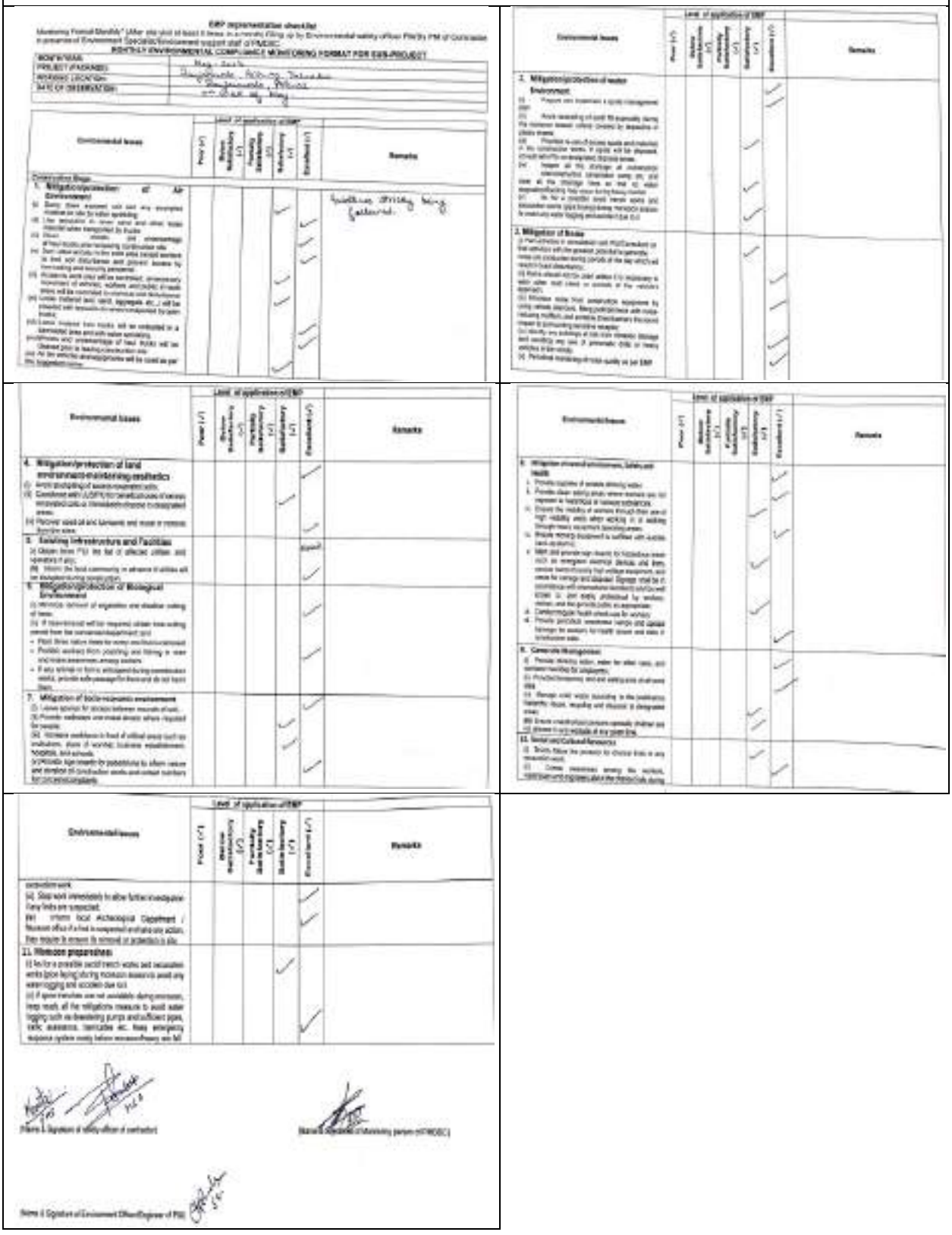
Appendix 5: Package wise EMP implementation checklist EMP Checklist

Banjarawala-1 (WS&S-DDN-01)

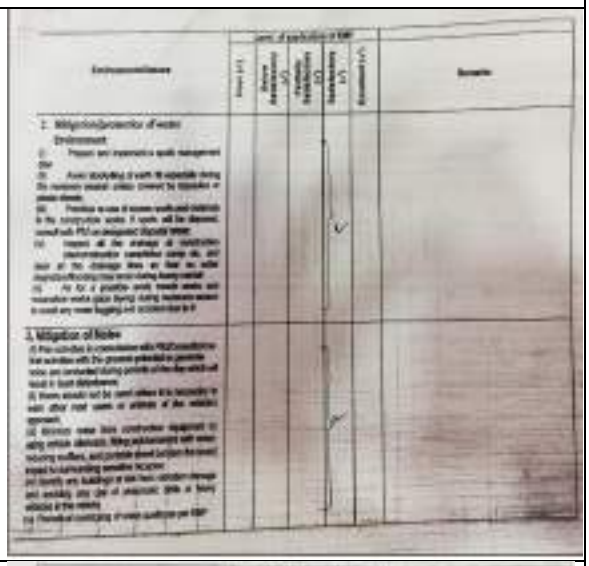


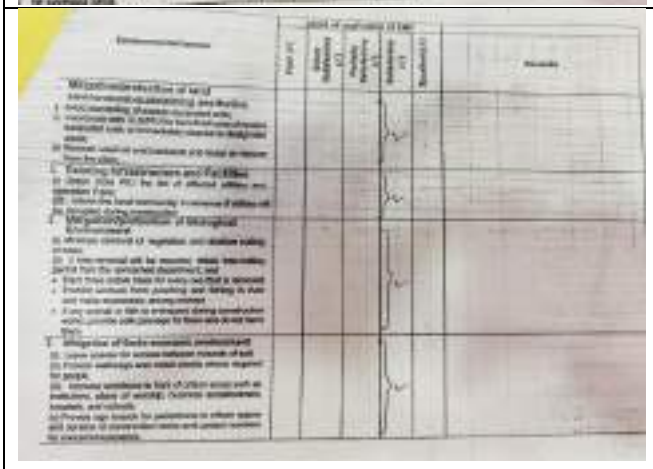


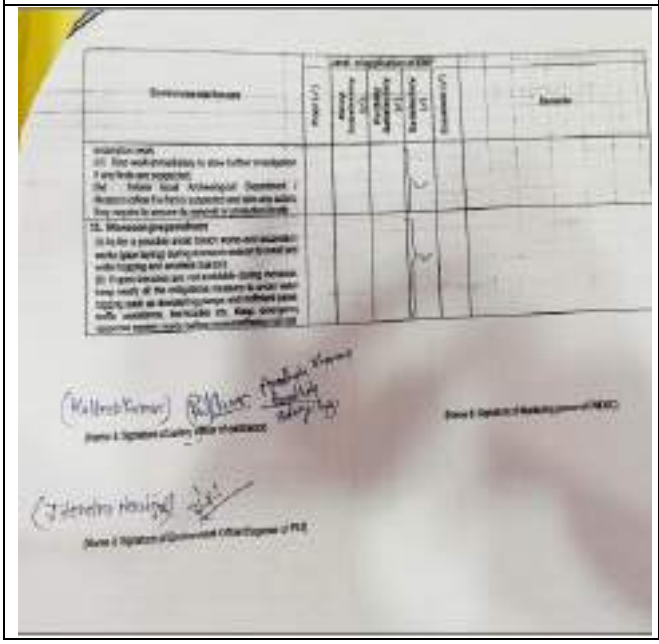
Banjarawala-2 (WS&S-DDN-02)



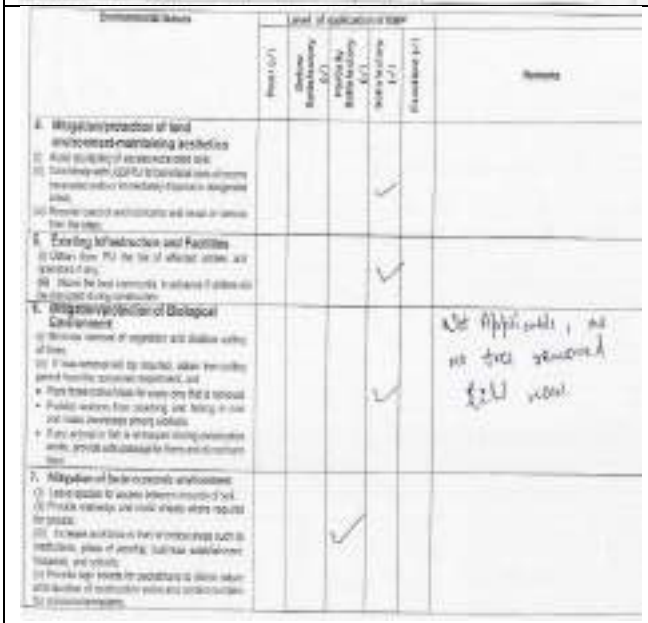
Banjarawala-3 (WS&S-DDN-03)

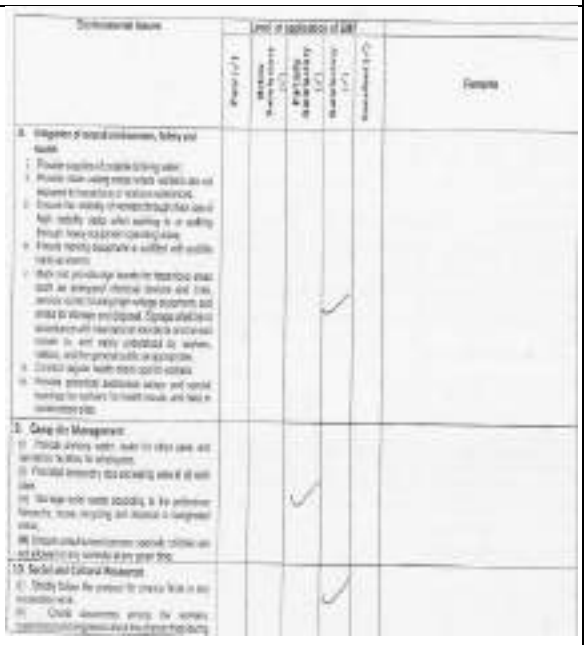




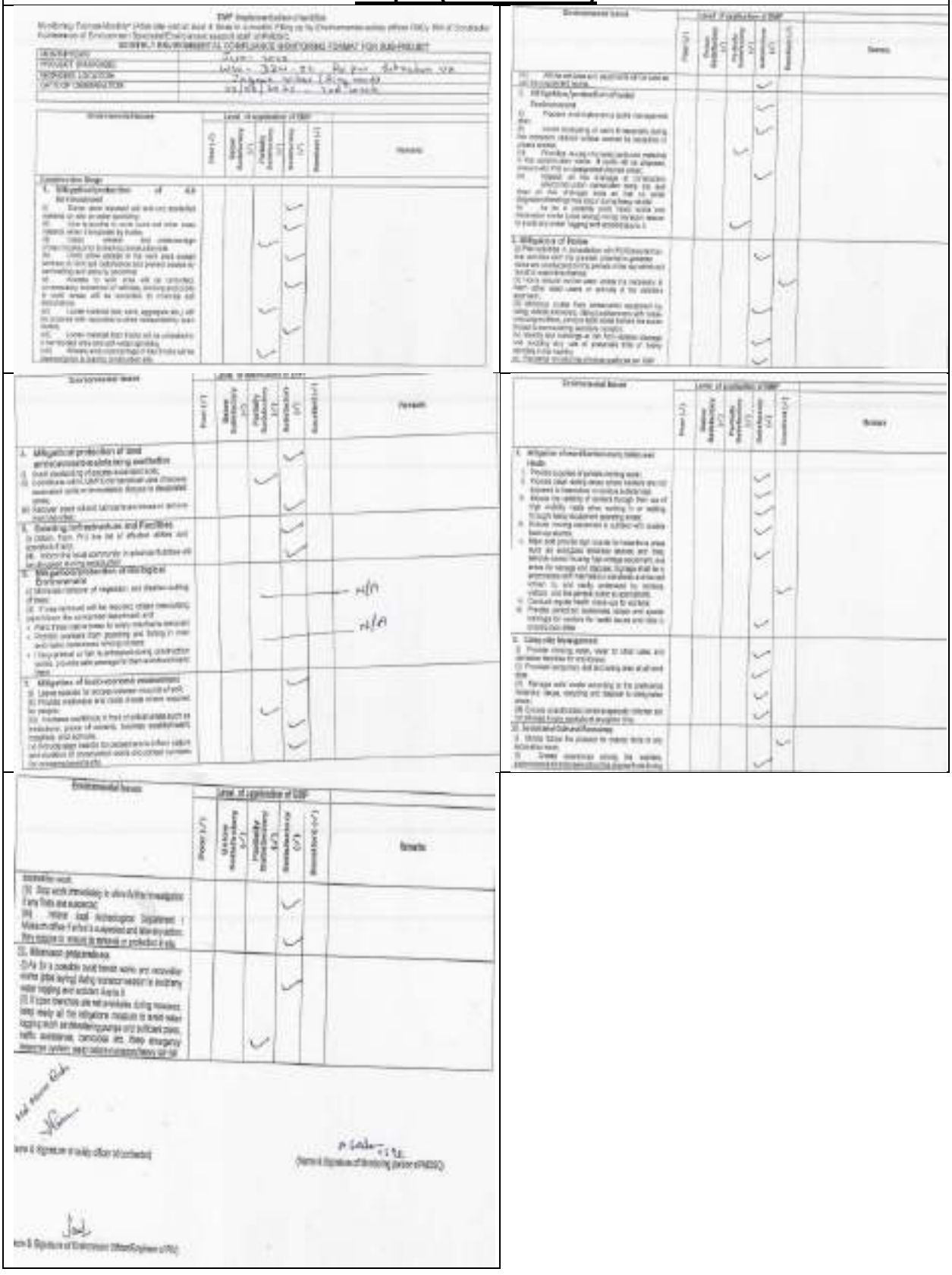


THDC/Yamuna Colony (WW-DDN-01)





Raipur (WW-DDN-02)



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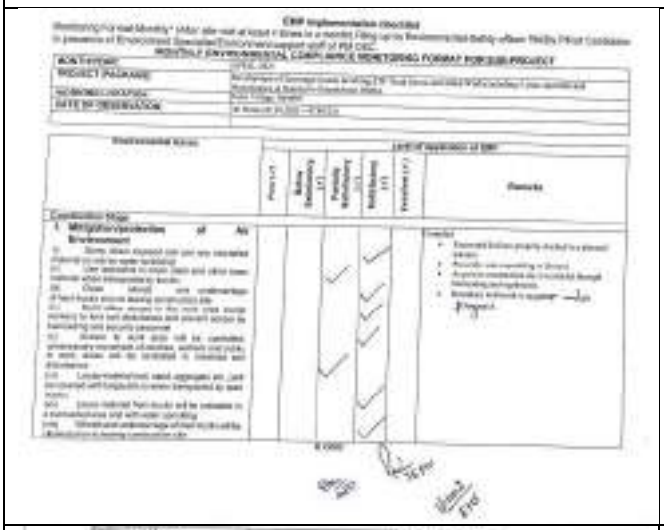

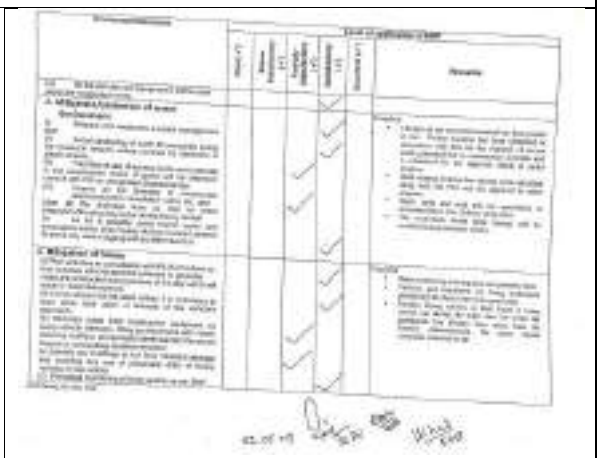

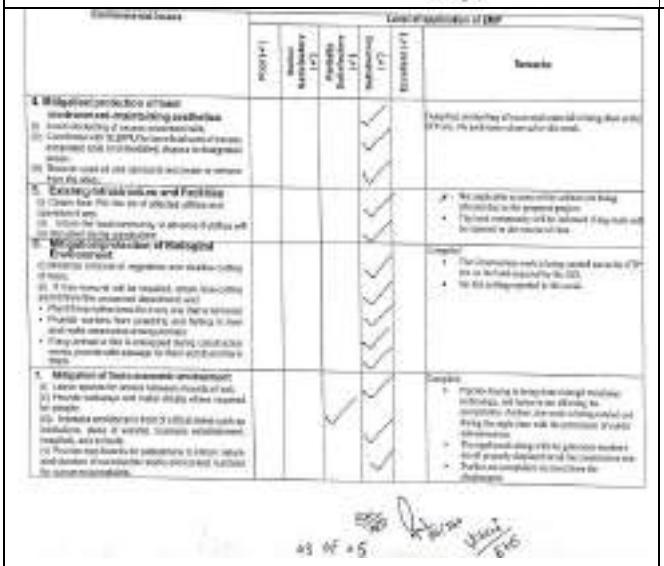

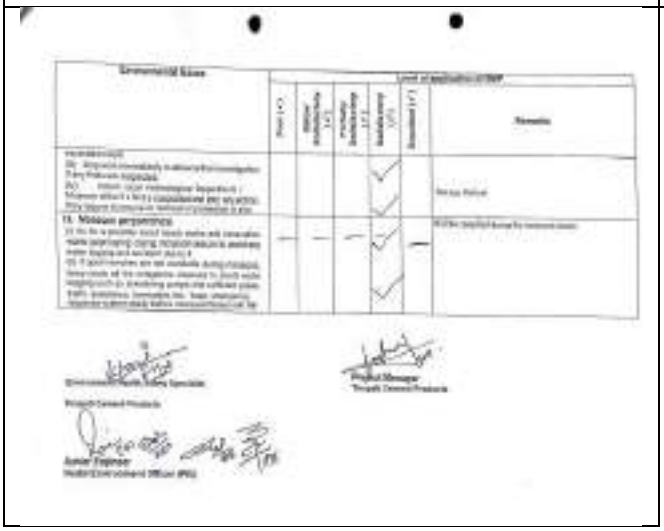

Appendix 6: Details of Training and Capacity Building Programs

<table>
<tr>
<td> 
WS&S-DDN-01 UUSDA Conference Hall</td>
<td> 
WS&S-DDN-02 UUSDA Conference Hall</td>
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WS&S-DDN-03 Contractor Office</td>
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<tr>
<td> 
WW-DDN-01 UUSDA Conference Hall</td>
<td> 
WW-DDN-02 Labour Camp</td>
<td> 
WW-NTL-01 STP site</td>
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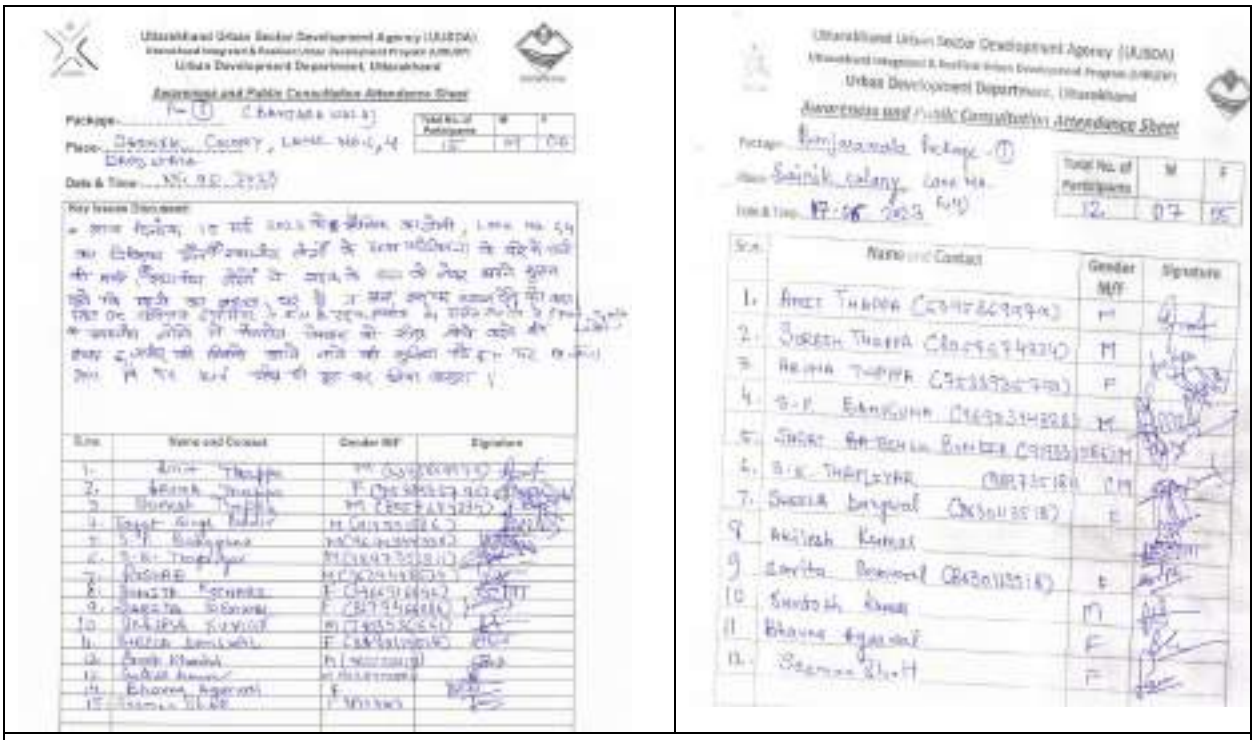
Appendix 7: Details of Consultations Conducted



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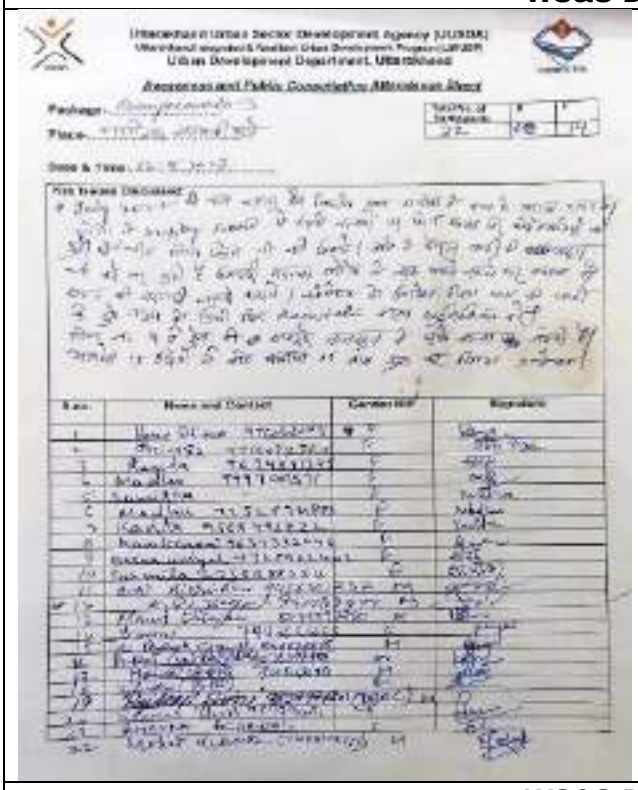

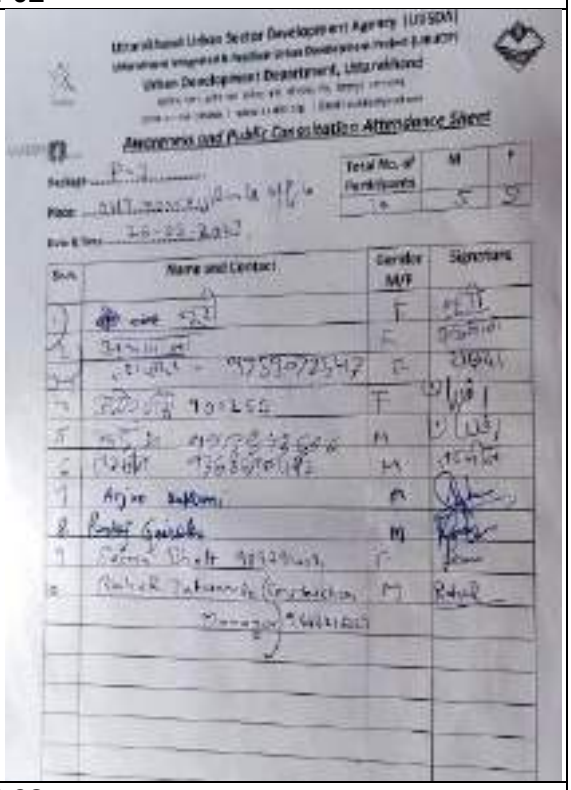

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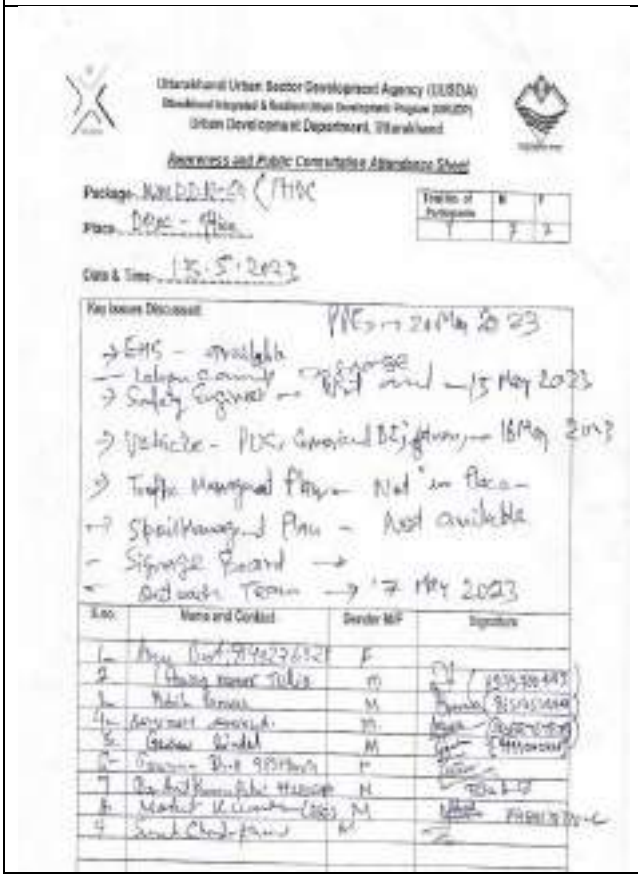

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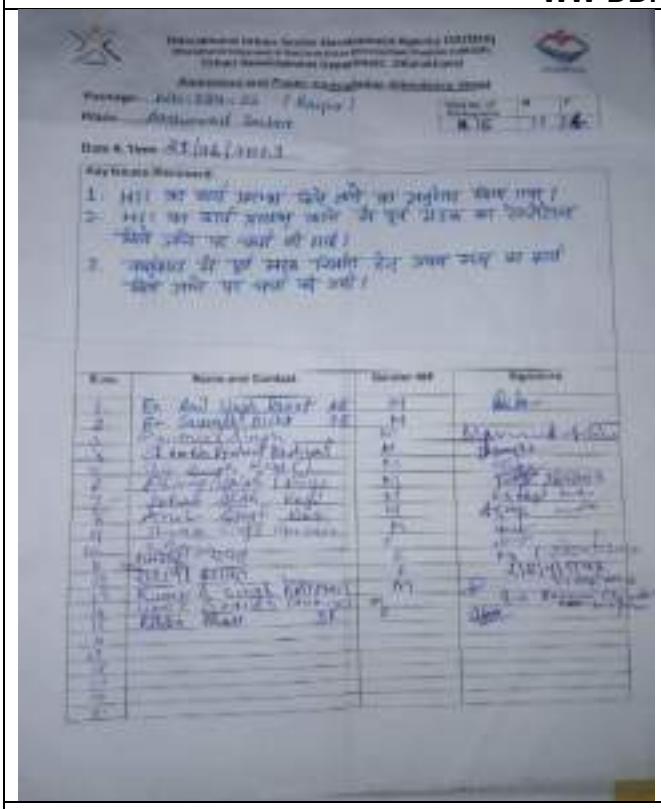

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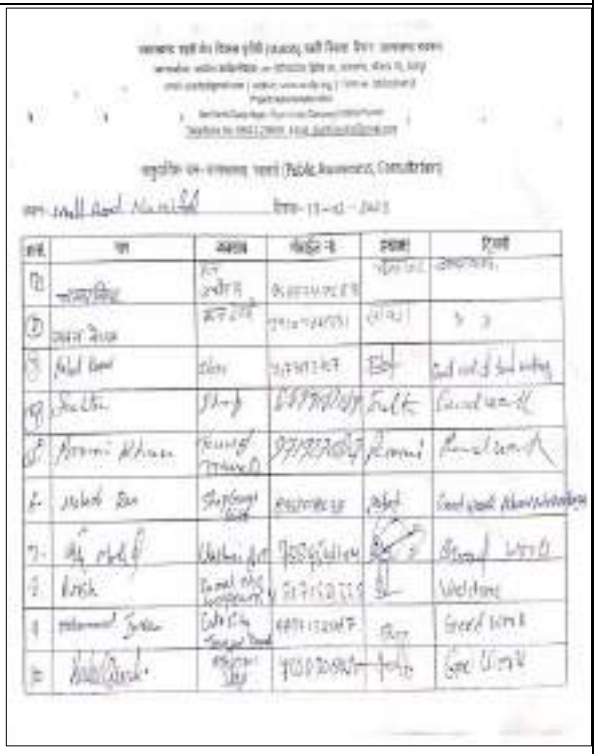


WW-NTL-01

Appendix 8: Copies of Notifications / Orders for Establishing GRM and GRCs

Office of the Program Director
Uttarakhand Urban Sector Development Agency (UUSDA)
Urban Development Department, Govt. of Uttarakhand
777, Saahvik Tower, II Floor, Kaulagarh Road, Rajendra Nagar, Dehradun
Tel- 0135-2753894, Fax- 0135-2754855, www.uusdp.org, Email: uusdp@gmail.com

Letter No.- Social/UUSDA/IEC/ 182 Date- 10/02/2022

E-mail/ Speed Post

Office Order

For addressing day to day basis grievances, needs an urgent attention by the concerning officers is required. As per Project Administration Manual (PAM) and as per project need, a Grievance redressal cell (GRC) to be formed to record and redress the public grievances in a time bound manner.

In this regard a Grievance Redressal Cell (GRC) is being constituted in PMU and each PIU of UIRUDP project comprising of the following officials/ staff:

Grievance Redressal Cell (GRC)

1. Project Manager, PIU – henceforth will be in-charge of the GRC.
2. A Data Entry Operator (DEO) will be assigned duly for registering and complying, all the grievances for putting up before the concerning authority.
3. Social & Environmental Officials- PIU, Contractor, CAPPA, PMDSC officials will work as a representative / grievances (Social, Environmental and Safety) receiver and recorder from community.
4. IECO, SDGO, EO, Social & Environmental Officials of CAPPA and PMDSC will oversee the grievances under supervision of DPD, APD (Tech.).
5. Social & Environmental officials – PMDSC, CAPPPA will weekly report the grievance data to IECO, SDGO, EO- PMU.
6. IECO, SDGO will record the calls on **Toll free 1800 180 4159** at PMU level and will forward to the concerned Project Manager- PIU (A Data Entry Operator (DEO)-PMU will be assigned duly for registering and complying, all the grievances for putting up before the concerning authority).

The GRC w.e.f. 09.02.2022 and will put up the compilation of all the concern, complaints and grievances received from any platform (Field, public meetings, whatsapp, social media, calls and etc.). They all should be registered, recorded, attended and closed, along with pending cases on weekly basis, having co-ordination with the stakeholders and line-agencies.

The above officials are directed that they will perform the above tasks along with their work, for this no additional allowance will be payable to them.

The said orders will be effective immediately.

Enclosure: As above.

(Vinay Mishra)
Addl. Program Director

C.C. to-
1- Program Director, UUSDA for kind information.
2- To the all concerned officials for necessary action.

Addl. Program Director

Project Administration Manual (PAM) - UIRUDP
Page - 59 Point/Para - 91

A. Grievance Redress Mechanism

91 ~~89~~. A project-specific, grievance redress mechanism (GRM) will be established to receive, evaluate and facilitate resolution of both social and environment related concerns raised by the affected persons, communities and other stakeholders during project implementation. GRM aims to provide a time-bound and transparent mechanism to voice and resolve complaints/grievances of the project stakeholders. Assessment of the GRM designed and implemented for the previous ADB-financed Uttarakhand Urban Sector Development Investment Program (UUSDIP)[26] shows that the system was effective in timely resolution of grievances in a transparent manner.[27] The multichannel, project-specific, three-tier GRM is functional at UUSDIP, hence the design of GRM for UUSDIP2 takes into account the proposed institutional structure for UIRUDP and the positive features and learning from the previous GRM.[28]

92 ~~90~~. **Common GRM** - A common GRM will be in place for social, environmental, or any other grievances related to the project. Implementation of the resettlement plans/initial environmental examination (IEEs) will follow the GRM described below. The GRM will provide an accessible and trusted platform for receiving and facilitating resolution of affected persons' grievances related to the project.

93 91. The grievance redress mechanism will provide an accessible, inclusive, gender-sensitive and culturally appropriate platform for receiving and facilitating resolution of affected persons' grievances related to the project. The construction works under the contract package will be carried out along inhabited areas, therefore, it is anticipated that it may lead to some disturbance and inconvenience to local people. In order to provide a direct channel to the affected persons and stakeholders for approaching project authorities and have their grievance registered and redressed in an appropriate time frame, PMU will establish a Grievance Redress Mechanism, which will be functional throughout the project period.

94 ~~92~~. A complaint receiving system will be put in place at each site with the help of Community Awareness and Public Participation Agency (CAPPA). A Complaint Register and Complaint Forms will be made available at the site office of each contractor, with a display board indicating availability of such facility.

95 ~~93~~. Public awareness campaigns within entire ULB/Municipal area will ensure that awareness on grievance redress procedures is generated. The nodal officer- social/environment at field level through Community Awareness and Public Participation Agency (CAPPA) will conduct ULB/Municipal area-based awareness campaigns to ensure that poor and vulnerable households are made aware of grievance redress procedures and entitlements. Contractors will provide leaflets to communities prior to start of works and erect billboards during construction mentioning details of the project work. The pamphlets and billboards will include relevant environmental and

[26] The procedures followed for grievance redress during implementation of UUSDIP Loan 1 and 2 included the project level GRM, including providing toll free number for grievance registering, Samadhan (www.samadhan.uk.gov.in), portal of Government of Uttarakhand and the Chief Minister's helpline. Complaints received through various channels were mostly minor and pertained to damage to existing water supply pipelines and disruption of water supply during construction, delays in road restoration, pending new connections and increase in Noise and dust levels Complaints related to damage to private property (compound walls/steps, etc.) were less in number. The grievances were resolved in coordination with the contractors. Complaints received were immediately referred by the Consultation and Participation Agency (CAPA) / design and supervision consultant (DSC) supervision staff to the Implementing Project Implementation Unit (IPIU) Nodal officer (safeguards) and concerned engineer at IPIU, who advised them on further action. Follow up with the contractor on complaint resolution was undertaken by IPIU Nodal officer CAPA, and DSC and final feedback sought from complainant upon resolution. Complaints requiring inter-departmental coordination were referred to the implementing PMU (IPMU) for resolution, and feedback provided to complainant. The IPMU kept regular track of grievances through WhatsApp and email also with respective IPIUs, ensuring registration and follow-up till its successful resolution.

[27] Town-level grievance registration data at IPIU level under UUSDIP indicates that a large number of grievances were registered, pointing to the effectiveness of the multi-channel GRM. No major grievance was received for both the phases of UUSDIP. The GRM helped smoothen the process of project implementation, hence the proposed architecture for the UIRUDP GRM remains similar, with some refinement, taking into account the changes in institutional setup proposed for project implementation.

[28] Logistics support at field level will be key to successful management of grievance redress under UIRUDP. The target date for establishment of the first level (Field/PIU level) and second level (PMU level) of GRM is before loan negotiation. For UUSDIP, billboards were used to inform communities about the filing process, and community mobilizers supported creating a continuous consultation process. Pamphlets were distributed, and community consent was obtained before the commencement of work. Stakeholders were able to file their grievances through a toll-free number (which do not exist now); a new toll-free number will be in place for UIRUDP. Grievances can also be uploaded in UUSDA website at: https://www.uusdip.org/grievance.php (which is still functional).

social safeguards, GRM information, and contact details of key personnel from PIU and contractors.

96 ~~84~~. Affected persons will have the flexibility of conveying grievances/suggestions by dropping grievance redress/suggestion forms in complaint/suggestion boxes that will be installed by project PIUs or by e-mail, by post, or by writing in a complaint register in ULB offices/complaints register at contractor's work site. Careful documentation of the name of the complainant, date of receipt of the complaint, address/contact details of the person, location of the problem area, and how the problem was resolved will be undertaken and feedback provided to the complainant on action/decision taken. The Social and Environmental Safeguard Nodal Officers of town/city level PIU will have the overall responsibility for timely grievance redressal on environmental and social safeguards issues and for registration of grievances, related disclosure, with the assistance of project consultants. In case of grievances that are immediate and urgent in the perception of the complainant, the contractor, and officials of PIU with assistance from CAPPA on-site will provide the most easily accessible or first level of contact for quick resolution of grievances. Contact numbers and names of the concerned PIU safeguard and safety officer, EHS Supervisor of contractors, CAPPA and SDGO/EO will be posted at all construction sites at visible locations.

B. Grievance Redress Process

97 ~~85~~. Grievances received during public outreach programs and consultations by CAPPA will be brought to the notice of concerned PIU and formally registered. Grievances not redressed at field/PIU level and PMU level will be brought to grievance redress committee (GRC). The Town Level Committees (TLC) set up to monitor project implementation in each town will be the members of GRC. The proposed GRC will be gender inclusive and will have civil society representation. The grievance redress committee (GRC) is chaired by the Chairman of TLC (Mayors or Chairpersons). The members of TLC are as follows:

(i) Mayor or Chairperson as chair;
(ii) Municipal Commissioner or Executive Officer as member;
(iii) Concern Line Agency representatives as member;
(iv) NGO and Civil Society Organization as member; and
(v) Executive Engineer of Town PIU as member secretary.

98 ~~86~~. The GRC, including Town Level Committee (TLC) members will meet every month (if grievances are brought to the Committee), determine the merit of each grievance, and resolve grievances within a month of receiving the complaint. This will accept complaints regarding the social safeguard issues in implementation of the project. The grievances received and actions taken will be included into the environmental and social monitoring reports submitted to ADB. The following 3-stage process will be followed in grievance redress:

99 ~~87~~. **First Level Grievance (Field/PIU level):** Complaints received (written or oral communication) will be registered in Complaint Register assigning complaint number with date of receipt, name of complainant, address/contact number of complainants. The PIU/PMDSC will review the complaint and direct the Contractor for necessary action (will try to resolve the issue within 7 days from the date of receipt of complaint); depending on the type/nature of complaint

the Contractor will be given reasonable time for corrective action; the CAPPA will inform the complainant, within 24 hours, the time frame in which the corrective action will be communicated by e-mail, text message or telephonically; if the grievance referred will not fall under the purview of the project/program, the same will be intimated to the complainant; Contractor will take corrective action or as directed by PMDSC; the CAPPA in coordination with DSC will conduct the site visit to check the action taken and its appropriateness. The action taken will be documented

in the Complaint Register, and the complaint will be closed if it is satisfactorily addressed, and the complainant will be informed through website/e-mail/telephonically. The responsible persons for field/PIU level[29] grievance redress are as follows:

(i) Social Development and Gender Officers (SDGO) and Assistant Environmental Officers (AEO), PIUs;
(ii) Social, Gender and Resettlement and Environmental Experts, Engineers (if required), PMDSC;
(iii) Contractor representative (EHS Supervisor);
(iv) CAPPA;
(v) Municipal Ward Member (if required)

~~97.~~ **Second Level Grievance (PMU level):** In case of no satisfactory action in 1st level, the complainant can approach PMU level grievance redress team for necessary action; CAPPA will assist the complainant in doing so. Grievance redress team at PMU level with the assistance of PMDSC will initiate action and take the corrective measures as required, and CAPPA will intimate the complainant about the action taken; upon satisfaction of complainant, the case will be closed and marked as resolved within 15 days of receipt of compliance/grievance. The responsible persons for PMU level grievance redress are as follows:

(i) Deputy Program Director 1, responsible for project, GESI and safeguard implementation;
(ii) Social Development and Gender Officer (SDGO);
(iii) Environmental officer (EO);
(iv) Information, Education and Communication Officer (IECO);
(v) Social, Gender and Resettlement Experts (SGREs) and Environmental Experts, Engineers (if required), PMDSC; and
(vi) CAPPA.

~~98.~~ **Third Level Grievance (GRC):** If complainant is not satisfied with the action made or due to noncompliance of grievance at Level 2, the complainant can approach the Grievance Redress Committee (it is expected that the grievance will be redressed within 7 days[30] from date of receipt). The GRC will comprise of the following members:

(i) Town Level Committee (Dehradun/Nainital), chaired by respective Chairperson/Mayor of the particular town;
(ii) Program Director, UIRUDP;
(iii) Additional Program Director (APD) Technical, UIRUDP;
(iv) DPD 1;
(v) Social Development and Gender Officer (SDGO);
(vi) Environmental Officer (EO);
(vii) PMDSC (Env. and SGRE Experts),
(viii) Women Member of Civil Society under TLC;
(ix) Elected Representative (if required); and
(x) CAPPA.

[29] Each PIU will have a dedicated WhatsApp helpline number for registration of grievances and provision of quick feedback, to be followed by formal communication. Project contractors in all project towns will have a toll-free number with specific working hours for registration of grievances related to UIRUDP.

[30] Given the challenging times (due to COVID-19), an additional 7 days time-period would be given to each level to resolve the complaints/grievances.

102 **Grievance Redress Committee**. The grievance redress committee (GRC) will address both social safeguard and environment issues. The TLC[31] would be chaired by Mayor of Dehradun Municipal Corporation or Nainital Municipal Corporation (as the case may require), and will have the member from civil society (preferably a woman representative), local elected representatives, engineers from UJS/UJN/Irrigation Department and any other concerned line department officials (Forrest Department). Grievances related to social and environmental safeguards will be handled by GRC through periodic meetings. The PMU Social Development and Gender Officer (SDGO), Environment Officer, experts from PMDSC and CAPPA will assist the PD, UIRUDP, APD, UIRUDP and other members of GRC, in facilitating smooth functioning of GRM and timely resolving the complaints/grievances.

103 **Court of Law:** Under the project specific GRM, an aggrieved person shall have access to the country's legal system at any stage and accessing the country's legal system can run parallel to accessing the GRM and is not dependent on the negative outcome of the GRM. In case of grievance related to land acquisition, resettlement and rehabilitation, the affected persons will have to approach a legal body/court specially proposed under the RFCTLARRA, 2013.[32] However, as none of the impacts are complex, long-term, or significant in nature, it is unlikely that there will be any unresolved issues after the first three stages. The PMU will submit RP/EMP/SEMP implementation report to ADB's review and will ensure that affected persons will receive compensation and other assistances as per EM prior to impact / displacement and before commencement of civil works. The issues relating to environment will be redressed as per the guidance provided in EMP/SEMP.

104 **ADB's Accountability Mechanism.** The People who may /are in future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach ADB accountability mechanism.[33]

105 **Record-keeping.** The town level PIU will keep records of grievances received, including contact details of complainant, date the complaint was received, nature of grievance, agreed corrective actions and the date these were affected and final outcome in gender segregated manner. The number of grievances recorded and resolved, and the outcomes will be displayed/disclosed in the PMU office, PIU offices, and on the websites, as well as reported in monitoring reports submitted to ADB on a semi-annual basis. The sample grievance registration format is attached.

106 **Periodic review and documentation of lessons learned.** The PMU safeguard officers (SDGO and EO) will periodically review the GRM functioning at PIU/ Construction Contractor level and record information on the effectiveness of the mechanism, especially on the project's ability to transparently prevent and address the reported grievances.

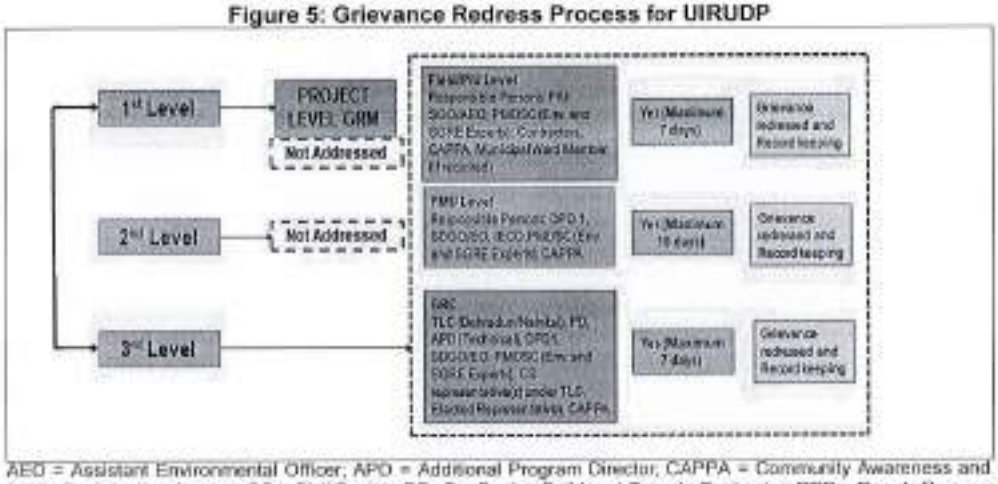
[31] The TLC has been formed at each of the targeted towns for planning and monitoring of work, resolve grievances and issues related to departmental coordination etc. It is headed by Commissioner /Executive Officer ULB(Chairman) and Executive Engineer of UJS/UJN, public works department (PWD) and head of PIU acting as Member Secretary.

[32] The Authority admits grievances only with reference to the Land Acquisition and R&R issues under the RFCTLARRA, 2013.

[33] Accountability Mechanism. http://www.adb.org/Accountability-Mechanism/default.asp

10. **Costs.** As part of the EMP cost the Construction Contractors will be allocating budget for pamphlets and billboards and site level grievance registers as per requirement. PIU at town level will bear the costs involved in resolving the complaints (meetings, consultations, communication and reporting/information dissemination) while costs related to further action on intensified grievances will be met by the PMU. GRM structure for UIRUDP is presented in the figure below.

Figure 5: Grievance Redress Process for UIRUDP



AEO = Assistant Environmental Officer; APO = Additional Program Director; CAPPA = Community Awareness and Public Participation Agency; CS = Civil Society DB--O = Design Build and Operate Contractor; DPD = Deputy Program Director; EO = Environmental Officer; IECO = Information Education and Communication Officer; PD = Program Director; PIU = Project Implementation Unit; PMDSC = Project Management, Design Supervision Consultant; PMU = Project Management Unit; SDGO = Social Development and Gender Officer, SGRE = Social, Gender and Resettlement Expert; TLC = Town Level Committee
Source: Asian Development Bank.

Appendix 9: Public Complaints received during Reporting Period and Pending in Previous Reports

Package No	No. of complaints received during reporting period			Types of Common and Major Grievances	Time taken for resolution (days)
		Pending	Resolved		
(WS&S-DDN-01)	176	None	176	• Home Vehicle Ramp damages. • Water line damage. • Water logging issues • Shortage in water supply. • Sewerage Line Issues. • Damaged Water connection and valves. • Deposition of soil mud on road and home entrance. • Sewer line damage • Request for Road dressing/ Road restoration • Road restoration	1 day
(WS&S-DDN-02)	27	None	27		1 day
(WS&S-DDN-03)	586	None	586		1-2 days
(WW-DDN-01)	42	None	42		1 day
(WW-DDN-02)	103	None	103		1 day
(WW-NTL-01)	01	None	01		4 days

Appendix 10: Royalty form (Sample) of Govt. approved queries

Geology & Mining Unit

(Directorate of Industries Uttarakhand)

Uttarakhand mineral (Prevention of illegal mining, transportation and storage) rules, 2005
e-Transit pass form for transportation & minor mineral from stock see rule 70(1)

Form J

GSTIN: 05BVQPS1841D2ZH

Form No : IJ223210033304

Registration No : ST66022321

Date and Time : 21/01/2023 04:22:30 AM

Owner Name : Gulzar Singh
Gulzar Singh (Saggu Traders) Proprietorship

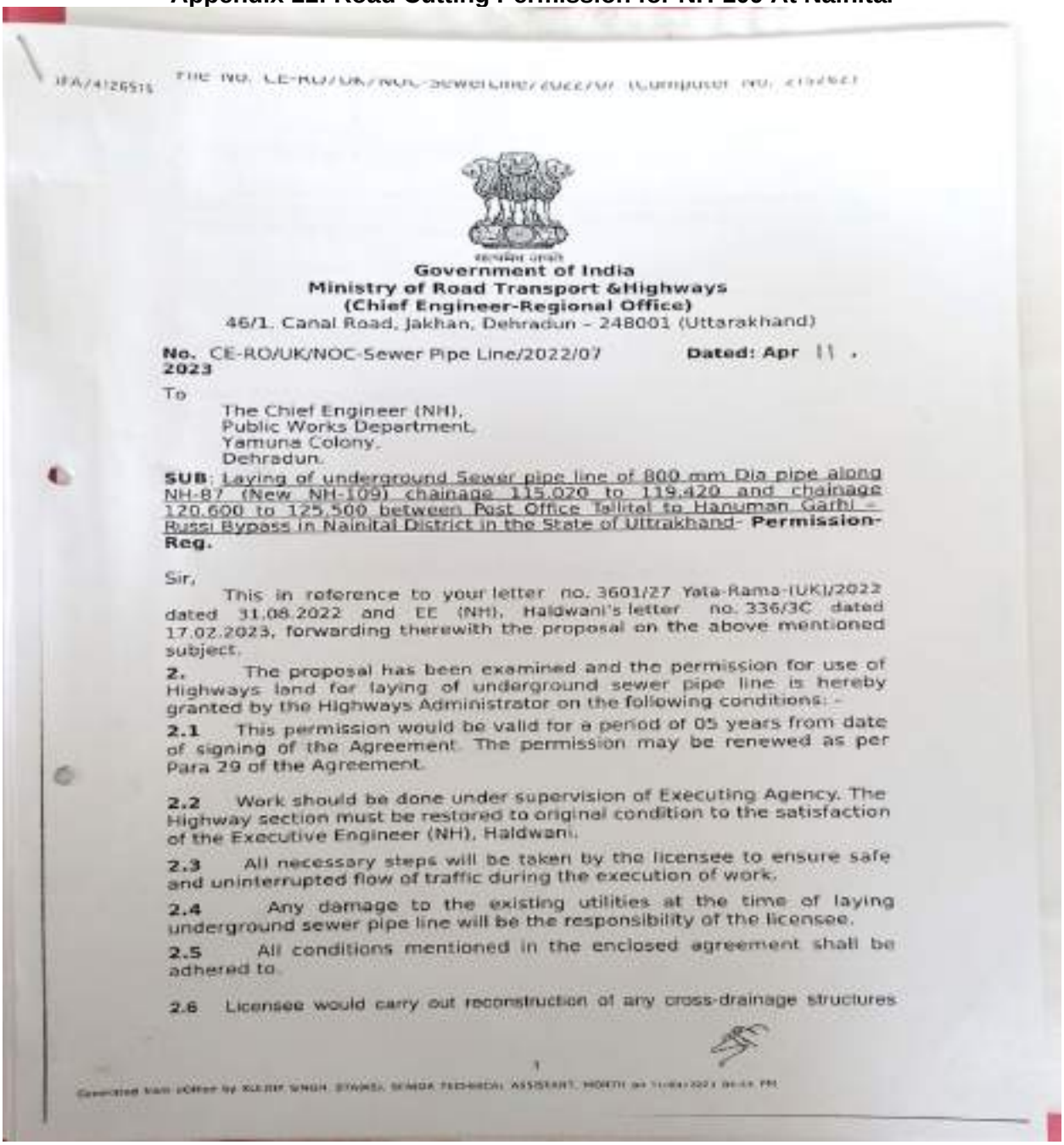
Lease Address : Village- Bandar Jura, , Tahsil: Kaladhungi, District: Nainital, Uttarakhand

Type of Vehicle	Truck
Registration No of Vehicle	UK08CB9192
Name of Driver	BABU
Name of Mineral	RBM Mixed
Weight of Mineral (In Tons)	13.10
Sale Value/Approximate Value Including Tax	₹ 5,672.30
Payble CGST @ 2.50 %	₹ 141.80
Payble SGST @ 2.50 %	₹ 141.80
Name of Purchaser	M/S TOMAR AND SONS
GSTIN of Purchaser	05ASGPT7236F1ZL
Address of Destination	303/2,304/3,Village: Rudki Gaon, Tahsil : Nainital, District : Uttarakhand

(Scan This QR Code With A QR Reader)

THIS FORM IS VALID UPTO: 21/01/2023 10:22:30 AM

Appendix 11: Road Cutting Permission for NH-109 At Nainital



IFA/4126515 File No. CE-RO/UK/NOC-Sewer Line/2022/07 (Computer No. 4126562)

Government of India
Ministry of Road Transport &Highways
(Chief Engineer-Regional Office)
46/1, Canal Road, Jakhan, Dehradun – 248001 (Uttarakhand)

No. CE-RO/UK/NOC-Sewer Pipe Line/2022/07 **Dated: Apr 11, 2023**

To

The Chief Engineer (NH),
Public Works Department,
Yamuna Colony,
Dehradun.

SUB: Laying of underground Sewer pipe line of 800 mm Dia pipe along NH-87 (New NH-109) chainage 115.020 to 119.420 and chainage 120.600 to 125.500 between Post Office Talital to Hanuman Garhi – Russi Bypass in Nainital District in the State of Uttrakhand- **Permission-Reg.**

Sir,

This in reference to your letter no. 3601/27 Yata-Rama-(UK)/2022 dated 31.08.2022 and EE (NH), Haldwani's letter no. 336/3C dated 17.02.2023, forwarding therewith the proposal on the above mentioned subject.

2. The proposal has been examined and the permission for use of Highways land for laying of underground sewer pipe line is hereby granted by the Highways Administrator on the following conditions: -

2.1 This permission would be valid for a period of 05 years from date of signing of the Agreement. The permission may be renewed as per Para 29 of the Agreement.

2.2 Work should be done under supervision of Executing Agency. The Highway section must be restored to original condition to the satisfaction of the Executive Engineer (NH), Haldwani.

2.3 All necessary steps will be taken by the licensee to ensure safe and uninterrupted flow of traffic during the execution of work.

2.4 Any damage to the existing utilities at the time of laying underground sewer pipe line will be the responsibility of the licensee.

2.5 All conditions mentioned in the enclosed agreement shall be adhered to.

2.6 Licensee would carry out reconstruction of any cross-drainage structures

1

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damaged due to laying of the Utility.

2.7 Licensee agrees that in case during the widening of the National Highway, if there is any damage to the Utility line or the Man Holes then cost of repair of the same will be borne by the Licensee.

2.8 The Licensee undertakes to remove any defects and carry out restoration work of the National Highway to the satisfaction of Executive Engineer(NH) Haldwani.

3. MoRTH guidelines issued through circular no. RW/NH-330 44/29/2015/S&R(R) dated 22.11.2016 shall be followed in letter and spirit.

Encls.: Signed Agreement

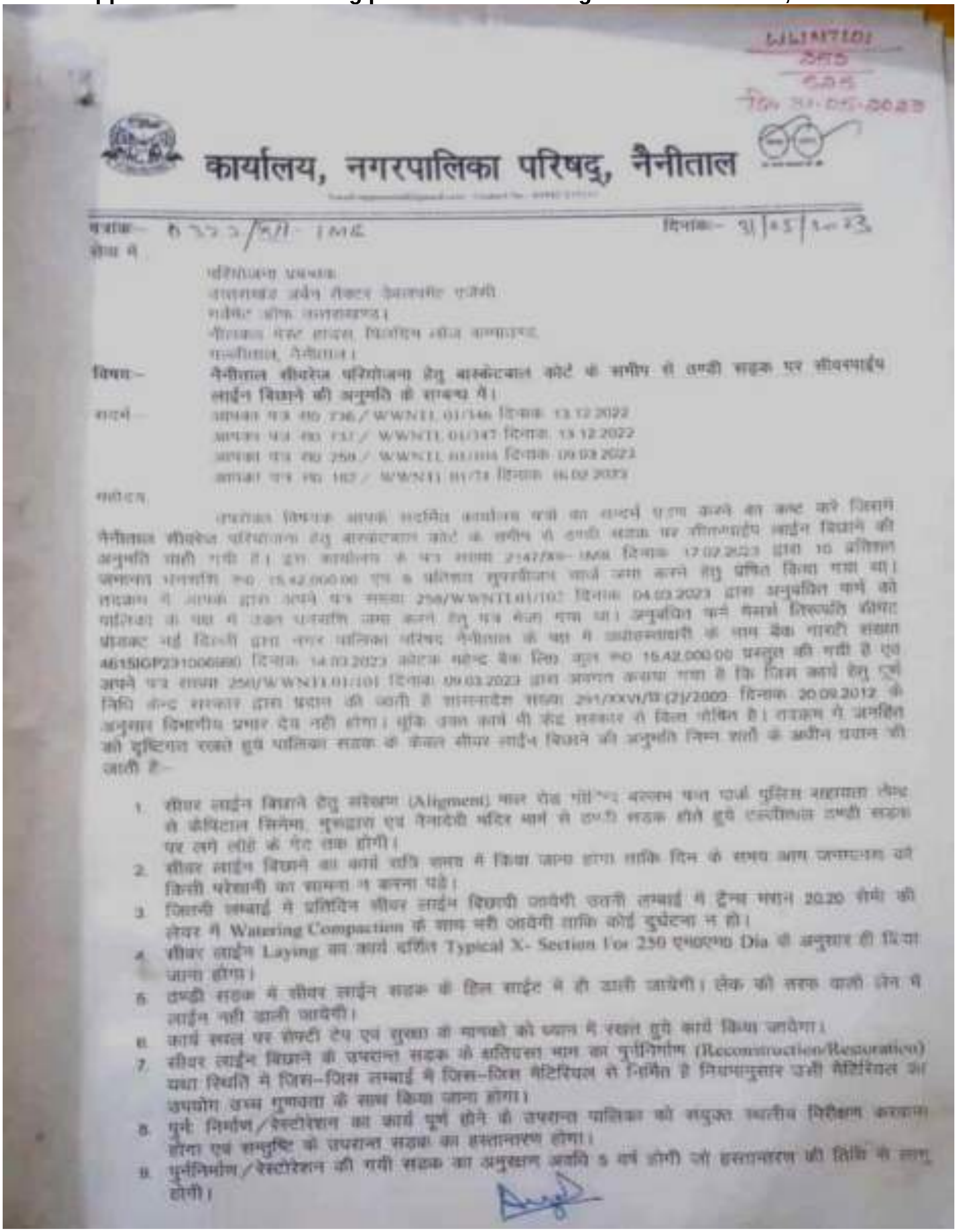
Yours sincerely,

(Pooran Singh)
Superintending Engineer
For Chief Engineer-Regional Officer

Copy to:

1. The Superintending Engineer (NH), PWD, Haldwani – for information please.
2. The Executive Engineer, (NH), PWD, Haldwani – for information please.
3. The Project Manager, Project Implementation Unit, UUSDA, Nainital. (Email: uusdip@gmail.com)

Appendix 12: Road cutting permission from Nagar Palika Parishad, Nainital



कार्यालय, नगरपालिका परिषद्, नैनीताल

पत्रांक– [illegible] दिनांक– [illegible]

सेवा में,

[illegible]

विषय– नैनीताल सीवरेज परियोजना हेतु बास्केटबाल कोर्ट के समीप से ठण्डी सड़क पर सीवरलाईन लाईन बिछाने की अनुमति के सम्बन्ध में।

सन्दर्भ– आपका पत्र सं0 236/WWNTL 01/346 दिनांक 13.12.2022

आपका पत्र सं0 237/WWNTL 01/347 दिनांक 13.12.2022

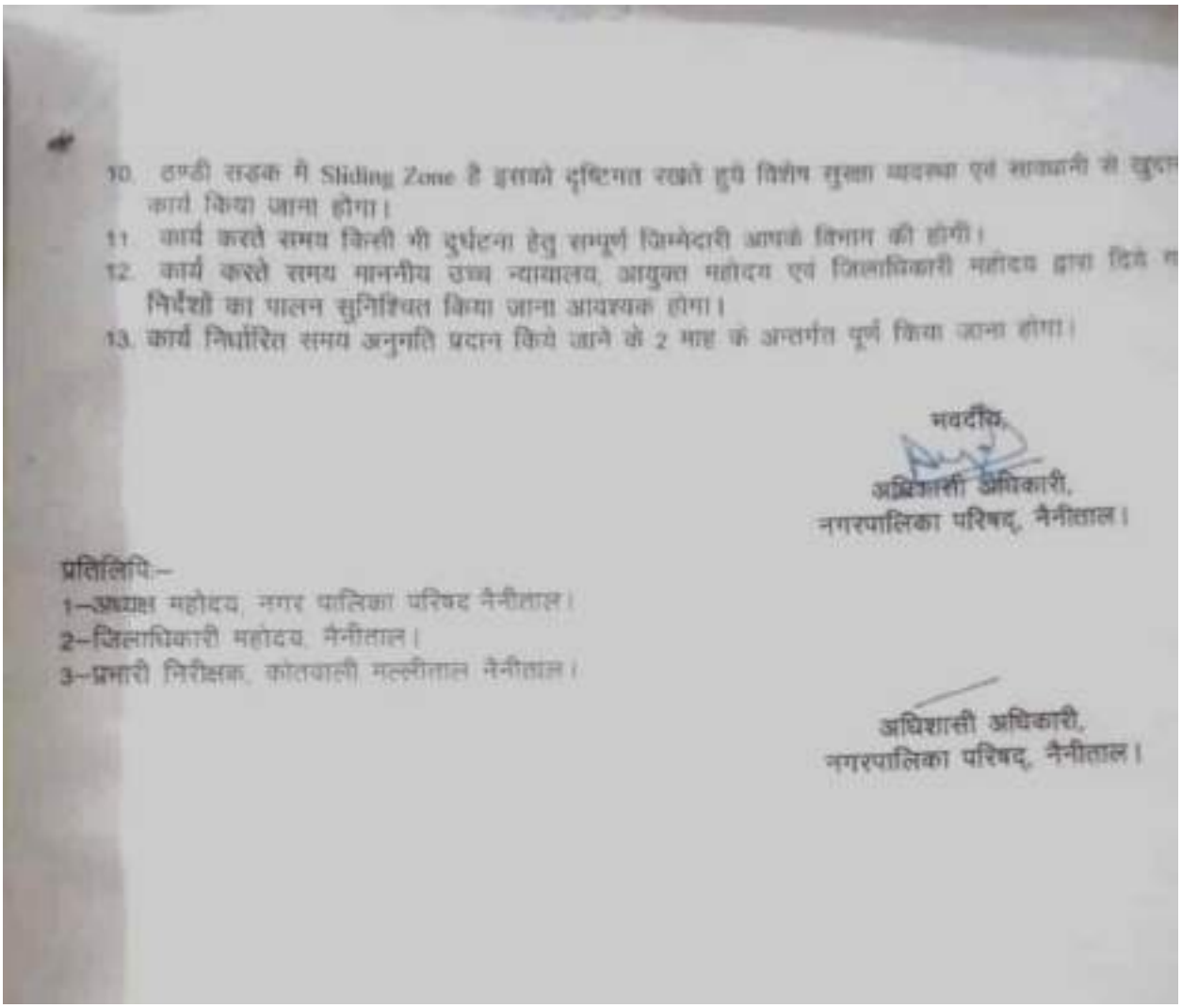
आपका पत्र सं0 259/WWNTL 01/[illegible] दिनांक 09.03.2023

आपका पत्र सं0 102/WWNTL 01/74 दिनांक 16.02.2023

महोदय,

उपरोक्त विषयक आपके सदर्भित कार्यालय पत्रों का सन्दर्भ ग्रहण करने का कष्ट करें जिसमें नैनीताल सीवरेज परियोजना हेतु बास्केटबाल कोर्ट के समीप से ठण्डी सड़क पर सीवरलाईन लाईन बिछाने की अनुमति चाही गयी है। इस कार्यालय के पत्र संख्या 2147/XX–1808 दिनांक 17.02.2023 द्वारा 10 प्रतिशत जमानत धनराशि रू0 15,42,000.00 एवं 8 प्रतिशत सुपरविजन चार्ज जमा करने हेतु प्रेषित किया गया था। तत्क्रम में आपके द्वारा अपने पत्र संख्या 258/WWNTL01/102 दिनांक 04.03.2023 द्वारा अनुबन्धित फर्म को पालिका के पक्ष में उक्त धनराशि जमा करने हेतु पत्र भेजा गया था। अनुबन्धित फर्म मैसर्स [illegible] प्रोजेक्ट नई दिल्ली द्वारा नगर पालिका परिषद नैनीताल के पक्ष में [illegible] के नाम बैंक गारन्टी संख्या 4615IGP231006890 दिनांक 14.03.2023 कोटक महेन्द्र बैंक लि0 कुल रू0 15,42,000.00 प्रस्तुत की गयी है एवं अपने पत्र संख्या 250/WWNTL01/101 दिनांक 09.03.2023 द्वारा अवगत कराया गया है कि जिस कार्य हेतु एवं निधि केन्द्र सरकार द्वारा प्रदान की जाती है शासनादेश संख्या 291/XXVI/III(2)/2009 दिनांक 20.09.2012 के अनुसार विभागीय प्रभार देय नहीं होगा। चूंकि उक्त कार्य भी केंद्र सरकार से वित्त पोषित है। तत्क्रम में जनहित को दृष्टिगत रखते हुये पालिका सड़क के केवल सीवर लाईन बिछाने की अनुमति निम्न शर्तों के अधीन प्रदान की जाती है–

1. सीवर लाईन बिछाने हेतु संरेखण (Alignment) मालरोड गोविन्द बल्लभ पन्त पार्क पुलिस सहायता केन्द्र से कैपिटल सिनेमा, गुरूद्वारा एवं नैनादेवी मंदिर मार्ग से ठण्डी सड़क होते हुये एसडीएम ठण्डी सड़क पर लगे लोहे के गेट तक होगी।
2. सीवर लाईन बिछाने का कार्य रात्रि समय में किया जाना होगा ताकि दिन के समय आम जनमानस को किसी परेशानी का सामना न करना पड़े।
3. जितनी लम्बाई में प्रतिदिन सीवर लाईन बिछायी जायेगी उतनी लम्बाई में ट्रेन्च मसान 20.20 सेमी की लेयर में Watering Compaction के साथ भरी जायेगी ताकि कोई दुर्घटना न हो।
4. सीवर लाईन Laying का कार्य दर्शित Typical X- Section For 250 एम0एम0 Dia के अनुसार ही किया जाना होगा।
5. ठण्डी सड़क में सीवर लाईन सड़क के हिल साईड में ही डाली जायेगी। लेक की तरफ वाली लेन में लाईन नहीं डाली जायेगी।
6. कार्य स्थल पर सेफ्टी टेप एवं सुरक्षा के मानकों को ध्यान में रखते हुये कार्य किया जायेगा।
7. सीवर लाईन बिछाने के उपरान्त सड़क के क्षतिग्रस्त भाग का पुर्ननिर्माण (Reconstruction/Restoration) यथा स्थिति में भिन्न–भिन्न लम्बाई में भिन्न–भिन्न मैटिरियल से निर्मित है नियमानुसार उसी मैटिरियल का उपयोग उच्च गुणवत्ता के साथ किया जाना होगा।
8. पुर्न निर्माण/रेस्टोरेशन का कार्य पूर्ण होने के उपरान्त पालिका को संयुक्त स्थलीय निरीक्षण कराना होगा एवं सन्तुष्टि के उपरान्त सड़क का हस्तान्तरण होगा।
9. पुर्ननिर्माण/रेस्टोरेशन की गयी सड़क का अनुरक्षण अवधि 5 वर्ष होगी जो हस्तान्तरण की तिथि से लागू होगी।



10. ठण्डी सड़क में Sliding Zone है इसको दृष्टिगत रखते हुये विशेष सुरक्षा व्यवस्था एवं सावधानी से खुदान कार्य किया जाना होगा।
11. कार्य करते समय किसी भी दुर्घटना हेतु सम्पूर्ण जिम्मेदारी आपके विभाग की होगी।
12. कार्य करते समय माननीय उच्च न्यायालय, आयुक्त महोदय एवं जिलाधिकारी महोदय द्वारा दिये गये निर्देशों का पालन सुनिश्चित किया जाना आवश्यक होगा।
13. कार्य निर्धारित समय अनुमति प्रदान किये जाने के 2 माह के अन्तर्गत पूर्ण किया जाना होगा।

भवदीय,

अधिशासी अधिकारी,
नगरपालिका परिषद, नैनीताल।

प्रतिलिपि:-
1-अध्यक्ष महोदय, नगर पालिका परिषद नैनीताल।
2-जिलाधिकारी महोदय, नैनीताल।
3-प्रभारी निरीक्षक, कोतवाली मल्लीताल नैनीताल।

अधिशासी अधिकारी,
नगरपालिका परिषद, नैनीताल।

Translation (Please refer Appendix-12)

MUNICIPAL COUNCIL OFFICE, NAINITAL

LETTER NO. 322/XII/IMR DATED: 31/05/2023

TO,
PROJECT MANAGER
UTTARAKHAND URBAN SECTOR DEVELOPMENMT AGENCY
GOVT. OF UTTARAKHAND
NEELKANTH GUEST HOUSE PILGRIM LOUDGE COMPOUND
MALLITAL NAINITAL

SUBJECT: Related to the NOC for sewer pipeline laying at Thandi Sadak near Basketball Court.

Your Letter No. 736/WWNTL-01/346 Dated 13.12.2022
Your Letter No. 737/WWNTL-01/347 Dated 13.12.2022
Your Letter No. 259/WWNTL-01/104 Dated 09.03.2023
Your Letter No. 162/WWNTL-01/74 Dated 16.02.2023

Please refer to your office letter on the above subject. For Nainital Sewerage Project, permission is given for laying the sewer line at Thandi Sadak (Road) near the basketball court. By this office / No. 2147/X-1MB dated 17.02.2023, 10 percent security deposit amount of 60 15.42,000.00 percent was transferred for depositing supervision charges. Accordingly, in your letter number 258/WWNT-101/102 dated 04.03.2073, a letter was sent to the contracted firm for depositing the municipal funds. A total of Rs 15,42,001.00 has been submitted by the firm M/s Tirupati's Cement Product, Delhi in the name of the undersigned in the post of Municipal Council, Nainital, under Bank Guarantee Account 46151GR231000 dated 14.03.2023 for Kotak Mahendra Bank. Through its letter number 250/WWNLO1/401 dated 09.03.2023, It has been informed that as per the Government Order No. 291/XXV1/21/2009 dated 20.00 2012, departmental charges will not be payable for the work fund which is provided by the Central Government. The work is also funded by the Central Government, keeping in view the public interest, permission to lay sewer line only on the municipal road is granted, subject to the following conditions.

1. Alignment for laying the sewer line will be done from Mal Road (Govind Ballabh Pant Park) with the help of police, through the road from Capital Cinema, Gurudwara and Naina Devi Temple road till the Iron gate on Tallital Thandi Sadak.
2. The work of laying sewer line should be done at night so that common masses does not face any problem.
3. The length to which the sewer line will be laid on each day. Trench filling will be filled in 20.20 cm layer with watering compaction to avoid any type of incidents.
4. Sewer line laying work to be done as per the shown Typical x-Section by 250 mm Dia.
5. Sewer line in Thandi Sadak will be laid at hill side only and the sewer line towards the lake will not be laid.
6. Work will be done by following the safety standards and by providing the safety tape at work site.
7. After laying the sewer line, reconstruction/restoration of the damaged part of the road. In whatever situation, whatever material it is made from, as per the rules, the same material should be used with high quality.
8. After completion of construction/restoration work, the municipal council will have to conduct joint inspection and ensure satisfaction, after this road will be handed over to the municipal council.
9. The duration of the maintenance of road will be of 5 years which will be applicable from the date of handed over to the municipal council.

10. There is a sliding zone on the Thandi Sadak, special safety arrangements and equipment will be required and ensured by the construction firm.
11. Your department will take full responsibility for any accident during the construction work.
12. The instruction given by Honorable High Court Commissioner and District Magistrate will be followed during any type of construction work on the concerned road
13. The work has to be completed within two months of the scheduled time.

Executive Engineer
Municipal Council Nainital

Copy to:
Chairman, Municipal Council, Nainital
District Magistrate, Nainital
Inspector In charge, Police Station, Mallital, Nainital

Executive Engineer
Municipal Council Nainital

Appendix 13: NOC for 18 MLD STP forest land from MoEF&CC

भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय
एकीकृत क्षेत्रीय कार्यालय, देहरादून
25 सुभाष रोड, देहरादून–248001
दूरभाष: 0135–2650809
फैक्स–0135–2653010
ईमेल- moef.ddn@gov.in

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
INTEGRATED REGIONAL OFFICE, DEHRADUN
25 SUBASH ROAD, DEHRADUN-248001
PHONE- 0135-2650809
FAX- 0135-2653010
Email- moef.ddn@gov.in

पत्र सं0 8बी/यू0सी0पी0/09/18/2022/एफ.सी. 533 दिनांक: 14/07/2022

सेवा में,
अपर मुख्य सचिव (वन),
उत्तराखण्ड शासन,
सुभाष रोड, देहरादून।

विषयः– जनपद– देहरादून के डोईवाला विधानसभा क्षेत्र के नकरौंदा में यू0यू0एस0डी0ए0 द्वारा नवीन ए0डी0बी0 ऋण के अंतर्गत नकरौंदा क्षेत्र में बनाये जाने वाले एस0टी0पी0 हेतु 0.95 हे0 वन भूमि का गैर वानिकी कार्यों हेतु यू0यू0एस0डी0ए0 को प्रत्यावर्तन। **(Online Proposal no. FP/UK/Others/150625/2021)**

सन्दर्भः– अपर प्रमुख वन संरक्षक एवं नोडल अधिकारी, उत्तराखण्ड शासन की पत्र संख्या **106/FP/UK/Others/150625/2021** दिनांक 08.07.2022

महोदय,

उपरोक्त विषय पर अपर प्रमुख वन संरक्षक एवं नोडल अधिकारी, उत्तराखण्ड शासन के पत्र दिनांक 04.02.2022 का आशय ग्रहण करने का कष्ट करें, जिसके द्वारा विषयांकित प्रस्ताव पर केन्द्र सरकार से वन (संरक्षण) अधिनियम, 1980 की धारा–2 के तहत स्वीकृति मांगी थी।

प्रश्नगत प्रकरण में इस कार्यालय के समसंख्यक पत्र दिनांक–01.06.2022 द्वारा प्रस्ताव में सैद्धान्तिक स्वीकृति प्रदान की गयी थी जिसमें उल्लिखित शर्तों की अनुपालन आख्या अपर प्रमुख वन संरक्षक एवं नोडल अधिकारी, उत्तराखण्ड शासन के उपरोक्त संदर्भित पत्र द्वारा प्रस्तुत कर दी गयी है। राज्य सरकार के प्रस्ताव पर ध्यानपूर्वक विचार करने के उपरान्त केन्द्र सरकार **जनपद– देहरादून के डोईवाला विधानसभा क्षेत्र के नकरौंदा में यू0यू0एस0डी0ए0 द्वारा नवीन ए0डी0बी0 ऋण के अंतर्गत नकरौंदा क्षेत्र में बनाये जाने वाले एस0टी0पी0 हेतु 0.95 हे0 वन भूमि का गैर वानिकी कार्यों हेतु यू0यू0एस0डी0ए0 को प्रत्यावर्तन हेतु विधिवत् स्वीकृति** निम्नलिखित शर्तों पर प्रदान करती है:–

1. वन भूमि की विधिक परिस्थिति अपरिवर्तित रहेगी।
2. परियोजना के लिए आवश्यक गैर–वानिकी भूमि प्रयोक्ता अभिकरण को सौंपने के बाद ही वन भूमि सौंपी जाएगी।
3. **प्रतिपूरक वनीकरण**

क) प्रयोक्ता अभिकरण द्वारा 1900 पौधों का रोपण कार्य प्रस्ताव के अनुसार किया जाएगा। जहां तक संभव हो, स्थानीय देशी प्रजातियों को लगाया जाए तथा किसी भी प्रजाति की एकल प्लांटेशन से बचा जायें।

ख) वृक्षारोपण किए जाने वाले क्षेत्र की के0एम0एल फाइल, वृक्षारोपण योजना, प्रस्तावित एस0एम0सी कार्य, प्रस्तावित कैचमेंट एरिया ट्रीटमेंट क्षेत्र और डब्लू0एल0एम0पी क्षेत्र को लीनियर परियोजनाओं के लिए कार्य अनुमति जारी करने से पहले सभी आवश्यक विवरणों के साथ ई–ग्रीन वॉच पोर्टल पर अपलोड किया जाएगा ।

1/3 contd..

4. वन अधिकार अधिनियम, 2006 का पूर्ण अनुपालन संबंधित जिला कलेक्टर द्वारा जारी प्रमाण पत्र से सुनिश्चित किया जाएगा।
5. प्रयोक्ता अभिकरण प्रत्यावर्तित वन भूमि में प्रस्ताव के अनुसार किसी भी प्रकार के वृक्ष नहीं काटे जायेंगे।
6. परियोजना के तहत प्रयोक्ता अभिकरण से प्राप्त धन केवल ई–पोर्टल (https://parivesh-nic-in/) के माध्यम से क्षतिपूरक वनीकरण कोष प्रबंधन और योजना प्राधिकरण फंड में स्थानांतरित/ जमा किए जाएंगे।
7. एफआरए, 2006 का पूर्ण अनुपालन संबंधित जिला कलेक्टर से निर्धारित प्रमाण पत्र के माध्यम से सुनिश्चित किया जाएगा।
8. पर्यावरण (संरक्षण) अधिनियम, 1986 के प्रावधानों के अनुसार, उपयोगकर्ता अभिकरण पर्यावरणीय स्वीकृति यदि लागू हो प्राप्त करेगा।
9. केंद्र सरकार की पूर्वानुमति के बिना प्रस्ताव का ले–आउट प्लान नहीं बदला जाएगा।
10. वन भूमि पर कोई भी श्रमिक शिविर स्थापित नहीं किया जाएगा।
11. प्रयोक्ता अभिकरण द्वारा मजदूरों को राज्यीय वन विभाग अथवा वन विकास निगम अथवा वैकल्पिक ईंधन के किसी अन्य कानूनी स्रोत से पर्याप्त लकड़ी, विशेषतः वैकल्पिक ईंधन दिया जाएगा।
12. संबंधित वन मंडल अधिकारी के निर्देशानुसार, प्रत्यावर्तित वन भूमि की सीमा को परियोजना लागत पर आर.सी.सी. पिलर्स द्वारा सीमांकन किया जाएगा। जिस पर Forward/Backward bearings अंकित हों।
13. परियोजना कार्य के निष्पादन के लिए निर्माण सामग्री के परिवहन के लिए वन क्षेत्र के अंदर कोई अतिरिक्त या नया मार्ग नहीं बनाया जाएगा।
14. वन भूमि का उपयोग परियोजना के प्रस्ताव में विनिर्दिष्ट प्रयोजनों के अतिरिक्त अन्य किसी प्रयोजन हेतु नहीं किया जाएगा।
15. केंद्र सरकार की पूर्वानुमति के बिना प्रत्यावर्तन हेतु प्रस्तावित वन भूमि किसी भी परिस्थिति में किसी भी अन्य एजेंसियों, विभाग अथवा व्यक्ति को हस्तांतरित नहीं की जाएगी।
16. इनमें से किसी भी शर्त का उल्लंघन वन (संरक्षण) अधिनियम, 1980 का उल्लंघन होगा एवं पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय के दिशानिर्देश फाईल संख्या 11–42/2017–FC दिनांक 29.01.2018 के अनुसार उस पर कार्रवाई होगी।
17. पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय द्वारा वन एवं वन्यजीवों के संरक्षण व विकास के हित में समय–समय पर निर्धारित शर्तें लागू होंगी।
18. प्रयोक्ता अभिकरण मलवा निस्तारण योजना के अनुसार पूर्वविर्दिष्ट स्थलों पर इस प्रकार मलवे का निस्तारण करेगा कि वह अनावश्यक रूप से तय सीमा से नीचे न गिरे। किसी भी प्रकार से मलवा निस्तारण वन भूमि पर नहीं किया जायेगा।
19. यदि कोई अन्य सम्बन्धित अधिनियम/अनुच्छेद/नियम/न्यायालय आदेश/अनुदेश आदि इस प्रस्ताव पर लागू होते है तो उनके अधीन जरूरी अनुमति लेना राज्य सरकार/प्रयोक्ता एजेंसी की जिम्मेवारी होगी।

2/3 contd..

20. अनुपालना रिपोर्ट ई–पोर्टल (https://parivesh.nic/in/) पर अपलोड की जाएगी।

भवदीय,

(गजेंद्र प्रकाश नरवणे)
सहायक महानिरीक्षक (वन)

प्रतिलिपि सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषितः

1. अपर वन महानिदेशक (एफ०सी०), पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, इन्दिरा पर्यावरण भवन, जोरबाग रोड, अलीगंज, नई दिल्ली।
2. अपर प्रमुख वन संरक्षक एवं नोडल अधिकारी, वन संरक्षण, इन्दिरा नगर फारेस्ट कालोनी, देहरादून, उत्तराखण्ड।
3. आदेश पत्रावली।

(गजेंद्र प्रकाश नरवणे)
सहायक महानिरीक्षक (वन)

Transcription of Appendix 13

TRANSCRIPTION FOR THE LETTER REFERRED IN APPENDIX-8 OF IEE RAIPUR PACKAGE

भारत सरकार
पर्यावरण, वन एवं जलवायु परिवर्तन
मंत्रालय एकीकृत क्षेत्रीय कार्यालय देहरादून
25 सुभाष रोड, देहरादून -248001
दूरभाष :0135-2650809
फैक्स –0135-2653010
ईमेल- moef.ddn@gov.in

GOVERNMENT OF INDIA MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE INTEGRATED REGIONAL OFFICE,
DEHRADUN
25 SUBASH ROAD, DEHRADUN-248001
PHONE-0135-2650809
FAX- 0135-2653010
Email- moef.ddn@gov.in

Letter No. 8B/U.C.P./09/18/2022/533 Dated: 14/07/2022

To,
Additional Chief Secretary (Forests),
Uttarakhand Government,
Subhash Road, Dehradun.

Subject- Transfer of 0.95 hectares of forest land to UUSDA for non-forestry works for STP to be constructed in Nakraunda area under new ADB loan by UUSDA at Nakraunda of Doiwala assembly constituency of Dehradun (Online Proposal no. FP/UK/Others 150625/2021)
Reference- Additional Chief Conservator of Forests and Nodal Officer, Government of Uttarakhand letter no. 106/FP/UK /Others / 150625/2021 Dated 08.07.2022.
Sir,
Please find the reference of above mentioned letter of Forests and Nodal Officer, Uttarakhand Government dated 04.02.2022, by which the Central Government sought approval on the subject proposal under Section-2 of the Forest (Conservation) Act, 1980.
The matter in question, in-principle approval was given in the proposal by this office's letter of same number on dated 01.06.2022, in which the compliance report of the mentioned conditions has been submitted by the above referred letter of the Additional Chief Conservator of Forests and Nodal Officer, Government of Uttarakhand.

1. The legal condition of the forest land will remain unchanged.
2. The forest land will be handed over only after handing over the non-forest land required for the project to the user agency.
3. Compensatory Afforestation
   a) Plantation of 1900 saplings will be done by the user agency as per the proposal. As far as possible, local native species should be planted and single plantation of any species should be avoided.
   b) KML file of proposed area of plantation, plantation scheme, proposed SMC work, proposed catchment area, treatment area and WLMP area will be uploaded on e-Green Watch portal with all necessary details before issue of work permission for linear projects.
4. Full compliance of Forest Rights Act, 2006 will be ensured from the certificate issued by the concerned District Collector.
5. The user agency should not cut any type of trees in the repatriated forest land as per the proposal.
6. The funds received from the user agency under the project will be transferred/deposited to the Compensatory Afforestation Fund Management and Planning Authority Fund only through e-portal (https://parivesh-nic in/).
7. Full compliance of FRA, 2006 will be ensured through prescribed certificate from the concerned District Collector.
8. In accordance with the provisions of the Environment (Protection) Act, 1986, the

user agency shall obtain environmental clearance, if applicable.

9. The layout plan of the proposal shall not be changed without the prior approval of the Central Government.
10. No labor camp will be established on forest land.
11. Adequate wood, preferably alternative fuel, from the State Forest Department or Forest Development Corporation or any other legal source of alternative fuel shall be provided to the laborers by the user agency.
12 As per the directions of the concerned Forest Divisional Officer, the extent of the reverted forest land will be transferred to the RCC at the project cost. Demarcation will be done by pillars. On which Forward / Backward bearings] are marked.
13. No additional or new route shall be constructed within the forest area for transportation of construction material for execution of project work.
14. The forest land shall not be used for any purpose other than those specified in the project proposal.
15. The forest land proposed for repatriation shall not be transferred under any circumstances to any other agencies, department or person without the prior permission of the Central Government.
16. Violation of any of these conditions will be a violation of the Forest (Conservation) Act, 1980 and will be dealt with as per the guidelines of the Ministry of Environment, Forest and Climate Change, File No. 11-42/2017-FC dated 29.01.2018.
17. The conditions prescribed by the Ministry of Environment, Forest and Climate Change from time to time will be applicable in the interest of conservation and development of forest and wildlife.
18. The user agency shall dispose of the debris at pre-specified sites as per the debris disposal plan in such a way that it does not unnecessarily fall below the prescribed limit. No waste disposal will be done on forest land in any way.
19. If any other relevant Act/Article/Rules/Court Order/Instruction etc. are applicable to this proposal, it will be the responsibility of the State Government/User Agency to take necessary permission under them.
20. The compliance report will be uploaded on the e-portal (https://parivesh.nic/in/).

Sincerely
Gazendra Prakash Narvane
Additional Chief Conservator (Forest)

Copy for information and necessary action

1. Additional Director General of Forests (FC). Ministry of Environment, Forest and Climate Change, Indira Environment Bhawan. Jorbagh road, Aliganj, New Delhi
2. Additional Chief Conservator of Forests and Nodal Officer, Forest Conservation, Indira Nagar Forest Colony, Dehradun, Uttarakhand
3.Order File.

Sincerely
Gazendra Prakash Narvane
Additional Chief Conservator (Forest)