

**National Mission for Clean Ganga (NMCG)
Ministry of Water Resources, River
Development & Ganga Rejuvenation,
Govt. of India**

**The development of sewage treatment
plant and associated infrastructure
under Hybrid Annuity based PPP mode
at Varanasi in the State of Uttar Pradesh**

(LoA File Number: Rd-63014/1/2017/PPP/NMCG)

**Monthly Report
of
Project Engineer**

April - 2018



Executing Agency

**Uttar Pradesh Jal
Nigam,
Varanasi - 221 005**



Funding Agency

**National Mission for
Clean Ganga
MoWR, River
Development & Ganga
Rejuvenation,
New Delhi - 110002**

**Mahindra
Consulting Engineers**

Project Engineer

**Mahindra Consulting
Engineers Limited
Mahindra Towers, No.
17/18, Pattullous Road,
Chennai - 600 002,
Tamil Nadu, India**



Concessionaire

**Varanasi STP Project
Private Limited
6th Floor, Plot No. 19,
Film City, Sector 16 A,
Gautam Buddha Nagar,
Noida,
Uttar Pradesh - 201 301**

TABLE OF CONTENTS

1.0. INTRODUCTION	3
1.1. Project components	5
1.1.1. New construction units.....	5
1.1.2. Rehabilitation works.....	6
1.2. Executing agency.....	6
1.3. Implementation agency	6
1.4. Consulting services.....	6
1.5. Concessionaire	6
2.0. STATUS OF PROJECT	6
2.1. Physical status as on 30/04/2018	7
2.1.1. Pre-execution activities.....	7
2.1.2. Design detailed engineering.....	8
2.1.3. Equipment procurement, logistics and receipt of equipment at site	8
2.1.4. New construction units.....	9
2.1.5. Rehabilitation works.....	11
2.2. Financial status.....	12
2.3. Important issues.....	12
3.0. PROJECT ENGINEER ACTIVITIES.....	14
4.0. MEETINGS	15
5.0. STAFF DEPLOYMENT	15

LIST OF ANNEXES

ANNEX-1.....	17
PROJECT PROGRESS (PHYSICAL)	17
ANNEX-2.....	19
FINANCIAL PROGRESS	19
ANNEX-3.....	23
PHOTOGRAPHS	23
ANNEX-4.....	30
OUTWARD CORRESPONDENCE LIST OF APRIL 2018	30
ANNEX-5.....	32
INWARD CORRESPONDENCE LIST OF APRIL 2018	32

MONTHLY PROGRESS REPORT

1.0. INTRODUCTION

The GoI, recognizing that long-term rejuvenation of the river Ganga will have significant social and economic benefits on the lives of the 500 million people living along its basin, has identified cleaning of the river Ganga as one of its priorities. For this purpose, in May 2015, the GoI approved the flagship Namami Gange programme for cleaning, rejuvenation, and protection of the river Ganga. In January 2016, the GoI approved a hybrid annuity model to implement STP projects under the Namami Gange programme on a PPP basis.

Subsequently, the MoWR issued the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016 (Ganga 2016 Order) to constitute various authorities to assist the GoI in achieving its aim of effective abatement of pollution in the river Ganga. The Ganga 2016 Order applies to all states in the catchment of the river Ganga basin, including Uttar Pradesh. The Ganga 2016 Order revised the legal status of NMCG (which was initially constituted as a registered society under the Societies Registration Act, 1860) to an authority constituted under the Environment (Protection) Act, 1986 and designated NMCG as the nodal agency for the implementation of the Ganga 2016 Order.

Rapidly increasing population, rising standards of living and exponential growth of industrialisation and urbanisation have exposed water resources, in general, and rivers, in particular, to various forms of degradation. The mighty Ganga is no exception. The deterioration in the water quality impacts the people immediately. Ganga, in some stretches, particularly during lean seasons has become unfit even for bathing. The threat of global climate change, the effect of glacial melt on Ganga flow and the impacts of infrastructural projects in the upper reaches of the river, raise issues that need a comprehensive response.

In the Ganga basin approximately 12,000 million litres per day (MLD) sewage is generated, for which presently there is a treatment capacity of only around 4,000 MLD. Approximately 3000 MLD of sewage is discharged into the mainstream of the river Ganga from the Class I & II towns located along the banks, against which treatment capacity of about 1000 MLD has been created till date.

The Uttar Pradesh Jal Nigam (Jal Nigam) is a statutory body constituted under the Uttar Pradesh Water Supply and Sewerage Act, 1975, and has the power to develop, maintain and regulate water supply and sewerage works in Uttar Pradesh. With a view to implement the Namami Gange programme and the Ganga 2016 Order, the Jal Nigam, in association with the NMCG, has decided to undertake the development of an STP with a proposed capacity of 50 MLD along with other Facilities and Associated Infrastructure at Varanasi on a PPP basis, through a hybrid annuity model. While the Jal Nigam will be the principal executing agency and bidding authority for the Project, NMCG will be responsible for making payments to the Concessionaire.

The objectives that NMCG and the UP Jal Nigam wish to achieve through the Project is mentioned in **Figure 1**.

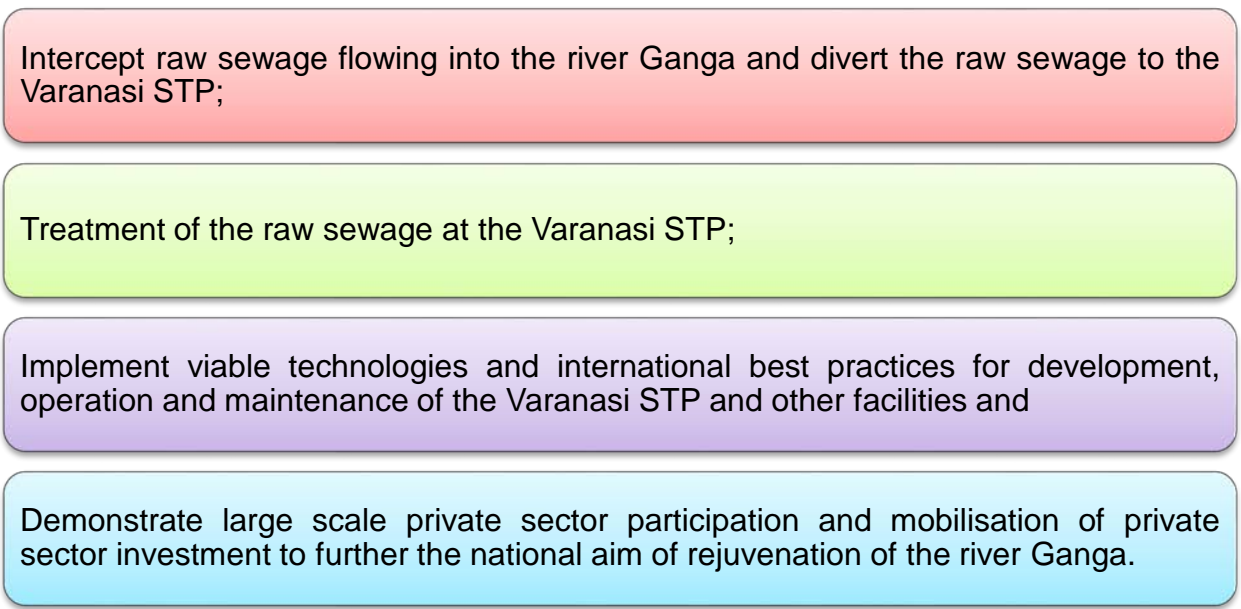


Figure 1: Objectives of NMCG and UP JAL NIGAM

Government of India, has approved the Namami Gange program as an integrated approach for effective abatement of pollution in river Ganga. As part of this and to ensure that no untreated domestic sewage flow into the river Ganga, various interventions are planned such as Interception & Diversion works and development & operation of Sewage Treatment Plants (STPs). Considering various development models in practice for the construction, operation and maintenance of Sewage Treatment Plants, Government of India has approved

the Hybrid Annuity based Public Private Partnership (PPP) mode as one of the options for the development & operation of STPs. Under this model, private investor/developer will design, build, finance, operate and transfer the asset (STP) to the Project Executing Agency/Jal Nigam/Jal Sansthan / Urban Local body at the end of the Concession Period (say 15 years). 40% of the Capital cost will be paid to the developer during construction of the STP. Balance 60% along with Operation & Maintenance (O&M) cost will be paid over the Concession Period on achievement of key performance indicators as per the contract. Entire cost of development and operation of the STPs will be 100% funded by the Government of India as central sector scheme. It is also envisaged to explore the possibility of recycle/ reuse of the treated waste water for non-potable purpose.

NMCG & UPJN appointed M/s. Mahindra Consulting Engineers Limited, Chennai as Project Engineer for this project through tendering process. Letter of Award is issued dated 5th January 2018 and agreement signed between the parties on 16th February 2018.

1.1. Project components

1.1.1. New construction units

- Inlet structure
- Grit chambers & Parshall flume
- SBR tanks
- Chlorine contact tank
- Overhead treated water tank
- Air blower room
- Belt filter press building
- Chlorination building
- Electrical building and control room
- Admin building, laboratory room
- Transformer yard, internal roads & drainage
- Treated water pump house
- Treated effluent disposal line
- Bund wall
- Staff quarters
- Approach road

1.1.2. Rehabilitation works

- Rehabilitation of Main Pumping Station (MPS)
- Construction of Weir
- Strengthening & Pipe protection of Rising main
- Construction of Control room
- Rerouting the raising main near Samne Ghat

1.2. Executing agency

- Uttar Pradesh Jal Nigam (UPJN)

1.3. Implementation agency

- Uttar Pradesh Jal Nigam (UPJN)

1.4. Consulting services

- **Project Engineer**
 - Mahindra Consulting Engineers Ltd, Chennai

1.5. Concessionaire

- Varanasi STP Project Private Limited

2.0. STATUS OF PROJECT

STATUS	:	CONSTRUCTION STAGE
Concessionaire Contract Agreement No.	:	SUBIN-DL80840374672746341531P
Name of the Concessionaire	:	Varanasi STP Project Pvt. Ltd.
Commencement date	:	19 th February 2018
Completion date (as per contract):	:	18 th November 2019

2.1. Physical status as on 30/04/2018

2.1.1. Pre-execution activities

Sl. No.	Description of works	Progress			Schedule
		Upto previous month	During the month	Total progress	
1	Setting up of temporary site office	50%	-	50%	100%
2	Removal of debris & shrubs	80%	-	80%	100%
3	Borewell construction	100%	-	100%	100%
4	Other temporary execution	50%	50%	100%	100%
5	Topographical / soil investigation	50%	-	50%	100%
6	Condition precedent required to be satisfied by Concessionaire	100%	-	100%	100%
7	Condition precedent required to be satisfied by Jal Nigam	100%	-	100%	100%
8	Condition precedent required to be satisfied by NMCG	100%	-	100%	100%
9	Appointment of design Consultant	100%	-	100%	100%
10	Submission & approval of sub contracts from UPJN	-	50%	50%	100%

2.1.2. Design detailed engineering

Sl. No.	Description of works	Progress			Schedule
		Upto previous month	During the month	Total progress	
1	Phase - I D&E (BEP)	100%	-	100%	100%
2	Phase - II D&E (Civil, Mechanical, Electrical, Inst. Drawings)	-	56%	56%	94%
3	Structural drawings submissions & approvals	-	31%	31%	91%
4	Mechanical & piping drawings submissions & approvals	-	-	-	43%
5	Electrical drawings submissions & approvals	-	-	-	11%
6	Miscellaneous documents & drawings	-	-	-	-
7	Instrumentation document submissions & approvals	-	-	-	-
8	Miscellaneous drawings	-	-	-	-
9	MPS pumping station	-	-	-	11%
10	Rising main	-	-	-	13%
11	Treated effluent disposal line	-	8.05%	8.05%	41%

2.1.3. Equipment procurement, logistics and receipt of equipment at site

Sl. No.	Description of works	Progress			Schedule
		Upto previous month	During the month	Total progress	
1	Fine screen / coarse screen / belt conveyors	-	-	-	6%

Sl. No.	Description of works	Progress			Schedule
		Upto previous month	During the month	Total progress	
2	Grit removal mechanism	-	-	-	-
3	SBR system	-	-	-	-
4	SAS / RAS pumps / booster pumps / treated water pumps / drain pumps	-	-	-	-
5	Air blowers	-	-	-	-
6	Tube well	-	-	-	-
7	Piping & fittings, valves, flanges, other associated connections	-	-	-	-

2.1.4. New construction units

Sl. No.	Description of works	Progress						Schedule	
		Upto previous month		During the month		Total progress		Civil	E&M
		Civil	E&M	Civil	E&M	Civil	E&M		
1	Bund wall / earthen embankment	0.01%	NA	0.04%	NA	0.05%	NA	12.50%	NA
2	Inlet chamber manual & mechanical screen chamber							21.70%	
3	Grit chamber & outlet channel of grit chamber							15.00%	
4	Parshall flume (I) & distribution chamber of SBR basin							15.00%	
5	SBR basins & outlet							4.60%	

Sl. No.	Description of works	Progress						Schedule	
		Upto previous month		During the month		Total progress			
		Civil	E&M	Civil	E&M	Civil	E&M	Civil	E&M
	chamber								
6	Chlorination building								
7	Chlorine contact tank & treated water collection tank, treated water pumps								
8	Final outfall chamber							11.00%	
9	Overhead treated water tank								
10	Belt filter press/ sludge sump / filtrate sump								
11	Pump house								
12	PE dosing tank								
13	Administrative building & laboratory								
14	SBR air blower room								
15	HT room								
16	Motor control centre (MCC) room								
17	Transformer yard, internal road and drainage								
18	DG set area								
19	Security room								
20	Double Pole structure								
21	Mechanical installation	NA		NA		NA		NA	
22	Treated effluent		NA	0.08%	NA	0.08%	NA	40.00%	NA

Sl. No.	Description of works	Progress						Schedule	
		Upto previous month		During the month		Total progress			
		Civil	E&M	Civil	E&M	Civil	E&M	Civil	E&M
	disposal line								
23	Staff quarters								
24	Approach road								
25	Testing & commissioning of plant								
26	Trail run								

2.1.5. Rehabilitation works

Sl. No.	Description of works	Progress						Schedule	
		Upto previous month		During the month		Total progress			
		Civil	E&M	Civil	E&M	Civil	E&M	Civil	E&M
1	Rehabilitation of MPS								
2	Construction of weir		NA		NA		NA	10.00%	NA
3	Strengthening & pipe protection of rising main		NA		NA		NA	13.27%	NA
4	Construction of control room							10.00%	
5	Rerouting the raising main near Samne Ghat		NA		NA		NA	13.27%	NA

Overall progress: 2.36%.

2.2. Financial status

- Contract amount : Rs. 153.15 crores (Rs. 102 crores for construction + Rs. 51.15 crores for O&M)
- Expenditure
 - Mob. Adv : Rs. 10.20 crores
 - Work done - First milestone : Rs. 0.00 crores
 - Total : Rs. 10.20 crores**

2.3. Important issues

1. Progress of work is lagging the schedule, it has to be expedited
2. Office setup for UPJN yet to be provided by Concessionaire
3. Clearing of debris & shrub along the treated effluent pipeline, immediate action to be taken by Concessionaire
4. Soil investigation report along the treated effluent pipeline yet to be submitted by Concessionaire
5. Expediting the design detailed engineering documents and drawings at the earliest by Concessionaire
6. Placement of work order for the bought-out items to be initiated at the earliest by Concessionaire
7. The machinery, material receipt at site, manpower to be increased to four folds than the present level, to achieve the targeted schedule and to compensate the delay occurred
8. Concessionaire has to commence the activities immediately which are already scheduled to start but not yet started
9. Concessionaire has to set up the testing laboratory at site
10. Concessionaire has to set up the RMC plant immediately at site to increase the construction activities

Development of 50 MLD sewage treatment plant and associated infrastructure on PPP basic at Ramana, Varanasi

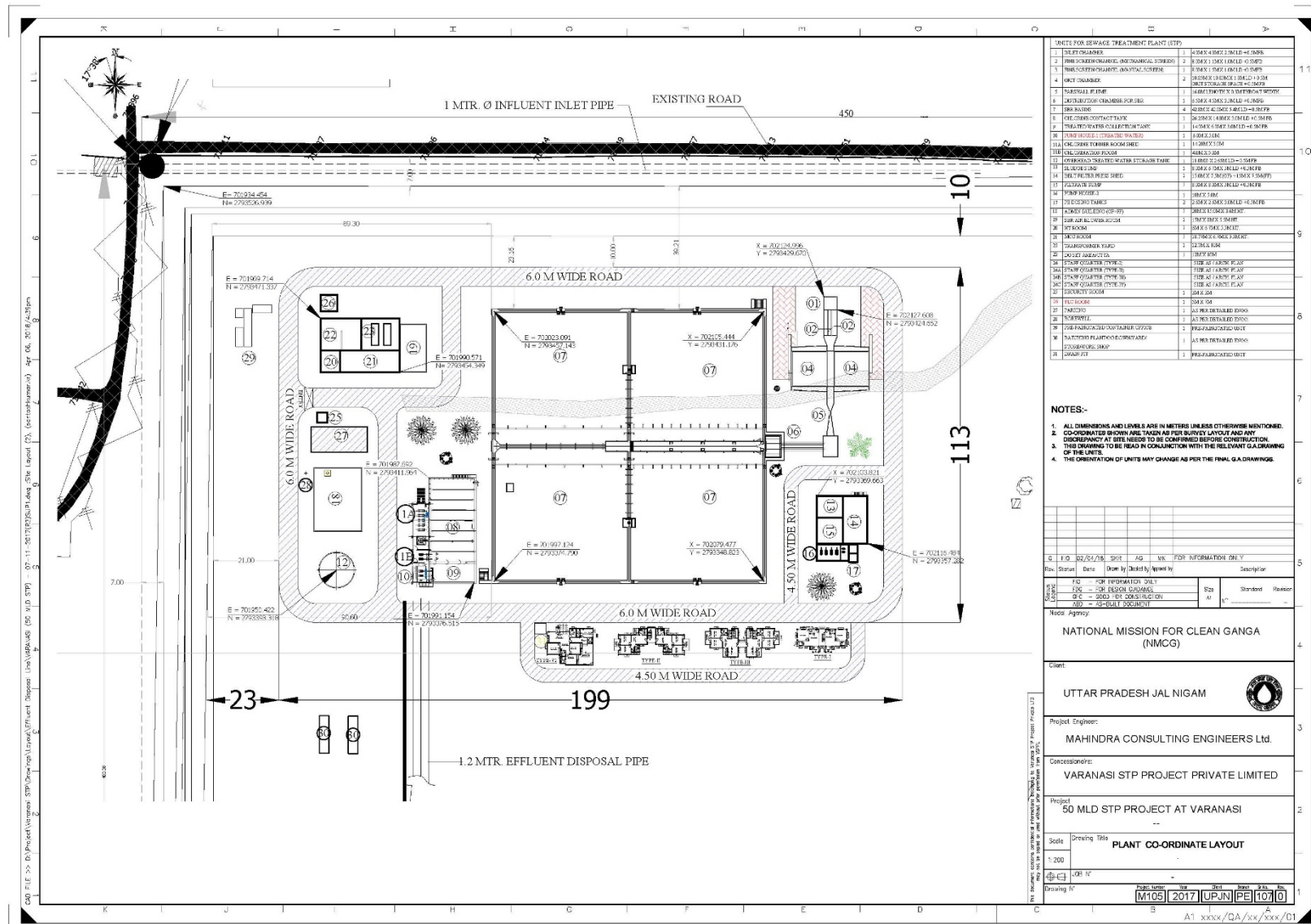


Figure 2: Development of sewage treatment plant and associated infrastructure under Hybrid Annuity based PPP mode at Varanasi

3.0. PROJECT ENGINEER ACTIVITIES

			Period: April 2018	Period: May 2018
TOR reference	Services	Undertaken	Description	Expected for next month
5.1	Review of the basic engineering design	Yes	1) Revised construction plan 2) General arrangement drawing for C-Tech basin (2 sheets) 3) General arrangement drawing for C-Decanter connecting piece in C - Tech basin (2 sheets)	Remaining GA and structural drawings of STP
5.2	Review and assist UPJN in approval construction plan	Yes	Construction plan reviewed and approved	Updation of construction plan on monthly basis
6.5	Review of monthly progress report	Yes	Review of monthly progress report. Revised progress report yet to receive	Review of next month progress report
6.6	Inspect the construction works	Yes	Day to monitoring of site personnel, Monthly inspection by key experts	Day to monitoring of site personnel, Monthly inspection by key experts

4.0. MEETINGS

Project Engineer undertaken and planned services.

		Period: April 2018	Period: May 2018
Services	Undertaken by	Description	Expected for next month
Site inspection and project review meeting	General Manager, UPJN	05/04/2018	Project review meeting
Project review meeting	General Manager, UPJN	20/04/2018	
Site inspection and project review meeting	Chief Engineer, UPJN	25/04/2018	

5.0. STAFF DEPLOYMENT

The Project Engineer office space was finalized and the address of the office is as below:

Mahindra consulting Engineers Limited

Sudarshan Apartment,
Flat No: 305, 4th Floor,
Ramnagar Road, Samne Ghat,
Opp: Janki Nagar Colony,
Near Hanuman Mandir,
Lanka, Varanasi – 221005,
Uttar Pradesh.

The position of staff deployment since beginning of the project till end of April 2018 is given in the following table:

Staff deployed on site at Ramana, Varanasi			Date of deployment	
Sl. No.	Designation	Name of staff	From	To
1	Project Manager	G. Sathiskumar	19/02/2018	
2	Civil Engineer	M. Sivapriyan	15/02/2018	

Staff deployed on site at Ramana, Varanasi			Date of deployment	
Sl. No.	Designation	Name of staff	From	To
3	Civil Engineer	T. Sathyamoorthy	20/04/2018	
4	Senior Engineer (Electrical & Instrumentation)	R. Satish	20/04/2018	
5	Civil Engineer	P. Ramasubramanian	20/04/2018	
6	Civil Engineer	Imran Khadhar Mohideen	20/04/2018	
7	Structural Engineer	S. Varun Athithiya	20/04/2018	
8	Liaison Officer	O. B. Shivakumar	20/04/2018	

ANNEX-1

PROJECT PROGRESS (PHYSICAL)

ANNEX 1 - PROJECT PROGRESS (PHYSICAL)

Sl. No.	Component / Package	Physical Progress in Percentage			Remarks
		Up to Previous month	During month	Total	
1	2	3	4	5	6
1	Development of sewage treatment plant and associated infrastructure under Hybrid Annuity based PPP mode at Varanasi	0.50%	1.86%	2.36%	Physical progress observed to be very slow and needs to be accelerated by Concessionaire.

ANNEX-2

FINANCIAL STATEMENTS

ANNEX 2 - FINANCIAL STATEMENTS

(Rs. in Crore)

Sl. No.	Name of Project	Original	Share		Concessionaire contract amount	Expenditure incurred	Reimbursement claim submitted		Remarks
			GoI	State			Amount	Date	
1	50 MLD STP	102.00	102.00	-	102.00	10.20 (Mobilisation Advance)	-	-	Since 1 st milestone date is on 18 th July 2018 and yet to achieve 25% of physical progress, no claim is entitled

Tentative detail split up of financial progress with respective individual components as on April 2018

Item of work	Physical status for first milestone for the month of April 2018		
	Proposed amount for first milestone in Rs	Actual completion in %	Completed amount
Design detailed engineering			
Phase - I D&E (BEP)	5,100,000	100.00%	5,100,000
Phase - II D&E (Civil, Mechanical, Electrical, Inst. Drawings)	5,100,000	56.00%	2,843,250
Structural drawings submissions & approvals	12,750,000	31.00%	3,984,375
Mechanical & piping drawings submissions & approvals	7,650,000	-	-
Electrical drawings submissions & approvals	7,650,000	-	-
Miscellaneous documents & drawings	2,550,000	-	-
Instrumentation document submissions & approvals	7,650,000	-	-

Item of work	Physical status for first milestone for the month of April 2018		
	Proposed amount for first milestone in Rs	Actual completion in %	Completed amount
Miscellaneous drawings	2,473,500	-	-
MPS pumping station	8,185,886	-	-
Rising main	4,704,310	-	-
Treated effluent disposal line	55,068,840	8.05%	6,565,091
Equipment procurement, logistics and receipt of equipment at Site			
Fine screen / coarse screen / belt conveyors	1,319,849	-	-
Grit removal mechanism	679,146	-	-
SBR system	8,149,749	-	-
SAS / RAS pumps / booster pumps / treated water pumps / drain pumps	2,716,583	-	-
Air blowers	1,776,030	-	-
Tube well	807,286	-	-
Piping & fittings, valves, flanges, other associated connections	734,511	-	-
Civil executions			
Bund wall / earthen embankment	45,776,703	5.00%	4,080,000
Inlet chamber manual & mechanical screen chamber	884,000	-	-
Grit chamber & outlet channel of grit chamber	850,000	-	-
Parshall flume (I) & distribution chamber of SBR basin	2,550,000	-	-
SBR basins & SBR outlet chamber	32,686,364	0.75%	1,530,000
Chlorination building	9,074,483	-	-
Chlorine contact tank & treated water collection tank, treated water pumps	7,990,000	-	-
Final outfall chamber	480,049	-	-
Overhead treated water tank	3,900,000	-	-

Item of work	Physical status for first milestone for the month of April 2018		
	Proposed amount for first milestone in Rs	Actual completion in %	Completed amount
Belt filter press/ sludge sump / filtrate sump	2,215,862	-	-
Pump house 2	414,375	-	-
Administrative building & overhead tank	6,197,797	-	-
SBR air blower room	5,521,304	-	-
HT room	4,505,000	-	-
MCC room	4,814,746	-	-
Transformer yard	1,020,000	-	-
DG set area	2,550,000	-	-
Mechanical installation	6,273,000	-	-
	27,27,69,373		2,41,02,716
	Percentage completion of first milestone scheduled		8.84%
	Percentage completion of overall project		2.36%

ANNEX-3 PHOTOGRAPHS

ANNEX 3 - PHOTOGRAPHS

SBR basin



Shuttering work

SBR basin



PCC being laid

SBR basin



PCC concrete laying

SBR Basin



Curing for PCC

Bund wall



Formation of bund

Bund wall



Compaction test being done at site

Bund wall



Formation of bund



Formation of bund

Installation of RMC plant



Steel stocking yard



PSC pipes received at site



ANNEX-4
OUTWARD CORRESPONDENCE LIST
OF APRIL 2018

ANNEX 4 - OUTWARD CORRESPONDENCE LIST OF APRIL 2018

Document No	Date	To (Organization)	Copies To	Subject File No	Subject
MACE: P968: 8274	04-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Quality assurance plan for M.S. Pipes observation
MACE: P968: 8272	05-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Observations on SBR basin structural design
MACE: P968: 8280	09-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	GA drawing approval for pre-treatment and SBR
MACE: P968: 8281	09-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Structural drawing approval
MACE: P968: 8283	10-04-2019	GM, UPJN	NMCG, PM, UPJN	NA	GA drawing approval
MACE: P968: 8287	17-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Construction plan - 3 submission
MACE: P968: 8286	17-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Observation on plant co-ordinate layout
MACE: P968: 8297/1	18-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Dispatch clearance of PSC Pipes
MACE: P968: 8294	18-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Quality measures (control to be adopted by concessionaries)
MACE: P968: 8297	19-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Architectural drawings of staff quarters observations
MACE: P968: 8301	24-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Civil drawing of CCT and treated water observation
MACE: P968: 8302	26-04-2018	GM, UPJN	NMCG, PM, UPJN	NA	Observation on design calculation of MS pipe

**ANNEX-5
INWARD CORRESPONDENCE LIST OF
APRIL 2018**

ANNEX 5 - INWARD CORRESPONDENCE LIST OF APRIL 2018

Sl. No.	Document No	Letter Date	From		Attachments		Subject
			Organization	Writer	Y/N	No.	
1.	EIL/VSPPL/2017/18 -051	2/4/2018	VSPPL / UPJN	Manish	Y	4	General arrangement drawing for C-Tech basin.
2	EIL/VSPPL/2017/18 – 053	7/4/2018	VSPPL / UPJN	Manish	Y	7	Submission of drawing of civil GA, R/F details & design calculation of SBR (C - TECH basin)
3	EIL/VSPPL/2017/18 - 054	10/4/2018	VSPPL / UPJN	Manish	Y	6	Architectural drawings of staff quarters
4	EIL/VSPPL/2017/18 - 054	10/4/2018	VSPPL / UPJN	Manish	Y	3	Plant co-ordinate layout
5	EIL/VSPPL/2017/18 - 057	12/4/2018	VSPPL / UPJN		Y	1	Dispatch clearance of PSC Pipes
6	EIL/VSPPL/2017/18 – 058	13/4/2018	VSPPL / UPJN	Amith Ghorpade	Y	2	Submission of Construction Plan R3
7	EIL/VSPPL/2017/18 - 061	18/4/2018	VSPPL / UPJN		Y	3	QAP & design calculation of 1000 mm dia MS pipe
8	EIL/VSPPL/2017/18 – 062	19/4/2018	VSPPL / UPJN	Manish	Y	6	Structural - drawings of chlorine contact tank (CCT) & treated water PH
9	EIL/VSPPL/2017/18 – 060	21/4/2018	VSPPL / UPJN		Y	2	Submission of Payment Milestone, Annexure – 1 of construction plan

Sl. No.	Document No	Letter Date	From		Attachments		Subject
			Organization	Writer	Y/N	No.	
10	EIL/VSPPL/2017/18 – 064	26/4/2018	VSPPL / UPJN		Y	2	Request for vendor approval
11	EIL/VSPPL/2017/18 – 065	26/4/2018	VSPPL / UPJN		Y	2	Request for vendor approval
12	EIL/VSPPL/2018-19/069	28/4/2018	VSPPL / UPJN	Amit Ghorpade	Y	2	Submission of monthly progress report.