

Environmental Monitoring Report

Project Number: 43253-027
Semestral Report (July – December 2019)
January 2020

INDIA: Karnataka Integrated Urban Water
Management Investment Program (Tranche 2)


Appendices 31-39

Prepared by Karnataka Urban Infrastructure Development and Finance Corporation,
Government of Karnataka for the Asian Development Bank.


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APPENDIX 31 - Waste Management Plan - Udupi

	Suez Projects Private Limited	Doc: SPPL/HSE/ SMP-01 Rev. – 0 July - 2019 Page 1 of 5
	Waste Management Plan	

Suez Project Private Limited					
Waste Management Plan					
Project: Construction of Distribution System for 24x7 Water Supply including Services for Operation and Management for Udupi City, Contract Package No 02UDP01					
		Pradeep Shetty	Vishal Pattanshetti	Ramesh Patil	For Approval
Rev.	Date	Prepared By	Checked By	Validated By	Submission Purpose
00					

	Suez Projects Private Limited	Doc: SPPL/HSE/ SMP-01 Rev. – 0 July - 2019 Page 2 of 5
	Waste Management Plan	

1.0 Introduction

This Guideline has been developed for two primary reasons, to provide consistent guidance on waste management in relation to construction activities and to encourage increased diversion of spoil from landfill.

This Guideline should be used as a resource by property owners, builders and developers to assist in assessing likely waste generation from construction projects and identifying ways to divert any waste generated from landfill.

2.0 PURPOSE


This waste Management Plan (WMP) has been prepared to manage spoil during construction of the SVC Works. Set spoil management protocols. Outline responsibilities of site personnel involved in waste management. Provide a process for identifying and managing environmental and other risks associated with waste handling

3.0 Legal and other Requirements

Construction and Demolition waste management rule 2016 ADB
Guidelines (Initial Environmental Examination)

4.0 Roles andResponsibilities


Position	Responsibilities
Project Manager	Overall responsibilities for implementation of waste Management plan
	Overall responsibility for compliance with statutory requirements
Construction Manager	Day to day implementation of waste Management plan
	Day to day co-ordination of the project

	Suez Projects Private Limited	Doc: SPPL/HSE/ SMP-01 Rev. – 0 July - 2019 Page 3 of 5
	Waste Management Plan	

Site Engineer	Ensures all equipment is adequately available, maintained and correctly operated
	To carry out action of waste management plan
	Report all environmental incidents
HSE Manager	Provide advice on waste management related issues
	Report any non-compliances in implementing waste management plan
All persons involved in project	Comply with requirements of waste Management plan
	Exercise duty of care to the environment at all times

5.0 Identification and assessment of waste aspects and impacts

Environmental Aspects	Environmental Impacts
<ul style="list-style-type: none"> Excavation for pipeline laying Demolition of overhead water tank waste storage waste transportation 	<ul style="list-style-type: none"> Water & air pollution from the dust generated due to excavation, demolition Flora and fauna damage due to sediment run off from waste excavation Water, soil and air pollution from Inappropriate storage, handling and disposal of waste. Mud-tracking during haulage operations. <ul style="list-style-type: none"> Noise & vibration impacts from demolition activity.

	Suez Projects Private Limited	Doc: SPPL/HSE/ SMP-01 Rev. – 0 July - 2019 Page 4 of 5
	Waste Management Plan	

6.0 waste volume, characteristics and minimization

waste volume calculations: Estimate the volume waste volume calculations: Estimate the volumes of waste produced from each of the construction sites. Characterization of waste: Based on the type of waste; characterization is done (sand stone, mud mix materials, reusable materials)

7.0 waste reuses, Opportunities, Identification and Assessment

An overview of the assessment methodology to be used is mentioned below. - Consideration of likely spoil characteristics - Identification of possible reuse sites - Screening of possible reuse opportunities


8.0 Onsite waste Management Approach

Spoil from the excavations done for pipe laying will be stored on the site in such a way that it will not cause any hinderance to the traffic movement. It will be properly barricaded and necessary caution signage will be displayed. If the spoil is in large quantities which may cause disturbance to traffic movement then it will be transported to dumping site designated by KUIDFC. For excess spoil disposal, 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.

Debris disposal site shall be at least 200 m away from surface water bodies. No residential areas shall be located within 50 m downwind side of the site; and site is minimum 250 m away from sensitive locations like settlements, ponds/lakes/ river.

9.0 waste Transportation Methodology

- Waste will be transported by registered road trucks.
- Waste transportation routes will be identified with the help of local authorities of KIUDFC.
- The waste carrying trucks will be covered with dust nets (green nets) during waste transportation.
- The drivers will be given training in order to make them aware of requirements of waste management plan.

	Suez Projects Private Limited	Doc: SPPL/HSE/ SMP-01 Rev. – 0 July - 2019 Page 5 of 5
	Waste Management Plan	

10.0 Monitoring, Reporting, Review and Improvements

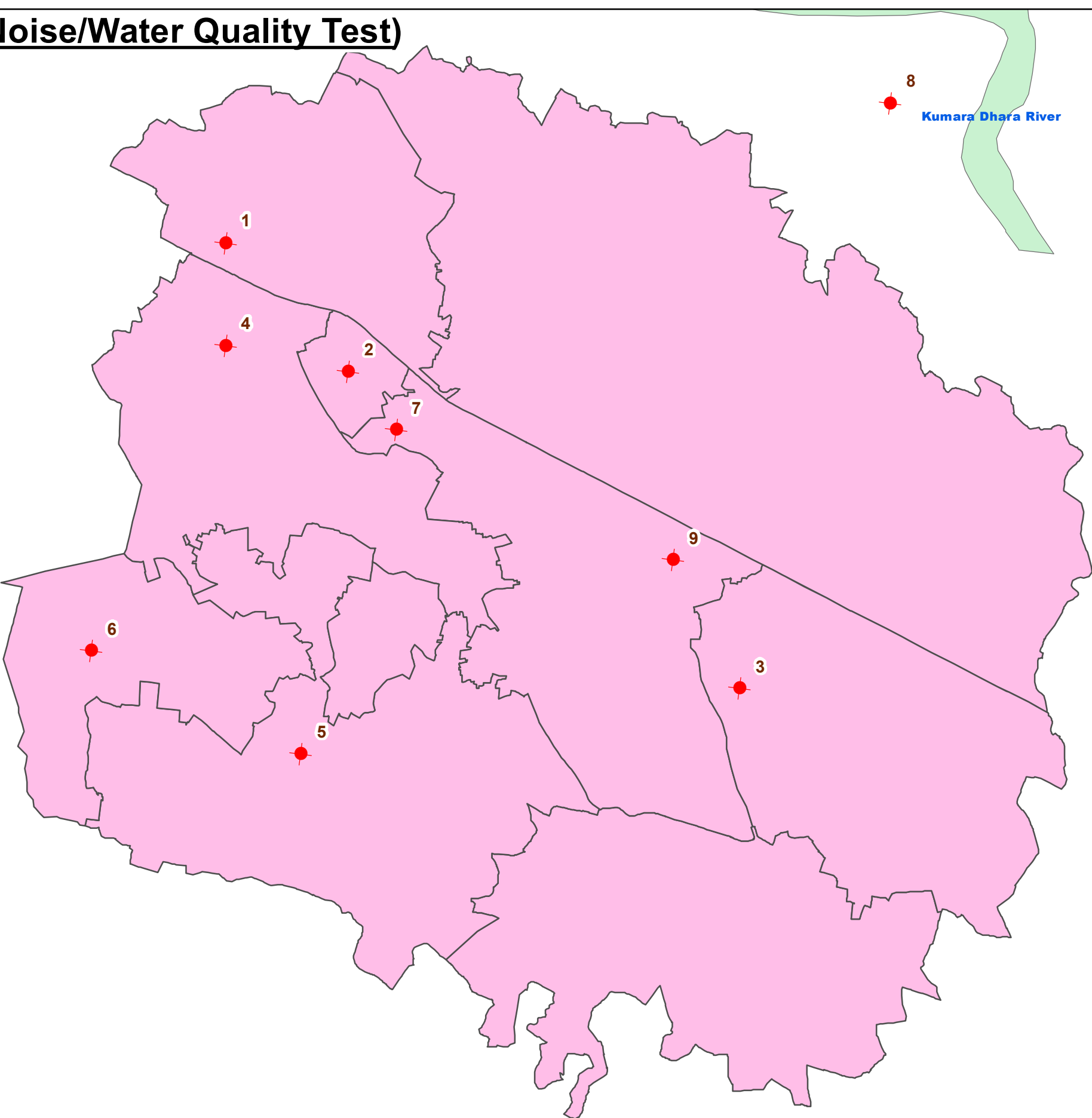
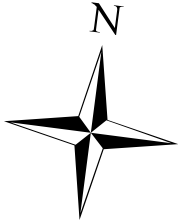
Volumes of waste generated will be recorded using a register. Monthly quantities of waste re-used, and waste disposed shall be recorded. The report will separate the reused waste into the quantities of material reused on-site and the quantities of material reused offsite.

Continuous improvement of this waste Management Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

APPENDIX 32 - Air-Noise-Water Sampling Locations on Map-Puttur

Environmental (Air/Noise/Water Quality Test)

Location : Puttur



Legend

- Environmental_Test
- Zone_Boundary
- River

Client



Karnataka Urban Infrastructure, Development and finance Corporation, KUIDFC-KIUWMIP (TR-2), Puttur-Karnataka.

Consulting



Egis India Consulting Engineer Pvt.Ltd, First Floor, Mangalore City Corporation, Commercial Complex, Mallikatta Kadri,Mangalore -575002, Karnataka,India.

Contractor:



SUEZ Projects Private Limited. SUEZ India Private Limited. Kausthuba Building,no.1/28/A, Padil,Bannur Post, Puttur, Dakshina Kannada Dist. Karnataka-574203.

Prepared By : Divakar

C.R. : Pramod

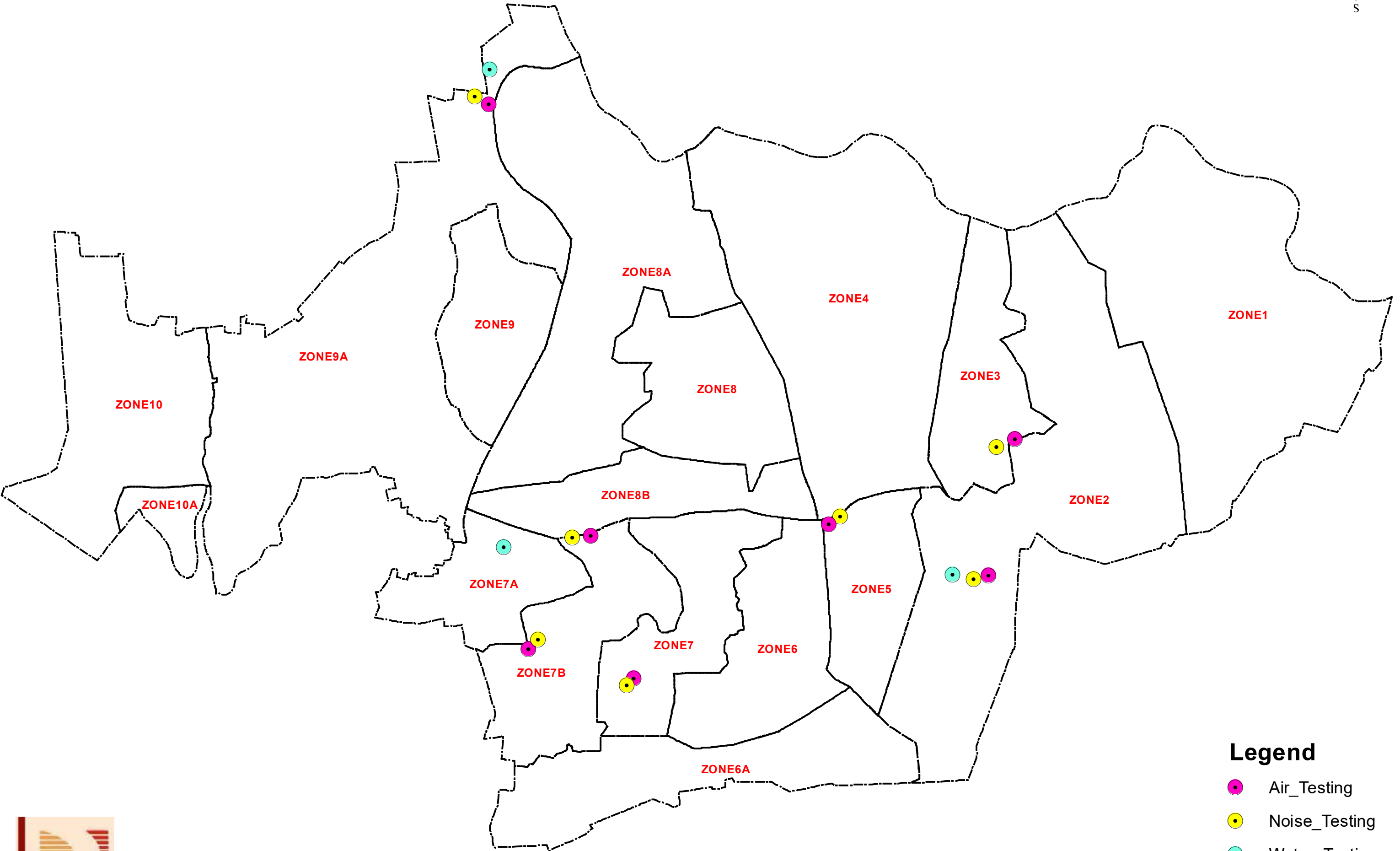
Validated By : Amruth

Date : 07.11.2019

Sl,No	Place_Name	Air Test	Noise Test	Water Test	Wastewater Test		Sl,No	Place_Name	Air Test	Noise Test	Water Test	Wastewater Test
1	Mura Shantinagara Padnur	✓	✓	✗	✗		6	Balnad-Keliyad	✓	✓	✗	✗
2	karmala Near Microwave Station	✓	✓	✗	✗		7	Settigudda	✓	✓	✗	✗
3	CTO -Darbe	✓	✓	✗	✗		8	Kumara Dhara River	✗	✗	✓	✗
4	Lingadagudda-Kabaka	✓	✓	✗	✗		9	Adarasha Hospital	✗	✗	✓	✗
5	Balnad-Helipad	✓	✓	✗	✗							

APPENDIX 33 - Air-Noise-Water Sampling Locations on Map-Udupi

Environmental Monitoring Survey-UDUPI



Legend

- Air_Testing
- Noise_Testing
- Water_Testing
- Zone_Boundary



APPENDIX 34 - PUBLIC CONSULTATIONS SUMMARY

ADB assisted KIUWMIP –Tranche2 Towns (JALASIRI)

Details of Public Consultations organized at Mangalore Project Town

Wards -60 (WS) and 12 Wards (UGD)

SI No	Ward Name & Number	Date of WLPC	Details of Participants				Remarks
			Male	Female	Officials	Total	
1	Bengere -60	8.2.19	40	17	6	63	Detailed Report submitted to ADB Consultant by mail dated
2	Kodiyalbail& Bejai (30&31)	14.2.19	25	04	7	36	Detailed Report submitted to ADB Consultant
34	Maroli & Velentia(37&48)	15.2.19	37	10	7	54	Detailed Report submitted to ADB Consultant
5	Dherebail(25)	15.2.19	10	01	7	18	Detailed Report submitted to ADB Consultant
6	Katipalla (5)	16.2.19	11	16	9	36	Detailed Report submitted to ADB Consultant
7	Chilimbri (24)	17.2.19	21	10	15	46	Detailed Report submitted to ADB Consultant
8	Jeppu (59)	17.2.19	10	15	12	37	Detailed Report submitted to ADB Consultant
9	Bukkapatna (27&28)	29.5.19	26	7	11	44	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
10	Ashoknagar (26)	31.5.19	48	03	11	62	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
11	Padeel (51)	3.6.19	40	16	10	67	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
12	Kavoor (18)	3,6.19	57	10	10	77	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
13	Velentia (48)	4.6.19	12	03	07	22	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
14	Jappinamogru(54)	6.6.19	26	25	7	58	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
15	Konchadi(23)	7.6.19	21	15	7	43	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
16	Bikampady (10)	24.07.19	21	02	9	32	Detailed Report submitted to ADB Consultant by mail dated 19.06 19
17	Kulai (8)	26.07.19	19	03	8	30	Detailed Report submitted to ADB Consultant by mail dated

							31.08.19
18	Idya-1 (6)	31.07.19	28	10	10	48	Detailed Report submitted to ADB Consultant by mail dated 31.08.19
19	Katipalla (4)	07.08.19	30	09	11	50	Detailed Report submitted to ADB Consultant by mail dated 31.08.19
20	Dongarakeri (42)	08.08.19	11	00	10	21	Detailed Report submitted to ADB Consultant by mail dated 31.08.19
21	Meenakaliya (11)	19.08.19	31	02	06	39	Detailed Report submitted to ADB Consultant by mail dated 31.08.19
22	Kulai (09)	29.08.19	30	10	07	47	Detailed Report submitted to ADB Consultant by mail dated 31.08.19
23	Bengre(60)	9.9.19	27	20	04	51	Prepared detailed report in Kannada and Preparation of report in English is under progress
24	Tiruvail (20)	26.9.19	52	32	08	92	Prepared detailed report in Kannada and Preparation of report in English is under progress
25	Derebail and Kodikal (25&17)	4.10.19	27	15	17	59	Prepared detailed report in Kannada and Preparation of report in English is under progress
	Total		660	255	216	1131	32.7 % of female participation

wards covered:28

ADB assisted KIUWMIP –Tranche2 Towns (JALASIRI)

Details of Public Consultations organized at Puttur Project Town

SI No	Ward Name & Number	Date of WLPC	Details of Participants				Remarks
			Male	Female	Officials	Total	
1	7- Wards	12.2.19	35	11	12	58	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 19-06-2019
2	Cheluvammanakatte (5)	31.5.19	36	9	9	54	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 19-06-2019
3	Jadekallu (9)	7.6.19	14	18	8	38	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 19-06-2019
4	Lingadagudda (1)	28.6.19	27	09	11	47	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 19-06-2019
5	Kemminje-4 Ward-28	03.07.19	25	25	10	60	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019
6	Kasaba -6 Urlandi Satyanarayana Katte(15)	09.07.19	29	12	06	47	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019
7	Kasaba-10 (19) Parladka	15.07.19	24	33	07	64	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019
8	Balnad (31)	24.07.19	60	06	10	76	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019
9	Aryapu - 1 (29)	26.07.19	17	-	05	22	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019
10	Chikkamadnur (07)	31.07.19	14	13	04	31	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019
11	Chikkamadnur -2 (08)	09.08.19	18	11	06	35	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019

12	Padeel,Kasaba – 3 (12)	22.08.19	31	09	10	50	Detailed Report submitted to ADBs Social Safe guard Consultant mail dated 07-09-2019
13	Kemminje- Ward No: 26,	27.08.19	14	06	06	26	Prepared detailed report in Kannada and Preparation of report in English is under progress
14	Kemminje-ward-25	31.08.19	36	20	05	61	Prepared detailed report in Kannada and Preparation of report in English is under progress
15	07-Kasaba-16	19.9.19	10	23	10	44	Prepared detailed report in Kannada and Preparation of report in English is under progress
16	23-Kasaba-14	21.9.19	23	03	06	35	Prepared detailed report in Kannada and Preparation of report in English is under progress
17	30-Aryapu-2	24.9.19	27	14	08	49	Prepared detailed report in Kannada and Preparation of report in English is under progress
18	14-Kasaba-5	26.9.19	09	19	04	32	Prepared detailed report in Kannada and Preparation of report in English is under progress
19	21-Kasaba-12	27.10.19	22	30	04	56	Prepared detailed report in Kannada and Preparation of report in English is under progress
20	20-Tenkila	7.11.19	23	15	05	43	Prepared detailed report in Kannada and Preparation of report in English is under progress
		27.08.19	494	286	146	926	57% female attendance

Wards Covered: 20+7=27

ADB assisted KIUWMIP –Tranche2 Towns (JALASIRI)

Details of Public Consultations organized at Kundapur Project Town

SI No	Ward Name & Number	Date of WLPC	Details of Participants				Remarks
			Male	Female	Officials	Total	
1	9 Wards	14.2.19	36	12	9	57	Detailed Report Submitted to ADB Consultant by mail dated 19.06.19
2	Kodi (14)	29.5.19	53	06	12	71	Detailed Report Submitted to ADB Consultant by mail dated 19.06.19
3	North Kodi(14&15)	30.5.19	24	06	14	44	Detailed Report Submitted to ADB Consultant mail dated 19.06.19
4	Kundeshwara (10)	1.6.19	42	02	9	54	Detailed Report Submitted to ADB Consultant by mail dated 19.06.19
5	7 & 8	3.6.19	09	20	10	39	Detailed Report Submitted to ADB Consultant by mail dated 19.06.19
6	Ferry Ward-01	27.08.19	35	01	11	47	Preparation of report is under progress
Total			199	47	65	311	23.61 % of female participation

Wards Covered: 7+9=16

ADB assisted KIUWMIP –Tranche2 Towns (JALASIRI)

Details of Public Consultations organized at Udupi Project Town (35 wards)

SI No	Ward Name & Number	Date of WLPC	Details of Participants				Remarks
			Male	Female	Officials	Total	
1	3 Wards	15.02.19	42		15	57	Detailed Report submitted to ADB Consultant
2	Kakkunje (11)	19.08.19	20	04	09	33	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
3	Karamballi (12)	19.08.19	23	05	13	40	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
4	Bailuru (31)	20.08.19	66	39	11	116	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
5	Kinnimulki(32)	20.8.19	18	09	08	35	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
6	Gopalapuram (10)	26.08.19	34	03	13	50	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
7	Subramanyanagar(9)	26.08.19	26	28	14	68	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
8	Moodu Perumpalli(13)	29.08.19	18	11	12	41	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
9	Nittur (08)	29.08.19	48	25	11	84	Submitted the detailed report to ADBs Social Safeguard Consultant by mail dated 07.09.19
10	Ajjarakadu & Shirabedu (33&34)	09.09.19	58	13	09	80	Prepared detailed report in Kannada and Preparation of report in English is under progress
11	Parakala (15&16)	18.09.19	47	07	08	62	Prepared detailed report in Kannada and Preparation of report in English is under progress
12	Saralebettu& Eshwarnagar (17&14)	21.09.19	25	10	08	43	Prepared detailed report in Kannada and Preparation of report in English is under progress
13	Manipal (18)	03.10.19	45	23	07	75	Prepared detailed report in Kannada and Preparation of

							report in English is under progress				
14	Sagri(09)	04.10.19	21	08	08	37	Prepared detailed report in Kannada and Preparation of report in English is under progress				
	Total		786	308	252	1346	39 % of Women Participation				

Wards Covered: 19

Public Consultation Photographs of Tranche-2



Mangalore UGD Public Consultations



Puttur WSS Public Consultations

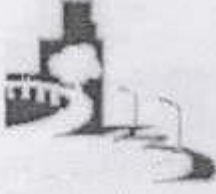


Kundapura WSS Public Consultations



Udupi WSS Public Consultations

APPENDIX 35 - GRM establishment for Tranche 2



Karnataka Urban Infrastructure Development & Finance Corp. Ltd.,
Karnataka Integrated Urban Water Management and Investment
Programme (KIUWMIP) "Jalasiri" - Tranche 2
Regional Programme Management Unit (RPMU),
First Floor, Mangalore City Corporation Commercial Complex,
Mallikatta Kadri, Mangaluru - 575002
E-mail: jalasiritranch2dpd@gmail.com Tel: 0824-2981109

No:KIUWMIP/RPMU/CR.88/2017-18 / 389

ದಿನಾಂಕ:23-08-2018

ಟಾಸ್ಕ್ ಮ್ಯಾನೇಜರ್

ಕರ್ನಾಟಕ ನಗರ ಮೂಲಸೌಕರ್ಯ ಅಭಿವೃದ್ಧಿ ಮತ್ತು ಹಣಕಾಸು ನಿಗಮ ನಿಯಮಿತ

ನಗರಾಭಿವೃದ್ಧಿ ಭವನ, # 22, 17 ನೇ 'ಎಫ್' ಕ್ರಾಸ್ ರಸ್ತೆ,

ಹಳೆ ಮದ್ರಾಸ್ ರಸ್ತೆ, ಇಂದಿರಾ ನಗರ, 2ನೇಹಂತ

ಬಿಎಂಟಿಸಿ ಬಸ್ ಡಿಪೋ ಹತ್ತಿರ, ಬೆಂಗಳೂರು-560038

ಮಾನ್ಯರೇ,

ವಿಷಯ: ಕ್ರಿಮಿನ್ ಚಾರ್ಜ್ -2 ಯೋಜನೆಗೆ ಸಂಬಂಧಿಸಿದಂತೆ ನಗರಾಡಳಿತ ಸಂಸ್ಥೆಗಳ ವ್ಯಾಪ್ತಿಯಲ್ಲಿ
ಕೈಗೊಳ್ಳುವ ಕಾಮಗಾರಿಗಳ ಅನುಷ್ಠಾನ ಸಮಯದಲ್ಲಿ ಉದ್ಭವಿಸಬಹುದಾದ ಸಮಸ್ಯೆಗಳ
ಬಗ್ಗೆ ಜಿಲ್ಲಾ ಮಟ್ಟದ "ಕುಂದುಕೊರತೆ ಪರಿಹಾರ ಸಮಿತಿ" ರಚನೆ ಧೃಡೀಕರಿಸುವ ಕುರಿತು.


ಉಲ್ಲೇಖ: 1)ತಮ್ಮ ಕಛೇರಿಯ ದೂರವಾಣಿ ಕರೆ. ದಿನಾಂಕ: 23-08-2018

2)ಈ ಕಛೇರಿಯ ಪತ್ರ ಸಂಖ್ಯೆ:KIUWMIP/RPMU/CR.88/2017-18 / 54 ದಿನಾಂಕ:24-04-2018

ಮೇಲಿನ ವಿಷಯಕ್ಕೆ ಸಂಬಂಧಪಟ್ಟಂತೆ ಮಂಗಳೂರು, ಉಡುಪಿ, ಕುಂದಾಪುರ ಮತ್ತು ಪುತ್ತೂರು ನಗರಗಳಲ್ಲಿ
ಈಗಾಗಲೇ ಕುಂದುಕೊರತೆ ಪರಿಹಾರ ಸಮಿತಿ Grievance Redressal committee (GRC) ಗಳನ್ನು ರಚಿಸಲಾಗಿದೆ.
ಕಾಮಗಾರಿ ಪ್ರಾರಂಭಿಸಿದ ನಂತರ ಬರಬಹುದಾದ ದೂರುಗಳು / ಕುಂದುಕೊರತೆಗಳನ್ನು ಪರಿಹರಿಸಲು ಈ ಸಮಿತಿ ಅಸ್ತಿತ್ವದಲ್ಲಿ
ಇರುತ್ತದೆ.

ಈ ಬಗ್ಗೆ ಉಲ್ಲೇಖ(2) ರಂತೆ ದಿನಾಂಕ:24-04-2018 ರಂದು ತಮ್ಮ ಕಛೇರಿಗೆ ವರದಿ ಸಲ್ಲಿಸಲಾಗಿದೆ. ಅದರ ಪ್ರತಿಯನ್ನು
ತಮ್ಮ ದಯಾಪರ ಅವಗಾಹನೆಗಾಗಿ ಇದರೊಂದಿಗೆ ಲಗತ್ತಿಸಿ ಸಲ್ಲಿಸಿದೆ.

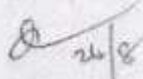
ತಮ್ಮ ವಿಶ್ವಾಸಿ


(ಡಿ.ಮಂಜುನಾಥಯ್ಯ)

ಉಪಯೋಜನಾ ನಿರ್ದೇಶಕರು

KIUWMIP-RPMU

ಮಂಗಳೂರು





Karnataka Urban Infrastructure Development & Finance Corp. Ltd.,
Karnataka Integrated Urban Water Management and Investment
Programme (KIUWMIP) "Jalasiri" - Tranche 2
Regional Programme Management Unit (RPMU),
First Floor, Mangalore City Corporation Commercial Complex,
Mallikatta Kadri, Mangaluru - 575002
E-mail : jalasiritranche2dpd@gmail.com Tel : 0824-2981109

No: KIUWMIP/RPMU/CR.88/2017-18/54

Date:24-04-2018

Task Manager,
KUIDFC- KIUWMIP,
Nagarabhirudhi Bhavan, Indiranagar,
Bengaluru 560038
Sir,

Subject : ADB Assisted KIUWMIP-Tranche-2 Mangaluru-"Jalasiri" - Constitution of Grievance Redressal Committee to receive complaints, evaluate concerns and address grievances of the affected person-reg.

Ref: 1) Your office OM No: KUIDFC/KIUWMIP/DLIC/2014-15/228 /1393 Dated: 28/06/2017.

2) This office letter No : KIUWMIP/RPMU/CR-11/2016-17(Land acq GRC)/612

Dated: 16-02-2018 addressed to Deputy Commissioner, D.K.Mangaluru .

3) This office letter No : KIUWMIP/RPMU/CR-13/2016-17(Land acq GRC)/599

Dated : 16-02-2018 addressed to Deputy Commissioner , Udupi.

4) This Office letter No:KIUWMIP/RPMU/CR-88/2016-17(Land acq GRC)/629

Dated : 20-02-2018 addressed to S.L.A.O MCC Mangaluru.

5) This office letter No: KIUWMIP/RPMU/CR-88/2016-17(Land acq GRC)/627

Dated : 20-02-2018 addressed to Asst.Commr, Kundapura.

6) This office letter No: KIUWMIP/RPMU/CR-88/2016-17(Land acq GRC)/613

Dated : 16-02-2018 addressed to Chief Officer , TMC , Kundapura.

7) This office Letter No: KIUWMIP/RPMU/CR-88/2016-17(Land acq GRC)/628

Dated : 20-02-2018 addressed to AC Puttur.

8) Head Office Email message dated :10.04.2018 11:45AM.

With reference to the above subject, the Grievance Redressal Committees have been formed in Mangaluru , Udupi , Puttur and Kundapura towns to receive complaints, evaluate concerns and address the grievance of Affected Persons (APs) under KIUWMIP Project while executing the works under KIUWMIP Project.

The details of the Committees Formed are as here under:

Grievance Redressal Committee (GRC) of Mangaluru City

1.	Special Land Acquisition Officer Mangaluru City Corporation, Mangaluru	President
2.	Commissioner Mangaluru City Corporation, Mangaluru	Member
3.	Executive Engineer KIUWMIP- PIU, Mangaluru (on behalf of DPD , KIUWMIP - RPMU)	Member Secretary
4.	Representative of PMDCSC (Project Management Design and Construction Supervision Consultant) Mangaluru	Member
5.	NGO / Affected Community member	Member
6.	SDO (Social Development Officer) RPMU- KIUWMIP, Mangaluru	Member

Grievance Redressal Committee (GRC) of Udupi City

1.	Assistant Commissioner Kundapura Sub division, Kundapura	President
2.	Commissioner Udupi City Municipal Council, Udupi	Member
3.	Executive Engineer KIUWMIP- PIU, Udupi (on behalf of DPD , KIUWMIP - RPMU)	Member Secretary
4.	Representative of PMDCSC (Project Management Design and Construction Supervision Consultant) Mangaluru	Member
5.	NGO / Affected Community Member	Member
6.	SDO (Social Development Officer) RPMU- KIUWMIP, Mangaluru	Member

Grievance Redressal Committee (GRC) of Kundapura Town

1.	Assistant Commissioner Kundapura Sub division, Kundapura	President
2.	Chief Officer Town Municipal Council, Kundapura	Member
3.	Asst.Executive Engineer KIUWMIP- PIU, Kundapura (on behalf of DPD , KIUWMIP - RPMU)	Member Secretary
4.	Representative of PMDCSC (Project Management Design and Construction Supervision Consultant) Mangaluru	Member
5.	NGO / Affected Community member	Member
6.	SDO (Social Development Officer) RPMU- KIUWMIP ,Mangaluru	Member

Grievance Redressal Committee (GRC) of Puttur City

1.	Assistant Commissioner Puttur Sub division, Puttur	President
2.	Commissioner City Municipal Council, Puttur	Member
3.	Executive Engineer KIUWMIP- PIU, Puttur (on behalf of DPD , KIUWMIP - RPMU)	Member Secretary
4.	Representative of PMDCSC (Project Management Design and Construction Supervision Consultant) Mangaluru	Member
5.	NGO / Affected Community member	Member
6.	SDO (Social Development Officer) RPMU- KIUWMIP ,Mangaluru	Member

Yours sincerely


 Deputy Project Director
 KIUWMIP-RPMU
 Mangaluru

APPENDIX 35a - GRM establishment for Tranche 2-ENGLISH

Karnataka Urban Infrastructure Development Finance Corporation,
Karnataka Integrated Urban Water Management and Investment
Programme (KIUWMIP) "Jalasiri" Tranche-2
Regional Programme Management Unit (RPMU)
First Floor Mangalore City Corporation Commercial Complex,
Mallikkatte, Kadri, Mangaluru- 575002
Email: jalasiritranche2dpd@gmail.com Tel: 0824-2981109

No: KIUWMIP/RPMU/CR.88/2017-18/389

Date: 23-08-2018

Task Manager

Karnataka Urban Infrastructure Development Finance Corporation
Urban Development Building, #22,17th F cross road
Old Madras road, Indhiranagar, 2nd Stage
Near BMTC Bus Depot, Bangalore-560038

Sir,

Sub: Approval for the Grievance redressal committee formation in KIUWMIP Tranche-2 related to municipality during project implementation work arising issues at district level.

Ref: 1) Your office phone call date: 23/05/2018

2) Your office letter no: KIUWMIP/RPMU/CR.88/2017-18/54 date: 24/04/2018

With reference to the above mentioned subject of Mangalore, Udupi, Kundapura and Puttur town already Grievance Redressal committee has created and this is to essence for solving the issues after the start-up of up-coming work complaints and grievances / Grievance Redressal committee.

Report submitted to your office on ref (2)date 24/4/2018 with the attached copies.

Yours Faithfully
D. Manjunathaiah
Deputy Project Director
KIUWMIP/ RPMU
Mangalore

APPENDIX 36 - Grievance Register - Mangalore UGD

Grievance Register – Mangalore UGD

Sr No	Date	Name	Address	Phone Number	Location	Complaint Details	Action Taken	Complaint File	Status	Date of Closure	Remarks
1	24/11/19	Amma	Mallikarjuna Sulthelaya KT Insurance	9902050546	Mallikarjuna	Water Pipe Damaged	Investigation Done	Submitted	Closed	24/11/19	
2	24/11/19	Prabha	Sri. Ramesh K.T. Insurance P.L. Water pump station	9972548510	Mallikarjuna	Access not proper for Vehicle movement	Rectified	proper	Closed	22/1/20	
<p>29/10/2019 SDO - Egls KILIMNIP - T2</p> <p>DECEMBER MONTH</p>											
3	18/12/19	Ramachandra Savara	Sri. Ramesh Dh. No. 1-59 Kandady	9353985213	Kandady	Water Pipe Damaged	Rectified	3-10 closed		09/12/19	
4	19/12/19	Unish Kumar	Kandady 1-162/1 Dh. No. 1-59	9535844443	Kandady	Water Pipe Damaged	Rectified	3-10 closed		16/12/19	
5	20/12/19	Chandrasekhar	Hill Sri. Ramesh Dh. No. 1-59	8970312409	Kandady	Access not proper Due to Access	Rectified	Chandrasekhar Dh. No. 1-59		29/12/19	
<p>29/10/2019 SDO - Egls KILIMNIP - T2</p>											

CLASSMATE						CLASSMATE					
Sl. No.	DATE	NAME	ADDRESS	PHONE NUMBER	LOCATION	COMPLAINT DETAILS	ACTION TAKEN	COMPLAINT SIGN	STATUS	DATE OF RESOLVING	REMARKS
					Ashok Nagar						
1	28.11.19	Shri Krishnamoorthy	Thangampalayam	983801109	Ashok Nagar	Water supply will be opened after for road curing period completion.	Water supply will be opened after for road curing period completion.		Open	14.12.19	
DECEMBER - 2019											
1	5.12.19	Vandana Rao	Chalakkal	9449980094	Ashok Nagar	Water supply will be rectified.	Water supply will be rectified.		Rectification	8.12.19	
2	10.12.19	Laxman Smt	Vigneshwara Apartment	984192131	Ashok Nagar	Water supply will be rectified.	Water supply will be rectified.		Rectification	11.12.19	
3	10.12.19	A. S. G. P. A.	189-2413/1	944333025	Ashok Nagar	Water supply will be rectified.	Water supply will be rectified.		Rectification	11.12.19	
4	12.12.19	---	---	---	Ashok Nagar	Water supply will be rectified.	Water supply will be rectified.		Rectification	12.12.19	
5	12.12.19	Shree	Thangampalayam	944333025	Ashok Nagar	Water supply will be rectified.	Water supply will be rectified.		Rectification	12.12.19	
6	12.12.19	Raghav	Chalakkal	944333025	Ashok Nagar	Water supply will be rectified.	Water supply will be rectified.		Rectification	12.12.19	
7	12.12.19	---	---	---	Ashok Nagar	Water supply will be rectified.	Water supply will be rectified.		Rectification	12.12.19	

Kilimanjaro				
DATE	NAME	ADDRESS	PHONE NUMBER	LOCATION
11/11/19	Enoch	Mwambi Mwambi matidani Bulu Mangrove 6	9964092881	matidani
12/11/19	Shadrach	Mwambi Mwambi matidani Bulu Mangrove	9964092881	matidani
13/11/19	Shadrach	Angel cent. Ego Camound. Matidani Bulu Mangrove 6	9980753502	matidani
14/11/19	Kapuma	Kapuma Camound matidani 2 Mangrove 6	9980309839	matidani
Kilimanjaro				
18/11/19	Yusuf Ali	Yusuf Ali matidani P. No. 74-7/11A	7164044688	matidani
<p>Pl. 10/11/19 Kilimanjaro by sending Mr. Mbe</p> <p>550-03/11/2020 Kilimanjaro 72</p>				

Current Status	Active Task	Current Status	Status	Date of Closing	Remarks
MSE water connection damage	MSE water connection rectification	Done	closed	19/11/19	
Foundation wall damage	Foundation wall rectification	Done	closed	19/11/19	
MSE water connection damage	MSE water connection rectification	Done	closed	20/11/19	
MSE water connection damage	MSE water connection rectification	Done	closed	20/11/19	
MSE water connection damage	MSE water connection rectification	Done	closed	20/11/19	

Sl. No.	Date	Name	Address	Phone Number	Location	Complaint Details	Action Taken	Complaints File	Status	Date of Closure	Remarks
1	24/11/19	Guest	Mullikud Sri Nalaya K.J. Insurance	9902050596	Mullikud	Water Pipe Damaged	Inspection Done	Submitted	Closed	24/11/19	
2	24/11/19	Poojika	Sri Nalaya K.J. Insurance Pl. water problem address. 29/11/2019 SDO - Eggit Kilummir - T2	9922548510	Mullikud	Access Not Given for Water Mainline	Rectified	Submitted	Closed	26/11/19	
DECEMBER MONTH											
3	19/12/19	Ramchandra ✓ Suresh	Sri Hari Praga Dm No. 1-59 Kandady	7353985212	Kandady	Water Pipe Damaged	Rectified	Submitted	Closed	09/12/19	
4	19/12/19	Unish Kumar	Kanakkal 1-162/1 Dandakal Kandady	9535844999	Kandady	Water Pipe Damaged	Rectified	Submitted	Closed	16/12/19	
5	29/12/19	Chandrasekhar	Hall Sri Durga Praga	8990312409	Kandady	Access Not Given Due to Security	Rectified	Submitted	Closed	29/12/19	

APPENDIX 37 - Grievance Register - Kundapura

Grievance Register - Kundapura

Sl No	DATE	NAME	GRIEVANCE	ACTIONS TAKEN.	DATE	REMARKS.
18)	12/07/19.	Raghuvaran.	Requesting for replacement of meter.	At. Replaced new meter.	13/07/19.	
19)	10/07/19.	Girija.	Water leakage in new meter.	Leakage rectified.	13/07/19.	
20)	10/07/19.	Paddu.	Leakage of water in new meter.	Leakage rectified.	11/07/19.	
21)	06/07/19.	Nagesh Khosvi	Water leakage in new meter.	Rectified.	07/07/19.	
22)	08/07/19.	Sanjeeva Khosvi 9844242624	Water leakage in meter.	Rectified leakage problem.	08/07/19.	
23)	09/07/19.	H.P. Formade	Water leakage problem in new meter.	Rectified leakage problem.	11/07/19.	
24)	10/07/19.	Rajeshi prajapati.	Leakage problem.	Rectified.	11/07/19.	
25)	12/07/19.	Damodara Sheng	Leakage problem in meter.	Rectified.	13/07/19.	about 2 meters
26)	15/07/19.	Hema 9902459656	Water leakage in new meter.	Rectified water leakage.	15/07/19.	
27)	16/07/19.	Satish Kumar.	Water leakage problem.	Rectified.	17/07/19.	about 2 meters

Sl NO	DATE	NAME	GRIEVANCE	ACTIONS TAKEN.	RECTIFIED DATE.	REMARKS.
31)	17/07/19.	Pte villa - S. Abneda.	Leakage problem in meter.	Rectified.	17/07/19.	
29)	20/07/19.	Rutna mayan Kharvi.	Water leakage problem.	Rectified.	20/07/19.	
30)	24/07/19.	Chandabale.	Leakage problem in TT Road.	Rectified.	24/07/19.	
31)	24/07/19.	Sharmila, Bharadatta road.	Leakage problem in Bharadatta road.	Rectified.	24/07/19.	
2)	07/08/19.	Naganna, main road Kundapura.	Reverse meter running	Rectified.	07/08/19.	
3)	5/08/19.	Chandavathi.	Reverse meter running in Vadakhali.	Rectified.	05/08/19.	
1)	16/08/19.	Chandra Kharvi	New connection to have a 9731222330 Kodi got damaged.	Rectified.	18/08/19.	
	23/08/19.	Shantan Shesiga	Water leakage in new meter.	Rectified.	25/08/19.	
	29/08/19.	K. Naganna, Shet Sini Karay Nitya - Opp	Bill amount is increasing.	-	-	

Sl. No.	Date	Name	G.R. Details	ACTED	TAKEN	RECTIFIED DATE	REMARKS
32)	02/09/19	Nirmal. M. Poojary 9133 9449331544	Requesting for new meter.	New meter installed.		05/09/19.	
35)	05/09/19	Barava Poojary. Ashwaja colony. 5861466673	Water leakage after replacing new meter.	Leakage problem resolved		10/09/19.	
39)	11/09/19	Angdina D. D. D. 9844933777	Water leakage problem.	Leakage rectified.		12/09/19.	
40)	12/09/19	Rameshwar Poojary 9880402502 Meter No:- 9221 9th ward.	Have to install new meter.	New meter installed.		12/09/19.	
41)	16/09/19	Tuhir Meter No:- 2221 Kamikeri Nagar temple. 7026748869.	Meter bill amount has increased after installing new meter.	-	-		
42)	12/09/19	Prerna Jadhav 9632588805 Hinghwa - 1288	Meter bill amount increased.				
43)	19/09/19	Sudhakar 8151052085 Ashwaja colony 1st. 1998	Meter has not fixed. Meter no:- 8179.	Fixed to meter by		20/09/19.	
49)	26/09/19	Prasanna Datta M. No:- 9845597795 Bhandarkar Road.	Meter no:- 8386 For reading -				

Sl No	DATE	NAME	GRIT/ISSUE	ACTION TAKEN	RECTIFIED DATE	REMARKS
48)	05/10/19.	B. Nigamal VIII - T.T. Road 7259 222778	meter not 2139. Damage to new meter box.	Rectified.	07/10/19.	
49)	10/10/19.	Jugalakshai - B IX - in ward, 'Indreshbali' nearby 'Ami' temple. Kundapura.	Damage to new meter box.	Rectified.	15/10/19.	
49)	23/10/19.	Vittal Rao Linga Mani Fish Market Road Kundapura. Ph no:- 8105913147.	Box not installed.	Box Installed new box.	23/10/19.	
49)	30/10/19.	Lalitha Barekatti Road Kundapura. VII - 83/2.	Box not installed	Installed new box for meter.	02/11/19.	
49)	4/11/19.	New pipe connection Shreebha Kaipady T.T. Road VIII - ward. 9449431525.	New pipe connection.	Given pipe connection & meter.	11/11/19.	
50)	05/11/19.	Bhakti T.T. Road, Archana colony near school. Vigneshwara nilaya Meter no:- F231.	Water is leaking after installing new meter.	Rectified leak.	10/11/19.	

Sr. No.	DATE	NAME OF COMPLAINER	GRIEVANCE	ACTION TAKEN	RECTIFIED DATE	REMARKS
71)	06/11/19.	Nirmala TT Road 7259872338.	Meter box complaint	Box not box installed.	11/11/19.	
72)	06/11/19.	Shalina 6248 D/o M. Abdul Bhader Chittansah Road Mega Govt School, Kundapur. 9900721029.	Water meter damage.	Meter changed by new no.	11/11/19.	
73)	11/11/19.	Hilga M. Rebath 276/11 Khawki Keri Kundapur. 9620061951.	Fix box to new water meter.	Box fixed to new meter.	17/11/19.	
74)	19/11/19.	K. Pushpa .A Near K.S.P.T.C Bus Stand N.H.66 Kundapur. 8073619922.	Replacement of new meter.	New meter replaced.	20/11/19.	
75)	25/11/19.	9265 Lalith Garind Poogara 7019662356.	Meter valve leakage	Rectified valve leakage.	01/12/19.	
76)	2/12/19.	4198. Shiroodha 4th ward.	Gate valve has broken.	New gate valve installed	05/12/19.	

S No	DATE	NAME OF COMPLAINER	GRIEVANCE	ACTIONS TAKEN	CLOSING DATE	REMARKS
77)	09/12/19.	KH Jagannath Chowd mand Kundapura. 9448520202.	Interlock mechanism is not done properly.	Requested interlock mechanism work.	26/11/2019.	
78)	17/12/19.	Dwiji 8th ward Near shanthi circle 8039. 9483717680	Water leakage.	Rectified leakage.	25/12/2019.	
79)	18/12/19.	Silartin Chickeral mand Kundapura. 3065. 8105695132.	Water leakage near main.	Rectified leakage.	25/12/19.	
80)	20/12/19.	Ashika Muddugudde 4112 9443280508	leakage of water.	Rectified leakage.	25/12/2019.	
81)	23/12/19.	8th ward. 9984868348 V. Narayana billava.	Water loss not properly.	Rectified by installing new box.	10/01/2020.	

Kodi OHT ^{MAINTENANCE} ~~Lab~~ Register.

Sr No	DATE	NAME	GRIEVANCE	ACTIONS TAKEN	RECTIFIED DATE	REMARKS
01)	01/12/19.	-	No grievance.			
02)	02/12/19.		No grievance.			
03)	03/12/19.		No grievance.			
04)	04/12/19.		No grievance.			
05)	05/12/19.		No grievance.			
06)	06/12/19.		No grievance.			
07)	07/12/19.		No grievance.			
08)	08/12/19.		Sunday.			
09)	09/12/19.		No grievance.			
10)	10/12/19.		No grievance.			
11)	11/12/19.		No grievance.			
12)	12/12/19.		No grievance.			
13)	13/12/19.		No grievance.			
14)	14/12/19.		No grievance.			
15)	15/12/19.		Sunday.			
16)	16/12/19.		No grievance.			
17)	17/12/19.		No grievance.			

SF No	DATE	NAME	GRIEVANCE	ACTIONS TAKEN	RESOLVED DATE	REMARKS
18)	18/12/19.		No grievance.			
19)	19/12/19.		No grievance.			
20)	20/12/19.		No grievance.			
21)	21/12/19.		No grievance.			
22)	22/12/19.		Sunday.			
23)	23/12/19.		No grievance.			
24)	24/12/19.		No grievance.			
25)	25/12/19.		No grievance.			
26)	26/12/19.		No grievance.			
27)	27/12/19.		No grievance.			
28)	28/12/19.		No grievance.			
29)	29/12/19.		Sunday.			
30)	30/12/19.		No grievance.			
31)	31/12/19.		No grievance.			

APPENDIX 38 - Grievance Register - Udupi

Sl. No	Name of customer	Phone Number	date of complaint received
1.	Mr. Ramson	9901289302	13/11/2019.
2.	Mr. Vedava	8310871847	20/11/2019.
3.	Mr. Srinath	8123374125	25/11/2019.
4.	Mr. Shrishka (councillor)	9448501296	09/01/2020
5.	Mr. Santosh Janath	9844213052	04/02/2020
6.	Mr. Shrishka	9448501296	04/02/2020
7.	Mr. Jantish	9740948785	03/02/2020

Reason for complaint.	complaint resolved date
while excavating in santhekatte site (OH) the House service connection has been damaged so they complained us.	14/11/2019.
while doing pipeline work the main water main was damaged so complaint has been received.	22/11/2019.
while doing pipeline the BSNL Broad Band cable has been damaged so we got complaint.	28/11/2019.
While excavating in Mudubettu 5 th cr (zone 9A) the HSC has been damaged. So they complained us.	10/01/2020.
They need new HSC connections for 5 property @ zone-8A, Nithur.	
While excavating in Mudubettu (zone 9A) the HSC has been damaged. So they complained us.	05/02/2020
They want HSC replacement from a HDPE pipe @ zone-8A, Nayampalli 4 th cr.	

APPENDIX 39- EHS PLAN-Manglore UGD

HEALTH SAFETY & ENVIRONMENT MANAGEMENT PLAN

CONTENTS

1. OBJECTIVES
2. COMMITMENT & MOTIVATION
 - 2.1 Visibility
 - 2.2 Proactive in Target Setting
 - 2.3 Company Culture
 - 2.4 Involvement of Senior Management
3. HSE POLICY
- 4.. HSE ORGANISATION
 - 4.1 Organization Chart
5. RESPONSIBILITIES
 - 5.1 Project Manager
 - 5.2 HSE Manager
 - 5.3 HSE Engineer/Officer
 - 5.4 Section / Area in-Charges
 - 5.5 All Employees
 - 5.6 Site Engineers
 - 5.7 Project HSE Committee Members
 - 5.8 Sub-contractors
6. PROJECT HSE COMMITTEE
7. HSE RISK ASSESSMENT (HIRA)
 - 7.1 Purpose
 - 7.2 Matrix for Group Risk Assessment
 - 7.3 Severity of hazard (Impact)
 - 7.4 Likelihood of occurrence (Probability)
8. LIST OF APPLICABLE LEGAL & OTHER REQUIREMENT
9. GENERAL REQUIREMENTS ON SAFETY, HEALTH, WELFARE
 - 9.1 First aid facilities
 - 9.2 Overhead hazards
 - 9.3 Excavation
 - 9.4 Drowning hazards
 - 9.5 Slipping hazards
 - 9.6 Tripping hazards
 - 9.7 Access to workplace
 - 9.8 Dust and gases
 - 9.9 Hazardous and corrosive substances
 - 9.10 Eye and ear protection
 - 9.11 Work in confined spaces
 - 9.12 Personal protective equipment (PPE)
 - 9.13 Public vehicular traffic
 - 9.14 Site traffic
 - 9.15 Stability of Structure
 - 9.16 Storage of materials and equipment
 - 9.17 Disposal of debris
 - 9.18 Ladders and access platforms
 - 9.19 Working at height
 - 9.20 Alcoholic and Drug Prohibition, Smoking Restriction
 - 9.21 Positioning of machinery
 - 9.22 Fixed and mobile cranes
 - 9.23 Attachment of loads (Lifting Tools & Tackles)

- 10. WORK PERMITS & LIAISON WITH CLIENT
 - 10.1 Work Permits
 - 10.2 Liaison with CLIENT
- 11. Checks & Reports
- 12. Statistics & Reports
- 13. Emergency Response plan
- 14. List of job specific PPE to be used in the site
 - 14.1 Introduction
 - 14.2 PPE will be issued to all personnel as per agreement conditions
 - 14.3 General Procedures
 - 14.4 Head Protection
 - 14.5 Eye and Face Protection
 - 14.6 Hand Protection
 - 14.7 Foot Protection
 - 14.8 Leg Protection
 - 14.9 Hearing Protection
 - 14.10 Safety Harness
- 15. TRAINING
 - 15.1 Training Matrix
- 16. COMMUNICATION & REPORTING
- 17. ENVIRONMENT PLAN
 - 17.1 Environmental Responsibilities
 - 17.2 identify Environmental Requirements
 - 17.3 Works/Project Environmental Impact Identification
 - 17.4 Works/ Project Environmental Impact Assessment
 - 17.5 Work/Project Environmental Control
 - 17.6 Work/Project Environmental Reporting
- 18. HEALTH & SAFETY PLAN
 - 18.1 GENERAL RULES
 - 18.2 HSE Orientation for the Workmen
 - 18.3 Pep Talks
 - 18.4 Safety Training
 - 18.5 Safety Promotional Activities
 - 18.6 Personal Protective Equipment
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 - 18.8 Jobs at remote & isolated site
- 19. WELFARE PLAN
 - 19.1 Labour Camp
 - 19.2 Drinking Water
 - 19.3 First Aid Facilities
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 - 19.5 Emergency Vehicle Arrangement
- 20. CRITICAL JOB ACTIVITIES
 - 20.1 Over head hazard (power lines)
 - 20.2 Overhead Power Line crossing area
 - 20.3 Minimum Clearance for Live Conductor
 - 20.4 Underground hazard - Power cables / Water / Sewage
 - 20.5 Electrical
 - 20.6 Blasting (IS 4081 - 1986):
 - 20.7 Transportation of Construction materials- Cement Bag, Bricks, Mortar,
 - 20.8 Excavation

21 JOB SPECIFIC ACTIVITIES

21.1 Material Handling

21.2 At Stock Yard:

21.3 Traffic -Y At job Location/ Near Highways/ Roads:

21.4 Pipe Shifting:

21.5 Pipe Laying in to Trench:

21.6 Welding:

21.7 NDT (Non destructive tests):

21.8 Pressure Testing:

1. OBJECTIVES

- To determine broad parameters of HSE management at site.
- Establish & define aim of command for resolution of all hazard prevention issues,
- Define individual hazard prevention & safety promotion responsibility at the level of the construction team.
- Identify highly hazardous operations within the scope of work and specify integrated preventive measures to mitigate the same.
- To ensure compliance with relevant applicable legislation.
- Continued HSE performance improvement by directing focus on the key areas for improvement in a consistent manner.

2. Commitments and Motivation

DRSITPL is fully committed to this Health, Safety and Environmental Policy and Standards and will provide motivation through:

- Planning all work in a safe manner prior to executing the tasks and conducting risk assessments for non-routine and hazardous activities.
- Providing a safe facility, equipment, personal protective equipment and safe working procedures.
- Providing suitable training, supervision, information and instruction to all personnel engaged in Project activities.
- Accepting and being accountable for the responsibility of accidents and incidents in the workplace.
- Introducing systems to encourage active involvement of the management workforce and the local community in providing suggestions and proposals for improvements in the HSE performance.
- Providing active support to the workforce by way of specialist advice in safety and quality areas.
- Assessing the risks in the workplace with subsequent communication to the workforce.
- Maintaining an active record of all incidents for continual evaluation/analysis of the Project safety refinance so that ways and means for improvement can be developed and implemented. A continuous effort, driven by Project Management involvement, will be made throughout all phases of Project activities to motivate the workforce to take an active part in use issues and activities.

2.1 Visibility

The management will provide strong demonstrable visible leadership and commitments towards HSE by personal example and action. The Management will participate in HSE Meetings, conduct site Inspections and HSE Audits, to encourage a positive attitude towards HSE.

SI No	TASK	ACTION BY	COMPLIANC
1	Project HSE Review Meeting: (Review performance against HSE plans, HSE Objectives & targets and any HSE issues)	Project Manager	Minimum Frequency 1 month
2	Project HSE Committee Inspection	HSE Committee Members	Minimum Frequency 1 month
3.	HSE Review	Section Heads	During HO representative's Site Visit

4	(Motivation) Giving Safety Certificates, with token gift to the "Best safety conscious personnel" of the month to recognize good HSE		Every Quarter
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2.2 Proactive in Target Setting

The Site management demonstrates pro-activeness in target setting by:

No	TASK	ACTION BY	COMPLIANCE TARGET
1	Jointly developing and discussing improvement targets and indicators for each location with Site Engineer & HSE Engineer. (Eg. Training of Workmen Coverage. Inspection Compliance etc.)		Every Quarter
2	Jointly review the Incidence rate of First Aid Case and set a target for reduction.		Every Quarter
3.	Management involvement in Accident review and target setting.	AVP/ HSE Engineer	As Required/ Monthly

2.3 Company Culture

The management seeks to create and sustain a Company culture in which employees share a commitment to HSE.

SI No	TASK	ACTION BY	COMPLIANCE TARGET
1	Putting HSE as the "First agenda" of all review meetings at Headquarters & project sites	Avp/ PM	All time
2	Empowerment to Stop Work Employees are empowered to stop work when the situation warrants immediate action in view of imminent danger to life / property / environment. Project Managers must appreciate and reward those employees whose prompt	ALL	All time

2.4 Involvement of Senior Management

Senior management demonstrates its involvement in HSE issues through.

No	TASK	ACTION BY	COMPLIANCE TARGET
1	Review Project HSE Performance and HSE plan implementation in consultation with Project Manager & HSE Engineer.	Zonal Head	Half yearly
2	Ensure adequate professional HSE support is available for effectively implementing the HSE Plan, fulfilling EHS targets and attaining HSE objectives.	HSE Engineer	Project Duration
3	Ensure sufficient support and resources are available to meet HSE targets (Eg. Infrastructure vehicle, safety steward ,	AVP/ PM	project Duration
4	Imparting necessary HSE training for the Staff & workmen of the project.	AVP/ PM	As required

HSE Rules

In order to formulate the necessary standards to be used in the HSE policy, ten basic HSE rules are considered to be the foundation for such standards that have been established to achieve Project objectives. The ten basic rules are:

DRSITPL. will comply, as a minimum, with national and international laws and applicable local regulations and rules throughout its operations and activities.

These Health, Safety and Environmental Policy and Standards are to be clearly defined and made known at all levels of the Project. Responsibilities and accountabilities for the associated application are to be identified and assigned in writing.

— sThroughout Project 's activities and operations, the risks to health, personnel, As and environment are to be identified and the means by which they are to be avoided are to be defined.

All subcontractors must be evaluated for their ability to conform to the Project 's health, safety and environmental requirements that must be -clearly stated in the contract. All contract award recommendations must address this issue.

4. All operations with potentially critical effect on health, safety and environment are to be covered by procedures that are reviewed and updated on a regular basis.

5. Training and competency programs are to be formalized and implemented to ensure that personnel are prepared for the tasks required of them; with particular attention being given to safety and environmentally critical posts.

6. Emergency procedures covering communications and actions in case of **medical** accident and environmental emergencies are to be maintained and tested.

7. All accidents, including near misses, are to be reported, analyzed and remedial actions taken to avoid re-occurrence.

8. At Project 's operations and activities are to be assessed by inspection and audits.

9. Each area of operation will establish objectives and improvement plans based on incident analyses, audit results and risk analyses in order to raise the level of HSE performance.

HSE POLICY

All staff and employees shall be made aware of the existence of this policy by discussing in HSE meetings, displaying at site offices, notice boards, workmen camp, canteen some conspicuous locations.

HEALTH SAFETY & ENVIRONMENT POLICY

We affirm our commitment to our objectives of conserving the environment and providing a safe and healthy work place for our employees and Workers.

The objectives of the HS&E Policy shall be achieved by:

- Incorporating HSE consideration in all business decisions,
- Operations while also ensuring compliance to legal and contractual requirements
- Identifying and controlling HSE risks apart from imparting structured training for employees and workers
- Employing contractors who aspire to adopt DRSITPL's HSE standards in their work
- Encouraging communication, consultation and collaboration with all employees and workers for promoting a positive HSE culture
- HSE Philosophy

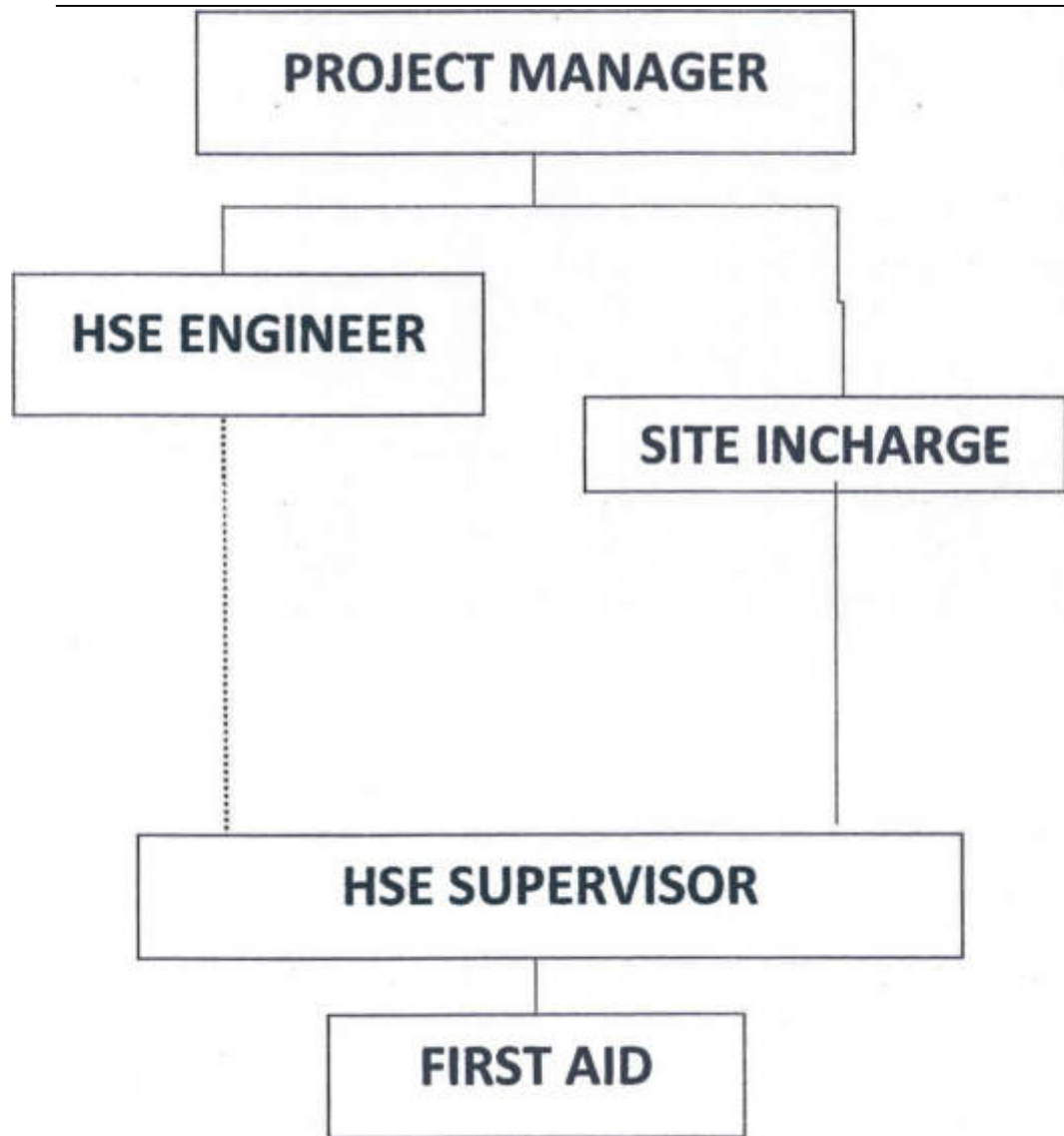
All adverse environmental impacts and accidents are preventable

No task is so important that the risk of injury to people or damage to environment is justifiable

We shall collectively uphold the philosophy and work safely in an environment friendly manner. We shall be responsible for integrating and implementing best practices while we strive towards continual improvement in our HSE performance

HSE ORGANISATION

4.1 Organization Chart



RESPONSIBILITIES

HSE Management is a line responsibility requiring active participation of all levels of management and supervision.

Individual HSE roles and responsibilities, along with task and target shall be distributed to the individuals for action, as described below.

1	Responsible for completion of the project with total implementation of the company's HSE policy requirement, HSE Management System & requirements of this plan and comply with the relevant statutory rules and regulations.	project Duration
2	<p>Responsible to ensure that all staff & workmen are competent to perform their tasks safely in compliance with Drs Infratech Pvt. Ltd HSE Management System and this plan requirement. He shall do so by:</p> <p>Ensuring the screening of workmen is effectively implemented by the time office & site execution engineers. HSE Induction provided for all staff & workmen before deployment by HSE Engineer.</p> <p>Ensure regular monitoring and organize continuous HSE in-house trainings.</p> <p>Establishing adequate control measures for the employee's fitness in order to avoid fatigue, stress, extended working etc.</p>	Project Duration
3	Ensure sufficient resources are available at site. He shall ensure through:	Project Duration

5.1 Project Manager

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	<p>Reviewing HSE Plan implementation and discuss any outstanding issues in Project HSE Committee Meeting.</p> <p>Investigating non-compliance and non-implemented items.</p>	
4	Site HSE Inspection and HSE Plan implementation monitoring	Project Duration
5	Investigate all high potential incidents and noncompliance and ensure immediate remedial action to stop recurrence.	AS & When notified

Si No	TASK	TARGET
1	Disseminate and Communicate HSE Policy, HSE Management System requirements to site personnel.	project Duration
2	Provide necessary advice, information and support in the effective implementation of the HSE Management System requirements and the project HSE plan.	Project Duration

3	Updating the HSE Plan to the requirements of the activities being carried out when there is a revision.	Project Duration
4	Plan and conduct Internal HSE training programs, initiate drive to promote HSE awareness and performance	Project Duration
5	Carry out HSE inspection of Work Area, P&M Equipment & Machineries, etc. as per the IMS requirement.	As per Monthly Activity Plan
6	Creating HSE awareness through TBT talks.	Every day
7	Advising line management in preparing HSE Risk Assessment for the new activities.	Project Duration

8	Conduct investigation of all incidents/ dangerous occurrences & Recommend appropriate corrective measures.	When reported
9	Convene HSE Committee meeting & minute the proceedings for circulation & follow-up action.	Min Frequency Once in a month
10	Advice & co-ordinate for implementation of Work Permit Systems (WPS).	Whenever work requiring WPS is executed
11	Plan procurement of PPE & safety devices and inspect before use as per laid down norms.	Project Duration
12	Report to HSE Engineer on all matters pertaining to status of HSE and promotional program at site level.	Regular basis
13	Facilitate screening of workmen and conduct HSE induction.	Project Duration
14	Monitoring administration of First Aid.	Project Duration

15	Conduct Fire Drill, Procure, inspect and arrange to maintain Fire Extinguishers.	AS scheduled in the monthly
16	Organize campaigns, competitions & other special emphasis program to promote HSE in the workplace.	As and when required
17	Register Customer complaints and take corrective action.	Project Duration
18	Record, analyse and cascade lateral learning points from First Aid Cases, Near Miss Cases & Accidents to all project personnel and analyse the trends & effectiveness.	Monthly
19	Maintain all HSE related documents Update HSE training records	Continues

5.2HSE Engineer

5.3 Section I Area In-Charges

No	TASK	TARGET
1	Ensure that all the workmen engaged under him are selected through the screening system & have undergone site HSE Induction before assigning any task at site.	Project duration
2	Ensuring compliance of Drs Infratech Pvt. Ltd. basic HSE rules and applicable specifications by	project duration
	Taking prompt action of site inspection and hazard findings.	
	Closing all the points identified in inspection reports	
	Ensure HSE Risk Assessment is done for all the jobs under him.	
3	Ensure that all near miss cases / Reportable LTI / Dangerous Occurrence / Fatality are reported promptly.	AS & when notified
4	Participate regularly in HSE meetings.	As schedule

5.4 All Employees

Si No	TASK	TARGET
1	Report all unsafe acts and condition to the immediate supervisor.	Continuous
2	Start work only when conditions are safe and stop work when it is unsafe.	Continuous
3	Operate equipment only when authorized and prescribed manner. (If applicable)	Continuous
4	Report any injury or accident immediately.	Continuous

5.5 Site Engineers

SI No	TASK	COMPLIANCE TARGET
1	Understanding the HSE requirements of the Project from this Plan, HSE Management Systems, HSE Manual & following the same in execution of the work	Continuous
2	Give Pep talk to the workmen under him	Daily
3	Ensuring the workmen under him wear the necessary personal protective equipment respective to the job	Continuous
4	Eliminating all unsafe conditions in their work area	Continuous
5	Keeping the work area neat & clean	Continuous
	Know the critical activities of his job based on the HSE Risk Assessment and ensure implementation of the control measures.	project Duration
7	Participating with the HSEO Officer or the committee Members in the Project HSE Inspection	As per schedule
8	To follow all work permit system as per client requirements Or Drs Infratech Pvt. Ltd. Management System before starting of similar work	As and when required

9	To report all near miss cases / reportable I-TI /dangerous occurrences/ fatality to HSE Engineer immediately verbally & submitting the preliminary accident report within 24 hours.	As and when required
10	Informing the Concerned Authority as per the emergency response plan.	As and when required

5.6 Project HSE Committee Members

TASK	COMPLIANCE TARGET	VERIFICATION DOCUMENT
To discuss and decide the ways and means of	Once in a week	MOM - HSE Committee Meeting
To analyze all the activities of the forth coming Period and identify the possible hazards and Finalizing the precaution to be taken.		
To monitor the HSE Performance of the Project and suggesting improvements whenever needed.		

5.7 Sub-contractors

All Subcontractors/ Vendor/ Supplier/ Third Party performing services at the Project site shall be subject to this plan requirement.

TASK	COMPLIANCE TARGET
Shall understand the HSE code of conduct for subcontractors and sign the same as a token of acceptance before starting the activity.	Before starting the activity
Subcontractor, his Supervisor and his workmen shall adhere all the laid down HSE rules & Regulations while working at site, follow the instruction / advice of Site engineer & HSEO from time to time.	Continuous

6. PROJECT HSE COMMITTEE

This section shall give the details of the Project HSE Committee.

- HSE committee having all the section heads as members under the chairmanship

of Project Manager.

- HSE committee meets under the chairmanship of PH/PM at least once in a Month in order to bring out solutions to the problems related to HSE.
- Minutes of meeting are recorded and circulated to all the concerned for follow up.

7. HSE RISK ASSESMENT (HIRA)

7.1 Purpose

To assess the risk of the activities to be executed, rate the risk levels as per the risk assessment matrix, and identify the control measures so as to bring the risk level to AL-ARP.

7.2 Matrix for Group Risk Assessment

		5					
Fatal		5	10				25 (5 x 5)
Hospitalization Case		4	8	12			20
Lost Time Case		3	6	9	12		15
Medical treatment case		2	4	6	8		10
First Aid Treatment			2	3			5
		1	2	3	4	5	
		Probability Rating					

Risk Level = Probability x Impact Rating							Inevitable
Legend						o	

Risk Level from 1 to 4		Low Risk			
Risk Level from 5 to 12		Medium Risk			
Risk Level from 15 to 25		High Risk			

7.3 Severity of hazard (Impact)

Severity is the degree or extent of injury or harm caused by the hazards, or as a result of an accident. Severity of hazard is classified as per the table given below.

Impact Descriptions		
(The highest category will always be used)		
VALUE	Result of Hazard to Personnel	Result of Hazard to Assets & Progress
5	Single or multiple Fatality	Catastrophic Damages, Critical Delay
4	Serious Injury requiring hospitalisation	Major Damages, Serious Delay
3	Lost Time Accident	Serious Damage, Moderate Delay
2	Injury requiring Medical Treatment but not Lost Time	Moderate Damage, Minor Delay
1	First Aid treatment only	Minor Damage, No Delay

7.4 Likelihood of occurrence (Probability)

Likelihood of occurrence of an accident or incident or ill health is classified as per the table given below.

Probability Descriptions		
(The highest category will always be used)		
VALUE	Status	Description
5	Inevitable	Happens regularly on this site
4	Most Likely	Known to have occurred on this site in the past
3	Likely	Known to occur on other sites

2	Unlikely	Known to occur in the industry
1	Most Unlikely	Never known before

8. LIST OF APPLICABLE LEGAL & OTHER REQUIREMENT

- Indian electricity Rule -1956
- Environment Protection Act -2003 and applicable central, state, local along with interested party requirement.
- e Air rules - The Air (Prevention and Control of Pollution) Act 1981 as amended from time to time and Central Pollution Control Board (CPCB) 1994.
- , Water Quality Standards by CPCB / IS 10500:1991
- Noise Standards by CPCB

9. GENERAL REQUIREMENTS ON SAFETY, HEALTH, WELFARE

9.1 First aid facilities

- • Approved first aid kit shall be kept at site offices in the charge Time Officer and also at the work places in the site in the charge of the subcontractor Supervisor to ensure the availability during ail working hours.
- Adequate numbers of other staff members shall be trained in first aid duties including resuscitation to take account of numbers of site workers located on the permanent site and mobile site operations. .
- Vehicles shall be kept available at the site offices and the remote workplaces to take
- •The injured or sick workmen to the nearby designated hospital for jrmparting medical treatment.

9.2 Overhead hazards

- Overhead protection shall be provided at any location where there is a hazard of falling objects. This shall particularly be observed around any scaffolding and in excavations.
- In places, where frequent movement of plants is required beneath the overhead lines, Height Barriers (Goalposts) shall be erected to prevent the arms or jibs of plant from approaching such lines.

9.3 Excavations

- Pipeline trenches and other excavations shall be barricaded. Where human movement is relatively less, an earthen bund shall be provided around the trenches and the excavations for preventing fall of persons.
- Where ever the local people need to cross the trenches, there cross platforms with guardrails should be provided.
- Trenches or excavation walls shall be slopped and the excavated earth shall be dumped so as to prevent collapse of excavation.
- At nights warning illuminating light shaft be provided at road crossings to warn vehicle drivers about the presence of excavation.
- 9.4 Drowning hazards

- Where the work involves filling tanks with water leaving an open surface, the area shall be barricaded for preventing fall of persons inside water. It shall be ensured

that the workmen involved in such works know swimming and rescue themselves if they fall inside water.

9.5 Slipping hazards

- Passageway, or a scaffold, platform or other elevated working surface shall not be in slippery condition. Oil, grease, water and other substances causing slippery footing shall be removed, sanded or covered to provide safe footing.

9.6 Tripping hazards

- All passageways, platforms and other places of work shall be kept free from accumulations of dirt and debris and from other obstructions that may cause tripping. Sharp projections shall be removed or covered.

9.7 Access to workplace

- Temporary stairways, ramps or runways shall be provided as the means of access to working levels above or below ground except where the nature or progress of the work prevents their installation, in which case ladders or other safe means shall be provided.

9.8 Dust and gases

- Dust and gases shall be controlled by ventilation or otherwise so as to prevent concentrations tending to injure health or obstruct vision or from exceeding safe levels.

9.9 Hazardous and corrosive substances

- All alkalis, acids, gases and other hazardous and corrosive substances shall be so stored and used so as not to endanger employees in accordance with national and state regulations. Suitable protective equipment for the use of such substances shall be provided. Clean water shall be kept readily available for washing off any spillage of any corrosive substance on the employees

9.10 Eye and Ear protection

- Suitable eye protection equipment shall be provided for and shall be used by employees while engaged in welding or cutting operations or in chipping, cutting or grinding any material from which particles may fly, or while engaged in any other operation which may endanger the eyes.
- Ear protectors shall be made available for employees when operating noisy machinery like jack hammer, Diesel Generator etc.

9.11 Work in confined spaces

- Where work is required to take place in a confined space, defined as an enclosed space or excavation with limited access and where there is no natural ventilation, adequate ventilation for workers carrying out work inside a confined space, pipeline or chamber or other enclosed areas shall be ensured by using blowers or other suitable means.

9.12 Personal protective equipment (PPE)

- 1 Every site worker and visitor shall be provided with a full set of personal protective equipment for use at all times including safety helmet, steel toe capped boots, gloves and other specific work-related clothing offering ear and eye protection. All site workers and visitors shall be required to wear PPE while working or visiting the Site.
2. The construction site shall be barricade at all time in a day with adequate markings, flags, Reflectors etc. for safety of general traffic movement, workers and pedestrians.
 - Contractor will provide all necessary safety appliances such as safety goggles, helmets, safety belts, ear plugs, mask etc. to workers and staff.
 - Protective footwear and protective goggles to all workers employed on mixing asphalt materials, cements, and time mortars, concrete etc.
 - Welder's protective eye-shields to workers engaged in welding works.
 - Protective goggles and clothing to workers engaged in stone breaking activities and workers will be seated at sufficiently safe intervals.
 - Earplugs to workers exposed to loud noise, and workers working in crushing, compaction, or concrete missing operation.
 - Adequate safety measures for workers during handling of materials at site are taken up.
 - The DRSITPL will comply with all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress.
- 4 The DRSITPL will not employ any person below the age of 18 years for any work and no women will be employed on the work of painting with products containing lead in any form.
5. Every employee required to work in water, wet concrete or other wet footing shall be provided with suitable safety, water proof boots. Every employee required to use or handle alkaline, acid or other corrosive substances shall be provided with appropriate PPE.
6. All portable power driven abrasive wheels and grinders shall be equipped with guards above the base plate which completely protects the operator from contact.

9.13 Public vehicular traffic

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- Whenever any work is being performed over, on, or in proximity to a highway or any other place where public vehicular traffic may cause danger to men at work, the working area shall be barricaded as to direct traffic away from it or the traffic shall be specially controlled by persons designated for that purpose.

9.14 Site traffic

- All vehicles used at the worksite must be roadworthy and registered with the appropriate authority.
-

9.15 Stability of Structure

- No section of the plant or other structure or part of a structure shall be left unguarded in such condition that it may fall, collapse or be weakened due to wind pressure or vibration.

9.16 Storage of materials and equipment

- All materials shall be stored or stacked in a safe and orderly manner so as not to obstruct any passageway or place of work. Material piles shall be stored or stacked in such a manner as to ensure stability

9.17 Disposal of debris

- Debris shall be handled and disposed of by a method which will not endanger persons or environment and surroundings. Debris shall not be allowed to accumulate so as to constitute a hazard.

9.18 Ladders and access platforms

- Every ladder, step-ladder and access platform shall be of good construction, sound material and adequate strength for the purpose of which it is used. Ladders and access platforms shall not stand on loose bricks or other loose packing, but shall have a levelled and firm footing. Ladders of over 2m in height shall be securely tied to the structure it is propped against.

LTm

9.19 Working at height

- All site workers who work at height shall be provided with appropriate PPE including helmet, safety harness, safety shoes etc to prevent an accident by slipping or falling.

9.20 Alcohols and Drug Prohibition, Smoking Restriction

No Alcoholic beverages or illegal drugs are permitted on worksite. the contractor shall ensure that personnel is made aware of and fully comply with this prohibition

No Smoking takes place in the non-smoking areas

Safety at work is not Jeopardized by any kind of narcotics and drugs, which may include some medical drugs, affecting the sen

9.21 Positioning of machinery

- No person shall be permitted to position or operate machinery in a manner likely to endanger him or others.

9.22 Fixed and mobile cranes

- Fixed and mobile cranes shall be so constructed, positioned and operated as to be stable. No crane shall be loaded beyond the safe working load except by an approved person or an inspector for the purpose of testing such machine.
- Every crane including all blocks, shackles, sheaves, wire ropes and the various devices on the mast and jib shall be thoroughly inspected by an approved person at intervals not exceeding 12 months. Cranes shall be inspected before being first

erected or operated on the job or after any major repair. Inspection and repair of crane jib shall be made only when the jib is lowered and adequately supported.

- Outriggers and counter-weights shall be provided and used as specified by the manufacturer of the crane or by an approved person. Counter-weights shall be properly placed and secured.
- Levelling jacks or other suitable means shall be provided and used with outriggers of truck-mounted mobile cranes. Firm and uniform footing shall be provided for cranes. When such a footing is not otherwise supplied it shall be provided by substantial timber, or other structural members sufficient to distribute the load so as not to exceed the safe bearing capacity of the underlying material.
- Every power-operated crane shall be provided with efficient brake or brakes or other locking devices which will prevent the fall of the load when suspended and by which the load can be effectively controlled whilst being lowered. Hand or foot - operated brakes shall be provided with a substantial locking device to lock the brake in engagement.
- No load-bearing part of any crane shall be replaced by another part, and no such machine shall be modified by the addition thereto or removal therefrom of any load bearing part, unless the replacement or modification shall be certified by either the manufacturer or the approved person who tested the crane.
- A capacity chart shall be provided for every crane. Chart shall be posted and maintained in a place clearly visible to the operator and shall set forth the safe loads for various lengths of job at various jib angles and radial distances. Where outriggers are provided such loads shall be set forth with and without the use of outriggers.
- A crane shall not lift any load that exceeds the corresponding safe working load specified by its capacity chart. Every crane having a jib shall be provided with an accurate indicator which shall clearly show to the operator, the radius of the jib and the safe working load corresponding to that radius at all times and gives warning signal when the radius is unsafe.
- Before hoisting any load at a new job site, the jib shall be operated to its maximum height. Crane cabs shall be locked when the operator is not present and no unauthorized person shall enter the cab or remain immediately adjacent to any crane in operation. If locking of a crane cab is impracticable, the operating mechanism shall be locked as to prevent the crane from being operated by an unauthorized person.
- No crane shall be operated in such a location that any part of the crane or of its load in any position of jib or swing may come within 3m of live power line.
- All the lifting equipment used at site shall have a valid certificate from competent authority at the time of usage.
- All crane operatives should be authorized to operate the particular type of fixed or mobile crane. Valid certificates will be available for inspection by the Engineer. All signalmen will be formally trained to undertake their duties and refresher training will be given at an appropriate frequency agreed by the Engineer.

9.23 Attachment of loads (Lifting Tools & Tackles)

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- Where a sling is employed to hoist long-length material, a lifting beam shall be used to space the sling legs for proper balance. When load is suspended at two or more points with slings, the eyes of the lifting legs of the slings shall be shackled together and this shackle or the eyes of the lifting legs may be shackled directly on the hoisting block or balance beam.
 - The eyes may be placed on the lifting hook without shackles if the hook is of the safety type. Each container or receptacle used for raising or lowering filter media or other loose material of any kind shall be so enclosed, constructed or designed as to prevent the accidental fall of such material. Crane loads shall be raised vertically so as to avoid swinging during hoisting.

- No crane, excepting pick and carry crane, shall travel with a suspended load. During travel without loads, crane's falls shall be secured or placed so as to prevent accident or damage by swinging.

10. WORK PERMITS & LIAISON CLIENT

The following permit system will be operated at site

Si No	Description of the Critical Activity	Issuing Authority
1	Industrial Radiography	Project In charge & Site HSE Engineer in co-ordination with Site {n charge of the Radiographic Agency. { With approval of CONCERNED AUTHORITY}
2	Blasting Operations	Project In charge & HSE Engineer { With approval of Statutory Authorities through CONCERNED AUTHORITY}
3	Excavation clearance Permit	Section In charge, Electrical and Mechanical In charge, & Site HSE Engineer
4	Confined work Permit	Project in charge, HSE Engineer

10.2 Liaison with Client

Liaison with CONCERNED AUTHORITY shall be carried out at early stage of the project;

- (1) Preconstruction stage
- (2) Design and construct stage
- (3) Operation & Maintenance stage
 - (1) Preconstruction

We will liaise with Client during the pre-construction stages with regards to all matters, so as to fulfil all project requirements. We will propose an action plan in detail, the methodology to be adopted during pre-construction stages like site entry, collection of data in detail, and joint site inspection with RWS & SD.

We will liaise with Client in obtaining the statutory permission from various applicable authorities --

- a) Gram Panchayat,
- b) Electricity Dept
- c) Telecom
- d) Police
- e) Area MLA / Corporator / Councillor
- f) Labour Commissioner
- g) Tax Authorities
- h) Division Office
- i) National Highway
- j) Public Works Dept.
- k) Any other Departments.

With due permission from client we shall also consult all concerned personnel of various Depts./ Organisation as mentioned above with relevant action plan, methodology, drawings/sketches etc, and any other details as required by the appropriate department/organisation for granting of permission / Right of Way for execution of the works. Also with the permission and assistance from CONCERNED AUTHORITY we will ensure that clearances and permits required from the above relevant organisation are in place by providing early understanding of the project, the impact and benefits. This will ensure the necessary support is obtained without delay and the progress of the contract is not hampered.

We will also meet the concerned CLIENT personnel for the area under execution and liaise with them in checking of the action plan as per requirements of the Project.

(2) Design & Construct

We will liaise with CONCERNED AUTHORITY and submit detailed working methods & We will integrate all our establishment activities with the routine operational activities of Concerned Authority. There will be increased involvement and liaising with the CONCERNED AUTHORITY operational staff, who are having knowledge and experience of operating network and its components in a particular area during the design and construct stage. The Project Director will ensure that there is well managed communication link with CONCERNED AUTHORITY Divisional Operational staff with respect to work carried out under the Contract and CONCERNED AUTHORITY routine operational work. This will avoid any interference between O&M activities of CONCERNED AUTHORITY divisional staff and our team carrying out investigation and leakage activities. Also acknowledging that we will have more operational responsibilities during this time we will ensure that we have a system of reporting and liaison to ensure that the customer service levels are maintained.

We will be in constant touch with the concerned CONCERNED AUTHORITY maintenance personnel with regards to hours of water supply for particular area network for repairs, replacement etc., so as to minimising any affect to the consumers.

In co-ordination with CONCERNED AUTHORITY we will interact with Police Dept. and other local Govt. bodies from time to time and ensure that all works are carried out smoothly without affecting the road users complying with due safety regulations and acts as prescribed by the statutory bodies.

We will give awareness about our construction activities to public through Information sign boards & Caution boards

(3) Operation & Maintenance

We will adopt the same level of contact and communication with CONCERNED AUTHORITY during the 1 year of operation and maintenance period.

11. CHECKS & REPORTS

Following checklists & reports to be used

- Site HSE inspection report

Electrical safety inspection checklist

- Vehicle & earth moving equipment inspection checklist
- Safety norm violation memo
- Performa for screening of workmen
- Minutes of HSE meetings & Follow-ups.
- TBT talks.
- Office Inspection report
- Workmen Camp Inspection report. ● Fire Extinguishers Report
- Incident Investigation checklist
-

12. STATISTICS & REPORTS

- Monthly activity plan
- Monthly Project HSE statistics
- Preliminary accident report
- Incident investigation report
- Dangerous occurrence investigation report
- HSE Evaluation of subcontractor
- Analysis of first aid cases

13 Emergency Response Pla

14 LIST OF JOB SPECIFIC PPE TO BE USED IN THE SITE

a. Introduction

PPE will be issued to all personnel as per agreement conditions. All safety equipment and PPE shall conform to recognized standards and legislations etc.

The Tahal Consulting Engineers Limited will provide all necessary safety appliances such as safety goggles, helmets, safety belts, ear plugs, mask etc. to workers and staff.

- Protective footwear and protective goggles to all works employed on mixing asphalt materials, cement, and time mortars, concrete etc.
- Welder's protective eye-shields to workers engaged in welding works.
- Protective goggles and clothing to workers engaged in stone breaking activities and workers will be seated at sufficiently safe intervals.
- Earplugs to workers exposed to loud noise, and workers working in crushing, compaction, or concrete mixing operation.
- The Drs Infratech Pvt.Ltd. will comply all regulations regarding safe scaffolding, ladders, working platforms, gangway, stairwells, excavations, trenches and safe means of entry and egress.

b. General Procedures

It is the responsibility of the user to take good care of the PPE issued to him. Damage to PPE, intentional or otherwise, will be dealt with accordingly.

PPE must be wearing properly in accordance to its use.

d. Head Protection

- Approved type hard hats must be wore at all times by personnel while working at sites.
- Hard hats must be fitted with a chinstrap always, when working in high winds, or when working at a very elevated position.

A hard hat protects the head against blows, jolts, falling objects, welding slag and high temperatures. They are fabricated from a durable material, and no alteration may be made to approve type hard hat. 'Damaged hat must be replaced immediately

- Hats not to be painted. Metal Hats are prohibited.

D. Eye and Face Protection

- Protective filters, goggles, safety spectacles and full face visors, complying with the appropriate standard must be worn to give protection to the eyes and face against chemicals, welding arcs, and sparks, flying particles, injurious light rays and similar hazards.

- Dark glasses will not be permitted during dark hours unless working on or within brightly illuminated areas.
- Face shields or goggles are to be worn within areas where grinding, grit blasting, chemical handling, machining, compressed air cleaning, cutting, etc. is taking place.

E. Hand Protection

- All gloves must be kept dry particularly when used in welding or handling live electric wires to avoid electric shock.
- All gloves must be in good condition, fit properly and free of grease, oil and dirt Accumulations. They should be regularly inspected for cut, abrasions, cracks, etc.
- For the protection of hands numerous types of glove are available. The kind of gloves used will depend upon the material or equipment being handled. Supervisors should advise on the type of glove required.
- Electric hazards require special natural rubber gloves of high insulation standards with working voltage clearly marked on each glove.

Foot Protection

- Approved safety boots to comply with appropriate standards is compulsory. Safety boots that is, with steel toe plate in step, must be worn by all personnel. In case of slushy areas and while working with concrete gumboot should be used.

G. Leg Protection

- Trousers must not be tucked into the cuff of the boots as this will allow material to be channelled into the boot particularly sparks or hot slugs during welding or cutting.

H. Hearing Protection

- Where it is not possible to reduce the noise levels to permissible noise exposure levels or duration of exposures is long, ear protective device will be provided and used.
- Ear muffs or earplugs will be issued and used on individual basis.
- The earplugs must fit tightly in the ear canal and must be inserted with hands free of dirt or grease. Individual user must clean them regularly.
- In high noise level areas, a notice "WEAR EAR PROTECTION" must be exhibited.

I. Safety Harness

- Safety harness must be worn and hooked up when working on elevated platforms more than 6 feet above ground.

-AXME

15. TRAINING

16. COMMUNICATION & REPORTING

Cascading any HSE messages down the line is vital for the success of any HSE Management System and to ensure that all personnel are aware of HSE issues the following technique shall be adopted.

No	TASK	ACTION BY	COMPLIANCE TARGET	VERIFICATION DOCUMENT
1	HSE NOTICE BOARD	HSE Engineer	Weekly update starting from Mobilization and Daily	HSE Notice Board
	HSE Notice board will be fixed at site office and other conspicuous locations for cascading HSE messages such as HSE Notices, Safety Alerts, Posters and accident evaluation etc., shall be regularly updated.			
	Install and maintain HSE performance board showing Safety statistics i.e. days without LTI etc			
2	PROMOTION Monthly Incentive Safe Man of the month shall be selected on the basis of HSE performance evaluation and will be given a certificate of commendation along with a token gift.	PM / HSE Engineer	Monthly	Incentive record Scheme

17. ENVIRONMENT PLAN

17.1 Environmental Responsibilities

Zonal Head is responsible and accountable for the environment management plan and its planning and the entire project team is responsible for the success.

Company Environmental Specialists is consulted on specific expert advice. The Project Manager, the project team including the Environmental Control Manager for the specific work and the environmental specialists (within Tahal and external) identifies the contractual or Tahal environmental requirements for the project. This team identifies the environmental impacts, assesses the significance of the risks for each identified environmental impact and the mitigation measures

17.2 Identify Environmental Requirements

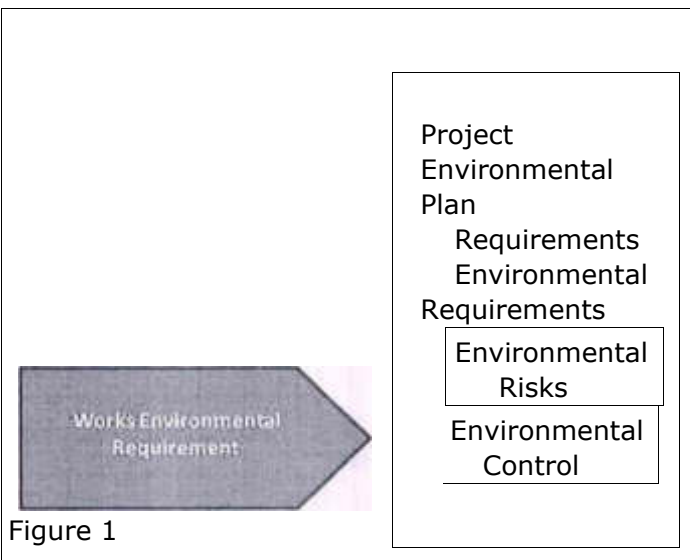
The Zonal Head with the works team will understand and identify the environmental requirements of the work/project as define by the contract, scope of work (both design & construction) and any other external bodies' requirements. Depending on the requirements, Tahal's responsibility may be for both projectrelated environmental impacts caused by Tahal during the execution of our project activities (office and site) and/or the environmental impacts due to the construction and operation of any

resultant facility. In the latter case, it is based on the services stipulated in the Contract with the Client and will also be based on compensation for performing them.

Figure 1 illustrates how environmental requirements will be identified to produce environmental plans. Project Director with respect to the concerned Work/Project scope of work for environmental management plan will identify environmental requirements with respect to the following;

- Contamination of surface, ground, groundwater, surface water and rivers
- Emission to air, including smell, gases, smoke and dust
- Unsanitary or unsafe storage or discharge to drain, sewer and surface waters
- Unsanitary or unsafe storage or discharge of solid wastes

Figure 1

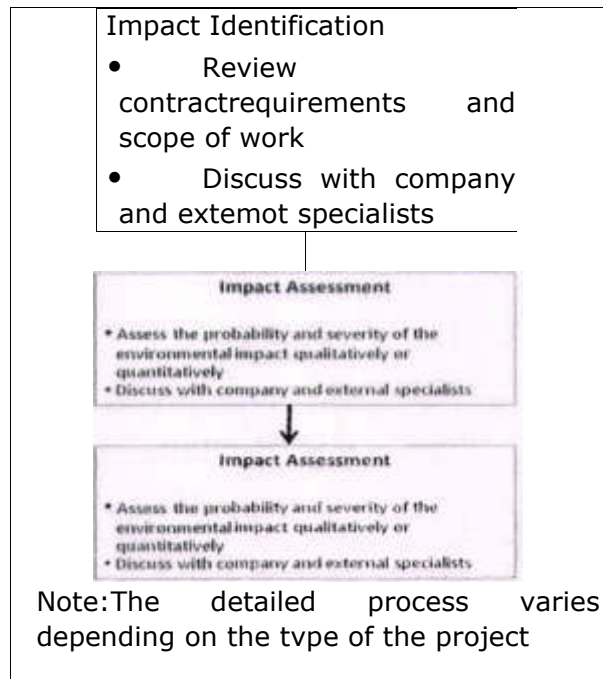


- Noise
- Visual intrusion and
- Excessive energy and water consumption

The Project Director will consult and seek guidance from the operation management or secure the services of company and external Environmental Specialists where needed to provide expert advice on the above identified scope of work. Where Tahal is acting in the role as supervisor of construction works performed by others, it is the Project Director's responsibility to confirm that appointed contractor(s) carries out identification environmental requirements for the Works.

17.3 Works/Project Environmental Impact Identification

This is the first of the three steps in the overall risks assessment process of the Works as shown in figure 2. The project manager arranges for the identification of potential impact of the Works activities, products and/or services on the environment. The Project Manager will use a team approach to identify any obvious, known and expected or foreseeable environmental impact, over which the Works team can have control by reviewing the scope of work by taking into account past experience, the specific task to be performed in the work breakdown structure and water industry relevant checklists. Where necessary data will be collected and surveys conducted to enable the identification of the environmental impact on the Works. While doing this the whole planned life of the project will also be considered with respect to noise, emission to air, conserving energy and water. The out of the environmental impact identification will be help to determine the potential environmental impacts from the Works.



17.4 Works/ Project Environmental Impact Assessment

The Project Director and the team analysis and assess each environmental impact. The assessment could be qualitative or quantitative. This assessment is undertaken to identify appropriate environmental controls and to develop planned approach or procedure to minimise risks associated with each impact. Figure 3 provides an example of qualitative environmental risks taken up by Tahal in its works. The decision as to whether action is required for each impact is based on the probable degree of impact and probability of occurrence based on simple low, medium & high rating.

PROJECT ENVIRONMENTAL RISK ASSESSMENT					
Is the likely to Involve any of the following	Yes/No NIA	Importance			Comments details of environmental impact on
		Low	Medium	High	
Are there any near/ watercourses streams ditches, etc'		M	1		The Site is located 10 m from a watercourse. With a 75 year risk of flooding. Measures should be put in place to ensure that in the event of a flood, pollution from the Site cannot reach the watercourse.
Is there a risk of pollution from development or other effluents'	Y	M		Y	Water from the development will be disposed of in accordance with the sewerage regulations.
Will waste be produced?				Y	Timber and concrete will be segregated on site and, as far as possible, recycled. The re-use of excess spoil has been designed into the landscaping of the Site.
Will hazardous waste be produced'					A garage on Site is to be built and will have an asbestos roof.
Is there asbestos present					

at on site?	an								
'he geneate dust'		M	M		palticu!ð' dry petfr)ds darrpiqq don be utiltsed reduce dust Into the surround ng area				
Does the work involve e.g piling, demolition? Insole particulaly noisy acti l/tles					hvgered ptl:ng be uttlised site Cue to the spatial sepaabon be'ween the Site and he nearest houses It ts anhcptated that the, rutsance v,níi bê mimr md for !ernprat) peržod only				
the inc'rease the background nost to the surrounding ane'					New bfmžers WII: he on Site bui these WII be housed IF an ðCOUSTIC cnclasure				
<div>SIGNIFICANCE</div> <table><tr><td>if legislation, contractual duties and/or company policy, long breach of legislation, medium term effect, possible (if difficult) to legislation, no sensitive receptors, little or no scope for impact.</td><td>High Medium Low</td><td>Extremely likely or certain to occur Quite likely/occasional chance of a improbable or unlikely to occur.</td><td>Severity Bleach HI MH occumg kctm WI LM LL</td></tr></table> <div>Ncenv</div>						if legislation, contractual duties and/or company policy, long breach of legislation, medium term effect, possible (if difficult) to legislation, no sensitive receptors, little or no scope for impact.	High Medium Low	Extremely likely or certain to occur Quite likely/occasional chance of a improbable or unlikely to occur.	Severity Bleach HI MH occumg kctm WI LM LL
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Where It has been that action ired, mitt stiorg measurag will be included in the Environmentlt Plan.									

17.5 Work/Project Environmental Control

The Zonal Head and his project team with the Environmental Control Manager plan the environmental controls, develop emergency response and finalises the Environmental Management Plan (EMP) for the Works. Environmental control usually consists of mitigation measures based on the following categories;

AVOID: Prevent adverse environmental effects at source (e.g., choice of road location or specification of construction equipment).

REDUCE: Include features in the design and planning that reduce unavoidable impacts. (E.g. minimizing noise and vibration through the choice of construction technique, minimizing land-take).

REMEDiate: Take remedial action such as temporarily relocating affected sensitive/ important flora and fauna, for re-instatement later.

Activity/Hazards	Mitigation Measures
Pipe charging and Washout	AVOID: During pipeline charging and washout precautions will be taken that wash water does not to reach the roads where and where possible will be put to the surface water drains. Old pipes produced from changing to new pipes will be disposed of by trucks.
Site drainage/ surface water runoff	AVOID: Precaution will be taken to avoid runoff from the construction works to the drains. This will be done using drain covers/blockers for foul water drains to prevent silt for surface water drains. Stockpiles, plant and materials will be stored in a manner that run off to the drains is minimised

Waste disposal	REDUCE: Due to the constraints of the site, waste will not be stored on the site for longer than 15 work days in any one period. Waste will be removed from site approximately every 3 days, or when the volume produced is enough to fill a waste removal wagon. Traffic to and from the site will be minimized, resulting in a reduction in-energy usage and vehicle pollution by only removing waste when there is a full load.
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An example of the likely mitigation measures that may be employed in the Works is shown in Figure 4 below•

Noise and vibration	REDUCE: Construction hours where feasible will be restricted to 08.00-18.00 Monday to Friday and 08.00-13.00 Saturday. There will be some increase of noise during pile laying, but this is short duration at a time and should therefore not cause a significant impact.
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17.6 WorkIProject Environmental Reporting

The Environmental Management Plan will be implemented and environmental impact from the project activity will be monitored and reported by the Project Director working with the Environmental Control Manager for the works. As required the reporting will be done on a monthly basis as part of the monthly reporting procedure of the Works. The report will include summary of the daily monitoring results on all the environmental aspects of the project.

18. HEALTH & SAFETY PLAN:

18.1 GENERAL RULES

Regulation Acts in General:

- Workmen below 18 years & above 58 years will not be engaged for job.
- Physically challenged personal will not be engaged, jobs which are not suitable to the individuals.
- Female work forces will not be engaged more than the prescribed time as per the recommendation by the act.
- The authorized representative will give training, before starting the job.
- No building worker lifts by hand or carries overhead or over his back or shoulders any material, article, tool or appliances exceeding in weight the maximum limits set out in the following table,

Person	Maximum Weight Load
Adult-Male	50 Kg
Adult-Female	30 Kg

18.2 HSE Orientation for the Workmen

Every new workman undergoes an HSE orientation program before sending to the site. In the program, safety engineer explains how to overcome probable hazards at site and important PPEs. Also, explains the safety norms that are to be followed at site.

18.3 TBT Talks (tool box talk)

In order to enhance the safety awareness amongst workmen, site engineer conducts TBT talks regularly. Whenever the new job starts Safety engineer inducts workmen on the hazards involved in the activity and proper work methods covering all the areas periodically.

18.4 Safety Training

Safety engineer conducts safety-trade wise training programs regularly. Site engineers, Supervisors & workmen attend the program to enhance their technical knowledge with respect to safety and learn how to integrate safety into the work-practices. Depending on the requirement, demonstration on required type will be done in consultation with the site engineers.

18.5 Safety Promotional Activities

Safety promotional activities like motivational programs, Awarding schemes, safety month celebration etc., shall be arranged to enhance safety awareness amongst execution staff and workmen. Such activities shall be initiated by safety personnel and organized by project team.

18.6 Personal Protective Equipment

All the types of personal protective equipment (PPEs) required at the site is made available at stores and all the PPEs shall conform to the relevant IS codes. Safety manual shall be referred for more details about the PPEs. Site engineers shall issue the required PPEs according to the job. The site engineer inform to SSC for making the necessary arrangement of special PPEs. Suitable foot protection will be ensured invariably to all male & female workers before engaging in the job. Please refer Exhibit 1 for the list of PPEs

18.7 Safety Code of Practice for Sub contractors

- All workmen shall be screened before engaging them on the job. Physical fitness of the person to certain jobs like working at height or other dangerous locations to be ensured before engaging the person on work. The final decision rests with the site management to reject any person on the ground of physical fitness.
- Smoking is strictly prohibited at workplace.
- Labours shall ensure adequate supervision at workplace. They shall ensure that all persons working under them shall not create any hazards to self or to co-workers.
- Nobody is allowed to work without wearing safety helmet. Chinstrap of safety helmet shall be always on.
- No one is allowed to work at or more than two meters height without wearing safety belt and anchoring the lanyard of safety belt to firm support preferably at shoulder level.
- No one is allowed to enter into workplace and work at site without adequate foot protection.
- Usage of eye protection equipment shall be ensured when workmen are engaged for grinding, shipping, welding and gas-cutting. For other jobs as and when site safety coordinator insists eye protection has to be provided.
- All PPEs like shoes, jacket, helmet, safety belt etc. shall be arranged before starting the job as per recommendation of site safety coordinator.
- All excavated pits shall be barricaded and barricade to be maintained till the backfilling is done. Safe approach to be ensured into every excavation.
- Adequate illumination at workplace shall be ensured before starting the job at night.
- All the dangerous moving parts of the portable / fixed machinery being used shall be adequately guarded.
- Ladders being used at site shall be adequately secured at bottom and top. Ladders shall not be used as work-platforms.

Material shall not be thrown from heights. If required the area shall be barricaded and one person shall be posted outside the barricade for preventing the trespassers from entering the area.

Other than the electricians with red helmet no one is allowed to carry out electrical connections, repairs on electrical equipment or other jobs related thereto.

- Power supply shall be taken through Earth Leakage Circuit Breakers (ELCB) of 30mA Sensitivity.
- Inserting of bare wires for tapping the power from electrical sockets is completely prohibited.
- All major, minor accidents and near misses to be reported to Project Manager / Site Safety coordinator to enable the management to take necessary steps to avoid the recurrence.
- All scaffoldings / work-platforms shall be strong enough to take the expected load. The width of the working platform and fall protection arrangements shall be maintained as per recommendation of Site Safety coordinator.
- Debris, scrap and other materials to be cleared from time to time from the workplace and at the time of closing of work every day.

- Adequate fire fighting equipment shall be made available at workplace and persons are to be trained in fire fighting techniques with the coordination of Site Safety Coordinator.
 - All the unsafe conditions, unsafe acts identified by contractors, reported by site supervisors and / or safety personnel to be corrected on priority basis.
 - No children shall be allowed to enter the workplace.
 - Female workmen are not allowed to work on height & high risk areas.
- 18.8. Jobs at remote & isolated site
- No person shall be assigned to work individually & team of required member will be provided according to the job nature in the particular job / area.
 - Whenever the job is in progress at least one person qualifying / trained will be at site, enabling the any emergency situation.
 - Concern Spread — in charge will be available at site / over phone, during jobs.
- Working hours will be during daylight & whenever the job is to be carried out beyond the time necessary illumination will be arranged on prior.

19. WELFARE PLAN

19.1 Labour Camp

Labour camp will be made at a nearby the work area with all necessary facilities to stay.

19.2 Drinking Water

Drinking water shall be made available in number of places to cater the labour strength and the water tank shall be cleaned regularly.

19.3 First Aid Facilities

The following activities shall be ensured.

- Provision of first aid and emergency treatment.
- Conducting training regarding First-Aid.
- Promote Health education, including family welfare among workers.

19.4. First-Aid Boxes

- Sufficient numbers of First-Aid boxes are provided and maintained for providing First-Aid to the workers.
- Every First-Aid box is distinctly marked "First-Aid".
- Nothing except appliances or requisites for First-Aid is kept in a First-Aid box and such box is so kept as to protect it against contamination by dust or other foreign matter and against penetration of moisture and such box is kept in the charge of a person trained in First-Aid and is always readily available during working hours.

19.5. Emergency Vehicle Arrangement

Vehicle for emergency purpose will be made available during working hours in a convenient place for attending any emergency situations at site. Ambulance arrangement will be made available with the tie up of local health centre / hospital / agency having the facility with necessary arrangement.

20. CRITICAL JOB ACTIVITIES

20.1 Overhead hazard (power lines)

- Wherever jobs near the overhead power lines are crossing, jobs will be carried out in presence of senior / authorized person.
- Wherever frequent movement of vehicles/ any other mode which are possible to entangle with electrocution, in the designated place "Goal Post" will be placed, at safe position for avoiding the movement of truck / vehicle with the extended height of material.
- Wherever the cranes are to be placed & job is to be carried out, such machines will be earthed locally.

20.2 Overhead Power Line crossing area

Care is to be taken while working near overhead power line and Safe distance is to be followed as per the details given below, to avoid electrocution. If not possible shutting down of power is to be done after getting permission from concerned departments and permit should be obtained from the respective department, the same should be returned after the completion of the specified work for recharging the line.

20.3 Minimum Clearance for Live Conductor

A. Classification of voltage (IE Rule 2(1)(a):

Low Voltage : Not exceeding 250V; Medium voltage : Not exceeding 650V

High voltage : More than 650V & unto 33KV ; Extra high voltage: More than 33KV

B. Clearance from building (IE Rule no 79)

Working under power line: safety distance to maintain

440 volts-----10ft from top tip of equipment to the line

13ft from top tip of equipment to the

18ft from top tip of equipment to

20.4 Underground hazard - Power cables I Water Sewage

- Wherever such items are visible, care will be taken by rerouting with the concern authority.
- If the area is under private party, clearance will be taken from the party for ensuring safe execution and rerouting of power cables, water and sewage lines.
- While carrying out job at common places it will be ensured with the available local authority.
- Wherever there is no possibility of getting details, cable detector will be used for identifying the underground cable.

20.5 Electrical & Instrument

- Only qualified electricians are allowed to give electrical connections.
- Electrician will wear red colour helmet for identification.
- Either an electrical engineer or 'B' license holder is responsible for the electrical maintenance and shall be at site till all the electrical equipment are shifted from site.
- Every DB will display a warning board to caution unauthorized person entering the area.
- Switch boards, DBS, SDBs, and all electrical installations have to be covered by a shed and must be easily approachable.
- Portable hand tools (metallic body) must have 3 core cable connection
- Colour coding for cable will be
Red — Phase, Black — Neutral, Green — Earth and for single phase Red, Yellow, Blue for 3 phase & Green for ear thing Wherever vehicle/ equipment movement is frequent cable should be laid underground/ overhead
- Metal clad plug must be used for all sorts of connection.
- Operation of portable power tools under open sky during rain must be avoided. Earthling of DBS, SDBs and all electrical panels must be checked properly before energized.
- Proper insulation n must be ensured.
- Cable lying on the ground must be avoided.

- EI-CBs must be checked whether it is in working condition and with sensitivity of 30 mA from distribution board.
- Work on live circuit is not allowed; shutdown will be taken before any electrical job commences.
- Earthling resistance should be less than 1 ohm.
- • First joint in a cable, emerging from a hand tool, must be 3M away from it, with good insulation.
- Welding cable and power cable must not overlap.
- Welding cable must be connected with proper lugs/ferules.
- Electrically operated tools should not be used in explosive environment.
- Personal protective equipment like rubber suitable hand gloves, shoes, safety helmet, safety belt etc. should be used for electrical work.
- All electrical installation should be well protected from rainwater.
- Authorized person will do periodical inspection of ELCB & electrical installation.
- All the Electrical works shall comply with all relevant statutory regulations.

20.6 Blasting (IS 4081 - 1986):

- Wherever excavation is not possible using excavators, it should be done by Controlled blasting (or) Chiseling operations.
- Authorized & recommended materials are only shall be used up to the allowable quantity.
- Controlled Blasting must be carried after obtaining Work permit.
- Explosion is to be done by the exploder/fire as per the suitable site conditions.
- Blasting will be carried out in the recommended timings only.
- Precautions will have to carry out before blasting, during blasting & after blasting.

Authorized shot firer only will be engaged for carrying out the blasting operation.

- The entire guide lines arrived by the Directorate of Explosives will be followed.
- All the above activities will be performed under the supervision of valid license holder.

20.7 Transportation of Construction materials- Cement Bag, Bricks, Mortar, Reinforcement, Pipes and valves

- Men and women should not carry more than 50 and 30 Kg weight respectively.
- Proper care shall be taken during manual transportation of Cement Bags, Bricks, Mortar, and Reinforcement on slippery area and during rainy season.
- Lifting Arrangement by two workers should be used to carry cement bags at site.
- While shifting the materials from stockyard to location using tractor/trailer, no materials shall be extended than the body of the truck.
- Red flags to be used for protruding materials for cautioning the other vehicles. If it is to be shifted at night, necessary red light is to be placed at side & rear of the vehicle, preferably at the end/tip of the materials, for cautioning the other vehicle

20.8 Excavation

- Sides of the excavation must be sloped to a safe angle or shoring should be ensured if depth is more than 5 feet.

Angle of repose for different soil		
Ashes; coal		45
Clay; dry	1 .3 : 1	38
Clay; damp		27
Earth; dry	1.3:1	38
Earth; damp		27

- No excavation below foundation level of any adjoining building/structuré. Before doing excavation near any building site in-charge/client/safety engineer should be contacted.
- Keep minimum 5 feet clearance from the excavated pit.
- Boulders also should be dumped in this fashion that it should not roll down.
- Proper care shall be taken while working with underground cable/pipeline etc.
- Under cut is not allowed in excavation.
- Shoring should be given as per the requirement.
- Proper barricading at least 1mtr away from edge should be done for the excavated pit/trench.
- Proper access ladder should be given on pit] trench.
- Excavation should be started after clearance permit from client/safety department.
- If excavation is on road, road should be blocked & caution boards shall be displayed on both sides.
- Worker should use required personal protective equipment like helmet, goggles, shoes, etc.
- Immediate action should be taken for water seepages, landslides/cracks

21 JOB SPECIFIC ACTIVITIES

21.1 Material Handling:

- While shifting the material using cranes, no items should be controlled without tag line.
- The condition of wire rope should be checked.
- The condition of the loading belt should be inspected visually before lifting the materials

21.2 At Stock Yard:

Materials are to be stacked with the wedge supports at both sides, for avoiding rolling. Stacking pipe one over the other is to be avoided. If to be staked, additional care is to be taken to avoid caught between / pressed between injuries. Cast iron/breakable materials are to be stacked carefully.

21.3 Traffic - At job Location/ Near Highways/ Roads:

Pipes are to be stacked well away from edge of the road, without obstructing the public movement. Signalmen provided with signalling jacket and a red flag is to be deployed for cautioning the road traffic at both the ends.

21.4 Pipe Shifting:

While shifting the pipes using cranes, swinging of the pipe should be controlled by anchoring a Polypropylene rope as a control tag line. No personnel shall be allowed to enter in between crane & material and underneath. Tested tools & tackles are only to be used for lifting & shifting.

21.5 Pipe Laying in to Trench:

Crane capacity vs. Weight of the material, which is to be lifted, must be ensured before lifting. The crane should be moved nearer to the trench as closer as possible maintaining the safe working condition. Only trained personnel are allowed to lay pipes in to the trenches. While lowering the pipes into trenches care should be to avoid foot caught between the pipe and shore of the trench.

21.6 Welding:

- If diesel-welding generator deployed for carrying out job, it should be kept horizontally.
- Main is to be stopped, while fuel filling is carried out.
- Local ground earthing is to be connected and continuity is to be ensured.
- Welding machine earth cable is to be extended up to the job & no steel materials like Reinforcement rod are not to be connected as earth.
- All the rotary parts are to be covered with the necessary protection guards.
- Other than the authorized person, no other personnel are allowed to operate the machine.
- If electrical welding sets are to be used, supply must be taken through ELCB. 4-core cables, local ground earth are to be ensured.
- Necessary authorized welder PPEs are to be arranged before starting of the job.

21.7 NDT (Non-destructive tests):

- While using RT test separate GRA is to be prepared and the same should be followed.
- Authorized & experienced personnel are only to be allowed to carry out the process.
- Proper supervision shall be ensured till completion of job.

21.8 Pressure Testing:

- Only authorized person shall be allowed to enter in the nearby areas.
- Welding, Gas cutting, Hammering on the pipe is not to be done under pressurized condition.
Continuous pressurizing is not to be done. Gradual pressuring & time delay is to be maintained.

DRS INFRATECH PVT LTD MANGALORE
