MONITORING FORM

If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the project proponent. When necessary, the project proponent should refer to the following monitoring form for submitting reports.

When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

1. Responses/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results during Report Period
ex.) Responses/Actions to Comments and	July- September 2022
Guidance from Government Authorities	

2. Mitigation Measures

The summary of the Environmental Monitoring is shown below.

[Construction Phase]

Item	Parameter	Frequency and Duration	Locations(At least)
Air	PM ₁₀	2×24hours Twice/month During entire civil	20 locations
		construction stage or even later, if directed by DMRC	
Water	Groundwaterquality (IS 10500:1991)	Once/6months During entire civil construction stage or even later, if directed by DMRC	20 locations
Noise	Noise Level (Leq and Lmax)	24hours Once/week During entire civil construction stage or even later, if directed by DMRC	30 locations
Vibration	Vibration (RMS)	24hours Once/week During entire civil construction stage or even later, if directed by DMRC	10 locations
Soil	Heavy Metal	Once/6moths During entire civil construction stage	In each Underground Construction Contract
Ecology	Felled and planted trees	Once a year till all trees that were to be planted by Delhi Government on behalf of DMRC, are	All the trees felled and newly planted trees

planted

[Operation Phase]

Item	Parameter	Frequency and Duration	Locations
Air	PM_{10}	2×24hours Once/month	10 locations
	PM2.5	For 3years 24 hours Once/month	10 locations
	SOX	For 3 years 24 hours Once/month For 3 years	10 locations
	NOX	24 hours Once/month For 3 years	10 locations
Water	Effluent	Once/4months For 3years	3 locations(Depot)
	Groundwater quality (IS 10500:1991)	Once/year For 3years	3 locations(Depot)
Noise	Noise Level (Leq)	24hours Once/year For 3years	15 locations (Sensitive Receptors along the elevated section)
Vibration	Vibration level Vrms	24hours Once/year For 3years	15 locations (Sensitive Receptors along the elevated and underground section)
Ecology	Bird Strike	4times/year(If no bird hit is reported in this duration, then this monitoring may be discontinued, else it will continue). From the beginning, DMRC will instruct its train operator to compulsorily blow the horn while on the bridge across the Yamuna.	On the DMRC Yamuna bridge near Okhla Bird Sanctuary

2.1 During Construction

When a measured value exceeds the standards, the value is written in bold letters. Air Quality (Ambient Air Quality)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar	Referred Internation al	Remarks (Measurement Point, Frequency,
				ds	Standards	Method, etc.)

					Attacilileit 2
PM_{10}	μg/m³		100 24hours) (CPCB)	•	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Date: September 2021Location:CC-136 (Halt Platform at Punjabi bagh) (Elevated)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	-	-	100 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	-	-	100 (24hours) (CPCB)		2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country 's Standar ds	Referred Internation al Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	-	-	100 (24hours) (CPCB)	-	2×24hours Twice/month During entire civil construction stage or even later, if directed by DMRC

Ground Water Quality (Drinking Water Quality: IS 10500:1991)

Item	<u>Unit</u>	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internatio nal Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max		-	-	5(25)	-	20 locations Once/6
Odour	-	-	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-	-	-	5(10)	-	entire civil constructio
pH Value	-	-	-	6.5 - 8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)	1	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	-	-	250(1000)	-	
Residual free Chlorine, Min	mg/l	-	-	0.2	-	
Fluoride(as F), Max	mg/l	-	-	1.0(1.5)	-	
Dissolved solids, Max	mg/l	-	-	500(2000)	-	

						Attachment-2
Calcium(as Ca), Max	mg/l	-	-	75(200)	-	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	-	
Copper(as Cu), Max	mg/l	-	-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	-	0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l	-	-	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	-	-	45(100)	-	
Phenolic compounds (as C ₆ H ₅ OH),Max	mg/l	-	-	0.001(0.002)	-	
Mercury(as Hg), Max	mg/l	-	-	0.001	-	
Cadmium(as Cd), Max	mg/l	-	-	0.01	-	
Selenium(as Se), Max	mg/l	-	-	0.01	-	
Arsenic(as As), Max	mg/l	-	-	0.05	-	
Cyanide(as CN), Max	mg/l	-	-	0.05	•	
Lead(as Pb), Max	mg/l	-	-	0.05	-	
Zinc(as Zn), Max	mg/l	-	-	5(15)	-	
Anionic Detergents (as MBAS),Max	mg/l	-	-	0.2(1.0)	-	
Chromium (as Cr6+),Max	mg/l	-	-	0.05	-	
Polynuclear aromatic hydrocarbons(as PAH),Max	mg/l	1	-	-	-	
Mineral Oil	mg/l	-	-	0.01	-	
Pesticides, Max	mg/l	-	-	Absent	-	
Radioactive Materials,	Bq/l	-	-	-(0.1)	-	

						Attachment-2
Max a) Alpha emitters						
Radioactive Materials, Max b) Beta emitters	Pci/l	-	-	-(1)	-	
Alkalinity, Max	mg/l	-	-	200(600)	-	
Aluminum(as Al), Max	mg/l	-	-	0.03(0.2)	-	
Boron,Max	mg/l	-	-	1(5)	-	

Item	<u>Unit</u>	Measure d Value (Mean	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max		-	-	5(25)	-	20 locations Once/6
Odour	-	-	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-	-	-	5(10)	-	entire civil constructio
pH Value	-	-	-	6.5-8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)		even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	-	-	250(1000)	•	
Residual free Chlorine, Min	mg/l	-	-	0.2	-	
Fluoride(as F), Max	mg/l	-	1	1.0(1.5)	-	
Dissolved solids, Max	mg/l	-	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	-	•	75(200)	-	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	-	

						Attachment-2
Copper(as	_	-	-			
Cu),	mg/l			0.05(1.5)	-	
Max						
Manganese(as	Л	-	-	0.1(0.0)		
Mn),	mg/l			0.1(0.3)	-	
Max		-	_			
Sulphate(as	/1	-	_	200(400)	_	
SO ₄), Max	mg/l			200(400)	_	
Nitrate(as		_	_			
NO_2 ,	m a/l		_	45(100)	_	
Max	mg/l			49(100)		
Phenolic		_	_			
compounds						
(as	mg/l			0.001(0.002)	-	
C ₆ H ₅ OH),Max						
Mercury(as		_	-			
Hg),	mg/l			0.001	-	
Max	mg/1			0.001		
Cadmium(as		_	-			
Cd),	mg/l			0.01	-	
Max	mg/1			0.01		
Selenium(as		_	-			
Se),	mg/l			0.01	-	
Max	1115/1			0.01		
Arsenic(as		-	-			
As),	mg/l			0.05	-	
Max	8					
Cyanide(as		-	-			
CN),	mg/l			0.05	-	
Max						
Lead(as Pb),	Л	-	-	0.05		
Max	mg/l			0.05	-	
Zinc(as Zn),		-	-	F(1F)		
Max	mg/l			5(15)	-	
Anionic		-	-			
Detergents	m a/l			0.2(1.0)	_	
(as	mg/l			0.2(1.0)		
MBAS),Max						
Chromium	mg/l	-	-	0.05	_	
(as Cr6+),Max	mg/1			0.05		
Polynuclear		-	-			
aromatic	mg/l			_	-	
hydrocarbons(1115/1					
as PAH),Max						
Mineral Oil	mg/l	-	-	0.01	-	
Pesticides,	mg/l	-	-	Absent	-	
Max	8' -			~~		
Radioactive		-	-			
Materials,	D "			(0.1)		
Max	Bq/l			-(0.1)	-	
c) Alpha						
emitters						
Radioactive	Pci/l	-	-	-(1)	-	
Materials,						

						Attachment-2
Max						
d) Beta						
emitters						
Alkalinity,	mg/l	-	-	200(600)	_	
Max	mg/1			200(600)	_	
Aluminum(as		-	-			
Al),	mg/l			0.03(0.2)	-	
Max						
Boron,Max	mg/l	-	-	1(5)	-	

Item	<u>Unit</u>	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max		-	-	5(25)	-	20 locations Once/6
Odour	-	-	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-	-	-	5(10)	-	entire civil constructio
pH Value	-	-	-	6.5-8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)	-	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	-	-	250(1000)	-	
Residual free Chlorine, Min	mg/l	-	-	0.2	-	
Fluoride(as F), Max	mg/l	-	-	1.0(1.5)	-	
Dissolved solids, Max	mg/l	-	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	-	-	75(200)	-	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	-	
Copper(as Cu), Max	mg/l	-	-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	-	0.1(0.3)	-	

Attachment-2 Sulphate(as SO_4), 200(400) mg/l Max Nitrate(as NO_2), mg/l 45(100) Max Phenolic compounds mg/l 0.001(0.002)(as C₆H₅OH),Max Mercury(as Hg), 0.001 mg/l Max Cadmium(as Cd), mg/l 0.01 Max Selenium(as Se), mg/l 0.01 Max Arsenic (as As), 0.05 mg/l Max Cyanide(as CN), 0.05 mg/l Max Lead(as Pb), mg/l 0.05Max Zinc(as Zn), mg/l 5(15)Max Anionic Detergents mg/l 0.2(1.0)(as MBAS),Max Chromium mg/l 0.05 (as Cr6+),Max Polynuclear aromatic mg/l hydrocarbons(as PAH),Max 0.01 Mineral Oil mg/l Pesticides, mg/l Absent Max Radioactive Materials, Max Bq/l-(0.1)e) Alpha emitters Radioactive Materials, Pci/l -(1) Max f) Beta emitters Alkalinity,

200(600)

0.03(0.2)

mg/l

mg/l

Max

Aluminum(as

 Al), Max
 mg/l
 1(5)

Item	<u>Unit</u>	Measure d Value (Mean)	Measured Value (Max.)	Country's Standards	Referred Internation al Standards	Remarks (Measurem ent Point, Frequency, Method, etc.)
Color,Hazen units,Max		-	-	5(25)	-	20 locations Once/6
Odour	-	-	-	Unobjection able	-	months
Taste	-	-	-	Agreeable	-	During
Turbidity,NTU ,Max	-	-	-	5(10)	-	entire civil constructio
pH Value	-	-	-	6.5-8.5	-	n stage or
Total Hardness (as CaCO ₃), Max	mg/l	-	-	300(600)	-	even later, if directed by DMRC
Iron(as Fe) ,max	mg/l	-	-	0.3(1.0)	-	
Chloride(as Cl), Max	mg/l	-	-	250(1000)	-	
Residual free Chlorine, Min	mg/l	-	-	0.2	-	
Fluoride(as F), Max	mg/l	-	-	1.0(1.5)	-	
Dissolved solids, Max	mg/l	-	-	500(2000)	-	
Calcium(as Ca), Max	mg/l	-	•	75(200)	-	
Magnesium(as Mg), Max	mg/l	-	-	30(100)	-	
Copper(as Cu), Max	mg/l	-	-	0.05(1.5)	-	
Manganese(as Mn), Max	mg/l	-	-	0.1(0.3)	-	
Sulphate(as SO ₄), Max	mg/l	-	-	200(400)	-	
Nitrate(as NO ₂), Max	mg/l	-	-	45(100)	-	

						Attachment-2
Phenolic		-	-			
compounds	mg/l			0.001(0.002)	-	
(as	mg/1			0.001(0.002)		
C_6H_5OH),Max						
Mercury(as		-	-			
Hg),	mg/l			0.001	-	
Max						
Cadmium(as		-	-			
Cd),	mg/l			0.01	-	
Max						
Selenium(as		-	-			
Se),	mg/l			0.01	-	
Max	8					
Arsenic (as		-	-			
As),	mg/l			0.05	-	
Max	1119/1			0.00		
Cyanide(as		_	-			
CN),	mg/l			0.05	-	
Max	mg/1			0.00		
Lead(as Pb),		_	_			
Max	mg/l			0.05	-	
Zinc(as Zn),		_	_			
	mg/l		_	5(15)	-	
Max		_				
Anionic		-	-			
Detergents	mg/l			0.2(1.0)	-	
(as						
MBAS),Max		_	_			
Chromium	mg/l	-	-	0.05	-	
(as Cr6+),Max						
Polynuclear		-	-			
aromatic	mg/l			-	-	
hydrocarbons(
as PAH),Max						
Mineral Oil	mg/l	-	-	0.01	-	
Pesticides,	mg/l	-	-	Absent	-	
Max	1119/1			11000110		
Radioactive		-	-			
Materials,				, ,		
Max	Bq/l			-(0.1)	-	
g) Alpha						
emitters						
Radioactive		-	-			
Materials,						
Max	Pci/l			-(1)	-	
h) Beta						
emitters						
Alkalinity,	m m/l	-	-	200(600)		
Max	mg/l			400(600)		
Aluminum(as		-	-			
Al),	mg/l			0.03(0.2)	-	
Max						
Boron,Max	mg/l	-	-	1(5)	-	

Noise / Vibration

Item	Unit	Measured Value (L_{eq})	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)			National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40 DMRC Env Manual (when pre construction levels are not known) ResiLmax Daytime: 75 Nighttime: 65 Comm & and Indstl At all time: 85	Commerci al /residence	30locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC
Vibratio n level	RMS (mm/s)	-	-	Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	-	10locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC

Item	Unit	Measured Value (L_{eq})	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measurement Point, Frequency , Method, etc.)
Noise level (Leq) and Lmax	dB(A)		-	National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40 DMRC Env Manual (when pre construction levels are not known) ResiLmax Daytime: 75 Nighttime: 65 Comm & and Indstl At all time: 85	Commerci al / residence	30location s 24hours/ti me Once/week During entire civil constructi on stage or even later, if directed by DMRC
Vibratio n level	RMS (mm/s)	-	-	Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	-	10location s 24hours/ti me Once/week During entire civil constructi on stage or even later, if directed by DMRC

Item	Unit	Measured Value $(L_{ m eq})$	Meas ured Value(L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)			National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40 DMRC Env Manual (when pre construction levels are not known) ResiLmax Daytime: 75 Nighttime: 65 Comm & and Indstl At all time: 85	Commerci al / residence	30locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC
Vibratio n level	RMS (mm/s)		-	Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5		10locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC

Item	Unit	$\begin{array}{c} \textbf{Measured Value} \\ \textbf{(L}_{eq}) \end{array}$	Meas ured Value (L _{Max})	Country's Standards (Environmental Management Manual by DMRC)	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Leq (d)- Leq (n)- Lmin- Leq (d) Leq (n)- Lmin-	-	National Standards AreaLeq(d)Leq(n) Resi 55 45 65 55 Indstl 75 70 Silence 50 40 DMRC Env Manual (when pre	Commerci al / residence	30locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC
				construction levels are not known) ResiLmax Daytime: 75 Nighttime: 65 Comm & and Indstl At all time: 85	residence	
Vibratio n level	RMS (mm/s)	-		Structures in good condition:25 in fair condition:12 in poor condition:5 Water supply Structures:5 Heritage structure/ Bridge structures:5	-	10locations 24hours/time Once/week During entire civil construction stage or even later, if directed by DMRC

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Excavated	221	11 0001	2122 CC	toat I
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Date:	Location

Attachment-2 Remarks Measure Measure Country's Referred (Measuremen **Unit** Item d Value d Value Standards Internation t Point. (Mean) (Max.) Frequency, al Standards Method, etc.) In each 0.0005 Mercury(as Hg) mg/l Underground Construction Cadmium(as Cd) 0.01 mg/l Contract Once/6month Arsenic(as As) 0.01 mg/l Not During entire Cyanide(as CN) mg/l detected civil construction Lead(as Pb) mg/l 0.01 stage Samples should be from taken the underground lowest point. Chromium(as 0.05 mg/l Cr6+) -Report submitted in last quarter report of July to September 2020

Location: Date: Remarks Measure Measure Country's Referred (Measuremen Unit **Item** d Value d Value Standards Internation t Point, (Mean) (Max.) \mathbf{al} Frequency, Standards Method, etc.) In each Mercury(as Hg) 0.0005mg/l Underground Cadmium(as Cd) mg/l 0.01 Construction Contract Arsenic(as As) mg/l 0.01 Once/6month Not Cyanide(as CN) mg/l detected During entire civil Lead(as Pb) 0.01 mg/l construction stage Samples should be Chromium(as mg/l 0.05 taken from Cr6+) the underground lowest point.

Excavated soil (Amount)

Line	Excavated Amount Approx.('000 m³)	Name of Disposed Site	Disposed Amount Approx.('000 m³)
Line-2	-	-	-
Line-6	-	-	-
Line-7	-	-	-
Line-8	-	-	-

Ecological Monitoring(Flora Monitoring)

CPM	Permissio n to fell trees	No. of trees actually felled	No of trees planted	No of trees transpla nted	Location of plantation
CPM-1	-	-	-	-	
CPM-2	-	-	-	-	
CPM-3	-	-	-	-	
CPM-4	-	-	-	-	
CPM-5	-	-	-	-	
CPM-6	-	-	-	-	
CPM-7	-	-	-	-	
CPM-8	-	-	-	-	
CPM-9	-	-	-	-	
CPM-10	-	-	-	-	
ED/Civil	-	-	-	-	

2.2 During Operation

When a measured value exceeds the standards, the value is written in bold letters.

Air Quality (Ambient Air Quality)

Date:June 2022Location:Karkarduma (Line-7)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	209	304	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	229	229	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SO2	μg/m³	18.7	18.7	80	IS 5182	24 Hours

					(Part 21)	
NOx	μg/m³	125.4	125.4	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location:Noida Sector-34 (Line-3)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	192.5	274	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	129	129	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SO_X	μg/m³	26	26	80	IS 5182 (Part 21)	24 Hours
NOx	μg/m³	10.7	10.7	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location:Shaheed Sthal (Line-1)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	198	211	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	88	88	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SOx	μg/m³	30.8	30.8	80	IS 5182 (Part 21)	24 Hours
NO_X	μg/m³	75.1	75.1	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location: NHPC Chowk (Line-6)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	174	194	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	152	152	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SO_X	μg/m³	7.4	7.4	80	IS 5182 (Part 21)	24 Hours
NOx	μg/m³	21.6	21.6	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location:Okhla NSIC (Line-8)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	196.5	252	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	118	118	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SO_X	μg/m³	13.9	13.9	80	IS 5182 (Part 21)	24 Hours
NOx	μg/m³	22.5	22.5	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location:Hauz Khas (Line-8)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	162	170	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
PM _{2.5}	μg/m³	103	103	60	IS 5182 (Part 24)	24 Hours Once in a month for three year

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SO_X	μg/m³	11.1	11.1	80	IS 5182 (Part 21)	24 Hours
NO_X	μg/m³	14.5	14.5	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location:Nangli (Line-9)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	231	237	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	127	127	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SOx	μg/m³	12.1	12.1	80	IS 5182 (Part 21)	24 Hours
NO_X	μg/m³	21.7	21.7	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location:Ghevra(Line-5)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM ₁₀	μg/m³	213	313	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	186	186	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SO_X	μg/m³	36	36	80	IS 5182 (Part 21)	24 Hours
NOx	μg/m³	62.1	62.1	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location: ESI Hospital(Line-7)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	208	277	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	174	174	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SO_X	μg/m³	28.4	28.4	80	IS 5182 (Part 21)	24 Hours
NOx	μg/m³	48.9	48.9	80	IS 5182 (Part 6)	Once in a month for three year

Air Quality (Ambient Air Quality)

Date:June 2022Location:BadliMor(Line-2)

Item	Unit	Measured Value (Mean)	Measured Value (Max.)	Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
PM_{10}	μg/m³	264	267	100 (24hours) (CPCB)	IS 5182 (Part 23)	48hours/time Once/month For 3 years
$\mathrm{PM}_{2.5}$	μg/m³	154	154	60	IS 5182 (Part 24)	24 Hours Once in a month for three year
SOx	μg/m³	36.1	36.1	80	IS 5182 (Part 21)	24 Hours
NOx	μg/m³	54.3	54.3	80	IS 5182 (Part 6)	Once in a month for three year

Effluentat Depot Date:July 2022Location:Vinod Nagar Depot(Line-8)

Item	<u>Unit</u>	Va	sured lue ean)	Measured Value (Max.)	Country's Standards	Referred Internationa 1 Standards	Remarks (Measureme nt Point,
		Inlet	Outle t				Frequency, Method, etc.)
рН	-	7.18	7.32	-	5.5-9.0	IS 3025(part-11) 1983- RA:2017	(Depot) Once/4mont hs For 3 years
TSS	mg/l	105	1580	-	100	IS 3025(part-17) 1984-	-

Attachment-2 RA:2017 BOD mg/l IS 68 22 3025(part-44 30) 1993-RA:2017 COD mg/l 118 254IS 3025(part-58 250) 2006-RA:2017 6.0 Oil/Greas mg/l 12 IS 3025(part-11 10) 1991-RA:2019

Effluent at Depot

Date: July 2022 Location: Ajronda Depot(Line-6)

Item	<u>Unit</u>	Va	sured lue ean)	Measured Value (Max.)	Country's Standards	Referred Internationa l Standards	Remarks (Measurem ent Point,
		Inlet	Outlet				Frequency, Method, etc.)
рН	-	7.68	7.54	-	5.5-9.0	IS 3025(part-11) 1983- RA:2017	(Depot) Once/4mont hs For 3 years
TSS	mg/l	280	36	-	100	IS 3025(part-17) 1984- RA:2017	
BOD	mg/l	480	19	-	30	IS 3025(part-44) 1993- RA:2017	
COD	mg/l	1692	90	1	250	IS 3025(part-58) 2006- RA:2017	
Oil/Greas e	mg/l	16	3	-	10	IS 3025(part-11) 1991- RA:2019	

Effluent at Depot

Date:July 2022 Location:Kalindi Kunj Depot (Line-7)

Item	<u>Unit</u>	Va	sured lue ean)	Measured Value (Max.)	Country's Standards	Referred Internationa 1 Standards	Remarks (Measurement Point, Frequency,
		Inlet	Outlet				Method, etc.)
рН	-	7.53	8.12	-	5.5-9.0	IS 3025(part-11) 1983- RA:2017	(Depot) Once/4months For 3 years
TSS	mg/l	132	32	-	100	IS 3025(part-17) 1984- RA:2017	
BOD	mg/l	126	28	-	30	IS 3025(part-44) 1993- RA:2017	
COD	mg/l	468	150	-	250	IS 3025(part-58) 2006- RA:2017	
Oil/Greas e	mg/l	12	4.5	-	10	IS 3025(part-11) 1991- RA:2019	

Ground Water Quality(Drinking Water Quality:IS 10500:1991)

Date: June 2022Location: Kalindikunj Depot

Item	<u>Unit</u>	Measure d Value (Mean)	Measure d Value (Max.)	Country's Standards (IS 10500:1991)	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
Turbidity,NTU, Max	-	1.5	-	5(10)	IS:3025(part-10)	
pH Value	-	7.05	-	6.5-8.5	IS:3025(part-11)	
Total Hardness (as CaCO ₃), Max	mg/l	453	-	300(600)	IS:3025(part-21	
Iron(as Fe) ,max	mg/l		-	0.3(1.0)	IS:3025(part-53	
Dissolved solids, Max	mg/l		-	500(2000)	IS:3025(part-16)	
Calcium(as Ca), Max	mg/l	90.6	-	75(200)	IS:3025(part-40	
Magnesium(as	mg/l	55.0	-	30(100)	IS:3025(part-46	

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Mg), Max)	
Sulphate(as		82	-		IS:3025(part-24	
SO_4),	mg/l			200(400)	15.3023(part 24	
Max					,	
Nitrate(as		22	-		IS:3025(part-34	
NO_2),	mg/l			45(100)	15.3023(part 34	
Max					,	
Lead(as Pb),	mg/l	BDL	-	0.05	IS:3025(part-47	
Max	IIIg/I			0.05)	
Zinc(as Zn),	mg/l	BDL	-	5(15)	IS:3025(part-49	
Max	IIIg/I			9(19))	
Alkalinity, Max	mg/l	413	-	200(600)	IS:3025(part-23	
	IIIg/I			200(000))	
Aluminum(as		-	-	·		
Al),	mg/l			0.03(0.2)	IS:3025(part-)	
Max						
TSS	mg/l	-	-	600	IS:3025(part-)	

Noise / Vibration

Date: September 2022Location: JasolaViharShaheen Bagh (Line-8)

Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Country's Standards	Occupancy	Remarks (Measure- ment Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Leq (d)-60.8 Leq (n)- 58.5 Lmin-45.2	93.8	National Standards AreaLeq(d)Leq(n) Resi 55 45 Comm 65 55 Indstl 75 70 Silence 50 40 40	Commerci	15locations 24hours/time Once/month

$Date \\ \vdots \\ Location \\ \vdots \\$

Item	Unit	Measured Value (L _{eq})	Meas ured Value (L _{Max})	Country's Standards	Occupancy	Remarks (Measurement Point, Frequency, Method, etc.)
Noise level (Leq) and Lmax	dB(A)	Leq (d)- Leq (n)-		National Standards AreaLeq(d)Leq(n) Resi 55 45		15locations 24hours/time Once/month

Date:July 2022 Location: 5/3 SarvapriyaVihar Hauz khas(Line-8)

Item	Unit	Measured RMS Value (Mean)	MeasuredRM S Value (Max.)	Country's Standards Max. PPV mm/s	Referred International Standards	Remarks (Measure- ment Point, Frequency, Method, etc.)
Vibration level	mm/s	72	78	Structures in:- Good condition = 25 Fair condition = 12 Poor condition = 5 Water supply structures = 5 Heritage structures = 5	Federal Transit Administratio n (FTA), US	As and when complaint arises at the ground floor of building above the tunnel.

Ecological Monitoring

Date: 30.09.2022Location:Ohkla Bird Sanctuary Metro Station

Duration: From 01.07.2022 to 30.09.2022

Item	Number of Interviews with Train Operators who reported the accident during the monitoring period	Number of Accidents Reported during the monitoring period	Name of Species lost in the accident	Remarks (Place of accident, frequency, Method, etc.)
Train Accidents involving bird fatality	0	0	0	4times/year For 2years Visual observation (If no bird hit is reported in this duration, then

	Attachment-2
	this monitoring
	may be
	discontinued, else
	it will continue).
	From the
	beginning, DMRC
	will instruct its
	train operator to
	compulsorily blow
	the horn while on
	the bridge across
	the Yamuna.