

# **COMPLIANCE REPORT**

**AS PER CONDITIONS STIPULATED IN THE  
ENVIRONMENTAL CLEARANCE**

**Letter No. - 675/EPCO-SEIAA/11 dated 02.11.2011**

**OF**

**State Environment Impact Assessment Authority, M.P**

**(Six Monthly Compliance Report)**

**(Period : April-2014 to September-2014)**

**FOR**

**RESIDENTIAL TOWNSHIP  
PROJECT**

**AT**

**Village- Rangwase, Distt-Indore**

**Madhya Pradesh**

**PROJECT PROPONENT**

**M/s Wonderland Real Estate Pvt. Ltd.**

**6th Floor, Treasure Island, 11,**

**Tukoganj, Main Road, Indore-452001, (M.P.)**

**E-mail: wanderland@kalnigroup.com**

Proposed Residential Township Project at village- Rangwasa, Distt- Indore, M.P. by <b>M/s. Wanderland Real Estate Pvt. Ltd.</b>	Compliance Report (April to September 2014)
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**Name of Project:** Proposed Residential Township Project at village- Rangwasa, Distt- Indore, M.P.  
by **M/s. Wanderland Real Estate Pvt. Ltd.**

**EC Letter No.:** SEIAA 675/EPCO-SEIAA/11 dated November 2<sup>nd</sup>, 2011

**Period Of compliance:** April to September 2014

**PART I**

**Compliance of Stipulated conditions of Environmental Clearance**

<b>Part A: Specific Conditions:</b>		
<b>Construction Phase:</b>		
<b>S. NO.</b>	<b>CONDITIONS</b>	<b>REPLY</b>
1.	Consent For Establishment shall be obtained from Madhya Pradesh Pollution Control Board under the Air and Water Act and a copy shall be submitted to the Competent Authority before start of any construction work at the site.	Consent to Establish was obtained by MPPCB vide letter No. 6618/TS/MPPCB/2012 Dated 5/09/2012. A copy of the same is enclosed as <b>Annexure-1.</b>
2.	All required sanitary and hygienic measures should be in place before starting any construction work and are to be maintained throughout the project phase.	At present, construction work almost completed and finishing work is under progress now. Sanitary and hygienic measures have been in place since the construction activity started and is being maintained throughout the construction phase.
3.	A First Aid Room will be provided in the project both during construction and operation phase of the project.	A first aid room at the site is being provided and to be used both during construction and operation phase of the project.
4.	Adequate drinking water and sanitary facilities should be provided for construction workers at the site. Provision should be made for mobile toilets. The safe disposal of waste water and	Drinking water facility is being provided for workers at site during construction phase. Mobile toilets also provided for safe disposal of wastewater and solid wastes generated

	solid waste generated during the construction phase should be ensured.	during the construction phase is being ensured.
5.	Necessary arrangement shall be made for the disposal of treated waste water during monsoon.	It is being taken care of.
6.	All the topsoil excavated during construction activities should be stored for use in horticulture/ landscape development within the project site.	The top soil excavated during the construction has been stored and is being using in horticulture/landscape development within the project site.
7.	Disposal of waste material during construction phase should not create any adverse effect on the neighboring communities and should be disposed taking the necessary precautions for general safety and health aspects of people, only in approved sites with the approval of competent authority.	Only construction debris being generated which is being re-used in construction work. Therefore no adverse impact on neighboring communities.
8.	Construction spoils, including bituminous material and other hazardous materials, must not be allowed to contaminate watercourses and the dump sites for such material must be secured so that they should not leach into the ground water.	This is new construction without any bituminous infrastructure present in the site. Precautions are taken to prevent contamination of the water source. Water Quality Results are enclosed as <b>Annexure-2</b> & Soil Quality results are enclosed as <b>Annexure -3</b> for your reference.
9.	Any hazardous waste generated during construction phase, should be disposed off as per applicable rules and norms with necessary approvals of Madhya Pradesh Pollution Control Board.	There is no generation of hazardous material in construction work. Inspection Report Available regarding Grant of the Authorization under Hazardous waste Rules 2008 by MPCB is enclosed as <b>Annexure- 4.</b>
10.	The diesel generator sets to be used during construction phase, should be low sulphur diesel type and should conform to Environment (Protection) Rules prescribed for air and noise	2 D.G Sets of 125 KVA capacity each is installed at site and are enclosed types confirming the rules made under the Environment (Protection) Act 1986 for air

	emission standards.	and noise emission standards. Please confirm
<b>11.</b>	The diesel required for operating DG sets shall be stored in underground tanks and if required, clearance from chief Controller of Explosives shall be taken.	Small quantity of diesel is required to run the DG sets, therefore no need for any approval.
<b>12.</b>	For the disposal of used diesel clearance should be taken from the competent authority as per the rules under EP Act.	Not applicable
<b>13.</b>	Vehicles hired for bringing construction material to the site should be in good condition and should have a pollution check certificate, should conform to applicable air and noise emission standards and should be operated only during non-peak hours.	Vehicles hired for transportation of construction material were in good condition conforming to Air & Noise emission standards and operated in non peak hours.
<b>14.</b>	Ambient noise levels should conform to residential standards both during day and night and incremental pollution loads on the ambient air and noise quality should be closely monitored during construction phase. Adequate measures should be made to reduce ambient air and noise level during construction phase, so as to conform to the stipulated standards by CPCB / MPPCB.	The Ambient Noise Level was monitored during Day and Night time and results are enclosed as <b>Annexure- 5 &amp;</b> also the ambient air quality was monitored at different construction sites, the results are enclosed as <b>Annexure- 6.</b>
<b>15.</b>	Fly ash should be used as building material in the construction as per the provisions of Fly ash Notification of September, 1999 and amended as on 27 <sup>th</sup> August, 2003. (The above condition is applicable only if the project site is located within the 100 km of Thermal Power Stations).	Ready mixed concrete have been used as a construction material.
<b>16.</b>	As far as possible ready mixed concrete must be used in construction work.	Ready mixed concrete have been used in construction.

17.	Water demand during construction should be reduced as much as possible by use of premixed concrete curing agents and other best practices.	We have used ready mixed concrete for building construction to reduce the water demand.
18.	Ground water should not be used during construction phase. Private tanker water suppliers may be asked to supply water during construction phase.	Hired water tankers being used for the supply of water during construction phase.
19.	All conditions imposed by CGWA in the above NOC should be strictly complied.	All the conditions imposed by CGWA in NOC being strictly complied with
20.	Fixtures for showers, toilet flushing and drinking should be low flow either by use of aerators or pressure reducing devices or sensor based control.	Sensor based control device will be installed.
21.	Dual pipe line has to be laid down for flushing, horticulture and other points where recycled water is proposed to be used.	As per submitted plans dual plumbing lines will be installed.
22.	A STP of 1200 KLD capacity shall be constructed at site as proposed. The proponent shall also ensure smooth and uninterrupted operation and maintenance of STP and the treated effluent has to be reused within the premises.	STP is installed but it is not in operation yet. STP once operation will be maintained properly and the treated effluent shall be reused within the premises.
23.	Regular supervision of the above and other measures for monitoring should be in place all through the construction phase, so as to avoid disturbance to the surroundings.	We are regularly supervising and monitoring the construction activities to avoid disturbance to the neighboring communities. Names of deputed persons for your reference are Mr. Vijay Dubey & Mr. Mukesh Gupta.
24.	Under the provisions of Environment (Protection) Act, 1986, legal action shall be initiated against the project proponent if it is found that construction work has been started	Environment Clearance is already obtained vide Letter no. 675/EPCO-SEIAA/11 Dated 2/11/2011 and is enclosed as <b>Annexure-7</b> .

	without obtaining environmental clearance.	
<b>Operational Phase:</b>		
1.	The solid waste generated should be properly collected and segregated. Wet garbage should be composted and dry/inert solid waste should be disposed off to the approved sites for land filling after recovering recyclable material as per CPCB norms.	The generated solid waste will be properly collected & segregated. Bio-degradable waste will be used for composting and dry/inert solid waste will be disposed off to approved sites for land filling after recovering recyclable material.
2.	Since the proposed site is located outside the Municipal limit, collection, segregation, storage and transportation of Municipal waste shall be the responsibility of the Project Proponent.	Same shall be complied with
3.	Diesel power generating sets proposed as source of backup power for elevators and common area illumination during operation phase should be of enclosed type and conform to rules made under the Environment (Protection) Act, 1986. The height of stack of DG sets should be equal to the height needed for the combined capacity of all proposed DG sets. Low sulphur diesel must be used. The location of the DG sets may be decided with in consultation with Madhya Pradesh Pollution Control Board.	Diesel power generating sets proposed as source of backup power for lifts and common area illumination will be of enclosed type and will conform to rules made under The Environment (Protection) Act 1986. All other relevant parameters shall be complied with.
4.	Noise should be controlled to ensure that it does not exceed the prescribed standards. During night time the noise levels measured at the boundary of the project area shall be restricted to the permissible levels to comply with the prevalent regulations.	Same will be complied with and Results of Ambient Noise level are enclosed above as <b>Annexure- 5.</b>
5.	Weep holes in the compound walls shall be provided to ensure natural drainage of rain	Weep Holes shall be developed for natural drainage of rain water.

	water in the catchment area during the monsoon period.	
6.	No water logging should take place at any point during construction and operation phase.	We ensured that no water logging will take place during construction and operation phase of the project
7.	Rain water harvesting for surface run-off, as per the plan submitted should be implemented. Before recharging the surface run-off, pre-treatment must be done to remove suspended matter, oil and grease.	We ensured that the rain water harvesting will be done as per the submitted rain water harvesting plan. A copy of RWH plan is enclosed as <b>Annexure-8</b> .
8.	The ground water level and its quality should be monitored regularly in consultation with Central Ground Water Authority.	The ground water quality results are already enclosed as <b>Annexure- 2</b> .
9.	A report on the energy conservation measures conforming to energy conservation norms issued by Bureau of Energy Efficiency should be prepared incorporating details about building materials & technology, R&U Factors etc. and submitted to the competent authority in three months time.	It will be prepared and taken care of.
10.	The Project Proponent shall explore the possibility of using solar energy wherever possible.	Maximum sun light will be used.
11.	Provision for plantation has to be made as per Madhya Pradesh Bhumi Vikas Niyam, 1984 subject to a minimum of 33% of the total plot area.	Same shall be done as per the Green Belt development Plan, already submitted to Authorized signatory.
12.	Total water requirement of the project is 1899 KLD while CGWA has issued NOC to draw only 1052 KLD water from ground. No extra water shall be extracted from the ground. Rest of water requirement shall be met from municipal	No extra water will be extracted from ground. NOC from CGWA have taken is enclosed as <b>Annexure - 9</b>

	water supply and recycling of treated waste water.	
<b>Part - B. General Conditions</b>		
<b>i</b>	The environmental safeguards contained in the EIA Report should be implemented in letter and spirit.	The environmental safeguards contained in the documents will be strictly implemented
<b>ii</b>	Provision should be made for supply of kerosene or cooking gas and pressure cooker to the labourers during construction phase.	All workers coming from nearby villages. But we have provided the mobile toilets and water tankers for the labourers in construction phase.
<b>iii</b>	Six monthly monitoring reports should be submitted to the State Level Environment Impact Assessment Authority and Regional Office of Ministry of Environment and Forest, Govt. of India, Bhopal	Regular six monthly compliance reports being submitted.
<b>iv</b>	Officials from the Regional Office of MoEF, Bhopal who would be monitoring the compliance of the stipulated condition should be given full cooperation, facilities and documents/data by the project proponents during their inspection. A complete set of all documents submitted to SEIAA should be forwarded to the CCF. Regional office MoEF, Bhopal.	We will always extend our full cooperation to the Officer(s) of the Regional Office and furnish all requisite data time to time.
<b>v</b>	In the case of any changes (s) in the scope of the project, the project would require a fresh appraisal by the SEIAA of M.P. of Ministry as the case may be.	Agreed. We assure that there will be no changes in scope of the project without approval from the Ministry.
<b>vi</b>	The project authority has to submit half yearly compliance report of the stipulated prior environmental clearance terms and conditions in hard and soft copy to the SEIAA of M.P. on 1 <sup>st</sup>	We are Regularly submitting six monthly compliance reports to SEIAA of M.P.



	June and 1 <sup>st</sup> December of each calendar year.	
<b>vii</b>	The funds earmarked for environmental protection measures shall be kept in separate account and shall not be diverted for other purpose. Year wise expenditure shall be reported to the MoEF, Gol, and its Regional Office located at Bhopal.	The funds earmarked for environmental protection measures will be kept in separate account and never be spending to other purpose.
<b>viii</b>	A separate Environmental Management Cell with suitable qualified personnel shall be set-up under the control of a Senior Executive, who will report directly to the Head of the Organization.	An Environment Management cell is setup having 3 suitable qualified people. Names for your reference are Mr. Mahesh Tiwari, Mr. Vijay Dubey & Mr. Mukesh Gupta.
<b>ix</b>	A copy of the environmental clearance shall be submitted by the Project Proponent to the Heads of the Local Bodies, Panchayat and Municipal bodies as applicable in addition to the relevant officers of the Government who in turn has to display the same for 30 days from the date of receipt.	A copy of clearance letter has already been marked to concerned Panchayat, Municipal and Local Bodies.
<b>x</b>	The Project Proponent shall advertise at least in two local newspapers widely circulated, One of which shall be in the vernacular language of the locality concerned, within 7 days of the issue of the clearance letter informing that the project has been accorded environmental clearance and a copy of the clearance letter is available with the State Pollution Control Board and also at web site of the State Level Environment Impact Assessment Authority	We had already published the accordance of Environmental Clearance in two local news papers.

	(SEIAA) web site at <a href="http://www.mpseiaa.nic.in">www.mpseiaa.nic.in</a> and a copy of the same shall be forwarded to the Regional Office MoEF, Gol, Bhopal.	
<b>xi</b>	The project proponent has to strictly follow directions/guideline issued by the MoEF, Gol, CPCB and other Govt. agencies from time to time.	Agreed.
<b>4.</b>	The SEIAA of M.P. reserves the right to add additional safeguard measures subsequently, if found necessary, and to take action including revoking of the environment clearance under the provisions of the Environment (Protection) Act, 1986, to ensure effective implementation of the suggested safeguard measures in a time bound and satisfactory manner.	Agreed.
<b>5.</b>	All other applicable statutory clearances such as the approvals for storage of diesel from Chief Controller of Explosives, Fire Department, Civil Aviation Department, Forest Conservation Act 1980 and wildlife (Protection) Act, 1974, the Air (Prevention and control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006 must be obtained.	Agreed, We will take concern approvals for the project. Approvals from Civil Aviation & Chief controller of Explosive are not required.
<b>6.</b>	These stipulations would be enforced among others under the provisions of Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and control of Pollution) Act 1981, the Environment (Protection) Act, 1986, the Public Liability (Insurance) Act, 1991 and EIA Notification, 2006.	Agreed.

<b>7.</b>	The Ministry or any other competent authority may alter/modify the above conditions or stipulate any further condition in the interest of environment protection.	Agreed.
<b>8.</b>	Concealing factual data or submission of false /fabricated data and failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of Environment (Protection) Act, 1986.	Noted.
<b>9.</b>	Any appeal against this prior environmental clearance shall lie with the Green Tribunal, if necessary, within a period of 30 days as prescribed under Section 16 of the National Green Tribunal Act, 2010.	Noted.
<b>10.</b>	The above conditions will be enforced inter-alia, under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, The Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1981 along with amendments and rules.	Noted.

## PART II

### Environmental Monitoring Report

#### 2.1 AMBIENT AIR QUALITY MONITORING.

##### 2.1.1 Ambient Air Quality Monitoring Stations

Ambient air quality monitoring has been carried out at four locations; one is near the Main Gate , Project Site , Village- Rangawas and another one is Village - Narlay to assess the ambient air quality. This will enable to have a comparative analytical understanding about air quality and the changes in the air environment in the study area with respect to the conditions prevailing. The locations of the ambient air quality monitoring stations are given in **Table 2.1**.

**Table2.1 Details of Ambient Air Quality Monitoring Stations**

S. No.	Locn. Code	Location Name/ Description
1.	AAQ-1	Near Main Gate
2.	AAQ-2	Project Site
3.	AAQ-3	Village - Rangawas
4.	AAQ-4	Village - Narlay

##### 2.1.2 Ambient Air Quality Monitoring Methodology

Monitoring was conducted in respect of the following parameters:

- Particulate Matter (PM 2.5)
- Particulate Matter (PM 10)
- Sulphur dioxide (SO<sub>2</sub>)

Proposed Residential Township Project at village- Rangwasa, Distt- Indore, M.P. by <b>M/s. Wanderland Real Estate Pvt. Ltd.</b>	Compliance Report (April to September 2014)
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- Nitrogen dioxide (NO<sub>2</sub>)

The duration of sampling of PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>2</sub> was 8 hourly sampling per day. The monitoring was conducted for eight hours at each location. This is to allow a comparison with the National Ambient Air Quality Standards.

Ambient Air Quality monitoring was carried out as per the CPCB guidelines and analyze as per IS: 5182. The techniques used for ambient air quality monitoring and minimum detectable levels are given in **Table 2.2**.

**Table 2.2 Monitoring Method and Other Details**

Attributes	Sampling		Measurement
	Duration	Instrument Used	Method
Particulate Matter (PM <sub>10</sub> ) µg/m <sup>3</sup>	8 Hourly	Respirable Dust Sampler along with gaseous attachment and fine particulate sampler.	IS: 5182 (P-23), 2006
Particulate Matter (PM <sub>2.5</sub> ) µg/m <sup>3</sup>			PM 2.5 Sampler (Gravimetric)
Sulphur Dioxide (SO <sub>2</sub> ) µg/m <sup>3</sup>			IS: 5182 (P-2), 2001
Nitrogen dioxide (NO <sub>2</sub> ) µg/m <sup>3</sup>			IS: 5182 (P-6), 1975 Reffirmed-1998

### 2.1.3 Results of Ambient Air Quality Monitoring

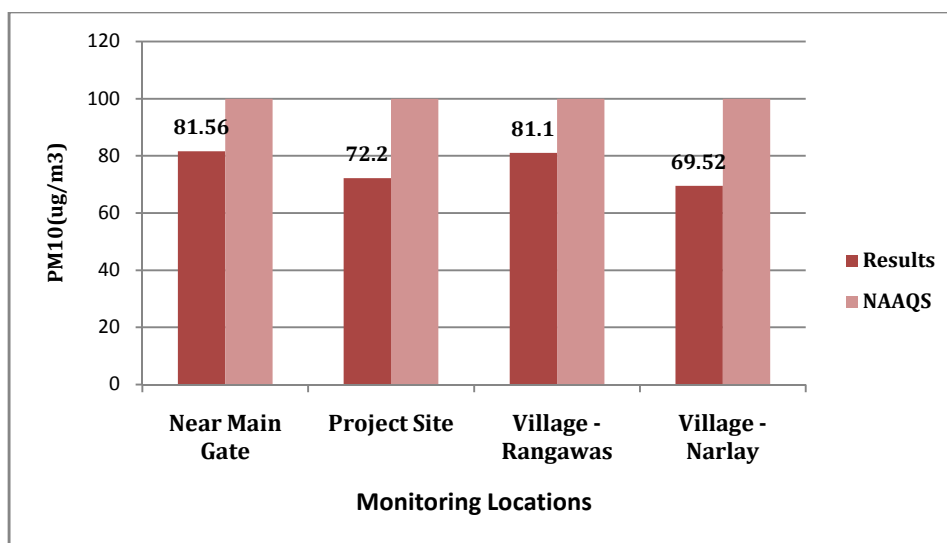
The detailed on-site monitoring results of PM 2.5, PM 10, SO<sub>2</sub> and NO<sub>2</sub> are presented in **Table 2.3**

**Table 2.3**

**Ambient Air Quality Monitoring Results of current monitoring (Apr to Sept 2014)**

S. No.	Location Code	Location	(PM <sub>2.5</sub> ) (µg/m <sup>3</sup> )	(PM <sub>10</sub> ) (µg/m <sup>3</sup> )	NO <sub>2</sub> (µg/m <sup>3</sup> )	SO <sub>2</sub> (µg/m <sup>3</sup> )
1.	AAQ-1	Near Main Gate	39.10	81.56	17.00	7.85
2.	AAQ-2	Project Site	34.52	72.20	19.10	9.22
3.	AAQ-3	Village - Rangawas	34.85	81.10	19.11	8.55
4.	AAQ-4	Village - Narlay	33.20	69.52	18.05	8.75
<b>*NAAQS</b>			<b>60</b>	<b>100</b>	<b>80</b>	<b>80</b>

\*NAAQS – National Ambient Air Quality Standards



**Fig: 2.1 Graph Showing the Results of Ambient Air Quality – PM10**

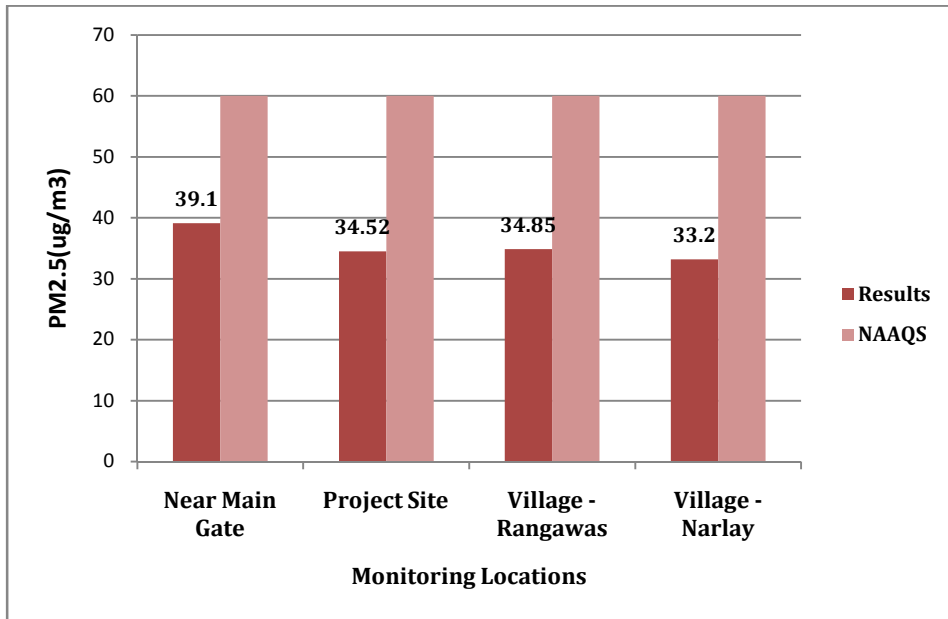


Fig: 2.2 Graph Showing the Results of Ambient Air Quality - PM2.5

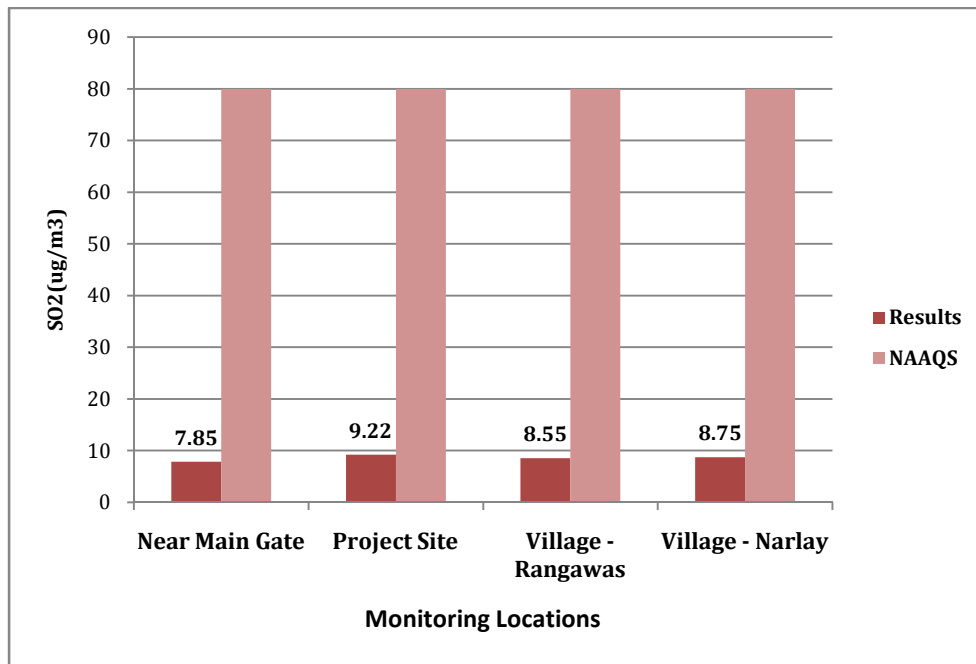
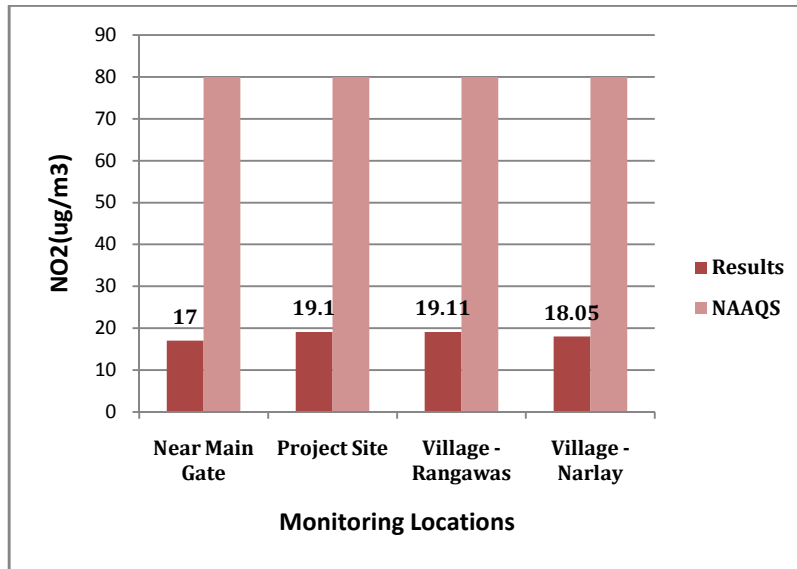


Fig: 2.3 Graph Showing the Results of Ambient Air Quality - SO2



**Fig: 2.4 Graph Showing the Results of Ambient Air Quality - NO2**

#### 2.1.4 Discussion on Ambient Air Quality in the Study Area

The air quality monitoring parameters (PM10, PM2.5, SO2, NO2) were observed within the prescribed limits by NAAQS at all monitoring locations. Station wise variation of ambient air quality parameters has been pictorially shown in Fig., 2.1; 2.2; 2.3; 2.4

### 1.2 AMBIENT NOISE MONITORING

#### 2.2.1 Ambient Noise Monitoring Locations

The main objective of noise monitoring in the study area is to assess the present ambient noise levels. A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the area. Ambient noise monitoring was conducted at 4 locations at the boundary of the project site as given in **Table 2.4**.

**Table 2.4 Details of Ambient Noise Monitoring Stations**

S. No.	Location Code	Location Name/ Description
1.	NQS-01	Project Site
2.	NQS-02	Village Rangwasa
3.	NQS-03	Village Narlay
4.	NQS-04	Near Main Gate



## 2.2.2 Methodology of Noise Monitoring

Noise is defined as unwanted sound that create interferences in speech communication, causes annoyance, disturbance in work concentration and sleep, thus deteriorating quality of Noise environment. In the present study Noise monitoring undertaken at 4 locations.

Since loudness of sound is the important parameter to access the effects of particular activities on human being, and for noise environment assessment that must be taken into the account. Hourly Sound Pressure Level (SPL) was recorded with Sound level Meter (Envirotech SLM 100) for 24 hours. The Leq value has been computed from SPL readings taken at uniform time intervals from the relation as under:

$$L_{eq} = 10 \log 1/n \sum_{n=1}^{n} 10^{SPL/10}$$

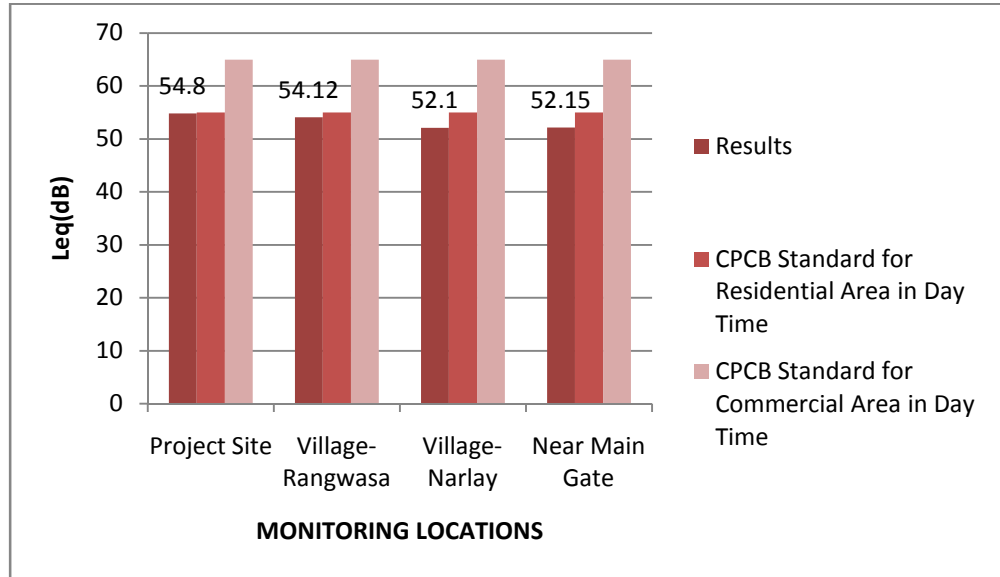
## 2.2.3 Results of Ambient Noise Monitoring

The location wise ambient noise monitoring results is summarized in **Table 2.5**. The location-wise variation of noise levels are graphically presented in **Figure 2.5 & 2.6**

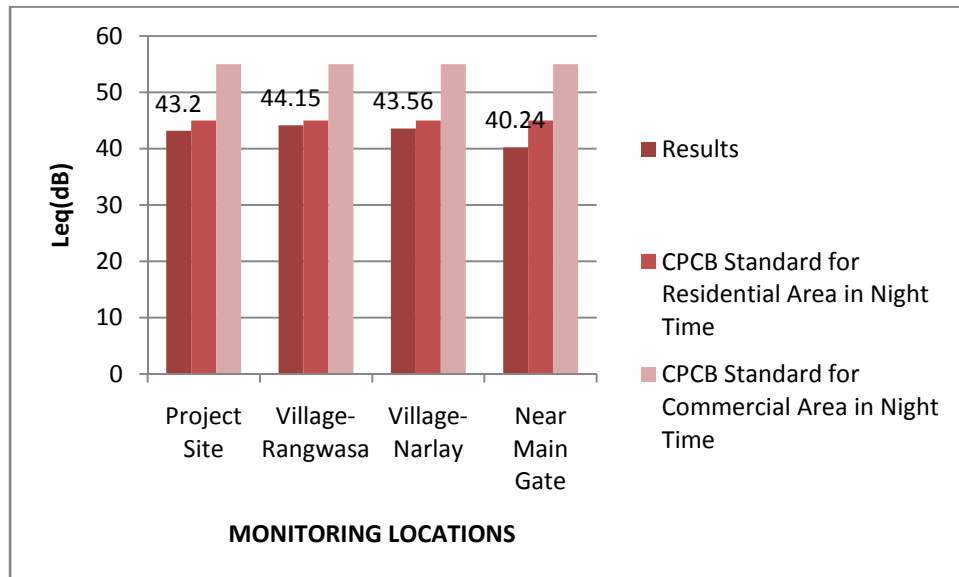
**Table 2.5 Ambient Noise Monitoring Results of current monitoring (Apr to Sept 2014)**

Monitoring Locations	Location Detail	Shift	Parameters		
			L <sub>max</sub>	L <sub>min</sub>	L <sub>eq</sub>
NQS-01	Project Site	Day Time	67.25	44.27	54.80
		Night Time	50.27	41.26	43.20
NQS-02	Village - Rangwasa	Day Time	58.72	43.12	54.12
		Night Time	42.16	37.56	44.15
NQS-03	Village - Narlay	Day Time	63.80	45.26	52.10
		Night Time	52.20	38.20	43.56
NQS-03	Near Main Gate	Day Time	60.80	47.34	52.15
		Night Time	51.25	38.90	40.24
<b>CPCB Limits for</b>		<b>Day Time</b>	-	-	<b>55</b>

<b>Residential Area</b>		<b>Night Time</b>	-	-	<b>45</b>
<b>CPCB Limits for Commercial Area</b>		<b>Day Time</b>	-	-	<b>65</b>
		<b>Night Time</b>	-	-	<b>55</b>



**Fig: 2.5 Graph Showing the Results of Ambient Noise Monitoring during Day Time**



**Fig: 2.6 Graph Showing the Results of Ambient Noise Monitoring during Night Time**

#### **2.2.4 Discussion on Ambient Noise Levels in the Study Area :-**

The location-wise variation of noise levels are graphically presented in **Figure 2.5&2.6** It is observed that the  $L_{eq}$  values during day time and during night time are well within the prescribed limits by CPCB - Ambient Standards for noise.

### **2.3 WATER QUALITY ANALYSIS**

Water is the most important natural resources. In order to assess the water quality, three water sample from hand pump were collected from the Project site and Physico-Chemical examination was undertaken by Standard methods (American Public Health Association - APHA/ and the Bureau of Indian Standards -BIS). Bacterial examination was carried out to identify the microbiological contamination in source.

#### **2.3.1 Methodology of water Quality Monitoring**

Sampling of water was carried out on Sept. 2014. Samples were collected as grab sample and sampling forms are filled in as per the sampling plan. The preservative sample were properly added to preserve as per standard operating procedures (SOP) and stored immediately in ice boxes, which were ensured for appropriate temperatures. Sample for chemical analysis was collected in polyethylene carboys. Sample collected for metal content were acidified to <2 pH with 1 ml  $HNO_3$ . A sample for bacteriological analysis was collected in sterilized glass bottles.

The analytical techniques and the test methods & sampling results are enclosed as **Annexure-2**

### **2.4 SOIL MONITORING**

#### **2.4.1 Soil Monitoring Locations**

The objective of the soil monitoring is to identify the impacts of ongoing project activities on soil quality and also predict impacts, which have arisen due to execution of various constructions allied activities. Accordingly, a study of assessment of the soil quality has been carried out.

To assess impacts of ongoing project activities on the soil in the area, the physico-chemical characteristics of soils were examined by obtaining soil samples from selected points and

analysis of the same. Single sample of soil was collected from the project site for studying soil characteristics.

#### **2.4.2 Methodology of Soil Monitoring**

The sampling has been done in line with IS: 2720 & Methods of Soil Analysis, Part-1, 2nd edition, 1986 of American Society for Agronomy and Soil Science Society of America. The homogenized samples were analyzed for physical and chemical characteristics (physical, chemical and heavy metal concentrations). The soil samples were collected in the month of Sept. 2014

The samples have been analyzed as per the established scientific methods for physico-chemical parameters. The heavy metals have been analyzed by using Atomic Absorption Spectro-photometer and Inductive Coupled Plasma Analyzer.

#### **2.4.3 Soil Monitoring Results**

Single sample of soil is collected from the project site to check the quality of soil of the study area. The physico-chemical characteristics of the soil, as obtained from the analysis of the soil sample, are enclosed as **Annexure-3**