

To

Date

The Director,  
Ministry of Environment, Forests & Climate Change (Environment),  
Indira Paryavaran Bhavan, Jor Bagh Road,  
New Delhi

**Sub: Submission of Six Monthly Compliance Report of Stipulated Conditions of Environmental Clearance for Stone Mining Project of M/s MSK (JV) with Production capacity of 6 MTPA located at Vill-Atela Kalan, Tehsil- Charkhi Dadri, District - Bhiwani, Haryana (54 ha) for submission period of (April-September) December, 2019.**

**Ref. No. J-11015/74/2014/IA.II (M) dated 11<sup>th</sup> June 2015**

Sir,

In accordance to the EC letter as above stated received from Ministry of Environment, Forests & Climate Change vide letter **J-11015/74/2014/IA.II (M) dated 11<sup>th</sup> June 2015**, We are submitting herewith six monthly compliance report of stipulated conditions of Environment Clearance (Soft Only).

We fully assure you that we will comply with all conditions as specified in the Environment clearance granted us.

For M/s MSK (JV)  
Authorised Signatory,



Name - Mahesh Pahar  
Designation -  
E-mail -  
Contact No - 7027800702

Copy to

1. The Director, Ministry of Environment & Forests, Northern Regional Office,  
Sector-31, Dakshin Marg, Chandigarh-160036
2. The Member Secretary, Haryana State Pollution Control Board (HSPCB), Sector 6,  
Panchkula

**M/s MSK (JV), Stone Mine of AtelaKalan , Village- AtelaKalan, Tehsil- CharkhiDadri, District- Bhiwani (HR) (Capacity- 6 million TPA), (EC No- J-11015/74/2014-IA.II (M) dated 11<sup>th</sup> June, 2015).**

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**SIX-MONTHLY ENVIRONMENTAL COMPLIANCE REPORT OF  
STIPULATED CONDITIONS OF ENVIRONMENTAL CLEARANCE  
(Period-April 2019 to September 2019)**

**FOR**

**Stone Mine of Atela kalan , Village- Atela kalan, Tehsil- Dadri, District- Bhiwani (HR) (Capacity- 6 million TPA ),**

**Submitted by:**

**M/s MSK (JV), Village-Atela kalan  
Tehsil-Charkhi Dadri, Distt- Bhiwani (HR)**

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1	Lab report	

# 1

## INTRODUCTION

### 1.1 About Project

M/s MSK (JV) has obtained the Environmental Clearance Letter from MoEF & CC, New Delhi for the Mining of Stone Mine along with Associated Minor Minerals at Village "Atela Kalan Tehsil- Charkhi Dadri, over an area of 54Ha in District-Bhiwani, Haryana Vide Ref. No. J-11015/74/2014-IA.II (M) on dated: 11.06.2015.

Total area of the mining site is 54 Ha. Total cost of the project is 30 Crores. The approval for the mining scheme and progressive mine closure plan was obtained from the Department of Mines & Geology, Haryana vide Letter no. DMG/HY/AtelaKalan/MP/4154, on dated 15.09.2014.

### 1.2 Purpose of the Report

As per the "Sub Para (ii)" of "Para 10" of EIA Notification 2006, it is stated that "It shall be mandatory for the project management to submit half-yearly compliance reports in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1st June and 1st December of each calendar year" and as per compliance of condition mentioned in Environment Clearance Letter (i.e. PART B General Condition, point number XXVI), Six monthly compliance reports should be submitted to the Regulatory Authority of Central and State Government.

It is mandatory to submit a Six Monthly Compliance Report to show the status & compliance of all the Conditions mentioned in Environment clearance Letter, along with monitoring of various Environmental Parameters (as per CPCB Norms).

The regulatory authorities in this case are Ministry of Mines, New Delhi, MoEF& CC New Delhi Department of Environment, Chandigarh, Haryana State Pollution Control Board, Regional Office-MoEF& CC (Chandigarh), Central Ground Water Authority, Delhi, Dept. Of Forests, Chandigarh, Dept. of Mines & Geology, Chandigarh and District Collector (Bhiwani). Various scheduled Site Visits were conducted by a team of Experts to Monitor Pollution related parameters as defined by CPCB / HPCB. Samples for water and soil were also collected for further analysis.

Based on the Specific and General Conditions mentioned in the EC Letter, a Compliance Report was prepared by the Team on behalf of Project Proponent; details of which are present in Chapter – 2 entitled "**Adherence of specific and general conditions**".

This report is supposed to submit after every six month as per the conditions stipulated in Environment Clearance Order. The Environmental assessment has been carried out to verify:

- 1) That the proposed project has not any adverse effect on the project site as well as its surrounding.
- 2) That there is compliance with the conditions stipulated in the Environmental Clearance Letter.
- 3) That the Project proponent is implementing the environmental safeguards in true spirit.
- 4) The non conformity in the project with respect to the environmental implication of the project.
- 5) That the project proponent is implementing the environmental pollution mitigative measures as suggested in approved Mining Plan and Form-1, Environmental Management Plan.

**1.3 Methodology for Preparation of Report is as follows:**

- 1) Study of EC Letter & Related Documents,
- 2) Site Visits by a Team of Experts,
- 3) Monitoring of Environment Parameters, viz. Ambient Air, Water, Noise, Soil & DG Sets,
- 4) Analysis of Samples collected during Monitoring,
- 5) Interpretation of Monitoring Results,
- 6) Preparation of Semi Annual Environmental Compliance Report.

**1.4 Generic Structure of Report:**

- 1) Purpose of the Report, explaining the need of a Compliance Report and Methodology Adopted for preparation of Report.
- 2) Environment Clearance Letter, prescribing all the conditions & guidelines to be followed during construction Phase and Operation Phase of the Project.
- 3) Site Study Report, showing status of the project and site photographs.
- 4) Compliance Report, explaining the entire General & specific conditions in the EC Letter and providing details w.r.t. each condition/ guideline.
- 5) Monitoring Reports & Analysis, showing the level of emission within the project site for various Environment Parameters.

# 2

## ADHERENCE TO SPECIFIC AND GENERAL CONDITIONS

### PART A – SPECIFIC CONDITIONS

A. SPECIFIC CONDITIONS		
Sl. No.	Conditions	Reply
I.	Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court of Haryana and any other Court of Law, if any, as may be applicable to this project.	Agreed.
II.	Environmental clearance is subject to obtaining clearance, if any, under the Wildlife (Protection) Act, 1972 from the Competent Authority, as may be applicable to this project.	Agreed.
III.	The environmental clearance is valid for 12 years as the life of mine is 12 years.	Agreed.
IV.	No mining activities will be allowed in forest area, if any, for which the Forest Clearance is not available.	Agreed. NOC Forest has been obtained from DFO Bhiwani vide letter no. <b>2046 dated 26.09.2014.</b>
V.	The project proponent shall obtain Consent to Operate, from the State Pollution Control Board, Haryana and effectively implement all the conditions stipulated therein.	Agreed. Consent to Operate has been granted by HSPCB vide letter no. <b>2811915BHICTO2319640 dated 4.11.2015.</b>
VI.	Proponent shall appoint an Occupational Health Specialist for regular and periodical medical examination of the workers engaged in the project and maintain records accordingly; also, Occupational health checkups for workers having some ailments like BP, diabetes, habitual smoking etc. shall be undertaken once in six months and necessary remedial /preventive measures taken accordingly. The recommendations of National Institute for ensuring good occupational environment for mine workers shall be implemented.	Agreed. Dr. S.C. Gupta has been appointed for periodical medical examination of the workers engaged in the project and maintains records accordingly. He has also conducted occupational health checkups for workers having some ailments like BP, diabetes, habitual smoking etc. and will be undertaken once in six months and necessary remedial /preventive measures will be taken accordingly.
VII.	An independent study is organized during peak activity, to understand how the actual compare with the carrying capacities and further decisions taken to maintain sustainability of this essential stone extraction and supply activity. Project proponent shall ensure that the road may not be damaged due to transportation of stone.	Noted & Agreed.
VIII.	Implementation of Action Plan on the issues raised during the Public Hearing shall be ensured. The PP shall complete all the tasks as per the Action Plan submitted with budgetary provisions during the public hearing held on 10.10.2014.	Agreed.
IX.	The mining operations shall be restricted to above ground water table and it should not intersect groundwater table. In case of working below	Agreed. Mining activity is being carried out as per approved mining

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	ground water table, prior approval of Ministry of Environment, Forests & Climate Change and Central Ground Water Authority shall be obtained, for which a detailed hydro-geological studies shall be carried out. The report on six monthly bases on changes in ground water level and quality shall be submitted to the Regional Office of the Ministry.	plan.
X.	The pollution due to transportation load on the environment will be effectively controlled & water sprinkling will also be done regularly. Vehicles with PUC only will be allowed to ply. The mineral transportation shall be carried out through covered trucks only and the vehicles carrying the mineral shall not be overloaded. Project should obtain 'PUC' Certificate for all the vehicles from authorized pollution testing centres.	Agreed and Complied. Water sprinkling is being regularly done at the haul road. Mineral is being transported through covered trucks only within the permissible carrying capacity.
XI.	There shall be planning, developing and implementing facility of rainwater harvesting measures on long term basis in consultation with Regional Director, Central Ground Water Board and implementation of conservation measures to augment ground water resources in the area in consultation with Central Ground Water Board.	Noted & Agreed.
XII.	Use of effective sprinkler system to suppress fugitive dust on haul roads and other transport roads shall be ensured	Agreed and Complied. Water sprinkling is being regularly done at the haul road
XIII.	A comprehensive study for slope stabilization of mine benches and OB dumps shall be undertaken within one year. The clearance is only for the stone and not for any associated mineral.	Agreed.
XIV.	Washing of all transport vehicles should be done inside the mining lease.	Agreed. We ensure that washing of all vehicle does inside the mining lease.
XV.	Native plant species of Amla, Tamarind, Neem, Arjun, Bauhinia and others as suggested by villagers/specialist may be planted.	Agreed.
XVI.	Implementation of Haryana Government Rehabilitation And Resettlement of Land Owners Policy As per applicability in the area.	Noted.
XVII.	Implementation of Environment Management Policy of the Company w.r.t. Judicious use of Mineral Resources for growth & development synchronizing mining & environment with prosperity.	Agreed.
XVIII.	The project proponent shall also take all precautionary measures during mining operation for conservation and protection of endangered flora/fauna, if any, spotted in the study area.	Agreed.
XIX.	The illumination and sound at night at project site disturb the villages in respect of both human and animal's population. Consequent sleeping disorders and stress may affect the health in the villages located close to mining operations. Habitations	Agreed.



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	have a right for darkness and minimal noise level at night. Project proponent must ensure that the biological clock of villages is not disturbed; by orienting the floodlights/masks away from the villagers and keeping the noise level well within the prescribed limits for day light/night hours.	
XX.	Where ever blasting is undertaken as part of mining activity, the project proponent shall carry out vibration studies well before approaching any such habitats or other buildings, to evaluate the zone of influence and impact of blasting on the neighbourhood. Within 500 meters of such sites vulnerable to blasting vibration, avoidance of use of explosive and adoption of alternative means of mineral extraction, such as ripper/dozer combination/rock breakers/ surface minor etc. Should be seriously considered and practiced wherever practicable. A provision for monitoring of each blast should be made so that the impact of blasting on nearby habitation and dwelling units could be ascertained. The covenant of lease deed under rule 31 of MCR 1960 provides that no mining operations shall be carried out within 50 meters of public works such as public roads and buildings or inhabited sites except with the prior permission from the competent authority.	Agreed. Following precaution will be taken during the blasting: <ul style="list-style-type: none"> <li>➤ Drilling with sharp edges bits will minimize generation of noise.</li> <li>➤ Control blasting will be done with proper charge of explosive to minimize noise during blasting.</li> <li>➤ Secondary blasting will not be done.</li> <li>➤ Regular Noise monitoring is being conducting at the project site.( Lab report attached as <b>Annexure- 1</b>)</li> <li>➤ Dense plantation in mining area will also reduce the propagation of noise.</li> <li>➤ Rock breakers will be used instead of secondary blasting.</li> <li>➤ Blasting will be avoided under unfavorable atmospheric conditions.</li> </ul>
XXI.	Main haulage road in the mine should be provided with permanent water sprinklers and other roads should be regularly wetted with water tankers fitted with sprinklers.	Agreed. Water sprinkling is being regularly done at the haul road.
XXII.	Transportation of the minerals by road passing through the villages shall not be allowed. A 'bypass' road should be constructed (say, leaving a gap of at least 200 meters) for the purpose of transportation of the minerals so that the impact of sound, dust and accidents could be mitigated. The project proponent shall bear the cost towards the widening and strengthening of existing public road network in case the same is proposed to be used for the project. No road movement should be allowed on the existing village road network without appropriately increasing the carrying capacity of such roads.	Agreed. We ensure that the truck/dumpers carrying the minerals are not passing though the villages.
XXIII.	Likewise, alteration or re-routing of foot paths, pagdandies, cart roads, and village infrastructure/public utilities or roads (for purpose of land acquisition for mining) shall be avoided to the extents possible and in case such acquisition is inevitable, alternative arrangements shall be made first and only the area acquired. In these types of	Agreed.

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	cases, inspection reports by site visit by experts may be insisted upon which should be done through reputed Institute.	
XXIV.	CSR activities by Companies including the Mining Establishments has become mandatory up to 2% of their financial Turn-over, Socio Economic Development of the neighborhood Habitats could be planned and executed by the Project Proponent more systematically based on the 'Need based door to door survey' by established Social Institutes/Workers. The report shall be submitted to the Ministry of Environment & Forest and its Regional Office located at on six monthly basis.	Agreed. Rs 25 lakhs has been earmarked towards CSR activity under this project for fulfilling the requirements of villagers & Gram Panchyat.
XXV.	Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile STP, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.	Agreed and complied. Housing arrangement has been made for the labour near the site with all amenities. Whereas rest shelter, first aid facility, crèche, soak pit and other basic sanitary facilities are being developed at the mine site. All the temporary structure to be removed after the completion of the project.
XXVI.	A final mine closure plan along with details of corpus fund shall be submitted to the Ministry of Environment, Forest & Climate Change 5 years in advance of final mine closure for approval.	Agreed.

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<b>B. GENERAL CONDITIONS</b>		
<b>Sl. No.</b>	<b>Conditions</b>	<b>Response</b>
I.	No change in mining technology and scope of working shall be made without prior approval of the Ministry of Environment, Forests & Climate Change	Agreed. Mining activity is being carried out as per approved mining plan.
II.	No change in the calendar plan including excavation, quantum of mineral and waste shall be made.	Agreed.
III.	The project Proponent shall obtain necessary prior permission of the competent authorities for drawl of requisite quantity of surface water and ground water for the project.	Agreed. ground water has been submitted vide letter no. <b>4(172) A- HR/MSK-JV/NWR/S &amp; I/2014-898 dated - 02.04.2016</b>
IV.	Regular monitoring of ground water table to be carried out at the upstream and depth of water available in the dug well is to be measured. Monitoring to be done by establishing a network of existing wells and constructing new piezometers.	Monitoring of groundwater from existing dug wells and piezometers are being monitored regularly as per condition. In this reporting period, monitoring was done in Month of April ( <b>Pre monsoon</b> ) and month of August ( <b>Monsson</b> ).The monitoring reports of water quality are enclosed as <b>Annexure- 1</b> ). Data of ground water level is given in <b>chapter-3 Table – 3.11</b> .
V.	Monitoring of Ambient air quality to be carried out based on the 2009 Notification, as amended from time to time by the Central Pollution Control Board. Water sprinkling should be increased at places loading and unloading points & transfer point to reduce fugitive emissions.	Agreed. We ensure that monitoring of ambient aire quality is being carried out based on the 2009 Notification, by CPCB. Also water sprinkling is being done on regular basis. Lab report of ambient air quality is attached as <b>Annexure- 1</b>
VI.	The upliftment of scheduled caste/scheduled tribe population, specific programmes have been taken in to consideration specially with respect to education, health care, livelihood generation, infrastructure development & Promotion of sports & culture for SC/ST population and that these will be intensified in future.	Agreed.
VII.	The top-soil, if any, shall temporarily be stored at earmarked site(s) only and it should not be kept unutilized for long. The topsoil shall be used for land reclamation and plantation. The over burden (OB) generated during the mining operations shall be stacked at earmarked dump site(s) only and it should not be kept active for a long period of time. The maximum height of the dumps shall not be exceed 8m and the width 20m and overall slope of the dumps shall be maintained 45°. The OB dumps should be scientifically vegetated with suitable native species to prevent erosion and surface runoff. In critical areas, use of geo textiles shall be undertaken for stabilization of the dump. The entire	Agreed.

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	excavated area shall be backfilled and afforested. Monitoring and management of rehabilitated areas should continue until the vegetation becomes self sustaining. Compliance status shall be submitted to the Ministry of Environment, Forest & Climate Change and its Regional Office located at Chandigarh on Six monthly basis.	
VIII.	Catch drains and siltation ponds of appropriate size shall be constructed around the mine working, mineral and over burden dumps to prevent run off of water and flow of sediments directly in to the river and other water bodies. The water so collected should be utilized for watering the mine area, roads, green belt development etc. The drain shall be regularly desilted particularly after monsoon and maintained properly. The drains, settling tanks and check dams of appropriate size, gradient and length shall be constructed both around the mine pit and over burden dump to prevent run off of water and flow of sediments directly into the river and other water bodies and sumps capacity should be designed keeping 50% safety margin over and above peak sudden rainfall (based on 50 years data) and maximum discharge in the area adjoining the mine site. Sump capacity should also provide adequate retention period to allow proper settling of silt material. Sedimentation pit shall be constructed at the corners of the garland drains and desilted at regular intervals.	Agreed.
IX.	Plantation shall be raised in a 7.5m wide green belt in the safety zone around the mining lease, backfilled and reclaimed area, around water body, along the roads etc. By planting the native species in consultation with the local DFO/Agriculture Department. The density of the trees should be around 2500 plants per ha. Greenbelt shall be developed all along the mine lease area in a phased manner and shall be completed within next five years.	Agreed.
X.	Dimension of the retaining wall at the toe of over burden dumps and OB benches within the mine to check runoff and siltation shall be based on the rain fall data.	Noted & Agreed.
XI.	Effective safeguard measures such as regular water sprinkling shall be carried out in critical areas prone to air pollution and having high levels of PM10 & PM2.5 such as haul road, loading and unloading point and transfer points. It shall be ensured that the Ambient Air Quality parameters conform to the norms prescribed by the Central Pollution Control Board in this regard.	Agreed and complied. Ambient Air Monitoring is being carried out for PM10, PM2.5, SO2, and NOx monitoring. Locations of station are selected based on the meteorological conditions, topographic features and the ecological and environmental conditions Lab report is attached as <b>Annexure-1</b> .

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XII.	Regularly monitoring of the flow rate of the springs and perennial nallahs flowing in and around the mine lease shall be carried out and records maintained. Regular monitoring of water quality upstream and downstream of water bodies shall be carried out and record of monitoring data should be maintained and submitted to the ministry of Environment, Forest & Climate Change, its Regional Office Chandigarh, Central Ground water authority Regional Director, Ground Central Water Board, State Pollution Control Board and Central Pollution Control Board.	Agreed. Lab reports enclosed as <b>Annexure-1</b> .
XIII.	Regularly Monitoring of Ground Water level and quality shall be carried out in and around the mine lease by establishing a network of existing wells and constructing new piezometers during the mining operation. The monitoring shall be carried out four times in a year : Pre-monsoon (April-May), Monsoon ( August), Post monsoon ( November) and winter ( January) and the data collected may be sent regularly to the ministry of Environment, Forest & Climate Change, its Regional Office Chandigarh, Central Ground water authority Regional Director, Ground Central Water Board, State Pollution Control Board and Central Pollution Control Board	Regular monitoring of ground water level and ground water quality has been carried out in and around the mine lease. Lab reports are attached as <b>Annexur3</b> . Ground water Level monitoring data in and around the mine area for <b>pre monsoon (April)</b> and <b>Monsoon (August)</b> are given in <b>Table 3.11 of the chapter-3</b> .
XIV.	Blasting operation shall be carried out only during the day time, control blasting shall be practiced. The mitigative measures for control of ground vibrations and to arrest fly rocks and boulders should be implemented. Drills shall either be operated with dust extractors or equipped with water injection system.	Controlled blasting will be conducted during day time only and as per the approved mining scheme as well as DGMS guidelines. The mitigation measures to reduce the impact due to blasting are as follows: <ul style="list-style-type: none"> <li>➤ Controlled and Cushion blasting to reduce waste generation, ensuring the burden is one-third to one-half of the depth of hole</li> <li>➤ Proper warning signals will be used.</li> <li>➤ The number of rows in a blast is not more than four so that fly rock generation and ground vibration is reduced.</li> <li>➤ Maximum permissible charge per delay is decided on the basis of the distance of structure to be protected from the blasting.</li> <li>➤ The dampers or springs will be provided on the vehicles which are used for mining activities to reduce vibration</li> <li>➤ Regular Noise monitoring is being/will be conducting regularly at the project site. (Lab report attached as <b>Annexure-1</b>).</li> </ul>
XV.	The critical parameters such as PM10 (size less than 10 micro meter), PM2.5 (size less than 2.5 micro meter), NOx in the ambient air within the impact zone, peak particle velocity at 300m distance or within the nearest habitation, whichever is closer	Agreed. Lab reports enclosed as <b>Annexure- 1</b>

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	shall be monitored periodically. Further, quality of discharged water shall also be monitored, (TDS, DO, pH & TSS). The monitored data shall be uploaded on the website of the company as well as displayed on a display board at the project site at a suitable location near the main gate of the company in public domain. The circular no. J-20012/1/2006-IA.II(M) dated 27.05.2009 issued by Ministry of Environment, Forest & Climate Change, which is available on the website of the ministry <a href="http://www.envfor.nic.in">www.envfor.nic.in</a> shall also be referred in this regard for its compliance.	
XVI.	Four ambient air quality monitoring stations should be established in the core zone as well as in the buffer zone for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> & NO <sub>x</sub> monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive targets and frequency of monitoring should be undertaken in consultation with the State Pollution Control Board. Data on ambient air quality should be regularly submitted to the ministry including its Regional Office located at Chandigarh and the State pollution Control Board/ Central Pollution Control Board once in six months.	Agreed. Monitoring is being done with Four ambient air quality monitoring in the core zone as well as in the buffer zone for PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> & NO <sub>x</sub> monitoring. Location of the stations should be decided based on the meteorological data, topographical features and environmentally and ecologically sensitive. Lab reports are attached as <b>Annexure-1</b> .
XVII.	Fugitive dust emission from all the sources should be controlled regularly. Water spraying arrangement on haul roads, loading and unloading and at transfer points should be provided and properly maintained.	Agreed. Water sprinkling is being done at regular basis to reduce and control dust emission.
XVIII.	Measures should be taken for control of noise level below 85 dBA in the work environment. Workers engaged in operations of HEMM, etc should be provided with ear plugs/muffs	Agreed. Lab report attached as <b>Annexure- 1</b>
XIX.	Industrial waste water (workshop and waste water from the mine) should be properly collected, treated so as to conform to the standards prescribed under GSR 422 (E) dated 19 <sup>th</sup> May, 1993 and 31 <sup>st</sup> December, 1993 or as amended from time to time. Oil and grease trap should be installed before discharge of workshop effluent.	Not Applicable.
XX.	Personnel working in dusty areas should wear protective respiratory devices and they should also be provided with adequate training and information on safety and healthy aspects.	Agreed and complied.
XXI.	Occupational health surveillance program of the workers should be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures, if needed.	Agreed.
XXII.	A separate environmental management cell with	Agreed.

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	suitable qualified personnel should be set up under the control of a senior Executive, who will report directly to the head of the organization.	
XXIII.	The funds earmarked for environmental protection measures should be kept in separate account and should not be diverted for other purpose. Year wise expenditure should be reported to the ministry and its Regional Office located at Chandigarh.	Noted and Agreed.
XXIV.	The project authorities should inform to the Regional Office located at Chandigarh regarding date of financial closures and final approval of the project by the concerned authorities and the date of start of land development work.	Agreed.
XXV.	The regional office of this Ministry located at Chandigarh shall monitor compliance of the stipulated conditions. The project authorities should extend full co-operation to the officer(s) of the Regional Office by furnishing the requisite data/ information/ monitoring reports.	Agreed.
XXVI.	The project proponent shall submit six monthly reports on the status of the implementation of the stipulated environmental safeguards to the Ministry of Environment, Forest & Climate Change, its Regional Office, Chandigarh, Central Pollution Control Board and State Pollution Control Board.	Agreed. We are regularly submitting six monthly compliance reports with monitoring reports to the northern regional office of MoEF, the respective office of HSPCB and SEIAA Haryana.
XXVII.	A copy of clearance letter will be marked to concerned panchayat/ local NGO, if any, from whom suggestion/ representation has been received while processing the proposal.	Noted.
XVIII.	State Pollution Control Board should display a copy of the clearance letter at the Regional Office, District Industry Centre and Collector's Office/ Tehsildar's Office for 30 days.	Agreed & Noted.
XXIX.	The Project authorities should advertise at least in two local newspapers widely circulated, one of which shall be in the vernacular language of the locality concerned, within the 7 days of the issue of the clearance and a copy of the clearance letter is available with the state pollution Control Board and also at the website of the Ministry of Environment, Forest & Climate change at <a href="http://enfor.nic.in">http://enfor.nic.in</a> and a copy of the same should be forwarded to the Regional Office of this Ministry located Chandigarh.	Agreed & Already Complied.

# 3

## DETAILS OF ENVIRONMENTAL MONITORING

**3.0 Monitoring Portfolio:** This report is prepared for the period of April 2019 to September 2019 as per EC conditions. The samples were analyzed at NABL approved Environmental. Following environmental components has been monitored and analyzed.

1. Ambient Air Quality
2. Noise Quality
3. Water Quality
4. Soil Quality

### 3.1 AMBIENT AIR QUALITY MONITORING

#### 3.1.1 Ambient Air Quality Monitoring Stations

Ambient air quality monitoring has been carried out at 8 locations: Project site, Loading Area, 100 mtr from mine site, Haul Road, Vill- Atelakalan, Bilawal. Atela khurd, Dohka moji. 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 condition prevailing. The locations of the ambient air quality monitoring stations are given in **Table 3.1**.

**Table 3.1 Details of Ambient Air Quality Monitoring Stations**

S. No.	Location	Location Name/ Description
1.	AAQ- 1	Project site
2.	AAQ- 2	Loading Area
3.	AAQ- 3	100 mtr from mine site
4.	AAQ- 4	Haul Road
5.	AAQ- 5	Vill- AtelaKalan
6.	AAQ- 6	Vill-Bilawal
7.	AAQ- 7	Vill-Atela khurd
8.	AAQ- 8	Vill-Dohka moji

#### 3.1.2 Ambient Air Quality Monitoring Methodology

Monitoring was conducted in respect of the following parameters:

- Particulate Matter 2.5 (PM<sub>2.5</sub>)
- Particulate Matter 10 (PM<sub>10</sub>)
- Sulphur Dioxide (SO<sub>2</sub>)
- Nitrogen Dioxide (NO<sub>2</sub>)

Ambient Air Quality was monitored as per CPCB guidelines by installing RDS & FPS at each location for 24 hours.

The samples were analyzed as per standard methods specified by Central Pollution Control Board (CPCB) and IS: 5182. The techniques used for ambient air quality monitoring are given in **Table 3.2**.



**M/s MSK (JV), Stone Mine of AtelaKalan , Village- AtelaKalan, Tehsil- CharkhiDadri, District- Bhiwani (HR) (Capacity- 6 million TPA), (EC No- J-11015/74/2014-IA.II (M) dated 11<sup>th</sup> June, 2015).**

Fine Particulate Sampler instruments have been used for monitoring Particulate Matter 2.5 (PM<sub>2.5</sub> i.e. <2.5 microns), and Respirable Dust Sampler was used for sampling Respirable fraction (<10 microns), gaseous pollutants like SO<sub>2</sub>, and NO<sub>2</sub>.

**Table 3.2 Techniques used for Ambient Air Quality Monitoring**

S. No.	Parameter	Technique	Technical Protocol
1	Particulate Matter 2.5	Fine Particulate Sampler, Gravimetric Method	#SOP No. VEL/SOP/01, Section No. SP 63
2	Particulate Matter 10	Respirable Dust Sampler, with cyclone separator, Gravimetric Method	IS-5182 (Part-23)
3	Sulphur dioxide	Modified West and Gaeke	IS-5182 (Part- II)
4	Nitrogen dioxide	Jacob &Hochheiser	IS-5182 (Part-VI)

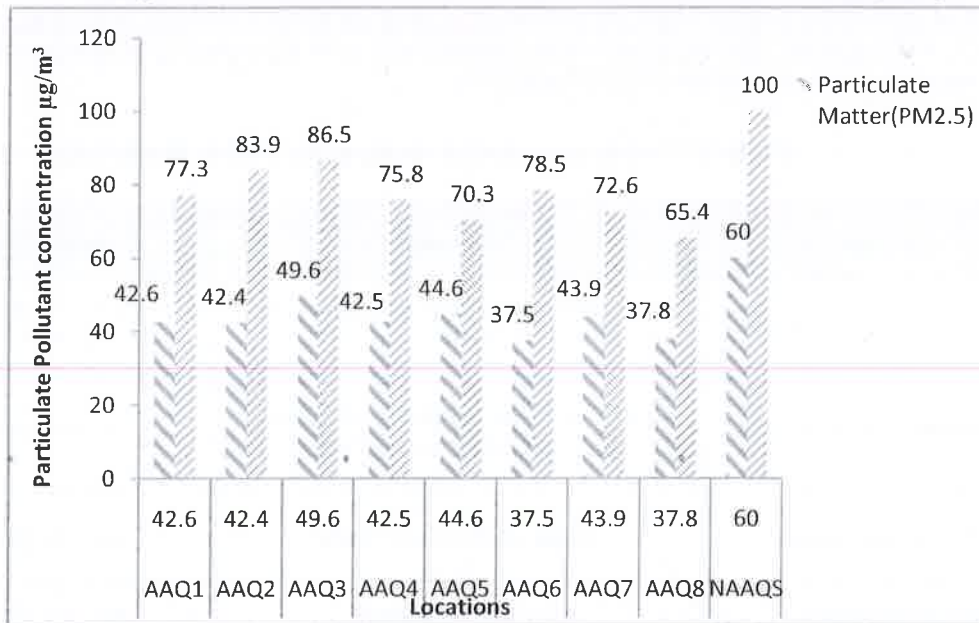
**3.1.3 Ambient Air Quality Monitoring Results**

The Detailed on-site monitoring results of PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub> and NO<sub>2</sub> are presented in **Table 3.3**.

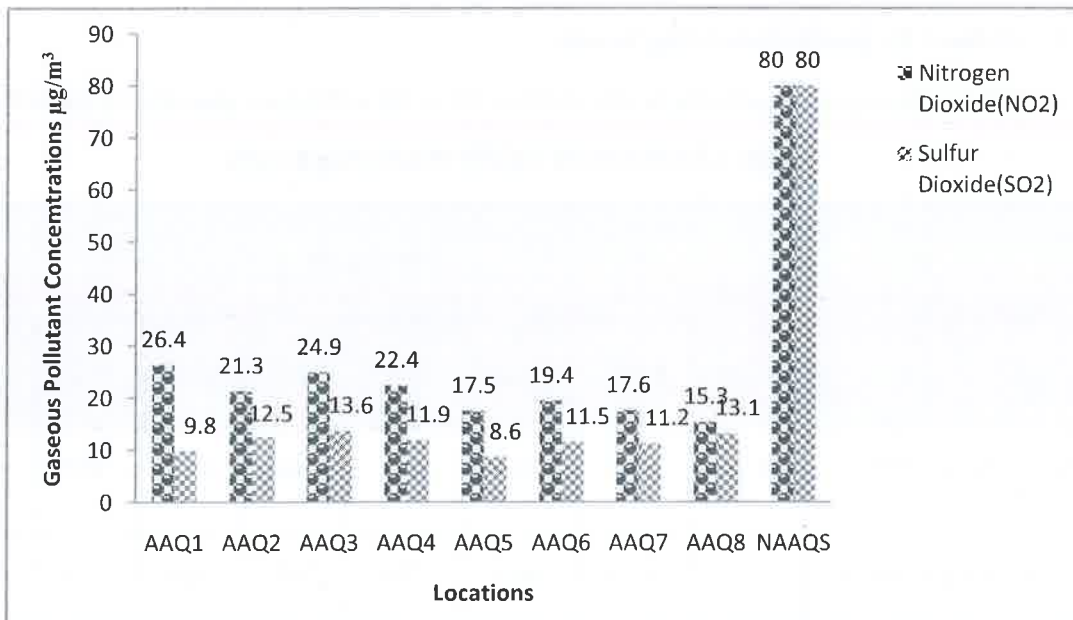
**Table 3.3 Ambient Air Quality Monitoring Results**

S. No.	Parameter	Test Result								NAAQS*
		AAQ1	AAQ2	AAQ3	AAQ4	AAQ5	AAQ6	AAQ7	AAQ8	
1.	Particulate Matter (PM <sub>2.5</sub> ), µg/m <sup>3</sup>	42.6	42.4	49.6	42.5	44.6	37.5	43.9	37.8	60
2.	Particulate Matter (PM <sub>10</sub> ), µg/m <sup>3</sup>	77.3	83.9	86.5	75.8	70.3	78.5	72.6	65.4	100
3.	Nitrogen Dioxide (NO <sub>2</sub> ), µg/m <sup>3</sup>	26.4	21.3	24.9	22.4	17.5	19.4	17.6	15.3	80
4.	Sulphur Dioxide (SO <sub>2</sub> ), µg/m <sup>3</sup>	9.8	12.5	13.6	11.9	8.6	11.5	11.2	13.1	80

**Graphical Presentation of location wise variation of Ambient Air Quality**



**Fig. 3.1 Graphical representation of particulate pollutant**



**Fig.3.2 Graphical representation of gaseous pollutant**

**3.1.4 Discussion on Ambient Air Quality in the Study Area**

The level of PM<sub>2.5</sub> and PM<sub>10</sub> at all locations was found to be in range of 37.5 to 49.6 µg/m<sup>3</sup> and 65.4 to 86.5 µg/m<sup>3</sup> respectively. The level of NO<sub>2</sub> and SO<sub>2</sub> at all locations was found to be in range of 15.3 to 26.4 µg/m<sup>3</sup> and 8.6 to 13.6 µg/m<sup>3</sup> respectively. All the results were found to be well within the prescribed NAAQS limits.

## 3.2 AMBIENT NOISE MONITORING

### 3.2.1 Ambient Noise Monitoring Locations

The main objective of noise monitoring in the study area is to assess the present ambient noise levels Near Project Site, Loading Area, 100 mtr from mine site, haul road, Vill-Atela Kalan and Village Bilawal due to various construction allied activities. A preliminary reconnaissance survey has been undertaken to identify the major noise generating sources in the area. Ambient noise monitoring was conducted at six locations at the boundary of the project site as given in **Table 3.4**.

**Table 3.4 Details of Ambient Noise Monitoring Stations**

S. No.	Location Code	Location Name/ Description
1.	N1	Near Project Site
2.	N2	Loading Area
3.	N3	100 mtr from mine site
4.	N4	Haul Road
5.	N5	Vill-AtelaKalan
6.	N6	Vill-Bilawal
7.	N7	Vill-Atela khurd
8.	N8	Vill-Dohka moji

### 3.2.2 Methodology of Noise Monitoring

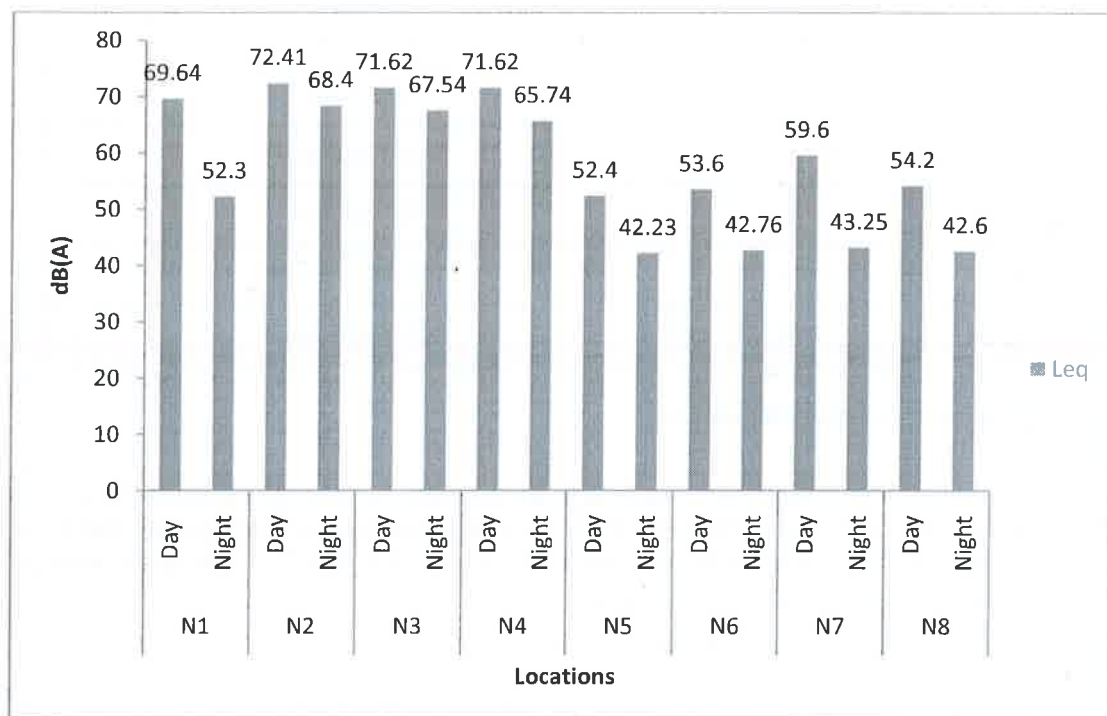
Noise levels were measured using sound level meter. Noise level monitoring was carried out continuously for 24-hours. The noise levels were monitored on working days only. During each hour Leq were directly computed by the instrument based on the sound pressure levels. Monitoring was carried out at 'A' response and fast mode.

### 3.2.3 Ambient Noise Monitoring Results

The location wise ambient noise monitoring results is summarized in **Table 3.5**. The location-wise variation of noise levels are graphically presented in **Figure 3.2**.

**Table 3.5 Ambient Noise Monitoring Results**

Parameter	N1		N2		N3		N4		N5		N6		N7		N8	
	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time	Day Time	Night Time
<b>L<sub>max</sub></b>	78.8	64.5	81.4	70.9	75.4	70.4	80.6	69.2	62.5	49.6	68.9	48.67	65.3	58.4	64.5	58.4
<b>L<sub>min</sub></b>	54.9	42.3	61.4	62.4	64.3	64.2	60.7	53.8	42.9	42.1	43.2	33.5	48.8	34.2	54.1	39.6
<b>L<sub>eq</sub></b>	69.64	52.3	72.41	68.4	71.62	67.54	71.62	65.74	52.4	42.23	53.6	42.76	59.6	43.25	54.2	42.6
<b>CPCB</b>	75.0	70.0	75.0	70.0	75.0	70.0	75.0	70.0	55.0	45.0	55.0	45.0	55.0	45.0	55.0	45.0



**Figure 3.3 Graphical Presentations of Ambient Noise Levels**

### 3.2.4 Discussion on Ambient Noise Levels in the Study Area

The Equivalent noise levels for day and night was found to be in range of 52.4 to 72.41 dB (A) and 42.23 to 68.4 dB (A) respectively. The noise levels were well within the permissible limits of NAAQS w.r.t Noise.

### 3.3 GROUND WATER QUALITY MONITORING

#### 3.3.1 Ground Water Quality Monitoring Station

Water sample was collected from the project site. The sample was analyzed for various parameters to compare with the standards for drinking water as per IS: 10500:2012 for ground water sources. The details of water sampling locations are given in **Table 3.6**.

**Table 3.6 Details of Water Quality Monitoring Station**

S. No.	Location Code	Location Name/ Description
1.	GW 1	Near Project site(Ground Water Sample) in April 2019 and August 2019
2.	GW2	Vill. -Bilwal(Ground Water Sample) in April 2019 and August 2019

#### 3.3.2 Methodology of Drinking water Quality Monitoring

Sampling of water was carried out April 2019 and August 2019. 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<sub>3</sub>. A sample for bacteriological analysis was collected in sterilized glass bottles.

Soon after the completion of sampling, chain of custody sheets for the samples are filled in and then they were transported by road for further analysis. Proper care was taken during packing and transportation of samples. All the samples reached the central laboratory within the holding times for different parameters. After ensuring the same the samples were forwarded immediately for analysis.

The samples were analyzed as per the standard procedures specified in 'Standard Methods for the Examination of Water and Wastewater' published by American Public Health Association (APHA) and CPCB. The analytical techniques and the test methods adopted for testing of water are given below:

### 3.3.3 Ground Water Quality Monitoring Results

The detailed water quality monitoring results are presented in Table 3.7, 3.8, 3.9, 3.10  
**Table 3.7 Ground Water Quality Monitoring Results (Pre Monsoon) Near Project Site**

S. No.	Parameter	Unit	Result	Limits of IS:10500 -2012	
				Requirement (Acceptable Limits)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	--	7.39	6.5 to 8.5	No Relaxation
2.	Colour	Hazen	*BDL (**DL 5Hazen)	5	15
3.	Turbidity	NTU	*BDL (**DL 0. 1 NTU)	1	5
4.	Odour	--	Agreeable	Agreeable	Agreeable
5.	Taste	--	Agreeable	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	mg/l	145.60	200	600
7.	Calcium as Ca	mg/l	23.76	75	200
8.	Total Alkalinity as CaCO <sub>3</sub>	mg/l	133.50	200	600
9.	Chloride as Cl	mg/l	50.62	250	1000
10.	#Cyanide as CN	mg/l	*BDL(**DL 0.05 mg/l)	0.05	No Relaxation
11.	Magnesium as Mg	mg/l	14.15	30	100
12.	Total Dissolved Solids	mg/l	344.00	500	2000
13.	Sulphate as SO <sub>4</sub>	mg/l	34.41	200	400
14.	Fluoride as F	mg/l	0.21	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	mg/l	5.20	45	No Relaxation
16.	Iron as Fe	mg/l	0.25	0.3	No relaxation
17.	#Aluminium as Al	mg/l	*BDL(**DL 0.02 mg/l)	0.03	0.2
18.	Boron	mg/l	0.34	0.5	1
19.	Chromium as Cr	mg/l	*BDL(**DL 0.03 mg/l)	0.05	No Relaxation
20.	Phenolic Compounds	mg/l	*BDL(**DL 0.001 mg/l)	0.001	0.002
21.	#Mineral Oil	mg/l	*BDL(**DL 0.5mg/l)	0.5	No Relaxation
22.	Anionic Detergents as MBAS	mg/l	*BDL(**DL 0.02 mg/l)	0.2	1.0
23.	Zinc as Zn	mg/l	0.20	5	15
24.	Copper as Cu	mg/l	0.42	0.05	1.5
25.	Manganese as Mn	mg/l	*BDL(**DL 0.06 mg/l)	0.1	0.3
26.	Cadmium as Cd	mg/l	*BDL(**DL 0.003 mg/l)	0.003	No Relaxation
27.	Lead as Pb	mg/l	*BDL(**DL 0.01 mg/l)	0.01	No Relaxation
28.	#Selenium as Se	mg/l	*BDL(**DL 0.01 mg/l)	0.01	No Relaxation
29.	#Arsenic as As	mg/l	*BDL (**DL 0.001 mg/l)	0.01	0.05
30.	#Mercury as Hg	mg/l	*BDL(**DL 0.001 mg/l)	0.001	No Relaxation
31.	Total Coliform	MPN/100ml	<2	Shall not be Detectable in 100ml Sample	
32.	E. Coli	MPN/100ml	Absent	Shall not be Detectable in 100ml Sample	

\*BDL- Below Detection Limit, \*\*DL- Detection Limit

# These parameters are not covered under the NABL scope.

Table 3.8 Ground Water Quality Monitoring Results (Pre Monsoon) Village- Bilawal

S. No.	Parameter	Unit	Result	Limits of IS:10500 -2012	
				Requirement (Acceptable Limits)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	--	7.54	6.5 to 8.5	No Relaxation
2.	Colour	Hazen	*BDL (**DL 5Hazen)	5	15
3.	Turbidity	NTU	*BDL (**DL 0.1 NTU)	1	5
4.	Odour	--	Agreeable	Agreeable	Agreeable
5.	Taste	--	Agreeable	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	mg/l	154.50	200	600
7.	Calcium as Ca	mg/l	25.21	75	200
8.	Total Alkalinity as CaCO <sub>3</sub>	mg/l	140.32	200	600
9.	Chloride as Cl	mg/l	54.20	250	1000
10.	#Cyanide as CN	mg/l	*BDL(**DL 0.05 mg/l)	0.05	No Relaxation
11.	Magnesium as Mg	mg/l	22.52	30	100
12.	Total Dissolved Solids	mg/l	432.00	500	2000
13.	Sulphate as SO <sub>4</sub>	mg/l	39.61	200	400
14.	Fluoride as F	mg/l	0.14	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	mg/l	7.24	45	No Relaxation
16.	Iron as Fe	mg/l	0.19	0.3	No relaxation
17.	#Aluminium as Al	mg/l	*BDL(**DL 0.02 mg/l)	0.03	0.2
18.	Boron	mg/l	0.30	0.5	1
19.	Chromium as Cr	mg/l	*BDL(**DL 0.03 mg/l)	0.05	No Relaxation
20.	Phenolic Compounds	mg/l	*BDL(**DL 0.001 mg/l)	0.001	0.002
21.	#Mineral Oil	mg/l	*BDL(**DL 0.5mg/l)	0.5	No Relaxation
22.	Anionic Detergents as MBAS	mg/l	*BDL(**DL 0.02 mg/l)	0.2	1.0
23.	Zinc as Zn	mg/l	0.63	5	15
24.	Copper as Cu	mg/l	0.25	0.05	1.5
25.	Manganese as Mn	mg/l	*BDL(**DL 0.06 mg/l)	0.1	0.3
26.	Cadmium as Cd	mg/l	*BDL(**DL 0.003 mg/l)	0.003	No Relaxation
27.	Lead as Pb	mg/l	*BDL(**DL 0.01 mg/l)	0.01	No Relaxation
28.	#Selenium as Se	mg/l	*BDL(**DL 0.01 mg/l)	0.01	No Relaxation
29.	#Arsenic as As	mg/l	*BDL(**DL 0.01 mg/l)	0.01	0.05
30.	#Mercury as Hg	mg/l	*BDL (**DL 0.001 mg/l)	0.001	No Relaxation
31.	Total Coliform	MPN/100ml	<2	Shall not be Detectable in 100ml Sample	
32.	E. Coli	MPN/100ml	Absent	Shall not be Detectable in 100ml Sample	

\*BDL- Below Detection Limit, \*\*DL- Detection Limit

# These parameters are not covered under the NABL scope.

Table 3.9 Ground Water Quality Monitoring Result (Monsoon)(Near Project site)

S. No.	Parameter	Unit	Result	Limits of IS:10500 -2012	
				Requirement (Acceptable Limits)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	--	7.34	6.5 to 8.5	No Relaxation
2.	Colour	Hazen	*BDL (**DL 5Hazen)	5	15
3.	Turbidity	NTU	*BDL (**DL 0.1 NTU)	1	5
4.	Odour	--	Agreeable	Agreeable	Agreeable
5.	Taste	--	Agreeable	Agreeable	Agreeable
6.	Total Hardness as CaCO <sub>3</sub>	mg/l	120.20	200	600
7.	Calcium as Ca	mg/l	19.62	75	200
8.	Alkalinity as CaCO <sub>3</sub>	mg/l	118.54	200	600
9.	Chloride as Cl	mg/l	43.87	250	1000
10.	#Cyanide as CN	mg/l	*BDL(**DL 0.05 mg/l)	0.05	No Relaxation
11.	Magnesium as Mg	mg/l	17.53	30	100
12.	Total Dissolved Solids	mg/l	339.00	500	2000
13.	Sulphate as SO <sub>4</sub>	mg/l	21.32	200	400
14.	Fluoride as F	mg/l	0.17	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	mg/l	4.67	45	No Relaxation
16.	Iron as Fe	mg/l	0.21	0.3	No relaxation
17.	#Aluminium as Al	mg/l	*BDL(**DL 0.02 mg/l)	0.03	0.2
18.	Boron	mg/l	*BDL(**DL 0.1 mg/l)	0.5	1
19.	Total Chromium as Cr	mg/l	*BDL(**DL 0.03 mg/l)	0.05	No Relaxation
20.	Phenolic Compounds	mg/l	*BDL(**DL 0.001 mg/l)	0.001	0.002
21.	#Mineral Oil	mg/l	*BDL(**DL 0.5mg/l)	0.5	No Relaxation
22.	Anionic Detergents as	mg/l	*BDL(**DL 0.02 mg/l)	0.2	1.0
23.	Zinc as Zn	mg/l	0.32	5	15
24.	Copper as Cu	mg/l	0.18	0.05	1.5
25.	Manganese as Mn	mg/l	*BDL(**DL 0.06 mg/l)	0.1	0.3
26.	Cadmium as Cd	mg/l	*BDL(**DL 0.003 mg/l)	0.003	No Relaxation
27.	Lead as Pb	mg/l	*BDL(**DL 0.01 mg/l)	0.01	No Relaxation
28.	#Selenium as Se	mg/l	*BDL(**DL 0.01 mg/l)	0.01	No Relaxation
29.	#Arsenic as As	mg/l	*BDL (**DL 0.001 mg/l)	0.01	0.05
30.	#Mercury as Hg	mg/l	*BDL(**DL 0.001 mg/l)	0.001	No Relaxation
31.	Total Coliform	MPN/100ml	<2	Shall not be Detectable in 100ml Sample	
32.	E. Coli	MPN/100ml	Absent	Shall not be Detectable in 100ml Sample	

\*BDL- Below Detection Limit, \*\*DL- Detection Limit

# These parameters are not covered under the NABL scope.



**M/s MSK (JV), Stone Mine of AtelaKalan , Village- AtelaKalan, Tehsil- CharkhiDadri, District- Bhiwani (HR) (Capacity- 6 million TPA), (EC No- J-11015/74/2014-IA.II (M) dated 11<sup>th</sup> June, 2015).**

**Table 3.10 Ground Water Quality Monitoring Result (Monsoon) (Vill. -Bilawal)**

S. No.	Parameter	Unit	Result	Limits of IS:10500 -2012	
				Requirement (Acceptable Limits)	Permissible limit in the Absence of Alternate Source
1.	pH (at 25 °C)	--	7.29	6.5 to 8.5	No Relaxation
2.	Colour	Hazen	*BDL (**DL 5Hazen)	5	15
3.	Turbidity	NTU	*BDL (**DL 0. 1 NTU)	1	5
4.	Odour	--	Agreeable	Agreeable	Agreeable
5.	Taste	--	Agreeable	Agreeable	Agreeable
6.	Total Hardness as	mg/l	110.38	200	600
7.	Calcium as Ca	mg/l	17.95	75	200
8.	Alkalinity as CaCO <sub>3</sub>	mg/l	131.27	200	600
9.	Chloride as Cl	mg/l	24.12	250	1000
10.	#Cyanide as CN	mg/l	*BDL(**DL 0.05 mg/l)	0.05	No Relaxation
11.	Magnesium as Mg	mg/l	16.04	30	100
12.	Total Dissolved Solids	mg/l	329.00	500	2000
13.	Sulphate as SO <sub>4</sub>	mg/l	32.41	200	400
14.	Fluoride as F	mg/l	0.20	1.0	1.5
15.	Nitrate as NO <sub>3</sub>	mg/l	4.20	45	No Relaxation
16.	Iron as Fe	mg/l	0.26	0.3	No relaxation
17.	#Aluminium as Al	mg/l	*BDL(**DL 0.02 mg/l)	0.03	0.2
18.	Boron	mg/l	0.31	0.5	1
19.	Total Chromium as Cr	mg/l	*BDL(**DL 0.03 mg/l)	0.05	No Relaxation
20.	Phenolic Compounds	mg/l	*BDL(**DL 0.001 mg/l)	0.001	0.002
21.	#Mineral Oil	mg/l	*BDL(**DL 0.5mg/l)	0.5	No Relaxation
22.	Anionic Detergents as MBAS	mg/l	*BDL(**DL 0.02 mg/l)	0.2	1.0
23.	Zinc as Zn	mg/l	0.58	5	15
24.	Copper as Cu	mg/l	0.23	0.05	1.5
25.	Manganese as Mn	mg/l	*BDL(**DL 0.06 mg/l)	0.1	0.3
26.	Cadmium as Cd	mg/l	*BDL(**DL 0.003 mg/l)	0.003	No Relaxation
27.	Lead as Pb	mg/l	*BDL(**DL 0.01mg/l)	0.01	No Relaxation
28.	#Selenium as Se	mg/l	*BDL(**DL 0.01 mg/l)	0.01	No Relaxation
29.	#Arsenic as As	mg/l	*BDL(**DL 0.01 mg/l)	0.01	0.05
30.	#Mercury as Hg	mg/l	*BDL (**DL 0.001 mg/l)	0.001	No Relaxation
31.	Total Coliform	MPN/100ml	<2	Shall not be Detectable in 100ml Sample	
32.	E. Coli	MPN/100ml	Absent	Shall not be Detectable in 100ml Sample	

\*BDL- Below Detection Limit, \*\*DL- Detection Limit

# These parameters are not covered under the NABL scope.

### 3.3.4 Discussion on Water Quality in the Study Area

The Ground water quality of project site and Vill- Bilawal are observed to be slightly alkaline and neutral in nature respectively with total alkalinity reaching up to 118.54 mg/L and 140.32 mg/L respectively in water samples within the desirable limit of 200 mg/L(600 Permissible limit ). Total Hardness in the water is 110.38 mg/L and 154.50 mg/L at project site and vill- Bilawal within prescribed limit of 200 mg/L (permissible limit of 600mg/L). However, remaining parameters are also within the CPCB prescribed limits.

### 3.3.5 Ground Water Level in and around the Mine area

The Project Proponent has installed 2 piezometers in and around the mine site. Ground water level was monitored of those piezometers. Water level of the water sources was measured automatically form the piezometer during Pre-monsoon (month of April) and during Monsoon (month of August). The data is given below in table 3.11. This shows significant recharging in monsoon season and no impact of mining activities undertaken in the area on ground water. The cross section of piezometers also shown in Figure-3.4 and Figure-3.5

**Table 3.11: Monitoring data of Piezometer in the months of April 2019 and August 2019**

Piezometers	Water Level (in mbgl) (April, 2019)	Water Level (in mbgl) (August, 2019)	Location
PZ 1	45.20	44.30	28° 34'38.4"N 76°5'41" E
PZ 2	45.30	44.50	28°34'37.9"N 76°5'43.9" E

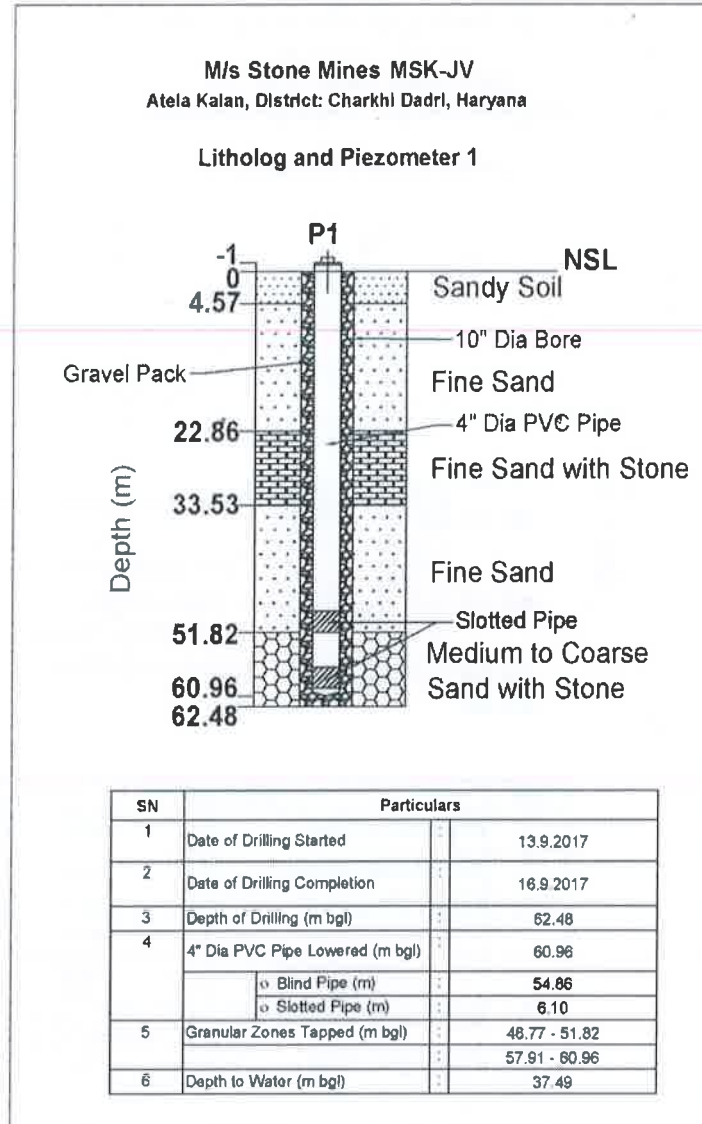


Fig 3.4: Cross section of Piezometer 1

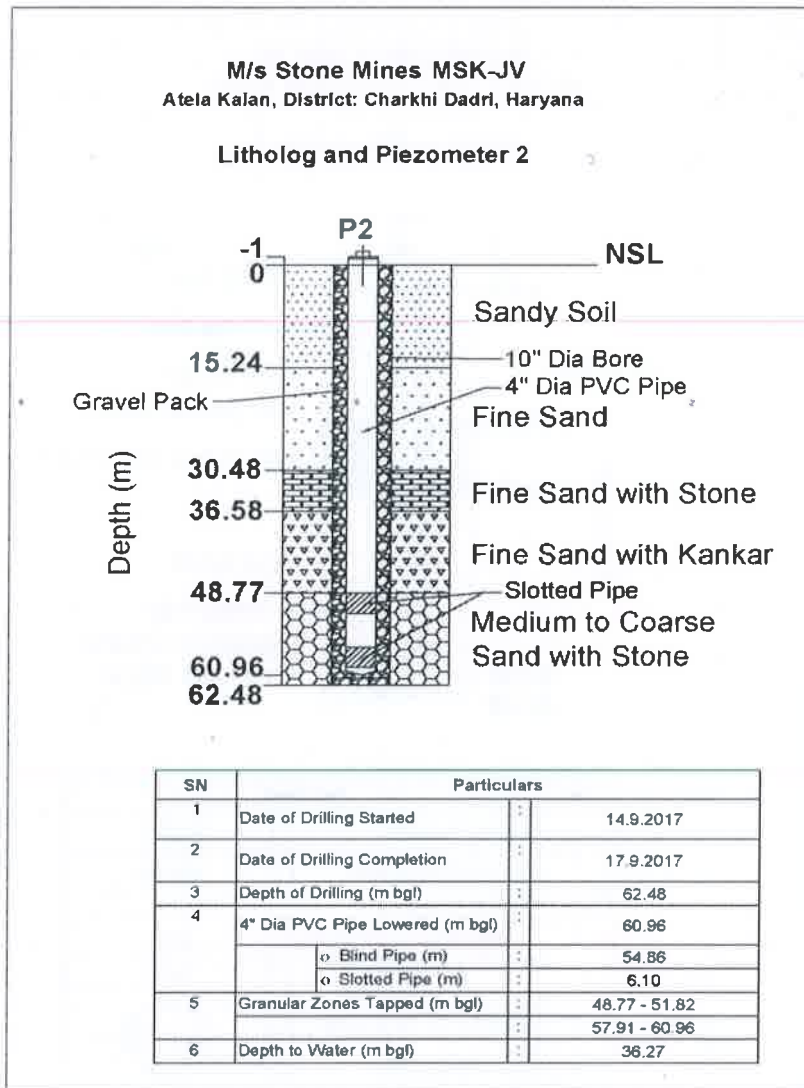


Fig 3.5: Cross section of Piezometer 2

### 3.4 SOIL MONITORING

#### 3.4.1 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, the location of which is listed in **Table 3.12**.

**Table 3.12 Details of Soil Quality Monitoring Location**

S. No.	Location Code	Location Name/ Description
1.	S1	Near project Site
2.	S2	Village -Bilawal

#### 3.4.2 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 March 2019.

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.

### 3.4.3 Soil Monitoring Results

Single sample of soil is collected from the 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 presented in **Table 3.13 and 3.14.**

**Table 3.13 Physico-Chemical Characteristics of Soil in the Study Area (Near project Site)**

S. No.	Parameter	Test-Method	Unit	Result
1.	pH (at 25 °C)	IS : 2720 (P-26) by pH Meter	--	7.45
2.	Conductivity	IS:14767 by Conductivity meter	mS/cm	0.280
3.	Soil Texture	IS : 2720 (P-22, RA2003)	--	Silty
4.	Color	SOP , SP-78,Issue No.-01& Issue Date-14/02/2013	--	Light Brown
5.	Water holding	SOP , SP-81,Issue No.-01& Issue Date-14/02/2013	%	30.84
6.	Bulk density	SOP , SP-80,Issue No.-01& Issue Date-14/02/2013	gm/cc	1.43
7.	Chloride as Cl	SOP , SP-85,Issue No.-01& Issue Date-14/02/2013	mg/100gm	46.85
8.	Calcium as Ca	SOP , SP-82,Issue No.-01& Issue Date-14/02/2013	mg/100gm	12.51
9.	Sodium as Na	SOP , SP-84,Issue No.-01& Issue Date-14/02/2013	mg/100gm	25.80
10.	Potassium as K	SOP , SP-84,Issue No.-01& Issue Date-14/02/2013	kg/hect.	50.31
11.	Organic Matter	IS:2720 (P-22) Titrimetric Method	%	0.41
12.	Magnesium as Mg	SOP , SP-83,Issue No.-01& Issue Date-14/02/2013	mg/100gm	12.21
13.	Available Nitrogen	IS:14684 Distillation Method	kg/hect.	161.32
14.	Available	SOP , SP-86,Issue No.-01& Issue Date-14/02/2013	kg/hect.	15.41
15.	Zinc as Zn	USEPA 3050B	mg/100gm	3.74
16.	Manganese as Mn	USEPA 3050B	mg/100gm	2.30
17.	Chromium as Cr	USEPA 3050B	mg/100gm	1.23
18.	Lead as Pb	USEPA 3050B	mg/100gm	0.83
19.	Cadmium as Cd	USEPA 3050B	mg/100gm	0.58
20.	Copper as Cu	USEPA 3050B	mg/100gm	3.21

SOP-Laboratory Standard operating procedure

#This parameter is not covered in our NABL scope.

**Table 3.14 Physico-Chemical Characteristics of Soil in the Study Area(Village -Bilawal)**

S. No.	Parameter	Test-Method	Unit	Result
1.	pH (at 25 °C)	IS : 2720 (P-26) by pH Meter	--	7.49
2.	Conductivity	IS:14767 by Conductivity meter	mS/cm	0.278
3.	Soil Texture	IS : 2720 (P-22, RA2003)	--	Silty
4.	Color	SOP , SP-78,Issue No.-01& Issue Date-14/02/2013	--	Light Brown
5.	Water holding	SOP , SP-81,Issue No.-01& Issue Date-14/02/2013	%	21.89
6.	Bulk density	SOP , SP-80,Issue No.-01& Issue Date-14/02/2013	gm/cc	1.61
7.	Chloride as Cl	SOP , SP-85,Issue No.-01& Issue Date-14/02/2013	mg/100gm	40.82
8.	Calcium as Ca	SOP , SP-82,Issue No.-01& Issue Date-14/02/2013	mg/100gm	21.35
9.	Sodium as Na	SOP , SP-84,Issue No.-01& Issue Date-14/02/2013	mg/100gm	23.20
10.	Potassium as K	SOP , SP-84,Issue No.-01& Issue Date-14/02/2013	kg/hect.	58.84
11.	Organic Matter	IS:2720 (P-22) Titrimetric Method	%	1.45
12.	Magnesium as Mg	SOP , SP-83,Issue No.-01& Issue Date-14/02/2013	mg/100gm	5.30
13.	Available Nitrogen as	IS:14684 Distillation Method	kg./hect.	175.20
14.	Available Phosphorus	SOP , SP-86,Issue No.-01& Issue Date-14/02/2013	kg./hect.	35.15
15.	Zinc as Zn	USEPA 3050B	mg/100gm	4.30
16.	Manganese as Mn	USEPA 3050B	mg/100gm	5.25
17.	Chromium as Cr	USEPA 3050B	mg/100gm	2.70
18.	Lead as Pb	USEPA 3050B	mg/100gm	0.73
19.	Cadmium as Cd	USEPA 3050B	mg/100gm	0.86
20.	Copper as Cu	USEPA 3050B	mg/100gm	4.71

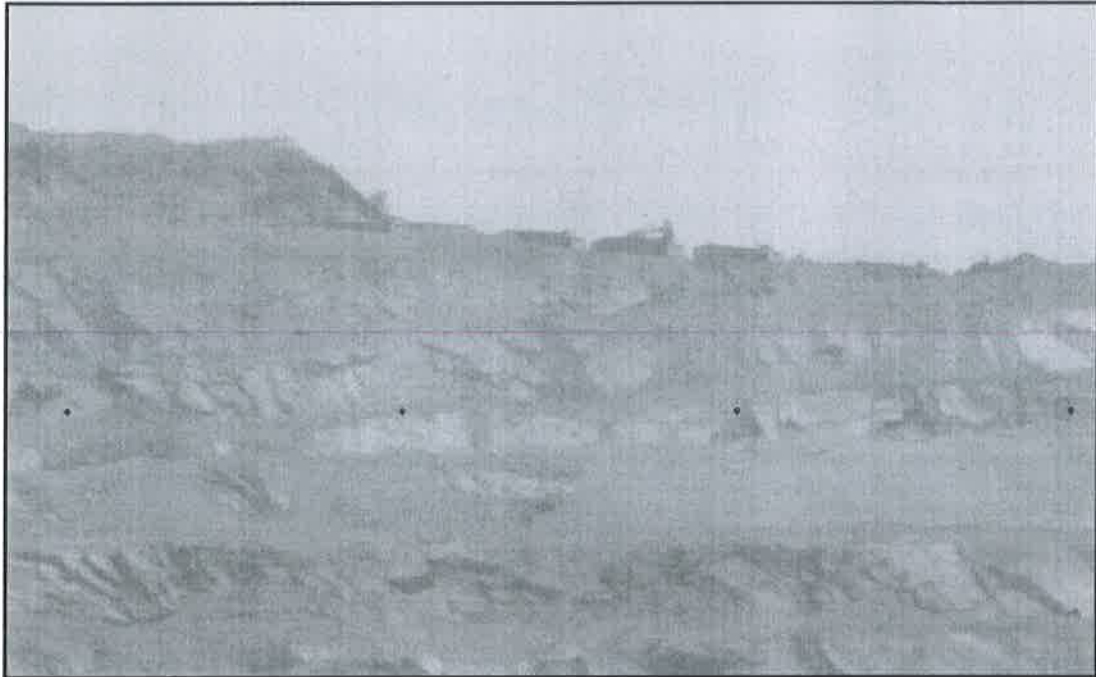
SOP-Laboratory Standard operating procedure

#This parameter is not covered in our NABL scope.

#### 3.4.4 Discussion on Soil Characteristics in the Study Area

The soil in study area is characterized by moderate organic content. The soil quality in the project area has not been affected by the project activities.

3.5 Site Photographs



Project site



Ambient Air Quality Monitoring





**Ambient Noise Monitoring**



**Plantation**





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## Test Report

Sample Number : VEL/A/1909110024

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New

Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Report No. : VEL/A/1909110024

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Near Project Site  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Sampling Equipment used : RDS & FPS  
 Instrument Code : -  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 10/09/2019 To 11/09/2019  
 Time of Monitoring : 09:00 AM To 09:00 AM  
 Ambient Temperature (°C) : Min.21°C Max.30°C  
 Surrounding Activity : Human, Vehicular Other Mining Activities  
 Scope of Monitoring : Regulatory Requirement  
 Sampling & Analysis Protocol : IS : 5182  
 Sampling Duration : 24 hours  
 Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	77.3	µg/m³	100
2	Particulate Matter (as PM - 2.5)	SOP No. VEL/SOP/01, Section No. SP 83:2013	42.6	µg/m³	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochhelser, RA:2006	26.4	µg/m³	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gæøke, RA:2012	9.8	µg/m³	80

\*\*\*End of Report\*\*\*

  
 (Tested By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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## Test Report

Sample Number : VEL/A/1909110025

Report No. : VEL/A/1909110025

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT AIR

### General information

Sampling Location : Loading Area  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : RDS & FPS  
Instrument Code : -  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 09:20 AM To 09:20 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : IS : 5182  
Sampling Duration : 24 hours  
Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	83.9	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	SOP No. VEL/SOP/01, Section No. SP 63:2013	42.4	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	21.3	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	12.5	µg/m <sup>3</sup>	80

\*\*\*End of Report\*\*\*

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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## Test Report

Sample Number : VEL/A/1909110026

Report No. : VEL/A/1909110026

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New

Format No : 7.8 F-01

Project Name:- Stone Mine of Atola Kaian,  
Village-Atelakalan, Tehsil-Charkhl Dadrl,  
District-Bhiwani, Haryana.

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT AIR

### General Information

Sampling Location : 100 Mtr. form mine site  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Sampling Equipment used : RDS & FPS  
 Instrument Code : --  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 10/09/2019 To 11/09/2019  
 Time of Monitoring : 09:40 AM To 09:40 AM  
 Ambient Temperature (°C) : Min.21°C Max.30°C  
 Surrounding Activity : Human, Vehicular Other Mining Activities  
 Scope of Monitoring : Regulatory Requirement  
 Sampling & Analysis Protocol : IS : 5182  
 Sampling Duration : 24 hours  
 Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	86.6	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	SOP No. VEL/SOP/01, Section No. SP 63:2013	49.6	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochhelser, RA:2006	24.9	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	13.6	µg/m <sup>3</sup>	80

\*\*\*End of Report\*\*\*

*Ruchi*  
(Tested By)

Ruchi Chaudhari

Analyst

(Checked By)  
Subodh Shekhawat

*Subodh*  
Deputy Technical Manager



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## Test Report

Sample Number : VEL/A/1909110027

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/A/1909110027

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Haul Road  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : RDS & FPS\*  
Instrument Code : -  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 10:00 AM To 10:00 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : IS : 5182  
Sampling Duration : 24 hours  
Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	75.8	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	SOP No, VEL/SQP/01, Section No. SP 63:2013	42.5	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochhelser, RA:2006	22.4	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	11.9	µg/m <sup>3</sup>	80

\*\*\*End of Report\*\*\*

(Tested By)  
*Ruchi Chaudhary*

Ruchi Chaudhary

(Checked By)

Subodh Shekhawat

Subodh  
Deputy Technical Manager



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## Test Report

Sample Number : VEL/A/1909110028

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/A/1909110028

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

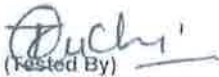
Sample Description : AMBIENT AIR

### General Information

Sampling Location : Village:- Atela Kalan  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : RDS & FPS  
Instrument Code : -  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 10:20 AM To 10:20 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : IS : 5182  
Sampling Duration : 24 hours  
Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	70.3	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	SOP No. VEL/SOP/01, Section No. SP 63:2013	44.6	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	17.5	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	08.6	µg/m <sup>3</sup>	80

\*\*\*End of Report\*\*\*

  
(Tested By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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## Test Report

Sample Number : VEL/A/1909110029

Report No. : VEL/A/1909110029

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Village:- Bilawal  
 Sample Collected by : VEL. Representative (Mr. Dilber Singh)  
 Sampling Equipment used : RDS & FPS  
 Instrument Code : -  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 10/09/2019 To 11/09/2019  
 Time of Monitoring : 10:40 AM To 10:40 AM  
 Ambient Temperature (°C) : Min.21°C Max.30°C  
 Surrounding Activity : Human, Vehicular Other Mining Activities  
 Scope of Monitoring : Regulatory Requirement  
 Sampling & Analysis Protocol : IS : 5182  
 Sampling Duration : 24 hours  
 Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	78.5	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	SOP No. VEL/SOP/01, Section No. SP 63:2013	37.5	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochheiser, RA:2006	19.4	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	11.5	µg/m <sup>3</sup>	80

\*\*\*End of Report\*\*\*

  
 (Tested By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

  
 Deputy Technical Manager



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## Test Report

Sample Number : VEL/A/1909110030

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/A/1909110030

Format No : 7 B F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

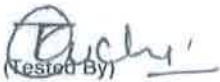
Sample Description : AMBIENT AIR

### General Information

Sampling Location : Village:-Atela Khuda  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : RDS & FPS  
Instrument Code : --  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 11:00 AM To 11:00 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : IS : 5182  
Sampling Duration : 24 hours  
Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	72.6	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	SOP No. VEL/SOP/01, Section No. SP 63:2013	43.9	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochhelser, RA:2006	17.6	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	11.2	µg/m <sup>3</sup>	80

\*\*\*End of Report\*\*\*

  
(Tested By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

  
Deputy Technical Manager



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Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
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## Test Report

Sample Number : VEL/A/1909110031

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/A/1909110031  
Format No : 7.8 F-01  
Party Reference No : Nil  
Reporting Date : 16/09/2019  
Period of Analysis : 11/09/2019-13/09/2019  
Receipt Date : 11/09/2019

Sample Description : AMBIENT AIR

### General Information

Sampling Location : Village:-Dohka Moji  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : RDS & FPS  
Instrument Code : --  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 11:20 AM To 11:20 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : IS : 5182  
Sampling Duration : 24 hours  
Parameter Required : PM -10, PM - 2.5, NO2, SO2

S.No.	Parameters	Test Method	Results	Units	Limit as per CPCB
1	Particulate Matter (as PM -10)	IS:5182 (P-23), Gravimetric Method, RA:2006	65.4	µg/m <sup>3</sup>	100
2	Particulate Matter (as PM - 2.5)	SOP No. VEL/SOP/01, Section No. SP 63:2013	37.8	µg/m <sup>3</sup>	60
3	Nitrogen Dioxides (as NO2)	IS:5182 (P-6), Jacob & Hochhelser, RA:2006	15.3	µg/m <sup>3</sup>	80
4	Sulphur Dioxide (as SO2)	IS:5182 (P-2), Modified West and Gaeke, RA:2012	13.1	µg/m <sup>3</sup>	80

\*\*\*End of Report\*\*\*

  
(Tested By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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## Test Report

Sample Number : VEL/N/1909110031

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name: - Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/N/1909110031

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : Near Project Site  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : SLM  
Instrument Code : --  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 06:00 AM To 06:00 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : CPCB  
Sampling Duration : 24 hours  
Parameter Required : Lmax., Lmin., Leq,

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	IS-9989	78.8	64.5	dB (A)
2	Lmin.	IS-9989	54.9	42.3	dB (A)
3	Leq	IS-9989	69.64	52.30	dB (A)
4	#DGMS Limits in dB(A*) Leq (Mining Area)	--	75.00	70.00	dB (A)

Note:-#DGMS:-Directorate General of mine Safety.

\*\*\*End of Report\*\*\*

  
(Tested By)  
**Ruchi Chaudhary**

Analyst

(Checked By)  
**Subodh Shekhawat**

  
Deputy Technical Manager



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## Test Report

Sample Number : VEL/N/1909110032

Report No. : VEL/N/1909110032

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : Loading Area  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Sampling Equipment used : SLM  
 Instrument Code : --  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 10/09/2019 To 11/09/2019  
 Time of Monitoring : 06:00 AM To 06:00 AM  
 Ambient Temperature (°C) : Min.21°C Max.30°C  
 Surrounding Activity : Human, Vehicular Other Mining Activities  
 Scope of Monitoring : Regulatory Requirement  
 Sampling & Analysis Protocol : CPCB  
 Sampling Duration : 24 hours  
 Parameter Required : Lmax., Lmin., Leq.

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	I S-9989	81.4	70.9	dB (A)
2	Lmin.	I S-9989	61.4	62.4	dB (A)
3	Leq	I S-9989	72.41	68.40	dB (A)
4	#DGMS Limits in dB(A*) Leq (Mining Area)	--	75.00	70.00	dB (A)

Note- #DGMS:-Directorate General of mine Safety.

\*\*\*End of Report\*\*\*

(Tested By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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## Test Report

Sample Number : VEL/N/1909110033

Report No. : VEL/N/1909110033

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : 100 Mtr. form mine site  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Sampling Equipment used : SLM  
 Instrument Code : -  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 10/09/2019 To 11/09/2019  
 Time of Monitoring : 06:00 AM To 06:00 AM  
 Ambient Temperature (°C) : Min.21°C Max.30°C  
 Surrounding Activity : Human, Vehicular Other Mining Activities  
 Scope of Monitoring : Regulatory Requirement  
 Sampling & Analysis Protocol : CPCB  
 Sampling Duration : 24 hours  
 Parameter Required : Lmax., Lmin., Leq,

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	IS-9989	75.4	70.4	dB (A)
2	Lmin.	IS-9989	64.3	64.2	dB (A)
3	Leq	IS-9989	71.62	67.54	dB (A)
4	#DGMS Limits in dB(A*) Leq (Mining Area)	--	75.00	70.00	dB (A)

Note #DGMS:-Directorate General of mine Safety.

\*\*\*End of Report\*\*\*

(Tested By)

**Ruchi Chaudhary**

Analyst

(Checked By)

**Subodh Shekhawat**

Deputy Technical Manager



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## Test Report

Sample Number : VEL/N/1909110034

Report No. : VEL/N/1909110034

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : Haul Road  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Sampling Equipment used : SLM  
 Instrument Code : --  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 10/09/2019 To 11/09/2019  
 Time of Monitoring : 06:00 AM To 06:00 AM  
 Ambient Temperature (°C) : Min.21°C Max.30°C  
 Surrounding Activity : Human, Vehicular Other Mining Activities  
 Scope of Monitoring : Regulatory Requirement  
 Sampling & Analysis Protocol : CPCB  
 Sampling Duration : 24 hours  
 Parameter Required : Lmax., Lmin., Leq.

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	I S-9989	80.6	69.2	dB (A)
2	Lmin.	I S-9989	60.7	53.8	dB (A)
3	Leq	I S-9989	71.62	65.74	dB (A)
4	#DGMS Limits in dB(A*) Leq (Mining Area)	--	75.00	70.00	dB (A)

#DGMS:-Directorate General of mine Safety.

\*\*\*End of Report\*\*\*

*(Tested By)*  
 Ruchi Chaudhary

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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## Test Report

Sample Number : VEL/N/1909110035

Report No. : VEL/N/1909110035

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : Village:-Atela Kalan  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Sampling Equipment used : SLM  
 Instrument Code : -  
 Instrument Calibration Status : Calibrated  
 Meteorological condition during monitoring : Clear Sky  
 Date of Monitoring : 10/09/2019 To 11/09/2019  
 Time of Monitoring : 06:00 AM To 06:00 AM  
 Ambient Temperature (°C) : Min.21°C Max.30°C  
 Surrounding Activity : Human, Vehicular Other Mining Activities  
 Scope of Monitoring : Regulatory Requirement  
 Sampling & Analysis Protocol : CPCB  
 Sampling Duration : 24 hours  
 Parameter Required : Lmax.,Lmin.,Leq.

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	I S-9989	62.5	49.6	dB (A)
2	Lmin.	I S-9989	42.9	42.1	dB (A)
3	Leq	I S-9989	52.40	42.23	dB (A)
4	CPCB Limits In dB(A*) Leq (Residential Area)	--	55.00	45.00	dB (A)

Note-\*A "decibel" is a unit in which noise is measured.

\*\*\*End of Report\*\*\*

*Ruchi*  
(Checked By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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## Test Report

Sample Number : VEL/N/1909110036

Report No. : VEL/N/1909110036

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : Village:-Bilawal  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : SLM  
Instrument Code : -  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 06:00 AM To 06:00 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : CPCB  
Sampling Duration : 24 hours  
Parameter Required : Lmax., Lmin., Leq.

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	I S-9989	68.9	48.8.7	dB (A)
2	Lmin.	I S-9989	43.2	33.6	dB (A)
3	Leq	I S-9989	53.60	42.76	dB (A)
4	CPCB Limits in dB(A*) Leq (Residential Area)	--	55.00	45.00	dB (A)

Note-"A" decibel" is a unit in which noise is measured.

\*\*\*End of Report\*\*\*

Rishi Chaudhary  
(Tested By)

Analyst

Subodh Shekhawat  
(Checked By)

Deputy Technical Manager

(Approved By)

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## Test Report

Sample Number : VEL/N/1909110037

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/N/1909110037

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : Village:-Atela Khurd  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : SLM  
Instrument Code : --  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 06:00 AM To 06:00 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : CPCB  
Sampling Duration : 24 hours  
Parameter Required : Lmax.,Lmin.,Leq,

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	I S-9989	65.3	58.4	dB (A)
2	Lmin.	I S-9989	48.8	34.2	dB (A)
3	Leq	I S-9989	59.60	43.25	dB (A)
4	CPCB Limits in dB(A*) Leq (Residential Area)	--	55.00	45.00	dB (A)

Note-"A" "decibel" is a unit in which noise is measured.

\*\*\*End of Report\*\*\*

  
(Tested By)  
Ruchi Chaudhary

Analyst

(Checked By)  
Subodh Shekhawat

  
Deputy Technical Manager



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## Test Report

Sample Number : VEL/N/1909110038

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/N/1909110038

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-13/09/2019

Receipt Date : 11/09/2019

Sample Description : AMBIENT NOISE

### General Information

Sampling Location : Village:-Dohka Moji  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Sampling Equipment used : SLM  
Instrument Code : --  
Instrument Calibration Status : Calibrated  
Meteorological condition during monitoring : Clear Sky  
Date of Monitoring : 10/09/2019 To 11/09/2019  
Time of Monitoring : 06:00 AM To 06:00 AM  
Ambient Temperature (°C) : Min.21°C Max.30°C  
Surrounding Activity : Human, Vehicular Other Mining Activities  
Scope of Monitoring : Regulatory Requirement  
Sampling & Analysis Protocol : CPCB  
Sampling Duration : 24 hours  
Parameter Required : Lmax., Lmin., Leq.

S.No.	Parameters	Test Method	Test Results		Units
			Day Time (6:00 am to 10:00 pm)	Night Time (10:00 pm to 6:00 am)	
1	Lmax.	I S-9989	64.5	58.4	dB (A)
2	Lmin.	I S-9989	54.1	39.6	dB (A)
3	Leq	I S-9989	54.20	42.60	dB (A)
4	CPCB Limlts in dB(A*) Leq (Residential Area)	--	55.00	45.00	dB (A)

Note-\*A "decibel" is a unit in which noise is measured.

\*\*\*End of Report\*\*\*

(Tested By)

Ruchi Chaudhary

Analyst

(Checked By)

Subodh Shekhawat

Deputy Technical Manager



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Tel: 0124-4343750, 4343752, 4343753 | lab@vardanenviro.net | bd@vardanenviro.net

# Vardan EnviroLab



Laboratory: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan)  
 Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
 NABL Accredited | ISO 9001 | ISO 14001 | OHSAS 18001

## Test Report

Sample Number : VEL/S0/1909110010

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Report No. : VEL/S0/1909110010

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-16/09/2019

Receipt Date : 11/09/2019

Sampling Date : 11/09/2019

Sample Description : SOIL

Location : Near Project Site

Sample Collected by : VEL Representative (Mr. Dilber Singh)

Parameter Required : As per work order

Sampling and Analysis Protocol : IS 2720, APHA & USDA

Sampling Quantity : 2.0 Kg.

Sampling Type : Composite

Packing Status : Temp Sealed

S.No.	Parameters	Test Method	Results	Units
1	pH (at 25°C)	IS : 2720 (P-26) By pH Meter, RA:2011	7.46	-
2	Electrical Conductivity	IS :14767,By Conductivity Meter, RA:2006	0.280	mS/cm
3	Colour	SOP, SP-85, Issue No.01:2013	Light Brown	-
4	Water holding capacity	SOP, SP-81, Issue No.01:2013	30.84	%
5	Bulk density	SOP, SP-80, Issue No.01:2013	1.43	gm/cc
6	Chloride	SOP, SP-85, Issue No.01:2013	46.85	mg/kg
7	Calcium (as Ca)	SOP, SP-82, Issue No.01:2013	12.51	mg/kg
8	Sodium (as Na)	SOP, SP-84, Issue No.01:2013	25.80	mg/kg
9	Potassium (as K)	SOP, SP-84, Issue No.01:2013	50.31	mg/kg
10	Organic Matter	IS:2720 (P-22), Titrimetric Method, RA:2009	0.41	%
11	Magnesium (as Mg)	SOP, SP-83, Issue No.01:2013	12.21	mg/kg
12	Available Nitrogen (as N)	IS:14648, Distillation Method, RA:2006	161.32	kg. /hec.
13	Phosphorus	SOP, SP-86, Issue No.01:2013	15.41	kg. /hec.
14	Total Zinc (as Zn)	USEPA 3050 B:1996	3.74	mg/kg
15	Total Manganese (as Mn)	USEPA 3050 B:1996	2.30	mg/kg
16	Total Chromium (as Cr)	USEPA 3050 B:1996	1.23	mg/kg
17	Total Lead (as Pb)	USEPA 3050 B:1996	0.83	mg/kg
18	Total Cadmium (as Cd)	USEPA 3050 B:1996	0.58	mg/kg
19	Total Copper (as Cu)	USEPA 3050 B:1996	3.21	mg/kg
20	Soil Texture	IS:2720 (P-4) RA:2006	Silty	--

\*\*\*End of Report\*\*\*

MAMUNGA NAYAK  
 (Tested By)  
 Senior Analyst

Subodh Shekhawat

(Checked By)

Deputy Technical Manager



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# Vardan EnviroLab



Laboratory: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan)  
 Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
 NABL Accredited | ISO 9001|ISO 14001|OHSAS 18001

## Test Report

Sample Number : VEL/S0/1909110011

Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Report No. : VEL/S0/1909110011

Format No : 7.8 F-01

Party Reference No : Nil

Reporting Date : 16/09/2019

Period of Analysis : 11/09/2019-16/09/2019

Receipt Date : 11/09/2019

Sampling Date : 11/09/2019

Sample Description : SOIL

Location : Village-Bilawal

Sample Collected by : VEL Representative (Mr. Dilber Singh)

Parameter Required : As per work order

Sampling and Analysis Protocol : IS 2720, APHA & USDA

Sampling Quantity : 2.0 Kg.

Sampling Type : Composite

Packing Status : \*Temp Sealed

S.No.	Parameters	Test Method	Results	Units
1	pH (at 25°C)	IS : 2720 (P-26) By pH Meter, RA:2011	7.49	-
2	Electrical Conductivity	IS :14767, By Conductivity Meter, RA:2006	0.278	mS/cm
3	Colour	SOP, SP-85, Issue No.01:2013	Light Brown	-
4	Water holding capacity	SOP, SP-81, Issue No.01:2013	21.89	%
5	Bulk density	SOP, SP-80, Issue No.01:2013	1.61	gm/cc
6	Chloride	SOP, SP-85, Issue No.01:2013	40.82	mg/kg
7	Calcium (as Ca)	SOP, SP-82, Issue No.01:2013	21.35	mg/kg
8	Sodium (as Na)	SOP, SP-84, Issue No.01:2013	23.20	mg/kg
9	Potassium (as K)	SOP, SP-84, Issue No.01:2013	58.84	mg/kg
10	Organic Matter	IS:2720 (P-22), Titrimetric Method, RA:2009	1.45	%
11	Magnesium (as Mg)	SOP, SP-83, Issue No.01:2013	5.30	mg/kg
12	Available Nitrogen (as N)	IS:14648, Distillation Method, RA:2006	175.20	kg. /hec.
13	Phosphorus	SOP, SP-86, Issue No.01:2013	32.15	kg. /hec.
14	Total Zinc (as Zn)	USEPA 3050 B:1996	4.30	mg/kg
15	Total Manganese (as Mn)	USEPA 3050 B:1996	5.25	mg/kg
16	Total Chromium (as Cr)	USEPA 3050 B:1996	2.70	mg/kg
17	Total Lead (as Pb)	USEPA 3050 B:1996	0.73	mg/kg
18	Total Cadmium (as Cd)	USEPA 3050 B:1996	0.86	mg/kg
19	Total Copper (as Cu)	USEPA 3050 B:1996	4.71	mg/kg
20	Soil Texture	IS:2720 (P-4) RA:2006	Silty	-

\*\*\*End of Report\*\*\*

Surbodh Shekhawat

Signature and stamp of the analyst.



Handwritten notes and stamps on the left side of the report.

Footer area containing various small text, logos, and contact information.

# Vardan EnviroLab



Laboratory: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan)  
 Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
 NABL Accredited | ISO 9001 | ISO 14001 | OHSAS 18001

## Test Report

Sample Number : VEL/W/1904090021  
 Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Report No. : VEL/W/1904090021  
 Format No : 7.8 F-01  
 Party Reference No : Nil  
 Reporting Date : 13/04/2019  
 Period of Analysis : 09/04/2019-13/04/2019  
 Receipt Date : 09/04/2019  
 Sampling Date : 09/04/2019  
 Sampling Quantity : 2.0 Kg.  
 Sampling Type : Grab

Sample Description : Ground Water Sample  
 Location : Near Project Site  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Preservation : Refrigerated  
 Sampling and Analysis Protocol : IS 10500 2012

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH (at 25°C)	APHA 4500 H+B Electrometric Method:2017	7.39	--	6.5 to 8.5	No Relaxation
2	Colour	APHA 2120 B Visual Comparison Method:2017	*BDL(**DL 5Hazen)	Hazen	5	15
3	Turbidity	APHA 2130 B Nephelometric Method:2017	*BDL(**DL 0.1NTU)	NTU	1	5
4	Odour	APHA 2150 B Threshold Odour Method:2017	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA 2160 B Flavor Threshold Test Method:2017	Agreeable	--	Agreeable	Agreeable
6	Total Hardness (as CaCO3)	APHA 2340 C EDTA Titrimetric Method:2017	145.60	mg/l	200	600
7	Calcium (as Ca)	APHA 3500 Ca B EDTA Titrimetric Method:2017	23.76	mg/l	75	200
8	Alkalinity (as CaCO3)	APHA 2320 B Titration Method:2017	133.50	mg/l	200	600
9	Chloride (as Cl)	APHA 4500 Cl B Argentometric Method:2017	50.62	mg/l	250	1000
10	Cyanide (as CN)	APHA 4500 CN D Titrimetric Method:2017	*BDL(**DL-0.05 mg/L)	mg/l	0.05	No Relaxation
11	Magnesium (as Mg)	APHA 3500 Mg B Calculation Method:2017	14.15	mg/l	30	100
12	Total Dissolved Solids	APHA 2540 C Gravimetric Method:2017	344.00	mg/l	500	2000
13	Sulphate (as SO4)	APHA 4500 E Turbidimetric Method:2017	34.41	mg/l	200	400
14	Fluoride (as F)	APHA 4300 F D Spands Method:2017	0.21	mg/l	1.0	1.5
15	Nitrate (as NO3)	IS 3025 (P-34), Chromotropic	5.20	mg/l	45.0	No Relaxation

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Subodh Shekhawat  
 Deputy Technical Manager

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## Test Report

Sample Number : VEL/W/1904090021

Report No. : VEL/W/1904090021

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
15		Method, RA:2003				
16	Iron (as Fe)	APHA 3500 Fe B 1,10 Phenanthroline Method:2017	0.25	mg/l	0.3	No Relaxation
17	Aluminium (as Al)	APHA 3111 D Direct Nitrous oxide Acetylene Flame Method:2017	*BDL(**DL-0.02 mg/L)	mg/l	0.03	0.2
18	Boron (as B)	APHA 4500 C Carmine Method:2017	0.34	mg/l	0.5	1.0
19	Total Chromium (as Cr)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.03 mg/L)	mg/l	0.05	No Relaxation
20	Phenolic Compounds (C6H5OH)	APHA 5530 C Chloroform Extraction Method:2017	*BDL(**DL-0.001 mg/L)	mg/l	0.001	0.002
21	Mineral Oil	APHA 5520 C Partition Infra Red:2017	*BDL(**DL-0.5 mg/L)	mg/l	0.5	No Relaxation
22	Anionic Detergents (as MBAS)	APHA 5540 C MBAS Method:2017	*BDL(**DL-0.02 mg/L)	mg/l	0.2	1.0
23	Zinc (as Zn)	APHA 3111 B Direct Acetylene Flame Method:2017	0.20	mg/l	5.0	15.0
24	Copper (as Cu)	APHA 3111 B Direct Acetylene Flame Method:2017	0.42	mg/l	0.05	1.5
25	Manganese (as Mn)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.06 mg/L)	mg/l	0.1	0.3
26	Cadmium (as Cd)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.003 mg/L)	mg/l	0.003	No Relaxation
27	Lead (as Pb)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.01 mg/L)	mg/l	0.01	No Relaxation
28	Selenium (as Se)	APHA 3114 B AAS Method	*BDL(**DL-0.01 mg/L)	mg/l	0.01	No Relaxation
29	Arsenic (as As)	APHA 3114 B AAS Method	*BDL(**DL-0.01 mg/L)	mg/l	0.01	0.05
30	Mercury (as Hg)	APHA 3112 B Cold Vapor AAS Method:2017	*BDL(**DL-0.001 mg/L)	mg/l	0.001	No Relaxation
31	Total Coliform	IS 1622:2009	<2	MPN/100 ml	Shall not be detectable in any 100 ml sample	--
32	E.Coli	IS 1622:2009	Absent	MPN/100 ml	Shall not be detectable in any 100 ml sample	--

MANJITA NAYAK  
 Senior Analyst

Subodh Shekhawat

Subodh  
 Deputy Technical Manager

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# Vardan EnviroLab



Laboratory: Plot No. 24 & 25, Narayani Vihar, B-Block, Jaipur - 302035 (Rajasthan)  
 Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
**NABL Accredited | ISO 9001|ISO 14001|OHSAS 18001**

## Test Report

Sample Number : VEL/W/1904090022  
 Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name:- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

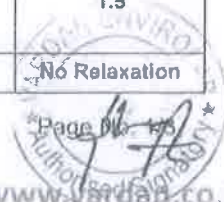
Report No. : VEL/W/1904090022  
 Format No : 7.8 F-01  
 Party Reference No : Nil  
 Reporting Date : 13/04/2019  
 Period of Analysis : 09/04/2019-13/04/2019  
 Receipt Date : 09/04/2019  
 Sampling Date : 09/04/2019  
 Sampling Quantity : 2.0 Ltr.  
 Sampling Type : Grab

Sample Description : Ground Water Sample  
 Location : Village-Bilawal  
 Sample Collected by : VEL Representative (Mr. Dilber Singh)  
 Preservation : Refrigerated  
 Sampling and Analysis Protocol : IS 10500 2012

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH (at 25°C)	APHA 4500 H+B Electrometric Method:2017	7.54	--	6.5 to 8.5	No Relaxation
2	Colour	APHA 2120 B Visual Comparison Method:2017	*BDL(**DL 5Hazen)	Hazen	5	15
3	Turbidity	APHA 2130 B Nephelometric Method:2017	*BDL(**DL 0.1NTU)	NTU	1	5
4	Odour	APHA 2150 B Threshold Odour Method:2017	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA 2160 B Flavor Threshold Test Method:2017	Agreeable	--	Agreeable	Agreeable
6	Total Hardness (as CaCO <sub>3</sub> )	APHA 2340 C EDTA Titrimetric Method:2017	154.50	mg/l	200	600
7	Calcium (as Ca)	APHA 3500 Ca B EDTA Titrimetric Method:2017	25.21	mg/l	75	200
8	Alkalinity (as CaCO <sub>3</sub> )	APHA 2320 B Titration Method:2017	140.32	mg/l	200	600
9	Chloride (as Cl)	APHA 4500 Cl B Argentometric Method:2017	54.20	mg/l	250	1000
10	Cyanide (as CN)	APHA 4500 CN D Titrimetric Method:2017	*BDL(**DL-0.0 5 mg/L)	mg/l	0.05	No Relaxation
11	Magnesium (as Mg)	APHA 3500 Mg B Calculation Method:2017	22.52	mg/l	30	100
12	Total Dissolved Solids	APHA 2540 C Gravimetric Method:2017	432.00	mg/l	500	2000
13	Sulphate (as SO <sub>4</sub> )	APHA 4500 E Turbidimetric Method:2017	39.61	mg/l	200	400
14	Fluoride (as F)	APHA 4500 F D Spands Method:2017	0.14	mg/l	1.0	1.5
15	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34), Chromotropic	7.24	mg/l	45.0	No Relaxation

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Subodh Shekhawat  
 Quality Technical Manager



# Vardan EnviroLab



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 Corp. Off: Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
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## Test Report

Sample Number : VELW/1904090022

Report No. : VELW/1904090022

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
15		Method, RA:2003				
16	Iron (as Fe)	APHA 3500 Fe B 1,10 Phenanthroline Method:2017	0.19	mg/l	0.3	No Relaxation
17	Aluminium (as Al)	APHA 3111 D Direct Nitrous oxide Acetylene Flame Method:2017	*BDL(**DL-0.0 2 mg/L)	mg/l	0.03	0.2
18	Boron (as B)	APHA 4500 C Carmine Method:2017	0.30	mg/l	0.5	1.0
19	Total Chromium (as Cr)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 3 mg/L)	mg/l	0.05	No Relaxation
20	Phenolic Compounds (C6H5OH)	APHA 5530 C Chloroform Extraction Method:2017	*BDL(**DL-0.0 01 mg/L)	mg/l	0.001	0.002
21	Mineral Oil	APHA 5520 C Partition Infra Red:2017	*BDL(**DL-0.5 mg/L)	mg/l	0.5	No Relaxation
22	Anionic Detergents (as MBAS)	APHA 5540 C MBAS Method:2017	*BDL(**DL-0.0 2 mg/L)	mg/l	0.2	1.0
23	Zinc (as Zn)	APHA 3111 B Direct Acetylene Flame Method:2017	0.63	mg/l	5.0	15.0
24	Copper (as Cu)	APHA 3111 B Direct Acetylene Flame Method:2017	0.25	mg/l	0.05	1.5
25	Manganese (as Mn)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 6 mg/L)	mg/l	0.1	0.3
26	Cadmium (as Cd)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 03 mg/L)	mg/l	0.003	No Relaxation
27	Lead (as Pb)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 1 mg/L)	mg/l	0.01	No Relaxation
28	Selenium (as Se)	APHA 3114 B AAS Method	*BDL(**DL-0.0 1 mg/L)	mg/l	0.01	No Relaxation
29	Arsenic (as As)	APHA 3114 B AAS Method	*BDL(**DL-0.0 1 mg/L)	mg/l	0.01	0.05
30	Mercury (as Hg)	APHA 3112 B Cold Vapor AAS Method:2017	*BDL(**DL-0.0 01 mg/L)	mg/l	0.001	No Relaxation
31	Total Coliform	IS 1622:2009	<2	MPN/10 0 ml	Shall not be detectable in any 100 ml sample	-
32	E.Coli	IS 1622:2009	Absent	MPN/10 0 ml	Shall not be detectable in any 100 ml sample	--

MAMATA NAYAK  
Senior Analyst

Subodh Shekhawat

Subodh  
Deputy Technical Manager

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# Vardan EnviroLab



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Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
NABL Accredited | ISO 9001 | ISO 14001 | OHSAS 18001

## Test Report

Sample Number : VEL/W/1908070025  
Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
Project Name:- Stone Mine of Atela Kalan,  
Village-Atelakalan, Tehsil-Charkhi Dadri,  
District-Bhiwani, Haryana.

Report No. : VEL/W/1908070025  
Format No : 7.8 F-01  
Party Reference No : Nil  
Reporting Date : 12/08/2019  
Period of Analysis : 07/08/2019-12/08/2019  
Receipt Date : 07/08/2019  
Sampling Date : 07/08/2019  
Sampling Quantity : 2.0 Ltr.  
Sampling Type : Grab

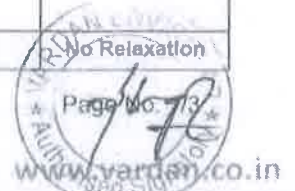
Sample Description : **Ground Water Sample**  
Location : Near Project Site  
Sample Collected by : VEL Representative (Mr. Dilber Singh)  
Preservation : Refrigerated  
Sampling and Analysis Protocol : IS 10500 2012

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH (at 25°C)	APHA 4500 H+B Electrometric Method:2017	7.34	--	6.5 to 8.5	No Relaxation
2	Colour	APHA 2120 B Visual Comparison Method:2017	*BDL(**DL 5Hazen)	Hazen	5	15
3	Turbidity	APHA 2130 B Nephelometric Method:2017	*BDL(**DL 0.1NTU)	NTU	1	5
4	Odour	APHA 2150 B Threshold Odour Method:2017	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA 2160 B Flavor Threshold Test Method:2017	Agreeable	--	Agreeable	Agreeable
6	Total Hardness (as CaCO <sub>3</sub> )	APHA 2340 C EDTA Titrimetric Method:2017	120.20	mg/l	200	600
7	Calcium (as Ca)	APHA 3500 Ca B EDTA Titrimetric Method:2017	19.62	mg/l	75	200
8	Alkalinity (as CaCO <sub>3</sub> )	APHA 2320 B Titration Method:2017	118.54	mg/l	200	600
9	Chloride (as Cl)	APHA 4500 Cl B Argentometric Method:2017	43.87	mg/l	250	1000
10	Cyanide (as CN)	APHA 4500 CN D Titrimetric Method:2017	*BDL(**DL-0.0 5 mg/L)	mg/l	0.05	No Relaxation
11	Magnesium (as Mg)	APHA 3600 Mg B Calculation Method:2017	17.53	mg/l	30	100
12	Total Dissolved Solids	APHA 2540 C Gravimetric Method:2017	339.00	mg/l	500	2000
13	Sulphate (as SO <sub>4</sub> )	APHA 4500 E Turbidimetric Method:2017	21.32	mg/l	200	400
14	Fluoride (as F)	APHA 4500 F D Spands Method:2017	0.17	mg/l	1.0	1.5
15	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34), Chromotropic	4.67	mg/l	45.0	No Relaxation

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**MANMATA NAYAK**  
Senior Analyst

**Subodh Shekhawat**  
Deputy Technical Manager



# Vardan EnviroLab



Laboratory: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan)  
 Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
 NABL Accredited | ISO 9001 | ISO 14001 | OHSAS 18001

## Test Report

Sample Number : VEL/W/1908070025

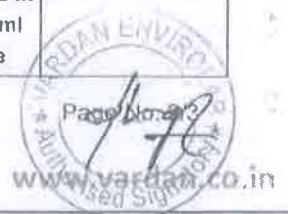
Report No. : VEL/W/1908070025

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
15		Method, RA:2003				
16	Iron (as Fe)	APHA 3500 Fe B 1,10 Phenanthroline Method:2017	0.21	mg/l	0.3	No Relaxation
17	Aluminium (as Al)	APHA 3111 D Direct Nitrous oxide Acetylene Flame Method:2017	*BDL(**DL-0.02 mg/L)	mg/l	0.03	0.2
18	Boron (as B)	APHA 4500 C Carmine Method:2017	*BDL(**DL-0.1 mg/L)	mg/l	0.5	1.0
19	Total Chromium (as Cr)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.03 mg/L)	mg/l	0.05	No Relaxation
20	Phenolic Compounds (C6H5OH)	APHA 5530 C Chloroform Extraction Method:2017	*BDL(**DL-0.001 mg/L)	mg/l	0.001	0.002
21	Mineral Oil	APHA 5520 C Partition Infra Red:2017	*BDL(**DL-0.5 mg/L)	mg/l	0.5	No Relaxation
22	Anionic Detergents (as MBAS)	APHA 5540 C MBAS Method:2017	*BDL(**DL-0.02 mg/L)	mg/l	0.2	1.0
23	Zinc (as Zn)	APHA 3111 B Direct Acetylene Flame Method:2017	0.32	mg/l	5.0	15.0
24	Copper (as Cu)	APHA 3111 B Direct Acetylene Flame Method:2017	0.18	mg/l	0.05	1.5
25	Manganese (as Mn)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.06 mg/L)	mg/l	0.1	0.3
26	Cadmium (as Cd)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.003 mg/L)	mg/l	0.003	No Relaxation
27	Lead (as Pb)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.01 mg/L)	mg/l	0.01	No Relaxation
28	Selenium (as Se)	APHA 3114 B AAS Method	*BDL(**DL-0.01 mg/L)	mg/l	0.01	No Relaxation
29	Arsenic (as As)	APHA 3114 B AAS Method	*BDL(**DL-0.01 mg/L)	mg/l	0.01	0.05
30	Mercury (as Hg)	APHA 3112 B Cold Vapor AAS Method:2017	*BDL(**DL-0.001 mg/L)	mg/l	0.001	No Relaxation
31	Total Collform	IS 1622:2009	<2	MPN/100 ml	Shall not be detectable in any 100 ml sample	--
32	E.Coli	IS 1622:2009	Absent	MPN/100 ml	Shall not be detectable in any 100 ml sample	--

**MANJITA NAYAK**  
 Senior Analyst

Subodh Shekhawat

*Subodh*  
 Deputy Technical Manager



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# Vardan EnviroLab



Laboratory: Plot No. 24 & 25, Narayan Vihar, B-Block, Jaipur - 302035 (Rajasthan)  
 Corp. Off : Plot No. 82A, Sector - 5, IMT Manesar, Gurugram - 122051 (Haryana)  
 NABL Accredited | ISO 9001 | ISO 14001 | OHSAS 18001

## Test Report

Sample Number : VEL/W/1908070026  
 Name & Address of the Party : M/s MSK (JV) S-571, Greater Kailash Part-II, New  
 Project Name :- Stone Mine of Atela Kalan,  
 Village-Atelakalan, Tehsil-Charkhi Dadri,  
 District-Bhiwani, Haryana.

Report No. : VEL/W/1908070026  
 Format No : 7.8 F-01  
 Party Reference No : Nil  
 Reporting Date : 12/08/2019  
 Period of Analysis : 07/08/2019-12/08/2019  
 Receipt Date : 07/08/2019  
 Sampling Date : 07/08/2019  
 Sampling Quantity : 2.0 Ltr.  
 Sampling Type : Grab

Sample Description : **Ground Water Sample**

Location : Village-Bilawal

Sample Collected by : VEL Representative (Mr. Dilber Singh)

Preservation : Refrigerated

Sampling and Analysis Protocol : IS 10500 2012

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
1	pH (at 25°C)	APHA 4500 H+B Electrometric Method:2017	7.29	--	6.5 to 8.5	No Relaxation
2	Colour	APHA 2120 B Visual Comparison Method:2017	*BDL(**DL 5Hazen)	Hazen	5	15
3	Turbidity	APHA 2130 B Nephelometric Method:2017	*BDL(*DL 0.1NTU)	NTU	1	5
4	Odour	APHA 2160 B Threshold Odour Method:2017	Agreeable	--	Agreeable	Agreeable
5	Taste	APHA 2160 B Flavor Threshold Test Method:2017	Agreeable	--	Agreeable	Agreeable
6	Total Hardness (as CaCO <sub>3</sub> )	APHA 2340 C EDTA Titrimetric Method:2017	110.38	mg/l	200	600
7	Calcium (as Ca)	APHA 3500 Ca B EDTA Titrimetric Method:2017	17.95	mg/l	75	200
8	Alkalinity (as CaCO <sub>3</sub> )	APHA 2320 B Titration Method:2017	131.27	mg/l	200	600
9	Chloride (as Cl)	APHA 4500 Cl B Argentometric Method:2017	24.12	mg/l	250	1000
10	Cyanide (as CN)	APHA 4500 CN D Titrimetric Method:2017	*BDL(**DL-0.0 5 mg/L)	mg/l	0.05	No Relaxation
11	Magnesium (as Mg)	APHA 3500 Mg B Calculation Method:2017	16.04	mg/l	30	100
12	Total Dissolved Solids	APHA 2540 C Gravimetric Method:2017	329.00	mg/l	500	2000
13	Sulphate (as SO <sub>4</sub> )	APHA 4500 E Turbidimetric Method:2017	32.41	mg/l	200	400
14	Fluoride (as F)	APHA 4500 F D Spands Method:2017	0.20	mg/l	1.0	1.5
15	Nitrate (as NO <sub>3</sub> )	IS 3025 (P-34), Chromotropic	4.20	mg/l	45.0	No Relaxation

MAMTA NAYAK  
 Analyst

Subodh Shekhawat  
 Manager

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## Test Report

Sample Number : VEL/W/1908070026

Report No. : VEL/W/1908070026

S.No.	Test Parameters	Test Method	Results	Units	Requirement as per IS:10500-2012	
					Acceptable Limits	Permissible Limits
15		Method, RA:2003				
16	Iron (as Fe)	APHA 3500 Fe B 1,10 Phenanthroline Method:2017	0.26	mg/l	0.3	No Relaxation
17	Aluminium (as Al)	APHA 3111 D Direct Nitrous oxide Acetylene Flame Method:2017	*BDL(**DL-0.0 2 mg/L)	mg/l	0.03	0.2
18	Boron (as B)	APHA 4500 C Carmlne Method:2017	0.31	mg/l	0.5	1.0
19	Total Chromium (as Cr)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 3 mg/L)	mg/l	0.05	No Relaxation
20	Phenolic Compounds (C6H5OH)	APHA 5530 C Chloroform Extraction Method:2017	*BDL(**DL-0.0 01 mg/L)	mg/l	0.001	0.002
21	Mineral Oil	APHA 5520 C Partition Infra Red:2017	*BDL(**DL-0.5 mg/L)	mg/l	0.5	No Relaxation
22	Anionic Detergents (as MBAS)	APHA 5540 C MBAS Method:2017	*BDL(**DL-0.0 2 mg/L)	mg/l	0.2	1.0
23	Zinc (as Zn)	APHA 3111 B Direct Acetylene Flame Method:2017	0.58	mg/l	5.0	15.0
24	Copper (as Cu)	APHA 3111 B Direct Acetylene Flame Method:2017	0.23	mg/l	0.05	1.5
25	Manganese (as Mn)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 6 mg/L)	mg/l	0.1	0.3
26	Cadmium (as Cd)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 03 mg/L)	mg/l	0.003	No Relaxation
27	Lead (as Pb)	APHA 3111 B Direct Acetylene Flame Method:2017	*BDL(**DL-0.0 1 mg/L)	mg/l	0.01	No Relaxation
28	Selenium (as Se)	APHA 3114 B AAS Method	*BDL(**DL-0.0 1 mg/L)	mg/l	0.01	No Relaxation
29	Arsenic (as As)	APHA 3114 B AAS Method	*BDL(**DL-0.0 1 mg/L)	mg/l	0.01	0.05
30	Mercury (as Hg)	APHA 3112 B Cold Vapor AAS Method:2017	*BDL(**DL-0.0 01 mg/L)	mg/l	0.001	No Relaxation
31	Total Coliform	IS 1622:2009	<2	MPN/10 0 ml	Shall not be detectable in any 100 ml sample	--
32	E.Coli	IS 1622:2009	Absent	MPN/10 0 ml	Shall not be detectable in any 100 ml sample	--

MAMATA NAYAK  
 Senior Analyst

Subodh Shekhawat

Subodh  
 Deputy Technical Manager

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