Sixteenth Quarterly Report (October to December 2018)
May 2019

India: Jaipur Metro Rail Line 1-Phase B Project


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CURRENCY EQUIVALENTS
(As of 31 December, 2018)

Currency unit - Indian Rupee (INR)
INR 1.00 = $ 0.0144
$1.00 = INR 69.57

ABBREVIATIONS
ADB  - Asian Development Bank
ADF  - Asian Development Fund
CEC  - Continental Engineering Corporation
CSC  - Construction Supervision Consultant
ES  - Environmental Specialist
DMRC - Delhi Metro Rail Corporation
EMP  - Environmental Management Plan
EA  - Execution Agency
EIA  - Environmental impact Assessment
EARF - Environmental assessment and review framework
ESMS - Environmental and social management system
EMR  - Environmental Monitoring Report
GPR  - Ground penetrating radar
HSO  - Health and Safety Officer
IEE  - Initial environmental examination
IPP  - Indigenous People Plan
JMRC  - Jaipur Metro Rail Corporation
PAM  - Project Administration Manual
PCAG - Public Consultation and Addressing of Grievances
RP  - Resettlement Plan
SHE - Safety Health & Environment Management Plan
SPS - Safeguard Policy Statement
VMR - Vibration Monitoring Results

WEIGHTS AND MEASURES

km  - Kilometer
m   - Meter

NOTES
In this report, "$" refers to US dollars

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EXECUTIVE SUMMARY

1. This report is the 16th quarterly report on environmental and social safeguards compliance of the Jaipur Metro Rail Line -1 Phase B Project. It covers the period from October 2018 to December 2018. Line 1 - Phase B of the project includes construction of 2.4 km underground portion from Chandpole to Badi Chaupar, with two stations. Line 1 – Phase B is being financed by ADB and expected to be completed by August 2019 at a cost of INR 1126 crore.

2. Jaipur Metro Rail Corporation (JMRC) is the Executing Agency for the Project. The sole civil works contract package under the project was awarded to Continental Engineering Corporation (CEC) in September 2013. The General Consultant overseeing the design and supervision of physical works is Delhi Metro Rail Corporation Limited (DMRC).

3. Status of construction works as of December, 2018 are: i) Tunnelling works have been completed. ii) Major civil construction works of both Chhoti Chaupar and Badi Chaupar stations have been completed and finishing work is in progress at both the locations. Also construction of exit-entry structures is in progress at both locations. As on December 2018, the Kund restoration works at Chotti Chaupar has been completed and the work of art gallery under the Kund area has been completed. Once the station becomes operational entry into the gallery area will be facilitated through the station. The Kund restoration works at Badi Chaupar is yet to begin. After completion of station work old water tanks will be reinstated at the location. As of December 2018 total physical and financial accomplishments are about 90.9% and 83.40% respectively.

4. No damage was reported during the tunnelling and excavation works. Extra precautions had been taken to ensure no mishap happens during the tunnelling process particularly on the Chandpole gate, a protected monument under the Rajasthan law which stands directly above the metro alignment. 12 prisms had been installed on both sides of Chandpole gate to keep a check on the vibrations with monitoring the reading every hour. Additionally, 10 crack meter and six strips of glass have also been put on the gate to receive any information if the cracks widen. Moreover, eight Multi Point Borehole Extensometer (MPBX) have been installed at the depth of 2.5 meter and 5 meter. The status of all the relevant structures have been regularly monitored. Sites are being regularly visited by JMRC Heritage/structural experts i.e., M/s Abha Narain Lambah Associates and M/s Shashank Mehendale & Associates. However, in the reporting period, instrumentation and vibration monitoring were not carried out since the tunnelling work has already been completed.

5. The project is running behind initially planned schedule. This is mainly due to design changes and discovery of two ancient tanks which were buried right in the path of the alignment. These tanks once brought water to the city centre from the surrounding Aravilli hills. To preserve the tanks, the Jaipur Metro Rail Corporation has altered the design to the station and alignment. The tunnel has been lowered by about one meter and made incidental design changes to accommodate the tanks above the metro stations at Chhoti and Badi Chaupar. Another design change that resulted in delay is the decision to tunnel through Chhoti Chaupar station instead of retrieving and re-launching the TBMs at Chhoti Chaupar. This was done to avoid disturbance to general public and business community. Also at Badi Chaupar, the station was lowered to accommodate proposed subway and retrieving shaft location was changed to minimize the period of road blockage.

6. The environmental and social safeguards of the project are being implemented in compliance with the loan covenants, project agreement and contractor is complying with the proposed mitigation measures described in the Environmental Management Plan (EMP);
Safety, Health and Environment (SHE) Manual and the contract specifications. The implementations of environmental and social safeguards are being monitored at Project Management and General Consultant (GC) level. With exception of a few issues, the project is being implemented in compliance with project requirements.

7. A baseline study was carried out on heritage structures located in the project area in 2014 before the start of work of Phase 1B. During this reporting period i.e. from October 2018 to December 2018 no major changes in the condition of structures have been reported in comparison with the baseline study.

8. The study identified a list of structures that needed repair and immediate actions. The list of structures requiring immediate action was submitted to Jaipur Nagar Nigam, so that to ensure no damage during the tunneling work. Preventive measures like propping of the verandahs and repair of shops along the entire road that falls above the underground metro alignment were taken up during the tunneling work and beyond.

9. For structures located around the Chaupars (station sites) where construction works are ongoing, proactive measures of providing propping support to unstable structures is already in place and are taken care by the contractor under instructions of the 'engineer' (General Consultants). In addition, regular monitoring of weak structures through installation of crack, tilt, vibration meters and building settlement markers is also being done on regular basis. Water proofing of the roof and strengthening of Chandpole gate has been done to improve the life of the structure as a voluntary and additional protection measure by JMRC.

10. The minor social and resettlement impacts such as the acquisition of a strip of private land (10 by 10 meters) outside Chandpole station and at the tunnel construction start point, as the shops (3 Shopkeepers) on that strip are blocking traffic. JMRC has already rehabilitated the shop owners across the Chandpole Metro Station near Church land. 6 Temples at Chhoti Chaupar, which were infringing the station box area have already been rehabilitated and given built up structures as per their satisfaction at Old Atish market land. Rozgareshwar Temple at Chhoti Chaupar will be relocated back to its original position after completion of Station work at Chhoti Chaupar. 7 temples at Badi Chaupar have been identified which are infringing the station box area. Out of these 7, 5 temples have been shifted at the land behind Manak Chowk Thana and 2 temples at Tanwarji Nauhra.

11. Civil Administration and JMRC has ensured round the clock availability of Rescue team consisting of Ambulance, Civil defense, Earth moving Machines & Crane, staff from Jaipur Discom and PHED. This is to ensure quick response to any problem which may arise during construction.

12. After complete and detailed documentation of both the Chaupars and after completion of station work, as per the directions of Government, under supervision of heritage consultant, heritage water tank at Choti Chaupar has been reinstated at its original location and a new Art Gallery has been constructed around it. The Kund and Art Gallery at Choti Chaupar were inaugurated by Hon’ble Chief Minster Rajasthan on 15th August 2018 and both of them were opened for public in the month of September 2018.

13. The construction works are proceeding in accordance with the provisions of the EMP such as review of monitoring reports, regulatory compliance action plan and approval by the GC. The environmental monitoring plan is successfully being implemented by the JMRC through an instrumentation company M/s AMIL engaged by executing agency with the approval of ‘Engineer’.
14. JMRC and DMRC officials have regularly been meeting with the local people and business associations in the project area to inform them about the construction works. Measures have been taken to address concerns of the local businesses such as stopping of work and providing proper pathways for customers during festivals. All reports and information on the project is disclosed on the JMRC website. In addition JMRC has a full-time Public Relation Officer dealing with media/press issues and also maintains a facebook page and twitter account for disclosing project information and responding to queries and concerns from the general public.

15. Various proactive measures are being taken to implement project in compliance with requirements, prevent damages to heritage structures, coordination with relevant agencies, communicate with the public and address grievances of the local public. Areas such as public communications, documentation and reporting need further enhancement.

16. There were no significant environmental impacts observed during the reporting period. All environments related observations are regularly recorded and monitored and in case of any short-comings necessary corrective measures are taken up.
2. INTRODUCTION

A. Purpose of the Report

17. The objective of environmental monitoring is to allow ADB and the Jaipur Metro Rail Corporation (JMRC) gather information to: i) evaluate the environmental management plan (EMP) progress by establishing compliance status, ii) detect and correct non-conformances, iii) identify unanticipated impacts and implement necessary mitigation measures, and iv) provide evidence to support enforcement of penalty provisions of the civil works contract to deter non-compliance.

18. Environmental monitoring and disclosure of quarterly or semi-annual monitoring reports is an ADB requirement for environmental category-A projects like Jaipur Metro Rail Line-1 Phase B. Environmental monitoring is part of project implementation process to be complied by both ADB and JMRC. The preparation and submission of the quarterly or semi-annual monitoring reports is the responsibility of JMRC while supervision to provide guidance is the role of ADB.

19. As many sensitive heritage structures of the Pink City exist above the metro underground alignment, it was agreed during project preparation that quarterly environmental monitoring reports will be prepared and disclosed for this project. Since the significant physical construction works started in July 2015, the first environmental and social semi-annual monitoring report for the period July 2014 - December 2014 has been submitted to ADB and disclosed on ADB and JMRC websites. Thereafter quarterly monitoring reports are being regularly submitted to ADB and disclosed on ADB and JMRC websites. This is the Sixteenth quarterly environment and social monitoring report for reporting period October 2018 to December 2018.

B. Project Description

20. Jaipur, the capital of the Indian state of Rajasthan, is one of the fastest growing cities in India. The fast paced industrial and commercial development has resulted in a steep rise in travel demand, but the city’s existing public transport infrastructure is inadequate in terms of capacity and service. With the growing economy, passengers are shifting to private modes of transport, as evident in the rise in vehicle ownership, aggravating congestion and pollution. The modal share for public transport was 19% in 2009—one of the lowest in cities with more than 3 million inhabitants in India.

21. In 2009, Jaipur Development Authority developed a comprehensive mobility plan, seeking to provide an overall transport plan, up to 2031, that emphasizes the pre-eminence of public transport for the movement of people, not just vehicles, and integrating land use with transport networks. The plan recommended, among others, the development of high capacity metro lines along the east–west corridor of 12 km from Mansarovar to Badi Chaupar, and the north–south corridor of 23 km (approx.) from Ambabadi to Sitapura. In January 2010, the government of Rajasthan established the Jaipur Metro Rail Corporation (JMRC) to implement the metro rail lines. Line 1- Phase A (9.6 km elevated portion from Mansarovar to Chandpole) and Line 1-Phase B (2.4 km underground portion from Chandpole to Badi Chaupar, with two stations).

22. Line 1 – Phase B is being financed by ADB and expected to be completed by August 2019 at a cost of INR 1126 Crore\(^2\). Figure 1 show the system map of the project.

Source: JMRC

Figure 1. JMRC Project System Map

\(^2\) https://www.jaipurmetrorail.in/Present%20Status.
C. Project Implementation Arrangement

23. The Government of Rajasthan acting through the Urban Development and Housing Department and Jaipur Metro Rail Corporation (JMRC) is the executing agency of the Project. JMRC has established an environment safeguard cell to look after implementation and monitoring of the safeguard measures associated with the Project. It constitutes six officials of JMRC. Organization structure of Safeguards Cell is shown in Figure 2.

![Organization Structure of Safeguards Cell of JMRC](image)

D. Project Implementation Progress

24. As of December 2018 total physical and financial accomplishments are about 90.90% and 83.40% respectively. The status of various construction activities is provided in the Table 1. Photolog demonstrating the progress of works is provided in Appendix 1.
## Table 1: Status of Construction Works as of December, 2018

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Activities</th>
<th>Location</th>
<th>Estimated quantity <em>(in cum)</em></th>
<th>Status</th>
<th>Location</th>
<th>% Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Earthworks: Earthwork is to be done for construction of Launching shaft at Chandpole, construction of underground stations at Chhoti Chaupar and Badi Chaupar by cut &amp; cover method. During the tunneling earth will be excavated with Tunnel Boring Machine (TBM-I &amp; II).</td>
<td>Location</td>
<td>Estimated quantity <em>(in cum)</em></td>
<td>Status</td>
<td>Location</td>
<td>% Completion</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chandpole</td>
<td>8000</td>
<td></td>
<td>Chandpole</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chhoti Chaupar</td>
<td>146000</td>
<td></td>
<td>Chhoti Chaupar</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Badi Chaupar</td>
<td>165000</td>
<td></td>
<td>Badi Chaupar</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tunneling Work</td>
<td>125808</td>
<td></td>
<td>Tunneling Work</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cut &amp; Cover Badi Chaupar</td>
<td>70000</td>
<td></td>
<td>Cut &amp; cover Badi Chaupar</td>
<td>0 %</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chhoti Chaupar (Entry-Exit)</td>
<td>20843</td>
<td></td>
<td>Chhoti Chaupar (Entry-Exit)</td>
<td>92%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Badi Chaupar (Entry-Exit)</td>
<td>26437</td>
<td></td>
<td>Badi Chaupar (Entry-Exit)</td>
<td>60%</td>
</tr>
<tr>
<td>2</td>
<td>Soil Disposal:</td>
<td>Location</td>
<td>Estimated quantity <em>(in cum)</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chandpole</td>
<td>8000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chhoti Chaupar</td>
<td>146000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Badi Chaupar</td>
<td>165000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tunneling Work</td>
<td>125808</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cut &amp; cover Badi Chaupar</td>
<td>70000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chhoti Chaupar (Entry-Exit)</td>
<td>20843</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Badi Chaupar (Entry-Exit)</td>
<td>26437</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Estimated quantity of soil which will be disposed during complete project duration

1. Mathuradaspura
2. Amer fire station
3. 4th Battalion, RPC, Chainpura
4. Nahargarh biological park
5. Rajasthan police academy
6. JDA park, Hathigaon
7. Police head qtr. Jaipur
8. Police line, Jaipur

Jaypr Development Authority has allotted following soil disposal sites vide letter dated 01.09.2014

1. Mathuradaspura
2. Nahargarh biological park
3. JDA Park, Hathigaon

Jaipur Nagar Nigam has allotted following soil disposal sites vide letter dated 08.09.2014/18.04.17/31.03.17/24.04.17/17.05.17/20.04.17:-

1. 4th Battalion, Chainpura
2. Amer Fire station
3. Police line, Jaipur
4. Rajasthan Police Academy

Jaipur Development Authority has allotted for dumping C&D waste at Khasra No.-1, Area 41.08 Bigha situated at revenue village, MalpuraChoud, Tehsil, Jaipur

The above mentioned seven muck disposal sites are not exclusively given for metro project. These sites are also being used by other
agencies for disposal of muck and in some cases even disposal of C&D waste. JMRC or its contractor is not responsible for maintenance of these sites. However, adequate precaution has been taken by the contractor to avoid nuisance and air pollution during dumping process.

➢ Soil disposed at different disposal sites during the reporting period is as under:

<table>
<thead>
<tr>
<th>Location</th>
<th>Disposal quantity (in cum)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rajasthan Police Academy</td>
<td>8241.00</td>
</tr>
<tr>
<td>Back filling at stations</td>
<td>493.00</td>
</tr>
</tbody>
</table>

On an average 94.93 cubic meter of muck was transported daily to the dumping ground or for station back filling. Muck is transported only during night time to avoid nuisance to general public. Wheels of every truck leaving the site with muck are washed/ cleaned before entering public carriage to avoid deposition and spillage. Also the truck is covered with tarpaulin sheet to avoid dust pollution enroute to dumping ground. The dumping ground will be compacted to avoid generation of dust. The route map and photographs of dumping site are annexed as Appendix 7.
<table>
<thead>
<tr>
<th>S.N.</th>
<th>Activities</th>
<th>Location</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Vegetation and Plant Clearing:</td>
<td>Location of the trees as per survey which are to be cut or located as under:</td>
<td>Details of trees cut or transplanted is as under:</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Location</strong></td>
<td><strong>Trees transplanted</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Metro route</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Entry/Exit at Chhoti Chaupar &amp; Badi Chaupar</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ancillary Building area at Chhoti Chaupar</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>The tree species include Gulmohar, Banyan tree &amp; Pipal tree.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The trees have been transplanted at GhatkiGhuni, Sylvan Bio diversity forest Agra road Jaipur &amp; Ram Niwas Bagh, JDA Jaipur.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In total 83 trees have been transplanted at three locations viz. Ghat Ki Ghuni, Ramniwas Garden and Sylvan Bio-diversity forest. The survival rate as on December, 2018 is 50%. All efforts are being made for the survival of the transplanted trees.

In addition, transplantation the contractor has carried out multiple tree plantation drive at Casting yard, Ram Niwas Bagh and Project office, PHQ. As on December, 2018 246 saplings have been planted at aforementioned locations. Photographs and additional details on tree plantation are annexed as Appendix-8.
<table>
<thead>
<tr>
<th>S.N.</th>
<th>Activities</th>
<th>Location</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Another, 3000 no. of trees have been planted at Ghat Ki Guni and Nahargarh forest area through Forest Department.</td>
</tr>
<tr>
<td>4</td>
<td>Utility Shifting:</td>
<td>Chandpole – Launching shaft</td>
<td>Status during reporting period is as under:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electric cables</td>
<td>Chandpole – Launching shaft</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Water supply lines</td>
<td>Water supply lines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telecom lines</td>
<td>Telecom lines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chhoti Chaupar</td>
<td>Chhoti Chaupar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electric cables</td>
<td>Water supply lines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telecom lines</td>
<td>Telecom lines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Badi Chaupar</td>
<td>Badi Chaupar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Electric cables</td>
<td>Water supply lines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Telecom lines</td>
<td>Telecom lines</td>
</tr>
<tr>
<td>5</td>
<td>Traffic Management and Diversion:</td>
<td>Chandpole Launching Shaft</td>
<td>Traffic Management &amp; traffic is smooth without any diversion.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Traffic from Station Road to Jhotwara Road has been diverted via Pareek College Road.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chhoti Chaupar</td>
<td>Chhoti Chaupar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Direct access from Chandpole Bazar to Tripolia Bazar. Traffic is diverted via Nahargarh Road – Gangauri Bazar – Cheeni Ki Burj.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Badi Chaupar</td>
<td>Badi Chaupar</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Traffic Diversion Plan has been submitted.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Launching shaft:</td>
<td>Chandpole</td>
<td>Launching shaft work has been completed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Launching shaft is to be constructed for tunnel boring machine. A launching shaft has diaphragm wall/concrete wall and it is built to be permanent. Once the access shaft is completed, Tunnel Boring Machine will be lowered to the bottom and excavation will start. Launching shaft is the main</td>
<td></td>
</tr>
<tr>
<td>S.N.</td>
<td>Activities</td>
<td>Location</td>
<td>Status</td>
</tr>
<tr>
<td>------</td>
<td>-----------</td>
<td>----------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>entrance &amp; exit of the tunnel until project is complete.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Launching shaft is rectangular in shape and constructed with reinforce cement concrete M50 grade. Walls of launching shaft are 800 mm thick. Dimension of launching shaft at Chandpole is 24m X 20m and a depth of 14m.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**7 Tunnel Boring Machine**

Tunnel boring machine will be used in excavating and advancing tunnels through any type of ground strata for the complete tunnelling work.

The underlying principle of the EPB method is that the excavated soil or muck itself is used to provide continuous support to the tunnel face by balancing earth pressure against the forward pressure of the machine.

As the shield advances at the face, the cutter head on the TBM rotates through the earth. The excavated soil is then mixed together with a special foam material that actually alters its viscosity or thickness and transforms it into flowing material. The use of a foaming agent to break down muck into a liquefied form provides some obvious benefits. The muck is then stored and controlled in a pressurized chamber located inside the cutter head, and is used to apply support and balance pressure to the tunnel face during the excavation process. The foam acts as a lubricant that conditions the soil to a suitable fluidity, in effect reducing the risk of clogging in the pressurized chamber head or muck storage area.

The main activities of these TBMs are as under:

<table>
<thead>
<tr>
<th>TBM 1</th>
<th>TBM 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refurbishment</td>
<td>Refurbishment</td>
</tr>
<tr>
<td>Lowering in launching shaft</td>
<td>Lowering in launching shaft</td>
</tr>
<tr>
<td>Tunneling work</td>
<td>Tunneling work</td>
</tr>
<tr>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>(1875 m) tunneling completed.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TBM-1</th>
<th>TBM-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tunneling Work</td>
<td>Tunneling work</td>
</tr>
<tr>
<td>2000</td>
<td>2000</td>
</tr>
<tr>
<td>1000</td>
<td>1000</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.N.</td>
<td>Activities</td>
</tr>
<tr>
<td>------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>A screw conveyor then removes excess fluidized muck in controlled volumes from behind the cutter head and in front of the &quot;Pressure bulkhead&quot;, synchronizing the screw conveyor with the actual speed of the tunnel boring machine, and equalizing the actual volume of soil travelling into and out of the machine and establishes earth pressure balance during excavation, thereby also reducing the risk of surface or ground settlement. The performance of the EPBV machine, however, largely depends on the actual properties of the excavated muck. The soil may be coarse sands, gravel or stiff clays. The EPB TBM also has the unique capability of placing a continuous ring of segment liners from within the tail shield of the machine inside the tunnel as it advances. These concrete segments provide critical additional reinforcement and support and accomplish all tunnel construction in one pass. Tunneling works from Chandpole to Badi Chaupar will be done by the two TBMs. Diameter of the cutting head of TBM is 6.55 meter. The tunnel size is of 5.60 meter internal diameter.</td>
</tr>
<tr>
<td>S.N.</td>
<td>Activities</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>8</td>
<td>Segment casting:</td>
</tr>
<tr>
<td></td>
<td>Internal lining of the tunnel will be done by precast reinforced cement</td>
</tr>
<tr>
<td></td>
<td>concrete segments. The segments are to be constructed with M 50 concrete</td>
</tr>
<tr>
<td></td>
<td>having outer diameter of 6.35 meter. One ring comprises 6 segments.</td>
</tr>
<tr>
<td></td>
<td>Segment casting will be done at casting yard in Bhankarota.</td>
</tr>
<tr>
<td>9</td>
<td>Guide wall and D wall at Chhoti Chaupar &amp; Badi Chaupar stations:</td>
</tr>
<tr>
<td></td>
<td>For the construction of D-Wall initially guide walls are</td>
</tr>
<tr>
<td></td>
<td>constructed so as to keep the D-Wall in proper alignment.</td>
</tr>
<tr>
<td></td>
<td>Guide walls are constructed with reinforce cement concrete of M20 grade.</td>
</tr>
<tr>
<td></td>
<td>The thickness of guide wall is about 600 mm and depth is 1.5 m.</td>
</tr>
<tr>
<td></td>
<td>Diaphragms walls are constructed with reinforce cement concrete of M35</td>
</tr>
<tr>
<td></td>
<td>grade. The thickness of diaphragms wall is about 800 mm and depth is about 26 m.</td>
</tr>
<tr>
<td>10</td>
<td>Roof Slabs at Chhoti Chaupar &amp; Badi Chaupar Station</td>
</tr>
<tr>
<td></td>
<td>Stations are to be constructed with top down method. Top slab, roof slab,</td>
</tr>
<tr>
<td></td>
<td>concourse slab &amp; base slab are to be constructed.</td>
</tr>
</tbody>
</table>

### Table

<table>
<thead>
<tr>
<th>Location</th>
<th>Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chhoti Chaupar</td>
<td></td>
</tr>
<tr>
<td>Guide Wall</td>
<td>590</td>
</tr>
<tr>
<td>D-Wall</td>
<td>590</td>
</tr>
<tr>
<td>Badi Chaupar</td>
<td></td>
</tr>
<tr>
<td>Guide Wall</td>
<td>590</td>
</tr>
<tr>
<td>D-Wall</td>
<td>590</td>
</tr>
</tbody>
</table>

### Table

<table>
<thead>
<tr>
<th>Location</th>
<th>% Completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chhoti Chaupar</td>
<td></td>
</tr>
<tr>
<td>Guide Wall</td>
<td>100% (590)</td>
</tr>
<tr>
<td>D-Wall</td>
<td>100% (590)</td>
</tr>
<tr>
<td>Badi Chaupar</td>
<td></td>
</tr>
<tr>
<td>Guide Wall</td>
<td>100% (590)</td>
</tr>
<tr>
<td>D-Wall</td>
<td>100% (590)</td>
</tr>
</tbody>
</table>

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### Area (sqm)

<table>
<thead>
<tr>
<th>Location</th>
<th>Area (sqm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chhoti Chaupar</td>
<td></td>
</tr>
<tr>
<td>Top slab</td>
<td>7000</td>
</tr>
<tr>
<td>Roof slab</td>
<td>7000</td>
</tr>
<tr>
<td>Concouse</td>
<td>7000</td>
</tr>
<tr>
<td>Base slab</td>
<td>7000</td>
</tr>
<tr>
<td>Badi Chaupar</td>
<td></td>
</tr>
<tr>
<td>Top slab</td>
<td>7000</td>
</tr>
<tr>
<td>Roof slab</td>
<td>7000</td>
</tr>
<tr>
<td>Concouse</td>
<td>7000</td>
</tr>
<tr>
<td>Base slab</td>
<td>7000</td>
</tr>
<tr>
<td>S.N.</td>
<td>Activities</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Establishment of construction camp:</td>
</tr>
<tr>
<td></td>
<td>➢ A construction camp for laborers has been established near to casting yard area in November 2014.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Other Facilities:</td>
</tr>
<tr>
<td></td>
<td>➢ Batching Plant,</td>
</tr>
<tr>
<td></td>
<td>➢ Laboratory,</td>
</tr>
<tr>
<td></td>
<td>➢ RO Plant</td>
</tr>
<tr>
<td></td>
<td>➢ Chiller Plant</td>
</tr>
<tr>
<td></td>
<td>➢ Diesel Generating Set</td>
</tr>
<tr>
<td></td>
<td>➢ Briquette Boiler</td>
</tr>
<tr>
<td></td>
<td>Following facilities are provided at casting Yard, Bhankrota:</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>S.N.</td>
<td>Activities</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------</td>
</tr>
<tr>
<td>13</td>
<td>Establishment and operation of quarry/borrow area:</td>
</tr>
<tr>
<td></td>
<td>For the construction work following material is sourced:</td>
</tr>
<tr>
<td></td>
<td>➢ Sand</td>
</tr>
<tr>
<td></td>
<td>➢ Aggregate</td>
</tr>
<tr>
<td></td>
<td>➢ Cement</td>
</tr>
<tr>
<td></td>
<td>➢ Steel</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
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</tr>
</tbody>
</table>

3. COMPLIANCE TO SAFEGUARDS PROVISIONS IN AGREEMENTS UNDER THE PROJECT

A. Compliance to Loan Agreement

25. The environmental and social safeguard requirements are explicit provided in the Loan Agreement 3062-IND between ADB and State of Rajasthan through the Urban Development and Housing Department (UDH) and Jaipur Metro Rail Corporation (JMRC). These loan agreement provisions and compliance status are provided in Table 2.
<table>
<thead>
<tr>
<th>S.N.</th>
<th>Environmental Provision</th>
<th>Compliance Status</th>
</tr>
</thead>
</table>
| 1    | **Schedule 4. Item 7(a):**  
Conditions for awards of contracts, commencement of Works:  
7. As condition for award of any contract under the project the EA shall ensure the following:  
a. JMRC shall not award any Works contract which involves environmental impacts until JMRC incorporated the relevant provisions from the EMP and SHE into the Works contract. | Complied.  
SHE (Safety, Health and Environment) Manual and Environmental Management Plan (EMP) is a part of bidding document. Section 6 of Contract Agreement includes condition of contract on SHE and EMP, requiring the Contractor to implement the EMP and comply with requirements of SHE. |
| 2    | **Schedule 4. Item 8:**  
Conditions for award of contracts; commencement of Works:  
8. “As a condition for commencement of Works contract under the Project which involves environmental impacts and if it requires environmental clearances, the State thorough the JMRC shall ensure that the final approval of environmental clearances including the EIA, SHE, from appropriate authority has been obtained.” | Complied.  
The project did not require environmental clearance, as railways including metro projects in India are not included in the EIA Notification 2006 of GoI. |
| 3    | **Schedule 5. Item 3:**  
Environment  
3. “The Borrower shall ensure or cause the State through JMRC to ensure that the preparation, design, construction, implementation, operation and decommissioning of the Project facilities comply with (i) all applicable laws and regulations of the Borrower and State relating to environment, health, and safety including SHE; (ii) the Environmental Safeguards; and (iii) all measures and requirements set forth in the EIA and the EMP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.” | Being complied.  
➢ Requirements on permits and clearance are being followed.  
➢ SHE is strictly being complied with.  
➢ Requirements of EIA and EMP are being implemented. |
| 4    | **Schedule 5. Item 4(a):**  
Land Acquisition and Involuntary Resettlement  
4 (a) Where the need arises, the Borrower shall ensure or cause the State through JMRC | Being complied.  
All land acquisition and resettlement activities are implemented as per
to ensure that all land and all rights-of-way required for the Project, and all Project facilities are made available to the Works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with (i) all applicable laws and regulations of the Borrower and State relating to land acquisition and involuntary resettlement; (ii) the Involuntary Resettlement Safeguards; and (c) all measures and requirements set forth in the respective RP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report.

| 5 | **Schedule 5. Item 4 (b)**  
**Land Acquisition and Involuntary Resettlement**  
4 (b) Without limiting the application of the Involuntary Resettlement Safeguards, or the RP, the Borrower shall ensure or cause the State through JMRC to ensure that no physical or economic displacement takes place in connection with the Project until: (a) compensation and other entitlements have been provided to affected people in accordance with the RP; and (b) a comprehensive income and livelihood restoration program has been established in accordance with the RP. | Being complied.  
Compensation and other entitlements have been provided to affected people in accordance with applicable laws by JMRC. |
| 6 | **Schedule 5. Item 5**  
**Indigenous Peoples**  
5. Where the need arises, the Borrower shall ensure or cause the State through JMRC to ensure that the preparation, design, construction, implementation and operation of the Project, and all Project facilities comply with (a) all applicable laws and regulations of the Borrower and the State relating to indigenous peoples; (b) the Indigenous Peoples Safeguards; and (c) all measures and requirements set forth in the respective IPP, and any corrective or preventative actions set forth in a Safeguards Monitoring Report. | Not applicable.  
No issues on Indigenous peoples have arisen during the reporting period. |
| 7 | **Schedule 5. Item 6(a) & 6(b)** | Being complied. |
### Human and Financial Resources to Implement Safeguards Requirements

6 (a) “The Borrower shall ensure or cause the State through JMRC to ensure that all necessary budgetary and human resources to fully implement the EMP, and the RP and the IPP as required”

6 (b) “The Borrower shall ensure or cause the State through JMRC to ensure that at least one expert each is designated to supervise implementation of the EMP, and the RP and the IPP as required”

- Safeguards cell comprising of 06 officers has been established in JMRC since 2013.
- A JV of M/s Abha Narain Lambah Associates and M/s Shashank Mehendale & Associates has been engaged as Heritage Consultant through ICB.
- The Heritage Consultant is to monitor the heritage structures lying along the metro route of Phase 1B.
- JMRC has also engaged 3 senior Archaeological Consultants to supervise the excavation of Chhoti Chaupar and Badi Chaupar.
- Safeguards experts are part of the PMC (DMRC) team and civil works contractor team.
- Adequate budget allocation has been made for implementation of safeguards activities.

### Schedule 5. Item 7(a)


7 (a) “comply with the measures and requirements relevant to the contractor set forth in the EIA, the EMP, SHE, the RP and the IPP as applicable (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set out in a Safeguards Monitoring Report.

Being complied.

Safeguards experts are part of the PMC (DMRC) and civil works contractor teams are implementing safeguard measures. Adequate budget allocation is being made for implementation of safeguards activities.

### Schedule 5. Item 7(b)


7 (b) “make available a budget for all such environmental and social measures”

Being complied.

### Schedule 5. Item 7(c)

Safeguards-Related Provisions in Bidding Documents and Works Contract.

7 (c) “provide the JMRC with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks

Being complied.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>if any, or impacts that arise during construction, implementation or operation of the Project that were not considered in the EIA, the EMP, and the RP and the IPP if any;”</td>
</tr>
<tr>
<td>11</td>
<td><strong>Schedule 5. Item 8(a)</strong></td>
</tr>
<tr>
<td></td>
<td>8 (a) submit quarterly Safeguards Monitoring Reports to ADB and disclose relevant information from such reports to affected persons promptly upon submission”</td>
</tr>
<tr>
<td></td>
<td>Appropriate measures are being and will be taken to address these issues, as they arise.</td>
</tr>
<tr>
<td>12</td>
<td><strong>Schedule 5. Item 8(b)</strong></td>
</tr>
<tr>
<td></td>
<td>8 (b) “if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the EIA, the EMP, SHE, and RP and IPP as applicable, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan.</td>
</tr>
<tr>
<td></td>
<td>Being complied.</td>
</tr>
<tr>
<td></td>
<td>Quarterly Environmental and Social Monitoring Reports are being timely submitted by JMRC to ADB. The reports are also being disclosed on ADB and JMRC websites.</td>
</tr>
<tr>
<td>13</td>
<td><strong>Schedule 5. Item 8(c)</strong></td>
</tr>
<tr>
<td></td>
<td>8 (c) Report any breach of compliance with the measures and requirements set forth in the EMP, SHE and the RP or the IPP if any, promptly after becoming aware of the breach.</td>
</tr>
<tr>
<td></td>
<td>Being complied.</td>
</tr>
<tr>
<td>14</td>
<td><strong>Schedule 5. Item 9</strong></td>
</tr>
<tr>
<td></td>
<td>9. The Borrower shall ensure or cause the State through JMRC to ensure that no proceeds of the Loan under the Project are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of ADB’s Safeguard Policy Statement (2009).</td>
</tr>
<tr>
<td></td>
<td>Being complied</td>
</tr>
<tr>
<td>15</td>
<td><strong>Schedule 5. Item 10</strong></td>
</tr>
</tbody>
</table>
Other Social Measures

10. The EA shall ensure that civil works contracts under the Project follow all applicable labor laws of the Borrower and State and that these further include provisions to the effect that contractors; (i) carry out HIV/AIDS awareness programs for labor and disseminate information at worksites on risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction; and (ii) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts shall also include clauses for termination in case of any breach of the stated provisions by the contractors.

Complied.

➢ Various awareness programs have been conducted during the reporting period.
➢ Special Swachh Bharat Abhiyaan (Clean India campaign) awareness campaign conducted from 15th September to 2nd October 2018 at JMRC UG-1B project sites.
➢ Health & Hygiene awareness program conducted at project sites.
➢ Mass Tool Box Talk conducted every month for awareness of all workers, prizes and incentives.
➢ Monthly environmental training, physical training and general housekeeping training are conducted.

Details of Awareness Programs and trainings are provided in Appendix 2

11. The EA shall ensure the safety and status of the heritage sites and structures involved in the Project site at its own cost and in this regard ensure all appropriate steps included as detailed in the PAM.

Being complied.

➢ In the bidding document, provision was made to conduct Baseline Building condition survey, wherein the structural stability of structures lying on 30 m on either side of the route alignment of Phase 1B was recorded so as to help monitor any changes which may occur during construction.
➢ JMRC through CEC (AIMIL) got the Building Condition Survey before commencement of work at site.
➢ For the purpose of monitoring heritage structures along with the metro route alignment of Phase 1B, JMRC has engaged Heritage Consultant M/s Abha Narain Lambah Associates and M/s Shashank Mehandale& Associates (JV).
B. Compliance to Project Administration Manual

26. The Project Administration Manual (PAM) describes how the JMRC will implement the project and deliver the results on time, with quality, within budget, and in accordance with government and Asian Development Bank (ADB) policies and procedures. The PAM is mandatory and serves as the main document describing implementation details. The status of implementing the safeguards requirements set out in PAM are provided in Table 3.

Table 3: Compliance to PAM

<table>
<thead>
<tr>
<th>SN</th>
<th>Details</th>
<th>Compliance Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Section VII.</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Safeguards</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>40. Implementation of SHE and EIA.</strong></td>
<td>Being complied.</td>
</tr>
<tr>
<td></td>
<td>The safeguards cell within JMRC will coordinate and ensure that all environment safeguard requirements under the project are met. The SHE and EIA report including site specific EMP will be included in the contract documents. The contractors must include in their bid adequate budget for implementation of all items in the SHE and EIA. The safeguards cell through the project management consultant (Delhi Metro Rail Corporation) will monitor and report on the environmental compliance of contractors with the SHE and EIA and ensure proper implementation of the grievance and redress mechanism. Key implementation activities for each stage of the project are as follows:</td>
<td>Sample monthly monitoring report is provided in Appendix 3.</td>
</tr>
<tr>
<td>2.</td>
<td>(i)Pre-construction:</td>
<td>Complied.</td>
</tr>
<tr>
<td></td>
<td>All contractors will complete the following activities no later than 30 days from the issuance of Notice to Proceed:</td>
<td></td>
</tr>
</tbody>
</table>

➢ Mitigation and preventive measures are being taken up by M/s CEC in order to avoid any damage.

<table>
<thead>
<tr>
<th>SN</th>
<th>Details</th>
<th>Compliance Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Submit appointment letter and resume of the Contractor’s Health and Safety Officer (HSO) who will be the on-site focal person for environment safeguards;</td>
<td>SHE and EIA have been discussed in detail by HSO with CSC-Environment Specialist, and JMRC safeguards cell.</td>
</tr>
<tr>
<td>2.</td>
<td>HSO will engage CSC-Environment Specialist, and JMRC safeguards cell to a meeting to discuss in detail the SHE and EIA seek clarification and recommend corresponding revisions if necessary;</td>
<td>Formats for Monthly Monitoring Reports have been finalized with CSC-Environment Specialist. Monitoring report is being sent on monthly basis in prescribed format.</td>
</tr>
<tr>
<td>3.</td>
<td>HSO will request CSC-ES copy of monthly monitoring formats and establish deadlines for submission;</td>
<td>HSO has submitted plan and action is being taken accordingly.</td>
</tr>
<tr>
<td>4.</td>
<td>HSO will submit for CSC-ES approval an action plan to secure all permits and approvals needed during construction stage such as for operation of crushers and hot mix plants, transport and storage of hazardous materials, waste disposal sites, use of ground water etc.</td>
<td>Formats for Monthly Monitoring Reports have been finalized with CSC-Environment Specialist. Monitoring report is being sent on monthly basis in prescribed format.</td>
</tr>
<tr>
<td>5.</td>
<td>HSO will submit for approval of CSC-ES the construction camp layout before its establishment where camps are required, and</td>
<td>Camp has been constructed as per approved layout diagram.</td>
</tr>
<tr>
<td>6.</td>
<td>Before start of construction, the contractor will post signs in and around the construction site with information on the names, positions, contact numbers, and addresses of key people for receiving grievances</td>
<td>Adequate relevant signage has been displayed. Photolog is in Appendix 1.</td>
</tr>
</tbody>
</table>

3. **(ii)Construction:**

The JMRC safeguards cell through the PMC will monitor the Contractor’s compliance to the SHE and EIA. In case of non-conformances, the safeguards cell will recommend corrective measures and ensure their timely implementation. If any unanticipated impacts become apparent, the safeguards cell will inform ADB. If required the EIA report will be updated, and mitigation measures and resources to address the new impacts will be identified

4. **(iii)Post-construction:**

The safeguards cell through the PMC will certify works completed in accordance with SHE and EIA and ensure all construction sites are satisfactorily rehabilitated and restored or otherwise recommend withholding of payments

5. **41. PMC Environmental Specialist:**

Complied.
<table>
<thead>
<tr>
<th>SN</th>
<th>Details</th>
<th>Compliance Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>JMRC will ensure PMC (Delhi Metro Rail Corporation) to provide an Environmental Specialist who will, full time during construction, to monitor compliance by the contractor to the SHE and EIA in support of JMRC safeguard cell. The key qualification and experience consist of (a) minimum of a Master’s Degree in Environmental Impact Assessment (EIA) or Environmental Engineering correlated subjects; and (b) experience of minimum of 5 years of working experience in conducting Environmental Assessments, implementing and/or supervising environment management activities in infrastructure projects. The objective is to ensure contractor’s compliance to the Safety Health and Environment (SHE) Guidelines and EIA in accordance with the requirements of the ADB Safeguard Policy Statement (SPS) 2009 as well as relevant policies of the Government of India. The main output is the Quarterly monitoring report during the construction period. The responsibilities include:</td>
<td>Mr. S.A. Verma, GM/DMRC Delhi is designated by PMC as its Environmental specialist to monitor compliance by the Contractor for SHE and EIA. His assistants are doing full time monitoring in Jaipur.</td>
</tr>
<tr>
<td></td>
<td>6. • Review EIA report including site specific EMP and SHE guidelines to understand the environmental issues in the project area and mitigation and monitoring requirements of the project.</td>
<td>Complied.</td>
</tr>
<tr>
<td></td>
<td>• Update the site specific EMP if there are any significant changes in the project scope or environmental conditions to incorporate all new environmental issues and mitigation measures</td>
<td>Being complied.</td>
</tr>
<tr>
<td></td>
<td>• Prepare monitoring checklists/templates for daily or weekly monitoring on implementation of the SHE and site specific EMP by the contractor.</td>
<td>Complied.</td>
</tr>
<tr>
<td></td>
<td>• Organize a consultation meeting with JMRC safeguards cell, contractors Health and Safety Officers (HSO), Site Engineer and Heritage Expert before the start of physical works to clarify roles and responsibilities of each party. After start of physical works organize a coordination meeting at least every quarter to provide updates, clarify and follow up on pending issues etc.</td>
<td>Being complied.</td>
</tr>
<tr>
<td></td>
<td>• Where necessary organize technical training programs to enhance the field level staff’s understanding on environmental issues such as</td>
<td>Being complied.</td>
</tr>
<tr>
<td>SN</td>
<td>Details</td>
<td>Compliance Status</td>
</tr>
<tr>
<td>----</td>
<td>---------</td>
<td>-------------------</td>
</tr>
<tr>
<td>1</td>
<td>Health impacts of dust and noise, waste/debris disposal and management, safety issues etc.</td>
<td>Environmental training programs are conducted on regular basis. The training is conducted by contractor’s HSO. If required additional training will be provided by third party agencies on environmental issues. Details of training sessions are provided in Appendix 2.</td>
</tr>
<tr>
<td></td>
<td>• Monitor implementation of the SHE and site specific EMP by the contractor on a daily or weekly basis. In doing so complete the daily or weekly monitoring checklists.</td>
<td>Being complied. Monitoring of implementation of SHE and site specific EMP are being done by Contractor’s HSO on regular basis. SHE meeting is held with participation from JMRC, DMRC and Contractor and sub-contractors to ensure compliance and implementation of SHE requirements and EMP.</td>
</tr>
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<td></td>
<td>• Provide site based technical advice to the contractors where necessary during construction activities</td>
<td>Site based technical advice to the contractors is being given by DMRC experts.</td>
</tr>
<tr>
<td></td>
<td>• Co-ordinate with the contractor’s site engineers on monitoring and data collection on noise and vibration generated during tunnelling works and operation of heavy machinery</td>
<td>PMC’s environment team is coordinating with contractor’s site engineers on monitoring and data collection on noise and vibration generated during operation of heavy machinery. It will also be monitored during tunneling works.</td>
</tr>
<tr>
<td></td>
<td>• Coordinate with the Heritage Expert on getting data on monitoring and status of heritage structures above ground.</td>
<td>PMC’s environment team is coordinating with the Heritage Expert on getting data on monitoring and status of heritage structures above ground.</td>
</tr>
<tr>
<td></td>
<td>• Facilitate the functioning of the Grievance Redress Mechanism and maintain proper records of all environment related grievances and details on how they were addressed.</td>
<td>A system is in place to facilitate the functioning of the Grievance Redress Mechanism and maintain proper records of all environment related grievances and details on how they are addressed.</td>
</tr>
<tr>
<td></td>
<td>• Prepare quarterly Environmental Monitoring reports based on monitoring site visits, completed checklists and quarterly meetings for submission to JMRC safeguards cell and ADB. Amongst other environment safeguard issues, the monitoring report must cover:</td>
<td>Being complied.</td>
</tr>
<tr>
<td></td>
<td>➢ compliance to the SHE and site specific EMP by the contractor</td>
<td>➢ For compliance of the SHE and site specific EMP by the contractor regular visit is being done by the Environmental team of CSC.</td>
</tr>
<tr>
<td></td>
<td>➢ vibration monitoring activities conducted by contractor’s engineers</td>
<td>➢ For monitoring of the vibration during the construction instrumentation has been done by M/s CEC as per approval given by CSC. The monitoring was carried out by a third party agency i.e. M/s. AIMILI.</td>
</tr>
<tr>
<td></td>
<td>➢ grievances redress mechanism</td>
<td>➢ Grievances redress mechanism is in place.</td>
</tr>
<tr>
<td></td>
<td>➢ monitoring and status of heritage sites above ground</td>
<td>➢ For monitoring the status of heritage site above the ground a Heritage Consultant i.e. M/s Abha Narain Lambah Associates and M/s Shashank Mehendale and Associates (JV) has been appointed by JMRC. During</td>
</tr>
</tbody>
</table>
7. **42. Monitoring of Heritage Structures**

JMRC through DMRC will retain at its own cost the current Heritage architect as the Heritage site expert during construction of the underground metro section. The expert will be responsible for conducting a baseline survey of heritage sites above the metro alignment and conducting regular monitoring of the status of the heritage sites throughout the construction period. The expert will be responsible for coordinating necessary procedures if any historical/traditional artefacts are found during tunneling works. He/she will also provide advice on technical measures during construction to prevent damages to the heritage structures. In the event of any damage to a heritage structure he/she will immediately alert JMRC and recommend appropriate mitigation or restoration measures. Key outputs are: (a) Monthly monitoring report; (b) No damage on heritage structures; and (c) in the event of damage, implementation of immediate restoration and mitigation measures. The main responsibilities are:

- Being complied.
- JMRC through competitive bidding has engaged heritage consultant M/s Abha Narain Lambah Associates and M/s Shashank Mehendale & Associates (JV) to monitor the heritage structures lying along the metro route of Phase 1B.
- JMRC has also engaged 3 senior Archaeology Consultants to supervise the excavation of Chhoti Chaupar and Badi Chaupar.
- Heritage Consultant got conducted Baseline survey for existing building’s condition along the metro route and has submitted Building Inventory report.
- Structural survey of buildings along the metro route has also conducted and submitted report, wherein they categorized buildings under 3 categories
  1. Unstable Structures requiring preventive propping and immediate demolition/ evacuation.
  2. Part of structure unstable requiring propping & partial replacement/demolition.
  3. No major instability.

These reports have been shared with ADB and concerned local agency who will be further taking necessary action.

A re-evaluation for the structural condition of the shops along Chandpole launching site (from Chandpole gate to Chhoti Chaupar) was conducted by the Joint team of JMRC, DMRC and M/s CEC engineers. Preventive measures like propping of the verandahs and the shops along the above length have been taken by contractor. The consolidated list of unstable structures requiring immediate attention were to be further shared with local agency (Jaipur...
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| 8. | • At least one month before the start of construction activities conduct a baseline survey of all heritage structures above the metro alignment and record detailed information including, but not limited to: list of heritage structures with details on location and distance from the metro alignment, exact height of structures above ground, existence of cracks/damages prior to start of construction, detailed photographs etc.  
• Monitor the condition of the heritage structures on a monthly basis throughout the construction period and compare the status with the baseline status to ensure that there are no changes from the baseline condition.  
• Coordinating necessary procedures if any historical/traditional artifacts are found during tunnelling works.  
• Provide advice on technical measures during construction to prevent damages to the heritage structures.  
• In the event of observation in any damage to any heritage structure/s immediately alert JMRC and recommend appropriate mitigation or restoration measures.  
• Provide technical advice on and supervise the mitigation or restoration activity.  
• Prepare a monitoring report on a monthly basis to record activities implemented and monitoring findings and submit to JMRC safeguards cell as well the Environmental Specialist. Findings of the report will be included in the quarterly environmental monitoring report that will be prepared by the environmental specialist. | Complied.  
➢ Before the start of construction activity, Building Condition Survey of all structure along the metro route with photograph of existing cracks and damages was conducted by CEC through AIMIL.  
➢ Before the start of construction activity, Baseline Survey of all the structure along the metro route with detailed photographs was conducted by Heritage Consultant i.e. M/s Abha Narain Lambah Associates and M/s Shashank Mehandale and Associates (JV).  
➢ Based on literature review of the historical background of the city, during the excavation for station work at chotichaupar and Badi Chaupar two ancient water tanks were discovered below Choti Chaupar and Badi Chaupar. Under the guidance of the Archaeology Department, the ancient water tanks were manually removed and preserved. After completion of civil work of station at Choti Chaupar, the heritage kund has been reinstated back to its original location and a new Art Gallery for display of Artefacts has been constructed. The reconstruction of Badi Chaupar heritage kund is yet to be started.  
➢ Based on the reports and survey submitted by Heritage consultant, CEC is regularly monitoring status of buildings and the status is reported through daily and weekly reports.  
➢ Heritage Consultant entrusted to advice on measures during construction to prevent damages to the heritage structures.  
➢ Heritage Consultant is submitting monitoring report on monthly basis to record activities implemented and monitoring findings to JMRC. Recently heritage consultant has submitted a consolidated report on heritage monitoring and the same has been submitted to ADB. |
<p>| 9. | <strong>Section VII- Safeguards</strong> | Being complied. |</p>
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<th>Compliance Status</th>
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<tr>
<td>b) Social – Involuntary resettlement.</td>
<td>Previously the shops from Sanjay Circle were shifted across the road near Church land and compensated for the loss of business during the shifting period. The shops are routinely into business now.</td>
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<td>44. If any changes or additional land requirements or involuntary resettlement impacts are identified, a resettlement plan will be prepared in accordance with the ADB Safeguard Policy Statement (2009) and the same is further approved by ADB before award of related civil works contract and implemented before commencement of the relevant section of the civil works contract as applicable.</td>
<td>6 Temples at Chhoti Chaupar, which were infringing the station box area have all been rehabilitated and shifted to a newly constructed Temple complex at Old Atish market land as per the satisfaction of Temple Trusts. Government is continuously in touch with the stakeholders and is in process of ensuring that sentiments of people at large are not hurt. Rozgareshwar Temple at Chhoti Chaupar will be relocated back to its original position after completion of Station work at Chhoti Chaupar. 7 temples at Badi Chaupar have been identified which are infringing the station box area. 5 temples have been shifted to Manak Chowk Thana and 2 temples at TanwarjiKaNauhra.</td>
<td></td>
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</table>
| 10 | **Section VII - Safeguards**  
  c) Social – Indigenous people | 45. In case of any adverse impacts if identified during implementation on indigenous people, the JMRC will ensure that the Indigenous Peoples Plan (IPP) is prepared in accordance with the ADB Safeguard Policy Statement (2009) and the same is further approved by ADB before award of related civil works contract and implemented before commencement of the relevant section of the civil works contract as applicable. | Not Applicable. |
| 11 | **Section VIII - Gender and Social Dimensions**  
  47 Gender consultation and participation | Meaningful consultations that are gender inclusive and responsive will be carried out as early as in the project preparation stage and will be carried out on an ongoing basis throughout the project cycle. JMRC shall ensure that the bidding documents provide clauses to ensure that all civil works contractors comply with labor laws by not employing child labor; encouraging the employment of the poor, particularly women; and not offering different wages to men and women on work of equal value. | Being Complied.  
  This provision is a part of the bidding document. |
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| 12 | **Section VIII - Gender and Social Dimensions**  
   49. HIV and AIDS  
   JMRC will ensure that all civil works contractors (i) carry out awareness programs for labor on the risks of sexually transmitted diseases/AIDS and human trafficking; and (ii) disseminate information at worksites on the risks of sexually transmitted diseases and HIV/AIDS as part of health and safety measures for those employed during construction. Contracts for the project will include specific clauses on these undertakings, and compliance will be strictly monitored by JMRC.  
   Periodically awareness about HIV/AIDS is discussed in morning tool box talk and apart from this the medical officer visits the labour camp and explains the risk of sexually transmitted disease on periodic basis. | Complied. |
| 13 | **Section VIII - Gender and Social Dimensions**  
   50. Health.  
   JMRC shall ensure that contractors provide adequately for the health and safety of construction workers and further ensure that bidding documents include measures on how contractors will address this, including an information and awareness raising campaign for construction workers on sexually transmitted diseases, HIV/AIDS, and human trafficking.  
   Various type of awareness programme has been conducted during this period. Apart from this monthly environmental training, physical training and general housekeeping training are conducted in line with India Government's Swatch Bharat Abhiyan. | Complied. |
| 14 | **Section VIII - Gender and Social Dimensions**  
   51. Labor  
   JMRC shall ensure that:  
   i. civil works contractors comply with all applicable labor laws and regulations, do not employ child labor for construction and maintenance activities, and provide appropriate facilities for women and children in construction campsites;  
   ii. people directly affected by the projects are given priority to be employed by the contractor;  
   iii. contractors do not differentiate wages between men and women for work of equal value; and  
   iv. specific clauses ensuring these will be included in bidding documents. The construction supervision consultants monitor the provisions.  
   ➢ Civil work contractor is complying with all applicable labour laws and regulations.  
   ➢ No child labour is employed.  
   ➢ Preference is being given to people directly affected by the project.  
   ➢ Complying with equal remuneration Act.  
   ➢ Specific clause for ensuring labour law etc. has been included in the bidding document. | Complied. |
| 15 | **Section IX - Performance Monitoring, Evaluation, Reporting and Communication**  
   B. Monitoring.  
   Being complied. |
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<tr>
<td>Disclosure of Environmental Assessments and Monitoring Reports</td>
<td>ADB and JMRC will disclose on their respective websites the EIA Report. The quarterly monitoring reports will also be disclosed on the ADB website.</td>
<td>EIA report has been disclosed on ADB and JMRC websites. Also 1st Semi Annual and subsequent Quarterly Environmental and Social Monitoring Reports are also disclosed on ADB and JMRC websites. <a href="http://www.jaipurmetrorail.in">www.jaipurmetrorail.in</a> This is the 16th quarterly report (October 2018 – December 2018) on environmental and social safeguards compliance.</td>
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<tr>
<td>16</td>
<td>Section IX - Performance Monitoring, Evaluation, Reporting and Communication</td>
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<tr>
<td></td>
<td>B. Monitoring</td>
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<td>55. Safeguards monitoring - Resettlement</td>
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<td>If impact is identified during project implementation, a monitoring system will be established based on the ADB Safeguard Policy Statement (2009) and Government of India regulations.</td>
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<tr>
<td>17</td>
<td>Section IX - Performance Monitoring, Evaluation, Reporting and Communication</td>
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</tr>
<tr>
<td></td>
<td>B. Monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>56. Indigenous People</td>
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<td></td>
<td>If impact is identified during project implementation, a monitoring system will be established based on the ADB Safeguard Policy Statement (2009) and Government of India regulations.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Section IX - Performance Monitoring, Evaluation, Reporting and Communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B. Monitoring</td>
<td></td>
</tr>
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<td></td>
<td>58. Grievance Redress Mechanism</td>
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<td>Grievances related to the implementation of the project, particularly regarding the land acquisition and R&amp;R will be acknowledged, evaluated, and responded to the complainant with corrective actions. Any grievance regarding the land acquisition and R&amp;R is received by OSD (Land), JMRC and is addressed through the decision of the “Negotiation Committee”.</td>
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</table>
C. Compliance to the Civil Works Contract Agreement

27. The contractor is liable to comply with the safeguards clauses included in the contract agreement. Table 4 below provides an update on the status of safeguards compliance by the civil works contractor.

Table 4: Compliance to the safeguards Clauses of the Civil Work Contract

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<tr>
<th>S.N.</th>
<th>Description</th>
<th>Compliance Status</th>
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</table>
| 1    | GCC Sub Clause 4.8  
Safety Procedures  
The Contractor shall:  
a) comply with all applicable safety regulations,  
b) take care for safety of all persons entitled to be on the Site,  
c) use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,  
d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Employer's Taking Over], and  
e) Provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and the owners and occupiers of adjacent land. | Being complied.  
Contractor is taking adequate measures to comply with regulations on safety of workers. |
| 2    | GCC Sub-Clause 6.7  
Health and Safety  
The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Employer's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.  
The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility, and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority. | Being complied.  
Contractor is taking measures as per the provision of SHE, which is also a part of bidding document.  
A medical room has been established at site with all basic facilities. Around the clock ambulance facility is also available at site.  
The contractor has tie-up with five hospitals viz, Rawal Hospital& Metro Mass Hospital, Bhankrota near casting yard, Asian Hospital, near tunnel site, Amar Jain Hospital and SMS Hospital for any emergencies. Emergency mock drill is conducted on monthly basis each site to check the efficacy of the system.  
HSO is also working as accident prevention officer. |
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<th>Compliance Status</th>
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<td></td>
<td>The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Engineer may reasonably require.</td>
<td>Being complied.</td>
</tr>
</tbody>
</table>
|     | **PCC Sub-Clause 4.8 and 6.7**  
**Safety Procedures and Health & Safety**  
"The Contractor shall throughout the execution of the Works including the carrying out of any testing, commissioning (including Integrated Testing and Commissioning), or remedying of any defects: 

(a) take full responsibility for the adequacy, stability, safety and security of the Works, Plant, Rolling Stock, Contractor's Equipment, Temporary Works, operations on Site and methods of manufacture, installation, construction and transportation;  
(b) have full regard for the safety of all persons on or in the vicinity of the Site (including without limitation persons to whom access to the Site has been allowed by the Contractor), comply with all relevant safety regulations, including provision of safety gear, and insofar as the Contractor is in occupation or otherwise is using areas of the Site, keep the Site and the Works (so far as the same are not completed and occupied by the Employer) in an orderly state appropriate to the avoidance of injury to all persons and shall keep the Employer indemnified against all injuries to such persons;  
(c) provide and maintain all lights, guards, fences and warning signs and watchmen when and where necessary or required by the Engineer or by laws or by any relevant authority for the protection of the Works and for the safety and convenience of the public and all persons on or in the vicinity of the Site; and  
(d) where any work would otherwise be carried out in darkness, ensure that all parts of the Site where work is being carried out are so lighted as to ensure the safety of all persons on or in the vicinity of the Site and of such work.  
Contractor is required to take note of all the necessary provisions in Employer’s Safety, Health and Environment Manual (SHE Manual) and the Contractor's price shall be inclusive of all the necessary costs to meet the prescribed safety standards. | Being complied.  
Adequate health and safety measures are being implemented as per the provision of SHE, which is also a part of bidding document. |
Precaution shall be taken by the Contractor to ensure the health and safety of his staff and labour. The Contractor shall, in collaboration with and to the requirements of the local health authorities, ensure that medical staff, first aid facilities, sick bay and ambulance service are available at the accommodation and on the Site at all times, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as per the Engineer’s requirement and will ensure complete compliance with relevant clauses of Employer’s Health, Safety and Environment Manual (SHE Manual).

The Contractor’s Site Safety Plan shall be developed from his Outline Safety Plan as per Employer’s Requirements and SHE Manual of the Employer. The Contractor shall appoint a member of his staff at the Site to be responsible for maintaining the safety, and protection against accidents, of personnel on the Site. This person shall be qualified for his work and shall have the authority to issue instructions and take protective measures to prevent accidents.

Safety Precautions

Within 8 weeks of the date of Notice to Proceed, the Contractor shall submit a detailed and comprehensive contract-specific Site Safety Plan based on the Employer’s Safety, Health and Environmental Manual (SHE Manual). The Contractor is required to make himself aware of all the requirements of the Employer’s Safety, Health and Environmental Manual in this regard and comply with them. The Site Safety Plan shall include detailed policies, procedures and regulations which, when implemented, will ensure compliance with Sub-Clauses 4.8 and 6.7 of the General Conditions of Contract.

Contractor has submitted site specific Safety plan and the same have been approved by CSC.

GCC Sub-Clause 4.18

Protection of the Environment

The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.

The Contractor shall ensure that emissions, surface discharges and effluent from the Contractor’s activities shall not exceed the values indicated in
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<th>Compliance Status</th>
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<td></td>
<td>the Employer's Requirements, and shall not exceed the values prescribed by applicable laws.</td>
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<td></td>
<td><strong>PCC Sub-Clause 4.18 Protection of the Environment</strong></td>
<td>Being complied.</td>
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</table>

The Contractor shall be responsible and liable for any stoppage, closure or suspension of the works due to any contravention of statutory requirements relating to the protection of the environment and shall indemnify and keep indemnified the Employer in this regard.

The Contractor's Site Environmental Plan shall be developed from his Employer's Safety, Health and Environmental Manual (SHE Manual), as per the Employer's Requirements and Special Conditions of Contract. Nothing extra shall be payable to the Contractor on this account and his Bid price shall be inclusive of expenditure required to be incurred for working as per SHE Manual.

Outline Environmental Plan means the environmental plan forming part of the Tender, setting out, in summary form, the Contractor's proposed means of complying with his obligations in relation to environmental quality. Site Environmental Plan means the site environmental plan including all supplements thereto, or any amended or varied version thereof, as submitted by the Contractor in accordance with Employer’s Safety, Health and Environmental Manual (SHE Manual), this Clause and which has received the Engineer’s consent. The Site Environmental Plan shall include detailed policies, procedures and regulations which, when implemented, will ensure compliance with this Clause. The Contractor is required to make himself aware of all the requirements of the Employer’s SHE Manual in this regard and comply with them.

Within 8 weeks of the date of the Notice to Proceed, the Contractor shall submit a detailed and comprehensive Site Environmental Plan based on the Employer’s Safety, Health and Environmental Manual (SHE Manual), and shall include such further material, which the Contractor considers necessary and relevant.

Upon the Engineer notifying his consent to the Site Environmental Plan, or any supplemental part thereof, the Contractor shall adhere to the principles and procedures contained in such document save to the extent that the Engineer may give his consent to any amended or varied version thereof.
The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer and the Employer to monitor and conduct tests to verify that the Site Environmental Plan is being properly and fully implemented.

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<th>S.N.</th>
<th>Description</th>
<th>Compliance Status</th>
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<tr>
<td></td>
<td>The Contractor shall provide all necessary access, assistance and facilities to enable the Engineer and the Employer to monitor and conduct tests to verify that the Site Environmental Plan is being properly and fully implemented.</td>
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4. **COMPLIANCE TO THE ENVIRONMENTAL MANAGEMENT PLAN**

28. The environmental management plan (EMP) for the project was provided in Annexure 4 of the EIA report and also attached to the contract documents. As per EMP, five (05) environmental management activities were required to be implemented during the pre-construction stage (PC 1 – PC5); ten (10) activities are required to be implemented during the construction stage (C1.0 – C1.4, C.1.4.1 and C2 – C6); and three (03) activities are required to be implemented during the operation stage (O1 – O3). The following Table 5 lists out the status of activities during the pre-construction and construction stage as of September 2018.
Table 5: Status of Compliance to the EMP

<table>
<thead>
<tr>
<th>SN</th>
<th>Activity</th>
<th>Mitigation measures</th>
<th>Compliance attained (Yes, No, Partial)</th>
<th>Comment/Reasons for Partial or Non-Compliance</th>
<th>Issues for further action and target dates</th>
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<tr>
<td></td>
<td><strong>PRE-CONSTRUCTION STAGE</strong></td>
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<td>PC1</td>
<td>The Contractor will complete the following activities no later than 30 days upon issuance of Notice to Proceed</td>
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<td>1)</td>
<td>Submit appointment letter and resume of the Contractor's Health and Safety Officer (HSO) and environmental focal person to CSC.</td>
<td>Yes.</td>
<td>Mr. Raj Kishor Pandey has been appointed as Contractor's HSO after the approval of CSC and he is working full time on site.</td>
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<td>2)</td>
<td>HSO will engage CSC-Environment Specialist to a meeting to discuss in detail the EMP, seek clarification and recommend corresponding revisions if necessary</td>
<td>Yes.</td>
<td>EMP and SHE have been discussed with CSC-Environment Specialist.</td>
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<td></td>
<td>3)</td>
<td>HSO will request CSC-ES copy of monthly monitoring formats and establish deadlines for submission.</td>
<td>Yes.</td>
<td>Formats and schedule of monthly monitoring reports has been finalized. Sample attached in Appendix 3 &amp; 4.</td>
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<td>4)</td>
<td>HSO will submit for CSC-ES approval an action plan to secure all permits and approvals needed to be secured during construction stage</td>
<td>Yes.</td>
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<tr>
<td>SN</td>
<td>Activity</td>
<td>Mitigation measures</td>
<td>Compliance attained (Yes, No, Partial)</td>
<td>Comment/Reasons for Partial or Non-Compliance</td>
<td>Issues for further action and target dates</td>
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<td>i). operation of</td>
<td>Yes.</td>
<td>Consent to Operate (CTO) batching plant has</td>
<td>Obtained</td>
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<td></td>
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<td>crushers and hot mix</td>
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<td>been obtained from Rajasthan State Pollution</td>
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<td></td>
<td></td>
<td>plants,</td>
<td></td>
<td>Control Board on 09.01.2017 <strong>Appendix 6.</strong></td>
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<td>ii) transport and</td>
<td>Yes</td>
<td>Hazardous waste is disposed through government</td>
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<td>storage of</td>
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<td>authorized agency. Relevant documents are kept</td>
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<td>hazardous materials</td>
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<td>at Contractor's end to show compliance.</td>
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<td>(e.g. fuel,</td>
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<td>lubricants,</td>
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<td>explosives),</td>
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<td>iii) waste disposal</td>
<td>➢ Yes complied</td>
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<td>sites and disposal</td>
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<td>management plan,</td>
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<td>Jaipur Development Authority has allotted for dumping C&amp;D waste at Khasra No.-1, Area 41.08 Bigha situated at revenue village, MalpuraChoud, Tehsil, Jaipur</td>
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<td>iv) temporary storage locations,</td>
<td>Yes</td>
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<td>v) water use, and</td>
<td>Permission has been obtained from state authority for extraction of ground water for drinking purpose at Chhoti Chaupar.</td>
<td>Consturction water demand is met through external water supply by private agencies.</td>
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<td>vi) emission compliance of all vehicles.</td>
<td>Yes.</td>
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<td>Arrangements to link with government health programs on hygiene, sanitation, and prevention of communicable diseases will also be included in the action plan.</td>
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<td>5) HSO will submit for approval of CSC-ES the construction camp layout before its establishment.</td>
<td>Yes, Construction camp has been established as per approved layout plan.</td>
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<td>PC2</td>
<td>Coordinate with the Jaipur Development Authority on Traffic Management Plan to avoid nuisance from traffic congestion</td>
<td>The Contractors will discuss and coordinate the implementation of the traffic re-routing scheme particularly in Chhoti Chaupar and Badi Chaupar when it starts the cut and cover activities and the hauling and disposal of excavated materials to the Ambabari village. At the minimum, the traffic management plan will have the following components: construction traffic, ensuring access to properties, accommodating pedestrians, parking, access by construction vehicles, faulty traffic lights and problem interchanges, use of public roads, parking provision during construction, use of residential streets and traffic diversion due to temporary road closures, and construction and use of temporary access roads.</td>
<td>Yes. The traffic diversion/management plan is in place in coordination with government agencies (Traffic department etc) for necessary permission as and when required.</td>
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<td>PC3</td>
<td>Community Liaison to avoid complaints and/or address complaints if any</td>
<td>To ensure that ongoing feedback is provided on the progress of the JMRP together with feedback on the environmental management</td>
<td>Yes. Details in Table no. 12</td>
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<td>performance of the project. Contractor will provide a minimum of two (2) weeks notification to directly affected residents, businesses and other relevant groups of the intended construction commencement date. In providing a mechanism for communication between the contractor and the community and informing the public of construction details (timing, expected impacts), the concessionaire will undertake consultation and information activities.</td>
<td>Yes. GPR survey was conducted in April 2015 and the report was submitted and uploaded on JMRC website. <a href="https://www.jaipurmetrorail.in/pdf/2015.04.16%20GPR%20Recieved%20from%20CEC.pdf">https://www.jaipurmetrorail.in/pdf/2015.04.16%20GPR%20Recieved%20from%20CEC.pdf</a></td>
<td>JMRC is coordinating with Archeology Department for excavation work.</td>
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<td>PC4</td>
<td>Ground staking to address chance find of artifacts</td>
<td>At least 30 days before the start of tunneling, the Contactor with supervision from the Archeology Department will employ a ground penetrating radar (GPR), detect the presence of buried artifacts along the tunnel alignment. The Contractor, in behalf of the JMRC, will coordinate with the Archeology Department to designate an on-site representative during the</td>
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<td>All workers will undergo a briefing with the Archeology Department to ensure safeguarding of heritage resource and cultural/religious practices. A proof of compliance to this requirement to include the name of participants and date and location of briefing will form part of the monthly report to the CSC.</td>
<td>Yes.</td>
<td>Briefing has been carried out by the Archaeological Consultant namely Mr. R.D. Singh, Dr. S.K. Sharma and Mr. P.K. Jain engaged by JMRC on regular basis.</td>
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<td>PC5</td>
<td>Briefing on working near heritage resource to avoid damages to heritage resources and avoid cultural conflicts</td>
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<td><strong>CONSTRUCTION STAGE</strong></td>
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<td>C1.0</td>
<td>Avoid damage to the following heritage resources during tunnel boring namely Chandpole Gate, IsarLat, Jantar Mantar, Hawa Mahal, Chhoti Chaupar, and Badi Chaupar.</td>
<td>No heritage resources are inadvertently damaged during construction.</td>
<td>Yes.</td>
<td>No heritage resources have been damaged at all during construction.</td>
<td>Complying through instrumentation &amp; online monitoring of structures of historic importance.</td>
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<td>The contractor will ensure that no inadvertent damage is incurred to the Chandpole gate. Estimated settlement under the Chandpole gate is less than 5mm. The contractor will ensure that no inadvertent damage is incurred to the Chandpole gate.</td>
<td>Yes. Complied</td>
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<td>➢ Under passing scheme prepared by M/s Omikron Kappa, of Greece, structural consultant of M/s CEC has been proof checked by M/s Ayesa of Spain.</td>
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<td>➢ Structural consultant of Heritage consultant has also given his comments on the underpassing scheme of M/s CEC.</td>
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<td>contractor will ensure that the design value is not exceed and the trigger value = 4 mm and Alarm value = 5 millimeters are implemented.</td>
<td>Under passing scheme of Chandpole gate has also been proof checked by IIT Delhi. Work has been done as per approved method statement &amp; GCC Settlement at Chandpole gate was found to be -3mm, which is less than 3.5mm</td>
<td>Monitoring Results for all Geotechnical instruments installed during the passing of TBMs under Chandpole gate were within the design limits. The maximum observed settlements under Chandpole gate was -3 mm.</td>
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<td>Tilt meters will be installed at key positions on the gate to ensure the 2/1000 design value is observed with trigger and allowable values of 1.4/1000 and 1.7/1000, respectively</td>
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<td>Crack meters will be installed at key positions to ensure design value of 3.0mm is not exceeded with 3 mm trigger value and 5 mm alarm value</td>
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<td>The contractor will immediately cease all operation if any of the trigger values are breached. The CSC will advise the contractor mitigation measures and practices to control settlement, tilt, and cracks to include but not limited to structural reinforcement and operation parameters of the TBM.</td>
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<td>The contractor will ensure that no structural damage is incurred and cosmetic damages are repaired under the</td>
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➢ Under passing scheme of Chandpole gate has also been proof checked by IIT Delhi.  
➢ Work has been done as per approved method statement & GCC  
➢ Settlement at Chandpole gate was found to be -3mm, which is less than 3.5mm
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<td>supervision and control of the Jaipur Archeology Department.</td>
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<td>C1.2</td>
<td>To avoid cosmetic and structural damages to the structures along the underground metro alignment along Chandpole Bazar and Tripola Bazar due to vibration from the tunnel boring machine</td>
<td>Expected vibration at the Chandpole Gate during tunneling is 0.682 mm/s which is lower than internationally accepted 5mm/s. However, to be on the safe side and as practice in DMRC, the Contractor is to ensure that vibration levels at the Chandpole Gate foundation will not exceed.</td>
<td>Complied. The observed vibration levels at the Chandpole Gate foundation during the passing of TBM were within the trigger limit.</td>
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<td>C1.3</td>
<td>To minimize surface noise from excavating equipment in Chhoti and Badi Chaupar and avoid disturbance to patients in the Pink City Hospital near Chandpole, Chaudhary Hospital, Maharaja School at the corner of ChhotiChaupar . To avoid damage and</td>
<td>The contractor will ensure that noise from construction activities does not result to exceedances of relevant limits prescribed in the Indian Ambient Air Quality Standards for Commercial Area and Silence Zone. Mitigation measures to be implemented by the Contractors are: 1) liaise with local residents on how to best minimize construction noise along the Chhoti and BadiChaupars. 2) local residents and shop owners should</td>
<td>Yes, Only newly manufactured equipment &amp; regular servicing of equipment is being used in construction. Noise monitoring is being done and necessary mitigation measures are taken as required.</td>
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<td>nuisance to JantarMantar, and HawaMahal.</td>
<td>be informed of the nature and duration of intended activities prior to commencement and kept updated as to changes in the management and mitigation plan 3) equipment compounds will be located off-site 4) noise barriers will be installed at critical work areas particularly around the Chaupars 5) enclose especially noisy activities if above the noise limits 6) employ transportable noise screens between noise sources and identified noise sensitive areas for the duration of noisy construction activities 7) maximize the possibility of scheduling noisy activities at the same time to minimize the duration of exposure Noise from vehicles particularly for hauling of excavated materials to</td>
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<td>the dump site will be controlled through strict adherence to operating and maintenance instructions, routing of heavy vehicles way from noise sensitive areas whenever possible, conform with speed limits, and construction vehicles will only use routes specified in the traffic management plan.</td>
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<td>C1.4</td>
<td>To ensure careful demolition and proper restoration of Chhoti and Badi Chaupars</td>
<td>The project calls for the demolition of the Chhoti and Badi Chaupar and its restoration to its original condition as a requirement from Jaipur Development Authority. The demolition and restoration will be under the supervision and control of these agencies.</td>
<td>Yes,</td>
<td>JMRC through competitive bidding has engaged heritage consultant M/s Abha Narain Lambah Associates and M/s Shashank Mehendale &amp; Associates (JV) to monitor the heritage structures lying along the metro route of Phase 1B. JMRC had also engaged 3 senior Archaeology Consultants to supervise the excavation of Chhoti chaupar and Badi chaupar. The work was done as per approved method statement. Also the work will be done under the supervision of said agencies.</td>
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<td>C1.4.1</td>
<td>To address Chance heritage finds during the cut and fill operations</td>
<td>Please refer to FIDIC Sec. 4.24 Fossils. Recording (including chain of custody) will be made by the contractor to be validate by the CSC, and expert verification will be made by the Jaipur Archeology Department. Temporary</td>
<td>Yes, During the excavation of Chhoti Chaupar and Badi Chaupar, ancient water tanks and Gomukhs were discovered. These were extracted and handed over to Archeological &amp; Museum Dept., Government of Rajasthan. The Project station design was adjusted to accommodate the re-instatement of the water tank in Choti Chaupad. The project</td>
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<td>work stoppage in the immediate area of the chance find for up to 72 hours to allow for the on-site representative of Archeology Department to visit the site to make an assessment and provide instructions. Work in the areas adjacent to the chance find will continue as provided in the detailed design.</td>
<td>Yes, scope and timeline as a whole was adjusted to allow careful dismantling and protection of the ancient tanks and accommodate the additional works in relation to reinstating the tanks and gomukh.</td>
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| C2 | To avoid the following issues from spoil disposal activities: generation of sediment laden runoff from the work site during monsoon; Contamination of disposal sites from construction debris; Community hazard of uncollected and improperly disposed materials. | A spoil management plan will be implemented that details the location of spoil disposal sites, transporting soil, and disposing of soil. The Contractor will perform the following:  
1) disposed spoils on permitted sites as instructed by the JMRC  
2) ensure the adequacy of the disposal site to handle the volume of spoils the will be generated  
3) Prepare, submit and seek approval from the CSC a spoil dump plan that provides the: i) dump size, layout, and form, ii) means of sediment control | Yes,  
Are being disposed in the approved area only.  
All other conditions are also being fulfilled. |                                                                                                                                  |                                           |
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<td>controlling water and wind erosion, iii) measures to prevent spoil dump contamination, vehicular, and public access.</td>
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<td>4) Explore the possibility of using spoil materials to rehabilitate borrow pits to</td>
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<td>5) All hauling vehicles should be maintained at an acceptable working order and serviced regularly</td>
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<td>6) Haul vehicles should be routed away from noise sensitive areas</td>
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<td>7) Speed limit in built up areas is 40 km/h</td>
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<td>8) All haul vehicles should be covered or soil sprayed with water before leaving the site specially during windy condition</td>
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<td>9) Spoil dumps shall have slopes no steeper that 1V:2.5H</td>
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<td>10) Final shaping, topsoiling, and immediate revegetation</td>
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<td>11) No vehicles are to be allowed to enter in</td>
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<td>C3</td>
<td>To avoid depletion of groundwater and competition with existing groundwater users due to groundwater extraction for the construction works</td>
<td>The Contactor shall secure permission for groundwater extraction from CGWA pertinent groundwater authorities before establishing borewells. Water conservation and recycling will be observed in all aspects of constructions to include water main breaks, watering roads for dust control, spraying concrete, equipment cleaning and site clean-up.</td>
<td>Partial.</td>
<td>Construction water demand is met through water tankers supplied by private agencies.</td>
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<td>C4</td>
<td>To avoid nuisance from temporary damage or shifting in utilities particularly buried water pipes and electrical lines and disruption of essential services</td>
<td>The Contractor will ensure that the public will be minimally affected when constructing in close proximity to essential services through: 1) coordinate and secure necessary permits for utility shifting with the Jaipur Development Authority and other service utility agencies to locate all services prior to construction in any particular area</td>
<td>Yes, Care is taken to avoid inconvenience to uses by shifting as per instruction of concerned authorities.</td>
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<td>inform residents of planned interruptions through local media, fliers, and public address system</td>
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<td>all planned interruptions schedules will be submitted to the safeguards cell JMRC no later than 10 working days before the interruption</td>
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<td>all affected landowners, tenants, institutions, and businesses to be notified in writing prior to commencement and kept updated in changes of schedule</td>
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<td>in the event of unforeseen disruptions, the contractor will take all reasonable actions to have the service promptly restored</td>
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<td>relevant utility agencies will be informed of the construction proximity to essential service line and be kept on standby in the event of</td>
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<td>unforeseen disruption</td>
<td>All unplanned interruption will be immediately reported to the safeguards cell within 24 hour through an incident report.</td>
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<td>C5</td>
<td>To address occupational health and safety issues of the construction workers and local community</td>
<td>The contractor will comply with the occupational health and safety requirements as provided in SHE.</td>
<td>Yes</td>
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<td>C6</td>
<td>Implementation of Cleanup Operations and Restoration and Rehabilitation</td>
<td>Contractor shall prepare site restoration plans, which shall be subject for review and approval by the CSC, JMRC Safeguard Cell, Jaipur Development Authority and the Archeology Department to ensure consistency with zoning and town plans. The clean-up and restoration operations are to be implemented by the Contractor prior to demobilization. All spaces excavated and not occupied by the foundation or other permanent works shall be refilled with earth up to</td>
<td>Not yet due.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SN</td>
<td>Activity</td>
<td>Mitigation measures</td>
<td>Compliance attained (Yes, No, Partial)</td>
<td>Comment/Reasons for Partial or Non-Compliance</td>
<td>Issues for further action and target dates</td>
</tr>
<tr>
<td>----</td>
<td>----------</td>
<td>---------------------</td>
<td>----------------------------------------</td>
<td>-----------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>surface of surrounding ground.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. ACTIVITIES UNDERTAKEN FOR PROTECTION AND MONITORING OF HERITAGE STRUCTURES

A. Findings in Badi Chaupar and Chhoti Chaupar:

29. Under Jaipur Metro Rail Project Phase 1B, an underground Metro line is under construction from Chandpole to Badi Chaupar. While Metro tunnel will be constructed using Tunnel Boring Machines, the two underground Metro Stations at Chhoti Chaupar and Badi Chaupar will be constructed by cut and cover method, requiring excavation from top to bottom.

30. To enable construction of underground stations at Chhoti Chaupar and Badi Chaupar, the dismantling of existing Chaupars and excavation underneath was necessary. In this regard, historical background of Chaupars was studied, both the Chaupars were well documented. The two layers of water tank at both the Chaupars with tunnels on all four cardinal directions were encountered. Under the guidance of heritage consultant M/s Abha Narain Lambah Associates and JMRC archaeology consultants the excavation of the tanks were taken up. Documentation including detailed drawings, photography and videography of all the layers of old water tanks of Chaupars have been prepared. Gaumukhs of both the Chaupars have been handed over to Albert Museum for safe keeping. Appendix-5

31. Both the water tanks at Chhoti Chaupar and Badi Chaupar will be restored at their present site after construction of underground stations. JMRC has ensured and approved designs, wherein the waters tanks have been incorporated over the station design. Designs have been approved by heritage consultant of JMRC.

32. After complete and detailed documentation of both the Chaupars and after completion of station work, as per the directions of Government, under supervision of heritage consultant, heritage water tank at Choti Chaupar has been reinstated at its original location and a new Art Gallery has been constructed around it. The Kund and Art Gallery at Choti Chaupar were inaugurated by Hon’ble Chief Minister Rajasthan on 15th August 2018 and both of them were opened for public in the month of September 2018.
B. **D-Wall Construction**

33. The D-walls (Diaphragm Walls) act as a structural member for the station box. Prior to the commencement of the D-walls, the utilities are diverted. The construction of D-walls is executed through grabbing machines after completion of the guide wall which act as the guide for the excavation. During the operations the grabbing machines removes the soil, the soil is stabilized using Polymer to avoid the collapse of soil. After reaching the desired level, the grabbing operations are stopped and the reinforcement cage is lowered into the excavated area and concrete is poured through tremie.

34. To monitor the impact of the operations we have provided tilt meters, crack meter and settlement meters to measure the impact and report any abnormality in the reading. Apart from the above, to protect the existing verandahs, we have done the propping and jacking and also in the shops identified as critical.

C. **Chandpole Gate Tunnel Underpass Scheme/ Isarlat Side Pass Scheme**

**Chandpole Gate Tunnel Underpass Scheme**

35. Chandpole Gate is coming right in the center of alignment, attracting maximum settlement, but original drawings relating to its foundation were not available. Therefore, the foundation of Chandpole Gate has been physically examined by a team of engineers, by making several trial pits around the gate.

36. For the determination of the structure’s foundation, special survey was carried out by CEC and nine trial pits were executed in certain locations near the gate. The foundation of Chandpole Gate has been found to be in a sound condition which can sustain the impact of tunnel-making underneath. To assess the ground settlement due to tunneling by TBM & its effect on structural safety of Chandpole Gate, a detailed 3D analysis has been carried out by M/s Omikron Kappa – Indus Consultant JV and a detailed report submitted.

37. As per this report, considering that Chandpole gate is in category “Slight” according to the pre-condition survey, “negligible” damage is expected for settlements <6.7mm and angular distortion <1/750. As already derived from the 3D analysis, the maximum calculated settlements and angular distortion are 5mm and 1/1200 respectively, values which are related with “negligible” damage even in the case of “High” vulnerable structures.
38. Considering all the above, the contractor conducted its own surveys and studies and based on the site condition, alarm and trigger values were identified and further monitored. Values were established for the displacement and deflection of the Chandpole Gate, as presented in the following table.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Trigger Level</th>
<th>Alarm Level</th>
<th>Limit values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlements</td>
<td>4mm</td>
<td>5mm</td>
<td>6mm</td>
</tr>
<tr>
<td>Angular Distortion</td>
<td>1/1400</td>
<td>1/1200</td>
<td>1/1000</td>
</tr>
</tbody>
</table>

39. On the advice of Archaeology & Museums Department, the work of further examination/proof check of underpassing scheme of Chandpole Gate was assigned to Indian Institute of Technology (IIT) Delhi. After conducting the proof check of underpassing scheme of Chandpole Gate, IIT Delhi has reported that analysis and other details given in the report are in order. The scheme of Chandpole Gate underpassing by Tunnel Boring Machines is considered safe as it will have no impact on the stability of existing Chandpole Gate.

40. Archaeology & Museums Department, GoR, vide its letter dated 19.06.2015 has issued license under Rule 20 of the Rajasthan Monuments, Archaeological sites and Antiquities Rules, 1968 for construction of twin metro tunnels under Chandpole Gate. The license validity was extended time to time and finally for 2 months i.e. up to 18.02.2016 by the Archaeology & Museums Department, GoR vide its letter dated 15.12.2015.

41. Now both TBMs have crossed underneath Chandpole Gate, the gate sustained no damage during the tunneling process. Monitoring Results for all Geotechnical instruments installed during the passing of TBMs under Chandpole gate were within the design limits. The maximum observed settlements under Chandpole Gate was -3 mm.

42. As a part of precautionary measure and to ensure that the strength of the Chandpole gate is not compromised, JMRC has got done repairing of pre-existing defects in the gate using plaster, lime kada etc. Alongwith improving the strength of the Gate, the work will also enhance the aesthetics of the historic Gate.

Isarlat Side Pass Scheme
43. As per report of structural expert of Heritage Consultants, Abha Narain Lambah Associates & Shashank Mehendale & Associates (JV), physical condition of Isarlat is found to be generally sound and it is located at safe distance from the tunnel axis. There will be no adverse impact on the Isarlat during tunnel construction.

44. However, as advised by the structural expert of heritage consultants, a detailed study of Isarlat was taken up through Omikron Kappa, on the lines of the detailed study already carried out for Chandpole Gate. Proof check of the structure/report will be done by IIT Delhi.

45. Now both TBMs have crossed underneath Isarlat, the structure sustained no damage during the tunneling process.

D. Results of the Ground Penetrating Radar

D.1 Introduction

46. Ground penetrating radar survey is a non-destructive geophysical method that produces a continuous cross-sectional profile or record of subsurface features, without drilling, probing, or digging. Ground penetrating radar (GPR) profiles are used for evaluating the location and depth of buried objects and to investigate the presence and continuity of natural subsurface conditions and features. It is a high-resolution geophysical method, which is based on the propagation of high frequency electromagnetic waves. The GPR method images structures in the ground that are related to changes in dielectric properties. In sediments, the water content primarily causes the changes in dielectric properties.

D.2 Study Area

47. In order to prioritize the scanning work, the entire stretch between Chandpole & Badi Chaupar had been sub-divided into following sectors:

   Sector-1: Along the tunnel alignment for the stretch between Chandpole Metro station to Chhoti Chaupar.
   Sector-2: Chhoti Chaupar Metro station.
   Sector-3: Along the tunnel alignment for the stretch between Chhoti Chaupar to Badi Chaupar.
D.3 Conclusion

48. The GPR survey was conducted in March 2015 using Ground Penetration Radar with 100 MHz paired antenna has provided scanning down to a depth of 22m.

49. The interpretation of all these scans shows that two distinct layers exits upto the scanned depth for the entire stretch between Chandpole and Badi Chaupar. This is depicted in the scans provided at Figure 10 to 27 of the report. The 3-dimensional model (surface and block) provides variation in terms of depth for the two layers. The drill hole core too in the area indicates presence of two layers of silty sand/sandy silt as defined by grain size analysis of the soil as per geotechnical report. A small portion in the entire stretch indicates more reflective zone which could be on account of anomalous material such as presence of metallic substance, high moisture content or an object.

50. A part of the entire stretch was also taken up for utility survey. This indicates the importance of GPR survey for locating utilities before excavating the area. This helps in planning the excavation work without damaging the existing utilities.

51. The summary report of the GPR done for the project is available online at JMRC web portal.

6. SUMMARY OF ENVIRONMENTAL MONITORING

A. Summary of Inspection Activities:

52. A total of 13 SHE Walk inspections were conducted by the CSC-ES during the reporting period. Further details on the inspections carried out and key findings are provided in Table 6.

Table 6: Field Inspections carried out during reporting period

<table>
<thead>
<tr>
<th>Date of Inspection</th>
<th>Location</th>
<th>Participants</th>
<th>Key Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.10.2018</td>
<td>Chhoti Chaupar</td>
<td>18</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>13/10/2018</td>
<td>Badi Chouper</td>
<td>17</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>26/10/2018</td>
<td>Chhoti Chouper</td>
<td>27</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>02/11/2018</td>
<td>Badi Chouper</td>
<td>27</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>09/11/2018</td>
<td>Casting Yard</td>
<td>9</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>16/11/2018</td>
<td>Chhoti Chouper</td>
<td>27</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>23/11/2018</td>
<td>Badi Chaupar</td>
<td>19</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>30/11/2018</td>
<td>Badi Chouper</td>
<td>19</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>14/12/2018</td>
<td>Chhoti Chouper</td>
<td>19</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>21/12/2018</td>
<td>Badi Chaupar</td>
<td>18</td>
<td>Safety &amp; Environment</td>
</tr>
<tr>
<td>28/12/2018</td>
<td>Chhoti Chaupar</td>
<td>21</td>
<td>Safety &amp; Environment</td>
</tr>
</tbody>
</table>

Note: Sample copy of SHE Walk attached with Appendix 2.
B. Monitoring of Cracks, Settlements of Structures

53. The entire area where the stations as well as the tunnels underpasses fall under heritage structures. In order to observe the conditions and behaviors of the structures during the operations, monitoring is being done through instrumentations. Since there was no tunneling during the reporting period instrumentation monitoring was not carried out.

Vibration Monitoring:

54. **Need for Vibration Monitoring:** The construction of underground rail and road infrastructures in metropolitan and cosmopolitan cities are mostly through developed area under challenging soil conditions. The alignment of structure is passing through densely inhabited areas with many heritage structures falling in the zone of influence of construction activities.

55. Construction vibration sources generate elastic waves in soil and have a wide range of energy, displacement, velocity and acceleration transmitted on the ground. These may be harmful to adjacent and remote structures, sensitive instruments and people. Their effects range from serious disturbance of working conditions for sensitive devices and people, to visible structural damage.

56. It is important to assess the dynamic effect before the beginning of construction activities and at the time of construction. Therefore monitoring of construction vibrations have to be started prior to the beginning of construction works at a site and be continued during construction to provide the safety and serviceability of sound and vulnerable structures.

57. It is required to carry out base line monitoring to determine the Peak Particle Velocity and their respective frequency band that are persisting even before carrying out any construction activities. The recorded values shall form the base line and shall be compared to the corresponding values recorded during construction activities and the influence of construction may be determined accordingly.

58. Since there was no tunneling during the reporting period vibration monitoring was not carried out.

C. Noise Monitoring

59. Noise level survey was conducted by third party M/s. IDMA Laboratories Ltd. at all project sites for Day & Night shifts vizBhankrota, Chandpole launching shaft Area, Pink City Hospital, Chhoti Chaupar, Maharaja school, Chaudhry Hospital, Krishna temple, Hawa Mahal, and Jantar Mantar for Day & Night shifts.

60. It has been observed from the results that noise level exceedance was recorded with respect to national standard at all sites except casting yard and Chandpole for both daytime and night. Except Chandpole and Bhankarota (casting yard) all other areas are classified as silencezone. However, these locations are located very near to road with heavy moving traffic both during day time and night time, the results are summarized in Table 8 and 9 and graphical representation of results is also given below. Sample monitoring report is provided in Appendix 4.

Table 8: Noise Monitoring Results (Day time)
<table>
<thead>
<tr>
<th>Location</th>
<th>Distance from nearest metro construction site</th>
<th>Category of Area/Zone</th>
<th>National Standard (Day time)Leq dB(A)</th>
<th>Baseline value (Day time)Leq dB(A)</th>
<th>Noise levels (Day time) Leq dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casting Yard (Bhankarota)</td>
<td>0</td>
<td>Industrial</td>
<td>75</td>
<td>NA</td>
<td>62.2, 62.2, 61.8</td>
</tr>
<tr>
<td>Chandpole</td>
<td>0</td>
<td>Commercial</td>
<td>65</td>
<td>74.2#</td>
<td>65.3, 61.8, 65.1</td>
</tr>
<tr>
<td>Maharaja School</td>
<td>Approx 50 m</td>
<td>Silence</td>
<td>50</td>
<td>NA</td>
<td>66.1, 62.1, 66.5</td>
</tr>
<tr>
<td>Chaudhry Hospital</td>
<td>Approx 400m</td>
<td>Silence</td>
<td>50</td>
<td>NA</td>
<td>63.7, 61.9, 63.5</td>
</tr>
<tr>
<td>Pink City Hospital</td>
<td>Approx 250 m</td>
<td>Silence</td>
<td>50</td>
<td>NA</td>
<td>62.6, 62.0, 63.2</td>
</tr>
<tr>
<td>Krishna Temple</td>
<td>Approx 300 m</td>
<td>Silence</td>
<td>50</td>
<td>NA</td>
<td>61.7, 60.9, 62.1</td>
</tr>
<tr>
<td>Jantar Mantar</td>
<td>Approx 300 m</td>
<td>Silence</td>
<td>50</td>
<td>NA</td>
<td>60.2, 61.3, 60.6</td>
</tr>
<tr>
<td>Hawa Mahal</td>
<td>Approx 100 m</td>
<td>Silence</td>
<td>50</td>
<td>NA</td>
<td>66.5, 61.5, 66.7</td>
</tr>
</tbody>
</table>

NA – Not Available
# - As per baseline line data given in the EIA

![Noise Monitoring Results Day Time](image)
Table 9: Noise Monitoring Results (Night time)

<table>
<thead>
<tr>
<th>Location</th>
<th>Distance from nearest metro construction site</th>
<th>Category of Area/Zone</th>
<th>National Standard (Night time) Leq dB(A)</th>
<th>Baseline value (Night time) Leq dB(A)</th>
<th>Noise levels (Night time) Leq dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Casting Yard (Bhankarota)</td>
<td>0</td>
<td>Industrial</td>
<td>70</td>
<td>NA</td>
<td>49.8 51.7 52.0</td>
</tr>
<tr>
<td>Chandpole</td>
<td>0</td>
<td>Commercial</td>
<td>55</td>
<td>66#</td>
<td>50.3 51.2 51.0</td>
</tr>
<tr>
<td>Maharaja School</td>
<td>Approx 50 m</td>
<td>Silence</td>
<td>40</td>
<td>NA</td>
<td>50.5 51.0 51.9</td>
</tr>
<tr>
<td>Chaudhry Hospital</td>
<td>Approx 400m</td>
<td>Silence</td>
<td>40</td>
<td>NA</td>
<td>50.8 51.0 51.8</td>
</tr>
<tr>
<td>Pink City Hospital</td>
<td>Approx 250 m</td>
<td>Silence</td>
<td>40</td>
<td>NA</td>
<td>51.0 51.3 51.4</td>
</tr>
<tr>
<td>Krishna Temple</td>
<td>Approx 300 m</td>
<td>Silence</td>
<td>40</td>
<td>NA</td>
<td>50.5 50.1 55.7</td>
</tr>
<tr>
<td>Jantar Mantar</td>
<td>Approx 300 m</td>
<td>Silence</td>
<td>40</td>
<td>NA</td>
<td>50.2 50.6 50.1</td>
</tr>
<tr>
<td>Hawa Mahal</td>
<td>Approx 100 m</td>
<td>Silence</td>
<td>40</td>
<td>NA</td>
<td>55.2 50.9 56.8</td>
</tr>
</tbody>
</table>

NA – Not Available
# - As per baseline line data given in the EIA
D. Air Quality

The ambient status of five major air pollutants PM$_{10}$, Sulphur Dioxide (SO$_2$), Oxides of Nitrogen (NOx) and Carbon Monoxide (CO) representing the quality of pollution level have been assessed by monitoring air quality at four locations viz. Casting Yard, Chandpole launching shaft, Chhoti Chaupar & Badi Chaupar. The air quality monitoring results indicate that PM$_{10}$ concentration exceeds the limits specified by CPCB for all sites but the monitored values are less than the baseline value.

Air monitoring was carried out from October 2018. Test results are summarized in Table 10. Sample monitoring reports are given in Appendix 4.

**Table-10: Air Quality Monitoring Results**

<table>
<thead>
<tr>
<th>Location</th>
<th>NAAQS PM$_{10}$ (Unit µg/m$^3$)</th>
<th>Baseline data PM$_{10}$ (Unit µg/m$^3$)</th>
<th>PM$_{10}$ Monitoring results (Unit µg/m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Oct</td>
</tr>
<tr>
<td>Casting Yard</td>
<td>100</td>
<td>Not available*</td>
<td>142</td>
</tr>
<tr>
<td>Chandpole</td>
<td>100</td>
<td>180*</td>
<td>127</td>
</tr>
<tr>
<td>Chhoti Chaupar</td>
<td>100</td>
<td></td>
<td>114</td>
</tr>
<tr>
<td>Badi Chaupar</td>
<td>100</td>
<td></td>
<td>142</td>
</tr>
</tbody>
</table>

*As per Rajasthan Pollution Control Board (RSPCB) 2012 air quality monitoring data reported in the EIA for Chandpole. The same has been considered as baseline data for Chhoti Chaupar and Badi Chaupar since both locations are within the air shed area of Chandpole.

# Baseline data for Casting Yard (Bhankarota) is not available.
61. **Air Pollution Control**: The mitigation measures, which have adopted to reduce the air pollution, are: all transportation of construction materials should be covered manner. To minimize dust emission due to disposal of muck, handling of aggregate and cement at site, there are sprinkling of water on the internal roads. Vehicle speed restriction of 5-10 km/hrs have been followed at site, tyre washing facility have been provided for cleaning of vehicles/tyres at Chandpole exit gate.

E. **Water Quality**

62. Water samples were collected from nearby bore wells during December, 2018 to check the quality of the water. Quarterly water analysis results are compared with IS 10500:2012 and found within permissible limited. Results are summarized in Table 11 and monitoring reports are provided in Appendix 4.

**Table 11: Water Quality Monitoring Results**

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Parameters</th>
<th>Units</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sample Identification</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>pH (at 25 ºC)</td>
<td>-</td>
<td>7.4</td>
</tr>
<tr>
<td>2.</td>
<td>Turbidity</td>
<td>NTU</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>3.</td>
<td>Conductivity</td>
<td>µs/cm</td>
<td>980</td>
</tr>
<tr>
<td>4.</td>
<td>Total Dissolved Solids</td>
<td>mg/L</td>
<td>628</td>
</tr>
<tr>
<td>5.</td>
<td>Total Suspended Solids</td>
<td>mg/L</td>
<td>&lt;10</td>
</tr>
<tr>
<td>6.</td>
<td>Oil and Grease</td>
<td>mg/L</td>
<td>&lt;2.5</td>
</tr>
<tr>
<td>7.</td>
<td>Dissolve Oxygen</td>
<td>mg/L</td>
<td>6.8</td>
</tr>
<tr>
<td>8.</td>
<td>E. Coli</td>
<td>Per 100 ml</td>
<td>Absent</td>
</tr>
</tbody>
</table>

7. **SOCIAL AND RESETTLEMENT IMPACTS**

A. **Impacts on Structures**

A.1 **Shifting of Temples**

63. When the work of Phase 1B started it was found that 6 temples fell within the station box area of Chhoti Chaupar and Badi Chaupar where digging is necessary for construction of stations, required immediate relocation. Three of these temples were at Chhoti Chaupar & another three at Badi Chaupar, as under:

1. Hanuman Mandir (Chhoti Chaupar)
2. Shiv Mandir (Chhoti Chaupar)
3. Rojgareshwar Mandir (Chhoti Chaupar)
4. Shiv Mandir (Badi Chaupar)
5. Ganesh Mandir (Badi Chaupar)
6. Hanuman Mandir (Badi Chaupar)
64. As per the decision taken by High Power Committee chaired by Chief Secretary GoR, an office order was issued on 16.10.2014, that GAD land at Tripolia Bazar i.e. TanwarJikaNauhra (around 200 mt from Chhoti Chaupar) which has two courtyards admeasuring 542sqmt and 645 sqmt respectively be handed over to Jaipur Metro Rail Corporation for relocation of 6 temples and development of Two Wheeler Parking, respectively.

65. The possession of the land was taken over by JMRC from Public Works Department on 17.11.2014.

![Figure a: Location of TanwarJiKaNauhra (Land identified for temple relocation)](image)

66. As the planning and designing of station at Chhoti Chaupar and Badi Chaupar progressed, 7 additional temples were identified which either infringed the entry exit structure or came in mid of the traffic diversion scheme. The detail of the additional temples is as below:

1. Barah ling Mahadev (Chhoti Chaupar)
2. Rameshwar Mahadev (Chhoti Chaupar)
3. Bajrangbali Mandir (Chhoti Chaupar)
4. Peepleshwar Mahadev (Badi Chaupar)
5. Mahadev Ji/Mataji/Hanuman Mandir (Badi Chaupar)
6. Mahadev Mandir (Badi Chaupar)
7. Mahadev/Hanuman Mandir (Badi Chaupar)

67. Proper documentation and measurement were taken and recorded for all the temples.

68. Necessary measures have been taken for relocation of identified temples and 6 Temples of Chhoti Chaupar have already been relocated at Old Atish market.

69. On 11.05.2015/12.05.2015, six temples of Chhoti Chaupar were shifted to Old Atish Market and MurtiSthapna was done along with proper ritual ceremony.
As per earlier directions, following was the status of the matter related to shifting of 7 temples at Badi Chaupar is as below:

<table>
<thead>
<tr>
<th>Temple No.</th>
<th>Temple Name</th>
<th>Owner Name</th>
<th>Existing Area (sqmt)</th>
<th>Proposed Shifting to</th>
<th>Area Allocated at new site</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shiv Mandir, ShGaurishankarji, On Median towards Chhoti Chaupar</td>
<td>Sh. Jeetendra Vyas</td>
<td>2.747</td>
<td>Tanwar Ji Ka Nauhra</td>
<td>6.25 sqmt (2.5 x 2.5 mt)</td>
</tr>
<tr>
<td>2</td>
<td>DhruvMukhiMahav er Hanuman Mandir, NW Khanda</td>
<td>Sh. Abhishek Sharma</td>
<td>3.781</td>
<td>Ramnagariya Yojana</td>
<td>45 sqmt (Plot No. A363)</td>
</tr>
<tr>
<td>3</td>
<td>Ganesh ji Shivalay Mandir, SE Khanda</td>
<td>Sh. Vishnu Kr Sharma</td>
<td>3.132</td>
<td>Rajarampura Awasiya Yojana</td>
<td>45 sqmt (Plot No. 229)</td>
</tr>
<tr>
<td>4</td>
<td>Peepleshwar Mahadev, Hanumanji, Ganesh mandir- SW Khanda</td>
<td>Sh. Rajnarayan Vyas</td>
<td>8.02</td>
<td>Tanwar Ji Ka Nauhra</td>
<td>8.00 sqmt (3.2 x 2.5 mt)</td>
</tr>
<tr>
<td>5</td>
<td>Mahdev ji, Mataji, Hanuman Mandir- SE Khanda</td>
<td>Sh. Purushotam Bhar ti</td>
<td>39.97</td>
<td>Tanwar Ji Ka Nauhra</td>
<td>40.0 sqmt(6.325 x 6.325 mt)</td>
</tr>
<tr>
<td>6</td>
<td>Mahadev Mandir, Outside Police thana- NE Khanda (Shri Jamneshwar Mahadev Trust)</td>
<td>Sh. Dinesh Vyas</td>
<td>5.096</td>
<td>Ramnagariya Yojana</td>
<td>90 sqmt</td>
</tr>
<tr>
<td>7</td>
<td>Mahadev/Hanuman Mandir, Outside Police thana- NE Khanda (Shri Amneshwar Mahadev Trust)</td>
<td></td>
<td>4.899</td>
<td>Ramnagariya Yojana</td>
<td></td>
</tr>
</tbody>
</table>
71. All matters related to compensation and relocation of temples at Chhoti & Badi Chaupar are being dealt with at the level of Collector, Jaipur.

72. Government is continuously in touch with the stakeholders and is in process of ensuring that sentiments of people at large are not hurt. Rozgareshwar Temple at Chhoti Chaupar will be relocated back to its original position after completion of Station work at Chhoti Chaupar.

73. The current status of shifting of temples of Chhoti Chaupar and Badi Chaupar is as under:

<table>
<thead>
<tr>
<th>Chhoti Chaupar Temple Shifting Status</th>
<th>Present Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temple No.</strong></td>
<td><strong>Temple Name</strong></td>
</tr>
<tr>
<td>1</td>
<td>Kashta Haran Mahadev, Towards Kishanpole Bazar</td>
</tr>
<tr>
<td>2</td>
<td>Kanwal Sahab Hanuman Mandir, near Chhoti Chaupar</td>
</tr>
<tr>
<td>3</td>
<td>Rojgareshwar Mandir, On median towards Tripolia Side</td>
</tr>
<tr>
<td>4</td>
<td>Barah Ling Mahadev (Gulabi Rang), NE Khanda</td>
</tr>
<tr>
<td>5</td>
<td>Rameshwar Mahadev (White marble), NE Khanda</td>
</tr>
<tr>
<td>6</td>
<td>Bajrangbali Mandir (Pyayu), NW Khanda</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Badi Chaupar Temple Shifting status</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Temple</strong></td>
<td><strong>Temple Name</strong></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Site at Tanwarji KaNauhra

Site behind manak Chowk Thana (Badi Chaupar)
### B. Land Acquisition and Resettlement

#### 74. For the purpose of easing the traffic diversion near Sanjay Circle, Chandpole, JMRC has processed for acquisition of 3 shops located at Sansar Chand Road. Details are given below:

<table>
<thead>
<tr>
<th>SN</th>
<th>Shop Detail</th>
<th>Name of Shop Owner</th>
<th>Name of Shopkeeper</th>
<th>Area (sq.m)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Shekhawat Rajput Dhaba (Part of Shop No. 12)</td>
<td>Mohd. Salim, S/o Yaseen Khan</td>
<td>MukutBihari, Satynarayan, S/o Banshilal Mehra</td>
<td>7.49</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bharat Cold Drink (Part of Shop No. 12)</td>
<td></td>
<td></td>
<td>3.90</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Shiv Pan Bhandar (Part of Shop No. 12)</td>
<td></td>
<td>Bihari Lal Nandlal Saini</td>
<td>1.30</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>DCB ATM</td>
<td>Smt. Mamta Kanwar W/o Sohan Singh Shekhawat</td>
<td>DCB Bank</td>
<td>5.46</td>
<td></td>
</tr>
</tbody>
</table>
75. Considering the time required for land acquisition process as per new Land Acquisition Act of GOI, it was agreed and decided by JMRC (in consultation and discussion with shop owners) to undergo a mutual agreement with shop and land owners and tenenats to provide land for land and rebuild the shops in the land owned by JMRC on the other side of the road near Chandpole station (Near Church land). Besides resettling shops, JMRC also agreed to provide assistance in building the civil structure.

76. The new shops were built by JMRC on its land near the church on the other side of the Chandpole station. The shops are currently functioning in routine basis. The details are as under: owners have given their consent to the proposal. JMRC is in the process of getting written consents from shop owners and shifting will be done in consultations with shop owners before start of work near these shops.

<table>
<thead>
<tr>
<th>S. NO.</th>
<th>Name of Shops</th>
<th>Owner/Interested Person</th>
<th>Name of the Tenant</th>
<th>Area of the Land to be Acquired in sqm.</th>
<th>Land Allotted in lieu of Land at Chandpole Metro Station in sqm.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Name of Owner</td>
</tr>
<tr>
<td>1</td>
<td>ShekhawatRajootDhaba Part of Shop No. 12</td>
<td>Mohammad Saleem S/o Yaseen Khan Plot No. 206,</td>
<td>MukutBehari, Satyanarayan S/o BanshilalMehra,</td>
<td>7.49</td>
<td>Mohammad. Saleem S/o Yaseen Khan</td>
</tr>
<tr>
<td></td>
<td>(Agreement on 16.06.15)/</td>
<td>Near Badi Masjid, Jalupura, Jaipur</td>
<td>105-A, RanaPratap Nagar, Jhotwada, Jaipur</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Compensation paid INR 71581/- in total of shops till Sno. 3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bharat Cold Drinks Part of Shop No. 12</td>
<td>Mo. Saleem S/o Yaseen Khan Plot No. 206, Near Badi Masjid, Jalupura, Jaipur</td>
<td>MukutBehari, Satyanarayan S/o BanshilalMehra, 105-A, RanaPratap Nagar, Jhotwada, Jaipur</td>
<td>3.90</td>
<td>Mohammad. Saleem S/o Yaseen Khan</td>
</tr>
<tr>
<td></td>
<td>(Agreement on 16.06.15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Shiv Pan Bhandar Part of Shop No. 12</td>
<td>Mo. Saleem S/o Yaseen Khan Plot No. 206, Near Badi Masjid, Jalupura, Jaipur</td>
<td>Beharilal S/o NandlalSaini, 1468, Bagruwalonka Rasta, Chandpole, Jaipur</td>
<td>1.30</td>
<td>Mohammad. Saleem S/o Yaseen Khan</td>
</tr>
</tbody>
</table>
C. COMPENSATION FOR DAMAGES DUE TO

77. Due to exceptionally loose soil underneath, two verandah pillars got settled and verandah roof got tilted in front of shop no. 370-371 of Tripolia Bazar on 07.02.2015, when a trench was being dug adjacent to the verandahs for shifting a PHED pipeline. No one got hurt and there was no damage to any shops. All protective measures were taken to contain any further damage to the verandahs. The two affected verandahs had to be dismantled and were reconstructed by JMRC under supervision of Jaipur Municipal Corporation. To avoid recurrence of such incidence in future, following action were taken:

(a) Plan of shifting the PHED pipelines was reviewed and revised. Accordingly, instead of putting these pipelines underground at the edge of Verandah, these pipelines were put at the road level during construction period and will later on be shifted to utility duct which will be constructed as part of station building.

(b) Additional support in the form of steel props were provided in front of all the 100 shops in front of which construction work was be done at Chhoti Chaupar.

(c) The construction company and the General Consultants were directed to ensure presence of a senior manager at the work site at all times.

78. Regarding the compensation for the shopkeepers impacted by the damaged verandah, compensation was paid to the shopkeepers. Since, the shops remained closed for 4 days i.e. from 08.02.2015 to 11.02.2015, the compensation of INR Rs. 660/day for 4 days was paid (total Rs. 2640.00) to each of the following shopkeepers /firm/individual doing business:

<table>
<thead>
<tr>
<th>SN</th>
<th>Shop No.</th>
<th>Name of Shop owner/firm/individual doing business</th>
<th>Amount to be Paid (In INR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>369</td>
<td>S.K. Bangles Manufacturer</td>
<td>2640*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M/s BhaiyajiFidaHussain</td>
<td>2640*</td>
</tr>
</tbody>
</table>
8. PUBLIC CONSULTATIONS AND ADDRESSING OF GRIEVANCES

A. Public Consultations carried out

79. Consultations are being held regularly with the local people in the project area including relevant government agencies, the business associations in the project area such as the Chandpole Bazaar VyaparMandal and Tripolia Bazaar VyaparMandal.

80. JMRC has taken all possible measures to ensure that following concerns are regularly addressed:

a) Heritage character of Jaipur  
   b) Traffic diversion during construction  
   c) Inclusion of all key stakeholders

81. During the period of this report (October 2018 – December 2018) following consultations were held:

<table>
<thead>
<tr>
<th>Date</th>
<th>Venue</th>
<th>Participants</th>
<th>Detail of discussion held</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.10.2018</td>
<td>Badi chauper</td>
<td>BadichauparVyapaarMandal</td>
<td>Issue related to difficulty in access to shops in NE Khanda at Badi Chaupar due to Baricading Board.</td>
</tr>
<tr>
<td>05.11.2018</td>
<td>Chhoti Chaupar</td>
<td>Choti chauparVyapaarMandal</td>
<td>Brief over the site progress at Chhoti chauper Entry Exist work</td>
</tr>
</tbody>
</table>

B. Complaints and Requests Received

82. During the period of reporting (October 2018 – December 2018), no written grievances and requests application was received from the local people in the project area. Although minor complaints like provision for more lighting in the area, removal/shifting of barricading etc. were raised by the general public.

9. UNANTICIPATED SAFEGUARD ISSUES

During the reporting period from October 2018 – December 2018, no such anticipated safeguard issues were come across.
10. CONCLUSION

A. Summarize the overall Progress of Implementation of safeguard Measures

The implementation environmental and social safeguard measures in this project show a highly satisfactory level. Overall compliance status of items defined in EMP is summarized in Table 13.

Table 13: EMP Compliance Status

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Clause/Description</th>
<th>Compliance Status 01.10.2018 – 31.12.2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pre-construction stage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. HSO and Environmental officer</td>
<td>FC  PC  NC  NA</td>
</tr>
<tr>
<td></td>
<td>b. CSC Environment Expert</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. EMP documentation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. GPR study &amp; Baseline survey of heritage structures</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Construction stage – General</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Traffic management</td>
<td>FC  PC  NC  NA</td>
</tr>
<tr>
<td></td>
<td>b. Safe guarding of heritage structures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Minimum public disturbance</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Utility diversion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Safe keeping of heritage findings</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Construction stage – Legal requirement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. CTE &amp; CTO for batching plant &amp; casting yard</td>
<td>FC  PC  NC  NA</td>
</tr>
<tr>
<td></td>
<td>b. Permission for extraction of ground water</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. Authorization for storage of hazardous materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Permission for tunnelling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>e. Emission compliance of vehicles</td>
<td></td>
</tr>
<tr>
<td></td>
<td>f. Permission for felling trees</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Construction stage – Monitoring</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Air &amp; Noise monitoring</td>
<td>FC  PC  NC  NA</td>
</tr>
<tr>
<td></td>
<td>b. Instrumentation monitoring</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Construction stage – Environment protection</td>
<td></td>
</tr>
<tr>
<td></td>
<td>a. Tree cutting and transplantation</td>
<td></td>
</tr>
</tbody>
</table>

Overall sector environmental management progress could be described in qualitative terms or be evaluated based on a ranking system, such as the following:

1. Very Good
2. Good
3. Fair
4. Poor
5. Very Poor

Additional explanatory comments should be provided as necessary.
### b. Air pollution
1

c. Noise pollution
1

d. Waste management
1

e. Soil/muck disposal
1

f. Landscape & Site aesthetics
1

#### 6. Construction stage – Health & Safety

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Site Safety</td>
<td>1</td>
</tr>
<tr>
<td>b. Labour camp condition</td>
<td>1</td>
</tr>
<tr>
<td>c. Vector borne diseases</td>
<td>1</td>
</tr>
<tr>
<td>d. SHE reports</td>
<td>1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Score</th>
<th>20</th>
<th>4</th>
<th>0</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage compliance</td>
<td>72%</td>
<td>14%</td>
<td>0%</td>
<td>14%</td>
</tr>
</tbody>
</table>

**FC** – Full Compliance  
**PC** – Partial Compliance  
**NC** – No Compliance  
**NA** – Not Applicable

---

### B. Problems Identified and Actions Recommended

83. During the previous reporting period (July 2018– September 2018), some of the issues were identified such as follow-up with regulatory / government agencies to get pending approvals/permits and full time environmental specialist by the CSC. However, these issues are still pending.

84. Finally, according to the field observations and investigations it was able to identify that the most of the environmental requirements are being complied with regulations.
Appendices

1. Photo log
2. Record of SHE Training
3. Sample format of Monthly SHE report
4. Environment Quality Monitoring Report
6. Consent to Operate letter from State Pollution Control Board
7. Muck disposal site photographs and details
8. Tree transplantation details
9. Permission letter from ADM for tree transplantation
10. Swachh Bharat Abhiyan (Clean India campaign) /awareness campaign from 15th September to 2nd October, 2018 at project site JMRC UG1-B.
# Appendix 1: Photo log of Progress

<table>
<thead>
<tr>
<th>Actual Photographs of Site from different locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>View of Concourse platform Chhoti Chouper station</td>
</tr>
<tr>
<td>View of Chhoti chouper Track and Platform level</td>
</tr>
<tr>
<td>View of Track, Traction line and Utilities in the Down line track towards Badichouper</td>
</tr>
<tr>
<td>View of Kund area, Choti chouper</td>
</tr>
</tbody>
</table>
HIV/AIDS Awareness program among workers on world Aids Day (1st December 2018)

Focussed training on Height work /Use of Harness belt at work place

Labour camp at casting yard

Occupational Health/First Aid training and special training conducted on Health & Hygiene
<table>
<thead>
<tr>
<th>Monthly Mass Tool Box Talk and Incentives/ Awards to workers at site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breath analysis during night shift at Choti chouper station</td>
</tr>
<tr>
<td>Noise monitoring at Badi choupar station</td>
</tr>
</tbody>
</table>
Appendix 2: Record of SHE Trainings

1. Details of SHE training conducted in the month of October 2018 – December 2018

Month of October, 2018 Trainings:

- Illumination testing
- Barricades boards cleaning
- Frequent pest control at site
- Cleaning & brooming at public traffic road
<table>
<thead>
<tr>
<th>SN.</th>
<th>DATE</th>
<th>LOCATION</th>
<th>TOPIC</th>
<th>No. of person</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>03/10/2018</td>
<td>Casting yard</td>
<td>Safety Precautions in Welding and Gas cutting</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>08/10/2018</td>
<td>Casting yard</td>
<td>Safety Precautions in Lifting &amp; Rigging work</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>10/10/2018</td>
<td>Casting yard</td>
<td>Permit to Work System</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>12/10/2018</td>
<td>Casting yard</td>
<td>Fire Fighting</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>15/10/2018</td>
<td>Casting yard</td>
<td>Heavy Lifting Operation</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>17/10/2018</td>
<td>Casting yard</td>
<td>Safety Precaution Welding, cutting and Bending work</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>18/10/2018</td>
<td>Casting yard</td>
<td>Welfare measures and Legal Requirements</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>23/10/2018</td>
<td>Casting yard</td>
<td>First Aid &amp; CPR</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>26/10/2018</td>
<td>Casting yard</td>
<td>Environment Pollution and Control</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>30/10/2018</td>
<td>Casting yard</td>
<td>Safe Rigging Operation</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>31/10/2018</td>
<td>Casting yard</td>
<td>Use of SCABA</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>01/10/2018</td>
<td>Chandpole</td>
<td>Traffic Management</td>
<td>08</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>04/10/2018</td>
<td>Chandpole</td>
<td>Safe operation of Power and Hand Tools</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>05/10/2018</td>
<td>Chandpole</td>
<td>Safety Precaution in Welding and Gas cutting</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>08/10/2018</td>
<td>Chandpole</td>
<td>Fire Safety</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>10/10/2018</td>
<td>Chandpole</td>
<td>Scaffolding erection &amp; Dismantling</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>12/10/2018</td>
<td>Chandpole</td>
<td>Safe Lifting and Rigging</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>17/10/2018</td>
<td>Chandpole</td>
<td>Permit to Work System</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>19.</td>
<td>18/10/2018</td>
<td>Chandpole</td>
<td>First Aid</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>22/10/2018</td>
<td>Chandpole</td>
<td>Waste Management</td>
<td>09</td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>23/10/2018</td>
<td>Chandpole</td>
<td>Use of PPEs</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>01/10/2018</td>
<td>Chhoti Chouper</td>
<td>Safe operation of Hand Tools</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>04/10/2018</td>
<td>Chhoti Chouper</td>
<td>Safe operation of Power Tools</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>04/10/2018</td>
<td>Chhoti Chouper</td>
<td>Manual Material Handling</td>
<td>32</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>05/10/2018</td>
<td>Chhoti Chouper</td>
<td>Scaffolding safety.</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>05/10/2018</td>
<td>Chhoti Chouper</td>
<td>Safe lifting and Rigging of Materials</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>08/10/2018</td>
<td>Chhoti Chouper</td>
<td>Traffic Safety</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>09/10/2018</td>
<td>Chhoti Chouper</td>
<td>HSE Communication</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>29.</td>
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<td>DMRC</td>
<td>9574356111</td>
</tr>
<tr>
<td>7</td>
<td>D. K. Chaudhary</td>
<td>SE/Elect.</td>
<td></td>
<td>DMRC</td>
<td>9717155959</td>
</tr>
<tr>
<td>8</td>
<td>K. M. Dand</td>
<td>Safety Manager</td>
<td></td>
<td>Automation Ltd.</td>
<td>9424528476</td>
</tr>
<tr>
<td>9</td>
<td>Kaushikendra Singh</td>
<td>Sr. SHE MFR</td>
<td></td>
<td>MIS ETH</td>
<td><a href="mailto:Singh.Kaushikendra11@Etn.com">Singh.Kaushikendra11@Etn.com</a></td>
</tr>
<tr>
<td>10</td>
<td>Rajendra Singh</td>
<td>Sr. SHE Electro.</td>
<td></td>
<td>MIS ETA</td>
<td>8741984963</td>
</tr>
<tr>
<td>11</td>
<td>Sajat Pratap Singh</td>
<td>Sr. SHE Manager</td>
<td></td>
<td>MIS ETA Engr.</td>
<td>8802377201</td>
</tr>
<tr>
<td>13</td>
<td>Dr. Singh</td>
<td>Mgr. Engr.</td>
<td></td>
<td>ETA</td>
<td>978237678</td>
</tr>
<tr>
<td>14</td>
<td>Kamal Sharma</td>
<td>Mgr. HR</td>
<td></td>
<td>CEC</td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 2: Record of SHE Trainings

### SHE Training photographs

<table>
<thead>
<tr>
<th>Environment awareness training on SWACHH BHARAT ABHIYAN - Clean India Campaign</th>
</tr>
</thead>
</table>

<p>| CPR Training | Emergency Mock drill Training in the station |</p>
<table>
<thead>
<tr>
<th>TBT/ Pre start work training, Choti chouper station</th>
<th>Training for Fire Fighting at casting yard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breath analysis/ Alcohol Testing</td>
<td>General Housekeeping &amp;brooming</td>
</tr>
<tr>
<td>Illumination Monitoring</td>
<td>First Aid training</td>
</tr>
<tr>
<td>------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Health &amp;Hygiene training at site</td>
<td>Training of safe work practices</td>
</tr>
</tbody>
</table>
Appendix 3: Sample format of Monthly SHE report

CONTINENTAL ENGINEERING CORPORATION

MONTHLY SAFETY, HEALTH & ENVIRONMENTAL REPORT

December - 2018

DOCUMENT No. RP/IMRC/SHE/UG1B/PHOF/054
Revision =00, Date 09.01.2019

DESIGN AND CONSTRUCTION OF TUNNEL BETWEEN CHANDPOLE AND BADI CHOUPER AND REVERSAL LINE BY SHIELD TBM, UNDERGROUND METRO STATION AT CHOTI CHOUPER AND BADI CHOUPER BY CUT & COVER METHOD ON EAST-WEST CORRIDOR OF JAIPUR METRO (PHASE-1B) AT JAIPUR, RAJASTHAN, INDIA

CONTRACT NO: JP/EW/1B/C1
SUBMITTED BY-
CONTINENTAL ENGINEERING CORPORATION (CEC)

<table>
<thead>
<tr>
<th>PREPARED BY</th>
<th>REVIEWED BY</th>
<th>APPROVED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAME:</td>
<td>RAJANEESH KUMAR</td>
<td>RAJ KISHOR PANDEY</td>
</tr>
<tr>
<td>DESIGNATION:</td>
<td>OFFICER SAFETY</td>
<td>CHIEF SHE MANAGER</td>
</tr>
<tr>
<td>DATE:</td>
<td>9th January, 2019</td>
<td>9th January, 2019</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix 4: Sample Ambient Air and Noise monitoring report

### Idma Laboratories Limited

(A Government Approved Test House)

MOEF/BIS/FSSAI/State Pollution Board/Drug & Cosmetics Act/ISO 9001: 14001; 18001 Certified

---

### TEST REPORT

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>IL/D-7258</th>
<th>Date</th>
<th>26.12.18</th>
<th>Lab No.</th>
<th>201218ED-NL-031</th>
<th>Page No.</th>
<th>1/1</th>
</tr>
</thead>
</table>

**Customer**
Continental Engineering Corporation (CEC)
JMRC UG-1B Project, Old Police Head quarter (PHQ) Near FRO, Opposite City Palace, Behind Hawa Hamal, Badi Choupar, Jaipur- 302002 Rajasthan

**Type of Sample**
AMBIENT AIR

**Customer’s Description of Sample**
AMBIENT AIR

**Quantity**
1 No.

**Packing, Markings**
Filter Paper Packaged in Polythene Pouch

**Mode of Collection of Sample**
Sampling By Laboratories

**Work Order No.**
I8150JSQ1284

**Date of Receipt of Sample**
20/12/2018

**Date of Sampling**
18/12/2018

**Date of Reporting**
23/12/2018

**Sampling Team Idma**
Mr. Sourav Kamboj

**Sampling Location**
Badi Choupar (Near Safety Office)

**Visual Observation**
N/A

**Sampling Protocol**
IS: 5182

**Testing Protocol**
IS 5182

### RESULTS

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Test Parameter</th>
<th>Units</th>
<th>Results</th>
<th>Requirements (MAX)</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Particulate Matter (PM10)</td>
<td>µg/m³</td>
<td>137</td>
<td>100</td>
<td>IS: 5182 (P-25), 2006</td>
</tr>
<tr>
<td>2</td>
<td>Sulphur Dioxide (SO2)</td>
<td>µg/m³</td>
<td>15.9</td>
<td>80</td>
<td>IS: 5182 (P-2), 2001</td>
</tr>
<tr>
<td>3</td>
<td>Nitrogen Dioxide (NO2)</td>
<td>µg/m³</td>
<td>22.4</td>
<td>80</td>
<td>IS: 5182 (P-6), 2006</td>
</tr>
<tr>
<td>4</td>
<td>Carbon Monoxide (CO)</td>
<td>mg/m³</td>
<td>0.76</td>
<td>2</td>
<td>IS: 6162 (P-16) 1999</td>
</tr>
<tr>
<td>5</td>
<td>Lead (Pb)</td>
<td>µg/m³</td>
<td>&lt;0.1</td>
<td>1</td>
<td>IS: 5182 (P-22), 2004</td>
</tr>
<tr>
<td>6</td>
<td>Suspended Particulate Matter (SPM)**</td>
<td>µg/m³</td>
<td>241</td>
<td></td>
<td>IS: 6182 (P-4) 1999</td>
</tr>
</tbody>
</table>

**Opinion:**
Note: *are not covered NABL

---

**End of Report**

---

Idma Corporate Park, 391, Industrial Area, Phase-I, Panchkula, Haryana.
Tel. No.: 0172-2577391, 5064827, 5064830, Fax No.: 91-172-2583587
Website: www.idmagroup.co.in  E-mail: testing@idmagroup.co.in

Turn Overleaf
Idma Laboratories Limited
(A Government Approved Test House)

TEST REPORT

Ref. No. IL/D-7272 | Date: 26.12.18 | Lab No.: 201216ED-NL-035 | Page No. 1/1

Customer: Continental Engineering Corporation (CEC)
JMRC UG-1B Project, Old Police Headquarter (PHQ) Near FRO, Opposite City Police, Behind Hawa Hanmi, Bedi Chowk, Jaipur-302002 Rajasthan

Type of Sample: AMBIENT NOISE

Customer's Description of Sample: AMBIENT NOISE

Quantity: 1 No.

Packing, Markings: Instrumental At Site

Mode of Collection of Sample: Sampling By Laboratories

Work Order No.: I6130SJD1284 | Dated: 22/06/2018

Date of Receipt of Sample: 20/12/2018

Period of Analysis: 20/12/2018 To 23/12/2018

Sampling Team: Mr. Sourav Kambol

Sampling Location: Pink City Hospital (Chand Pole)

Visual Observation: N/A

Date of Sampling: 18/12/2018

Date of Reporting: 23/12/2018

Sampling Protocol: CPCB

Testing Protocol: CPCB

RESULTS

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Test Parameter</th>
<th>Units</th>
<th>Results</th>
<th>Limits, Day</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lmax</td>
<td>dB(A)</td>
<td>73.2</td>
<td></td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>2</td>
<td>Lmin</td>
<td>dB(A)</td>
<td>50.2</td>
<td></td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>3</td>
<td>Leq</td>
<td>dB(A)</td>
<td>69.9</td>
<td></td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>4</td>
<td>L10</td>
<td>dB(A)</td>
<td>63.0</td>
<td></td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>5</td>
<td>L50</td>
<td>dB(A)</td>
<td>60.6</td>
<td></td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>6</td>
<td>L100</td>
<td>dB(A)</td>
<td>54.1</td>
<td></td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>7</td>
<td>Lday</td>
<td>dB(A)</td>
<td>63.2</td>
<td>Max 75</td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>8</td>
<td>Lnight</td>
<td>dB(A)</td>
<td>51.4</td>
<td>Max 70</td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
<tr>
<td>9</td>
<td>Lon</td>
<td>dB(A)</td>
<td>56.1</td>
<td></td>
<td>IS:7194 (1994) RA:2005</td>
</tr>
</tbody>
</table>

**End of Report**

For Idma Laboratories Limited
Authorized Signatory
# Idma Laboratories Limited

(A Government Approved Test House)

MOEF/BIS/SSSAI/State Pollution Boards/Drug & Cosmetic Act/ISO 9001; 14001; 18001 Certified

## TEST REPORT

<table>
<thead>
<tr>
<th>Ref. No. IL/D- 7280</th>
<th>Date</th>
<th>Lab No.</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>26.12.18</td>
<td>2012DBD-NL-043</td>
<td>1/1</td>
</tr>
</tbody>
</table>

**Customer**

Continental Engineering Corporation (CEC)
JMRC UG-1B Project, Old Police Head quarter (PHQ) Near FRO, Opposite City Palace, Behind Hawa Hamal, Badi Choupur Jaipur-302002 Rajasthan

**Type of Sample**

Ground Water

**Customer's Description of Sample**

Ground Water

**Quantity**

5 Ltr.

**Packing, Markings, Seal & Quantity**

Plastic Can:

**Mode of Collection of Sample**

Sampling By Laboratories

**Work Order No.**

16130JSD1284

**Date of Receipt of Sample**

20/12/2018

**Period of Analysis**

20/12/2018 To 23/12/2018

**Sampling Team**

Idma

Mr. Sourav Kamboj

Mr. Arvind Kumar

**Sampling Location**

Chand Pole

**Visual Observation**

N/A

**Date of Sampling**

19/12/2018

**Date of Reporting**

23/12/2018

**Sampling Protocol**

IS: 3025

**Testing Protocol**

IS:10500:2012, Ad-1

## RESULTS

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Test Parameter</th>
<th>Units</th>
<th>Results</th>
<th>Desirable Limit</th>
<th>Permissible Limit</th>
<th>Test Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>pH Value</td>
<td>-</td>
<td>7.4</td>
<td>6.5 to 8.5</td>
<td>No Relaxation</td>
<td>IS:3025(P-11), 1983 RA-2012</td>
</tr>
<tr>
<td>2</td>
<td>Turbidity</td>
<td>NTU</td>
<td>&lt;1</td>
<td>1 max.</td>
<td>5 max.</td>
<td>IS:3025(P-10), 1984 RA-2012</td>
</tr>
<tr>
<td>3</td>
<td>Conductivity</td>
<td>S/cm</td>
<td>960</td>
<td>---</td>
<td>---</td>
<td>IS:3025 (P-14), 2013</td>
</tr>
<tr>
<td>4</td>
<td>Total Dissolved solids</td>
<td>mg/l</td>
<td>628</td>
<td>500 max</td>
<td>2000 max</td>
<td>IS:3025 (P-16), 1984 RA-2012</td>
</tr>
<tr>
<td>5</td>
<td>DO</td>
<td>mg/l</td>
<td>8.8</td>
<td>---</td>
<td>---</td>
<td>IS:3025 (P-38), 1969 RA-2009</td>
</tr>
<tr>
<td>6</td>
<td>Oil &amp; Grease</td>
<td>mg/l</td>
<td>&lt;2.5</td>
<td>---</td>
<td>---</td>
<td>IS:3025 (P-39), 1991 RA-2009</td>
</tr>
<tr>
<td>7</td>
<td>Total suspended solids</td>
<td>mg/l</td>
<td>&lt;10</td>
<td>---</td>
<td>---</td>
<td>IS:3025 (P-17), 1984 RA-2012</td>
</tr>
<tr>
<td>8</td>
<td>E. coli (MPN/100ml)</td>
<td></td>
<td>&lt;2 (Not Detected)</td>
<td>Shall Not be Detectable</td>
<td>---</td>
<td>IS1822-1981</td>
</tr>
</tbody>
</table>

**"End of Report"**

For Idma Laboratories Limited

Authorized Signatory

Idma Corporate Park, 391, Industrial Area, Phase-I, Panchkula, Haryana.
Tel. No.: 0172-2577391, 5064827, 5064830, Fax No.: 91-172-2583587
Website: www.idmagroup.co.in E-mail: testing@idmagroup.co.in
Appendix 5: Monthly Report of Heritage Consultant

In the reporting period, instrumentation and vibration monitoring were not carried out since there was no tunnelling activity.
Appendix 6: Consent to Operate letter from Rajasthan State Pollution Control Board

Regional Office Jaipur (S)
Rajasthan State Pollution Control Board
4, Jhalana Institutional Area Jhalana Doongri, Jaipur
Phone: 5159699 Fax: 5159699

Registered

File No : F(Tech)/Jaipur(Sanganer)/2805(1)/2016-2017/2142-2143
Order No : 2016-2017/Jaipur (S)/6083
Unit Id : 66141                   Date: 09/01/2017

M/s Continental Engineering Corporation
Continental Engineering Corporation C/o JMREC City Place
Premises jalevi Chowk Jaipur, Jaipur Tehsil:Jaipur
District:Jaipur

Sub: Consent to Operate under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21(4) of Air (Prevention & Control of Pollution) Act, 1981.
Ref: Your application for Consent to Operate dated 13/06/2016 and subsequent correspondence.

Sir,

Consent to Operate under the provisions of section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 (hereinafter to be referred as the Water Act) and under section 21 of the Air (Prevention & Control of Pollution) Act, 1981, (hereinafter to be referred as the Air Act) as amended to date and rules & the orders issued thereunder is hereby granted for your Tunnel Ring Manufacturing Plant plant situated at Village Keshavpura Teh Sanganer, Nera Kamla Nehru Flyover, Bhankota Jaipur Tehsil:Sanganer District:JAIPUR, Rajasthan, subject to the following conditions:

1. That this Consent to Operate is valid for a period from 22/08/2016 to 31/07/2031.

2. That this Consent is granted for manufacturing / producing following products / by products or carrying out the following activities or operation/processes or providing following services with capacities given below.

<table>
<thead>
<tr>
<th>Particular</th>
<th>Type</th>
<th>Quantity with Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>READY MIX CONCRETE</td>
<td>By Product</td>
<td>6,000.00 M3/MONTH</td>
</tr>
<tr>
<td>Tunnel Rings</td>
<td>Product</td>
<td>2,350.00 PCS PER MONTH</td>
</tr>
</tbody>
</table>

3. That this consent to operate is for existing plant, process & capacity and separate consent to establish/operate is required to be taken for any addition / modification / alteration in process or change in capacity or change in fuel.

4. That the quantity of effluent generation along with mode of disposal for the treated effluent shall be as under:

Page 1 of 5
Regional Office Jaipur (S)
Rajasthan State Pollution Control Board
4, Jhalana Institutional Area Jhalana Doongri, Jaipur
Phone: 5159688 Fax: 5159699

Registered

File No: F(Tech)/Jaipur(Sanganer)/2305(1)/2016-2017/2142-2143
Order No: 2016-2017/Jaipur (S)/6083
Unit Id: 66141
Date: 09/01/2017

<table>
<thead>
<tr>
<th>Type of effluent</th>
<th>Max. effluent generation (KLD)</th>
<th>Recycled Qty of Effluent (KLD)</th>
<th>Disposed Qty of effluent (KLD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Domestic Sewage</td>
<td>6.000</td>
<td>4.000</td>
<td>2.000 Septic Tank and Soakpit</td>
</tr>
</tbody>
</table>

That the sources of air emissions along with pollution control measures and the emission standards for the prescribed parameters shall be as under:

<table>
<thead>
<tr>
<th>Sources of Air Emissions</th>
<th>Pollution Control Measures</th>
<th>Prescribed Parameter</th>
<th>Prescribed Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiler (150KG/HOUR)</td>
<td>ADEQUATE STACK HEIGHT, Cyclone</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>DG SET (1 No.) (225KVA)</td>
<td>ACOUSTIC ENCLOSURE, ADEQUATE STACK HEIGHT</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>DG SET (2 No.) (160KVA EACH)</td>
<td>ACOUSTIC ENCLOSURE, ADEQUATE STACK HEIGHT</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>DG SET (2 Nos.) (1000KVA EACH)</td>
<td>ACOUSTIC ENCLOSURE, ADEQUATE STACK HEIGHT</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>DG SET (3 No.) (125KVA EACH)</td>
<td>ACOUSTIC ENCLOSURE, ADEQUATE STACK HEIGHT</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
Regional Office Jaipur (S)
Rajasthan State Pollution Control Board
4, Jhalana Institutional Area Jhalana Doongri, Jaipur
Phone: 5159699 Fax: 5159699

Registered

File No: F(Tech)/Jaipur(Sanganer)/2805(1)/2016-2017/2142-2143  
Order No: 2016-2017/Jaipur [S]/6083  
Date: 09/01/2017

Unit Id: 66141

19 That the occupier shall ensure that the noise from the operations in the unit does not exceed the prescribed noise standards for the Residential Area i.e. 55 dB (A) Leq during the day time and 45 dB (A) Leq during the night. The day time is reckoned in between 6:00 a.m. to 10:00 p.m. and the night time is reckoned between 10:00 p.m. to 6:00 a.m.

20 That, not withstanding anything provided hereinabove, the State Board shall have power and reserves its right, as contained under section 27(2) of the Water Act and under section 21(6) of the Air Act to review anyone or all the conditions imposed here in above and to make such variation as it deemed fit for the purpose of Air Act & Water Act.

21 That the grant of this Consent to Operate is issued from the environmental angle only, and does not absolve the project proponent from the other statutory obligations prescribed under any other law or any other instrument in force. The sole and complete responsibility to comply with the conditions laid down in all other laws for the time-being in force, rests with the industry/unit/project proponent.

22 That the grant of this Consent to Operate shall not, in any way, adversely affect or jeopardize the legal proceeding, if any, instituted in the past or that could be instituted against you by the State Board for violation of the provisions of the Act or the Rules made thereunder.

This Consent to Operate shall also be subject, besides the aforesaid specific conditions, to the general conditions given in the enclosed Annexure. The project proponent will comply with the provisions of the Water Act and Air Act and to such other conditions as may, from time to time, be specified, by the State Board under the provisions of the aforesaid Act(s). Please note that, non-compliance of any of the above stated conditions would tantamount to revocation of Consent to Operate and project proponent / occupier shall be liable for legal action under the relevant provisions of the said Act(s).

Yours Sincerely

Regional Officer [Jaipur (S)]

Copy To:
1 Master File.

Page 4 of 5
# Appendix-7: Muck disposal details

a) Quantity of Muck Disposal:

<table>
<thead>
<tr>
<th>Months</th>
<th>Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>3546 M³</td>
</tr>
<tr>
<td>November</td>
<td>1853 M³</td>
</tr>
<tr>
<td>December</td>
<td>3335 M³</td>
</tr>
</tbody>
</table>

b) No. of trucks used for the same

<table>
<thead>
<tr>
<th>Months</th>
<th>Number of Muck Disposal trucks</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>293 TRIPS</td>
</tr>
<tr>
<td>November</td>
<td>177 TRIPS</td>
</tr>
<tr>
<td>December</td>
<td>289 TRIPS</td>
</tr>
</tbody>
</table>

c) Average quantity of muck daily:

<table>
<thead>
<tr>
<th>Months</th>
<th>Average quantity of muck daily</th>
</tr>
</thead>
<tbody>
<tr>
<td>October</td>
<td>114.39 M³</td>
</tr>
<tr>
<td>November</td>
<td>61.76 M³</td>
</tr>
<tr>
<td>December</td>
<td>107.58 M³</td>
</tr>
</tbody>
</table>
d). Details of disposal site including photographs:

<table>
<thead>
<tr>
<th>Photographs of disposal (loaded and taken)site</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Excavated muck stored at site" /></td>
</tr>
<tr>
<td><img src="image" alt="Excavated muck stored at surface level" /></td>
</tr>
<tr>
<td><img src="image" alt="Muck loading into dumper by excavator" /></td>
</tr>
<tr>
<td><img src="image" alt="Loaded dumper properly covered by tarpaulin" /></td>
</tr>
<tr>
<td><img src="image" alt="Loaded dumper is going through public road for muck disposal" /></td>
</tr>
<tr>
<td><img src="image" alt="Road marsal deployed for safe entry/exit of vehicle" /></td>
</tr>
</tbody>
</table>

- Excavated muck stored at site
- Excavated muck stored at surface level
- Muck loading into dumper by excavator
- Loaded dumper properly covered by tarpaulin
- Loaded dumper is going through public road for muck disposal
- Road marsal deployed for safe entry/exit of vehicle
<table>
<thead>
<tr>
<th>Image 1</th>
<th>Image 2</th>
<th>Image 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleaning of public traffic road after disposal of soil from site</td>
<td>Landfilling at Nahargarh Biological Park, Jaipur</td>
<td>Landfilling at Rajasthan Police academy</td>
</tr>
<tr>
<td>Landfilling at Nahargarh Biological park</td>
<td>Muck disposal at sumel (Mathuradaspura)</td>
<td>Landscaping at JDA park, Hathigaon, Jaipur</td>
</tr>
</tbody>
</table>
Route Map

Map showing route for muck disposal
(Sumel, Mathuradaspura, Govindpura/Ropada & Langariyawas)
C&D waste disposal land (location & route map)

Map showing location & route for C&D waste disposal
(Khasra No.-1, Malpurachoudvillege, Near Sumel Housing scheme, Jaipur)
<table>
<thead>
<tr>
<th>Sl No</th>
<th>Previous Location</th>
<th>Current Location</th>
<th>Year of tree transplantation</th>
<th>Photographs</th>
<th>Remarks</th>
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<tr>
<td>1</td>
<td>Chhoti Chaupar</td>
<td>Ghat Ki Ghuni</td>
<td>2014</td>
<td></td>
<td>Not Survived</td>
</tr>
<tr>
<td>2</td>
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<td>Ghat Ki Ghuni</td>
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<td>4</td>
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<td>5</td>
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<td>Ghat Ki Ghuni</td>
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<tr>
<td>6</td>
<td>Badi Chaupar</td>
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<td>2014</td>
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<tr>
<td>Sl No</td>
<td>Tree No.</td>
<td>Tree Name</td>
<td>Previous Location</td>
<td>Current Location</td>
<td>Date of tree transplantation</td>
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<tr>
<td>1</td>
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<td>Gulmohar</td>
<td>Badi Chaupar</td>
<td>Ramniwas Garden</td>
<td>09.09.2015</td>
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<td>Chhoti Chaupar</td>
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<td>Date</td>
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<td>Ramniwas Garden</td>
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<td>Ramniwas Garden</td>
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<td>8</td>
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<td>Ashoka</td>
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<td>Ramniwas Garden</td>
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<td>9</td>
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<td>Chhoti Chaupar</td>
<td>Sylvan Biodiversity forest</td>
<td>26.08.2015</td>
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<td>Sylvan Biodiversity forest</td>
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<td>12</td>
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<td>Badi Chaupar</td>
<td>Sylvan Biodiversity forest</td>
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<tr>
<td>No.</td>
<td>No.</td>
<td>Tree</td>
<td>Location</td>
<td>Habitat Type</td>
<td>Date</td>
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<tr>
<td>13</td>
<td>94</td>
<td>Bed</td>
<td>Chhoti Chaupar</td>
<td>Sylvan Biodiversity forest</td>
<td>02.11.2015</td>
</tr>
<tr>
<td>14</td>
<td>108</td>
<td>Pipal</td>
<td>PS Chhoti Chaupar</td>
<td>Sylvan Biodiversity forest</td>
<td>04.11.2015</td>
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<tr>
<td>15</td>
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<td>Sylvan Biodiversity forest</td>
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</tr>
<tr>
<td>TREE NO.</td>
<td>PHOTOGRAPHS</td>
<td>OBSERVATIONS / DETAILS</td>
<td>TRANSPLANTATION/ INSPECTION DATE</td>
<td>REMARKS</td>
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</tr>
<tr>
<td>Tree No. 118</td>
<td><img src="image1.jpg" alt="Tree Image" /></td>
<td>Tree No. 118 Transplanted at parking area, Biological park, Nahargarh from Exit-Entry (North-East) Badi Choupar station. Botanical name: FicusBenghalensis Common name: Bargad(बरगद) Girth: 11100 mm Weight: 34 ton Tree is in good condition and fresh bunches of shoots and growth of leaves seen. Photosynthesis of tree is in good condition and lush green leaves at various branches seen. Formation of new shoots is continuing at various locations of branches seen. Ample milky latex available and new shoots appeared with budding branches. Anti-termite and Anti-fungal solutions applied.</td>
<td>Transplanted on 16.02.2018 (Friday)</td>
<td>Status: SURVIVED</td>
<td></td>
</tr>
<tr>
<td></td>
<td><img src="image2.jpg" alt="Tree Image" /></td>
<td></td>
<td>Last inspected by Environment Manager on 13.10.2018 (Saturday)</td>
<td>Water dripping and growth monitoring of tree by Environment Manager &amp; forest staff is under progress</td>
<td></td>
</tr>
</tbody>
</table>
**Tree No. 120 Transplanted at parking area, Biological park, Nahargarh, from Exit-Entry (South-East) Badi Choupar station.**

**Botanical name:**
FicusBenghalensis

**Common name:**
Bargad (बरगद)

**Girth:** 7000 mm
**Weight :** 16 ton

**New bunch of shoots germination and leaves growth are seen.**

**Photosynthesis of tree is in good condition and lush green leaves are seen.**

**Formation of new shoots is continuing at various locations of branches seen.**

**Ample milky latex with heathy capillary reaction exists in the tree.**

**Anti-termite and anti-fungal solutions applied.**

---

**Transplanted on 13.02.2018 (Tuesday)**

**Last inspected by Environment Manager on 13.10.2018 (Saturday)**

**Status: Survived**

**Water dripping and growth monitoring of tree by Environment Manager & Forest staff is under progress**
<table>
<thead>
<tr>
<th>Tree No.</th>
<th>115</th>
</tr>
</thead>
</table>

Tree No. 115 Transplanted at parking area, Biological park, Nahargarh, from station Box, Badi Choupar station.

**Botanical name:** Ficus Benghalensis  
**Common name:** Bargad (बरगद)
**Girth:** 6500 mm  
**Weight:** 12 ton  

Existing leaves are fallen and formation of new shoots not seen.  
Milky latex found till 3 to 5 feet height from ground level at various locations.  
Existing shoots are healthy at two locations.  
Anti-termite and anti-fungal solutions applied.  

Transplanted on 09.02.2018 (Friday)  
Tree inspected by Environment Manager on 04.12.2018 (Tuesday)  
Status: Survived  
Water dripping and growth monitoring of tree by Environment Manager & Forest staff is under progress
<table>
<thead>
<tr>
<th>Tree No.</th>
<th>115 ‘A’ (BRANCH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimmed branches of tree no.-115 planted in front of Forester’s Office, Biological park, Nahargarh from Badi choupar station.</td>
<td></td>
</tr>
<tr>
<td>Botanical name:</td>
<td>FicusBenghalensis</td>
</tr>
<tr>
<td>Common name:</td>
<td>Bargad (बरगद)</td>
</tr>
<tr>
<td>New bunches of shoots formation &amp; leaves growth are seen at various locations.</td>
<td></td>
</tr>
<tr>
<td>Ample milky latex and capillary reaction exist in the tree.</td>
<td></td>
</tr>
<tr>
<td>Anti-termite and anti-fungal solutions applied.</td>
<td></td>
</tr>
<tr>
<td>Transplanted on</td>
<td>13.02.2018 (Tuesday)</td>
</tr>
<tr>
<td>Inspected by</td>
<td>Environment Manager on 04.12.2018 (Tuesday)</td>
</tr>
<tr>
<td>Status: Survived</td>
<td></td>
</tr>
<tr>
<td>Water pouring and growth monitoring of branches by Environment Manager &amp; Forest staff is under progress</td>
<td></td>
</tr>
<tr>
<td>Tree No.</td>
<td>115 'B' (BRANCH)</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------</td>
</tr>
</tbody>
</table>
|          |                 | **Botanical name:** FicusBenghalensis  
**Common name:** Bargad (बरगद)  
**New shoots formation seen, New leaves & its growth at various locations seen.**  
**Ample milky latex and capillary reaction exists in the branch.**  
**Anti-termite and anti-fungal solutions applied.** |
|          |                 | **Transplanted on 13.02.2018 (Tuesday)**  
**Inspected by Environment Manager on 04.12.2018 (Tuesday)**  
**Status: Survived**  
Water pouring and growth monitoring of branches by Environment Manager & Forest staff is under progress |
<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Botanical name: Ficus Benghalensis</th>
<th>Common name: Bargad (बरगद)</th>
<th>Fresh branches planted but NO shoot formation and its growth seen.</th>
</tr>
</thead>
<tbody>
<tr>
<td>115 'C'</td>
<td></td>
<td></td>
<td>Trimming branches of tree no.-115 planted near Forester’s office, Biological park, Nahargarh from Badi choupur station.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Botanical name:</strong> Ficus Benghalensis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Common name:</strong> Bargad (बरगद)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Girth: 7200 mm</td>
<td><strong>Transplanted on 13.02.2018 (Tuesday)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weight: 14 ton</td>
<td>Inspected by Environment Manager on 04.12.2018 (Tuesday)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Status:</strong> Not Survived</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Water pouring and growth monitoring of branches by Environment Manager &amp; Forest staff is under progress</td>
</tr>
<tr>
<td>93</td>
<td></td>
<td>Girth: 7200 mm</td>
<td><strong>Transplanted on 28.03.2018 (Wednesday)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Weight: 14 ton</td>
<td>Last inspected by Environment Manager on 04.12.2018 (Tuesday)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Status:</strong> Survived</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Water pouring and growth monitoring of tree by Environment Manager &amp; Forest staff is under progress</td>
</tr>
</tbody>
</table>
Anti-termite and anti-fungal solutions applied. Moss grass treatment applied for new shoot formation in the tree.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Plant Photograph</th>
<th>Plant Name</th>
<th>Plant Location</th>
<th>Date of Plantation</th>
<th>Remarks</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td><img src="image1" alt="Plant Photograph" /></td>
<td>Botanical name: <em>Saraca asoca</em>&lt;br&gt;Common name: <em>Ashoka</em> (अशोक)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
<td>Survived</td>
</tr>
<tr>
<td>2</td>
<td><img src="image2" alt="Plant Photograph" /></td>
<td>Botanical name: <em>Ficus benjamina</em>&lt;br&gt;Common name: <em>Pukar</em> (पुकर)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
<td>Survived</td>
</tr>
<tr>
<td></td>
<td>Botanical Name</td>
<td>Common Name</td>
<td>Location</td>
<td>Date</td>
<td>Status</td>
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<td>Ficus benjamina</td>
<td>Pukar (पूकर)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
<td>Survived</td>
</tr>
<tr>
<td>4</td>
<td>Syzygium cumini</td>
<td>Java plum (जामून)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
<td>Survived</td>
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<td>5</td>
<td>Ficus benjamina</td>
<td>Pukar (पूकर)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
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<td>Syzygium cumini</td>
<td>Java plum (जामून)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
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<tr>
<td>7</td>
<td>Ficus benghalensis</td>
<td>Bargad (बरगद)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
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</tr>
<tr>
<td>No.</td>
<td>Image</td>
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<td>Common name</td>
<td>Project Office</td>
<td>Date</td>
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<tr>
<td>8</td>
<td><img src="image1.png" alt="Image" /></td>
<td>Syzygium cumini</td>
<td>Java plum (जामून)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
</tr>
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<td>9</td>
<td><img src="image2.png" alt="Image" /></td>
<td>Ficus benjamina</td>
<td>Pukar (पुकर)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
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<td><img src="image3.png" alt="Image" /></td>
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<td>Java plum (जामून)</td>
<td>Project office (PHQ)</td>
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<td><img src="image4.png" alt="Image" /></td>
<td>Ficus Benghalensis</td>
<td>Bargad (बरगद)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
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<td>12</td>
<td><img src="image5.png" alt="Image" /></td>
<td>Saraca asoca</td>
<td>Ashoka (अशोक)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2018</td>
</tr>
<tr>
<td>No.</td>
<td>Botanical name</td>
<td>Common name</td>
<td>Location</td>
<td>Date</td>
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<td>13</td>
<td>Ficus benjamina</td>
<td>Pukar (पुकर)</td>
<td>Project office (PHQ)</td>
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<tr>
<td>14</td>
<td>Saraca asoca</td>
<td>Ashoka (अशोक)</td>
<td>Project office (PHQ)</td>
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<td>Ashoka (अशोक)</td>
<td>Project office (PHQ)</td>
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<tr>
<td>16</td>
<td>Ficus benjamina</td>
<td>Pukar (पुकर)</td>
<td>Casting Yard</td>
<td>8th March, 2018</td>
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<tr>
<td>17</td>
<td>Saraca asoca</td>
<td>Ashoka (अशोक)</td>
<td>Casting Yard</td>
<td>8th March, 2018</td>
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</tr>
<tr>
<td>Sr. No.</td>
<td>Plant Photograph</td>
<td>Plant Name</td>
<td>Plant Location</td>
<td>Date of Plantation</td>
<td>Remarks</td>
</tr>
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</tbody>
</table>
| 1.      | ![Plant1](image1) | Botanical name: *Ficus benjamina*  
Common name: *Pukar* (पॏकर) | Project office (PHQ) | 8<sup>th</sup> March, 2017 | Survived |
| 2.      | ![Plant2](image2) | Botanical name: *Ficus Benghalensis*  
Common name: Bargad (बरगद) | Project office (PHQ) | 8<sup>th</sup> March, 2017 | Survived |

23 Sampling planted at JMRC UG-1B project site during 46<sup>th</sup> NSW (4<sup>th</sup>-10<sup>th</sup> March-2017)
<table>
<thead>
<tr>
<th>No.</th>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Project Office</th>
<th>Date</th>
<th>Status</th>
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<td>3.</td>
<td><em>Syzygium cumini</em></td>
<td>Java plum (जामौन)</td>
<td>Project office (PHQ)</td>
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<td>Survived</td>
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<td>4.</td>
<td><em>Ficus benjamina</em></td>
<td>Pukar (पुकर)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>5.</td>
<td><em>Syzygium cumini</em></td>
<td>Java plum (जामौन)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>7.</td>
<td><em>Ficus religiosa</em></td>
<td>Peepal (पीपल)</td>
<td>Project office (PHQ)</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>No.</td>
<td>Botanical Name</td>
<td>Common Name</td>
<td>Location</td>
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<td>Status</td>
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<tr>
<td>8.</td>
<td><em>Syzygium cumini</em></td>
<td>Java plum (जामॅन)</td>
<td>Project office</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>9.</td>
<td><em>Ficus Benghalensis</em></td>
<td>Bargad (बरगद)</td>
<td>Project office</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>10.</td>
<td><em>Ficus Benghalensis</em></td>
<td>Bargad (बरगद)</td>
<td>Project office</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>11.</td>
<td><em>Ficus Benghalensis</em></td>
<td>Bargad (बरगद)</td>
<td>Project office</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>No.</td>
<td>Plant Name</td>
<td>Common Name</td>
<td>Project Office (PHQ)</td>
<td>Date</td>
<td>Status</td>
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</tr>
<tr>
<td>12.</td>
<td><strong>Saraca asoca</strong></td>
<td><strong>Ashoka</strong></td>
<td>Project office (PHQ)</td>
<td>8&lt;sup&gt;th&lt;/sup&gt; March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>13.</td>
<td><strong>Syzygium cumini</strong></td>
<td><strong>Java plum</strong></td>
<td>Project office (PHQ)</td>
<td>8&lt;sup&gt;th&lt;/sup&gt; March, 2017</td>
<td>Survived</td>
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<tr>
<td>14.</td>
<td><strong>Ficus benjamina</strong></td>
<td><strong>Pukar</strong></td>
<td>Project office (PHQ)</td>
<td>8&lt;sup&gt;th&lt;/sup&gt; March, 2017</td>
<td>Survived</td>
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<tr>
<td>15.</td>
<td><strong>Syzygium cumini</strong></td>
<td><strong>Java plum</strong></td>
<td>Project office (PHQ)</td>
<td>8&lt;sup&gt;th&lt;/sup&gt; March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>No.</td>
<td>Botanical Name</td>
<td>Common Name</td>
<td>Project Office</td>
<td>Date</td>
<td>Status</td>
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<tr>
<td>16.</td>
<td>Saraca asoca</td>
<td>Ashoka</td>
<td>Project office</td>
<td>8th March, 2017</td>
<td>Survived</td>
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<tr>
<td>17.</td>
<td>Ficus Benghalensis</td>
<td>Bargad</td>
<td>Project office</td>
<td>8th March, 2017</td>
<td>Survived</td>
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<tr>
<td>18.</td>
<td>Syzygium cumini</td>
<td>Java plum</td>
<td>Project office</td>
<td>8th March, 2017</td>
<td>Survived</td>
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<tr>
<td>19.</td>
<td>Ficus religiosa</td>
<td>Peepal</td>
<td>Project office</td>
<td>8th March, 2017</td>
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</tr>
<tr>
<td>No.</td>
<td>Botanical Name</td>
<td>Common Name</td>
<td>Project Office</td>
<td>Date</td>
<td>Status</td>
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<tr>
<td>20.</td>
<td>Psidium guajava</td>
<td>PERU Guava (अमृत)</td>
<td>PHQ</td>
<td>8th March, 2017</td>
<td>Survived</td>
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<tr>
<td>21.</td>
<td>Syzygium cumini</td>
<td>Java plum (जामृत)</td>
<td>PHQ</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>22.</td>
<td>Saraca asoca</td>
<td>Ashoka (अशोक)</td>
<td>PHQ</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
<tr>
<td>23.</td>
<td>Ficus Benghalensis</td>
<td>Bargad (बरगद)</td>
<td>PHQ</td>
<td>8th March, 2017</td>
<td>Survived</td>
</tr>
</tbody>
</table>
Appendix-9: Permission letter for Tree Transplantation at JMRC UG-1B
विषय: जयपुर मेट्रो रेल विभाग के फेज-1 श्री में चांदनी में बड़ी बीच आ रहे पेड़ों को काटने/पुनर्स्थापन की अनुमति प्रदान

विषयान्तर्र्गत प्रालंकक पत्र द्वारा जयपुर मेट्रो रेल विभाग के फेज-1 श्री में कुल 86 पेड़ों को काटने/पुनर्स्थापन की अनुमति प्रदान संख्या 3 व 4 (सीपिएल और बरगढ़) के पेड़ को काटने की

निर्देशनसूचक

फेज-1 श्री में

पर 88X4=352 पेड़ लगाये जाएगे तथा काटे गये पेड़ की

भारतीय

प्रतिशिविधि
01.2014

सांवधान में उपस्थित अधिकारी पालना हेतु प्रेमित

(भारतीय)

प्रमाणित अधिकारी
NOTICE

Dear Gentlemen,

Greetings of the day!

Pleased to inform you that we are celebrating world Environment Day on 5th June, 2018.

In this occasion we are conducting following activities at all sites and PHQ office:

1. Plantation at PHQ/turn/e casting yard/ Ram Niwas bagh by all HOD’s (10:00 to 10:30 AM)
2. Mass housekeeping by all staff & workers (02:00 PM to 3:00 PM)
   (Badi Choupani/Chhoti choupani/Chandpole/Casting yard)
3. Workshop at CC/BC/CY (03:00 PM to 3:30 PM)
4. Presentation to all engineers and staff at PHQ (5:00 to 5:30 PM)
5. Quiz competition for engineers & staff (5:30 to 6:00 PM)
6. Sweet distribution at all sites and PHQ

NOTE-

All HOD’s are requested to participate in the Tree plantation event at staff camp, casting yard.

Raj Kishor Pandey
(Chief SHE Manager)

Dieter Meyer
(Project Leader)

SWACHH BHARAT ABHIYAN

Subject: Swachh Bharat Abhiyan campaign at our project sites JMRC UG-1B, Jaipur, (Rajasthan)
Location: Chhoti chouper, Badi chouper station, Casting yard and Chandpole shaft area
Dates: 15th September to 2nd October, 2018.
Project: JMRC, UG-1B, Jaipur (Rajasthan)
<table>
<thead>
<tr>
<th>2</th>
<th>Concourse slab area, chouper station</th>
<th>Massi housekeeping during <strong>SWACHH BHARAT ABHIYAN</strong> on concourse slab area, Choti chouper station premises</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Tunnel shaft area, near site entry gate, Chand pole station</td>
<td>Massi housekeeping and general cleanliness with workers and staff at site and office area during <strong>SWACHH BHARAT ABHIYAN</strong> at Chand pole shaft area and near chandpole station</td>
</tr>
</tbody>
</table>
NOTICE

Dear Gentlemen,

Greetings of the day!

Pleased to inform you that we are celebrating world Environment Day on 5th June, 2018.

In this occasion we are conducting following activities at all sites and PHQ office-

1. Plantation at PHQ/Ramnagar/ casting yard/Ram Niwas bagh by all HOD's (10:00 to 10:30 AM)
2. Mass housekeeping by all staff & workers (02:00 PM to 3:00 PM)
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Raj Kishor Pandey
(Chief SHE Manager)

Dieter Meyer
(Project Leader)
<table>
<thead>
<tr>
<th>Prepared by</th>
<th>Reviewed by</th>
<th>Approved by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arvind Kumar Avinashi</td>
<td>Raj Kishor Pandey</td>
<td>Alok Tiwari</td>
</tr>
<tr>
<td>Environment Manager</td>
<td>Chief SHE Manager</td>
<td>Project Leader</td>
</tr>
</tbody>
</table>

Plant access road, near batching plant area, Casting yard.

Mass housekeeping on accessway in casting yard during SWACHH BHARAT ABHIYAN.