**Standard Terms of Reference (ToR) for Conducting Environmental Impact Assessment (EIA) Study for Gravel Quarry**

The EIA Report should identify the relevant environmental concerns and focus on potential impacts that may change due to the proposed project. Based on the baseline data collected for two (2) seasons (Monsoon and Winter seasons), the status of the existing environment in the area and capacity to bear the impact on this should be analysed. Based on this analysis, the mitigation measures for minimizing the impact shall be suggested in the EIA/EMP study.

The EIA report should be prepared in accordance with following indicative outlines:

1. **Executive summary of the project**
2. **Introduction**: (Background, brief description, scope of study, methodology, limitation, EIA team, references)
3. **Legislative, regulation and policy consideration** (covering the potential legal, administrative, planning and policy framework within which the EIA will be prepared)
4. **Project description**
   1. Introduction
   2. Type of the project
   3. Need of the project
   4. Description of the project includes location details, lease area, proposed timing, production level, location map of the project site.
   5. Description of the project site:
      1. Lease area, superimposed on a High Resolution Imagery toposheet, topographic sheet, geomorphology and geology of the area should be provided. Such an Imagery of the proposed area should clearly show the land use and other ecological features of the study area.
      2. Information should be provided in Toposheet in 1:50,000 scale indicating geological map of the area, geomorphology of land forms of the area, existing minerals and mining history of the area, important water bodies, streams and rivers and soil characteristics.
      3. Information on site elevation, working depth, groundwater table etc. should be provided both in above mean sea level and below ground level. A schematic diagram may also be provided for the same.
      4. Issues relating to quarry safety, including slope study should be detailed. The proposed safeguard measures should also be provided.
      5. The study area will comprise of 5 km zone around the quarry lease area.
      6. Land use of the study area delineating forest area, agricultural land, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated.

4.6 ***Geomorphology*** includes place of origin, catchment area, general profile of the river/stream, flood capacity, natural thalweg elevation, erosion and deposition, annual deposition factor, replenishment, total potential of gravel extraction in the river bed.

4.7 ***Hydrology*** includes, among other things, drainage system with description of main rivers (name of rivers/stream, place of origin, altitude at origin, total length in the study area and area drained)

4.8 ***Available reserve and production*** includes methodology for calculating total gravel deposition and extraction potential, portion of river/stream identified for extraction with its length, average width and area recommended for extraction of gravel and extractable potential which is usually 60% of total potential.

4.9 ***Method of extraction of gravel:*** a baseline survey consisting of existing conditions cross-section data including two documented endpoints setback from the top of the bank and elevation should be referenced to bench mark. Proposed excavating cross-section data should be plotted over baseline data to illustrate the vertical extent of the proposed excavation. A Conceptual plan of excavation should be explained using longitudinal section of the river/stream. Details on operating machinery, numbers and capacity, mining activities,

4.10 Stacking of gravel

4.11 Transportation of gravel

4.12 Utilities and site facilities

4.12 Project cost

1. **Description of Environment**

This section describes relevant physical, biological and socio-economic conditions within the study area. Baseline information on existing environmental condition need to be collected. Baseline assessment will be done based on the available secondary information, field visits, sampling and environmental monitoring including, but not limited to, the following:

* 1. Land environment
  2. Soil sampling
  3. Water environment
  4. Noise environment
  5. Biological environment including aquatic and riparian habitat
  6. Socio-economic environment

1. **Anticipated Impacts and their Mitigation Measures**

This section aims to do the following:

1. Predict and assess the project's likely positive and negative, direct and indirect impacts on land, water, air, noise, biological and socio-economic aspects (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods in the project's area of influence) in quantitative terms to the extent possible.
2. Identify mitigation measures and any residual negative impacts that cannot be mitigated.
3. Explore opportunities for enhancement; identify and estimate the extent and quality of available data, key data gaps, and uncertainties associated with predictions.
4. **Analysis of alternative technology and site**
   1. Introduction
   2. Alternative for gravel quarry lease
   3. Alternative for technology and other parameters
   4. Summary

**8.** **Public Consultation/Hearing**

This involves presentation of the findings on impacts and benefits during a consultation and information disclosure session to inform key stakeholders and affected communities about the issues identified, and to invite their comments.

Consultations must have attendance sheets and meeting notes prepared, both of which are included in the EIA documentation.

1. **Environmental Management Plan**

An Environmental Management and Monitoring Plan (EMP) needs to be prepared for all phases of the project for effective implementation of environmental protection and mitigation measures and monitoring of significant environmental impacts. Details of environmental protection measures to (i) mitigate potential environmental impacts, (ii) provide in-kind compensation for lost environmental resources, or (iii) enhance environmental resources should be provided. Cost estimates for each mitigation measure proposed in the EMP should be prepared, considering all the mitigation measures in the engineering design of the project.

1. **Environmental Monitoring Programme**
   1. Introduction
   2. Environmental monitoring and reporting procedure
   3. Monitoring schedule
   4. Location of monitoring
   5. Budget allocation and staffing for monitoring
   6. Summary
2. **Disaster Management Plan**
3. **Conclusion and recommendation**