

EXECUTIVE SUMMARY

OF

**DRAFT ENVIRONMENTAL IMPACT
ASSESSMENT REPORT**

FOR

PUBLIC HEARING

OF

**KUSUPANGA & KURUNTI BRAHMANI SAND
QUARRY (CLUSTER)**

Khata No. 335 & 571, Area- 8.7 Ha.
Village: Kusupanga & Kurunti, Tehsil: Odapada, District: Dhenkanal, Odisha

PROPOSED PRODUCTION: 65,786 M³ /YEAR

Category B1 with project activity type “1(a)” (Mining of Minerals)

Conducted & Prepared By



GREEN CIRCLE, INC.

*Integrated HSEQR Consulting Engineers, Scientists & Trainers
(MoEF Recognized Environment Laboratory)
(An ISO: 9001, 14001, OHSAS: 18001 Certified Organization & GPCB approved
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Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

1.0 PROJECT DESCRIPTION

1.1 INTRODUCTION OF PROJECT

Name of the project:	Kusupanga & Kurunti Brahmani Sand Quarry (Cluster)
Type of the project:	New & Existing
Proposed Production:	Proposed sand mine with proposed production capacity of 65,786 M ³ /Year.
Area of Lease	8.7 ha
Location of the project:	Kusupanga & Kurunti, 335 & 571, Kisam Nadi, Plot No. 1 Village: Kusupanga & Kurunti Tehsil: Odapada District: Dhenkanal (Odisha).
Identification of Proponent:	Tahasildar, Odapada Dist- Dhenkanal, Odisha-759013

1.2 TYPE OF PROJECT

- Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) is a cluster of existing & proposed mine located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha and has an area 8.7 ha falls under Category “B1”, 1(a), due to Mining lease area is more than 5.0 Ha as per honourable NGT order and as per OM dated 12.12.2018. Project will be assessed by SEIAA, Odisha. Lessee will have to take Environmental Clearance from SEIAA, Odisha as per EIA notification September, 2006 amended in December 2009 and April 2011 and amendment thereof to start the mining operation.

1.3 NEED FOR THE PROJECT

The basic objective of the project is to meet the utilization of mineral demand in the country and /or region. The urbanization and industrialization has enhanced the demand of building material. Mainly, in infrastructure projects-like highways, buildings, township etc. which has raised the demand of river sand. Sand is used to provide bulk, strength, and other properties to construction materials like concrete. It is also used as a decorative material in landscaping. River sand falls under the fine quality of construction sand which is found near river banks and streams and has smoother texture and better shape of grains. This can be also used for RCC, plastering, and much other brick work.

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 1
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

1.4 BRIEF DESCRIPTION OF THE PROJECT

Table – 1 Brief Description of the Project

A. Project Proponent	
Project Proponent	Tahasildar, Odapada Dist- Dhenkanal, Odisha-759013
B. Nature of Project	
Proposed sand mine with proposed production capacity of 65786 M ³ /year.	
C. Size of the Project	
Project Name	Kusupanga & Kurunti Brahmani Sand Quarry (Cluster)
New/ existing / Renewal mine/ Lease Period	New & Existing
Area	8.7ha
D. Project Location	
Khata No.	Khata No. 335 &571
Location	Village: Kusupanga & Kurunti Tehsil: Odapada District: Dhenkanal (Odisha).
Survey of India Topo Sheet no.	73H/5
Lease Period	5 years
Available Movable Reserve	3,28,930 m ³
Water Requirement	5 KLD
Manpower Requirement	96 Nos.
Climatic Conditions	Annual Maximum Temperature: 42 °C Annual Minimum Temperature: 21 °C
Present land use at the proposed site	The area is a Non-Forest Govt. land
E. Environmental Settings Details	
Nearest village	Kusupanga about 0.6 km, W
Nearest Town/City	Dhenkanal about 38 km, SE
Nearest Railway Station	Budhapanka Railway Station 4.5 km, W
Nearest Airport	Biju Pattnaik International Airport, Bhubaneswar about 85 km, SE
Nearest Highway	NH-55 about 3.5 km, W
Nearest Water Body	Brahmani River – Project Site Area
Nearest Bridge	Lingara Bridge- 6.0 km, N
Nearest River Embankment	About 0.4 km, W
Nearest Archeological Site	Lokanath temple about 1km,NW
Nearest Sensitive Man-made Land use	Meramandali Government Hospital about 5 km, S Govt. High School Kusupanga about 0.6 km, W Lokanath temple about 1km,NW Meramandali Bus Stop about 7.5 km, S
Ecology Sensitive Zone	No national parks and sanctuary within 10 km radius

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 2
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

Reserve Forest	Khalpal Reserve Forest- 11.5 Km, N
Topography	Gently sloping almost flat terrain
Seismic Zone	Zone – III as per IS: 1893 (Part-I): 2002
Survey of India Topo-Sheet no.	73H/5
Cost Details	
Project Cost	~20 lakh
Cost of EMP	Capital Cost-1,45,000 Recurring Cost- 75,000

Source: Site Visit & Pre-feasibility Report

1.5 LOCATION MAP

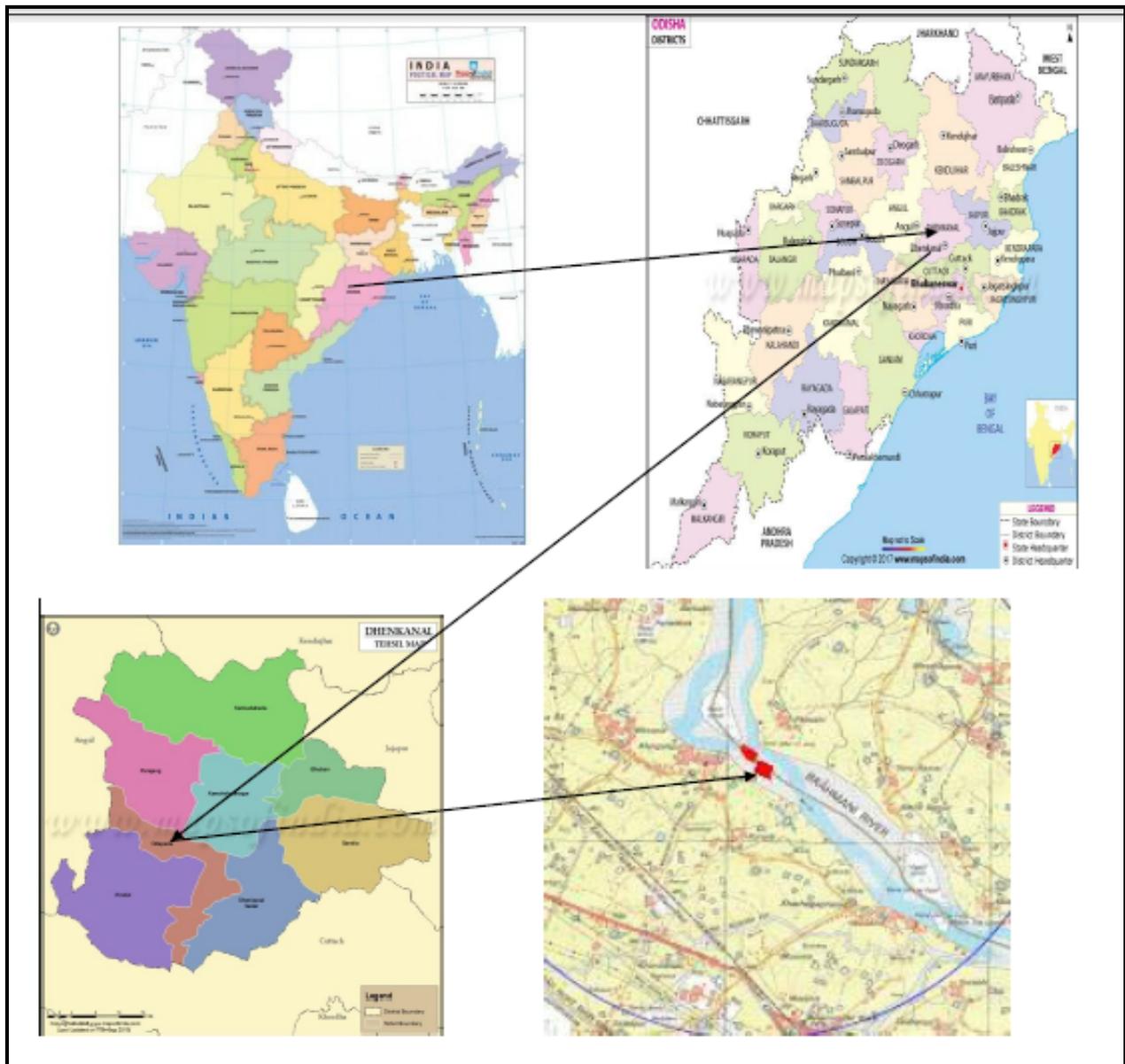


Figure-1: Location map (Showing general as well as specific location of the ML area)

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 3
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

1.6 MINE DESCRIPTION

1.6.1 MINING LEASE STATUS

- Quarry lease is yet to be awarded, by Tehsildar of Odapada to the successful bidder.
- Mining Plan with Progressive Mine Closure Plan has been approved by Joint Director Geology Zonal Survey, Balangir, Dhenkanal vide letter no. Memo no.-762.Dt dated 04/08/2022

1.6.2 MINING DETAILS

Table – 2 Mining Details

Particulars	Details
Method of Mining	Manual opencast mining
Available Movable Reserve	3,28,930 m ³
Lease period	5 years
Ultimate Mine Working Depth	1 m
Water Requirement	5 KLD
Manpower Requirement	96 Nos.
Present land use at the proposed site	The area is a Non-Forest Govt. land

Source: Approved Mining Plan & Progressive Mine Closure Plan

1.6.3 METHOD OF MINING

Mining method to be adopted in the sanctioned lease area will be of manual manner. In which;

- ✓ The mining operation as proposed will be done by manual opencast method.
- ✓ Quarrying activities will be done following all the security majors. Rules and regulations of DGMS and IBM will be observed during the Quarrying operations to avoid unwanted circumstances.
- ✓ Mined out material of commercial use will be transported by trucks / dumpers. Haul road of suitable width is proposed for proper and smooth quarry operations.
- ✓ Quarrying / excavation will be done according to the proposed manual means, for mechanized way following machineries will be required to deploy on hire basis for loading and transport purpose.

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 4
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

2.0 DESCRIPTION OF THE ENVIRONMENT

2.1 PRESENTATION OF RESULTS (AIR, NOISE, WATER & SOIL)

Baseline study of the study area was conducted during post-monsoon from 1st October 2023 to 31st December 2023 for Kusupanga & Kurunti Brahmani Sand Quarry (Cluster).

The concentrations of PM₁₀ and PM_{2.5} for all the 8 AAQM stations were found between 53.8 to 83.4 µg/m³ and 18.3 to 25.2 µg/m³ respectively. The concentrations of SO₂ and NO_x were found to be in range of range of 5.4 to 9.2 µg/m³ and 8.7 to 13.3 µg/m³ respectively.

Ambient noise levels were measured at 8 locations around the Mine site. Noise levels varied from 35.7 dB (A) Leq to 48.5 Leq dB (A) during day time and 35.7 dB (A) Leq to 44.0 Leq dB (A) during night time.

The ground water analysis for all the 7 sampling stations shows that all the samples meet the desirable standards (pH ranges from 6.8 to 7.2). TDS in samples ranges from 325 mg/L to 510 mg/L. All the samples meet the permissible limit of 2000 mg/L. Total Hardness in the water ranges from 270 mg/L to 45 mg/L. All the samples meet the permissible limit of 600 mg/L. Calcium content in the water ranges from 58.2 mg/L to 124 mg/L, all the samples meet the permissible limit of 200 mg/L. Magnesium content in the water ranges from 23.5 mg/L to 31.9 mg/L. All the samples meet the permissible limit of 100 mg/L.

The surface water analysis for all the 7 sampling stations shows that all samples meet the desirable standards (pH ranges from 6.8-7.3). TDS in samples ranges from 294 mg/L to 482 mg/L. all the samples meet the permissible limit of 2000 mg/L. Total hardness in the water ranges from 198 mg/L to 286 mg/L. all the samples meet the permissible limit of 600 mg/L. Calcium content in the water ranges from 53.7 mg/L to 75.6 mg/L, all the samples meet the permissible limit of 200 mg/L. Magnesium content in the water ranges from 14.7 mg/L to 24.4 mg/L, all the samples meet the permissible limit of 100 mg/L.

Samples collected from 8 identified soil locations indicate pH ranges from 6.7-7.3. Calcium content in the soil ranges from 183.1 mg/kg to 247.9 mg/kg. Magnesium content in the soil ranges from 141 mg/kg to 177 mg/kg. Organic Matter in the Soil samples ranges from 1.60 mg/kg to 2.07 mg/kg. Organic Carbon ranges from 0.92 mg/kg to 1.20 mg/kg. Phosphorus range from 0.0016 mg/L to 0.0023 mg/kg. Total Nitrogen range from 0.030 mg/kg to 0.047 mg/kg. Potassium range from 121.0 mg/kg to 136.7 mg/kg. Heavy metals like Lead, nickel, cadmium are well in all samples.

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 5
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

2.2 BIOLOGICAL ENVIRONMENT

Flora: Species which are most commonly found in the study area are: *Alstoniascholaris*

Anogeissuslatifolia, Artocarpushetrophyllus, Averrhoa carambola, Azadirachtaindica, Bauhinia variegata, Beideliaretusa, Bombax ceiba, Buchanania lanzan, Butea monosperma, Caricapapeya, Cassia fistula, Cassia siamiae, Cleistanthuscollinus, Couropitaguianensis, Holarrhenapubescens, Abrusprecatorius, Argyreia nervosa, Aristolochiabracteata perculinaturpentum, Paederiafoetida etc.

Fauna: Species which are most commonly found in the study area are

Mammal: *Herpestresedwardsii, Rattus rattus, Lepus nigricollis, Mus booduga, Macacamulata, Funambulus pennant etc.*

Reptiles: *Bangaruscaerulidus, Homodactylusflevirudis, Ptyasmucosus etc.*

Birds: *Milvus migrans, Corvussplendens, C. marorhynchus, Bubulcus ibis, Acridotherestrictis, Sturnus contra, Ardeolagraysii, Dicrurusadsimilis, Streptopeliaspp, Alcedoatthis, Turboidescaudatus, Psittaculakrameri, Eudynamysscolopacea, Orthotomussutorius etc.*

2.3 SOCIO-ECONOMIC ENVIRONMENT

The total population as per 2011 Census records is 52418 (for 10 km radius buffer zone). Average SC population in the study area is 20.63% of the total population. In case of ST population, this number has decreased and reached to 6.09% of the total population. The percentage of total working population is 36 %, Remaining, 64 % of the total population is considered as non-workers.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

➤ Impact on Air Environment

Due to Mining

The key air emissions from the mining activities (loading, and transportation) are Particulate Matter. Gaseous emissions will be generated from HEMM & transportation of vehicles. Use of proper mitigation measures will be taken like water sprinkling on haul roads & development of green area to control fugitive emissions. Better maintenance of equipments also helps to reduce such emissions.

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 6
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

➤ **Impact on Water Environment**

Surface Water

The mining process will not divert and utilize the surface & ground water. Quantity of water will remain the same. The existing background level of water quality as indicated by the baseline data revealed that impact on water environment will be insignificant in this project. Ground water table will not be intersected. The impact on surface water will be positive as the river gets channelized and the flow of the water flow will not be hindered.

Ground Water

At conceptual stage, ultimate working depth of the mining operation will be upto 1 m bgl only. Water table will not be intersected due to mining activities.

➤ **Impact of Noise–**

Due to Mining Activities

Major noise generating sources of the mining activity are HEMM movement. The plantation and the green belt along haul road and nearby areas will help in reducing noise level and proper mitigation measures will be carried out.

Total Mining Lease area is 8.7 ha. Thick plantation will be done.

Impact on Land Environment –

The sand is unconsolidated in nature will be collected carefully and loaded in dumpers manually. The land use pattern will not change permanently and will be reclaimed every year in the monsoon season. The land use pattern will only be changed by proposed green belt development plan in the study area. Mining activities will not affect land use pattern.

4.0 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

Table 4 Post Project Monitoring

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1.	Ambient Air Quality monitoring	Half Yearly or as per consent
2.	Water Quality & Level monitoring	Half Yearly or as per consent
3.	Noise Level Monitoring	Half Yearly or as per consent
4.	Soil Analysis	Half Yearly or as per consent
5.	Medical Checkup of employees	Half Yearly or as per consent

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 7
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

5.0 ADDITIONAL STUDIES

Additional Studies i.e. Risk Assessment & Disaster Management Plan, Land use and land cover study, Ecology and Biodiversity are covered with this Draft EIA/EMP Report as per the Terms of Reference was granted by SEIAA for file number File No. File No. SIA/OR/MIN/423255/2023 on 06/11/2023.

6.0 PROJECT BENEFITS

The proposed project will help the local economy directly as well as indirectly as it will generate substantial employment in the region. With the proposed development in and around the area, there will be supporting facilities/infrastructure eventually leading to the development of the area. The project will boost the overall growth of the region and in the State, the local economy will flourish due to income expenditure in the local market. Therefore, project is having great importance to the district and state economy.

Along with the contribution in employment generation and economic growth of the country project will also be helpful in the development of basic needs of the local area like education, Health & family welfare, women empowerment, water conservation, infrastructure development etc.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 AIR QUALITY MANAGEMENT

Loading & Transportation

- Development of green belt/plantation along the haul road and other places will be carried out to control the air pollution.
- Haul Road will be sprayed with water.
- Proper maintenance of the HEMMs & transportation vehicles will be done.
- Vehicular emissions will be kept under norms.
- Personal Protective Equipment like dust masks will be provided to all employees.
- Periodic air quality monitoring will be carried out.

7.2 NOISE QUALITY MANAGEMENT

Transportation

- Adequate silencers in HEMM will be provided to reduce generation of noise.
- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.

PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page 8
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	



Draft Environment Impact Assessment Report

Proposed project of Kusupanga & Kurunti Brahmani Sand Quarry (Cluster) at Brahmani River with proposed excavation of 65786 m³/year sand, having an area of 8.7 ha, located at Village: Kusupanga & Kurunti, Khata No.335 & 571, Plot No.1, Kisam Nadi, Tehsil: Odapada, District: Dhenkanal, Odisha.

Executive Summary

- The workers employed at HEMM will be provided with protective equipment, earmuffs and earplugs as a protective measure from the high noise level generated at the mine site and wherever required.
- Development of green belt & plantation along haul roads and other places will be carried out.
- Periodical monitoring of noise level will be carried out regularly.

7.3 WASTE WATER MANAGEMENT

Waste Water

- Portable toilets will be used for generated domestic waste water.
- No waste water will be generated from the mining operations.

7.4 LAND USE PATTERN

- At conceptual stage total excavated area will be 2.562ha and 2.956 ha,
- Greenbelt will be developed along the haul road and nearby areas.

7.6 GREENBELT DEVELOPMENT AND PLANTATION PROGRAM

- Greenbelt will be developed along the haul road and nearby areas.
- Native species will be planted like Neem, Mango, Teak, Jhaun and Jammu about 50 numbers of trees will be planted each year.



PROJECT PROPONENT	ENVIRONMENT CONSULTANT	Page
KUSUPANGA & KURUNTI BRAHMANI SAND QUARRY (CLUSTER) AT BRAHMANI RIVER	M/S GREEN CIRCLE INC. NABET/EIA/2124/RA 0219	9