

KA JINGBATAI LYNGKOT

SHAPHANG KA

“Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System”

HA

Shnong Wahiajer Narpuh, Subdivision Khliehriat, District East Jaintia Hills, Meghalaya

Ka Jaka baroh (Total Area): 111.69 ha

Ka Jingtyrwa (Proposed Production): 3.3 MTPA Clinker, 2.8 MTPA Cement & 16 MW WHRS
Schedule – 3(b) Category ‘A’

Ka Jingpynlut (Total Cost of the project): Rs. 2450.55 Crores

Reference: TOR issued vide identification no.

TO24A1101ML5636060N, File No. IA-J-11011/89/2024-IA-II (Ind-1)
dated 10.08.2024

KA PROJECT PROPONENT

M/s Meghatop Cement Private Limited

Village Wahiajer Narpuh, East Jaintia Hills District,
Meghalaya, 793210

E-Mail: skrai@megatop.com

KA ENVIRONMENTAL CONSULTANT

M/s PERFECT ENVIRO SOLUTIONS PVT. LTD.

(NABET Registered vide list of accredited consultants organizations/
(NABET/EIA/2225/RA 0284 (Rev 01))

NN Mall, Sector-3, Rohini, New Delhi-110085

Email: info@perfectgroup.in

Phone No: 9818424364

1. Ka Jingbatai Lyngkot

1.1. Ka Jinglamphrang

Ka M/s Meghatop Cement Private Limited ka tyrwa ia ka Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System ha ka shnong Wahiajer Narpuh, East Jaintia Hills District, Meghalaya ha ka jaka kaba 111.69 ha.

La dep ban pyntreikam (made mandatory) ban ioh ia ka environmental clearance na ka bynta baroh ki Cement Plants bad ka project ka hap hapoh ka Item 3(b), katkum ka EIA Notification 2006 bad kiwei kiwei ki mat ban pynbha ia ka. Namar ka unit ka long na ka bynta ka Integrated Cement Plant kaba ka capacity ka long > 1 MTPA, ka project ka hap hapoh ka Category "A" (As per EIA Notification dated 14th Sept., 2006 and as amended from time to time).

Terms of Reference (TOR) for the proposed project has been granted by MOEF&CC, Meghalaya vide identification no. TO24A1101ML5636060N, File No. IA-J-11011/89/2024-IA-II (Ind-1) dated 10.08.2024

1.1.1. Shaphang ka Project

Ka jaka baroh (total area) jong ka plant kan long 111.69 ha. Namar ka jingdawa ha ka iew, ka M/s Meghatop Cement Private Limited ka don jingthmu ia ka Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System ha shnong Wahiajer Narpuh, East Jaintia Hills District, Meghalaya.

1.1.2. Ka Jaka bad ka Lad ban ioh rung (Location & Accessibility)

Ka project ba la tyrwa (proposed project) ka dei ha shnong Wahiajer Narpuh, East Jaintia Hills District, Meghalaya. Ka jinglong lum kaba duna (minimum elevation) jong ka site ka dei 605 m AMSL shaphang southeast kaba iajan bad ka lease boundary bad ka jinglong lum kaba jrong tam (maximum elevation) ka dei 696 m AMSL kaba iajan bad ka boundary phang sepngi.

Lah ban ioh rung sha ka jaka (site) lyngba ka NH-6 at 2.70 Km to W. Ka Railway station kaba jan tam ka dei ka Hilara Railway Station kaba don kumba 35.79 Km shaphang SE

direction. Ka Airport kaba jan tam ka dei ka Silchar Airport kaba don kumba 65.72 Km shaphang SE direction jong ka project site.

1.2. Ka jingbatai shaphang ka Project (Project Description)

S.No.	Ki jingkdew (Particulars)	Ki jingtip ba bniah (Proposed Details)
1	Ka General Information	
1a.	S.No. ha ka Schedule & Project Sector	3(b), Cement Plant
1b.	Ka Category jong ka Project	A
1c.	Ka Specific/General Condition ba long applicable	No
1d.	Ka Proposed Site/Land Details (Plot Area)	111.69 ha
1e.	Ka GreenBelt Details	37 ha (33.13 % of the project area)
1f.	Ka dor jong ka Project (Project Cost)	Rs. 2450.55 Cr
1g.	Ki nongtrei (Manpower Details)	Construction Phase- 1500 (permanent- 39 & temporary- 1461) Operation Phase- 498 (permanent- 318 & temporary- 180)
1h.	Ka Details lada ka project ka hap hapoh ka jingkhmih jong a) FCA, 1980, b) WPA,1972 c) CRZ,2011	None in 5km
1i.	CPA/SPA/ESA/ESZ, lada don	None in 5km
1j.	Ki project ba don jingiasnoh (Interlinked Project), lada don, bad ka Status	No
1k.	Ki number jong ki shifts	2 shifts of 8 hours duration
1l.	Ki number jong ki por trei ha ka snem (No. of working days in a year)	330
2	Ka Production Details	
2a.	Ka Production Capacity	Clinker Plant-3.3 MTPA
		Cement Plant -2.8 MTPA (Pozzolana Portland Cement (PPC), Ordinary Portland Cement (OPC)
		WHR generation capacity-16 MW (peak)
3	Ka Power Requirement & Source	
3a.	Ka Power (Total)	34 MW
3b.	Ka Power Source (s)	-Waste Heat Recovery system (WHRS) -13 MW -Grid substation of Meghalaya Power Transmission Corporation Limited (MePTCL) -21 MW Total - 34 MW
4	Ka Air Emission Management	

Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System at Village Wahiajer Narpuh, East Jaintia Hills District, Meghalaya by M/s Meghatop Cement Private Limited

4a.	Ka D.G. Sets Capacity	1 x 250 KVA (for emergency use only)
4b.	Ka Fuel type requirement for DG Set	HSD, 25l/hr
	Ka Number jong ki stacks & APCS na ka bynta ki process stacks	7 tylli ki no. jong ki stacks & 3 vents. {APCS-Pulse jet Polyester Polymer bag la ki Filter la tyrwa na ka bynta ki Limestone Crusher, corrective Crusher, Cement mill (VRM), Packing unit, Additive crusher, coal crusher & gypsum crusher; ESP la tyrwa na ka bynta ka clinker cooler, Pulse jet bag filter la tyrwa na ka bynta ka coal mill (VRM) & reverse air/pulse jet bag house la tyrwa na ka bynta ka raw mill (VRM) & Kiln}
5	Ka Water Requirement & Waste Water Generation	
5a.	Ka Total Water Requirement	946 KLD
5b.	Ka Fresh Water Requirement & Source	186 KLD ka umkhuid yn tan na ka Dongtangle Nala (Syrtang river)-la ka NOC la ioh na ka Office jong u Executive Engineer Water Resources Department, East Jaintia Hills Division, Khliehriat vide letter no. EJM(WR)/Genl-38//2024-25/414 dated 30.07.2024
5c.	Ka Rainwater Requirement & Source	687 KLD, rainwater collection tanks
5d.	Ka Treated Water Requirement & Source	73 KLD, STP treated Water
5e.	Ka Waste water generation	77 KLD
5f.	Ka STP capacity	95 KLD
5g.	Ka Waste Water Discharge	Ka dei ka ZLD plant
6	Ka jingpynmih ia ki bym myntoi (Waste Generation)	
6a.	Ka Hazardous waste, E-waste & Battery Waste	-Ka Used Oil/grease-6.14 KLPA, Pynduh noh hadien ba shim jingbit /Die sha ki nongthied -Ka E-Waste- 0.25 TPA, Die/pyllait noh sha ki nongthied/nongshim -Ka Battery Waste- 0.25 TPA, Die/pyllait noh sha ki nongthied/nongshim
6b.	Ka Solid Waste	-Biodegradable (Organic Waste)- 30 kg/day, use as manure for plantation -Non-Biodegradable Plastic, paper, wood, glass, etc)- 45 kg/day, Die sha ki nongthied lane pyllait noh
6c.	Ka Non- Hazardous Waste	-STP Sludge- 8.91 TPA, ban pyndonkam kum ka sboh -Dust from APCS/Bag filter- 82500 TPA -yn pyndonkam biang ha ka cement manufacturing. -Other Solid Wastes (MS Scrap, GI Scrap, Grinding media, Used/expired tyres, HDPE bags, Blow bar, Conveyor belt steel coated, misc. scarp)-833 – Die/pyllait noh sha ki nongthied/nongshim
6d.	Kiwei kiwei ki jingbymdonkam (Other waste)	-Bio medical waste- 0.5 TPA, Die sha ki nongthied -Plastic waste- 0.5 TPA, Die sha ki nongthied

Ki jingdonkam:

- **Ka jaka (land):** Ka jaka ba la tyrwa (proposed area) kan don kumba 111.69 ha kaba lait noh ia ka jaka khlaw. Ka NOC na ka bynta kane ka long kaba la dep ban ioh na ka PCCF vide letter no. MGF/CF/NFLC/MMMCR/JH/18502 ha ka 20/03/2024 bad kaba la tyngkhap lang hangne kum ka annexure ha ka section D.
la ka jaka la dep ban thied da ki trai jaka. Ka application na ka bynta ka jingaiti (transfer of land) ha ka kyrteng ka Company M/s Meghatop Cement Private Limited la dep ban apply sha u Deputy Commissioner, Khliehriat, District-East Jaintia Hills, Meghalaya vide letter no. MCPL/CORRESPONDANCE/204 dated 16.11.2023. Ka Land holding certificate la tyngkhap lang kum ka annexure ha ka Section D.
Nalorkane, ka shithi ha kaba iadei bad ka jingaiti ia ka jaka la dep ban phah sha I Joint Secretary, Revenue and Disaster Management Department vide letter no. EJHD/Rev-337/2023/61 dated 08.01.24. Ha ka jingioh jubab, I Joint Secretary jong ka Revenue and Disaster Management Department, Government of Meghalaya I la ai ia ka permission na ka bynta ka jingaiti ia ka jaka na ka bynta ka jingtei ia ka cement plant sha U Deputy Commissioner ha ka kyrteng jong ka company M/s Meghatop Cement Private Limited vide letter no. RDS.32/2021/138 dated 06.04.2024. La tyngkhap lang ia baroh ar ki shithi ha ka Section D.
Kumjuh ruh, ka NOC na ka office jong ka Jaintia Hills Autonomous District Council, Jowai la dep ban ioh na ka bynta ka jingtei ia ka cement plant vide letter no. JHADC/FOR/39/2022/340 dated 9th Feb 2024 ha kaba ia ka jingpynthymmai ia ka juh la ioh vide letter no. JHADC/ FOR/39/22/1204-205 dated 28.06.2024 bad kan treikam haduh 31 March 2025.
- **Ka Jingdonkam Um (Water Requirement):** Ha ka por trei, ka jingdonkam um baroh jong ka plant kan long 946 KLD, bad palat nangta, ka jingdonkam um kaba khuid kan long 186 KLD, ka um slap (rain water) kan long 687 KLD bad ka um ba la pynkhuid (treated water requirement) na ka STP kan long 73 KLD. 946 KLD kan kynthup ia ka um ba lah ban pyndonkam (Domestic water- manpower) (23 KLD), ka Cement plant make-up water (400 KLD), WHRS make-up water (123 KLD), Gardening (370 KLD), Dust suppression (20 KLD) bad Wheel Washing (10 KLD).
- **Ka jingdonkam bor ding (Power Requirement):** Ka jingdonkam ia ka bor ding (Total Power load) kan long 34 MW bad kumba 21 MW yn shim na ka Grid substation of Meghalaya Power Transmission Corporation Limited (MePTCL) bad 13 MW na ka inhouse Waste Heat Recovery system (WHRS) kaba ka capacity yn pyndonkam pat na ka bynta ki jingdonkam kiba hadien (power backup).
- **Ka Umphniang (Fuel):** 25 lit/day jong ka High Density Diesel yn donkam na ka bynta ban pyntreikam ia ka DG set (emergency use only). 0.52 MTPA jong u dewiong bad kawei pat ka umphniang (Alternate fuel- Agro briquette) katkum ka jingdon yn pyndonkam na ka bynta ka Kiln bad pre-calciner.
- **Ki nongtrei (Manpower):** Yn donkam 1500 ngut ki nongtrei ha ka construction phase bad 498 ngut ki nongtrei ha ka operation phase.

- **Ki Rukom Pyntreikam (Operational Activities):** Ki rukom pyntreikam hapoh ka unit ki long ka **Limestone Crushing**, Limestone Handling bad ka jingkit ia ki mar (Transportation) sha ka jaka ba la buh(stockpile), ka jingkit sha ka pre-blending stockpiles, Corrective & additives crushing & storage, Coal Handling, crushing, drying & storage, Raw material grinding (VRM), Raw meal blending & Kiln Feed, Preheater, Precalciner, Kiln, Cooler and Clinker storage silo.
- **Ki Jingbymkhuid (Pollution Sources):** Ki daw kiba lah ban long kum ka **jingpynjakhlia** na ka project kin long ha kaba iadei bad ka lyer bad ka jingpynmih ia ki jingsawa (noise emission), ki um ba la jakhlia (wastewater generation) bad ki Solid & Hazardous waste.

Ka jingpynmih ia ki um baroh ba la pyndonkam (Total quantity of wastewater generation) na ka karkhana kan long 77 KLD kaba dei na ka Cement plant (40 KLD), Domestic wastewater (21 KLD), WHRB wastewater (7 KLD) & Wheel washing (9 KLD). Ia ki um ba la pynmih baroh yn pynkhuid lyngba ka STP kaba ka capacity ka long 95 KLD bad ia ka um ba la pynkhuid yn pyndonkam ha ka thung ka tep (gardening), ka jingsait ia kiei kiei kiba tyllun(wheel washing) bad jingpynhap ia ki dpei (dust suppression purposes).

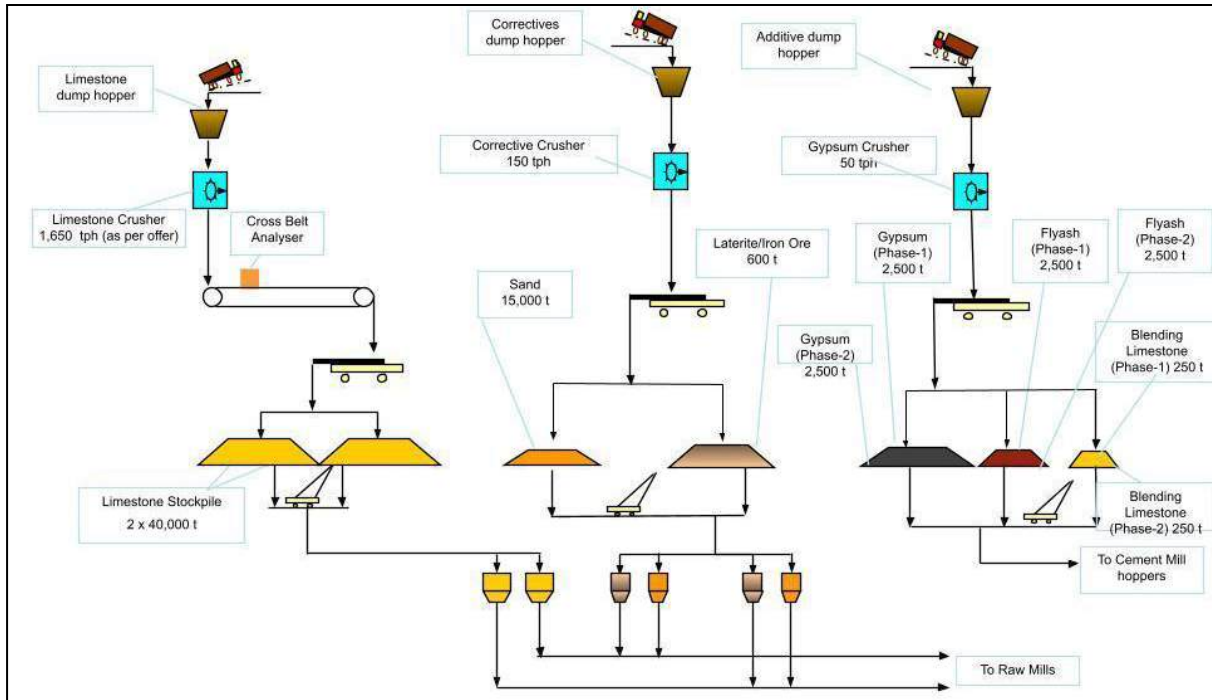
Ka jingmih jong ki lyer (Air Emissions) kan dei na ki process machinery Limestone Crusher (ROM & Blending) kiba don ia ki stack, Corrective Crusher, Coal Mill (VRM), Raw Mill (VRM) & Kiln having, Clinker Cooler, Cement Mill (VRM), Packing Unit, Additive Crusher, Coal Crush bad ki Gypsum Crusher. Adequate APCS i.e individual Pulse Jet Polyester Polymer Polyethylene Bag Filter with stack height of 30 m for Limestone Crusher (ROM & Blending), 30 m for Corrective Crusher, 40 m for Cement mill (VRM), 35 m for packing unit and vents for additive crusher and coal crushes each. Yn pyndait ia ki APCS Pulse Jet glass Bag Filter na ka bynta ki Coal Mill (VRM) with vent, yn pyndait ia ki Reverse Air/Pulse Jet Bag House (RABH) na ka bynta ki Raw Mill (VRM) & Kiln with a stack height of 120 m. Yn pyndait ia ki APCS Electrostatic Precipitator na ka bynta ki Clinker Cooler with a stack height of 45 m. Yn don ka jingpynmih ia ki Flue gas emissions na ki D.G.Set kaba ka capacity ka long 250 kVA. Yn buh ruh ia ki D.G set kiba ka stack of height ka long 3.2 m above roof level.

Ka jingmih jong ki jingsawa (**noise generation**) na ki unit kan dei na ka daw jong ki jingtreikam jong ki process machinery, ka leit ka wan (transportation) bad ki DG sets (emergency use only) etc. Yn shim khia ia baroh ki bynta kiba donkam ban pynduna ia ka jingsawa ha ka por trei bad por pyndonkam.

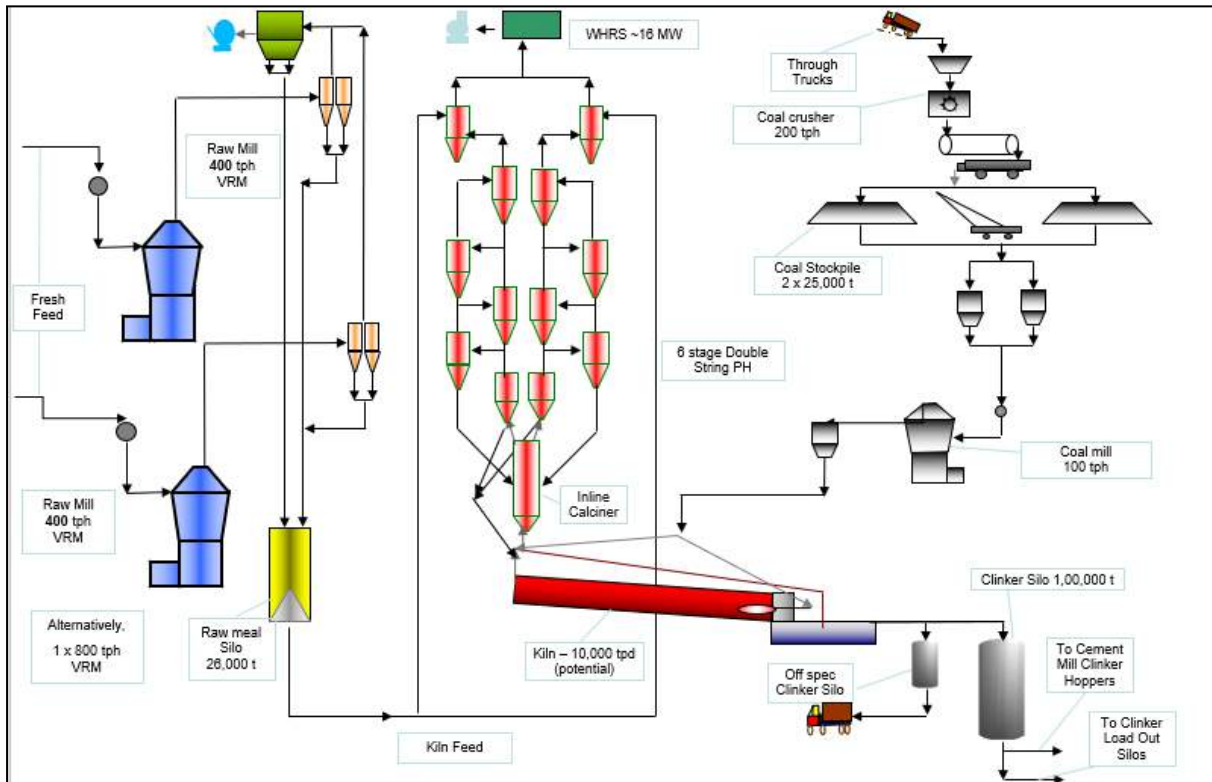
Manufacturing Process:

KA PROCESS FLOW DIAGRAM KABA PYNI IA KA JINGPYNIAID JONG KI MATERIAL NA KI HOPPERS SHA KI MILLS

Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System at Village Wahiajer Narpuh, East Jaintia Hills District, Meghalaya by M/s Meghatop Cement Private Limited

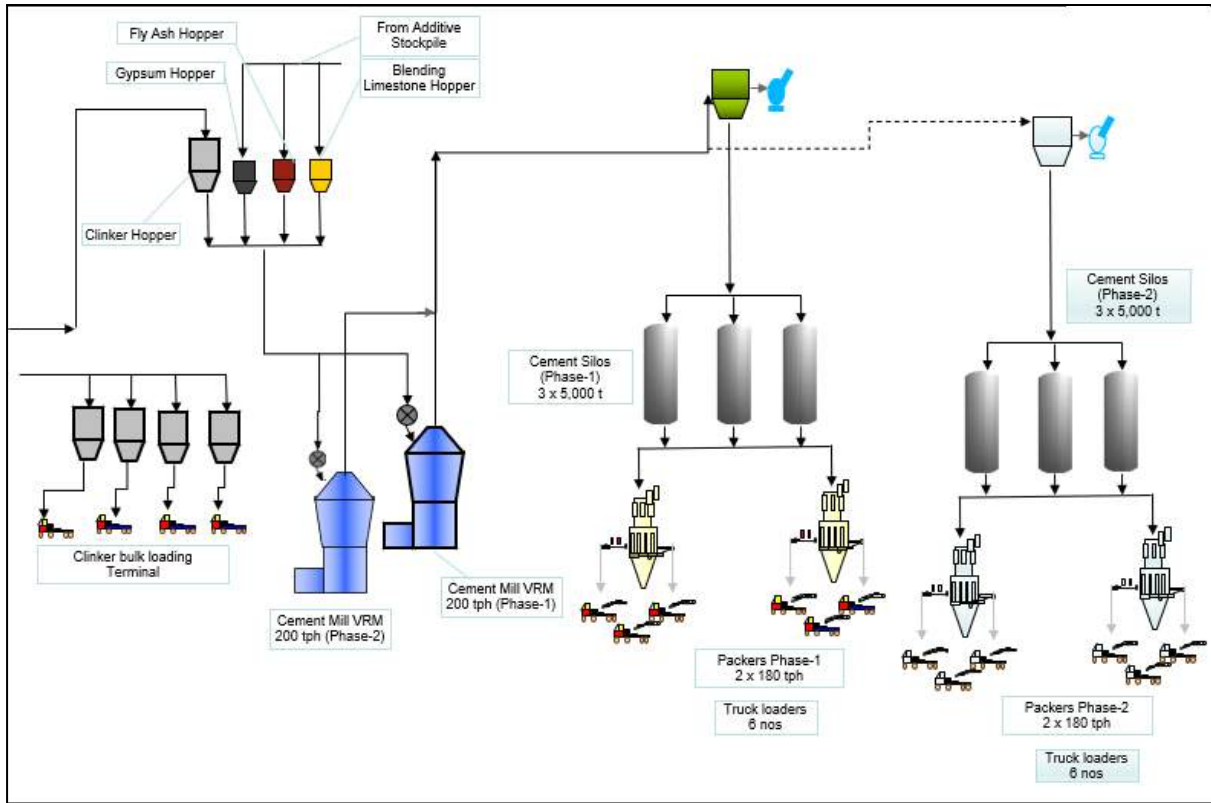


CLINKER MANUFACTURING

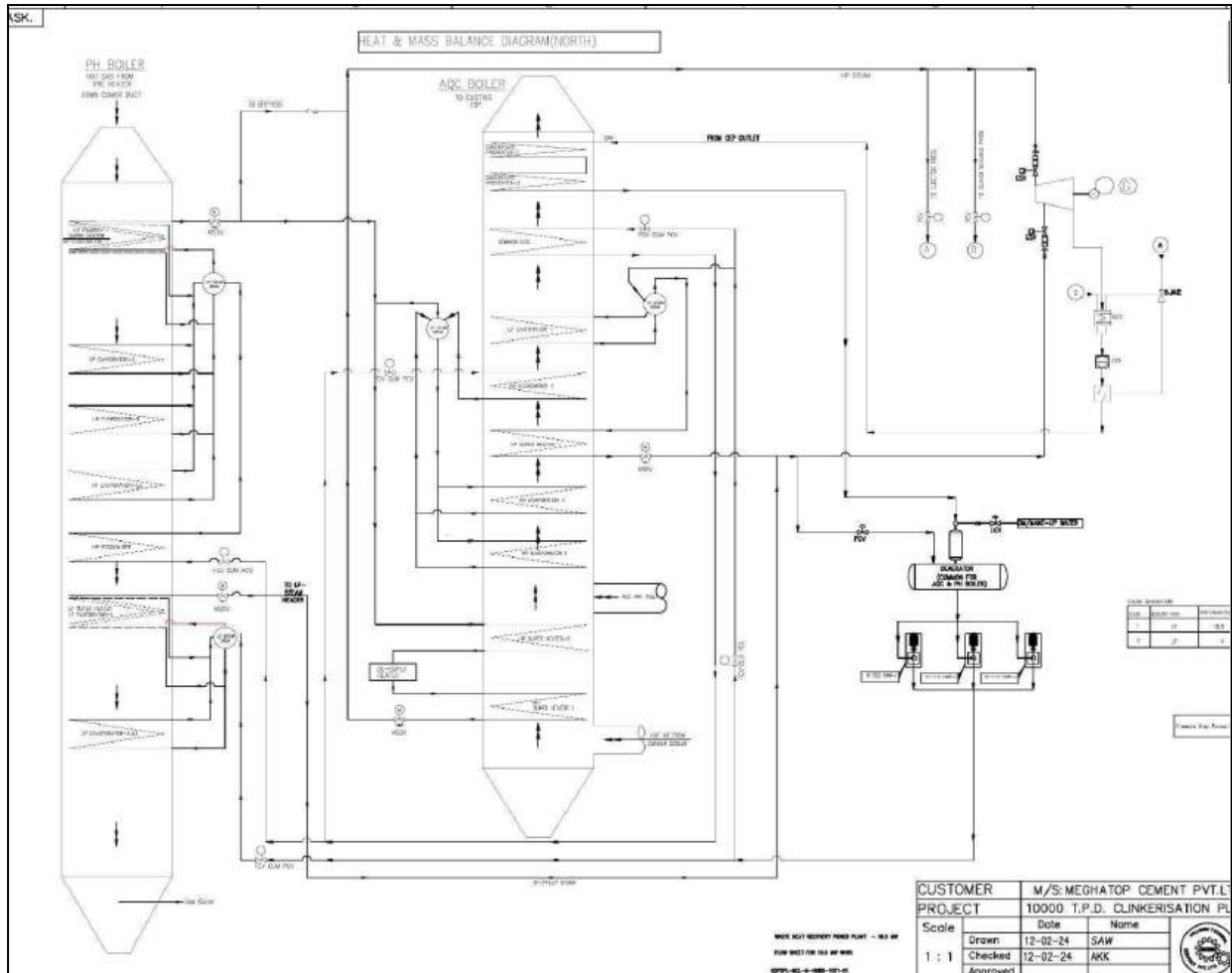


CEMENT MANUFACTURING

Integrated Cement Plant of capacity 3.3 MTPA clinker, 2.8 MTPA cement and 16MW Waste Heat Recovery System at Village Wahiajer Narpuh, East Jaintia Hills District, Meghalaya by M/s Meghatop Cement Private Limited



WHRS



1.3. Ka jinglong jong ka Mariang

Ka jingtip kaba tynrai ka long lyngba kaba khmih thuh ia ka jaka (field study) hapoh ka jaka ka don ka jingiadei kaba jan (ka Core Zone bad ka Buffer Zone i.e. 10 Km na ka Project Boundary) na ka bynta ki jinglong jong ka mariang kum ka Lyer (Air), Ka Jingsawa (Noise), ka Um (Water), ka Khyndew (Soil), ka Jaka (Land), ka jingdheng kali (Traffic), ka sawdong sawkun (Ecology) bad ka ioh ka kot ha ka imlang sahlang (Socioeconomic). Ka jingtip kaba tynrai jong ka jinglong ka mariang ka dei ha ka por tlang (Winter Season- December 2022- February 2023) bad ha ka por lyiur (Summer season- March - May 2024) (da ka NABL accredited laboratory Perfect Researchers Pvt Ltd, New Delhi) ha ka jaka ba la khmih bniah kumba 10 Km radius na ka project site. Ka jingtip ba tynrai ba la ioh ka long

Ka jaka ba pyndonkam (Land Use):

- **Ka Core Zone:** Ka jaka ka dei kaba long lum bad ki hilly. Ka jaka ba la tyrwa (proposed area) kan don kumba 111.69 ha kaba lait noh ia ka jaka khlaw. Ka NOC na ka bynta kane ka long kaba la dep ban ioh na ka PCCF vide letter no.

MGF/CF/NFLC/MMMCR/JH/18502 ha ka 20/03/2024 bad kaba la tyngkhap lang hangne kum ka annexure ha ka section D.

la ka jaka la dep ban thied da ki trai jaka. Ka application na ka bynta ka jingaiti (transfer of land) ha ka kyrteng ka Company M/s Meghatop Cement Private Limited la dep ban apply sha u Deputy Commissioner, Khliehriat, District-East Jaintia Hills, Meghalaya vide letter no. MCPL/CORRESPONDANCE/204 dated 16.11.2023. Ka Land holding certificate la tyngkhap lang kum ka annexure ha ka Section D.

Nalorkane, ka shithi ha kaba iadei bad ka jingaiti ia ka jaka la dep ban phah sha I Joint Secretary, Revenue and Disaster Management Department vide letter no. EJHD/Rev-337/2023/61 dated 08.01.24. Ha ka jingioh jubab, I Joint Secretary jong ka Revenue and Disaster Management Department, Government of Meghalaya I la ai ia ka permission na ka bynta ka jingaiti ia ka jaka na ka bynta ka jingtei ia ka cement plant sha U Deputy Commissioner ha ka kyrteng jong ka company M/s Meghatop Cement Private Limited vide letter no. RDS.32/2021/138 dated 06.04.2024. La tyngkhap lang ia baroh ar ki shithi ha ka Section D.

Kumjuh ruh, ka NOC na ka office jong ka Jaintia Hills Autonomous District Council, Jowai la dep ban ioh na ka bynta ka jingtei ia ka cement plant vide letter no. JHADC/FOR/39/2022/340 dated 9th Feb 2024 ha kaba ia ka jingpynthymmai ia ka juh la ioh vide letter no. JHADC/ FOR/39/22/1204-205 dated 28.06.2024 bad kan treikam haduh 31 March 2025.

Na ka jaka baroh kaba dei 111.69 ha, 33.13% jong ka jingthmu ban shna ia ka karkhana (total plant area), kata, 37 ha. Kan sah kum ka Green Belt & Plantation Area, ka Main plant area (kaba kynthup) ia ka plant, bad office building area kan long 34 ha., ka Truck Parking Area kan long 1.53 Ha., ka Road & open area kan long 39.16 ha.

Ka Jaka Pyniakhlad (Buffer Zone): Na ka jaka kumba 10 km radius kaba dei ka jaka khmih bniah (study area) kata ka 36116.70 Ha, ka jaka rep (agricultural land) ka long 504.16 hectares (1.40%), ka jaka don jingshna(built up area) ka don kumba 1467.90 hectares (4.06%), ka jaka ba shu sah (waste/barren land) ka long kumba 3309.46 hectares (9.16%), ka jaka don um (Water bodies area) ka long kumba 313.77 hectares (0.87%), ka jaka khlaw (Forest land) ka long kumba 30521.41 hectares (84.51%) na ka 10 km radius study area.

- **Ka Jingpynkhih na ka Bor Mariang (Natural Hazard):** Ka jaka ba la khmih bniah ka hap hapoh ka Zone-V, katkum ka Indian Standard Seismic Zoning Map ha kaba la khein ia ka kum ka High Risk Zone intensity.

- **Ka jinglong ka khyndew (Geology):** Ka jaka ka don da ki jingpynlong (geological formations) kiba pher ha ka snem (from Archaean to Recent). Ka jaka ha Khliehriat ka don ki jait khyndew kiba jem kiba na ka Jaintia Group bad Barail Group, kiba la long ha ka por ka Paleocene haduh Eocene age.
- **Ka jinglong ka um (Hydrology):**

Ka Jaka Ban trei ia ka Project (Core Zone)

Ka don ka wah kaba rit hapdeng jong ka phang shatei jong ka jaka trei, bad kiwei kiwei ki wah um kiba tuid sha kiwei kiwei pat ki jaka. Ka wahduid kaba shatei ka tuid sha ka Kukha Nala kaba don ha ka jaka pyniakhlad (buffer zone). Ka Kukha Nala ka iaid lyngba ka phang shatei lam sepngi jong u khappud (northwestern lease boundary). Ka jaka ba shaphang shathie jong ka wahrit ka tuid sha ka Wahbah Um Lunar.

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ka Wahbah Um Lunar ka tuid na ka Lubha/Lukha River bad ka tuid na ka phang shatei sha ka phang shathie kumba 0.48 km shaphang mihngi jong ka jaka (site), Ka Wah Lubha/Lukha ka tuid na ka SSE sha ka SSW na ki phang shathie. Ka jaka iakynduhlang jong ka Wah Lubha/Lukha bad ka Um Lunar ka don kumba 7.00 Km SSE jong ka jaka. Ka jaka khmih bniah ka tawiar da ka Seshympa, Um Lunar, bad Wah Lukha/Lubha, bad ki Nala ki dei ka Um Badoh, Um Sangat, Latynger, Um the, Um Talang, Dongtongle, Sebi, Moblai, Rangsniang, Wah Sakhain, Kairang, Urle, Wahlong, Moblai, Wah Thariang, Rashriang, Daphirawi, Sakha, Thangpyrshaid, Kukha bad Um Ronsong, etc. Ka jaka jong ka project ka hap ha ki bynta jong ka Um Lunar. Ka jaka ka don ki wah um kiba rit kiba tuid sawdong, bad kiwei kiwei ki um kiba tuid lang hangta. Kiba bun na ki um ka tuid sha ka jaka pyniakhlad sha ki phang shathie bad shathie lam sepngi.

Ka Jinglong ka Lyer (Ambient Air Quality):

Por tlang (December 2022 - Feb 2023)

Ka Jaka Ban trei ia ka Project (Core Zone): Ka jingkhein kumba PM10 ha ka jaka trei (core zone locations) ka long hapdeng (63.02 -64.91 $\mu\text{g}/\text{m}^3$) bad ka jong ka PM2.5

ka long hapdeng (27.95- 28.79 $\mu\text{g}/\text{m}^3$), SO_2 ka long hapdeng (5.66 $\mu\text{g}/\text{m}^3$ -5.83 $\mu\text{g}/\text{m}^3$) NO_2 ka long hapdeng (16.39-16.88 $\mu\text{g}/\text{m}^3$) bad CO (0.28 - 0.29 mg/m^3), baroh kiba hap hapoh ka kyndon ba la buh da ka National Ambient Air Quality Standards (NAAQS).

Katkum ka Air Quality Index jong ka CPCB, ka jinglong ka lyer ha ka jaka ban trei ka long kaba biang (Satisfactory) kumba la khmih bniah hapdeng - December 2022- Feb 2023.

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ka jingkhein kumba PM_{10} ha ka jaka pyniakhlad (Ka Buffer Zone) ka long hapdeng (61.13 - 70.58 $\mu\text{g}/\text{m}^3$) bad ka jong ka $\text{PM}_{2.5}$ ka long hapdeng (27.12-32.99 $\mu\text{g}/\text{m}^3$), ka SO_2 ka long hapdeng (5.49 - 6.68 $\mu\text{g}/\text{m}^3$), ka NO_2 ka long hapdeng (15.90-19.34 $\mu\text{g}/\text{m}^3$) bad ka CO (0.27 - 0.33 mg/m^3), baroh kiba hap hapoh ka kyndon ba la buh da ka National Ambient Air Quality Standards (NAAQS).

Katkum ka Air Quality Index jong ka CPCB, ka jinglong ka lyer ha ka jaka kaba pyniakhlad ka long kaba biang (Satisfactory) kumba la khmih bniah hapdeng - December 2022- Feb 2023.

Summer Season (March 2024 - May 2024)

Ka Jaka Ban trei ia ka Project (Core Zone):

Ka jingkhein kumba PM_{10} ha ka jaka trei (core zone locations) ka long hapdeng (61.48 – 63.33 $\mu\text{g}/\text{m}^3$) bad ka jong ka $\text{PM}_{2.5}$ ka long hapdeng (27.27-28.09 $\mu\text{g}/\text{m}^3$), ka SO_2 ka long hapdeng (6.49-6.68 $\mu\text{g}/\text{m}^3$), ka NO_2 ka long hapdeng (15.99-16.47 $\mu\text{g}/\text{m}^3$) bad ka CO (0.27 - 0.28 mg/m^3), baroh kiba hap hapoh ka kyndon ba la buh da ka National Ambient Air Quality Standards (NAAQS).

Katkum ka Air Quality Index jong ka CPCB, ka jinglong ka lyer ha ka jaka kaba pyniakhlad ka long kaba biang (Satisfactory) kumba la khmih bniah hapdeng - March-May 2024.

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ka jingkhein kumba PM_{10} ka long hapdeng (59.64 - 72.55 $\mu\text{g}/\text{m}^3$) bad ka jong ka $\text{PM}_{2.5}$ ka long hapdeng (26.46 - 32.18 $\mu\text{g}/\text{m}^3$), ka SO_2 ka long hapdeng (4.15 -5.05 $\mu\text{g}/\text{m}^3$), ka NO_2 ka long hapdeng (15.51- 18.87 $\mu\text{g}/\text{m}^3$) bad ka CO (0.21 - 0.40 mg/m^3), baroh kiba hap hapoh ka kyndon ba la buh da ka National Ambient Air Quality Standards (NAAQS). Katkum ka Air Quality Index jong ka CPCB, ka jinglong ka lyer ha ka jaka kaba pyniakhlad ka long kaba biang (Satisfactory) kumba la khmih bniah hapdeng - March-May 2024.

- **Ka Jingsawa Kaba Biang (Ambient Noise levels):**

Por tlang (December 2022 - Feb 2023)

Ka Jaka Ban trei ia ka Project (Core Zone):

Ka jingsawa kaba biang ha ka por mynsngi ha ka jaka ba thmu ban shna ia ka project ka long hapdeng 63.8 dB (A) haduh 65.3 dB (A) kaba long hapoh u pud ba la buh na ka bynta ki jaka ba don karkhana ~ 75 dB (A). Ha ka por mynmiet ka jingsawa ha ka jaka ba thmu shna ia ka project ka long hadpeng 56.6 dB (A) haduh 57.4 dB (A) kaba long ruh hapoh u pud ba la buh na ka bynta ki jaka ba don karkhana ~ 70 dB (A).

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ka jingsawa kaba biang ha ka por mynsngi ha ka jaka ba don ki iing briew (residential area) ka long hapdeng 53.9 dB (A) haduh 57.3 dB (A) kaba tam khyndiat ia u pud ba la buh na ka bynta ka jingsawa ba mih na ki karkhana ha ka jaka ba don ki iing briew ~ 55 dB (A) namar ka jingiaid ki kali ha ka jaka. Ha ka por mynmiet ka jingsawa ka long hadpeng 41.8 dB (A) haduh 45.3 dB (A) kaba tam khyndiat ia u pud ba la buh ~ 45 dB (A). Ha ka jaka ba long iew, ka jingsawa kaba biang ha ka por mynsngi ka long hapdeng 59.3 dB (A) haduh 66.9 dB (A) kaba tam khyndiat ia u pud ba la buh na ka bynta ka jingsawa ba mih na ki karkhana ha ka jaka ba long iew ~ 65 dB (A) bad ha ka por mynmiet ka jingsawa ka long hadpeng 51.8 dB (A) haduh 56.9 dB (A) kaba tam khyndiat ia u pud ba la buh na ka bynta ka jingsawa ba mih na ki karkhana ha ka jaka ba long iew ~ 55 dB (A) namar ka jingiaid ki kali.

Por Lyiur (March 2024 - May 2024)

Ka Jaka Ban trei ia ka Project (Core Zone):

Ka jingsawa kaba biang ha ka por mynsngi ha ka jaka ba thmu ban shna ia ka project ka long hapdeng 63.5 dB (A) haduh 65.1 dB (A) kaba long hapoh u pud ba la buh na ka bynta ki jaka ba don karkhana ~ 75 dB (A). Ha ka por mynmiet ka jingsawa ha ka jaka ba thmu shna ia ka project ka long hadpeng 56.2 dB (A) haduh 57.1 dB (A) kaba long ruh hapoh u pud ba la buh na ka bynta ki jaka ba don karkhana ~ 70 dB (A).

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ka jingsawa kaba biang ha ka por mynsngi ha ka jaka ba don ki iing briew (residential area) ka long hapdeng 54.1 dB (A) haduh 57.3 dB (A) kaba tam khyndiat ia u pud ba la buh na ka bynta ka jingsawa ba mih na ki karkhana ha ka jaka ba don ki iing briew ~ 55 dB (A) namar ka jingiaid ki kali ha ka jaka. Ha ka por mynmiet ka jingsawa ka long hadpeng 42.1 dB (A) haduh 45.5 dB (A) kaba tam khyndiat ia u pud ba la buh ~ 45 dB (A). Ha ka jaka ba long iew, ka jingsawa kaba biang ha ka por mynsngi ka long hapdeng 59.5 dB (A) haduh 66.8 dB (A) kaba tam khyndiat ia u pud ba la buh na ka bynta ka jingsawa ba mih na ki karkhana ha ka jaka ba long iew ~ 65 dB (A) bad ha ka por mynmiet ka jingsawa ka long hadpeng 52.1 dB (A) haduh 57.2 dB (A) kaba tam khyndiat ia u pud ba la buh na ka bynta ka jingsawa ba mih na ki karkhana ha ka jaka ba long iew ~ 55 dB (A) namar ka jingiaid ki kali.

- **Ka Jinglong ka Khyndew (Soil Quality):**

Ka Jaka Ban trei ia ka Project (Core Zone):

Por Tlang (December 2022 - Feb 2023)

Ki sample kiba la shim na ka jaka ba mut pyntreikam - S1 ka pyni ba ka jingsngem ka khyndew ha ka bynta kaba hapdeng ka long 3.3% haduh 4.9, ka pH ka long 7.39 haduh 7.6 Ka jingdon jong ka sboh kum ka Organic matter ka long 0.74% haduh 1.21%, ka jingdon ka nitrogen ka long 58.4 mg/kg haduh 92.4 mg/kg kaba dang long kham duna, ka jingdon u Potassium ka long 19.9 mg/kg haduh 39.1 mg/kg kaba dang long kham duna bad ka jingdon u Phosphorus ka long 8.2 mg/kg haduh 12.4 mg/kg kaba long hapdeng. Kumta, ka jingdon jong kine ki mar hapoh khyndew ka pyni ba ka jingseisoh ka long kaba duna ha kane ka jaka ban pyntreikam namar ka jingduna ka jingdon ka nitrogen bad u potassium bad kat ban biang u phosphorus.

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Hapdeng u Dec 2022 - Feb 2023, ki sample kiba la shim na ka jaka – S2-S8 ka pyni ba ka jingsngem ka khyndew ha ka jaka kaba pyniakhlad ka long 1.8-6.6%, ka pH ka long 6.49 haduh 7.52. Ka jingdon jong ka sboh kum ka Organic matter ka long 0.26% haduh 2.25%, ka jingdon ka nitrogen ka long 56.0 mg/kg haduh 88.2 mg/kg kaba dang long kham duna, ka jingdon u Potassium ka long 10.6 mg/kg haduh 41.7 mg/kg kaba dang long kham duna bad ka jingdon u Phosphorus ka long 6.4 mg/kg haduh 11.2 mg/kg kaba long hapdeng. Kumta, ka jingdon jong kine ki mar hapoh khyndew ka pyni ba ka jingseisoh ka long kaba duna ha kane ka jaka kaba pyniakhlad namar ka jingduna ka jingdon ka nitrogen bad u potassium bad kat ban biang u phosphorus.

Por Lyiur (Summer Season- March 2024 - May 2024):

Ka Jaka Ban trei ia ka Project (Core Zone):

Hapdeng u March-May 2024, ki sample kiba la shim na ka jaka ba mut pyntreikam - S1 ka pyni ba ka jingsngem ka khyndew ha ka bynta kaba hapdeng ka long 2.8-3.7%, ka pH ka long 7.37-7.57. Ka jingdon jong ka sboh kum ka Organic matter ka long 0.69-1.19%, ka jingdon ka nitrogen ka long 62.4-95.6 mg/kg kaba dang long kham duna, ka jingdon u Potassium ka long 18.8-31.3 mg/kg kaba dang long kham duna bad ka jingdon u Phosphorus ka long 7.4-10.6 mg/kg kaba long hapdeng. Kumta, ka jingdon jong kine ki mar hapoh khyndew ka pyni ba ka jingseisoh ka long kaba duna ha kane ka jaka ban pyntreikam namar ka jingduna ka jingdon ka nitrogen bad u potassium bad kat ban biang u phosphorus.

● **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ki sample kiba la shim na ka jaka – S2-S8 ka pyni ba ka jingsngem ka khyndew ha ka jaka kaba pyniakhlad ka long 1.5-% haduh 4.4%, ka pH ka long 6.53 haduh 7.63. Ka jingdon jong ka sboh kum ka Organic matter ka long 0.26% haduh 2.25%, ka jingdon ka nitrogen ka long 61.6 mg/kg haduh 104.6 mg/kg kaba dang long kham duna, ka jingdon u Potassium ka long 10.6 mg/kg haduh 41.7 mg/kg kaba dang long kham duna bad ka jingdon u Phosphorus ka long 6.4 mg/kg haduh 11.2 mg/kg kaba long hapdeng. Kumta, ka jingdon jong kine ki mar hapoh khyndew ka pyni ba ka jingseisoh ka long kaba duna ha kane ka jaka kaba pyniakhlad namar ka jingduna ka jingdon ka nitrogen bad u potassium bad kat ban biang u phosphorus.

● **Ka Jinglong ka Um (Surface Water Quality):**

Por Tlang (Winter Season- December 2022 - Feb 2023)

Ka jinglong jong ka um na baroh ki tyllong um kata., SW1 (Dongtangle Nala (Sartang River), SW2 (Wah Lukha river Upstream), SW3 (Wah Lukha river Downstream), SW4 (Lubha River) ka pynpaw ba ka iadei bad ka criteria class “D” kata., Propagation of Wildlife and Fisheries katkum ka CPCB surface water quality- Designated Best Use Water Quality Criteria ba la pynbeit da ka CPCB

Por Lyiur (Summer Season- March 2024 - May 2024):

Ka jinglong jong ka um na baroh ki tyllong um kata., SW1 (Dongtangle Nala (Sartang River), SW2 (Wah Lukha river Upstream), SW3 (Wah Lukha river Downstream), SW4 (Lubha River) ka pynpaw ba ka iadei bad ka criteria class "D" kata., Propagation of Wildlife and Fisheries katkum ka CPCB surface water quality- Designated Best Use Water Quality Criteria ba la pynbeit da ka CPCB

- **Ka jinglong ka um kaba hapoh khyndew (Ground Water Quality):**

Ka Por Tlang (Winter Season- December 2022 - Feb 2023)

Ka Jaka Ban trei ia ka Project (Core Zone):

Ki jingtip baroh kiba ioh ban lum shaphang ka um ki hap hapoh ka kyrdan ba long ban dih (within drinking water standards) (IS:10500). Ka **Total Dissolved Solids (TDS)** jong ki sample na ka jaka ka long 86.8 mg/l. Ka **Total Hardness** jong ki sample na ka jaka ka long 48 mg/l, ka **Magnesium content** jong ki sample na ka jaka ka long 5.83 mg/l, ka jingbang mluh (**Alkalinity**) jong ki sample na ka jaka ka long 40 mg/l, ka **Calcium** Concentration jong ki sample na ka jaka ka long 9.6 mg/l, ka **Chloride** Concentration jong ki sample na ka jaka ka long 6 mg/l.

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ki jingtip baroh kiba ioh ban lum shaphang ka um ki hap hapoh ka kyrdan ba long ban dih (within drinking water standards) (IS:10500). Ka **Total Dissolved Solids (TDS)** jong ki sample na ka jaka ka long hapdeng 134.4 mg/l haduh 276.8 mg/l. Ka **Total Hardness** jong ki sample na ka jaka ka long hapdeng 60 mg/l haduh 92 mg/l, ka **Magnesium content** jong ki sample na ka jaka ka long hapdeng 9.72 mg/l haduh 12.64 mg/l, ka jingbang mluh (**Alkalinity**) jong ki sample na ka jaka ka long hapdeng 44 mg/l haduh 72 mg/l, ka **Calcium** Concentration jong ki sample na ka jaka ka long hapdeng 11.2 mg/l haduh 16 mg/l, ka **Chloride** Concentration jong ki sample na ka jaka ka long hapdeng 4.0 mg/l haduh 10.0 mg/l. Baroh ki hap hapoh ka jinglong ban pyndonkam ia ka um na ka bynta ban dih.

Por Lyiur (Summer Season- March 2024 - May 2024):

Ka Jaka Ban trei ia ka Project (Core Zone):

Ki jingtip baroh kiba ioh ban lum shaphang ka um ki hap hapoh ka kyrdan ba long ban dih (within drinking water standards) (IS:10500). Ka **Total Dissolved Solids (TDS)** jong ki sample na ka jaka ka long 90.20 mg/l. Ka **Total Hardness** jong ki

sample na ka jaka ka long 50.0 mg/l, ka **Magnesium content** jong ki sample na ka jaka ka long 5.83 mg/l, ka jingbang mluh (**Alkalinity**) jong ki sample na ka jaka ka long 42.0 mg/l, ka **Calcium** Concentration jong ki sample na ka jaka ka long 10.40 mg/l, ka **Chloride** Concentration jong ki sample na ka jaka ka long 7.0 mg/l. Baroh ki hap hapoh ka jinglong ban pyndonkam ia ka um na ka bynta ban dih.

- **Ka Jaka Pyniakhlad (Ka Buffer Zone)**

Ki jingtip baroh kiba ioh ban lum shaphang ka um ki hap hapoh ka kyrdan ba long ban dih (within drinking water standards) (IS:10500). Ka **Total Dissolved Solids (TDS)** jong ki sample na ka jaka ka long hapdeng 142 mg/l haduh 284.60 mg/l. Ka **Total Hardness** jong ki sample na ka jaka ka long hapdeng 64 mg/l haduh 96 mg/l, ka **Magnesium content** jong ki sample na ka jaka ka long hapdeng 7.29 mg/l haduh 12.64 mg/l, ka jingbang mluh (**Alkalinity**) jong ki sample na ka jaka ka long hapdeng 46 mg/l haduh 76 mg/l, ka **Calcium** Concentration jong ki sample na ka jaka ka long hapdeng 12.80 mg/l haduh 17.60 mg/l, ka **Chloride** Concentration jong ki sample na ka jaka ka long hapdeng 5 mg/l haduh 11 mg/l.

- **Ka Jinglong Ki Jingthaw ba im (Biological Environment):**

Ki jingthung jingtep (Flora): Ha ka jaka ban pyntreikam, u synsar, u siej, u Assam Broom Grass bad kiwei kiwei ki don hangta. Ha ka jaka ba pyniakhlad, ki dieng (Acacia, Bael, Kadam, Banyan, Peepal, Ashoka, Screw Pine bad kiwei kiwei), ki dieng ba rit (Indian Acalypha, Bidens, Globba, Orange Jasmine, Lantana etc), ki jingthung (Turmeric, Ginger, Holy Basil, Shrimp plant bad kiwei kiwei) ki don hangta. Ki mrad (Fauna): Ha ka jaka ban pyntreikam, ki mrad ki kynthup ia ki masi, ki sim kum ki simkhar, tyngab, bad ki bulbul lem bad ki risang (squirrel), ki mongoose, bad ki niangbshiah (garden lizards), bad ki thapbalieh. Ha ka jaka ba pyntreikam, ha ka por ka jingkhmih bniah, ki don ki Rhesus Macaque (Macaca mulatta), Indian Palm Squirrel (Funambulus palmarum), bad Indian Peafowl (Pavo cristatus). Kiwei kiwei ki kynthup, ia ki kynhun ki Nilgai (Boselaphus tragocamelus), Wild Boar (Sus scrofa) bad kiwei kiwei ha ka jaka pyniakhlad. Katkum ka Indian Wildlife (Protection) Act, 1972, 11 tylli ki mrad kiba don ha ka schedules I bad kiba hap hapoh ka jaka pyniakhlad, kita ki long, Felis catus (Domestic Cat), Herpestes edwardsii (Indian Grey Mongoose), Hoolock hoolock (Hoolock Gibbon), Hystrix indica (Indian Crested Porcupine), Manis pentadactyla (Pangolin), Nycticebus bengalensis (Slow Loris), Python molurus (Indian Python), Naja naja (Indian Cobra), Pavo cristatus (Indian Peafowl), Buceros bicornis (Great Pied Hornbill), Gyps bengalensis (White-rumped Vulture). Ki lad ban sumar ia ki la dep ban pynkhreh na ka bynta ki mrad hapoh ka Schedule I kaba hap hapoh ka jaka ba pyniakhlad.

- **Ka rukom long ka jaka imlang sahlang (Socioeconomic Environment):** Katkum ka jingtip ba la lum, ka jaka ba khmih bniah ka don 3755 tylli ki iing bad 22073 ki nongshong shnong. Ka jingtip ba la lum ka long na na ki hynniew tylli ki shnong na ka bynta ban pule, kita ki long ka shnong Thangskai, Wahiajer, Chiehruphi, Nangsing, Tongseng, Umlong bad Umrasing. Ka jingdon jong baroh ki brieve kiba hap hapoh ka jaka ba la khmih bniah ka long 4287 ngut hapoh 816 tylli ki iing. Kiba bun ki shaniah ha ka rep ka riang, ka bylla sngi, ki kam shimet, ki kam sorkar, ki kam khaii, bad ki kam trei hi na ka bynta ka ioh ka kot. Ki jait jingthung kiba mih ka kane ka jaka ki long u sla tymphew (11%), bud sa u kwai (11%), u synsar (24%), u kba (33%), u sohniatra 14% bad riwhadem 4% ki ba mih ha kane ka jaka. Ki don ruh ki bank, ATMs, Post Office, Public transportation ha ka jaka ba ki brieve ki sah. Ka um bam ka long na ki pung um, ka hand pump, ka kor bad ka wah/nan/pung. Kiba ai jingsumar ki dei ki nongtrei Asha ha kiba bun ki shnong. Bun na ki shnong ki don ki Anganwadi bad ki Govt. primary school ha kane ka jaka khmih bniah bad 100% electricity na ka bynta ban pyndonkam.
- **Ka Jingtip shaphang ka Jinggaiaid Kali (Traffic Studies)**

Ka jinglah ban kit ka surok NH-6 ka long kham khraw/heh ban ia kaba la buh (Higher than the proposed traffic volume). Ka jinggaiaid ki kali (sharum bad shaneng) na ka lynti ba la tyrwa ban shna (Proposed Establishment) jong ka Integrated Cement Plant Unit kan ym buh ia ka jingdheng kali.

Ka jinglah ban kit ka surok ka lah ban kylla hapdeng ka 0.24 haduh 0.30 ha ka surok NH6 bad ka LOS kaba long "B" tang haduh "B" bad na ka bynta kiwei pat ki rukom, ka lah ban kylla hapdeng 0.01 haduh 0.12 bad ka LOS kaba long "A" haduh "A"

1.4. Kiwei kiwei ki Jingpule (Additional Studies)

Ka project ka don ha ka Seismic zone-V bad ka dei ka jaka ba lah ban don jingma. Yn shim khia ha ka por ba tei ia ka ban lait na ka jingduh bad jinglut. Ban lait na ka jingshlei um ne jinglang um ha ka jaka ba shna namar ka jingtuid ka um, yn tei kham jrong ia ka jingshna na ka surok. Ki jingthew baroh kin long kat kum ba la buh da ka ain.

Kan don ka jingshimkhia lada mih ka jingkem ding bad ka don ka jingpyniaid kaba biang ha ka jaka (site).

Khyndiat Ki Mat Jinggaiaid (General safety measures)

- Yn pynlong ia ki Occupational health surveillance programme manla ka sien ha ki 6 bnai bad yn pynbiang ia ki jingthoh.
- Ha ka jaka ban tei ia ka project, yn pynbiang ia ki emergency First Aid facility. Kan don ka kamra ba don ka jingthiah na ka bynta ban pyndonkam lem bad u/ka doctor ba ai jingsumar.
- Yn pynlong ia ka Health check-up camps manla ki por ha ki dispensary /jaka ba marjan ban pynkiar ia ki nongtrei na ki chemicals ka ka por ba pynhap bad ba trei ia ki kam.
- Yn ai ia ka jingsumar kaba biang lada don kano kano ka jingmysaw.
- Yn ai ia ki Label Precautions bad ki First Aid.
- Yn pynkhreh ia ka Emergency plans bad yn pynlong ki mock drills ha kaba iadei bad ka on-site emergency.
- Ki nongaikam bad ki nongtrei kin ioh ka jingtip shaphang ka jingdon jingma jong ki tiar ba pyndonkam ha ki jaka trei, bad ka jingma kaba don bad ki.
- Kan don ka Inspection ia ki jingtrei da kumno kumno shisien ha ka shi snem ha kaba iadei bad ki kyndon bad ia ka report yn sa ai pat.
- Yn don u/ka Environment, Health and Safety (EHS) Manager ban khmih thuh ia ka jingiada na ka bynta u briew, ki machine bad ki tiar.
- Ka jaka ba don jingiada ka kynthup ia ka parking lot, ki jaka bym don eiei lane surok ka ban don kham pajih na ka jaka ka ban long kham kylluid na ka bynta ki nongtrei.

Ka Occupational Health & Safety management plan

- Yn pynlong ia ki Occupational health surveillance programmes manla ka sien ha ki 6 bnai bad yn pynbiang ia ki jingthoh.
- Ha ka jaka ban tei ia ka project, yn pynbiang ia ki emergency First Aid facility. Kan don ka kamra ba don ka jingthiah na ka bynta ban pyndonkam lem bad u/ka doctor ba ai jingsumar.
- Yn pynlong ia ka Health check-up camps manla ki por ha ki dispensary /jaka ba marjan ban pynkiar ia ki nongtrei na ki chemicals ka ka por ba pynhap bad ba trei ia ki kam.
- Yn ai ia ka jingsumar kaba biang lada don kano kano ka jingmysaw.
- Yn ai ia ki Label Precautions bad ki First Aid.
- Yn pynkhreh ia ka Emergency plans bad yn pynlong ki mock drills ha kaba iadei bad ka on-site emergency.
- Ki nongaikam bad ki nongtrei kin ioh ka jingtip shaphang ka jingdon jingma jong ki tiar ba pyndonkam ha ki jaka trei, bad ka jingma kaba don bad ki.
- Kan don ka Inspection ia ki jingtrei da kumno kumno shisien ha ka shi snem ha kaba iadei bad ki kyndon bad ia ka report yn sa ai pat.

- Yn don u/ka Environment, Health and Safety (EHS) Manager ban khmih thuh ia ka jingiada na ka bynta u briew, ki machine bad ki tiar.
- Ka jaka ba don jingiada ka kynthup ia ka parking lot, ki jaka bym don eiei lane surok ka ban don kham pajih na ka jaka ka ban long kham kylluid na ka bynta ki nongtrei.
- Yn don ka jingthoh kaba biang shwa ban leh welding, ban thang, ban tyllait ne pynmih kano kano ka ding ha ka jaka ba pyndonkam ia u dewiong.

1.5. Ka Jingmyntoi ba ioh na ka Project

Ka unit kan pynmih ia ka lad ban ioh kam direct bad indirect bad ki jingmyntoi katkum ka jinglong ka imlang sahlang, ki jingtei bad kiwei kiwei ki jingiohnong kum ka

- Ka project kan pyndap ia ka jingdawa ia u cement ha kylleng ka ri bad kumjuh ruh ban phah shabar ka ri.
- Ka jingdonkam jong ka shnong ka thaw kan long kum ia ka surok, footpaths, ki nala (drainage systems), ka community centre, ki madan ialehkai (playgrounds), bad ki streetlights, floodlight/high-mast lightning, ka jingai ia ki Solar Street lights, ka jingtei ia ki secondary level educational institution, bad kiwei kiwei., ha ki shnong bapher bapher ka ban iarap ia kaban kyntiew ia ka rukom im jong kiba ia imlang sahlang.
- Ka karkhana kan pyndonkam Rs. 18 Cr ha ka kam bhalang (Social welfare activities) kum ka jingtei ia ki surok, footpaths, nala (drainage systems,) community centre, playgrounds, bad streetlights, floodlight/high-mast lightning, ka jingai ia ki Solar street lights, ka jingtei ia ki secondary level educational institution, ka Financial Assistance kumba 50% (jong ka bai school) kiba hap hapoh ka government allotted seats bad 20% jong ka jingpynlut (jong ka school fee) ha ki private institutions na ka bynta ki khynnah jong ka shnong Wahiajer Narpuh kiba thmu ban bteng ia ki jingpule kiba kham shajrong kum ka MBBS, BE lane kiwei pat ki technical courses, kiwei kiwei, ka jingtei ia ki secondary level educational institution bad ki khun jong kiba trei ha ka project (plant) kan long kaba ioh ei (free of cost) na ka bynta ki khynnah kiba duh bad ka jingsiew lut ia kiei kiei baroh lada don kino kino ki jingjia ki ban donkam jingiarap kyrkieh lane ka lad ban kyrshan ia kiba duk bad kiwei kiwei ha ki shnong kiba marjan na ka bynta ka jingmyntoi jong baroh.
- Ka lad ban iohkam kan ialam sha ka jingkiew ha ka jingioh bad ka rukom im jong ki briew. Ka karkhana kan thaw lada ruh ban ai kam ia ki nongtrei ha ka por ba tei ia ka project bad kumjuh ruh ha ka por ba pyntreikam ia ka. Kan long ka lad ban ai kam direct bad indirect ia ki samla ka shnong. Ka Unit kan thung kumba 60% people na

ki nongshong shnong jong ka Wahiajer Narpuh bad 40% na kiwei pat lada ki hap katkum ka jingbuh beit ia ki kyndon na ka bynta ka kam.

- Ka M/s Meghatop Cement Private Limited kan pynbha ia ka rukom trei jong ki bad pyndonkam ia ki tiar technology kiba biang ban pynduna ia ka jingktah jong ki ia ka mariang. Ka karkhana ka thmu ruh ban pyndonkam ia ki pum pum ba la lum ha ki Pulse Jet bag filters bad ban pynlang ia ki da kaba buh bha kata., Limestone Crusher (ROM & Blending), Corrective Crusher, Coal Mill (VRM), Raw Mill (VRM) & Kiln, Clinker Cooler, Cement Mill (VRM) , Packing Unit Additive Crusher, Coal Crusher and Gypsum Crusher.
- Ka M/s Meghatop Cement Private Limited ka pyndonkam ia ki tiar technology kiba biang ban pynduna ia ka jingktah jong ki ia ka mariang. Ka karkhana ka thmu ruh ban pynkhuid ia ki pum pum bad lum ia ki ha ki pla (bag filters) bad kan leh kumjuh ia ki dpei kiba mih na ka plant.
- Ka karkhana ka long kaba iadei bad ka mariang (Environmental Friendly) namar ba kan pynkhuid ia ki dpei bad ki pum pum kiba mih na ka plant.

1.6. Ka Environment Management Plan

Ka Air Quality Management Plan

Ka Por ba tei (Construction Phase)

- Yn synreit um ha ki jaka trei na ka bynta ban pynduna ia ka jingdon pum pum.
- Yn pyndonkam ia ki Flexible dust suppression systems (water spray) katkum ka jingdonkam ha ki jaka trei.
- Yn ym tih khyndew khlem da buh jingmut shaphang ka jingdon u pum pum ha ka jaka trei.
- Yn ym don kano kano ka khyndew lane u pum pum kiba yn shu ieh khlem pynkhuid.
- Ia ka Construction Waste processing bad ka jaka ban bret ia ki jakhlia (disposal sites) yn sa khmih bniah bad ka jingpyntip shaphang ka jingpynkhuid ia u pum pum yn sa ai ha ka site.
- Ban pynduna ia ka jingshitom ba lah ban mih ha ki jingtrei, yn ai ki masks ia ki nongtrei kiba iadei bad kaba trei hapdeng u pum pum.

Ha ka por ka Jingpyntrei kam (For Operation Phase)

- Ki nongtrei kin long kiba la ioh jinghikai shaphang kumno ban pyndonkam ia ki tiar (raw materials)/chemicals, bad ia ki PPEs kum ka nose masks bad goggles yn ai ia ki nongtrei

- Baroh ki jingdonkam yn ai na ka bynta ka jingpynhiar ia ki tiar lait noh kiba sngem. Ki jingdonkam na ka bynta ban pynhiar ka lah ban long kum ki jingtap ba tam palat ia ki dumper ba la wah nalor.
- Lada donkam, yn synreit um ha ka jaka ba mih ki pum pum.
- Ia ka jingpynmih ia ki lyer yn khmih bniah lyngba ki kyndon kiba biang, kum ka jingpynhap ia ki pum pum da kaba synreit um kaba iarap ban pynduna ia ka jingpumpum. Nalor kane, yn khmih bniah borabor bad ia ka jingmih yn sa peit thuh bha. Lada don kano kano ka jingkylla, yn sa nang pynbha pat.
- Ha ka jaka ba thmu ban pynlong ia ka plant, ki ban pynmih ia kiei kiei kan long na ki stacks ba pyndait bad ka Limestone Crusher (ROM & Blending), Corrective Crusher, Coal Mill (VRM), Raw Mill (VRM) & Kiln, Clinker Cooler, Cement Mill (VRM) , Packing Unit Additive Crusher, Coal Crusher and Gypsum Crusher. Adequate APCS kata., Pulse Jet Bag Polyester Polymer Polyethylene Bag Filter yn ai ha manla ki stack jong ka Limestone Crusher (ROM & Blending), Corrective Crusher, Cement Mill (VRM), Packing Unit, Additive Crusher, Coal Crusher, Gypsum Crusher, Pulse Jet glass Bag Filter yn pyndait ha ki Coal Mill (VRM), Reverse Air/Pulse Jet Bag House (RABH) yn pyndait ha ki Raw Mill (VRM) & Kiln bad Electrostatic Precipitator to clinker cooler ryngkat bad ki stack height katkum ka jingbuh ka CPCB yn sa ai.
- Baroh ki nongtrei kiba trei ha ki jaka ba don ki pum pum/jingsawa yn ai ryngkat ki personal protective equipment (PPE) kum ki helmets, safety shoes, safety goggles, industrial grade gloves, safety harnesses, nose masks.
- KA DG set (1x250 kVA) stack kaba 3.2 m na ka sad yn ai bad yn pyndonkam tang ha ka por ba donkam.
- Yn ai PPEs ia ki nongtrei.
- Ka jingkhmih bniah ia ka jaka trei kan long na ka por sha ka por ban pynthikna ba kaei kaei kaba mih ka long hapoh ka jingsyntiat.
- Ka Green belt/ greenery (kiei kiei ki jingthung ba jyrngam) ha ki sawdong jong ka jaka jong ka project bad ha kynriang ki surok. Ka jaka ba don ki jingthung (Green area) ha ka jaka trei (plot) kan long 37 ha (33.13% jong ka plot area).

Ka Jingthmu na ka bynta ban pynduna ia ka Jingsawa (Noise Level Management Plan)

Na ka bynta ka por ba shna (Construction Phase)

- Ka jingsawa kan long tang kumba shipor jong ka jingshna bad baroh ki jingtrei kin long tang ha ka por mynsngi.
- Yn ai ia ki tiar jingiada kum ki earmuffs/ plugs na ka bynta ki nongtrei.
- Yn pyndonkam da ki Ready Mix concrete ha ka jaka ki concrete mixer khnang ba kan ym don kano kano ka jingsawa namar ka jingtrei.

- Yn ai ka training kaba biang ia ki nongtrei shaphang ka rukom pyndonkam ia ki tiar ha ka jaka trei. Yn ym shah ia ki nongtrei ban bret ia ki tiar trei kum ki maw block, ki niut, kiwei kiwei na jrong.
- Ka jingkit bad jingpynhap ia kiei kiei ki bym pyndonkam shuh kan long na ki loaders/excavators direk sha tippers/trucks ban pynthikna ban pynduna ia ka jingsawa Yn ai ki ear plugs/ear muffs ia ki nongtrei.
- Yn ai bha ia ka umphniang ia ki machines bad kiwei kiwei ki tiar bad sumar bha bad yn pyndait ryngkat ki vibration isolators bad ki noise damping, ka jingtreikam kan long tang ha ka por mynsngi, bad yn ker bha ia kiei kiei kiba tawiar ia ka project site
- Yn ai ia ki PPE kum ki ear plugs bad muffs ia ki nongtrei ha ka project site. Kumjuh ruh, yn siang ia ki kynja tiles kiba lah ban kjit ia ki jingsawa ha ka admin building.
- Yn ker bha ia kiei kiei kiba tawiar ia ka project site kiba lah ban pynduna ia ka jingsawa kaba mih na ka site.

Ha ka por ka Jingpyntrei kam (For Operation Phase)

Ban pynduna ia ka jingsawa (Ambient Noise level), yn bud ryntih ia kine harum:-

- Yn ai ka training kaba biang ia ki nongtrei na ka bynta ban pyndonkam ia ki tiar. Lada donkam, yn ai ki PPE ia ki nongtrei.
- Ia ki tiar ba pyndonkam (Process machinery -coal crusher, cement mill) yn pyndait ryngkat bad ki Improved mufflers & silencers kiba dei ki tiar ba lah ban pynmih bun ka jingsawa.
- Yn thied ia ki tiar machine kiba pynmih ia ki jingsawa kiba duna.
- Ia ki jait tiar (Stationary machineries) bad kiwei pat ki jingdonkam yn pyndait lang bad kiei kiei kiba donkam bad yn buh bad ki dampeners na ka bynta ban pynduna ia ka jingsawa namar ka jingkhik jong ki.
- La dep ban peit bad pynthikna ba ki mufflers systems, vibration damping systems bad kiwei kiwei., yn pyndait lang bad ki engine jong ki machine kiban iarap ban pynduna ia ka jingsawa.
- Yn pyndait ia ki tiar machine/equipment kiba pynmih duna ka jingsawa.
- Yn pyndonkam umphniang kor kaba biang ha ki bynta jong ki machine baroh ban pynthikna ia ka jingmih ka jingsawa kaba duna.

Ka Solid & Hazardous Waste Management plan

Ha ka por ba tei ia ka project (Construction Phase)- Ki jakhlia ba mih na ka unit kin long 225 kg/day ha kaba ki jakhlia ba lah ban duh hi (biodegradable waste) kin long 90 kg/day kiba lah ban phah sha kiba shim bad kiwei pat ki jakhlia (Recyclable Waste- Plastic, paper, wood, glass, kiwei kiwei) kin long 135 kg/ day. Yn pyllait/die sha kiba shim.

Ha ka por ka Jingpyntreikam (During Operation Phase)- Yn bud ryntih ia kine harum:-

- Ka jingiada ha ka por ba pyndonkam ia ki tiar, yn ai ia ki PPE na ka bynta ban pyndonkam.
- Yn ym don kano kano ka jingpynmih ia ki jakhlia kaba ktah na ka project.
- Ha ka por ka jingpyntreikam, 75 kg/day jong ka solid waste kan mih, ha kaba 30 kg/day kan long kaba sboh bad kaba lah ban phah sha kiba shim bad 45 kg/day kin long ki bym seisoh bad kiba lah ban ai noh sha kiba kwah ban shim/thied.
- Ka umphniang ba la pyndonkam kaba 6.14 KLPa kan mih na ka jaka trei, bad yn sa pynduh noh ha ka ding hadien ba shim jingbit/die sha kiba shim.
- Ka STP sludge kaba 8.91 kg/day yn pyndonkam kum ka sboh na ka bynta ban thung jingthung.
- U pum pum na ka Bag filter kaba 82500 TPA yn lum na ka bag filters bad pyndonkam ha kaba pynmih ia u cement.
- Kiwei kiwei ki Solid Wastes (MS Scrap, GI Scrap, Grinding media, Used/expired tyres, HDPE bags, Blow bar, Conveyor belt steel coated, misc. scarp) jong 833 TPA yn die sha kiba thied.
- la ka E-waste kaba 0.25 TPA yn die/pyllait noh sha kiba thied kat kum ka E-waste (Management) Rules, 2016 bad ka jingpynbeit kaba dang shen.
- la ka Battery waste kaba 0.25 TPA yn die/pyllait noh sha kiba thied kat kum ka Battery waste & Management Rules 2023 bad ka jingpynbeit kaba dang shen.

Ka Wastewater & Effluent Management Plan

Ha ka por ba shna ia ka jingtei (For Construction Phase)

- Yn donkam kumba 90 KLD ka um ha kaba 68 KLD kan dei na ka bynta ban diha bad ban pyndonkam bad 22 KLD na ka bynta ka jingpyndonkam ha kaba trei. Ka um ban ym pyndonkam shuh ia kaba yn pynmih kan long 65 KLD ia kaba yn pynkhuid lyngba ka mobile STP. Ka um na ka bynta ban diha yn tan na ka Dongtangle Nala (Sartang river) bad na ka bynta ban trei, yn pyndonkam ia ka um ba la pynkhuid lyngba ka STP.
- Ha ka por jong ka jingtrei, ka um kaba tuid na ka jaka kan ym lang hajuh lane pyntuid sha surok lane ki nala ba marjan.
- Ka um kaba tuid namar u slap na ka jaka yn sa shim bad pynkhuid na ka bynta ban pyndonkam.

Ha ka por ba pyntreikam (For Operational Phase)

Ka tyllong um khuid: Dong Tangle Nala (Sartang River), Rain water bad STP treated water.

- Ha ka por ka jingpyntreikam, ka jingpyndonkam um baroh na ka bynta ka plant kan long 946 KLD ha kaba 186 KLD kan dei ban long ka um ba khuid, ka um slap kan long 687 KLD bad ka um ba la pynkhuid lyngba ka STP kan long 73 KLD. 945 KLD ka kynthup ia ka um ba lah ban pyndonkam da ki nongtrei (Domestic water-

manpower) (23 KLD), ka Cement plant make-up water (400 KLD), ka WHRS make-up water (123 KLD), ka Gardening (370 KLD), ka Dust suppression (20 KLD) bad Wheel Washing (10 KLD).

- Ka um bym pyndonkam shuh (Total wastewater) kan long 77 KLD kaban dei na ka Cement plant (40 KLD), ka Domestic wastewater (21 KLD), ka WHRB wastewater (7 KLD) bad Wheel washing (9 KLD). Ia ka um bym pyndonkam shuh yn pynkhuid ha ka STP kaba ngiam kumba 95 KLD bad ia ka um ba la dep pynkhuid yn pyndonkam na kaba thung ba tep, ka ba sait (wheel washing) bad ban pynkhuid ia u pum pum.

Ka Biological Environment Management Plan

- Ka jaka jyrngam ka long 37 ha, kata., 33.13% na ka jaka baroh ia kaba yn tei ia ka project.
- Ki dieng baroh kiba donkam ki long kumba @2,500 tylli man ka hectare jong ka jaka ba jyrngam ka long 92500 tylli.
- Ki jingthung ia kiba yn thung ki long u Ajhar, Arjun, Ashoka, Bamboo, Bogi Poma, Bokul, Karanj, Koli, Neem, Sal, Soom, Sisu, Moj, bad kiwei kiwei.
- Da kaba buh jingmut ia ka 80% survival rate, ki number jong ki dieng ia kiba yn thung ki long: 1,15,625 no.
- Kumba 200 no. ki dieng ki don ha ka jaka site, ha kaba kumba 135 trees yn pynkhylllem/ pynkylla ka rukom long. La dep ban apply na ka bynta ka Permission na ka tnat ba dei peit.

Ka Socio Economic Environment management plan

- Ka karkhana kan donkam ki tiar ban pyndonkam ha ka jingtrei, ki jingtrei kiba nang bad ba dang duna ka jingnang. Yn jied ia ki na ka jaka ba don ka jingiajan bad ka site. Namar ka jingkiew jong ki jingtrei karkhana, kan iarap ban kyntiew ia ka ioh ka kot bad kiwei kiwei.
- Kumba 1500 ngut ki brieve yn ai kam ha ka por ka jingtei ia ka project, ha kaba 39 ngut kin ioh kam permanent bad 1461 ngut kin dei hapoh ka contract. 498 ngut ki brieve yn ai kam ha ka por ba pyntreikam (operation phase) ha kaba 318 ngut kin dei ki permanent bad 180 ngut kiban long temporary ha ka por ka jingpyntreikam ia ka project bad kin don ruh ki lad jingiohkam bad ki lad khaii kum ha ka transportation, workshop, packing, repair & maintenance, supply jong ki tiar machineries bad kiwei kiwei. Ka Unit kan thung kumba 60% people na ki nongshong shnong jong ka Wahiajer Narpuh bad 40% na kiwei pat lada ki hap katkum ka jingbuh beit ia ki kyndon na ka bynta ka kam. Kane kan long kaei kaei kaban pynpoi sha ka thong ia kaba ka government ka buh ban kyntiew ia ka

jingmih. Yn ai kam ia kiba lah dep pule Class 10 bad shaneng bad ki dei ruh ban dap 18 snem bad shaneng..

- Ka karkhana kan donkam ki tiar ban pyndonkam ha ka jingtrei, ki jontrei kiba nang bad ba dang duna ka jingnang. Yn jied ia ki na ka jaka ba don ka jingiajan bad ka site. Ki bried kiba najan shnong yn pyntreikam ia ki na ka bynta ka housekeeping, gardeners, minds helper, night watchman, driver, bad kiwei kiwei. Namar ka jingkiew jong ki jingtrei karkhana, kan iarap ban kyntiew ia ka ioh ka kot bad kiwei kiwei.

1.7. Ka Jinglut bad ka Jingpyntreikam ia ka EMP (Cost & EMP Implementation Budget)

Ka jinglut na ka bynta ka project baroh ka long Rs. 2450.55 Crores. Kaba la mang na ka bynta ka EMP Budget kan long Rs. 46.2 crores bad ka ban pyntreikam manla u snem (recurring cost) ka long Rs 2.74 Crores/Year.

Sr. No.	Particulars	Capital Cost (Crores)	Recurring Cost/ Annum (Rupees in Crores)
1	Air Pollution Control Devices & stacks, water sprinkling	20.1	1.0
2	Noise management (enclosures etc)	1	0.03
3	Wastewater Treatment	1.5	0.4
4	Landscaping / plantation	3.46	0.86
5	Rainwater collection	0.4	0.02
6	Social Activities	18	-
7	Environment monitoring	-	0.07
8	Occupational Health & Safety	-	0.23
9	Public Health & Safety	-	0.13
	Total	46.2	2.74

Cost Summary

S.No.	Cost Summary	Cost for Total (Rs. in Crores)	% of the project Cost
1	Project Cost	2450.55	100
2	Capital cost for Environment Management Plan	46.2	1.88
3	Recurring cost for Environment Management Plan	2.24	0.11
4	Social activities (included in EMP capital)	18	0.73
5	Occupational Health and Safety and Public Health & Safety (included in EMP capital)	0.36	0.014