कार्यकारी सारांश

बालू खनन परियोजना ब्लॉक – 05 (जमुआवन पटवा सराय)

स्थित – सकरी नदी, खसरा नंबर – 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372, खाता नंबर – 547, 548, ग्राम – जमुआवन पटवा सराय, ब्लॉक – 05 (जमुआवन पटवा सराय), जिला – नवादा, राज्य – बिहार

क्षेत्रफल – 62.0 हेक्टेयर

उत्पादन – 744000 घन मीटर प्रति वर्ष या 1339200 टी.पी.ए.

परियोजना प्रस्तावक

मेसर्स टूडैज फैशन,
प्रस्तावक: मो. दाऊद खान,
पता – इस्लाम नगर, गोंदपुर, नवादा, बिहार

पर्यावरण सलाहकार

कॉग्निज़ेंस रिसर्च इंडिया प्राइवेट लिमिटेड
(QCI/NABET द्वारा मान्यता प्राप्त)
सूट -B02, ब्लॉक - H-61, सेक्टर -63, नोएडा, यू.पी.- 201301
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कार्यकारी सारांश

1.0 परियोजना और प्रस्तावक का परिचय

पर्यावरण प्रभाव आकलन (ईआईए) एक प्रक्रिया है जिसका उपयोग निर्णय लेने से पहले किसी परियोजना के पर्यावरणीय, सामाजिक और आर्थिक प्रभावों की पहचान करने के लिए किया जाता है। यह एक निर्णय लेने वाला उपकरण है, जो निर्णय लेने वालों को प्रस्तावित परियोजनाओं के लिए उचित निर्णय लेने में मार्गदर्शन करता है। इसका उद्देश्य परियोजना योजना और डिजा इनके प्रारंभिक चरण में पर्यावरणीय प्रभावों की भविष्यवाणी करना, प्रतिकूल प्रभावों को कम करने के तरीके और साधन खोजना, स्थानीय पर्यावरण के अनुरूप परियोजनाओं को आकार देना और निर्णय निर्माताओं को भविष्यवाणियां और विकल्प प्रस्तुत करना है। ई आई ए का उपयोग कर के पर्यावरण और आर्थिक दोनों लाभ प्राप्त किए जा सकते हैं। पर्यावरणीय प्रभावों की भविष्यवाणी और शमन पर विचार कर के, परियोजना नियोजन में शीघ्र लाभ, पर्यावरण की सुरक्षा, संसाधनों का इष्टतम उपयोग, इस प्रकार परियोजना के समग्रसमय और लागत की बचत होती है।

प्रस्तावक - मेसर्स टूडैज फैशन, प्रस्तावक - मो. दाऊद खान, पुत्र मो. साबिर खान, पता- इस्लाम नगर, गोंदपुर, नवादा, बिहार द्वारा प्रस्तावित किया जा रहा है।

प्रस्तावक को जिला खनन कार्यालय द्वारा प्रस्तावित परियोजना आवंटित की गयी है। मेसर्स टूडैज फैशन, प्रस्तावक - मो. दाऊद खान, पुत्र मो. साबिर खान के पक्ष में एलओआई प्रदान किया गया है, पत्र संख्या: 3503/खनन, दिनांक – 07/12/2022, 5 वर्ष की अवधि के लिए अनुलग्नक II के रूप में संलग्न है। ई आई ए- ई एम पी रिपोर्ट सितंबर 14, 2006 की ई आई ए अधिसूचना के तहत दिए गए टी ओ आर के अनुसार तैयार की गई है। प्रस्तावित खनन के कारण पर्यावरण पर प्रभाव का आंकलन करने के लिए, परियोजना स्थल पर प्रचलित पर्यावरण की वर्तमान स्थिति का पता लगाना आवश्यक है। और प्रस्तावित संचालन के पर्यावरण पर प्रभावों की पहचान और मूल्यांकन।

NGT आदेश दिनांक 13-09-2018 और एमओईएफ और सीसी ओएम संख्या एल-11011/175/2018-IA-II(M) दिनांक 12-12-2018 के अनुसार परियोजना बी 1 श्रेणी के अंतर्गत आती है क्योंकि क्षेत्र 5

हेक्टेयर से अधिक है। एसईआईएए, बिहार से प्राप्त संदर्भ की शर्तों (टीओआर) के अनुपालन के लिए पर्यावरणीय प्रभाव आकलन रिपोर्ट तैयार की जाती है।

1 .1 स्थान

परियोजना का नाम - बालू खनन परियोजना ब्लॉक - 05 (जमुआवन पटवा सराय) सकरी नदी पर बालू घाट स्थित खसरा संख्या- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372, खाता संख्या- 547, 548, ब्लॉक- नवादा, गाँव- जमुआवन पटवा सराय, जिला- नवादा, राज्य- बिहार।

गाँव	तहसील/ब्लॉक	ज़िला	राज्य	क्षेत्रफल हेक्टेयर में.
जमुआवन पटवा सराय	ब्लॉक - 05 (जमुआवन पटवा सराय) सकरी नदी पर बालू घाट	नवादा	बिहार	62.0

तालिका -1.1 लीज क्षेत्र के आसपास साइट और आसपास का विवरण

निकटतम बस्तियाँ	जमुआवन पटवा सराय ग्राम पश्चिम दिशा में 50 मी है।
निकटतम सड़क	SH-8 उत्तर पश्चिम दिशा में लगभग 1.50 किमी है।
निकटतम हवाई अड्डा	JPN अंतर्राष्ट्रीय हवाई अड्डा पटना उत्तर पश्चिम दिशा में लगभग 93 किमी की दूरी पर है।
निकटतम रेलवेस्टेशन	नवादा रेलवे स्टेशन दक्षिण पश्चिम दिशा में 4.3 किमी है।
निकटतम राष्ट्रीय उद्यान / वन्य जीव अभयारण्य 10 किमी के भीतर	10 किलोमीटर के दायरे में कोई राष्ट्रीय उद्यान / वन्य जीव अभयारण्य नहीं है।
जल निकाय	परियोजना सकरी नदी पर स्थित है।
निकटतम स्कूल / कॉलेज	मिडिल स्कूल, सोनू बीघा उत्तर उत्तर पूर्व दिशा में लगभग 0.5 किमी है।
आरक्षित / संरक्षित वन	पीएफ लीज सीमा से लगभग 8 किमी है।
निकटतम अस्पताल	सिटी अस्पताल, नवादा पश्चिम दिशा में लगभग 4.5 किमी है।
मंदिर	हनुमान मंदिर, दीवानपुरा, पूर्व दिशा में 0.2 किमी है।

तालिका-1.2 परियोजना का विवरण

ऑनलाइन प्रस्ताव सं.	SIA/BR/MIN/416179/2023
प्रस्तावक का नाम	प्रस्तावक - मेसर्स टूडैज फैशन, प्रस्तावक - मो. दाऊद खान, पुत्र मो. साबिर खान
प्रस्तावक का पूरा पता	इस्लाम नगर, गोंदपुर, नवादा, बिहार
परियोजना का नाम	बालू खनन परियोजना ब्लॉक - 05 (जमुआवन पटवा सराय) सकरी नदी पर बालू घाट
नदी का नाम	सकरी नदी
ग्राम का नाम	जमुआवन पटवा सराय
ज़िला	नवादा
गौण खनिज का नाम	बालू
स्वीकृत पट्टा क्षेत्र (हेक्टेयर में)	62.0 हेक्टेयर
परियोजना की श्रेणी	"बी"1
स्तंभ निर्देशांक	**स्तंभ** / **कोर्डिनेट** (**अक्षांश** / **देशान्तर**) A — 24°53'31.02"N — 85°35'16.05"E B — 24°53'29.11"N — 85°35'30.14"E C — 24°54'27.47"N — 85°35'41.52"E D — 24°54'30.17"N — 85°35'33.05"E
कुल भू-वैज्ञानिक भंडार	1240000 घन मीटर या 2232000 टन
कुल खनन योग्य भंडार	1132790 घन मीटर या 2039022 टन
कुल प्रस्तावित उत्पादन (पांच वर्षों में)	3720000 घन मीटर या 6696000 टन
प्रस्तावित उत्पादन / वर्ष	744000 घन मीटर प्रति वर्ष या 1339200 टी.पी.ए.
खान पट्टे की स्वीकृत अवधि	5 साल
खनन की विधि	ओपन कास्ट सेमी मैकेनाइज्ड मेथड / OTFM
कार्य दिवसों की संख्या	250 दिन

काम के घंटे / दिन	8 घंटे	
श्रमिकों की संख्या	60	
भूमि का प्रकार	सरकारी भूमि	
खनन की अंतिम गहराई	2 मी	
साइट से निकटतम पक्की सड़क	1.50 किमी	
पानी की आवश्यकता	**उद्देश्य**	**आवश्यकता (KLD)**
	पीने और घरेलू	1.2
	धूल दमन	18
	पेड़ लगाना	1.24
	कुल	**20.44**
किसी भी अदालत में परियोजना या भूमि के खिलाफ कोई मुकदमा लंबित है	नहीं	
प्रस्तावित परियोजना लागत	परियोजना की कुल लागत लगभग रु.- 160160000/- (16.016 करोड़)	
प्रस्तावित EMP बजट	पूंजी लागत - 6.7 लाख आवर्ती लागत - 6.3 लाख	
प्रस्तावित CER (परियोजना लागत का 2%) (INR)	3203200/-	
हॉल रोड की लंबाई और चौड़ाई	लंबाई- 1.5 किमी, चौड़ाई- 6 मी.	
लगाए जाने वाले पेड़ों की संख्या	620 पौधे, हर साल 124 पौधे लगाए जाएंगे	

1.2 पानी की मांग

नदी के किनारे खनन परियोजनाओं में काम करने वाले लोगों के लिए धूल दमन, वृक्षारोपण और पीने के अलावा संचालन करने के लिए पानी की कोई आवश्यकता नहीं है। कुल पानी की आवश्यकता लगभग 20.44 KLD होगी। यह पानी आसपास के इलाके से टैंकरों के जरिए सप्लाई किया जाएगा।

तालिका 1.3 - पानी की मांग

क्र.सं.	उद्देश्य	पानी की मांग (KLD)
1.	पीने और घरेलू	1.20
2.	धूल दमन	18.00
3.	पेड़ लगाना	1.24
कुल		**20.44**

1.3 बेसलाइन डेटा

इस खंड में गाँव- जमुआवन पटवा सराय, ब्लॉक - 05 (जमुआवन पटवा सराय), जिला- नवादा, एवं राज्य - बिहार में स्थित सकरी नदी पर बालू घाट, बालू खनन परियोजना के आस-पास के क्षेत्र के 10 किमी के दायरे के आधार भूत अध्ययन का विवरण है। एकत्र किए गए डेटा का उपयोग प्रस्तावित खनन परियोजना के आसपास के मौजूदा पर्यावरण परिदृश्य को समझने के लिए किया गया है जिसके विरुद्ध परियोजना के संभावित प्रभावों का आकलन किया जा सकता है।

निम्नलिखित के लिए प्रस्तावित खनन के संबंध में पर्यावरणीय डेटा एकत्र किया गया है:-

(a) वायु

(b) ध्वनि

(c) जल

(d) मिट्टी

(e) पारिस्थितिकी और जैव विविधता

(f) सामाजिक-आर्थिक

तालिका 4. 1 आधारभूत पर्यावरणीय स्थिति

गुण	आधारभूत स्थिति
परिवेशी वायु गुणवत्ता	मार्च 2023 से मई 2023 तक प्री-मॉनसून सीज़न के दौरान आठ स्थानों पर परिवेशी वायु गुणवत्ता निगरानी (AAQM) की गई है। अध्ययन क्षेत्र के भीतर दर्ज किए गए PM2.5 का न्यूनतम और अधिकतम स्तर 30.56$\mu g/m^3$ से लेकर 30.56$\mu g/m^3$ की सीमा में था। 48.89$\mu g/m^3$ 98वें प्रतिशतक के साथ 39.50$\mu g/m^3$ से 48.34$\mu g/m^3$ पर। अध्ययन क्षेत्र के भीतर PM10 का न्यूनतम और अधिकतम स्तर 58.30$\mu g/m^3$ से 92.40$\mu g/m^3$ के बीच दर्ज किया गया, जिसमें 98वां प्रतिशतक 77.19$\mu g/m^3$ से 91.57$\mu g/m^3$ था। अध्ययन क्षेत्र के भीतर दर्ज की गई SO2 की न्यूनतम और अधिकतम सांद्रता 7.39$\mu g/m^3$ से 15.84$\mu g/m^3$ की सीमा में थी, जिसमें 98वां प्रतिशतक 12.84$\mu g/m^3$ से 14.97$\mu g/m^3$ था। अध्ययन क्षेत्र के भीतर दर्ज किए गए NO2 का न्यूनतम और अधिकतम स्तर 8.18$\mu g/m^3$ से 16.26$\mu g/m^3$ के बीच था, जिसमें 98वां प्रतिशतक 15.96$\mu g/m^3$ था। इस प्रकार प्राप्त परिणामों से संकेत मिलता है कि परिवेशी वायु में PM_{10}, $PM_{2.5}$, SO_2 और NO_2 की सांद्रता औद्योगिक, आवासीय, ग्रामीण और अन्य क्षेत्रों के लिए राष्ट्रीय परिवेशी वायु गुणवत्ता (NAAQ) मानकों के भीतर है।
ध्वनि का स्तर	ध्वनि की निगरानी पांच स्थानों पर की गई। निगरानी कार्यक्रम के परिणामों ने संकेत दिया कि निगरानी किए गए सभी चार स्थानों पर ध्वनि के दिन और रात दोनों समय NAAQS की निर्धारित सीमा के भीतर थे।
जल की गुणवत्ता	4 भू-जल के नमूनों और 2 सतही पानी के नमूनों का विश्लेषण किया गया और निष्कर्ष निकाला गया कि: सभी स्रोतों से भू-जल पीने के उद्देश्यों के लिए उपयुक्त रहता है क्योंकि सभी घटक भारतीय मानक IS: 10500 द्वारा प्रख्यापित पेयजल मानकों द्वारा निर्धारित सीमा के भीतर हैं। सतही जल विश्लेषण से यह स्पष्ट है कि नमूनों के अधिकांश पैरामीटर पारंपरिक उपचार और कीटाणुशोधन के बाद पेयजल स्रोत के लिए उनकी उपयुक्तता का संकेत देते हुए CPCB के 'श्रेणी 'C' मानकों का अनुपालन करते हैं।
मिट्टी की गुणवत्ता	5 पहचाने गए स्थानों से एकत्र किए गए नमूने इंगित करते हैं कि मिट्टी रेतीली प्रकार की है और पीएच मान 6.85-7.14 के बीच है, जो दर्शाता है कि मिट्टी प्रकृति में क्षारीय है।
पारिस्थितिकी और जैव विविधता	अध्ययन क्षेत्र में कोई पारिस्थितिक रूप से संवेदनशील क्षेत्र मौजूद नहीं हैं, लेकिन कई आरक्षित वन क्षेत्र परियोजना क्षेत्र के चारों ओर हैं। खदान क्षेत्र में कोई वन भूमि भी मौजूद नहीं है।

सामाजिक-अर्थव्यवस्था	सकरी नदी पर रेत खनन परियोजना के कार्यान्वयन से स्थानीय लोगों को प्रत्यक्ष और अप्रत्यक्ष दोनों तरह के रोजगार के अवसर मिलेंगे। अध्ययन क्षेत्र में अभी भी शिक्षा, स्वास्थ्य, आवास, पानी, बिजली आदि की कमी है। उम्मीद है कि प्रस्तावित खनन परियोजना और संबद्ध औद्योगिक और व्यावसायिक गतिविधियों के कारण इसमें काफी हद तक सुधार होगा।

1.4 भूमि पर्यावरण

बफर जोन के भूमि उपयोग पर वर्तमान खनन कार्यों के कारण कोई प्रतिकूल प्रभाव प्रत्याशित नहीं है। चूंकि सभी संबंधित गतिविधियां कोर जोन तक ही सीमित हैं।

उत्खनन, गड्ढे और सड़कों के कारण क्षेत्र के खराब होने की संभावना है। भू-आकृति या भू-आकृति पर प्रभाव ढाल के संशोधन तक सीमित रहेगा। ओपन कास्ट माइनिंग के कारण लैंडस्केप और लैंड यूज में आमूल-चूल परिवर्तन होगा। अगले पांच वर्षों के दौरान प्रभाव सीमित होगा क्योंकि पीठें गठित की जाएंगी। इन बेंचों के अलावा सड़कों की फिजोग्राफी भी बदलेगी। भूमि उपयोग पर प्रभाव भी सीमित होगा।

नदी के मार्ग में परिवर्तन सहित भूमि उपयोग पैटर्न पर प्रभाव:

- यदि बैंक से पर्याप्त सुरक्षा बाधाओं को छोड़कर व्यवस्थित तरीके से खनन नहीं किया जाता है तो यह नदी के प्रवाह/मार्ग को बाधित कर सकता है।
- नदी के किनारे पर खनिज या बिखराव (यदि कोई हो) सहित अलेपित सामग्री का ढेर मानसून के मौसम में पानी के प्रवाह को बाधित करेगा, जल स्तर को ऊपर की ओर बढ़ाएगा, जिससे बैंक कटाव या बहाव हो सकता है।
- नियोजित खनन प्रक्रियाओं से विचलन से नदी चैनल में बदलाव हो सकता है और साथ ही आसपास की भूमि का क्षरण हो सकता है, जिससे संपत्तियों की हानि और भू-दृश्य का क्षरण हो सकता है।

शमन के उपाय:

- धारा के मध्य भाग में खनिज का खनन किया जाएगा और पर्याप्त सुरक्षा अवरोधक 10% चौड़ाई किनारे की ओर छोड़ी जाएगी, ताकि नदी का प्रवाह/मार्ग बाधित न हो।
- खनिज का उत्खनन केंद्र में और बाद में 1 मीटर स्लाइस में भी शुरू किया जाएगा ताकि नदी का मार्ग प्रभावित न हो। अवांछित सामग्री या छलकाव (यदि कोई हो) को बनाए गए उत्खनन के किनारे नहीं रखा जाएगा। ऐसा इसलिए किया जाना है क्योंकि यह मानसून की अवधि में पानी के प्रवाह को बाधित करेगा।
- दोनों तरफ सुरक्षा अवरोध छोड़ कर खनन किया जाना चाहिए और अधिकतम अवरोध नदी के अवतल किनारे पर किया जाना चाहिए, अधिमानतः प्रवाह चैनल (उत्खनन शून्य निर्मित) को सीधा रखा जाना चाहिए ताकि साइड कटिंग के रूप में कटाव से बचने में मदद मिल सके, अगली गहराई तक नदी तल स्तर से 2.0 मी।

परियोजना के रूप में गौण खनिजों के खनन गतिविधियों से कोई अपशिष्ट जल उत्पन्न नहीं होगा। केवल नदी तल से बालू उठाना शामिल है।

1.5 वायु पर्यावरण

प्रत्याशित प्रभाव और मूल्यांकन

हवा की गुणवत्ता पर जानकारी का अध्ययन किया गया और विभिन्न मॉडलिंग तकनीकों ने भविष्यवाणी की कि खनन गतिविधि हवा की गुणवत्ता को महत्वपूर्ण तरीके से प्रभावित नहीं करेगी। खनन प्रचालनों में ,लदान ,परिवहन और उतराई प्रचालनों में शुष्क सामग्री को संभालने के कारण वायु की गुणवत्ता में गिरावट आ सकती है। वर्तमान मामले में ,केवल गीली सामग्री को संभाला जाएगा ,इस प्रकार उड़ने वाली धूल की समस्या समाप्त हो जाएगी। साथ ही खनिजों का संग्रहण एवं उत्थापन बिना किसी ब्लास्टिंग के अर्ध यंत्रीकृत किया जायेगा। इसलिए अन्य कठोर खनिजों की खनन प्रक्रिया जैसे ड्रिलिंग ,ब्लास्टिंग ,मशीनीकृत लोडिंग आदि की तुलना में उत्पन्न धूल नगण्य है।

शमन के उपाय:

- उत्सर्जन को नियंत्रित करने के लिए उपकरणों का नियमित निवारक अनुरक्षण अनुबंध के आधार पर किया जाएगा।
- धूल उत्सर्जन को नियंत्रित करने के लिए पानी के छिड़काव जैसे उचित शमन उपायों को अपनाया जाएगा।
- •स्थानीय प्राधिकरण द्वारा अधिकृत स्थान पर पौधारोपण किया जाएगा।
- •यह प्रमाणित किया जा रहा है कि सभी परिवहन वाहनों के पास वैध पीयूसी प्रमाणित होगा। वायु प्रदूषण का एकमात्र स्रोत ट्रकों का सड़क परिवहन नेटवर्क है। सड़कों पर धूल को कम करने के उपाय जैसे पानी का छिड़काव किया जाएगा। इससे धूल उत्सर्जन में 75% की कमी आएगी।
- खनिज में कोई विषैला तत्व मौजूद नहीं है जो मिट्टी को दूषित कर सकता है।

1.6 जल पर्यावरण

हाइड्रोलॉजिकल स्थितियों पर प्रभाव:

- अध्ययन क्षेत्र स्वयं नदी के पाठ्यक्रम का हिस्सा है जो सतह के साथ-साथ भूजल (वर्तमान के तहत) का वहन करता है। सतह / भू-जल का प्रवाह उपसतही प्रवाह स्थलाकृति की प्रवृत्ति का अनुसरण कर रहा है।
- यह क्षेत्र बरसात के मौसम को छोड़कर साल में नौ महीने से अधिक समय तक सूखी नदी के तल का हिस्सा है। 2.0 मीटर की गहराई तक रेत खनन का जल व्यवस्था पर महत्वपूर्ण प्रभाव पड़ेगा।
- सामान्य भू-जल तालिका जो शुष्क मौसम के दौरान खनन क्षेत्र में नदी के तल की सतह से लगभग 3.0 मीटर नीचे होगी, उसमें कोई गड़बड़ी नहीं होगी क्योंकि अंतिम कार्य गहराई 2.0 मीटर होगी।

जल गुणवत्ता पर प्रभाव:

- खनन नदी के स्तर के साथ-साथ नदी के जल स्तर को कम करने का कारण बनता है, जिसके परिणाम स्वरूप आस-पास के क्षेत्रों से भू-जल के अत्यधिक निष्कर्षण और जल निकासी के कारण भू-जल तालिका में कमी आती है, यदि सामान्य भू-जल स्तर नदी के स्तर से अधिक है। यदि सामान्य भू-जल स्तर नदी के पानी के स्तर से कम है, तो इस से भू-जल स्तर पर सकारात्मक प्रभाव पड़ेगा और साथ ही साथ लंबवत रूप से रिचार्ज होगा। पूर्व मामले में आस पास के क्षेत्र में वनस्पति और मानव बस्ती के लिए पानी की कमी हो सकती है, लेकिन बाद के मामले में यह स्थितियों को सुधारने में मदद करेगी।

शमन के उपाय:

क्षेत्र में खनन जल तालिका के साथ-साथ नदी तल के जल स्तर से ऊपर किया जाएगा, इसलिए जल व्यवस्था पर अधिक प्रभाव का अनुमान नहीं है।

1.7 ध्वनि पर्यावरण

रेत खनन परियोजनाएं मुख्य रूप से शोरगुल वाली नहीं हैं क्योंकि ये मुख्य रूप से प्रकृति में मैनुअल हैं। लेकिन इस मामले में खनन के लिए अपनाई गई कार्यप्रणाली खुली खदान अर्ध यंत्रीकृत खनन पद्धति है जो शोर उत्पन्न कर सकती है।

पर्यावरण पर प्रभाव

खानों में, मशीनरी और परिवहन वाहनों आदि की आवाजाही से शोर पैदा होता है। काम के माहौल में शोर के स्तर की तुलना व्यावसायिक सुरक्षा और स्वास्थ्य प्रशासन (**OSHA-USA**) द्वारा निर्धारित मानकों से की जाती है, जिसे सरकार द्वारा अपनाया और लागू किया गया है। भारत के कारखानों अधिनियम, 1980 और **CPCB** 2000 मानदंडों के तहत बनाए गए मॉडल नियमों के माध्यम से। उपरोक्त नियमों के अनुसार निरंतर शोर के मामलों में अनुमेय जोखिम का सारांश नीचे दिया गया है:

तालिका-1.5 ध्वनि प्रभाव

प्रति दिन एक्सपोजर का कुल समय घंटे में	ध्वनि दबाव dB(A)	टिप्पणियां
1	**2**	**3**
8.0	90	115 dB(A) से अधिक के एक्सपोजर की अनुमति नहीं है
6.0	92	--
4.0	95	स्तंभ (1) में दर्शाए अनुसार किसी भी अंक और निचले अंक के बीच आने वाली किसी भी अवधि के लिए अनुमेय ध्वनि को एक्सट्रपलेशन या आनुपातिक पैमाने द्वारा निर्धारित किया जाना है।
3.0	97	
2.0	100	
1 ½	102	
1	105	
¾	107	
½	110	
¼	115	

निचले स्तरों (ध्वनि दबाव) पर शोर काफी स्वीकार्य है और इसका मनुष्यों पर कोई बुरा प्रभाव नहीं पड़ता है, लेकिन जब यह असामान्य रूप से उच्च होता है तो यह कुछ हानिकारक प्रभाव डालता है।

शमन के उपाय:

ऑफ-साइट रिसेप्टर्स महत्वपूर्ण रूप से प्रभावित नहीं होते हैं क्योंकि खानों द्वारा उत्पन्न शोर नगण्य है लेकिन वाहन आंदोलन के कारण कुछ गड़बड़ी के लिए। खनिजों के परिवहन से होने वाले प्रभाव को कम करने के लिए निम्नलिखित उपायों की परिकल्पना की गई है।

- ध्वनि की समय-समय पर निगरानी की जाएगी।
- परिवहन वाहनों को अच्छी चालू स्थिति में रखा जाएगा ताकि शोर को न्यूनतम संभव स्तर तक कम किया जा सके।
- इन उपकरणों द्वारा उत्पन्न शोर रुक-रुक कर होना चाहिए और इससे ज्यादा प्रतिकूल प्रभाव नहीं पड़ता है।
- संचालन के दौरान शोर के स्तर को कम करने में मदद करने वाले सभी उपकरणों/मशीनों का उचित रखरखाव किया जाएगा।

- इसके साथ ही ट्रक चालकों को हिदायत दी जाएगी कि ग्रामीण क्षेत्र व संवेदनशील क्षेत्रों में हॉर्न का कम से कम प्रयोग करें।

1.8 यातायात विश्लेषण

विश्लेषण से यह देखा जा सकता है कि SH-8 के लिए V/C अनुपात 0.13 से 0.24 में बदल जाएगा, LOS "A" से "B" में बदल रहा है जो बहुत अच्छा है। इसलिए वाहन क्षमता पर अतिरिक्त भार SH-8 पर इस तरह प्रभावित नहीं होगा और अस्थायी रूप से गांव की सड़क पर न्यूनतम स्तर तक प्रभावित होगा।

1.9 पर्यावरण प्रबंधन योजना बजट

तालिका 1.6 पर्यावरण प्रबंधन योजना के लिए आवंटित बजट

क्र.सं	विवरण	पूंजी लागत (लाख)	आवर्ती लागत (लाख)
1	प्रदूषण नियंत्रण और धूल दमन	शून्य	2.0
2	प्रदूषण निगरानी i) वायु प्रदूषण ii) जल प्रदूषण iii) मिट्टी iv) ध्वनि प्रदूषण	--	2.0
3	वृक्षारोपण और वेतन एक माली के लिए (पार्ट टाइम आधार)	6.2	0.5
4	हॉल रोड के रखरखाव की लागत	0.5	1.8
कुल		**6.7**	**6.3**

1.10 खनन के लाभ

- **भौतिक लाभ**

खनन गतिविधियों के शुरू होने के बाद नागरिक सुविधाओं पर प्रभाव काफी अधिक होगा। सामुदायिक आवश्यकताओं की बुनियादी आवश्यकता को स्वास्थ्य देखभाल, टाउनशिप में विकसित शैक्षिक सुविधाओं को समुदायतक विस्तारित करके, गांवों को पेयजल उपलब्ध कराने, क्षेत्र में मौजूदा सड़कों के निर्माण /

मजबूती करण द्वारा मजबूत किया जाएगा। प्रस्तावक यातो क्षेत्र में सुविधाएं प्रदान करके या सुधार कर उपरोक्त सुविधाओं की शुरुआत करेगा, जिससे स्थानीय समुदायों के जीवन स्तर को ऊपर उठाने में मदद मिलेगी। खदान में प्राथमिक चिकित्सा सुविधा के रूप में चिकित्सा सुविधा उपलब्ध कराई जाएगी। ये चिकित्सा सुविधाएं आपात स्थिति में आसपास के स्थानीय लोगों को भी उपलब्ध होंगी।

- **सामाजिक लाभ**

- रोजगार सृजन और जीवन स्तर में सुधार;
- रॉयल्टी, करों और शुल्कों के माध्यम से राज्य के राजस्व में वृद्धि; और
- सुपीरियर संचार और परिवहन सुविधाएं आदि।
- क्षेत्र के सामाजिक-आर्थिक परिदृश्य में महत्वपूर्ण परिवर्तन होगा।
- प्रस्तावित परियोजना से रोजगार की संभावनाएं बढ़ेंगी। प्रस्तावित परियोजना हेतु अकुशल एवं अर्द्धकुशल श्रमिकों की भर्ती निकटवर्ती ग्रामों से की जायेगी।
- बुनियादी सुविधाओं का विकास जैसे सड़कों, परिवहन, बिजली, पेयजल, उचित स्वच्छता, शैक्षणिक संस्थानों, चिकित्सा सुविधाओं, मनोरंजन आदि का यथा संभव विकास किया जाएगा।
- कुल मिलाकर, प्रस्तावित परियोजना से लोगों के जीवन स्तर में बदलाव आएगा और क्षेत्र की सामाजिक-आर्थिक स्थिति में सुधार होगा।

पर्यावरणीय लाभ

- **हरित आवरण का संवर्धन**

कार्यक्रम के अनुसार वृक्षारोपण/वृक्षारोपण किया जायेगा। 5 वर्षों के रखरखाव के प्रावधान के साथ लीज सीमा से 5 किमी के भीतर स्थानीय प्राधिकरण द्वारा अधिकृत 620 पौधे लगाए जाएंगे। रोपण के बाद, सफलता दर के मूल्यांकन के लिए हर मौसम में क्षेत्र की नियमित निगरानी की जाएगी। पौधों की प्रजातियों के चयन में स्थानीय लोगों को भी शामिल किया जाएगा। प्रबंधन बारिश के दौरान स्थानीय लोगों को वृक्षारोपण के लिए फल व अन्य पेड़ आदि के पौधे नि:शुल्क उपलब्ध

कराएगा। इससे श्रमिकों व आसपास के ग्रामीणों में हरियाली के प्रति जागरूकता बढ़ेगी। फलों के पेड़ अपने वित्तीय लाभ में योगदान कर सकते हैं।

1.11 कॉर्पोरेट पर्यावरण उत्तरदायित्व

दिनांक 1 मई 2018 के OM के अनुसार परियोजना लागत की पूंजीगत लागत का 2% कॉर्पोरेट पर्यावरणीय उत्तरदायित्व के लिए आवंटित किया जाएगा।

CER लागत कुल परियोजना लागत का 2% होगी। इस राशि का उपयोग समाज कल्याण के लिए किया जाएगा। CER लागत 32,03,200/- रुपये है।

प्रत्येक गतिविधि के लिए प्रस्तावक द्वारा निर्धारित की जाने वाली धनराशि का निर्धारण जन सुनवाई के दौरान स्थानीय प्राधिकारी/लोगों एवं हितग्राहियों से विचार-विमर्श कर किया जायेगा। CER कार्यक्रम के तहत की जाने वाली गतिविधियों का समवर्ती मूल्यांकन करने की योजना बनाई गई है।

1.12 निष्कर्ष

- खनन परिचालन MoEF & CC की अनुपालन आवश्यकताओं को पूरा करेगा।
- सामुदायिक प्रभाव लाभकारी होंगे, क्योंकि परियोजना से क्षेत्र के लिए महत्वपूर्ण आर्थिक लाभ उत्पन्न होंगे।
- अधिक पर्यावरण के अनुकूल प्रक्रिया के साथ सर्वोत्तम उपलब्ध प्रौद्योगिकी और सर्वोत्तम प्रबंधन पद्धतियों को अपनाना।
- खनन गतिविधियों के दौरान पर्यावरण प्रबंधन योजना (EMP) के प्रभावी कार्यान्वयन के साथ प्रस्तावित परियोजना पर्यावरण पर किसी भी महत्वपूर्ण नकारात्मक प्रभाव के बिना आगे बढ़ सकती है।

****

GST NO. :- 10BAIPK2243Q1ZP PH :- 9934440367

TODAY'S FASHION

OLD KATCHERI ROAD MAHAVIR MARKET, NAWADA 805110 (BIHAR)

To **Date:**

The Member Secretary,
State Level Environment Impact Assessment Authority,
2nd Floor, Beltron Bhawan, Shastri Nagar, Patna-800023.

Subject: Submission of Draft EIA report with necessary annexures for Sand Mining Project Block- Block- 05 (Jamuawan Patwa Saray) Sand Ghat on Sakri River Location of the Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372; Khata No. –547, 548, Block- Nawada, Village- Jamuawan Patwa Saray, District- Nawada, State- Bihar., Area 62.0 Ha for a Production of 744000 CUM/year or 1339200 TPA. by M/s Today's Fashion. Prop. Dawood Khan.

Proposal No. - SIA/BR/MIN/416179/2023

Dear Sir,

As per received acceptance letter, we are herewith submitting DEIA report with necessary annexures for Sand Mining Project Block- 05 (Jamuawan Patwa Saray) Sand Ghat on Sakri River Location of the Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372; Khata No. –547, 548, Block- Nawada, Village- Jamuawan Patwa Saray, District- Nawada, State- Bihar., Area 62.0 Ha for a Production of 744000 CUM/year or 1339200 TPA. by M/s Today's Fashion. for your kind consideration to obtain for Environmental Clearance.

We kindly request you to consider my application for Environmental Clearance.

Thanking You,

Yours Faithfully,

M/s Today's Fashion. Prop.
Md. Dawood Khan,
(Applicant)

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT
&
ENVIRONMENTAL MANAGEMENT PLAN
For

SAND MINING PROJECT ON SAKRI RIVER
BLOCK-05 (JAMUAWAN PATWA SARAY) SAND GHAT

PROPOSAL NO.	**SIA/BR/MIN/416179/2023**
AREA(Ha)	**62.00**
PRODUCTION	**744000 CUM/YEAR OR 1339200 TPA**
LOCATION	**Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372; Khata No. –547, 548, Block-Nawada,,Village- Jamuawan Patwa Saray , District-Nawada, State- Bihar.** .

APPLICANT

M/S TODAY'S FASHION,
Prop.- Md. Dawaood Khan S/o Md. Sabir Khan
Add.- Islam Nagar, Gondapur, Nawada, Bihar

ENVIRONMENT CONSULTANT

COGNIZANCE RESEARCH INDIA PVT LTD
(Accredited by QCI/NABET)
Suite -B02, Block-H-61, Sector-63, Noida, U.P-201301
Email: criplindia@gmail.com

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LIST OF ANNEXURES

S.NO.	ANNEXURE NO.	TITLE OF ANNEXURE
1.	**I**	Terms of Reference (TOR)
2.	**II**	Letter of intent (LOI)
3.	**III**	Approved Mining Plan

CHAPTER-I

INTRODUCTION

INDEX

1.0 PREAMBLE

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for proposed projects. It aims predicting environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision makers. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

Sand have long been used as aggregate for construction of roads and building. Today, the demand for these materials continues to rise day by day. In recent years, rapid development has led to an increased demand for river sand as a source of construction material. It is recommended to remove the sand deposition on the regular basis otherwise the river will raise the height and may pose threats of inundation of unaffected areas. Besides this, the deposited mineral is a constant source of revenue generation to the state government and ensures the constant supply of this building material. Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Bihar, under EIA Notification of the MoEF dated 14th September 2006, and its subsequent amendments and EIA Guidance Manual for Mining of Minerals of MoEF, Govt. of India, for seeking environmental clearance for mining of Sand in the applied mining lease area measuring 62.0 Ha, The project falls under Category- “B-1” as per EIA Notification 2006 and its subsequent amendments thereof of the Ministry of Environment Forests & Climate Change, GOI. As per NGT Order Dated 13-09-2018 and MOEF & CC OM No L-11011/175/2018-IA-II(M) Dated 12-12-2018 the project comes under B1 Category as the area is more than 5 Ha.

1.1 DESCRIPTION OF PROJECT PROPONENT

The project is being proposed by TODAY'S FASHION, Prop. - Md. Dawood Khan, S/o.- Md. Sabir Khan, Add. - Islam Nagar, Gondapur, Nawada, Bihar- 805110.

Proposed project has been allotted to the proponent By District mining office. LOI has been granted in favor of TODAY'S FASHION, Prop.- Md. Dawood Khan, S/o.- Md. Sabir Khan, vide

letter no. 3503/khanan dated. 07.12.2022, for a period of 5 years attached as Annexure II. The EIA-EMP report has been prepared as per the TOR granted under the EIA Notification of September 14th 2006. In order to assess the impact on environment due to proposed mining, it is necessary to ascertain the present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operations.

1.2 DESCRIPTION OF PROJECT

Name of the Project – Sand Mining Project Block- Block- 05 (Jamuawan Patwa Saray) Sand Ghat on Sakri River Location of the Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372; Khata No. –547, 548, Block- Nawada, Village- Jamuawan Patwa Saray, District- Nawada, State- Bihar.

Village	Tehsil/Block	District	State	Area in Ha.
Jamuawan Patwa Saray	The Block- 05 (Jamuawan Patwa Saray)	Nawada	Bihar	62.0

Table 1.1 Project Coordinate-

Pillar	Coordinate	
	Latitude	Longitude
A	24°53'31.02"N	85°35'16.05"E
B	24°53'29.11"N	85°35'30.14"E
C	24°54'27.47"N	85°35'41.52"E
D	24°54'30.17"N	85°35'33.05"E

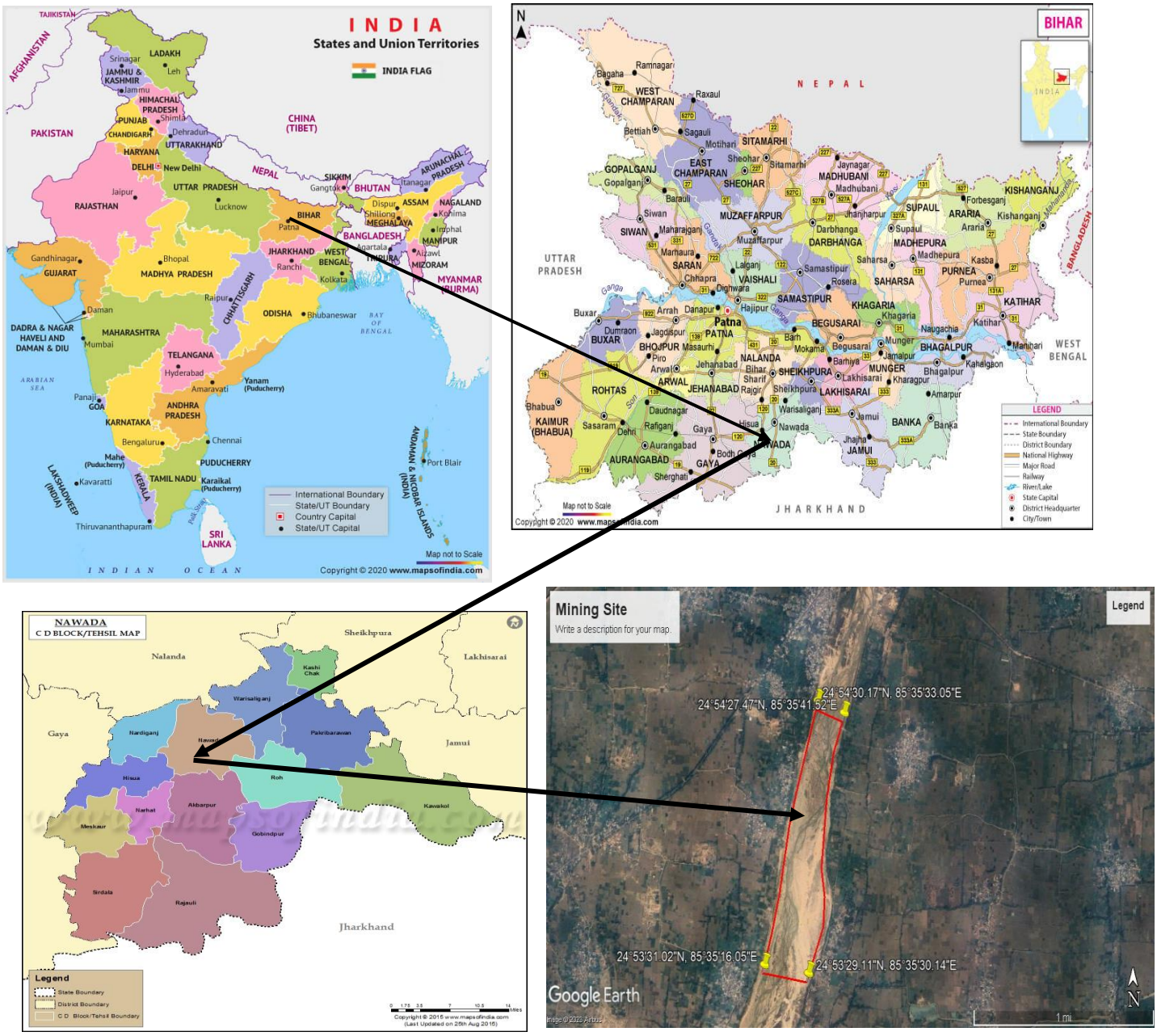

Figure-1.1 Location of the Project

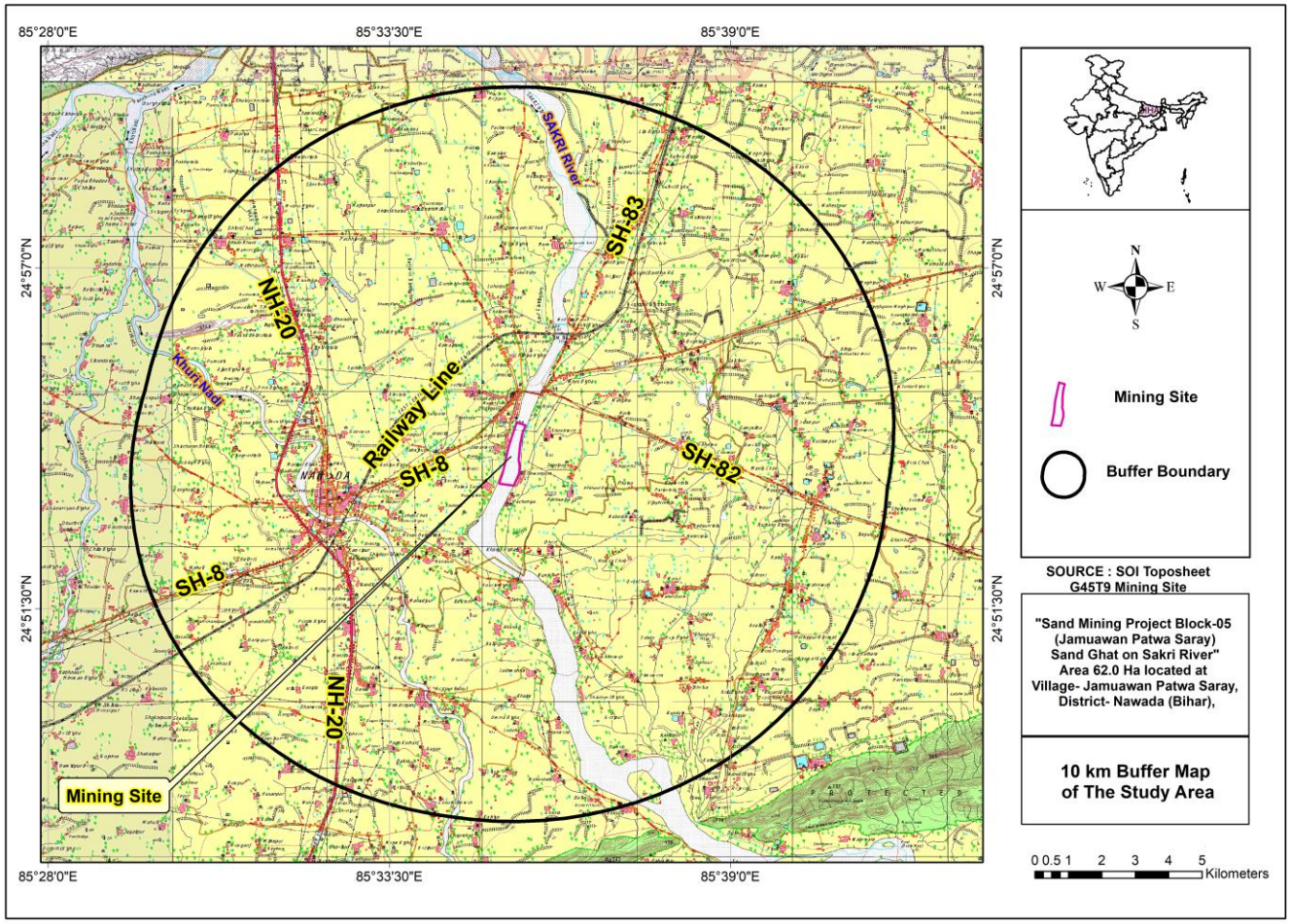

Figure1.2: 10 Km Buffer Map

Table 1.2- Site & Surrounding

Nearest Settlements	Jamuawan Patwa Saray, Village 50 m in W direction
Nearest Road	SH-8 road which is at distance of approx. 1.50 km in NW direction
Nearest Airport	JPN International Airport Patna at distance of approx. 93 km in NW direction
Nearest Railway Station	Nawada Railway Station at distance of approx. 4.3 km in SW.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 km
Water body	Sakri River (Onsite)
Nearest School/ college	Midlle school , Sonu Bigha Approx. 0.5 Km in NNW direction
Reserve/ Protected Forest	PF is about 8km from the lease.
Nearest Hospital	City Hospital, Nawada Approx. 4.5 Km in W direction
Temple	Hanuman Mandir, =Dewanpura, Approx. 0.2 Km in E direction

Table 1.3- Project Salient Features

<table>
<tr><td>On-line proposal No.</td><td colspan="2">SIA/BR/MIN/416179/2023</td></tr>
<tr><td>Name of Proponent</td><td colspan="2">TODAY'S FASHION,
Prop.- Md. Dawood Khan,
S/o.- Md. Sabir Khan,</td></tr>
<tr><td>Full correspondence address of proponent</td><td colspan="2">Add.- Islam Nagar, Gondapur, Nawada,
Bihar- 805110.</td></tr>
<tr><td>Name of Project</td><td colspan="2">Proposed Sand mining Project on Sakri River</td></tr>
<tr><td>Name of River</td><td colspan="2">Sakri</td></tr>
<tr><td>Name of Village</td><td colspan="2">Jamuawan Patwa Saray</td></tr>
<tr><td>Tehsil/Block</td><td colspan="2">Block- 05 (Jamuawan Patwa Saray)</td></tr>
<tr><td>District</td><td colspan="2">Nawada</td></tr>
<tr><td>Name of Minor Mineral</td><td colspan="2">Sand</td></tr>
<tr><td>Sanctioned Lease Area (in Ha.)</td><td colspan="2">62.0 ha</td></tr>
<tr><td>Category of the project</td><td colspan="2">“B1”</td></tr>
<tr><td>Pillar Coordinates</td><td colspan="2"><table>
<tr><td rowspan="2">Pillar</td><td colspan="2">Coordinate</td></tr>
<tr><td>Latitude</td><td>Longitude</td></tr>
<tr><td>A</td><td>24°53'31.02"N</td><td>85°35'16.05"E</td></tr>
<tr><td>B</td><td>24°53'29.11"N</td><td>85°35'30.14"E</td></tr>
<tr><td>C</td><td>24°54'27.47"N</td><td>85°35'41.52"E</td></tr>
<tr><td>D</td><td>24°54'30.17"N</td><td>85°35'33.05"E</td></tr>
</table></td></tr>
<tr><td>Total Geological Reserves</td><td colspan="2">1240000 cum. or 2232000 tonnes.</td></tr>
<tr><td>Total Mineable Reserves</td><td colspan="2">1132790 CUM or 2039022 Tonnes</td></tr>
<tr><td>Total Proposed Production (in five years)</td><td colspan="2">3720000 cum or 6696000Tonnes</td></tr>
<tr><td>Proposed Production/year</td><td colspan="2">744000 CUM or 1339200 Tonnes</td></tr>
<tr><td>Sanctioned Period of Mine lease</td><td colspan="2">5 years</td></tr>
<tr><td>Method of Mining</td><td colspan="2">Open Cast semi mechanized method / OTFM</td></tr>
<tr><td>No. of working days</td><td colspan="2">250 days</td></tr>
<tr><td>Working hours/day</td><td colspan="2">8hrs</td></tr>
<tr><td>No. of workers</td><td colspan="2">60</td></tr>
<tr><td>Type of Land</td><td colspan="2">Government waste land</td></tr>
<tr><td>Ultimate Depth of Mining</td><td colspan="2">2 m</td></tr>
<tr><td>Nearest metalled road from site</td><td colspan="2">1.50 km</td></tr>
<tr><td rowspan="5">Water Requirement</td><td>PURPOSE</td><td>REQUIREMENT (KLD)</td></tr>
<tr><td>Drinking & Domestic</td><td>1.2</td></tr>
<tr><td>Suppression of dust</td><td>18</td></tr>
<tr><td>Plantation</td><td>1.24</td></tr>
<tr><td>Total</td><td>20.44</td></tr>
<tr><td>Any litigation pending against the project or land in any court</td><td colspan="2">No</td></tr>
<tr><td>Proposed Project cost (INR)</td><td colspan="2">The total cost of project would be around Rs.160160000/- (</td></tr>
</table>

	16.016 Crore.
Proposed EMP budget (INR)	Capital Cost -6.7 Lakh Recurring Cost- 6.3 Lakh
Proposed CER (2% of Project Cost)(INR)	3203200/-
Length and breadth of Haul Road	Length: 1.5 km, width: 6 m
No. of Trees to be Planted	620 plants, Every year 124 trees will be planted

Project's Importance to the country and the region

This project operation will provide employment to the people residing in vicinity as about manpower will be required annually and approximately 60 people may be benefited directly and indirectly by the project. The project involves collection of river bed material; thus it is expected that the proposed mining project would improve the supply of construction materials like Sand making a positive impact on the infrastructural projects like construction of roads, buildings, bridges etc in the state.

The river carry sediments along with it and depositing of the sediments takes place constantly at a specific point, where they eventually results in formation of Sand. This Sand extremely influences on the river flow, obstruct navigation and cause flooding. The present project will thus ensure scraping of such Sand and prevent flooding.

1.3 REGULATORY COMPLIANCES & APPLICABLE LAWS/REGULATIONS

a) There is no legal case against the project and project proponent.
b) There is no national park / Sanctuary notified under the Wildlife Protection Act in the study area.

1.4 SCOPE OF THE STUDY

In line with the Terms of Reference (TOR) prescribed by SEIAA, Bihar, and attached as **Annexure-II**, the area comprising 10 km radius around the proposed mine lease boundary is considered as the study area. The detailed studies have been conducted as per prescribed TOR.

The scope of study broadly covered:

- Literature review and collection of data relevant to the study area;
- Establish the baseline environmental aspects in and around the proposed project;
- Identify various existing pollution loads due to various mining activities;
- Predict incremental levels of pollutants in the study area due to the proposed operations;

- Evaluate the predicted impacts on various environmental attributes in the study area by using scientifically developed and widely accepted environmental impact assessment methodologies;
- Prepare an Environment Management Plan (EMP) outlining the measures for improving the environmental quality.

Table 1.4(a) Standard TOR

TOR Ref.	TOR Points for the preparation of EIA	TOR Reply
1	Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.	Not Applicable as it's a fresh lease
2.	A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.	The copy of LOI is attached as Annexure II.
3.	All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.	The mine lease area, production levels, waste generation and its managements, mining technologies is compatible in all documents i.e Mine Plan, LOI (Attached as Annexure I) and Mine Plan (attached as Annexure III)
4.	All corner coordinates of the mine 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 (core and buffer zone).	Toposheet map given in Chapter-1 & map with all corner coordinate of the mine lease area given in Chapter-2.
5.	Information should be provided in Survey of India 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.	Details are given Chapter -3.
6.	Details about the land proposed for mining activities should be given with information as to whether mining conforms to the land use policy of the State; land diversion for mining should have	The land proposed for mining conforms the Land Policy of state and no diversion of land is proposed. The State has itself allotted the lease in E- Tender. (Details

	approval from State land use board or the concerned authority.	given in Chapter-1.
7.	It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/violation of the environmental or forest norms/ conditions? The hierarchical system or administrative e order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stake holders at large may also be detailed in the EIA Report	Environment policy approved by its Board of Directors.
8.	Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.	The proposed project is an opencast mining project. Details are given in chapter-2 &7.
9.	The study area will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA.	The 10 km zone from periphery of the lease has been considered as the study area. The Buffer map of the study area is attached with report in chapter-1 All the details in the EIA report are for the life of the mine period. The details of mining & production have been given in the report.
10.	Land use of the study area delineating forest area, agricultural lands, grazing land, wildlife sanctuary, national park, migratory routes of fauna, water bodies, human settlements and other ecological features should be indicated. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any of change of land use should be given.	Detail given in chapter-3
11.	Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.	There is no overburden outside the mine lease area.

12.	A Certificate from the competent authority in the State Forest Departments should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the project proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forest, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assists the Expert Appraised Committees.	No Forest Area involved within Project site.
13.	Status of forestry clearance for the broken up area and virgin forestland involved in the project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.	No Forest Area involved within Project site. Hence no clearance is sought for.
14.	Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.	There is no forest land involved in the lease area. Hence, this act is not applicable.
15.	The vegetation in the RF/PF areas in the study area, with necessary details, should be indicated.	PF is about 8km from the lease.
16.	A study shall be got done ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measure required, should be worked out with cost implications and submitted.	Detail given in Chapter-3.
17.	Location of National parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves/(existing as well as proposed), if any within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden, Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlife and copy furnished.	No National parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/Elephant Reserves (existing as well as proposed) within 10 km periphery of the mine lease.
18.	A detailed biological study of the study area [core	Biological study of core zone and buffer

	zone and Buffer zone (10 Km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey clearly indicating the Schedule of the fauna present. In case of any scheduled –I fauna found in the study area, the necessary plan along with budgetary provisions for their conservation should be prepared in consultation with State forest and Wildlife Departments and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.	zone of the mine lease has been carried out and detailed in Chapter-3.
19.	Proximity of Areas declared as "Critically Polluted" or the project areas likely to come under the "Aravali Range", (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Department should be secured and furnished to the effect that the proposed mining activities could be considered.	Not Applicable for this project.
20	Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).	Not Applicable for this project.
21	R&R Plan/compensation details for the project Affected People (PAP) should be furnished. While preparing the R&R plan, the relevant State/National Rehabilitation & Resettlement policy should be kept in view. In respect of SCs/STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of villages including their R& R and Socio-economic aspects should be discussed in the report.	Not Applicable for this project.

22.	One Season (non-monsoon) [i.e. March-May (Summer Season); October-December (Post monsoon seasons); December –February (winter season)] primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so complied presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.	Baseline data has been collected for One Season i.e. non-monsoon (March-May 2023). Details are given in Chapter-3.
23	Air quality modeling should be carried out for preparation of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of minerals. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on the location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre- dominant wind direction may also be indicated on the map.	Will be complied in Final EIA Report.
24	The water requirement for the project, its availability and sources should be furnished. A detailed water balance should also be provided. Fresh water requirement for the project should be indicated.	The water requirement for the project is 20.44 KLD for drinking, Toilet, dust suppression and green belt development. This water supplied from nearby area. Details given in Chapter-2.
25.	Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the project should be provided.	Water requirement will be fulfilled by private water tanker. So, no clearance is required.
26.	Description of water conservation measures proposed to be adopted in the project should be given.	The project do not consume any process water except for drinking, dust suppression & plantation. Hence no artificial conservation measures have been proposed. Plantation is proposed, which will increase the water holding capacity & help in recharging of ground water.

27.	Impact of the project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.	Detail given in chapter-4.
28.	Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.	Mining will be up to 2.0 m below ground level or above the ground water table whichever comes first. This will not intersect the ground water table.
29.	Details of any stream, seasonal or otherwise, passing through the lease area and modification/diversion proposed, if any and the impact of the same on the hydrology should be brought out.	Project is on Sakri River Bed, wherein mining will be carried out on the dry part of the river bed and no stream or water channel will be disturbed.
30.	Information on site elevation, working depth, groundwater table etc, Should be provided both in AMSL and bgl. A schematics diagram may also be provided for the same.	Detail given in chapter-2 & 3. The details are also mentioned in Mine plan, attached as Annexure III.
31.	A time bound progressive Greenbelt Development plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind; the same will have to be executed up front on commencement of the project. Phase wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered under plantation and the species to be planted. The details of plantation already done should be given. The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.	Detail given in chapter-8 & 9.
32.	Impact on local transport infrastructure due to the project should be indicated. Projected increase in truck traffic as a result of the project in the present road network (including those outside the project area) should be worked out, indicating whether it is	Detail given in chapter-4.

	capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as state government) should be covered. Project proponent shall conduct impact of Transportation study as per Indian Road Congress Guidelines.	
33.	Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA report.	Detail given in chapter-2
34.	Conceptual post mining land use and reclamation and restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA.	Detail given in chapter-2
35.	Occupational Health impacts of the project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.	Detail given in chapter-7
36.	Public health implications of the project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.	Detail given in chapter-4
37.	Measures of socio economic significance and influence to the local community proposed to be provided by the project proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.	Detail given in chapter-3
38.	Detailed Environment Management Plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed project.	Detail given in chapter-9
39.	Public hearing points raised and commitment of the project proponent on the same along with the time bound action plan with budgetary provisions	The details shall be incorporated in the final EIA Report after conducting Public hearing.

	to implement the same should be provided and also incorporated in the final EIA/EMP report of the project.	
40.	Details of litigation pending against the project, if any, with direction/order passed by any court of law against the project should be given.	No Litigation Pending against the project.
41.	The cost of the project (capital cost & recurring cost) as well as the cost towards implementation of EMP should clearly be spelt out.	The project cost and the breakup of EMP capital cost & recurring cost is given in chapter 9.
42.	A Disaster Management Plan shall be prepared and included in the EIA/EMP report.	Detail given in chapter-7.
43.	Benefits of the project if the project is implemented should be spelt out. The benefits of the project shall clearly indicate environmental, social, economic, employment potential, etc.	Detail given in chapter-8 & 9.
44.	Besides the above, the below mentioned general points are also to be followed:-	
a.	All document to be properly referenced with index and continuous page numbering	Complied
b.	Where data are presented in the report especially in table, the period in which the data were collected and the sources should be indicated.	Complied
c.	Project Proponent shall enclose all the analysis /testing reports of water, air, soil, noise, etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the project.	Will be Submitted Along with the FEIA Report.
d.	Where the documents provided are in a language other than English, an English translation should be available during appraisal of the project.	Complied
e.	The Questionnaire for environmental appraisal of mining projects as devised earlier by the ministry shall also be filled and submitted.	Will be Submitted Along with the FEIA Report.
f.	While preparing the EIA report the instruction for the proponent & instruction for the consultants issued by MoEF&CC vide O.M. No. J-11013/41/2006-IA-II (I) dated 4th August 2009, which are available on the website of the ministry, should be followed.	Complied With EIA report
g.	Changes, if any made in the basic scope and project parameter (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public	No changes done in report

	hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.	
h	As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.	This is new case for Mining. No certified compliance report is required.
i.	The EIA report should also include: (i) surface plan of the area indicating contours of main topographic features, drainage and mining area (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.	Complied

Table 1.4 (b) Additional Specific conditions

TOR Ref.	TOR Points for the preparation of EIA	TOR Reply
1.	Submit a report based on cumulative assessment of increase in air pollutants due to increase in traffic load in view of proposed mining activities on the roads located within aerial distance of 10 km using suitable air model.	Will be incorporated in Final EIA Report
2.	If the proposed mining lease is overlapping with the previously allotted mining lease or already working or worked out mining lease, the same must be clearly shown (on the map). The details about the quantity of sand extracted from overlapped area should also be furnished duly certified from the concerned District Mining Officer.	There is no overlapping of mine lease for the proposed area.
3.	The satellite imageries (high resolution) of last three years in succession for summer, rainy and winter seasons of each proposed mining lease must be submitted. A map on appropriate scale be submitted to show extraction paths to be used outside the mining lease boundary to approach major public roads (Rural/District Road or State/National Highway).	Will be complied in Final EIA Report
4.	Alternative route be explored if extraction path is passing through dense population/ human settlements.	Not Applicable

5.	A Cumulative traffic management plan for cluster sand mining proposal must be submitted.	NA
6.	A map of the area falling within 2.5 km radius from boundary of each mining lease showing all man-made public utility features such as bridge/public civil structure (including water intake points), culverts etc. and highways, and a table showing distance of the above mentioned man-made features from the mining lease boundary to facilitate decision making pertaining to relevant rules / Guidelines be submitted.	Will be complied in Final EIA Report
7.	A report of the cumulative EIA/EMP study for the cluster sand mining blocks of the proposed mining site.	NA

CHAPTER –II

DESCRIPTION OF THE PROJECT

INDEX

2.0 GENERAL

The Environmental Impact Assessment report has been prepared in terms of EIA notification of the MoEF dated 14-9-2006, amended till date and the EIA Guideline Manual for Mining of Minerals (Feb, 2010) of MoEF, Govt. of India, for seeking environmental clearance for mining in the existing area of ordinary Sand mining lease measuring 62.0 Ha. Falling under category "B1".

Name of the lessee TODAY'S FASHION, Prop.- Md. Dawood Khan S/o.- Md. Sabir Khan, Add.- Islam Nagar, Gondapur, Nawada, Bihar- 805110.

2.1 DESCRIPTION OF THE PROJECT

The proposed project is an opencast semi-mechanized mining project, where mining of Sand will be done from the bed of River Sakri. Sand Mining is a coastal activity referring to the process of the actual removal of Sand from the foreshore including rivers, streams and lakes. Sand is mined from beaches and inland dunes and dredged from ocean beds and river beds. Sand is a naturally occurring granular material composed of finely divided rock and mineral particles. River Ordinary Sand is one of the worlds' most plentiful and has the ability to replenish itself.

2.2 NEED FOR THE PROJECT

The project lies on the bed of Sakri River. The sediment in the form of river bed material deposited in the last many years had changed the shape of the Sakri bed from a valley to a raised land. Hence, it is necessary to remove the materials so that the stream gets channelized. Due to rapid infrastructure development in India, the demand of construction material has increased. To supply this demand, mining of sand is done. This project operation will provide employment directly and indirectly to the people residing in vicinity, thus improving the Socio-economic status of the area.

2.3 LOCATION DETAILS

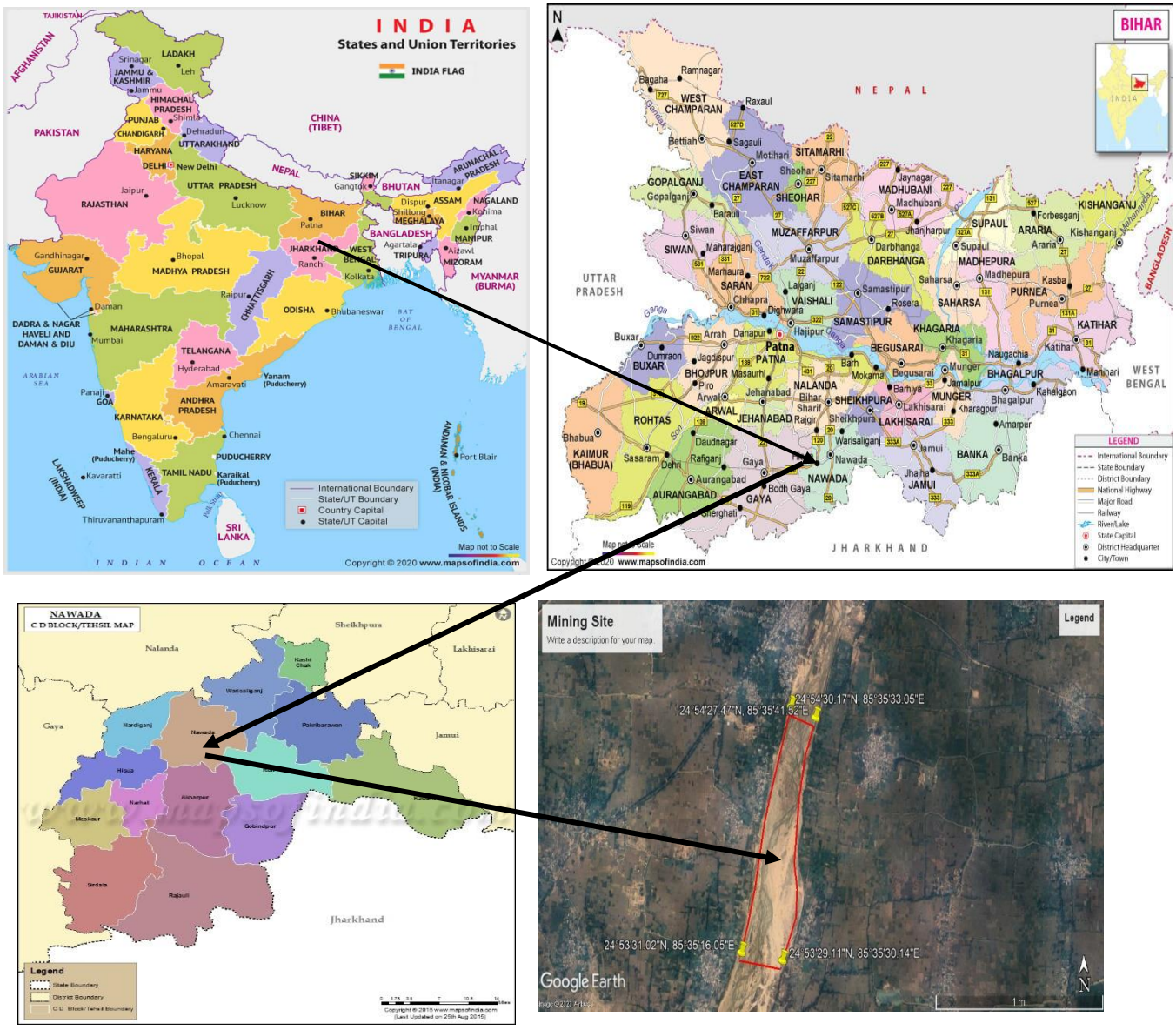

Figure-2.1 Location of the Project

Table No 2.1: Salient Features of Project

On-line proposal No.	SIA/BR/MIN/416179/2023

<table>
<tr><td>Name of Proponent</td><td>TODAY'S FASHION,
Prop.- Md. Dawood Khan,
S/o.- Md. Sabir Khan,</td></tr>
<tr><td>Full correspondence address of proponent</td><td>Add.- Islam Nagar, Gondapur, Nawada,
Bihar- 805110.</td></tr>
<tr><td>Name of Project</td><td>Proposed Sand mining Project on Sakri River</td></tr>
<tr><td>Name of River</td><td>Sakri</td></tr>
<tr><td>Name of Village</td><td>Jamuawan Patwa Saray</td></tr>
<tr><td>Tehsil/Block</td><td>Block- 05 (Jamuawan Patwa Saray)</td></tr>
<tr><td>District</td><td>Nawada</td></tr>
<tr><td>Name of Minor Mineral</td><td>Sand</td></tr>
<tr><td>Sanctioned Lease Area (in Ha.)</td><td>62.0 ha</td></tr>
<tr><td>Category of the project</td><td>“B1”</td></tr>
<tr><td>Pillar Coordinates</td><td><table><tr><td rowspan="2">Pillar</td><td colspan="2">Coordinate</td></tr><tr><td>Latitude</td><td>Longitude</td></tr><tr><td>A</td><td>24°53'31.02"N</td><td>85°35'16.05"E</td></tr><tr><td>B</td><td>24°53'29.11"N</td><td>85°35'30.14"E</td></tr><tr><td>C</td><td>24°54'27.47"N</td><td>85°35'41.52"E</td></tr><tr><td>D</td><td>24°54'30.17"N</td><td>85°35'33.05"E</td></tr></table></td></tr>
<tr><td>Total Geological Reserves</td><td>1240000 cum. or 2232000 tonnes.</td></tr>
<tr><td>Total Mineable Reserves</td><td>1132790 CUM or 2039022 Tonnes</td></tr>
<tr><td>Total Proposed Production (in five years)</td><td>3720000 cum or 6696000Tonnes</td></tr>
<tr><td>Proposed Production/year</td><td>744000 CUM or 1339200 Tonnes</td></tr>
<tr><td>Sanctioned Period of Mine lease</td><td>5 years</td></tr>
<tr><td>Method of Mining</td><td>Open Cast semi mechanized method / OTFM</td></tr>
<tr><td>No. of working days</td><td>250 days</td></tr>
<tr><td>Working hours/day</td><td>8hrs</td></tr>
<tr><td>No. of workers</td><td>60</td></tr>
<tr><td>Type of Land</td><td>Government waste land</td></tr>
<tr><td>Ultimate Depth of Mining</td><td>2 m</td></tr>
<tr><td>Nearest metalled road from site</td><td>1.50 km</td></tr>
<tr><td rowspan="5">Water Requirement</td><td>PURPOSE</td><td>REQUIREMENT (KLD)</td></tr>
<tr><td>Drinking & Domestic</td><td>1.2</td></tr>
<tr><td>Suppression of dust</td><td>18</td></tr>
<tr><td>Plantation</td><td>1.24</td></tr>
<tr><td>Total</td><td>20.44</td></tr>
<tr><td>Any litigation pending against the project or land in any court</td><td>No</td></tr>
<tr><td>Proposed Project cost (INR)</td><td>The total cost of project would be around Rs.160160000/- (16.016 Crore).</td></tr>
</table>

Proposed EMP budget (INR)	Capital Cost -6.7 Lakh Recurring Cost- 6.3 Lakh
Proposed CER (2% of Project Cost)(INR)	3203200/-
Length and breadth of Haul Road	Length: 1.5 km, width: 6 m
No. of Trees to be Planted	620 plants, Every year 124 trees will be planted

2.4 LEASE HOLD AREA

Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372, Khata No. –547, 548, Block- Nawada, Village- Jamuawan Patwa Saray, District- Nawada, State- Bihar.

Pillar	Coordinate	
	Latitude	Longitude
A	24°53'31.02"N	85°35'16.05"E
B	24°53'29.11"N	85°35'30.14"E
C	24°54'27.47"N	85°35'41.52"E
D	24°54'30.17"N	85°35'33.05"E

Fig-2.2 Mining Site

Table 2.2- Detail of site & surrounding in study area

Nearest Settlements	Jamuawan Patwa Saray, Village 50 m in W direction

Nearest Road	SH-8 road which is at distance of approx. 1.50 km in NW direction
Nearest Airport	JPN International Airport Patna at distance of approx. 93 km in NW direction
Nearest Railway Station	Nawada Railway Station at distance of approx. 4.3 km in SW.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 km
Water body	Sakri River (Onsite)
Nearest School/ college	Midlle school , Sonu Bigha Approx. 0.5 Km in NNW direction
Reserve/ Protected Forest	PF is about 8km from the lease.
Nearest Hospital	City Hospital, Nawada Approx. 4.5 Km in W direction
Temple	Hanuman Mandir, dewanpura, Approx. 0.2 Km in E direction

Table no 2.3 –Area Details

Sr. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	-
5	Balance undisturbed land	62.0	-	-	-
	Total	**62.0**	**-**	**-**	**-**

2.5 TOPOGRAPHY

The Nawada District comprises of two distinct landscapes i.e. Plain land of North and the hilly area of the south. 45% comes under the plain land which is used for agricultural purposes. Nawada is a perfect combination of natural scenery combined with panoramic views, Nalanda known for its glorious past lies on the northern side of Nawada while Hazaribagh is located in its south. In the east lies Giridih, a very beautiful and holy place and finally in the west lies Gaya. Therefore, geographically it is clear that Nawada is surrounded by all these place which are hold great historical and geographical importance.

Climate – The average annual normal rainfall in the district is 862 mm. The climate is sub humid and it is characterized by hot summer, humid monsoon and cold winter seasons. About 90% of rainfall takes place during monsoon period from the month June to September. During the monsoon surplus

water is available for the deep percolation to ground water. After February temperatures begin to increase rapidly. May and early June is hottest part of the year. The mean daily maximum temperatures in May is 42.6° C, mean daily minimum temperature is 27.1° and on individual days the maximum temperature sometimes reaches over 4J C. on the onset of the monsoon In June, the day temperature drop appreciably but nights continue to be warm as in summer season, January is the coldest month with mean daily minimum temperature is 8.4° C. The mean monthly maximum temperature is 32.4° C and mean monthly minimum temperature is 18.8° C. Air is very humid in monsoon season and the humidity decreases in the cold season. The mean monthly morning relative humidity is 57% and mean monthly evening relative humidity 42%. The mean wind velocity is 703 Kmph. The potential evaporation is 1603.3mm.

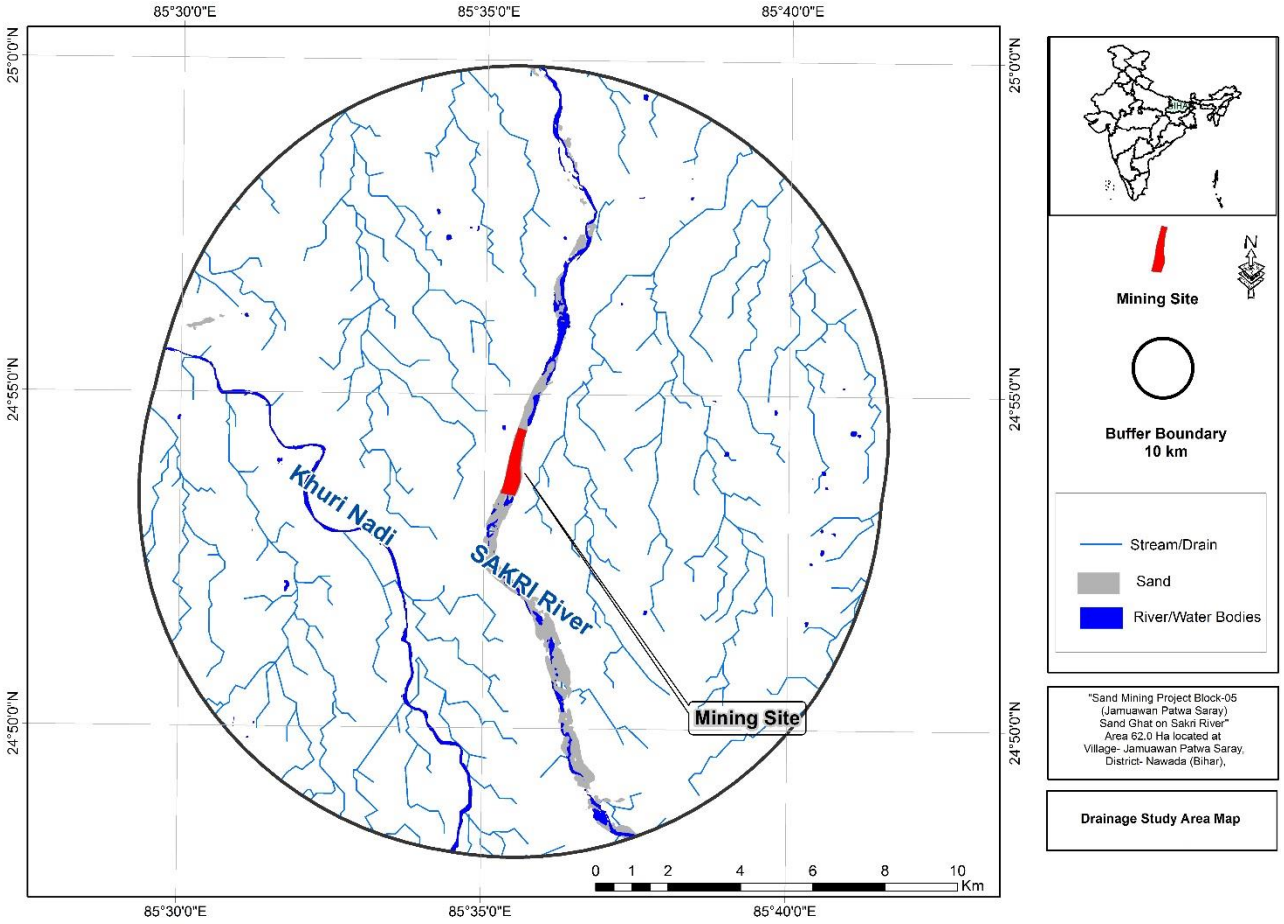

Fig 2.3 Drainage Map

2.6 GEOLOGY

General Geology

The main geological formation in the area is pre-Cambrian rocks of Archaean age. The crystalline rocks in the district are mica schist, granite gneiss, quartzites & quartz schist, hornblende schist & mica pegmatites etc. These rock types constitutes the hill ranges &cover south and eastern parts of Rajauli blocks, southern parts of sirdala block north central & southern parts of govindpur blocks & south, south-eastern & northern parts of kauakol block.

Availability of Mineral resources in Nawada district:-

The mineral resources of Nawada district playing massive role in industrial, social and economic development of the district.

Available mineral resources in the district

- ✓ Sand
- ✓ Sandstones
- ✓ Quartzite
- ✓ Mica

Regional Geology

Geologically, it represents nearly two third of Bihar is under cover of Ganga basin composed of alluvium and masks the nature of basement rocks.

Table 2.4 Showing the Geological Succession and their Occurrences distribution

Age	Geology	Occurrences
Quaternary	Alluvial Deposits (Sand, Clay, Silt, Fragments)	North Bihar Plain & Central Bihar Plain
Tertiary	Sand Stones & Clay Stones	North Champaran Hills
Gondwana	Coal Measures, Forming a series of Small outlier basins	Banka District
Vindhyans	Sandstones, Shales, Limestones, etc.	Parts of Bahbhua and Rohtas dist
Satpura	Schist, Phyllite, Quartzite	Part of Aurangabad, Gaya, Nawada, Nalanda, Sheikhpura and Munger District
Proterozoic	Mica Schist, amphibolites, quartzite, granite, dolerite and pegmatite	Nawada, Jamui and Banka

Archaean	Gneisses, Granites, Schists, Phyllites, quartzite, amphibolites & intrusive all metamorphosed sedimentary and igneous rocks	Part of Aurangabad, Gaya, Nawada, Jamui, Banka and Bhagalpur

Geology of the area

The area of the district falls in the Zone-III B, South West Alluvial Plain agro climatic zone of Bihar. The district of Nawada does not have any important perennial river. The topography of the district is plain and border area adjoining Jharkhand is rocky terrain & mountains. The area is dominated by medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to sub angular and the angularity of the grains of this category of sand decreases with depth. The Litho unit shown on the geological map of the leased out area have been plotted on the basis of physical characteristics observed in the field. Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the river banks. Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Sakari, Dhadhar, Nati, Khuri, Tilaiya & Dhanarjay meanders through the area exposing the alluvium and soil at the banks.

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The size of the sediments towards the source i.e. host rock is course and at the tale end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds. The following sequences have been observed in the area, i.e. Top soil/ Alluvium followed by sand deposition

Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the riverbanks.

Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Sakari, Dhadhar, Nati, Khuri, Tilaiya & Dhanarjay meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed up to a depth of more than 2.0 m. The major part of bed remains dry as water flows in a single stream during the non-monsoon seasons. Only during rainy seasons the entire flood plain.

2.7 RESERVE ESTIMATION

The geological reserves have been estimated as per UNFC guidelines in all the three axis.

Economic Axis (E-1): The Sand is exists within the entire stretch & having no problem selling in the market. The road is near the Ghat & sand shall loaded into tipper with the deployment of an excavator & transport to various parties. The land is State Govt. land & State Govt. has given its consent for the exploitation of Sand on their expensive land. On the feasibility study, economic viability of deposit has been established sand in economic viable, therefore economic axis has been considered as E-1.

Feasibility Status (F-1): Feasibility study has been carried out & is considered to be feasibility status. A feasibility study provides a preliminary assessment with a level of confidence as compared to that of feasibility study. It has been revealed that exploitation of sand is feasible & economic viable & feasibility axis under UNFC code has been considered as F-1:

Geological Axis: The exposure of sand is seen in the entire stretch & thickness of sand varies 2.5m to 3.0m. Therefore geological axis has been considered as G-1.

Geological Reserves

The geological reserves have been each stretches & for individual blocks. Geological reserves have been completed through cross sectional area method. The area of each section line is multiplied by strike influence to get the volume.

i) **Proved Mineral Reserves (111):** All quantities of sand occurring up to depth of 2 m from surface has been considered as proved reserves.

Table 2.5(a) Proved Mineral Reserves

Classification	**Code**	**Quantity of Sand**
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	1240000
Total		**1240000**

Total Geological Reserve = **1240000 cum. or 2232000 tonnes.**

*Bulk density is 1.80 g/cm^3

MINEABLE RESERVES:

Mineable reserves have been computed up to 2m depth from surface. Benches having height 1.5m &

width 6.0m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by bulk density (1.80 g/cm^3) to get the tonnage.

The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to pale channels of the river will be leveled & restored back.

Summary of mineable reserves of Sand Ghat as below:

The mineable reserves are given in **Table**

Table 2.5(b) Mineable Reserve

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
87-86	1832	315	1	577080	1038744
86-85	1822	305	1	555710	1000278
Total				1132790	2039022

Total Mineable Reserve = 1132790 CUM or 2039022 Tonnes

- Mineable reserve has been consider 60% approx. of geological reserve after

Applying the guideline of Enforcement & Monitoring Guidelines for Sand Mining 2020.

- The proposed production grant in **LOI is 744000** cum per year which is within the sustainable limit of mineable reserve.
- The BD for Sand has been adopted at 1.80 g/cm3 [Noida Testing Laboratories]

Table 2.5(c) Classification Mineral Reserves

Sand Ghat	Area (Hect)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block- 05 (Jamuawan Patwa Saray) Sand Ghat	62.0	1240000	1132790	744000

The annual extractable RBM comes to 744000 CUM or 1339200 Tonnes. It will be replenished after rainy season every year.

2.8 PROPOSED METHOD OF MINING

MINING

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 2 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Mining will be done only during the day time and completely stopped during the monsoon season.

Restriction on Mining:

i) Sand and gravel shall not be extracted up to a distance of 1 km from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

ii) No quarrying shall be permitted within 50 (fifty) metres of any public place i.e. cremation Ghat or any religious place etc.

iii) No quarrying shall be permitted within 5 (five) meters from both banks of the river.

iv) The quarrying of sand shall be prohibited within 100 (one hundred) metres upstream and downstream from any dam/weir or any other structure erected for irrigation purpose.

v) Sand Ghats should preferably be located on the river side embankment. For low embankment less than 6 metres height, quarrying should not be done within 25 metre from toe/heel of the embankment and depth of mining should not be more than 2.00 metre. In case of higher embankments, the distance should not be less than 50 metre and depth of mining should be maximum 1.50 metre and at a distance of 75 metre of more mining depth should be maximum 2.00

metre. In order to obviate the development of flow parallel to embankment, crossbars of width eight times the depth of mining pits spaced at 50 to 60 metres center to center should be left in the mining pits.

vi) The irrigation outlet shall be maintained at the same level as that of the river bed and in no case the river bed level shall be permitted to be below the irrigation outlet level. No quarrying shall be permitted around the infiltration well/intake well up to a distance of 5 meters.

vii) The extraction of sand shall be permitted only after obtaining a No Objection Certificate from the Water Resources Department in the case of rivers where from irrigation channels are out flowing.

viii) No quarrying of sand shall be permitted in any private land owned by a person other than the Settlee unless the settle obtains the consent of the concerned land owner/raiyat.

ix) No quarrying of sand shall be permitted in any area which the State Government notifies as a restricted area.

x) Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

xi) Mining depth should be restricted to 2 meters and distance from the bank should be ¼th or river width and should not be less than 7.5 meters.

PROPOSED METHOD OF MINING

- Mining activity will be carried out by open cast semi mechanized method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited upto depth of 2.0 m only through the formation of bench height 1.0m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries & transportation of sand. The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers.
- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.0 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in

maximum original topography.

- Approach roads from the various blocks as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.
- The Sand transportation shall be insured after the covering the vehicle Tarpaulin.

Year wise production:

The annual exploitation of sand from Sand Ghat are given below:-

Table 2.6Year Wise Production Schedule:

YEAR	Over burden (cum)	ROM Sand (cum)	Saleable Sand (cum)
1ST	-	744000	744000
2ND	-	744000	744000
3RD	-	744000	744000
4TH	-	744000	744000
5TH	-	744000	744000

The annual extractable RBM comes to **744000 CUM or 1339200 Tonnes**. It will be replenished after rainy season every year

2.9 DRILLING AND BLASTING

No drilling and blasting shall be required to for the exploitation of river sand.

2.10 CONCEPTUAL MINING PLAN

Mine Applied Area will be worked for Block- 05 (Jamuawan Patwa Saray) Sand Ghat. However, as the digging depth will be restricted to 2.0 m only. This will be further replenished during rainy season. Sand Ghat will be worked systematically as the width is limited while length is much more. As the lease period is only 5 (Five) years, some of the area will be left un-worked at the end of lease period.

(i) Final Slope Angle to Be Adopted: Height of the bench is limited to 1.5 m while width of individual bench shall be kept 6.0m. River bank side will be protected by working in dry part of the river and by leaving safety distance of the width of the river of 5 meter. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. However, the height of the bank with respect to river bed is varying from 3-4 meters.

(ii) During plan period workings will be carried out in the Sand Ghat at a time of the Applied Area simultaneously. Scattered workings will ensure safety, remove congestion of vehicles and will have better control and management.

(iii) Ultimate Capacity of Dumps: There will be no OB removal / during the plan period. Therefore no proposal has been envisaged for its separate dumping. No outside material will be filled up in the extracted zone.

The **conceptual plan** & section of each mining plots are attached with mine plan.

2.10.1 Anticipated life of mine

As lease has been granted for 5 years, mining will be done for the allotted time. However, there is as such no specific life of the mine as the area under reference is inactive part of river bed of the river and its pale channels and whatever quantity of minor minerals are extracted from the Applied Area during five year; almost equal to extracted quantity of the same are replenished every year and the river bed area will be leveled & restored back. However, as lease has been granted for 5 years, mining will be done for the allotted time.

2.10.2 Waste Management

The area is devoid of soil cover, therefore there would be no generation of top soil or any other waste generation. All quantities of Sand to be exploited shall be saleable. Therefore, waste management is envisaged.

2.10.3 Reclamation/Rehabilitation:

Every year in monsoon season, the extracted sand area will be replenished naturally. No other Reclamation/Rehabilitation is proposed.

2.11 UTILITIES

2.11.1 Power

There is no power requirement proposed for the project.

2.11.2 Water Supply

In the river bed mining projects there is as such no need of water to carry out operations, except for dust suppression, Plantation & drinking for the working people. The total water requirement will be around 20.44 KLD. This water will be supplied from the nearby area through tankers.

Table 2.7 Water Demand

S. No.	Purpose	Manpower/Area	Water Demand KLD	Source
1.	Drinking & Domestic	Manpower (60) (60*20 = 1200L/D)	1.20	Nearby Village
2.	Plantation	620 trees*2L = 1240L/D	1.24	Private Tanker
3.	Dust Suppression	Haul Road =1500m length *6m width=9000m^2 *2L=18000L/D	18.0	Private Tanker
Total			**20.44**	

2.11.3 Infrastructure:

The site services like a temporary rest room shelter, first aid box, and drinking water facility will be provided to workers at the mine site.

12.11.4 Manpower requirement

The total direct manpower requirement for the proposed mining operation will be around 60. An indirect employment is also expected due to the associated activities. This project operation will provide livelihood to the poorest section of the society. Depending upon the General shifts working, following will be the proposed manpower.

Table No. 2.8 Employment detail

S. No.	Category	Numbers
1.	Administration	1
2.	Supervisor	2
3.	Skilled	12
4.	Un-skilled	45
TOTAL		**60**

The maximum annual production envisaged is **1339200 TPA** which will be achieved every year that implies about 5357 tonnes per day. 250-working days in a year. That implies 60 workers will meet

the required production.

2.11.5 Machinery

The proposed project being semi mechanized in nature, other than vehicles, few machineries shall be engaged for mining activities like excavating, loading, etc. The equipment's are enlisted in the table below:

Table 2.9 List of Equipment's to be used

S. No.	Name of machinery
1	JCB
2	Excavator
3	Trucks
4	Tractors
5	Water Tanker
6	Light vehicles

2.11.6 Use of Mineral

The Sand will be used for making buildings, bridges, infrastructure etc. Sand is an essential minor mineral used extensively across the country for construction.

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CHAPTER-III

DESCRIPTION OF THE ENVIRONMENT

INDEX

3.0 INTRODUCTION

Information on the existing environmental status is essential for assessing the likely environmental impacts of the project. In order to get an idea about the existing state of the environment, various environmental attributes such as meteorology, air quality, water quality, soil quality, noise level, ecology and socio-economic environment have been studied/ monitored. This section contains the description of baseline studies of the 10 km radius of the area Sand Mining project on Sakri Riverbed located at, Village- Jamuawan Patwa Saray, Block- 05 (Jamuawan Patwa Saray), District- Nawada, State- Bihar and Area – 62.0 Ha. & Proposed Production 744000 CUM or 1339200 Tones. The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

3.1 BASELINE DATA

Baseline environmental data generation for air, water, noise and soil quality monitoring has been conducted at project site and other locations from March 2023 to May 2023.

3.2 LAND ENVIRONMENT

To assess the land use pattern of the study area i.e. 10 km radius of the site, a detailed study was carried out and using the Survey of India Toposheet a landuse map has been prepared as shown in the figure below. The land use pattern reveals that the 10 km environs is predominantly agricultural land.

Also the landuse cover of the study area is tabulated below wherein it shows that the project area is completely river bed which is completely an undisturbed land where presently no mining activity is being carried out.

Table 3.1 Land use cover of the project area

Sr. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	-
5	Balance undisturbed land	62.0	-	-	-
	Total	**62.0**	**-**	**-**	**-**

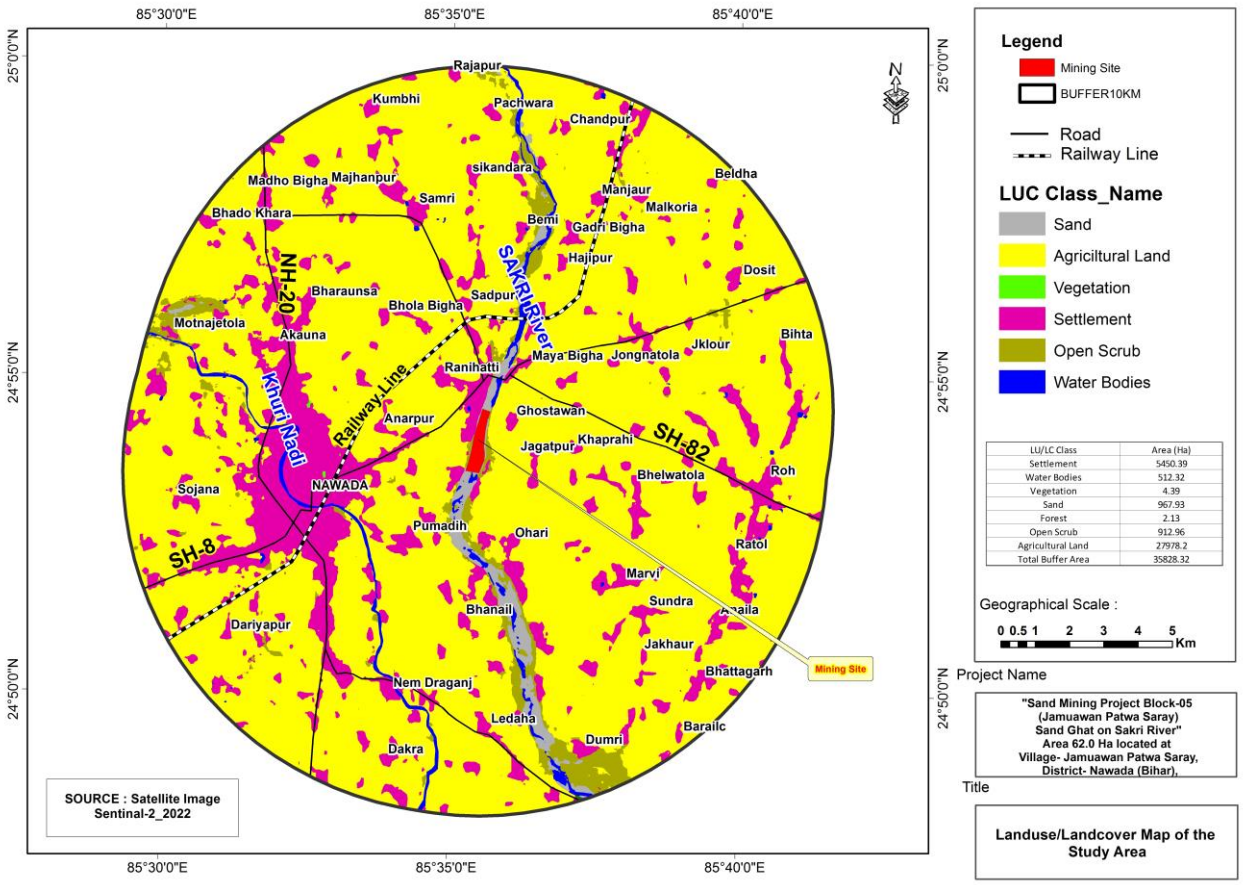

Fig 3.1 Land Use Pattern

3.3 AIR ENVIRONMENT

The prime objective of the baseline study with respect to ambient air quality is to establish the present air quality and its conformity to National Ambient Air Quality Standards. This data has been further used during impact assessment to predict the final air quality. Ambient air quality monitoring stations were selected primarily on the basis of surface influence, demographic influence and meteorological influence. 24 hourly monitoring was carried out for SO_2, NO_2, PM_{10} & $PM_{2.5}$ twice a week at each station. This study was done during post monsoon season for a period of 3 months (March 2023 to May 2023).

METHODS FOR MONITORING

The Central Pollution Control Board (CPCB) has published comprehensive document on emission testing regulations ("Emission Regulations Part-3, 1985"). Those procedures relevant to the particulate monitoring are summarized below:

Table 3.2 Methods adopted for $PM_{2.5}$, PM_{10}, SO_2 and NO_X (as NO_2)

Parameters	Technique	Technical Protocol	Minimum Detectable Limit
PM2.5	Gravimetric method	US EPA Method	5 (µg/m^3)
PM 10	Gravimetric method	IS 5182 (Part-XXIII)	5 (µg/m^3)
Sulphur Dioxide	West and Gaeke	IS-5182 (Part-II)	3 (µg/m^3)
Nitrogen Oxide	Jacob & Hochheiser	IS-5182 (Part-VI)	7 (µg/m^3)

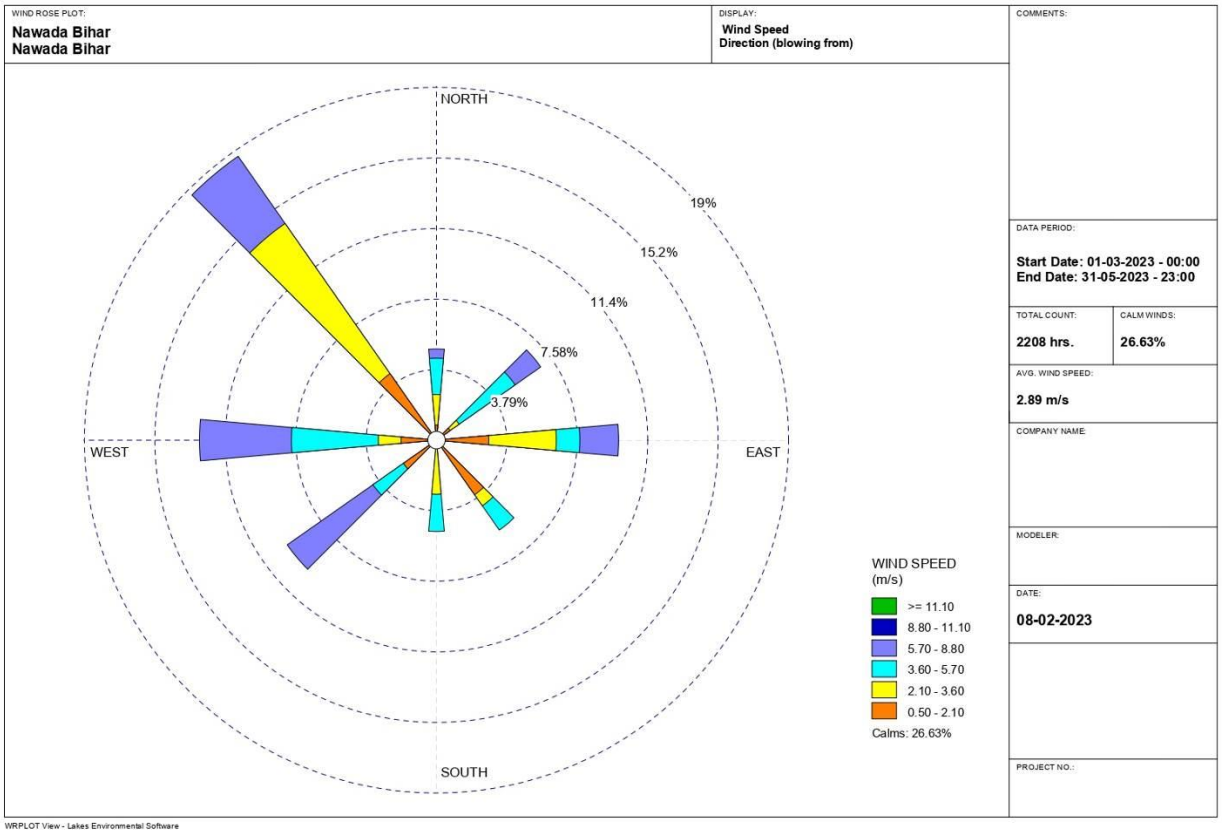

Fig 3.2 – Wind Rose Diagram

Equipment Calibration: For accurate testing of emission sources, the components of the sampling train is calibrated by outsource and supplier (Master Calibrator) standards and solutions are used,

calibrated under certified reference material. The Ambient air quality monitoring locations are marked in Map. The ambient air quality data were collected to find the existing GLC.

To quantify the impact of the project on the ambient air quality, it is necessary at first to evaluate the existing ambient air quality of the area. The existing ambient air quality, in terms of Particulate Matter – 10 (PM_{10}), Particulate Matter- 2.5 ($PM_{2.5}$), Sulphur-dioxide (SO_2) and Oxides of Nitrogen (NO_2), has been measured through a planned field monitoring. Table 3.2(ii) gives location of the ambient air quality monitoring stations.

Table 3.3 (i) Ambient Air quality monitoring stations

Location Code	Location	Distance & Direction from Block 5 (Study Area)
AAQ1	Near Project site within 500m (Jamuawan Patwasarai)	315 in SE
AAQ2	Jamuawan Patwasarai	0.50 in SE
AAQ3	Bahera Bhelwa	4.27 in E
AAQ4	Gangta	4.93 in NE
AAQ5	Jharayan	2.62 in N
AAQ6	Bhola Bigha	4.03 in NW
AAQ7	Gonawa	4.48 in W
AAQ8	Karanpur	7.83in SW

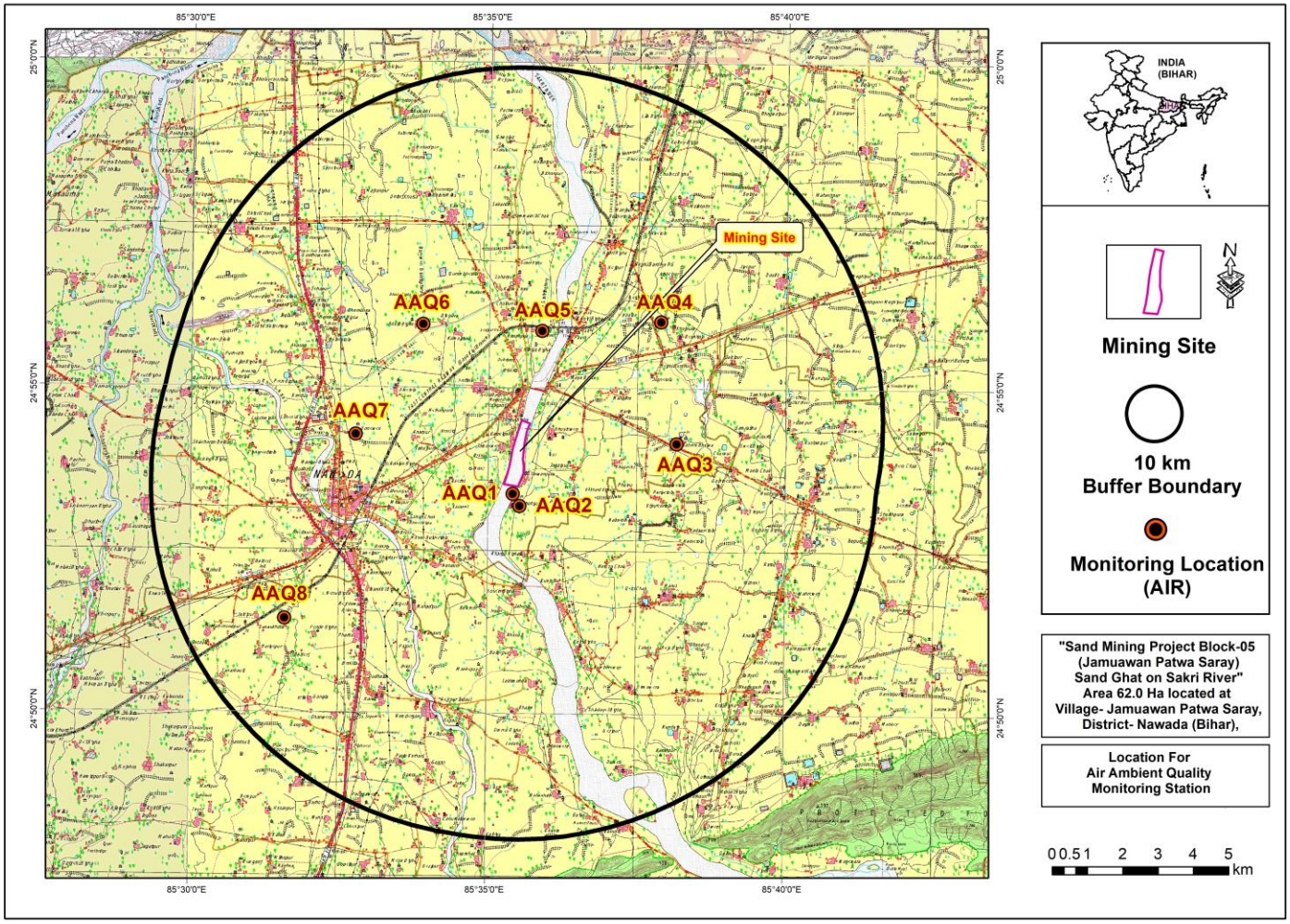

Fig 3.2 (a) Air Quality Monitoring Locations

Table 3.3 (ii): Ambient Air Quality Status

(a) AAQ1

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	IS:5182(Part-24	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	73.54	40.85	10.25	13.65	0.52
2	3/4/2023	90.60	38.93	15.50	10.95	0.64
3	3/7/2023	85.70	43.50	11.45	13.45	0.55
4	3/11/2023	73.50	48.65	14.60	12.65	0.81
5	3/15/2023	92.40	42.85	9.65	10.95	0.56
6	3/19/2023	75.84	35.78	12.58	14.6	0.84
7	3/23/2023	87.60	40.84	8.60	12.56	0.54
8	3/27/2023	75.96	37.60	11.57	13.65	0.92
9	4/1/2023	89.21	36.52	14.95	12.25	0.78
10	4/4/2023	84.45	40.65	13.4	15.50	0.73
11	4/8/2023	71.90	35.65	9.95	11.4	0.57
12	4/11/2023	84.20	47.58	14.45	13.7	0.64
13	4/15/2023	78.40	41.12	15.65	10.65	0.81
14	4/21/2023	88.20	44.20	8.95	13.7	0.86
15	4/25/2023	70.60	36.25	15.56	11.60	0.59
16	4/29/2023	81.40	42.95	12.56	10.47	0.87
17	5/1/2023	73.30	48.60	13.85	13.95	0.50
18	5/4/2023	90.40	43.52	12.50	11.7	0.87
19	5/8/2023	76.35	45.35	9.56	10.95	0.69
20	5/13/2023	71.93	41.25	10.60	12.48	0.71
21	5/15/2023	89.40	44.52	9.7	13.65	0.76
22	5/19/2023	80.50	48.60	13.56	12.49	0.78
23	5/21/2023	77.93	45.25	9.8	15.56	0.74
24	5/24/2023	84.50	41.96	10.4	11.56	0.60
Minimum		**70.60**	**35.65**	**8.60**	**10.47**	**0.50**
Maximum		**92.40**	**48.65**	**15.65**	**15.56**	**0.92**
Average		**81.16**	**42.21**	**12.07**	**12.67**	**0.70**
98th Percentile		**91.57**	**48.63**	**15.61**	**15.53**	**0.90**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

(b) AAQ2

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	69.20	38.45	10.17	13.95	0.71
2	3/4/2023	72.90	41.52	13.50	12.56	0.65
3	3/7/2023	80.95	45.65	12.12	10.95	0.76
4	3/11/2023	67.30	47.69	14.60	12.85	0.58
5	3/15/2023	82.50	40.96	10.20	13.56	0.71
6	3/19/2023	76.36	42.63	11.45	14.96	0.54
7	3/23/2023	85.70	38.56	13.50	11.45	0.66
8	3/27/2023	82.10	45.15	10.50	11.36	0.52
9	4/1/2023	71.32	46.65	14.20	14.52	0.85
10	4/4/2023	85.12	44.85	13.45	12.02	0.56
11	4/8/2023	73.84	40.78	11.31	13.60	0.84
12	4/11/2023	82.56	41.84	13.50	11.85	0.58
13	4/15/2023	68.10	38.60	11.85	13.22	0.73
14	4/21/2023	89.12	44.85	10.45	12.02	0.67
15	4/25/2023	80.71	34.90	9.31	14.60	0.79
16	4/29/2023	84.56	42.84	12.50	13.85	0.68
17	5/1/2023	79.45	48.89	11.50	10.47	0.73
18	5/4/2023	71.56	38.95	7.60	12.45	0.58
19	5/8/2023	82.62	43.58	13.52	14.52	0.64
20	5/13/2023	74.56	41.65	9.80	10.90	0.56
21	5/15/2023	87.20	46.20	13.46	12.58	0.85
22	5/19/2023	71.20	39.25	11.50	13.60	0.58
23	5/21/2023	86.40	42.95	14.96	14.57	0.89
24	5/24/2023	71.80	41.90	10.42	15.56	0.56
Minimum		**67.30**	**34.90**	**7.60**	**10.47**	**0.52**
Maximum		**89.12**	**48.89**	**14.96**	**15.56**	**0.89**
Average		**78.21**	**42.47**	**11.89**	**13.00**	**0.68**
98th Percentile		**88.24**	**48.34**	**14.79**	**15.28**	**0.87**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

(c)AAQ3

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	80.60	35.45	12.45	13.5	0.57
2	3/4/2023	77.65	45.65	12.10	14.6	0.63
3	3/7/2023	83.28	37.12	11.83	13.1	0.60
4	3/11/2023	68.10	40.25	9.36	12.4	0.57
5	3/15/2023	80.49	41.54	10.25	11.3	0.64
6	3/19/2023	85.30	42.90	14.19	11.7	0.53
7	3/23/2023	76.50	44.12	10.45	13.45	0.60
8	3/27/2023	85.45	42.57	14.26	12.26	0.50
9	4/1/2023	79.86	41.98	12.22	11.22	0.54
10	4/4/2023	89.26	39.25	10.85	12.2	0.60
11	4/8/2023	65.80	42.15	10.21	13.47	0.54
12	4/11/2023	86.55	38.43	8.78	9.14	0.75
13	4/15/2023	68.20	40.92	12.18	13.89	0.62
14	4/21/2023	88.22	43.65	10.29	12.47	0.54
15	4/25/2023	69.14	39.80	9.98	9.47	0.55
16	4/29/2023	88.56	41.85	12.13	11.34	0.62
17	5/1/2023	81.49	43.54	10.25	13.45	0.65
18	5/4/2023	69.78	42.90	12.33	14.10	0.62
19	5/8/2023	76.50	43.12	12.45	11.83	0.61
20	5/13/2023	81.45	40.57	15.26	8.36	0.58
21	5/15/2023	79.50	43.12	12.45	9.25	0.60
22	5/19/2023	82.45	40.57	14.26	10.19	0.55
23	5/21/2023	77.86	44.98	12.22	13.45	0.52
24	5/24/2023	83.26	39.25	10.85	15.26	0.61
Minimum		**65.80**	**35.45**	**8.78**	**8.36**	**0.50**
Maximum		**89.26**	**45.65**	**15.26**	**15.56**	**0.75**
Average		**78.91**	**41.60**	**11.72**	**12.15**	**0.59**
98th Percentile		**88.94**	**45.34**	**14.80**	**15.12**	**0.70**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

(d)AAQ4

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	66.22	41.10	12.25	12.36	0.62
2	3/4/2023	78.14	37.47	9.19	11.36	0.48
3	3/7/2023	69.80	41.20	13.30	13.12	0.59
4	3/11/2023	81.55	38.48	10.39	10.25	0.72
5	3/15/2023	67.20	33.25	8.28	9.04	0.62
6	3/19/2023	81.22	38.58	9.45	10.36	0.54
7	3/23/2023	68.14	37.80	10.60	10.98	0.58
8	3/27/2023	83.10	41.26	13.25	9.13	0.62
9	4/1/2023	74.65	39.50	15.30	10.60	0.40
10	4/4/2023	81.36	34.60	14.12	8.78	0.59
11	4/8/2023	67.12	40.04	10.78	11.56	0.40
12	4/11/2023	78.56	37.98	9.91	10.30	0.66
13	4/15/2023	71.20	34.18	10.25	14.12	0.54
14	4/21/2023	76.58	36.56	9.85	11.36	0.62
15	4/25/2023	71.18	34.28	11.14	11.56	0.43
16	4/29/2023	68.25	41.87	9.87	11.40	0.60
17	5/1/2023	74.36	39.45	8.78	12.45	0.59
18	5/4/2023	78.65	34.14	10.07	13.10	0.62
19	5/8/2023	69.35	36.87	11.78	14.83	0.74
20	5/13/2023	79.50	41.00	9.56	9.74	0.59
21	5/15/2023	80.40	34.50	13.25	13.97	0.60
22	5/19/2023	70.80	40.81	11.40	14.26	0.51
23	5/21/2023	74.39	36.36	12.97	10.43	0.62
24	5/24/2023	80.23	41.51	13.44	12.05	0.54
Minimum		**66.22**	**33.25**	**8.28**	**8.78**	**0.40**
Maximum		**83.10**	**41.87**	**15.30**	**14.83**	**0.74**
Average		**74.66**	**38.03**	**11.22**	**11.55**	**0.58**
98th Percentile		**82.39**	**41.70**	**14.76**	**14.57**	**0.73**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

(e) AAQ5

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	71.28	40.23	12.58	12.25	0.34
2	3/4/2023	79.18	36.26	10.92	13.56	0.51
3	3/7/2023	68.99	34.15	12.89	12.50	0.74
4	3/11/2023	79.40	39.90	10.86	10.80	0.63
5	3/15/2023	63.35	41.10	9.88	8.71	0.62
6	3/19/2023	78.84	38.20	9.15	12.58	0.57
7	3/23/2023	61.80	32.20	13.50	11.38	0.59
8	3/27/2023	76.80	35.60	11.98	13.89	0.61
9	4/1/2023	67.20	41.20	9.74	11.60	0.44
10	4/4/2023	78.89	36.89	10.89	8.21	0.58
11	4/8/2023	61.45	41.89	15.84	13.25	0.42
12	4/11/2023	81.14	38.98	13.89	12.89	0.64
13	4/15/2023	74.36	43.25	11.38	11.56	0.56
14	4/21/2023	67.32	36.65	9.85	8.78	0.62
15	4/25/2023	79.99	31.56	12.35	10.56	0.54
16	4/29/2023	62.78	38.70	9.13	10.40	0.60
17	5/1/2023	71.56	34.65	12.35	12.56	0.54
18	5/4/2023	65.18	41.20	9.36	11.10	0.63
19	5/8/2023	80.80	36.52	12.60	13.54	0.46
20	5/13/2023	79.54	41.25	9.58	10.22	0.59
21	5/15/2023	78.80	48.26	10.90	14.20	0.68
22	5/19/2023	61.78	32.58	11.18	12.87	0.66
23	5/21/2023	89.97	41.89	9.68	11.56	0.65
24	5/24/2023	68.14	38.88	9.13	12.25	0.51
Minimum		**61.45**	**31.56**	**9.13**	**8.21**	**0.34**
Maximum		**89.97**	**48.26**	**15.84**	**14.20**	**0.74**
Average		**72.86**	**38.42**	**11.23**	**11.72**	**0.57**
98th Percentile		**85.91**	**45.96**	**14.94**	**14.06**	**0.71**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

(f) AAQ6

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	69.70	39.74	15.80	14.58	0.40
2	3/4/2023	60.68	36.26	10.92	12.56	0.51
3	3/7/2023	71.36	33.14	14.30	11.79	0.76
4	3/11/2023	79.40	37.90	11.86	10.80	0.62
5	3/15/2023	61.35	36.68	14.89	10.71	0.63
6	3/19/2023	76.87	38.20	10.80	12.58	0.54
7	3/23/2023	58.80	32.20	12.50	11.38	0.59
8	3/27/2023	76.80	35.60	9.98	14.89	0.61
9	4/1/2023	67.20	37.40	12.74	10.60	0.46
10	4/4/2023	78.89	30.60	10.89	12.84	0.55
11	4/8/2023	64.45	37.90	11.84	13.70	0.43
12	4/11/2023	78.68	35.98	14.71	11.38	0.64
13	4/15/2023	77.36	38.84	12.38	12.56	0.53
14	4/21/2023	69.32	36.65	9.85	8.78	0.62
15	4/25/2023	71.58	30.56	14.35	11.56	0.56
16	4/29/2023	60.78	38.70	9.77	10.24	0.58
17	5/1/2023	72.56	34.65	12.35	11.56	0.57
18	5/4/2023	63.18	35.80	11.34	11.10	0.61
19	5/8/2023	71.40	36.52	10.60	14.69	0.50
20	5/13/2023	77.54	31.60	9.58	12.34	0.57
21	5/15/2023	71.35	39.26	9.90	14.60	0.60
22	5/19/2023	61.78	30.97	13.18	9.58	0.66
23	5/21/2023	62.97	31.25	12.74	10.56	0.65
24	5/24/2023	73.14	32.88	8.36	9.25	0.52
Minimum		**58.80**	**30.56**	**8.36**	**8.78**	**0.40**
Maximum		**79.40**	**39.74**	**15.80**	**14.89**	**0.76**
Average		**69.88**	**35.39**	**11.90**	**11.86**	**0.57**
98th Percentile		**79.17**	**39.52**	**15.38**	**14.80**	**0.71**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

(g) AAQ7

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	82.46	46.28	12.86	12.89	0.56
2	3/4/2023	73.19	37.78	10.24	13.21	0.52
3	3/7/2023	88.21	48.52	10.17	11.90	0.65
4	3/11/2023	71.14	42.12	9.25	10.38	0.56
5	3/15/2023	91.12	39.57	11.14	13.58	0.81
6	3/19/2023	74.60	38.11	11.25	10.24	0.52
7	3/23/2023	81.40	42.18	9.92	9.33	0.80
8	3/27/2023	76.30	47.22	11.25	11.95	0.51
9	4/1/2023	88.70	39.19	10.80	12.25	0.74
10	4/4/2023	77.54	41.85	9.14	10.54	0.63
11	4/8/2023	71.10	40.93	10.56	9.65	0.80
12	4/11/2023	81.66	42.89	11.85	8.18	0.94
13	4/15/2023	72.28	47.65	9.85	11.52	0.71
14	4/21/2023	89.10	41.85	14.45	12.02	0.65
15	4/25/2023	78.84	39.78	10.31	15.60	0.74
16	4/29/2023	86.60	45.84	14.50	9.85	0.60
17	5/1/2023	77.96	39.45	10.98	16.26	0.87
18	5/4/2023	87.10	47.52	9.50	11.65	0.75
19	5/8/2023	84.50	42.94	11.57	10.95	0.80
20	5/13/2023	76.93	43.10	15.60	9.45	0.72
21	5/15/2023	81.19	39.78	10.80	12.56	0.61
22	5/19/2023	72.60	42.48	14.48	12.96	0.85
23	5/21/2023	87.50	38.58	11.58	10.45	0.87
24	5/24/2023	83.10	47.25	8.79	12.36	0.70
Minimum		**71.10**	**37.78**	**8.79**	**8.18**	**0.51**
Maximum		**91.12**	**48.52**	**15.60**	**16.26**	**0.94**
Average		**80.63**	**42.62**	**11.29**	**11.66**	**0.70**
98th Percentile		**90.19**	**48.12**	**15.09**	**15.96**	**0.91**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

(h)AAQ8

S.No	Date	Particulate Matter PM10 (µg /m^3)	Particulate Matter PM2.5 (µg /m^3)	Sulphur Dioxide SO_2 (µg /m^3)	Nitrogen Dioxide NO_2 (µg /m^3)	Carbon monoxide CO (mg /m^3)
		IS:5182(Part-23	CPCB Volume – 1 Gravimetric	IS:5182(Part-2)	IS:5182(Part-6)	IS:5182(Part-X)
1	3/1/2023	58.30	42.23	12.10	10.98	0.42
2	3/4/2023	68.90	36.26	12.92	11.74	0.52
3	3/7/2023	60.80	38.15	9.00	10.89	0.75
4	3/11/2023	75.80	39.90	11.80	9.84	0.66
5	3/15/2023	63.35	41.10	10.88	9.87	0.60
6	3/19/2023	59.90	36.20	10.60	10.38	0.56
7	3/23/2023	71.60	32.20	9.47	8.68	0.59
8	3/27/2023	72.80	35.60	8.98	12.30	0.61
9	4/1/2023	68.20	41.20	12.74	13.60	0.48
10	4/4/2023	77.89	36.89	9.89	10.21	0.53
11	4/8/2023	66.45	41.89	11.84	12.47	0.49
12	4/11/2023	60.11	38.98	9.87	10.89	0.62
13	4/15/2023	76.36	40.25	12.38	11.56	0.50
14	4/21/2023	67.32	37.65	8.85	10.78	0.62
15	4/25/2023	71.14	31.36	10.70	11.30	0.52
16	4/29/2023	60.78	38.70	10.13	10.40	0.63
17	5/1/2023	71.56	34.65	10.35	12.56	0.52
18	5/4/2023	65.18	42.20	9.10	11.10	0.66
19	5/8/2023	76.14	36.52	7.39	9.35	0.43
20	5/13/2023	62.28	41.25	10.37	10.22	0.51
21	5/15/2023	71.36	40.26	8.90	11.14	0.63
22	5/19/2023	59.78	38.58	10.18	9.39	0.63
23	5/21/2023	66.50	41.89	9.10	10.35	0.65
24	5/24/2023	62.16	39.88	10.13	11.25	0.53
Minimum		**58.30**	**31.36**	**7.39**	**8.68**	**0.42**
Maximum		**77.89**	**42.23**	**12.92**	**13.60**	**0.75**
Average		**67.28**	**38.49**	**10.32**	**10.89**	**0.57**
98th Percentile		**77.19**	**42.22**	**12.84**	**13.12**	**0.71**
NAAQS,For 24 Hourly Monitoring		**100.0**	**60.0**	**80.0**	**80.0**	**4.0**

Observations:

Ambient Air Quality Monitoring (AAQM) has been carried out at eight locations during pre-monsoon season from March 2023 to May 2023. The minimum and maximum level of $PM_{2.5}$ recorded within the study area was in the range of 30.56 µg/m^3 to 48.89 µg/m^3 with the 98th percentile 39.50 µg/m^3 to 48.34 µg/m^3 at. The minimum and maximum level of PM_{10} recorded within the study area was in the range of 58.30 µg/m^3 to 92.40µg/m3 with the 98th percentile 77.19 µg/m^3 to 91.57 µg/m^3. The minimum and maximum concentration of SO_2 recorded within the study area was in the range of was 7.39 µg/m^3 to 15.84 µg/m^3 with the 98th percentile 12.84 µg/m^3 to 14.97 µg/m3. The minimum and maximum level of NO2 recorded within the study area was in the range of was 8.18 µg/m^3 to 16.26 µg/m^3 with the 98th percentile 15.96 µg/m^3. The results thus obtained indicate that the concentrations of PM10, PM2.5, SO2 and NO2 in the Ambient Air are well within the National Ambient Air Quality (NAAQ) standards for Industrial, Residential, Rural and other areas.

(i) Free SiO_2 (in µg/m^3):

	AAQ1(µg /m3)	AAQ2(µg /m3)	AAQ3(µg /m3)	AAQ4(µg /m3)	AAQ5(µg /m3)	AAQ6(µg /m3)	AAQ7 (µg /m3)	AAQ8(µ g /m3)
Maximum	0.97	0.90	0.87	0.86	0.82	0.87	0.86	0.92
Minimum	0.72	0.73	0.70	0.70	0.67	0.80	0.78	0.84

Observations:

The minimum & maximum concentrations of SiO_2 were found to be 0.67µg/m^3 & 0.97µg/m^3 at respectively.

3.4 WATER ENVIRONMENT

Water quality assessment is one of the essential components of EIA study. Such assessment helps in evaluating the existing health of water body and suggesting appropriate mitigation measures to minimize the potential impact from development projects. Water quality of ground water has been studied in order to assess proposed water-uses in construction, drinking, cooling and horticulture purpose. The water quality at project site and other locations within the 10 km impact zone was monitored during March 2023 to May 2023.

Four water samples were collected from the study area. The locations of the monitoring are given below:

Table 3.3 (iii) Ground water sampling locations

Location Code	Location	Distance & Direction (Study Area)
GW – 1	Jamuawan Patwasarai	0.50 in SE
GW – 2	Bahera Bhelwa	4.27 in E
GW – 3	Gangta	4.93 in NE
GW – 4	Jharayan	2.62 in N

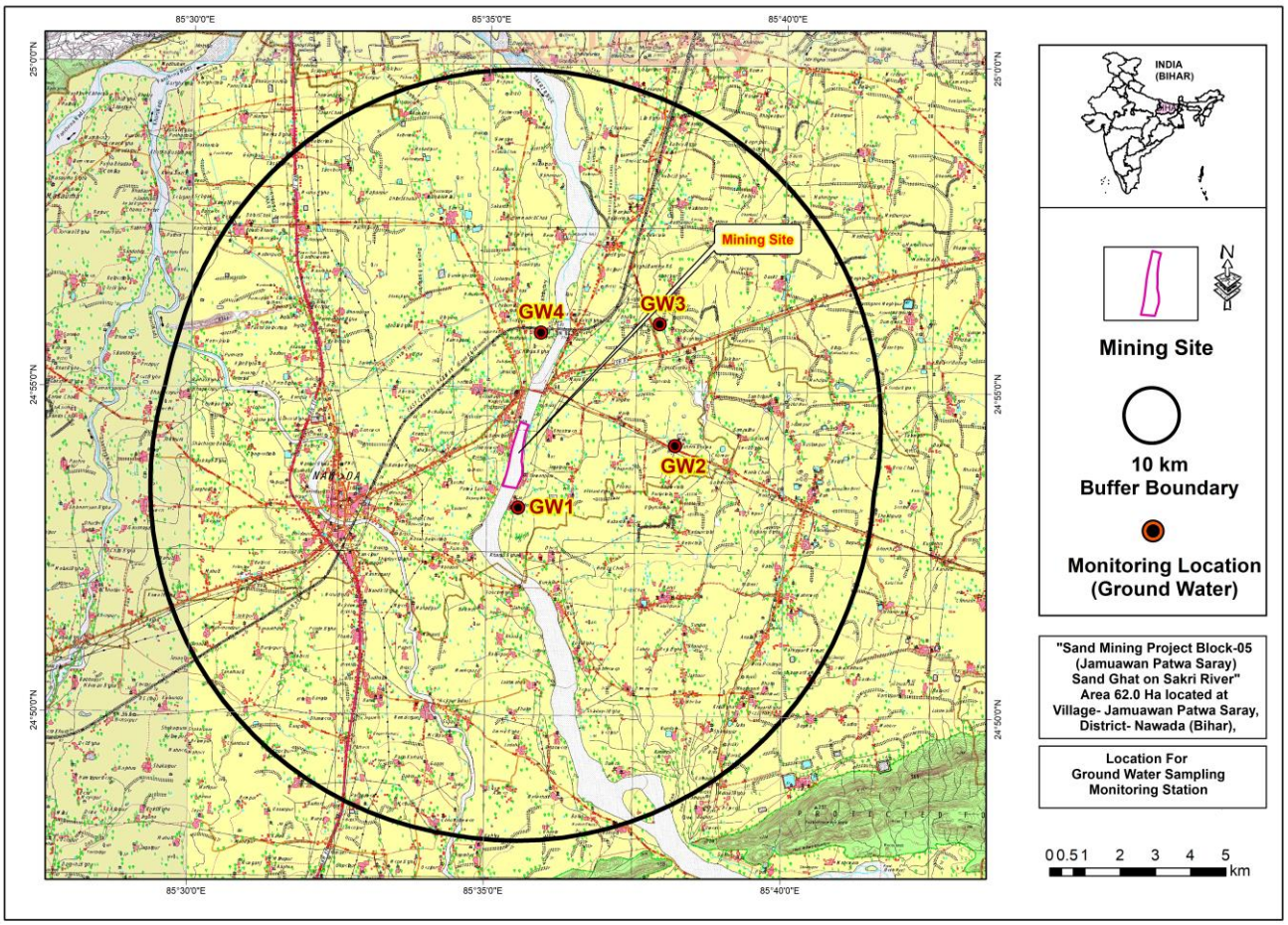

Fig 3.2 (b) Ground water Quality Monitoring Locations

Table 3.3 (IV) Physico-chemical properties of ground water Study

RESULTS
as per IS 10500:2012

S.No	Parameter	Test Method	Results				Units	Acceptable Limit	Permissible Limit in the Absence of Alternate Source
			Location						
			W-1	W-2	W-3	W-4			
1	pH	IS:3025(Part-11)	7.30	7.20	7.44	7.12	-	6.5-8.5	-
2	Colour	IS:3025(Part-04)	<5.0	<5.0	<5.0	<5.0	Hazen	5	15
3	Odour	IS-3025(Part-05)	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable	Agreeable
4	Taste	IS:3025(Part-07)	Agreeable	Agreeable	Agreeable	Agreeable	-	Agreeable	Agreeable
5	Turbidity	IS-3025(Part-10)	<1.0	<1.0	<1.0	<1.0	NTU	1	5
6	Total Hardness (as $CaCO_3$)	IS:3025(Part-21)	225	320	268	315	mg/l	200	600
7	Calcium (as Ca)	IS:3025(Part-40)	47.60	78.20	81.36	78.30	mg/l	75	200
8	Magnesium (as Mg)	IS:3025(Part-46)	20.25	23.80	23.36	24.78	mg/l	30	100
9	Chloride (as Cl)	IS:3025(Part-32)	146.70	152.40	179.40	178.50	mg/l	250	1000
10	Iron (as Fe)	IS:3025(Part-53)	0.120	0.110	0.23	0.41	mg/l	0.3	No Relaxation
11	Fluoride (as F)	IS:3025(Part-60)	0.65	0.77	0.79	0.80	mg/l	1	1.5
12	Free Residual chlorine	IS:3025(Part-26)	<0.1	<0.1	<0.1	<0.1	mg/l	0.2	1
13	Total Dissolved Solid	IS:3025(Part-16)	684	745	793	810	mg/l	500	2000
14	Phenolic Compound (as C_6H_5OH)	IS: 3025 (Part-43)	<0.001	<0.001	<0.001	<0.001	mg/l	0.001max	0.002 Max
15	Anionic Detergents (as MBAS)	Annex K of IS 13428	<0.1	<0.1	<0.1	<0.1	mg/l	0.2	1.0
16	Sulphate (as SO4)	IS:3025(Part-24)	46.70	56.98	52.48	62.14	mg/l	200	400
17	Nitrate (as NO3)	IS: 3025 (Part-34)	7.22	8.47	7.25	8.80	mg/l	45	No Relaxation
18	Alkalinity (as CaCO3)	IS:3025(Part-23)	287	320	323	350	mg/l	200	600
19	Chloramines (as Cl2)	IS:3025(Part-26)	< 1.0	< 1.0	< 1.0	< 1.0	mg/l	4	No Relaxation
20	Cadmium (as Cd)	IS-3025(Part-41)	<0.001	<0.001	<0.001	<0.001	mg/l	0.003	No Relaxation
21	Lead (as Pb)	IS:3025(Part-47)	<0.01	<0.01	<0.01	<0.01	mg/l	0.01	No Relaxation
22	Total Chromium (as Cr)	IS:3025(Part-52)	<0.01	<0.01	<0.01	<0.01	mg/l	0.05	No Relaxation
23	Copper (as Cu)	IS:3025(Part-42)	<0.01	<0.01	<0.01	<0.01	mg/l	0.05	1.5

24	Total Ammonia	IS: 3025 (Part-34)	<0.5	<0.5	<0.5	<0.5	mg/l	0.5	No Relaxation
25	Nickel (as Ni)	IS:3025(Part-54)	<0.01	<0.01	<0.01	<0.01	mg/l	0.02	0.2
26	Zinc (as Zn)	IS:3025(Part-49)	0.57	0.60	0.70	0.74	mg/l	5	15
27	Manganese (as Mn)	IS:3025(Part-59)	<0.1	<0.1	<0.1	<0.1	mg/l	0.1	0.3
28	Boron (as B)	IS:3025(Part-57)	<0.1	<0.1	<0.1	<0.1	mg/l	0.5	1
29	Selenium (Se)	IS:3025(Part-56)	<0.01	<0.01	<0.01	<0.01	mg/l	0.01	No Relaxation
30	Arsenic (as As)	IS:3025(Part-37)	<0.01	<0.01	<0.01	<0.01	mg/l	0.01	0.05

RESULTS As per IS 10500:2012								
S. No	**Parameter**	**Test Method**	**Results**				**Units**	**Requirements**
			GW-1	**GW-2**	**GW3**	**GW-4**		
1	E. coli	IS-1622	Not Detected (<2)	Not Detected (<2)	Not Detected (<2)	Not Detected (<2)	E. Coli/100ml	Shall not be detectable in100 ml sample
2	Total Coliform	IS-1622	Absent	Absent	Absent	Absent	MPN/100ml	Shall not be detectable in100 ml sample

Note: Un- Unobjectionable

Observation:

Analysis results of ground water reveal the following: -

- pH varies 7.12-7.44
- Total hardness varies from 225 mg/l to 320 mg/l
- Total dissolved solids vary from 684 mg/l to 810 mg/l

Results shows that the sample from GW1 had minimum amount of TDS &, samples taken from GW3 have the maximum values for most of the parameters.

The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500. Fluorides and nitrates are within the permissible limits. Most of the parameter in ground water sources are well within the permissible limits as per IS – 10500, drinking water standards.

b. Surface water

Two water samples were collected from the study area. The physico-chemical analysis of the water samples is given in the Table 3.2(vi). The Surface water sampling locations are marked in **fig no. 3.2(c)**

Table 3.3 (v) Surface water sampling locations

Location Code	Sample collected from	Distance & Direction
SW – 1	Sakri River (Upstream)	5 Km in SSE
SW – 2	Sakri River (Downstream)	5 Km in NNE

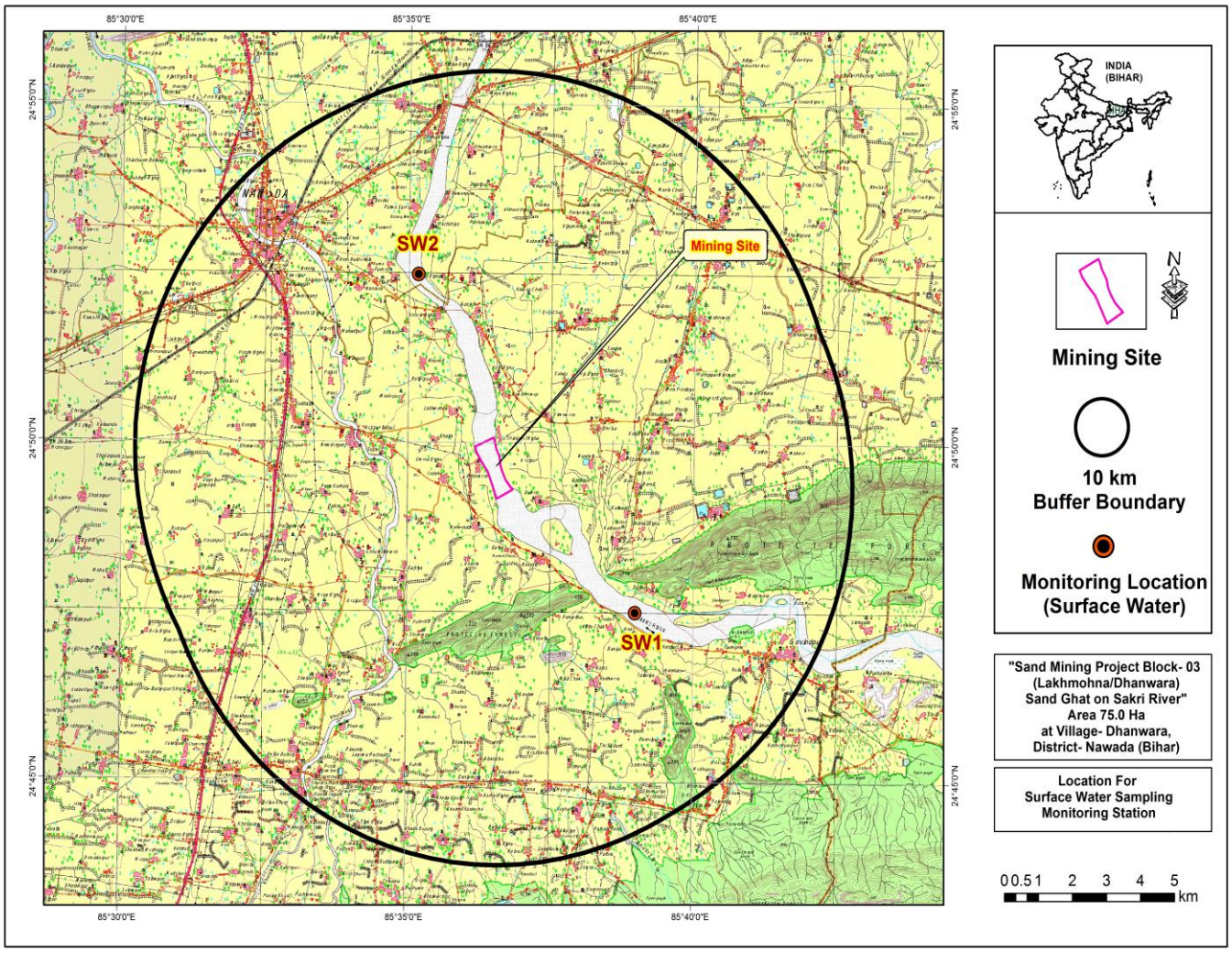

Fig. 3.2 (c) - Surface water sampling locations in the study area

Table 3.3 (vi) Physico-chemical properties of surface water

S.N	Parameter	SW-1 Up Stream	SW-2 Down Stream	Units
1	pH	7.48	7.65	-
2	Temperature	18.7	19.4	^{O}C
3	Turbidity	18.45	19.8	NTU
4	Conductivity @25°C	605.45	616.129	µs/cm.
5	Total Suspended Solid	17	18	mg/l
6	Total Alkalinity (as $CaCO_3$)	116	115	mg/l
7	Biological Oxygen Demand (Max.) (at 270C for 3 days)	2.54	2.76	mg/l
8	Dissolved Oxygen (as O_2) Min.	7.4	7.4	mg/l
9	Calcium(as Ca)	17.60	21.30	mg/l
10	Magnesium(as Mg)	14.58	12.45	mg/l
11	Chloride(as Cl),Max	57.85	58.60	mg/l
12	Iron(as Fe),Max	0.13	0.12	mg/l
13	Fluoride(as F),Max	1.45	1.15	mg/l
14	Total Dissolved Solid	365	356	mg/l
15	Total Hardness (as CaCO3)	105.60	108.65	mg/l
16	Sulphate (as SO4)Max	15.45	16.45	mg/l
17	Phosphate (as P)	<0.2	<0.2	mg/l
18	Sodium (as Na)	29.85	28.70	mg/l
19	Manganese (as Mn)	<0.1	<0.1	mg/l
20	Total Chromiun (as Cr)	<0.05	<0.05	mg/l
21	Zinc (as Zn)	0.47	0.53	mg/l
22	Potassium (as K)	4.68	5.16	mg/l
23	Nitrate (as NO3),Max	<0.5	<0.5	mg/l
24	Cadmium (as Cd)	<0.01	<0.01	mg/l
25	Lead (as Pb)	<0.01	<0.01	mg/l
26	Copper (as Cu)	<0.01	<0.01	mg/l
27	Chemical Oxygen Demand (asO2)	12.02	17.65	mg/l
28	Arsenic (as As)	<0.01	<0.01	mg/l

RESULTS									
S.No	Parameter	Test Method	Results	Units	Tolerance Limit as per IS:2296				
					Class A	Class B	Class C	Class D	Class E
SW-1	Total Coli Form	IS:1622	25	MPN/100ml	50	500	5000	-	-
SW-2	Total Coli Form	IS:1622	30	MPN/100ml	50	500	5000	-	-

Observation:

The analysis results indicate that the pH ranges between 7.48 and 7.65.

Dissolved Oxygen (DO) was observed in the range of 7.4 mg/l against the minimum requirement of 4 mg/l. BOD values were observed to be in the range of 1-3 mg/l.

The chlorides and Sulphates were found to be in the range of 57.85-58.60 mg/l and 15.45-16.45 respectively.

Bacteriological examination of surface water samples revealed the presence of total coliform in range of 25 MPN/100 ml to 30MPN/100 ml

Based on the results it is evident that most of the parameters of the samples comply with 'Category 'B' standards of CPCB indicating their suitability for Drinking water source after conventional treatment and disinfection.

3.5 SOIL ENVIRONMENT

Soil may be defined as a thin layer of earth's crust, medium for the growth of plants. The soil characteristics include both physical and chemical properties. The soil survey and soil sample were carried out / collected to assess the soil characteristics of the study area. Soil samples were collected from 5 locations and analyzed as per CPCB norms.

The soil sampling locations are marked in **fig. 3.2 (d)** the Physico-chemical characteristic of these soil samples is given in Table No. 3.2(viii).

Table No. 3.3 (vii) Soil sampling locations

Location Code	Location	Distance & Direction from Block 5
SQ1	Near Project site within 500m (Jamuawan Patwasarai)	315 m in SE
SQ2	Jamuawan Patwasarai	0.50 km in SE
SQ3	Bahera Bhelwa	4.27 km in E
SQ4	Gangta	4.93 km NE
SQ5	Jharayan	2.62 km N

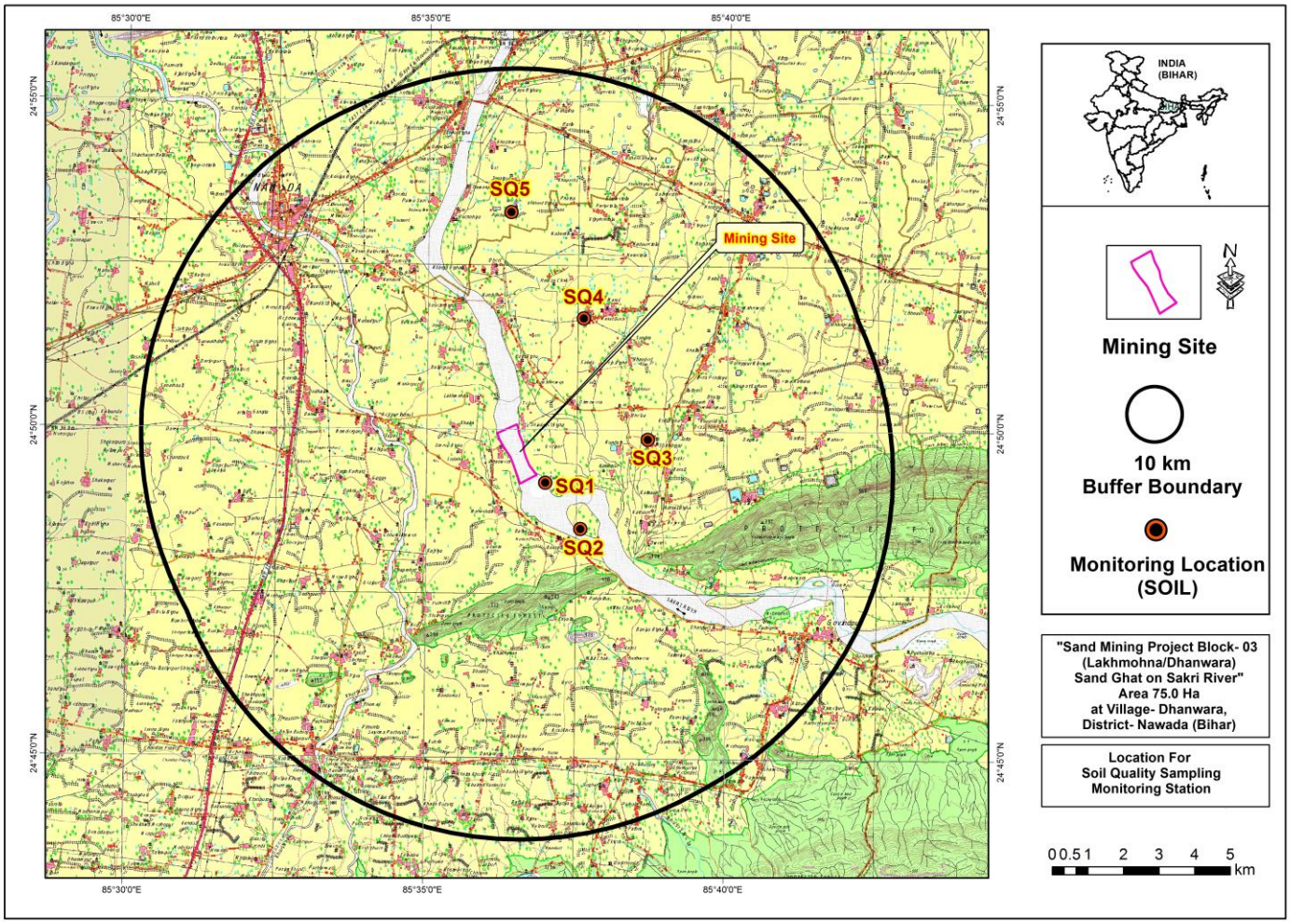

Fig.3.2 (d) Soil sampling Location

Table 3.3 (viii) Physico-chemical properties of soil

S.No	Parameter	Units	Result				
			Location				
			SQ-1	SQ-2	SQ-3	SQ-4	SQ-5
1	Texture	-	Sandy Clay	Clay Loam	Clay Loam	Sandy Clay	Clay Loam
	Sand	%	46.40	37.70	40.20	31..57	37.2
	Clay	%	40.40	33.70	35.25	32.7	33.8
	Silt	%	24.80	37.14	27.45	51.73	55.3
2	pH (1:2.5 Suspension)	-	7.26	7.14	7.42	6.85	7.14
3	Electrical Conductivity	µmhos/cm	293.4	381.5	350.6	284.5	289.2

4	Potassium (as K)	mg/kg	151.40	182.40	271.15	182.07	178.2
5	Sodium (as Na)	mg/kg	255.10	241.40	218.50	212.62	221.5
6	Calcium (as Ca)	mg/kg	3914.11	4027.40	3845.70	3103.74	3456.4
7	Magnesium (as Mg)	mg/kg	680.40	540.40	479.40	730.34	744.8
8	Sodium Absorption Ratio	-	0.93	0.77	0.59	0.91	0.97
9	Water Holding Capacity	%	32.45	33.50	35.70	41.58	42.7
10	Total Kjeldahl Nitrogen	%	0.125	0.181	0.191	0.217	0.218
11	Phosphorous	mg/kg	61.15	52.36	55.70	76.37	77.68
12	Bulk Density	gm/cc	1.25	1.31	1.27	1.28	1.34
13	Organic Matter	%	0.98	1.21	1.35	1.47	1.37
14	Porosity	%	42.14	40.25	37.74	40.61	41.8

Observations:

Samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 6.85-7.14, which shows that the soil is alkaline in nature. Potassium is found to be from 151.4 mg/kg to 271.15 mg/kg. The water holding capacity is found in between 32.45% to 42.7%.

3.6 NOISE ENVIRONNENT

The noise levels within the study area were recorded using Sound Level Meter and noise monitoring results were compared with the Ambient Noise Quality Standard notified under Environment Protection Act, 1986. The levels recorded are as stated in Table 3.1(x).

The noise level monitoring locations are marked in Fig. no.3.2 (vi).

Table 3.3 (ix) Noise quality monitoring stations

Location Code	Location	Distance & Direction from Block 5
NQ1	Near Project site within 500m (Jamuawan Patwasarai)	368m in SE
NQ2	Jamuawan Patwasarai	2.0 km in SE
NQ3	Bahera Bhelwa	3.48 km in E
NQ4	Gangta	3.72 km in NE
NQ5	Jhara	6.07km in N

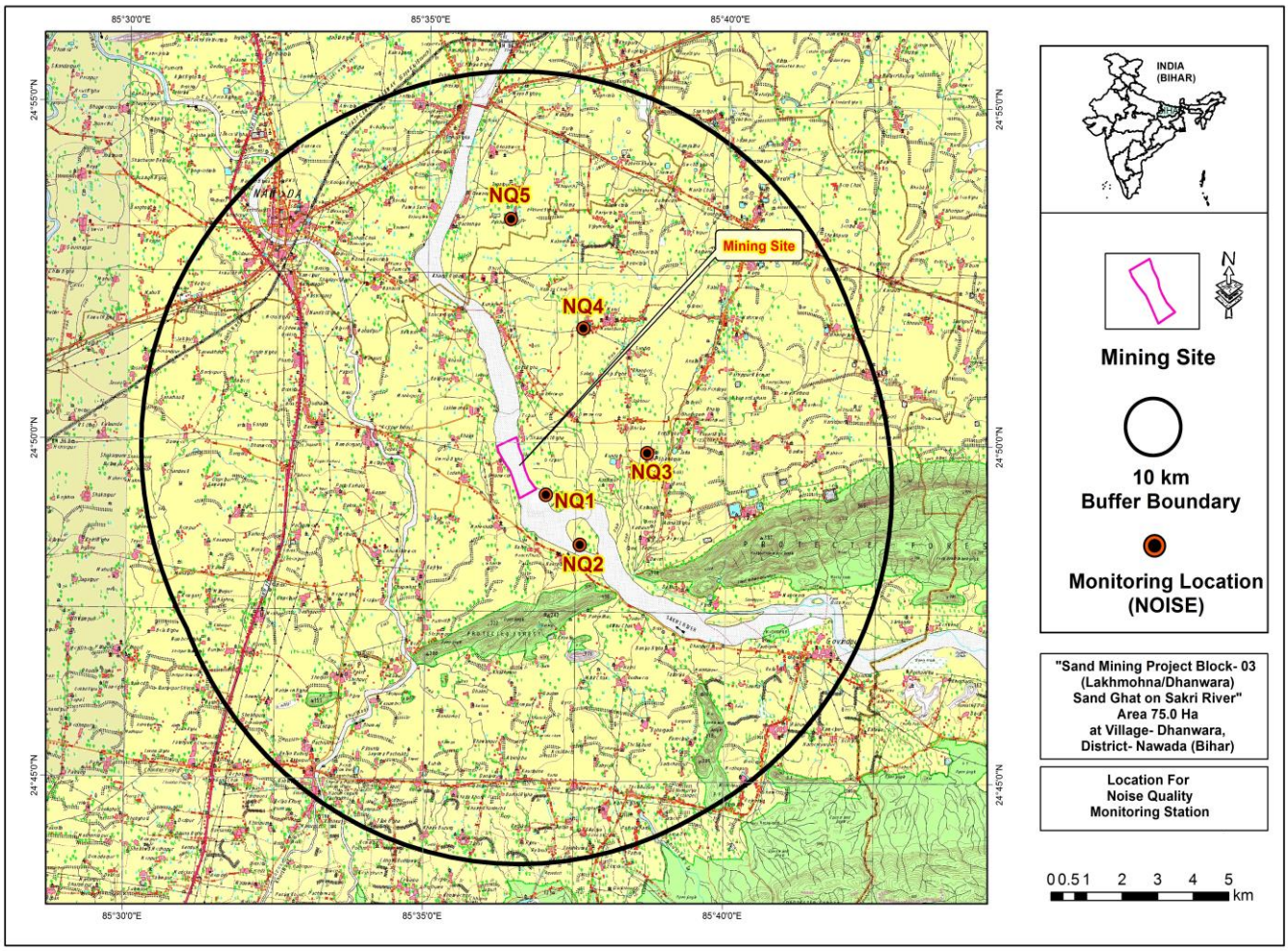

Fig.3.2 (e) - Noise quality monitoring stations

Table No. 3.3 (x) Noise level status

TEST RESULT							
S.No	Location	Observed Value Leq dB(A)			Limit as per CPCB Guidelines Leq. dB(A)		**Zone**
		Day*	Night*	Day/Night	Day*	Night*	
1	NQ1	**57.2**	**43.4**	50.3	**75.0**	**70.0**	**Industrial**
2	NQ2	**47.6**	**39.7**	43.7	**55.0**	**45.0**	**Residental**
3	NQ3	**50.6**	**44.7**	47.7	**55.0**	**45.0**	**Residental**
4	NQ4	**46.7**	**37.6**	42.2	**55.0**	**45.0**	**Residental**
5	NQ5	**47.8**	**40.3**	44.0	**55.0**	**45.0**	**Residental**
*Day Time			Leq(6.00AM TO 10.00 PM)				
*Night Time			Leq(10.00PM TO 6.00 AM)				

Results

Noise monitoring reveals that the maximum & minimum noise levels at day time were recorded as 57.2 dB (A) & 46.7 dB (A), respectively. The maximum & minimum noise levels at night time were found to be 37.6 dB (A) & 44.7 dB (A). There are several other sources in the 10 km radius of study area, which contributes to the local noise level of the area. Traffic activities as well as activities in nearby villages and agricultural fields add to the ambient noise level of the area.

3.7 BIOLOGICAL ENVIRONMENT

Introduction

Bihar is situated in the eastern part of India bordering Nepal and has a geographical area of 94,163 km². It is part of gangetic plains and is drained by two major rivers, the Ganga and the Gandhak. River Tons is tributary of Ganga. Annual rainfall in the state varies from 1000 mm to 2000 mm. The recorded forest area of the state is 6473 km² which is 6.87% of the geographical area. Reserve forest constitutes 10.70%, Protected Forest 89.28% and unclassed Forest, which is about 0.02% of the total forest area. The proposed project falls in 7 – Gangetic plane as per the Biogeographic Classification of India and 7B Lower Gangetic Plane Province of India.

Forest Classification

Forest Description Nawada district has deciduous type of forest. The district has 3202 km² of Geographical area comprising 13 km² of Moderately Dense Forest, 3 km² open forest and absence of Very Dense Forest. Thus the forest cover of the district is 0.50% of total Geographic Area.

The proposed project does not encounter with any kind of forest types like Reserve Forest, Protected forest or un- classed Forest (declared Protected under “The Indian Forest Act, 1927”) and “Forest (Conservation) Act, 1980 with Amendments Made in 1988”. (Source: Forest Department Nawada). Further no tree cutting is involved in the project and with a landscape design approach all the trees will be saved as part of this project. Thus no forest Clearance is required for the proposed development.

Wildlife Protected area and Wildlife Sanctuary One Wildlife National Park (Valmiki National Park) and twelve Wildlife Sanctuaries are located in Bihar. However, no National Park and Wildlife Sanctuary is reported within 10 km from project boundary. The Nearest wildlife sanctuary is Vikramshila Gangetic Dolphin WLS which is more than 30 km in District Bhagalpur. Therefore clearance under "The Wildlife (Protection) Act – 1972" is not required for the proposed project.

Wetland: No wetland notified under "The Ramsar Convention – 1971" or listed under "the National wetland Conservation Programme – 2009" is reported within 10 km from project boundary. The nearest Wetland notified under National Wetland Conservation Programme – 2009 are: 1. Kabar Wetland – District Begusarai 2. Barilla Wetland – District Vaishali 3. Kusheshwar Asthan Wetland – Darbhanga.

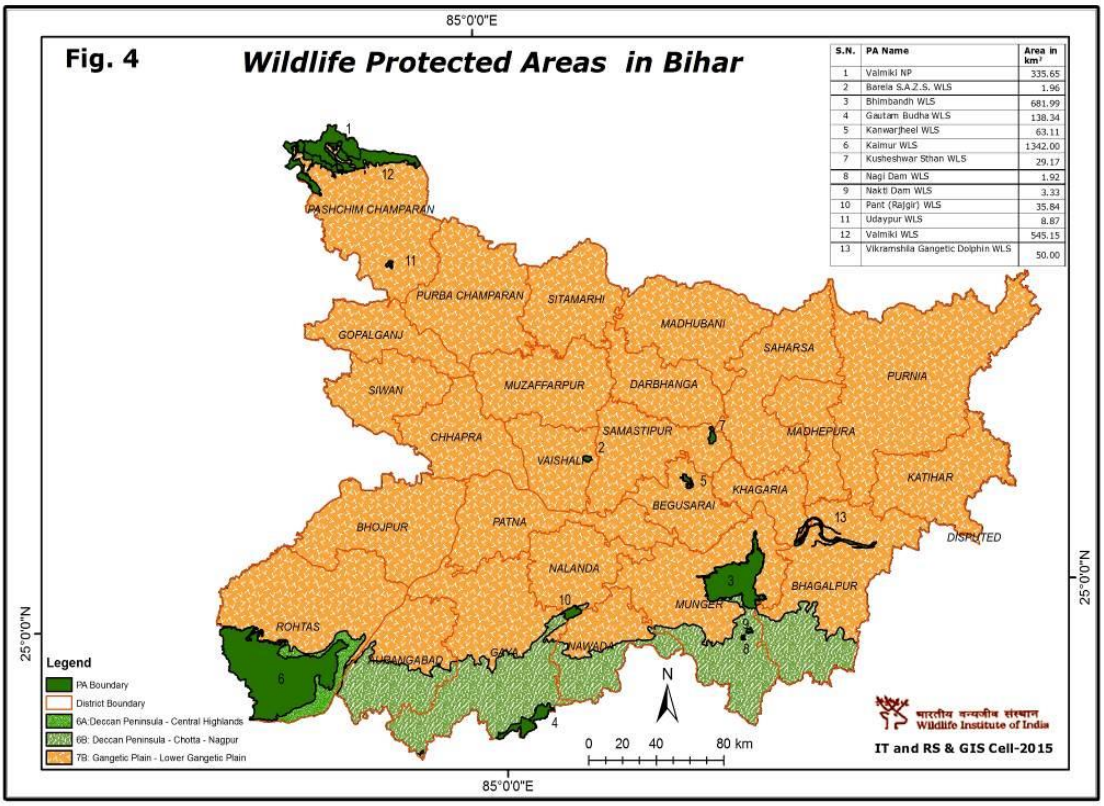

**Fig. 3.3 Map of Wildlife Protected Areas in Bihar
(Project site is located in District Nawada).**

Methodology for Floral & Faunal study:

Several field trips of duration ranging from 2 to 10 days were made at regular intervals to various parts. The field notes were taken regularly, included habitat, flora, association and other pertinent features. Efforts were made to identify the plants from the fresh material; those that could not be satisfactorily identified in the field were brought to the laboratory and identified by checking it with monographs, herbarium specimens and other available literature.

Survey sites : project site, few identified locations in 10 km radius

Core zone : At the project area

Buffer zone : 10 km radius surrounding the project area

Site Study Period: March to May, 2023

Table 3.4: Mode of data collection& parameters considered during the survey

Aspect	Data	Mode of data collection	Parameters monitored
Terrestrial Ecology	Primary data Collection	Field survey	Floral
	Secondary data collection	From authentic sources like. Published literature, Government Websites and Published Maps	Flora and Faunal diversity and study of vegetation, importance etc.
River Ecology	Secondary data collection	List of fish fauna obtained from Published literature on fish fauna of River Tons & Government Websites	Fish fauna

Flora of the Study Area

The core zone comprises of Riparian Habitat (transition zone between aquatic and terrestrial ecosystem). A riparian zone or riparian area is the interface between land and a river or stream. Plant habitats and communities along the river margins and banks are called riparian vegetation, characterized by hydrophilic plants. Riparian zones may be natural or engineered for soil stabilization or restoration. These zones are important natural bio-filters, protecting aquatic environments from excessive sedimentation, polluted surface runoff and erosion. They supply shelter and food for many aquatic animals and shade that is an important part of stream temperature regulation.

The floristic survey of the proposed site witnesses scattered growth of grasses (mainly weeds), rooted hydrophytes, emerging hydrophytes, shrubs in undisturbed area where human movement is absent. Among herbs species, weed are commonly reported on the river bank. Commonly reported weeds species are Congress grass (*Partheniumhysterophorus*), Lantana (*Lantana Camara*), *Eipatoriumtrilpineve, Solanumxanthiocarpum* and Datura (*Dathurastromonium*). This is mainly due to better survival rate, higher seed production and fast growing in comparison to other herbs. The species of grasses reported along the banks are *Cyanodondactylon*, *Achyranthesaspera*, *Saccharumarundinaceum*, *Vetiveriazizanoides*, *Ludwigiaparviflora*, *Rungiarepens*, etc. These are mainly reported above the water level, in an undisturbed area. Rooted hydrophytes are reported along the banks, where water level is less than a foot or water has recedes after flooding. The commonly reported hydrophytes are *Ipomoea carnea*, *Argeratumconyzoides*, *Azollapinnata*, *Eichhorniacrassipes, Lemnaperpusilla, Spirodelapolyrhiza, etc. Ipomoea aquatic*, etc.

The phytosociological study of the Study area (terrestrial habitat) beyond the riparian habitat comprises of manmade ecosystem. Trees plantation in form of landscaping was noticed due to

nearby residential area, government offices, hospitals, university, parks and market places. The species of trees reported are mainly planted, except few species which are naturally growing. These trees are fruit, flower and seed bearing and attract avifauna, small mammals and reptiles. Nesting was commonly reported.

Table 3.4(i) Flora of the Study Area

S.NO	BOTANICAL NAME	COMMON NAME
1.	*Ficusreligiosa*	Peepal
2.	*Ficusbengalensis*	Bargad
3.	*Syzygiumcumini*	Jamun
4.	*Shorearobusta*	Sal
5.	*Boswellia serrate*	Salai
6.	*Cassia fistula*	Golden shower
7.	*Terminaliaarjuna*	Bahera
8.	*Acacia leucophloea*	Reonj
9.	*Balanitesroxburghii*	Hingota
10.	*Dichrostachyscivera*	Kari
11.	*Carissa spicigera*	Kakraunda
12.	*Grewiaflavescens*	Chapat
13.	*Diophyroscardifolia*	Kairukha
14.	*Zizyphusoenoplia*	Makoh
15.	*Zizyphusnumularia*	Jharberi
16.	*Zizyphusxylocarpus*	Ber
17.	*Ceuchrusciliaris*	Anjana
18.	*Manilkarahexandra*	Khini
19.	*Krataevareligiosa*	Buron
20.	*Vachellianilotica*	Babool
21.	*Dalberjiasissoo*	Sheesham
22.	*Albizzialabbek*	Siris
23.	*Azadirachtaindica*	Neem
24.	*Mangiferaindica*	Mango
25.	*Artocarpusheterophyllus*	Jackfruit

Table 3.4(ii): Flora of Core Zone

S. NO	BOTANICAL NAME	COMMON NAME
1	*Dactyloctenium Aegyptium*	Crowfoot grass
2	*Digitariasanguinalis*	Hairy crabgrass
3	*Echinochloa Colona*	Deccan grass
4	*Brachiariareptans*	Para ghas/Running grass
5	*Cenchrus Echinatus*	Sandbur
6	*Cyperusrotundus*	Nnutgrass

Fauna of the study Area

To study the diversity of fauna, various survey methods were adopted. The survey was mainly carried out at dawn and at dusk to study animal behavior and habitat. This study period is mainly selected as animals are most active. Secondary data was collected from the forest websites and interaction with the local was also conducted to establish baseline study for distribution of wild animals in the study area. No wild mammals are reported in the study area, due to anthropogenic activity and urbanized habitat. Domestic mammals are reported in the study area.

Mammal: During primary survey no wild mammals are reported in the study area. Based on secondary information like interaction with the local, wild mammals like Indian mongoose and five stripped squirrel are reported. Domesticated mammals like goat, sheep, dog, cow, ox, donkey etc. are reported. These animals are domesticated for milk and other commercial purposed.

Reptilia: Based on forest working Plan and interaction with people dwelling nearby ghat areas, it has been confirmed that the study area witness poor reptilian distributions. Reptile like Rat Snakes (*Ptyasmucosus*), Common Kraits (*Bungaruscaerulens*), Indian cobra (*NajaNaja*) etc. has been reported. House Geiko and Garden Lizard are directly sighted during primary visit.

Table 3.4(iii): List of Fauna in study Area

S. No	Scientific name	Common Name	WPA 1972 (schedule)	IUCN
1	*Eryxjohni*	Sand Boa	IV	NE
2	*Eryxconicus*	Russell's Sand Boa	IV	NE
3	*Ptyas mucosa*	Dhaman	II	NE
4	*Nerodia*	Water Snake	IV	NE
5	*Lycodonstriatus*	Black Barred Snake	IV	NE
6	*Amphiesmastolatum*	Striped Keelback	IV	LC
7	*Indotyphlopsbraminus*	Blind Snake	IV	NE
8	*Bungaruscaeruleus*	Krait	IV	NE
9	*Ophiophagushannah*	Cobra	II	VU
10	*Psammophis*	Sand Snake	IV	NE
11	*Hemidactylusfrenatus*	House Gecko	III	LC
12	*Chamaeleozeylanicus*	Girgit	II	LC
13	*Uromastyxhardwickii.*	Sanda	II	VU
14	*Herpestesedwardsii*	Common Mongoose	II	LC
15	*Funambuluspennantii*	Squirrel	II	LC
16	*Macacamulata*	Common Monkey	II	LC

**LC= Least Concerned, EN= Endangered, VU=Vulnerable, NT= Near Threatened
CR= Critically Endangered, NE=Not evaluated**

Avifauna: The fauna reported in the inner buffer zone 3 are mainly avifauna (highest diversity) followed by mammals and reptiles. The commonly reported avifauna in the study area during primary survey, with higher diversity are Common crow, Myna, Eagle, Sparrow, Babbler, Pigeon, Cattle Egrets, Red Vented bulbul, Drongo, Sparrow, Indian Roller etc. During site visit higher frequency of birds recorded in the project affected. This is mainly due to availability of nesting habitat, discarded foods from rituals ceremony and fruits bearing trees.

Table 3.5: Avi Fauna of Study Area

S. No	Scientific name	Common name	W.P.A 1972(schedule)	IUCN
1	*Ardeacinerea*	Grey Heron	IV	LC
2	*Ardea alba*	Great Egret	IV	LC
3	*Ardeaintermedia*	Intermediate Egret	IV	LC
4	*Egrettagarzetta*	Little Egret	IV	LC
5	*Phalacrocoraxcarbo*	Great Cormorant	IV	LC
6	*Microcarboniger*	Little Cormorant	IV	LC
7	*Phalacrocoraxfuscicollis*	Indian Cormorant	IV	LC
8	*Anas acuta*	Northern Pintail duck	IV	LC
9	*Anaspoecilorhyncha*	Indian Spot-billed Duck	IV	LC
10	*Spatula clypeata*	Northern Shoveler	IV	LC
LC= Least Concerned, EN= Endangered, VU=Vulnerable, NT= Near Threatened, CR=Critically Engangered				

Fishes

The proposed project is located partly on the river bank (riparian Habitat) and partly on the river bed. During primary survey of the site, it has been noticed that no well-established riparian habitat exists. This is mainly due to urban development and other anthropogenic activity. This part of the banks also received storm and sewer water drains from Nawada city. As a whole, the existing environment is not suitable for existence of any type of habitat. This depth is not suitable for the existence of breeding, nesting and feeding habit for large aquatic mammals and reptiles.

Gangetic Dolphins (Platanista Gangeticagangetica) Gangetica Dolphins is Scheduled – I animals as per “The Wildlife (Protection) Act – 1972”. This animal is declared endangered by the IUCN Red List Category - 2012 and need conservation to safe guard the population. There was no Gangetic Dolphin reported in the 10 km study area.

Table 3.5(a) Fishes

S.no	Scientific name	Common name	IUCN

1.	*Notopterusnotopterus*	Grey featherback	LC
2.	*Coricasoborna*	Ganges river sprat	LC
3.	*Gonialosamanmina*	Suhiya	LC
4.	*Gudsiachapra*	Indian river shad	LC
5.	*Tenualosailisha*	Hilsa	LC
6.	*Amblypharyngodonmola*	Mola	LC
7.	*Aspidopariamorar*	Morar	LC
8.	*Bariliusbarna*	Baril	LC
9.	*Bariliusbendelisis*	Indian hill trout	LC
10.	*Bariliusvagra*	Dudhnea	LC
11.	*Catlacatla*	Catla	LC
12.	*Chela laubuca*	Indian glass barb	LC
13.	*Cirrhinusmrigala*	White carp	VU
14.	*Cirrhinusreba*	Reba carp	LC
15.	*Crossocheiluslatiuslatius*	Stone roller	LC
16.	*Daniodevario*	Zebra fish	LC
17.	*Garralamta*	Log sucker	LC
18.	*Labeoangra*	Angralabeo	LC
19.	*Labeobata*	Bata	LC
20.	*Labeoboga*	Boga	LC
21.	*Labeodyocheilus*	Boalla	LC
22.	*Labeocalbasu*	Black rohu	LC
23.	*Labeofimbriatus*	Fringe lipped carp	LC
24.	*Labeogonius*	Kuri	LC
25.	*Labeorohita*	Rohu	LC

Conclusion:

No species was reported from the project area (Core Zone) which is listed under Schedule I of Wildlife Protection Act, 1972. No nesting or breeding was observed in the project site.

The project is not likely to affect the terrestrial species or aquatic species as it does not fall into habitat of above-mentioned species.

3.8 SOCIAL IMPACT ASSESSMENT, REHABILITATION & RESETTLEMENT (R&R) ACTION PLAN

There will be no resettlement or rehabilitation involved in the project being on meandering course of the river. However, a detailed Socio - Economic Assessment has been performed, which is given below:

Introduction

In this section of the report an attempt has been made to measure Socio-economic impact of the proposed Project, the various attributes that have been taken into account are population composition, employment generation, occupational shift, household income, consumption pattern, ethnic issue and law & order problem. The key objective of the study is to assess possible impact of the project on socio-economic life of the people in the neighborhood known as study area.

The objectives of the socio-economic impact assessment are as follows:

a) To collect baseline data of the study area.
b) To know the socio-economic status of the people living in the study area of the proposed mining project.
c) To assess the possible impact of the project on socio-economic aspects in the study area.
d) To measure the impact of the project on Quality of life of the people in the study area.

Approach & Methodology

a) A mixture of both quantitative and qualitative approach has been adopted in the current socio-economic study.
b) The study has been conducted based on primary and secondary data. While primary data has been collected through a sample survey of selected households in the study area, the secondary data has been collected from the administrative records of the Government of Bihar, Census 2011, district hand books and from the Bihar Government portal**.**
c) The details regarding population composition, number of literates, workers, etc have been collected from secondary sources and analyzed. Also village/city/town wise details regarding amenities available in the study area have been collected from secondary sources like Census 2011, and analyzed.
d) Two stage sampling design has been adopted to select the sampling units. The first stage units are census villages in the rural areas and towns/cities in urban areas. The ultimate stage units are households in the selected villages and towns/cities. Probability sampling has been adopted to select the sampling units.
e) Estimation of various parameters has been made based on sample data and bottom top approach has been adopted.

f) On the basis of a preliminary reconnaissance survey, two questionnaires were developed to make it suitable to fulfill the objectives of the study. The questionnaires contained both open ended and close ended questions

g) The data collected during the above survey was analyzed to evaluate the prevailing socio-economic profile of the area.

h) Based on the above data, impacts due to mining operation on the community have been assessed and recommendations for improvement have been made.

Concept & Definition of Terms Used

a) **Study Area:** The study area, also known as impact area has been defined as the sum total of core area and buffer area with a radius of 10 Kilometers from the periphery of the project site. The study area includes all the land marks both natural and manmade, falling therein.

b) **QoL**: The Quality of Life (QoL) refers to degree to which a person enjoys the important possibilities of his/her life. The 'Possibilities' result from the opportunities and limitations, each person has in his/her life and reflect the interaction of personal and environmental factors. Enjoyment has two components: the experience of satisfaction and the possession or achievement of some characteristic.

c) **Household**: A group of persons who normally live together and take their meals from a common kitchen are called a household. Persons living in a household may be related or unrelated or a mix of both. However, if a group of related or unrelated persons live in a house but do not take their meals from the common kitchen, then they are not part of a common household. Each such person is treated as a separate household. There may be one member households, two member households or multi-member households.

d) **Sex Ratio:** Sex ratio is the ratio of females to males in a given population. It is expressed as 'number of females per 1000 males'.

e) **Literates:** All persons aged 7 years and above who can both read and write with understanding in any language are taken as literate. It is not necessary for a person to have received any formal education or passed any minimum educational standard for being treated as literate. People who are blind but can read in Braille are also treated as literates.

f) **Literacy Rate:** Literacy rate of population is defined as the percentage of literates to the total population aged 7 years and above.

g) **Labour Force:** The labour force is the number of people employed and unemployed in a geographical entity. The size of the labour force is the sum total of persons employed and unemployed. An unemployed person is defined as a person not employed but actively seeking work. Normally, the labour force of a country consists of everyone of working age (commencing from 14 to 16 years) and below retirement (around 65 years) that are participating workers, that is people actively employed or seeking employment. People not counted under labour force are students, retired persons, stay-at home people, people in prisons, permanently disabled persons and discouraged workers.

h) **Work:** Work is defined as participation in any economically productive activity with or without compensation, wages or profit. Such participation may be physical and/or mental in nature. Work involves not only actual work but also includes effective supervision and direction of work. The work may be part time or full time or unpaid work in a farm, family enterprise or in any other economic activity.

i) **Worker:** All persons engaged in 'work' are defined as workers. Persons who are engaged in cultivation of land or milk production even solely for domestic consumption are also treated as workers.

j) **Main Workers**: Those workers who had worked for the major part of the reference period (i.e. 6 months or more in the case of a year) are termed as Main Workers.

k) **Marginal Workers:** Those workers who did not work for the major part of the reference period (i.e. less than 6 months) are termed as Marginal Workers**.**

l) **Work participation rate**: The work participation rate is the ratio between the labour force and the overall size of their cohort (national population of the same age range). In the present study the work participation rate is defined as the percentage of total workers (main and marginal) to total population.

Findings of the Study

Study Area

The field investigation has revealed that the entire study area of the proposed Sand Mining Project

Table.3.6 Demographic Particulars of the Buffer area (10km)

Description	Number	%
Total Population	62743	100
Males	32124	51.2
Females	30619	48.8
Sex ratio (No. of females per 1000 males)	942	
Total Literates	35136	100
Male	24068	68.5
Female	11068	31.5
Total Literacy Rate	56	
Male	74.92	
Female	36.14	
Gender gap in literacy rate	38.78	
Total Workers	25680	100
Male	17508	61.18
Female	8172	38.82
Total Main Workers	18356	100
Male	14258	77.68
Female	4098	22.32
Total Marginal Workers	7324	100
Male	2835	38.71
Female	4489	61.29
Total Agricultural Workers	16234	100
Cultivators	16317	63.54
Agricultural Labours	9362	36.46
Male workers in total agricultural workers	5453	58.25
Female workers in total agricultural workers	3909	41.75
Total Household Industrial Workers	1256	100
Male	650	51.79
Female	606	48.21
Total Other Workers	2058	100
Male	1636	79.52
Female	422	20.48

DEMOGRAPHIC COMPOSITION

Population

According to Census 2011, the total population of the study area is 62743. As there is no urban area the entire population belongs to rural area. The overall sex ratio has been worked out to 942 females per 1000 males, which is lower than the national average of 943 females per 1000 males. Furthermore, around 10.81 percent of the total population belongs to Schedule Caste community and the Schedule Tribe population in the study area is very negligible as per Census 2011.

Number of households and household size

The entire population of the study area has been grouped into 8963 households and the average household size is 7. The household size varies between 5 and 8.

Literacy and Literacy rate

The total number of literates in the study area has been worked out around 56 percent of the total population. The literacy rate of male has been worked out to 74.92 percent as against 36.14 percent for female, creating a gender gap of 38.78 percent.

Workers and work participation rate

The total number of workers in the study area is 25680, which is 40.92 percent of the total population. Among the total workers 71.4 percent are main workers and the remaining percent are marginal workers. The percentage of male in the main workers is 61.18%, while it is only 38.71percent in the case of marginal workers. On the other hand, the percentage share of female in the main workers is only 38.82percent. This indicates that male dominates the both main workers and the marginal workers.

POSSIBLE IMPACT ASSESSMENT

Impact on population composition

The impact of the proposed mining project on population composition will be marginal as only few skilled and managerial staff will be recruited from outside and the rest will be recruited locally. The impact will be significant if a large number of people from outside get employed in the proposed project.

In that case not only the population of the study area will go up but also the skewed sex ratio may make permanent social effects like rise in exploitation of women, higher crime rate, increase in sexual diseases and depression among youth.

Impact on employment generation

The proposed sand mining project is expected to provide employment opportunities to 83 persons Skilled & Semi-Skilled/ Unskilled workers. It is understood that all the persons to be deployed for various mining activities will be recruited locally and there is very little scope for migration of people from outside the study area. The employment potentiality of the project is expected to ameliorate the economic condition of the families of those persons who will get employed in the proposed mining

project. However, the mining project will provide seasonal employment. Further, the project will provide indirect employment to about 83 people who will be involved in segregation of extracted mining materials, crushing of boulders, petty business and service-oriented industries.

Impact on Health

Extraction of sand, boulder and *bazri* from the river bed poses serious health risks due to dust, quarrying and stone crushing. The effects will vary depending upon the nature of the dust particles, silica content in it and the size of the particles. Pneumoconiosis is an occupational lung disease often caused to miners, due to the inhalation of dust. Silica content in the sand may also lead to Silicosis, which is again an occupational lung disease. Miners may also suffer with occupational respiratory ailments, skin allergies etc, but the same are preventable if exposure is minimized. Further, regular health check-up of the miners is required to prevent any negative impact on their health. In the present mining project, no adverse impact on health is expected if minimum precautions are taken by the miners.

Impact on income

In India poverty is widespread. According to an estimate made by World Bank during 2005, 26 percent of the total Indian population falls below the International poverty Line of US$ 1.25 a day (PPP, in nominal terms ₹ 21.6 a day in urban areas and ₹ 14.3 in rural areas). Bihar is one of the worst poverty ridden states in India, with per capita income of Rs. 26,051. The proposed mining project at Ghatyari is expected to provide casual employment to 42 semi-skilled/ unskilled workers and skilled workers for a period of 260 days in a year. According to Department of labour, Government of Bihar each unskilled worker is eligible to get a minimum basic wage of Rs. 300 per day. In addition they will get V.D.A amounting to Rs. 65.50 per day. Thus the total amount an unskilled worker is expected to get is Rs 365.50 per day. Further, a semi-skilled worker will get a basic wage of Rs 345 and V.D.A amounting to Rs.112.69 making the total amount of Rs. 457.69 per day. Lastly, a skilled worker can expect to get a minimum wage of Rs. 475.24 and V.D.A amounting to Rs. 124.76 making the total amount of Rs. 600 per day. The impact of the proposed mining activity on household income in the study area is thus positive since it will provide employment to local people, which will result to an increase in household income of those workers who will be recruited for mining operation. However, this impact will be effective for a period of 250 days in a year.

Impact on consumption pattern

The field survey has revealed that people in the study are poverty ridden. Increased household income may slightly change the consumption pattern of few but majority of the people will continue to be burdened with poverty.

Impact on road development

Movement of trucks and other vehicles to and fro the quarry is expected to increase substantially, when mining will start. The existing roads connecting the quarry with the national and state highways are mostly narrow mud roads. There will be mud slide and traffic bottle neck if these roads are not widened and their conditions are not improved by making them paved roads. Hence, there is ample scope for road development in and around the mining areas.

Impact on law & Order

As local people will be employed to run the quarry, no law & order problem is envisaged. It is expected that the workers will attend to their duties from their residence and return to their homes after the day's work is over. There would have been law & order problem if the workers were migrants and lived in shanties closed to the mining area. However, to meet any untoward incident one police post may be set up closed to the project area.

Public Perception about the Project

Visit to project village has revealed that no villager was opposed to the proposed river bed mining project. They whole heartedly welcomed it as they were disgusted with perennial poverty. They hoped that the upcoming mining project will definitely increase their income which in turn will increase their purchasing power. They however, demanded that the beneficiaries should be selected from those who belong to BPL category and registered under SGSY scheme.

The villagers living in the distant villages located within the study area were found either not aware or partially aware of the upcoming mining project and they did not make any comment about its utility. They however demanded that labour intensive projects should be implemented in their villages, to fight poverty.

Suggestions

Provision of First Aid at mining site

Extraction of sand from the river bed poses serious health risks due to dust, quarrying. The effects vary depending on the nature of the dust particles, silica content in it and the size of the particle. To

meet any emergency during extraction of the minerals from the river bed and subsequent loading in the transport vehicles, provision for First Aid should be made by the project proponent. Before the affected person is removed to a doctor or health institution for necessary medical aid, the miner should be provided with First Aid.

Tie up with the nearest PHC for medical help

To meet the medical needs of the mine workers it is suggested that tie-ups with nearest hospital or Primary Health Center (PHC) may be made. Few beds may be exclusively reserved for the mine workers in the above health institutions. This will ensure timely medical aid to the affected persons.

Supply of Mask, Gloves and Helmets

The mine workers are subject to respiratory diseases, muscular-skeletal and gastro-intestinal disorders and skin diseases. For protection from dust it may be made compulsory for all mine workers to wear masks and gloves while working in the mines. Further, wearing of helmets will be encouraged while loading and unloading minerals in the trucks in order to avoid impending danger.

Regular health checkups

The miners may be encouraged to undergo health checkups at regular intervals in order to protect themselves from various diseases. The health Department of Bihar Government must Organize Health Camps at regular intervals preferably in every quarter. Further, free medical facilities may be made available to the workers and their family members.

Special telephone number

A special telephone number may be made available to the mine workers. In case of emergency the miners can dial the above number for medical assistance. Vehicle may be provided to the patients in short duration for shifting to the health institution.

Special Group Insurance Scheme

All the mine workers may be covered under a Group Insurance Scheme of LIC or any other Insurance company, if not so far.

Distribution of Blankets and Quilts

During winter season the mine workers may be distributed blankets and quilts free of cost.

Conclusion

The implementation of the Sand mining project will throw opportunities to local people for both direct and indirect employment. Since the quarries have been auctioned and leased out to successful allottees, sand mining operation in the state will get legalized and it will fetch income to the state exchequer. The project will also provide impetus to industrialization of the area. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in industrial and business activities rather in agriculture. Thus, there will be a gradual shifting of population from agriculture to mining and industry. Further, the mining and industrial activities in the area may lead to urbanization. Due to urbanization of the area, employment opportunities will further increase.

The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities. It is therefore suggested that extraction of minerals should be taken up on regular basis during the post monsoon period. This will dredge the river bed on regular basis, regulate the course of the river and check flooding of the catchment area.

Proposed activities and expenses on Corporate Environmental Responsibility will be as per CER Mandate of the Government.

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CHAPTER-IV

ANTICIPATED ENVIRONMENTAL IMPACT AND MITIGATION MEASURES

INDEX

4.0 GENERAL

Sand have long been used as aggregate for construction of roads and building.

Today, the demand for these materials continues to rise day by day. In recent years, rapid development has led to an increased demand for river sand as a source of construction material. It is recommended to remove the sand deposition on the regular basis otherwise the river will raise the height and may pose threats of inundation of unaffected areas. Besides this, the deposited mineral is a constant source of revenue generation to the state government and ensures the constant supply of this building material.

All development projects have an impact on the natural set up of the environment. This impact may be beneficial or adverse, depending on the improvement or the deterioration it brings about in the status of air, water, land, ecology, natural systems, socio-cultural life styles and economics of the population. Depending on the nature of activities and baseline environment status, the impacts are assessed for their importance. On the basis of the impact analysis, the mitigating action and future monitoring requirement are focused in the Environmental Management plan for countering or minimizing the impacts.

Keeping in mind, the environmental baseline scenario as detailed in Section III and the proposed mining activity described in Section II, it is attempted to assess the likely impact and its extent on various environmental parameters and likely mitigation measures to be adopted. This Chapter provides a brief overview of the potential impacts on various environmental components due to the proposed opencast mining activities. The opencast mining operations in general cause environmental degradation and if adequate control measures are not taken to prevent/mitigate the adverse environmental impacts, these operations may cause irreversible damage to the eco- system.

Any human activity in any environment produces impact, modifying it to status which is considered adverse of beneficial according to damage or improvement it brings about in physical, chemical & biological status, the impacts are assessed for their importance. On the basis of impact analysis, the mitigation action is focused in the environmental management plan for counting or minimizing adverse impacts. Effects of this mining project on each of the environmental parameters are detailed below in accordance with the parameters of environment likely to be affected- Climate, Air environment, Land environment, Ecology, Water requirement, Noise levels, Soil, Socio-economic environment, Cultural & Heritage environment. Centrally the environment impacts cab be categorized as either primary or secondary. Primary impacts are those which can be attributed

directly to the projects. On the indirectly or induced typically include the associated investments & change patterns if social & economic by the proposed actions.

IMPACT OF SANDMINING

Impacts of sand mining can be broadly classified as given below:

Physical

The large-scale extraction of streambed materials, mining below the existing stream bed and the alteration of channel-bed form and shape lead to several impacts such as erosion of channel bed and banks, increase in channel slope, and change in channel morphology. These impacts may cause: (1) the undercutting and collapse of river banks, (2) the loss of adjacent land and/or structures, (3) upstream erosion as a result of an increase in channel slope and changes in flow velocity, and (4) downstream erosion due to increased carrying capacity of the stream, downstream changes in patterns of deposition, and changes in channel bed and habitat type.

Mitigation measures

- Sand mining will be restricted up to ~2.0 m below river bed / water table whichever less.
- The RBM will be done in unsaturated zone. Thus minimum loss to habitat.
- Dredging will not be allowed.

Sand Budget

Determining the sand budget for a particular stream reach requires site-specific topographic, hydrologic, and hydraulic information. This information is used to determine the amount of sand that can be removed from the area without causing undue erosion or degradation, either at the site or at a nearby location, upstream or downstream.

In-channel or near-channel sand mining changes the sediment budget, and may result in substantial changes in the channel hydraulics. These interventions can have variable effects on aquatic habitat, depending on the magnitude and frequency of the disturbance, mining methods, particle-size characteristics of the sediment, the characteristics of riparian vegetation, and the magnitude and frequency of hydrologic events following the disturbance.

Temporal and spatial responses of alluvial river systems are a function of geomorphic thresholds, feedbacks, lags, upstream or downstream transmission of disturbances, and geologic/physiographic

controls. Minimization of the negative effects of sand mining requires a detailed understanding of the response of the channel to mining disturbances.

Decisions on where to mine, how much and how often require the definition of a reference state, i.e., a minimally acceptable or agreed-upon physical and biological condition of the channel. Present understanding of alluvial systems is generally not sufficient to enable the prediction of channel responses quantitatively and with confidence; therefore, reference states are difficult to determine. Still, a general knowledge of fluvial processes can provide guidelines to minimize the detrimental effects of mining. Well-documented cases and related field data are required to properly assess physical, biological, and economic tradeoffs.

Mitigation measures

Quantities will be strictly limited so that sand recruitment and accumulation rates are sufficient to avoid extended impacts on channel morphology and in stream habitat. Although conceptually simple, annual sand recruitment to a particular site is highly variable and not well understood.

- Flow and sediment transport for most rivers and streams is highly variable from year-to-year, thus an annual average rate may be meaningless.
- An "annual average deposition rate" could bear little relation to the sediment transport regimes in a river in any given year.
- The site selection was done keeping the following points; minor mineral reserves, site specific problems like flooding, submergence crop lands / fields, need of excavation, rate of sediment deposition etc.
- Sand mining will be restricted up to ~2.0 m below bed / water table whichever less.

Construction Phase- There will be no impacts as no construction phase is involved in this project.

Operation Phase-

Impact on topography & Drainage:

- The mine working will remain confined to river bed only & in no case disturbing any surface area outside which may affect topography or drainage course.
- Mining pits will impact river bed topography by formation of excavation voids. This will be temporary & in first monsoon itself will be restored to its original ground hence mitigation measures.

- Mining will be done in a planned way i.e. collection of mineral/working shall be started from the central dip to rise & then laterally 1.0-meter slice so that river course will not get affected.
- Unwanted material including mineral or spillage (in any) will not be stacked on the bank side as it will hinder the flow of water in monsoon season.
- The mining from river bed will not have any impact on natural drainage of surrounding area as the excavated Sand from river bed is filled with first heavy flow in river during monsoon season.

Impact on Climate:

a) Temperature

The temperature pattern is a regional behavior & is not likely to be affected by river bed mining activity over a small area. Some local and temporary effect may be perceived due to movement of vehicles and equipment used.

b) Rainfall

The trend of rainfall forms part of regional pattern, not dependent on the relatively small area of river bed mining activity. The mining operation, therefore is not likely to have any adverse impact on rainfall pattern.

c) Humidity

The pattern of relative humidity depends mainly on the rainfall, wind temperature & other weather phenomenon that regional in behavior. The mining operation is not likely to have any impact on the relative humidity in the surrounding.

4.1 LAND ENVIRONMENT

No adverse impact is anticipated on land use of buffer zone due to present mining operations. As all the related activities are confined to the core zone.

The area likely to be degraded due to quarrying, pitting & roads. The impact on the land form or physiography will be limited to the modification of the slope. The landscape and land use will undergo a radical change due to open cast mining. The impact during next five years is limited as benches will be formed. Besides these benches, roads will also modify the physiography. The impact on land use will also be limited.

Impact on Land use Pattern including change of River course:

- If mining is not carried out in systematic manner by leaving sufficient safety barriers from the bank than it may disturb the river flow/course.
- Stacking of uncoated material including mineral or spillage (if any) on the bank side of river will hinder the flow of water in monsoon season, raise water level upstream, which may lead to bank cutting or flouting.
- Deviation from planned mining procedures can lead to river channel shifting as well as degradation of surrounding land, causing loss of properties & degradation of land scape.

Mitigation measures:

- Mineral will be mined out in central portion of stream & sufficient safety barrier 10% of width will be left towards bank side, so that river flow/course will not get disturbed.
- Mining of mineral will be started towards rise at the centre & also laterally in 1m slice so that river course will not get affected. Unwanted material or spillage (if any) will not be stacked by the side of excavation voids created. This is to be done so. Because it will otherwise hinder flow of water in monsoon period.
- Mining is to be done by leaving safety barrier on both sides & maximum barrier should be do concave side of river preferably the flow channel (excavation void created) should be kept straight to help avoid erosion as side cuttings, Upto next depth of 2.0 m from river bed level.

No waste water will be generated from the mining activities of minor minerals as the project. Only involves lifting of Sand from the river bed.

4.2 WATER ENVIRONMENT

Damage in the water body, depends on its assimilative capacity. To find out assimilative capacity of receiving water body, water samples were collected from different groundwater and surface water sources. The study indicates that assimilative capacity of the River water bodies still exists, but effective measures shall be taken to check water pollution. To find out the effect on ground water an extensive hydro-geological study has been conducted and from the study it can be safely concluded that there is no noticeable effect on surrounding ground water resource due to mining.

The mining activity does not require water. The collection of sand is done on the river bed where excessive sedimentation has been noticed.

Mining of sand from within or near a streambed has a direct impact on the stream's physical habitat characteristics. These characteristics include geometry, bed evaluation, substrate composition and stability, in stream roughness elements, depth, velocity, turbidity, sediment transport, stream discharge and temperature. Altering these habitat characteristics can have deleterious impacts on both in stream biota and associated riparian habitat.

The detrimental effects to biota resulting from bed material mining are caused by three main processes:

i. alteration of flow patterns resulting from modification of the river bed
ii. an excess of suspended sediment
iii. damage to riparian vegetation and in stream habitat

As the project activity is carried out in the meandering part of the river bed, none of the project activities affect the water environment or riparian habitats. In the projects, it is not proposed to divert or truncate any stream. No proposal is envisaged for pumping of water either from the river or tapping the ground water. In the lean months, the proposed sand mining will not expose the base flow of the river and hence, there will not be any adverse impact on surface hydrology and ground water regime due to this project. The contractor will adhere all guidelines and rules for proper and scientific method of mining during the period of extracting the ordinary sand. Thus, the project activities shall not have any adverse effect on the physical components of the environment and therefore may not have any effect on the recharge of ground waters or affect the water quality.

Impacts on hydrological Conditions:

- The study area is itself part of river course carries surface as well as ground water (under current). The flow of surface/ground water (sub surface flow is following the trend of topography.
- The area is part of dry river bed for more than nine months in a year except for the rainy season. The Sand mining is up to the depth of 2.0 m will have in significant impact on water regime.

- The general ground water table which will be about 3.0m below surface of river bed in the mining area during dry seasons will not be disturbed as ultimate working depth 2.0m.

Impact on Water Quality:

- Mining causes lowering of riverbed level as well as riverbed water level resulting in lowering in ground table due to excessive extraction & drainage out of ground water from the adjacent areas, if general ground water table is higher than the river bed level. In case the general ground water level is lower than riverbed water level, than it will have positive impact on ground water table will recharge vertically as well as laterally. In the former case may cause shortage of water for the vegetation & human settlement in the vicinity, but in later case it will help in improving situations
- River is recharging the ground water, excessive mining will reduce the thickness of the natural filter material (sediments), infiltration through which the ground water recharged, so restriction in depth becomes necessity.

Mitigation Measures:

Mining in the area will be done above the water table as well as river bed water level, therefore much impact on water regime is not anticipated.

4.3 AIR ENVIRONMENT

Anticipated impacts and evaluation

Information on air quality was studied and various modeling techniques predicted that the mining activity will not affect the air quality in a significant manner. In mining operations, loading, transportation and unloading operations may cause deterioration in air quality due to handling dry materials. In the present case, only wet materials will be handled, thus eliminating problems of fugitive dust. Also, the collection and lifting of minerals will be done by Semi-mechanized method/ OTFM without any blasting. Therefore, the dust generated is insignificant as compared to mining process of other hard minerals like the process of drilling, blasting, mechanized loading etc.

Mitigation measures

- In control the emission regular preventive maintenance of equipment will be carried out on contractual basis.
- Proper mitigation measures like water sprinkling will be adopted to control dust emission.
- Plantation will be carried out at a place which is authorized by local authority.
- It is being certified that all transportation vehicles will carry a valid PUC certified. The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads. This will decrease the dust emission by 75%.
- There is no toxic element present in the mineral which may contaminate the soil.

4.4 NOISE ENVIRONMENT

The sand mining projects are mainly not noisy as these are mainly manual in nature. But in this case the methodology adopted for mining is opencast semi mechanized mining method which may generate noise.

Impact on environment

At mines, noise is created by movement of machinery & transportation vehicles, etc. The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 4.1 Noise impact

Total time of exposure per day in hour	Sound pressure dB(A)	Remarks
1	2	3
8.0	90	No exposure in excess of 115 dB(A) is permissible
6.0	92	--
4.0	95	For any period of exposure falling in between any figure and lower figure as indicated in column (1), the
3.0	97	
2.0	100	
1 ½	102	

1	105	permissible sound is to be determined by extrapolation or proportionate scale.
¾	107	
½	110	
¼	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

a. Mitigation measures

The off-site receptors are not significantly affected as noise generated by mines is insignificant but for some disturbances due to vehicle movement. The following measures have been envisaged to reduce the impact from the transportation of minerals.

- Periodical monitoring of noise will be done.
- Transportation vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Noise generated by these Equipment shall be intermittent & does not cause much adverse impact.
- Proper maintenance of all equipment/machines will be carried out which help in reducing noise level during operations.
- In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones.

4.5 BIOLOGICAL ENVIRONMENT

Impact on Ecology of the Area

Excessive and unscientific Riverbed sand mining causes the degradation of rivers. Mining which leads to the removal of channel substrate, re-suspension of streambed sediment, clearance of vegetation, and stockpiling on the streambed, will have ecological impacts. These impacts may have an effect on the direct loss of stream reserve habitat, disturbances of species attached to streambed deposits, reduced light penetration, reduced primary production, and reduced feeding opportunities. Riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation

of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures

As the present mining will be done in a scientific manner as mentioned before, not much significant impact in predicted, however, the following mitigation measure will be taken to further minimize it.

- Re-suspension, turbulence, stream flow, channel substrate and associated species will be disturbed and lost due to proposed mining will disturbed existing pattern but in respect to river area is very minimum / less. The activity will mainly be carried out By semi-Mechanized to minimize associate loss, as stated earlier that the settling pit will be created to minimize the adverse impact downstream.
- No mining will be done near to important structure like bridges, dam and others.
- No mining will be carried out during the rainy season to minimize impact on aquatic life.
- As the mining site has no vegetation, thus clearance of vegetation not required.
- The mining activity will employ many heavy vehicles to transport the sand outside the mine to desired destination that cause the loss to riparian habitat. Safe site / site having less impact will be selected for transportation, all the vehicles will be employed for transportation purpose will be PUC certified. On closure / during the rainy season the eroded bank will be restored / reclaimed to minimize negative impacts.

Flora and Fauna of Riparian Habitat

If sand mining is done in an unscientific way, i.e beyond the replenishment capacity, riverbed mining can have adverse effects at the mine sites. The fertile streamside land will be lost gradually and the wildlife in the riparian areas may start vanishing. Degraded stream habitats will result in loss of fisheries productivity, biodiversity, and recreational potential. Thus, the severely degraded channels may lower the aesthetic value too.

Anthropogenic activities that artificially lower stream bed elevation cause bed instabilities that result in a net release of sediment in the local vicinity. Unstable sediments simplify and, therefore, degrade stream habitats for many aquatic species.

The most important effects of excessive and unscientific Riverbed sand mining on aquatic habitats are bed degradation and sedimentation, which can have substantial negative effects on aquatic life. The stability of sand-bed streams depends on a delicate balance between stream flow, sediment supplied from the watershed, and channel form. Mining-induced changes in sediment supply and channel form disrupt channel and habitat development processes. Furthermore, movement of unstable substrates results in downstream sedimentation of habitats. The affected distance depends on the intensity of mining, particles sizes, stream flows, and channel morphology. Channel widening causes swallowing of the streambed, producing braided flow or subsurface intergrades flow in riffle areas, hindering movement of fishes between pools. Channel reaches become more uniformly shallow as deep pools fill with gravel and other sediments, reducing habitat complexity, riffle-pool structure, and numbers of large predatory fishes.

All such impacts can be reduced by following scientific mining practices and mitigation measures as restricted.

Mitigation measures

Sand extraction operations will be managed to avoid or minimize damage to stream/river banks and riparian habitats

- Sand extraction in vegetated riparian areas will be avoided.
- Large woody debris in the riparian zone will be left undisturbed or replaced when moved and not be burnt.
- Sand stockpiles, overburden and/or vegetative debris will not be stored within the riparian zone.
- It is essential that overburden is evenly redistributed over exposed areas as soon as possible after the operation has been completed for faster revegetation.
- Operation and storage of heavy equipment within riparian habitat will be restricted.
- Access roads will not encroach into the riparian zones.

No exotic species will be introduced by the RBM project activity & associated persons at all.

As the mining will not be done beyond the stipulated limit, so the chances of river mouth widening, bank widening will be negligible. Thus, mining in a scientific and systematic way will reduce such impending effects.

4.6 SOCIO-ECONOMIC ENVIRONMENT

Impact on Human Settlement

- The villages & their inhabitants in the buffer zone will not be disturbed from their settlement due to mining operations.
- There is no inhabitation with in the area. Therefore, neither villagers nor any part of village or any hamlet will be disturbed during entire life of mining. As the mining operations will not disturb or relocate any village or settlement, no adverse impact is anticipated on any human.

Impact on Employment

- The area is considered as industrially backward. The preparation on general do not have opportunities of easing from employment. The only employment is depend on is agriculture, which is seasonal. In the absence of any high employment potential activities, the people are economically backward. The local people shall be employed for mining activities.
- The various indirect employment opportunities have also been generated. Several persons of neighboring villages would be benefited with contract work, employment through contractors, running on jeeps, trucks, tractors & buses on hire, different bird of shops & transport related business avenues.

Impact on Economic Status

- Some people shall be edged in trading of Sand. Therefore, due to mining of Sand, the per capita income of local people shall be improved. The local people shall be provided with either direct employments or indirect employment such as business, contract works & development work like roads etc. & other welfare amenities such as medical facilities conveyance, free education, and drinking water supply.
- The job/business opportunities shall improve the economic condition of the persons. They are in a position to utilize this money for propose of tractors, trucks, jeeps, etc., which may be put into use for business purpose. Part of the money shall also be utilized in starting of some business as per person's skill.

4.7 TRAFFIC ANALYSIS

Traffic analysis is carried out by understanding the existing carrying capacity of the roads near to the project site and the connecting main roads in the area. Then depending on the capacity of the mine, the number of trucks that will be added to the present scenario will be compared to the carrying capacity.

Table 4.2 (i): Existing No. of Day count Vehicles (inventory)

S.No.	Traffic Vehicle	No. of vehicles per day count SH-8	Factor	Equivalent Passenger Car Unit SH-8
1.	H.M.V	435	3	1305
2.	L.M.V	515	1	515
3.	Two/ three wheelers	530	0.5	265
4.	Others	0	-	0
	Total	980		2085

Table 4.2 (ii): Existing Traffic Scenario & LOS

Road	V	C	Existing V/C Ratio	LOS
Wazirganj-Bakshoti Rd (MDR)	2085	15000	0.13	B

V= Volume in PCU's/hrs. & C= Capacity in PCU's/ hrs.

The existing Level of Service is "A" i.e. "Excellent "

V/C	LOS	Performance
0.0 - 0.2	A	Excellent
0.2 - 0.4	B	Very Good
0.4 - 0.6	C	Good / Average / Fair
0.6 - 0.8	D	Poor
0.8 - 1.0	E	Very Poor

Note: Capacity as per IRC: 64-1990 page no 11-12 for arterial road/ Highways

During mine operation

Total capacity of mine : **1339200** TPA

No. of working days : 250 days

Per day capacity of mine : 5356.8 tonnes

Truck capacity	:	20 tonnes
No. of trucks deployed per day	:	267.84 trucks
No. of Trips/day to & fro	:	535.68 ~ 536
Considering both loaded & empty trucks		
Increase in PCU/day will be	:	1607.04

Table 4.2 (iii): Additional per day load due to proposed mining operation (inventory)

S.No.	Traffic Vehicle	No. of vehicles per day count SH-8	Factor	Equivalent Passenger Car Unit SH-8
1.	H.M.V	435 +536=971	3	2913
2.	L.M.V	515	1	515
3.	Two/ three wheelers	530	0.5	265
4.	Others	0	-	0
	Total	2016		3693

Table 4.2 (iv): Modified Traffic Scenario & LOS

Road	V	C	Existing V/C Ratio	LOS
SH-8	3693	15000	0.24	B

Results

From the above analysis it can be seen that the V/C ratio will change from 0.13 to 0.24 for SH – 8 with LOS Changing from “A” to “B” which is Very good. So the additional load on the carrying capacity will be not affected on MDR as such and will be affected to a minimum level on SH – 8 and village road, temporarily.

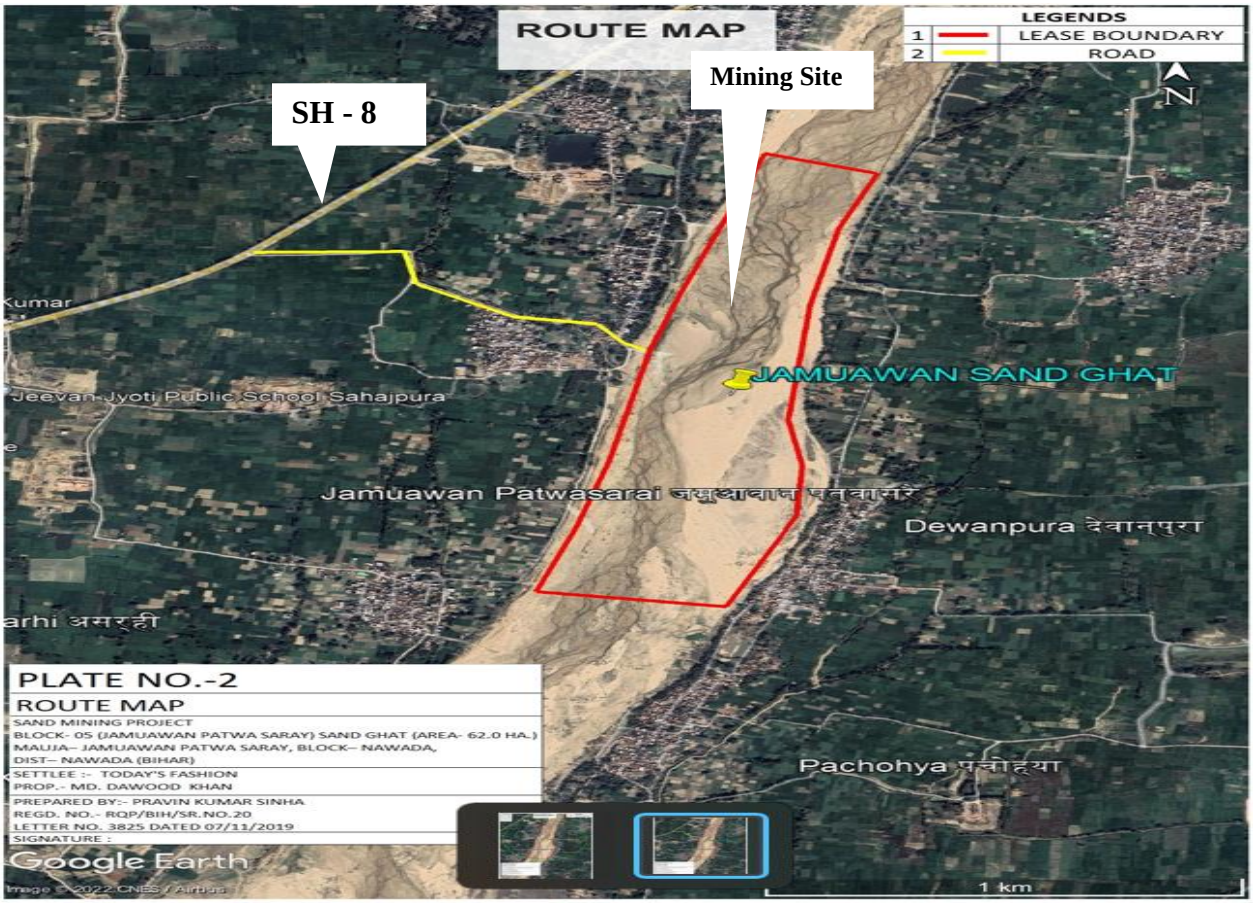

Figure- 4.1 Transportation Route Map of the Study Area

4.8 PUBLIC HEALTH IMPLICATIONS

With the mitigation measures in relation to air pollution, water pollution, soil contamination and noise pollution proposed to be adopted at the mine along with plantation and other SER activities, with green belt plantation along the place which authorized by local authority, it is expected that there will be no impact of mining on the population in the impact zone. However, the following measures shall be adopted:

- Health check of all villagers in the immediate vicinity of the mine shall be carried out periodically.
- Surface water management shall be adopted to ensure that run-off from the mining are does not adversely affect natural water streams or other water bodies.
- All water bodies e.g. wells and surface water sources in the vicinity of the mine, shall be periodically tested for any pollution related to mining operations and remedial action

taken, if warranted.

- Operators of all transport vehicles shall be instructed not to honk unnecessarily and not over speed while passing through villages or near schools.

4.9 STATUATORY REQUIREMENTS

It is accepted that effective resource management cannot be done in isolation. The Department therefore pursues approaches towards coordination and integration where possible, which has led to coordinated regulatory systems.

A regulatory system consists of both statutory and non-statutory components. In the Sectoral-specific strategy for prospecting and mining, the Department participates within an integrated environmental management system which is administered in terms of the Acts and Rules. Other Acts dealing with matters relating to the conservation and protection of the environment and which a holder of a mining authorization must also take cognizance of include *inter alia*, the following:

- The Mines Act, 1952
- The Mines and Mineral (Development and Regulation) Act, 1957
- Mines Rules, 1955
- Mineral Concession Rules, 1960
- Mineral Conservation and Development Rules, 1988
- Bihar Minor Mineral Concession Rule, 2014
- The Water (Prevention and Control of Pollution) Act, 1974
- The Air (Prevention and Control of Pollution) Act, 1981
- The Environment (Protection) Act, 1986
- The Forest (Conservation) Act, 1980
- The Wildlife (Protection) Act, 1972

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CHAPTER-V

ANALYSIS OF ALTERNATIVES (TECHNOLOGY & SITE)

INDEX

5.0 GENERAL

Examination of alternatives of technology and Site are an utmost important part for assuring that the project has long term sustainability, especially large projects, which involves a lot of money, manpower & their safety and nature, value of minerals & environmental hazards. River bank mining is a very simple operation needing extraction of sand from river bank which does not need much mechanization or drilling and blasting.

Sand bed mining is a site-specific project depending upon the geological set up and mineable portion of the river. Being inside the river meandering course, no objects of economic or ecological importance are disturbed. The area allotted is with abundant mineral reserve and hence auctioned by the state. Hence, there is not much scope for site alternative.

For the mining operation, which is semi mechanized in nature, no alternative technology has been adopted. As this leads to high employment potential of local habitants. Thus, it will have more acceptability and help in socio economic upliftment of the area.

Therefore, the opencast semi-mechanized extraction of sand at the selected site is adopted.

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CHAPTER-VI

ENVIRONMENTAL MONITORING PROGRAMME

INDEX

6.0 INTRODUCTION

The industrial development of any area needs to be intertwined with judicious utilization of non-renewable resources of the study area and within the limits of permissible assimilative capacity. The assimilative capacity of the study area is the maximum amount of pollution load that can be discharged into the environment without affecting the designated use and is governed by dilution, dispersion and removal due to physico-chemical and biological processes.

Regular monitoring of the various environmental parameters is necessary to evaluate the effectiveness of the management programme so that the necessary corrective measures can be taken in case there are some drawbacks in the proposed programme. Since environmental quality parameters at work zone and surrounding areas are important for maintaining sound operating practices of the project in conformity with environmental regulations, the post project monitoring work forms part of Environmental Monitoring Program.

Environmental Monitoring Program will be implemented once the project activity commences. Environmental monitoring program includes

(i) Environmental surveillance,
(ii) Analysis & interpretation of data,
(iii) Preparation of reports to support environmental management system and
(iv) Organizational set up responsible for the implementation of the programme.

The Environment Monitoring Programme is required to ensure sustainable development in the study area (10 km) of the project site, hence it needs to be an all-encompassing plan for which the plant authorities, Government, Regulating agencies like Pollution Control Board etc. working in the region and more importantly the affected population of the study area need to extend their co-operation and contribution.

6.1 ENVIRONMENTAL MONITORING AND REPORTING PROCEDURE

Monitoring shall confirm that commitments are being met. This may take the form of direct measurement and recording of quantitative information, such as amounts and concentrations of

discharges and wastes, for measurement against corporate or statutory standards, consent limits or targets. It may also require measurement of ambient environmental quality in the vicinity of a site using ecological/biological, physical and chemical indicators. Monitoring may include socio-economic interaction, through local liaison activities or even assessment of complaints. The preventive approach to environment management may also require monitoring of process inputs, for example, type and method used, resource consumption, equipment and pollution control performance etc.

The key aims of environment monitoring are:

1. To ensure that results /conditions are as forecast during the planning stage, and where they are not, to pinpoint the cause and implement action to remedy the situation.
2. To verify the evaluations made during the planning process, in particular with risk and impact assessments and standard & target setting and to measure operational and process efficiency.
3. Monitoring will also be required to meet compliance with statutory and corporate requirements.
4. Finally, monitoring results provide the basis for auditing i.e. to identify unexpected changes.

The said team will be responsible for:

i. Collecting water and air samples from surrounding area and work zone monitoring for pollutants.
ii. Analyzing the water and air samples.
iii. Implementing the control and protective measures.
iv. Co-coordinating the environment related activities within the project as well as with outside agencies.
v. Collecting statistics of health of workers and population of surrounding villages.
vi. Monitoring the progress of implementation of environmental management program.

The laboratory will be suitably equipped for sampling/testing for various environmental pollutants.

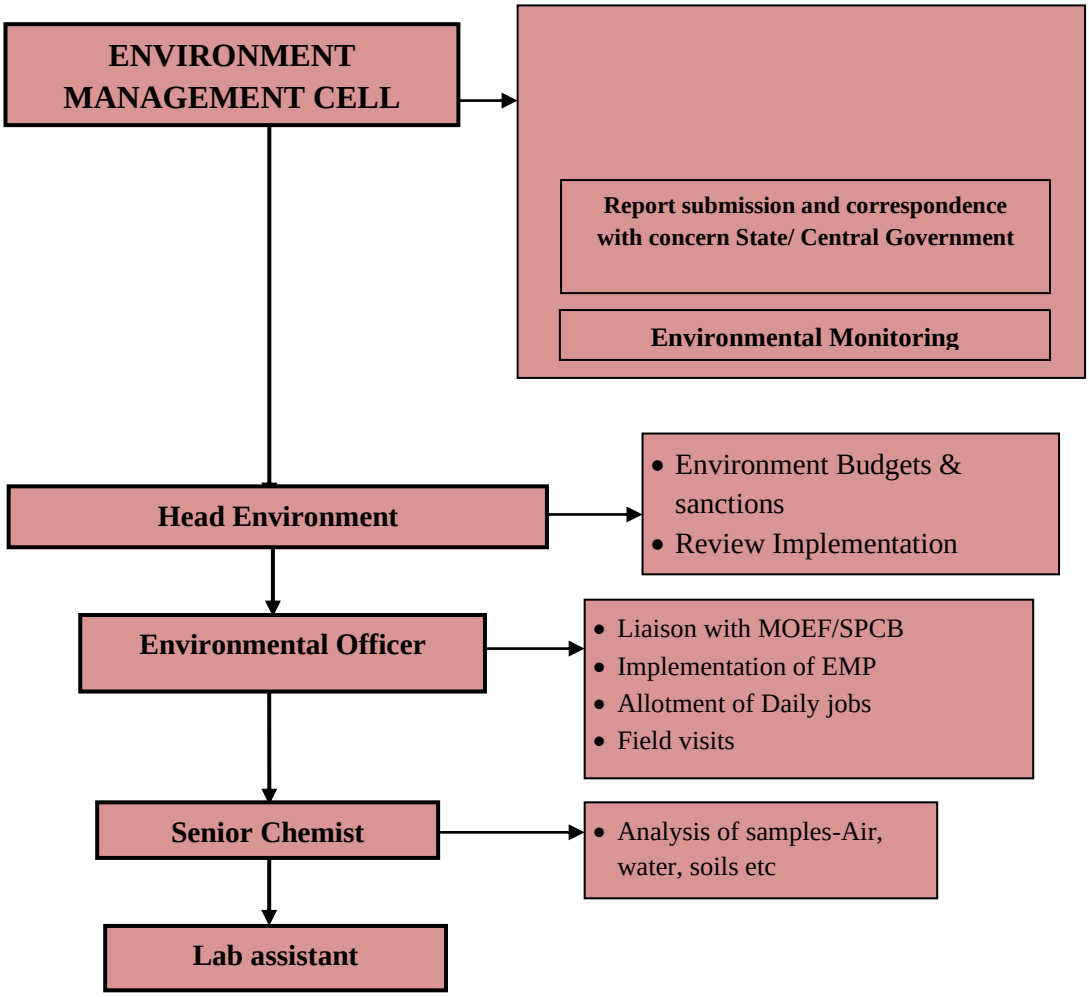

Fig. 6.1 Function of Environmental Management Cell

6.2 MONITORING METHODOLOGIES AND PARAMETERS

Air Quality Monitoring

Air Quality monitoring is essential for evaluation of the effectiveness of abatement programme and to develop appropriate control measures. Suspended Particulate Matter (PM_{10}&$PM_{2.5}$), Sulphur Dioxide (SO_2) and Nitrogen Dioxide (NO_2) will be monitored at the workplace i.e., core zone. The methodology proposed for is shown below:

Parameters	Technique	Technical Protocol

$PM_{2.5}$	Gravimetric method	**CPCB Guideline Vol. I May' 2011**
PM_{10}	Gravimetric method	**IS 5182 (Part-XXIII)**
Sulphur Dioxide	Improved West and Gaeke	**IS-5182 (Part-II)**
Nitrogen Dioxide	Modified Jacob &Hoch heiser	**IS-5182 (Part-VI)**

Water Quality monitoring

Water quality monitoring involves periodical assessment of quality of surface water and the ground water near the mining project. Surface water samples will be analyzed for all the parameters as per EPA, 1986 ground water samples will be analyzed for all the parameters as per IS-10500.

Phreatic surface levels will be monitored through out the life of the project to study the impact of mining operations on ground water regime. A network of observation wells will be located in the villages around the projects area for monitoring of phreatic surface levels. The water levels will be monitored during pre-monsoon and post-monsoon seasons four times in a year.

Noise Level Monitoring

Noise level monitoring will be done for achieving the following objectives:

a) To compare sound levels with the values specified in noise regulations
b) To determine the need and extent of noises control of various noise generating sources
c) Correlation of noise levels with community response to noise levels

Noise level monitoring will be done at the work zone to assess the occupational noise exposure levels. Noise levels will also be monitored at the noise generating sources like mineral handling arrangements, vehicle movements and also nearby villages for studying the impact due to higher noise levels for taking necessary control measures at the source.

Soil Quality Monitoring

The soil quality monitoring is carried out to assess the soil characteristic. The soil quality will be analysed as per CPCB norms.

Socio-economic Survey

Socio economic condition will be monitored to assess the demographic particulars of the area including the impacts on the social & economical condition on the residents nearby.

Plantation monitoring programme

Plantation monitoring will be done to ensure survival & growth rate of plantations.

6.3 MONITORING SCHEDULE

The schedule has been shown below for the parameters proposed for monitoring.

Table 6.1: Monitoring Schedule and Parameters

S.No.	Description of Parameters	Schedule of Monitoring
1	Air Quality	24 hourly samples twice a week in each season except monsoon
2	Water Quality (Surface &Groundwater)	Twice a year
3	Soil Quality	Once in a year in project area
4	Noise Level	Twice a year for first two years & then once a year
5	Socio-economic Condition	Once in 3 years
6	Plantation monitoring	Once in a season

6.4 MONITORING SCHEDULE IMPLEMENTATION

An implementation programme has been prepared as it serves no purpose if it is not implemented in letter and spirit. The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management should strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas:

a) Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
b) Collection of soil samples at strategic locations once every two years and analysis thereof with regard to deleterious constituents, if any.
c) Measurement of water level fluctuations in the nearby ponds dug wells and bore wells and to assess if mining has got any impact on it or not.
d) Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done twice a year for first two years and thereafter once a year.
e) Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people should also be involved.

An Environmental Management Cell (EMC) is envisaged which will be responsible for monitoring EMP and its implementation. EMC members should meet periodically to assess the progress and analyze the data collected during the month.

6.5 BUDGET ALLOCATION FOR MONITORING

The EMC will be responsible to carry on the monitoring. Budget allocated has also been proposed for the same:

Table 6.2 Budget allotted for Monitoring

S. No	Description	Capital Cost (INR)	Recurring Cost(INR)
2	Pollution Monitoring i) Air pollution ii) Water pollution iii)Soil iv) Noise Pollution	--	200000/-

6.6 REPORTING SCHEDULES OF THE MONITORING DATA

It is proposed that voluntary reporting of environmental performance with reference to the EMP to be undertaken. The environmental monitoring cell will co-ordinate all monitoring programmes at site to furnish the data to the State regulatory agencies regularly in respect of the stipulated prior environmental clearance terms and conditions.

The proponent shall prominently advertise in the newspapers indicating that the project has been accorded environmental clearance and also the details of website where it is displayed.

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CHAPTER-VII

ADDITIONAL STUDIES

INDEX

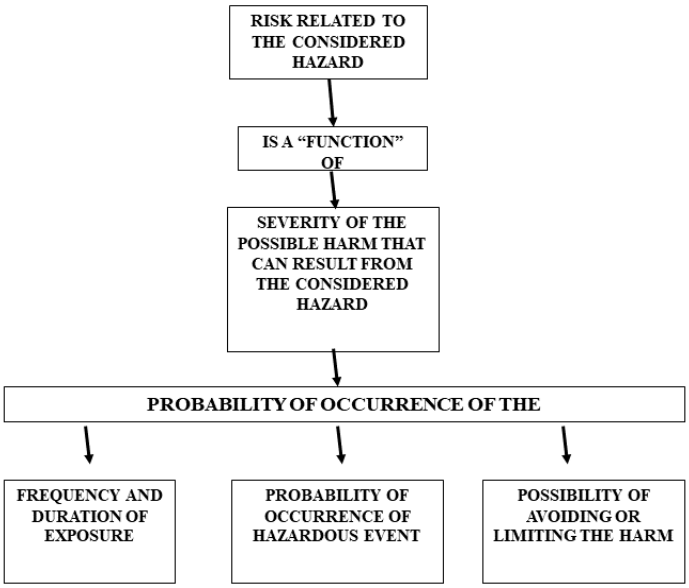
7.0 PUBLIC CONSULTATION

Public Hearing details will be incorporated in Final EIA report after conducting of Public Hearing.

7.1 HAZARD IDENTIFICATION AND RISK ASSESSMENT METHODOLOGY

A) RISK

Risk analysis is the systematic study of uncertainties and risks encountered in various areas. Risk analysis is to identify the risks involved in mining operations at various phases. Potential locations and activities around the proposed site are identified and probable risks are estimated on a person, business and Govt. establishment.



Tolerable risk: Risk which is accepted in a given context based on the current values of society

Protective measure: The combination of risk reduction strategies taken to achieve at least the tolerable risk. Protective measures include risk reduction by inherent safety, protective devices, and personal protective equipment, information for use and installation and training.

Severity: Severity is used for the degree of something undesirable.

Risk Analysis: A systematic use of available information to determine how often specified events may occur and the magnitude of their likely consequences.

The different steps of risk assessment procedure are as given below:

Step I: Hazard Identification

The purpose of hazard identification is to identify and develop a list of hazards for each job in the organization that are reasonably likely to expose people to injury, illness or disease if not effectively controlled. Workers can then be informed of these hazards and controls put in place to protect workers prior to them being exposed to the actual hazard.

Step II: Risk Assessment

Risk assessment is the process used to determine the likelihood that people exposed to injury, illness or disease in the workplace arising from any situation identified during the hazard identification process prior to consideration or implementation of control measures. Risk occurs when a person is exposed to a hazard. Risk is the likelihood that exposure to a hazard will lead to injury or health issues. It is a measure of probability and potential severity of harm or loss.

Step III: Risk Control

Risk control is the process used to identify, develop, implement and continually review all practicable measures for eliminating or reducing the likelihood of an injury, illness or diseases in the workplace.

Step IV: Implementation of risk controls

All hazards that have been assessed should be dealt in order of priority in one or more of the following hierarchy of controls

The most effective methods of control are:

i. Elimination of hazards
ii. Substitute something safer
iii. Use engineering/design controls
iv. Use administrative controls such as safe work procedures

v. Protect the workers i.e. By ensuring competence through supervision and training, etc.

Each measure must have a designated person and date assigned for the implementation of controls. This ensures that all required safety measures will be completed.

Step V: Monitor and Review

Hazard identification, risk assessment and control are an on-going process. Therefore regular review of effectiveness of the hazard assessment and control measures is to be done. Make sure that you undertake a hazard and risk assessment when there is change to the workplace including when work systems, tools, machinery or equipment changes. Provide additional supervision when the new employees with reduced skill levels or knowledge are introduced to the workplace.

B) RISK ANALYSIS

The risk assessment portion of the process involves three levels of site evaluation:

a) Initial Site Evaluation,

b) Detailed Site Evaluation,

c) Priority Site Investigations and Recommendations.

The risk assessment criteria used for all levels of site evaluation take into account two basic factors:

- The existing site conditions
- The level of the travelling public's exposure to those conditions.

The Initial Site Evaluation and Detailed Site Evaluation both apply weighted criteria to the existing information and information obtained from one site visit. The Initial Site Evaluation subdivides the initial inventory listing of sites into 5 risk assessment site groups. The Detailed Site Evaluation risk assessment is then performed on each of the three highest risk site groups in order of the group priority level of risk. The result of the Detailed Site Evaluation process is a prioritized listing of the sites within each of the three highest risk site groups.

Risk analysis is done for:

- Forecasting any unwanted situation
- Estimating damage potential of such situation
- Decision making to control such situation
- Evaluating effectiveness of control measures

C) ACCEPTABLE RISK

Risk that is acceptable to regulatory agency and also to the public is called acceptable risk. There are no formally recognized regulatory criteria for risk to personnel in the mining industry. Individual organizations have developed criteria for employee risk and the concepts originally arising from industries. Because of the uncertainties linked with probabilistic risk analysis used for quantification of the risk levels the general guiding principle is that the risk be reduced to a level considered

As Low as Reasonably Practicable (ALARP). The risk acceptability criteria are given in following Table. It can be seen that there are three tiers:

a) A tolerable region where risk has been shown to be negligible and comparable with everyday risks such as travel to work.
b) A middle level where it is shown the risk has been reduced to As Low As Reasonably Practicable level and that further risk reduction is either impracticable or the cost is grossly disproportionate to the improvement gained. This is referred as the ALARP region.
c) An intolerable region where risk cannot be justified on any grounds. The ALARP region is kept sufficiently extensive to allow for flexibility in decision making and allow for the positive management initiatives which may not be quantifiable in terms of risk reduction.

Table-7.1 the risk acceptability criteria

1	Risk un acceptance and must be reduced. The actions may include equipments and people or procedural measures. If risk cannot be reduced to ALARP level, operating philosophy must be fundamentally reviewed by the management.	**Intolerable Region**

2	Efforts must be made to reduce risk further and to as low as reasonably practicable, without expenditure that is grossly disproportionate to the benefit gained	**ALARP Region (As Low as Reasonably Practicable)**
3	Risk level is so low as to not require actions to reduce its magnitude further.	**Tolerable Region**

A logical systematic process is usually followed during a qualitative risk assessment to identify the key risk events and to assess the consequences of the events occurring and the likelihood of their occurrence.

Table 7.2: Qualitative Risk Assessment

Risk Rank X	**L1 Almost certain**	**L2 Likely**	**L3 Possible**	**L4 Unlikely**	**L5 Rare**
C1	**1**	**2**	**4**	**7**	**11**
C2	**3**	**5**	**8**	**12**	**16**
C3	**6**	**9**	**13**	**17**	**20**
C4	**10**	**14**	**18**	**21**	**23**
C5	**15**	**19**	**22**	**24**	**25**

RISK RATING:

High Risk: 1-6

Medium Risk: 7-15

Low Risk: 16-25

7.2 POTENTIAL HAZARDS & 'ALARP' CONDITION

Mining and allied activities are associated with several potential hazards and risk to both the employees and the public at large. A worker in a mine should be able to work under "**ALARP**" conditions (as stated above), which are adequately safe and healthy. At the same time the environmental conditions should be such as not to be impair his working efficiency. This is possible only when there is adequate safety in mines.

7.3 RISK PRIORITISATION BASED ON HAZARDS

There are various factors, which can create unsafe working conditions/hazards in mining of minor minerals from river bed.

The key risk (hazard x probability) event rating associated with sand bed mining and to assess its consequences of such events occurring and the likelihood based on above Table are as:-

The Risk rating of such hazards is as follows:

a) Inundation / Flooding (C1 xL3=4)
b) Drowning. (C5 xL5=25)
c) Accident due to vehicular movement.(C3 xL3=13)
d) Accident during sand loading, transporting and dumping=14. (i.e., C4 xL2=14)

7.3.1 Accident during sand/mineral loading, transportation

The risk rating assigned to this activity is assigned as “14 i.e. it is likely event with minor consequences”, as frequency of this operation is more but the predicted/assumed intensity (Based on experience) is less like minor cuts, abrasion, fall due to river bank collapse & falling of cattle’s, if not under proper supervision to bring under ALARP ZONE.

a) There is possibility of injury in to the workers during excavation & loading of minerals.
b) There is possibility that the workers standing on the other side of loading may get injury due to over thrown sand with pebbles.
c) There is possibility of workers getting injured during opening of side covers to facilitate loading.
d) There is possibility of riverbank collapse.
e) There are chances of falling of cattle/children into pits in river bed by overlooking of fenced area near worksite or improper supervision.

7.3.2 Accident due to vehicular movement

The risk rating assigned to this activity is assigned as 13 i.e., it is possible event with moderate consequences as frequency of this operation is more but the predicted/assumed intensity (Based

on experience) is less like minor cuts, bodily injury due to reckless or untrained driver. However, a strict control to be exercised to deploy trained drivers with valid driving license with a helper. A strict supervision/control to be exercised to avoid drunken driving or driving by unauthorized person to bring under ALARP ZONE.

The minerals loaded in trucks are being sent to through public roads.

a) All possibilities of road accidents are possible due to rash driving.
b) Accident may also occur during movement in the haul road, in case pathway is not compacted suitably or movement is at the embankment.
c) There are possibilities that due to overloading. Some pebbles or big boulder may injure the passerby public. In case Traffic & vehicle load bearing licensed capacity is neglected.

7.3.3 Inundation/Flooding

The risk rating assigned to this activity is assigned as 4(C1 xL3=4) i.e., it is only possible, if warnings are neglected and work started without assessment of the river bed condition specially during monsoon season ,the event will be catastrophic with major consequences as frequency of this operation is possible. However the event has to be brought under 'ALARP' Zone by strict supervision based on river water and other metrological data.

a) The possibility of inundation/flooding of the mines are very high during monsoon or during heavy rains as the mine area lies in the riverbed.
b) There is danger to the workers working in the mines.
c) There is also danger to the trucks and other machineries due to flooding.
d) Inundation or flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

7.3.4 Drowning

The risk rating assigned to this activity is assigned as 25 i.e., it is insignificant due to dry season mining. There are no possibilities of drowning in the river, since mining operations are carried out only in the dry portion of the river and all mining activities will be stopped during the monsoon season.

7.4 OCCUPATIONAL HEALTH HAZARDS

Dry- pit mining by open cast method involves dust generation by excavation, loading and transportation of mineral. At site, during excavation and loading activity, dust is main pollutant which affects the health of workers whereas environmental and climatic conditions also generate the health problems. Addressing the occupational health hazard means gaining an understanding of the source (its location and magnitude or concentration), identifying an exposure pathway (e.g. a means to get it in contact with someone), and determination of likely a receptor (someone receiving the stuff that is migrating).

Occupational hazard due to mining mainly comes under the physical hazards. Possible physical hazards are as below mention:-

Physical hazards due to mining operations

Following health related hazards were identified mining operations to the workers:-

1. **Light: -** The workers may be exposed to the risk of poor illumination or excessive brightness. The effects are eye strain, headache, eye pain and lachrymation, congestion around the cornea and eye fatigue.
2. **Heat and Humidity: -** The most common physical hazard is heat. The direct effects of heat exposure are burns, heat exhaustion, heat stroke and heat cramps; the indirect effects are decreased efficiency, increased fatigue and enhanced accident rates. Heat and humidity are encountered in hot and humid condition when temperatures and air temperatures increase in summer time up to 48°C or above mining area.
3. **Eye Irritation: -** During the high windy days in summer the dust could be the problems for eyes like itching and watering of eyes.
4. **Respiratory Problems: -** Large amounts of dust in air can be a health hazard, exacerbating respiratory disorders such as asthma and irritating the lungs and bronchial passages.
5. **Noise Induced Hearing Loss: -** Machinery is the main source of noise pollution at the mine site. Too much noise from the machines can induce loss of hearing.

Table-7.3: Management of Health Hazards

Particulars	Control Measures
Heat & Light	The mine site will have adequate drinking water supply so that workers do not get dehydration. • Awareness will be created to wear lightweight and loose-fitting clothes having light colors.
Noise	Vehicles will be maintained properly. Greasing oiling will be done regularly. The personal protective equipment will be provided for each mine workers. Supervisor will be instructed for reporting any problems with hearing protectors or noise control equipment. Haul road will be leveled and maintained daily.
Respiratory	Pack cabin will be given to the excavator operator with the sun glass and mask. PPE like face mask etc. will be provided during mining activity. Periodic medical examinations will be provided for all workers. Awareness program will be organized for workers. Control of dust through water spraying.

Occupational health and Safety programme of the workers shall be undertaken periodically to observe any contractions due to exposure to dust and take corrective measures if required.

7.5 ADDITIONAL MITIGATION MAJORS TO BRING HAZARDS UNDER "ALARP" ZONE

7.5.1 Measures to Prevent Accidents during Loading

- The truck should be brought to a lower level so that the loading operation suits to the ergonomic condition of the workers.
- The loading should be done from one side of the truck only.
- The workers should be provided with gloves and safety shoes during loading.
- Opening of the side covers (pattas) should be done carefully and with warning to prevent injury to the loaders.
- Operations during daylight only.

- No foreign material should be allowed to remain/spill in river bed and catchment area, or no pits/pockets are allowed to be filled with such material.
- Stockpiling of minerals on the river bank should be avoided.

7.5.2 Measures to prevent accidents during transportation

- All transportation within the main working will be carried out directly under the supervision and control of the management.
- The vehicles will be maintained in good repairs and checked thoroughly at regular intervals by the competent person authorized for the purpose by the Management.
- To avoid danger while reversing the vehicles especially at the embankment and tipping points, the areas for reversing of lorries will be made man free as far as possible.
- The truck will be covered and maintained to prevent any spillage and no overloading will be permitted.
- The maximum permissible speed limit will be ensured.
- The truck drivers will have proper driving license.
- A statutory provision of the fences, constant education, training etc. will go a long way in reducing the incidents of such accidents.

7.5.3 Measures to prevent Dangerous Incidents during Inundation/Flooding

Inundation of flooding is expected and beneficial for these mines as during this time only the mineral reserve gets replenished.

- During monsoon months and heavy rains the mining operations will be ceased.
- There would be mechanism/warning system of heavy rains and discharges from the upstream dams to make the workers alert.

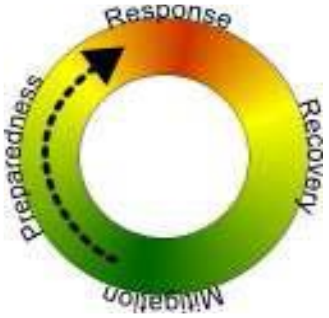
7.5.4 Measure to Prevent Drowning

- The mining should be done under strict supervision and only during the dry season.
- Deep water areas must be identified.
- No go zones should be clearly marked and made aware to the mine workers.

- Signages will be erected if there is any steep slopes or existing pits, so that there is no movement in that area.

7.6 DISASTER MANAGEMENT PLAN

This should deal with action plan for high risk accidents like landslides, subsidence, flood, in underground mines, fire, seismic activities, tailing dam failures etc. and emergency plan proposed for quick evacuation, ameliorative measures to be taken etc. The capability of lessee to meet such eventualities and the assistance to be required from the local authorities should be described.



- Communication plans with easily understandable terminology and methods.
- Proper maintenance and training of emergency services, including mass human resources such as community emergency response teams.
- Development and exercise of emergency population warning methods combined with emergency shelters and evacuation plans
- Develop organizations of trained volunteers among civilian populations.

7.6.1 Natural Hazards Floods:

Flood events are a part of nature. They mostly occur in the monsoon season at times of heavy rainfall. No Mining Shall be done in Rainy Season.

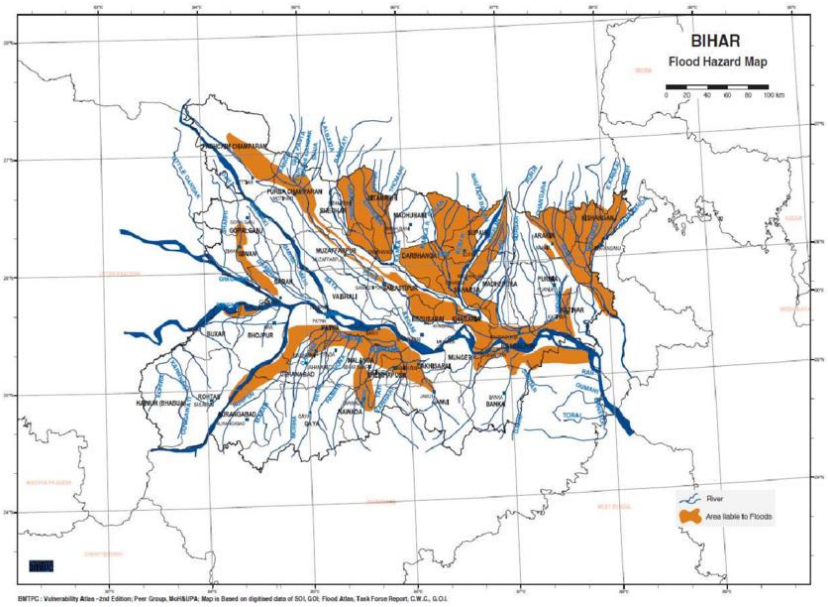


Figure 7.1 Flood Map of Bihar

The region experiences heavy rainfall and due to water collection of the catchment area of various rivers, the proposed site may be prone to flood hazards during monsoon. As floods during rainy season are common and the district has minor flood risk, there are some chances of flood. A DMP will be in place to deal with any such occurrences.

Following Precautionary Measures will be undertaken:

- Storm water system will be checked and cleaned periodically
- Storm water network will be meticulously cleaned before the onset of monsoon

Earthquakes: An Earthquake is a sudden, rapid shaking of the earth caused by the breaking and shifting of rocks beneath the earth surface.

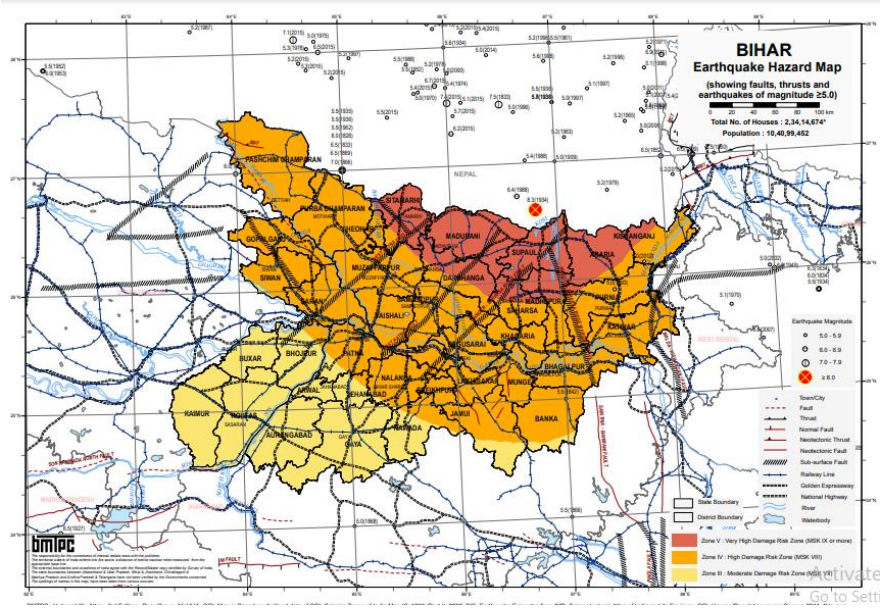
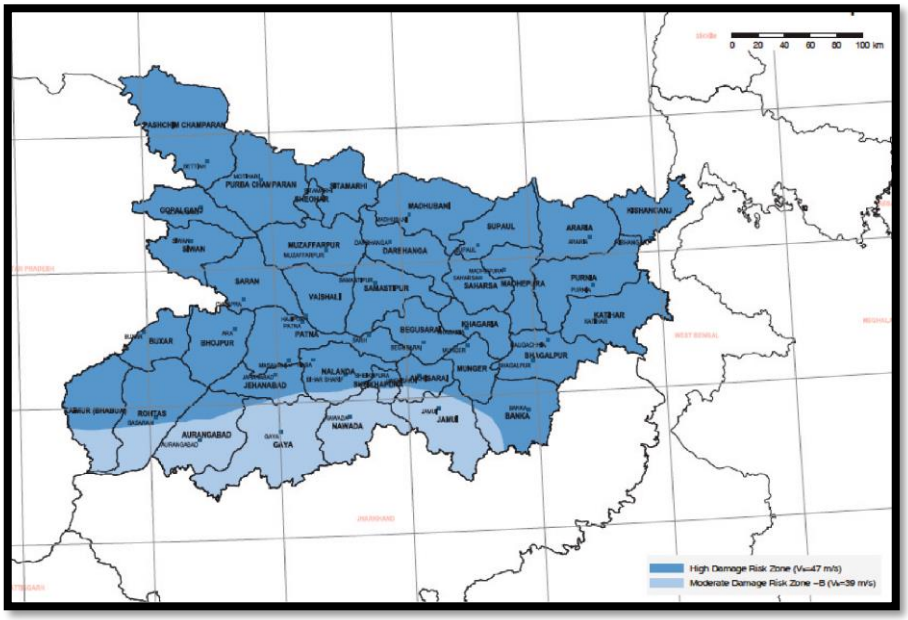


Figure 7.2 Earthquakes Map of Bihar

Based on the above figure, it is observed that proposed project lies in moderate damage risk zone. Nawada district has experienced earthquakes rarely and with less intensity. Since the district lies in Seismic Zone III – Moderate Damage Risk Zone, hence earthquakes are not major risks for the proposed project.

Cyclone: Cyclones are huge revolving storms caused by winds blowing around a central area of low atmospheric pressure. Cyclone is a storm accompanied by the high-speed wind. It brings torrential rains and creates several dangers for people living around tropical areas. These winds are strong enough to easily topple fences, sheds, trees, power poles and caravans, while hurling helpless people through the air.

It is observed that Nawada district lies under very high-speed winds zone. As detailed in the Vulnerability Atlas of India, 27 districts in Bihar are fully affected by high-speed winds of 47 m/s intensity. Districts of South Bihar except Nawada are partly affected by high-speed winds of 44 m/s. Nawada In all 86 percent of the total area of Bihar is prone to high-speed winds of 47 m/s intensity and only 14 percent of the area prone to high-speed winds of lesser intensity. The probability of the cyclonic depression is very high in the study area. Hence, the structures will be designed keeping in mind the cyclonic risks.



Precautionary Measures to be undertaken:

- The complete mining operation will be carried out under the Management and control of experienced and qualified Mines Manager having Certificate of Competency to manage the mines granted by DGMS.
- All the provisions of Mines Act 1952, MMR 1961 and Mines Rules 1955 and other laws applicable to mine will strictly be complied with.
- During heavy rainfall the mining activities will be ceased.
- All persons in supervisory capacity will be provided with proper communication facilities.
- Periodic drills and training will be provided to the workers and supervisors to react at the time of disaster.
- Detailed warning system, implementation procedure, emergency control centre would be maintained at the mine with names of trained persons.
- Details and availability of heavy machinery, fire-fighting equipment would be available at the site.
- Proper arrangements would be made for treatment of injured person with first aid, if any.

- All the safety equipment will be made available at the mine.

7.7 NATURAL RESOURCE CONSERVATION

Mining at the concave side of the river channel should be avoided to prevent bank erosion. Similarly meandering segment of a river should be selected for mining in such a way as to avoid natural eroding banks and to promote mining on naturally building (aggrading) meander components.

CHAPTER-VIII

PROJECT BENEFITS

INDEX

8.0 GENERAL

The operation of the project will protect against widening of river channel and flooding of adjoining areas due to non removal of sediments which have been accumulating over years, naturally. It will bring overall improvement in the locality, neighborhood and the state by bringing industry, roads, water supply, electricity, employment, living standard and economic growth.

8.1 PHYSICAL BENEFITS

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas.

a. **Road Transport:** There will be improved road communication due to the proposed project and maintenance will also be done time to time.
b. **Market:** Generating useful economic resource for construction. Excavated mineral will provide a good market opportunity.
c. **Enhancement of green cover:** As a part of reclamation plan, plantation will be carried along the places in consultation with local authority.
d. **Creation of community assets** (infrastructure) like provision for drinking water, construction of school buildings, village roads/ linked roads, dispensary & health center, community center, market place etc, as a part of corporate social responsibility.

The impact on the civic amenities will be substantial after the commencement of mining activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the community, providing drinking water to the villages, building/strengthening of existing roads in the area. The proponent will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

8.2 SOCIAL BENEFITS

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.
- There will be significant change in the socio-economic scenario of the area.

- The proposed project will enhance the prospects of employment. Recruitment for the unskilled and semiskilled workers for the proposed project will be from the nearby villages.
- The development of the basic amenities viz. roads, transportation, electricity, drinking water, proper sanitation, educational institutions, medical facilities, entertainment, etc. will be developed as far as possible.
- Overall, the proposed project will change living standards of the people and improve the socio-economic conditions of the area.

A) Employment Potential- The employment of local people in primary and secondary sectors of project will upgrade the prosperity of the region. These will in-turn improves the socio-economic conditions of the area. The total manpower required for the proposed mining project under various categories is 60 persons, who will be mainly sourced from local community in and around mining project and few technical persons will be employed during operational phase from near by area. In addition to the above, contractual labour and indirect employment opportunities will also be getting benefited after installation of mining project.

Table 8.1 Employment detail

S. No.	Category	Numbers
1.	Administration	1
2.	Supervisor	2
3.	Skilled	12
4.	Un-skilled	45
TOTAL		**60**

B) Contribution to the Exchequer as the saleable minerals will be given royalty. Since the quarries have been auctioned and leased out to successful allottees, mining operation in the state will get legalized and it will fetch income to the state exchequer.

C) Increased Health related activities: Healthcare promotional activities will be undertaken. Pre-placement & and Periodic medical checkups will be done, which will lift the general health status of the residents of the area. Health camps, medical aids, family welfare programs, immunization camp sports will be arranged.

D) Educational attainments: Educational activities will be promoted by the lessee. Awareness program will be arranged covering basic issues related to primary level education, environment, health and hygiene etc.

E) Strengthening of existing community facilities through the Community Development Programme.

Table 8.2 Budget for Public Health

S. No.	Activity	Tentative Cost
1.	Awareness campaigns regarding health issues in the nearby villages.	1,20,000
2.	Provide free health checkups & medicines to the nearby villagers of the project site	1,00,000
3.	Assistance to set up a temporary health center during the lease tenure	1,50,000
	Total	**3,70,000**

Table 8.2 Budget for Occupational Health

S. No.	Activity	Tentative Cost
1.	For Routine Checkup	1,00,000
2.	Medical aid as per ESI Scheme	2,10,000
3.	Training	1,30,000
	Total	**4,40,000**

8.3 ENVIRONMENTAL BENEFITS

a. Protection of banks

b. Reducing submergence of adjoining agricultural lands due to flooding

c. Reducing aggradations of river levels

d. Protection of crops being cultivated along the bank

e. A check on illegal mining activity

8.4 CORPORATE ENVIRONMENTAL RESPONSIBILITY

2 % of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018.

CER cost will be 2% of the total project cost. This amount will be used for social welfare. CER cost is Rs. 32,03,200.00/-

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during public hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

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CHAPTER-IX

ENVIRONMENTAL MANAGEMENT PLAN

INDEX

9.0 INTRODUCTION

The environmental management plan consists of the set of mitigation, management, monitoring and institutional measures to be taken during the implementation and operation of the project, to eliminate adverse environmental impacts or reduce them to acceptable levels. The present environmental management plan addresses the components of environment, which are likely to be affected by the different operations in a mine area. To mitigate the adverse impact which may be caused due to the mining operations and overall scientific development of local habitat, environmental management plan (EMP) has been formulated and integrated with the mine planning. The details of the anticipated impacts and mitigate measures have been discussed in Section IV of this report, based on the results of present environmental conditions and environmental impact assessment. The EMP has therefore been made considering implementation and monitoring of environmental protection measures during and after mining operations.

The mitigation measures which reduce the impact have already been identified earlier in this report. To minimize the adverse impact, certain additional EMP is enumerated below for implementation.

The aims of EMP are:

- Overall conservation of environment.
- Minimization of waste generation and pollution.
- Judicious use of natural resources and water.
- Safety, welfare and good health of the work force and population.
- Ensure effective operation of all control measures.
- Vigilance against probable disasters and accidents.
- Monitoring of cumulative and long-time impacts.
- Ensure effective operation of all control measures.

9.1 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Proper environmental management plan is proposed for sand mining project to mitigate the impact during the mining operation.

- No overburden or loose sediments will be kept in the vicinity of the working benches.
- The possibility of the project activity contributing to the pollution of watercourses of the region or to the ground water regime is so less that this does not significantly constitute an area of concern.
- Construction of well-compacted roads.
- Regular water spraying on haul roads by tankers.
- Personal Protective Equipment (PPE) like earmuffs/earplugs, dust masks, helmets, safety boots will be provided to all operators and employees working near mining machineries or at higher noise zone.
- Proper and regular maintenance of vehicles and other equipment.
- Provision of supplying earplugs for workers and operators.
- Care being taken that noise produced during vehicles movement for carrying Sand is within the permissible noise level.
- Provision of Green Belt (thick foliage) in the places where required would be done in consultation with local authorities.
- Strict observance of the provisions of Acts, Rules and Regulations in respect of safety both by management and the workers.
- Proper planning and designing of work in order to reduce the risk of hazards.
- Specific instructions and supervisions of working where danger due to fall of side (overhanging, undercutting of bench, fall of objects from higher benches/places is apprehended).
- Training of work persons and the officials.

- Since the haul road will be of considerable length, due importance will be given in the construction of road. The width of road will be maintained more than thrice the width of the vehicle. A code of traffic rules will be implemented.
- A code of practices for tipping in stock piles/dumping of overburden at dump yard and loading point will be implemented.
- In respect of contract work, safety code for contractors and workers will be implemented.
- They will be allowed to work under strict supervision of statutory person/officials only after they will impart training at vocational training centers. All personal protective equipment will be supplied to them.
- A code of practice for fighting fire will be implemented.
- Competent persons like fitters, mechanics will be imparted with special attention to project impact.
- Celebration of annual mines safety week and environmental week in order to develop safety awareness amongst employees.
- Pre joining medical checkup shall be done and regular health check-up in 6 monthly intervals is planned for the employees.
- Care will be taken that no cooking, or burning of woods will be allowed in the adjoining area.
- If some causality or injury to animal occurs, it should be informed to forest department and proper treatment should be given.
- Corridor movement of wild mammals (If exists) would be avoided.
- Provision of temporary rest shelters for mine workers with amenities like drinking water etc.
- Periodical Medical Examination (PME) of all workers by a medical Officer
- First Aid facility is provided at the mine site.
- Close surveillance of the factors in working environment and work practices which may affect environment and worker’s health.
- Working of mine as per approved mining plan and environmental plans.

9.2 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION

Environmental Management Plan serves no purpose if it is not implemented with true spirit. Some loopholes in the EMP can also be detected afterwards when it is implemented and monitored. Thus, an implementation and monitoring programme shall be done. The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management would strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas:

a) Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
b) Collection of soil samples at strategic locations once in every year and analysis thereof with regard to deleterious constituents, if any.
c) The effectiveness of drainage system depends upon proper cleaning of all drains provided in the surrounding of mine area. Any blockage due to siltation or loose material will be checked at least once in a month.
d) Measurement of water level fluctuations in the nearby ponds, dug wells and bore wells.
e) Regular visual examination will be carried out to look for erosion of river banks. Any abnormal condition, if observed will be taken care of.
f) Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every quarter of the year.
g) Plantation/afforestation would be done as per program i.e along the road sides and near civic amenities, which will be allotted by local authority as it is not feasible to plant trees near the mine lease area. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people would also be involved.

Mine management will be in regular touch with local surrounding villages to update the various developmental schemes made by them. They will also consider any immediate requirement, which could be taken care of in near future. Mine management will be in regular touch with State Pollution Control Board and Indian Bureau of Mines and send them annual progress report. Any new regulations considered by State/Central Pollution Control Board for the industry will be taken care of.

Green Belt Development Plan

Green belt is plantation of trees for reducing the pollution as they absorb both gaseous and particulate pollutant, thus removing them from atmosphere. Green plants form a surface capable of absorbing air pollutants and forming sinks for pollutants. It improves the aesthetic value of local environment. Under present project, green belt has been planned with emphasis on creating biodiversity; enhance natural surroundings and mitigating pollution.

These plantations will be done in the places in consultation local authority. About 620 Plants will be planted @124 trees/year of will be planted with various types of species. List of species is recommended for plantation are Mango, Neem, Kadamb, Kathal, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover.

The basic objectives of plantations are as follows:

- Soil quality should be improved
- Vegetative cover can check soil erosion
- River bank stability should be improved
- Conservation of biological diversity
- Habitation for wild life.

9.3 ENVIRONMENTAL MANAGEMENT CELL (EMC)

To implement the EMP, a structured Environment Management Cell (EMC) which includes plant manager and representative of consultants interwoven with the existing management system is there. Occupational safety and health is very closely related to productivity and good employer-employee relationship. The factors of occupational health in the proposed Sand mine are mainly

dust and land degradation. Safety of employees during operation and maintenance etc. shall be as per Mines rules and regulations. To avoid any adverse effect on the health of workers due to various pollutants, sufficient measures relating to safety and health will also be practiced.

A comprehensive environmental monitoring program as laid down by State Pollution Control Board is followed. All the above observations will be complied and documented by the EMC to serve the following purposes:

- Identification of any environmental problems that are occurring in the area.
- Initiating or providing solution to those problems through designed channels and verification of the implementation status.
- Controlling activities inside the project, until the environmental problem has been corrected.
- Suitably responding to emergency situations.

9.4 BUDEGT ALLOCATION FOR EMP IMPLEMENTATION

Annual budget for EMP is very essential for successful implementation of EMP. The fund allocated will not be diverted for any other purposes and the top management will be responsible for this. The budget will take into consideration the following capital and operating expenses:

a) Capital cost for installing pollution control systems.
b) Field cost for monitoring of parameters.
c) Cost of any defined outsourcing
d) Cost of chemicals, consumables and transport for data generation
e) Any other cost as per EC condition.

It is necessary to include the environmental cost as a part of the budgetary cost component. The project authorities propose to undertake the following environmental works to achieve the environmental quality as desired. The budget for environmental protection has been formulated and given in Table.

Table 9.1 Budget allotted for Environmental Management Plan

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	Nil	2.0
2	Pollution Monitoring i) Air pollution ii) Water pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (part time basis).	6.2	0.5
4	Haul road Maintenance Cost	0.5	1.8
TOTAL		**6.7**	**6.3**

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CHAPTER-X

SUMMARY & CONCLUSION

10.0 INTRODUCTION OF PROJECT&PROPONENT

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for proposed projects. It aims predicting environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision makers. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

The project is being proposed by TODAY'S FASHION, Prop. - Md. Dawood Khan, S/o.- Md. Sabir Khan, Add. - Islam Nagar, Gondapur, Nawada, Bihar- 805110.

Proposed project has been allotted to the proponent By District mining office. LOI has been granted in favor of TODAY'S FASHION, Prop.- Md. Dawood Khan, S/o.- Md. Sabir Khan, , vide letter no. 3503/khanan dated. 07.12.2022, for a period of 5 years attached as Annexure I. The EIA-EMP report has been prepared as per the TOR granted under the EIA Notification of September 14th 2006. In order to assess the impact on environment due to proposed mining, it is necessary to ascertain the present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operations.

As per NGT Order Dated 13-09-2018 and MOEF & CC OM No L-11011/175/2018-IA-II(M) Dated 12-12-2018 the project comes under B1 Category as the area is more than 5 Ha. Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Bihar.

10.1 LOCATION

Sand Mining Project Block- Block- 05 (Jamuawan Patwa Saray) Sand Ghat on Sakri River Location of the Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372, Khata No. –547, 548,

Block- Nawada, Village- Jamuawan Patwa Saray , District- Nawada, State- Bihar.. The project involves collection of river bed material; thus it is expected that the proposed mining project would improve the supply of construction materials sand making a positive impact on the infrastructural projects like construction of roads, buildings, bridges etc in the state.

Village	Tehsil/Block	District	State	Area in Ha.
Jamuawan Patwa Saray	The Block- 05 (Jamuawan Patwa Saray)	Nawada	Bihar	62.0

Table10.1- Detail of site & surrounding around Lease Area

Nearest Settlements	Jamuawan Patwa Saray, Village 50 m in W direction
Nearest Road	SH-8 road which is at distance of approx. 1.50 km in NW direction
Nearest Airport	JPN International Airport Patna at distance of approx. 93 km in NW direction
Nearest Railway Station	Nawada Railway Station at distance of approx. 4.3 km in SW.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 km
Water body	Sakri River (Onsite)
Nearest School/ college	Midlle school , Sonu Bigha Approx. 0.5 Km in NNW direction
Reserve/ Protected Forest	PF is about 8km from the lease.
Nearest Hospital	City Hospital, Nawada Approx. 4.5 Km in W direction
Temple	Hanuman Mandir, dewanpura, Approx. 0.2 Km in E direction

Table 10.2- Project Salient Features

On-line proposal No.	SIA/BR/MIN/416179/2023
Name of Proponent	TODAY'S FASHION, Prop.- Md. Dawood Khan, S/o.- Md. Sabir Khan,
Full correspondence address of proponent	Add.- Islam Nagar, Gondapur, Nawada, Bihar- 805110.
Name of Project	Proposed Sand mining Project on Sakri River
Name of River	Sakri
Name of Village	Jamuawan Patwa Saray
District	Nawada
Name of Minor Mineral	Sand
Sanctioned Lease Area (in Ha.)	62.0 ha

<table>
<tr><td>Category of the project</td><td colspan="2">“B1”</td></tr>
<tr><td>Pillar Coordinates</td><td colspan="2"><table>
<tr><td rowspan="2">Pillar</td><td colspan="2">Coordinate</td></tr>
<tr><td>Latitude</td><td>Longitude</td></tr>
<tr><td>A</td><td>24°53'31.02"N</td><td>85°35'16.05"E</td></tr>
<tr><td>B</td><td>24°53'29.11"N</td><td>85°35'30.14"E</td></tr>
<tr><td>C</td><td>24°54'27.47"N</td><td>85°35'41.52"E</td></tr>
<tr><td>D</td><td>24°54'30.17"N</td><td>85°35'33.05"E</td></tr>
</table></td></tr>
<tr><td>Total Geological Reserves</td><td colspan="2">1240000 cum. or 2232000 tonnes.</td></tr>
<tr><td>Total Mineable Reserves</td><td colspan="2">1132790 CUM or 2039022 Tonnes</td></tr>
<tr><td>Total Proposed Production (in five years)</td><td colspan="2">3720000 cum or 6696000Tonnes</td></tr>
<tr><td>Proposed Production/year</td><td colspan="2">744000 CUM or 1339200 Tonnes</td></tr>
<tr><td>Sanctioned Period of Mine lease</td><td colspan="2">5 years</td></tr>
<tr><td>Method of Mining</td><td colspan="2">Open Cast semi mechanized method / OTFM</td></tr>
<tr><td>No. of working days</td><td colspan="2">250 days</td></tr>
<tr><td>Working hours/day</td><td colspan="2">8hrs</td></tr>
<tr><td>No. of workers</td><td colspan="2">60</td></tr>
<tr><td>Type of Land</td><td colspan="2">Government waste land</td></tr>
<tr><td>Ultimate Depth of Mining</td><td colspan="2">2 m</td></tr>
<tr><td>Nearest metalled road from site</td><td colspan="2">1.50 km</td></tr>
<tr><td rowspan="5">Water Requirement</td><td>PURPOSE</td><td>REQUIREMENT (KLD)</td></tr>
<tr><td>Drinking & Domestic</td><td>1.2</td></tr>
<tr><td>Suppression of dust</td><td>18</td></tr>
<tr><td>Plantation</td><td>1.24</td></tr>
<tr><td>Total</td><td>20.44</td></tr>
<tr><td>Any litigation pending against the project or land in any court</td><td colspan="2">No</td></tr>
<tr><td>Proposed Project cost (INR)</td><td colspan="2">The total cost of project would be around Rs.160160000/- (16.016 Crore.</td></tr>
<tr><td>Proposed EMP budget (INR)</td><td colspan="2">Capital Cost -6.7 Lakh
Recurring Cost- 6.3 Lakh</td></tr>
<tr><td>Proposed CER (2% of Project Cost)(INR)</td><td colspan="2">3203200/-</td></tr>
<tr><td>Length and breadth of Haul Road</td><td colspan="2">Length: 1.5 km, width: 6 m</td></tr>
<tr><td>No. of Trees to be Planted</td><td colspan="2">620 plants, Every year 124 trees will be planted</td></tr>
</table>

10.2 RESERVES

The geological reserves have been estimated as per UNFC guidelines in all the three axis.

Economic Axis (E-1): The Sand is exists within the entire stretch & having no problem selling in the market. The road is near the Ghat & sand shall loaded into tipper with the deployment of an excavator & transport to various parties. The land is State Govt. land & State Govt. has given its consent for the exploitation of Sand on their expensive land. On the feasibility study, economic viability of deposit has been established sand in economic viable, therefore economic axis has been considered as E-1.

Feasibility Status (F-1): Feasibility study has been carried out & is considered to be feasibility status. A feasibility study provides a preliminary assessment with a level of confidence as compared to that of feasibility study. It has been revealed that exploitation of sand is feasible & economic viable & feasibility axis under UNFC code has been considered as F-1:

Geological Axis: The exposure of sand is seen in the entire stretch & thickness of sand varies 2.5m to 3.0m. Therefore geological axis has been considered as G-1.

Geological Reserves

The geological reserves have been each stretches & for individual blocks. Geological reserves have been completed through cross sectional area method. The area of each section line is multiplied by strike influence to get the volume.

i) **Proved Mineral Reserves (111):** All quantities of sand occurring up to depth of 2 m from surface has been considered as proved reserves.

Table 2.5(a) Proved Mineral Reserves

Classification	**Code**	**Quantity of Sand**
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	1240000
Total		**1240000**

Total Geological Reserve = **1240000 cum. or 2232000 tonnes.**

*Bulk density is 1.80 g/cm^3

MINEABLE RESERVES:

Mineable reserves have been computed up to 2m depth from surface. Benches having height 1.5m & width 6.0m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by bulk density (1.80 g/cm^3) to get the tonnage.

The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to pale channels of the river will be leveled & restored back.

Summary of mineable reserves of Sand Ghat as below:

The mineable reserves are given in **Table**

Table 2.5(b) Mineable Reserve

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
87-86	1832	315	1	577080	1038744
86-85	1822	305	1	555710	1000278
Total				1132790	2039022

Total Mineable Reserve = 1132790 CUM or 2039022 Tonnes

- Mineable reserve has been consider 60% approx. of geological reserve after

Applying the guideline of Enforcement & Monitoring Guidelines for Sand Mining 2020.

- The proposed production grant in **LOI is 744000** cum per year which is within the sustainable limit of mineable reserve.
- The BD for Sand has been adopted at 1.80 g/cm3 [Noida Testing Laboratories]

Table 2.5(c) Classification Mineral Reserves

Sand Ghat	Area (Hect)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block- 05	62.0	1240000	1132790	744000

(Jamuawan Patwa Saray) Sand Ghat				

The annual extractable RBM comes to 744000 CUM or 1339200 Tonnes. It will be replenished after rainy season every year.

10.3 MINING PROCESS

- Mining activity will be carried out by open cast semi mechanized method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited upto depth of 2.0 m only through the formation of bench height 1.0m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries & transportation of sand. The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers.
- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.0 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in maximum original topography.
- Approach roads from the various blocks as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.
- The Sand transportation shall be insured after the covering the vehicle with Tarpaulin

Year wise production:

The annual production of sand from Sand Ghat is given below:-

Table 10.4 Year Wise Production Schedule

YEAR	Over burden (cum)	ROM Sand (cum)	Saleable Sand (cum)

1ST	-	744000	744000
2ND	-	744000	744000
3RD	-	744000	744000
4TH	-	744000	744000
5TH	-	744000	744000

The annual extractable RBM comes to **744000 CUM or 1339200 Tonnes**. It will be replenished after rainy season every year

10.4 WATER DEMAND

In the river bed mining projects there is as such no need of water to carry out operations, except for dust suppression, Plantation & drinking for the working people. The total water requirement will be around 19.0 KLD. This water will be supplied from the nearby area through tankers.

Table 10.5- Water Demand

S. No.	Purpose	Manpower/Area	Water Demand KLD	Source
1.	Drinking & Domestic	Manpower (60) (60*20 = 1200L/D)	1.20	Nearby Village
2.	Plantation	620 trees*2L = 1240L/D	1.24	Private Tanker
3.	Dust Suppression	Haul Road =1500m length *6m width=9000m^2 *2L=18000L/D	18.0	Private Tanker
Total			**20.44**	

10.5 BASE LINE DATA

This section contains the description of baseline studies of the 10km radius of the area surrounding Village- Jamuawan Patwa Saray, Block- 05 (Jamuawan Patwa Saray), District- Nawada, State- Bihar.

The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Environmental data has been collected in relation to proposed mining for:-

(a) Air

(b) Noise

(c) Water

(d) Soil

(e) Ecology and Biodiversity

(f) Socio-economy

Table 10.6 Baseline Environmental Status

Attribute	Baseline status
Ambient Air Quality	Ambient Air Quality Monitoring (AAQM) has been carried out at eight locations duri pre-monsoon season from March 2023 to May 2023. The minimum and maximum level $PM_{2.5}$ recorded within the study area was in the range of 30.56 µg/m^3 to 48.89 µg/m^3 w the 98th percentile 39.50 µg/m^3 to 48.34 µg/m^3 at. The minimum and maximum level PM_{10} recorded within the study area was in the range of 58.30 µg/m^3 to 92.40µg/m3 w the 98th percentile 77.19 µg/m^3 to 91.57 µg/m^3. The minimum and maximum concentrat of SO_2 recorded within the study area was in the range of was 7.39 µg/m^3 to 15.84 µg/ with the 98th percentile 12.84 µg/m^3 to 14.97 µg/m3. The minimum and maximum level NO2 recorded within the study area was in the range of was 8.18 µg/m^3 to 16.26 µg/ with the 98th percentile 15.96 µg/m^3. The results thus obtained indicate that concentrations of PM10, PM2.5, SO2 and NO2 in the Ambient Air are well within National Ambient Air Quality (NAAQ) standards for Industrial, Residential, Rural a other areas.
Noise Levels	Noise monitoring was carried out at five locations. The results of the monitoring program indicated that both the daytime and night time levels of noise were well within the prescribed limits of NAAQS, at all the four locations monitored.
Water Quality	4 Groundwater samples and 2 surface water samples were analysed and concluded that: The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated

	by Indian Standards IS: 10500. From the Surface water analysis it is evident that most of the parameters of the samples comply with 'Category 'C' standards of CPCB indicating their suitability for Drinking water source after conventional treatment and disinfection.
Soil Quality	5 Soil samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 6.85-7.42, which shows that the soil is alkaline in nature.
Ecology and Biodiversity	There are no Ecologically Sensitive Areas present in the study area, but many reserved forests regions surround the project area. No forest land is also present within the mine area.
Socio-economy	The implementation of the Sand mining project on river Sakri will throw opportunities to local people for both direct and indirect employment. The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities.

10.6 BIOLOGICAL ENVIRONMENT

Impact on Ecology of the Area

Excessive and unscientific Riverbed sand mining causes the degradation of rivers. Mining which leads to the removal of channel substrate, re-suspension of streambed sediment, clearance of vegetation, and stockpiling on the streambed, will have ecological impacts. These impacts may have an effect on the direct loss of stream reserve habitat, disturbances of species attached to streambed deposits, reduced light penetration, reduced primary production, and reduced feeding opportunities.

Riverbed sand mining results in the destruction of aquatic and riparian habitat through large changes in the channel morphology. Impacts include bed degradation, bed coarsening, lowered water tables near the streambed, and channel instability. These physical impacts cause degradation of riparian and aquatic biota and may lead to the undermining of bridges and other structures. Continued extraction may also cause the entire streambed to degrade to the depth of excavation.

Sand mining generates extra vehicle traffic, which negatively impairs the environment. Where access roads cross riparian areas, the local environment may be impacted.

Mitigation measures

As the present mining will be done in a scientific manner as mentioned before, not much significant

impact in predicted, however, the following mitigation measure will be taken to further minimize it.

- Re-suspension, turbulence, stream flow, channel substrate and associated species will be disturbed and lost due to proposed mining will disturbed existing pattern but in respect to river area is very minimum / less. The activity will mainly be carried out by semi-Mechanized to minimize associate loss, as stated earlier that the settling pit will be created to minimize the adverse impact downstream.
- No mining will be done near to important structure like bridges, dam and others.
- No mining will be carried out during the rainy season to minimize impact on aquatic life.
- As the mining site has no vegetation, thus clearance of vegetation not required.
- The mining activity will employ many heavy vehicles to transport the sand outside the mine to desired destination that cause the loss to riparian habitat. Safe site / site having less impact will be selected for transportation, all the vehicles will be employed for transportation purpose will be PUC certified. On closure/during the rainy season the eroded bank will be restored/ reclaimed to minimize negative impacts.

Flora and Fauna of Riparian Habitat

If sand mining is done in an unscientific way, i.e. beyond the replenishment capacity, riverbed mining can have adverse effects at the mine sites. The fertile streamside land will be lost gradually and the wildlife in the riparian areas may start vanishing. Degraded stream habitats will result in loss of fisheries productivity, biodiversity, and recreational potential. Thus the severely degraded channels may lower the aesthetic value too.

Anthropogenic activities that artificially lower stream bed elevation cause bed instabilities that result in a net release of sediment in the local vicinity. Unstable sediments simplify and, therefore, degrade stream habitats for many aquatic species.

The most important effects of excessive and unscientific Riverbed sand mining on aquatic habitats are bed degradation and sedimentation, which can have substantial negative effects on aquatic life. The stability of sand-bed streams depends on a delicate balance between stream flow, sediment supplied from the watershed, and channel form. Mining-induced changes in sediment supply and channel form disrupt channel and habitat development processes. Furthermore, movement of

unstable substrates results in downstream sedimentation of habitats. The affected distance depends on the intensity of mining, particles sizes, stream flows, and channel morphology. Channel widening causes swallowing of the streambed, producing braided flow or subsurface intergrades flow in riffle areas, hindering movement of fishes between pools. Channel reaches become more uniformly shallow as deep pools fill with gravel and other sediments, reducing habitat complexity, riffle-pool structure, and numbers of large predatory fishes.

All such impacts can be reduced by following scientific mining practices and mitigation measures as restricted.

Mitigation measures

Sand extraction operations will be managed to avoid or minimize damage to stream/river banks and riparian habitats

- Sand extraction in vegetated riparian areas will be avoided.
- Large woody debris in the riparian zone will be left undisturbed or replaced when moved and not be burnt.
- Sand stockpiles, overburden and/or vegetative debris will not be stored within the riparian zone.
- It is essential that overburden is evenly redistributed over exposed areas as soon as possible after the operation has been completed for faster revegetation.
- Operation and storage of heavy equipment within riparian habitat will be restricted.
- Access roads will not encroach into the riparian zones.

No exotic species will be introduced by the RBM project activity & associated persons at all.

As the mining will not be done beyond the stipulated limit, so the chances of river mouth widening, bank widening will be negligible. Thus, mining in a scientific and systematic way will reduce such impending effects.

10.7 LAND ENVIRONMENT

No adverse impact is anticipated on land use of buffer zone due to present mining operations. As all the related activities are confined to the core zone.

The area likely to be degraded due to quarrying, pitting & roads. The impact on the land form or physiography will be limited to the modification of the slope. The landscape and land use will undergo a radical change due to open cast mining. The impact during next five years is limited as benches will be formed. Besides these benches, roads will also modify the physiography. The impact on land use will also be limited.

Impact on Land use Pattern including change of River course:

- If mining is not carried out in systematic manner by leaving sufficient safety barriers from the bank than it may disturb the river flow/course.
- Stacking of uncoated material including mineral or spillage (if any) on the bank side of river will hinder the flow of water in monsoon season, raise water level upstream, which may lead to bank cutting or flouting.
- Deviation from planned mining procedures can lead to river channel shifting as well as degradation of surrounding land, causing loss of properties & degradation of land scape.

Mitigation measures:

- Mineral will be mined out in central portion of stream & sufficient safety barrier 10% of width will be left towards bank side, so that river flow/course will not get disturbed.
- Mining of mineral will be started towards rise at the centre & also laterally in 1m slice so that river course will not get affected. Unwanted material or spillage (if any) will not be stacked by the side of excavation voids created. This is to be done so, because it will otherwise hinder flow of water in monsoon period.
- Mining is to be done by leaving safety barrier on both sides & maximum barrier should be do concave side of river preferably the flow channel (excavation void created) should be kept straight so as to help avoid erosion as side cuttings, Upto next depth of 3.0m from river bed level.

No waste water will be generated from the mining activities of minor minerals as the project. Only involves lifting of Sand from the river bed.

10.8 AIR ENVIRONMENT

Anticipated impacts and evaluation

Information on air quality was studied and various modelling techniques predicted that the mining activity will not affect the air quality in a significant manner. In mining operations, loading, transportation and unloading operations may cause deterioration in air quality due to handling dry materials. In the present case, only wet materials will be handled, thus eliminating problems of fugitive dust. Also, the collection and lifting of minerals will be done Semi- Mechanized without any blasting. Therefore the dust generated is insignificant as compared to mining process of other hard minerals like the process of drilling, blasting, mechanized loading etc.

Mitigation measures

- In control the emission regular preventive maintenance of equipment will be carried out on contractual basis.
- Proper mitigation measures like water sprinkling will be adopted to control dust emission.
- Plantation will be carried out at a place which is authorized by local authority.
- It is being certified that all transportation vehicles will carry a valid PUC certified. The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads. This will decrease the dust emission by 75%.
- There is no toxic element present in the mineral which may contaminate the soil.

10.9 WATER ENVIRONMENT

Impacts on hydrological Conditions:

- The study area is itself part of river course carries surface as well as ground water (under current). The flow of surface/ground water (sub surface flow is following the trend of topography.
- The area is part of dry river bed for more than nine months in a year except for the rainy season. The Sand mining is up to the depth of 2.0m will have in significant impact on water regime.
- The general ground water table which will be about 3.0m below surface of river bed in the mining area during dry seasons will not be disturbed as ultimate working depth will be 2m.

Impact on Water Quality:

- Mining causes lowering of riverbed level as well as riverbed water level resulting in lowering in ground table due to excessive extraction & drainage out of ground water from the adjacent areas, if general ground water table is higher than the river bed level. In case the general ground water level is lower than riverbed water level, than it will have positive impact on ground water table will recharge vertically as well as laterally. In the former case may cause shortage of water for the vegetation & human settlement in the vicinity, but in later case it will help improve situations
- River is recharging the ground water, excessive mining will reduce the thickness of the natural filter material (sediments), infiltration through which the ground water recharged, so restriction in depth becomes necessity.

Mitigation Measures:

Mining in the area will be done above the water table as well as river bed water level, therefore much impact on water regime is not anticipated.

10.10 NOISE ENVIRONMENT

The sand mining projects are mainly not noisy as these are mainly manual in nature. But in this case the methodology adopted for mining is opencast semi mechanized mining method which may generate noise.

Impact on environment

At mines, noise is created by movement of machinery & transportation vehicles, etc. The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 10.7 Noise impact

Total time of exposure per day in hour	Sound pressure dB(A)	Remarks

1	2	3
8.0	90	No exposure in excess of 115 dB(A) is permissible
6.0	92	--
4.0	95	For any period of exposure falling in between any figure and lower figure as indicated in column (1), the permissible sound is to be determined by extrapolation or proportionate scale.
3.0	97	
2.0	100	
1 ½	102	
1	105	
¾	107	
½	110	
¼	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

Mitigation measures

The off-site receptors are not significantly affected as noise generated by mines is insignificant but for some disturbances due to vehicle movement. The following measures have been envisaged to reduce the impact from the transportation of minerals.

- Periodical monitoring of noise will be done.
- Transportation vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Noise generated by these Equipment shall be intermittent & does not cause much adverse impact.
- Proper maintenance of all equipment/machines will be carried out which help in reducing noise level during operations.
- In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones

10.11 TRAFFIC ANALYSIS

From the analysis it can be seen that the V/C ratio will change from 0.13 to 0.24 for SH – 8 with LOS Changing from “A” to “B” which is Very good. So the additional load on the carrying capacity will be not

affected on MDR as such and will be affected to a minimum level on SH – 8 and village road, temporarily.

SOCIO- ECONOMIC ENVIRONMENT

The implementation of the Sand mining project will throw opportunities to local people for both direct and indirect employment. Since the quarries have been auctioned and leased out to successful allottees, sand mining operation in the state will get legalized and it will fetch income to the state exchequer. The project will also provide impetus to industrialization of the area. With the implementation of the proposed mining project the occupational pattern of the people in the area will change making more people engaged in industrial and business activities rather in agriculture. Thus, there will be a gradual shifting of population from agriculture to mining and industry. Further, the mining and industrial activities in the area may lead to urbanization. Due to urbanization of the area, employment opportunities will further increase.

10.13 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

Proper environmental management plan are proposed for “Sand” mining project to mitigate the impact during the mining operation.

- Care will be taken that no labour camps will be allowed on river bed.
- Care will be taken that no cooking, or burning of woods will be allowed in the adjoining area.
- Prior to mining, short awareness program will be conducted for labors to make them aware to way of working.
- If some causality or injury to animal occurs, it will be informed to forest department and proper treatment will be given.
- No tree cutting, chopping, lumbering, uprooting of shrubs and herbs will be allowed.
- Corridor movement of wild mammals (If exists) will be avoided
- Care will be taken that noise produced during vehicles movement for carrying sand are within the permissible noise level.
- No pilling of material will be in adjoining area.

- If wild animals are noticed crossing the river bed, it will not be disturbed or chased away, instead the labors will move away from their path.

10.14 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION

Environmental Management Plan serves no purpose if it is not implemented with true spirit. Some loopholes in the EMP can also be detected afterwards when it is implanted and monitored. Thus, an implementation and monitoring programme has to be prepared.

The major attributes of environment are not confined to the mining site alone. Implementation of proposed control measures and monitoring programme has an implication on the surrounding area as well as for the region. Therefore, mine management will strengthen the existing control measures as elaborated earlier in this report and monitor the efficacy of the control measures implemented within the mining area relating to the following specific areas for eco-friendly mining:

a. Collection of air and water samples at strategic locations with frequency suggested and by analyzing thereof. If the parameters exceed the permissible tolerance limits, corrective regulation measure will be taken.
b. Collection of soil samples at strategic locations once in every year and analysis thereof with regard to deleterious constituents, if any.
c. The effectiveness of drainage system depends upon proper cleaning of all drains provided in the surrounding of mine area. Any blockage due to siltation or loose material will be checked at least once in a month.
d. Measurement of water level fluctuations in the nearby ponds, dug wells and bore wells.
e. Regular visual examination will be carried out to look for erosion of river banks. Any abnormal condition, if observed will be taken care of.
f. Measurement of noise levels at mine site, stationary and mobile sources, and adjacent villages will be done in every quarter of the year.
g. Plantation/afforestation as will be done planted at place which authorized by Local Authority. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people will also be involved.

Table 10.8 Budget allotted for Environmental Management Plan

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)
1	Pollution Control & Dust Suppression	**Nil**	**2.0**
2	Pollution Monitoring i) Air pollution ii) Water pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (parttime basis).	6.2	0.5
4	Haul road Maintenance Cost	0.5	1.8
TOTAL		**6.7**	**6.3**

10.15 MONITORING SCHEDULE AND PARAMETERS

Table 10.9 Monitoring Schedule and Parameters

S. No.	Description of Parameters	Schedule of Monitoring
1	Air Quality	24 hourly samples twice a week in each season except monsoon
2	Water Quality (Surface & Groundwater)	Twice a year
3	Soil Quality	Once in a year in project area
4	Noise Level	Twice a year for first two years & then once a year
5	Socio-economic Condition	Once in 3 years
6	Plantation monitoring	Once in a season

10.16 BENEFIT OF MINING

- **PHYSICAL BENIFITS**

Improvement in the Physical Infrastructure

The opening of the proposed project will enhance the following physical infrastructure facilities in the adjoining areas.

a. **Road Transport:** There will be improved road communication due to the proposed project and maintenance will also be done time to time.
b. **Market:** Generating useful economic resource for construction. Excavated mineral will provide a good market opportunity.
c. **Enhancement of green cover:** As a part of reclamation plan, plantation will be carried along the place which authorized by local authority.
a. **Creation of community assets** (infrastructure) like provision for drinking water, construction of school buildings, village roads/ linked roads, dispensary & health center, community center, market place etc. as a part of corporate social responsibility.

The impact on the civic amenities will be substantial after the commencement of mining activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the township to the community, providing drinking water to the villages, building/strengthening of existing roads in the area. The proponent will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

- **SOCIAL BENEFITS**

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.
- There will be significant change in the socio-economic scenario of the area.
- The proposed project will enhance the prospects of employment. Recruitment for the unskilled and semiskilled workers for the proposed project will be from the nearby villages.
- The development of the basic amenities viz. roads, transportation, electricity, drinking

water, proper sanitation, educational institutions, medical facilities, entertainment, etc. will be developed as far as possible.

- Overall, the proposed project will change living standards of the people and improve the socio-economic conditions of the area.

a) **Increase in Employment** Potential due to the project activity. Employment opportunities will increase both directly as well indirectly.

b) **Contribution to the Exchequer** as the saleable minerals will be given royalty. Since the quarries will be leased out to successful allot tees, mining operation in the state will get legalized and it will fetch income to the state exchequer.

c) **Increased Health related activities**: Healthcare promotional activities will be undertaken. Pre-placement& and Periodic medical check-up will be done, which will lift the general health status of the residents of the area. Health camps, medical aids, family welfare programs, immunization camp sports will be arranged.

d) **Educational attainments**: educational activities will be promoted by the lessee. Awareness program will be arranged covering basic issues related to primary level education, environment, health and hygiene etc.

e) **Strengthening of existing community** facilities through the Community Development Programme.

ENVIRONMENTAL BENEFITS

- **Enhancement Of Green Cover**

Plantation/afforestation will be done as per program 620 plants will be planted along the place which would be authorized by local authority within 5km from lease boundary along with provision for maintenance for 5 years. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people will also be involved. The management will provide free saplings of fruit and other trees, etc. to local during rain for plantation. This will increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

10.17 CORPORATE ENVIRONMENTAL RESPONSIBILITY

2 % of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018.

CER cost will be 2% of the total project cost. This amount will be used for social welfare.CER cost is Rs. 32,03,200.00/-

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during public hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

10.18 CONCLUSIONS

- The mining operations will meet the compliance requirements of MoEF & CC;
- Community impacts will be beneficial, as the project will generate significant economic benefits for the region;
- Adoption of Best Available Technology and Best Management Practices with more environmentally friendly process.
- With the effective implementation of the Environment Management Plan (EMP) during the mining activities, the proposed project can proceed without any significant negative impact on environment.

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CHAPTER-11

DISCLOSURE OF CONSULTANTS ENGAGED

INDEX

CONSULTANTS ENGAGED

The consultant engaged for the preparation of the EIA/EMP of the project is M/s Cognizance Research India Private Ltd. The information about the company with address is as follows:

Basic Information about the Consultant Engaged is as follows stated below:

Name of the Consultant	Cognizance Research India Private Ltd.
Address	Suite- B 02 H-61Sector –63, Noida - 201301, U.P
Credentials	Accredited by QCI/NABET

Personnel involved in the preparation of EIA/EMP report are stated below:

S. No.	Name	EC/FAE	Details
01	Mr. Pravin Kumar Sinha	EC	EIA Coordinator (Mining of minerals opencast).
02	Mr. Nimish Singhvi	FAE	AP, SHW & GEOLOGY
03	Mr. Bhavesh Jha	FAE	SE
04	Ms. Rahul Kumar	FAE	AQ
05	Mr. Ankur Sharma	FAE	WP
05	Ms. Pooja	FAE	EB
06	Mr. PM Jain	FAE	RH, NV
07	Abhishek Kumar Singh	FAE	LU
08	Vidhya Bhushan Trivedi	FAE	HG
09	Anjali Haribhau Chachane	FAE	SC

Accreditation Certificate of the Consultant Engaged:

QUALITY COUNCIL® OF INDIA
Creating an Ecosystem for Quality

National Accreditation Board for Education and Training

Certificate of Accreditation

Cognizance Research India Private Limited

B-02, H-61, Sec 63, Noida, Uttar Pradesh

The organization is accredited as Category-A under the QCI-NABET Scheme for Accreditation of EIA Consultant Organization, Version 3: for preparing EIA-EMP reports in the following Sectors –

S. No	Sector Description	Sector (as per)		Cat.
		NABET	MoEFCC	
1	Mining of minerals including opencast/ underground mining	1	1 (a) (i)	A
2	River Valley projects	3	1 (c)	B
3	Mineral beneficiation	7	2 (b)	A
4	Synthetic organic chemicals industry (dyes & dye intermediates; bulk drugs and intermediates excluding drug formulations; synthetic rubbers; basic organic chemicals, other synthetic organic chemicals and chemical intermediates)	21	5 (f)	B
5	Building and construction projects	38	8 (a)	B
6	Townships and Area development projects	39	8 (b)	B

Note: Names of approved EIA Coordinators and Functional Area Experts are mentioned in SAAC minutes dated December 2, 2022 and Supplementary Assessment dated Dec 23, 2022 posted on QCI-NABET website.

The Accreditation shall remain in force subject to continued compliance to the terms and conditions mentioned in QCI-NABET's letter of accreditation bearing no. QCI/NABET/ENV/ACO/23/2644 dated Jan 18, 2023.The accreditation needs to be renewed before the expiry date by Cognizance Research India Private Limited following due process of assessment.

Sr. Director, NABET
Dated: January 18, 2023

Certificate No.
NABET/EIA/1922/SA 0186

Valid up to
September 10, 2023

For the updated List of Accredited EIA Consultant Organizations with approved Sectors please refer to QCI-NABET website.

Consultant Contact Details:

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Mobile no. - +919910047760, +919953843815

Email id – criplindia@gmail.com

Website – www.cognizanceindia.com

ANNEXURE(S)

Annexure I (Terms of Reference)

Annexure II (Letter of Intent)

Annexure III (Approved Mining Plan)

File No.SIA/1(a)/2312/2023

Goverment of India

State Level Environment Impact Assessment Authority

Bihar

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To,

M/s MOHAMMAD KHAN
ISLAM NAGAR, GONDAPUR, NAWADA, BIHAR,
Nawada-805110
Bihar

Tel.No.-; Email:todaysfashion03@gmail.com

Sub. Terms of Reference to the Sand Mining Project, Block- 05 (Jamuawan Patwa Saray) Sand Ghat of District- Nawada, State-Bihar., ISLAM NAGAR, GONDAPUR, NAWADA, BIHAR

Dear Sir/Madam,

This has reference to the proposal submitted in the Ministry of Environment, Forest and Climate Change to prescribe the Terms of Reference (TOR) for undertaking detailed EIA study for the purpose of obtaining Environmental Clearance in accordance with the provisions of the EIA Notification, 2006. For this purpose, the proponent had submitted online information in the prescribed format (Form-1) along with a Pre-feasibility Report. The details of the proposal are given below:

1. Proposal No.:	SIA/BR/MIN/416179/2023
2. Name of the Proposal:	Sand Mining Project, Block- 05 (Jamuawan Patwa Saray) Sand Ghat of District- Nawada, State-Bihar.
3. Category of the Proposal:	Non-Coal Mining
4. Project/Activity applied for:	1(a) Mining of minerals
5. Date of submission for TOR:	28 Jan 2023

Date : 16-02-2023

Mr. Sudhir Kumar
(Member Secretary)

Office : **2nd Floor, Beltron B**
Phone No : Mobile : **9934440367**
Email id : **seiaa.ms.br@gmail.com**

Note : This is auto tor granted letter.

In this regard, under the provisions of the EIA Notification 2006 as amended, the Standard TOR for the purpose of preparing environment impact assessment report and environment management plan for obtaining prior environment clearance is prescribed with public consultation as follows:

STANDARD TERMS OF REFERENCE (TOR) FOR EIA/EMP REPORT FOR PROJECTS/ACTIVITIES REQUIRING ENVIRONMENT CLEARANCE

Terms of Reference (TOR) for preparation of Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for "Mining of Minerals" as per the EIA Notification, 2006 has been devised to improve the quality of the reports and facilitate decision-making transparent and easy. TOR will help the project proponents to prepare report with relevant project specific data and easily interpretable information. TOR for mining of minerals is expected to cover all environmental related features.

Mining of minerals plays a positive role in the process of country's economic development. In addition to the contribution towards economic growth, mining can also be a major source of degradation of physical as well as social environment, unless it is properly managed. Environmental impacts can arise during all activities of the mining process. Minimizing the damage due to mining operations depends on sound environmental practices in a framework of balanced environmental legislation. The potential adverse effects of mining activities include air pollution, surface and groundwater pollution, noise and vibration, damage to local ecology, natural topography and drainage, depletion of water resources etc. All these environmental components are required to be considered while selecting a proper methodology of mining, mitigation measures to reduce pollution load, conservation of natural resources etc.

The projects of mining of minerals as stated in the schedule require prior environment clearance under the EIA notification, 2006. Category 'A' Projects are handled in the MoEF&CC and Category 'B' projects are being handled by the respective State Environment Impact Assessment Authorities (SEIAAs) notified by MoEF&CC and following the procedure prescribed under the EIA Notification, 2006. As per this Notification, as amended, the projects of mining of minor minerals with mining lease area equal to or greater than 50 hectare are to be handled at the level of the MoEF&CC for grant of EC. Such projects with mining lease area less than 50 hectare are to be handled by the respective State Environment Impact Assessment Authority (SEIAA).

1(a):STANDARD TERMS OF REFERENCE FOR CONDUCTING ENVIRONMENT IMPACT ASSESSMENT STUDY FOR NON-COAL MINING PROJECTS AND INFORMATION TO BE INCLUDED IN EIA/EMP REPORT

1) Year-wise production details since 1994 should be given, clearly stating the highest production achieved in any one year prior to 1994. It may also be categorically informed whether there had been any increase in production after the EIA Notification 1994 came into force, w.r.t. the highest production achieved prior to 1994.

2) A copy of the document in support of the fact that the Proponent is the rightful lessee of the mine should be given.

3) All documents including approved mine plan, EIA and Public Hearing should be compatible with one another in terms of the mine lease area, production levels, waste generation and its management, mining technology etc. and should be in the name of the lessee.

4) All corner coordinates of the mine lease area, superimposed on a High Resolution Imagery/ toposheet, topographic sheet, geomorphology and geology of the areashould be provided. Such an Imagery of

the proposed area should clearly show the land use and other ecological features of the study area (core and buffer zone).

5) Information should be provided in Survey of India 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.

6) Details about the land proposed for mining activities should be givenwith information as to whether mining conforms to the land use policy of the State; land diversion for mining should have approval from State land use board or the concerned authority.

7) It should be clearly stated whether the proponent Company has a well laid down Environment Policy approved by its Board of Directors? If so, it may be spelt out in the EIA Report with description of the prescribed operating process/procedures to bring into focus any infringement/deviation/ violation of the environmental or forest norms/ conditions? The hierarchical system or administrative order of the Company to deal with the environmental issues and for ensuring compliance with the EC conditions may also be given. The system of reporting of non-compliances / violations of environmental norms to the Board of Directors of the Company and/or shareholders or stakeholders at large,may also be detailed in the EIA Report.

8) Issues relating to Mine Safety, including subsidence study in case of underground mining and slope study in case of open cast mining, blasting study etc. should be detailed. The proposed safeguard measures in each case should also be provided.

9) The study rea will comprise of 10 km zone around the mine lease from lease periphery and the data contained in the EIA such as waste generation etc. should be for the life of the mine / lease period.

10) Land use of the study rea 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. Land use plan of the mine lease area should be prepared to encompass preoperational, operational and post operational phases and submitted. Impact, if any, of change of land use should be given.

11) Details of the land for any Over Burden Dumps outside the mine lease, such as extent of land area, distance from mine lease, its land use, R&R issues, if any, should be given.

12) A Certificate from the Competent Authority in the State Forest Department should be provided, confirming the involvement of forest land, if any, in the project area. In the event of any contrary claim by the Project Proponent regarding the status of forests, the site may be inspected by the State Forest Department along with the Regional Office of the Ministry to ascertain the status of forests, based on which, the Certificate in this regard as mentioned above be issued. In all such cases, it would be desirable for representative of the State Forest Department to assist the Expert Appraisal Committees.

13) Status of forestry clearance for the broken up area and virgin forestland involved in the Project including deposition of net present value (NPV) and compensatory afforestation (CA) should be indicated. A copy of the forestry clearance should also be furnished.

14) Implementation status of recognition of forest rights under the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 should be indicated.

15) The vegetation in the RF / PF areas in the study area, with necessary details, should be given.

16) A study shall be got done to ascertain the impact of the Mining Project on wildlife of the study area and details furnished. Impact of the project on the wildlife in the surrounding and any other protected area and accordingly, detailed mitigative measures required, should be worked out with cost implications and submitted.

17) Location of National Parks, Sanctuaries, Biosphere Reserves, Wildlife Corridors, Ramsar site Tiger/ Elephant Reserves/(existing as well as proposed), if any, within 10 km of the mine lease should be clearly indicated, supported by a location map duly authenticated by Chief Wildlife Warden. Necessary clearance, as may be applicable to such projects due to proximity of the ecologically sensitive areas as mentioned above, should be obtained from the Standing Committee of National Board of Wildlifeand copy furnished.

18) A detailed biological study of the study area [core zone and buffer zone (10 km radius of the periphery of the mine lease)] shall be carried out. Details of flora and fauna, endangered, endemic and RET Species duly authenticated, separately for core and buffer zone should be furnished based on such primary field survey, clearly indicating the Schedule of the fauna present. In case of any scheduled-I fauna found in the study area, the necessary plan alongwith budgetary provisions for their conservation should be prepared in consultation with State Forest and Wildlife Department and details furnished. Necessary allocation of funds for implementing the same should be made as part of the project cost.

19) Proximity to Areas declared as 'Critically Polluted' or the Project areas likely to come under the 'Aravali Range', (attracting court restrictions for mining operations), should also be indicated and where so required, clearance certifications from the prescribed Authorities, such as the SPCB or State Mining Dept. Should be secured and furnished to the effect that the proposed mining activities could be considered.

20) Similarly, for coastal Projects, A CRZ map duly authenticated by one of the authorized agencies demarcating LTL. HTL, CRZ area, location of the mine lease w.r.t CRZ, coastal features such as mangroves, if any, should be furnished. (Note: The Mining Projects falling under CRZ would also need to obtain approval of the concerned Coastal Zone Management Authority).

21) R&R Plan/compensation details for the Project Affected People (PAP) should be furnished. While preparing the R&R Plan, the relevant State/National Rehabilitation & Resettlement Policy should be kept in view. In respect of SCs /STs and other weaker sections of the society in the study area, a need based sample survey, family-wise, should be undertaken to assess their requirements, and action programmes prepared and submitted accordingly, integrating the sectoral programmes of line departments of the State Government. It may be clearly brought out whether the village(s) located in the mine lease area will be shifted or not. The issues relating to shifting of village(s) including their R&R and socio-economic aspects should be discussed in the Report.

22) One season (non-monsoon) [i.e. March-May (Summer Season); October-December (post monsoon season) ; December-February (winter season)]primary baseline data on ambient air quality as per CPCB Notification of 2009, water quality, noise level, soil and flora and fauna shall be collected and the AAQ and other data so compiled presented date-wise in the EIA and EMP Report. Site-specific meteorological data should also be collected. The location of the monitoring stations should be such as to represent whole of the study area and justified keeping in view the pre-dominant downwind direction and location of sensitive receptors. There should be at least one monitoring station within 500 m of the mine lease in the pre-dominant downwind direction. The mineralogical composition of PM10, particularly for free silica, should be given.

23) Air quality modeling should be carried out for prediction of impact of the project on the air quality of the area. It should also take into account the impact of movement of vehicles for transportation of mineral. The details of the model used and input parameters used for modeling should be provided. The air quality contours may be shown on a location map clearly indicating the location of the site, location of sensitive receptors, if any, and the habitation. The wind roses showing pre-dominant wind direction may also be indicated on the map.

24) The water requirement for the Project, its availability and source should be furnished. A detailed water balance should also be provided. Fresh water requirement for the Project should be indicated.

25) Necessary clearance from the Competent Authority for drawl of requisite quantity of water for the Project should be provided.

26) Description of water conservation measures proposed to be adopted in the Project should be given. Details of rainwater harvesting proposed in the Project, if any, should be provided.

27) Impact of the Project on the water quality, both surface and groundwater, should be assessed and necessary safeguard measures, if any required, should be provided.

28) Based on actual monitored data, it may clearly be shown whether working will intersect groundwater. Necessary data and documentation in this regard may be provided. In case the working will intersect groundwater table, a detailed Hydro Geological Study should be undertaken and Report furnished. The Report inter-alia, shall include details of the aquifers present and impact of mining activities on these aquifers. Necessary permission from Central Ground Water Authority for working below ground water and for pumping of ground water should also be obtained and copy furnished.

29) Details of any stream, seasonal or otherwise, passing through the lease area and modification / diversion proposed, if any, and the impact of the same on the hydrology should be brought out.

30) Information on site elevation, working depth, groundwater table etc. Should be provided both in AMSL and bgl. A schematic diagram may also be provided for the same.

31) A time bound Progressive Greenbelt Development Plan shall be prepared in a tabular form (indicating the linear and quantitative coverage, plant species and time frame) and submitted, keeping in mind, the same will have to be executed up front on commencement of the Project. Phase-wise plan of plantation and compensatory afforestation should be charted clearly indicating the area to be covered

under plantation and the species to be planted. The details of plantation already done should be given.The plant species selected for green belt should have greater ecological value and should be of good utility value to the local population with emphasis on local and native species and the species which are tolerant to pollution.

32) Impact on local transport infrastructure due to the Project should be indicated. Projected increase in truck traffic as a result of the Project in the present road network (including those outside the Project area) should be worked out, indicating whether it is capable of handling the incremental load. Arrangement for improving the infrastructure, if contemplated (including action to be taken by other agencies such as State Government) should be covered. Project Proponent shall conduct Impact of Transportation study as per Indian Road Congress Guidelines.

33) Details of the onsite shelter and facilities to be provided to the mine workers should be included in the EIA Report.

34) Conceptual post mining land use and Reclamation and Restoration of mined out areas (with plans and with adequate number of sections) should be given in the EIA report.

35) Occupational Health impacts of the Project should be anticipated and the proposed preventive measures spelt out in detail. Details of pre-placement medical examination and periodical medical examination schedules should be incorporated in the EMP. The project specific occupational health mitigation measures with required facilities proposed in the mining area may be detailed.

36) Public health implications of the Project and related activities for the population in the impact zone should be systematically evaluated and the proposed remedial measures should be detailed along with budgetary allocations.

37) Measures of socio economic significance and influence to the local community proposed to be provided by the Project Proponent should be indicated. As far as possible, quantitative dimensions may be given with time frames for implementation.

38) Detailed environmental management plan (EMP) to mitigate the environmental impacts which, should inter-alia include the impacts of change of land use, loss of agricultural and grazing land, if any, occupational health impacts besides other impacts specific to the proposed Project.

39) Public Hearing points raised and commitment of the Project Proponent on the same along with time bound Action Plan with budgetary provisions to implement the same should be provided and also incorporated in the final EIA/EMP Report of the Project.

40) Details of litigation pending against the project, if any, with direction /order passed by any Court of Law against the Project should be given.

41) The cost of the Project (capital cost and recurring cost) as well as the cost towards implementation of EMP should be clearly spelt out.

42) A Disaster management Plan shall be prepared and included in the EIA/EMP Report.

43) Benefits of the Project if the Project is implemented should be spelt out. The benefits of the Project shall clearly indicate environmental, social, economic, employment potential, etc.

44) Besides the above, the below mentioned general points are also to be followed:-

a) All documents to be properly referenced with index and continuous page numbering.

b) Where data are presented in the Report especially in Tables, the period in which the data were collected and the sources should be indicated.

c) Project Proponent shall enclose all the analysis/testing reports of water, air, soil, noise etc. using the MoEF&CC/NABL accredited laboratories. All the original analysis/testing reports should be available during appraisal of the Project.

d) Where the documents provided are in a language other than English, an English translation should be provided.

e) The Questionnaire for environmental appraisal of mining projects as devised earlier by the Ministry shall also be filled and submitted.

f) While preparing the EIA report, the instructions for the Proponents and instructions for the Consultants issued by MoEF vide O.M. No. J-11013/41/2006-IA.II(I) dated 4th August, 2009, which are available on the website of this Ministry, should be followed.

g) Changes, if any made in the basic scope and project parameters (as submitted in Form-I and the PFR for securing the TOR) should be brought to the attention of MoEF&CC with reasons for such changes and permission should be sought, as the TOR may also have to be altered. Post Public Hearing changes in structure and content of the draft EIA/EMP (other than modifications arising out of the P.H. process) will entail conducting the PH again with the revised documentation.

h) As per the circular no. J-11011/618/2010-IA.II(I) dated 30.5.2012, certified report of the status of compliance of the conditions stipulated in the environment clearance for the existing operations of the project, should be obtained from the Regional Office of Ministry of Environment, Forest and Climate Change, as may be applicable.

i) The EIA report should also include (i) surface plan of the area indicating contours of main topographic features, drainage and mining area, (ii) geological maps and sections and (iii) sections of the mine pit and external dumps, if any, clearly showing the land features of the adjoining area.

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जिला खनन् कार्यालय, नवादा।

पत्रांक- 2503 /ख0,

प्रेषक,

खनिज विकास पदाधिकारी,
नवादा।

सेवा में,

TODAY'S FASHION,
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नवादा, दिनांक 2/12/2022

विषय :– **नवादा जिलान्तर्गत बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट) की आगामी पाँच वर्षों के लिए बन्दोबस्ती हेतु दिनांक– 28.11.2022 को सम्पन्न ई–नीलामी में उच्चतम् डाकवक्ता घोषित होने के फलस्वरूप सैद्धांतिक स्वीकृत्यादेश के संबंध में।**

महाशय,

उपर्युक्त विषयक नवादा जिलान्तर्गत **बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट), रकवा– 62 हेक्टेयर** की आगामी पाँच वर्षों के लिए बन्दोबस्ती हेतु दिनांक– 28.11.2022 को सम्पन्न ई–नीलामी में **निर्धारित सुरक्षित जमा राशि मो0– 5,58,00,000/– (पाँच करोड़ अट्ठावन लाख) रू0** के विरूद्ध आपके द्वारा **मो0– 15,06,60,000/– (पन्द्रह करोड़ छः लाख साठ हजार) रू0** की उच्चतम डाक बोली गई है, फलस्वरूप आप उच्चतम डाकवक्ता घोषित हुए हैं। निविदा दस्तावेज की कंडिका– 20 (i) के आलोक में आपके द्वारा नीलामी राशि की 25 प्रतिशत राशि (जमा अग्रधन राशि समायोजनोपरान्त) **प्रतिभूति जमा के रूप में मो0– 2,37,15,000/– (दो करोड़ सैंतीस लाख पन्द्रह हजार) रू0** के भुगतान का साक्ष्य कार्यालय में प्रस्तुत किया गया है।

निविदा दस्तावेज की कंडिका 20(i)(ii)(iii)(iv)(v) के आलोक में जिलान्तर्गत बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट) के सैद्धांतिक स्वीकृति की शर्त्त एवं बंधेज निम्नवत् हैं :–

1. **बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट) से संबंधित विवरणी निम्नवत् है :–**

क्र.	नदी का नाम	रकवा (हेक्टेयर में)	Geo CO-ORDINARE			
			A	B	C	D
1	सकरी (Non-Perennial)	62	24°53'31.02"N 85°35'16.05"E	24°53'29.11"N 85°35'30.14"E	24°54'27.47"N 85°35'41.52"E	24°54'30.17"N 85°35'33.05"E
2	वन क्षेत्र से दूरी		08Km			
3	सुरक्षित क्षेत्र/वन अभ्यारण्य क्षेत्र/पक्षी अभ्यारण्य/वन्य जीव आश्रयण क्षेत्र से दूरी		लागू नहीं।			
4	बालूघाट/बालूखण्ड से 500 मीटर के अन्दर खनन पट्टा क्षेत्र की स्थिति		लागू नहीं।			
5	पुरातात्विक स्थल से दूरी		लागू नहीं			
6	खनन योग्य मात्रा		744000 घनमीटर			

2. **भुगतान की शर्त्तें :–**

(i) नीलामी–राशि केवल प्रथम वर्ष के लिए बंदोबस्ती की राशि मानी जाएगी। दूसरे वर्ष और उसके अनुक्रमी वर्षों में बंदोबस्ती की राशि गत् वर्ष की बंदोबस्ती राशि के 120 प्रतिशत् अथवा समय–समय पर सरकार द्वारा निर्धारित निदेशों के अनुरूप होगा।

(ii) प्रतिभूति जमा के अतिरिक्त आपको निम्नलिखित समय सारणी/भुगतान अनुसूची के अनुसार बंदोबस्ती की राशि का भुगतान करना होगा :–

किस्त	भुगतान की नियत तारीख
प्रथम किस्त (50%)	(क) पट्टा संविदा निष्पादन से पहले (पहले वर्ष के लिए) (ख) प्रथम वर्ष में पट्टा संविदा निष्पादन की तिथि से एक वर्ष पूरा होने के 60 दिन पूर्व और अनुक्रमिक वर्षों में इसी प्रक्रिया का पालन करते हुए जमा किया जायेगा।
द्वितीय किस्त (25%)	पट्टा संविदा निष्पादन की तिथि से 03 महीना पूरा होने से पहले।
तृतीय किस्त (25%)	पट्टा संविदा निष्पादन की तिथि से 06 महीना पूरा होने से पहले।

3. **GST का भुगतान :–** जी0एस0टी0 के रूप में प्रचलित दर के अनुसार राशि वाणिज्य कर विभाग को भुगतान करना होगा। जिला खनन् कार्यालय, नवादा में जी0एस0टी0 भुगतान का प्रमाण प्रत्येक किस्त के साथ देना होगा।

4. **आयकर/अन्य करों का भुगतान :–** आयकर अधिनियम के तहत आयकर एवं उस पर नियमानुसार देय अधिभार का भुगतान आयकर विभाग के प्रचलित दर के अनुसार एक मुश्त करना होगा। यह राशि बंदोबस्ती राशि के प्रत्येक किस्त के साथ देय होगी। जिला खनन् कार्यालय, नवादा द्वारा यह राशि आयकर मद में जमा करा दी जायेगी।

5. **जिला खनिज फाउन्डेशन :–** जिला खनिज फाउन्डेशन नियमावली, 2018 के अनुसार बंदोबस्ती राशि की 2 प्रतिशत राशि जिला खनिज फाउण्डेशन, नवादा के नाम भुगतेय बैंक ड्राफ्ट के माध्यम से करना होगा।

6. **वैधानिक अनापत्ति :–** बालूघाट संचालन हेतु आवश्यक समस्त वैधानिक अनापत्ति/अनुमति यथाः– खनन योजना, पर्यावरणीय स्वीकृति, जल एवं वायू सहमति आदि आपके द्वारा सैद्धांतिक स्वीकृत्यादेश (LOI) निर्गत तिथि से तीन माह की अवधि के अन्दर प्राप्त करना सुनिश्चित करेंगे। वैधानिक अनापत्ति/अनुमति प्राप्त करने के पश्चात् ही बालू खनन प्रारंभ किये जाने हेतु कार्यादेश निर्गत किया जा सकेगा। वैधानिक अनापत्ति/अनुमति निम्नानुसार हैः–

i. **खनन योजनाः–** खनन योजना प्रभावी नियमों में उल्लिखित प्रावधानों के अनुसार सफल डाकवक्ता/बंदोबस्तधारी द्वारा QCI/NABET से मान्यता प्राप्त Professional RQP से तैयार कर निदेशक, खान या विभाग द्वारा प्राधिकृत पदाधिकारी के समक्ष लेटर ऑफ इंटेंट निर्गत होने से 30 दिनों के अन्दर अनुमोदन के लिए प्रस्तुत करेगा। खनन योजना बनाने पर होने वाले व्यय का वहन संबंधित खनिज डाकवक्ता/बंदोबस्तधारी द्वारा किया जायेगा। साथ ही खनन योजना की जाँच हेतु समाहर्त्ता/विभाग अन्य ऐजेंसी चयनित कर सकेगा, जिसका निर्धारित फीस/खर्च भी बंदोबस्तधारी को ही वहन करना होगा। सफल डाकवक्ता/बंदोबस्तधारी खनन योजना के अनुसार खनन करना सुनिश्चित करेंगे।

ii. **पर्यावरणीय स्वीकृतिः–** सफल डाकवक्ता/बंदोबस्तधारी खनन योजना अनुमोदन के 15 दिनों के अन्दर पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार के सक्षम प्राधिकार के समक्ष पर्यावरणीय स्वीकृति (EC) के लिए प्रस्ताव समर्पित करेगा। समयबद्ध रीति से पर्यावरणीय एवं अन्य वैधानिक स्वीकृति प्राप्त करना सफल डाकवक्ता की जिम्मेवारी होगी। अपेक्षित पर्यावरणीय स्वीकृति एवं अन्य आवश्यक स्वीकृति प्राप्त करने में किसी भी प्रकार की देरी के लिए सफल डाकवक्ता स्वंय जिम्मेवार होंगे एवं इस संबंध में किसी भी प्रकार की क्षतिपूर्ति के लिए कोई भी दावा मान्य नहीं होगा।

iii. **जल एवं वायु सहमतिः–** पर्यावरणीय स्वीकृति प्राप्त करने के पश्चात सफल डाकवक्ता अधिकतम 07 (सात) दिवस के अंदर जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के अधीन सक्षम पदाधिकारी के समक्ष सहमति/ Consent to Establish/ Consent to Operate प्राप्त करने हेतु आवेदन प्रस्तुत करेगा।

iv. **खनन के लिए अनुमत मात्राः–** खनन योजना, पर्यावरणीय स्वीकृति तथा जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के तहत प्राप्त सहमति मे वर्णित बालू की मात्रा (इनमें से जो भी कम हो) तक ही खनन अनुमान्य होगा। यदि अनुमोदित खनन योजना, पर्यावरणीय स्वीकृति तथा जल एवं वायु सहमति में खनन योग्य मात्रा कम किये जाने पर भी वार्षिक देय बंदोबस्ती राशि किसी स्थिति में कम नहीं की जाएगी।

v. बिना किसी वैध कारण के पर्यावरणीय स्वीकृति, Consent to Establish/ Consent to Operate /जल एवं वायु सहमति प्राप्त नहीं कर पाते है या प्राप्त करने में रूचि नहीं लेते है तो, समाहर्त्ता द्वारा अग्रधन की राशि को जप्त कर लिया जाएगा।

7. <u>बंदोबस्ती विलेख/पट्टा संविदा (डीड) निष्पादन करना :–</u>

i. सफल डाकवक्ता द्वारा सभी वैधानिक अनापत्ति प्राप्त करने के उपरान्त 5 वर्षों की अवधि के लिए बालू खनन करने हेतु समानुदान/बन्दोबस्ती स्वीकृत किया जाएगा। सफल डाकवक्ता विहित प्रपत्र में संबंधित नियमानुसार बंदोबस्ती विलेख अथवा उसके समरूप एक प्रपत्र, कार्य आरंभ करने के पहले, निष्पादित करेगा तथा यथा विहित अपेक्षित प्रतिभूति राशि जमा देगा। बंदोबस्तधारी के पट्टे की अवधि विलेख/संविदा निष्पादन की तिथि से पॉच वर्षों के लिए विधिमान्य होगा।

ii. बंदोबस्तधारी को निष्पादित **संविदा का निबंधन संबंधित विभाग के प्रचलित नियमों के अधीन 01 माह के अन्दर** कराना अनिवार्य होगा।

8. <u>सामान्य शर्त्तें :–</u>

(i) बंदोबस्तधारी नदी तट से बालू प्रेषण के बिन्दु पर एक साईनबोर्ड एवं सीमा स्तंभ का अधिष्ठापन करायेगा जिसपर बंदोबस्तधारी का नाम एवं पता, बंदोबस्ती की अवधि, स्थानीय मैनेजर का नाम एवं पता तथा बालू का विक्रय मूल्य प्रदर्शित किया जाएगा। यदि साईन बोर्ड निरीक्षण में नहीं पाया गया तो शास्ति अधिरोपित की जाएगी।

(ii) बंदोबस्तधारी श्रम विधियों के प्रावधानों के अनुसार आश्रय गृह, पीने का पानी, शिशु गृह (क्रेचेज) तथा फर्स्ट एड किट की व्यवस्था संबंधित बालूघाटों में लगे श्रमिकों के लिए करेगा।

(iii) बंदोबस्तधारी संबंधित क्षेत्रों का निरीक्षण करेगा तथा स्वयं/ अथवा अपने द्वारा अधिकृत प्रतिनिधियों के माध्यम से बालूघाटों का प्रचालन करेगा। किसी रूप में किये गये उपपट्टा (सबलेटिंग) के लिए बंदोबस्ती रद्द कर दी जाएगी। बालूघाटों/नदी तल तक बालू के परिवहन के प्रयोजनार्थ पहुँच–पथ (अप्रोच रोड़) का निर्माण सफल डाकवक्ता/बंदोबस्तधारी द्वारा स्वयं अपने खर्च से किया जाएगा।

(iv) बालूघाट की सुरक्षा की जिम्मेदारी सफल डाकवक्ता/बंदोस्तधारी की होगी।

(v) सफल डाकवक्ता/बंदोबस्तधारी बंदोबस्त क्षेत्र के भीतर किसी अवैध खनन के लिए जिम्मेवार होगें और पाई गई किसी शिकायत पर गंभीरता से विचार किया जाएगा तथा बंदोबस्तधारी के विरूद्ध अपराधिक मामला दायर किया जाएगा।

(vi) सफल डाकवक्ता/बंदोबस्तधारी समाहर्त्ता द्वारा बालूघाटों के संचालन के संबंध में लोकहित में जारी निर्बंधनों और शर्त्तों तथा निदेशों का पालन करेगा।

(vii) यथोक्त शर्त्तों, बंधेजों एवं निर्बधनों का पालन नहीं करने पर कारण पृच्छा निर्गत कर बंदोबस्ती रद्द करने की कार्रवाई की जा सकेगी ।

(viii) सफल डाकवक्ता/बंदोबस्तधारी को खनन राजस्व/जी0एस0टी0/आयकर/स्टाम्प शुल्क/ रजिस्ट्रेशन फीस का भुगतान नही करने की दशा में 30 दिनों के अंदर कारण स्पष्ट करने हेतु नोटिस दी जायेगी। निर्धारित अवधि के अंदर सफल डाकवक्ता/बंदोबस्तधारी द्वारा बकाया का भुगतान करने में असफल रहने की दशा में राशि वसूली की कार्रवाई के साथ–साथ बंदोबस्ती रद्द करने की भी कार्रवाई की जाएगी।

(ix) नीलामी हेतु प्रस्तावित बालूघाटों से संबंधित तकनीकी तथा अन्य बिन्दुओं यथा भूमि के अंचल, थाना, मौजा, खाता, खेसरा, रकबा तथा GPS Co-ordinate के संबंध में विवाद/त्रुटि पाए जाने पर संशोधन का अधिकार संबंधित जिला खनन कार्यालय का होगा। बालूघाटों का सीमांकन एवं नियमानुसार निर्धारित आयाम/विशिष्टियों का सीमा स्तंभ का अधिष्ठापन GPS Co-ordinate के अनुसार बालू बंदोबस्तधारी को कराना होगा तथा खनन के क्रम में संधारित कराना सफल डाकवक्ता/बंदोबस्तधारी की जवाबदेही होगी, जिसे RQP/ अंचलाधिकारी की उपस्थिति में प्रमाणित कराकर खनन कार्य कराना होगा। बालूघाटों के निर्धारित क्षेत्र का Reduced Level (RL)/Pre-Level (PL) एवं Satellite images मानसून के पूर्व एवं बाद का समर्पित करना होगा।

(x) बालूघाट से लिकं रोड और बालूघाट के बीच कोई प्राकृतिक जल मार्ग, सिचांई नहर पडती हो तो सफल डाकवक्ता/बन्दोबस्तधारी जल ससांधन विभाग की पूर्व अनुमति से अस्थायी संरचनाएँ खड़ा कर सकेगा। पूर्व अनुमति के लिए ऐसे आवदेन जल ससांधन विभाग के सबंधित मुख्य अभियतां के समक्ष दिए जाएगें।

(xi) बालूघाट में रैयती/बंदोबस्त जमीन होने पर संबंधित रैयत से सहमति प्राप्त कर बालू का खनन करना होगा। यह जिम्मेदारी पूर्णतः बंदोबस्तधारी की होगी एवं विभाग से कोई क्षतिपूर्ति का दावा मान्य नहीं होगा।

(xii) बंदोबस्तधारी द्वारा बंदोबस्ती अवधि के दौरान किसी भी कारण से खनन कार्य नहीं करने की स्थिति में किसी भी प्रकार का मुआवजा/नुकसान एवं क्षतिपूर्ति का दावा मान्य नहीं होगा।

(xiii) ई–नीलामी एवं बालूघाट की बंदोबस्ती अवधि के दौरान उत्पन्न किसी भी प्रकार का विवाद बिहार खनिज (समानुदान, अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली 2019, (यथा संशोधित) के अधीन होगा।

(xiv) सफल डाकवक्ता/बन्दोबस्तधारी को इलेक्ट्रॉनिक माध्यम से भेजी गई कोई भी सूचना/निदेश /आदेश इत्यादि IT Act के तहत स्वीकार्य साक्ष्य के रूप में माना जायेगा।

खनिज विकास पदाधिकारी,
नवादा।

बिहार सरकार,
खान एवं भूतत्व विभाग।

पत्रांक– 215 /एम0, पटना, दिनांक– 12/1/2023

प्रेषक,

मो0 मोईज उद्दीन,
संयुक्त सचिव।

सेवा में,

Email

TODAY'S FASHION,
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विषयः– **नवादा जिलान्तर्गत बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट) के खनन योजना के अनुमोदन के संबंध में।**

महाशय,

उपर्युक्त विषय के संबंध में कहना है कि बिहार बालू खनन नीति–2019 यथा संशोधित एवं बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 (यथा संशांधित 2021) के नियम–17 में वर्णित प्रावधानों के तहत् **नवादा जिलान्तर्गत बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट)** से संबंधित समर्पित खनन योजना के अनुमोदन पर प्राधिकृत समिति द्वारा समीक्षा की गई। समीक्षोपरांत निम्न शर्त्तों एवं बंधेजों के तहत् खनन योजना अनुमोदित की जाती है –

1. उक्त खनन योजना केन्द्र सरकार/राज्य सरकार द्वारा विनियमित अन्य सभी अधिनियम/ नियमावली में वर्णित प्रावधानों को तथा किसी न्यायालय/अन्य न्यायिक संस्था द्वारा पारित किये गये न्यायादेश को बिना प्रभावित किये अनुमोदित किया जा सकता है।
2. उक्त खनन योजना का अनुमोदन खान एवं खनिज (विकास एवं विनियमन) अधिनियम, 1957 (यथा संशोधित), बिहार खनिज (समानुदान अवैध खनन, परिवहन एवं भंडारण निवारण) नियमावली, 2019 के नियम–17, वन संरक्षण अधिनियम, 1980, पर्यावरण सुरक्षा अधिनियम, 1986, श्रम संबंधी नियम, EMGSM 2020 तथा अन्य सभी सुसंगत अधिनियम/ नियमावली तथा उनमें वर्णित प्रावधानों के प्रतिकूल नही होगा। लीज के रकवा के अनुसार प्रति हेक्टेयर कम से कम 10 पौधा लगाना होगा तथा 50 प्रतिशत Survival सुनिश्चित करना होगा।
3. खनन योजना में निहित शर्त्तों का पालन करते हुए ही बालू खनिज का खनन् तथा प्रेषण किया जायेगा।
4. संबंधित सक्षम प्राधिकार से यथा वांछित प्रमाण–पत्र प्राप्त कर विभाग को अवगत कराना अनिवार्य होगा।
5. यदि किसी भी समय खनन योजना में वर्णित शर्त्तों के अनुपालन में अनियमितता पायी जाती है, तो खनन पदाधिकारी को नियमानुसार आवश्यक कार्रवाई करने का अधिकार होगा।
6. संबंधित बालूघाट में खनिज की उपलब्धता, पहुँच पथ का निर्माण तथा अन्य खनन् कार्यों से संबंधित सम्पूर्ण जबाबदेही बालूघाट संचालनकर्त्ता की होगी तथा इसमें किसी भी तरह का कोई दावा अथवा क्षतिपूर्ति मान्य नहीं होगा।
7. खनन योजना मे वर्णित सभी तकनीकि तथा अन्य बिन्दुओं से संबंधित ऑकड़ों की सत्यता / वैधता की जिम्मेवारी RQP/बंदोबस्तधारी की होगी तथा भविष्य में उपर्युक्त के संबंध में किसी प्रकार की भिन्नता/अनियमितता की पूरी जबावदेही RQP/बंदोबस्तधारी की होगी।

P.T.O.

MINING PLAN

WITH

PROGRESSIVE MINE CLOSURE PLAN

DEPARTMENT MINES AND GEOLOGY, GOVT. OF BIHAR * PATNA *

Submitted under Rule (17) of Bihar Minerals (concession, prevention of illegal transportation & storage) Rules 2019

OF

BLOCK- 05 (JAMUAWAN PATWA SARAY) SAND GHAT (SAKRI RIVER)

Mauja– Jamuawan Patwa Saray, Block– Nawada,
Dist– Nawada (Bihar)

APPLIED AREA- 62.0 HECTARES

PLAN PERIOD: FOR FIVE YEARS

APPROVED
Vide Dept. of Mines & Geology
Govt. of Bihar, Patna
Letter No. 215 Dt. 12/01/2023

Settlee

TODAY'S FASHION
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S/o.- Md. Sabir Khan,
Add.- Islam Nagar, Gondapur, Nawada,
Bihar- 805110.
Mob.- 9934440367.
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CONTENT

DEPARTMENT MINES AND GEOLOGY, GOVT. OF BIHAR * PATNA *

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LIST OF ANNEXURES

ANNEXURE NO.	NAME OF ANNEXURE
1	COPY OF LETTER OF INTENT
2	COPY OF RQP CERTIFICATE

LIST OF PLATES

PLATE NO.	LIST OF PLATES
1	LOCATION PLAN
2	GOOGLE , ROUTE MAP
3	KEY PLAN
4	LEASE MAP
5	SURFACE GEOLOGICAL PLAN
6	GEOLOGICAL SECTION
7A	DEVELOPMENT PLAN PRE MONSOON
7B	DEVELOPMENT PLAN MONSOON
7C	DEVELOPMENT PLAN POST MONSOON
8	ENVIRONMENT MANAGEMENT PLAN
9	PROGRESSIVE MINE CLOSURE PLAN

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MINING PLAN

PART A
CHAPTER–1

1. INTRODUCTION

1.1	Settlee Name & Full address Phone. No. E-mail ID	TODAY'S FASHION, Prop.- Md. Dawood Khan, S/o.- Md. Sabir Khan, Add.- Islam Nagar, Gondapur, Nawada, Bihar- 805110. 9934440367 ishuwishu41@gmail.com
1.2	Letter no. / date of lease execution & lease period	District Mining office issue LOI on letter no. 3503/khanan dated. 07.12.2022 for a period of 05 years (Annexure No. -1)
1.3	Settlee post/social status	Private
1.4	Mineral or Minerals which the Settlee intends to mine	Sand
1.5	Applied area for mining lease	Block- 05 (Jamuawan Patwa Saray) Sand Ghat Lease has an applied area of 62.0 Hectare.
1.6	Name & address of RQP & Regd. No. Mobile No. E-mail ID	Er. Pravin Kr Sinha Reg. No. - RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019 **Consultant :** P & M Solution 201,Mangal Market Raja Bazar, Patna (Bihar) 9889024004 & 7542949027 indusminingbihar@gmail.com
1.7	RQP Certificate	RQP certificate copy attached as **Annexure 2**
1.8	Name of the Prospecting agency	The base data is collected from various geological reports of the Department of Mines & Geology and local authorities as well as detailed prospecting of the area is carried out by the RQP.
1.9	Status of Environmental clearance	After Mining Plan approval then Settlee shall submit application to state Environment Impact Assessment Authority (SEIAA) of Bihar for environment clearance.
2.0	Date of Survey	09.12.2022

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CHAPTER–2

2. PROJECT DESCRIPTION

2.1 JUSTIFICATION OF PROJECT

Sand is a ubiquitous material; available everywhere and is being used from the time immemorial for wide applications in our daily life; infrastructures, building construction, highways, roads, townships, multiplexes, foundations of buildings and industrial units etc. and is an integral part of development. Over the millennia, the weathering effect, the flow of water at high velocities in rivers and the pressure of water from the high mountainous reservoirs converted and pushed the hard ground underneath into sand, etc. which travelled as sediments with the flow. Huge amount of sand get deposited along the river course wherever conditions were favorable. As a result of continuous deposit of sand, the rivers may change their course, by widening itself and expanding, can result in flooding, inundation and breaking their banks, may cause devastation of property and loss of life. The rivers thus, needed channelization and therefore, extraction of sand through mining was expedient. The haphazard mining of sand being practiced now for long, through unregulated, uncontrolled and illegal way added almost an irreversible damage to the environment, which became a cause of serious concern to everyone. Though sand is a very important mineral source for development, its mining through scientific methods has also become equally imperative.

It is for this purpose that 'mining plan' is being drawn so that all its aspects are taken care of justifiably, according to law, protecting the environment, removing all adverse impacts and creating a direct and indirect employment opportunities, improving socio-economic conditions of the local inhabitants and all-around status of life, achieving thereby a sustainable development.

Besides the above, the process of mining of minor minerals (Sand) is a constant source of revenue generation to the State Government through Royalty.

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2.2 BACKGROUND OF THE PROJECT

The Department of Mines & Geology, Bihar required under Bihar Minerals (Concession, Prevention of Illegal Mining, Transportation & Storage) Rules, 2019 & Bihar Sand Mining Policy, 2019. The general conditions of mining lease for minor minerals are mentioned here below:

- First the State Government shall identify the areas which are suitable for river bed mining based on quantity of the minor minerals available and suitable from ecological and environmental aspects as well.
- Under rule 17 (4) Approval and submission of Mining Plan - All Mineral Concession Holders or the Government/Corporation as the case may be shall submit a mining Plan duly prepared by an RQP and approved by the Director or any officer / person/academic institution/Govt. agency authorized by the Department in this regard within a period of three months from the date on which communication regarding grant of mineral concession is received or such other period as may be decided/ allowed by the department for the submission of the approved Mining Plan.
- While preparing the mining plan, proper attention has been paid to ensure that the relevant provisions under MMDR Act-1957, MMR-1961, Mines Act-1952 & Mines Rules-1955, Sustainable Sand Mining Guidelines – 2016 and Enforcement & Monitoring Guidelines for sand Mining - 2020 have been followed. All safety measures, provided in the statue, will be taken into consideration. On 17.09.2019 Bihar Government took its policy decision vides notification no. – 4/V.Mu-20-93 / 18-3174 /M . That all Mining Lessee / Settlee under rule 17 of the said Rules, the lessee shall submit the mining plan with Progressive Mine closure plan for approval to the competent officer , Department of Mines & Geology, Bihar
- Mining operation to be in accordance with Environmental clearance.
- For baseline, data assistance has been taken from the data, available from local authorities.

2.3 RESTRICTED AREAS FOR SAND QUARRYING

i. The quarrying of sand shall be prohibited within up to a distance of 1 kilometre (1km) from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down-stream side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

ii. No quarrying shall be permitted within 50 (fifty) meters of any public place i.e. cremation Ghat or any religious place etc.

iii. No quarrying shall be allowed to be extracted where erosion may occur, such as at the concave bank.

Prepared by: Pravin K. Sinha Reg. No. - RQP/BH/SS/NO.20, Letter No. 3825 Dated 07/11/2019

iv. The quarrying of sand shall be prohibited within 100 (one hundred) meters upstream and downstream from any dam/weir or any other structure erected for irrigation purpose.

v. Sand Ghats should preferably be located on the river side embankment. For low embankment less than 6 meters height, quarrying should not be done within 25 meter from toe/heel of the embankment and depth of mining should not be more than 2.0 meter. In case of higher embankments, the distance should not be less than 50 meter and depth of mining should be maximum 1.50 meter and at a distance of 75 meter of more mining depth should be maximum 2.0 meter. In order to obviate the development of flow parallel to embankment, crossbars of width eight times the depth of mining pits spaced at 50 to 60 meters center to center should be left in the mining pits.

vi. The irrigation outlet shall be maintained at the same level as that of the river bed and in no case, the river bed level shall be permitted to be below the irrigation outlet level. No quarrying shall be permitted around the infiltration well/intake well up to a distance of 5 meters.

vii. No quarrying of sand shall be permitted in any private land owned by a person other than a settlee unless the settlee obtains the consent of the concerned land owner/raiyat.

viii. No quarrying of sand shall be permitted in any area which the State Government notifies as restricted area.

ix. Mining depth should be restricted to 2 meters and distance from the bank should be ¼th or river width and should not be less than 7.5 meters.

x. Demarcation of mining area with pillars and geo-referencing should be done prior to the start of mining.

xi. A buffer distance /un-mined block of 50 meters after every block of 1000 meters over which mining is undertaken or at such distance as may be the directed/prescribed by the regulatory authority shall be maintained.

xii. River bed sand mining shall be restricted within the central 3/4th width of the river/rivulet or 7.5 meters (inward) from river banks but up to 10% of the width of the river as the case may be and decided by regulatory authority while granting environmental clearance in consultation with irrigation department. Regulating authority while regulating the zone of river bed mining shall ensure that the objective to minimize the effects of riverbank erosion and consequential channel migration are achieved to the extent possible. In general, the area for removal of minerals shall not exceed 60% of the mine lease area, and any deviation or relaxation in this regard shall be adequately supported by the scientific report.

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CHAPTER–3

3. LOCATION, GENERAL AND ACCESSIBILITY

3.1 LOCATION

(a) Details of the area

(i)	**Lease-hold area**	62.0 Hect.
	Location	The Block- 05 (Jamuawan Patwa Saray) Sand Ghat fall in Mauja– Jamuawan Patwa Saray, Block– Nawada, Dist- Nawada, (Bihar). The location plan is enclosed (Plate No. 1)
(ii)	**Mining Lease Map**	Khesra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372. Khata No. - 547, 548. Google Map of Block- 05 (Jamuawan Patwa Saray) Sand Ghat is attached as **Annexure no. 3.**
(iii)	**District & State**	Nawada, Bihar
(iv)	**Mining Plot**	**Sand Ghat** / **River** / **Area (ha)**: Block- 05 (Jamuawan Patwa Saray) Sand Ghat / Sakri / 62.0; **Total** / / **62.0**
(v)	**Name of Ghat**	Block- 05 (Jamuawan Patwa Saray) Sand Ghat of 62.0 hectares.
(vi)	**Ghat details**	62.0 ha (Sakri River bed)
(vii)	**Coordinates**	The area & geographical coordinates of Block- 05 (Jamuawan Patwa Saray) Sand Ghat is given in **Table No.1** **Toposheet No.** – 72H/09.

BLOCK- 05 (JAMUAWAN PATWA SARAY) SAND GHAT CO-ORDINATES

S. No	Sand Ghat	Area (in Ha)	Co-ordinates		Ghat/Village	River
1	Block- 05 (Jamuawan Patwa Saray) Sand Ghat	62.0	A	24°53'31.02"N 85°35'16.05"E	Mauja– Jamuawan Patwa Saray, Block– Nawada, Dist - Nawada (Bihar).	Sakri
			B	24°53'29.11"N 85°35'30.14"E		
			C	24°54'27.47"N 85°35'41.52"E		
			D	24°54'30.17"N 85°35'33.05"E		

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(b) Key plan of area:-

Key plan of Block- 05 (Jamuawan Patwa Saray) Sand Ghat (Sakri River) is attached as **Plate-2.**

Total mining area is completely outside of any restricted or protected area by any state or central government.

3.2 GENERAL

(a) Mineral being worked	Sand
(b) Period of Mining Lease	The lease period has been granted for Five years.
(c) Category of Land used	The mining area is inactive channel of riverbed
(d) Relief of Plot	Block- 05 (Jamuawan Patwa Saray) Sand Ghat (85 ASML to 87.4 ASML)
(e) Existing pits	As the mining area is of river bed and it will be replenished every year no pits will be formed..
(f) Type of lease area:	Total area is almost hundred percent river bed flood plain land & it is free from forest land.
(g) Present land use pattern:	The existing land use is given below:

Sr. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	
5	Balance undisturbed land	62.0	-	-	
	Total	62.0	-	-	-

3.3 ACCESSIBILITY

Nawada is located between North Latitudes 24° 31': 25° 08' and East Longitudes 85° 00': 86° 03' and falls on Survey of India Degree sheet No. 72 H & 72 G. The district is bounded in north by Nalanda and Sheikhpura district, in east by Jamui district, in west by Gaya district, while southern half boundary of district is bounded by Jharkhand state boundary. The district is having a geographical area of 2494 Sq. Km and occupying 1.43% of the total geographical area of the Bihar State.

The city is well connected to all other parts of the state by roadways and railways. The renamed north-south National Highway NH 20, which is part of the Asian Highway Network and AH42 runs through Nawada and connects Nawada to major cities like Kolkata, Asansol, Ranchi, Jamshedpur, Bokaro, Dhanbad, Bihar Sharif and Patna. State Highway 8 runs through Nawada and connects it to other important parts of the district like Hisua, Pakri Barawan and Warisaliganj, and to the neighbouring district Jamui SH-28. The city is also connected by the Indian Railway B.G. line, through the Gaya–Kiul line of the East Central Railway. The city is served by a direct daily train to Howrah and a weekly service to Guwahati via Bhagalpur. The state capital Patna can be reached through a stop-over at Patna Railway Station or Gaya Railway Station from where rest of India is well connected.

Project site is falls in Mauja Jamuawan Patwa Saray. Site is well connected by SH-8 road which is at distance of approx. 1.50 km in NW direction. Nearest NH/SH is SH-8 at approx. 1.50 Km in NW direction. Nearest railway station is Nawada Railway Station at distance of approx. 4.30 km in SW. Nearest airport is International Airport Patna at distance of approx. 93 km in NW.

CHAPTER-4

4.1 GEOLOGY & EXPLORATION

Topography and general geology and local / mine geology of the mineral deposit including drainage pattern

The Nawada District comprises of two distinct landscapes i.e Plain land of North and the hilly area of the south. 45% comes under the plain land which is used for agricultural purposes. Nawada is a perfect combination of natural scenery combined with panoramic views, Nalanda known for its glorious past lies on the northern side of Nawada while Hazaribagh is located in its south. In the east lies Giridih, a very beautiful and holy place and finally in the west lies Gaya. Therefore, geographically it is clear that Nawada is surrounded by all these place which are hold great historical and geographical importance.

General Geology

The main geological formation in the area is pre-Cambrian rocks of Archaean age. The crystalline rocks in the district are mica schist, granite gneiss, quartzites & quartz schist, hornblende schist & mica pegmatites etc. These rock types constitutes the hill ranges &cover south and eastern parts of Rajauli blocks,southern parts of sirdala block north central & southern parts of govindpur blocks & south, south-eastern & northern parts of kauakol block.

Availability of Mineral resources in Nawada district:-

The mineral resources of Nawada district playing massive role in industrial, social and economic development of the district.

Available mineral resources in the district

- ✓ Sand
- ✓ Sandstones
- ✓ Quartzite
- ✓ Mica

Regional Geology

Geologically, it represents nearly two third of Bihar is under cover of Ganga basin composed of alluvium and masks the nature of basement rocks.

Showing the Geological Succession and their Occurrences distribution

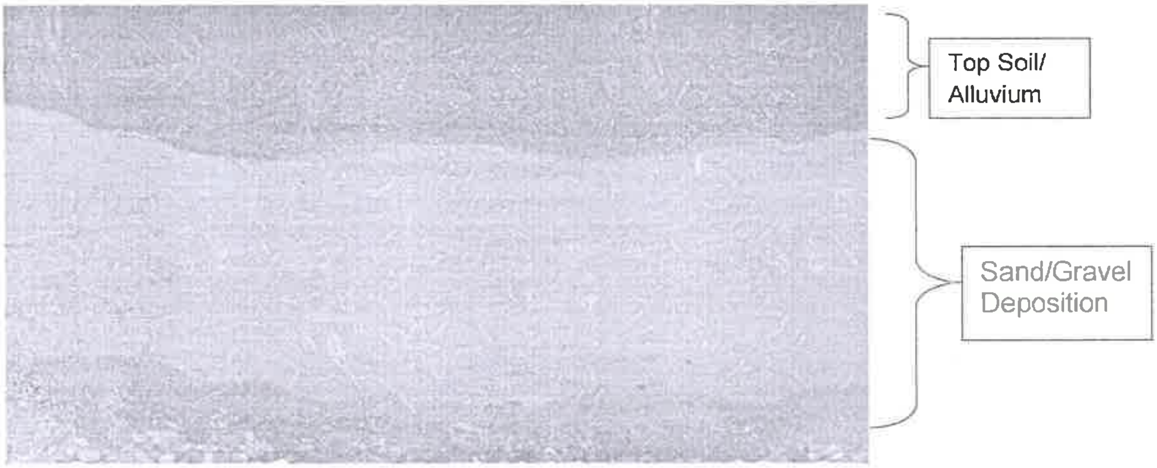
Age	Geology	Occurrences
Quaternary	Alluvial Deposits (Sand, Clay, Silt, Fragments)	North Bihar Plain & Central Bihar Plain
Tertiary	Sand Stones & Clay Stones	North Champaran Hills
Gondwana	Coal Measures, Forming a series of Small outlier basins	Banka District
Vindhyans	Sandstones, Shales, Limestones, etc.	Parts of Bahbhua and Rohtas dist
Satpura	Schist, Phyllite, Quartzite	Part of Aurangabad, Gaya, Nawada, Nalanda, Sheikhpura and Munger District
Proterozoic	Mica Schist, amphibolites, quartzite, granite, dolerite and pegmatite .	Nawada, Jamui and Banka
Archaean	Gneisses, Granites, Schists, Phyllites, quartzite, amphibolites & intrusive all metamorphosed sedimentary and igneous rocks	Part of Aurangabad. Gaya, Nawada, Jamui, Banka and Bhagalpur

4.1.3 GEOLOGY OF THE AREA

The area of the district falls in the Zone-III B, South West Alluvial Plain agro climatic zone of Bihar. The district of Nawada does not have any important perennial river. The topography of the district is plain and border area adjoining Jharkhand is rocky terrain & mountains. The area is dominated by medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to subangular and the angularity of the grains of this category of sand decreases with depth. The Litho unit shown on the geological map of the leased out area have been plotted on the basis of physical characteristics observed in the field. Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the river banks. Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River

Sakari, Dhadhar, Nati, Khuri, Tilaiya & Dhanarjay meanders through the area exposing the alluvium and soil at the banks.

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The size of the sediments towards the source i.e. host rock is course and at the tale end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds. The following sequences have been observed in the area, i.e. Top soil/ Alluvium followed by sand deposition (as shown in the figure below).



Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the riverbanks.

Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Sakari, Dhadhar, Nati, Khuri, Tilaiya & Dhanarjay meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed upto a depth of more than 2.0 m. The major part of bed remains dry as water flows in a single stream during the non-monsoon seasons. Only during rainy seasons the entire flood plain has water, when there will be no mining done.

4.2 ORIGIN & CONTROL OF MINERALIZATION (ANNUAL REPLENISHMENT OF MINERAL IN RIVER BED AREA/SEDIMENTATION)

Sedimentation, in the geological sciences, is a process of deposition of a solid material from a state of suspension or solution in a fluid (usually air or water). Broadly defined river sand is a product of natural weathering of rocks over a period of millions of years and these materials get collected under the impetus of gravity alone, as in talus deposits, or accumulations of rock debris at the base of cliffs. The term is commonly used as a synonym for sedimentary petrology and sedimentology.

Sedimentation is generally considered by geologists in terms of the textures, structures, and fossil content of the deposits lay down in different geographic and geomorphic environments.

The factors which affects the "Computation of Sediment":

Geomorphology & Drainage Pattern: The following geomorphic units plays important role:

- Structural Plain
- Structural Hill
- Structural Ridge
- Denudation Ridge & Valley
- Plain & Plateau of Gangetic plain
- Highly Dissected pediment
- Un-dissected pediment

b) Distribution of Basin Area River wise

c) Drainage System/Pattern of the area, Rainfall & Climate: Year wise Rainfall data for previous 10 years .

e) As per Dandy & Bolton study "Sediment Yield" can be related to

i) Catchment Area and

ii) Mean Annual Run-off

Sand is an essential minor mineral used extensively across the country as a useful construction constituent and variety of other uses in sports, agriculture, glass making (a form of sand with high silica content) etc. It is common knowledge that minerals are non-renewable but this form of mineral naturally gets replenished from time to time in a given river system and is very much interrelated to the hydrological cycle in a river basin.

Sand mining has become a widely spread activity and does not require a huge set up or technology, the number of ventures has increased extensively and it has become a footloose industry in itself but the backward-forward linkages are becoming stronger as many are getting employed as well as the construction activity / industry requires this mineral at consistent rates. Riverine environmental systems are unique in themselves and provide environmental services, natural resources to meet variety of needs of urban and rural communities.

4.2.1 REPLENISHMENT STUDY OF MINED AREA OF SAKRI RIVER:-

Replenishment Rate is the rate at which Bajri is transported into the river channel, which is under examination or subjected to sand extraction. This volume is often considered as sustainable yield of that river. Estimation of Bajri discharge through stream bed and its residence period (temporary deposition) is one of the most difficult task in sediment budgeting.

The rate of gross or absolute silt production (erosion) in the watershed and the ability of the stream system to transport the eroded material in a river and then to a reservoir has the direct relation with the quantity of sediment delivered into a reservoir. It has been observed that the average rate of sediment production decreases as the size of drainage area increase and the larger watershed the lesser is the variation between the rates. The larger watershed presents more opportunity for deposition of silt during its traverse from the point of production. The total amount of eroded material, which reaches a particular hydraulic control point, is termed as sediment yield. The sediment control of inflow is governed by Character of run-off; Susceptibility of soils; the extent and density of vegetative cover in the area; and the hydraulic efficiency of the drainage system.

This report quantifies the annual replenishment of bed material in the Sakri River during periods of sediment transport at high flows within the mined area. It provides estimates of the amounts of sand & bajri which will be used in construction and for other uses.

4.2.2. METHODOLOGY FOR REPLENISHMENT STUDY:-

The methodology used for Replenishment study is based on the measurement of volumetric survey at selected points as monitoring stations within the lease area in Pre-monsoon season & Post Monsoon season respectively. For the said project replenishment study has been done during the post-monsoon season has done by field survey (volumetric survey) method. Firstly Volumetric Survey was done in the proposed mining block. By this method spot RL/level are marked & mapped and sections are drawn for several monitoring locations within the mine area. After that, for post-monsoon season again spot RL/level are marked & mapped on the same location and sections are drawn. The RL(m) observed during Pre-monsoon season of all locations.

Table 7. volumetric survey measurement

Classification		Code	Quantity of Sand
A)	Mineral Reserves		Cum
1)	Proved Mineral Reserves	111	1240000
Total			**1240000**

Replenished quantity of sand = 1240000 cum. or 2232000 tonnes.

Prepared by: Pravin [illegible] Sinha Reg. No. - ROP/GH/SK NO 20, Letter No. 3825 Dated 07/[illegible]/2019

4.3 EXPLORATION

Mining of sand is being done since long time therefore no specific method of exploration is required as the sand, deposited all along the bed and its pale channels, which is very well exposed on the surface. The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to paleochannels of the river will be leveled & restored back. Adequate quantity of Sand in reserves is available for meeting consumer demand.

4.4 MINERAL RESERVES

The Mineral reserves have been estimated as per the Indian Standard Procedures. The area of the mining lease is 62.0 Hectares and the average thickness of the river bed minerals estimated as 2.0 mt.

4.4.1 PARAMETERS OF RESERVE ESTIMATION:

The geological reserves have been estimated as per UNFC guidelines in all the three axis.

Economic Axis (E-1): The Sand is exists with in the entire stretch & having no problem selling in the market. The road is near the Ghat & sand shall loaded into tipper with the deployment of an excavator & transport to various parties. The land is State Govt. land & State Govt. has given its consent for the exploitation of Sand on their expensive land. On the feasibility study, economic viability of deposit has been established sand in economic viable, therefore economic axis has been considered as E-1.

Feasibility Status (F-1): Feasibility study has been carried out & is considered to be feasibility status. A feasibility study provides a preliminary assessment with a level of confidence as compared to that of feasibility study. It has been revealed that exploitation of sand is feasible & economic viable & feasibility axis under UNFC code has been considered as F-1:

Geological Axis: The exposure of sand is seen in the entire stretch & thickness of sand varies 1.5m to 3.0m. Therefore geological axis has been considered as G-1.

Geological Reserves

The geological reserves have been each stretches & for individual blocks. Geological reserves have been completed through cross sectional area method. The area of each section line is multiplied by strike influence to get the volume.

i) **Proved Mineral Reserves (111):** All quantities of sand occurring upto depth of 2 m from surface has been considered as proved reserves.

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	1240000
Total		**1240000**

Total Geological Reserve = **1240000 cum. or 2232000 tonnes.**

*Bulk density is 1.80 g/cm^3

4.4.2 MINEABLE RESERVES:

Mineable reserves have been computed up to 2m depth from surface. Benches having height 1.5m & width 6.0m drawn from the ultimate pit limit. Area of each benches have been calculated multiplied by strike influence to get the volume. The volume multiplied by bulk density (1.80 g/cm3) to get the tonnage.

The minerals excavated from the river bed will be replenished gradually during the monsoon season every year. And the area pertaining to paleochannels of the river will be leveled & restored back.

Table-4 4:- Summary of mineable reserves of Sand Ghat as below:

BLOCK- 05 (JAMUAWAN PATWA SARAY) SAND GHAT OF SAKARI RIVER

The mineable reserves are given in **Table Nos.4**

Bench Level (mRL)	Length (m)	Width (m)	Depth (m)	Volume (cum)	Tonnes
87-86	1832	315	1	577080	1038744
86-85	1822	305	1	555710	1000278
Total				1132790	2039022

Total Mineable Reserve = 1132790 CUM or 2039022 Tonnes

- Mineable reserve has been consider 60% approx. of geological reserve after applying the guideline of Enforcement & Monitoring Guidelines for Sand Mining 2020.
- The proposed production grant in **LOI is 744000** cum per year which is within the sustainable limit of mineable reserve.
- The BD for Sand has been adopted at 1.80 g/cm3 [Noida Testing Laboratories]

• CLASSIFICATION MINERAL RESERVES:

Sand Ghat	Area (Hect)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block- 05 (Jamuawan Patwa Saray) Sand Ghat	62.0	1240000	1132790	744000

The annual extractable RBM comes to 744000 CUM or 1339200 Tonnes. It will be replenished after rainy season every year.

4.5 LIFE OF MINE

There is as such no specific life of the mine as the area under reference is inactive part of river bed of the river and its pale channels and whatever quantity of minor minerals are extracted from the Applied Area during five year; almost equal to extracted quantity of the same are replenished every year and the river bed area will be leveled & restored back. However, as lease has been granted for 5 years, mining will be done for the allotted time.

CHAPTER – 5

5.0 MINING

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 2 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height and 6m width will be maintained for mining blocks as per guideline M.M.R-2019, under rule 115(1).
- Mining will be done only during the day time and completely stopped during the monsoon season.

Restriction on mining:

i) Sand and gravel shall not be extracted up to a distance of 1 km from major bridges and highways on both sides, or five times (5x) of the span (x) of a bridge/public civil structure (including water intake points) on up-stream side and ten times (10x) the span of such bridge on down side, subjected to a minimum of 250 meters on the upstream side and 500 meters on the downstream side.

ii) No quarrying shall be permitted within 50 (fifty) metres of any public place i.e. cremation Ghat or any religious place etc.

iii) No quarrying shall be permitted within 5 (five) metres from both banks of the river.

iv) The quarrying of sand shall be prohibited within 100 (one hundred) metres upstream and downstream from any dam/weir or any other structure erected for irrigation purpose.

v) Sand Ghats should preferably be located on the river side embankment. For low embankment height less than 6 metres height, quarrying should not be done within 25 metre from toe/heel of the embankment and depth of mining should not be more than 2.00 metre. In case of higher embankments, the distance should not be less than 50 metre and depth of mining should be maximum 1.50 metre and at a distance of 75 metre of more mining depth should be maximum 2.00 metre. In order to obviate the development of flow parallel to embankment, crossbars of width eight times the depth of mining pits spaced at 50 to 60 metres center to center should be left in the mining pits.

Prepared by: Pravin Kr. Sinha Reg. No. - RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2018

vi) The irrigation outlet shall be maintained at the same level as that of the river bed and in no case the river bed level shall be permitted to be below the irrigation outlet level. No quarrying shall be permitted around the infiltration well/intake well up to a distance of 5 meters.

vii) The extraction of sand shall be permitted only after obtaining a No Objection Certificate from the Water Resources Department in the case of rivers where from irrigation channels are out flowing.

viii) No quarrying of sand shall be permitted in any private land owned by a person other than the settlee unless the settle obtains the consent of the concerned land owner/raiyat.

ix) No quarrying of sand shall be permitted in any area which the State Government notifies as a restricted area.

x) Sand and gravel shall not be allowed to be extracted where erosion may occur, such as at the concave bank.

xi) Mining depth should be restricted to 2 meters and distance from the bank should be ¼th or river width and should not be less than 7.5 meters.

5.2.1 PROPOSED METHOD OF MINING:

- Mining activity will be carried out by open cast manual/Mechanically method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited upto depth of 2.0 m only through the formation of bench height 1.0m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries & transportation of sand. The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers.
- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.0 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in maximum original topography.
- Approach roads from the various blocks as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.
- The Sand transportation shall be insured after the covering the vehicle Tarpaulin.

5.3 YEAR WISE PRODUCTION SCHEDULE:

The annual exploitation of sand from Block- 05 (Jamuawan Patwa Saray) Sand Ghat are given below :-

YEAR	Over burden (cum)	ROM Sand (cum)	Saleable Sand (cum)
1ST	-	**744000**	**744000**
2ND	-	**744000**	**744000**
3RD	-	**744000**	**744000**
4TH	-	**744000**	**744000**
5TH	-	**744000**	**744000**

The annual extractable RBM comes to **744000 CUM or 1339200 Tonnes**. It will be replenished after rainy season every year.

5.4 CONCEPTUAL MINING PLAN

Mine Applied Area will be worked for Block- 05 (Jamuawan Patwa Saray) Sand Ghat. However, as the digging depth will be restricted to 2.0 m only. This will be further replenished during rainy season. Sand Ghat will be worked systematically as the width is limited while length is much more. As the lease period is only 5 (Five) years, some of the area will be left un-worked at the end of lease period.

(i) Final Slope Angle to Be Adopted: Height of the bench is limited to m while width of individual bench shall be kept 6.0m. River bank side will be protected by working in dry part of the river and by leaving safety distance of the width of the river of 5 meter. Bank side natural slope will not be disturbed. This will prevent collapse of bank and erosion. However the height of the bank with respect to river bed is varying from 3-4 meters.

(ii) During plan period workings will be carried out in the Sand Ghat at a time of the Applied Area simultaneously. Scattered workings will ensure safety, remove congestion of vehicles and will have better control and management.

(iii) Ultimate Capacity of Dumps: There will be no OB removal / during the plan period. Therefore no proposal has been envisaged for its separate dumping. No outside material will be filled up in the extracted zone.

The **conceptual plan** & section of each mining plots are attached with mine plan.

5.5 EXTENT OF MECHANIZATION:

The operation will be done by semi mechanized method / OTFM.

Following table gives the list of equipment to be used:

Table-5.2:- List of Equipment's to be used

S. No.	Name of machinery	Capacity	Fuel Consumption	No. of Machinery
1	JCB	1.00 m^3	10 Ltr/hr	3
2	Excavator	2.0 m^3	16 Ltr/hr	7
3	Trucks	12 tonnes	4 Ltr/hr	375
4	Tractors	04 Tonnes	2 Ltr/hr	215
5	Water Tanker	4000 liter	4 Ltr/hr	1
6	Light vehicles	As per requirement	4 Ltr/hr	1

5.6 QUANTITY OF HSD/ FUEL CONSUMPTION PER DAY

Table-5.3:- Quantity of HSD/Fuel to be used

S. No	Machine	Details of fuel (Diesel) requirements	Consumption of Diesel (in lits/ day.)
1.	Excavator & JCB	Number of Excavator & JCB = 7&3 Diesel consumption by 3 jcb & 7 Excavators m/c in one shift working.(i.e-10/15 litre/hr) =3*8*10= 240 liters &	576 liters

		7*8*16= 336 liters	
2	Tippers/Tractors	Number of Tractors & Trucks = 215 & 375 Diesel consumption by 375 trucks & 215 Tractors in one shift working (i.e-4ltr/hr.) & (i.e-2 ltr/hr.) =215*2*8 = 3440 =375*4*8= 12000	15440 liters
3	Water Sprinkler	Number of Sprinkler=01 Diesel consumption by Sprinkler in one shift working.(i.e-4ltr/hr). =1*10*4=40 liters.	40 liters
3	Extra	Transport vehicle, super vision vehicle, maintenance vehicle	50 liters
			Total=16106 liters

5.7 MINERAL PRODUCTION

The mining will be confined to excavation of sand to an extent depending upon availability and market demand. Production is taken tentatively upto a maximum of **1339200 TPA** as per marked demand.

CHAPTER –6

6.0 DRILLING AND BLASTING

No drilling and blasting shall be required to for the exploitation of river sand.

CHAPTER–7

7.0 MINE DRAINAGE:

a) LIKELY DEPTH OF WATER TABLE BASED ON OBSERVATIONS FROM NEARBY WELLS AND WATER BODIES:

As per the proposed mining, the working shall be confined up to 2.0 m or above the ground water table whichever comes first. Hence no water is likely to be encountered. So there is no need of any such arrangements.

CHAPTER–8

8.0 DISPOSAL OF WASTE MATERIAL

No waste as such will be generated at the site as all materials are saleable. If, at all silt clay will be generated along with the minerals will be used to dispose off in the low lying areas as spread, where plantation will be done after spreading top soil on it.

CHAPTER–9

9.0 USE OF MINERALS

Sand has become a very important mineral for expansion of our society due to its many uses. It can be used for making concrete, filling roads, building sites, brick-making, making glass, sandpapers, reclamations, and etc.

CHAPTER – 10

10.0 OTHERS

10.1 HAULAGE AND SURFACE TRANSPORT

Mode of transportation of material is by trucks/ Tractors of size of 12 tonnes / 4 tonns capacity have been planned.

Mining area is connected with an unmetalled (approach) road upto the nearest village and thereafter it is metalled road connected to State/National highway. The mine road is adequate to permit easy maneuverability of trucks allowing cross overs and changing points. Water is sprayed two times in a day by tractor mounted water sprinklers until dust remains airborne.

10.2 SITE SERVICES:

A temporary rest shelter will be provided for the workers near to the site for rest.

Provisions will also be made for following in the rest shelter:

- First aid box along with anti-venoms to counteract poison produced by certain Snakes / Reptiles, if any.
- Sanitation facility i.e. septic tank or community toilet facility will be provided for the workers.
- Canteen will be made available near the sites.

10.3 WATER REQUIREMENT

Total water requirement for the project is 8.0 KLD, its breakup is as under:-

Table: 10.1- Water Requirement of the proposed project

S.No.	Purpose	Water Requirement (KLD)
1.	Dust Suppression	3.5
2.	Domestic	1.5
3.	Green Belt	3.0
Total		8.0

10.4 EMPLOYMENT:

The manpower requirement for the proposed project is tabulated below. This manpower is the permanent resource which excludes personnel's coming along with trucks / Tractors.

Table 10.2:- Man power distribution of the proposed project

S. No.	Category	Numbers
1.	Administration	1
2.	Supervisor	2
3.	Skilled	12
4.	Un-skilled	45
TOTAL		**60**

The maximum annual production envisaged is **1339200 TPA** which will be achieved every year that implies about 5357 tonnes per day. 250-working days in a year. That implies 60 workers will meet the required production.

SAFETY PROVISION:

All provisions in safety rules & regulation will be maintained by providing required materials to the employees. The lessee will provide safety shoes, safety helmets to all the employees. There will be no violation of safety provisions.

CHAPTER–11

11.0 MINERAL BENEFICIATION

Mineral Sand doesn't require processing or beneficiation. The excavated mineral will be directly loaded into the trucks.

CHAPTER –12

12.0 ENVIRONMENT MANAGEMENT PLAN

12.1 SOLID WASTE MANAGEMENT

In this if top soil will be generated, will be used for purposed of applied for green belt development. Small amount of domestic waste will be generated by the workers at the site, which will be disposed off through proper municipal way. No other waste generation is expected.

12.2 PLANTATION

The area of the proposed project lies in the river bed and devoid of any forest land.

Mining activities in River Bed blocks will not cause any harm to riparian or aquatic vegetation as mining will be only in the dry river bed portions of the river leaving safety distance from the bank. Hence it proposed to plant trees along the banks (wherever possible), along the haul road sides or near the civic amenities in consultation with village authority/local bodies.

In river bed mining cases plantation will be done at the river banks. It is proposed to have plantation along the haul road sides on both sides to provide cover against dust emission and also to act as noise absorber. Plantation will also be carried out as social forestry programme in villages, school/ and the areas allocated by the village authority/local bodies. Every year 124 trees of will be planted with various types of species. List of species is recommended for plantation.

Native plants like Mango, Neem, Kadamb, Kathal, Peepal, Gulmohar, and other local species will selected in suitable combination, so that can grow fast and also have good leaf cover. It is proposed to plant.

12.3 ENVIRONMENT MANAGEMENT PLAN

1.	Top soil storage, preservation and utilization	Present mining area is river bed, therefore no generally no top soil is present, if found then quantities of top soil to be generated will be stacked separately, preserved and used for purposed of plantation therefore no proposal has been envisage for storage, preservation & utilization.
2.	Waste dump management	No waste will be generated during mining whatever material is collected is transported in its original shape. Hence no waste management is required. Small amount of domestic waste is expected, which will be disposed off in a proper way. No

		waste will be thrown into the streams or left on the banks.
3.	Plantation programme	Plantation will be done along both sides of roads and civic amenities in consultation with the local authorities. social forestry programme will also be conducted in the nearby villages.
4.	Quality of air	24 hourly samples twice a week for one month in each season except monsoon will be collected at the mine site and nearby villages and analyzed.
5.	Noise	Excavators used for mining & transportation vehicles used for dispatch of minerals are source of noise pollution at mine site. Hence periodical noise monitoring will be done. Ear muffs/protective equipments will also be provided for safety of the workers.
6.	Quality and make of water including surface and ground water	Mining will not have any impact on surface and ground water, however monitoring of parameters will be done once in each season.
7.	Soil	No major impact on soil due to mining operations is expected. Soil parameters will be monitored once in two years.
8.	Topography & drainage	Mined out area will be replenished every year during monsoon period in each stretches in each block in case of river bed blocks. Hence as such no topographical impact will be seen. A buffer zone will be left on either side of banks as safety measure. There is no stream crossing through the applied area which would show impact on drainage pattern.
9.	Local transport infrastructure	Trucks/dumpers are main vehicles running on the road for mineral transportation. The present road network is adequate to handle the load of this project. Water sprinkling on the haul roads/link roads will be done two times in a day to keep the dust suppressed. Also proper parking and traffic management will be followed.

CHAPTER– 13

CONCLUSION:

The proposed project involves collection of sand from inactive channel of river bed of Sakari river. Safety distance will be left intact to avoid bank erosion. Mining activity will be done except monsoon season. All necessary measures will be taken care to save environment and for safety purposes. Besides this extraction of sand every year will reduce the chance of flood level by removing the deposited mineral. This is very essential in order to prevent widening of the riverbeds and to prevent flooding off and damage to the adjoining areas. The sand extracted is in high demand in the local market which is used in making bridges, road & Building Material, etc.

This project operation will provide livelihood to the poorest section of the society. It provides employment to the people residing in vicinity directly or indirectly by the project. After all the proposed project will increase developmental activities and employment opportunities.

***

PROGRASIVE MINE CLOSURE PLAN

Today's Date

PROGRESSIVE MINE CLOSURE PLAN

1.0. INTRODUCTION:

1.1	Settlee Name & Full address Phone. No. E-mail ID	TODAY'S FASHION, Prop.- Md. Dawood Khan, S/o.- Md. Sabir Khan, Add.- Islam Nagar, Gondapur, Nawada, Bihar- 805110. 9934440367 ishuwishu41@gmail.com
1.2	Letter no. / date of lease execution & lease period	District Mining office issue LOI on letter no. 3503/khanan dated. 07.12.2022 for a period of 05 years (Annexure No. -1)
1.3	Settlee post/social status	Private
1.4	Mineral or Minerals which the Settlee intends to mine	Sand
1.5	Applied area for mining lease	Block- 05 (Jamuawan Patwa Saray) Sand Ghat Lease has an applied area of 62.0 Hectare.
1.6	Name & address of RQP & Regd. No. Mobile No. E-mail ID	Er. Pravin Kr Sinha Reg. No. - RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019 **Consultant :** P & M Solution 201,Mangal Market Raja Bazar, Patna (Bihar) 9889024004 & 7542949027 indusminingbihar@gmail.com
1.7	RQP Certificate	RQP certificate copy attached as **Annexure 2**
1.8	Name of the Prospecting agency	The base data is collected from various geological reports of the Department of Mines & Geology and local authorities as well as detailed prospecting of the area is carried out by the RQP.
1.9	Status of Environmental clearance	After Mining Plan approval then Settlee shall submit application to state Environment Impact Assessment Authority (SEIAA) of Bihar for environment clearance.
2.0	Date of Survey	09.12.2022

Today's Fashion
Proprietor

a). **Location:** Block- 05 (Jamuawan Patwa Saray) Sand Ghat fall in Mauja– Jamuawan Patwa Saray, Block– Nawada, Dist - Nawada, (Bihar). The location plan is enclosed **(Plate No. 1)**

b). **Extent of Lease area:** **62.0 Hectares**

c). **Type of lease area:** Total area is waste land & it is free from forest land

d). **Present land use pattern:** The existing land use is given below:

Sr. No.	Land use	River bed (Ha)	Forest Land (Ha)	Barren land (Ha)	Grazing Land (Ha)
1	Mining pits Quarry	-	-	-	-
2	Approach Road	-	-		-
3	Dumps	-	-	-	-
4	Office, Resht Shelter etc.	-	-	-	-
5	Balance undisturbed land	62.0	-	-	-
	Total	**62.0**	-	-	-

e). **Method of mining and mineral processing:**

- Mining will be done as per the guidelines of Bihar Mineral (Concession Prevention of illegal Mining Transportation & Storage) Rules, 2019.
- This is an open-cast mining project. The operation will be semi-mechanized/OTFM with use of excavators/JCBs truck tractors combination etc. The sand will be collected in its existing form.
- Sand Mining will be carried out only upto a depth of 3 m bgl or above ground water level (whichever is less), for river bed block.
- No drilling /blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height and 6m width will be maintained for mining blocks as per guideline M.M.R-2019, under rule 115(1).
- Mining will be done only during the day time and completely stopped during the monsoon season.

Prepared by: Pravin [illegible] Sinha Reg. No. - RQP/BIH/SR.NO.20
Letter No. 3825 Dated [illegible]2019

1.1. Reasons for Closure:

The "closure plan is a plan by which reinstate condition can be created, so that justification to the mother earth can be done" said by **James E. Hansen.** In the case of river bed mining, the excavated sand gets replenished during every monsoon and the area pertaining to palaeo channels of the river will be levelled & restored back to its original topography. More or less, the river bed maintains its previous form, such that the main stream of river remains unchanged.

According to experience and rough estimation of the State Government whatever quantity of minor minerals is extracted from the said area during the year will be replenished every year by the River itself on account of its flow and velocity.

At present there is no foreseeable reason regarding closure of mine. The progressive mine closure plan is being submitted.

1.3. Closure plan preparation:

a). Name and address of the Lessee:

TODAY'S FASHION,
Prop.- MD. DAWOOD KHAN,
S/o.- Md. Sabir Khan,
Add.- Islam Nagar, Gondapur, Nawada,
Bihar- 805110.
Mob.- 9934440367.
Email ID: ishuwishu41@gmail.com

b). Name, address & Registration No. of R. Q. P.

Er. Pravin Kr Sinha
Reg. No. - RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019
Consultant :
P & M Solution
201,Mangal Market
Raja Bazar, Patna (Bihar)
9889024004 & 7542949027
Email ID: indusminingbihar@gmail.com

c). Name of the executing agency:

The Proponent shall execute himself the provision of mine closure plan.

Today's Fashion
Md. Dawood Khan
Proprietor

2.0 Mine Description:

Topography and general geology and local / mine geology of the mineral deposit including drainage pattern

Topography and general geology and local / mine geology of the mineral deposit including drainage pattern

The Nawada District comprises of two distinct landscapes i.e Plain land of North and the hilly area of the south. 45% comes under the plain land which is used for agricultural purposes. Nawada is a perfect combination of natural scenery combined with panoramic views, Nalanda known for its glorious past lies on the northern side of Nawada while Hazaribagh is located in its south. In the east lies Giridih, a very beautiful and holy place and finally in the west lies Gaya. Therefore, geographically it is clear that Nawada is surrounded by all these place which are hold great historical and geographical importance.

General Geology

The main geological formation in the area is pre-Cambrian rocks of Archaean age. The crystalline rocks in the district are mica schist, granite gneiss, quartzites & quartz schist, hornblende schist & mica pegmatites etc. These rock types constitutes the hill ranges &cover south and eastern parts of Rajauli blocks,southern parts of sirdala block north central & southern parts of govindpur blocks & south, south-eastern & northern parts of kauakol block.

Availability of Mineral resources in Nawada district:-

The mineral resources of Nawada district playing massive role in industrial, social and economic development of the district.

Available mineral resources in the district

- ✓ Sand
- ✓ Sandstones
- ✓ Quartzite
- ✓ Mica

Regional Geology

Geologically, it represents nearly two third of Bihar is under cover of Ganga basin composed of alluvium and masks the nature of basement rocks.

Prepared by: Pr[illegible] Kr. Sinha Reg. No. - RQP/BIH/SR.NO.20
Letter No. 3825 Dated 07/11/2019

Showing the Geological Succession and their Occurrences distribution

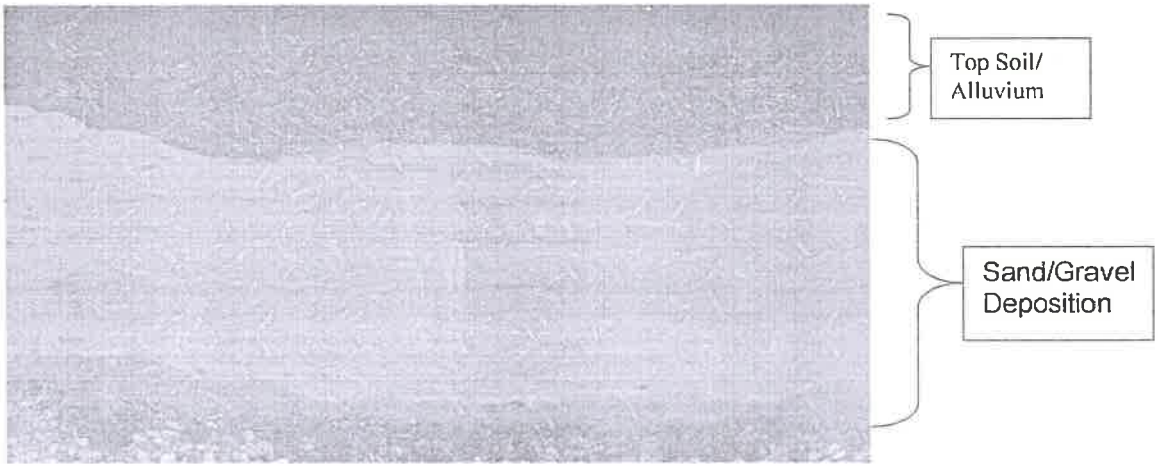
Age	Geology	Occurrences
Quaternary	Alluvial Deposits (Sand, Clay, Silt, Fragments)	North Bihar Plain & Central Bihar Plain
Tertiary	Sand Stones & Clay Stones	North Champaran Hills
Gondwana	Coal Measures, Forming a series of Small outlier basins	Banka District
Vindhyans	Sandstones, Shales, Limestones, etc.	Parts of Bahbhua and Rohtas dist
Satpura	Schist, Phyllite, Quartzite	Part of Aurangabad, Gaya, Nawada, Nalanda, Sheikhpura and Munger District
Proterozoic	Mica Schist, amphibolites, quartzite, granite, dolerite and pegmatite	Nawada, Jamui and Banka
Archaean	Gneisses, Granites, Schists, Phyllites, quartzite, amphibolites & intrusive all metamorphosed sedimentary and igneous rocks	Part of Aurangabad, Gaya, Nawada, Jamui, Banka and Bhagalpur

4.1.3 GEOLOGY OF THE AREA

The area of the district falls in the Zone-III B, South West Alluvial Plain agro climatic zone of Bihar. The district of Nawada does not have any important perennial river. The topography of the district is plain and border area adjoining Jharkhand is rocky terrain & mountains. The area is dominated by medium to fine sand geologically the area comprising of Terrace alluvium deposited in depositional terraces of old rivers & contain cyclic sequence of fine to course grained sand. It is angular to subangular and the angularity of the grains of this category of sand decreases with depth. The Litho unit shown on the geological map of the leased out area have been plotted on the basis of physical characteristics observed in the field. Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited fringe of the river banks. Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Sakari, Dhadhar, Nati, Khuri, Tilaiya & Dhanarjay meanders through the area exposing the alluvium and soil at the banks.

The litho units encountered in the riverbed and surrounding areas belongs to the Shivalik super groups. The size of the sediments towards the source i.e. host rock is course and at the tale end of the river the grain size is reduced to smaller sizes resulted in the formation of clay beds. The

following sequences have been observed in the area, i.e. Top soil/ Alluvium followed by sand deposition (as shown in the figure below).



Sand and silt are deposited in the middle of the river whereas fine sand and soil are deposited at the fringe of the riverbanks.

Soil/ alluvium varying in thickness from 0.20m to 0.60m m constitute the top horizons in the area suitable for agriculture. River Sakari, Dhadhar, Nati, Khuri, Tilaiya & Dhanarjay meanders through the area exposing the alluvium and soil at the banks. Sand is found in the river bed upto a depth of more than 3.0 m. The major part of bed remains dry as water flows in a single stream during the non-monsoon seasons. Only during rainy seasons the entire flood plain has water, when there will be no mining done.

DETAILS OF EXPLORATION:

a) Already carried out in the area:

No exploration has been carried out as sand lies all over the area & average thickness of sand is 3.0 m & area replenish every during the monsoon period. Therefore is no exploration has been carried out.

b) Proposed to be carried out:

Sand average thickness of 3.0 m lies all over the area & area replenish every during the monsoon period. Therefore no proposal of exploration has been given.

2.2 Reserves:

BLOCK- 05 (JAMUAWAN PATWA SARAY) SAND GHAT

Geological Reserves : -

Classification	Code	Quantity of Sand
A) Mineral Reserves		Cum
1) Proved Mineral Reserves	111	1240000
Total		**1240000**

Total Geological Reserve = **1240000 cum. or 2232000 tonnes.**

The mineable reserves are given in **Table Nos.4**

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87-86	1832	315	1	577080	1038744
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- The proposed production grant in **LOI is 744000** cum per year which is within the sustainable limit of mineable reserve.
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CLASSIFICATION MINERAL RESERVES:

Sand Ghat	Area (Hect)	Geological Reserves (m3)	Mineable Reserves (m3)	Annual Permitted Reserve As per LoI (m3)
Block- 05 (Jamuawan Patwa Saray) Sand Ghat	**62.0**	**1240000**	**1132790**	744000

The annual extractable RBM comes to 744000 CUM or 1339200 Tonnes. It will be replenished after rainy season every year.

Prepared by: Pravin Kr. Sinha Reg. No. - RQP/BIH/SRC/NO.20
Letter No. 3825 Dated 07/11/2019

2.3 Mining Method:

Existing Method of mining:

It is fresh grant case of mining lease & at present no mining is being carried with the applied area.

b) Proposed method of mining:

- Mining activity will be carried out by open cast semi mechanized/OTFM method.
- No OB/ waste material will be produced in river bed. The sand shall be exploited upto depth of 3.0m only through the formation of bench height 1.5m & width 6.0m. An approach road having width 6.0m & gradient 1:12 shall be provided for the movement of loading machineries & transportation of sand. The sand shall be exploited with the deployment of an excavator & filled into Tractors/Trucks & transported to various buyers.
- No drilling/ blasting are required as the material is loose in nature.
- Proper benching of 1.5 m height will be maintained.
- Roads will be properly made and sprayed by water for suppression of dust.
- Roads in the applied area for the movement of loaded tractors/ trucks will not have slopes more than 1 in 16.
- The mined out area shall be replenished each year during monsoon period and maintained in maximum original topography.
- Approach roads from the various plots as already described earlier will be merging with permanent tar roads on both sides of the river for transportation of the mineral to final destinations.

2.4 Mineral beneficiation:

No mineral beneficiation will be under taken for next five years. The sand shall be exploited semi mechanized with shovel tractor trolley/tippers combination & transport to parties.

3.0 Review of implementation of mining plan / scheme of mining including five years progressive closure plan up to the final closure of mine:

At is fresh grant case of mining lease it is therefore premature to make any comments about review of implementation.

4.0 Closure Plan:

4.1 Mined out land:

Mining is proposed in one block. The mining shall be carried out during post monsoon season & depth of mining shall restricted 3.0 m. Mining operation shall be suspended during monsoon period. The mined out pit shall be replenished during the monsoon period by sand and silt & leveled it. After over the monsoon period the replenish material shall be exploited manually as well as by means of an excavators & this process will continue.

The area already degrades due to mining & likely to be used during next five years is given below:

Activities	Area already used (Ha)	Area likely to be used in mining (Ha)
Pits & quarries	-	62.0
Approach road	-	-
Top soil Stack	-	-
Interburden dump	-	-
Backfilled pit	-	-
Total	-	**62.0**

(A) Mining:

Sl.No.	Activities	Area (Ha)
1.	Area already broken up	-
2.	Area already backfilled /reclaimed	-
Sl. No.	**Activities**	**Area (Ha)**
1.	Additional area proposed to be broken during next five years	-
2.	Additional area proposed to be replenished with flood water	-

(B) Dump:

Sl. No.	Activities	Area (Ha)
1.	Area already covered by dump	Nil
2.	Additional area to be covered by soil stack	
3.	Additional area to be covered by interburden dump.	Nil
4.	Dump area to be covered by protective measures	-

(C) **Plantation:**

Sl. No.	Activities	Area(ha)
1.	Area already covered under plantation	-
2.	Area proposed to be covered under plantation in next five years (with in area)	-
	Total	-

4.2 Water Quality Management:

No ground water bodies exist within the area & no seasonal Nalla exists with in the area. The rain water accumulates in the pit & water percolates in to ground water.

Further no significant impact on water quality is anticipated as material exposed will be Sand & its shall very feebly react with water that too when water becomes acidic. Even of reaction takes place it gives arise to increased temporary hardness of water. Water is being supplied from the Tubewell.

4.3. Air Quality Management:

The mining shall be carried out semi-mechanized/OTFM with use of excavators/JCBs truck /tractors combination or Manually etc. No adoption of drilling & blasting mining shall be carried out in shallow depth. No doubt the mining in this remote area will deteriorate the air quality. The base line values are too low due to remoteness of the area with our past experience. In this kind of terrain, the SPM, SO2 and NOX will always below 100, 10 & 10 microgram per meter cube respectively. Air quality monitoring shall be conducted once in a year as per CCOM'S circular No 3/92.

4.4. Waste management:

No waste shall be generated due to mining activities. All quantities of sand to be generated shall be bold in the local market. Therefore no proposal of waste management has been envisaged.

4.5 Top Soil Management:

No soil shall be generated during plan period & no proposal has been envisaged for its separate stacking & this management.

4.6. Tailing Dam Management:

No tailing dam is proposed in the soapstone mine.

4.7. Infrastructure:

No infrastructure facilities like aerial ropeway, conveyor belts, building & structure, water treatment plant, transport & water supply sources are present within the lease area. Therefore no utilization & their physical stability & maintenance will be required. Also no infrastructure facilities like telephone line, water pipe line, sewer line, gas pipe line, electrical cables, culvert, bridges are not existing within the lease area. So question does not arise for their restoration. The approach road passed within the lease area & lessee shall maintain it during PMCP period.

4.8. Disposal of Mining Machinery:

It will be opencast semi mechanized mine. No disposal of mining machineries shall be envisaged during plan period.

4.9. Safety and Security:

1. Each worker shall be provided with helmets & safety shoes.
2. Safety belt shall be provided to workers a working the top benches.
3. Hanging of loose materials shall be removed from mine faces.
4. The mining area shall be properly fenced to avoid any inadvertent entry in to mining pit.
5. Working hours shall be displaced at conspicuous places.
6. Mining shall be carried out thought the formation of benches maintaining overall pit slope 60deg.

4.10 Disaster Management and risk assessment:

The mining is proposed in a gentler agricultural field. The mining will go up to the economical depth of 3m therefore, no disaster management and risk assessment shall be observed. However during monsoon period the area shall be properly fenced with barbed wire to avoid any inadvertent entry of any live stock.

5.0. Economic repercussions of closure of mine and manpower retrenchments:

All the workers being employed are contractor labours. An any industry will provide direct and indirect employment. The local residents will earn tremendous amount of money due to mining activities. It will change their life style. Due to closure of mine, it will create very negative impact on the economy of the workers for their survival. Those earning good money will get some occupation for survival of their families. The literate workers will move here and there for the search of job. In the overall view the closure of mine will give very bad impact on the society and surrounding areas.

5.1 Local residents of nearby villages will be employed in the mine. The family occupation is most by farming. Few of them occupation carpentry & masonry.

5.2 The lessee pay each year about 5,000 to 10,000 as a compensation for the sustenance of the few workers family.

5.3 About 30% of the workers employed in mine are independent but they are controlled depended by their family members.

5.4 The local residents will be employed in the mining operations, and allied activities related to mining operations.

5.5 During mining operations the land owners & society of the area shall earn lucrative amount of money from direct & indirect activities. Individual land owners shall also earn good amount of money in terms of royalty. Most of them will spend money to establish other business also. After mining, the total land shall be backfilled & agricultural activities shall be recommended. No repercussion should be observed during the closure of mine.

6.0 Time Scheduling for abandonment:

It is proposed in the mining plan that mining will open from lower levels and subsequently advance towards higher elevations so that concurrent reclamation will be under taken to restore the topography of area. The mined area will be replenished during the monsoon period.

The year wise schedule of completion of quantities is given below:

Activities	YEAR				
	I	II	III	IV	V
Toe wall along Soil stack	-	-	-	-	-
Backfilling (Cum)	-	-	-	-	-
Plantation (No. of sampling, out side the area)	124	124	124	124	124

The tentative cost of implementation of activities during next five years is given below:

Sl. No.	Activities	Year					Total amount on Rs.
		I	II	III	IV	V	
1.	Toe wall (soil stack Rs. 40/m)	-	-	-	-	-	-
2.	Retaining at the edge of backfilled wall pit (Rs. 50/m)	-	-	-	-	-	-
3.	Plantation (Rs. 1000/- sapling with in the area)	124	124	124	124	124	620000
	Total						**620000**

The tentative cost (In Rs) of implementation of activities during next five years is given below:

Tree guard @ 800 per unit	800
Per plant species cost	100
Average Water demand cost per species Per Year	100
Total	1000

7.0 Abandonment Cost:

The tentative cost for implementation of protective and rehabilitation measures, the proposal given in the mining plan for next five years period is as under:

Activity	Year						Rate In Rs.	Amount In Rs.
	I	II	III	IV	V	Total		
i) Toe wall at the base and side of soil stack (mtr)	-	-	-	-	-	-	40/m	-
iii) Retaining wall at the edge of backfilled pit (m)	-	-	-	-	-	-	-	-
iv) Plantation (no. of sapling with in the area.)	124	124	124	124	124	620	1000/-	620000
v) Reclamation(Cum.)	-	-	-	-	-	-	40cum	-
Total								**620000**

8.0 Any other information:

Community Development: The expensed increased towards the socio-economic development is given below:

Proposed Action Plan Towards socio economic development	First Year to Fifth Year	
	Expenditure proposed (in Rs.)	Expenditure in occurred (in Rs.)
General Development of the area	-	-
i) Housing	50,000	-
ii) Water Supply	25,000	-
iii) Sanitation	20,000	-
iv) Health, Safety & Medical Facilities	30,000	-
Education & Training	30,000	-
Employment to local inhabitants; Land owner compensation; Supervisor & Headers etc.	1,00,000	-
Public Transportation & Communication	20,000	-
Recreation & other sports activities	20,000	-
Expenditure for environment management	15,00,000	-
Others (Compensation to land owners)	80,000	-

9.0 Financial Assurance:

The financial assurance has been calculated on the basis of following parameters:

Sl. No.	Head	Area put on use at start of plan (In Ha)	Additional requirement during plan period. (In Ha)	Total (in Ha)	Area considered as fully reclaimed & rehabilitated (In Ha)	Net area considered for calculation (In Ha)
1.	Area under mining	-	62.0	62.0	62.0	0
2.	Storage for top soil	-	-	-	-	0
3.	interburden/ dump	-	-	-	-	0
4.	Mineral storage	-	-	-	-	0
5.	Infrastructure (Workshop, administrative building etc.)	-	-	-	-	0
6.	Approach Road		-	-	-	-
7.	Railways	-	-	-	-	0
8.*	Green Belt	-	-	-	-	-
9.	Tailing pond	-	-	-	-	0
10.	Effluent Treatment Plant	-	-	-	-	0
11.	Mineral Separation Plant	-	-	-	-	0
12.	Township area	-	-	-	-	0
13.	Others to specify (retaining wall + toe walls	-	-	-	-	-
	Grand Total		62.0	62.0	62.0	-

The total mined out area shall be replenished each year during monsoon period & no broken area will be remained in the applied area. Therefore, it is not possible to calculate financial assurance at this stage.

Date:

Place: Nawada

* Plantation will be done along both sides of roads and civic amenities in consultation with the local authorities.

Prepared by: [illegible] Kr. Sinha Reg. No. - RQP/BIH/SR.NO.20
Letter No. 3825 [illegible] 07/11/2019

ANNEXURE


DIRECTOR MINES AND GEOLOGY, GOVT. OF BIHAR
Today's Fashion
Proprietor

GST NO. :- 10BAIPK2243Q1ZP

PH :- 9934440367

TODAY'S FASHION

OLD KATCHERI ROAD MAHAVIR MARKET, NAWADA 805110 (BIHAR)

AUTHORISATION LETTER BY THE APPLICANT/ LESSEE

I,**Md. Dawood Khan** hereby authorise **Er. Pravinkumar Sinha, Reg.No.- RQP/BIH/SR.NO.20 Letter No. 3825 Dated 07/11/2019**to prepare the Mining planSubmitted underRule (17) of Bihar Minerals (concession, prevention of illegal transportation & storage) Rules 2019 in respect of Today's Fashion at over an area of 62.0 Hectarefor mineral(s) for Block- 05 (Jamuawan Patwa Saray) Sand Ghat (SakriRiver) at Mauja– Jamuawan Patwa Saray, Block– Nawada, Dist - Nawada, (Bihar).

I requestThe Director, Department of Mines & GeologyPatna, Bihar to make further correspondence regarding modification and to collect the approved copies of the aforesaid mining plan with the said recognized person on his following address:

Name of RQP : Er.Pravin Kr. Sinha
Reg. No. - RQP/BIH/SR.NO.20
Letter No. 3825 Dated 07/11/2019

Address of RQP

: Consultant :
P & M Solution
201,Mangal Market
Raja Bazar, Patna (Bihar)
9889024004 & 7542949027
indusminingbihar@gmail.com

Place :Nawada

Date :

Proponent

Md. Dawood Khan
Today's Fashion
Add.- Islam Nagar, Gondapur,
Nawada,Bihar- 805110.

Certificate

1. Certified that the provisions of mines Act, Submitted under Rule (17) of Bihar Minerals (concession, prevention of illegal transportation & storage) Rules 2019 made there under have been observed in Block- 05 (Jamuawan Patwa Saray) Sand Ghat (Sakri River) Mauja– Jamuawan Patwa Saray, Block– Nawada, Dist – Nawada (Bihar) and wherever specific permissions are required, the lessee will approach concerned authorities for granting permission.

2. The information furnished in Block- 05 (Jamuawan Patwa Saray) Sand Ghat (Sakri River) is true and correct to the best of my knowledge.

(*Pravin Kumar Sinha*)

Regd.No: RQP/JBP/129/2011/A.

Place: - Patna

Date:-

MINES AND GEOLOGY, GOVT. OF BIHAR * DEPARTMENT * PATNA

(Approved RQP under Bihar Government)

20	Pravin Kumar Sinha	7542949027	B.E (Mining)	Rs. 2,000/- per Hectare (Each Block Mining Plan - Rs. 30,000/-)		201,2nd Floor,Mangal Market,Raja Bazaar, bailey Road, Patna-14
21	Md. Tauseef Warsi Greenera Mining & Envirotech Pvt. Ltd.	9534027112	M.Sc. (Geology)	Rs. 5,000/- (Excluding GST)		Greenera Mining & Envirotech Pvt.Ltd.,205 Mangal Market,Raja Bazar,Bailey Road Patna-800014
22	Prabhat Kumar Srivastava	8827477206	B.E(Mining)	Rs. 8,000/-		Flat No-101, Road No.-01, Boodh Nagar, Chiriya Tard, Postal Park , Patna-800001
23	Ashok Kumar Singh	8766859804	Mining Engineer	Rs. 8,000/-		C/o Shri Ram Prasad Singh, Mohalla - Mogal Kuan, P.O. - Sohsarai, P.S. - Sohsarai, Dist.- Nalanda, Bihar- 803118
24	Sandeep Kumar	8126253120	M.Sc. (Applied Geology)	Rs. 10,000/-		Anpurna Bhavan , C/O Ravi Kishan, Sundar Nagar, Lohia Path , Jagdeo Path , Patna - 800014 (Bihar)
25	United Exploration India Pvt. Ltd.	9431208782 9934304369	Required Qualification of the employees attached	Rs. 5,200/- (inclusive all Taxes)		301,2nd Floor ,Sahid Rajendra Singh Complex,Anishabad , Patna-800002
26	Rian Enviro Pvt. Ltd	9431289638	Required Qualification of the employees attached	Rs. 5,000/- (inclusive all Taxes)		202,2nd Floor,Mangal Market,Raja Bazar,Sheikhpura Patna -800014
27	Ascenso Enviro Pvt. Ltd.	9204207920	Required Qualification of the employees attached	Rs. 4,750/- (inclusive all Taxes)		401,4th Floor ,Mangal Market,Raja Bazar,Sheikhpura,Patna-800014
28	M/s Baghel Environment & Waste Management Pvt. Ltd.	9431042532	Qualifications of candidates are attached	As decided by the department of Mines & Geology, Govt. of Bihar		Baghel Environment & Waste Management Pvt. Ltd. ,1st Floor, 27, Guru Sahay lal Nagar, Road No. 2, Magistrate Colony, Ashiyana Nagar, Patna - 800025, Bihar
29	Gramin Lok Seva	9934452711	Qualifications of candidates are attached	Rs. 7,000/-	Note - 1. Minimum rate for a Sand Block - INR 25,000/- 2. Maximum rate for a Sand Block - INR 60,000/- OR As decided by the Department of Mines & Geology, Govt. of Bihar	27, Guru Sahay Lal Nagar, Magistrate Colony, Ashiyana nagar, patna- 800025, Bihar
30	Praneja Envirocare & Management Pvt. Ltd.	9708251824	Qualifications of candidates are attached	Rs. 10,000/- (Excluding GST @18%)	Remarks - Fee should not be less than 20,000 or more than 50,000 thousand for single block (Excluded GST) OR As decided by the Department of Mines & Geology, Govt. of Bihar	103, Bhagwati kunj apartment, Road No. - 3D, Anand vihar Colony, Rukanpura, Patna (Bihar)- 800014
31	Institute of Environment and Eco Development	7004620817	Details Of Qualification Attached	Rs. 10,000/- (Excluding GST)	Rate will be negotiable as per direction from Department of Mines & Geology, Govt. of Bihar	Admin Office - [illegible] Bagh, Shyam Nagar Colony, Maurya Path, Bailey Road, PO-B.V. College, Patna-800014
32	ENV Developmental Assistance Systems (India) Pvt. Ltd.	5224007470 9335913139	Details Of Qualification Attached	Rs. 2,750/- (inclusive all Taxes)		Prabha Niketan, Road No. 12, Patel Nagar, Near Petrol Pump, Patna-800029

MINES AND GEOLOGY, GOVT. OF BIHAR * PATNA

ज्ञापांकः– 3825 /एम0, दिनांक– 07/11/19

प्रतिलिपिः– माननीय मंत्री के आप्त सचिव/प्रधान सचिव के प्रधान आप्त सचिव/निदेशक कोषांग/उप निदेशक (मु0)/सहायक निदेशक (मु0)/खनिज विकास पदाधिकारी (मु0) को सूचनार्थ एवं आवश्यक कार्रवाई हेतु प्रेषित।

7/11/19

7/11/19

सरकार के अवर सचिव

(Accreditation Certificate)

1.	1	Mining of minerals including opencast / underground mining	A	1 (a) (i)
2.	3	River Valley projects	B	1 (c)
3.	8	Metallurgical industries (ferrous & non-ferrous)	B	3 (a)
4.	34	Highways,	A	7 (f)
5.	38	Building and construction projects	B	8 (a)
6.	39	Townships and Area development projects	B	8 (b)

1.1.3 EIA Coordinators (ECs)

Sl. No	Name	Sectors			Cat.	Remarks
		Applied	Recommended	Approved		
In-house						
1	Jatin Kumar Srivastava	1	Yes	Yes	B	Opencast only.
2	Pravin Kumar Sinha	1	Yes	Yes	B	None
Empanelled						
3	Tapan Majumdar	1	Yes	Yes	A	With an observation.
4	Mayank Kumar	3	Yes	Yes	B	None
		34	Yes	Yes	A	
		38	Yes	Yes	B	
		39	Yes	Yes	B	
5	Vikas Chand Tripathi	8	Yes	Yes	B	None
		38	Yes	Yes	B	With an observation.

1.1.4 Functional Area Experts (FAEs)

Sl. No	Name	Functional Areas (FA)			Cat.	Remarks
		Applied	Recommended	Approved		
In-house						
1	Jatin Kumar Srivastava	SC	Yes	Yes	B	None
		NV	Yes	Yes	B	
		WP	Yes	Yes	B	
		EB	Yes	Yes	B	
2	Pravin Kumar Sinha	GEO	Yes	Yes	B	None
3	Amit Kumar	SHW	Yes	Yes	B	SW only
		AP	Yes	Yes	B	With an observation.
		WP	Yes	Yes	B	
4	Manoj Kumar Pandey	EB	Yes	Yes	B	None
5	Hussain Ziauddin	SHW	Yes	Yes	B	HW only
		WP	Yes	Yes	B	None
6	Abhay Nath Mishra	SE	Yes	Yes	B	With an observation
Empanelled						
7	Tapan Majumdar	GEO	Yes	Yes	A	None
		HG	Yes	Yes	A	
8	Mayank Kumar	EB	Yes	Yes	B	None
9		SHW	Yes	Yes	B	SW only.

जिला खनन कार्यालय, नवादा।

पत्रांक- 513 /ख0,

प्रेषक,

खनिज विकास पदाधिकारी,
नवादा।

सेवा में,

TODAY'S FASHION,
Prop.- MD. DAWOOD KHAN,
S/o.- Md. Sabir Khan,
Add.- Islam Nagar, Gondapur, Nawada,
Bihar- 805110.
ishuwishu41@gmail.com
9934440367

नवादा, दिनांक 2/12/2022

विषय :— नवादा जिलान्तर्गत बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट) की आगामी पाँच वर्षो के लिए बन्दोबस्ती हेतु दिनांक– 28.11.2022 को सम्पन्न ई–नीलामी में उच्चतम् डाकवक्ता घोषित होने के फलस्वरूप सैद्धांतिक स्वीकृत्यादेश के संबंध में।

महाशय,

उपर्युक्त विषयक नवादा जिलान्तर्गत बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट), रकवा– 62 हेक्टेयर की आगामी पाँच वर्षो के लिए बन्दोबस्ती हेतु दिनांक– 28.11.2022 को सम्पन्न ई–नीलामी में निर्धारित सुरक्षित जमा राशि मो0– 5,58,00,000/– (पाँच करोड़ अट्ठावन लाख) रू0 के विरूद्ध आपके द्वारा मो0– 15,06,60,000/– (पन्द्रह करोड़ छः लाख साठ हजार) रू0 की उच्चतम डाक बोली गई है, फलस्वरूप आप उच्चतम डाकवक्ता घोषित हुए हैं। निविदा दस्तावेज की कंडिका– 20 (i) के आलोक में आपके द्वारा नीलामी राशि की 25 प्रतिशत राशि (जमा अग्रधन राशि समायोजनोपरान्त) प्रतिभूति जमा के रूप में मो0– 2,37,15,000/– (दो करोड़ सैंतीस लाख पन्द्रह हजार) रू0 के भुगतान का साक्ष्य कार्यालय में प्रस्तुत किया गया है।

निविदा दस्तावेज की कंडिका 20(i)(ii)(iii)(iv)(v) के आलोक में जिलान्तर्गत बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट) के सैद्धांतिक स्वीकृति की शर्त्त एवं बंधेज निम्नवत् हैं :—

1. बालूखण्ड– 05 (जमुआवाँ पटवासराय बालूघाट) से संबंधित विवरणी निम्नवत् है :—

क्र.	नदी का नाम	रकवा (हेक्टेयर में)	Geo CO-ORDINARE			
			A	B	C	D
1	सकरी (Non-Perennial)	62	24°53'31.02"N 85°35'16.05"E	24°53'29.11"N 85°35'30.14"E	24°54'27.47"N 85°35'41.52"E	24°54'30.17"N 85°35'33.05"E
2	वन क्षेत्र से दूरी		08Km			
3	सुरक्षित क्षेत्र/वन अभ्यारण्य क्षेत्र/पक्षी अभ्यारण्य/वन्य जीव आश्रयण क्षेत्र से दूरी		लागू नहीं।			
4	बालूघाट/बालूखण्ड से 500 मीटर के अन्दर खनन पट्टा क्षेत्र की स्थिति		लागू नहीं।			
5	पुरातात्विक स्थल से दूरी		लागू नहीं			
6	खनन योग्य मात्रा		744000 घनमीटर			

iii. जल एवं वायु सहमतिः– पर्यावरणीय स्वीकृति प्राप्त करने के पश्चात सफल डाकवक्ता अधिकतम 07 (सात) दिवस के अंदर जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के अधीन राज्य पदाधिकारी के समक्ष सहमति/ Consent to Establish/ Consent to Operate प्राप्त करने हेतु आवेदन प्रस्तुत करेगा।

iv. **खनन के लिए अनुमत मात्राः–** खनन योजना, पर्यावरणीय स्वीकृति तथा जल (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1974 तथा वायु (प्रदूषण निवारण एवं नियंत्रण) अधिनियम, 1981 के तहत प्राप्त सहमति मे वर्णित बालू की मात्रा (इनमें से जो भी कम हो) तक ही खनन अनुमान्य होगा। यदि अनुमोदित खनन योजना, पर्यावरणीय स्वीकृति तथा जल एवं वायु सहमति में खनन योग्य मात्रा कम किये जाने पर भी वार्षिक देय बंदोबस्ती राशि किसी स्थिति में कम नहीं की जाएगी।

v. बिना किसी वैध कारण के पर्यावरणीय स्वीकृति, Consent to Establish/ Consent to Operate /जल एवं वायु सहमति प्राप्त नहीं कर पाते है या प्राप्त करने में रूचि नहीं लेते है तो, समाहर्त्ता द्वारा अग्रधन की राशि को जप्त कर लिया जाएगा।

7. <u>बंदोबस्ती विलेख/पट्टा संविदा (डीड) निष्पादन करना :–</u>

i. सफल डाकवक्ता द्वारा सभी वैधानिक अनापत्ति प्राप्त करने के उपरान्त 5 वर्षों की अवधि के लिए बालू खनन करने हेतु समानुदान/बन्दोबस्ती स्वीकृत किया जाएगा। सफल डाकवक्ता विहित प्रपत्र में संबंधित नियमानुसार बंदोबस्ती विलेख अथवा उसके समरूप एक प्रपत्र, कार्य आरंभ करने के पहले, निष्पादित करेगा तथा यथा विहित अपेक्षित प्रतिभूति राशि जमा देगा। बंदोबस्तधारी के पट्टे की अवधि विलेख/संविदा निष्पादन की तिथि से पाँच वर्षों के लिए विधिमान्य होगा।

ii. बंदोबस्तधारी को निष्पादित संविदा का निबंधन संबंधित विभाग के प्रचलित नियमों के अधीन 01 माह के अन्दर कराना अनिवार्य होगा।

8. <u>सामान्य शर्त्तें :–</u>

(i) बंदोबस्तधारी नदी तट से बालू प्रेषण के बिन्दु पर एक साईनबोर्ड एवं सीमा स्तंभ का अधिष्ठापन करायेगा जिसपर बंदोबस्तधारी का नाम एवं पता, बंदोबस्ती की अवधि, स्थानीय मैनेजर का नाम एवं पता तथा बालू का विक्रय मूल्य प्रदर्शित किया जाएगा। यदि साईन बोर्ड निरीक्षण में नहीं पाया गया तो शास्ति अधिरोपित की जाएगी।

(ii) बंदोबस्तधारी श्रम विधियों के प्रावधानों के अनुसार आश्रय गृह, पीने का पानी, शिशु गृह (क्रेचेज) तथा फर्स्ट एड किट की व्यवस्था संबंधित बालूघाटों में लगे श्रमिकों के लिए करेगा।

(iii) बंदोबस्तधारी संबंधित क्षेत्रों का निरीक्षण करेगा तथा स्वयं/ अथवा अपने द्वारा अधिकृत प्रतिनिधियों के माध्यम से बालूघाटों का प्रचालन करेगा। किसी रूप में किये गये उपपट्टा (सबलेटिंग) के लिए बंदोबस्ती रद्द कर दी जाएगी। बालूघाटों/नदी तल तक बालू के परिवहन के प्रयोजनार्थ पहुँच–पथ (अप्रोच रोड़) का निर्माण सफल डाकवक्ता/बंदोबस्तधारी द्वारा स्वयं अपने खर्च से किया जाएगा।

(iv) बालूघाट की सुरक्षा की जिम्मेदारी सफल डाकवक्ता/बंदोस्तधारी की होगी।

(v) सफल डाकवक्ता/बंदोबस्तधारी बंदोबस्त क्षेत्र के भीतर किसी अवैध खनन के लिए जिम्मेवार होगें और पाई गई किसी शिकायत पर गंभीरता से विचार किया जाएगा तथा बंदोबस्तधारी के विरूद्ध अपराधिक मामला दायर किया जाएगा।

(vi) सफल डाकवक्ता/बंदोबस्तधारी समाहर्त्ता द्वारा बालूघाटों के संचालन के संबंध में लोकहित में जारी निर्बधनों और शर्त्तों तथा निदेशों का पालन करेगा।

(vii) यथोक्त शर्त्तों, बंधेजों एवं निर्बधनों का पालन नहीं करने पर कारण पृच्छा निर्गत कर बंदोबस्ती रद्द करने की कार्रवाई की जा सकेगी ।

(viii) सफल डाकवक्ता/बंदोबस्तधारी को खनन राजस्व/जी0एस0टी0/आयकर/सेवा शुल्क/ रजिस्ट्रेशन फीस का भुगतान नही करने की दशा में 30 दिनों के अंदर कारण स्पष्ट करने हेतु नोटिस दी जायेगी। निर्धारित अवधि के अंदर सफल डाकवक्ता/बंदोबस्तधारी द्वारा बकाया का भुगतान करने में असफल रहने की दशा में राशि वसूली की कार्रवाई के साथ–साथ बंदोबस्ती रद्द करने की भी कार्रवाई की जाएगी।

कार्यालयः अंचल अधिकारी, नवादा सदर।

पत्रांक...1352...

प्रेषक,

अंचल अधिकारी,
नवादा सदर।

सेवा में,

खनिज विकास पदाधिकारी,
नवादा।

नवादा, दिनांक 18/09/2022

विषय :– **नवादा जिला के बालू खनिज हेतु प्रयोजनार्थ अनुमोदित जिला सर्वेक्षण प्रतिवेदन (DSR) में सूचित बालूघाटों के भू–निर्देशांक (Geo Co-ordinate) के अनुसार भूमि से संबंधित विवरणी उपलब्ध कराने के संबंध में।**

प्रसंग :– भवदीय पत्रांक 1392/खस दिनांक 04.05.2022

महाशय,

उपर्युक्त विषयक संबंधित बालू घाट की जॉच संबंधित हल्का राजस्व कर्मचारी से कराई गई। जॉच प्रतिवेदन निम्नवत है–

नदी का (Geo Co-ordinate) –

Name of sand Ghat	A	B	C	D
Lohra Sand Ghat	24°54'13.91"N 85°31'36.89"E	24°54'14.88"N 85°31'37.96"E	24°55'01.99"N 85°30'55.65"E	24°54'58.94"N 85°30'55.76"E
Nanaura Sand Ghat	25°51'48.59"N 85°33'41.69"E	25°51'48.74"N 85°33'43.56"E	25°52'50.32"N 85°33'11.93"E	25°52'46.61"N 85°33'10.10"E
Jamuapatwasari Sand Ghat	24°53'31.02"N 85°35'16.05"E	24°53'24.11"N 85°35'30.14"E	24°54'27.47"N 85°35'41.52"E	24°54'30.17"N 85°35'46.55"E

भूमि का विवरण निम्नवत है–

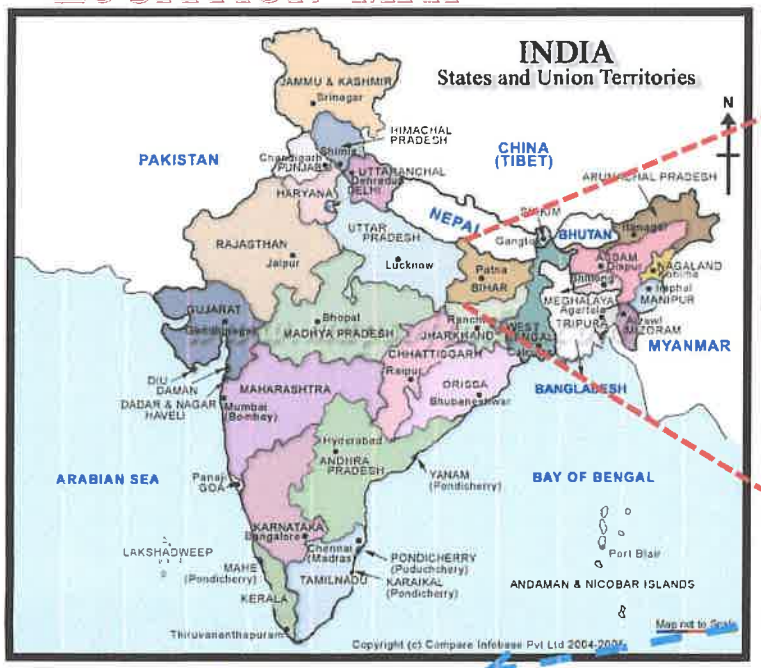
Name of sand Ghat	खाता	खेसरा	रकवा (एकड़ में)	किस्म	भू–धारी
Lohra Sand Ghat	150	01	9.52	नदी	अनावाद सर्व साधारण
	150	02	1.19	नदी	अनावाद सर्व साधारण
	150	03	16.35	नदी	अनावाद सर्व साधारण
	150	23	0.34	नदी	अनावाद सर्व साधारण
	150	251/1715	12.99	नदी	अनावाद सर्व साधारण
	150	1705	10.28	नदी	अनावाद सर्व साधारण
Nanaura Sand Ghat	496	245	4.30	नदी	अनावाद बिहार सरकार
	497	1017	16.00	नदी	अनावाद सर्व साधारण

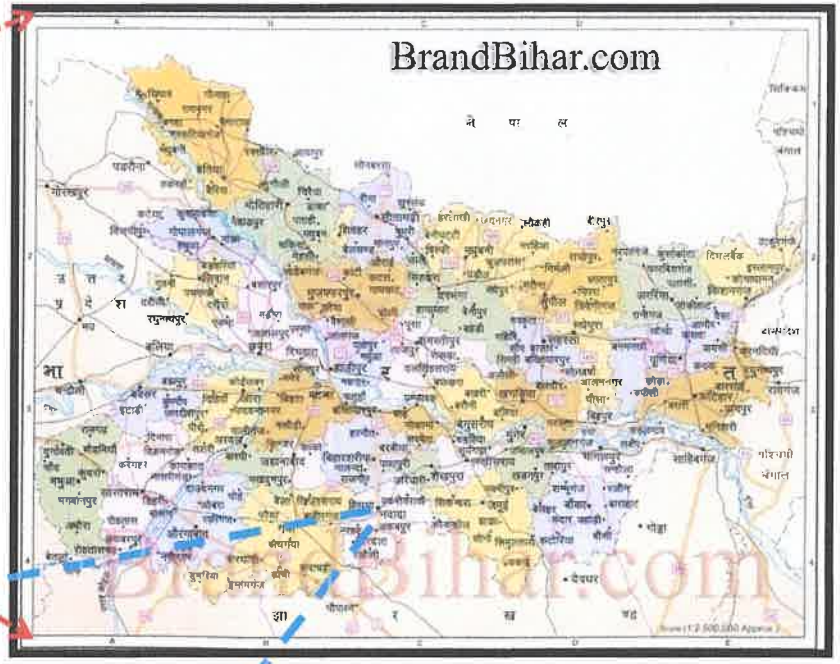
GEOLOGY, GOVT. OF BIHAR PATNA

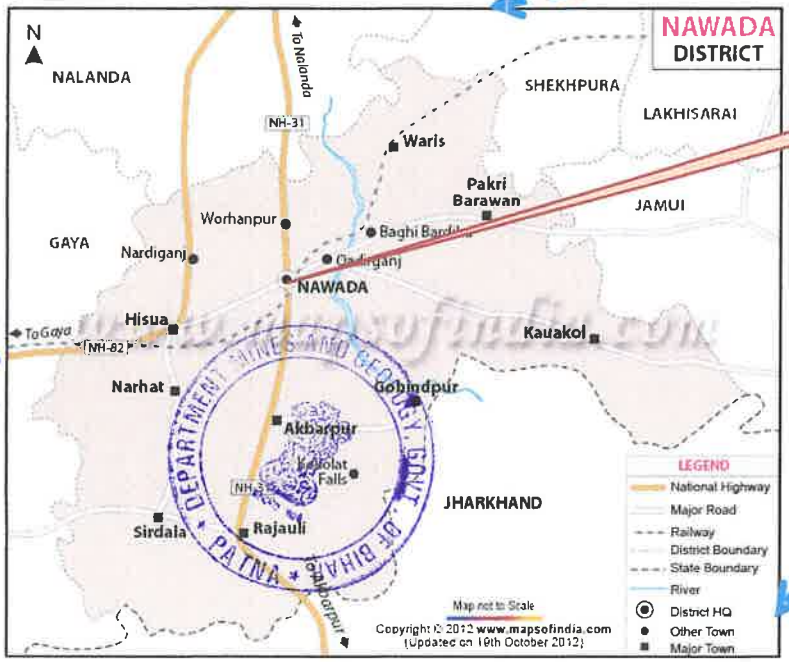
2136 | C.O. NAWADA

PLATES

LOCATION MAP







JAMUAWAN PATWA SARAY

Plate No.1

LOCATION MAP
BLOCK- 05 (JAMUAWAN PATWA SARAY) SAND GHAT (AREA- 62.0 HA.) MAUJA– JAMUAWAN PATWA SARAY, BLOCK– NAWADA, DIST– NAWADA (BIHAR)
SETTLEE :- TODAY'S FASHION PROP.- MD. DAWOOD KHAN
PREPARED BY :- REG. NO. - RQP/BIH/SR.NO.20 LETTER NO. 3825 DATED 07/11/2019
SIGNATURE

Today's Fashion
Proprietor

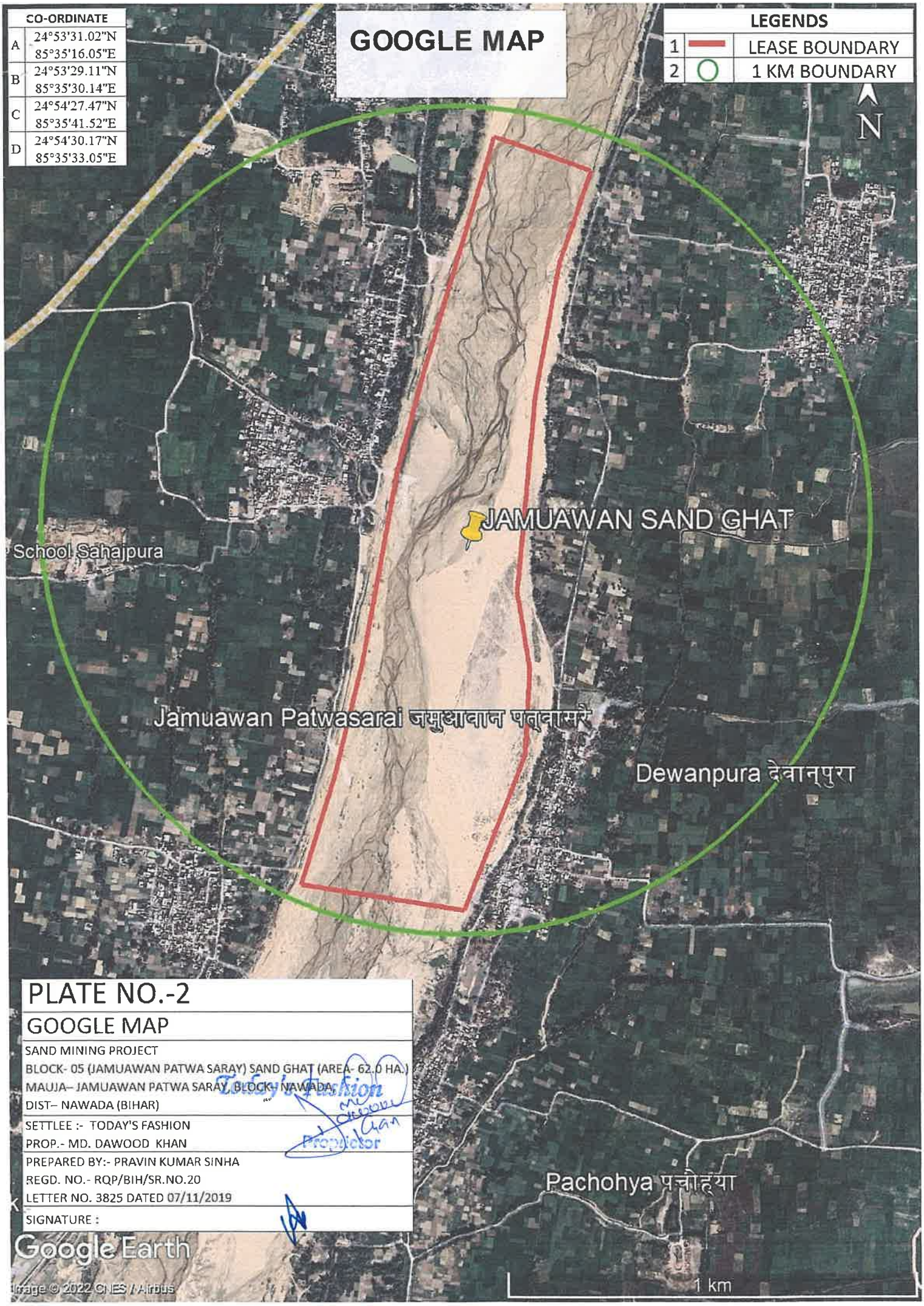
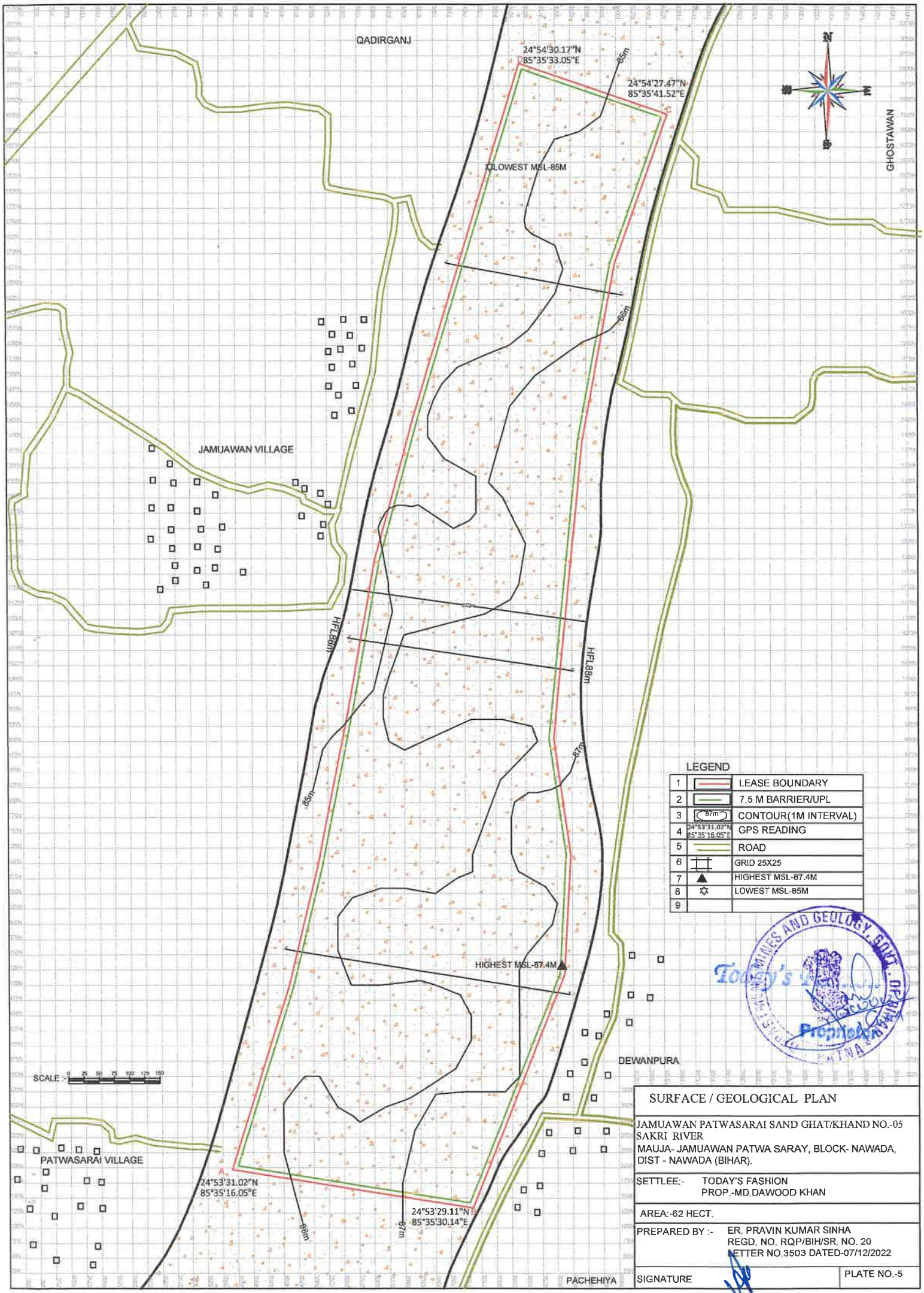


PLATE NO.-2
GOOGLE MAP
SAND MINING PROJECT BLOCK- 05 (JAMUAWAN PATWA SARAY) SAND GHAT (AREA- 62.0 HA.) MAUJA– JAMUAWAN PATWA SARAY, BLOCK- NAWADA DIST– NAWADA (BIHAR)
SETTLEE :- TODAY'S FASHION PROP.- MD. DAWOOD KHAN
PREPARED BY:- PRAVIN KUMAR SINHA REGD. NO.- RQP/BIH/SR.NO.20 LETTER NO. 3825 DATED 07/11/2019
SIGNATURE :

Today's Fashion
Proprietor



SURFACE / GEOLOGICAL PLAN

JAMUAWAN PATWASARAI SAND GHAT/KHAND NO.-05
SAKRI RIVER
MAUJA- JAMUAWAN PATWA SARAY, BLOCK- NAWADA,
DIST - NAWADA (BIHAR).

SETTLEE:- TODAY'S FASHION
PROP.-MD.DAWOOD KHAN

AREA:-62 HECT.

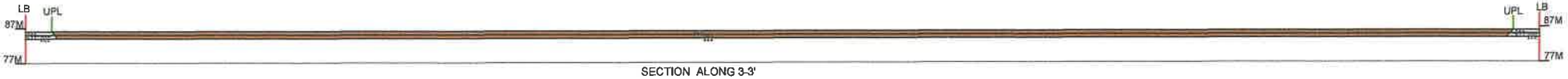
PREPARED BY :- ER. PRAVIN KUMAR SINHA
REGD. NO. RQP/BIH/SR. NO. 20
LETTER NO.3503 DATED-07/12/2022

SIGNATURE

PLATE NO.-5

SECTION ALONG 1-1'

SECTION ALONG 2-2'



SECTION ALONG 3-3'

SECTION ALONG A-B

1		LEASE BOUNDARY(LB)
2		7.5 M BARRIER/UPL
3	R	ROAD
4	111	PROVED RESERVE(111)
5	122	PROBABLE RESERVE(122)
6	211	FEASIBILITY RESOURCE (211)
7	222	PRE FEASIBILITY RESOURCE (222)

Today's Fashion
Proprietor

GEOLOGICAL SECTION

SAKRI RIVER KHAND NO.-05
(JAMUAWAN PATWASARAI SAND GHAT)
MAUJA- JAMUAWAN PATWA SARAY, BLOCK- NAWADA,
DIST - NAWADA (BIHAR).

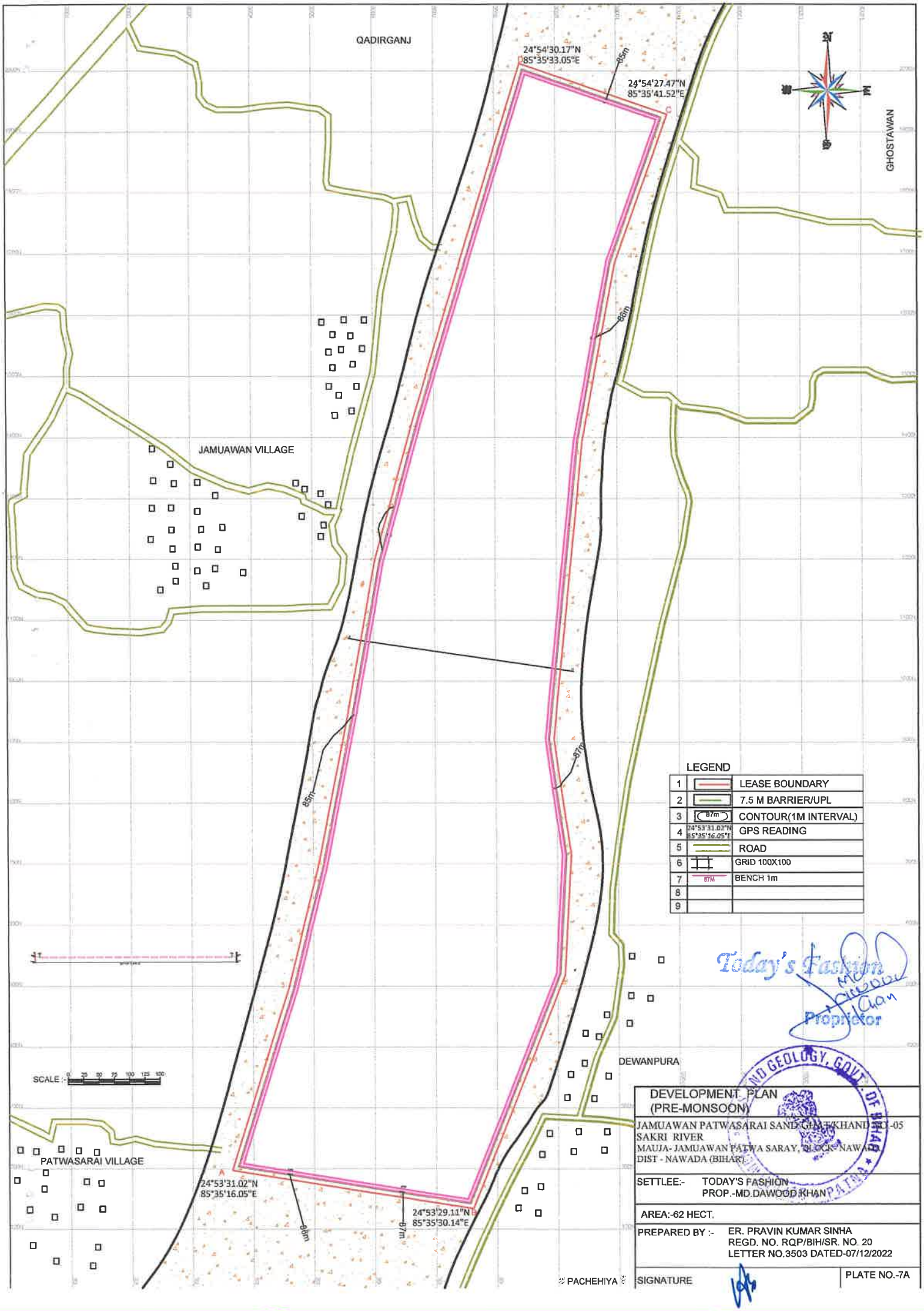
SETTLEE:- TODAY'S FASHION
PROP.-MD.DAWOOD KHAN

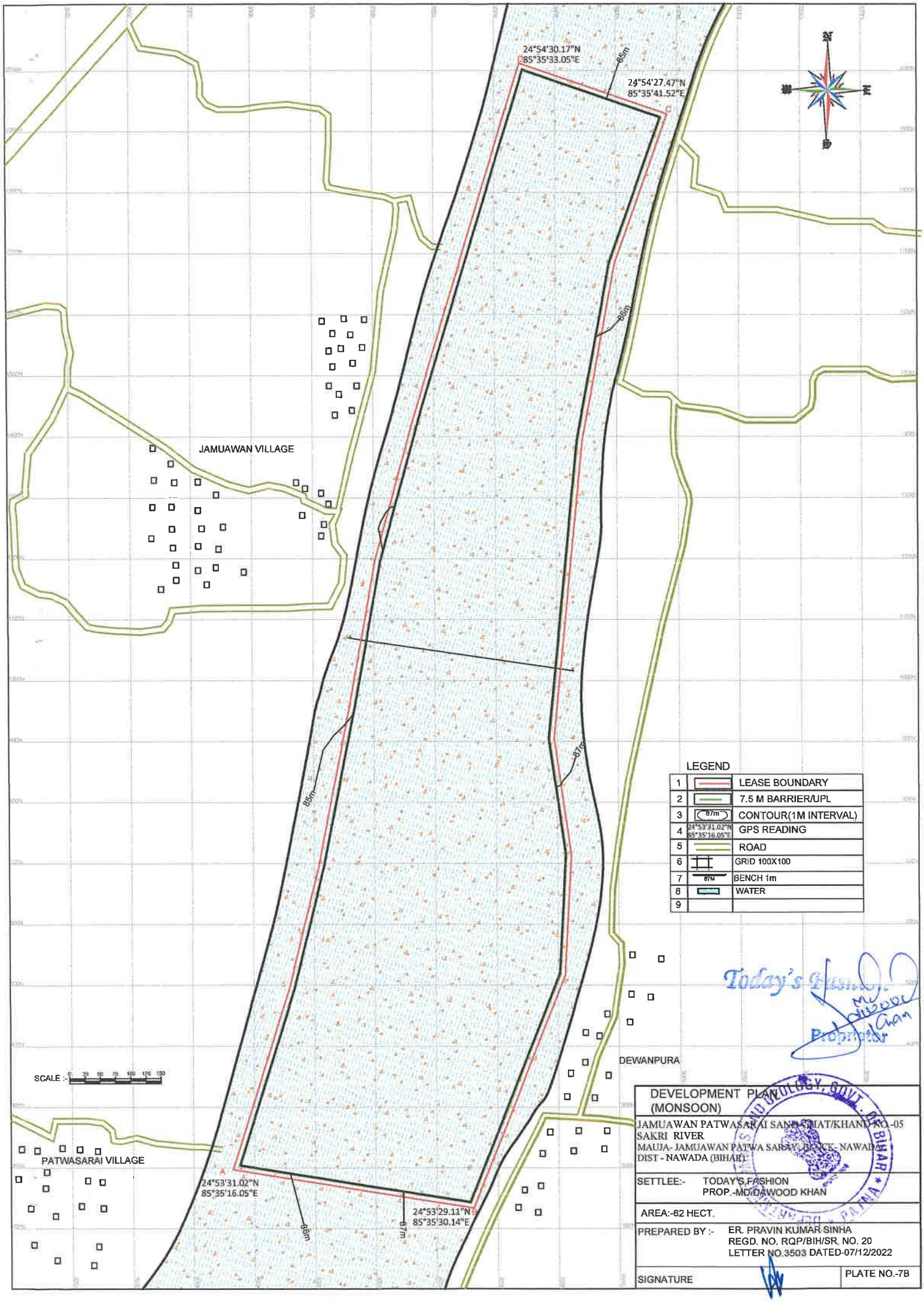
AREA:- 62 HECT.

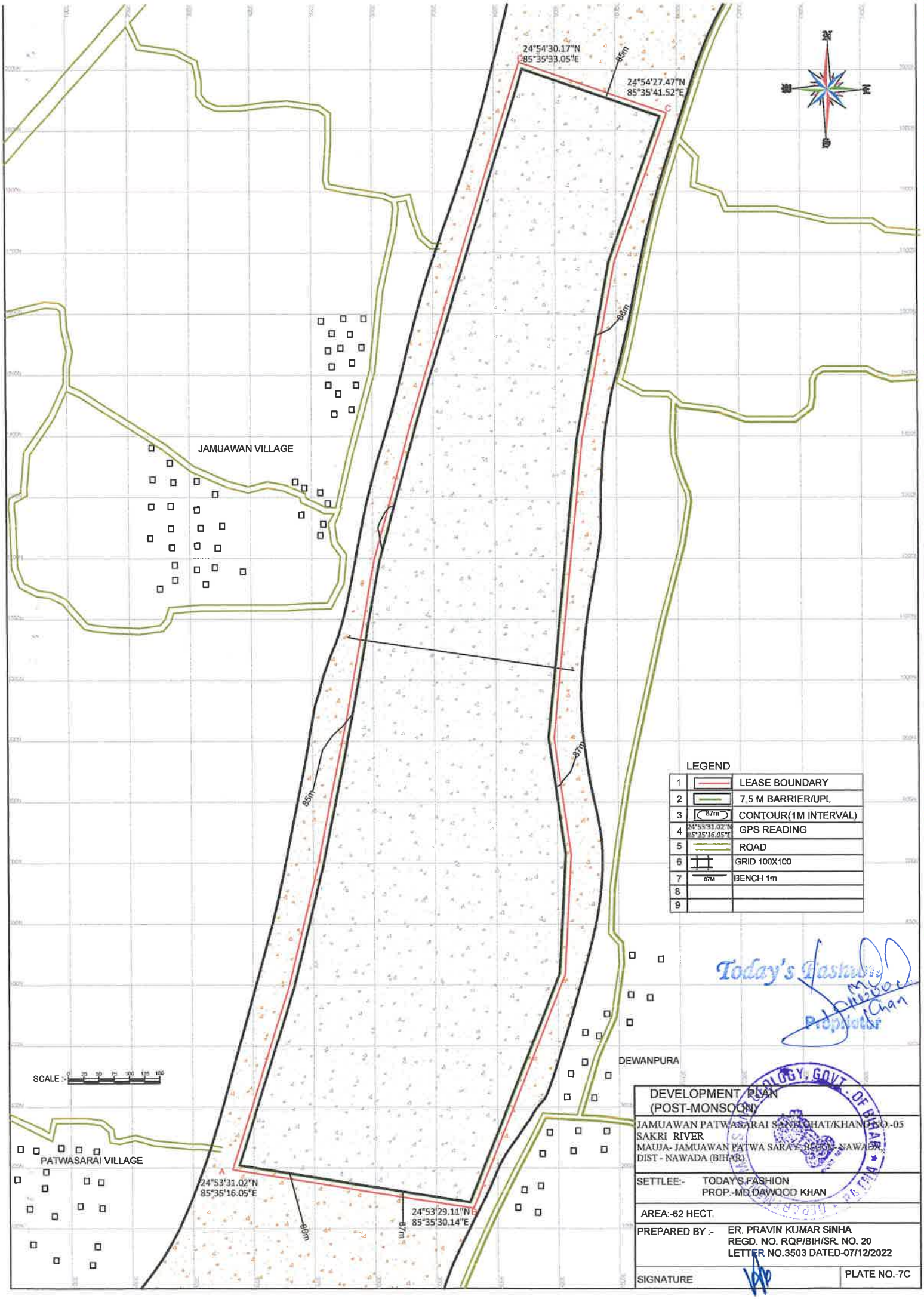
PREPARED BY :- ER.PRAVIN KUMAR SINHA
REGD.-NO. RQP/BIH/SR. NO. 20
LETTER NO.3503 DATED-07/12/2022

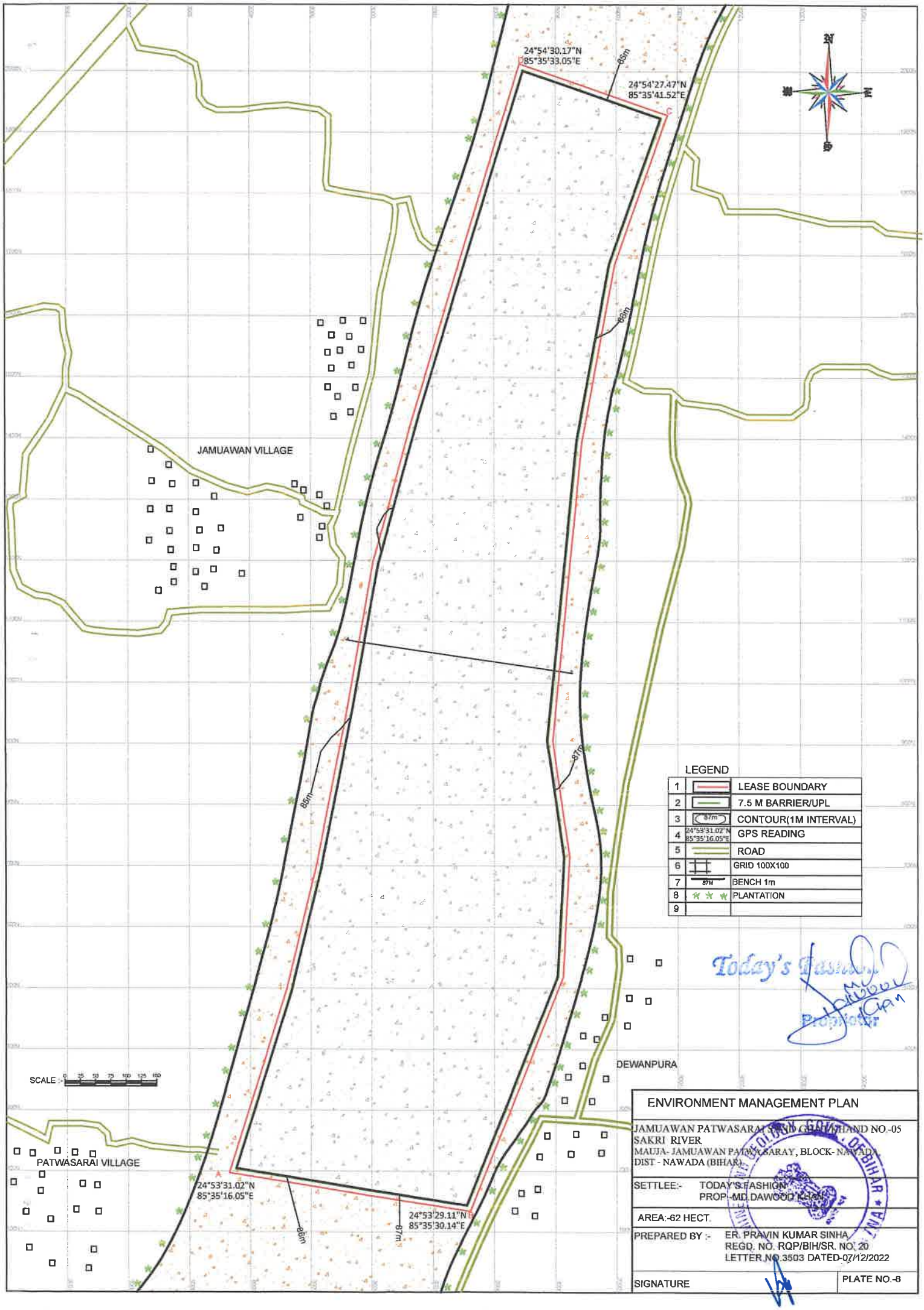
SIGNATURE

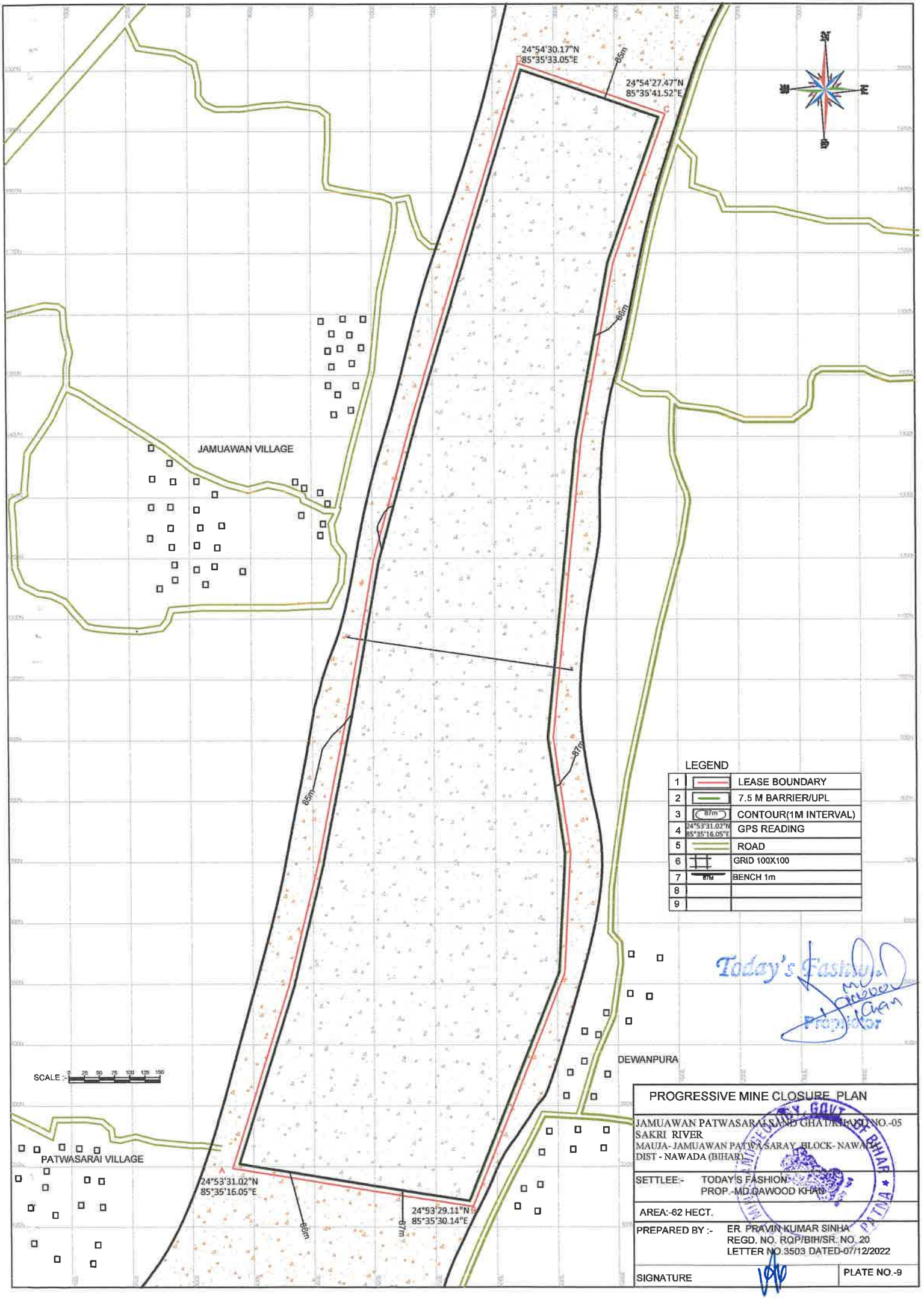
PLATE NO.-6


QADIRGANJ
24°54'30.17"N
85°35'33.05"E
24°54'27.47"N
85°35'41.52"E
GHOSTAWAN
JAMUAWAN VILLAGE
85m
87m
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 87m CONTOUR(1M INTERVAL)
4 24°53'31.02"N 85°35'16.05"E GPS READING
5 ROAD
6 GRID 100X100
7 87M BENCH 1m
8
9
DEWANPURA
SCALE :- 0 25 50 75 100 125 150
PATWASARAI VILLAGE
24°53'31.02"N
85°35'16.05"E
24°53'29.11"N
85°35'30.14"E
86m
87m
PACHEHIYA
Today's Fashion
Proprietor
DEVELOPMENT PLAN
(PRE-MONSOON)
JAMUAWAN PATWASARAI SAND GHAT/KHAND NO.-05
SAKRI RIVER
MAUJA- JAMUAWAN PATWA SARAY, BLOCK- NAWADA
DIST - NAWADA (BIHAR)
SETTLEE:- TODAY'S FASHION
PROP.-MD.DAWOOD KHAN
AREA:-62 HECT.
PREPARED BY :- ER. PRAVIN KUMAR SINHA
REGD. NO. RQP/BIH/SR. NO. 20
LETTER NO.3503 DATED-07/12/2022
SIGNATURE
PLATE NO.-7A


24°54'30.17"N
85°35'33.05"E
24°54'27.47"N
85°35'41.52"E
JAMUAWAN VILLAGE
PATWASARAI VILLAGE
DEWANPURA
24°53'31.02"N
85°35'16.05"E
24°53'29.11"N
85°35'30.14"E
85m
86m
87m
SCALE :-
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 87m CONTOUR(1M INTERVAL)
4 24°53'31.02"N 85°35'16.05"E GPS READING
5 ROAD
6 GRID 100X100
7 87M BENCH 1m
8 WATER
9
Today's Fashion
Proprietor
DEVELOPMENT PLAN (MONSOON)
JAMUAWAN PATWASARAI SANDGHAT/KHAND NO.-05
SAKRI RIVER
MAUJA- JAMUAWAN PATWA SARAY, BLOCK- NAWADA
DIST - NAWADA (BIHAR)
SETTLEE:- TODAY'S FASHION
PROP.-MD.DAWOOD KHAN
AREA:-62 HECT.
PREPARED BY :- ER. PRAVIN KUMAR SINHA
REGD. NO. RQP/BIH/SR. NO. 20
LETTER NO.3503 DATED-07/12/2022
SIGNATURE
PLATE NO.-7B


24°54'30.17"N
85°35'33.05"E
24°54'27.47"N
85°35'41.52"E
JAMUAWAN VILLAGE
PATWASARAI VILLAGE
DEWANPURA
24°53'31.02"N
85°35'16.05"E
24°53'29.11"N
85°35'30.14"E
85m
86m
87m
SCALE :-
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 87m CONTOUR(1M INTERVAL)
4 24°53'31.02"N 85°35'16.05"E GPS READING
5 ROAD
6 GRID 100X100
7 87M BENCH 1m
8
9
Today's Fashion
Proprietor
DEVELOPMENT PLAN
(POST-MONSOON)
JAMUAWAN PATWASARAI SANKGHAT/KHANDSO.-05
SAKRI RIVER
MAUJA- JAMUAWAN PATWA SARAY, RECORD - NAWADA
DIST - NAWADA (BIHAR)
SETTLEE:- TODAY'S FASHION
PROP.-MD DAWOOD KHAN
AREA:-62 HECT.
PREPARED BY :- ER. PRAVIN KUMAR SINHA
REGD. NO. RQP/BIH/SR. NO. 20
LETTER NO.3503 DATED-07/12/2022
SIGNATURE
PLATE NO.-7C


24°54'30.17"N
85°35'33.05"E
24°54'27.47"N
85°35'41.52"E
JAMUAWAN VILLAGE
PATWASARAI VILLAGE
DEWANPURA
24°53'31.02"N
85°35'16.05"E
24°53'29.11"N
85°35'30.14"E
SCALE :-
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100X100
7 BENCH 1m
8 PLANTATION
9
Today's Fashion
Proprietor
ENVIRONMENT MANAGEMENT PLAN
JAMUAWAN PATWASARAI SAND GHAT/KHAND NO.-05
SAKRI RIVER
MAUJA- JAMUAWAN PATWASARAY, BLOCK- NAWADA
DIST - NAWADA (BIHAR)
SETTLEE:- TODAY'S FASHION
PROP:-MD.DAWOOD KHAN
AREA:-62 HECT.
PREPARED BY :- ER. PRAVIN KUMAR SINHA
REGD. NO. RQP/BIH/SR. NO. 20
LETTER NO.3503 DATED-07/12/2022
SIGNATURE
PLATE NO.-8


24°54'30.17"N
85°35'33.05"E
24°54'27.47"N
85°35'41.52"E
85m
86m
87m
85m
JAMUAWAN VILLAGE
PATWASARAI VILLAGE
DEWANPURA
24°53'31.02"N
85°35'16.05"E
24°53'29.11"N
85°35'30.14"E
87m
85m
SCALE :-
LEGEND
1 LEASE BOUNDARY
2 7.5 M BARRIER/UPL
3 CONTOUR(1M INTERVAL)
4 GPS READING
5 ROAD
6 GRID 100X100
7 BENCH 1m
8
9
Today's Fashion
Proprietor
PROGRESSIVE MINE CLOSURE PLAN
JAMUAWAN PATWASARAI SAND GHAT/KHARID NO.-05
SAKRI RIVER
MAUJA- JAMUAWAN PATWASARAY, BLOCK- NAWADA
DIST - NAWADA (BIHAR)
SETTLEE:- TODAY'S FASHION
PROP.-MD.DAWOOD KHAN
AREA:-62 HECT.
PREPARED BY :- ER. PRAVIN KUMAR SINHA
REGD. NO. RQP/BIH/SR. NO. 20
LETTER NO.3503 DATED-07/12/2022
SIGNATURE
PLATE NO.-9

EXECUTIVE SUMMARY

For

SAND MINING PROJECT ON SAKRI RIVER
BLOCK-05 (JAMUAWAN PATWA SARAY) SAND GHAT

PROPOSAL NO.	**SIA/BR/MIN/416179/2023**
AREA(Ha)	**62.00**
PRODUCTION	**744000 CUM/YEAR OR 1339200 TPA**
LOCATION	**Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372; Khata No. –547, 548, Block-Nawada,,Village- Jamuawan Patwa Saray , District-Nawada, State- Bihar.** .

APPLICANT

TODAY'S FASHION,

Prop.- Md. Dawaood Khan S/o Md. Sabir Khan

Add.- Islam Nagar, Gondapur, Nawada, Bihar

ENVIRONMENT CONSULTANT

CRIPL
CREATING SOLUTION

COGNIZANCE RESEARCH INDIA PVT LTD

(Accredited by QCI/NABET)

Suite -B02, Block-H-61, Sector-63, Noida, U.P-201301

Email: criplindia@gmail.com

EXECUTIVE SUMMARY

1.0 INTRODUCTION OF PROJECT&PROPONENT

Environment Impact Assessment (EIA) is a process used to identify the environmental, social & economic impacts of a project prior to decision making. It is a decision-making tool, which guides the decision makers in taking appropriate decisions for proposed projects. It aims predicting environmental impacts at an early stage of project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision makers. By using EIA, both environmental & economic benefits can be achieved. By considering environmental effects prediction & mitigation, early benefits in project planning, protection of environment, optimum utilization of resources, thus saving overall time & cost of the project.

The project is being proposed by M/s Today's Fashion, Prop.- Md. Dawood Khan, S/o.- Md. Sabir Khan, Add.- Islam Nagar, Gondapur, Nawada, Bihar.

Proposed project has been allotted to the proponent By District mining office. LOI has been granted in favour of M/s Today's Fashion, Prop. - Md. Dawood Khan, S/o.- Md. Sabir Khan, vide letter no. 3503/khanan dated. 07.012.2022, for a period of 5 years attached as Annexure I. The EIA-EMP report has been prepared as per the TOR granted under the EIA Notification of September 14th 2006. In order to assess the impact on environment due to proposed mining, it is necessary to ascertain the present status of environment prevailing at the project site and identification and assessment of impacts on the environment of the proposed operations.

As per NGT Order Dated 13-09-2018 and MOEF & CC OM No L-11011/175/2018-IA-II(M) Dated 12-12-2018 the project comes under B1 Category as the area is more than 5 Ha. Environmental Impact Assessment report is prepared to comply with the Terms of Reference (TOR) received from SEIAA, Bihar.

1.1 LOCATION

Name of the Project – Sand Mining Project Block- Block- 05 (Jamuawan Patwa Saray) Sand Ghat on Sakri River Location of the Khasra No.- 3381, 1954/3386, 3342/3387, 702/3388, 1760/3389, 3372; Khata No. –547, 548, Block- Nawada, Village- Jamuawan Patwa Saray , District- Nawada, State- Bihar.

The project involves collection of river bed material, thus it is expected that the proposed mining project would improve the supply of construction materials sand making a positive impact on the infrastructural projects like construction of roads, buildings, bridges etc in the state.

Village	Tehsil/Block	District	State	Area in Ha.
Jamuawan Patwa Saray	The Block- 05 (Jamuawan Patwa Saray)	Nawada	Bihar	62.0

Table1.1- Detail of site & surrounding around Lease Area

Nearest Settlements	Jamuawan Patwa Saray, Village 50 m in W direction
Nearest Road	SH-8 road which is at distance of approx. 1.50 km in NW direction
Nearest Airport	JPN International Airport Patna at distance of approx. 93 km in NW direction
Nearest Railway Station	Nawada Railway Station at distance of approx. 4.3 km in SW.
Nearest National Park/wildlife sanctuary within 10 km	No National Park/Wildlife Sanctuary within the periphery of 10 km
Water body	Sakri River (Onsite)
Nearest School/ college	Midlle school , Sonu Bigha Approx. 0.5 Km in NNW direction
Reserve/ Protected Forest	PF is about 8km from the lease.
Nearest Hospital	City Hospital, Nawada Approx. 4.5 Km in W direction
Temple	Hanuman Mandir, dewanpura, Approx. 0.2 Km in E direction

Table 1.2- Details of Project

On-line proposal No.	SIA/BR/MIN/416179/2023
Name of Proponent	TODAY'S FASHION, Prop.- Md. Dawood Khan, S/o.- Md. Sabir Khan,

<table>
<tr><td>Full correspondence address of proponent</td><td colspan="2">Add.- Islam Nagar, Gondapur, Nawada,
Bihar- 805110.</td></tr>
<tr><td>Name of Project</td><td colspan="2">Proposed Sand mining Project on Sakri River</td></tr>
<tr><td>Name of River</td><td colspan="2">Sakri</td></tr>
<tr><td>Name of Village</td><td colspan="2">Jamuawan Patwa Saray</td></tr>
<tr><td>District</td><td colspan="2">Nawada</td></tr>
<tr><td>Name of Minor Mineral</td><td colspan="2">Sand</td></tr>
<tr><td>Sanctioned Lease Area (in Ha.)</td><td colspan="2">62.0 ha</td></tr>
<tr><td>Category of the project</td><td colspan="2">“B1”</td></tr>
<tr><td>Pillar Coordinates</td><td colspan="2"><table><tr><td rowspan="2">Pillar</td><td colspan="2">Coordinate</td></tr><tr><td>Latitude</td><td>Longitude</td></tr><tr><td>A</td><td>24°53'31.02"N</td><td>85°35'16.05"E</td></tr><tr><td>B</td><td>24°53'29.11"N</td><td>85°35'30.14"E</td></tr><tr><td>C</td><td>24°54'27.47"N</td><td>85°35'41.52"E</td></tr><tr><td>D</td><td>24°54'30.17"N</td><td>85°35'33.05"E</td></tr></table></td></tr>
<tr><td>Total Geological Reserves</td><td colspan="2">1240000 cum. or 2232000 tonnes.</td></tr>
<tr><td>Total Mineable Reserves</td><td colspan="2">1132790 CUM or 2039022 Tonnes</td></tr>
<tr><td>Total Proposed Production (in five years)</td><td colspan="2">3720000 cum or 6696000Tonnes</td></tr>
<tr><td>Proposed Production/year</td><td colspan="2">744000 CUM or 1339200 Tonnes</td></tr>
<tr><td>Sanctioned Period of Mine lease</td><td colspan="2">5 years</td></tr>
<tr><td>Method of Mining</td><td colspan="2">Open Cast semi mechanized method / OTFM</td></tr>
<tr><td>No. of working days</td><td colspan="2">250 days</td></tr>
<tr><td>Working hours/day</td><td colspan="2">8hrs</td></tr>
<tr><td>No. of workers</td><td colspan="2">60</td></tr>
<tr><td>Type of Land</td><td colspan="2">Government waste land</td></tr>
<tr><td>Ultimate Depth of Mining</td><td colspan="2">2 m</td></tr>
<tr><td>Nearest metalled road from site</td><td colspan="2">1.50 km</td></tr>
<tr><td rowspan="5">Water Requirement</td><td>PURPOSE</td><td>REQUIREMENT (KLD)</td></tr>
<tr><td>Drinking & Domestic</td><td>1.2</td></tr>
<tr><td>Suppression of dust</td><td>18</td></tr>
<tr><td>Plantation</td><td>1.24</td></tr>
<tr><td>Total</td><td>20.44</td></tr>
<tr><td>Any litigation pending against the project or land in any court</td><td colspan="2">No</td></tr>
<tr><td>Proposed Project cost (INR)</td><td colspan="2">The total cost of project would be around Rs.160160000/- (16.016 Crore).</td></tr>
<tr><td>Proposed EMP budget (INR)</td><td colspan="2">Capital Cost -6.7 Lakh
Recurring Cost- 6.3 Lakh</td></tr>
<tr><td>Proposed CER (2% of Project Cost) (INR)</td><td colspan="2">3203200/-</td></tr>
</table>

Length and breadth of Haul Road	Length: 1.5 km, width: 6 m
No. of Trees to be Planted	620 plants, Every year 124 trees will be planted

1.2 WATER DEMAND

In the river bed mining projects there is as such no need of water to carry out operations, except for dust suppression, Plantation & drinking for the working people. The total water requirement will be around 20.44 KLD. This water will be supplied from the nearby area through tankers.

Table 1.3- Water Demand

S. No.	Purpose	Manpower/Area	Water Demand KLD	Source
1.	Drinking & Domestic	Manpower (60) (60*20 = 1200L/D)	1.20	Nearby Village
2.	Plantation	620 trees*2L = 1240L/D	1.24	Private Tanker
3.	Dust Suppression	Haul Road =1500m length *6m width=9000m^2 *2L=18000L/D	18.0	Private Tanker
Total			**20.44**	

1.3 BASE LINE DATA

This section contains the description of baseline studies of the 10 km radius the 10 km radius of the area Sand Mining project on Sakri Riverbed located at, Village- Jamuawan Patwa Saray, Block- 05 (Jamuawan Patwa Saray), District- Nawada, State- Bihar and Area – 62.0 Ha. & Proposed Production 744000 CUM or 1339200 Tones The data collected has been used to understand the existing environment scenario around the proposed mining project against which the potential impacts of the project can be assessed.

Environmental data has been collected in relation to proposed mining for:-

(a) Air

(b) Noise

(c) Water

(d) Soil

(e) Ecology and Biodiversity

(f) Socio-economy

Table 1.4 Baseline Environmental Status

Attribute	Baseline status
Ambient Air Quality	Ambient Air Quality Monitoring (AAQM) has been carried out at eight locations during pre-monsoon season from March 2023 to May 2023. The minimum and maximum level of $PM_{2.5}$ recorded within the study area was in the range of 30.56 µg/m^3 to 48.89 µg/m^3 with the 98th percentile 39.50 µg/m^3 to 48.34 µg/m^3 at. The minimum and maximum level of PM_{10} recorded within the study area was in the range of 58.30 µg/m^3 to 92.40µg/m3 with the 98th percentile 77.19 µg/m^3 to 91.57 µg/m^3. The minimum and maximum concentration of SO_2 recorded within the study area was in the range of was 7.39 µg/m^3 to 15.84 µg/m^3 with the 98th percentile 12.84 µg/m^3 to 14.97 µg/m3. The minimum and maximum level of NO2 recorded within the study area was in the range of was 8.18 µg/m^3 to 16.26 µg/m^3 with the 98th percentile 15.96 µg/m^3. The results thus obtained indicate that the concentrations of PM10, PM2.5, SO2 and NO2 in the Ambient Air are well within the National Ambient Air Quality (NAAQ) standards for Industrial, Residential, Rural and other areas
Noise Levels	Noise monitoring was carried out at five locations. The results of the monitoring program indicated that both the daytime and night time levels of noise were well within the prescribed limits of NAAQS, at all the four locations monitored.
Water Quality	4 Groundwater samples and 2 surface water samples were analyzed and concluded that: The ground water from all sources remains suitable for drinking purposes as all the constituents are within the limits prescribed by drinking water standards promulgated by Indian Standards IS: 10500.

	From the Surface water analysis it is evident that most of the parameters of the samples comply with 'Category 'C' standards of CPCB indicating their suitability for Drinking water source after conventional treatment and disinfection.
Soil Quality	5 Samples collected from identified locations indicate the soil is sandy type and the pH value ranging from 6.85-7.14, which shows that the soil is alkaline in nature.
Ecology and Biodiversity	There are no Ecologically Sensitive Areas present in the study area, but many reserved forests regions surround the project area. No forest land is also present within the mine area.
Socio-economy	The implementation of the Sand mining project on river Sakri will throw opportunities to local people for both direct and indirect employment. The study area is still lacking in education, health, housing, water, electricity etc. It is expected that same will improve to a great extent due to proposed mining project and associated industrial and business activities.

1.4 LAND ENVIRONMENT

No adverse impact is anticipated on land use of buffer zone due to present mining operations. As all the related activities are confined to the core zone.

The area likely to be degraded due to quarrying, pitting & roads. The impact on the land form or physiography will be limited to the modification of the slope. The landscape and land use will undergo a radical change due to open cast mining. The impact during next five years is limited as benches will be formed. Besides these benches, roads will also modify the physiography. The impact on land use will also be limited.

Impact on Land use Pattern including change of River course:

- If mining is not carried out in systematic manner by leaving sufficient safety barriers from the bank than it may disturb the river flow/course.
- Stacking of uncoated material including mineral or spillage (if any) on the bank side of river will hinder the flow of water in monsoon season, raise water level upstream, which may lead to bank cutting or flouting.

- Deviation from planned mining procedures can lead to river channel shifting as well as degradation of surrounding land, causing loss of properties & degradation of land scape.

Mitigation measures:

- Mineral will be mined out in central portion of stream & sufficient safety barrier 10% of width will be left towards bank side, so that river flow/course will not get disturbed.
- Mining of mineral will be started towards rise at the centre & also laterally in 1m slice so that river course will not get affected. Unwanted material or spillage (if any) will not be stacked by the side of excavation voids created. This is to be done so, because it will otherwise hinder flow of water in monsoon period.
- Mining is to be done by leaving safety barrier on both sides & maximum barrier should be do concave side of river preferably the flow channel (excavation void created) should be kept straight so as to help avoid erosion as side cuttings, Upto next depth of 2.0m from river bed level.

No waste water will be generated from the mining activities of minor minerals as the project. Only involves lifting of Sand from the river bed.

1.5 AIR ENVIRONMENT

Anticipated impacts and evaluation

Information on air quality was studied and various modelling techniques predicted that the mining activity will not affect the air quality in a significant manner. In mining operations, loading, transportation and unloading operations may cause deterioration in air quality due to handling dry materials. In the present case, only wet materials will be handled, thus eliminating problems of fugitive dust. Also, the collection and lifting of minerals will be done Semi- Mechanized without any blasting. Therefore the dust generated is insignificant as compared to mining process of other hard minerals like the process of drilling, blasting, mechanized loading etc.

Mitigation measures

- In control the emission regular preventive maintenance of equipment will be carried out on contractual basis.

- Proper mitigation measures like water sprinkling will be adopted to control dust emission.
- Plantation will be planted at place which authorized by Local Authority.
- It is being certified that all transportation vehicles will carry a valid PUC certified. The only air pollution sources are the road transport network of the trucks. The dust suppression measures like water spraying will be done on the roads. This will decrease the dust emission by 75%.
- There is no toxic element present in the mineral which may contaminate the soil.

1.6 WATER ENVIRONMENT

Impacts on hydrological Conditions:

- The study area is itself part of river course carries surface as well as ground water (under current). The flow of surface/ground water (sub surface flow is following the trend of topography.
- The area is part of dry river bed for more than nine months in a year except for the rainy season. The Sand mining is up to the depth of 2.0m will have in significant impact on water regime.
- The general ground water table which will be about 3.0m below surface of river bed in the mining area during dry seasons will not be disturbed as ultimate working depth will be 2m.

Impact on Water Quality:

- Mining causes lowering of riverbed level as well as riverbed water level resulting in lowering in ground table due to excessive extraction & drainage out of ground water from the adjacent areas, if general ground water table is higher than the river bed level. In case the general ground water level is lower than riverbed water level, than it will have positive impact on ground water table will recharge vertically as well as laterally. In the former case may cause shortage of water for the vegetation & human settlement in the vicinity, but in later case it will help improve situations
- River is recharging the ground water, excessive mining will reduce the thickness of the natural filter material (sediments), infiltration through which the ground water recharged, so restriction in depth becomes necessity.

Mitigation Measures:

Mining in the area will be done above the water table as well as river bed water level, therefore much impact on water regime is not anticipated.

1.7 NOISE ENVIRONMENT

The sand mining projects are mainly not noisy as these are mainly manual in nature. But in this case the methodology adopted for mining is opencast semi mechanized mining method which may generate noise.

Impact on environment

At mines, noise is created by movement of machinery & transportation vehicles, etc. The noise level in the working environment are compared with the standards prescribed by Occupational Safety and Health Administration (OSHA-USA) which has been adopted and enforced by the Govt. of India through model rules framed under Factories Act, 1980 and CPCB 2000 norms. The summary of the permissible exposures in cases of continuous noise as per above rules is given below:

Table 1.5 Noise impact

Total time of exposure per day in hour	Sound pressure dB(A)	Remarks
1	2	3
8.0	90	No exposure in excess of 115 dB(A) is permissible
6.0	92	--
4.0	95	For any period of exposure falling in between any figure and lower figure as indicated in column (1), the permissible sound is to be determined by extrapolation or proportionate scale.
3.0	97	
2.0	100	
1 ½	102	
1	105	
¾	107	
½	110	

¼	115	

Noise at lower levels (sound pressure) is quite acceptable and does not have any bad effect on human beings, but when it is abnormally high- it incurs some maleficent effects.

Mitigation measures

The off-site receptors are not significantly affected as noise generated by mines is insignificant but for some disturbances due to vehicle movement. The following measures have been envisaged to reduce the impact from the transportation of minerals.

- Periodical monitoring of noise will be done.
- Transportation vehicles will be maintained in good running condition so that noise will be reduced to minimum possible level.
- Noise generated by these Equipment shall be intermittent & does not cause much adverse impact.
- Proper maintenance of all equipment/machines will be carried out which help in reducing noise level during operations.
- In addition, truck drivers will be instructed to make minimum use of horns in the village area and sensitive zones.

1.8 TRAFFIC ANALYSIS

From the analysis it can be seen that the V/C ratio will change from 0.13 to 0.24 for SH – 8 with LOS Changing from "A" to "B" which is Very good. So the additional load on the carrying capacity will be not affected on MDR as such and will be affected to a minimum level on SH – 8 and village road, temporarily

1.9 ENVIRONMENTAL MANAGEMENT PLAN BUDGET

Table 1.6 Budget allotted for Environmental Management Plan

Sl. No	Description	Capital Cost (lakh)	Recurring Cost (lakh)

1	Pollution Control & Dust Suppression	Nil	2.0
2	Pollution Monitoring i) Air pollution ii) Water pollution iv) Noise Pollution	--	2.0
3	Plantation and salary for one gardener (parttime basis).	6.2	0.5
4	Haul road Maintenance Cost	0.5	1.8
TOTAL		**6.7**	**6.3**

1.10 BENEFIT OF MINING

- **PHYSICAL BENIFITS**

The impact on the civic amenities will be substantial after the commencement of mining activities. The basic requirement of the community needs will be strengthened by extending health care, educational facilities developed in the township to the community, providing drinking water to the villages, building/strengthening of existing roads in the area. The proponent will initiate the above amenities either by providing or by improving the facilities in the area, which will help in uplifting the living standards of local communities. Medical facilities will be provided in the form of first-aid facility at the mine. These medical facilities will also be available to local people in the surrounding in case of emergencies.

- **SOCIAL BENEFITS**

- Generation of employment and improved standard of living;
- Increased revenue to the State by way of royalty, taxes and duties; and
- Superior communication and transport facilities etc.
- There will be significant change in the socio-economic scenario of the area.
- The proposed project will enhance the prospects of employment. Recruitment for the unskilled and semiskilled workers for the proposed project will be from the nearby villages.
- The development of the basic amenities viz. roads, transportation, electricity, drinking

water, proper sanitation, educational institutions, medical facilities, entertainment, etc. will be developed as far as possible.

- Overall, the proposed project will change living standards of the people and improve the socio-economic conditions of the area.

ENVIRONMENTAL BENEFITS

- **Enhancement Of Green Cover**

Plantation/afforestation will be done as per program 400 plants will be planted along the place which would be authorized by local authority within 5km from lease boundary along with provision for maintenance for 5 years. Post plantation, the area will be regularly monitored in every season for evaluation of success rate. For selection of plant species local people will also be involved. The management will provide free saplings of fruit and other trees, etc. to local during rain for plantation. This will increase the consciousness in workers and near-by villagers for greenery. Fruit trees can contribute towards their financial gains.

1.11 CORPORATE ENVIRONMENTAL RESPONSIBILITY

2 % of capital cost of the project cost will be allotted for the Corporate Environmental Responsibility as per OM dated 1st May 2018.

CER cost will be 2% of the total project cost. This amount will be used for social welfare. CER cost is Rs. 32,03,200.00/-

For each activity the funds to be earmarked by the proponent will be decided after discussion with the local authority/people and the beneficiaries during public hearing. It has been planned to undertake a concurrent evaluation of the activities to be taken up under the CER programme.

1.12 CONCLUSIONS

- The mining operations will meet the compliance requirements of MoEF & CC;
- Community impacts will be beneficial, as the project will generate significant economic benefits for the region;
- Adoption of Best Available Technology and Best Management Practices with more

environmentally friendly process

- With the effective implementation of the Environment Management Plan (EMP) during the mining activities, the proposed project can proceed without any significant negative impact on environment.

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