

EXECUTIVE SUMMARY

PROJEK PENUBUHAN LADANG HUTAN SELUAS ±346.50 HEKTAR (±856.2 EKAR) DI ATAS SEBAHAGIAN KOMPARTMEN 170, 171 & 172 HUTAN SIMPAN REMEN CHEREH, MUKIM ULU KUANTAN DAN SEBAHAGIAN KOMPARTMEN 391 & 392 HUTAN SIMPAN BERKELAH, MUKIM KUALA KUANTAN, DAERAH KUANTAN, PAHANG DARUL MAKMUR

PROJECT PROPONENT
MAKMUR HARVEST SDN BHD

EIA CONSULTANT
ECOLESTARI CONSULT

INTRODUCTION

The project proponent is Makmur Harvest Sdn Bhd. The project has been approved by DOF Negeri Pahang to Makmur Harvest Sdn Bhd as a contractor to undertake forest plantation development covering an area of about ±346.50 hectares.

PROJECT ACTIVITIES

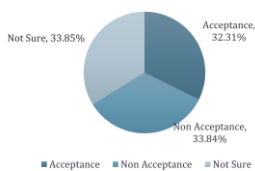
- Construction of road and drainage system
- Installation of erosion and sedimentation control tools
- Biomass management
- Removal of machineries, vehicles and waste from concession

Forest Plantation Development

- Nursery Establishment and Construction of Quarters and Site Office
- Preparation of Planting Row (Lining and Holing)
- Planting Seedling and Cover Crop
- Maintenance
- Harvesting

SOCIO ECONOMY

PERCENTAGE OF ACCEPTANCE

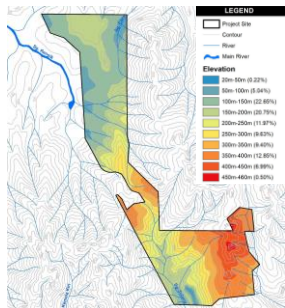


LEGAL REQUIREMENT

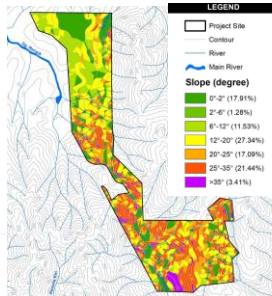
Subject to section 34A (1) of the Environmental Quality Act 1974 [127] and Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015, the project site fall under First Schedule:

Activity 5 (e) Forestry: "Development of planted forest covering an area of 100 hectares or more but less than 500 hectares

ELEVATION



SLOPE ANALYSIS



FAUNA STUDY

Mammals
25 species

Avian
114 species

Herpetofauna
19 species

For this proposed project site, project proponent will plant *Paraserianthes falcataria (Batai)*. Batai species is fast-growing species and it can be used for furniture manufacturing, plywood, chipboard and medium density fibreboard.

ZONE OF STUDY

- The nearest human settlement area is Kampung Orang Asli Sungai Belat which is located within 4 km radius from the project site.
- Sungai Pandan Waterfall located within 5 km radius from project site and will not affected by the project development due to different catchment.
- Air Tandak KOA Sg. Belat located approximately 3.2 km radius to the south from the project site which is at tributary of Sg. Belat. However, this air tandak will not be affected from the project site.

METEOROLOGY

Kuantan Station
Avg. Annual Rainfall: 2964.8 mm

Avg. Monthly Temperature:
Max - 28.3%
Min - 25.9%

Avg. Monthly Humidity:
Highest - 87.0°C
Lowest - 81.2°C

FLORA STUDY WITHIN PROJECT SITE

Family	No of Genus	No of Tree Species
Fabaceae	15	19
Euphorbiaceae	11	17
Rubiaceae	12	15
Phyllanthaceae	6	11
Myrtaceae	2	11
Malvaceae	7	10
Annonaceae	8	9
Burseraceae	3	9
Dipterocarpaceae	3	9
Moraceae	3	8

ACCESS ROAD

NEAREST TOWN
Gambang Town (±15.48 km)

ACCESS ROAD
can be accessed from Gambang town through Jalan Gambang (Route 2) about ±2.02 km.

Turn left, at the junction onto Lebu Persiaran Tun Khalil Yaakob for ±1.16km

At the intersection, turn left towards Jalan Bandar Gambang 10 onto the project site which is approximately ±12.3 km from the main road

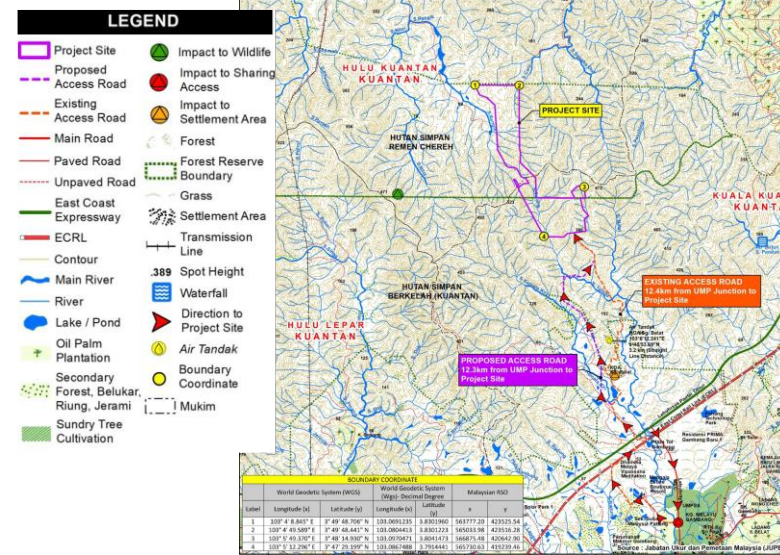
EXISTING ENVIRONMENT

Station	WQI	Class	Status
WQ1	94.51	I	Clean
WQ2	93.81	I	Clean
WQ3	93.57	I	Clean
WQ4	93.07	I	Clean
WQ5	93.69	I	Clean
WQ6	93.38	I	Clean
WQ7	93.30	I	Clean
WQ8	92.76	I	Clean
WQ9	93.14	I	Clean
WQ10	90.99	II	Clean

AIR QUALITY RESULT (µg / m3)

A1	
PM ₁₀	9.30, PM _{2.5} - 3.60
A2	
PM ₁₀	11.50, PM _{2.5} - 5.10
A3	
PM ₁₀	14.7, PM _{2.5} - 8.20
NOISE LEVEL RESULT	
L _{Aeq}	
N1	
Day Time	Night Time
47.3 dBA	43.5 dBA
N2	
Day Time	Night Time
48.3 dBA	42.1 dBA
N3	
Day Time	Night Time
55.2 dBA	46.8 dBA

PROJECT LOCATION



PROJECT SITE CONDITION



ACCESS ROAD



IMPACT MONITORING (IM)

Component	Regulated Parameters	Monitoring Locations	Frequencies
*Air Quality	PM ₁₀ , PM _{2.5}	Refer Figure 6.18 in Chapter 6	Monthly
**Noise	Leq, Lmax, Lmin	Refer Figure 6.18 in Chapter 6	Monthly
***Water Quality	Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), pH, Temperature, Turbidity, Ammoniacal Nitrogen (NH ₃ -N), Dissolved Oxygen (DO), Total Coliform, Chemical Oxygen Demand (COD)	Refer Figure 6.18 in Chapter 6	Monthly

Note:
* New Malaysia Ambient Air Quality Standard 2020, Department of Environment Malaysia (DOE)
** Annex A, Schedule 1, Guidelines for Environmental Noise Limits and Control, Third Edition, 2019.
*** National Water Quality Standard for Malaysia (NWQS), Department of Environment, Malaysia (DOE)

PERFORMANCE MONITORING (PM)

LD-P2M2 Tools	Performance Monitoring (PM) Parameters	Recommended Limit	Monitoring Location	Frequencies
Sediment Trap	Silt Marker	2/3 depth from sediment trap	Refer LD-P2M2 Conceptual Plan (Attachment 1)	Weekly or after rain event (In-situ)
Perimeter Drain	River Buffer	Performance		
Cover Crop				
Earth Drain with Check Dam	Sediment Level		Monthly	
Temporary or permanent waterway crossing (culvert/bridge)	Structure and Performance			

COMPLIANCE MONITORING (CM)

Component	Regulated Parameters	Applicable Standards	Monitoring Locations	Frequencies
*Noise	Leq	Day: 55 dBA Night: 50 dBA	Refer Figure 6.18 in Chapter 6	Monthly
**Water Quality (Discharged from Sediment Trap)	Turbidity	50 mg/L	Refer Figure 6.18 in Chapter 6 and LD-P2M2 Conceptual Plan (Attachment 1)	Monthly

Note:
* Annex A, Schedule 1, Guidelines for Environmental Noise Limits and Control, Third Edition, 2019.
** Refer to EIA approval condition

POTENTIAL IMPACT AND MITIGATION MEASURES

Significant Potential Impacts	Magnitude Of Significant Potential Impacts	P2M2
1) Soil erosion and sedimentation 2) Reduce river depth/drain capacity 3) Declining water quality level	High	<ul style="list-style-type: none"> • Scheduling of the development. • Plant cover crop. • Prepare silt trap, and sediment basin. • Retain buffer zone.
Waste Generation a) Biomass waste b) Solid waste c) Scheduled waste	High	<ul style="list-style-type: none"> • No open burning. • Provide garbage bins. • Composting waste approach. • Proper storage area.
1) Habitat-Fragmentation. 2) Human-Wildlife Conflict	High	<ul style="list-style-type: none"> • Phasing/Directional development. • Wildlife-Human conflict management strategies. • Report incident. • Prohibition of wildlife poaching • Signage on prohibition of wildlife hunting or trapping.
Declining Air Quality Level	Medium	<ul style="list-style-type: none"> • Spraying water on road (water bowser) • Apply crusher run for unsealed road
Noise Pollution	Low	<ul style="list-style-type: none"> • Use quieter and/or silence machineries. • Use proper personal protection equipment (PPE) on site with ear plug. • Regularly servicing and maintaining vehicles and machineries.
Nuisance During Project Abandonment	Medium	<ul style="list-style-type: none"> • Preparing Project Abandonment Plan. • Warning signage to be installed. • Removes vehicles involved in the Project development. • Initiate environmental control measures. • Regular inspections on site.

PENGENALAN

Penggerak projek adalah Makmur Harvest Sdn Bhd. Jabatan Perhutanan Negeri Pahang telah memberi kelulusan tapak projek kepada Makmur Harvest Sdn Bhd sebagai kontraktor yang akan menjalankan aktiviti pembangunan ladang hutan seluas ±346.50 hektar.

AKTIVITI PROJEK

- Pembinaan jalan dan sistem perparitan
- Pemasangan alat kawalan hakisan dan pembedapan
- Pengurusan biomas
- Membawa mesin, kenderaan dan sisa keluar dari tapak projek

Penubuhan Ladang Hutan

- Penubuhan tapak semaian dan pembinaan rumah pekerja dan pejabat tapak
- Penyediaan baris tanaman & membuat lubang
- Menanam anak benih dan tanaman tutup bumi
- Penyelenggaraan
- Penuaian

SOSIO EKONOMI



Sumber: Survei Sosio, Mei 2024

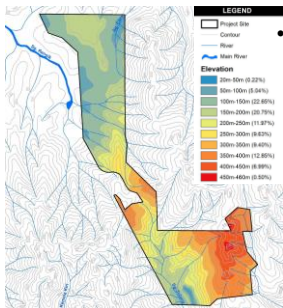
KEPERLUAN UNDANG-UNDANG

Tertakluk kepada Akta Kualiti Alam Sekeliling 1974 (Akta 127) dan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 2015:

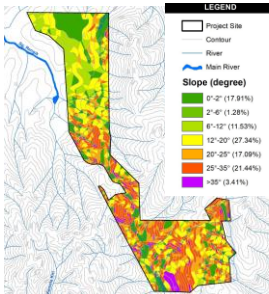
Jadual Pertama Aktiviti 5 (e) Perhutanan:

“Pembangunan ladang hutan yang meliputi kawasan seluas 100 hektar atau lebih tetapi kurang daripada 500 hektar”

KETINGGIAN



ANALISA KECERUNAN



KAJIAN FAUNA

Mamalia
25 spesies

Burung
114 spesies

Herpetofauna
19 spesies

Bagi cadangan tapak projek ini, Penggerak Projek akan menanam *Paraserianthes falcataria* (Batai). Spesies Batai adalah spesies yang cepat tumbuh dan ia boleh digunakan untuk pembuatan perabot, papan lapis, papan serpai dan papan gentian berketumpatan sederhana.

ZON KAJIAN

- Kawasan penempatan terdekat ialah Kampung Orang Asli Sungai Belat yang terletak dalam radius 4 km dari tapak projek.
- Air Terjun Sungai Pandan terletak dalam lingkungan 5 km radius dari tapak projek dan tidak akan terjejas dengan pembangunan projek kerana terletak di kawasan tadahan yang berbeza.
- Air Tandak KOA Sg. Belat terletak kira-kira 3.2 km radius ke selatan dari tapak projek iaitu di anak sungai Sg. Belat. Bagaimanapun, air tandak ini tidak akan terjejas dari tapak projek.

METEOROLOGI

Stesen Kuantan
Purata Tahunan Hujan: 2964.8 mm

Purata Bulanan Suhu:
Max - 28.3%
Min - 25.9%

Purata Bulanan Kelembapan:
Tertinggi - 87.0°C
Terendah - 81.2°C

KAJIAN FLORA DI TAPAK PROJEK

Keluarga	Bilangan Genus	Bilangan Spesies Tumbuhan
Fabaceae	15	19
Euphorbiaceae	11	17
Rubiaceae	12	15
Phyllanthaceae	6	11
Myrtaceae	2	11
Malvaceae	7	10
Annonaceae	8	9
Burseraceae	3	9
Dipterocarpaceae	3	9
Moraceae	3	8

JALAN AKSES

BANDAR TERDEKAT
Bandar Gambang (±15.48 km)

JALAN AKSES

Boleh diakses dari Bandar Gambang menerusi Jalan Gambang (Laluan 2) kira-kira ±2.02 km

Belok ke kiri di simpang 4 ke Lebuhraya Tun Khalil Yaakob dan bergerak terus kira-kira ±1.16 km.

Di persimpangan, belok ke kiri ke Jalan Bandar Gambang 10 untuk ke tapak projek kira-kira ±12.3 km dari jalan utama

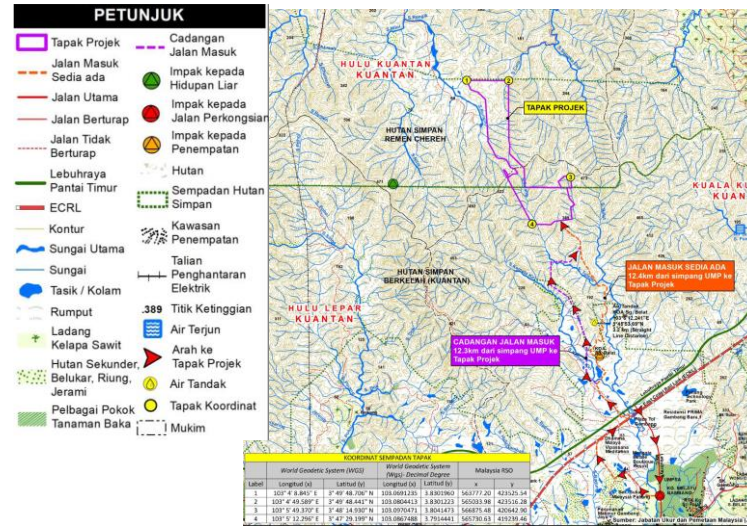
PERSEKITARAN SEDIA ADA

INDEK KUALITI AIR (WQI)

STESEN	WQI	KELAS	STATUS
WQ1	94.51	I	Bersih
WQ2	93.81	I	Bersih
WQ3	93.57	I	Bersih
WQ4	93.07	I	Bersih
WQ5	93.69	I	Bersih
WQ6	93.38	I	Bersih
WQ7	93.30	I	Bersih
WQ8	92.76	I	Bersih
WQ9	93.14	I	Bersih
WQ10	90.99	II	Bersih

KEPUTUSAN KUALITI UDARA (µg / m ³)	
A1	
PM ₁₀ - 9.30, PM _{2.5} - 3.60	
A2	
PM ₁₀ - 11.50, PM _{2.5} - 5.10	
A3	
PM ₁₀ - 14.7, PM _{2.5} - 8.20	
KEPUTUSAN KUALITI BUNYI	
L _{Aeq}	
N1	
Masa Siang	Masa Malam
47.3 dBA	43.5 dBA
N2	
Masa Siang	Masa Malam
48.3 dBA	42.1 dBA
N3	
Masa Siang	Masa Malam
55.2 dBA	46.8 dBA

LOKASI PROJEK



PEMANTAUAN IMPAK (IM)

Komponen	Parameter Kawalan	Lokasi Pemantauan	Kekerapan
*Kualiti Udara	PM ₁₀ , PM _{2.5}	Rujuk Rajah 6.18 dalam Bab 6	Sebulan sekali
**Bunyi	L _{eq} L _{max} L _{min}	Rujuk Rajah 6.18 dalam Bab 6	Sebulan sekali
***Kualiti Air	Jumlah pepejal terampai Keperluan Oksigen Biokimia (BOD) pH Suhu Kekeruhan Nitrogen Amonia (NH ₃ -N) Oksigen Terlarut (DO) Jumlah Koliform Keperluan Oksigen Kimia (COD)	Rujuk Rajah 6.18 dalam Bab 6	Sebulan sekali

Nota:
* Pawai Baru Kualiti Udara Ambien Malaysia, 2020, Jabatan Alam Sekitar (JAS)
** Lampiran A, Jadual 1, Garis Panduan Kawalan Bunyi Bising, Edisi Ketiga, 2019
*** Pawai Kualiti Air Kebangsaan Malaysia (NWQS), Jabatan Alam Sekitar (JAS)

PEMANTAUAN PRESTASI (PM)

Alat LD-P2M2	Parameter Pemantauan Prestasi (PM)	Had yang Dicapai	Lokasi Pemantauan	Kekerapan
Kolam / perangkap mendap	Penanda lumpur	2/3 kedalaman dari kolam mendapan	Rujuk Pelan LD-P2M2 (Lampiran 1)	Sebulan sekali dan apabila bacaan hujun melebihi 12.5 mm
Longkang perimeter Zon penampungan sungai Tanaman tutup bumi	Prestasi			
Longkang tanah dengan 'Check Dam'	Paras mendapan			
Laluan air sementara atau kekal (pembetung / jambatan)	Struktur dan prestasi			

PEMANTAUAN PEMATUHAN (CM)

Komponen	Parameter Kawalan	Aplikasi Pawai	Lokasi Pemantauan	Kekerapan
*Bunyi	L _{eq}	Siang: 55 dBA Malam: 50 dBA	Rujuk Rajah 6.18 dalam Bab 6	Sebulan sekali
**Kualiti Air (Pelepasan dari Kolam Mendapan)	Jumlah Pepejal Terampai Kekeruhan	50 mg/L 250 NTU	Rujuk Rajah 6.18 dalam Bab 6 dan Pelan LD-P2M2 (Lampiran 1)	Sebulan sekali

Nota:
*Lampiran A, Jadual 1, Garis Panduan Kawalan Bunyi Bising, Edisi Ketiga, 2019
**Rujuk syarat kelulusan EIA

KEADAAN TAPAK PROJEK



JALAN AKSES



POTENSI IMPAK DAN LANGKAH MITIGASI

Potensi Impak Penting	Magnitud Kesan Berpotensi Signifikan	P2M2
1. Hakisan tanah dan pemendapan 2. Mengurangkan kedalaman sungai/ kapasiti parit 3. Penurunan tahap kualiti air	Tinggi	<ul style="list-style-type: none"> • Pembangunan secara berperingkat dan berperingkat. • Tanam tanaman tutup bumi. • Perlaksanaan Konsep gangguan Tanah - Pencegahan Pencemaran dan Langkah- Langkah Mitigasi (LD-P2M2). • Mengekalkan zon penampam di kawasan sungai.
Penjanaan Sisa a) Sisa Biojisim b) Sisa Pepejal c) Sisa Buangan Terjadual	Tinggi	<ul style="list-style-type: none"> • Tiada pembakaran terbuka • Menyediakan tong sampah. • Menggunakan kaedah perkomposan sisa. • Kawasan penyimpanan sisa yang baik.
1) Pemecahan Habitat 2) Konflik manusia-hidupan liar	Tinggi	<ul style="list-style-type: none"> • Pembangunan secara berperingkat / berarah. • Strategi pengurusan konflik kehidupan liar- manusia. • Laporkan sebarang kejadian. • Larangan pemburuan kehidupan liar. • Papan tanda tentang larangan memburu dan memerangkap kehidupan liar.
Penurunan Tahap Kualiti Udara	Sederhana	<ul style="list-style-type: none"> • Menyembur air ke atas jalan. • Penggunaan <i>crusher run</i> untuk jalan tidak berturap.
Pencemaran Bunyi	Rendah	<ul style="list-style-type: none"> • Menggunakan mesin yang lebih senyap/tidak berbunyi. • Penggunaan alatan perlindungan diri yang sempurna dengan <i>ear plug</i> di kawasan tapak. • Melakukan penyelenggaraan kenderaan dan mesin yang terlibat dalam tapak Projek dengan kerap.
Gangguan Semasa Peninggalan Projek	Sederhana	<ul style="list-style-type: none"> • Menyediakan Pelan Peninggalan Projek. • Papan tanda amaran hendaklah dipasang. • Membawa keluar kenderaan yang terlibat semasa pembangunan projek. • Memulakan langkah pengawalan alam sekitar. • Kekerapan pemeriksaan di tapak Projek.