

EXECUTIVE SUMMARY

1.0 TITLE OF PROJECT

The title of the Project is "Proposed Oil Palm Plantation Development on 1618.74 Hectares (4,000 Acres) Land on PT4858 and PT4859 in Mukim Tembeling, District of Jerantut, Pahang Darul Makmur."

2.0 PROJECT DESCRIPTION

The Project involves a total of 1618.74 hectares (4,000 acres) of land area which will be planted with oil palm trees.

Other than forest, the land use surrounds the Project site is agriculture, which mainly rubber and oil palm plantations. These plantations are mostly located to the east, southeast, south and southwest of the Project site. The nearest human settlement area is located about ± 1 km from the southeast of the Project site boundary which is Kg. Batu Balak.

The Project site is been drained by the river of Sg. Dohong and Sg. Kenerak. Both these rivers will discharge into Sg. Tembeling and finally flow into Sg. Pahang.

The description of the climate in the project area and its surroundings is based on data obtained from the nearest meteorological station at Batu Embun (rainfall, temperature, relative humidity, wind speed and wind rose). The mean total annual rainfall for 10 years (Year 2006 to 2015) is 22076.7 mm. Year of 2015 recorded the highest annual temperature (27.4 °C) while Year of 2008 recorded as the lowest annual temperature (26.4 °C). The highest mean relative humidity for year 2006 to 2015 occurred in December which was about 87.7% while the lowest mean relative humidity occurred in March at 82.0%.

A total of 16 water samples (WQ1-WQ16) were collected within and outside the project site during dry and wet season. While additional four samples (WQ17-WQ20) were collected during dry season and several sampling stations were selected for for fertilizer and pesticide analysis.

PROPOSED OIL PALM PLANTATION DEVELOPMENT ON 1618.74 HECTARES (4,000 ACRES) LAND ON PT4858 AND PT4859 IN MUKIM TEMBELING, DISTRICT OF JERANTUT, PAHANG DARUL MAKMUR.

3.0 CONTACT DETAILS OF LAND OWNER, PROJECT PROPONENT AND EIA CONSULTANT

The details of the land owner, project proponent and environmental consultant are as follows:

<p>LAND OWNER</p> <div style="border: 1px solid green; padding: 5px; text-align: center;"> <p>DERU SEMANGAT SDN BHD</p> </div>	<p>Tingkat 23, Bangunan TH Selborn, No. 153 Jalan Tun Razak, 50400 Kuala Lumpur. Tel: 03-2687 6666 Fax: 03-2681 0714 Contact Person: Mohd Khuzae bin Hasan Designation: Manager</p>
<p>PROJECT PROPONENT</p> 	<p>Tingkat 23, Bangunan TH Selborn, No. 153 Jalan Tun Razak, 50400 Kuala Lumpur. Tel: 03-2687 6666 Fax: 03-2681 0714 Contact Person: Dato' Radin Rosli bin Radin Suhadi Designation: Plantation Director</p>
<p>EIA CONSULTANT</p> 	<p>No. 3374, Jalan 18/31, Taman Sri Serdang, 43300 Seri Kembangan, Selangor Darul Ehsan. Tel: 03-8942 3413 Fax: 03-8948 5912 Attention: Mr. Shamsul Azhar bin Ismail Designation: General Manager</p>

4.0 PROJECT LOCATION

The Project site is located in District of Jerantut, Mukim Tembeling and on PT4858 and PT4859. The coordinates of the Project site are as shown in **Table 4.1** and **Figure 4.1**.

Table 4.1 Coordinate Point of the Project Site

POINT	LATITUDE	LONGITUDE
1	102° 16' 37.30" E	04° 9' 25.40" N
2	102° 16' 38.28" E	04° 8' 7.33" N
3	102° 16' 38.66" E	04° 7' 25.52" N
4	102° 18' 51.74" E	04° 5' 26.45" N
5	102° 18' 57.33" E	04° 7' 23.87" N
6	102° 18' 23.02" E	04° 8' 9.61" N
7	102° 18' 27.53" E	04° 9' 27.90" N

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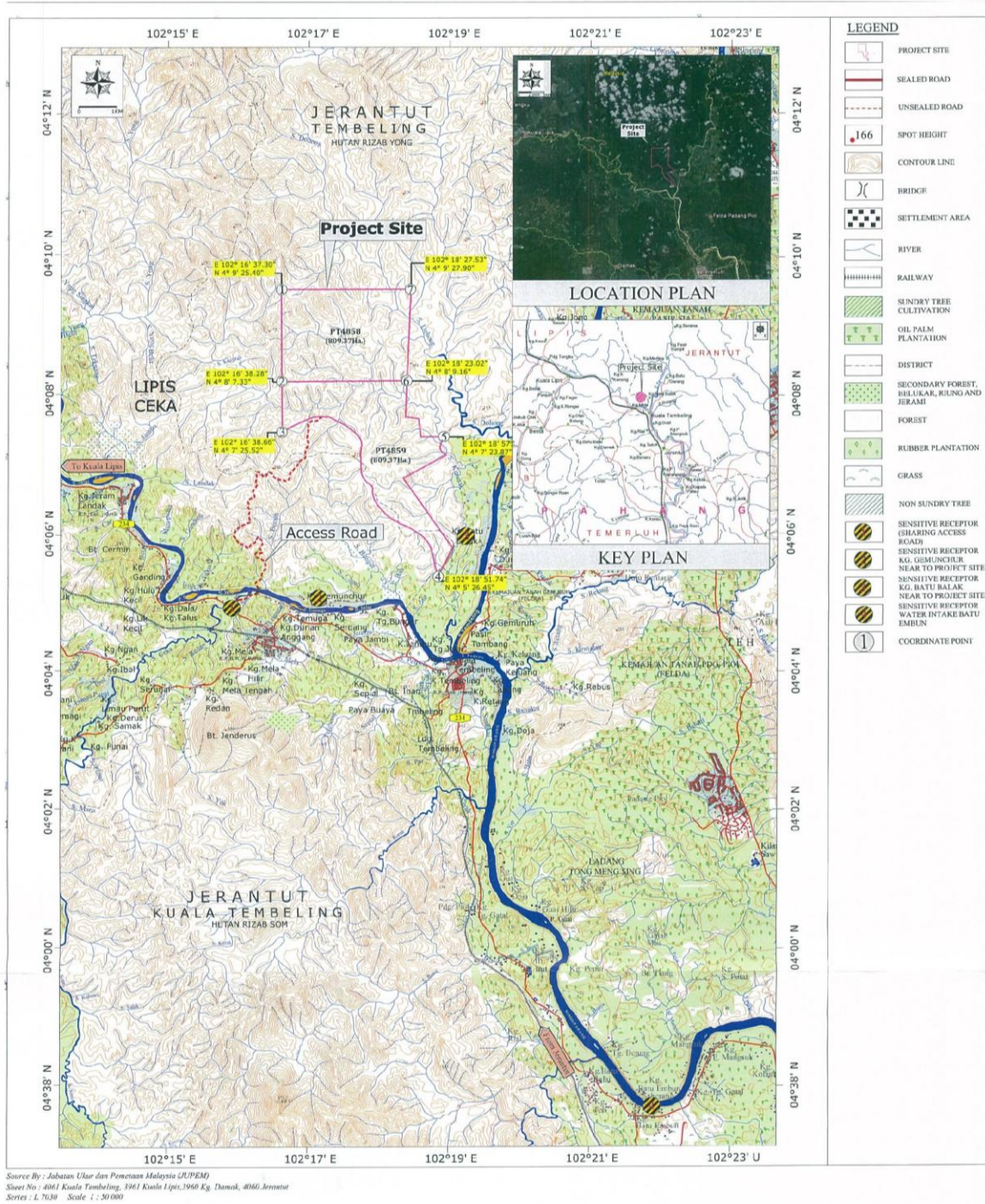


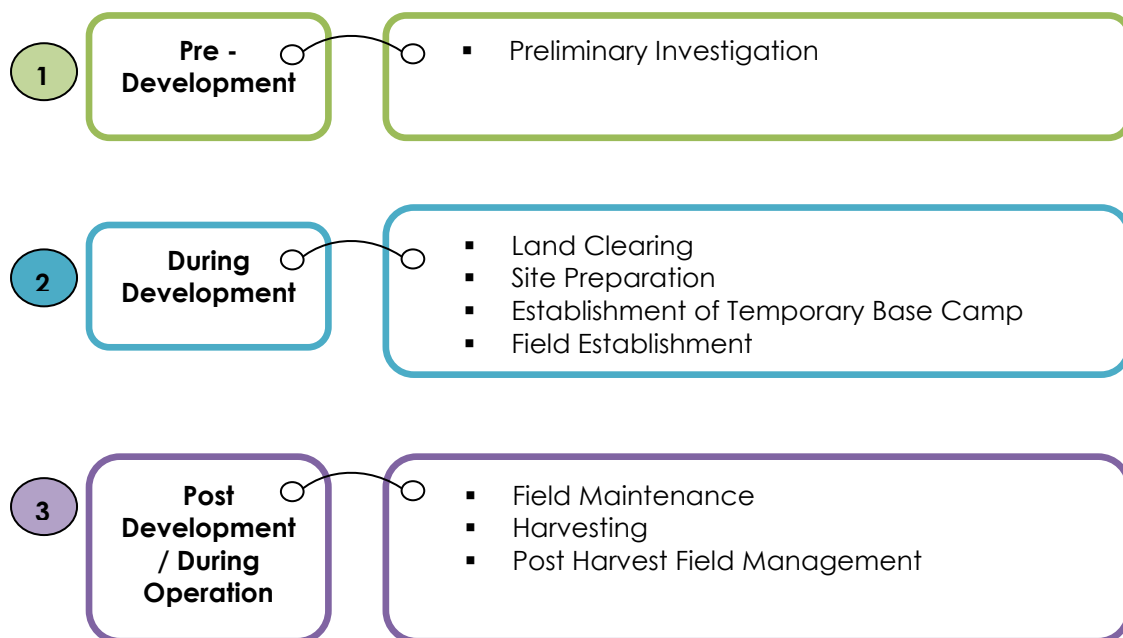
Figure 4.1: Key Plan, Location Plan, Access Road and Sensitive Receptor of the project site.

Access Road

The Project site can be accessed from Bandar Jerantut by travelling on Federal Route 234 (Jerantut - Kuala Lipis or also known as Jalan Sungai Jan). After travelling 23km on the Federal Route 234 from Bandar Jerantut, one can take a right turn into an access road to the site which is essentially an existing unsealed logging track. After travelling for about 1km, one will reach at a concrete bridge to cross Sg. Jelai, and after crossing this bridge, the Project site will be reached after travelling for another 8km on the same logging track.

5.0 PROJECT ACTIVITIES

The development of the Project will be divided into two phases which is Phase 1 (on PT4859) and Phase 2 (on PT4858). For Phase 1 it will consist of Block 1 - Block 8 while Phase 2 consists of Block 9 - Block 16. The project activities comprise three (3) stages of development, namely pre-development, during development and post-development (during operation). The development activities for the Project are shown below.



It is estimated that the development of the entire Project site shall be completed within a period of 5 years. The details of the project implementation schedule can be referred in **Figure 5.1**.

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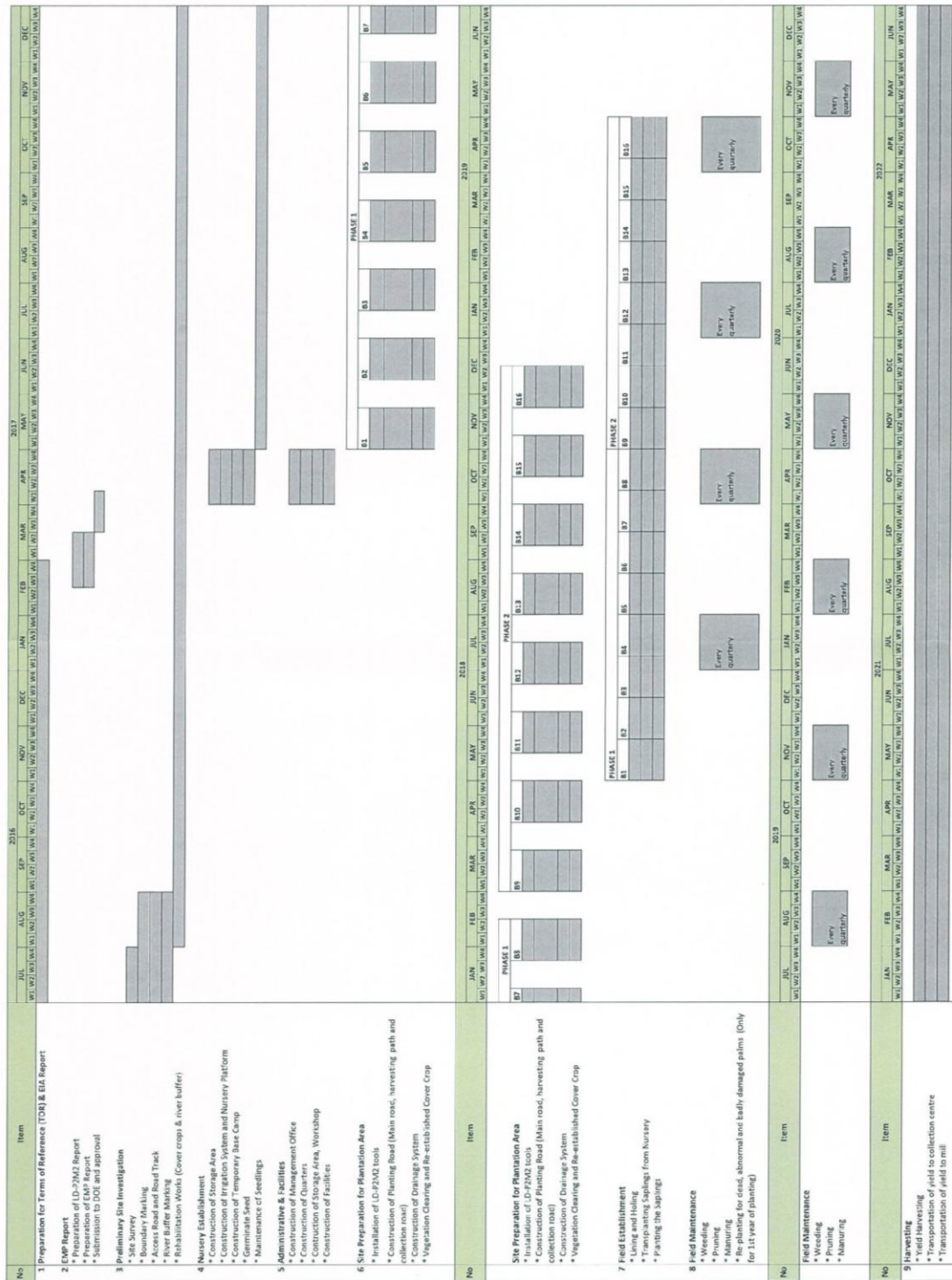


Figure 5.2.8: Project Development Schedule

Figure 5.1 Development Schedule for the Project

**PROPOSED OIL PALM PLANTATION DEVELOPMENT ON 1618.74 HECTARES (4,000 ACRES) LAND
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SIGNIFICANT POTENTIAL IMPACTS	MAGNITUDE OF SIGNIFICANT POTENTIAL IMPACTS	P2M2	REFERENCE PAGE
<p>Water Pollution</p> <p>1) Sedimentation.</p> <p>2) Fertilizers, pesticides and agricultural chemicals.</p> <p>3) Discharge of untreated sewage to the river – impact to the aquatic life, human utilization and emit bad odour.</p>	Medium	<p><u>Sedimentation</u></p> <ul style="list-style-type: none"> • Construct the LD-P2M2 tools on the Project site at the early stage before starting the plantation development activities. • Conduct the vegetation clearing and site preparation during the dry weather. • Rehabilitate and maintain riparian reserves along watercourses. • A water quality monitoring program must be carried out to identify possible contamination routes. 	8-17
	Low	<p><u>Fertilizers, Pesticides and Agricultural Chemicals</u></p> <ul style="list-style-type: none"> • Apply fertilizers, pesticides and agricultural chemicals only during dry season and follow the prescribed dosage. • A storage facility must be built in proper condition (e.g. clear signage, appropriate distance from water bodies). • Adopt biological control to control pest and disease (barn owl to control rat population). • Skid/storage tanks must be located on stable ground with bunding and sited at least 50 m away from any waterway. 	8-17

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SIGNIFICANT POTENTIAL IMPACTS	MAGNITUDE OF SIGNIFICANT POTENTIAL IMPACTS	P2M2	REFERENCE PAGE
	Low	<p><u>Sewage</u></p> <ul style="list-style-type: none"> • The Project proponent and contractors shall comply with all regulations stipulated in the Environmental Quality (Sewage) Regulations 2009. • Project proponent needs to provide a proper operation of sewage treatment system. • Educate and explain to the workers about the cleanliness and maintaining proper sanitation. • The project proponent shall ensure that contractors provide proper toilets and bathing facilities. It is recommended that the workers' quarters and offices be equipped with a standardized septic tank sewage treatment system. 	8-20
<p>Hydrology</p> <ol style="list-style-type: none"> 1) Removing the surface ground cover decrease rain interception and surface retention of rain water. 2) Improper management of biomass cause clogging of the drainage systems. 3) Unsuitable drainage design contribute to overflow issue - will cause flood. 	Medium	<ul style="list-style-type: none"> • The development needs to be conducted in an environmentally friendly method. • Avoid major stripping of all the existing vegetation and trees. • Control the increased surface runoff by introducing flood detention pond. 	8-22

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SIGNIFICANT POTENTIAL IMPACTS	MAGNITUDE OF SIGNIFICANT POTENTIAL IMPACTS	P2M2	REFERENCE PAGE
Waste Generation	1) Biomass Waste – may cause blockage to the natural drainage system.	<p><u>Biomass Waste</u></p> <ul style="list-style-type: none"> • Felled trees cut into pieces and use as mulching. • Erecting “No Burning” signage. 	8-26
	2) Solid Waste - degradable and non-degradable waste materials.	<p><u>Solid Waste</u></p> <ul style="list-style-type: none"> • Provide garbage bins on site and workers camp. • Separate waste types. • Composting waste. • Discharges wastes directly into river are prohibited. • No open burning on site. 	8-26
	3) Scheduled Waste – cause ground contamination and potential water pollution	<p><u>Scheduled Waste</u></p> <ul style="list-style-type: none"> • Handling scheduled waste procedure parallel to <i>Environmental Quality (Scheduled Waste) Regulations 2005</i>. • Labelling all containers including an empty containers as Scheduled Waste. • Providing a proper storage area. • Use an eco-friendly and/or organic fertilizer. • Scheduled wastes generated may be stored for 180 days or less and the quantity must not exceed 20 metric tonnes. • Disposing schedule waste at a licensed premise. 	8-27

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SIGNIFICANT POTENTIAL IMPACTS	MAGNITUDE OF SIGNIFICANT POTENTIAL IMPACTS	P2M2	REFERENCE PAGE
<p>Air Pollution</p> <p>Declining air quality level – air pollutants produced by vehicles used for transportation of plantation materials and emission from equipment. The impacts of air pollution are temporary and short term.</p>	Low	<ul style="list-style-type: none"> • Construct wash through. • Vehicles speed should be limited. • Access roads must be paved with crusher run or gravel. • Regularly service and maintaining vehicles. • Open burning is strictly prohibited under <i>Environmental Quality Act, 1974, Section 29A (1)</i>. • Generator set must comply with the <i>Environmental Quality (Clean Air) Regulations 2014, Regulations No. 5</i>. • Adopting Best Management Practices (BMP) on site where applicable. 	8-28
<p>Noise Pollution and Noise Annoyance</p> <p><u>During Development Phase</u></p> <p>1) Due to the noise generation by the operation of machineries, equipment and mechanical works.</p> <p>2) The noise generated is expected to be of short term.</p> <p><u>During Operation Phase</u></p> <p>Relatively insignificant.</p>	Low	<ul style="list-style-type: none"> • Installing silencers for machineries or using quieter machineries. • Limit working hours 7.00 am to 7.00 pm only. • Regularly service and maintaining vehicles and machineries. 	8-33

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SIGNIFICANT POTENTIAL IMPACTS	MAGNITUDE OF SIGNIFICANT POTENTIAL IMPACTS	P2M2	REFERENCE PAGE
<p>Flora</p> <p>1) Habitat fragmentation - lead to overcrowding and increased competition among plants, both <i>intra</i>- and <i>inter-species</i>.</p> <p>2) Disruption of ecological balance as well as local climatic changes.</p>	Low	<ul style="list-style-type: none"> • Retain the vegetation along rivers, streams and drains as a buffer. • Natural composition - Biomass which not suitable for further usage should be left on site. • Bio-friendly plantation methods (i.e. organic) • Removal of the existing vegetative cover shall be done in stages and phase by phase. • Plant cover crops especially at bare area. 	8-33
<p>Fauna</p> <p><u>Potential Impact on Mammals</u></p> <p>1) Impact on Forest Edge. 2) Habitat-Fragmentation. 3) Human-wildlife Conflict & Food Shortage.</p>	Medium	<p><u>Mammals</u></p> <ul style="list-style-type: none"> • Prohibition of Wildlife Poaching and Trapping <ul style="list-style-type: none"> ➢ Place “No Hunting” and “No Trespassing” signage at appropriate locations. ➢ Built a permanent guard house with 24 hours surveillance. • Phasing/Directional Clearing. • Human-Wildlife conflict management strategies. <ul style="list-style-type: none"> ➢ Inform/report Department of Wildlife and National Park (DWNP) ➢ Development of ditch and fences. 	8-34

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SIGNIFICANT POTENTIAL IMPACTS	MAGNITUDE OF SIGNIFICANT POTENTIAL IMPACTS	P2M2	REFERENCE PAGE
<p><u>Potential Impacts on Avifauna</u> 1) Loss of Habitat. 2) Illegal Bird Trapping . 3) Noise.</p>	<p align="center">Low</p>	<p><u>Avifauna</u></p> <ul style="list-style-type: none"> • Incident reporting. • Signage on prohibition of bird hunting or trapping. • Heavy vehicle and machineries shall be equipped with silencers. 	<p align="center">8-34</p>
<p><u>Socio-Economy</u></p> <p><u>During Development Phase</u> 1) Generate employment opportunities 2) Human Wildlife Conflict 3) Sharing of access road will cause risk to the existing road users 4) Aquaculture - High turbidity may cause the reduction of fish weight and increase in death</p> <p><u>During Operation Phase</u> 1) Generate employment opportunities 2) Human wildlife conflict 3) Foreign workers quarters and monitoring code of conduct</p>	<p align="center">Medium</p>	<ul style="list-style-type: none"> • Any wildlife conflict encountered by residents must be immediately reported to DWNP. • Time limit (7 am to 7 pm daily) for the operational of heavy machinery. • Demarcated boundary markers and fences for the determination of working area and avoiding unnecessary trespassing. • Consult Department of Wildlife and National Park if there is any disturbance of wildlife. • Provide adequate utilities and facilities to the base camps. • Give sufficient instructions, training, advice and information of good work procedures, work ethics, and code of conduct and safety rulings during working and after working hours. 	<p align="center">8-34</p>

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<p><u>During Operation Phase</u></p> <p>During morning and evening peak hours, the traffic volumes are high on the road network capacity.</p>		<ul style="list-style-type: none"> • Truck cannot be parked along the roadside. • Install an adequate temporary signage and markings recommended by JKR Guidelines. <p><u>During Operation Phase</u></p> <ul style="list-style-type: none"> • Upgrade the access junction - increase the carrying capacity. • Adequate traffic sign and road marking need to be placed. 	8-41

7.0 PERFORMANCE MONITORING (PM) & COMPLIANCE MONITORING (CM)

This Project site will apply pollution prevention and mitigation measures (P2M2) in order to reduce disturbance on environment at the Project area. A performance monitoring (PM) is applied to monitor the effectiveness of the P2M2 while Compliance Monitoring (CM) program is used to monitor the effluent discharge and air emissions. **Table 7.1** and **Table 7.2** are summarized the description on PM and CM parameters.

Table 7.1: The Performance Monitoring Components

LD-P2M2 TOOLS	PERFORMANCE MONITORING (PM) PARAMETERS/ STATUS	RECOMMENDED LIMITS	MONITORING LOCATIONS	FREQUENCIES
Sediment Basin / Trap	Turbidity Total Suspended Solid (TSS) Sediment level	*50 NTU *50 mg/l	The locations refer to the LD-P2M2 in Attachment 1	Every day or after rain event (in-situ). Take photo.
Perimeter Drain	Performance	-		Quarterly
Earth Drain with Check Dam	Sediment level			Quarterly
Wash Trough	Sediment level	-		Quarterly
Temporary or permanent waterway crossing (culvert/bridge)	Structure and Performance	-		Quarterly

Note:* National Water Quality Standards for Malaysia (NWQS), Department of Environment, Malaysia (DOE).

Table 7.2: The Compliance Monitoring Components

ACTIVITY	REGULATED PARAMETERS	APPLICABLE STANDARDS	MONITORING LOCATIONS	FREQUENCIES
Air Quality	PM ₁₀	*150 µg/m ³	<ul style="list-style-type: none"> Three (3) points refer to Figure 6.8.1. 	Quarterly
	PM _{2.5}	*75 µg/m ³		
**Noise	LAeq	Day: 55 dBA Night: 45 dBA	<ul style="list-style-type: none"> Three (3) points may refer to Figure 6.8.1. 	Quarterly
*** Water Quality	Total Suspended Solids (TSS)	50 mg/L	<ul style="list-style-type: none"> Twenty (20) points refer to Figure 6.8.1. 	Monthly
	Biochemical Oxygen Demand (BOD)	3 mg/l		
	pH	6.0~9.0		
	Turbidity	50		
	Dissolved Oxygen (DO)	5~7 mg/L		
	Chemical Oxygen Demand (COD)	25 mg/L		

Note:

* New Malaysia Ambient Air Quality Standard, Department of Environment Malaysia (DOE).

** The Planning Guidelines for Environmental Noise Limits and Control, Schedule 1, Department of Environment Malaysia (DOE).

*** National Water Quality Standards for Malaysia (NWQS), Department of Environment Malaysia (DOE)

8.0 IMPACT MONITORING (IM)

The establishment of oil palm plantation may result some impacts on the condition of the area. The descriptions on the monitoring parameters are shows in **Table 8.1**.

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Table 8.1: The Impact Monitoring Component (IM)

IMPACTS	MONITORING PARAMETERS	MONITORING LOCATIONS	FREQUENCIES
* Air pollution	PM ₁₀ PM _{2.5}	• Three (3) points refer to Figure 6.8.1.	Quarterly
** Noise Annoyance	LAeq	• Three (3) points refer to Figure 6.8.1.	Quarterly
*** Water Pollution	Total Suspended Solids (TSS)	• Twenty (20) points refer to Figure 6.8.1.	Monthly
	Biochemical Oxygen Demand (BOD)		
	pH		
	Ammoniacal Nitrogen (NH ₃ -N)		
	Dissolved Oxygen (DO)		
	Chemical Oxygen Demand (COD)		
	Nitrogen (N)		
	Phosphate (P)		
Potassium (K)			

* *New Malaysia Ambient Air Quality Standard, Department of Environment, Malaysia (DOE).*

** *The Planning Guidelines for Environmental Noise Limits and Control, Schedule 1, Department of Environment, Malaysia (DOE).*

*** *National Water Quality Standards for Malaysia (NWQS), Department of Environment, Malaysia (DOE).*