

Executive Summary



EXECUTIVE SUMMARY

1.0 INTRODUCTION

- This Project is for:

FIRST SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR “CADANGAN PEMBANGUNAN BERCAMPUR DI ATAS LOT 390 (LOT BARU 16275), 1340 (LOT BARU 16277 DAN 16278), 1341, 2600, 2641, 2642, 2645, 2646, 2712 – 2716, 2726 & 4115 (LOT BARU 6109 DAN 6110), MUKIM PULAU SEBANG, DAERAH ALOR GAJAH, NEGERI MELAKA BANDARAYA BERSEJARAH UNTUK TETUAN: EKSKLUSIF PESONA SDN BHD”.

- The Project is a mixed development, with an industrial hub with residential and commercial lots. It will be supported by public facilities, infrastructure and utilities.
- The Project is currently an oil palm plantation. It is zoned as agricultural land in the *Rancangan Tempatan Daerah (RTD) Alor Gajah 2020* [Majlis Perbandaran Alor Gajah (MPAG), 2011]. Land conversion to industry and mixed development has already been approved by the Melaka Land and Mineral Office (PTG) via letter dated 10 June 2015 [ref: PTG(M).UPT.600/1 Jld.2 (11)].

2.0 PROJECT PROPONENT AND ENVIRONMENTAL CONSULTANT

2.1 PROJECT PROPONENT

The Project Proponent (PP) is Eksklusif Pesona Sdn Bhd:

EKSKLUSIF PESONA SDN BHD

Level 28, Menara HLA
3 Jalan Kia Peng
50450 Kuala Lumpur

Tel: +603-2181 9450
Fax: +603-6275 4210
Attn: En Mohd Nazree Bin Abu Kassim (Director)

2.2 ENVIRONMENTAL CONSULTANT

ASIA PACIFIC ENVIRONMENTAL CONSULTANTS SDN BHD

30-2, Jalan 9/125D
Taman Desa Petaling
57100 Kuala Lumpur

Tel: +603-9057 4392
Fax: +603-9057 3943
URL: www.aspec.com.my
Attention: Dr Jamie Chong Li Yean (Director)

3.0 PROJECT LOCATION AND ACCESSIBILITY

- The Project is located in Alor Gajah District, Melaka within latitudes N2.46510° to N2.43745° and longitudes E102.23744° to E102.27083°. The total area is 481.75 ha (1,190.45 ac) in 18 lots – Lot 390 (New lot 16275), 1340 (New lot 16277 and 16278), 1341, 2600, 2641, 2642, 2645, 2646, 2649, 2712 – 2716, 2726 and 4115 (New lot 6109 and 6110) (**Figure ES3.1**).
- The Project can be accessed from the North South Expressway (NSE), exiting at the Simpang Ampat Toll, via Jalan Kemus/ Simpang Ampat and then along Jalan Kemuning (M10). The M10 state road then can link to Jalan Pulau Sebang - Gadek (FR61) to the Project site.
- Alternative access to the Project site is via Jalan Kemuning Gadek (M135) and Jalan Bukit Bulat Menggong (M131) which connects with Jalan Kemuning (M10).

4.0 STATUTORY REQUIREMENTS

- This EIA is carried out to comply with:
 - (i) Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 of the Environmental Quality Act 1974, Section 34A, First Schedule, Activity 17 – Industrial Estate Development and Activity 18 – New Township.
 - (ii) *Penilaian Awal Tapak* (PAT) approval requirement from the Department of Environment (DOE) Melaka [ref: ASMK(B) 50/011/100/532 (06) dated 21 June 2016].

5.0 STATEMENT OF NEED

- The Project:
 - (i) Supports the national and state policies and development plans.
 - (ii) Establishes a new township, which will be a catalyst for growth in the region.
 - (iii) Establishes an industrial hub to attract business and investors.

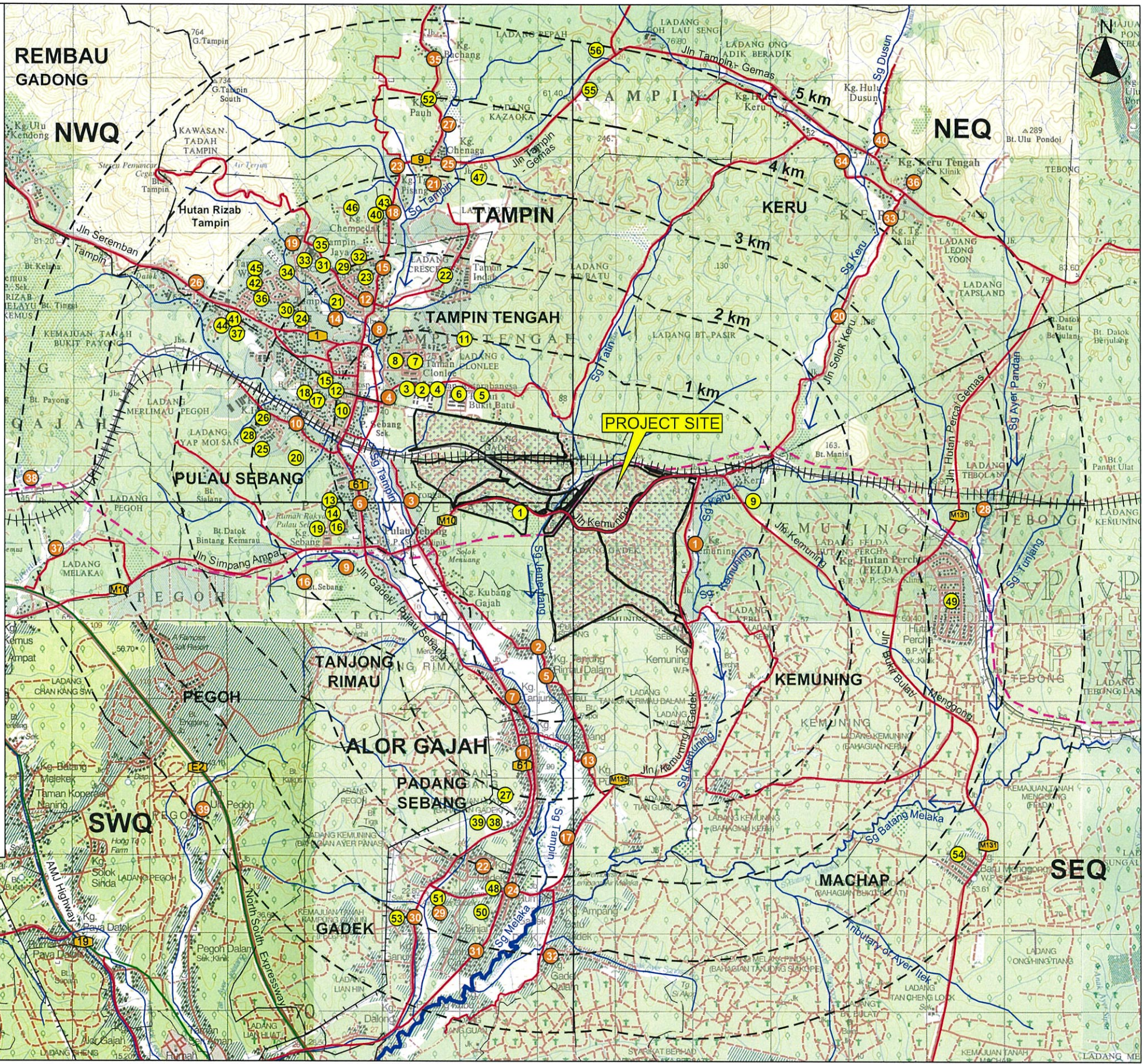
6.0 PROJECT OPTIONS

- The realisation of the Project is based on two options: 'No Project' (*status quo*) and 'With Project'. The 'No Project' Option, if adopted, will result in opportunity loss based on the Statement of Need. Since the Project will generate a lot of employment and business opportunities, which benefit the local communities, the 'No Project' is eliminated in this EIA in favour of the 'With Project' Option.

- LEGEND:**
Settlement (Kg):
 1 Kg Kemuning
 2 Kg Tg Rimau Dalam
 3 Kg Arongan
 4 Kg Batu Belang
 5 Kg Sri Tanjung
 6 Kg Pulau Sebang Utara
 7 Kg Tg Rimau Luar
 8 Kg Dusun
 9 Kg Pulau Sebang Selatan
 10 Kg Kuala Ina
 11 Kg Padang Sebang
 12 Kg Baru Tampin
 13 Kg Gadak Dalam (Kg Seri Tampin)
 14 Kg Punggur
 15 Kg Chenderam
 16 Kg Tampin Tengah
 17 Kg Orang Asli Bukit Sebang
 18 Kg Empangan Batu
 19 Kg Chempadok
 20 Kg Kolam Air
 21 Kg Pegoh
 22 Kg Keru Dusun
 23 Kg Chenanga Baru
 24 Kg Bukit Nangka
 25 Kg Tg Pisang
 26 Kg Gadek
 27 Kg Chenanga
 28 Kg Orang Asli Tmn Tasik
 29 Kg Orek
 30 Kg Orang Asli Hutan Percha Selatan
 31 Kg Baru Gadek
 32 Kg Ganun
 33 Kg Binjai
 34 Kg Gadak Dalam (Kg Seri Tampin) Hulu
 35 Kg Keru Alai
 36 Kg Keru Hulu
 37 Kg Bachang
 38 Kg Orang Asli Bukit Sebang
 39 Kg Kemus
 40 Kg Orang Asli Bukit Payung
 41 Kg Pegoh
 42 Kg Keru Dusun

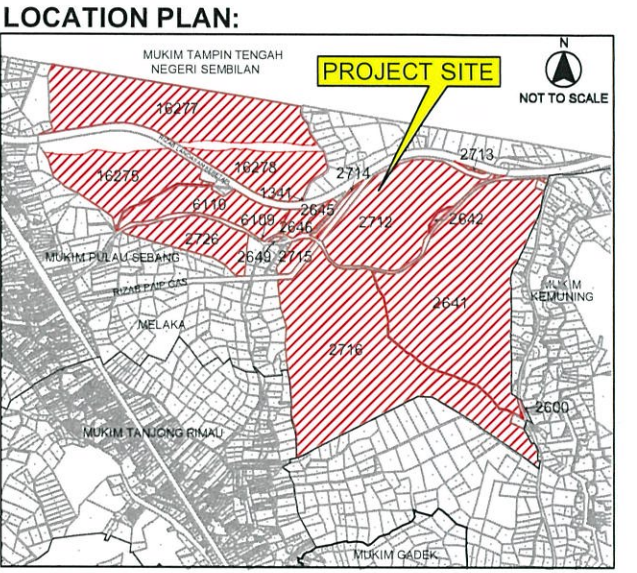
- Settlement (Taman):**
 1 Ldg Gadak Estate Settlement
 2 Tmn Minang
 3 Tmn Bukit Ria
 4 Tmn Mutiara
 5 Tmn Batu Belang Jaya
 6 Tmn Batu Belang
 7 Tmn Chonlee
 8 Tmn Sri Permai
 9 Tmn Kemuning
 10 Perumahan Bukit Sebang
 11 Tmn Bukit Indah
 12 Tmn Bandar Sebang
 13 Tmn Malinja Wangi
 14 Tmn Perumahan Awam Pegoh
 15 Rumah Awam Pulau Sebang I
 16 Tmn Perumahan Awam Pulau Sebang III
 17 Perumahan Bukit Sebang
 18 Rumah Awam Pulau Sebang III
 19 Tmn Mahsuri
 20 Tmn Baiduri
 21 Tmn Tampin
 22 Tmn Indah
 23 Tmn Lenggong
 24 Tmn Seri Berlian
 25 Tmn Pulau Sebang Indah
 26 Tmn Rakyat
 27 Tmn Sebang Gemilang
 28 Tmn Padi Indah
 29 Tmn Bahagia
 30 Tmn Sri Intan
 31 Tmn Indah Lama
 32 Tmn Tampin Jaya
 33 Tmn Bukit Tampin
 34 Tmn Perumahan Polis IPD Tampin
 35 Tmn Ametis
 36 Tmn Woon
 37 Tmn Hock Lee
 38 Tmn Bukit Nangka
 39 Tmn Sebang Mutiara
 40 Rumah Rakyat Sebang
 41 Tmn Setiawan
 42 Tmn Rasa Sayang
 43 Tmn Permata
 44 Tmn Sebang Baru
 45 Tmn Suria
 46 Tmn Gunung Mas
 47 Bandar Utama Tampin
 48 Tmn Sri Gadek
 49 Felda Tun Ghafar Hutan Percha (Kg Hutan Percha)
 50 Tmn Pisang Mas Jaya
 51 Tmn Markisah
 52 Kuarter JKR
 53 Persekutuan
 54 Tmn Ganun Setia
 55 Felda Tun Ghafar Menggong
 56 Tmn Repeh Baru
 57 Tmn Desa Permai

- LEGEND:**
Vegetation & Cultivation
 Grass
 Rubber
 Oil Palm
 Sundry Tree Cultivation
 Sundry Non-tree Cultivation
Hydrography
 Water Tank
Relief
 Contour



- LEGEND:**
 Project Site (Area = 481.76 ha / 1,190.45 ac)
 5-km Zone of Impact at 1-km Interval and 4 Quadrants: Northeast Quadrant (NEQ), Southeast Quadrant (SEQ), Northwest Quadrant (NWQ) and Southwest Quadrant (SWQ)
 Expressway
 Road
 Railway
 River
 Flow Direction
 State Boundary
 District Boundary
 Mukim Boundary
 Electricity Transmission Line
 Gas Pipeline

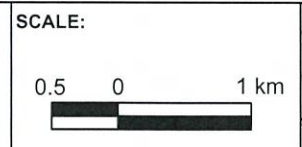
DATA SOURCE:
 (1) Topographical Map of:
 i. Gemenech (4055) - 1994,
 ii. Rembau (3955) - 1995,
 iii. Melaka (3954) - 2002,
 Jabatan Ukur dan Pemetaan Malaysia (JUPEM),
 (2) Project Layout Plan, Plan No.: PAR/P/M/AlorGajah/Gadek/(1),
 Drawing No.: D:\Dwg\Melaka\Alor Gajah\Layout43.dwg
 Perunding Alam Rancang Sdn Bhd, Oct 2016.



PROJECT PROPONENT:
 EKSKLUSIF PESONA SDN BHD
 (679357-V)

EIA CONSULTANT:
ASPEC
 ASIA PACIFIC ENVIRONMENTAL
 CONSULTANTS SDN BHD (222627-U)

PROJECT TITLE:
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 DAERAH ALOR GAJAH, NEGERI MELAKA BANDARAYA BERSEJARAH



DRAWING TITLE:
 LOCATION OF PROJECT SITE
 AND SENSITIVE RECEPTORS

DRAWING NO.:
 FIGURE ES3.1

PAGE NO.:
 ES-3
DATE:
 OCT '16

7.0 PROJECT DESCRIPTION

- The developmental components are:

No.	Development Component	Area		
		ac	ha	%
1	Industrial	529.99	214.48	44.5
2	Infrastructure and Utilities	387.47	156.80	32.6
3	Residential	126.10	51.03	10.6
4	Recreational	83.39	33.74	7.0
5	Commercial	45.53	18.43	3.8
6	Public Facilities	17.97	7.27	1.5
Total		1,190.45	481.76	100.0

Source: Perunding Alam Rancang Sdn Bhd, 2016.

- The Project will be developed in eight phases over a period of 25 years from 2017 to 2041:

Phase	Area			Development Period
	ac	ha	%	
1	209.07	84.61	17.56	2017 – 2020
2	158.43	64.11	13.31	2020 – 2023
3	49.68	20.10	4.17	2023 – 2026
4	114.77	46.45	9.64	2026 – 2029
5	215.06	87.03	18.07	2029 – 2032
6	157.49	63.73	13.23	2032 – 2035
7	109.42	44.28	9.19	2035 – 2038
8	176.53	71.44	14.83	2038 – 2041
Total	1,190.45	481.76	100.00	2017 – 2041

Source: Perunding Alam Rancang Sdn Bhd, 2016.

8.0 EXISTING ENVIRONMENT

Parameter	Description										
Physical Environment	<ul style="list-style-type: none"> The site is undulating, between 30 – 101 m above mean sea level (MSL). Most slopes (97.69%) are <35°, while 1.25% comprised water bodies. The site consists mainly of deeply weathered granitic bedrock. The main soil type: Renggam - Jerangau soil series. 										
Climate	<p>Average Annual Statistics (2005 – 2014):</p> <table border="1"> <tr> <td>Rainfall</td> <td>Highest rainfall (2008): 2,194.4 mm Lowest rainfall (2009): 1,389.8 mm</td> </tr> <tr> <td>Temperature</td> <td>24-hr mean temperature: 27.2 to 27.8°C</td> </tr> <tr> <td>Humidity</td> <td>24-hr mean relative humidity: 75.6% to 83.3%</td> </tr> <tr> <td>Surface Wind</td> <td>Mostly from the northeast (31.5%) 6.1% under calm condition</td> </tr> <tr> <td>Cloud Cover</td> <td>6.9 – 7.0 oktas</td> </tr> </table>	Rainfall	Highest rainfall (2008): 2,194.4 mm Lowest rainfall (2009): 1,389.8 mm	Temperature	24-hr mean temperature: 27.2 to 27.8°C	Humidity	24-hr mean relative humidity: 75.6% to 83.3%	Surface Wind	Mostly from the northeast (31.5%) 6.1% under calm condition	Cloud Cover	6.9 – 7.0 oktas
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Parameter	Description												
Hydrology and Drainage	<ul style="list-style-type: none"> Two major river basins – Sg Batang Melaka and Sg Tampin. The Gadek Water Treatment Plant (WTP) is located 3.1 km south of the Project boundary. 												
Water Quality	<ul style="list-style-type: none"> Water quality sampling at 10 stations (WQ1 – WQ10) showed: <ul style="list-style-type: none"> (i) WQ1 and WQ3 were classified as clean (Class I or II). (ii) WQ2 and WQ4 to WQ10 were slightly polluted (Class II or III). 												
Air Quality	<ul style="list-style-type: none"> Air quality at all four stations (AQ1 – AQ4) complied with the Malaysian Ambient Air Quality Standards (MAAQS). 												
Noise Level	<ul style="list-style-type: none"> Ambient noise at all four stations (NM1 – NM4) exceeded the DOE permissible limits. 												
Landuse	<p><u>Within the Project Site</u></p> <ul style="list-style-type: none"> Oil palm estate. <p><u>Within 5-km ZOI</u></p> <ul style="list-style-type: none"> 40 traditional villages including four Orang Asli villages and 56 <i>tamans</i> or housing estates. Small and medium industries (SMIs) at Taman Industri Kecil & Sederhana Pulau Sebang. Bandar Baru Pulau Sebang (under construction). The KTMB Pulau Sebang (Tampin) Railway Station is ~1.3 km northwest of the Project site. 												
Ecology	<ul style="list-style-type: none"> No significant flora within the Project site, mostly oil palms. Only common faunal species were observed in the Project site. No rare, endangered and threatened species were observed. 												
Socio-economic Survey													
Survey Sample Frame	<ul style="list-style-type: none"> 37 settlements within the 3-km radius Study area. Stratified samples taken from 263 households from 37 settlements. 												
Survey Results	<ul style="list-style-type: none"> Summary of results: <table border="1"> <tbody> <tr> <td>Gender</td> <td>Male (79.1%) and female (20.9%)</td> </tr> <tr> <td>Age Group</td> <td>20 – 29: 1.1%; 30 – 39: 11.4%; 40 – 49: 32.7%; 50 – 59: 32.3% >60: 22.4%</td> </tr> <tr> <td>Ethnicity</td> <td>Malays: 60.1%; Chinese: 30.0%; and Indian: 9.9%</td> </tr> <tr> <td>Education Level</td> <td>Secondary education (89.4%); tertiary education (4.8%) and primary education (2.3%)</td> </tr> <tr> <td>Occupation</td> <td>Government sector (9.5%); self-employed (71.1%) and private sector (19.4%)</td> </tr> <tr> <td>Household Income</td> <td>1.1%: <RM1,000; 38.4%: RM2,001 – RM3,000; 8.4%: RM1,001 – RM2,000; 52.1%: >RM3,001</td> </tr> </tbody> </table>	Gender	Male (79.1%) and female (20.9%)	Age Group	20 – 29: 1.1%; 30 – 39: 11.4%; 40 – 49: 32.7%; 50 – 59: 32.3% >60: 22.4%	Ethnicity	Malays: 60.1%; Chinese: 30.0%; and Indian: 9.9%	Education Level	Secondary education (89.4%); tertiary education (4.8%) and primary education (2.3%)	Occupation	Government sector (9.5%); self-employed (71.1%) and private sector (19.4%)	Household Income	1.1%: <RM1,000; 38.4%: RM2,001 – RM3,000; 8.4%: RM1,001 – RM2,000; 52.1%: >RM3,001
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Awareness	<ul style="list-style-type: none"> Most (87.5%) had not heard of the Project. 												
Public Perception	<ul style="list-style-type: none"> 52.9% of the respondents were in favour – increase jobs and business opportunities; better infrastructure and amenities; increase living standard and appreciation in property value. 3.0% disagreed – worried about environmental pollution, traffic increase and presence of immigrants. 44.1% had no opinions. 												

Parameter	Description
Infrastructure and Utilities	<ul style="list-style-type: none"> • Road Network: Accessible via Jalan Kemuning (M10), which bisects the sites into northern and southern halves. • Electricity: Supplied by Tenaga Nasional Berhad. • Water Supply: Supplied by Syarikat Air Melaka Berhad (SAMB). • Airport: The Melaka International Airport, ~20.1 km south of the Project site. • Sewerage System: Several types being used in Alor Gajah which operated by Indah Water Konsortium (IWK) and other private operators but for rural areas, primary treatment system were used. • Solid Waste: Nearest sanitary landfill is at Tapak Pelupusan Sisa Sungai Udang, ~19 km southwest of Project site.

9.0 POTENTIAL IMPACTS, POLLUTION PREVENTION AND MITIGATION MEASURES AND RESIDUAL IMPACTS

- The Project will result in both positive and negative impacts to its environs as detailed in **Chapter 7** and summarised in **Table ES9.1**. The proposed pollution prevention and mitigation measures (P2M2) for each of the negative activities during construction and operations of the Project are provided in **Chapter 8** together with the potential residual impacts despite all mitigation measures taken.

10.0 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

- **Chapter 10** presents a framework EMP as a guide for a detailed EMP to be drawn up later after the EIA is approved to ensure that all identifiable adverse impacts are addressed and all relevant regulations and legislations are complied with by the PP. This Chapter also includes the monitoring programme as shown in **Table ES10.1**.

11.0 CONCLUSION

- In conclusion, there are potentially both positive and negative impacts by the Project. **Table ES9.1** summarises the potential significant impacts and P2M2 by the Project phasing and activities.

Table ES9.1: Summary of Potential Significant Environmental Impacts and Pollution Prevention and Mitigation Measures (P2M2)

Project Activity	Potential Significant Environmental Impact	Magnitude of Impacts	Pollution Prevention and Mitigation Measures (P2M2)	Reference Page
Construction Phase				
<ul style="list-style-type: none"> Land clearing and biomass removal Setting up of base camp and site office Transportation and storing of construction equipment and materials Construction of temporary drainage system Designed platform preparation (i.e. excavation, cutting, hauling, filling, etc.) Stockpiling of construction materials Construction of road network Construction of drainage system Construction of residential and commercial lots; public facilities; and infrastructure and utilities 	<p>Soil Erosion and Sedimentation</p> <ul style="list-style-type: none"> Increase of exposed land surface and runoff flow rate and may cause higher erosion rate. Increase sediment load (turbidity) and compromises water quality. <p>Hydrology</p> <ul style="list-style-type: none"> Vegetation removal reduces runoff retention time and infiltration. Sediments and debris may be dislodged into rivers causing blockages. <p>Water Pollution</p> <ul style="list-style-type: none"> Cleared land will be exposed to erosion by surface runoff, bringing silt and sediment into the nearby waterways. Oil and grease (O&G) from machinery and vehicle maintenance could result in oil spillage and leaks. Improper waste disposal (sewage, sillage, biomass and scheduled wastes). <p>Air Pollution</p> <ul style="list-style-type: none"> Dust generation from site clearing and earthworks; transport of materials; and stockpiles. Emission from poorly maintained vehicles and machinery. Impacts to worker health from dust. Stench from wastes. 	<ul style="list-style-type: none"> Moderate 	<ul style="list-style-type: none"> Land clearing and earthworks to be phased. Minimise earthworks during rainy season. Limit the working area to reduce the exposed land. BMPs proposed in approved LD-P2M2 and ESCP to be implemented. Exposed areas to be turfed in the shortest practical time. Excess cut to be stored at designated stockpile area. BMPs to be inspected regularly. BMPs proposed in approved LD-P2M2 and ESCP to be implemented. Temporary earth drains to be constructed. Surface runoff to be diverted to sediment basins before discharge into rivers. Exposed areas to be turfed in the shortest practical time. Drainage system to be designed in accordance with MSMA-2 (DID, 2012). BMPs proposed in approved LD-P2M2 and ESCP to be implemented. Proper management and storage of chemicals, fuel, machine oil and scheduled wastes on-site. Domestic sewage shall comply with Standard A of the Second Schedule of the Environmental Quality (Sewage) Regulations 2009. Temporary sanitary facilities (mobile toilets/septic tanks) to be de-sludged regularly. All scheduled wastes to be managed in accordance with the Environmental Quality (Scheduled Wastes) Regulations 2005. Regular water quality monitoring. Phased construction. Compaction of loose earth, temporary cover and final turfing of completed work areas. Water bowing along logistic roads during dry weather. Regular maintenance of vehicles and machinery. Proper waste management on-site. Regular air quality monitoring. 	<ul style="list-style-type: none"> Chapter 7.2 (Pg 7-2 – 7-7) Chapter 8.2 (Pg 8-3 – 8-12) Chapter 7.3 (Pg 7-8 – 7-13) Chapter 8.3 (Pg 8-13 – 8-14) Chapter 7.4 (Pg 7-14 – 7-27) Chapter 8.4 (Pg 8-15 – 8-17) Chapter 7.5 (Pg 7-27 – 7-32) Chapter 8.5 (Pg 8-18 – 8-20)

Project Activity	Potential Significant Environmental Impact	Magnitude of Impacts	Pollution Prevention and Mitigation Measures (P2M2)	Reference Page
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Project Activity	Potential Significant Environmental Impact	Magnitude of Impacts	Pollution Prevention and Mitigation Measures (P2M2)	Reference Page
<p>Operational Phase</p> <ul style="list-style-type: none"> • Operation of the constructed residential and commercial lots • Maintenance of the planned industrial lots • Maintenance of public facilities; open space/ recreational area/ buffer zone; infrastructure and utilities 	<p>Hydrology</p> <ul style="list-style-type: none"> • Increases to peak flows may cause localised flooding. <p>Water Pollution</p> <ul style="list-style-type: none"> • River water pollution (increased of BOD, COD, AN, O&G and faecal coliform as well as DO deficiency) from industrial effluent, STP and sullage. 	<ul style="list-style-type: none"> • Moderate • Moderate 	<ul style="list-style-type: none"> • Regular maintenance of the drainage system to be conducted to remove blockages. • Detention ponds (14 nos) to be converted from the temporary sediment basins for runoff control. • Ensure STP effluent quality complies with Standard A of the Environmental Quality (Sewage) Regulations 2009. • Regular maintenance on the sewerage piping system and pump houses. • All scheduled wastes generated by industries to be managed in accordance with the Environmental Quality (Scheduled Wastes) Regulations 2005. • Proper waste management practice to be implemented and disposal of any waste into watercourses is prohibited. • Ensure performance monitoring of the STP to prevent leakage and failure. Repair any failure immediately. 	<ul style="list-style-type: none"> • Chapter 7.3 (Pg 7-8 – 7-13) • Chapter 8.3 (Pg 8-13 – 8-14) • Chapter 7.4 (Pg 7-14 – 7-27) • Chapter 8.4 (Pg 8-15 – 8-17)
	<p>Air Pollution</p> <ul style="list-style-type: none"> • Emission from industries, e.g. fuel burning equipment, boiler, etc. • Emission from vehicles. • Stench from wastes. 	<ul style="list-style-type: none"> • Minor 	<ul style="list-style-type: none"> • Industrial operators to implement and maintain their own air pollution control systems and performance monitoring. • Vehicle emissions to abide by DOE limits. • Landscaping along the buffer zones. • Address any complaints from the public promptly. 	<ul style="list-style-type: none"> • Chapter 7.5 (Pg 7-27 – 7-32) • Chapter 8.5 (Pg 8-18 – 8-20)
	<p>Noise Level</p> <ul style="list-style-type: none"> • High noise poses health risks to workers. • Disturbance and nuisance to nearby sensitive receptors. 	<ul style="list-style-type: none"> • Minor 	<ul style="list-style-type: none"> • Providing training for workers. • Speed limits near sensitive landuses. • Address any complaints from the public promptly. 	<ul style="list-style-type: none"> • Chapter 7.6 (Pg 7-33 – 7-39) • Chapter 8.6 (Pg 8-21 – 8-22)
	<p>Ecology</p> <ul style="list-style-type: none"> • Human-wildlife conflicts. 	<ul style="list-style-type: none"> • Minor 	<ul style="list-style-type: none"> • PERHILITAN to be contacted to relocate any troublesome wildlife. • Any sighting of protected wildlife to be reported to PERHILITAN. 	<ul style="list-style-type: none"> • Chapter 7.7 (Pg 7-40 – 7-43) • Chapter 8.7 (Pg 8-23 – 8-24)
	<p>Socio-economic</p> <ul style="list-style-type: none"> • Improved property value and generate housing opportunity. • Generate employment opportunity and improve local socio-economy. 	<ul style="list-style-type: none"> • Minor 	<ul style="list-style-type: none"> • No mitigation required. 	<ul style="list-style-type: none"> • Chapter 7.9 (Pg 7-47 – 7-49) • Chapter 8.9 (Pg 8-26 – 8-27)
	<p>Waste Management</p> <ul style="list-style-type: none"> • Public health risk from improperly managed wastes. • Decomposition of organic matter causes odour and water quality deterioration. • Generation of scheduled wastes from industries. 	<ul style="list-style-type: none"> • Moderate 	<ul style="list-style-type: none"> • Proper disposal and waste separation. • Individual industries to provide their own wastewater treatment system. • Spillage of wastes to be cleaned up immediately. • Regular maintenance and monitoring of the STP. 	<ul style="list-style-type: none"> • Chapter 7.11 (Pg 7-53 – 7-56) • Chapter 8.11 (Pg 8-31 – 8-33)

Table ES10.1: Environmental Monitoring and Surveillance Plan

Environmental Component	Procedure/Methodology	Parameters to Analyse	Compliance Requirements	Proposed Monitoring Location	Action/ Report Submission	Sampling/ Inspection Period	Frequency of Sampling/ Inspection				
Compliance Monitoring (CM)											
River Water Quality	<p>Field Sampling</p> <ul style="list-style-type: none"> Grab samples to be analysed in accredited laboratory. Analytical methods in accordance with 21st edition "Standard Methods for the Examination of Water and Wastewater". 	<p>Water Quality</p> <ul style="list-style-type: none"> Temperature pH DO BOD₅ COD TSS O&G AN E. coli 	<ul style="list-style-type: none"> Maintain baseline water quality (Section 6.5: Water Quality). NWQS, Class II. EIA Approval Conditions (if any). 	<p>Stations:</p> <table border="1"> <tr> <td>WQ3:</td> <td>N2.45553° E102.25548°</td> </tr> <tr> <td>WQ5:</td> <td>N2.46080° E102.23838°</td> </tr> </table>	WQ3:	N2.45553° E102.25548°	WQ5:	N2.46080° E102.23838°	<ul style="list-style-type: none"> Non-compliance(s). Follow-up action(s) for non-compliance(s). Monitoring report submit to PP and DOE Melaka. 	<ul style="list-style-type: none"> Construction phase Operational phase 	<ul style="list-style-type: none"> Monthly by EnvMC. Quarterly by EnvMC.
WQ3:	N2.45553° E102.25548°										
WQ5:	N2.46080° E102.23838°										
Sewage Effluent (Cumulative P.E. ≤150)		<p>Effluent Quality</p> <ul style="list-style-type: none"> BOD₅ TSS 	<ul style="list-style-type: none"> Volume V, Malaysian Sewerage Industry Guidelines. EIA Approval Conditions (if any). 	<ul style="list-style-type: none"> Cumulative septic tank's effluent discharge point. 		<ul style="list-style-type: none"> Construction phase 	<ul style="list-style-type: none"> Monthly by EnvMC. 				
Sewage Effluent (Cumulative P.E. >150)		<p>Effluent Quality</p> <ul style="list-style-type: none"> Temperature pH BOD₅ COD TSS O&G AN Nitrate-Nitrogen 	<ul style="list-style-type: none"> Standard A, Second Schedule, Environmental Quality (Sewage) Regulations 2009. EIA Approval Conditions (if any). 	<ul style="list-style-type: none"> Construction Phase: Cumulative septic tank's effluent discharge point. Operational Phase: Final discharge point of STP. 		<ul style="list-style-type: none"> Construction phase for septic tank. Operational phase for STP. 	<ul style="list-style-type: none"> Monthly by EnvMC. 				

Environmental Component	Procedure/Methodology	Parameters to Analyse	Compliance Requirements	Proposed Monitoring Location	Action/ Report Submission	Sampling/ Inspection Period	Frequency of Sampling/ Inspection
Air Quality	Visual observation for open burning, dust generation on site and emissions from machinery and vehicles.	<p><u>Site Condition</u></p> <ul style="list-style-type: none"> Active open burning. Black smoke from vehicles. Dust generation. 	<ul style="list-style-type: none"> Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996. Environmental Quality (Control of Emission from Diesel Engines) Regulations 1996. Environmental Quality (Declared Activities) (Open Burning) Order 2003. Local Government Act 1976, Section 81(j). Street, Drainage and Building Act 1974, Section 47. EIA Approval Conditions (if any). 	<ul style="list-style-type: none"> Throughout Project site. 	<ul style="list-style-type: none"> Non-compliance. Follow-up action(s) for non-compliance(s). Monitoring report submit to PP and DOE Melaka. 	Construction phase	<ul style="list-style-type: none"> Daily by EO. Weekly by MC. Monthly by EnvMC.
Erosion and Sedimentation	<p><u>Discharge Sampling</u></p> <ul style="list-style-type: none"> Grab samples to be analysed in accredited laboratory. Analytical methods in accordance with 21st edition "Standard Methods for the Examination of Water and Wastewater". 	<p><u>Discharge Quality</u></p> <ul style="list-style-type: none"> TSS Turbidity 	<ul style="list-style-type: none"> EIA Approval Conditions (if any). 	<ul style="list-style-type: none"> Outlets of proposed sediment basins – 14 nos. 		Construction phase	<ul style="list-style-type: none"> After every rain ≥ 2.5 mm, by EO. Monthly by EnvMC.

Environmental Component	Procedure/Methodology	Parameters to Analyse	Compliance Requirements	Proposed Monitoring Location	Action/ Report Submission	Sampling/ Inspection Period	Frequency of Sampling/ Inspection
Erosion and Sedimentation (Cont'd)	<p>Field Inspection</p> <ul style="list-style-type: none"> Condition of BMPs specified in DID approved ESCP. <p>Documentation Review</p> <ul style="list-style-type: none"> EO log book – BMP inspection and maintenance schedule. ESC online submission. 	<p>BMP Conditions</p> <ul style="list-style-type: none"> BMP availability. Structure design. Functionality. Maintenance record. 	<ul style="list-style-type: none"> ESCP layout and report approved by DID Melaka. EIA Approval Conditions (if any). 	<ul style="list-style-type: none"> All BMPs proposed in DID approved ESCP. 	<ul style="list-style-type: none"> Non-compliance(s). Follow-up action(s) for non-compliance(s). Monitoring report submit to PP and DOE Melaka. 	Construction phase	<ul style="list-style-type: none"> Daily by EO. Weekly by MC. Monthly by EnvMC.
Municipal Waste Management	<p>Field Inspection</p> <ul style="list-style-type: none"> Visual inspection on mode and efficiency of disposal. <p>Documentation Review</p> <ul style="list-style-type: none"> EO log book – collection and disposal schedule. 	<p>Site Condition</p> <ul style="list-style-type: none"> General cleanliness. Adequate rubbish bins provided. Oil and grease trap maintenance. 	<ul style="list-style-type: none"> Environmental Quality (Scheduled Wastes) Regulations 2005. Environmental Quality (Scheduled Wastes) (Amendment) Regulations 2007. Solid Waste and Public Cleansing Management Act 2007. EIA Approval Conditions (if any). 	<ul style="list-style-type: none"> Throughout Project site. 			
Biomass and Spoil Management	<p>Field Inspection</p> <ul style="list-style-type: none"> Visual inspection on stockpile areas. 	<p>Site Condition</p> <ul style="list-style-type: none"> Condition of stockpile area. BMPs implemented. 		<ul style="list-style-type: none"> Designated stockpile areas. 			
Scheduled Waste Management	<p>Field Inspection</p> <ul style="list-style-type: none"> Visual inspection on mode and efficiency of storage and disposal. <p>Documentation Review</p> <ul style="list-style-type: none"> EO log book – inventory, consignment notes, competent person details, scheduled waste manager's license. 	<p>Site Condition</p> <ul style="list-style-type: none"> Waste disposal at licensed scheduled waste disposal facility. Condition of storage area. Oil spills. 		<ul style="list-style-type: none"> Storage areas for scheduled wastes. Workshop. Active work areas. 			

Environmental Component	Procedure/Methodology	Parameters to Analyse	Compliance Requirements	Proposed Monitoring Location	Action/ Report Submission	Sampling/ Inspection Period	Frequency of Sampling/ Inspection																
Sanitation Facilities	<p>Field Inspection</p> <ul style="list-style-type: none"> Visual inspection to ensure no direct discharge of untreated wastewater. <p>Documentation Review</p> <ul style="list-style-type: none"> Record of desludging. 	<p>Site Condition</p> <ul style="list-style-type: none"> Sufficient toilet facilities. Treatment system installed. 	<ul style="list-style-type: none"> Suruhanjaya Perkhidmatan Air Negara (SPAN) specifications. Environmental Quality (Sewage) Regulations 2009. EIA Approval Conditions (if any). 	<ul style="list-style-type: none"> At base camp and site office. 	<ul style="list-style-type: none"> Non-compliance(s). Follow-up action(s) for non-compliance(s). Monitoring report submit to PP and DOE Melaka. 	Construction phase	<ul style="list-style-type: none"> Daily by EO. Weekly by MC. Monthly by EnvMC. 																
Health and Safety	<ul style="list-style-type: none"> Visual inspection 	<ul style="list-style-type: none"> CIDB registration of workers. PPE use. Hoarding condition. Safety signage. Toolbox training log. Availability of safety equipment. Vector control programme. Emergency Response Plan (ERP). 	<ul style="list-style-type: none"> Occupational Safety and Health Act 1994 Guidelines for Public Safety and Health at Construction Sites (1st Revision) (DOSH, 2007) 	<ul style="list-style-type: none"> Throughout Project site. 			<ul style="list-style-type: none"> Daily by EO in conjunction with the Safety and Health Officer (SHO). Monthly by EnvMC 																
Impact Monitoring (IM)																							
River Water Quality	<p>Field Sampling</p> <ul style="list-style-type: none"> Grab samples to be analysed in accredited laboratory. Analytical methods in accordance with 21st edition "Standard Methods for the Examination of Water and Wastewater". 	<ul style="list-style-type: none"> Temperature pH DO BOD₅ COD TSS O&G AN E. Coli 	<ul style="list-style-type: none"> Maintain baseline water quality (Section 6.5: Water Quality). NWQS, Class II. EIA Approval Conditions (if any). 	<p>Stations:</p> <table border="1"> <tr> <td>WQ1:</td> <td>N 2.44153° E 102.27122°</td> </tr> <tr> <td>WQ2:</td> <td>N 2.43729° E 102.25252°</td> </tr> <tr> <td>WQ4:</td> <td>N 2.46469° E 102.24030°</td> </tr> <tr> <td>WQ6:</td> <td>N 2.46632° E 102.23249°</td> </tr> <tr> <td>WQ7:</td> <td>N 2.43477° E 102.24730°</td> </tr> <tr> <td>WQ8:</td> <td>N 2.41268° E 102.25254°</td> </tr> <tr> <td>WQ9:</td> <td>N 2.40766° E 102.25427°</td> </tr> <tr> <td>WQ10:</td> <td>N 2.39865° E 102.24474°</td> </tr> </table>	WQ1:	N 2.44153° E 102.27122°	WQ2:	N 2.43729° E 102.25252°	WQ4:	N 2.46469° E 102.24030°	WQ6:	N 2.46632° E 102.23249°	WQ7:	N 2.43477° E 102.24730°	WQ8:	N 2.41268° E 102.25254°	WQ9:	N 2.40766° E 102.25427°	WQ10:	N 2.39865° E 102.24474°	<ul style="list-style-type: none"> Non-compliance(s) Follow-up action(s) for non-compliance(s) Monitoring report submit to PP and DOE Melaka 	<ul style="list-style-type: none"> Construction phase Operational phase 	<ul style="list-style-type: none"> Monthly by EnvMC Quarterly by EnvMC
WQ1:	N 2.44153° E 102.27122°																						
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Environmental Component	Procedure/Methodology	Parameters to Analyse	Compliance Requirements	Proposed Monitoring Location	Action/ Report Submission	Sampling/ Inspection Period	Frequency of Sampling/ Inspection								
Air Quality	<ul style="list-style-type: none"> To use appropriate equipment based on MAAQS (DOE, 2015). 	<p>Ambient Air Quality</p> <ul style="list-style-type: none"> NO₂ SO₂ H₂S CO O₃ PM_{2.5}* PM₁₀* Weather conditions <p>Note: (i) *24-hr duration. (ii) Others, 1-hr duration.</p>	<ul style="list-style-type: none"> MAAQS (DOE 2015). Environmental Quality (Clean Air) Regulations 2014. EIA Approval Conditions (if any). 	<p>Stations:</p> <table border="1"> <tr> <td>AQ1:</td> <td>N 2.44031° E 102.26976°</td> </tr> <tr> <td>AQ2:</td> <td>N 2.43609° E 102.25317°</td> </tr> <tr> <td>AQ3:</td> <td>N 2.45932° E 102.23533°</td> </tr> <tr> <td>AQ4:</td> <td>N 2.45727° E 102.27406°</td> </tr> </table>	AQ1:	N 2.44031° E 102.26976°	AQ2:	N 2.43609° E 102.25317°	AQ3:	N 2.45932° E 102.23533°	AQ4:	N 2.45727° E 102.27406°	<ul style="list-style-type: none"> Non-compliance(s). Follow-up action(s) for non-compliance(s). Monitoring report submit to PP and DOE Melaka. 	<ul style="list-style-type: none"> Construction phase, by PP. Operational phase, by individual industries. 	<ul style="list-style-type: none"> Quarterly by EnvMC.
AQ1:	N 2.44031° E 102.26976°														
AQ2:	N 2.43609° E 102.25317°														
AQ3:	N 2.45932° E 102.23533°														
AQ4:	N 2.45727° E 102.27406°														
Noise	<ul style="list-style-type: none"> Only by trained personnel at sensitive locations, on A-weighted frequency. 	<p>Ambient Noise</p> <ul style="list-style-type: none"> L_{eq} L₁₀, L₅₀, L₉₀ L_{min}, L_{max} <p>Note: • 24-hr duration, including day-and night-time sessions.</p>	<ul style="list-style-type: none"> Schedule 1 of The Planning Guidelines for Environmental Noise Limits and Control (DOE, 2007). Environmental Quality (Motor Vehicle Noise) Regulations 1987. EIA Approval Conditions (if any). 												