

# **EXECUTIVE SUMMARY**

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# PROPOSED DEVELOPMENT OF LARGE SCALE SOLAR PHOTOVOLTAIC (LSSPV) POWER PLANT AT PART OF LOT 894, MUKIM GRISEK, DAERAH TANGKAK, JOHOR DARUL TAKZIM

## INTRODUCTION



**PROJECT PROPONENT**  
**Parkland LSS5 Sdn Bhd**  
 No. 112, Jalan Tun Perak  
 75300 Melaka



**EIA CONSULTANT**  
**Alam Dinamik Sdn Bhd**  
 No.19 & 19A, Jalan Bukit Impian 1  
 Taman Impian Emas  
 81300 Skudai  
 Johor Darul Takzim



**LEGAL REQUIREMENT**  
**Environmental Quality Act 1974**  
 First Schedule  
 17. Industrial Estate Development  
 Development of industrial estate covering an area of 20 hectares or more.

## STATEMENT OF NEEDS

The Government of Malaysia is committed to low-carbon development aimed at restructuring the economic landscape to a more sustainable one. Malaysia has targeted installed renewable energy capacity to 70% by 2050. The development concept and site plan have considered several beneficial factors as follows:-

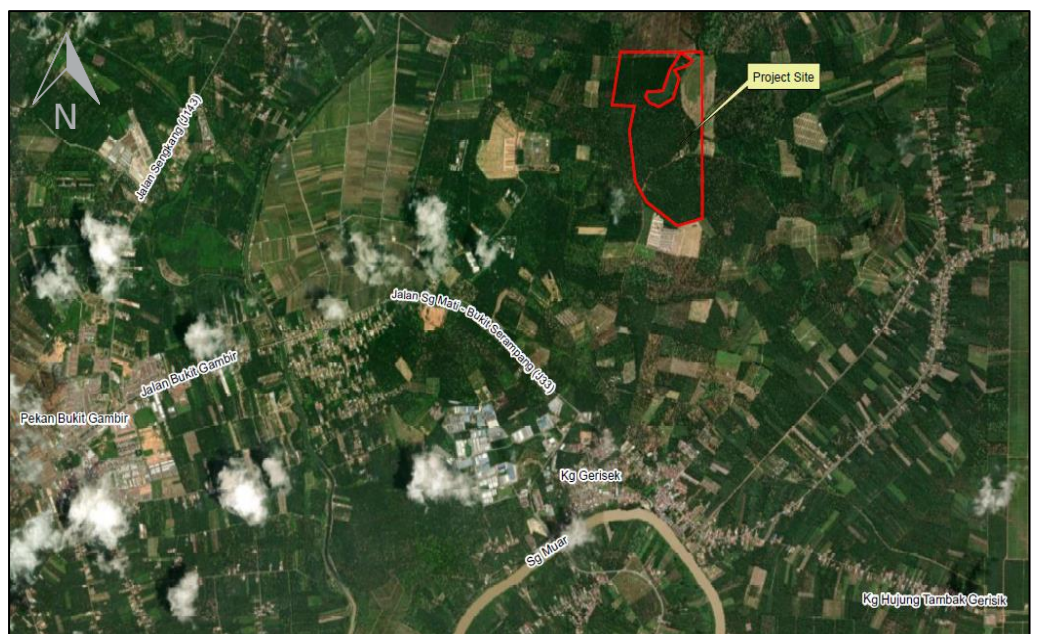
- a) Solar energy represents a clean, renewable resource with the potential to significantly reduce our reliance on fossil fuels and mitigate greenhouse gas emissions.
- b) Solar energy aligns with sustainable development principles by minimizing environmental impact, conserving natural resources, and fostering community engagement and education.

## PROJECT LOCATION

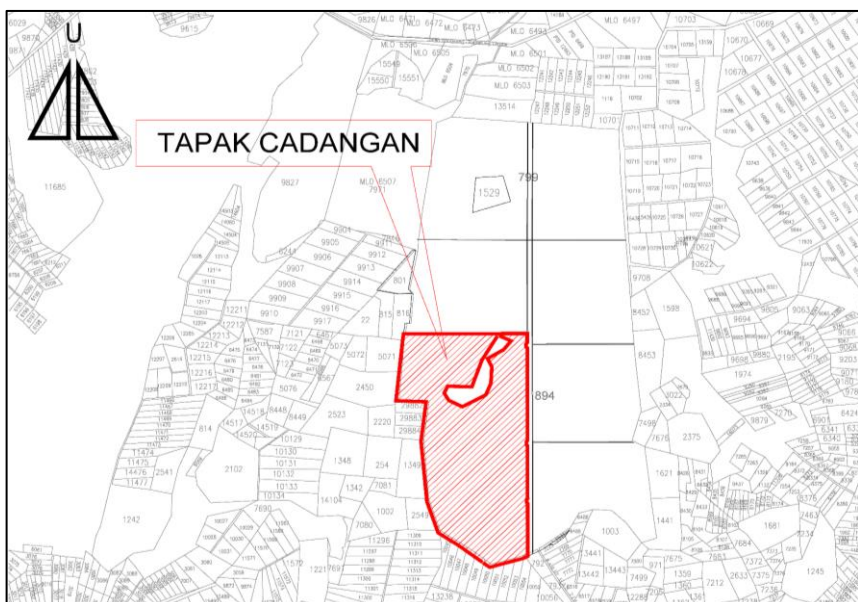
The proposed Project site is located at part of Lot 894, Mukim Grisek, Daerah Tangkak, Johor Darul Takzim.

The proposed Project site covers an area of 274.84 ac (112.23 ha).

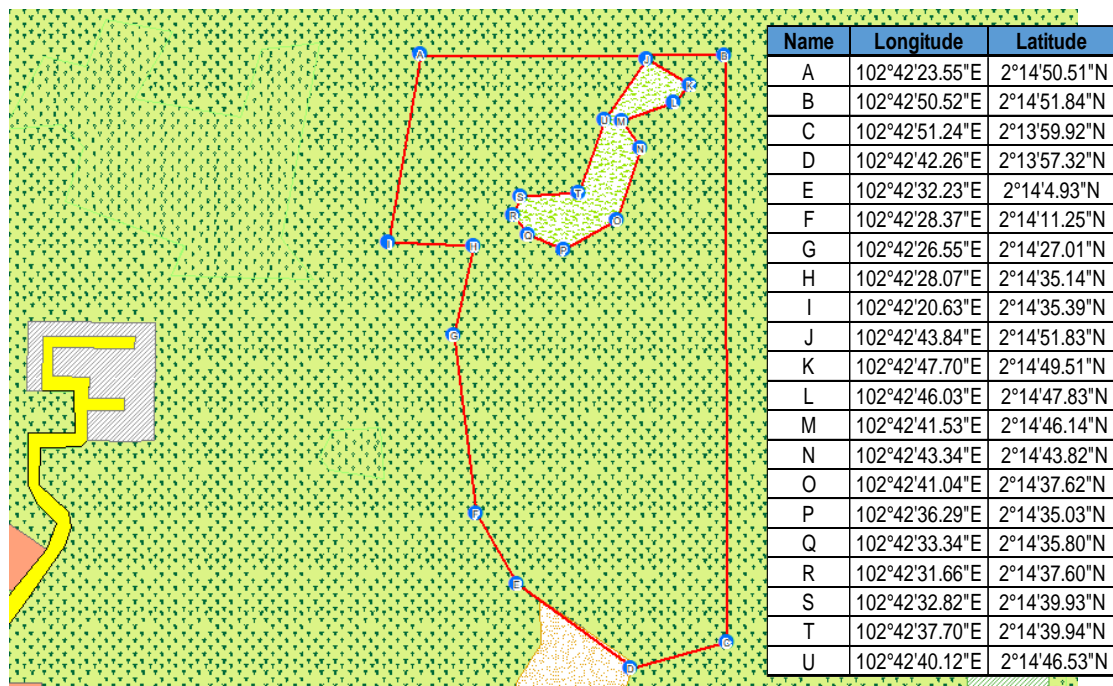
The proposed Project is located under Majlis Daerah Tangkak (MDT).



## CADASTRAL MAP



## BOUNDARY COORDINATES

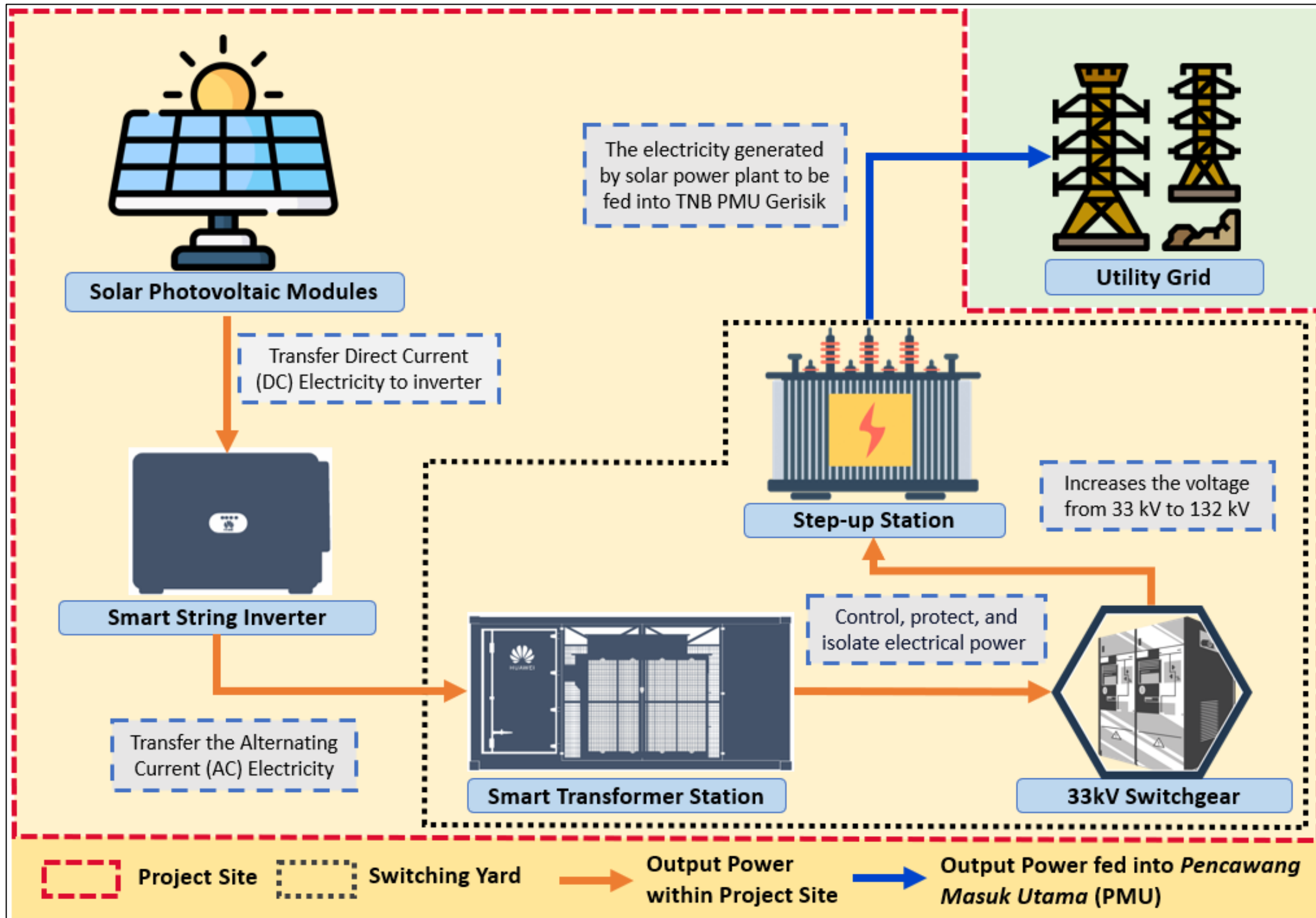


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### PROJECT CONCEPT

The Project Proponent intends to develop a 99.99 MW Large-Scale Solar Photovoltaic (LSSPV) power plant. This LSSPV power plant aims to harness the abundant solar resources of the region and contribute to Malaysia's clean energy goals.



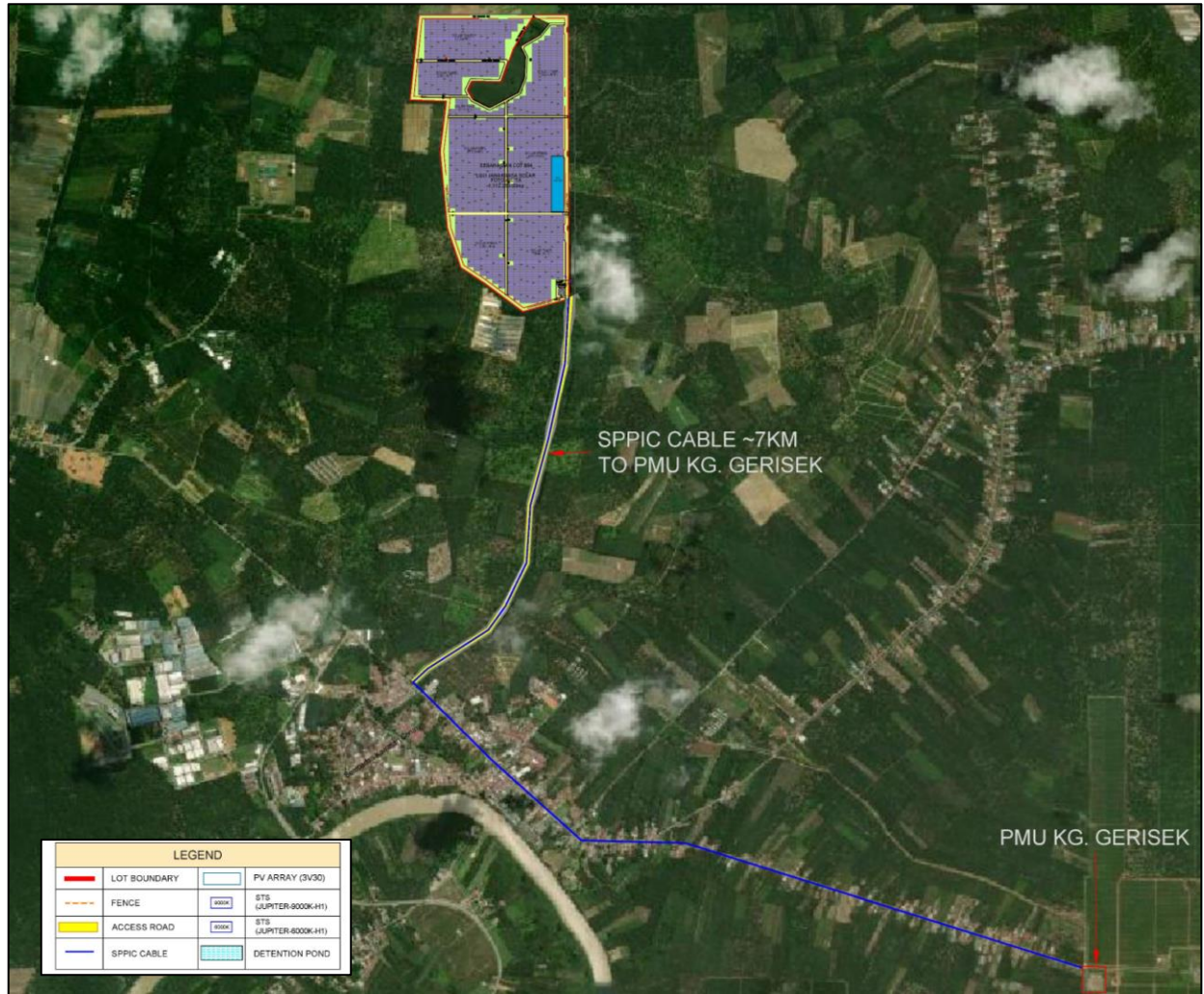
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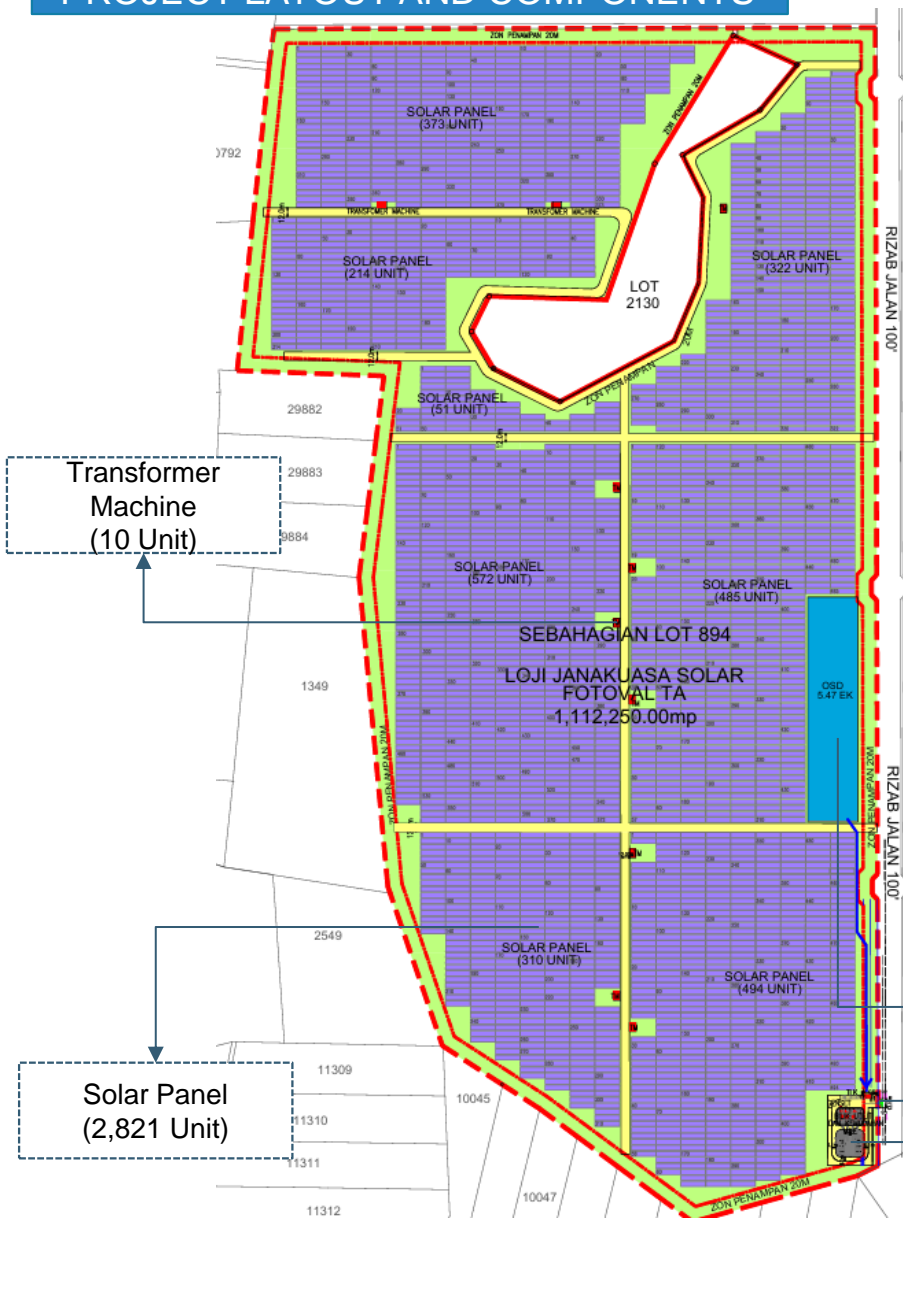
## OVERALL PROJECT LAYOUT

The Project components are as follows:-

- a) Photovoltaic (PV) Array (3V30) - mono PERC (Passivated Emitter and Rear Cell) (243,990 units)
- b) Smart Transformer Station (STS)
- c) Switchyard (Solar Power Plant Interconnection Facility (SPPIF))
- d) Control building
- e) Detention Pond
- f) Fencing
- g) Access Road
- h) Installation of Solar Power Plant Interconnector (SPPIC) Cable from the Project site to *Pencawang Masuk Utama (PMU) Kg Gerisek*



## PROJECT LAYOUT AND COMPONENTS



Component	Unit	Area (acre)	% (Area)
Solar Panel	2,821	170.02	61.860
<i>Bilik Utiliti dan Kemudahan M&amp;E</i>	1	0.14	0.052
Transformer Machine	10	0.28	0.102
Compact Sub	1	0.01	0.003
Genset	1	0.01	0.001
<i>Laluan Pejalan Kaki</i>	-	0.45	0.165
On-site Detention (OSD) Pond	-	5.47	1.989
<i>Kawasan Hijau</i>	-	86.96	31.642
<i>Jalan dan Tempat Letak Kereta</i>	-	4.186	4.186
<b>Total</b>	<b>2,834</b>	<b>274.843</b>	<b>100.00</b>

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## PROJECT ACTIVITIES

### Construction Stage



#### Survey Setting Out

Original Ground Level (OGL) survey will be checked on-site and verified against the construction drawing for any discrepancies.



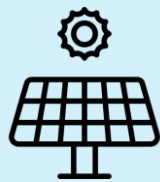
#### Access Point

One (1) access point will be provided for the Project site. The Project site can be accessed from Jalan Sungai Mati – Bukit Serampang (J33).



#### Site Clearing

Site clearance shall be carried out within the limit of contract by removal of fallen trees, shrubs etc.



#### Structures Construction

There will be no earthworks and only structural construction and equipment installation will be carried out at the Project site. The solar panels will be installed according to the natural topography of the Project site.



#### Management of Biomass Waste

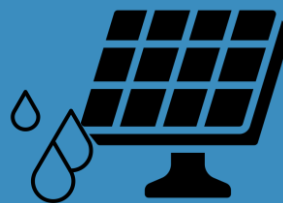
The estimated biomass waste generation is 6,024.73 tons of oil palm fronds and trunks. Biomass such as oil palm fronds and trunks will be shredded into small pieces or chips by using grinder. It will be deposited within the Project site.

### Operational Stage



#### Operation and Maintenance

Most of the operations of the facility will be automated. The preventive (scheduled) maintenance plan will be carried out at the Project site.



#### Generation of Wastewater

Cleaning of solar modules will be carried out twice per year but will depend on demand. Water will be used to clean modules, with no cleaning chemicals expected to be used.



#### Waste Management

Maintenance of LSSPV Power Plant will generate scheduled waste. It will be managed and disposed of in accordance with the Environmental Quality (Scheduled Wastes) Regulations 2005.

### Abandonment / Decommissioning Stage

In the event of project abandonment or decommissioning, the Project Proponent will notify DOE Johor. Necessary report will be submitted to relevant authorities to address the management of potential impacts during abandonment or decommissioning stage



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## PROJECT IMPLEMENTATION SCHEDULE

No	Items	Duration			
		Year 1	Year 2	Year 3 to Year 27	Year 28
1.	Site Preparation	[Green shaded cells]			
2.	Preliminaries	[Green shaded cells]			
3.	Engineering Drawing	[Green shaded cells]			
4.	Procurement (Notice to Proceed Activity)	[Green shaded cells]			
5.	Erection, Installation & Testing Works	[Green shaded cells]			
5a.	Survey Works	[Blue shaded cells]			
5b.	Detour Road & Installation Hoarding	[Blue shaded cells]			
5c.	Solar Power Plant Works	[Blue shaded cells]			
5d.	Solar Power Plant Interconnection Facilities (SPPIF)	[Blue shaded cells]			
5e.	Solar Power Plant Interconnection Cables (SPPIC)	[Blue shaded cells]			
5f.	Solar Power Plant Utilities	[Blue shaded cells]			
5g.	Testing & Commissioning (T&C)	[Blue shaded cells]			
6.	Operational and Maintenance Stage	[Green shaded cells]			
7.	Decommissioning Stage	[Green shaded cells]			

## EXISTING ENVIRONMENT



### Topography and Land Use

Elevation of the Project site is 7.6 m to 40.91 m above mean sea level. The land uses within 5 km radius from the Project site consist of agriculture, residential and other facilities. The Project site is occupied by oil palm plantation.



### Geology and Soil

One (1) boreholes was drilled within the proposed Project site on 5<sup>th</sup> February 2025 to obtain soil profile.



### Climate & Meteorology

Based on Craigelea Estate Meteorological data, the dominant wind direction was from south to north. The monthly mean rainfall amount at Craigelea Estate for year 2015 – 2024 was in the range of 8.2 – 572.7 mm.



### Hydrology

The Project site is located within Sg. Muar basin. Surface runoff from the Project site flows into Pt Gan Tian for about 2.45 km before entering Pt Pelampong. Then, it meanders about 2.0 km before entering Sg Muar. Sg Muar meanders for about 63.20 km before discharging into Selat Melaka.



### Water Quality

River water was sampled at five (5) stations. Water Quality Index (WQI) for all stations fall between Class II and III.



### Ambient Air Quality

Sampling of ambient air was carried out at three (3) stations. Most of the measured parameters are well below the specified limits except PM<sub>10</sub> at station A2 and PM<sub>2.5</sub> at station A1 and A2.



### Noise Level

Noise measurement was carried out at three (3) stations. The measured noise levels at all sampling stations are well below the specified limits.



### Traffic

- The proposed Project site can be accessed via Jalan Sungai Mati – Bukit Serampang (J33).
- Jalan Sungai Mati – Bukit Serampang is currently operating at level of service (LOS) ranging from LOS A.



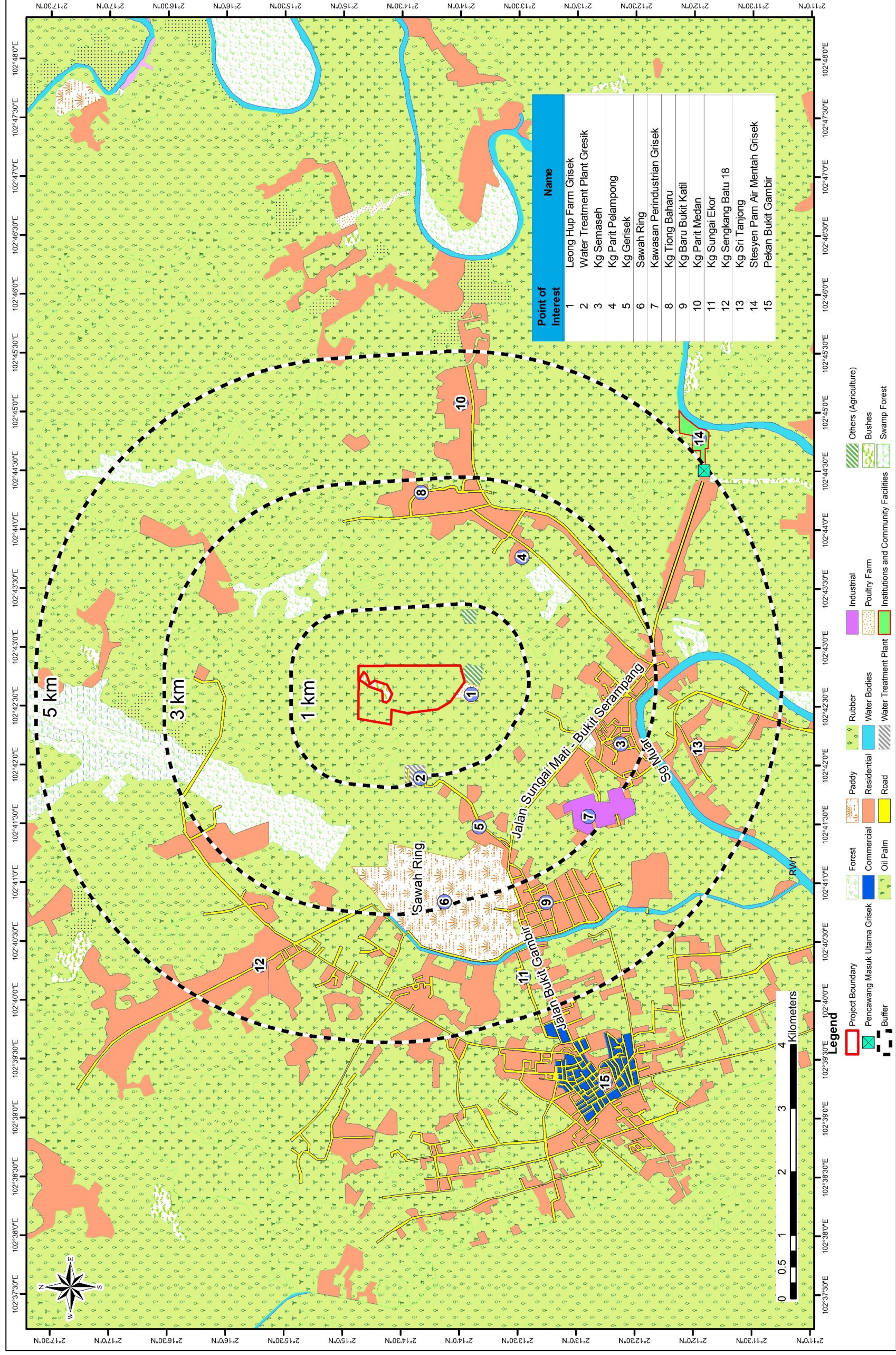
### Socio-economic

Local authority is Majlis Daerah Tangkak (MDT). Based on Rancangan Tempatan Daerah (RTD) Tangkak 2030 (Penggantian), the Project site is located within *Blok Perancangan Kecil MG2.8: Kg Hujung Tambak – Pt Raja*.

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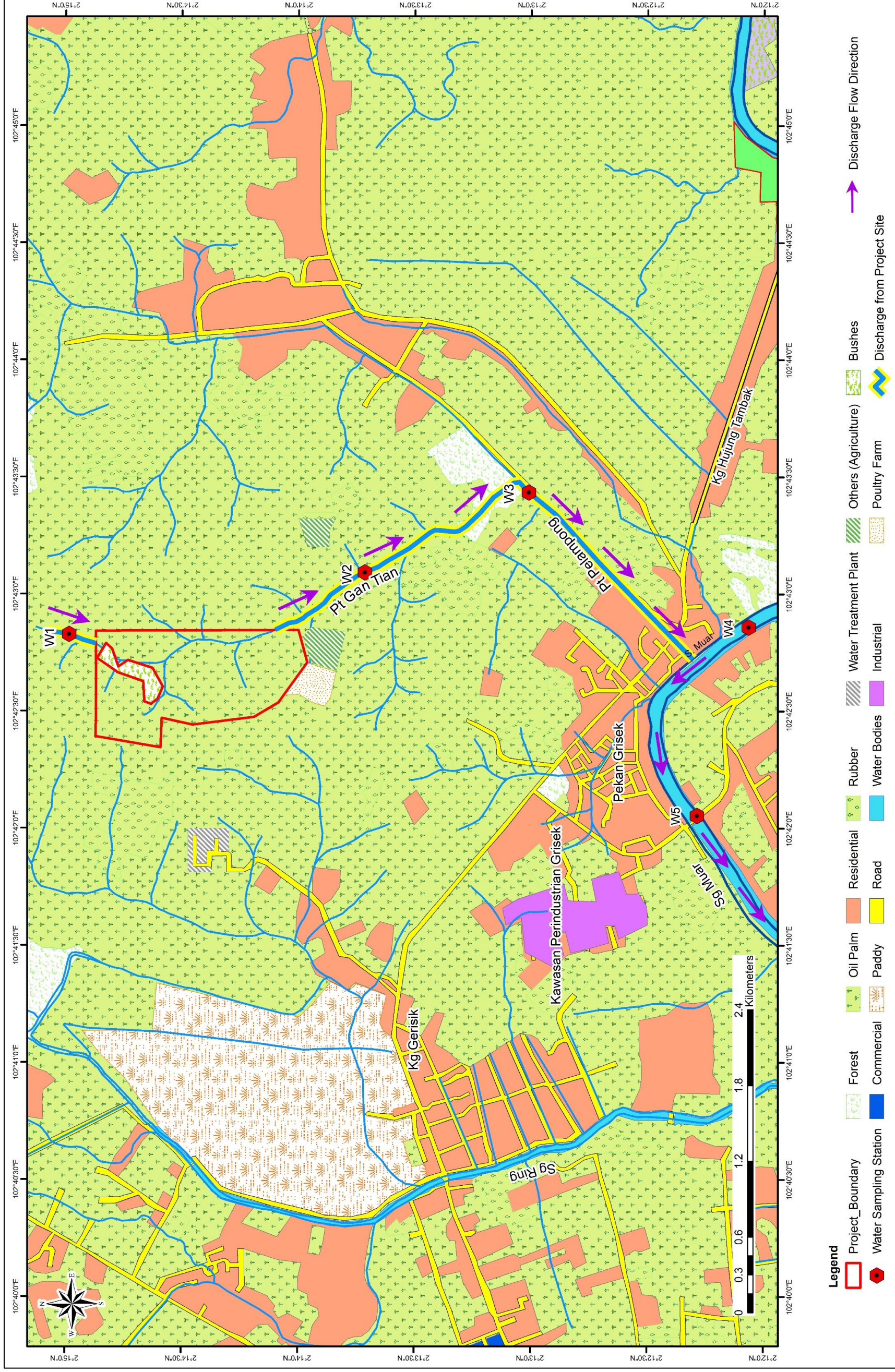
LAND USE 5 KM RADIUS



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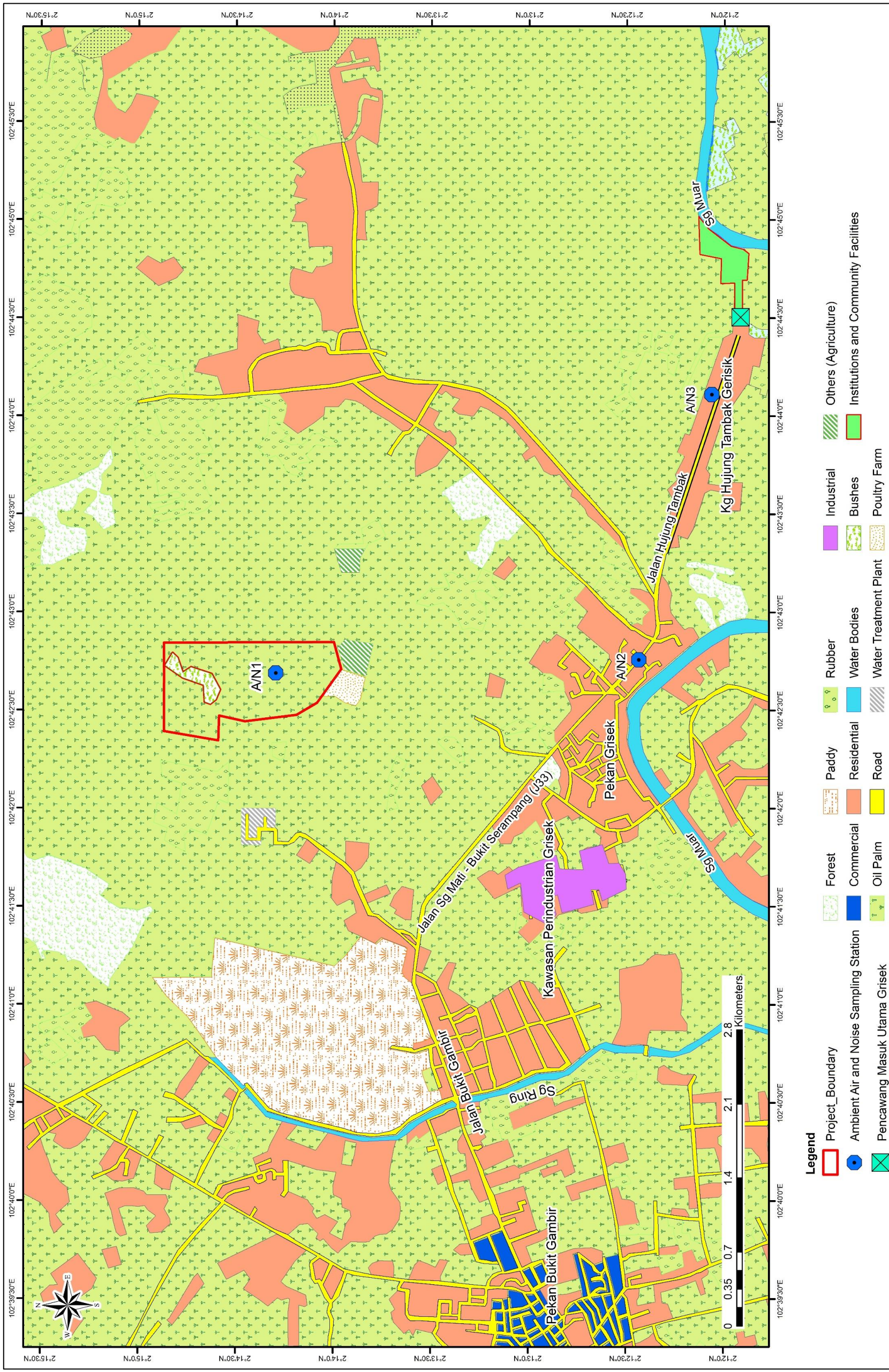
### SAMPLING STATIONS FOR RIVER WATER



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### SAMPLING STATIONS FOR AMBIENT AIR QUALITY AND NOISE LEVEL



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## RESULTS OF WATER QUALITY

Classification of Water Quality Based on National Water Quality Standards for Malaysia

Parameter	<sup>1</sup> W1	Class	<sup>2</sup> W2	Class	<sup>2</sup> W3	Class	<sup>2</sup> W4	Class	<sup>2</sup> W5	Class
Dissolved Oxygen (mg/l)	6.81	II (5-7)	7.28	I (>7)	5.82	II (5-7)	1.45	IV (<3)	2.73	IV (<3)
BOD <sub>5</sub> at 20°C (mg/l)	10	IV (6-12)	18	V (>12)	10	IV (6-12)	17	V (>12)	10	IV (6-12)
COD (mg/l)	18	II (10-25)	40	III (25-50)	23	II (10-25)	35	III (25-50)	29	III (25-50)
Total Suspended Solids (mg/l)	2	I (<25)	131	III (50-150)	52	III (50-150)	14	I (<25)	15	I (<25)
Ammoniacal Nitrogen (mg/l)	0.05	I (<0.1)	0.17	II (0.1-0.3)	0.15	II (0.1-0.3)	0.22	II (0.1-0.3)	0.24	II (0.1-0.3)

Note:

<sup>1</sup> Sampled on 27<sup>th</sup> February 2025

<sup>2</sup> Sampled on 12<sup>th</sup> December 2024

Water Quality Index (WQI)

Parameters	Sampling Station				
	W1	W2	W3	W4	W5
Water Quality Index (WQI)	81	61	67	58	65
Class	II (76.5 – 92.7)	III (51.9 – 76.5)	III (51.9 – 76.5)	III (51.9 – 76.5)	III (51.9 – 76.5)

## RESULTS OF AMBIENT AIR QUALITY

Parameter	Concentration (µg/m <sup>3</sup> ) at sampling station			*Limit (µg/m <sup>3</sup> )
	A1	A2	A3	
Particulate Matter less than 10 micron (PM <sub>10</sub> )	97.2	153	55.6	100* (24 hours)
Particulate Matter less than 2.5 micron (PM <sub>2.5</sub> )	69.4	111	27.8	35* (24 hours)
Carbon Monoxide (CO)	< 1.00	< 1.00	< 1.00	30,000* (1 hour) 10,000* (8 hour)
Sulphur Dioxide (SO <sub>2</sub> )	< 1	< 1	< 1	80* (24 hour)
Nitrogen Dioxide (NO <sub>2</sub> )	< 1	< 1	< 1	70* (24 hour)

\*Malaysia Ambient Air Quality Standards (MAAQG) (2020)

## RESULTS OF NOISE LEVEL

Sampling Station	Noise Level L <sub>Aeq</sub>	DOE Recommended Noise Level
<b>Day Time</b>		
N1	49.1	175 dBA
N2	52.8	265 dBA
N3	53.1	
<b>Night Time</b>		
N1	41.6	175 dBA
N2	44.7	260 dBA
N3	43.8	

<sup>1</sup>Guidelines for Environmental Noise Limits and Control (DOE Malaysia, 2019) – Second Schedule, Recommended Permissible Sound Level (L<sub>Aeq</sub>) by Receiving Land Use for Existing Built Up Areas for Industrial Zones

<sup>2</sup>Guidelines for Environmental Noise Limits and Control (DOE Malaysia, 2019) – Second Schedule; Permissible Sound Level (L<sub>Aeq</sub>) by Receiving Land Use for Existing Built Up Areas; Suburban and Urban Residential, Mixed Development.

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## POTENTIAL IMPACTS AND MITIGATIONS

### Hydrology

#### **IMPACT**

- Change of land use will increase the amount of surface runoff.

#### **MITIGATION**

- Provision of detention pond to regulate the post development flow. The percentage of peak flow reduction of the proposed detention pond is 44%.

### River Water

#### **IMPACT**

- Potential for leakage of fuels and lubricants from heavy equipment and vehicles to the nearest watercourse.
- Untreated sewage flow into river.

#### **MITIGATION**

- Proper site management shall be carried out at the Project site during construction phase.
- Septic tank will be provided at the Project site.

### Ambient Air

#### **IMPACT**

- Construction and installation activities will result in suspended particulates or airborne dust.
- The movement of vehicles on access roads could stir up dust and could cause inconvenience to the nearby communities.
- Exhaust fumes from the vehicles could also be a problem although relatively minor.

#### **MITIGATION**

- Spraying of water on the roads especially at exit and inlet points.
- Vehicles to pass through a wash trough prior to leaving the construction site
- Monitoring of traffic volume and observation of speed limits for heavy vehicles during construction phase.

### Noise Level

#### **IMPACT**

- During construction phase, the operation of stationary and mobile equipment or machineries may contribute to the noise level.
- Cable installation work might also contribute to noise generation which might be a nuisance to the nearest residential area.

#### **MITIGATION**

- Full hoarding of ample height shall installed to control noise propagation for areas without planned noise barriers.
- All construction vehicles must be checked for proper installation of engine silencer to reduce emitted noise level

### Traffic

#### **IMPACT**

- Construction traffic will be mostly construction vehicles delivering construction materials to the Project site.
- The development of the proposed Project will not increase the traffic volume on the surrounding roads.

#### **MITIGATION**

- Proper construction traffic management must be implemented to ensure minimal disruption and potential danger to traffic and road users during construction phase.

### Waste Management

#### **IMPACT**

- Activities during construction and operational phase will generate scheduled waste (E-waste), solid waste and biomass.

#### **MITIGATION**

- Scheduled waste should be managed in accordance with the Environmental Quality (Scheduled Wastes) Regulations 2005 during construction phase. Solid waste shall be disposed of at the disposal site approved by the local authority during construction and operational phase.
- Biomass such as oil palm fronds and trunks will be shredded into small pieces or chips by using grinder. It will be deposited within the Project site.

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## PROPOSED ENVIRONMENTAL MONITORING PROGRAMME

### CONSTRUCTION PHASE

Impact Monitoring	Performance Monitoring	Compliance Monitoring
<p><b>Water quality</b></p> <ul style="list-style-type: none"> <li>Two (2) water quality monitoring stations.</li> <li>Comparison with National Water Quality Standards (NWQS).</li> </ul> <p><b>Ambient air</b></p> <ul style="list-style-type: none"> <li>Three (3) ambient air monitoring stations.</li> <li>Compliance with Malaysia Ambient Air Quality Standards (MAAQS) 2020.</li> </ul> <p><b>Noise level</b></p> <ul style="list-style-type: none"> <li>Three (3) noise monitoring stations.</li> <li>Compliance with Second Schedule, (Receiving Land Use for Existing Built Up Areas) Planning Guidelines for Environmental Noise Limits and Control 2019</li> </ul>	<p><b>Detention Pond</b></p> <ul style="list-style-type: none"> <li>Monitor silt storage zone and basin outlet.</li> <li>Daily checking and desilting for every 3 months or as needed.</li> </ul> <p><b>Wash trough</b></p> <ul style="list-style-type: none"> <li>Monitor catch basin.</li> <li>Daily checking and desilting for every 3 months or as needed.</li> </ul> <p><b>Earth drain</b></p> <ul style="list-style-type: none"> <li>Monitor drain.</li> <li>Daily checking and desilting for every 3 months or as needed.</li> </ul>	<p><b>Solid Waste</b></p> <ul style="list-style-type: none"> <li>Compliance with local authority guidelines for disposal.</li> </ul> <p><b>Scheduled waste</b></p> <ul style="list-style-type: none"> <li>Monitor for chemicals (solid and/or liquid) at machineries and power generators.</li> <li>Compliance with Environmental Quality (Scheduled Wastes) Regulations 2005.</li> </ul>

### OPERATIONAL PHASE

Performance Monitoring	Compliance Monitoring
<p><b>Detention Pond</b></p> <ul style="list-style-type: none"> <li>Monitor silt storage zone and basin outlet.</li> <li>Daily checking and desilting for every 3 months or as needed.</li> </ul>	<p><b>Scheduled waste</b></p> <ul style="list-style-type: none"> <li>Monitor for chemicals (solid and/or liquid) at machineries and power generators.</li> <li>Compliance with Environmental Quality (Scheduled Wastes) Regulations 2005.</li> </ul> <p><b>Solid Waste</b></p> <ul style="list-style-type: none"> <li>Compliance with local authority guidelines for disposal.</li> </ul>

### ABANDONMENT / DECOMMISSIONING PHASE

Impact Monitoring	Compliance Monitoring
<p><b>Water quality</b></p> <ul style="list-style-type: none"> <li>Two (2) water quality monitoring stations.</li> <li>Comparison with National Water Quality Standards (NWQS).</li> </ul> <p><b>Ambient air</b></p> <ul style="list-style-type: none"> <li>Three (3) ambient air monitoring stations.</li> <li>Compliance with Malaysia Ambient Air Quality Standards (MAAQS) 2020.</li> </ul> <p><b>Noise level</b></p> <ul style="list-style-type: none"> <li>Three (3) noise monitoring stations.</li> <li>Compliance with Second Schedule, (Receiving Land Use for Existing Built Up Areas) Planning Guidelines for Environmental Noise Limits and Control 2019</li> </ul>	<p><b>Solid waste</b></p> <ul style="list-style-type: none"> <li>Collection and disposal of waste from dismantling of structures.</li> <li>Compliance with local authority guidelines for disposal upon demolition work.</li> </ul> <p><b>Scheduled waste (E-Waste)</b></p> <ul style="list-style-type: none"> <li>Monitor for chemicals (solid and/or liquid).</li> <li>Compliance with Environmental Quality (Scheduled Wastes) Regulations 2005.</li> </ul>