



EXECUTIVE SUMMARY

CHAPTER 1

1.0 INTRODUCTION

Project Title:
“MEMBINA JALAN DAN JAMBATAN DARI KG. LEMBAGA KE BANDAR LAMA GUA MUSANG, KELANTAN”

PROJECT IMPLEMENTER & ENVIRONMENTAL CONSULTANTS

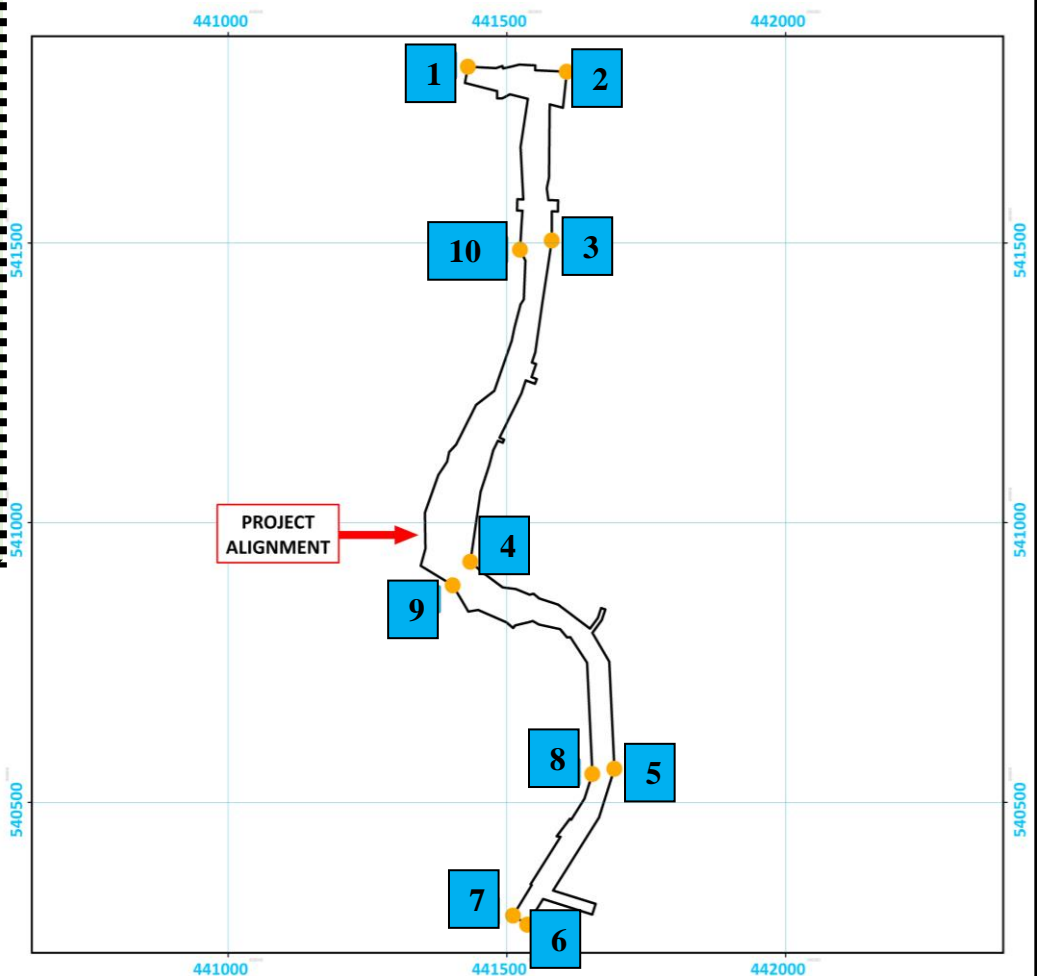
PROJECT IMPLEMENTER	EIA CONSULTANT
<p>JABATAN KERJA RAYA (JKR) MALAYSIA Cawangan Alam Sekitar & Kecekapan Tenaga</p> 	<p>PERUNDING AZECTRADE (KT0365075-M)</p> 

LOCATION

PROJECT BACKGROUND

- Proposed project involves the construction of new road with alignment of 1.723 km (Kg. Lembaga – Bandar Lama, Gua Musang) with one (1) bridge crossing Sg. Galas.
- Existing road with 1km long located next to railway station have slums that create uncomfortable paths and not safe for road users where it is built on the road’s shoulder.
- Therefore, this project will be implemented at new better location based on criteria of cost, the need for better accessibility, technical feasibility, social implication, and long-term capacity.

NO	LATITUDE	LONGITUDE
1	4° 53' 53.184" N	101° 57' 54.897" E
2	4° 53' 52.903" N	101° 58' 00.653" E
3	4° 53' 43.088" N	101° 57' 59.806" E
4	4° 53' 24.370" N	101° 57' 55.105" E
5	4° 53' 12.337" N	101° 58' 03.516" E
6	4° 53' 03.254" N	101° 57' 58.470" E
7	4° 53' 03.780" N	101° 57' 57.637" E
8	4° 53' 12.037" N	101° 58' 02.231" E
9	4° 53' 22.997" N	101° 57' 54.084" E
10	4° 53' 42.543" N	101° 57' 57.961" E



LEGISLATIVE REQUIREMENTS

Section 34A of the Environmental Quality Act 1974, Environmental Quality (Prescribed Activities) (Environmental Impact

- First Schedule, Activity 20 (c): Construction of road, tunnel or bridge traversing or adjacent or near to environmentally sensitive areas

CONFORMANCE OF PROPOSED PROJECT TO GOVERNMENT'S DEVELOPMENT PLANS

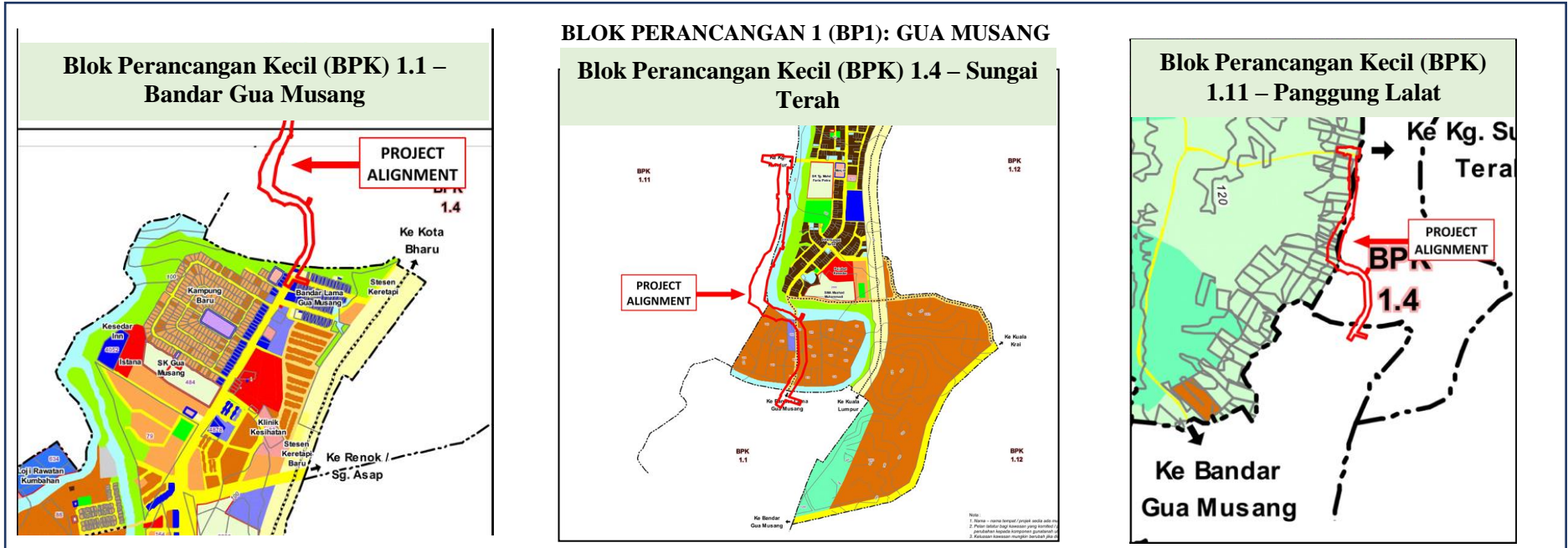
12TH Malaysia Plan

National Physical Plan 3

Kelantan Structure Plan

Gua Musang's Local Plan

Strategic Plan MDGM



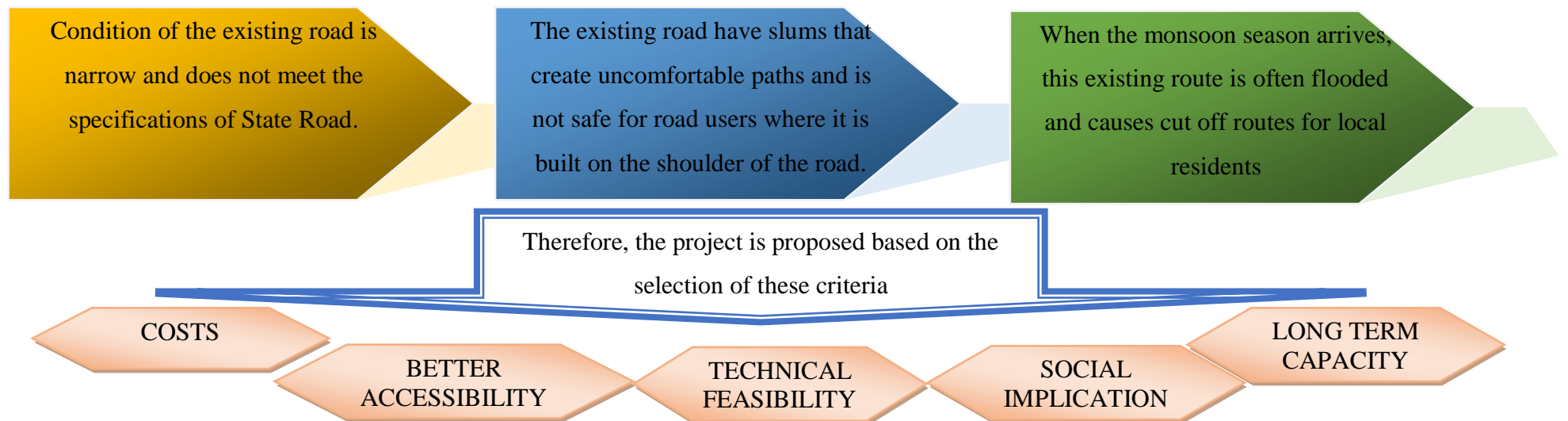
CHAPTER 2

2.0 SCOPING NOTES

<p>Possible Significant Impacts</p> <ul style="list-style-type: none"> • Water Quality Pollution • Soil erosion and sedimentation <ul style="list-style-type: none"> • Loss of topsoil • Air Pollution • Loss of Flora and Fauna <ul style="list-style-type: none"> • Poaching • Noise Pollution • Vibration • Generation of Wastes • Transportation and Traffic 	<p>Possible Impacts Which are Uncertain but may Occur</p> <ul style="list-style-type: none"> • Health Impacts <ul style="list-style-type: none"> • Safety • Socio-economic Impact <ul style="list-style-type: none"> • Aesthetics
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CHAPTER 3

3.0 STATEMENT OF NEED



CHAPTER 4

4.0 PROJECT OPTION

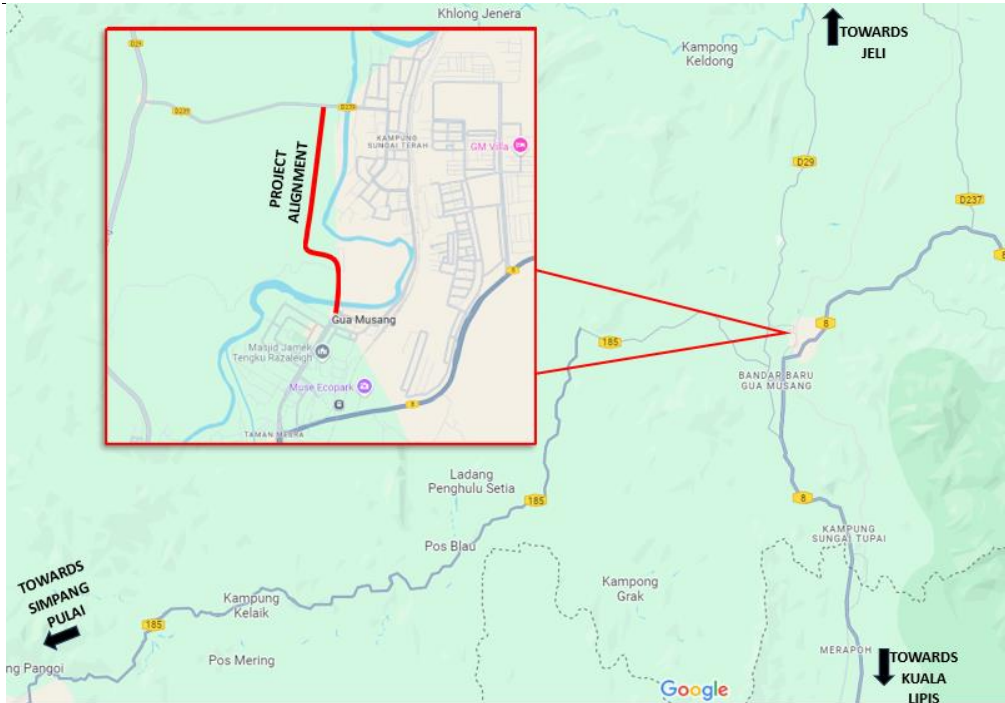
PROJECT DEVELOPMENT	MERITS	DEMERITS
No Development	<ul style="list-style-type: none"> • Project site will be left under its present condition. Natural condition can be preserved 	<ul style="list-style-type: none"> • Leaving the proposed project site without any proper development also will make the proposed project site give no benefit to the state. • Less job opportunities for local communities. • Economic benefits are not likely to materialize. • Condition of the road users by using the existing road would not resolve.

Road Development Project

- Improve connection and reduce the risk of accidents.
- Congruent with the planning in RMK 12th and RFN.

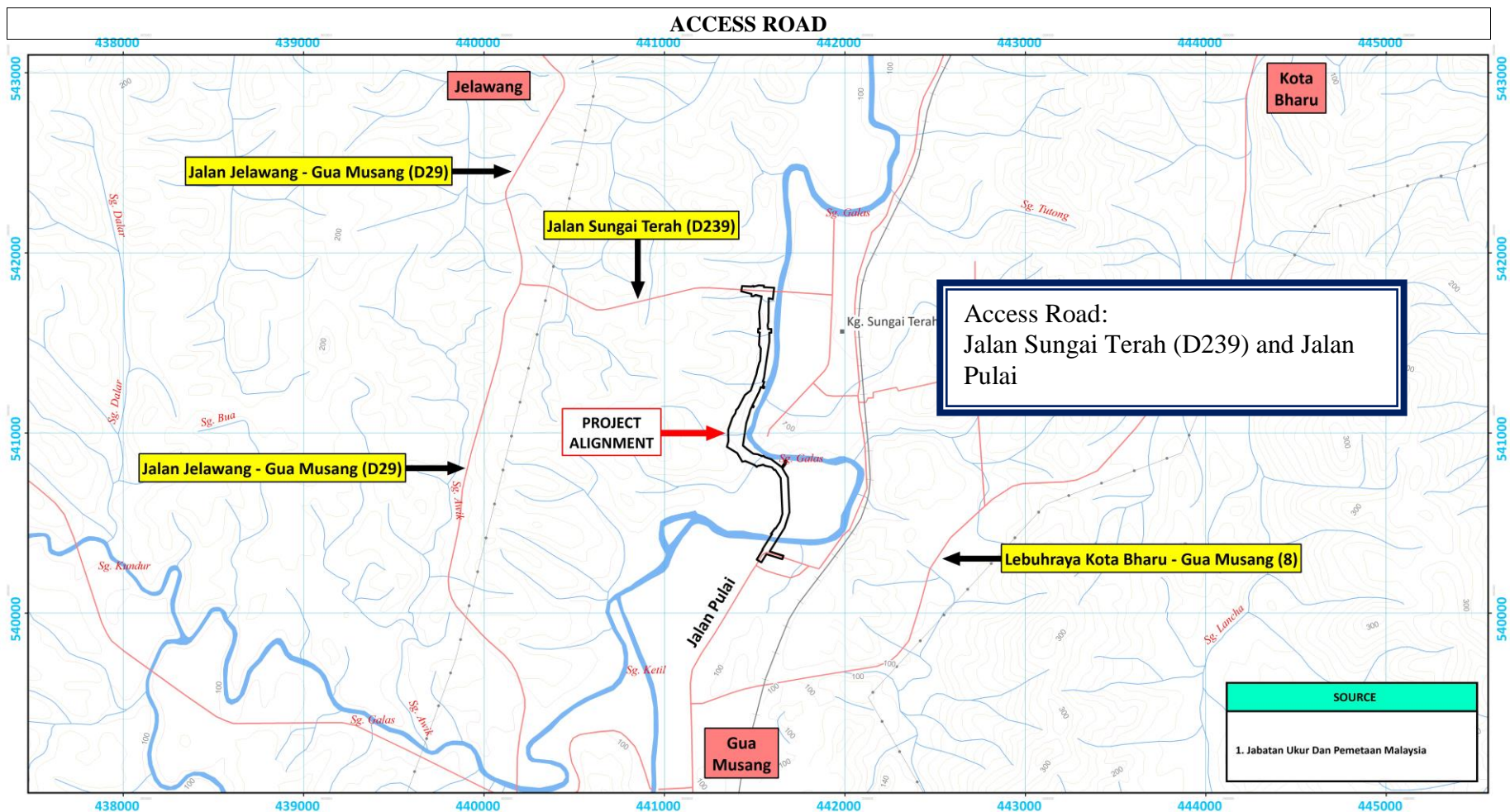
- Can cause various environmental and health impact such as water and air pollution, noise disturbance, vibration nuisance. However these impacts are temporary.

5.0 PROJECT DESCRIPTION



PROJECT SCOPE OF WORK:

- Design and construction of road complying with **R2 Standard**
- Design and construction of new **bridges** along the proposed Project alignment complying with **JKR R2**
- The proposed works shall include Design and Construction of the following components but not limited to:
 - Preliminaries
 - Site clearance;
 - Earthworks;
 - Drainage;
 - Structure;
 - Geotechnical;
 - Pavement;
 - Road Furniture;
 - Traffic Management;
 - Environmental;
 - Routine Maintenance; and
 - Miscellaneous.



MEMBINA JALAN DAN JAMBATAN DARI KG. LEMBAGA KE BANDAR LAMA GUA MUSANG, KELANTAN: JADUAL PERANCANGAN

Aktiviti	
Perancangan	22/05/2023 13/07/2023
Rekabentuk	13/07/2023 29/11/2024
Penyerahan Lukisan Lengkap Tender oleh HOPT kepada HODT Ukur Bahan	18/10/2024 18/10/2024
Penyerahan Senarai Kuantiti dan Dokumen TTD oleh HODT Ukur Bahan kepada HOPT	01/11/2024 01/11/2024
Penyerahan Lukisan Lengkap Tender dan Dokumen TTD oleh HOPT kepada Pejabat Sedia Tender	15/11/2024 15/11/2024
Penerimaan Set Lukisan Lengkap Tender dan Dokumen TTD dari HOPT	29/11/2024 29/11/2024
Perolehan	29/11/2024 26/05/2025
Tarikh Iklan	31/12/2024 31/12/2024
Surat Kepada Lembaga Tender	28/02/2025 28/02/2025
Makluman keputusan Lembaga Tender	28/04/2025 28/04/2025
Surat Setuju Terima	26/05/2025 26/05/2025
Pembinaan	26/05/2025 24/06/2027
Perakuan Siap Kerja	24/06/2027 24/06/2027
Serahan	24/06/2027 29/09/2028

Aktiviti	
Penyerahan Projek Kepada Pelanggan	16/09/2027 16/09/2027
Perakuan Baiki Kecacatan	29/09/2028 29/09/2028

6.0 EXISTING ENVIRONMENT

TOPOGRAPHY

- the proposed project is located on flat and hilly area.
- Based on slope analysis, overall, the project site located on Slope Class I until IV.
- The elevation ranges from as low as 80 m to as high as 128 m.

LANDUSE

- At present, proposed project is surrounded by residential areas, commercial areas, agriculture area, river, forest area, institution and other facilities
- The nearest sensitive receptors of the project site are residential area, mosque and school that might be affected by the project.
- Proposed project also crossing Sungai Galas with justification to control development along the river banks

GEOLOGY

- The proposed project located in the Triassic and Permian - Triassic category.
- The project site is located on *Rengam - Jerangau* soil type category

CLIMATE

- Rainfall, raindays and humidity data recorded at Lembaga Kemajuan Kelantan Gua Musang station from the year 2017-2023
- Wind Rose Profile is referred with Kuala Krai Station from the year 2014 to 2022.

WATER QUALITY

- Six (6) sampling points are compared with Class IIB NWQS.
- All sampling points are within the range of Class IIB NWQS and WQI standard for river classification.

AIR, GAS, NOISE AND VIBRATION

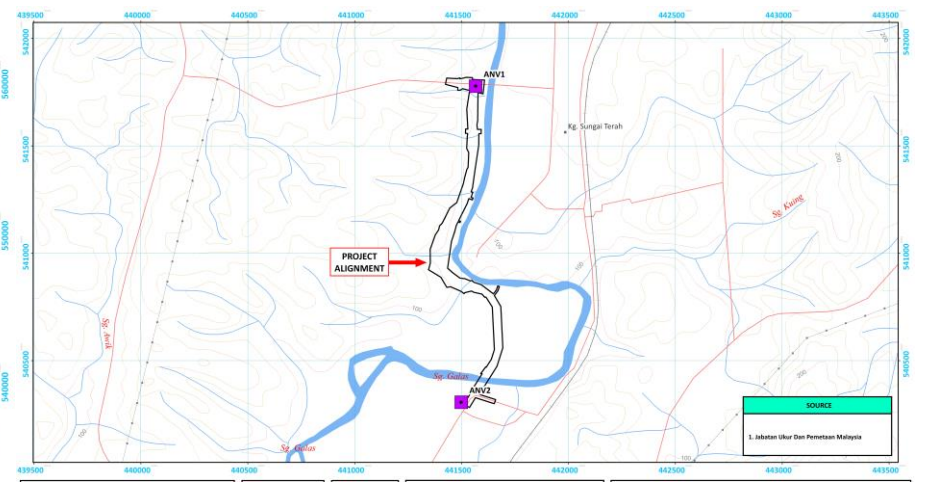
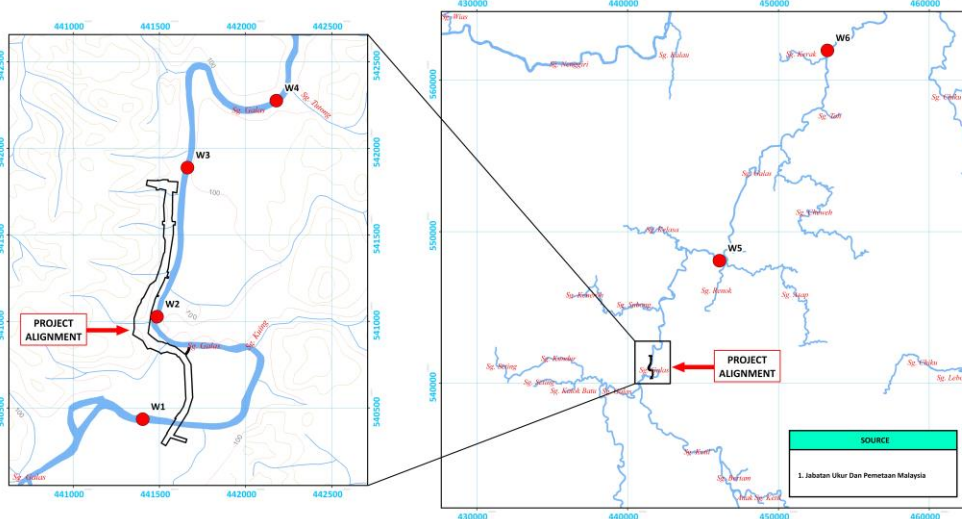
- Two (2) ambient air, gas, noise and vibration samples taken at the sensitive receptors surrounding the project area.
- PM₁₀, PM_{2.5} and gas parameters (SO₂, NO₂ and CO) compared with MAAQS.
- Noise results were compared with Fourth Schedule: Limiting Sound Level (LAeq) From Road Traffic (For New Roads And/Or Redevelopment of Existing Roads).
- Vibration results were compared with Second Schedule: Recommended Vibration Limits for Human Response and Annoyance from Steady State Continuous Vibrations and Third Schedule: Recommended Vibration Limits for Human Response and Annoyance from Intermittent Vibrations

SOCIO-ECONOMY

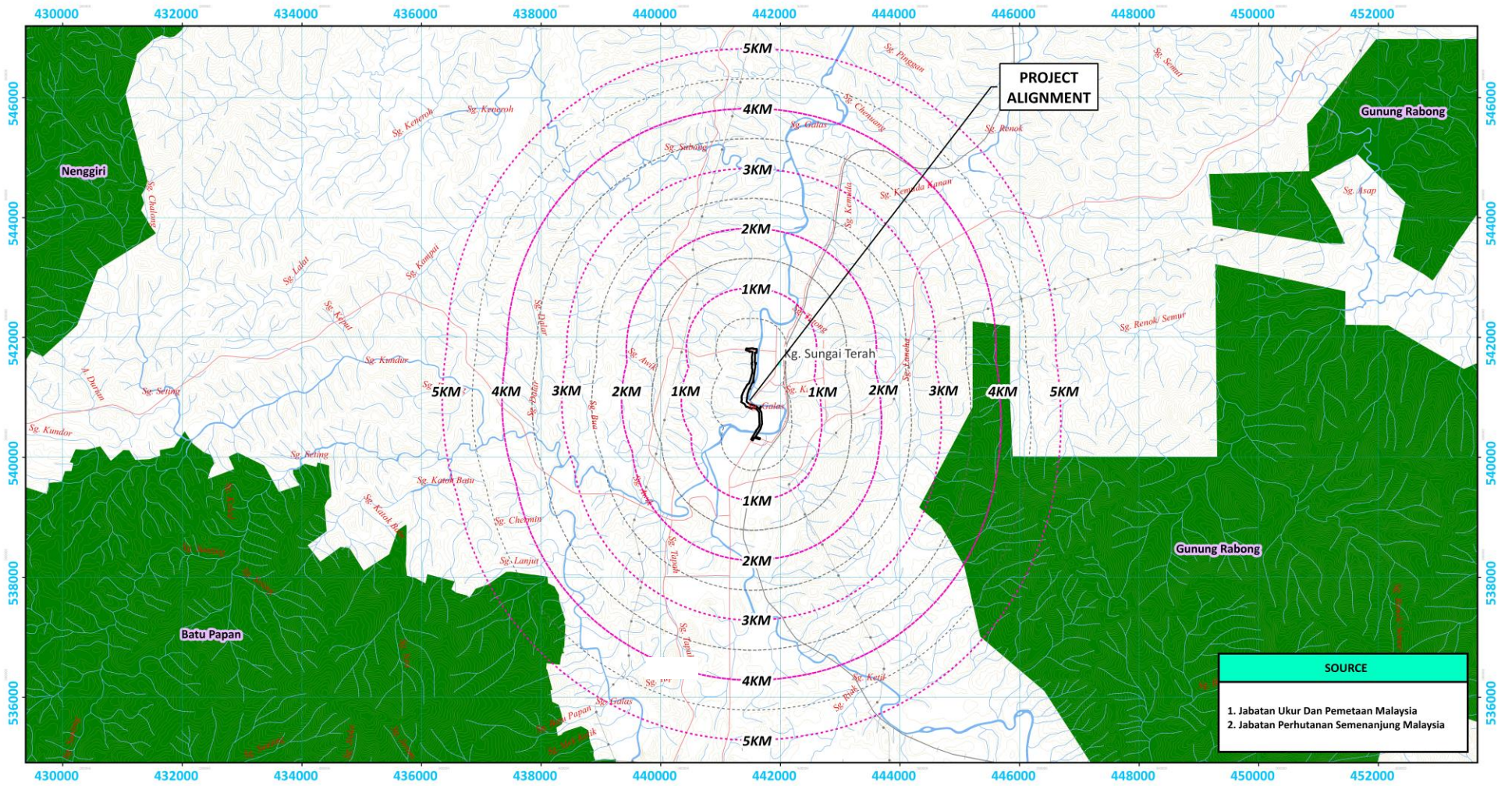
- 104 respondents from settlements and surrounding area were surveyed.
- Most of the respondent give a positive feedback.

LOCATION OF WATER SAMPLING STATION

LOCATION OF AIR, GAS, NOISE AND VIBRATION STATION



ZONE OF INFLUENCE (ZOI) OF THE SOCIO-ECONOMIC STUDY (5 KM)


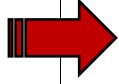


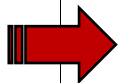


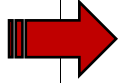






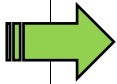


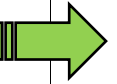


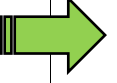





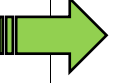

7.0 POTENTIAL IMPACT AND MITIGATION MEASURE

Key:			PROJECT ACTIVITIES													
			SITE INVESTIGATION			INITIAL SITE PREPARATION				CONSTRUCTION, OPERATION AND MAINTENANCE					ABANDONMENT	
			FIELD RECONNAISSANCE	SURVEYING AND MAPPING	SAMPLING	MOBILISATION OF MACHINERY AND EQUIPMENT	ESTABLISHMENT OF TEMPORARY FACILITIES	SITE CLEARING WORKS	EARTHWORK ACTIVITIES	DRAINAGE WORKS	CONSTRUCTION AND RECLAMATION ACTIVITIES	PAVEMENT WORK	UPGRADING THE EXISTING FACILITIES	OPERATION AND MAINTENANCE	ABANDONMENT PLAN	
SYMBOL	IMPACT CLASS															
1	Minor adverse environmental impact															
2	Moderate adverse environmental impact															
3	Major adverse impact															
A	Minor Positive Impact															
B	Major positive impact															
U	Potentially adverse but insufficient information															
N	Insignificant impact															
ENVIRONMENTAL COMPONENT	Water	Water Quality	Sediment Load	N	N	N	1	2	2	2	2	2	2	1	1	1
			Turbidity	N	N	N	N	1	2	2	2	2	2	1	1	1
			Physical/ Chemical/ Biological	N	N	N	N	1	2	2	2	2	2	1	1	1
		Drainage	Channel Morphology	N	N	N	N	1	2	2	2	2	2	1	1	1
			Sedimentation	N	N	N	N	1	2	2	2	2	2	1	1	1
			Drainage Pattern	N	N	N	N	N	2	2	2	2	2	1	1	1
			Localized Flooding	N	N	N	N	N	2	2	2	2	2	1	1	1
	Air	Air Quality	Smoke Emission	N	N	N	1	1	2	2	2	2	2	1	1	1
			Exhaust Emission	N	N	N	1	1	2	2	2	2	2	1	1	1
			Dust Generation	N	N	N	1	1	2	2	2	2	2	1	1	1
			Odour Pollution	N	N	N	1	1	2	2	2	2	2	1	1	1
	Noise & Vibration	Noise & vibration	To Site Worker	N	N	N	1	1	2	2	2	2	2	1	1	1
			To Nearest Settlement	N	N	N	1	1	2	2	2	2	2	1	1	1
			To immediate structure	N	N	N	1	1	2	2	2	2	2	1	1	1
	Waste	Waste generation	Schedule Waste	N	N	N	1	1	2	2	2	2	2	1	1	1
			Solid Waste	N	N	N	1	1	2	2	2	2	2	1	1	1
			Biomass Waste	N	N	N	1	1	2	2	2	2	2	1	1	1
			Hazardous Waste	N	N	N	1	1	2	2	2	2	2	1	1	1
	Traffic	Traffic and Transportation	Traffic Congestion	N	N	N	2	2	2	2	2	2	2	1	1	1
			Damage to Public Road	N	N	N	2	2	2	2	2	2	2	1	1	1
	Biological	Species and Population	Vegetation	N	N	N	2	2	2	2	2	2	2	1	1	1
			Birds	N	N	N	1	1	1	1	1	1	1	1	1	1
			Mammals/ Reptiles / Amphibians	N	N	N	1	1	1	1	1	1	1	1	1	1
Fish and Other Aquatic Life			N	N	N	1	1	1	1	1	1	1	1	1	1	
Soil	Slope Stability	Soil Erosion	N	N	N	1	1	2	2	2	2	2	1	1	1	
Human, socio-economic development	Social-economic	Infrastructure Development	N	N	N							B	B	B	B	
		Income	N	N	N	A	A	A	A	A	A	A	A	A	A	

LD-P2M2

		Sand Bag	
		Silt Trap	
		Earth Drain	

BMPs

		Rubbish bin/ roto bin	
		Water Jet	
		Noise Barrier/ Hoarding	
		Monthly monitoring	
		Debris netting	



8.0 ENVIRONMENTAL MANAGEMENT PLAN (EMP)

ACTIVITY	REGULATED PARAMETERS	GUIDELINES	APPLICABLE STANDARDS	MONITORING LOCATIONS	FREQUENCIES
Water Quality (Discharge from silt trap)	Total Suspended Solid (TSS) Turbidity	National Water Quality Standards (NWQS) for Malaysia	<ul style="list-style-type: none"> • 50 mg/L • 50 NTU 	Outlet of silt trap	Every month and after 12.5 mm of heavy rainfall
Water Quality	pH Biochemical Oxygen Demand (BOD) Chemical Oxygen Demand (COD) Dissolved Oxygen (DO) Oil & grease Total Suspended Solids (TSS) Ammoniacal Nitrogen (NH ₃ -N) Turbidity E.coli	National Water Quality Standards (NWQS) for Malaysia Class IIB	pH - 6 - 9 BOD - 3 mg/I COD - 25 mg/I DO - 5 - 7 mg/l O&G – 7000: N TSS - not greater than 50 mg/I AN - not greater than 0.3 mg/I Turbidity – not greater than 50 NTU E. coli - not greater than 400 count/ 100 ml	6 locations along Sungai Galas	Monthly
Air quality	PM ₁₀ PM _{2.5}	Malaysia Ambient Air Quality Standard (MAAQS) (Standard 2020)	100 µg/m ³ 35 µg/m ³	Two (2) locations at nearest sensitive receptor	Quarterly
Noise	LAeq	Guidelines for Environmental Noise Limits and Control, Third Edition (2021) - Fourth Schedule: Limiting Sound Level (LAeq) From Road Traffic (For New Roads And/Or Redevelopment of Existing Roads)	Suburban and Urban Residential (Medium Density) <ul style="list-style-type: none"> • Day time less than 65 dBA • Night time less than 60 dBA 	Two (2) locations at nearest sensitive receptor	Quarterly
Vibration	Peak Particle Velocity	Guidelines for Vibration Limits and Control Third Edition, 2021 - Second Schedule: Recommended Vibration Limits for Human Response and Annoyance from Steady State Continuous Vibrations	Residential Daytime 0.2 mm/s to 0.4 mm/s Night time 0.2 mm/s	Two (2) locations at nearest sensitive receptor	Quarterly and during piling operation