

KERJA-KERJA NAIK TARAF SISTEM AGIHAN BEKALAN AIR DAN KERJA PEMASANGAN PAIP DI BUKIT TREH, MUAR, JOHOR YANG TERDIRI DARIPADA:-
A. 1 UNIT RUMAH PAM B. 2 UNIT KOLAM MENARA DI ATAS LOT PTD 2243 DAN PTD 4506, MUKIM SUNGAI TERAP, DAERAH MUAR, JOHOR DARUL TAKZIM
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- Consistent and reliable access to safe water for nearby communities, particularly those facing unstable or insufficient supply.
- Access to clean water reduces the risk of waterborne diseases such as cholera, typhoid fever, and diarrhea, which are major causes of illness.
- Access to reliable water sources is essential for small businesses, and other economic activities.
- Promotes social equity by improving access to clean water for marginalized and remote communities.

First Schedule Activity 13 DEVELOPMENT IN SLOPE AREA:

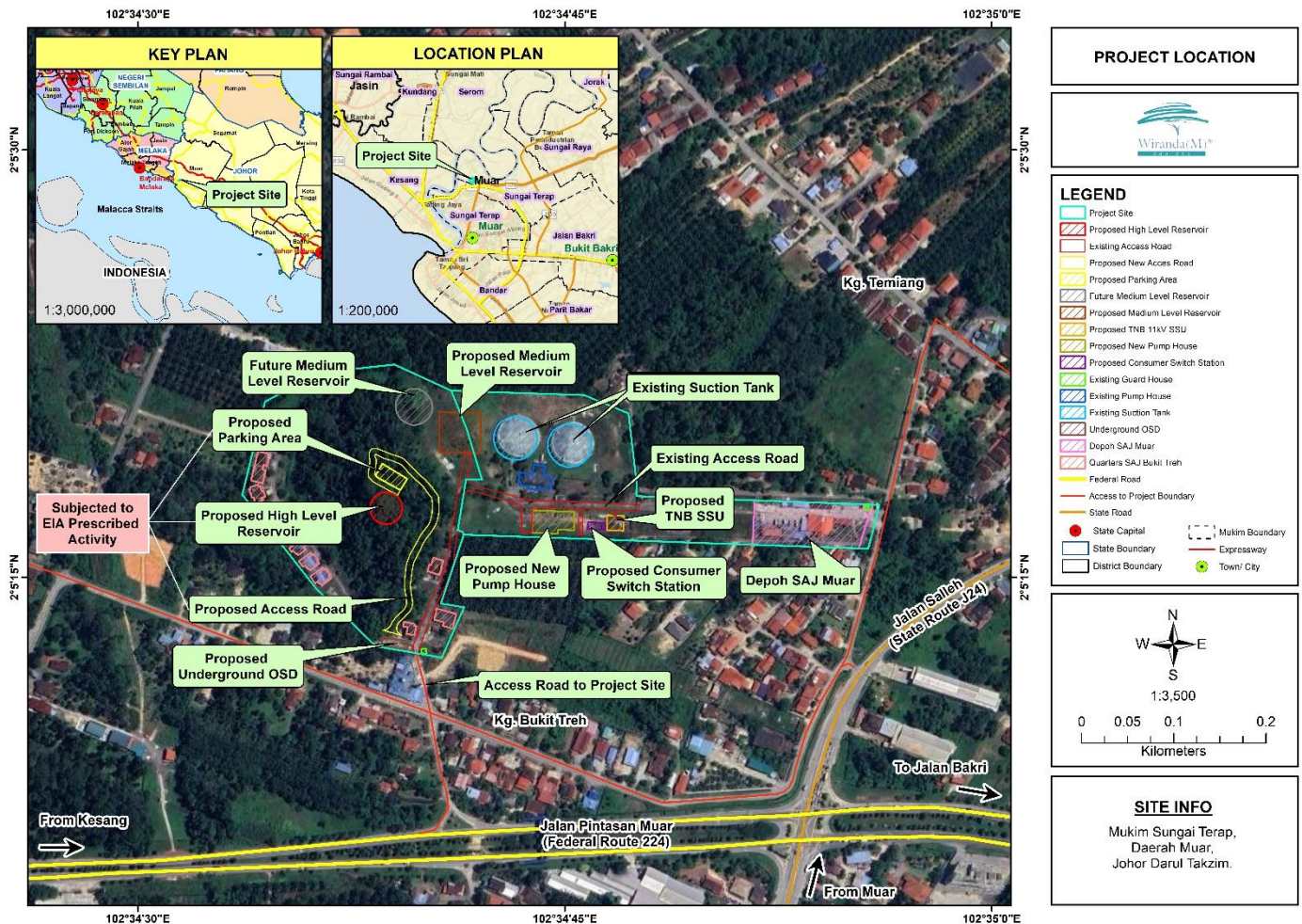
- Development or land clearing less than 50 per cent of an area with slope greater than or equal to 25° but less than 35°



PROJECT PROPONENT	WATER OPERATOR	LEAD CONSULTANT	EIA CONSULTANT
 PENGURUSAN ASET AIR BERHAD Level 20, Menara FELDA, Platinum Park, No 11, Persiaran KLCC, 50088 Kuala Lumpur	 Ranhill SAJ RANHILL SAJ SDN BHD Jalan Garuda, Larkin, 80350 Johor Bahru, Johor Darul Takzim	 GHAZALI & ASSOCIATES SDN. BHD. No. 44-1, Jalan 27/70A, Desa Sri Hartamas 50480 Kuala Lumpur	 WIRANDA (M) SDN. BHD. 3374, Jalan 18/31, Taman Sri Serdang, 43300 Seri Kembangan, Selangor Darul Ehsan

EXECUTIVE SUMMARY
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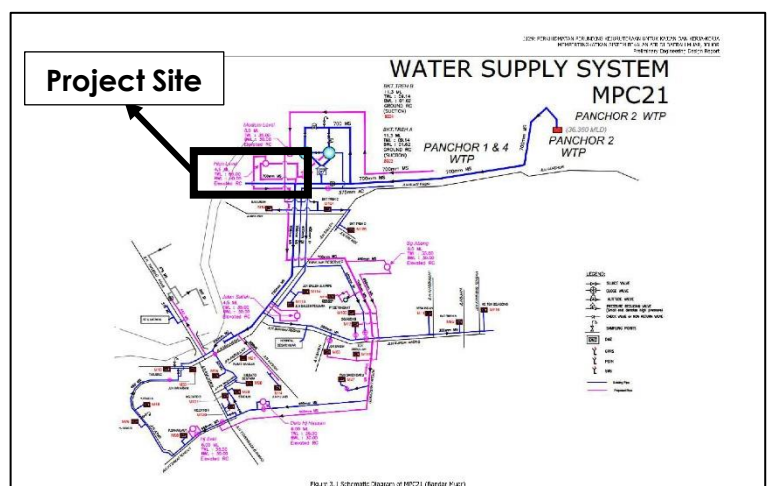


PROJECT LOCATION

- Lot PTD 2243 and Lot PTD 4506 in Mukim Sungai Terap, District of Muar, Johor. Located within Ranhill SAJ lot boundary.
- Approximately 5 km from Muar Town.
- Coordinate point : N 2° 5'18.02" E 102°34'38.62"

PROJECT CONCEPT

The overall system is supplied by Panchor Water Treatment Plants (WTPs), namely Panchor 1, 2, and 4, which deliver treated water through large-diameter trunk mains (e.g., 700 mm MS pipelines). This water is conveyed to primary storage facilities such as the Bukit Treh reservoirs, which act as major balancing reservoirs.



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No	Project Component	Unit	Area	Subjected to EIA Prescribed Activity
Lot PTD 2243				
1	Elevated water reservoir with storage capacity 4.5 ML – to be constructed on top of the hill at platform level of 33 m with a structure height of 20 m	1	927 m2	✓
2	Access road to the elevated water reservoir at the top of the hill including roadside drain	-	708 m2	✓
3	Parking area beside the elevated water reservoir on the hill	-	251 m2	✓
4	Underground on-site detention (OSD)	1	247.5 m2	
Lot PTD 4506				
5	New pump house	1	985 m2	
6	Consumer switch station	1	102 m2	
7	TNB SSU	1	255 m2	
Lot PTD 2243 & Lot PTD 4506				
8	Elevated water reservoir with storage capacity of 8 ML – to be constructed on flat ground with a structure height of 30 m	1	1964 m2	

PROJECT ACTIVITIES

The activities involved can be categorized under three (3) distinct stages, namely pre-construction stage, construction stage, and post-construction stage.

Pre - Construction

- Topographical survey,
- Site survey,
- Investigation on-site comprises site reconnaissance in particular immediate and surrounding land use, residential locations and the monitoring of environmental resources
- Other field investigations

Construction

- Mobilization of workers & equipment
- Site clearing and site preparation
- Demolishing of old water tank
- Installation of initial erosion & sediment controls
- Earthworks (excavation/ cut & fill) and platform formation
- Slope stabilization works
- Construction of water tank, new pump house, TNB SSU, consumer switch station
- Electrical and mechanical works
- Permanent drainage works
- Construction of access road and parking lot
- Disposal of construction waste
- Landscaping

Post-construction

Operation and site maintenance works

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EXISTING ENVIRONMENT

TOPOGRAPHY

- Elevation : 3m to 35m
- Terrain Gradient Analysis:

Slope degree	Percentage (%)
0° – 5°	75.40
6° – 15°	7.64
16° – 25°	4.82
26° – 35°	8.67
36° – 60°	3.47

WATER QUALITY

- Ten (10) sampling points were selected flowing from the drain near the Project site to Sg Muar

SAMPLING STATION	WQI	CLASS	STATUS
WQ 1	79.58	II	Slightly Polluted
WQ 2	50.90	IV	Polluted
WQ 3	53.04	III	Polluted
WQ 4	56.52	III	Polluted
WQ 5	82.28	II	Clean
WQ 6	82.94	II	Clean
WQ 7	82.08	II	Clean
WQ 8	75.33	III	Slightly Polluted
WQ 9	62.75	III	Slightly Polluted
WQ 10	65.12	III	Slightly Polluted

AMBIENT AIR QUALITY

- 3 sampling stations
- All sampling points complied with the limits prescribed in the New Malaysia Ambient Air Quality Standard 2020

NOISE LEVEL

- 3 sampling stations
- The results show that the baseline LAeq ranged between 59.2 dBA to 62.2 dBA for daytime.
- For night-time, the LAeq ranged between 51.7 dBA to 58.9 dBA.

VIBRATION

- 3 sampling stations
- The reading range for z-axis (vertical direction) during daytime (0.180 – 0.240 mm/s), while during night time (0.056 – 0.112 mm/s) respectively.

SOIL EROSION

- The soil erosion is found to be low due the project site is fully cover with secondary forest trees (Sub-catchment 1) and grass cover (Sub-catchment 2).

HYDROLOGY

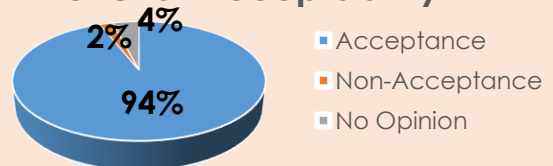
- No natural stream found within the proposed project site.
- An existing concrete drainage system is already present within the project area currently serves the pump house compound and conveys stormwater runoff from the developed areas into the main drainage system located along the eastern boundary of the site.
- The stormwater from the project site will be discharge into the existing drainage system outside the boundary of the project and enters the road side drain along Jalan Bukit Treh before it finally discharge into Sungai Muar

GEOLOGY

- The proposed development site is underlain by a sequence of sedimentary rocks belonging to the Semantan Formation and Quaternary deposits of the Gula Formation.
- The Semantan Formation is predominantly distributed within the hilly areas, whereas the Gula Formation occurs in the flat terrain.
- The rocks of the Semantan Formation consist mainly of interbedded sandstone, siltstone, and shale.
- Based on field observations, the terrain has undergone significant weathering, ranging from completely weathered rock to residual soil (Grade V–VI).

SOCIO ECONOMY

Level of Acceptability



FLORA

- Altogether, 83 species within 67 genera and 36 families were recorded in the floral survey.

FAUNA

- A total of 10 species of mammals belonging to 7 families were recorded.
- A total of 19 species of herpetofauna belonging to 11 families were recorded.
- A total of 30 species of birds belonging to 21 families were recorded.

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POTENTIAL IMPACTS & MITIGATION MEASURES

SOIL EROSION & SEDIMENTATION

POTENTIAL IMPACTS

- Soil erosion and sedimentation will occur during site clearing and earthwork activities
- Reduce river depth/drain capacity



MITIGATION MEASURES

- Scheduling of the development.
- Installation of BMPs such as silt trap, silt fence, temporary earthdrain, turfing, etc.



Silt Trap



Turfing



Hoarding



Silt Fence



Check Dam



POTENTIAL IMPACTS

- Slope Instability and Localized Landslide Risk
- Increased Soil Erosion and Loss of Residual Soil



GEOTECHNICAL

MITIGATION MEASURES

- Slope Stabilization and Earthwork Control
- Proper drainage system and regular maintenance

POTENTIAL IMPACTS

- Soil erosion and sedimentation
- Accidental spillage of skid tank, oil & grease
- Surface runoff contamination such as sand, cement particle



WATER QUALITY

MITIGATION MEASURES

- Installation of BMPs such as silt trap, silt fence, temporary earthdrain, etc.
- Regular maintenance for machineries
- Provide containment bund for skid tank
- Water quality monitoring program

POTENTIAL IMPACTS

- Biomass
- Construction & domestic waste
- Scheduled waste



WASTE MANAGEMENT

MITIGATION MEASURES

- No open burning.
- Provide domestic waste bins.
- Proper storage area.
- Proper waste management according to SW regulations

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POTENTIAL IMPACTS & MITIGATION MEASURES

AIR QUALITY, NOISE & VIBRATION

POTENTIAL IMPACTS

- Vehicle exhaust and fugitive dust from site clearing and earthworks
- Noise & vibration generation during construction work
- Nuisance to nearby community



MITIGATION MEASURES

- Install hoardings (if necessary) around the construction areas
- The wheels and tyres of vehicles must be washed free from silt and mud
- Vehicle speeds should be limited
- To implement air, noise & vibration monitoring programme
- Vehicles, on-site machine & equipment must be well maintained

HYDROLOGY

POTENTIAL IMPACTS

- The increased of surface run-off during earthwork activities



MITIGATION MEASURES

- Installation of BMPs such as silt trap, silt fence, temporary earthdrain, etc
- Regular inspection and maintenance of all drainage systems

TRAFFIC

POTENTIAL IMPACTS

- Increase in the number of heavy vehicles plying the roads during construction stage



MITIGATION MEASURES

- Regular maintenance of access road
- Flagmen need to be stationed at the access road junction
- Lorries carrying raw material should be covered with tarpaulin to prevent spillage

SOCIO-ECONOMY

POTENTIAL IMPACTS

- Job & business opportunities
- Foreign workers
- Noise nuisance & air pollution



MITIGATION MEASURES

- Priority locals for employment opportunities
- All foreign workers must undergo FOMEMA Medical Examinations
- Residents shall be notified first before any site works to allow them to prepare themselves.
- Workers must be given adequate instructions, training, and information on the proper work procedures.

ECOLOGY

POTENTIAL IMPACTS

- Habitat transformation
- Wildlife-human conflict



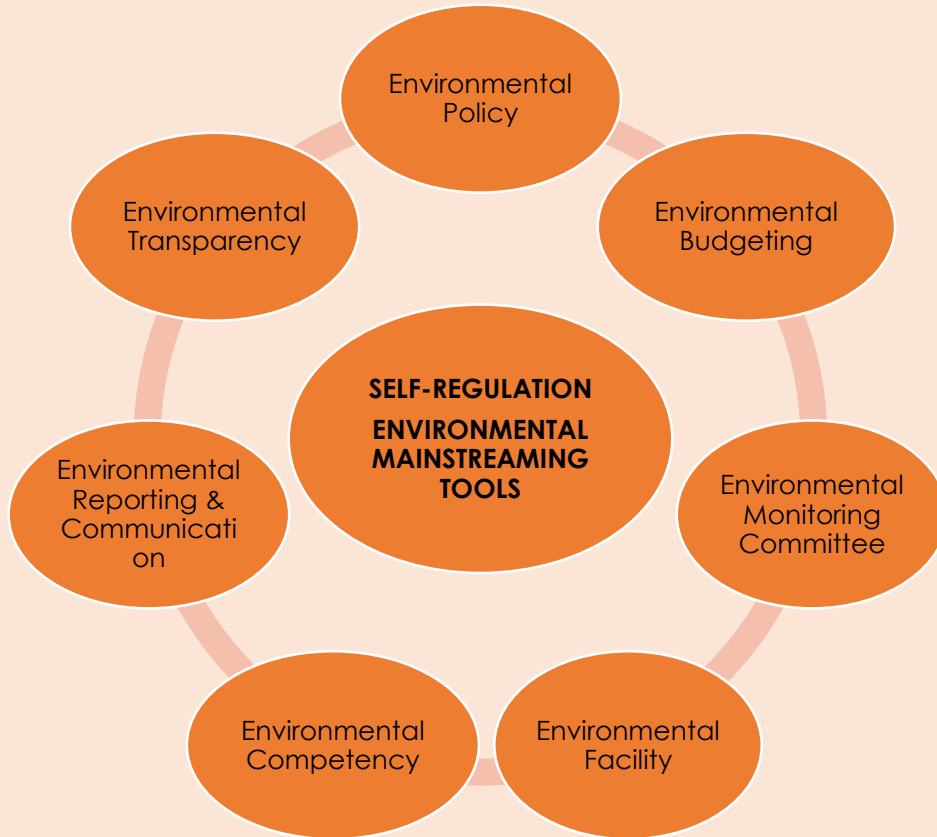
MITIGATION MEASURES

- The impacts on ecology aspect is very minimal

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ENVIRONMENTAL MANAGEMENT PLAN (EMP)



ENVIRONMENTAL MONITORING PROGRAMME

To provide a database against environmental impacts of the project.

To provide an early indication if any environmental control measures fail to achieve the acceptable standard.

AUDIT PROGRAMME

Represent efforts to monitor the implementation of environmental protection measures by the contractor.

Provision of third party environmental auditor.

REMEDIAL ACTION

EMP consists of measures that are proposed to mitigate potential adverse impacts through guidelines/procedures to be followed in compliance with the regulations imposed by the authorities.

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PERFORMANCE MONITORING (PM)

LD-P2M2 TOOLS	PARAMETERS	RECOMMENDED LIMITS	FREQUENCY
Silt trap	Structure and performance	-	Weekly and after 12.5 mm rainfall
Check dam, silt fence, temporary earthdrain	Sediment level Structure and performance	-	Quarterly
Hoarding	Structure and performance		
Wash trough	Sediment level		
Stabilized Construction Access	Structure and performance	-	

COMPLIANCE MONITORING (CM)

COMPONENTS	PARAMETERS	COMPLIANCE LIMITS	FREQUENCY
Water Quality (Discharged from silt trap)	Total suspended solids (TSS)	50 mg/l	Monthly or after 12.5mm rainfall
	Turbidity	250 NTU	

IMPACT MONITORING (IM)

COMPONENTS	PARAMETERS	COMPLIANCE LIMITS	MONITORING LOCATIONS	FREQUENCY
Air quality	PM ₁₀	100 µg/m ³	Three (3) monitoring location	Quarterly
	PM _{2.5}	35 µg/m ³		
Noise level	L _{aeq} , L ₁₀ , L ₉₀ , L _{min} , L _{max} ,	Day 65 dBA Night 60 dBA		Quarterly
Vibration	PPV	Daytime - 0.8 mm/s to 1.6 mm/s Nighttime – 0.4 mm/s		Quarterly
Water quality	TSS	50 mg/l	Six (6) monitoring location	Monthly
	Turbidity	50 NTU		
	DO	5-7 mg/l		
	BOD	3 mg/l		
	COD	25 mg/l		
	NH3-N	0.3 mg/l		
	pH	6-9		
	Temperature	-		
	Oil & grease	7;N		
	Feacal Coliform	50 NTU		