

Executive Summary

FIRST SCHEDULE ENVIRONMENTAL IMPACT ASSESSMENT (S1EIA) FOR “PEMBANGUNAN SEMULA KEMUDAHAN INFRASTRUKTUR PELANCONGAN DI TAMAN HERBA (BERKELUASAN 1.0 HEKTAR), PULAU SAH KECIL, TASIK KENYIR, TERENGGANU”

Project Owner, Project Proponent and Environmental Consultant

PROJECT OWNER



LEMBAGA KEMAJUAN TERENGGANU TENGAH (KETENGAH)
Beg Berkunci No. 3
23409 Al-Muktafi Billah Shah
Terengganu Darul Iman
Telephone No.: +609 823 1000
Contact person: En Mohd Hafiz bin Ahmad (*Pengurus Zon Bebas*)
Email: hafiz@ketengah.gov.my

HEAD OF PROJECT TEAM (HOPT)



Jurutera Awam Penguasa Kanan
Bahagian Pengurusan Projek 3
Cawangan Kerja Bangunan Am 2
Ibu Pejabat JKR Malaysia
Tingkat 16, Menara PJD
No. 50, Jalan Tun Razak
50400 Kuala Lumpur
Telephone No.: +603 4051 8224
Contact person: Ir. Julaila binti Mansor
Email : julaila@jkr.gov.my

LEAD HEAD OF DESIGN TEAM (HODT)



Arkitek Penguasa Kanan
Bahagian Seni Bina Bangunan Am 1
Cawangan Arkitek
Ibu Pejabat JKR Malaysia
Aras 10, Menara Tun Ismail Mohamed Ali
Jalan Raja Laut
50350 Kuala Lumpur
Telephone No.: +603 2616 5138
Contact person: Ar. Mohammad Zaid bin Saad
Email: mzaid@jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Jurutera Awam Penguasa Kanan
Bahagian Bangunan Am 2
Cawangan Kejuruteraan Awam & Struktur
Tingkat 10, Menara Kerja Raya Blok G
Ibu Pejabat JKR Malaysia
No.6, Jalan Sultan Salahuddin
50480 Kuala Lumpur
Telephone No.: +603 2618 9003
Contact person: Ir. Wan Hidayatul Hak binti Wan
Jusoh
Email: whidayatul@jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Jurutera Awam Penguasa Kanan
Bangunan Am & Keselamatan (Sivil)
Cawangan Kejuruteraan Awam & Struktur
Tingkat 4-10&17, Blok G
Ibu Pejabat JKR Malaysia
No. 6, Jalan Sultan Salahuddin
50480 Kuala Lumpur
Telephone No.: +603 2618 9020
Contact person: YM. Raja Nazaruddin bin Raja Zainal
Email: mnazar@jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Jurutera Mekanikal Penguasa Kanan
Bahagian R/B Bangunan Am 2
Cawangan Kejuruteraan Mekanikal
Tingkat 25, Blok G
Ibu Pejabat JKR Malaysia
No.6, Jalan Sultan Salahuddin
50480 Kuala Lumpur
Telephone No.: +603 2618 9409
Contact person: Ir. Arbaah binti Abu
Email: arbaahabu@jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Juruukur Bahan Penguasa Kanan
Unit Perunding R/B Bangunan Am 2
Cawangan Kejuruteraan Elektrik
Ibu Pejabat JKR Malaysia
Tingkat 11, Blok G
No. 6, Jalan Sultan Salahuddin
50480 Kuala Lumpur
Telephone No.: +603-2616 5590
Contact person: Sr Nor Hasni Binti Muhd Supian
Email: norhasni @jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Juruukur Bahan Penguasa Kanan
Bahagian Bangunan Am 2
Cawangan Kontrak dan Ukur Bahan
Aras 18, Menara Tun Ismail Mohd Ali
No. 25, Jalan Raja Laut
50350 Kuala Lumpur
Telephone No.: +603 2616 5333
Contact person: Sr Salina binti Che Ali, PQS
Email: salinaca@jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Jurutera Awam Penguasa Kanan
Cawangan Kejuruteraan Geoteknik
Ibu Pejabat JKR Malaysia
Aras 23A, Menara PJD
No. 50, Jalan Tun Razak,
50400 Kuala Lumpur
Telephone No.: +603 2859 8532
Contact person: Ir Eng Boon Cheng
Email: bcheng@jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Arkitek Penguasa Kanan
Bahagian Pengurusan Projek (Bangunan)
Cawangan Alam Sekitar & Kecekapan Tenaga
Ibu Pejabat JKR Malaysia
Aras 23, Menara PJD
No. 50, Jalan Tun Razak,
50400 Kuala Lumpur
Telephone No.: +603 2859 6029
Contact person: Zulhisham bin Mohamed
Email: zulhishamm@jkr.gov.my

HEAD OF DESIGN TEAM (HODT)



Pengarah SME
Cawangan Kejuruteraan Elektrik
Ibu Pejabat JKR Malaysia
Tingkat 11, Menara Kerja Raya (Blok G)
Jalan Sultan Salahuddin
50480 Kuala Lumpur
Telephone No.: +603 2618 9850
Contact person: Ir Siti Nor binti Hassan
Email: sitinor@jkr.gov.my

EIA CONSULTANT



Chemsain Konsultant Sdn. Bhd.
Lot PT 21702, Kaw. Perindustrian Jakar 2
Jln Kubang Kurus
24000 Kemaman Terengganu
Telephone No.: + 609 8581 396
Contact person: Marina Roland Nawe (CEP-CS0183)
Email: marina.roland@chemsain.com

Legislative Requirement

Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 :

First Schedule – Activity No. 13: Development in Slope Area

Development or land clearing less than 50 percent of an area with slope greater than or equal to 25° but less than 35° .

Statement of Need

1

It is one of the projects approved under the Twelfth Malaysia Plan (RMke-12)

2

It is part of upgrade existing tourism products or attractions programme, outlined in Strategy 2— Empowering Rural Tourism Economic Development— under Strategic Core 1 of the Pelan Perancangan Strategik KETENGAH (2021–2025)



Legend:

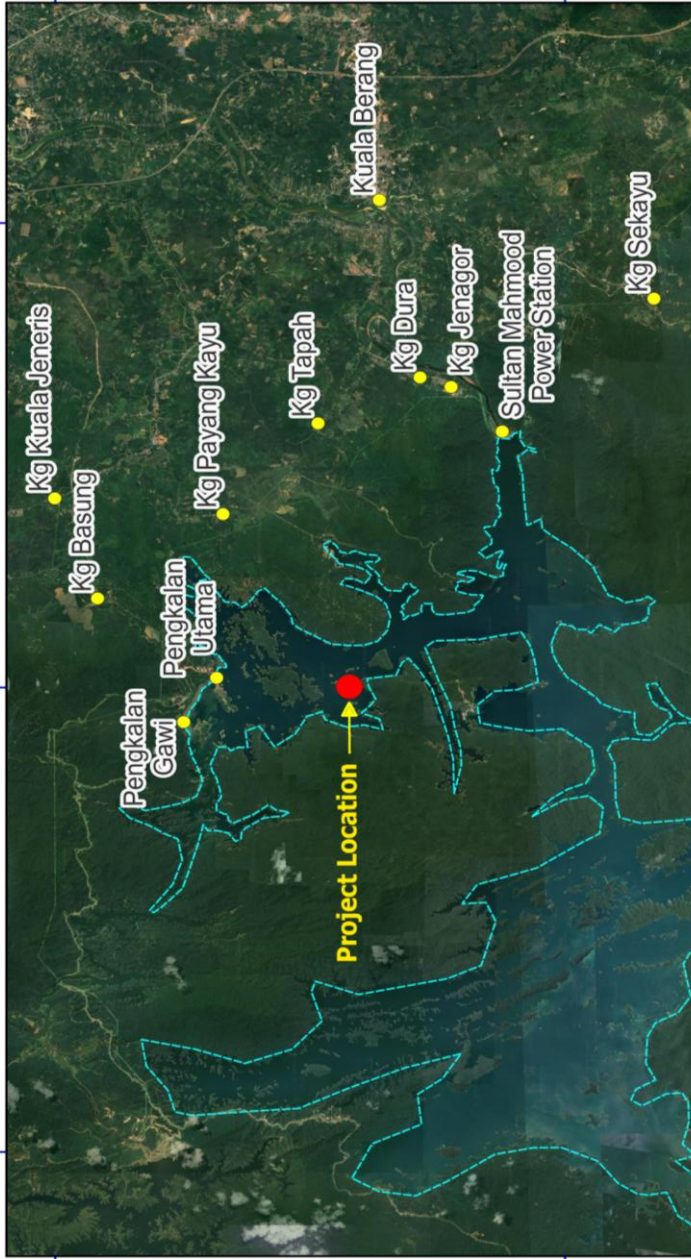
- Project Boundary
- Kenyir Lake

ID	Latitude	Longitude
1	5°05'07.09"N	102°47'59.07"E
2	5°05'06.53"N	102°47'57.99"E
3	5°05'04.40"N	102°47'58.73"E
4	5°05'03.85"N	102°48'01.10"E
5	5°05'07.15"N	102°47'59.94"E



Scale 1 : 300,000 – A4
Source : Adapted from Google Earth 2024.

Project Location



Distance	
Name	To Project Site
Pengkalan Gawi	7.5 Km
Pengkalan Utama	6 Km
Sultan Mahmood Power Station	14 Km
Kuala Berang	23 Km
Kg Bidung	12 Km
Kg Kuala Jeneris	16 Km
Kg Payang Kayu	10 Km
Kg Tapah	13 Km
Kg Dura	15 Km
Kg Jenagor	15 Km
Kg Sekayu	23 Km

Project Concept

The Project, an initiative by the Kementerian Kemajuan Desa dan Wilayah (KKDW) under the supervision of JKR Malaysia, involves improvement and upgrading works at Taman Herba, including the following activities:

- A. Demolishment of existing Pusat Interpretasi and rebuilding of a new Pusat Interpretasi.
- B. Improvement of the existing plant plots/landscape at Taman Herba.
- C. Rehabilitation of slope protection at risky areas.

Project Component

Demolishment of the Existing *Pusat Interpretasi* and Rebuilding of A New *Pusat Interpretasi*

The condition of the existing building is becoming worn out.

The new design concept is based on industrial nature.

The new building will consist of two levels i.e. ground level and upper level .

Improvement of the Existing Plant Plots/Landscape at Taman Herba

Aims to further enhance the uniqueness of Taman Herba without involving the felling of existing trees and major clearing and earthworks.

Also includes other landscape elements such as new footpaths, signs and landmarks.

Key Components

Rehabilitation of Slope Protection at Risky Areas

Involves slope reinforcement work at the affect area to improve the Factor of Safety (FOS) at the affected areas.

Reinforced gabion will be installed for slope protection.

Project Schedule

The construction stage is scheduled to be conducted from January 2026 until November 2027.

Pre-Construction Stage

- Surveys – topography and soil
- Final design works
- EIA

Construction Stage

- Mobilisation of construction workers/machineries and provision of temporary facilities
- Site clearing and site preparation
- Earthworks
- Foundation work
- Civil and structural works
- Mechanical works
- Architecture finishing works
- Slope rehabilitation works
- Landscaping works
- Demobilization of workers and temporary facilities

Operation Stage

- Operation and maintenance by the existing Taman Herba management team

Abandonment Stage

- Preparation of Abandonment Plan
- Removal and/or disposal of temporary structures and facilities

Existing Environment

TOPOGRAPHY, GEOLOGY & SOIL

Located at the existing Taman Herba, Pulau Sah Kecil in Tasik Kenyir with elevation ranges between 95 m – 120 m.

Geological condition – acid intrusive.

Soil condition – steepland soil.

FLORA AND FAUNA

Several species with significant conservation status are preserved as the background vegetation inside the Taman Herba.

None of the animals found during survey works are endemic to the Taman Herba.

HYDROLOGY

Located within Kenyir Reservoir.

Sultan Mahmud Power Station is located about 17 km southeast.

Loji Rawatan Air Hulu Terengganu is located about 36 m east from the Project site.

LANDUSE

Located within the existing Taman Herba, Pulau Sah Kecil, Tasik Kenyir.

SOCIO-ECONOMY

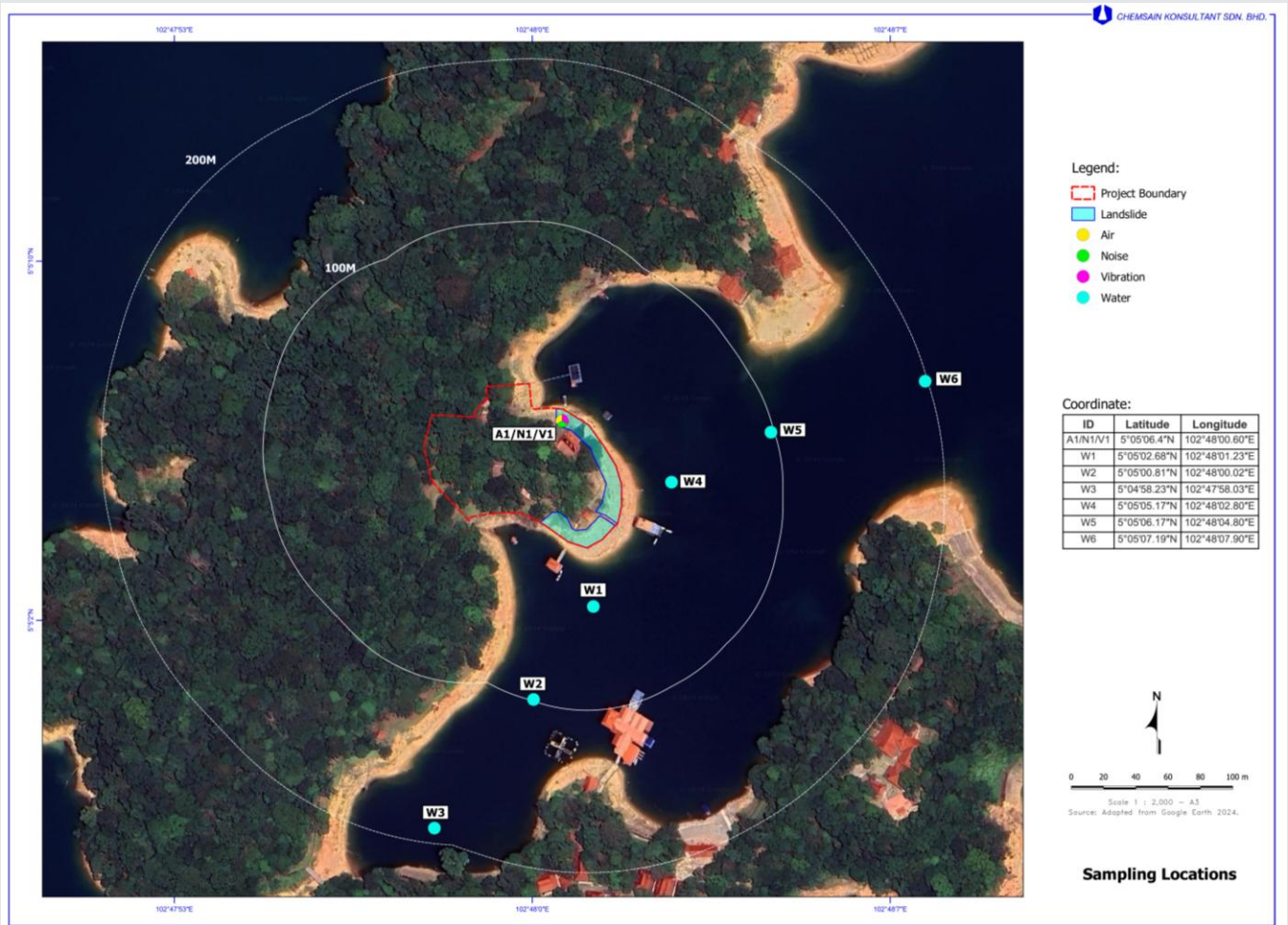
Perception survey and demographic data collection were carried out.

Majority of the respondents supported the Project – community (84%) and tourists (87%).

METEOROLOGY & CLIMATE

The most prevailing wind flows from the southwest. High annual rainfall with relatively uniform high humidity and temperature

Baseline Sampling Location



Summary of Baseline Sampling



- All tested water parameters from six sampling locations complied with Class IIA limits of the National Water Quality Standards for Malaysia (NWQSM) and Category A of the National Lake Water Quality Criteria and Standard (NLWQCS)
- Water Quality Index (WQI) – 93 (Class I-Clean)



- All parameters from one sampling location complied with the Malaysia Ambient Air Quality Standard (MAAQS)



- Noise level during daytime and nighttime at the Project site complied to Schedule 2 of the Guidelines for Environmental Noise Limits and Control (Third Edition 2019) (reprint 2021) limits of 60 dBA (daytime) and 55 dBA (nighttime)



- The peak particles velocity (ppv) for z-axis during daytime and nighttime were well below the vibration limit stipulated in Table A2 in the Standard Specifications for Building Works 2020 published by the JKR Malaysia.

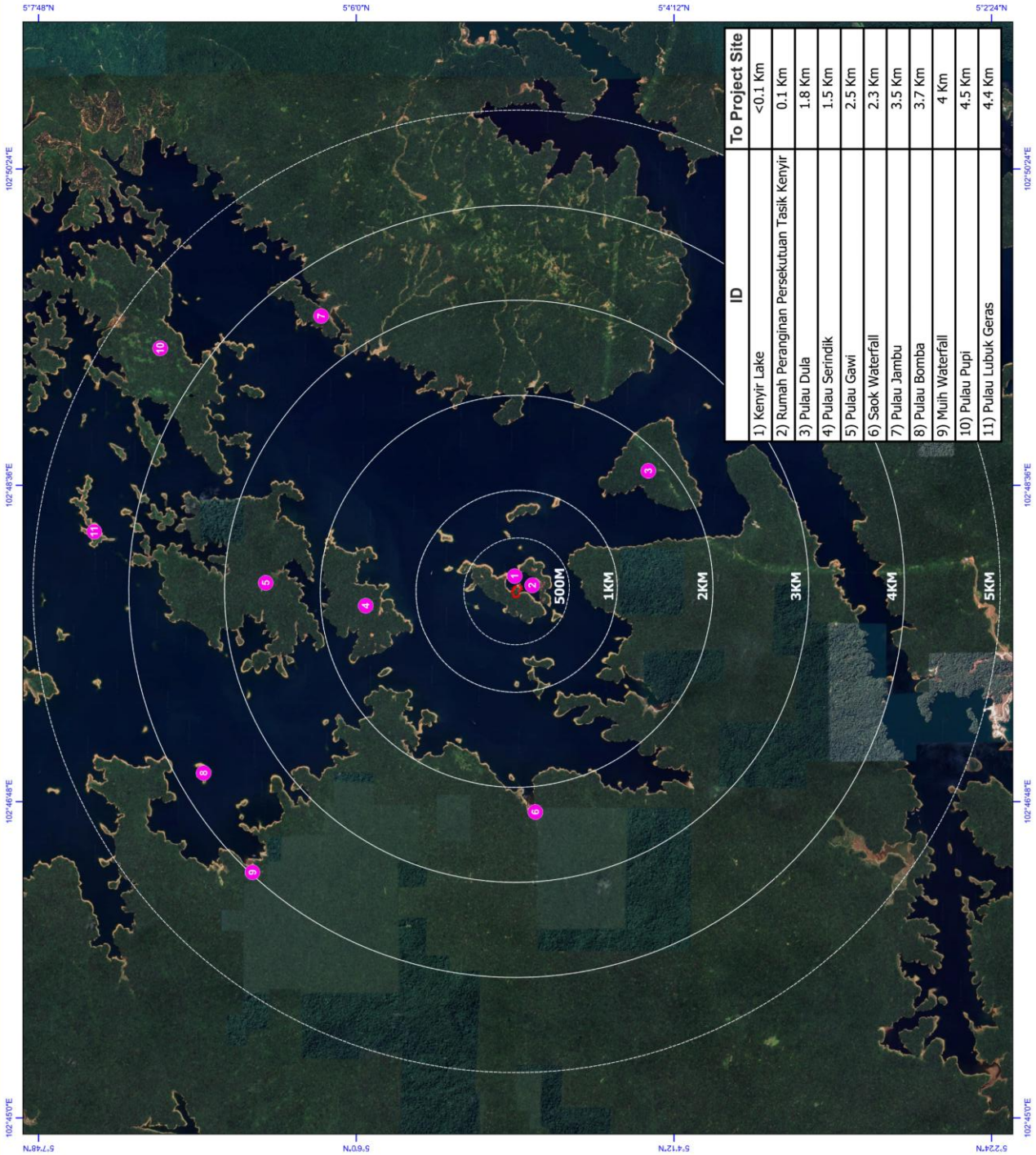
Land Use within 5 km Radius

Legend:
 Project Boundary



Scale 1 : 40,000 – A3
 Source: Adapted from Google Earth, 2024.

Land Use within 5Km Radius



ID	To Project Site
1) Kenyir Lake	<0.1 Km
2) Rumah Peranginan Persekutuan Tasik Kenyir	0.1 Km
3) Pulau Dula	1.8 Km
4) Pulau Serindik	1.5 Km
5) Pulau Gawi	2.5 Km
6) Saok Waterfall	2.3 Km
7) Pulau Jambu	3.5 Km
8) Pulau Bomba	3.7 Km
9) Muih Waterfall	4 Km
10) Pulau Pupi	4.5 Km
11) Pulau Lubuk Geras	4.4 Km

Impact Assessment and Mitigating Measures



WATER QUALITY

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage

- Implement LDP2M2
- Provision of spill kits
- Periodic water quality monitoring

Operation Stage

- Control the use of herbicide and fertilizer

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage

- Open burning is prohibited
- Periodic ambient air monitoring

Operation Stage

- No P2M2 since no significant impact



AIR QUALITY



NOISE

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage

- Safety signage to be installed
- Notify Taman Herba Operation Team about noisy construction activities and construction schedule to minimize level of annoyance
- Periodic noise level monitoring

Operation Stage

- No P2M2 since no significant impact

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage

- Notify Taman Herba Operation Team about noisy construction activities and construction schedule to minimize level of annoyance

Operation Stage

- No P2M2 since no significant impact



VIBRATION

Impact Assessment and Mitigating Measures



BIOLOGICAL ENVIRONMENT

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage

- Proper signage must be installed, and notices must be communicated to contractors and workers to ensure that only the designated working areas are disturbed
- Hunting or killing any endangered, totally protected, or protected species is strictly prohibited

Operation Stage

- Control the use of herbicide and fertilizer controlled

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage and Operation Stage

- Open burning is strictly prohibited
- Establish waste management plan
- Scheduled wastes are managed and handled in accordance with the Environmental Quality (Scheduled Wastes) Regulation, 2005



WASTE GENERATION AND MANAGEMENT



SOCIO-ECONOMIC

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage

- Announcement through project notification sign board installed at the project area
- Establish a grievance mechanism
- Priority for participation and employment to be given to the locals

Operation Stage

- No P2M2

Impact: No significant impact

P2M2:

Pre-Construction Stage

- No P2M2

Construction Stage

- Develop abandonment plan
- Remove all construction materials, machineries and equipment

Operation Stage

- Develop abandonment plan

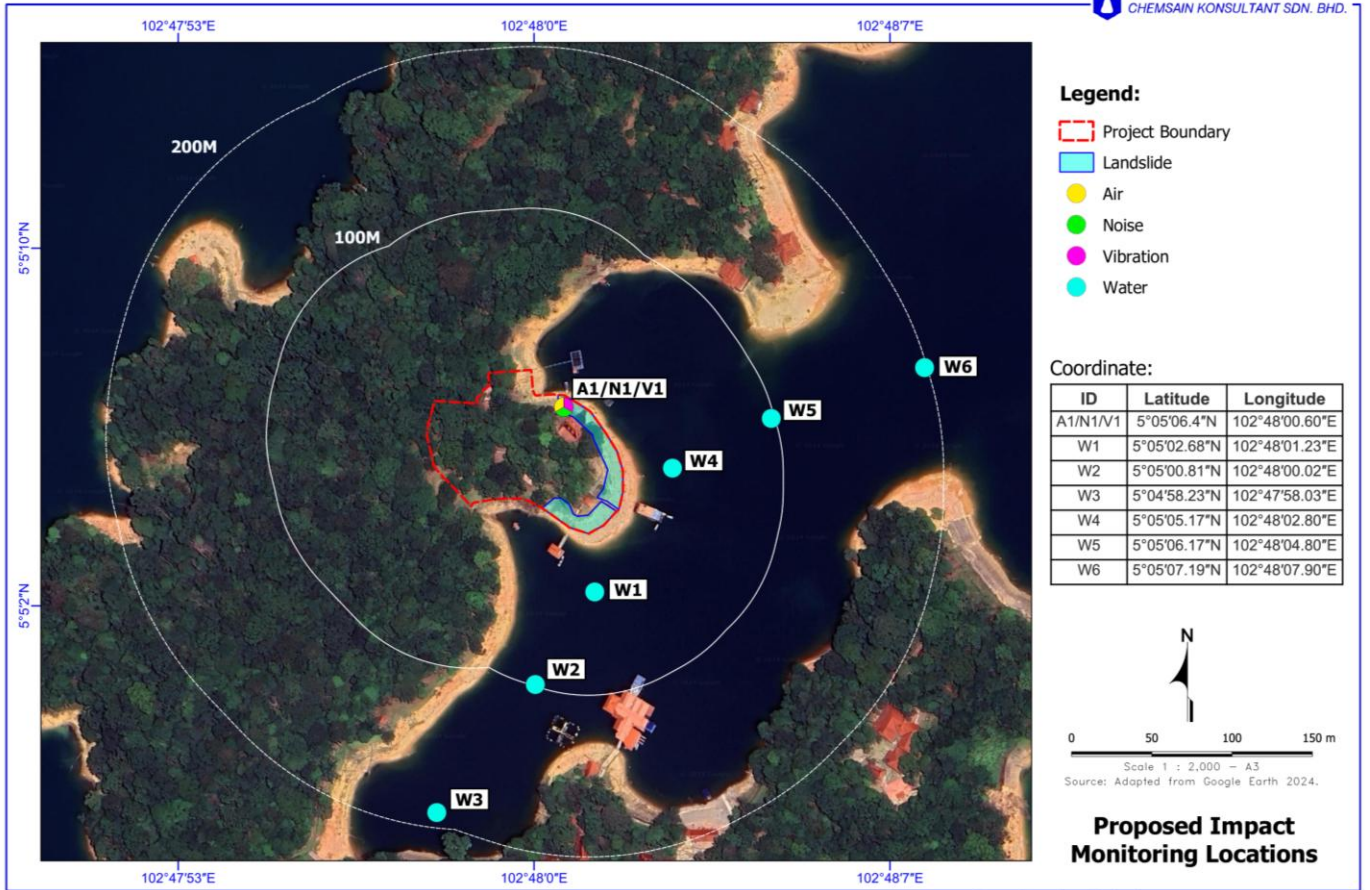


ABANDONMENT

Proposed Environmental Monitoring Programme

PROPOSED IMPACT MONITORING LOCATIONS DURING CONSTRUCTION STAGE

CHEMSAIN KONSULTANT SDN. BHD.

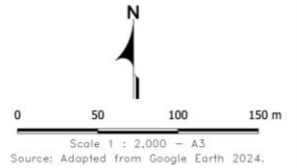


Legend:

- Project Boundary
- Landslide
- Air
- Noise
- Vibration
- Water

Coordinate:

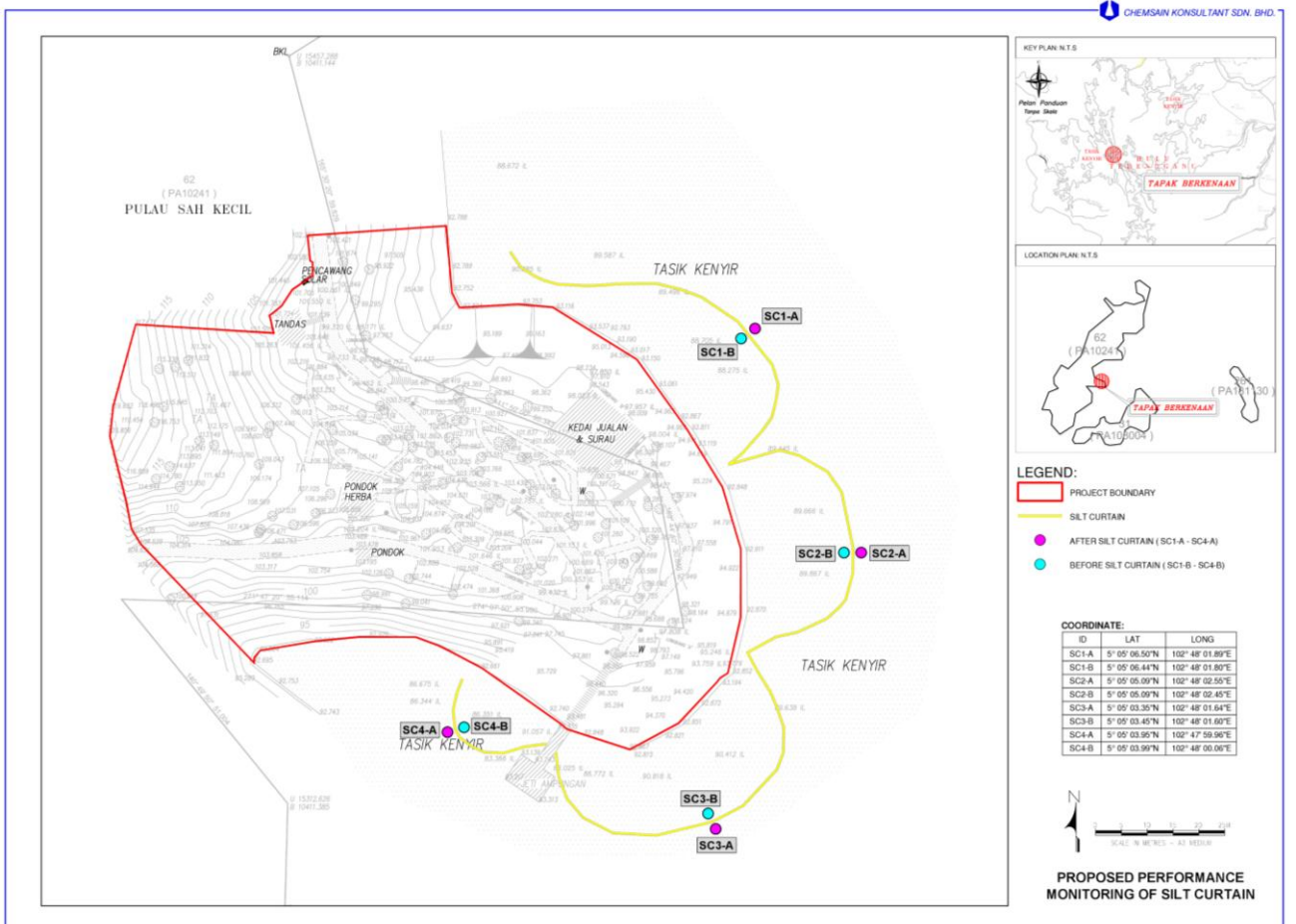
ID	Latitude	Longitude
A1/N1/V1	5°05'06.4\"N	102°48'00.60\"E
W1	5°05'02.68\"N	102°48'01.23\"E
W2	5°05'00.81\"N	102°48'00.02\"E
W3	5°04'58.23\"N	102°47'58.03\"E
W4	5°05'05.17\"N	102°48'02.80\"E
W5	5°05'06.17\"N	102°48'04.80\"E
W6	5°05'07.19\"N	102°48'07.90\"E



Proposed Impact Monitoring Locations

PROPOSED PERFORMANCE MONITORING LOCATIONS DURING CONSTRUCTION STAGE

CHEMSAIN KONSULTANT SDN. BHD.



LEGEND:

- PROJECT BOUNDARY
- SILT CURTAIN
- AFTER SILT CURTAIN (SC1-A - SC4-A)
- BEFORE SILT CURTAIN (SC1-B - SC4-B)

COORDINATE:

ID	LAT	LONG
SC1-A	5° 05' 06.50\"N	102° 48' 01.89\"E
SC1-B	5° 05' 06.44\"N	102° 48' 01.89\"E
SC2-A	5° 05' 05.09\"N	102° 48' 02.55\"E
SC2-B	5° 05' 05.09\"N	102° 48' 02.45\"E
SC3-A	5° 05' 03.35\"N	102° 48' 01.64\"E
SC3-B	5° 05' 03.45\"N	102° 48' 01.69\"E
SC4-A	5° 05' 03.95\"N	102° 47' 59.96\"E
SC4-B	5° 05' 03.95\"N	102° 48' 00.06\"E



PROPOSED PERFORMANCE MONITORING OF SILT CURTAIN

Proposed Environmental Monitoring Programme

PROPOSED IMPACT MONITORING POINTS DURING CONSTRUCTION STAGE



Water Quality

- Parameter:
Temperature (*in-situ*), pH Value (*in-situ*), Dissolved Oxygen (*in-situ*), Turbidity, Salinity, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Ammoniacal Nitrogen (N), Oil and Grease, Total Coliform Count, *Faecal Coliform Count*
- Frequency:
Monthly or as per DOE requirement
- Locations:
W1-W6



Noise

- Parameter:
 L_{eq} , L_{max} , L_{min} , L_{90} , L_{10}
- Frequency:
Once every three months or as per DOE requirement
- Locations: N1



Ambient Air Quality

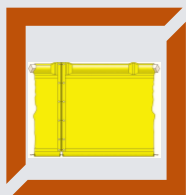
- Parameter:
 PM_{10} , $PM_{2.5}$, NO_2 , SO_2 , and CO
- Frequency:
Once every three months or as per DOE requirement
- Locations:
A1



Vibration

- Parameter:
Peak particles velocity (ppv) and frequency
- Frequency:
Once every three months or as per DOE requirement
- Locations: V1

PROPOSED PERFORMANCE MONITORING DURING CONSTRUCTION STAGE



Silt Curtain

- Parameter:
Turbidity (*in-situ*)
- Frequency:
Monthly
- Locations:
Before and after silt curtain at surface depth