

Executive Summary

PROPOSED WASTE TO ENERGY PLANT (WTE) ON PT 10195 [ORIGINAL PT 9806 (LOT 12) AND PT 9807 (LOT 11)], KAWASAN PERINDUSTRIAN BENTONG FASA 2B, MUKIM SABAI, DAERAH BENTONG, PAHANG DARUL MAKMUR



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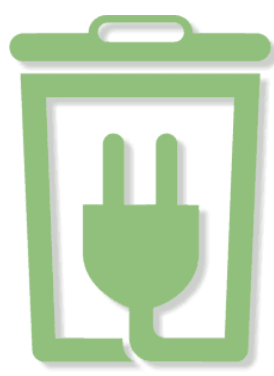
Legislative Requirements

The development falls under the prescribed activity of:

Second Schedule – Activity No. 14

Sub-activities (a)(i): Scheduled Waste – Construction of thermal treatment plant

Sub-activities (b)(i): Solid Waste – Construction of thermal treatment plant

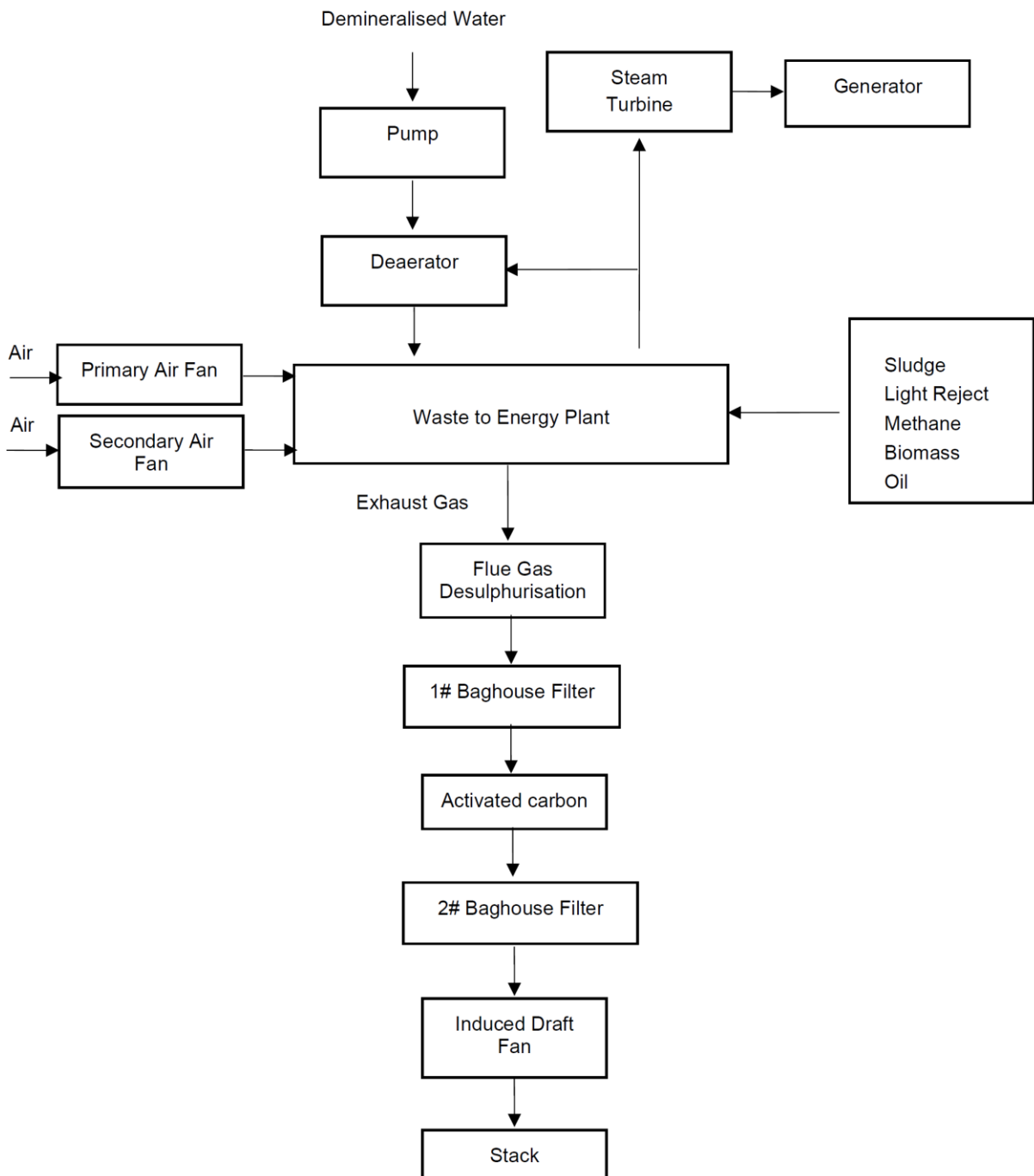


- As part of ND’s circular economy initiative in integrated waste management towards zero waste.
- Waste management solution for current solid wastes and sludge generated by ND’s paper productions in Bentong.
- Heat from thermal treatment process will be recovered and reused for steam and electricity generation, and supply to the existing paper factory on Lot 1 as well as the WTE.
- In line with Malaysia’s National Renewable Energy Policy.

Project Location



- Capacity = 75 tonnes/hour of steam
- Circulating fluidised bed (CFB) technology
- Able to cater for 350 to 450 tonnes/day of waste residue (with water content about 50%) plus a maximum of 50 tonnes/days of sludge
- Some amount of biomass fuels can also be incinerated (~100 tonnes/day)



Project Activities



Pre-Construction

- Project planning
- Design works
- Site surveys and investigations studies
- Baseline monitoring



Construction

- Mobilisation of workers
- Transportation of construction material and equipment
- Foundation works
- Civil and structural works
- Mechanical and electrical works
- Testing and commissioning
- Demobilisation of workers



Operation & Maintenance

- Operation and maintenance of WTE
- Waste management
- Estimated employees: 100

TOPOGRAPHY

Located on an undulating land

GEOLOGY

Underlain by Devonian formation

SOIL

Located on steep land
Top soil consists of medium stiff to hard sandy SILT and loose silty SAND

TERRESTRIAL ECOLOGY

Surrounding floral are mostly disturbed and consists of secondary vegetation
Fauna that are common to disturbed habitat are expected

AQUATIC ECOLOGY

Kolam Pancing D'Karak uses mountain water
Types of fish: ikan Mekong, Patin, ikan Tongsan, ikan Karak, ikan Chaophraya, Siakap and ikan Kaci

SOCIO-ECONOMIC

Located within BPK 2.2: Sg Dua – Jambu Rias, District of Bentong
Survey from 11 to 13 October 2022 (88 respondents)

Existing Environment

HYDROLOGY

Located within Sg Bentong catchment
4 water treatment plants and 5 major industrial water abstraction users in Sg Bentong catchment
Pahang – Selangor Raw Water Transfer Intake is located 27.7 km downstream of Project site

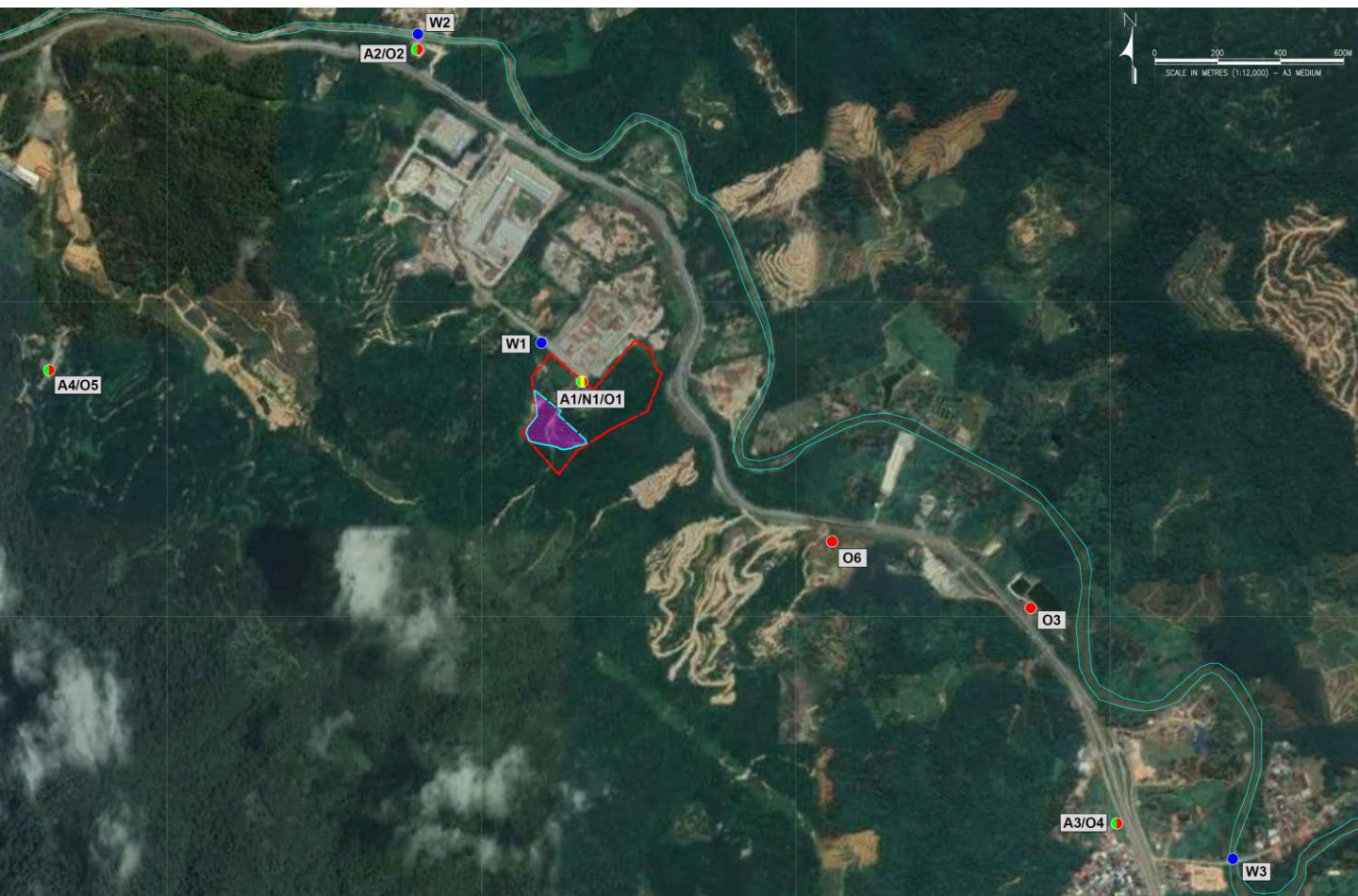
METEOROLOGY & CLIMATE

High annual rainfall with relatively uniform high humidity and temperature

PUBLIC HEALTH

Fair achievement for all health indicators compared to the national records except for slightly higher mortality rates
Fair coverage of basic amenities but good coverage of a clean drinking water supply with a fairly low disease burden
Dengue fever and COVID-19 are two diseases of concern due to their endemic situation

Baseline Monitoring Locations



LEGEND:

- ND PAPER SITE (EIA Approved on 6 September 2021)
- PROPOSED WTE PROJECT SITE

- AIR (A1 - A4)
- NOISE (N1)

- WATER (W1 - W3)
- ODOUR (O1 - O6)

RIVER / STREAM



Ambient air quality at the monitoring locations was considered to be good at the time of monitoring



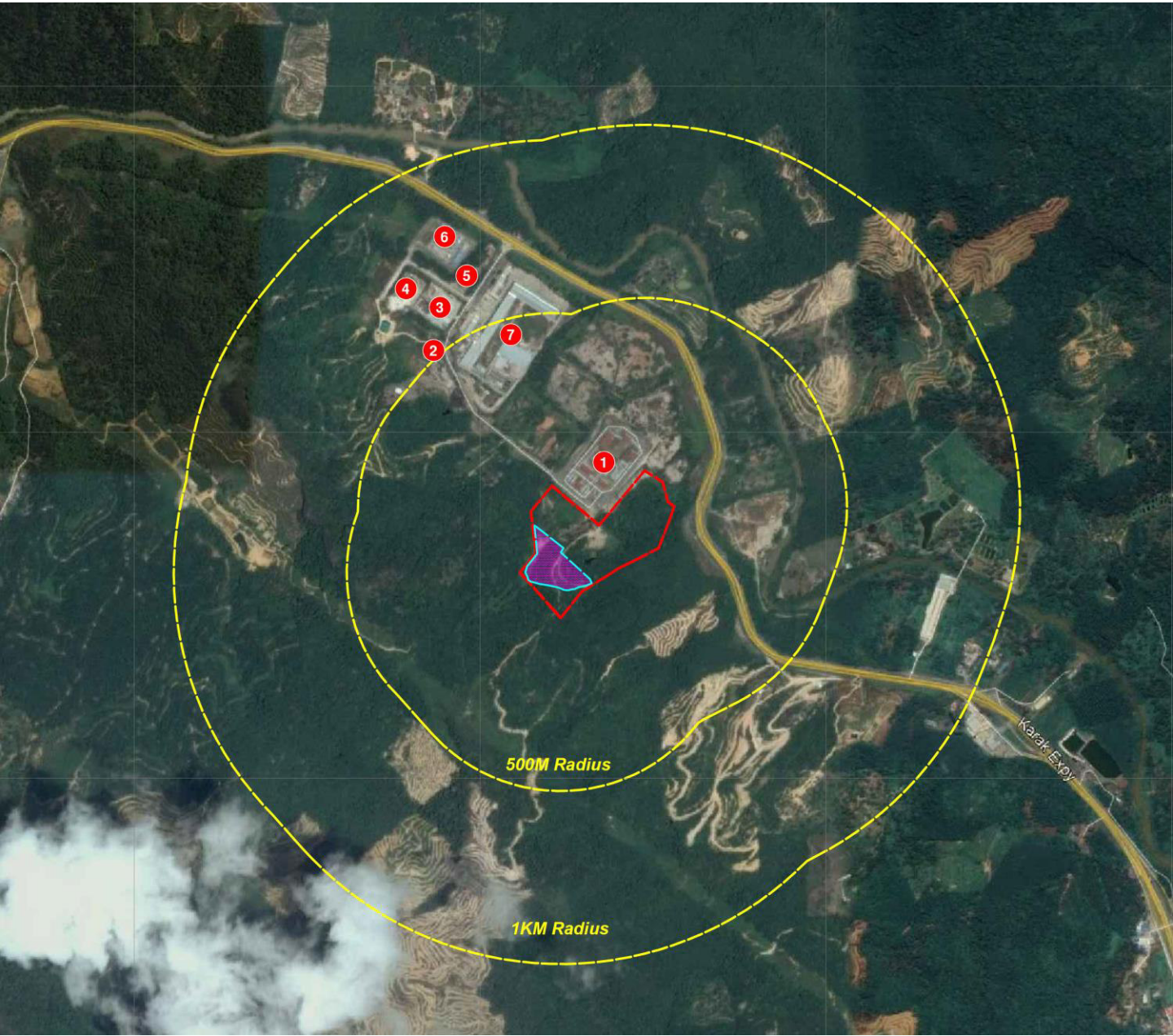
Most of the water quality parameters were within the Class II limits except pH values, TSS, faecal coliform counts and total coliform counts



Perceived odour concentration for unpleasant smells were ranging from <2 D/T [Very Faint] to 7 D/T [Objectionable]



Noise levels at the Project site were well within the permissible limits for designated industrial zones

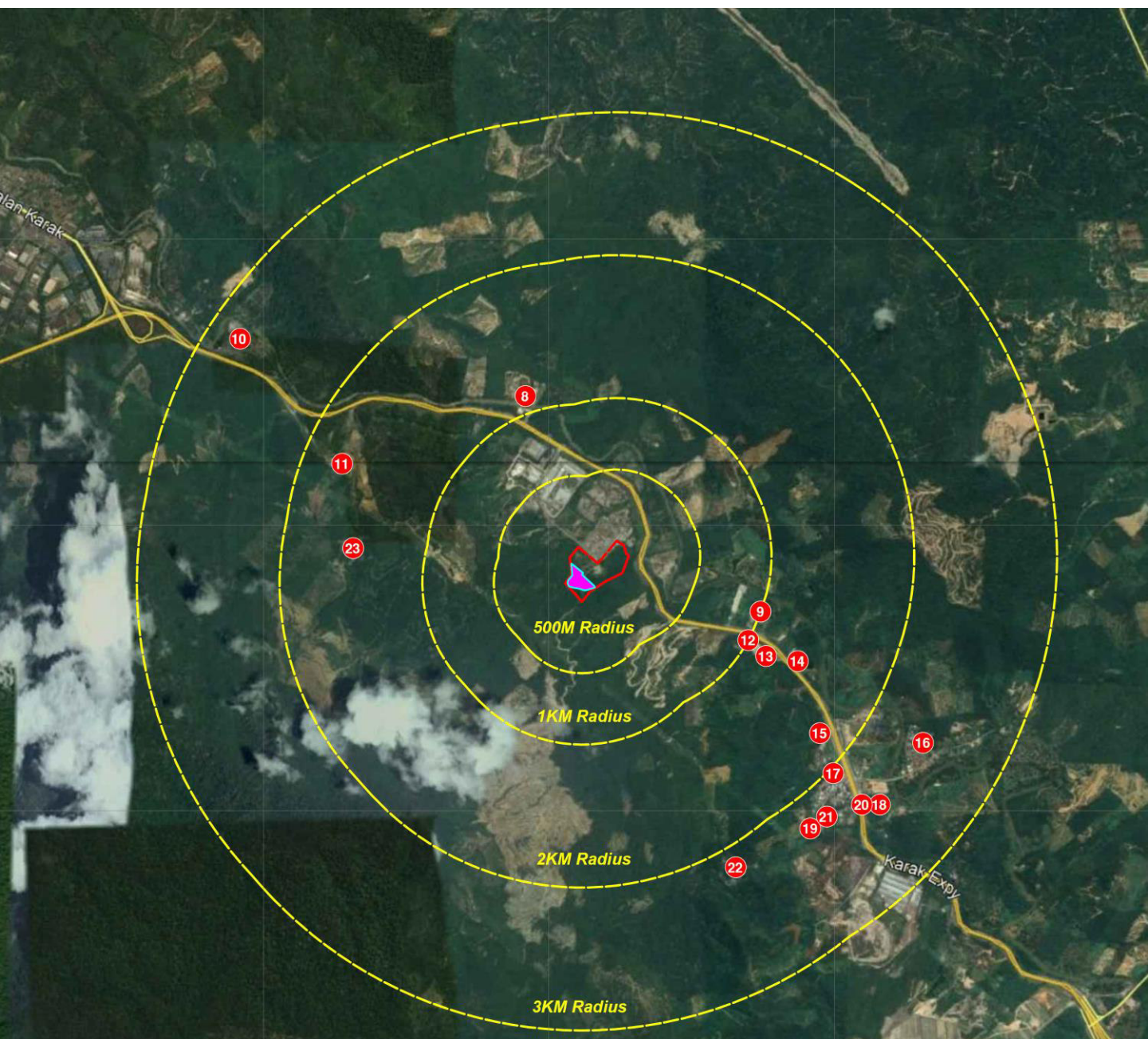


LEGEND:

- ND PAPER SITE
(EIA Approved on 6 September 2021)
- PROPOSED WTE PROJECT SITE

- 1) PYROTECHNICAL ORDNANCE MALAYSIA SDN BHD
- 2) JBA PAHANG WATER TANK
- 3) BITUMAX INDUSTRIES SDN BHD
- 4) LCS MIX SDN BHD
- 5) SHOP LOTS
- 6) PMU KARAK
- 7) ND PAPER (MALAYSIA) SDN BHD

Land Use within 3 km Radius



LEGEND:

- ND PAPER SITE
(EIA Approved on 6 September 2021)
- PROPOSED WTE PROJECT SITE

- 8) THE ACACIA RETREAT
- 9) J ROBERT FARMS SDN BHD
- 10) TAMAN BENUS JAYA
- 11) SASA WAJA GROUP FACTORY
- 12) PETRON
- 13) PETRONAS
- 14) KOLAM PANCING D'KARAK
- 15) SIM KEE HARDWARE & TIMBER SDN BHD
- 16) SJK (C) SUNGAI DUA
- 17) KAMPUNG SUNGAI DUA
- 18) KLINIK DESA SUNGAI DUA
- 19) SK SUNGAI DUA
- 20) PAK TAY TEMPLE
- 21) SURAU SUNGAI DUA
- 22) KAMPUNG ORANG ASLI SUNGAI DUA HULU
- 23) KAMPUNG ORANG ASLI SUNGAI MERJUK



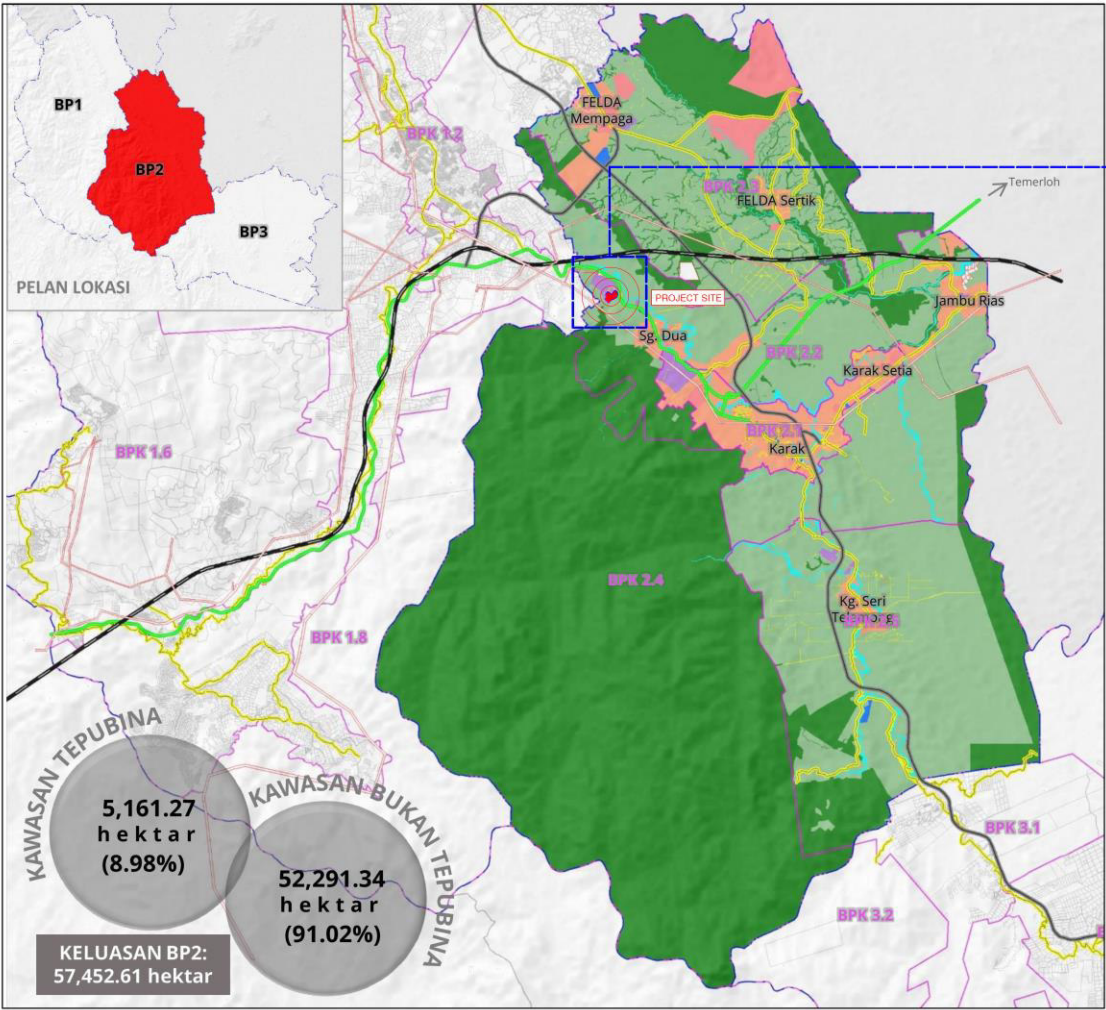
LEGEND:

ND PAPER SITE
(EIA Approved on 6 Septembaer 2021)

PROPOSED WTE PROJECT SITE

- 24) FULLBOW (KARAK) MEMORIAL PARK
- 25) KAWASAN PERINDUSTRIAN BENTONG
- 26) TAMAN CHEGAR MEDANG
- 27) KAMPUNG BENUS

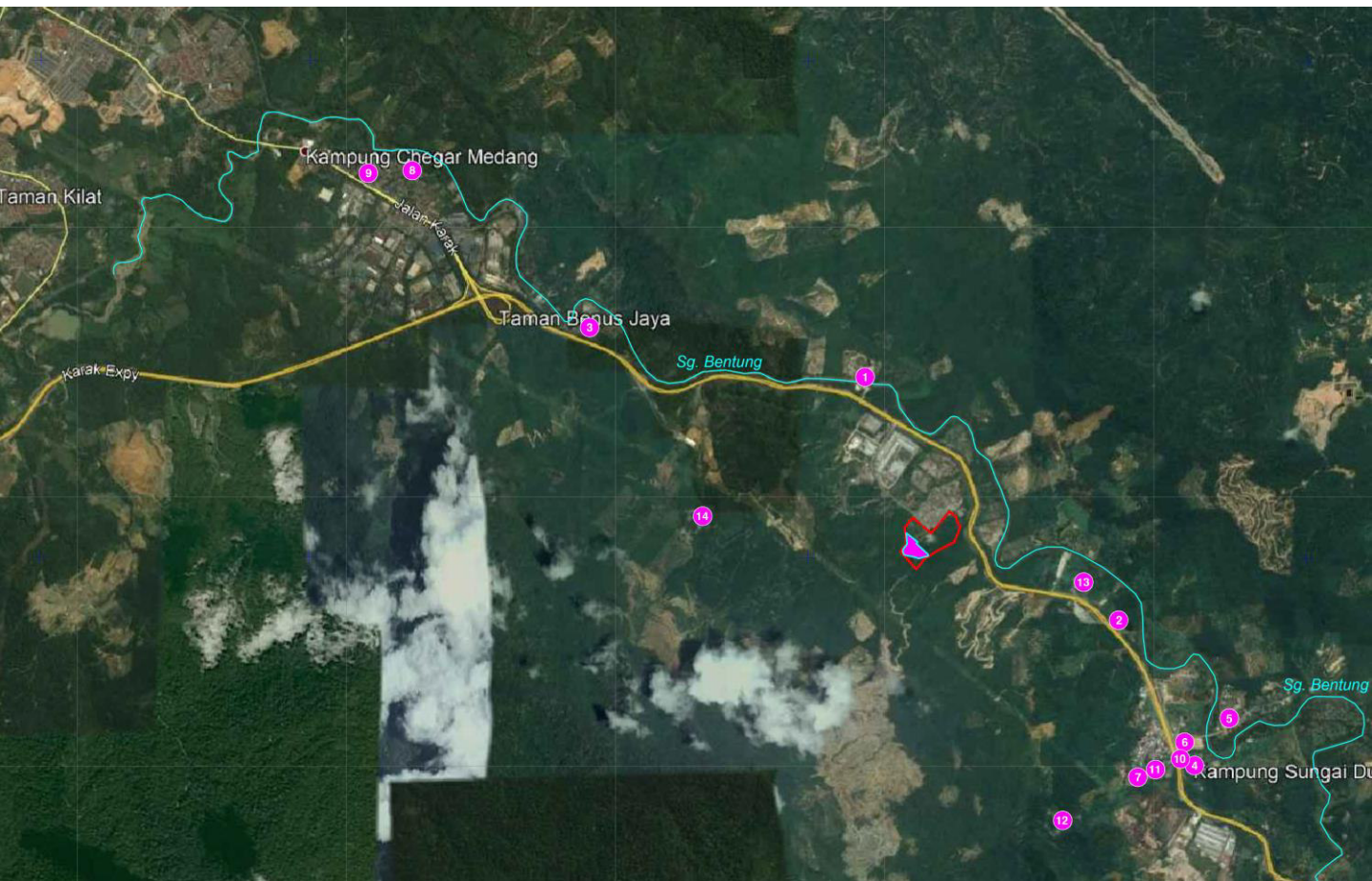
Future Land Use



KEY PLAN - N.T.S

LEGEND:

- ND PAPER SITE (EIA Approved on 6 September 2021)
- PROPOSED WTE PROJECT SITE
- HOUSING
- COMMERCIAL
- INDUSTRIES
- COMMUNITY INSTITUTIONS AND FACILITIES
- VACANT LAND AND RECREATION
- TRANSPORTATION
- INFRASTRUCTURE AND UTILITY
- AGRICULTURE
- FOREST
- BODY WATER



LEGEND:			
	ND PAPER SITE (EIA Approved on 6 September 2021)	1) THE ACACIA RETREAT	6) KLINIK DESA SUNGAI DUA
	PROPOSED WTE PROJECT SITE	2) KOLAM PANCING D' KARAK	7) SK SUNGAI DUA
	RIVER / STREAM	3) TAMAN BENUS JAYA	8) TAMAN CHEGAR MEDANG
		4) KAMPUNG SUNGAI DUA	9) KAMPUNG BENUS
		5) SJK (C) SUNGAI DUA	10) PAK TAY TEMPLE
			11) SURAU SUNGAI DUA
			12) KAMPUNG ORANG ASLI SUNGAI DUA HULU
			13) J ROBERT FARM SDN BHD
			14) KAMPUNG ORANG ASLI SUNGAI MERJUK



AIR QUALITY

Impact

Construction Stage

- Dust pollution due to the construction activities is temporary.

Operation Stage

- During normal operation, the contribution of identified criteria air pollutants from the WTE to air sensitive receptors are minimal.

Construction Stage

- Proper control of fugitive dust.

Operation Stage

- The WTE shall be monitored in accordance with DOE's Technical Guidance on Performance Monitoring of Air Pollution Control System.
- The WTE area should be designed with slightly negative pressure to control any fugitive odour emissions from the received mixed fuels particularly the rejects and sludge and use its ventilated air for the WTE combustion process.



AIR QUALITY

Mitigation Measures



WATER QUALITY

Impact

Construction Stage

- Proposed WTE site has been prepared and no major earthwork is required. No significant impact to Sg Bentong river water quality impact is anticipated.

Operation Stage

- No direct discharge from the Project. Wastewater generated from the WTE will be sent back to Lot 1 and reuse in the paper machine. No impact will be expected due to process wastewater discharge.



WATER QUALITY

Mitigation Measures

- Collection and conveying drains for process wastewater shall be separated from the storm water. Process wastewater shall not be discharged into any of the storm water management system.
- Provision of emergency storage tank to contain WTE's process wastewater, should the reutilisation at Lot 1 factory reduces (maybe due to production shut down etc.).



NOISE

Impact

Construction Stage

- Construction noise will be short-term. No significant impact is expected.

Operation Stage

- All predicted noise levels at Project boundaries have been verified to comply with the recommended noise limit of 70 dB(A) during day time and 65 dB(A) during night time. No noise impact at the existing sensitive noise receptors.

- No piling works at night time.
- Establish periodical maintenance schedule for all motorised machineries and equipment.
- Provision of temporary noise barrier when necessary during construction.
- Acoustic design within building with various sources of noise.
- Enclosure or other type of acoustic measures shall be applied on equipment which contribute to noise levels higher than 85 dB(A).
- Safety signage shall be installed to inform workers of areas with high noise level.
- Adequate protective devices for workers who work in high noise level areas.



NOISE

Mitigation Measures



WASTE MANAGEMENT

Impact

Construction Stage

- Generation of construction waste, solid waste and scheduled waste.

Operation Stage

- Generation of solid waste and scheduled waste.

- Construction wastes shall be stockpiled at designated area and away from waterways and sensitive receptors.
- Light rejects should be incinerated in the WTE to generate steam. In the event of major WTE shut down and the waste storage area is full, light rejects shall be disposed at Padang Sertik Landfill.
- Metal residue recovered from the production process (e.g. steel and aluminium) should be sold to licensed recycling facilities as scrap metals.
- Scheduled wastes shall be managed and handled in accordance with the Environmental Quality (Scheduled Waste) Regulation 2005.



WASTE MANAGEMENT

Mitigation Measures

Impact Assessment & Mitigation Measures



RISK

Impact

- The 1×10^{-5} per year IR contour for the Project is within the proposed Project boundary.
- The 1×10^{-6} per year IR contour of the Project is within the proposed site and does not encompass involuntary recipients of industrial risks such as residential areas, schools and hospitals etc.

- Prepare an emergency response plan (ERP) to include possible emergency scenarios due to the operation of the Project.
- Perform regular emergency response drills as well as feedback and review sessions with the local fire and rescue services for handling and controlling the worst-case scenario.
- Undertake regular maintenance of the process equipment accordance with manufacturers guidance.



RISK

Mitigation Measures



PUBLIC HEALTH

Impact

- No residual health impacts arising directly from the Project activities.
- Burden of diseases among the communities is quite low. Only few endemic diseases still require special precaution during all stages of development of the proposed Project.



PUBLIC HEALTH

Mitigation Measures

- Project Proponent has to adhere to the Malaysian guidelines for a comprehensive medical surveillance system to monitor those workers' health.
- Housekeeping and cleanliness of the whole Project site need to be put as the priority by all workers, contractors and visitors with aid from local government agencies.
- Frequent and regular monitoring to eliminate any vector breeding sites.
- Complete vaccination especially for COVID-19, hepatitis B and typhoid should be applied to all workers and contractors.



SOCIO-ECONOMIC

Impact

- About 54% of the respondents felt that this Project would pose an impact to them and their neighbourhood.
- Most of the impacts concerned by the respondents were mainly related to environmental such as air pollution and odour problem, water pollution, noise pollution, safety risks as well as changes to the landscape.
- The respondents also felt that the Project would create more job opportunities and business opportunities.

- Provide employment and business opportunities to local community.
- Employment of foreign workers shall be through proper agents with proper documentation in compliance with the immigration and labour rules and regulations of Malaysia. A repatriation programme shall be instituted at the end of the contract period to ensure smooth and legal departure of foreign workers.
- Foreign workers are to be briefed and familiarised with Malaysian laws and regulations, local customs, social etiquettes, etc.
- Provision of effective communication mechanism to enable the public to give feedback or to submit complaints related to the Project.



SOCIO-ECONOMIC

Mitigation Measures



ABANDONMENT

Impact

- Impaired aesthetic due to abandoned structures.
- Slope stability if the site is not stabilised.
- Contamination of soil, water and air from hazardous materials and wastes.
- Breeding of pests and disease vectors, such as mosquitoes, rats etc.
- Safety to workers and other passer-by due to falling materials or structures.

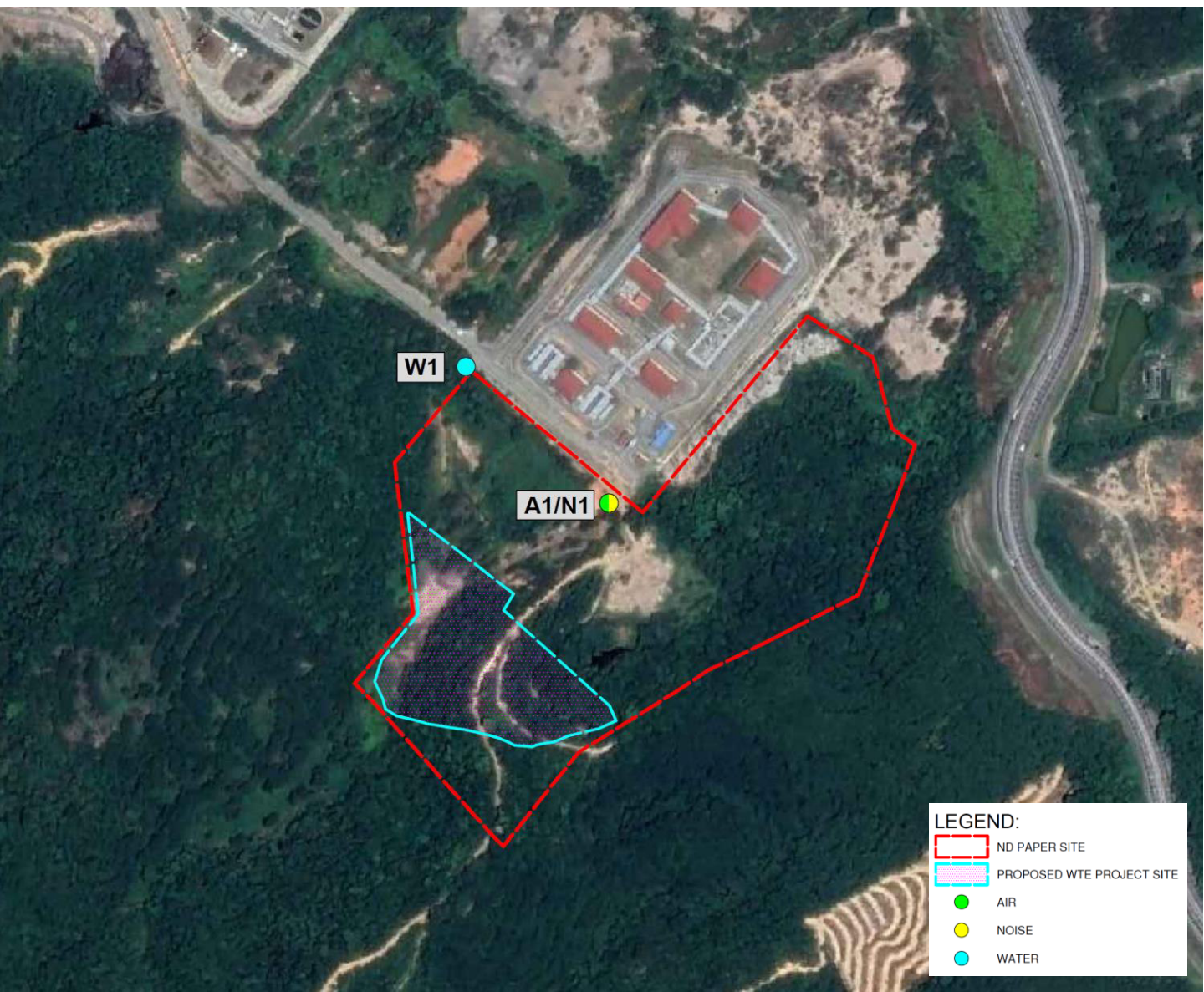
- Notification to the relevant authority(s).
- Removal of machineries, equipment and materials.
- Shut down any source of ignition or switches.
- Proper waste management.
- Clean-up of work area, especially grounds contaminated with chemicals or oils.
- Rehabilitation and restoration (e.g. re-vegetation of exposed areas).
- Post-abandonment inspection until the Project site is stabilised.



ABANDONMENT

Mitigation Measures

Proposed Environmental Monitoring Programme during Construction



Ambient Air Quality

- PM_{10} , $PM_{2.5}$, SO_2 , NO_2 , CO
- Quarterly
- Baseline & MAAQS 2020



Water Quality

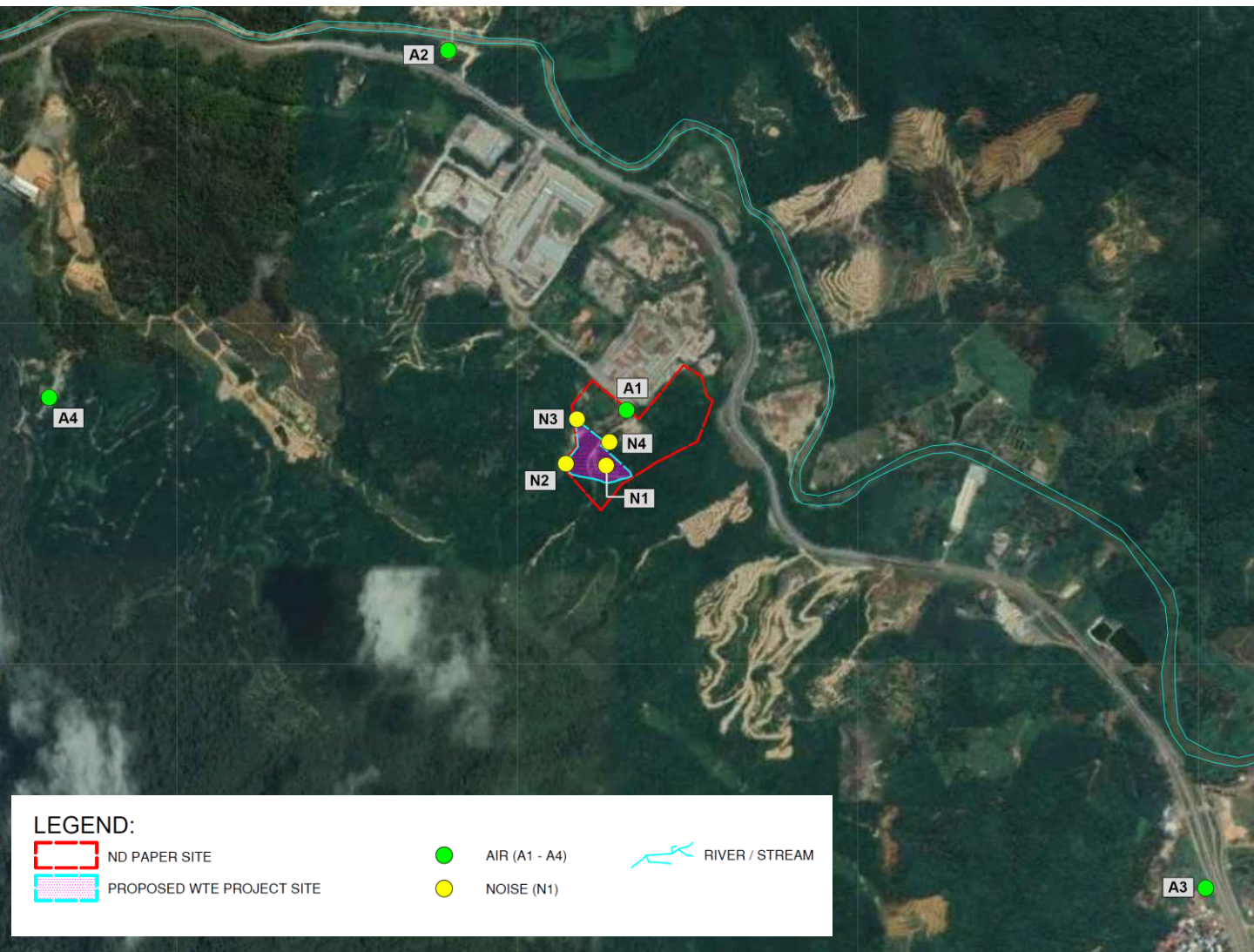
- Temperature, pH, DO, BOD, COD, TSS, ammoniacal nitrogen, oil and grease, total coliform count, faecal coliform count
- Monthly
- Baseline & Class IIB of NWQS



Noise

- L_{eq} , L_{max} , L_{min} , L_{90} , L_{10}
- Quarterly
- Baseline & Guidelines for Environmental Noise Limits and Control, First Schedule and Sixth Schedule

Proposed Environmental Monitoring Programme during Operation



Ambient Air Quality



- PM₁₀, PM_{2.5}, SO₂, NO₂, CO, HCl, HF, NH₃, Cd, TI, Hg, Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and PCDD/PCDF
- Quarterly
- Baseline & MAAQS 2020

Groundwater Quality



- Alkalinity, COD, chloride, iron, manganese, pH, silica, sulphate, total dissolved solids (TDS), suspended solids, total hardness
- Quarterly
- Baseline & National Groundwater Quality Standard 2019 (Industrial Use)

Noise



- L_{eq}, L_{max}, L_{min}, L₉₀, L₁₀
- Quarterly
- Baseline & Guidelines for Environmental Noise Limits and Control, First Schedule

WTE Stack



- Total PM, NMVOC, HCl, HF, SO₂, NO₂, CO, Cd, TI, Hg, Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V and PCDD/PCDF
- Every six months