

**Environmental Impact Assessment (EIA) for Proposed Development Of Clinical Waste Treatment Facility On Lot 306654 (Pt 198727), Kawasan Perindustrian Tungzen, Mukim Sungai Raia, Daerah Kinta, Perak Darul Ridzuan By Clinco Waste Management Sdn. Bhd.  
Executive Summary**

**PROJECT CONCEPT**

Clinco Waste Management Sdn. Bhd. (hereinafter referred to as “Clinco” or “Project Proponent”) proposes to develop a clinical waste treatment facility. The Project is aimed to provide waste treatment services for clinical waste (scheduled waste) from private healthcare centres, clinics and medical services facilities covering whole of Malaysia. This Project embarked by Clinco shall offer total clinical waste management solution especially for the private healthcare facilities and private clinical waste generators. Target scheduled waste to be collected and managed: SW404, SW403, SW405, SW409, SW410, SW421.

**Proposed Project**



**Technology Processing Capacity**

**Combustion Incinerators (fixed grate)**  
**Overall: 51.2 MTD**  
**Phase 1: 3.2MTD [200 kg/hr]**  
**Phase 2A: 24 MTD [2 x 500 kg/hr]**  
**Phase 2B: 24 MTD [2 x 500 kg/hr]**



**Waste Volume Reduction**

**Mass reduction of 95% on the incoming waste**



**Pollution Control**

**Air pollution control system, CEMs  
Wastewater treatment plant  
Storage for waste residues**



**Project Schedule**

**Phase 1: 2022 – 6 months**  
**Phase 2A: Q1 2023 – 12 months**  
**Phase 2B: 2025 – 12 months**

**Project Proponent**

**Clinco Waste Management Sdn Bhd**  
Lot 2989, Batu 6, Jalan Kebun Seksyen 32,  
40460, Shah Alam, Selangor.  
Tel: 03 – 5120 1076



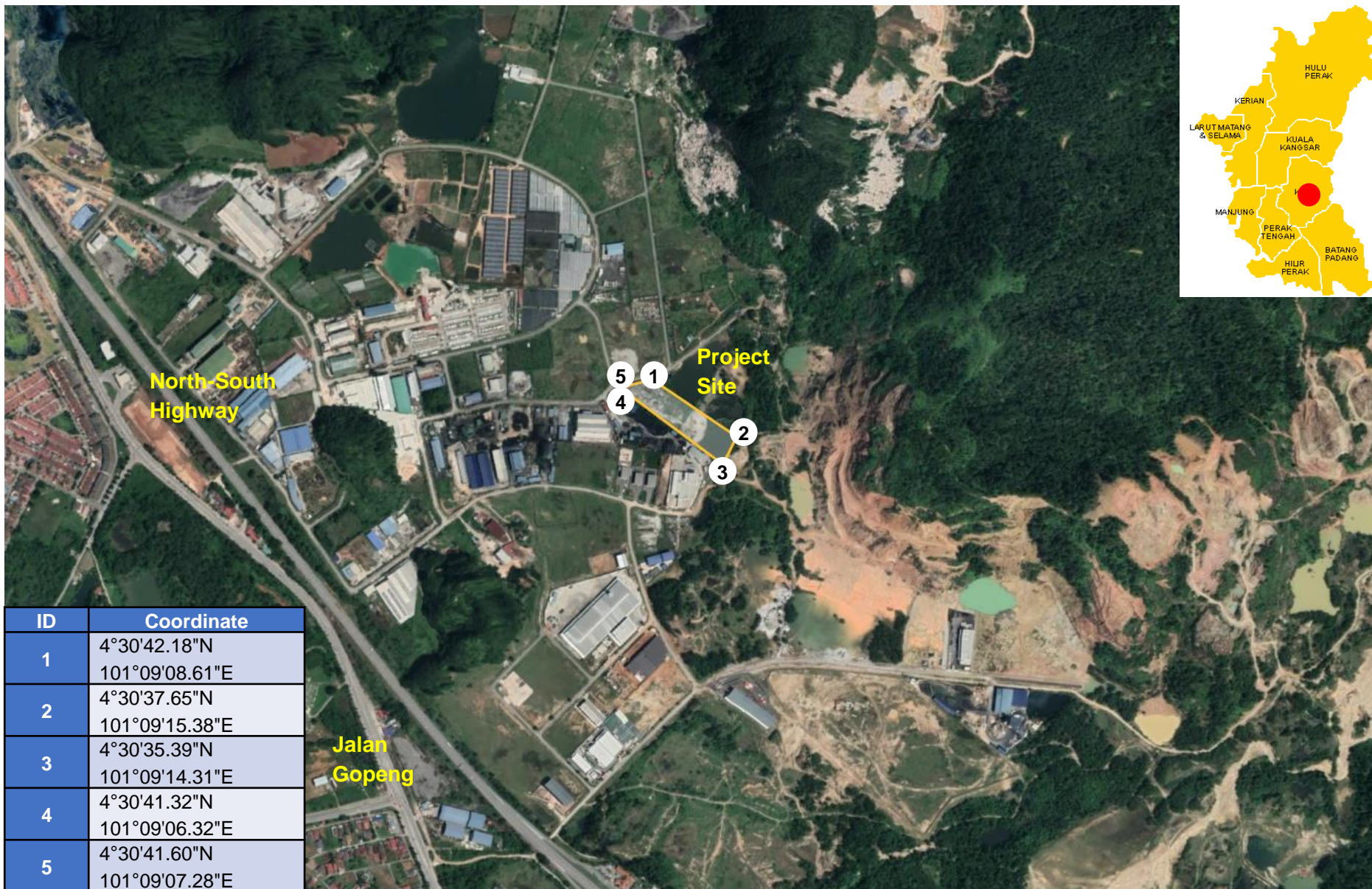
**EIA Consultant**

**Tri EcoEdge Sdn. Bhd.**  
43-3, Petaling Utama Avenue,  
Jalan PJS 1/50,  
Taman Petaling Utama,  
46150 Petaling Jaya, Selangor.  
Tel: 03 – 7781 8800 Fax: 03 – 7781 6900



**Executive Summary**

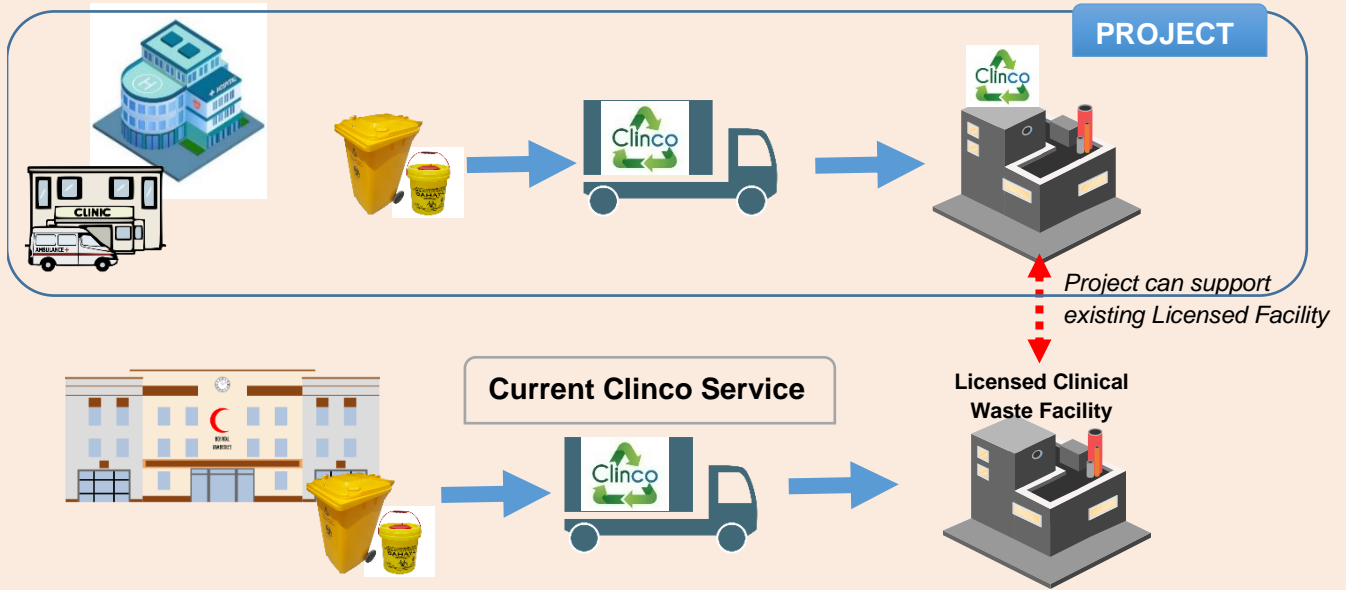
**PROJECT LOCATION**



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**PLANT OVERVIEW**

Overall Project Proposal and current services by Clinco:

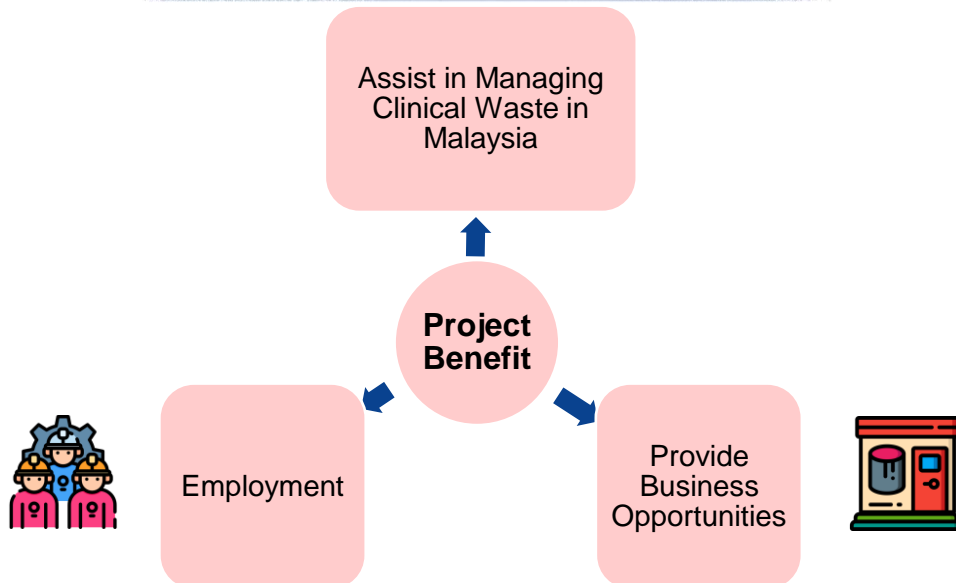


**LEGAL REQUIREMENT FOR EIA**

Under EIA Order 2015 – Project is a Prescribed Activity Second Schedule, Activity 14: Waste Treatment and Disposal

- (a) **Scheduled Waste**
  - (i) Construction of thermal treatment plant

**STATEMENT OF NEED**



**Executive Summary**

**PROJECT OPTIONS**

**Site Option**

- ✓ Located in established industrial estate
- ✓ Compatible with neighbouring industries
- ✓ Good accessibility

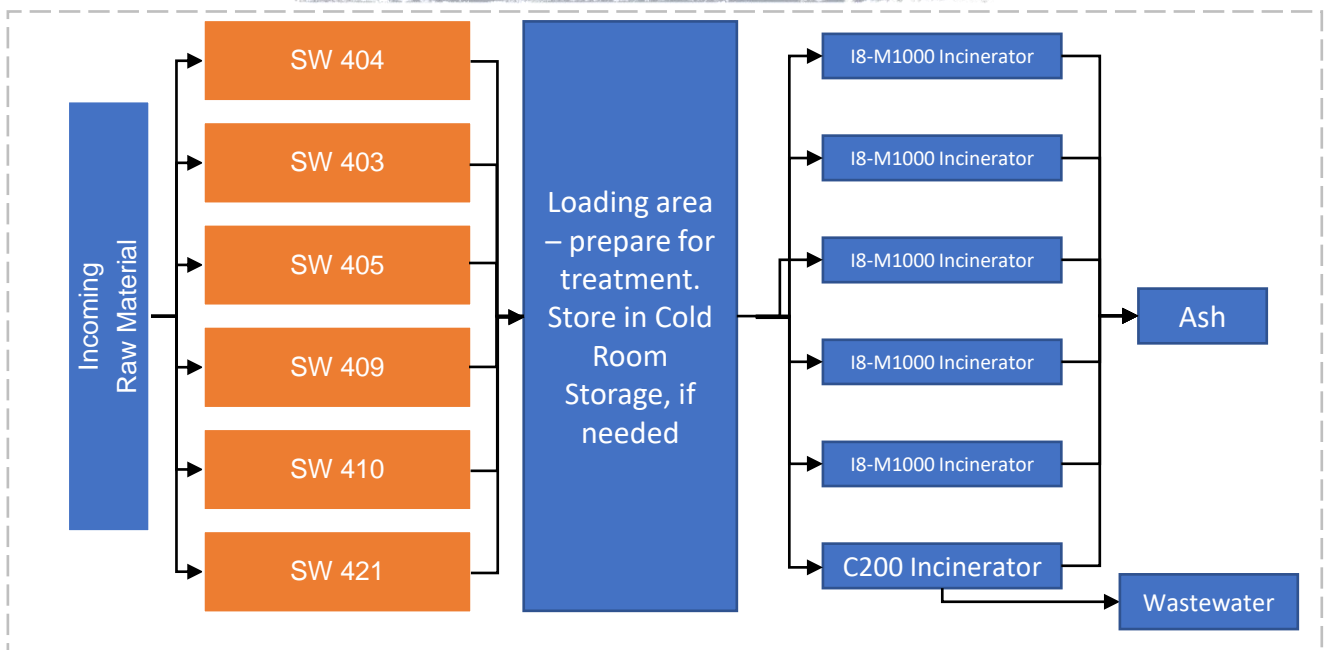
**Technology Option**

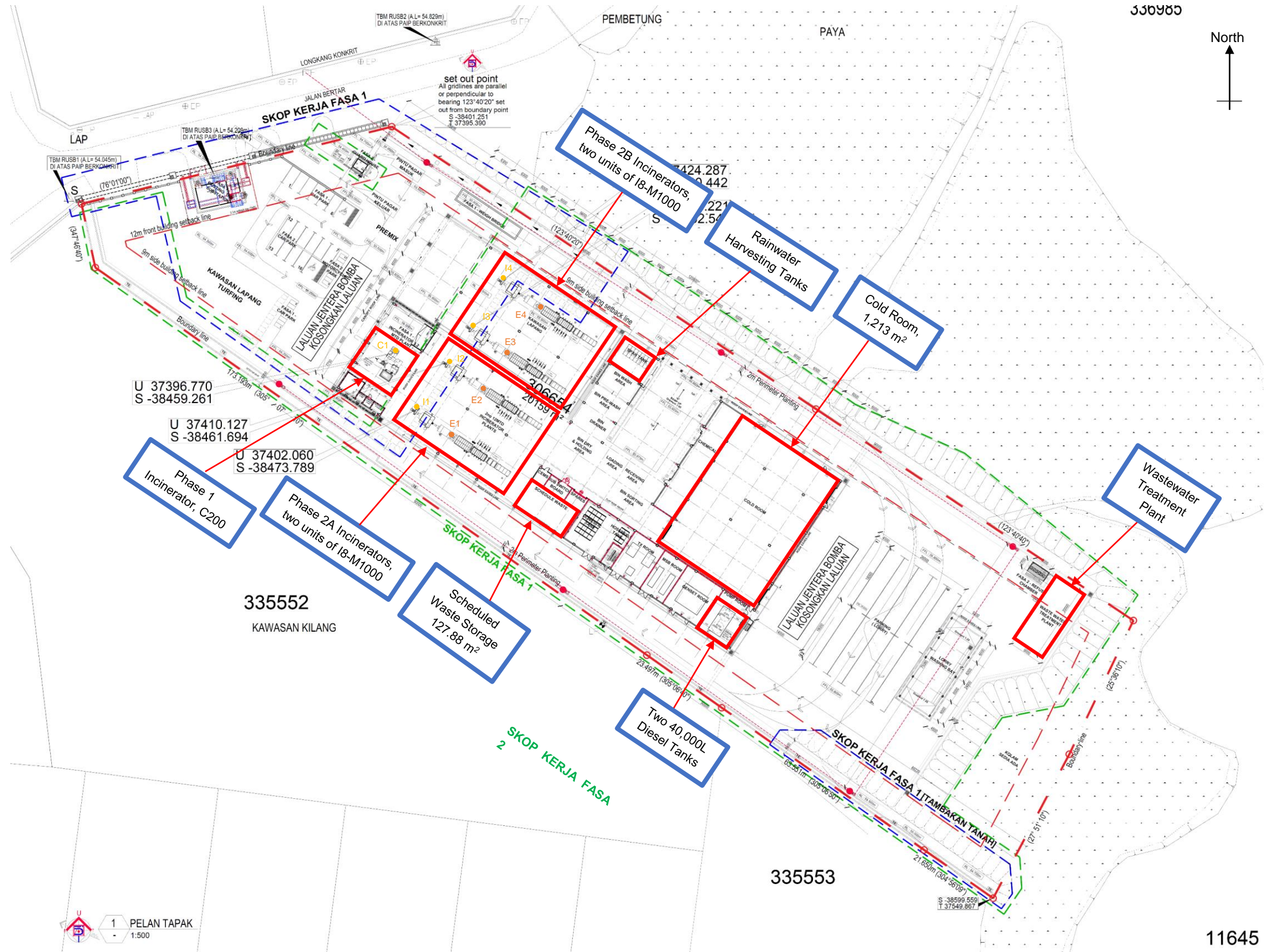
- ✓ Proven technology in many countries over the world
- ✓ R&D to develop being as low waste as possible

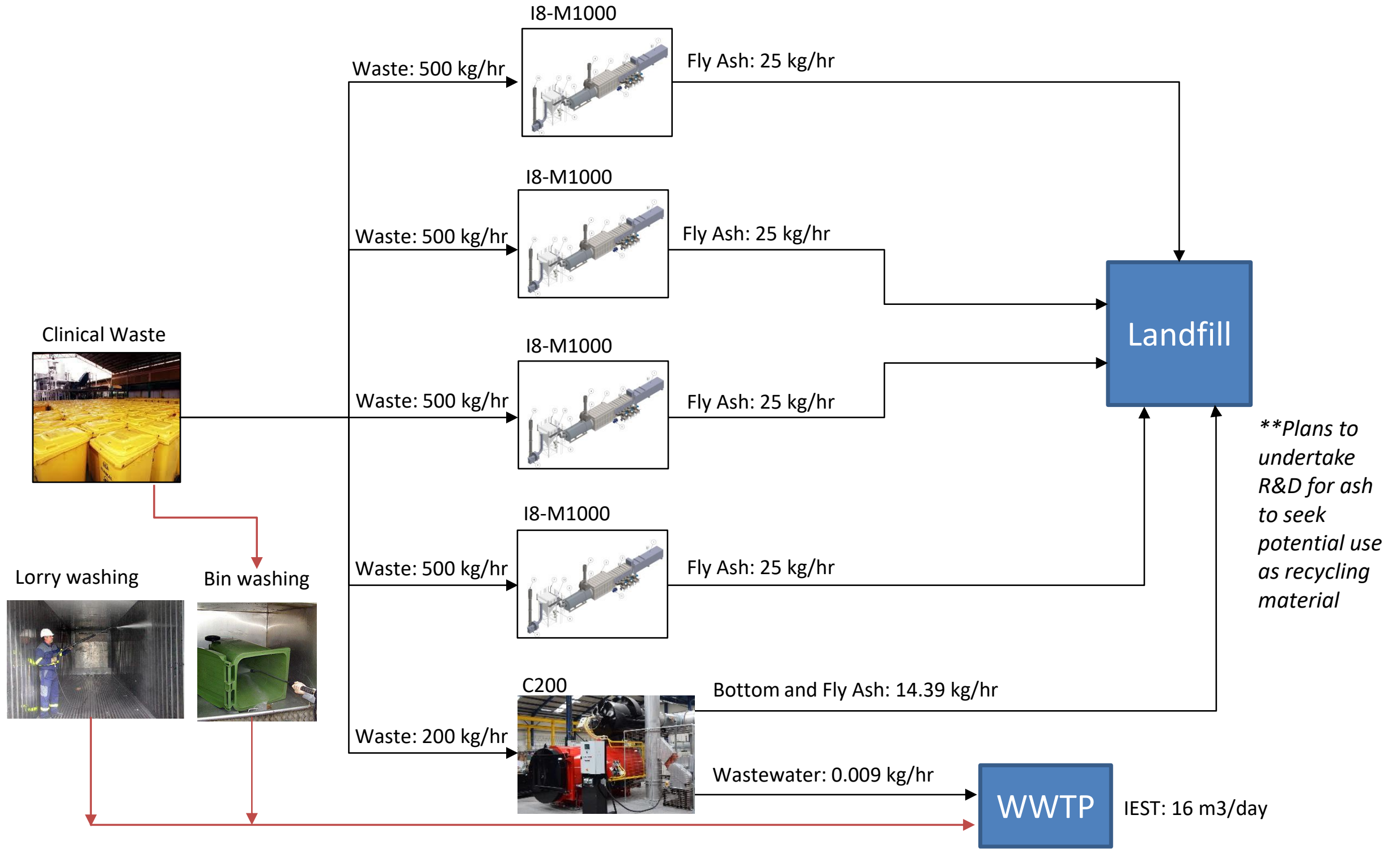
**No Project Option**

- × Overload of incoming generated clinical scheduled waste
- × Struggles of private clinics with no way to dispose of their clinical waste

**RAW MATERIAL & PROCESS**

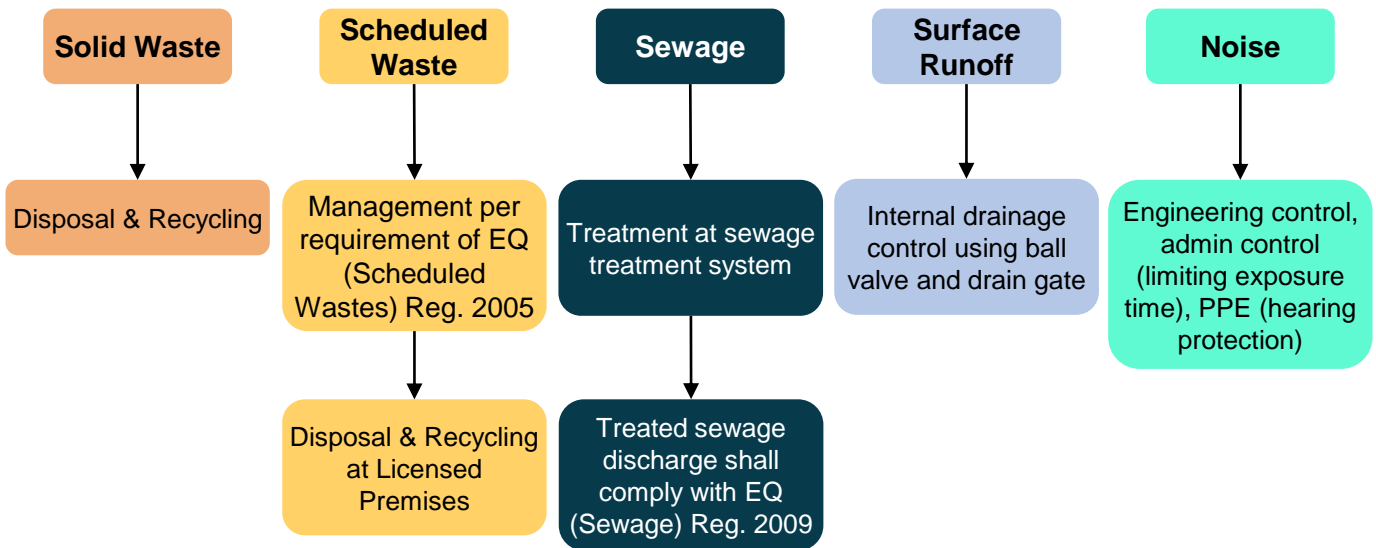
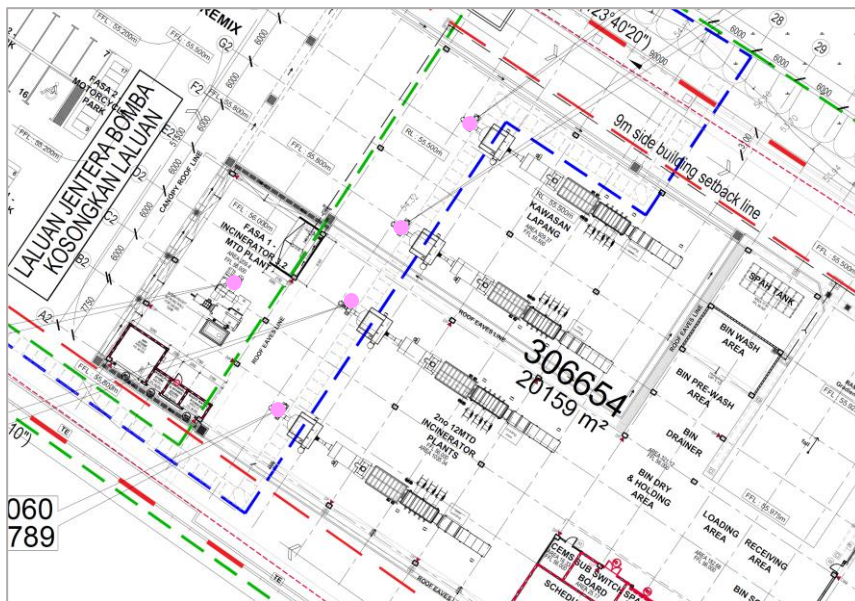
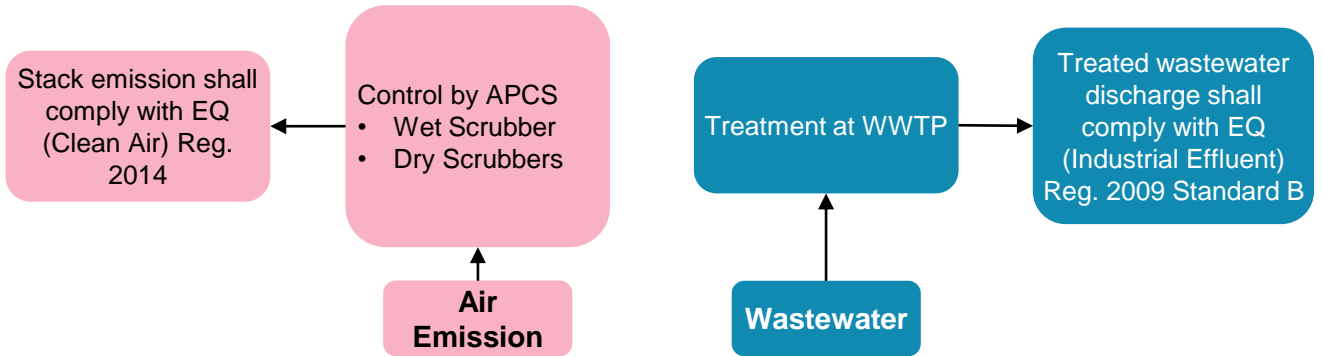






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**POLLUTION CONTROL**



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Executive Summary

EXISTING ENVIRONMENT

Topography

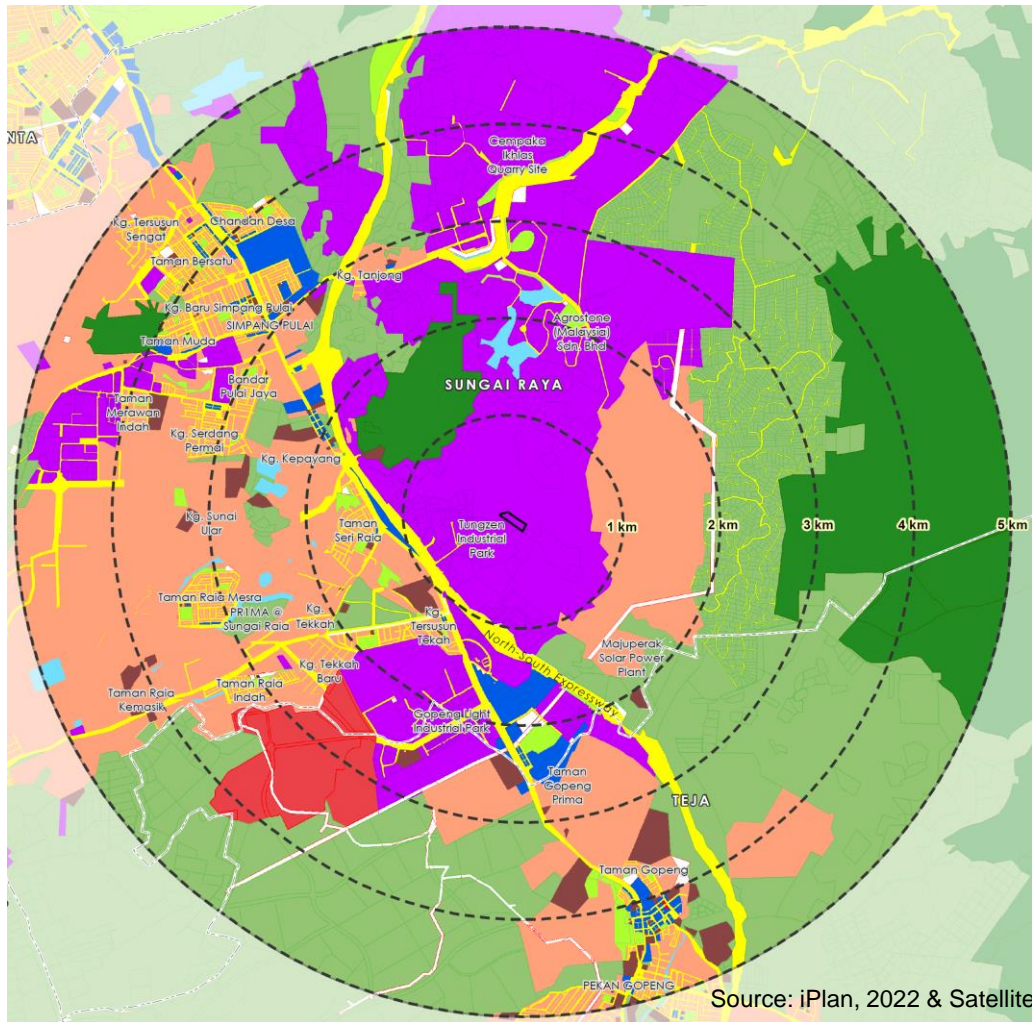


Mainly flat with an elevation of 50 m above mean sea level

Hydrology



Located outside the catchment areas  
Discharge from Plant flows to Sg Raya > Sg Kinta



Source: iPlan, 2022 & Satellite Imagery, 2022

Land Use



Main land use within 1 km are industrial lots.

The closest sensitive receptors are:

- Kampung Tersusun Tekkah (1.19 km SW)
- Taman Seri Raia (1.4 km W)

In the Draft Local Plan Batu Gajah 2025, it indicates that the residential area towards the right will be completely zoned as industrial, thus Project site will be surrounded with only industrial lots. Such industrial lots include pyrolysis, chemical works, etc.

Existing Land Use Map Legend:

 Industry	 Residential
 Water	 Commercial
 Transport	 Recreation

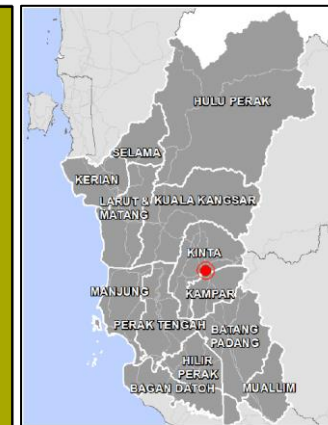
Road Network



Accessible via North South Highway and Jalan Gopeng

Executive Summary

EXISTING LAND USE / LOCATION OF SENSITIVE RECEPTORS 0 - 1 KM FROM PLANT



	Residential
	Commercial
	Industry
	Institutional
	Infrastructure and Utility
	Transportation
	Forest
	Agriculture
	Recreational
	Vacant Land
	Water Bodies
	Radius
	Project Site

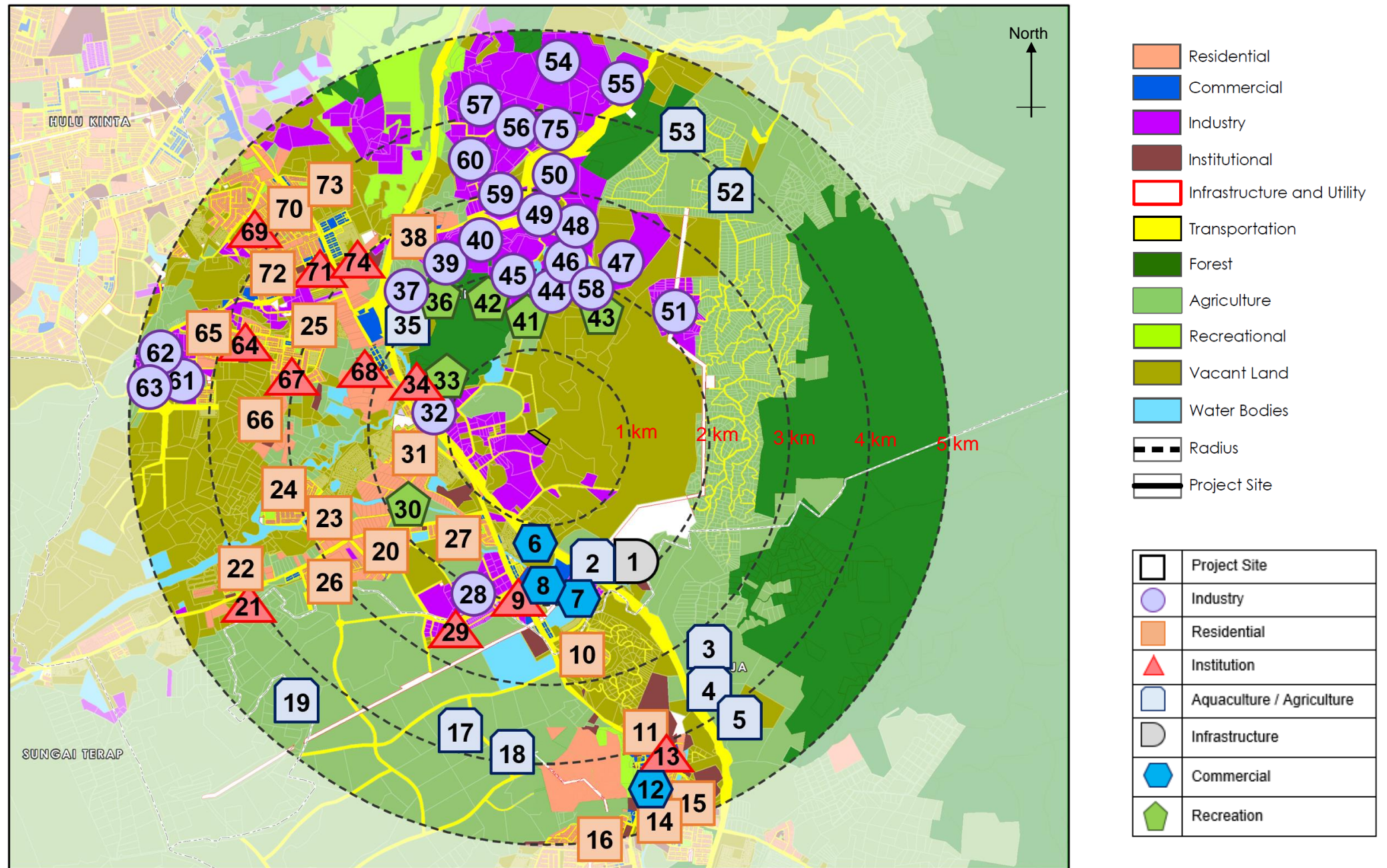
  

	Project Site
	Industry
	Residential
	Institution
	Aquaculture / Agriculture
	Infrastructure
	Commercial
	Recreation

1	Unioleo Sdn Bhd	17	Supreme Trans Logistics Sdn. Bhd.	33	Kam Chuen Tin Smith	49	DNK Metal Recovery (M) Sdn. Bhd.
2	Labzinc Industries (M) Sdn. Bhd.	18	J&T Express Perak Gateway	34	Luen Seng Foundry (M) Sdn. Bhd.	50	Gopeng Kalsium Sdn. Bhd.
3	Industry	19	K2 Bitumen Sdn. Bhd.	35	Central Geo Sdn. Bhd.	51	Sin Yong Guan Food Industries Sdn. Bhd.
4	Recycle Oil Trading	20	SRT Teck Realistic Sdn. Bhd.	36	Lip Tack Engineering Sdn. Bhd.	52	Agriculture
5	Tyre Oil (M) Sdn. Bhd.	21	R&R Simpang Pulai	37	W O Plastic Sdn. Bhd.	53	Likson Agro Park
6	Industry (Vacant)	22	Aquaculture	38	Simpang Pulai Premix Plant Sdn. Bhd.	54	Agriculture
7	Kitaran Recovery Sdn Bhd	23	Hulk Wood Trading Sdn. Bhd.	39	Agriculture	55	Auasia Nutriculture Sdn. Bhd.
8	Rancak Asia Sdn. Bhd.	24	Ipoh Sand Brick Sdn. Bhd.	40	Hock Wan Transport	56	Trans Reliance Logistics
9	CMI-Construction Material Industry Sdn. Bhd.	25	Gen Master Manufacturing Sdn. Bhd.	41	Smartchem Industries Sdn. Bhd.	57	Metric Concrete Industries Sdn. Bhd.
10	Austin Powder Northern Depot	26	Peak Gua Shrine	42	Agriculture	58	Shen Fei Enterprise
11	Industry (Vacant)	27	Meng Siang Plastic Sdn. Bhd.	43	Industry	59	Timber Valley Ipoh Sdn. Bhd.
12	K2 Warehouse	28	Banli Fish Farm	44	Industry (Vacant)	60	Quarry
13	Industry (In Construction)	29	Sahara Tom Yam	45	Industry (Vacant)	61	Gua Ngia, Gunung Lanno
14	Alam Con Sdn. Bhd.	30	Restoran Tasik Raban	46	Warisan Impian Maju Sdn. Bhd.	62	Gua Gatsch, Gunung Lanno
15	C.F Chew Sdn. Bhd.	31	PPT Sdn. Bhd.	47	Agriculture	63	Gua Gatsch Timur, Gunung Lanno
16	Pun Chou Sdn. Bhd.	32	Pyramid Lane (M) Sdn. Bhd.	48	Meranti Indah Sdn. Bhd.		

Executive Summary

EXISTING LAND USE / LOCATION OF SENSITIVE RECEPTORS 1 - 5 KM FROM PLANT



1	Majuperak Solar Power Plant	16	Kopisan Baru	31	Taman Seri Raia	46	Zantat Sdn. Bhd.	61	MTC Manufacturer Sdn. Bhd.
2	Agriculture	17	Agriculture	32	MRC Industries Sdn. Bhd.	47	Lafarge Aggregates (Ipoh) Sdn. Bhd.	62	Se Supreme Marble & Granite
3	Aquaculture	18	Agriculture	33	Gua Angin, Gunung Lanno	48	Pulai Rock Industries Sdn. Bhd.	63	Magnalium Sdn. Bhd.
4	Agriculture	19	Aquaculture	34	Sri Siva Subramaniam Temple, Kong Fook Ngam Cave Temple	49	Sri Martek Marble Industries (M) Sdn. Bhd.	64	SMK Simpang Pulai, SK Simpang Pulai
5	Yong Sang Fish Sdn. Bhd.	20	Kampung Tekkah Baru	35	Penternak dan Hatceri Ikan Air Tawar	50	Imerys Minerals Malaysia Sdn. Bhd.	65	Kampung Merawan Indah
6	Petronas Simpang Pulai	21	SK Pengkalan Baharu	36	Island Cave, Gunung Lanno	51	Simpang Pulai Mining Sdn. Bhd.	66	Kampung Sungai Ular
7	Kawasan Perindustrian Gopeng (Commercial)	22	Taman Raia Kemasik	37	SR Marble	52	The Gills Hatchery	67	Masjid Sayyidina Umar Al-Khattab
8	RTC Gopeng (Commercial)	23	PRIMA Sungai Raia	38	Kampung Tanjong	53	HappyFarm	68	SK Sungai Raya
9	RTC Gopeng (Institution)	24	Taman Raia Mesra	39	TKN Pulai Quarry Sdn. Bhd.	54	Imerys Quarry	69	SK Taman Bersatu
10	Taman Prima	25	Bandar Pulai Jaya	40	ICB Carbonate Technologies Sdn. Bhd.	55	Imerys Kinta Powdertec Sdn. Bhd.	70	Taman Bersatu
11	Taman Gopeng	26	Taman Raia Indah	41	F.P.Thro'Hill Cave, Gunung Lanno	56	Syarikat Cheng Sun Quarry Sdn. Bhd.	71	SJKC Phui Ying Simpang Pulai
12	Pekan Gopeng	27	Kg. Tersusun Tekkah Baru / RPT Tekah Baru	42	Puncak Lanno Cave, Gunung Lanno	57	Omya Malaysia Sdn. Bhd.	72	Taman Muda
13	SJKC Man Ming	28	Gopeng Light Industrial Park	43	Portal Cave, Gunung Lanno	58	Agrostone (Malaysia) Sdn. Bhd.	73	Taman Chandan Desa
14	Kg. Rawa Baru & Kg. Tersusun Rawa Baru	29	Puspakom Gopeng	44	Britestone Sdn. Bhd.	59	Cao Minerals Sdn. Bhd.	74	Simpang Pulai Bomba Station
15	Taman Gopeng Bestari	30	Taman Herba Negeri Perak	45	GCCP Resources	60	HardRock Calcium Sdn. Bhd.	75	Cempaka Ikhlas Quarry

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BASELINE ENVIRONMENTAL QUALITY

Ambient Air Quality and Odour

Monitoring at Plant and four (4) sensitive receptors.

Additional A6 points were past records from other EIAs

All parameters are within the Malaysian Ambient Air Quality Standard 2013 (MAAQS 2013).

Noise Level

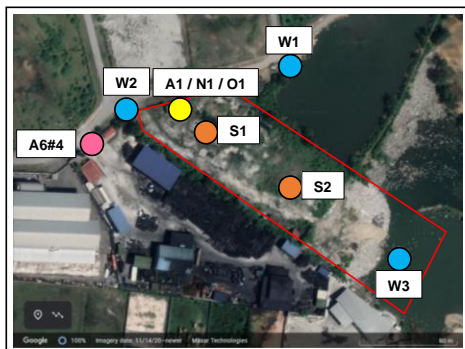
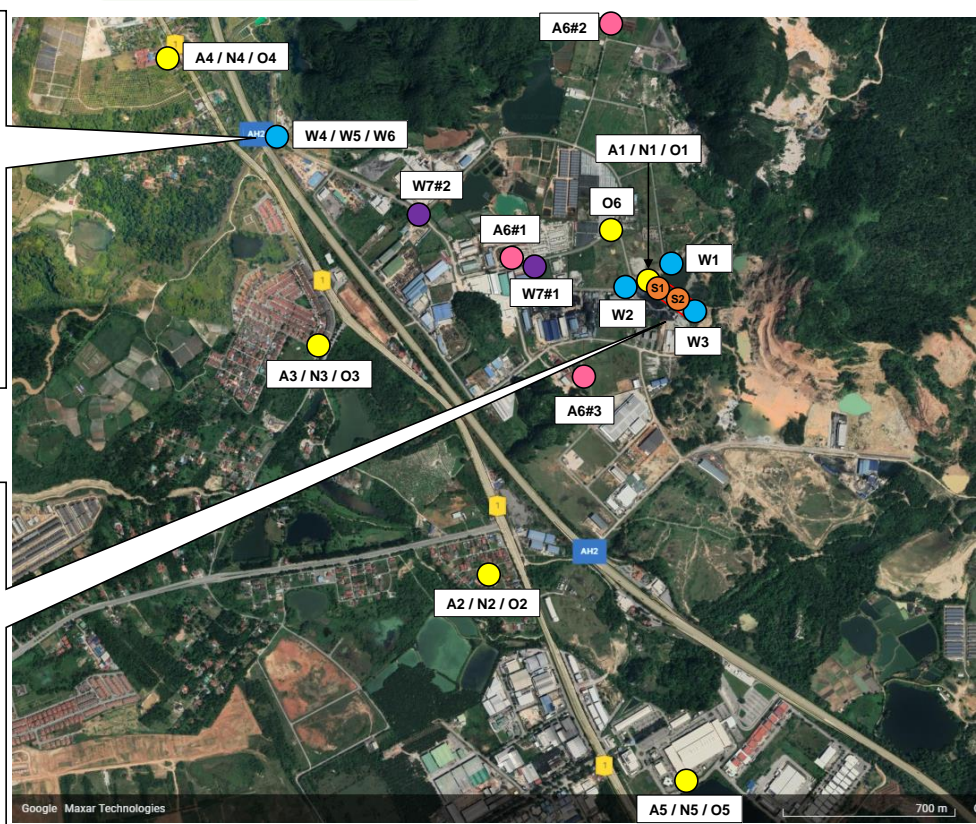
Monitoring at Plant and five (5) sensitive receptors

Compliance with Guidelines for Environmental Noise Limits and Control (3rd Edition, 2019) – Rec Permissible Sound Level for Recommended Permissible Sound Level (LAeq) by Receiving Land Use

Soil Quality

Monitoring at two (2) points at the Plant

All parameters comply with the Contaminated Land Management and Control Guidelines No. 1: Malaysian Recommended Site Screening Levels for Industrial Soil (DOE – CLM)



Project Location      A = Air Monitoring      W = Water Monitoring      N = Noise Monitoring      O = Odour Monitoring      S = Soil Monitoring

Water Quality

Monitoring at drainage system and Sg Raya (upstream and downstream from Plant)

Water quality were found within Class III limits of National Water Quality Standard (NWQS), with exception for BOD (W1 and W2), COD (W2), Arsenic (W1 and W3), Manganese (W1), Iron (W4, W5, W6) Oil and Grease (W2, W6) and Ammoniacal Nitrogen (W2). No PAHs detected.

Sg. Raya Water Quality Index is calculated to be 93 upstream and 91 downstream. This categorises the river as Class I: Clean

## Executive Summary

### EVALUATION OF IMPACTS



#### Air Quality & Odour Assessment

1. Air emission sources and air pollutants from are mainly from the incineration process. Potential Air Pollutants:
  - Total PM
  - NO<sub>x</sub>
  - CO
  - CO<sub>2</sub>
  - Heavy Metals (Hg, Cd, Pb, Cr, Zn)
  - SO<sub>2</sub>
  - VOC (Modelled as Ethanol CH<sub>3</sub>OH)
2. Air quality impacts are assessed by using AERMOD air dispersion modelling for Total PM, VOCs and Heavy Metals for two scenarios:
  - Normal Operation (with APCS),
  - Abnormal Operation (Failure of APCS)
3. Findings:
  - The modelling results showed that with optimum operation of incinerator and air pollution control system, the predicted maximum incremental of pollutants are minimal and mainly concentrated at the Project Site.
  - Impact toward the offsite receptors is still within the acceptable level. However, continuous stack emission monitoring and periodic ambient air monitoring shall be carried out to ensure the ambient air quality is good.



#### Health Impact Assessment

##### Operation

1. Under normal project operation at the project site, Kg Tersusun Tekkah Baru, Taman Seri Raia, SK Sungai Raya, and RTC Gopeng, the projected ground level concentrations (GLC) of all air pollutants under all Phases, will comply with the MAAQS 2013 and the AAAQG 1999 guidelines. Under abnormal project operation scenario, the projected GLC for all air pollutants will be temporarily high.
2. The highest predicted HQ for community exposure to air pollutants are at Kg. Tersusun Tekkah Baru and Taman Seri Raia during a normal, controlled project operational Phase 2B, will be all below 1.
3. The total LCR of  $2.9 \times 10^{-6}$  from a lifetime exposure of 40 years to both cadmium and 2,3,7,8-TCDD at Taman Seri Raia will be well below the acceptable cancer risk range of  $10^{-6}$  to  $10^{-4}$ . Therefore, the LCR is deemed as clearly acceptable.
4. Manganese and zinc concentrations in the final discharge from the WWTP will meet Standard B limit of the Environmental Quality (Industrial Effluent) Regulations 2009, for Sungai Raya they will meet Class IIA/IIB of the National Water Quality Standards for Malaysia, except for manganese at W2 which is the stormwater drain, thus low likelihood of human body contact.
5. The predicted HQ for non-carcinogenic health effects from body contact, wading and swimming with water containing manganese and zinc in Sungai Raya under scenario 1 indicates no chronic, non-carcinogenic health risk from body contact exposure to the water pollutants.

## Executive Summary

### EVALUATION OF IMPACTS



#### Water Quality Assessment

1. The estimations using simple mixing model calculation indicated that the treated effluent from the Clinco operation would not cause impact on water quality in Sungai Raya as the discharge rate from Clinco is relatively small compared to the river flow, which can be easily assimilated by the river. The estimated results also showed that even when raw effluent is discharged under low flow condition, the impact on water quality in Sungai Raya would only be minimal
2. Besides, it should be noted that this simple dilution or mass balance calculations will tend to be conservative and lead to higher than actual concentrations for decaying pollutants (i.e. TSS, BOD, COD, etc.). As such, no further refined modelling exercise is required



#### Erosion and Soil Assessment

##### Construction

1. Worst case scenario: Soil loss estimation during development phase where the development is carried out without implementation any of mitigation measures.
2. With control measures: Soil loss estimation during development phase where mitigation measures are implemented such as an installation of erosion sediment control (ESC) tools before commencement of the earthwork activities.

##### Operation

1. The proposed development will result in land use changes to certain areas to accommodate buildings, roadway and other infrastructure. The general land use conversion for the project development will not change the hydrologic and drainage pattern of the area.



#### Noise

1. Noise sources will be from operation of plant equipment and machineries.
2. Noise calculation methodology for prediction modelling is based on prediction algorithm for outdoor sound propagation as recommended by ISO 9613-2:1996E. Modelling of outdoor noise environment using CadnaA 2018.
3. Findings:
  - The ambient noise levels are not anticipated to be affected by the Project operation and does not pose any significance adverse impacts.
  - As the noise will dissipated at further distances, operational noise is not anticipated causing any impacts to on-site receptors and working community within 1 km from the Clinco boundary.
  - Noise from operation is not expected to be significant to nearest sensitive receptors. Thus, nearby community and receptors are not anticipated to be affected by the cumulative noise as the predicted noise values were well below the DOE's stipulated limits.

## Executive Summary

### EVALUATION OF IMPACTS



#### Waste Management

##### Solid Waste:

1. Solid waste will be managed with the procedures to be implemented.
  - Solid waste will be temporarily stored properly prior collection and disposal at the nearest landfill by approved contractor,
  - Collection frequency for disposal shall be increased as required for the Project,
  - Paper and plastic waste are sent for recycling where suitable.
2. Minimal impact is expected from solid waste generation.

##### Scheduled Waste (SW):

1. SW will be stored at the Scheduled Waste Storage Area (127.88 m<sup>2</sup>).
2. Storage capacity is capped at 20 MT at any one time, or waste stored for not more than 180 days, whichever comes first.
3. Waste stored amount are controlled by increasing the disposal frequency.
4. By implementing good waste management and procedures, environmental impacts from scheduled waste generation shall be insignificant.



#### Abandonment

1. Upon decision for abandonment, a thorough site inspection must be carried out to determine site condition and to evaluate the likely impacts, or to determine the proper measures for securing the site conditions.
2. Ensure systematic progression of work and adopt proper procedures.
3. The measures must also take into account the possible revival of Project.



#### Risk

1. Qualitative risk assessment undertaken using Risk Matrix Method. The identified onsite risks and the risk level to the surrounding areas and communities is assessed by the application of risk ranking of the identified hazard.
2. Hazards are identified from following activities:-
  - Transport of raw material and product
  - Storage and handling within the Plant
  - Incineration process
  - Diesel tanks
3. Potential Risks:
  - Chemical / Hazardous Material Exposure
  - Fire and Inflammables Risk Hazard
  - Occupational Health Hazards
4. Findings:
  - All potential hazards have risk indices below the threshold index of 8 (highest risk index is 6).
  - The results suggest the risks of potential hazards due to this Project are not significant.
  - The risks can be further reduced with safety, health and disciplinary measures.
  - The risks come mainly from the storage of three diesel fuel tanks of sizes 2 m<sup>3</sup>, 40 m<sup>3</sup> and 40 m<sup>3</sup> respectively
  - Individual Risk Contour is mostly contained in the Plant which is minimized due to sufficient bunding.
  - Risk levels are within acceptable limit.

## Executive Summary

### MITIGATION MEASURES



#### Air Quality

- ✓ Operation of air pollution control system (APCS). Operation is supervised by competent person (CePBFO).
- ✓ Preventive maintenance program for equipment as per scheduled.
- ✓ APCS Performance Monitoring (PM).
- ✓ APCS efficiency, maintenance program will be reviewed by Environmental Performance Monitoring Committee (EPMC).
- ✓ Emergency response procedure during APCS failure shall be implemented.
- ✓ Good housekeeping shall be practiced.
- ✓ Stack emission quality compliance monitoring (CM) to ensure compliance with Environmental Quality (Clean Air) Regulation 2014.
- ✓ Periodic ambient air quality monitoring shall be conducted throughout operational stage at the Plant boundary



#### Noise

##### Engineering Control:

- ✓ Ensure equipment are properly installed and maintained.

##### Administrative Control:

- ✓ Distance/barrier from workers to noise.
- ✓ Limit exposure time for worker according to Occupational Safety and Health (Noise Exposure) Regulations, 2019.
- ✓ Preventive maintenance for equipment.
- ✓ Hearing loss prevention program, yearly audiometric testing, improvement to noisy environment and exposure dose management.

##### Personal Protective Equipment (PPE):

- ✓ Hearing protection devices shall be provided.
- ✓ Usage PPE is mandatory in high noise area.

##### Monitoring:

- ✓ Noise mapping and noise risk assessment.
- ✓ Periodic monitoring at Plant boundary to ensure compliance with limit under the Guidelines for Environmental Noise Limits and Control.



#### Water Quality

- ✓ Internal drainage system is equipped with ball valve and drain gate for flow control.
- ✓ Wastewater shall be treated at wastewater treatment plant (WWTP) prior discharge into drainage system.
- ✓ Regular maintenance of WWTP equipment.
- ✓ Performance Monitoring (PM) of WWTP.
- ✓ Compliance Monitoring (CM) for wastewater discharge to ensure compliance with Standard B limits of Environmental Quality (Industrial Effluent) Regulations, 2009.
- ✓ Operation, maintenance and monitoring of WWTP shall be supervised by competent person.
- ✓ Emergency response procedure during WWTP overflow or abnormal discharge shall be implemented.
- ✓ Diesel, chemical or raw material storage tanks located on impervious platform and surrounded by bunds with a capacity equal to 110% of the largest tank capacity.
- ✓ Emergency response procedure during spillage or leakage shall be implemented.
- ✓ Sewage shall be treated with septic tanks.
- ✓ Sewage treatment system shall be well maintained and carry out regular desludging.
- ✓ Compliance monitoring (CM) for sewage discharge to ensure compliance with Standard B limits of Environmental Quality (Sewage) Regulations 2009.

## Executive Summary

### MITIGATION MEASURES



#### Erosion and Soil Assessment

- ✓ Temporary slopes must be covered with geotextiles and secured by wooden stakes.
- ✓ Permanent slopes must be stabilized. The use of Rolled Erosion Control Products (i.e.: Fibromat) or turfing/ hydroseeding is highly recommended.
- ✓ To construct the proposed sediment basin prior to the commencement of work.
- ✓ To provide wash trough complete with water pressure jets at the construction access. To ensure the discharge from the wash trough flowing into the sediment basin.
- ✓ To construct proper and adequate temporary earth drains to divert storm water run-off into the sediment basin.
- ✓ Disturbed, exposed grounds and stockpiles should be compacted with 'track walking' to minimize erosion. Track walking is done by mobilizing the excavator up and down the slope. This will leave trails of track which will minimize erosion.
- ✓ Silt fences or earth bunds to be erected to protect the open flat area to reduce silt laden surface runoff water from entering the drainage system.
- ✓ Check dams shall be erected in proposed temporary drainage line. This will greatly reduce the surface runoff water discharge speed and enable silt to be captured on site before entering natural water bodies.
- ✓ To perform regular maintenance and desilting of the drains and sediment basin to allow better functionality and reduce the discharge of sediment from the project site.
- ✓ If the sediment basin needs to be resized to suit site conditions, an appropriate mitigation must be developed such as baffles, compartment or any mitigation that can lengthen the flow path and distribute the flow more widely.



#### Risk

- ✓ Regular checks and good maintenance are implemented as standard procedure.
- ✓ Regular inspection and maintenance of firefighting equipment.
- ✓ Apply precautions for use and safe handling of raw materials according to the material safety data sheet.
- ✓ All storage and containers shall be properly labelled for easy identification of material.
- ✓ Usage of PPE at high risk plant areas.
- ✓ Conduct a Hazard and Operability study (HAZOP) for the Project to identify any hazards due to design and operability issues.
- ✓ Emergency Response Plan (ERP) shall be regularly reviewed and updated.

## Executive Summary

### MITIGATION MEASURES



#### Waste Management

##### Solid Waste:

- ✓ Good housekeeping practices.
- ✓ Adequate waste bins are provided.
- ✓ Storage areas for solid waste and scheduled waste shall be separated.
- ✓ Waste burning is prohibited onsite.
- ✓ Collected solid waste stored at refuse chambers before being collected by approved contractor for disposal.
- ✓ Recyclables are segregated and sent to recycling centre.
- ✓ Waste avoidance and reduction to be encouraged during construction
- ✓ Construction waste to be segregated and stored in different containers or skips to enhance reuse of material

##### Scheduled Waste:

- ✓ All scheduled wastes are managed according to procedures stipulated under the Environmental Quality (Scheduled Wastes) Regulations 2005.
- ✓ Management of scheduled waste shall be supervised by Competent Person (CePSWaM).
- ✓ Scheduled wastes will only be managed and disposed at premise operated by Licensed Contractor.
- ✓ Scheduled wastes should not be stored more than 180 days, or the quantity of scheduled wastes accumulated at site shall not exceed 20 metric tonnes, whichever comes first.
- ✓ Up-to-date inventory on categories and quantities of scheduled waste, treatment and disposal method for up to three years from the scheduled waste's generation date.
- ✓ Emergency spill kit shall be provided at the scheduled waste storage area.



#### Abandonment

- ✓ In case of abandonment, closure plan shall be prepared in advance.
- ✓ All structures will be dismantled and removed from the project site.
- ✓ The site shall be ensured free from any standing waters or water ponding to eliminate mosquitoes' breeding.
- ✓ Exposed areas will be re-vegetated and re-graded if necessary
- ✓ All demolished materials, fuel and oils shall be removed from the project site.

## Executive Summary




### ENVIRONMENTAL MANAGEMENT PLAN

- ❖ Environmental Policy
- ❖ Responsibility on environmental management by Clinco – management team, operation team, support team
- ❖ Competent person
- ❖ Monitoring, Auditing, Reporting






#### Air Quality

##### Stack Emission Quality Compliance Monitoring (CM)

-  5 APCS stacks, (1 for C200, 1 for each i8-M1000)
-  Annual monitoring for Total PM, Hg, Total Organic Carbon (TOC)
-  Compliance to Environmental Quality (Clean Air) Regulations 2014




##### Ambient Air Quality Impact Monitoring (IM)

-  Plant boundary, Kampung Tekkah, Taman Seri Raia, SK Sungai Raia
-  Annual monitoring for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, CO
-  Compliance to Malaysian Ambient Air Quality Standard 2013 (MAAQS 2013)






#### Water Quality

##### Water Discharge Quality Compliance Monitoring (CM)

-  WWTP Final Discharge Point, Drainage to Sg Raya
-  Weekly monitoring for pH, COD, SS, Cd, Cr<sup>6+</sup>, Cr<sup>3+</sup>, Pb, Zn, Ba
-  Compliance to Standard B limits of Environmental Quality (Industrial Effluent) Regulations 2009




##### Sewage Discharge Quality Compliance Monitoring (CM)

-  Sewage Treatment Discharge Point
-  Yearly monitoring for BOD, COD, SS, Oil & Grease, AN
-  Compliance to Standard B Limits of Environmental Quality (Sewage) Regulations 2009



#### Noise

##### Noise Level Impact Monitoring (IM)

-  Plant boundary, Kampung Tekkah, Taman Seri Raia, SK Sungai Raia
-  Annual monitoring for L<sub>Aeq</sub>, L<sub>10</sub>, L<sub>90</sub>, L<sub>min</sub>, L<sub>max</sub>
-  Compliance to Guidelines for Environmental Noise Limits and Control (Third Edition, 2019), Second Schedule: Recommended Permissible Sound Level (L<sub>Aeq</sub>) for Existing Built-Up Areas