

EXECUTIVE SUMMARY



Executive Summary

First Schedule Environmental Impact Assessment (EIA) for The Establishment of a Proposed Offsite Scheduled Waste Recovery Plant, Wastewater Treatment Plant and Storage Facilities on Lot 1751, Block 26, Kemena Land District, Bintulu, Sarawak

Project Proponent



Safe & Clean Waste Management Sdn Bhd

Lot 11946 (Lot A1), Jalan Patau-Patau,
Rancha-Rancha Industrial Estate, 87000
W.P. Labuan, Malaysia
Tel: 1700-816-152 Fax: 087-410981
Contact Person: Chen Ying Hao (Managing
Director)
Email: Edwardcyh52@gmail.com

Qualified Person



Chemsain Konsultant Sdn Bhd

No. 172, Jalan Rock, 93200 Kuching,
Sarawak
Tel: 082-548366 Fax: 082-548388
Contact Person: Ir. Brian Chong (Director) /
Ngu Hsiao Fei (EIA Team Leader)
Email: consult@gmail.com

Introduction

The Project Proponent intends to establish and operate an offsite scheduled waste Recovery Plant, Wastewater Treatment Plant and Storage Facilities within Kidurong Industrial Area (KIA).

Legislative Requirements

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

Item 14. Waste Treatment and Disposal

(a) Scheduled Waste:

- (i) Construction of recovery plant (off-site)
- (ii) Construction of wastewater treatment plant (off-site)
- (iii) Construction of storage facilities (off-site)

Project Description

The proposed Project, covering approximately 1.42 hectares, will be developed within an existing vacant warehouse in the Kidurong Industrial Area (KINDA I).

It consists of three main components:

1. **Wastewater Treatment Plant (WWTP)** – for treating wastewater
2. **Washing Bay (WB)** – for cleaning and decontaminating waste-related equipment and materials
3. **Storage Facility** – for the temporary storage of scheduled waste prior to incineration or landfill disposal

Capacity of Facility:

No.	Facility	Quantity (MT/Month)
1.	Wastewater Treatment Plant	1,392.0
2.	Washing Bay	100.0
3.	Off-site SW Storage	2,452

Scheduled Wastes Handled at WWTP:

No.	SW Code	Description	Quantity (MT/Month)
1.	SW 106	Residues from recovery of acid pickling liquor	5.5
2.	SW 206	Spent inorganic acids	55
3.	SW 301	Spent organic acids with pH less or equal to 2 which are corrosive and hazardous	60.5
4.	SW 307	Spent mineral oil-water emulsion	30.25
5.	SW 309	Oily water	360.25
6.	SW 311	Waste of oil or oily sludge	412.5
7.	SW 401	Spent alkalis containing heavy metals	16.5
8.	SW 402	Spent alkalis with pH more or equal to 11.5 which are corrosive or hazardous	27.5

Project Description

Scheduled Wastes Handled at WWTP:

No.	SW Code	Description	Quantity (MT/Month)
9.	SW 422	A mixture of scheduled and non-scheduled wastes	44
10.	-	Wastewater from treatment process (Tank cleaning, Containing Washing & Sump Pit)	380
Total			1,392.0

Scheduled Wastes Handled at Washing Bay:

No.	SW Code	Description	Quantity (MT/Month)
1.	SW 409	Disposed container, bags or equipment contaminated with chemicals, pesticides, mineral oil or schedule waste	50
2.	SW 410	Rags, gloves, plastics, paper, gloves or filters contaminated with scheduled waste	50
Total			100

Scheduled Wastes Handled at Off-site Storage:

Storage Area	SW Code	Description	Quantity (MT/Month)
A2 & D	SW 106	Residues from recovery of acid pickling liquor	50
	SW 206	Spent inorganic acids	55
	SW301	Spent organic acids with pH less or equal to 2 which are corrosive and hazardous	60.5

Project Description

Scheduled Wastes Handled at Off-site Storage:

Storage Area	SW Code	Description	Quantity (MT/Month)
A2 & D	SW307	Spent mineral oil-water emulsion	30.25
	SW 309	Oily water	360.25
	SW 311	Waste of oil or oily sludge	412.5
	SW 401	Spent alkalis containing heavy metals	16.5
	SW 402	Spent alkalis with pH more or equal to 11.5 which are corrosive or hazardous	27.5
	SW 422	A mixture of scheduled and non-scheduled wastes	44
E1 & E2	SW 101	Waste containing arsenic or its compound	1.3
	SW 102	Waste of lead acid batteries in whole or crushed	2
	SW 104	Dust, slag, dross or ash containing arsenic, mercury, lead, cadmium, chromium, nickel, copper, vanadium, beryllium, antimony, tellurium, thallium or selenium excluding slag from iron and metal factory	1
	SW 107	Slags from copper processing for further processing or refining containing arsenic, lead or cadmium	1.3
	SW 109	Waste containing mercury or its compound	3

Project Description

Scheduled Wastes Handled at Off-site Storage:

Storage Area	SW Code	Description	Quantity (MT/Month)
E1 & E2	SW 110	Waste from electrical and electronic assemblies containing components such as accumulators, mercury-switches, glass from cathode-ray tubes and other activated glass polychlorinated biphenyl-capacitors, or contaminated with cadmium, mercury, lead, nickel, chromium, copper, lithium, silver, manganese, or polychlorinated biphenyl	2
	SW 202	Waste Catalysts	1.3
	SW 203	Immobilized scheduled wastes including chemically fixed, encapsulated, solidified or stabilized sludges	1.3
	SW 204	Sludges containing one or several metals including chromium, copper, nickel, zinc, lead, cadmium, aluminium, tin, vanadium and beryllium	50
	SW 206	Spent inorganic acids	97.5
	SW 301	Spent organic acids with pH less or equal to 2 which are corrosive or hazardous	104.6
	SW 303	Adhesive or glue waste containing organic solvents excluding solid polymeric materials	1.3
	SW 313	Oil contaminated earth from re-refining of used lubricating oil	1.3
	SW 320	Waste containing formaldehyde	1.3

Project Description

Scheduled Wastes Handled at Off-site Storage:

Storage Area	SW Code	Description	Quantity (MT/Month)
E1 & E2	SW 325	Uncured resin waste containing organic solvents or heavy metals including epoxy resin and phenolic resin	1
	SW 326	Waste of organic phosphorus compound	1
	SW 402	Spent alkalis with pH more or equal to 11.5 which are corrosive or hazardous	61.8
	SW 403	Discarded drugs containing psychotropic substances or containing substances that are toxic, harmful, carcinogenic, mutagenic or teratogenic	1
	SW 406	Clinker, slag and ashes from scheduled waste incinerator	1
	SW 408	Contaminated soil, debris or matter resulting from cleaning-up of a spill of chemical, mineral oil or scheduled wastes	8.7
	SW 411	Spent activated carbon excluding carbon from the treatment of potable water and processes of food industry and vitamin production	10
	SW 416	Sludges of inks, paints, pigments, lacquer, dye or varnish	1.3
	SW 417	Waste of inks, paints, pigments, lacquer, dye or varnish	2
	SW 418	Discarded or off-specification Inks, paints, pigments, lacquer, dye or varnish products containing organic solvent	2

Project Description

Scheduled Wastes Handled at Off-site Storage:

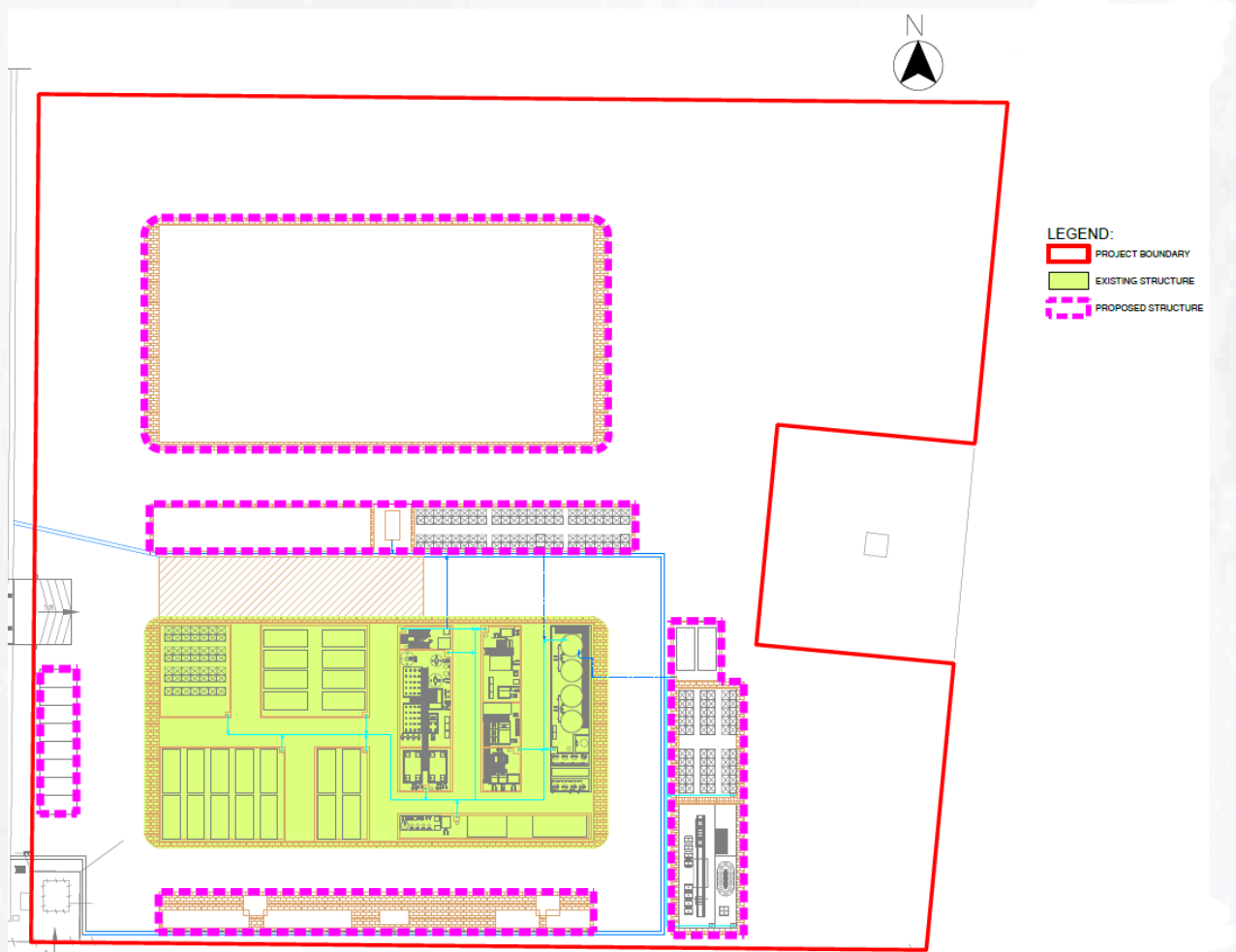
Storage Area	SW Code	Description	Quantity (MT/Month)
E1 & E2	SW 421	A mixture of scheduled wastes	5
	SW 422	A mixture of Scheduled and non-scheduled wastes	64
	SW 427	Mineral Sludges including Calcium Hydroxide Sludges, Phosphating Sludges, Calcium Sulphite Sludges and Carbonated Sludges	1.7
	SW 429	Chemicals that are discarded or off-specification	1
	SW 430	Obsolete laboratory chemicals	2
	SW 501	Any residues from treatment or recovery of scheduled wastes	6.5
J	SW 305	Spent lubricating oil	104.7
	SW 306	Spent hydraulic oil	17.5
	SW 308	Oil tanker sludges	43.7
	SW 310	Sludge from mineral oil storage tank	226.9
	SW 312	Oily residue from automotive workshop, service station, oil or grease interceptor	43.7
	SW 314	Oil or sludge from oil refinery plant maintenance operation	8.7
	SW 322	Waste of non-halogenated organic solvents	8.7

Project Description

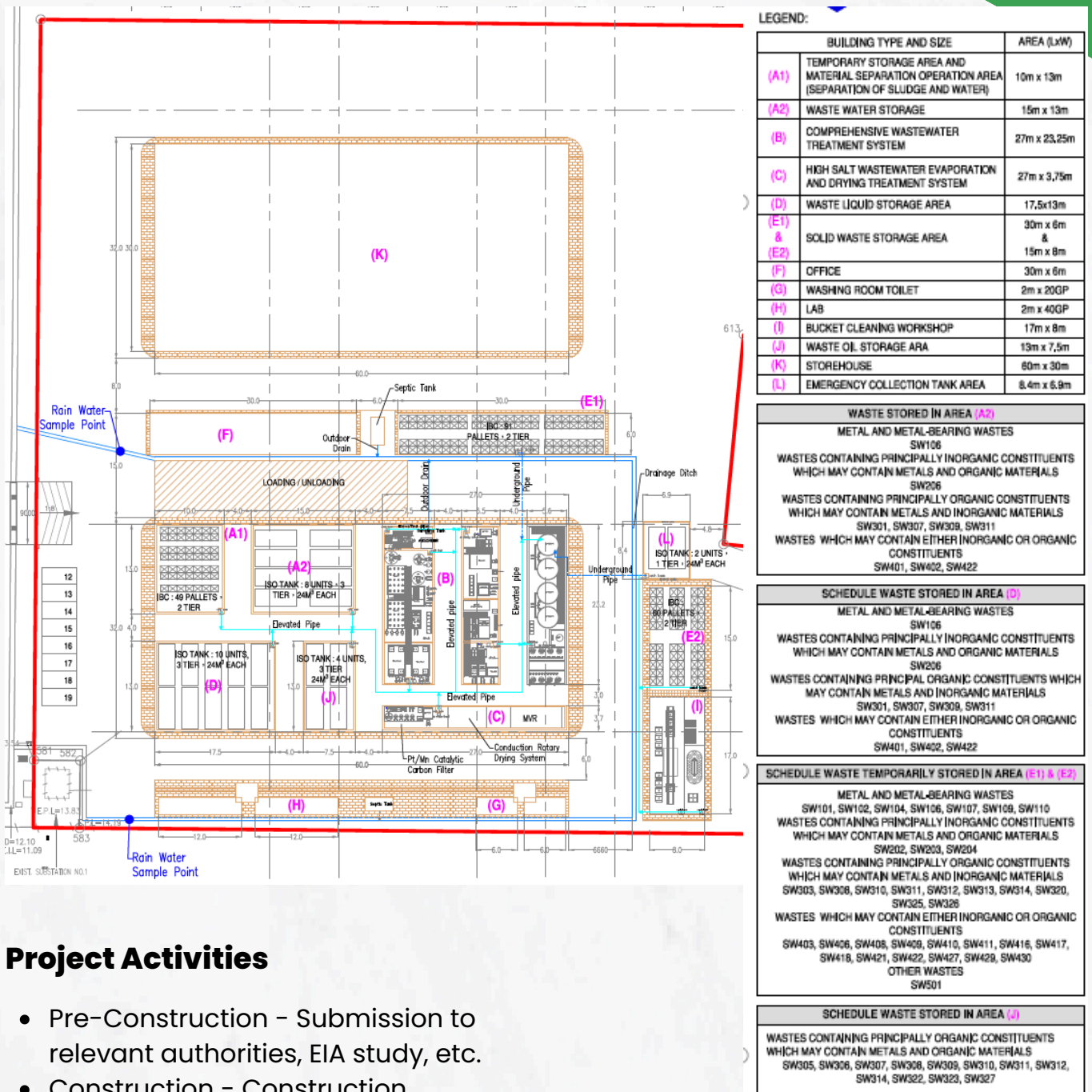
Scheduled Wastes Handled at Off-site Storage:

Storage Area	SW Code	Description	Quantity (MT/Month)
J	SW 323	Waste of halogenated organic solvents	8.7
	SW 327	Waste of thermal fluids (heat transfer) such as ethylene	8.7
		Total	2,452

Project Layout Plan



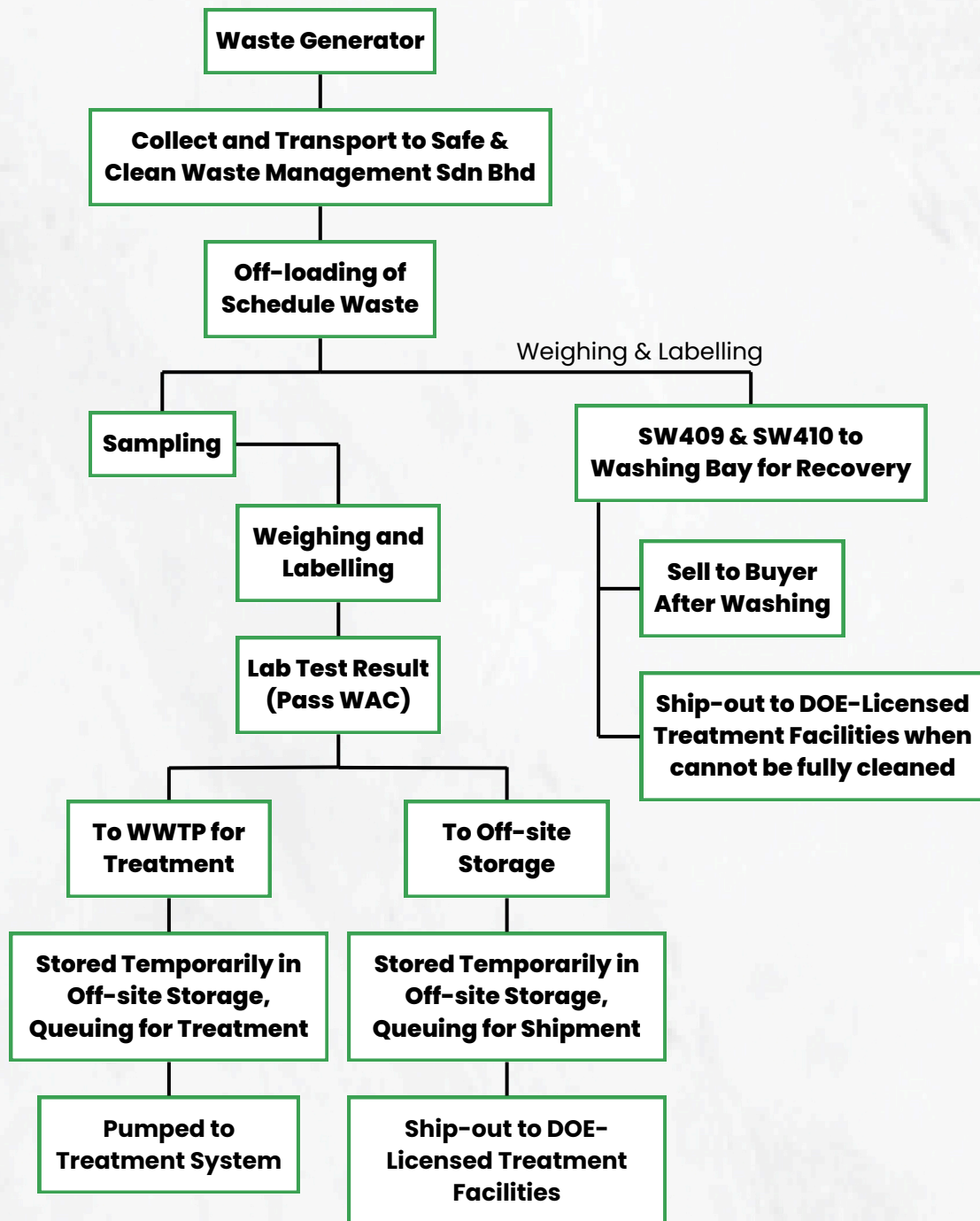
Project Layout Plan



Project Activities

- Pre-Construction - Submission to relevant authorities, EIA study, etc.
- Construction - Construction approximately 18 months (72 weeks) after approval of EIA report
- Operation - The process involving treatment, recovery, storage for 50 scheduled wastes and transportation to recovery facilities or disposal facilities

Schematic Process Flow of Scheduled Waste Management



Existing Environment

Topography

The Project site ranges from 15-24 m above mean sea level and is generally characterized as low-lying terrain.

Meteorology

Generally, an equatorial type of climate characterised by hot & humid weather all year round.



Geology

The Project site is underlain by sedimentary rocks from the Pleistocene–Holocene periods, consisting mainly of coastal & riverine alluvium, with clay, silt, sand, gravel, and peat layers.

Hydrology & Drainage

Surface runoff will be directed through existing concrete & RC drains along the western boundary, flowing south into a monsoon drain, then into Sg. Sebatang, & discharging into the South China Sea.

Soil

The Project site is entirely underlain by the Silantek/Tika 4 soil series, with surrounding areas comprising the Merit/Bekenu 4/5 and Tatau 5/Mukah soil series.

Environmental Baseline Sampling



Surface Water Quality

- Three (3) surface water samples were collected.
- The water quality results were compared against Class IIB of the National Water Quality Standards for Malaysia (NWQSM).
- All the water quality parameters tested are within Class IIB limits except TCC and FCC and DO, BOD,COD, TSS and AN for W3.



Ambient Air Quality

- The ambient air quality level was sampled at one location.
- All parameters (PM10, PM2.5, SO2, NO2, CO, O3 & H2S) shows level below threshold limit of Malaysian Ambient Air Quality Standards (MAAQS) 2013 and Arizona Ambient Air Guideline (AAAQG).



Ambient Noise Level

- Baseline ambient noise was undertaken at one (1) locations.
- All parameters (Leq, L90, L10, Lmax, Lmim)



Biological Environment



Located within the Kidurong Industrial Area (KINDA I), the Project site contains no flora or fauna of conservation value

Human Environment



Regional Profile

The proposed Project site is located within the jurisdiction of the Bintulu District, under the Bintulu Division in Sarawak



Sensitive Receptors

The nearest settlement is Hock Peng Squatters, situated approximately 150 m from the Project site. Although the buffer distance to this sensitive receptor



Existing Land Use

The dominant land uses within 5 km of the Project site are mainly light industrial with some commercial, activities.



Social Survey Findings

Most of the respondents surrounding area are mostly unaware of the Project. However, no objection towards the proposed Project were raised.

Existing Land Use within 1 km



Impact Assessment & Mitigation Measures



Air Quality Impact

Construction - Insignificant

- Fugitive dust emission
- Emission from vehicles & non-road machinery used on-site
- Risk to human health

Mitigation Measures

- Use covers, moisture, and minimize stockpiles to control dust.
- Enforce vehicle speed limits to reduce dust emissions.
- Ban open burning; dispose of waste at approved landfills.
- Ensure machinery is well-maintained and properly tuned.
- Turn off engines idling over 3 minutes, especially in enclosed areas.
- Regularly service fuel-burning equipment to minimize smoke emissions.

Reference Page to EIA Report

- Section 7.3.1, pages C7-9 to C7-28
- Section 8.2.1, pages C8-1 to C8-2

Operation - Insignificant

- Absorption tower - H₂S and Odour
- Risk to human health

Mitigation Measures

- Follow DOE (2014) guidelines to control fugitive dust and emissions.
- Store scheduled wastes in sheltered, concreted areas; liquids in sealed, labeled tanks.
- Grass unpaved areas to minimize dust from wind.
- Enclose all processing equipment in warehouses.
- Conduct regular housekeeping to maintain cleanliness and safety.
- Cover tanks and sludge units to control odour emissions.
- Implement preventive maintenance to detect leaks and prevent H₂S release.
- Design air pollution control systems in line with DOE (2014) guidance.
- Shut down operations immediately in case of air pollution system failure.
- Equip backup generators with silencers and enclose for noise control; notify DOE if fuel use exceeds 15 kg/hr.



Community Health Impact

Construction - Insignificant

- Air, water and noise pollutants cause disturbance to health

Mitigation Measures

- Suppress dust by regularly watering exposed surfaces and unpaved roads.
- Cover construction materials during transport and storage.
- Limit high-noise activities to 8:00 AM – 6:00 PM; use mufflers and silencers on machinery.
- Notify nearby communities in advance of any high-impact works.

Operation - Minor

- Potential health impact from H₂S and odour

Mitigation Measures

- Gas-tight covers and enclosures on anaerobic units to prevent fugitive H₂S emissions.
- Biogas collection and treatment via absorber system to control H₂S release.
- Operational controls (OLR, pH, HRT) to minimise excess H₂S generation.
- Emergency response plan for abnormal H₂S release, including isolation and communication protocols.

Impact Assessment & Mitigation Measures

Mitigation Measures

- Contain and treat construction wastewater properly.
- Avoid storing chemicals or fuels near waterways.
- Install warning signs and station flagmen at busy site access points.
- Conduct safety briefings on respectful interaction with local residents.
- Set up a clear grievance mechanism to handle community concerns (dust, noise, safety, water).

Mitigation Measures

- Operator training on odour management, H₂S monitoring, and PPE use.
- Community complaint response mechanism with a hotline and follow-up procedures.

Reference Page to EIA Report

- Section 7.3.2, pages C7-29 to C7-32
- Section 8.2.2, pages C8-3 to C8-4



Water Quality Impact

Construction – Minor

- Sewage discharge & runoff
- Accidental spills and leaks

Mitigation Measures

- Maintain and inspect drainage systems to prevent blockages and ensure proper runoff flow.
- Treat sewage using compliant septic tanks; desludge regularly.
- Pre-treat canteen/kitchen wastewater with screens and grease traps before discharge.
- Store fuel in bunded, sealed areas with drip trays and rain covers; comply with waste storage guidelines.
- Keep used oil in labeled drums with inventory records.
- Dispose of used oil and waste as per Scheduled Waste Regulations 2005.
- Position fuel storage/refueling areas away from drainage channels.
- Restrict scheduled waste access to trained staff; conduct regular inspections.
- Equip site with spill kits; dispose of used materials as scheduled waste.
- Train workers on chemical handling, waste disposal, and spill response.

Reference Page to EIA Report

- Section 7.3.3, pages C7-32 to C7-39
- Section 8.2.3, pages C8-4 to C8-6

Operation – Minor

- Overload treated sewage discharges.
- Accidental spills and leaks of schedule wastes.
- Accidental release of wastewater – washing of rags, gloves and drums.
- Discharge of insufficient treated wastewater due to malfunction or treatment failure.

Mitigation Measures

- Treat sewage to comply with Standard B (EQ (Sewage) Regs 2009).
- Desludge septic tanks regularly.
- Treat effluent to meet Standard B (EQ (Industrial Effluent) Regs 2009).
- Employ CePIETSo-PCP-certified personnel for system operation and emergency response.
- Monitor key parameters (pH, COD, BOD, TSS, oil & grease, heavy metals).
- Manage scheduled waste per EQ (Scheduled Wastes) Regs 2005 and DOE guidelines.
- Use spill trays to contain leaks from equipment/storage areas.
- Keep spill kits on-site for immediate response to minor spills.
- Establish clear spill response procedures for oil, fuel, or chemical leaks.
- Construct concrete flooring in areas with potential contaminant exposure to prevent ground pollution.

Impact Assessment & Mitigation Measures



Noise Impact

Construction - Insignificant

- Noise creates nuisance & cause disturbance to human beings.

Mitigation Measures

- Use noise barriers, deflectors, and mufflers on machinery and impact equipment.
- Restrict construction activities to daytime (7am – 7pm).
- Provide DOSH-approved hearing protection (e.g., earmuffs/earplugs) for workers in high-noise areas.
- Regularly maintain equipment to minimize noise emissions.
- Investigate noise complaints promptly and take corrective action.

Reference Page to EIA Report

- Section 7.3.4, pages C7-39 to C7-45
- Section 8.2.4, pages C8-6 to C8-7

Operation - Insignificant

- Noise creates nuisance & cause disturbance to human beings.

Mitigation Measures

- Provide DOSH-approved hearing protection; enforce use per OSH (Noise Exposure) Reg. 2019.
- Enforce speed limits for all vehicles and forklifts entering or exiting the site.
- Maintain vehicles and forklifts regularly to minimise engine and mechanical noise.
- Train operators in quiet handling techniques (e.g., avoid dropping pallets or banging loads).
- Promptly repair or replace faulty mufflers, bearings, or hydraulic parts.
- Reduce idling by switching off engines when not in use.



Risk

Operation - Minor

- Potential risk of fire from the storage of used oil
- Risk levels for the proposed Project comply with the DOE risk criteria

Reference Page to EIA Report

- Section 7.3.5, pages C7-45 to C7-63
- Section 8.2.5, pages C8-7 to C8-8

Mitigation Measures

- Implement the Emergency Response Plan (ERP).
- Conduct regular emergency drills (including desktop exercises) with local fire and rescue services, followed by review sessions.
- Employ only trained and competent personnel.
- Inspect all fire safety equipment and systems routinely.

Impact Assessment & Mitigation Measures



Waste Management

Construction – Minor

- Indiscriminate waste management will contaminate both land surface and surface water.

Mitigation Measures

- Implement a materials inventory system to prevent over-supply and waste.
- Promote the 3Rs (Reduce, Reuse, Recycle) and good housekeeping on-site.
- Manage scheduled wastes in compliance with the Environmental Quality (Scheduled Wastes) Regulations, 2005.
- Prohibit open burning of waste.
- Conduct proper waste collection and disposal in accordance with best practices.

Reference Page to EIA Report

- Section 7.3.6, pages C7-64 to C7-67
- Section 8.2.6, pages C8-8 to C8-9

Operation – Minor

- Indiscriminate waste management will contaminate both land surface and surface water.

Mitigation Measures

- Establish a Scheduled Waste Management Plan in compliance with the Environmental Quality (Scheduled Wastes) Regulations, 2005.
- Design the off-site scheduled waste storage facility per DOE guidelines to prevent environmental contamination.
- Obtain Written Permission and operating licence from DOE under Sections 19 and 18 of the Environmental Quality Act 1974.
- Label and store all scheduled wastes in durable, leak-proof containers.
- Appoint CePSWaM- and CePIETSO-certified competent persons to oversee waste and wastewater management.
- Use only DOE-licensed vehicles for scheduled waste transport.



Socio-Economics Impact

Construction and Operation – Insignificant

- Beneficial impacts on employment and local economy
- Potential impact on public infrastructure and services

Mitigation Measures

- Notify local communities of job and contract opportunities.
- Hire foreign workers legally through authorised agents.
- Implement a transparent community grievance mechanism.
- Conduct medical screening and disease prevention training for workers.
- Implement vector control measures.

Mitigation Measures

- Develop skills training programs for local community participation.
- Establish a workforce Code of Conduct to promote respect, safety, and professionalism.

Reference Page to EIA Report

- Section 7.3.7, pages C7-67 to C7-69
- Section 8.2.7, pages C8-9 to C8-10

Impact Assessment & Mitigation Measures



Occupational Safety and Health

Construction – Minor

- Accident associated with common site hazards causing downtime injury or fatality.

Mitigation Measures

- Provide workers with appropriate and well-maintained PPE, including helmets, gloves, safety boots, earmuffs, and harnesses for work at heights.
- Restrict construction activities to daylight hours (7:00 am – 7:00 pm).
- Install clear safety signage across the Project site to highlight hazards and procedures.
- Use bulletins and circulars to update workers on site activities, restricted areas, and safety notices.
- Conduct hazard identification and plan machinery placement to reduce risks.
- Report and record all incidents, near-misses, and unsafe conditions to prevent recurrence.
- Ensure availability of first-aid facilities and emergency medical transport at all times.

Reference Page to EIA Report

- Section 7.3.8, pages C7-69 to C7-71
- Section 8.2.8, pages C8-11 to C8-12

Operation – Minor

- Accident associated with common site hazards causing downtime injury or fatality.

Mitigation Measures

- Enforce strict adherence to the Emergency Response Plan (ERP) covering operational and external hazards.
- Comply fully with DOSH safety rules and regulations.
- Mandate consistent enforcement of safety procedures and training.
- Use Safety Data Sheets (SDS) and waste cards for all hazardous materials.
- Ensure drivers and emergency personnel are adequately trained.
- Provide continuous training in occupational safety and environmental housekeeping.
- Supply appropriate PPE (e.g. gloves, helmets, respirators) to all workers.
- Maintain on-site stock of medical supplies and first-aid kits.
- Display "No Smoking" and "No Naked Fire" signs at entrances and storage areas.
- Clearly label storage areas and provide accessible fire extinguishers.
- Equip the site with essential safety gear: spill kits, eyewash stations, PPE bins, and proper labelling tools.
- Enforce personal hygiene procedures when handling scheduled wastes.

Impact Assessment & Mitigation Measures



Traffic Impact

Construction – Insignificant

- Increase in traffic generation to and from Project site

Mitigation Measures

- Install traffic signs, barriers, warning lights, and flashing arrows at construction zones to alert road users.
- Enforce road safety rules for all workers and vehicle operators.
- Ensure construction vehicles are properly covered and secured to prevent falling debris.
- Provide flaggers with high-visibility gear for clear visibility.
- Conduct regular vehicle maintenance using approved parts to reduce accident risks.
- Ensure all contractors and subcontractors comply with RTD safety regulations.

Reference Page to EIA Report

- Section 7.3.9, pages C7-72 to C7-74
- Section 8.2.9, pages C8-12 to C8-14

Operation – Minor

- Increase in traffic generation to and from Project Site.
- Potential hazards associated with transportation of scheduled waste.

Mitigation Measures

- Only DOE-registered transporters may handle scheduled wastes.
- Maintain an up-to-date waste inventory and submit consignment notes to DOE, generator and receiver.
- Report waste movements via the Sixth Schedule or e-SWIS system.
- Securely pack dry scheduled waste to prevent movement or spillage.
- Provide spill kits and ensure transport teams are trained in their use.
- Transporters must have a spill response plan and provide PPE.
- Establish an ERP for transportation emergencies.
- Use designated routes and schedules to minimise accident risks.
- Follow Waste Card procedures in case of accident or fire.



Abandonment

Construction & Operation – Minor

- If abandoned, the facility will be reverted back to industrial lot.

Reference Page to EIA Report

- Section 7.3.10, pages C7-74 to C7-75
- Section 8.2.10, page C8-14

Mitigation Measures

- Submit an Abandonment Plan to DOE at least three (3) months before project closure.
- Follow the approved plan strictly to ensure a safe and systematic process.
- Dispose of all scheduled wastes at licensed facilities.
- Dismantle unsafe structures and clear all materials from the site.
- Allocate sufficient time for removal of equipment, machinery, and buildings.

Proposed Monitoring Programme

During Construction Stage

Component	Station	Parameter	Reference	Frequency
Ambient Air	1	PM10, PM2.5, SO2, NO2, CO & O3	MAAQS	Monthly monitoring Quarterly reporting
Noise	1	Leq, L90, L10, Lmax, Lmin	Guidelines for Environmental Noise Limits and Control	
Surface Water	3	Temperature, pH, DO, BOD, COD, TSS, AN, O&G, TCC & FCC	Class IIB, NWQSM	

During Operation Stage

Component	Station	Parameter	Reference	Frequency
Stack	1	H2S	EQ (Clean Air) Reg, 2014	Periodic
IETS Discharge	1	Temp, pH, BOD, COD, TSS, AN, Al, Cd, Pb, Cr, Hg, Ni, Zn, As, CN	Std B, EQ (Industrial Effluent) Reg, 2009	Weekly monitoring Monthly reporting
Surface Water	3	Temperature, pH, DO, BOD, COD, TSS, AN, O&G, TCC & FCC	Class IIB, NWQSM	Monthly monitoring Quarterly reporting
Ambient Air	1	H2S	MAAQS	
Noise	1	Leq, L90, L10, Lmax, Lmin	Guidelines for Environmental Noise Limits and Control	

Study Findings

The proposed Project will not result in any significant impacts if appropriate mitigating measures are implemented followed by environmental management plan, environmental monitoring and environmental auditing.
