

# EXECUTIVE SUMMARY

## CHAPTER 1 : INTRODUCTION

### PROJECT PROPONENT



### ENVIRONMENTAL CONSULTANT



### ENVIRONMENTAL IMPACT ASSESSMENT (SECOND SCHEDULE)

QUALIFIED PERSON

### EIA TEAM MEMBER

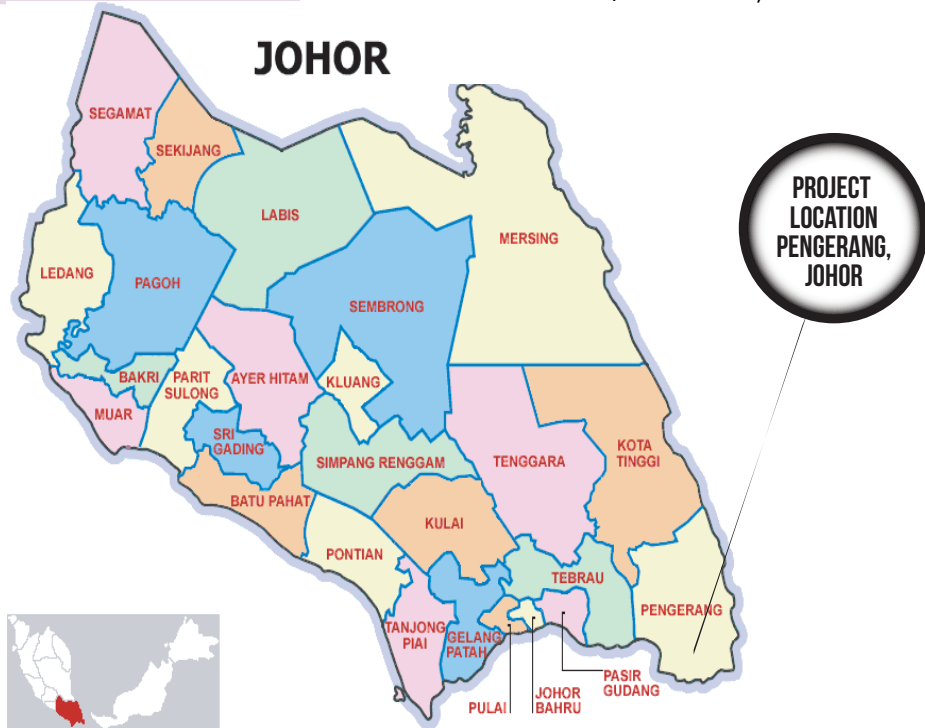
No.	Name	Registration With DOE		
		Category	Area/Field	Registration No.
1.	Ir. Ammar Mohd Rashid	EIA Consultant	Air Quality	CEP-C0334
2.	Dr. Azni Idris	EIA Consultant	Water Quality; Wastewater; Scheduled Waste Management; Solid Waste Management	CEP-CS0373
3.	Ts. Adnan Yusop Ali	EIA Consultant	Quantitative Risk Assessment	CEP-SS0038
4.	Ir. Dr. Zaki Zainuddin	EIA Consultant	Water Quality; Water Quality Modelling	CEP-SS0032
5.	Ts. Hj. Mohd. Nawahidudin Mahamad Isa	EIA Consultant	Traffic Impact Assessment; Social Economic	CEP-CS0270
6.	Mr. Azli Arifin	EIA Consultant	Noise & Vibration	CEP-SS0008
7.	Mr. Zahir Yahya	EIA Consultant	Geology	CEP-CS0105
8.	Mohammad Aman B. Samsurey	EIA Consultant	Soil Erosion and Sediment Control	CEP-C0030
9.	Prof Dr. Mazrura Sahani	EIA Consultant	Health Impact Assessment	SS0246
10.	Mrs. W Nur Bazlin W Mahadi	EIA Consultant	Chemical Processes; Environmental Baseline Monitoring	CEP-AC0437

# EXECUTIVE SUMMARY

## CHAPTER 1 : INTRODUCTION

### PROPOSED DEVELOPMENT

**SCHEDULED WASTE AND RESOURCE RECOVERY & DISPOSAL COMPLEX FOR TREATMENT AND DISPOSAL PENGERANG, KOTA TINGGI, JOHOR**



### LEGAL REQUIREMENT



No.	Type of Application	Regulatory Requirement
1.	Environmental Impact Assessment (EIA) Report	Section 34A of the Environmental Quality Act 1974 (Act 127)
2.	Written Notification for the installation of Leachate Treatment Plant (LTP)	Regulation 4 of the Environmental Quality (Control of Pollution from Solid Waste Transfer Station and Landfill) Regulations 2009
3.	Written Notification for the Installation of Air Pollution Control System (APCS) of the Thermal Treatment Plant	Regulation 5 of the Environmental Quality (Clean Air) Regulations 2014
4.	Written Declaration for the Operation of Air Pollution Control System (APCS) of the Thermal Treatment Plant	Regulation 7(5) of the Environmental Quality (Clean Air) Regulations 2014
5.	Written Permission to Construct	Section 19 of the Environmental Quality Act 1974 (Act 127)
6.	License to occupy prescribed premises and to apply carrier license for transportation	Section 18 and 18 (A) of the Environmental Quality Act 1974 (Act 127) Regulation 2 of the Environmental Quality (Licensing) Regulations 1977

# EXECUTIVE SUMMARY

## CHAPTER 1 : INTRODUCTION

### PROPOSED FACILITY



Resource to Energy - Scheduled Waste (R2E-SW) aka Waste to Energy

01

100 MT/DAY



Secure Landfill

02

300,000 M<sup>3</sup>  
AIR SPACE



Storage Facility

05

14,288 M<sup>2</sup>



Microwave Facility

06

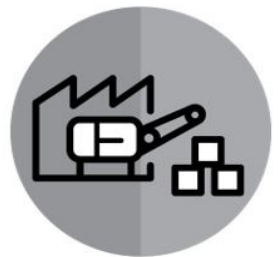
6 MT/DAY



Leachate Treatment Plant

03

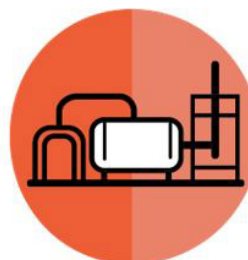
175 M<sup>3</sup>/DAY



Solidification Plant

04

44 MT/DAY



Pyrolysis Facility

07

45 MT/DAY



Effluent Treatment Plant

08

168 M<sup>3</sup>/DAY



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## CHAPTER 3 : STATEMENT OF NEED

### STATEMENT OF NEED FOR THE PROPOSED PROJECT AT Pengerang, Johor

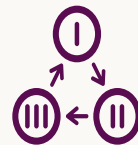
01

To expand its services to handle all 76 out of 77 scheduled waste code excluding the explosive and radioactive waste.



02

Towards that plan, ER2E aspires to enhance and promote the 4R cradle-to-cradle approach by utilizing existing resources



03

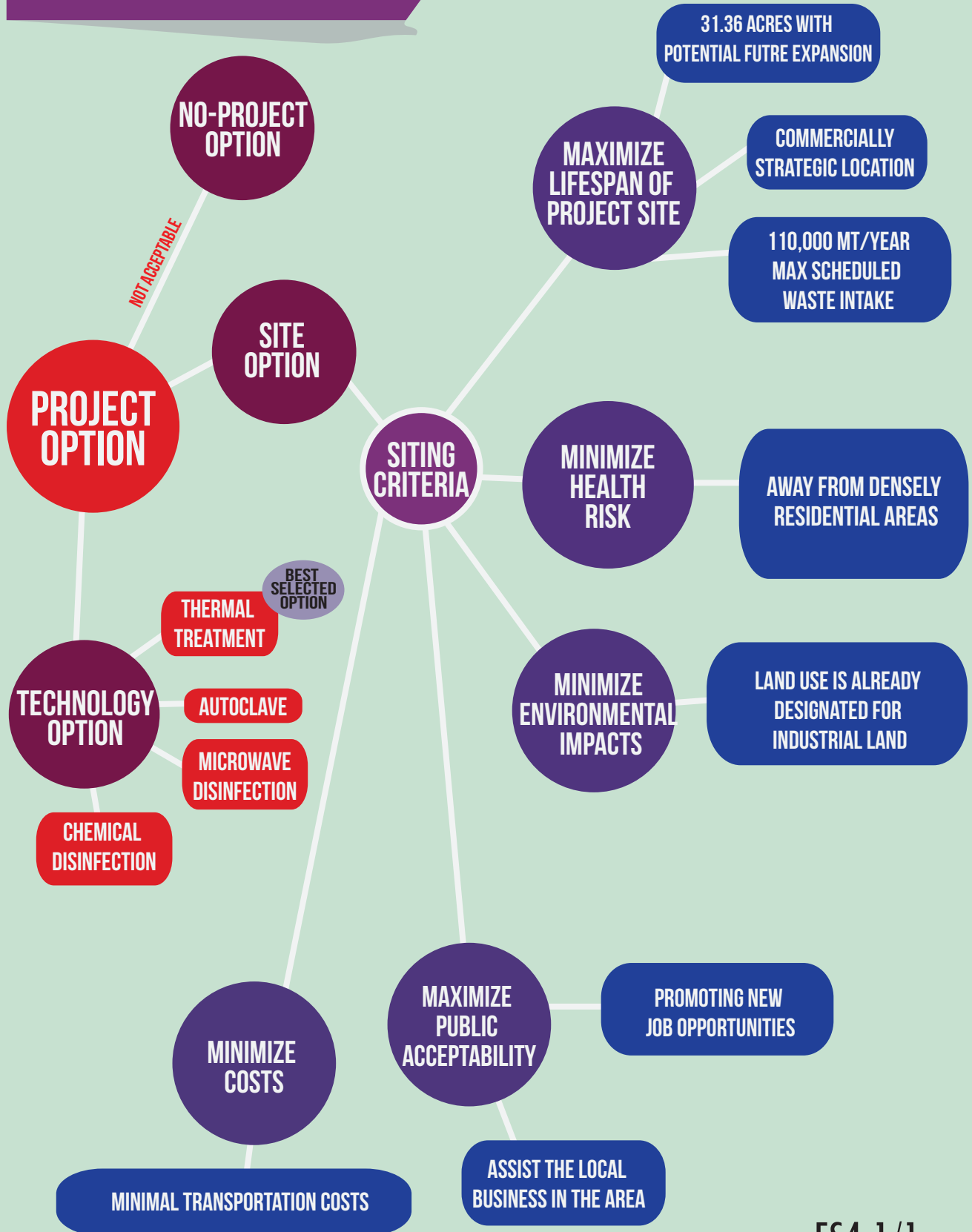
Malaysia needs further capacity to treat scheduled waste as the Environmental Quality Report indicates 4 Million Tonnes produced in 2019



# EXECUTIVE SUMMARY

## CHAPTER 4 : PROJECT OPTIONS

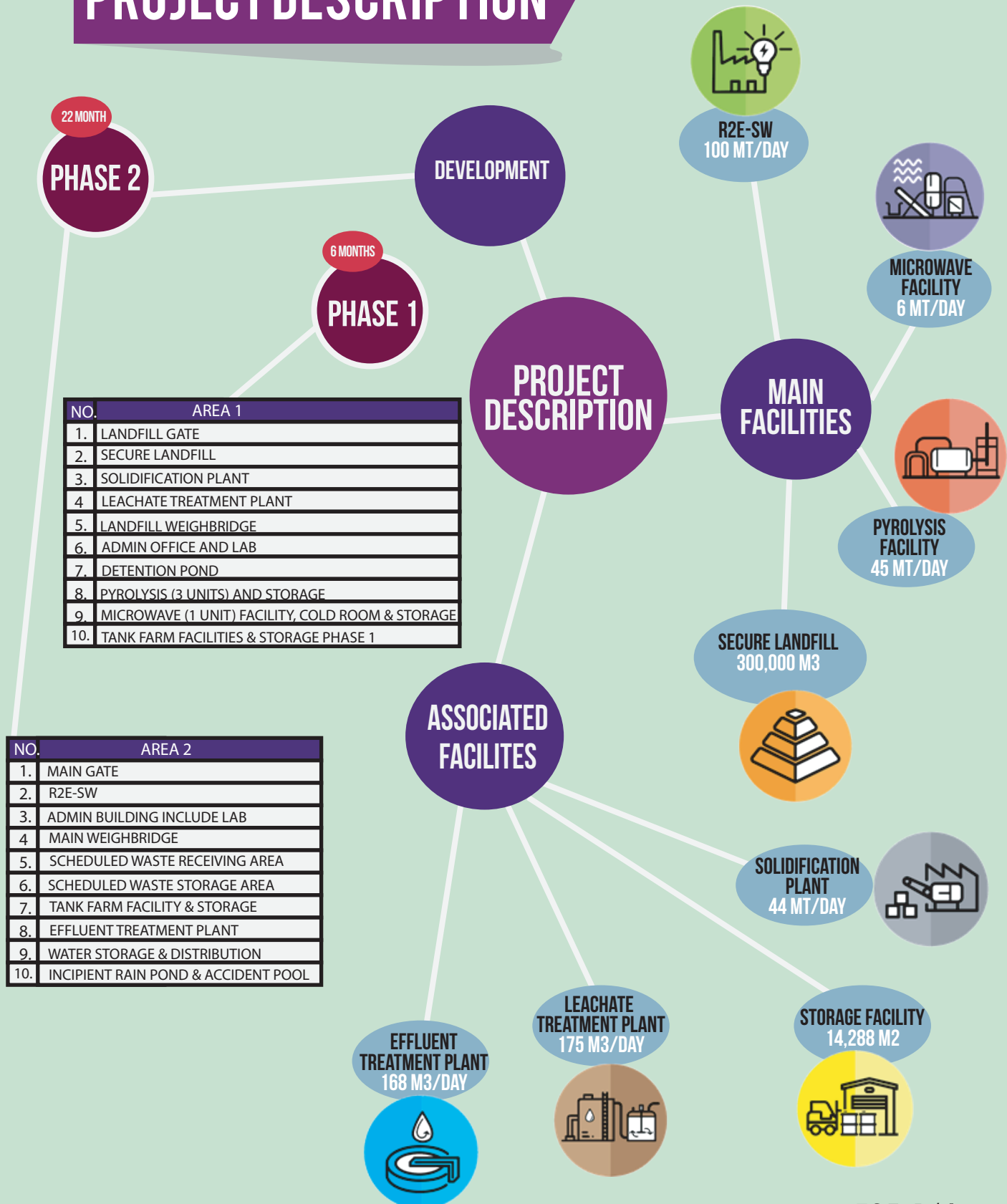
### PROJECT OPTIONS



# EXECUTIVE SUMMARY

## CHAPTER 5 : PROJECT DESCRIPTION

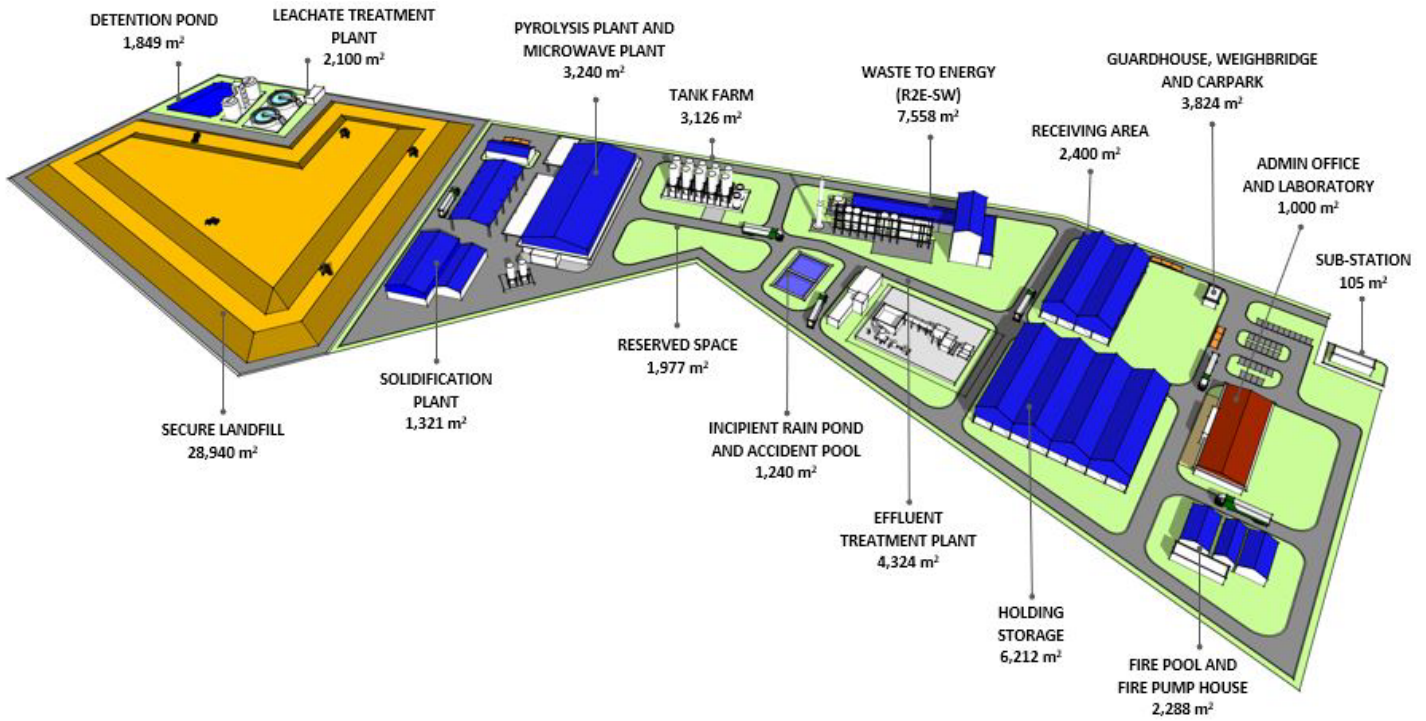
### PROJECT DESCRIPTION



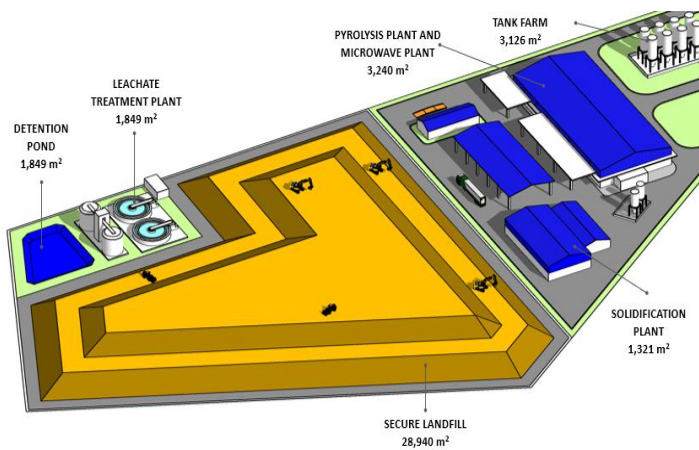
# EXECUTIVE SUMMARY

## CHAPTER 5 : PROJECT DESCRIPTION

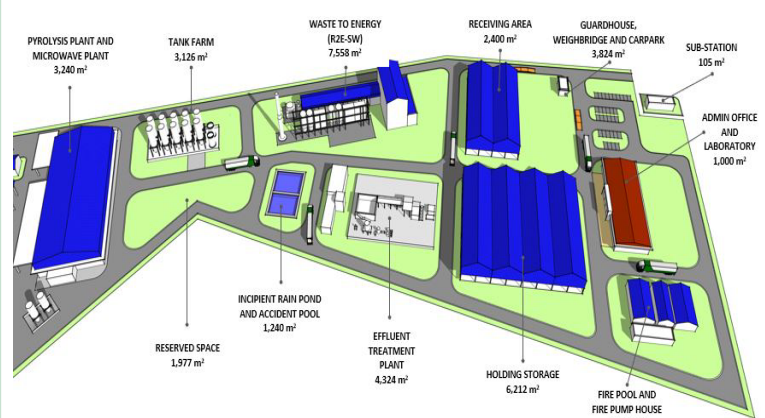
### CONCEPTUAL DESIGN



**ER2E** **AMR** ENVIRONMENTAL RESOURCE RECOVERY AND DISPOSAL COMPLEX (RRDC) | RESOURCE TO ENERGY - SCHEDULED WASTE (R2E-SW)



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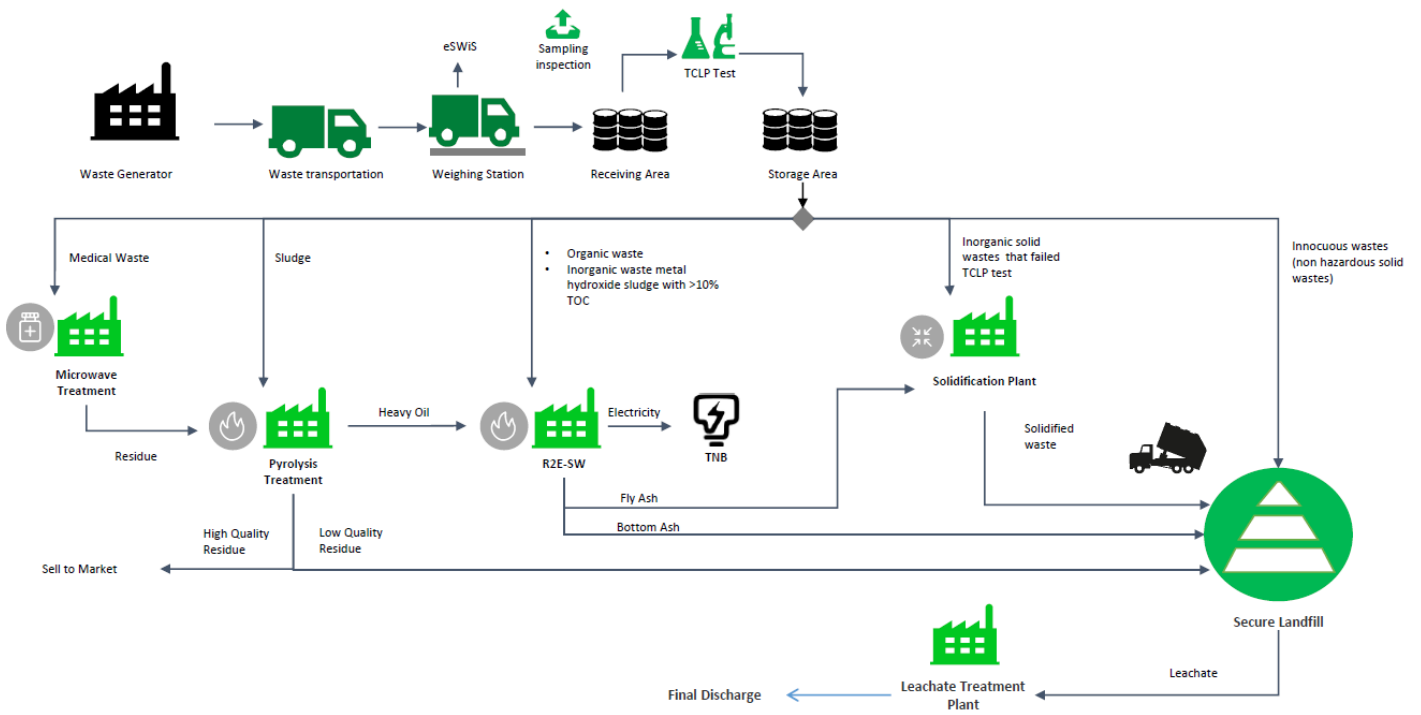
# EXECUTIVE SUMMARY

## CHAPTER 5 : PROJECT DESCRIPTION

### OVERALL PROCESS FLOW

ER2E

## OVERALL PROCESS FLOW



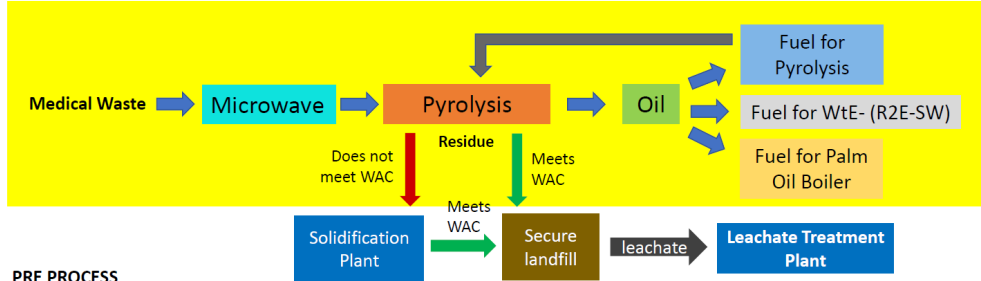
# EXECUTIVE SUMMARY

## CHAPTER 5 : PROJECT DESCRIPTION

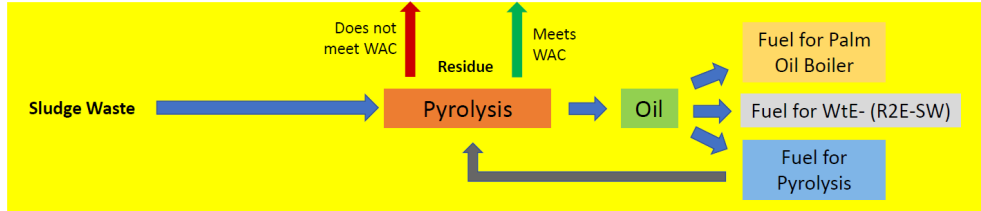
### PROJECT CONCEPT

#### Recovery Concept

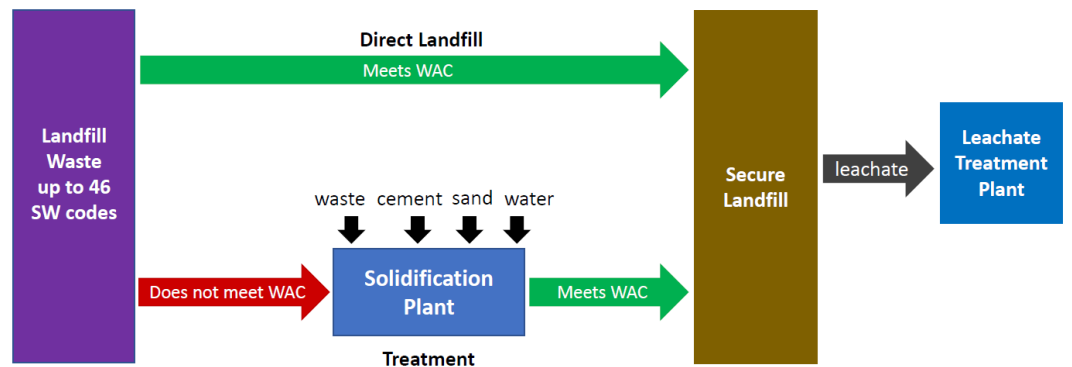
POST PROCESS



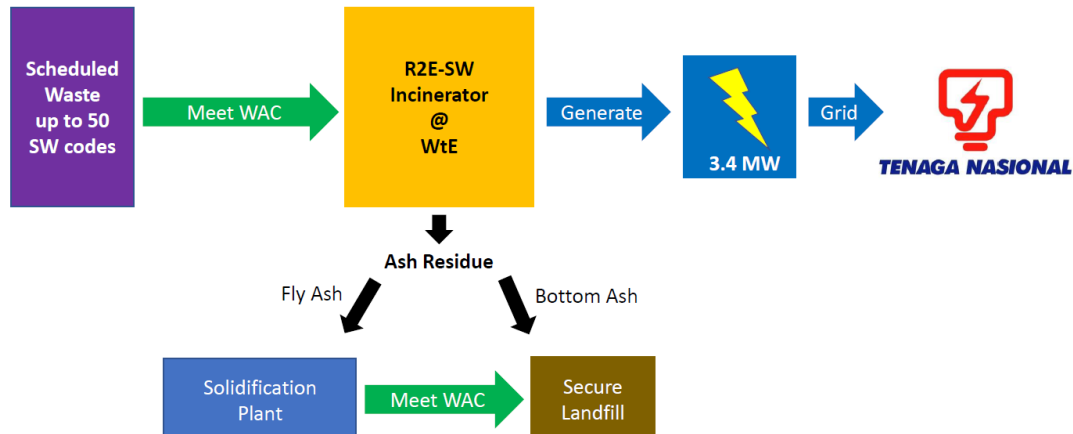
PRE PROCESS



#### Disposal Concept



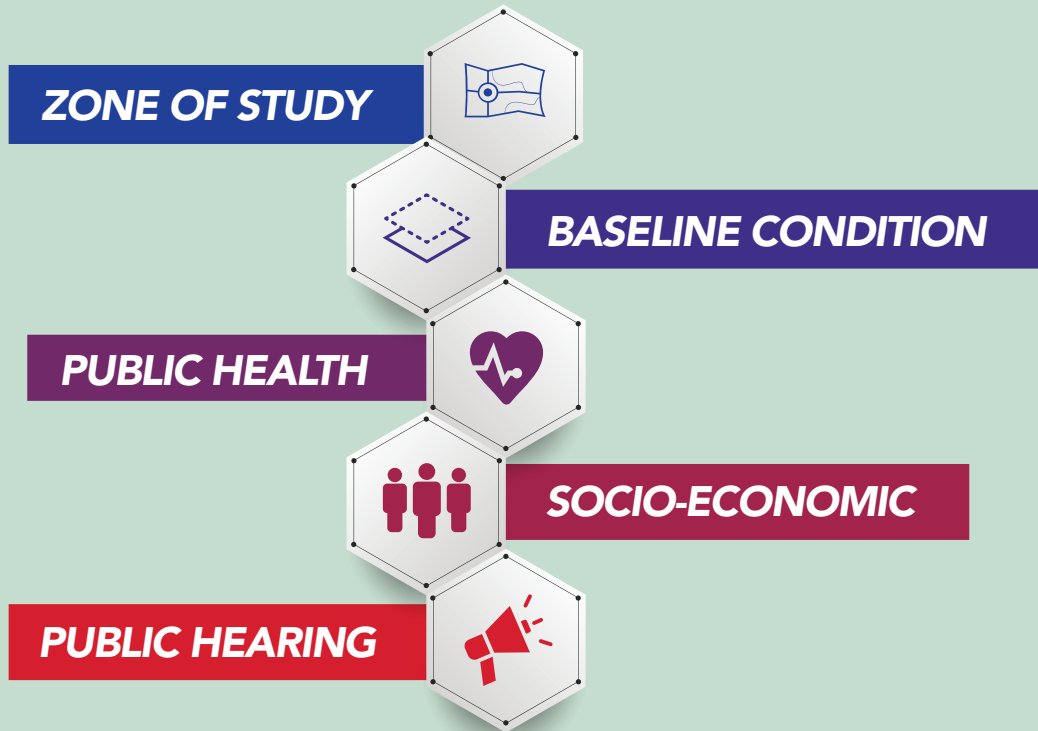
#### Treatment Concept



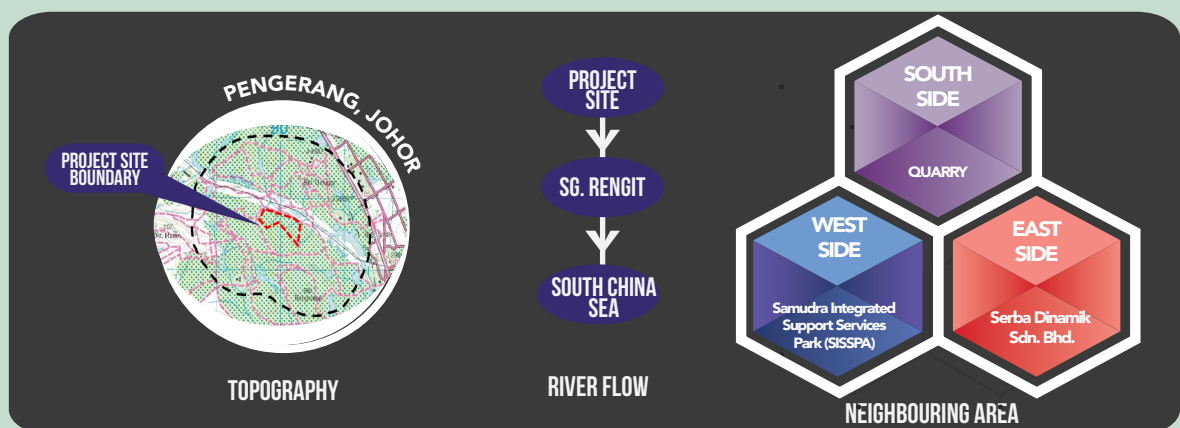
# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### EXISTING ENVIRONMENT



### PHYSICAL ENVIRONMENT



# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### SENSITIVE RECEPTOR

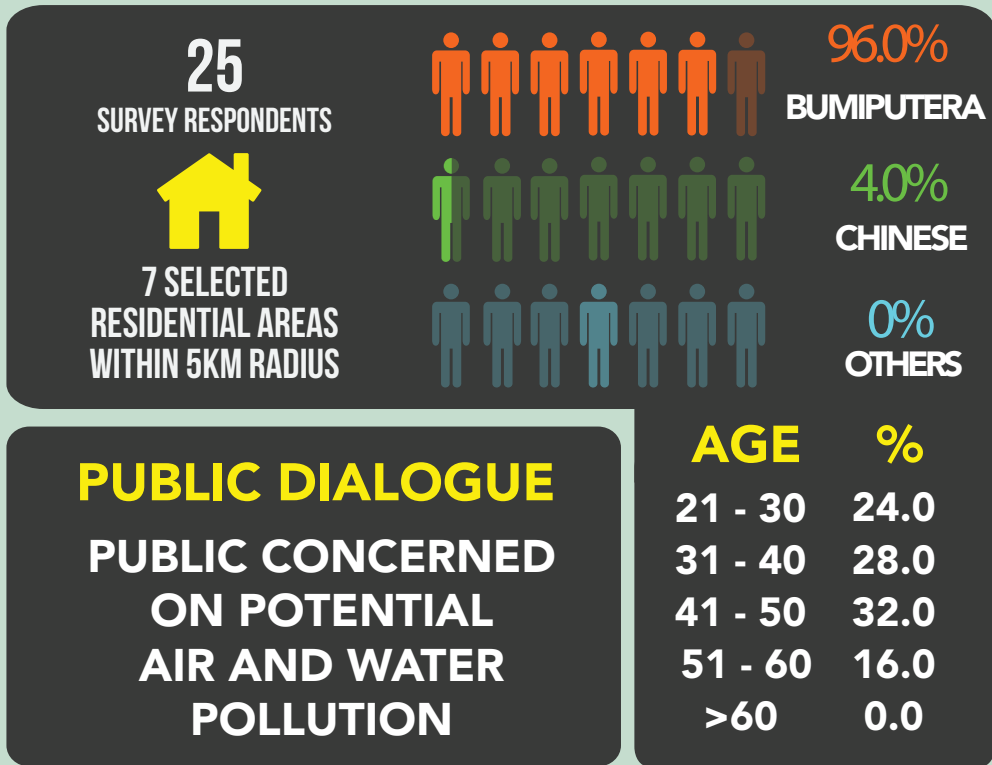


### Sensitive Receptors within 5KM from Project Site

No.	Sensitive Receptor	Distance (± 50m)	Category
<b>Within 1 km</b>			
1.	Kampung Bukit Pelali	810 m	Residential Area
2.	Taman Bukit Pelali	810 m	Residential Area
3.	Lakeview Terrace	825 m	Commercial Area
<b>1 - 2 km</b>			
4.	Kampung Bukit Gelugor	1.50 km	Residential Area
<b>2 - 3 km</b>			
5.	Taman Sevana Cove	2.05 km	Residential Area
6.	Kampung Batu Buloh	2.05 km	
7.	Tiong Nam Dormitories	2.20 km	
8.	Kg Bukit Raja	2.50 km	
<b>3 - 4 km</b>			
9.	Kampung Changi	3.55 km	Residential Area
10.	Kampung Sungai Rengit	3.60 km	
11.	Kampung Sg. Kapal	3.90 km	
12.	Kg. Simon	3.90 km	
<b>4-5 km</b>			
13.	Taman Ramunia Jaya	4.10 km	Residential Area
14.	Kg. Teluk Ramunia	4.50 km	
15.	Sevana Cove Villa	4.50 km	

# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT



### SOCIO-ECONOMIC

### BASELINE ENVIRONMENTAL MONITORING



# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### MONITORING STATION FOR AMBIENT AIR QUALITY



#### Ambient Air Quality

- All results for ambient air monitoring were compared to the Malaysia Ambient Air Quality Standards (Standard 2020).
- The ambient air quality at all monitoring stations for all parameters were observed well below the allowable standards limits by the DOE.
- The concentrations of Particulate Matter (PM10 and PM2.5) and gaseous (CO, SO2 and NO2) were detectable well below the standard limit.

# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### MONITORING STATION FOR WATER QUALITY



#### Water Quality

- Station W1 recorded slightly exceeded concentration of Iron, while other stations recorded well below its respective limit.
- The Water Quality Index (WQI) for the monitored stations of W1, W2, W4 and W5 were calculated within Class III. The DOE water quality classification based on WQI were classified as “Slightly Polluted” for these monitoring stations.
- The water quality station of W3 had been carried out every six (6) hourly monitoring period for twenty-four (24) hours. Parameter BOD, COD, Ammoniacal Nitrogen and Sulphide were recorded slightly exceeded their respective limit stated in Class III of NWQS. The WQI for this station (W3) classified as “Polluted” within the Class IV. The high concentrations of COD, BOD and Ammoniacal Nitrogen were contributed to the low WQI of the monitored station W3.

# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### MONITORING STATION FOR NOISE QUALITY



#### Noise Quality

- The noise levels were monitored for a period of 24 hours. The study was divided into two (2) periods, namely, day-time (7.00 am to 10.00 pm) and night-time (10.00 pm to 7.00 am).
- In general, the noise generated from the Proposed Project is considered minimal to its external surrounding due to proposed adequate buffer zone and located 0.8 km away from the nearest residential (Taman Bukit Pelali).
- The quantitative assessment of vibration within the Proposed Project Site are acceptable below the recommended Guidelines for Environmental Noise Limits and Control, 2019 limit.

# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### MONITORING STATION FOR ODOUR QUALITY



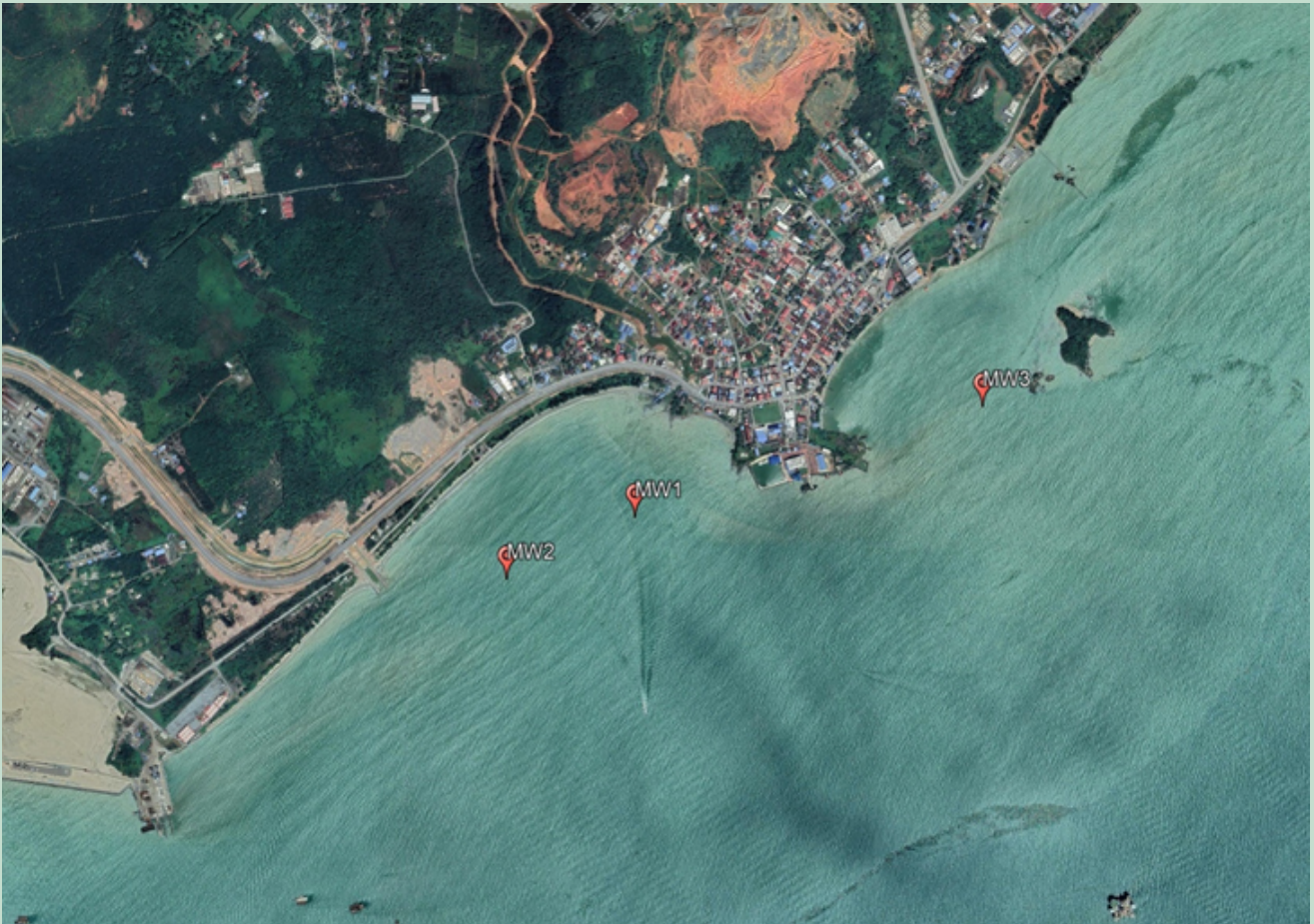
#### Odour Quality

- Field olfactometer (Nasal Ranger®) developed by St. Croix Sensory Inc. (USA) was used in this study.
- Odour monitoring at the sampling site is done during the day and nighttime.
- The results collected from the odour quality monitoring, at all monitoring stations, the odour was detected at <math>< 2\text{ D/T}</math> with a traceable earthy odour and shows acceptable odour condition.
- It is predicted that the odour for the Proposed Project does not bring significant impact to sensitive receptors surrounding the Proposed Project.

# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### MONITORING STATION FOR MARINE WATER QUALITY



#### Marine Water Quality

- Marine water quality monitoring was conducted to measure and to establish the existing marine water quality data at the end of surface water runoff of proposed site and to establish the baseline data.
- Most of the marine water quality parameters recorded well below the Class 3 of Malaysian Marine Water Quality Standards for all monitored stations except for the parameters of pH and Aluminium.
- The concentration of pH recorded below the imposed range limits of Malaysia Marine Water Quality Standard (MMWQS) for station MW2 at the bottom level during low and high tides.
- The marine water quality index for all monitored stations for this baseline assessment were calculated within the “excellent” and “good”.

# EXECUTIVE SUMMARY

## CHAPTER 6 : EXISTING ENVIRONMENT

### MONITORING STATION FOR GROUND WATER QUALITY

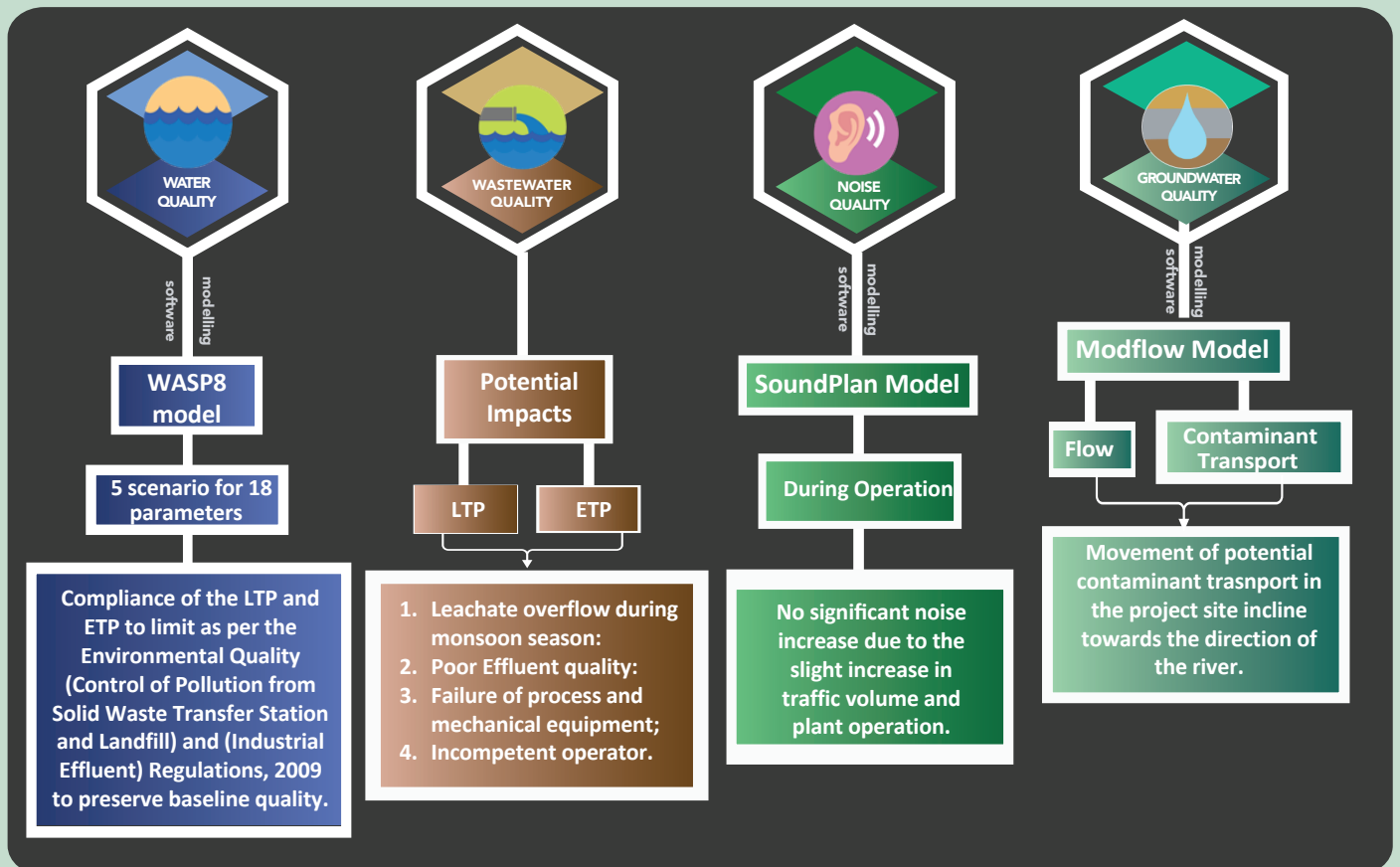


#### Groundwater Quality

- Station GW1 was unable to be monitored because the well is found to be dried.
- The parameter of Chemical Oxygen Demand (COD) and Biochemical Oxygen Demand (BOD) were observed to have exceeded the Malaysia Groundwater Quality Standards (For Conventional Drinking Water Treatment) at station GW2 during this monitoring event.
- The concentration of Color and Iron (Fe) recorded slightly exceeded their respective limits for groundwater station GW2. The elevated concentrations of these parameters were believed to be sourced from the natural occurring mineral activity nearby the monitored well.
- The other monitored parameters were observed well below their respective limits.
- The Groundwater Quality Classification at monitoring station GW2 was classified as “Very Clean” based on Malaysia Groundwater Quality Standards (For Conventional Drinking Water Treatment).

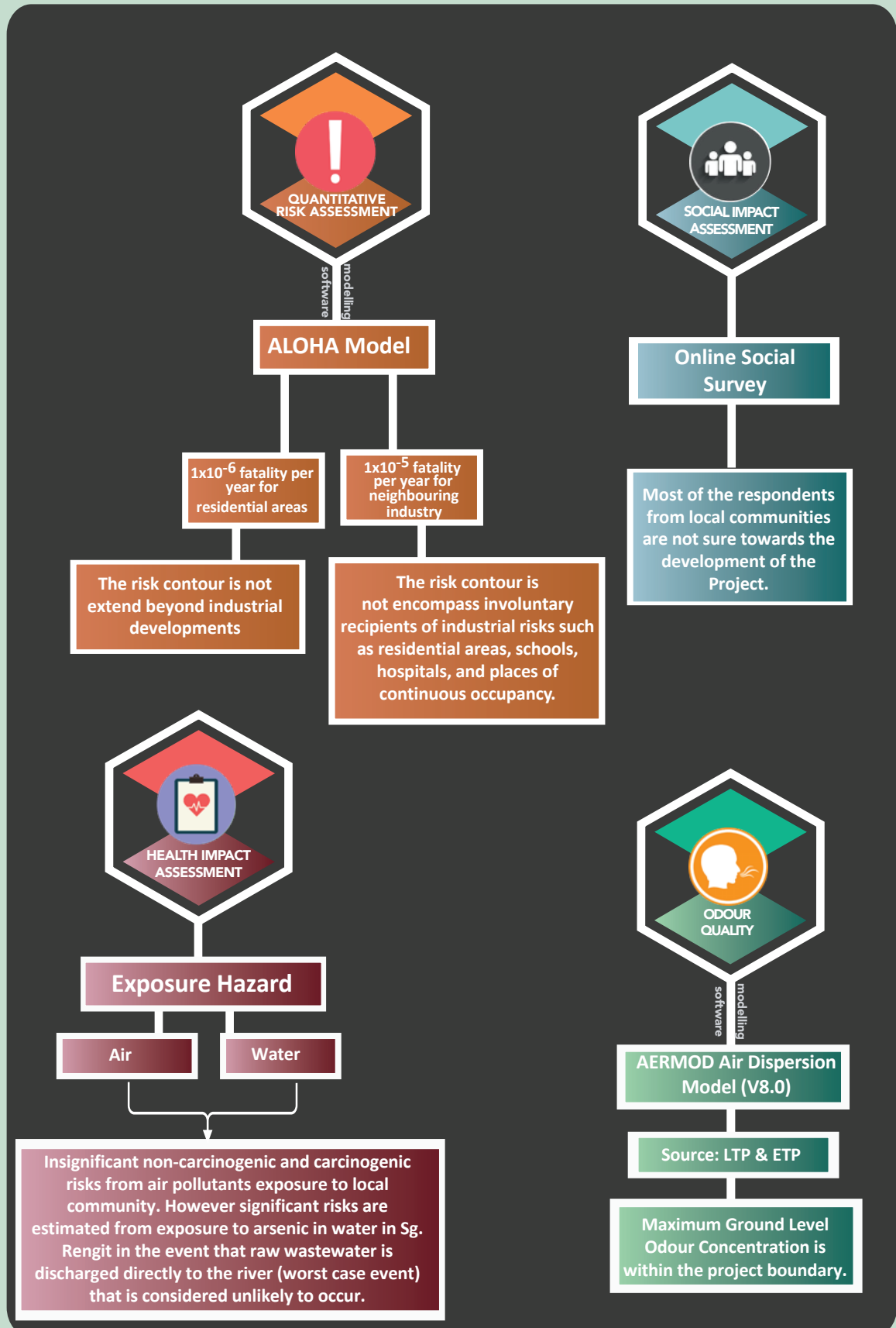
# EXECUTIVE SUMMARY

## CHAPTER 7 : EVALUATIONS OF IMPACT



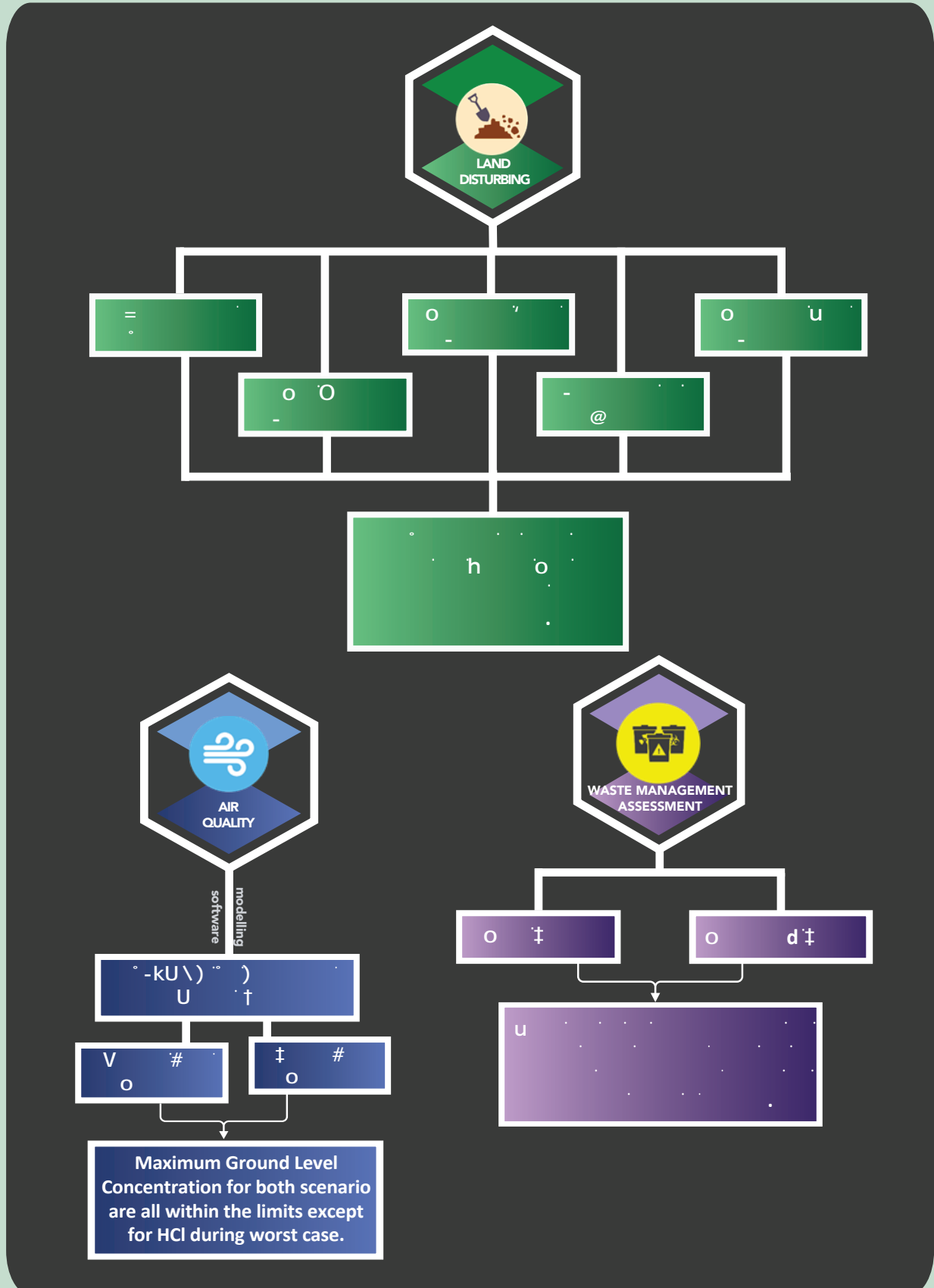
# EXECUTIVE SUMMARY

## CHAPTER 7 : EVALUATIONS OF IMPACT



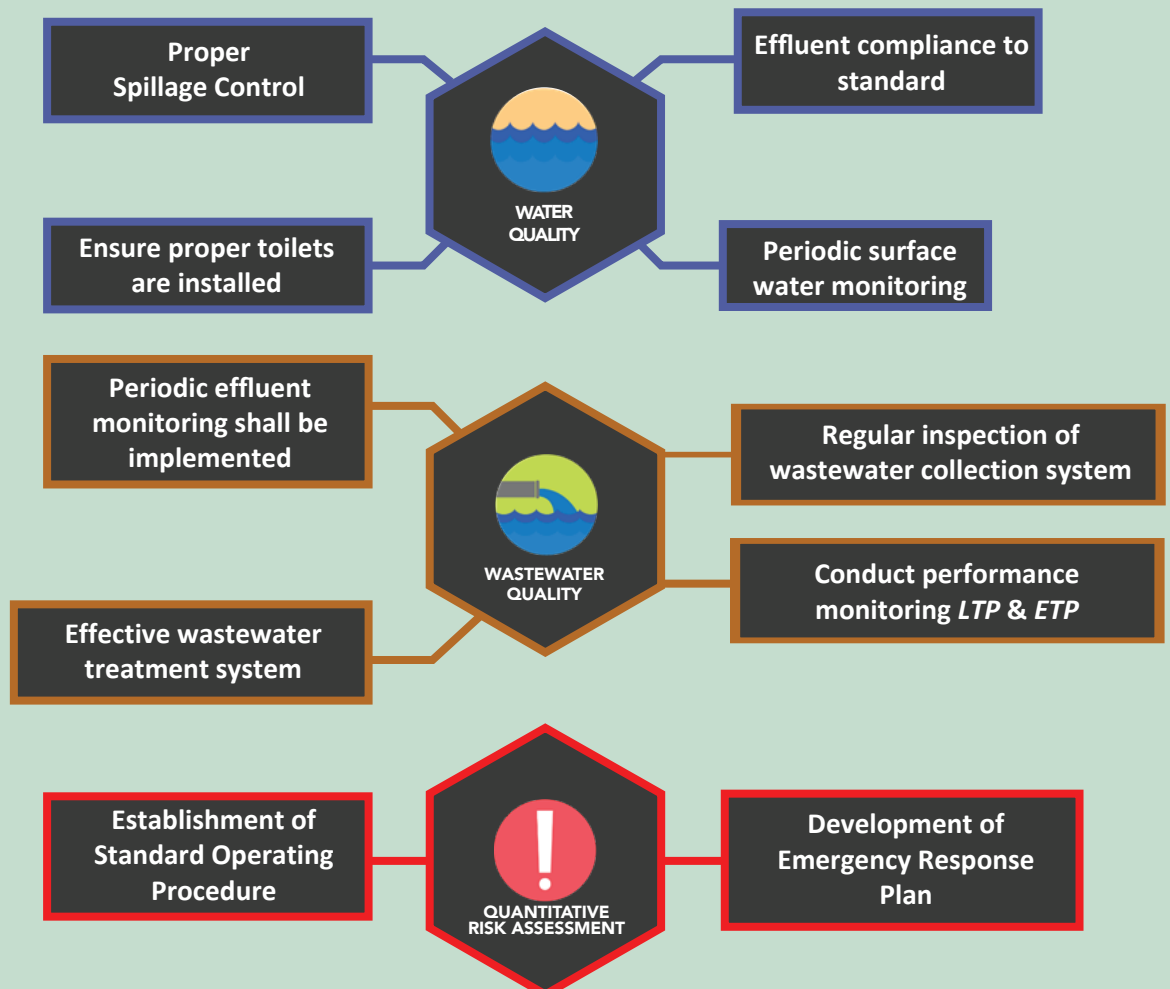
# EXECUTIVE SUMMARY

## CHAPTER 7 : EVALUATIONS OF IMPACT



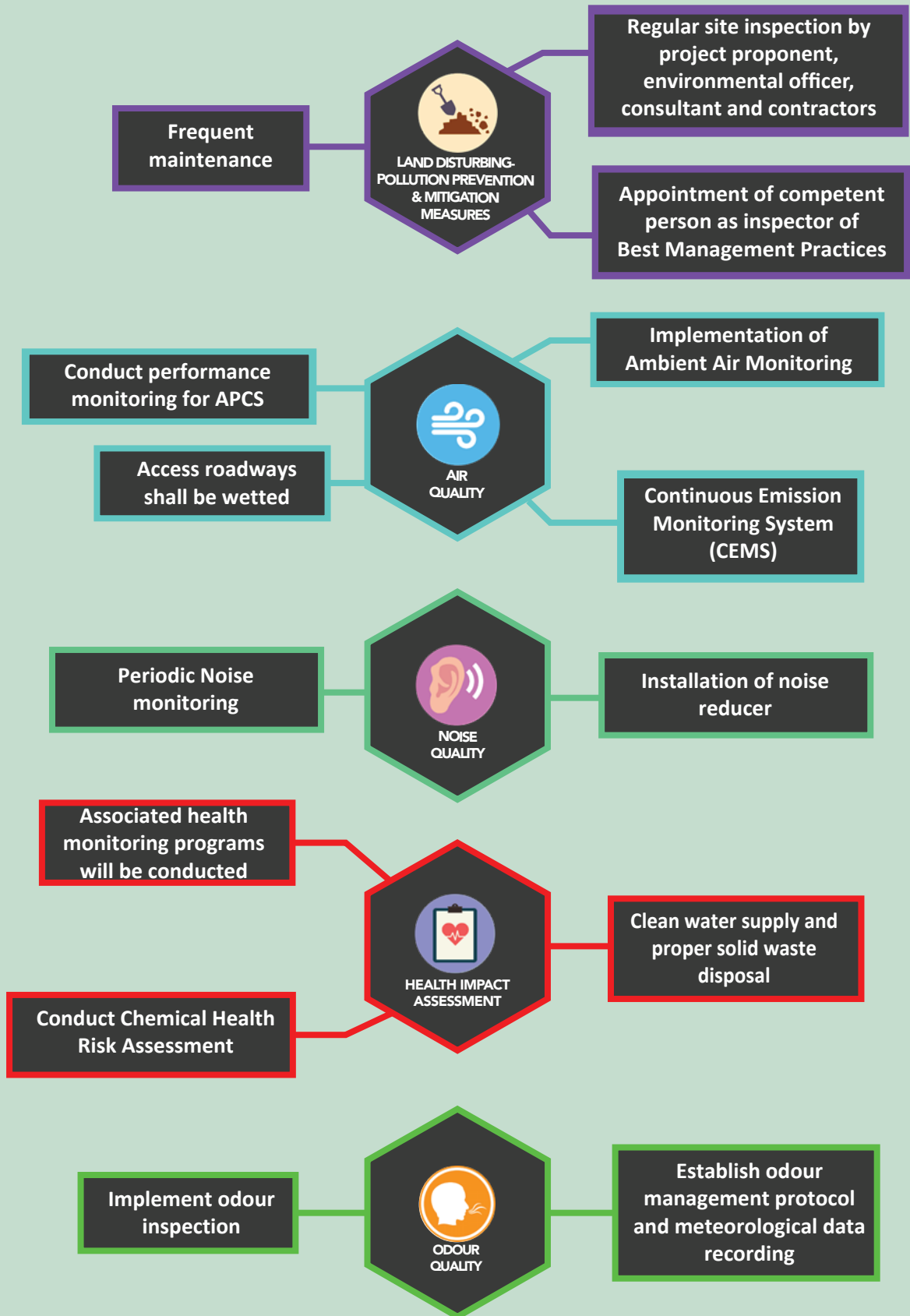
# EXECUTIVE SUMMARY

## CHAPTER 8 : MITIGATION MEASURES



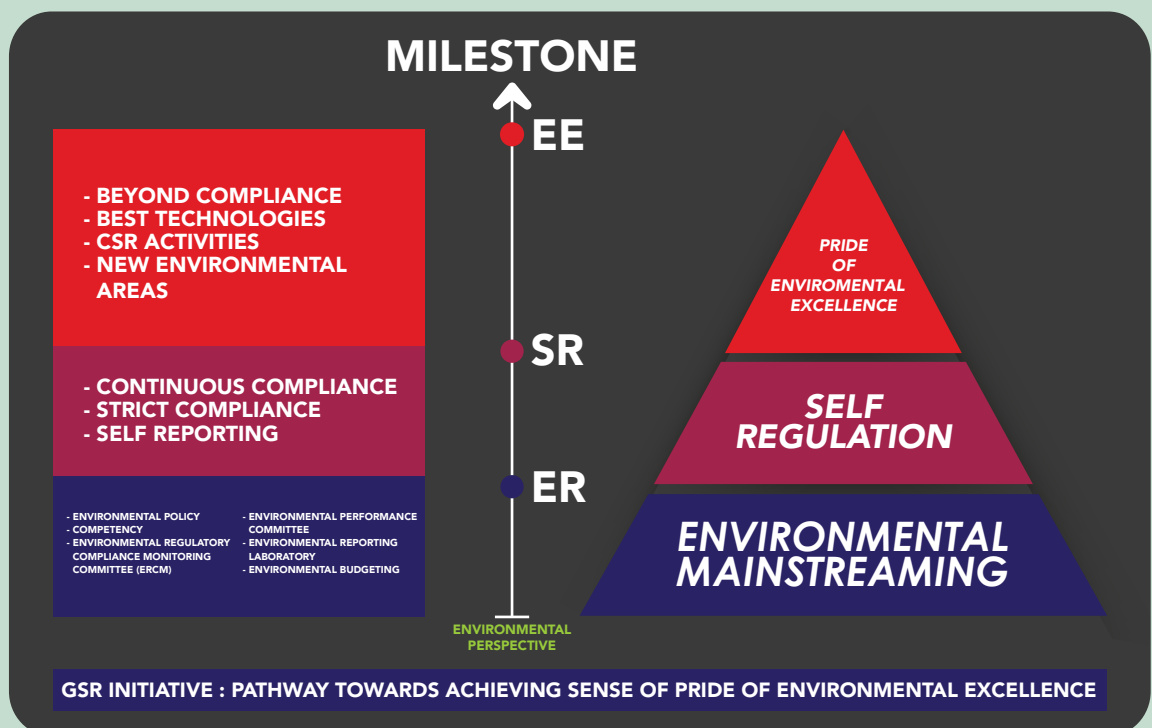
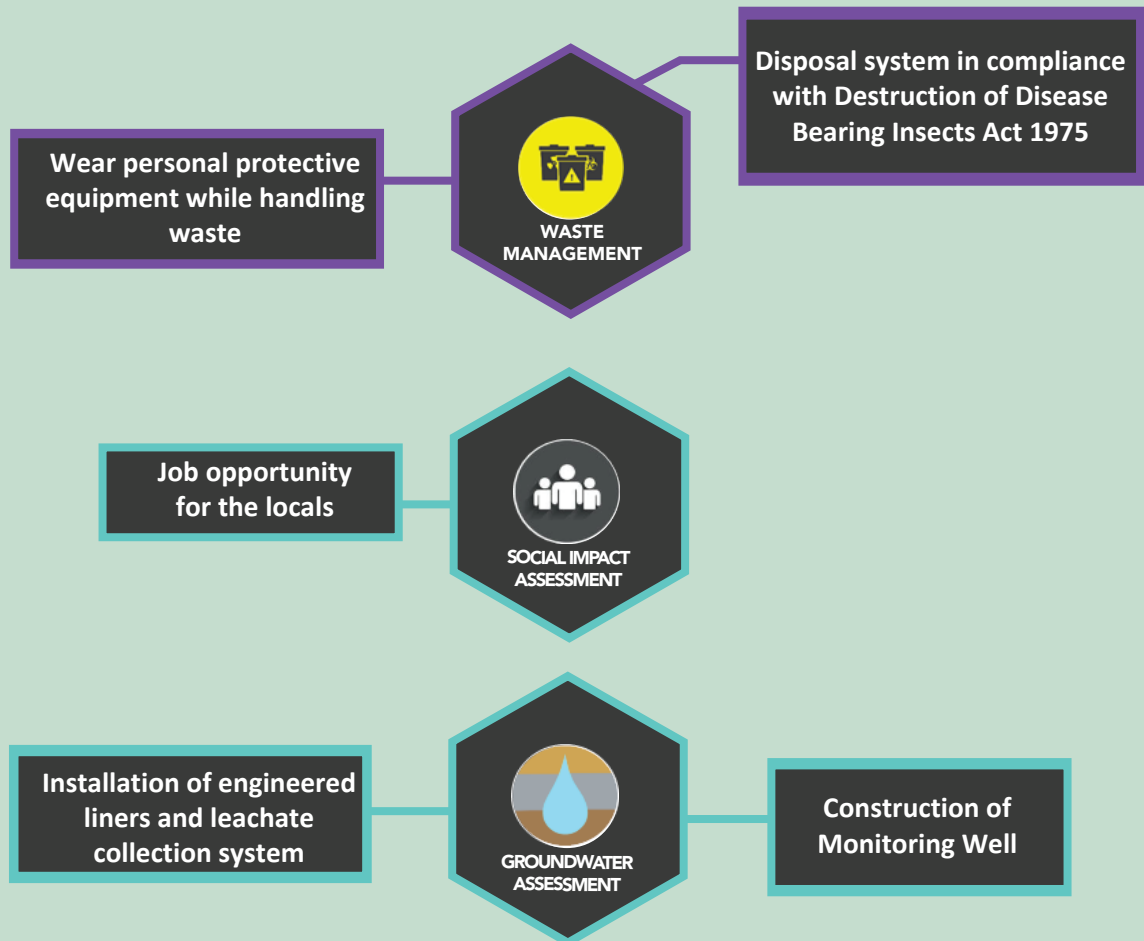
# EXECUTIVE SUMMARY

## CHAPTER 8 : MITIGATION MEASURES



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# EXECUTIVE SUMMARY

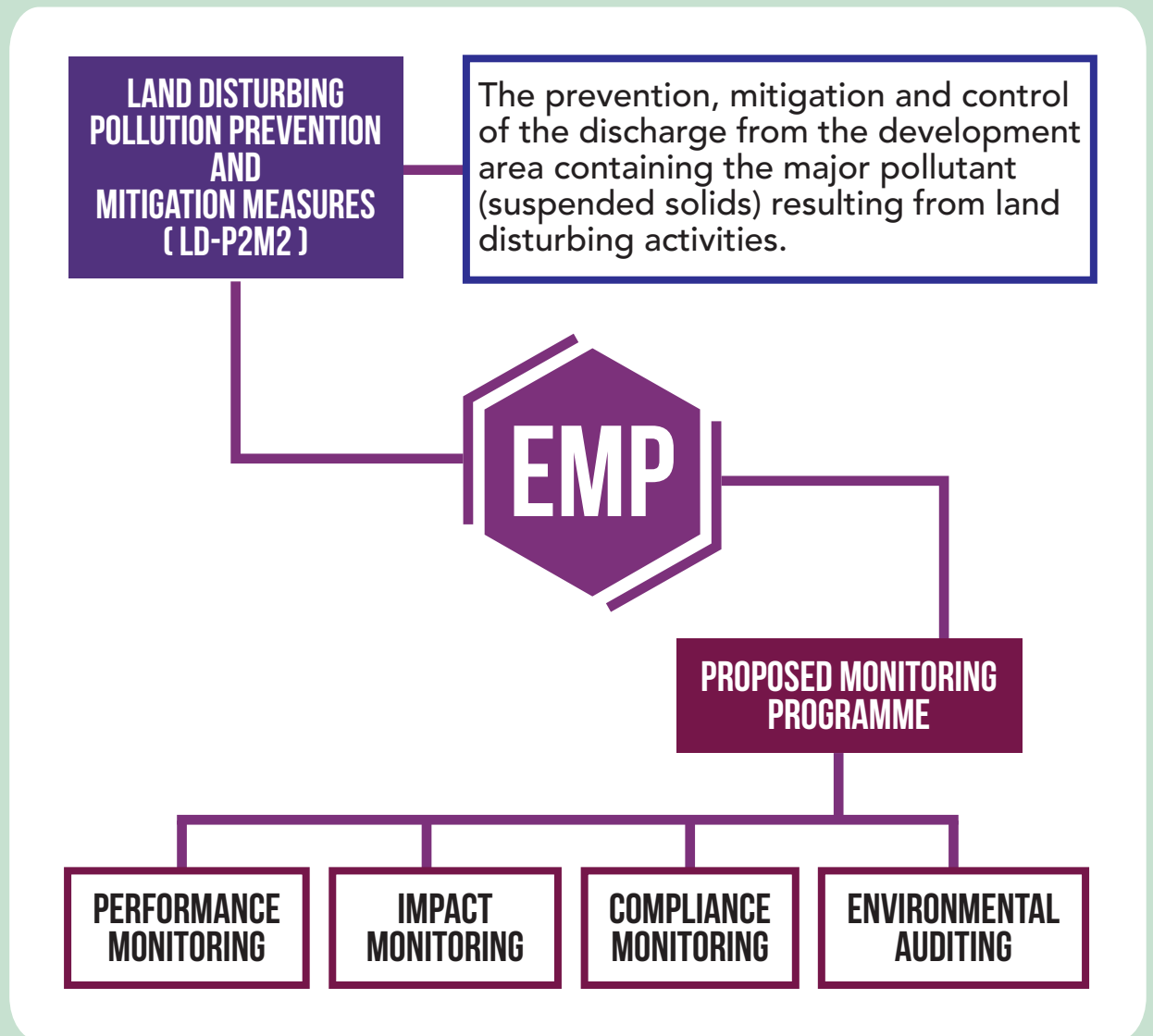
## CHAPTER 8 : MITIGATION MEASURES

### MAINSTREAMING TOOLS OR ELEMENTS

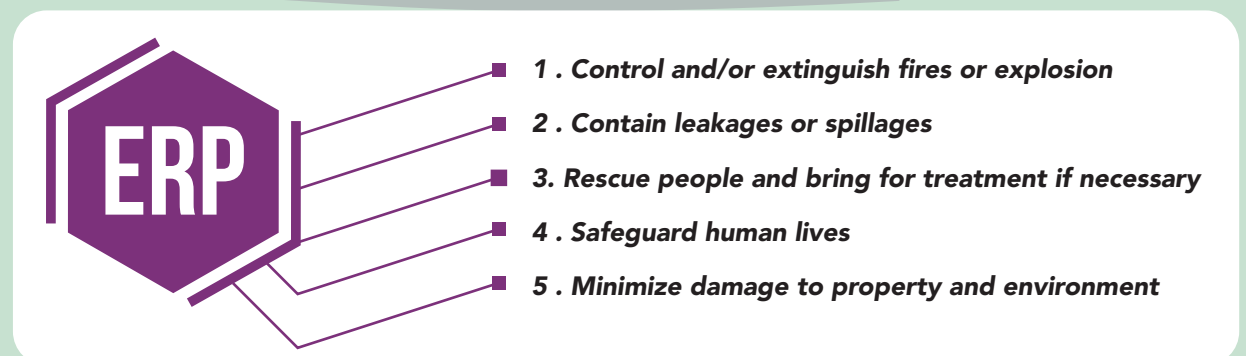


# EXECUTIVE SUMMARY

## CHAPTER 9 : ENVIRONMENTAL MANAGEMENT PLAN (EMP)



## EMERGENCY RESPONSE PLAN (ERP)



# EXECUTIVE SUMMARY

## CHAPTER 10 : STUDY FINDINGS

### CONCLUSION AND RECOMMENDATION



THE STUDY FINDINGS ON EACH IMPACT ASSESSMENT ARE IN ACCORDANCE WITH THE STANDARD AND LIMIT STIPULATED BY THE DOE. THE POTENTIAL ENVIRONMENTAL IMPACTS RESULTING FROM PRE-CONSTRUCTION, CONSTRUCTION AND OPERATIONAL ACTIVITIES ASSOCIATED WITH THE PROPOSED PROJECT HAVE BEEN IDENTIFIED. BASED ON THE IDENTIFIED POTENTIAL IMPACTS FROM THE R2E-SW AND RRDC PROJECT, EFFECTIVE AND APPROPRIATE MITIGATION MEASURES WERE RECOMMENDED. THUS, THE POTENTIAL IMPACTS WILL BE REDUCED AND MINIMIZED.

THEREFORE, IT IS RECOMMENDED THAT THE PROPOSED DEVELOPMENT OF R2E-SW AND RRDC PROJECT IS APPROVED ON THE BASIS THAT THE PROJECT PROPONENT WILL PLEDGE TO THE REQUIREMENT OF THE ENVIRONMENTAL GUIDELINES, EMPLOYING MITIGATION MEASURES TO ENSURE COMPLIANCE WITH STATUTORY REQUIREMENTS AND RECOMMENDED CRITERIA.

