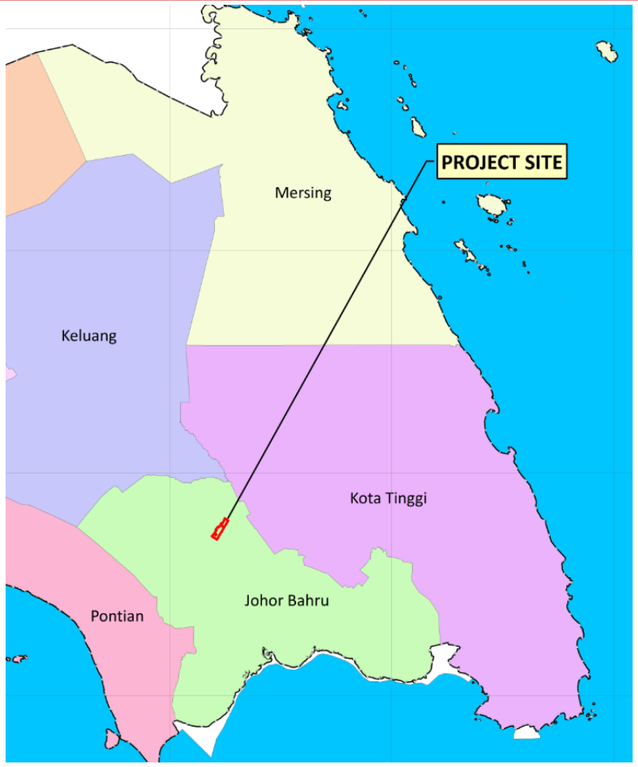
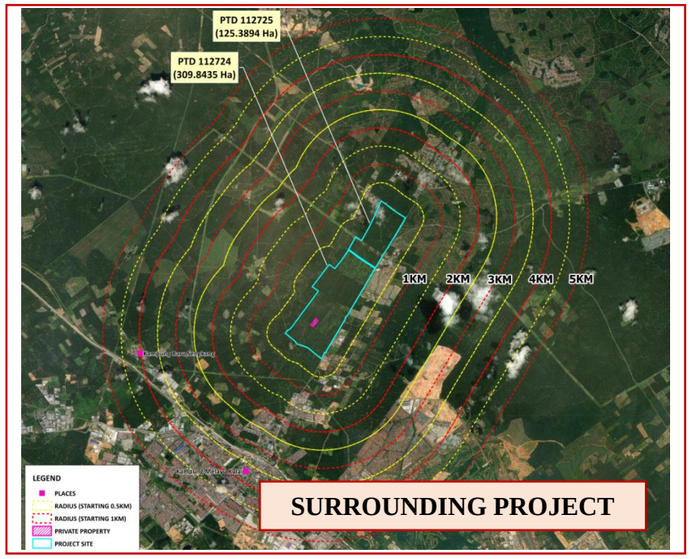
EXECUTIVE SUMMARY



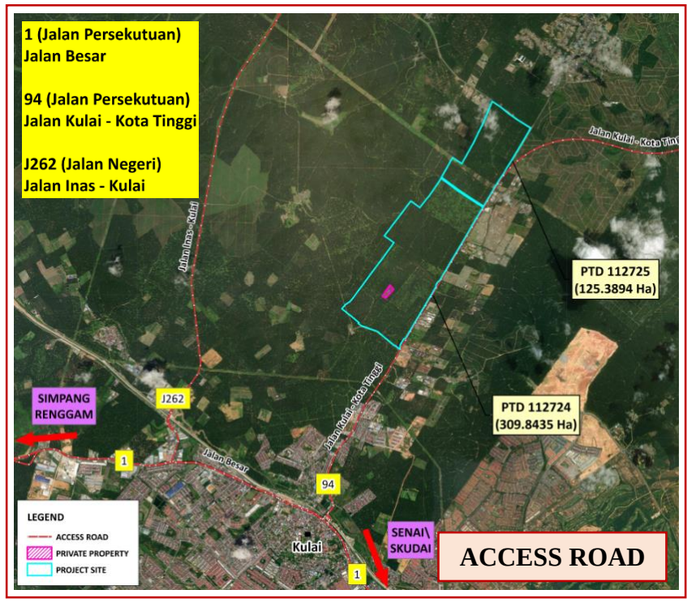


PROJECT TITLE:
CADANGAN PERUMAHAN DAN PERDAGANGAN DI ATAS PTD 112724 DAN PTD 112725 SELUAS 435.233 HEKTAR (1,075.483 EKAR), JALAN KULAI - KOTA TINGGI, MUKIM SENAI, DAERAH KULAI, JOHOR DARUL TAKZIM

Under Environmental Quality (Prescribed Activity) (Environmental Impact Assessment) Order 2015, the development falls under:

i. **Schedule 1 (Jadual 1), item 14: Waste Treatment and Disposal - (c) Sewage: (i) Construction of sewage treatment plant with 20,000 population equivalent or more.**
ii. **Schedule 1 (Jadual 1), item 16: Housing - Housing development covering an area of 50 hectares or more.**
iii. **Schedule 1 (Jadual 1), item 18: New Township - Construction of new township consisting of 2,000 housing accommodation units or more or covering an area of 100 hectares or more.**

Blok Perancangan (BP) 2: Kulai - falls under the permitted activities:
Proposed Mixed Development



PROJECT PROPONENT AND CONSULTANTS

PROJECT PROPONENT/DEVELOPER

LAGENDA MERSING SDN. BHD.
Level 4, Persiaran PM2/1,
Pusat Bandar Seri Manjung Seksyen 2,
32040 Seri Manjung, Perak Darul Ridzuan.
Tel: 05-688 7179/ 012-605 1850
Fax: 05-688 8822
Email: ivy.lew@lagendaprops.com
PIC: Ivy Lew Thin Fang

MECHANICAL & ELECTRICAL (M&E)

LEE PRECISE CONSULTING SDN BHD
No.5, Jalan Sibu 3, Taman Wahyu,
68100 Kuala Lumpur,
Wilayah Persekutuan Kuala Lumpur
Tel: 012-3819138
Email: justin.cheng.rjc@gmail.com
PIC: Justin Cheng

CIVIL & STRUCTURAL (C&S)

IPM PROFESSIONAL SERVICES SDN. BHD
02-11, Jalan Mutiara Emas 9/5, Taman
Mount Austin, 81100 Johor Bahru, Johor.
Tel: 07-355 5631
Fax : 07-356 2631
Email: edward.low@ipm.my
PIC: Edward

GEOLOGY CONSULTANT

KUASAGEO RESOURCES (2852134-P)
A-9-7C, Kompleks Diamond, Bangi
Business Park, Bandar Baru Bangi
43650 Bangi, Selangor.
Tel: 013- 225 0846
Email: admin@kuasageoresources.com
PIC: Ahmad Sheeqal Shah Bin Abdul Samad

TOWN PLANNER

LA PLANNERS
No.12, Persiaran Mahsuri 2/5, SunwayBayan,
11900 Bayan Baru, Pulau Pinang
Tel: 04-6447518
Email: lyeaik@yahoo.com
PIC: Cheah Lye Aik

STP CONSULTANT

JOHAN WASTEWATER TREATMENT SDN BHD (747386-M)
Megan Phoenix, B-2-9, Jalan 2/142A,
Phoenix Busniess Park, 56000 Kuala Lumpur,
Wilayah Persekutuan Kuala Lumpur.
Tel: 03-9102 4060
Fax: 03-91024061
Email: johanjwt@gmail.com

EIA & TRAFFIC CONSULTANT

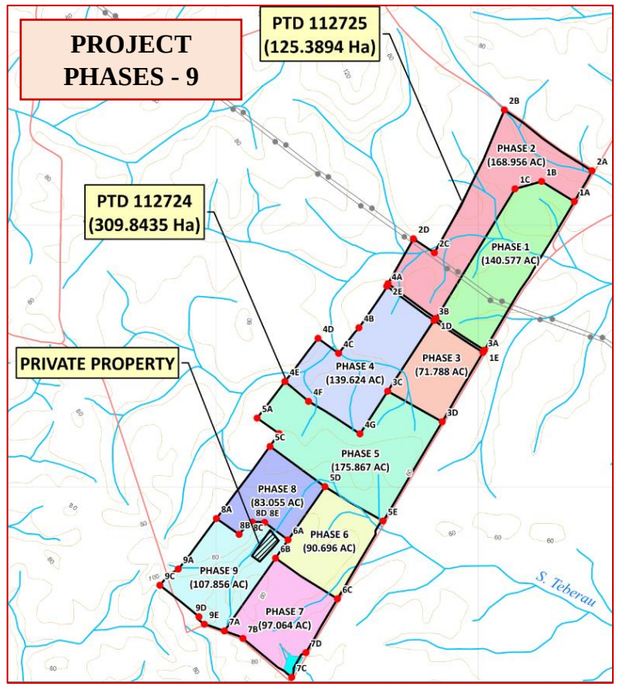
NILAIMAS SERVICES
No. 17, Jalan Equine 10D, Taman Equine,
43300 Seri Kembangan, Selangor
Tel: 03-8940 9959/ 013-385 0268
Fax: 03-8940 9958
Email: nilaimas@gmail.com
PIC: Dato' Seri Ts. Hj. Mohd Nawahidudin Mahamad Isa

SURVEYOR

JURUKUR MAKMUR
20-02, Jalan Putra Satu, Taman Sri Putra,
81200 Johor Bharu, Johor
Tel: 07-5579808
Email: jrkmakmur@gmail.com
PIC: Ida Tan

WHY NEED THIS PROJECT?

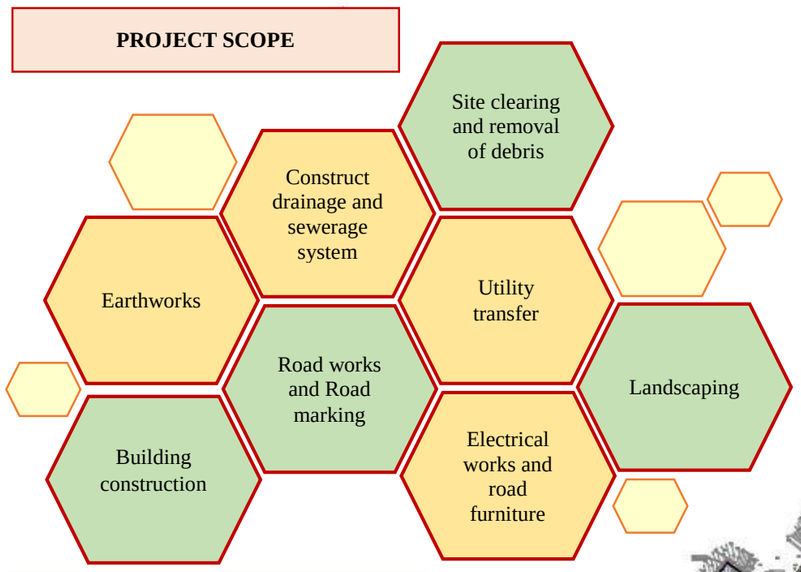
- To provide a comfortable residential area complete with public amenities and infrastructure needed.
- To improve the standard of the local economy as well as become the source of income of local authorities in terms of tax collection.
- To provide a well-organized and more systematic infrastructure, utilities, and facilities such as roads, drainage systems and sewage systems.
- To help in promoting population growth in surrounding area.
- To help in achieving the goal to have viable economy, balanced spatial development, social well-being and environmental sustainability.
- Compliance with Dasar Kerajaan Negeri Johor to have viable economy, balanced spatial development, social well-being and environmentally sustainable.

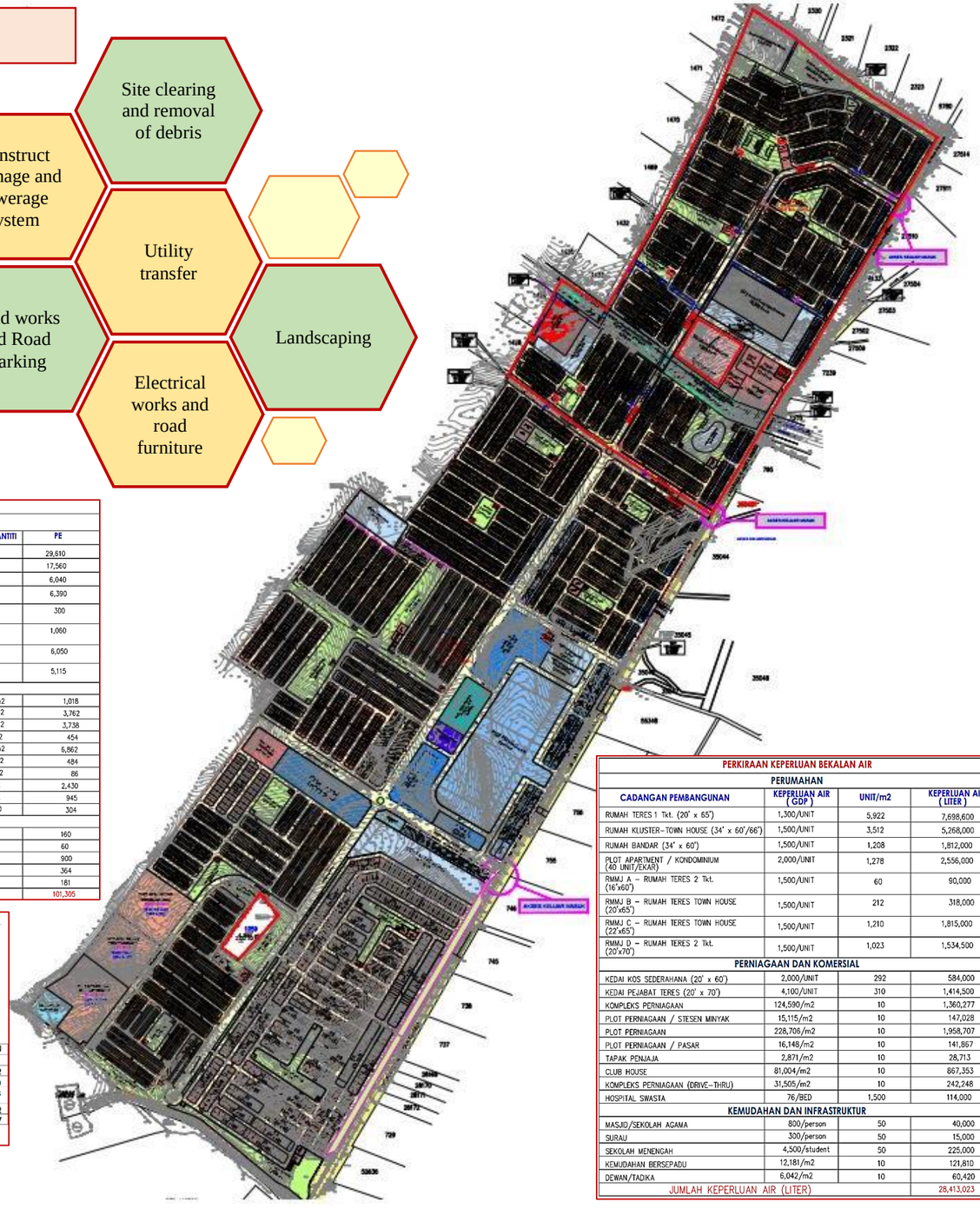


MERITS AND DEMERITS OF PROPOSED PROJECT

PROJECT DEVELOPMENT	MERITS	DEMERITS
Project Development	• The site has great potential to be developed due to its strategic location; • The site has good accessibility and potential for development; • The site can easily has access to infrastructure, electricity, water and telecommunications systems as it can be supplied to the site through direct connectivity from existing facilities; • Provide job opportunities and economic benefits can be materialized; • The proposed development is in line with the current planning policy set by the Majlis Perbandaran Kulai (MPKu) and other agencies; • Improve infrastructure and facilities in that area.	• Can cause various short term environmental impact such as water and air pollution, noise disturbance, vibration nuisance; • Destruction of existing natural flora and fauna's habitat; • Generation of waste with improper waste management; and • Increase in traffic volume which may cause traffic congestion.
No Development	• Project site will be left under its present condition. Natural habitat of flora and fauna can be preserve.	• Leaving the proposed project site without any proper development also will make the proposed project site give no benefit to the state; • Less job opportunities for local communities; and • Economic benefits are not likely to materialize.

PROJECT SCOPE





PERKIRAAN PE (POPULATION EQUIVALENT)

PERUMAHAN

CADANGAN PEMBANGUNAN	KADAR PE. SETARA	UNIT/KUANTITI	PE
RUMAH TERES 1 Tkt. (20' x 65')	5 SEUNIT	5,922	29,610
RUMAH KLUSTER–TOWN HOUSE (34'x60'/66')	5 SEUNIT	3,512	17,560
RUMAH BANDAR (34' x 60')	5 SEUNIT	1,208	6,040
PLOT APARTMENT / KONDOMINIUM (40 UNIT/EKAR)	5 SEUNIT	1,278	6,390
RMMJ A – RUMAH TERES 2 Tkt. (16'x60')	5 SEUNIT	60	300
RMMJ B – RUMAH TERES TOWN HOUSE (20' x 65')	5 SEUNIT	212	1,060
RMMJ C – RUMAH TERES TOWN HOUSE (22' x 65')	5 SEUNIT	1,210	6,050
RMMJ D – RUMAH TERES 2 Tkt. (20' x 70')	5 SEUNIT	1,023	5,115
PERNIAGAAN DAN KOMERSIAL			
KEDAI KOS SEDERAHANA (20' x 60')	0.03	33,949/m2	1,018
KEDAI PEJABAT TERES (20' x 70')	0.03	125,404/m2	3,762
KOMPLEKS PERNIAGAAN	0.03	124,590/m2	3,738
PLOT PERNIAGAAN / STESEN MINYAK	0.03	15,115/m2	454
PLOT PERNIAGAAN	0.03	228,706/m2	6,862
PLOT PERNIAGAAN / PASAR	0.03	16,148/m2	484
TAPAK PENJAJA	0.03	2,871/m2	86
CLUB HOUSE	0.03	81,004/m2	2,430
KOMPLEKS PERNIAGAAN (DRIVE–THRU)	0.03	31,505/m2	945
HOSPITAL SWASTA	4.00	76/BED	304
KEMUDAHAN DAN INFRASTRUKTUR			
MASJID/SEKOLAH AGAMA	0.20	800	160
SURAU	0.20	300	60
SEKOLAH MENENGAH	0.20	4,500	900
KEMUDAHAN BERSEPADU	0.03	12,131	364
DEWAN/TADIKA	0.03	6,042	181
JUMLAH PENDUDUK SETARA (PE)			101,305

KIRAAN PERUNTUKAN RUMAH MAMPU MILIK JOHOR (RMMJ)-KESELURUHAN

JUMLAH RUMAH TERES (20'x65')	: 5,922	Unit
JUMLAH RUMAH KLUSTER-TOWN HOUSE	: 3,512	Unit
JUMLAH RUMAH BANDAR	: 1,208	Unit
JUMLAH PLOT KONDOMINIUM/APARTMEN	: 1,278	Unit
JUMLAH PLOT PERNIAGAAN	: 10	Plot
JUMLAH HOSPITAL SWASTA	: 1	Plot
JUMLAH KEDAI PEJABAT	: 310	Unit
JUMLAH RUMAH MAMPU MILIK JOHOR (RMMJ)	: 2,505	Unit
JUMLAH KEDAI KOS RENDAH (KKS)	: 292	Unit
JUMLAH KESELURUHAN YANG DISEDIAKAN	: 15,038	Unit
JUMLAH KOMPONEN HARGA TERBUKA	: 12,241	Unit
JUMLAH 60% HARGA TERBUKA	: 20,402	Unit

JENIS PERUMAHAN RAKYAT JOHOR	SYARAT		DISEDIAKAN	
RUMAH MAMPU MILIK JOHOR (A) (RM50,000)	5%	1,020	0.39%	60
RUMAH MAMPU MILIK JOHOR (B) (RM100,000)	5%	1,020	1.41%	212
RUMAH MAMPU MILIK JOHOR (C) (RM150,000)	15%	3,060	8.05%	1,210
RUMAH MAMPU MILIK JOHOR (D) (RM250,000 - RM 300,000)	10%	2,040	6.80%	1,023
KEDAI KOS SEDERHANA RENDAH(RM200,000)	5%	1,020	1.94%	292
JUMLAH PE1	40%	8,160	18.60%	2,797

JUMLAH UNIT RUMAH RAKYAT JOHOR YANG DIPERLUKAN : 8,160 Unit (40%)
JUMLAH UNIT RUMAH RAKYAT JOHOR YANG DISEDIAKAN : 2,797 Unit (18.60%)

PERKIRAAN KEPERLUAN BEKALAN AIR

PERUMAHAN

CADANGAN PEMBANGUNAN	KEPERLUAN AIR (GDP)	UNIT/m2	KEPERLUAN AIR (LITER)
RUMAH TERES 1 Tkt. (20' x 65')	1,300/UNIT	5,922	7,698,600
RUMAH KLUSTER–TOWN HOUSE (34' x 60'/66')	1,500/UNIT	3,512	5,268,000
RUMAH BANDAR (34' x 60')	1,500/UNIT	1,208	1,812,000
PLOT APARTMENT / KONDOMINIUM (40 UNIT/EKAR)	2,000/UNIT	1,278	2,556,000
RMMJ A – RUMAH TERES 2 Tkt. (16'x60')	1,500/UNIT	60	90,000
RMMJ B – RUMAH TERES TOWN HOUSE (20'x65')	1,500/UNIT	212	318,000
RMMJ C – RUMAH TERES TOWN HOUSE (22'x65')	1,500/UNIT	1,210	1,815,000
RMMJ D – RUMAH TERES 2 Tkt. (20'x70')	1,500/UNIT	1,023	1,534,500
PERNIAGAAN DAN KOMERSIAL			
KEDAI KOS SEDERAHANA (20' x 60')	2,000/UNIT	292	584,000
KEDAI PEJABAT TERES (20' x 70')	4,100/UNIT	310	1,414,500
KOMPLEKS PERNIAGAAN	124,590/m2	10	1,360,277
PLOT PERNIAGAAN / STESEN MINYAK	15,115/m2	10	147,028
PLOT PERNIAGAAN	228,706/m2	10	1,958,707
PLOT PERNIAGAAN / PASAR	16,148/m2	10	141,867
TAPAK PENJAJA	2,871/m2	10	28,713
CLUB HOUSE	81,004/m2	10	857,353
KOMPLEKS PERNIAGAAN (DRIVE–THRU)	31,505/m2	10	242,248
HOSPITAL SWASTA	76/BED	1,500	114,000
KEMUDAHAN DAN INFRASTRUKTUR			
MASJID/SEKOLAH AGAMA	800/person	50	40,000
SURAU	300/person	50	15,000
SEKOLAH MENENGAH	4,500/student	50	225,000
KEMUDAHAN BERSEPADU	12,181/m2	10	121,810
DEWAN/TADIKA	6,042/m2	10	60,420
JUMLAH KEPERLUAN AIR (LITER)			28,413,023

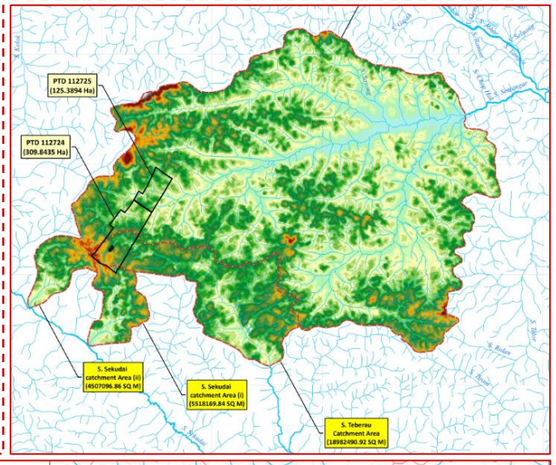
PROPOSED COMPONENTS	UNIT	%	ACRES	%
A. RESIDENTIAL				
Single-Storey Terrace house (20'x 65')	5,922	49.66	193.725	18.01
Cluster House–Town house (34'x 66')	80	0.67	2.349	0.22
Cluster House–Town house (34'x 60')	3,432	28.79	85.266	7.93
City House (22'x65')	1,208	10.13	22.163	2.06
Apartment/ Condominium Plot (40 unit/acre)	1,278	10.72	31.909	2.97
TOTAL (A)	**11,920**	**100.00**	**335.412**	**31.19**
B. RESIDENTIAL (RUMAH MAMPU MILIK JOHOR)				
Rumah Mampu Milik Johor (Type A) Double Storey Terrace (16'x 60')	60	2.40	1.616	0.15
Rumah Mampu Milik Johor (Type B) Terrace House–Town House (22'x 60')	212	8.46	3.649	0.34
Rumah Mampu Milik Johor (Type C) Terrace House–Town House (22'x 65')	1,210	48.30	21.873	2.03
Rumah Mampu Milik Johor (Type D) Double Storey (20'x70')	1,023	40.84	35.485	3.30
TOTAL (B)	**2,505**	**100.00**	**62.623**	**5.82**
C. AGRICULTURE				
Urban Garden Reserve	-	-	13.325	1.24
TOTAL (C)	**-**	**-**	**13.325**	**1.24**
D. BUSINESS AND COMMERCIAL				
Low Cost Shop (20'x 60')	292	48.31	8.389	0.78
Office Shop Terrace (20'x70')	310	50.57	10.329	0.96
Business Complex	3	0.49	20.524	1.91
Business Plot/ Gas Station	1	0.16	2.490	0.23
Business Plot	3	0.49	38.242	3.56
Business Plot/ Market	1	0.16	2.660	0.25
Club House	1	0.16	10.008	0.93
Business Plot (Drive-Thru) 131'x158'	1	0.16	5.190	0.48
Private Hospital	1	0.16	2.200	0.2
TOTAL (D)	**613**	**100.00**	**100.032**	**9.30**
E. PUBLIC AMENITIES AND INFRASTRUCTURE				
Mosque/ Religious School	1	1.37	3.00	0.28
Surau	6	8.22	1.632	0.15
Secondary School	1	1.37	9.093	0.85
Integrated Facilities	2	2.74	4.943	0.46
Kindergarten/ Hall	6	8.22	1.569	0.15
Hawking Area	9	12.33	0.533	0.05
Water Tank	1	1.37	3.250	0.30
Main Entrance Substation (160mx150m)	1	1.37	5.450	0.51
Main Distribution Substation (46mx46m)	3	4.11	1.601	0.15
Electrical Substation (50'x60')	42	57.53	3.403	0.32
Sewage Treatment Plant (STP)	1	1.37	10.502	0.98
Islam Cemetry	-	-	6.662	0.62
Retention Pond	-	-	31.277	2.91
Reserve Drainage 20m/5m/8m/13m	-	-	9.839	0.91
Open Space/Buffer Zone Gili-Gili 10'	-	-	96.703	8.99
Road Handover	-	-	3.779	0.35
Reserve Road/Alley	-	-	370.856	34.48
TOTAL (E)	**73**	**100.00**	**564.091**	**52.45**
TOTAL OVERALL (A)+(B)+(C)+(D)+(E)	**15,111**	**100.00**	**1,075.483**	**100.00**

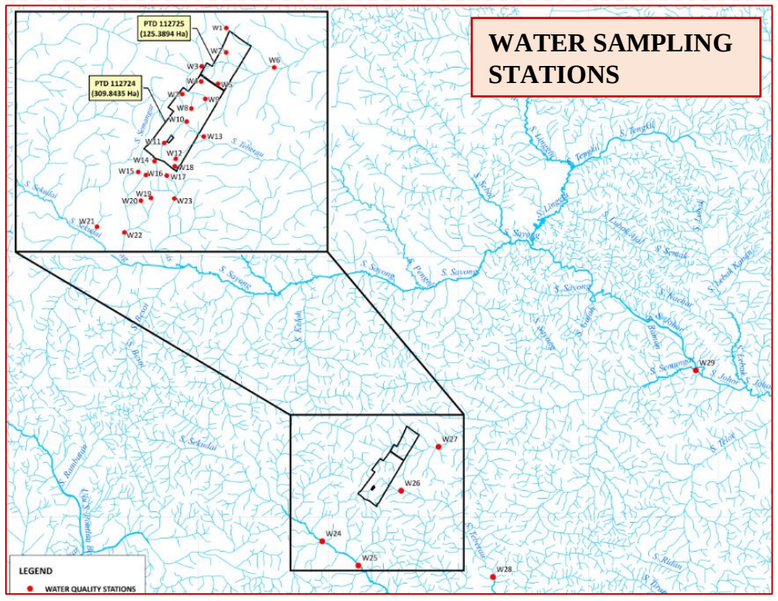
WATER SAMPLING LOCATIONS

SAMPLING POINT	COORDINATES	DESCRIPTION	WQI	CLASS
W1	1° 43' 36.736" N, 103° 37' 53.203" E	Upstream of Sungai Semangar	68.71	Class III
W2	1° 43' 12.211" N, 103° 37' 53.022" E	Upstream of Sungai Semangar	61.55	Class III
W3	1° 42' 58.247" N, 103° 37' 28.613" E	Middlestream of Sungai Semangar	62.68	Class III
W4	1° 42' 43.091" N, 103° 37' 28.255" E	Upstream of Sungai Semangar	69.64	Class III
W5	1° 42' 40.752" N, 103° 37' 45.030" E	Upstream of Sungai Semangar	65.57	Class III
W6	1° 42' 57.179" N, 103° 38' 40.928" E	Middlestream of Sungai Semangar	66.70	Class III
W7	1° 42' 30.498" N, 103° 37' 9.446" E	Middlestream of Sungai Semangar	65.51	Class III
W8	1° 42' 16.003" N, 103° 37' 18.477" E	Upstream of Sungai Semangar	64.20	Class III
W9	1° 42' 25.642" N, 103° 37' 32.269" E	Upstream of Sungai Semangar	67.47	Class III
W10	1° 42' 2.931" N, 103° 37' 13.702" E	Middlestream of tributary of Sungai Teberau	-	-
W11	1° 41' 41.510" N, 103° 36' 51.415" E	Upstream of tributary of Sungai Teberau	66.43	Class III
W12	1° 41' 25.680" N, 103° 37' 2.888" E	Upstream of Sungai Teberau	60.19	Class III
W13	1° 41' 47.915" N, 103° 37' 30.830" E	Middlestream of Sungai Teberau	64.10	Class III
W14	1° 41' 23.112" N, 103° 36' 41.779" E	Upstream of tributary of Sungai Sekudai	-	-
W15	1° 41' 12.451" N, 103° 36' 25.522" E	Upstream of tributary of Sungai Sekudai	61.11	Class III
W16	1° 41' 9.401" N, 103° 36' 33.207" E	Upstream of tributary of Sungai Sekudai	62.21	Class III
W17	1° 41' 8.846" N, 103° 36' 54.033" E	Upstream of tributary of Sungai Sekudai	60.23	Class III
W18	1° 41' 18.207" N, 103° 37' 1.968" E	Upstream of tributary of Sungai Sekudai	48.22	Class IV
W19	1° 40' 46.374" N, 103° 36' 38.271" E	Upstream of tributary of Sungai Sekudai	58.36	Class III
W20	1° 40' 43.669" N, 103° 36' 28.220" E	Upstream of tributary of Sungai Sekudai	60.91	Class III
W21	1° 40' 17.507" N, 103° 35' 44.472" E	Middlestream of tributary of Sungai Sekudai	66.76	Class III
W22	1° 40' 11.833" N, 103° 36' 11.791" E	Middlestream of tributary of Sungai Sekudai	66.12	Class III
W23	1° 40' 45.810" N, 103° 37' 1.480" E	Middlestream of tributary of Sungai Sekudai	68.30	Class III
W24	1° 40' 11.881" N, 103° 35' 29.109" E	Middlestream of Sungai Sekudai	65.75	Class III
W25	1° 39' 29.412" N, 103° 36' 32.214" E	Middlestream of Sungai Sekudai	67.26	Class III
W26	1° 41' 40.474" N, 103° 37' 46.763" E	Middlestream of Sungai Teberau	-	-
W27	1° 42' 57.515" N, 103° 38' 51.809" E	Middlestream of Sungai Semangar	64.70	Class III
W28	1° 39' 9.406" N, 103° 40' 26.862" E	Middlestream of Sungai Teberau	58.20	Class III
W29	1° 45' 11.877" N, 103° 46' 20.251" E	Downstream of Sungai Semangar	65.01	Class III

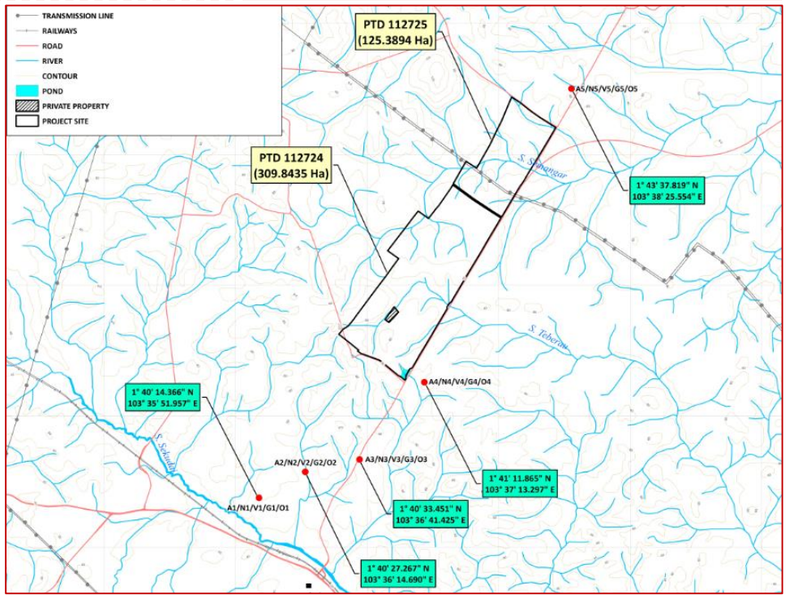
AIR, GAS, NOISE AND VIBRATION MONITORING STATION

SAMPLING STATION	COORDINATE	DESCRIPTION
A1/G1/N1/V1/O1	1° 40' 14.366" N 103° 35' 51.957" E	Taman Saga
A2/G2/N2/V2/O2	1° 40’ 27.267” N 103° 36’ 14.690” E	Taman Desa Kulai
A3/G3/N3/V3/O3	1° 40’ 33.451” N 103° 36’ 41.425” E	Taman Cantik
A4/G4/N4/V4/O4	1° 41’ 11.865” N 103° 37’ 13.297” E	Taman Permata Impian
A5/G5/N5/V5/O5	1° 43' 37.819" N 103° 38' 25.554" E	Taman Anjaria





WATER SAMPLING STATIONS



AIR QUALITY MONITORING			
POINT	RESULT	LIMIT	REMARK
A1/G1	PM_{10} - 56 µg/m³	100 µg/m³	COMPLY
	$PM_{2.5}$ - 42 µg/m³	35 µg/m³	NOT COMPLY
	SO_2 - 0.00 ppm	0.095 ppm	COMPLY
	NO_2 - 0.00 ppm	0.149 ppm	COMPLY
	CO - 1.35 mg/m³	0.092 mg/m³	NOT COMPLY
	O_3 - 0.05 ppm	0.000 ppm	NOT COMPLY
A2/G2	PM_{10} - 28 µg/m³	100 µg/m³	COMPLY
	$PM_{2.5}$ - 14 µg/m³	35 µg/m³	COMPLY
	SO_2 - 0.05 ppm	0.095 ppm	COMPLY
	NO_2 - 0.02 ppm	0.149 ppm	COMPLY
	CO - 0.93 mg/m³	0.092 mg/m³	NOT COMPLY
	O_3 - 0.04 ppm	0.000 ppm	NOT COMPLY
A3/G3	PM_{10} - 14 µg/m³	100 µg/m³	COMPLY
	$PM_{2.5}$ - 14 µg/m³	35 µg/m³	COMPLY
	SO_2 - 0.16 ppm	0.095 ppm	NOT COMPLY
	NO_2 - 0.01 ppm	0.149 ppm	COMPLY
	CO - 1.07 mg/m³	0.092 mg/m³	NOT COMPLY
	O_3 - 0.03 ppm	0.000 ppm	NOT COMPLY
A4/G4	PM_{10} - 28 µg/m³	100 µg/m³	COMPLY
	$PM_{2.5}$ - 28 µg/m³	35 µg/m³	COMPLY
	SO_2 - 0.00 ppm	0.095 ppm	COMPLY
	NO_2 - 0.00 ppm	0.149 ppm	COMPLY
	CO - 1.47 mg/m³	0.092 mg/m³	NOT COMPLY
	O_3 - 0.03 ppm	0.000 ppm	NOT COMPLY
A5/G5	PM_{10} - 28 µg/m³	100 µg/m³	COMPLY
	$PM_{2.5}$ - 14 µg/m³	35 µg/m³	COMPLY
	SO_2 - 0.000 ppm	0.095 ppm	COMPLY
	NO_2 - 0.00 ppm	0.149 ppm	COMPLY
	CO - 1.18 mg/m³	0.092 mg/m³	NOT COMPLY
	O_3 - 0.02 ppm	0.000 ppm	NOT COMPLY
NOISE MONITORING			
N1	Day time 54.64 dBA	Day time ≤60.0 dBA	COMPLY
	Night time 49.74 dBA	Night time ≤55.0 dBA	COMPLY
N2	Day time 72.43 dBA	Day time ≤60.0 dBA	NOT COMPLY
	Night time 68.78 dBA	Night time ≤55.0 dBA	NOT COMPLY
N3	Day time 66.25 dBA	Day time ≤60.0 dBA	NOT COMPLY
	Night time 53.04 dBA	Night time ≤55.0 dBA	COMPLY
N4	Day time 50.39 dBA	Day time ≤60.0 dBA	COMPLY
	Night time 51.71 dBA	Night time ≤55.0 dBA	COMPLY
N5	Day time 56.15 dBA	Day time ≤60.0 dBA	COMPLY
	Night time 50.28 dBA	Night time ≤55.0 dBA	COMPLY
VIBRATION MONITORING			
V1	Day time: 0.05 mm/s	Day time: 0.2 mm/s to 0.4 mm/s	COMPLY
	Night time: 0.04 mm/s	Night time: 0.2 mm/s	COMPLY
V2	Day time: 0.02 mm/s	Day time: 0.2 mm/s to 0.4 mm/s	COMPLY
	Night time: 0.02 mm/s	Night time: 0.2 mm/s	COMPLY
V3	Day time: 0.04 mm/s	Day time: 0.2 mm/s to 0.4 mm/s	COMPLY
	Night time: 0.03 mm/s	Night time: 0.2 mm/s	COMPLY
V4	Day time: 0.03 mm/s	Day time: 0.2 mm/s to 0.4 mm/s	COMPLY
	Night time: 0.03 mm/s	Night time: 0.2 mm/s	COMPLY
V5	Day time: 0.03 mm/s	Day time: 0.2 mm/s to 0.4 mm/s	COMPLY
	Night time: 0.05 mm/s	Night time: 0.2 mm/s	COMPLY

MONTHLY RAINFALL AMOUNT

Minimum: scattered among January, February,March, June & July
Maximum: erratic between January, April, May, July, October, November and December

NUMBER OF RAINDAYS

Minimum: scattered among January, February,March, June & July
Maximum: erratic between May, July, August, September, October and November

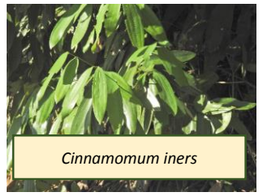
MEAN 24 HOUR TEMPERATURE

Minimum: first and last quarter of the year
Maximum: scattered among March, April, May, June, July and August

MEAN RELATIVE HUMIDITY

Minimum: First quarter of the year except year 2013, 2017 and 2019
Maximum: Last quarter of the year except 2013, 2014 and 2021

EXAMPLE OF FLORA


Cinnamomum iners


Macaranga heynei


Acacia mangium


Macaranga triloba


Melastoma malabathricum


Macaranga gigantea


Mucuna bracteata


Dicranopteris linearis


Ficus variegata

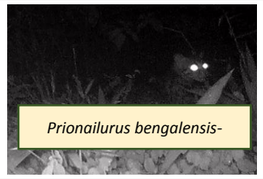

Musa sp.

EXAMPLE OF FAUNA

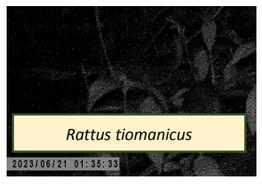

Callosciurus notatus


Sus scrofa


Sus scrofa


Prionailurus bengalensis-


Canis familiaris



Rattus tiomanicus

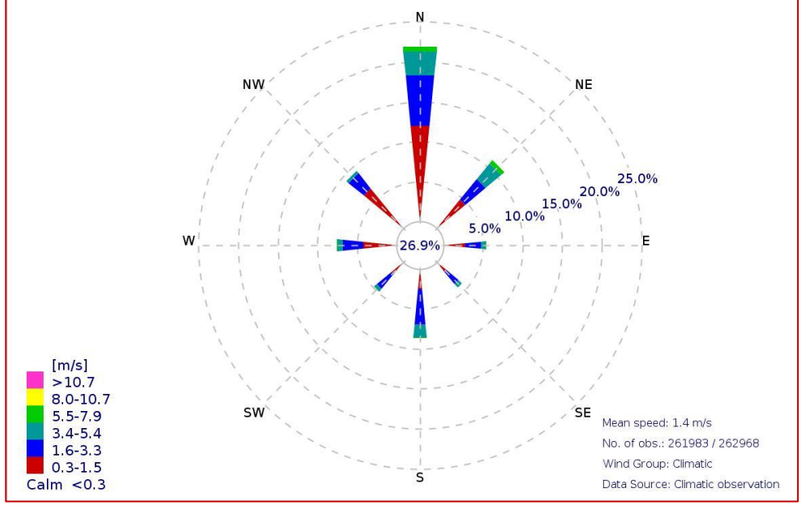

Tupaia glis


Rhipidura javanica

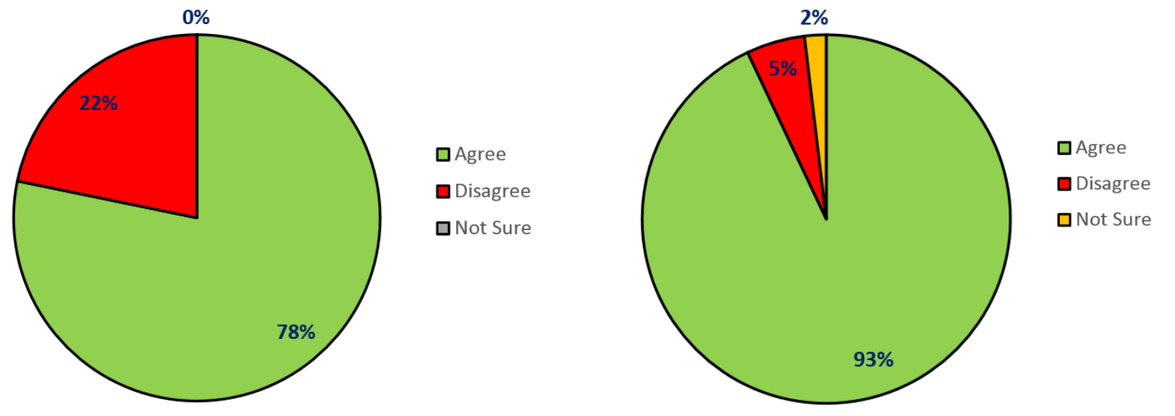

Halcyon smyrnensis


Ploceus philippinus

SENAI
1993 - 2022



Overall Acceptance on Project Development



- Conduct hydraulic modelling to estimate flood profile with a given return period;
- Construct Sediment Basin/ retention pond with enough size to carter the increase in surface runoff;
- Construct proper drainage at the project site;
- Prepare flood contingency plan;
- Install silt trap to filter surface runoff before entering the existing drainage; and
- Conduct proper maintenance frequently for the drainage system.

- Conduct soil investigation for design purposed;
- Conduct geological and geotechnical studies;
- Site clearing and earthworks activities should be done by phases;
- Erosion prone activities should be scheduled for the drier period of the year;
- Site clearing and earthworks are kept to minimal;
- All filled areas must be firmly consolidated and compacted;
- Prepare LDP2M2 prior project commencement. Monitoring by using drone must be done periodically;
- Effective stabilization of altered landforms;
- Planting vegetation/ cover crop/ turfing/ hydroseeding;
- Maintenance of drainage system and all erosion control tools shall be regularly carried out;
- Soil treatment/ backfilling should be done for peat area (if any) before construction of building begin;
- Preventing open burning. Public could be punish with a hefty fine.

- Conduct housekeeping;
- Minimize earthwork operations during periods of high rainfall;
- Silt water from bore hole must not be directly thrown into existing drainage;
- Conduct thorough geotechnical studies prior to any construction activities;
- Application of BMPs prior project commencement;
- A water quality monitoring program must be carried out;
- “Polymer treatment" will be used as an alternative method for water treatment of surface runoff;
- River diversion works need to obtain the permission of the Director JPS Negeri Johor;
- Buffers shall be established;
- Conduct hydraulic modelling to estimate flood profile with a given return period;
- Constructing sediment basins/ retention ponds with enough size;
- Construct proper drainage at the project site;
- Conduct widening and deepening works at affected river;
- Prepare flood contingency plan;
- Conduct proper maintenance frequently for the drainage system; and
- Coordinate with NADMA and Department of Social Welfare.

- The local population must be given the first opportunity when suitable employment positions arise;
- Workers must be given sufficient instructions, training and advice and information of good work procedures, machines handling, work ethics, and code of conduct and safety rulings during working and after working hours;
- Foreign workers must undergo a Fomema checkup;
- First aid equipment must be readily accessible at all work sites,;
- Watch tower is encourage to be constructed at construction area;
- Water browser during site preparation and construction period;
- All rubbish must be dumped at a suitable area;
- Provide PPE to all workers and manpower on site.
- Implementation of BMPs on site to reduce impact on nearest sensitive receptor;
- Closely monitor water quality, air quality, noise and vibration level;
- Increase awareness of the dangers of communicable (inclusive COVID-19 or vector borne disease) and non-communicable diseases.

- Exposed soil areas and stockpiles shall be dampened with water using water browser;
- Vehicle wheel-wash facilities shall be provided at the exits to the paved road;
- No burning of wastes shall be permitted;
- Conduct monitoring and maintenance; and
- Provide PPE to workers.

- Felled trees and other biomass will be left to rot on site;
- This biomass can also be shredded into smaller pieces;
- Dumping of biomass along the river/ stream area or open burning of this waste shall be prohibited.
- Surplus excavated materials and inert wastes shall be reused on site as structural fill, landscaping, erosion control and restoration feature wherever applicable;
- Recovery and recycling shall take place wherever possible, thus avoiding disposal;
- Non-reusable materials will be disposed in waste disposal facility;
- Any schedule waste/ hazardous wastes generated shall be stored, transported, treated and disposed at prescribed premises by a contractor registered under DOE;
- All hazardous wastes must be kept in proper containers, labelled appropriately and stored properly;
- Sewage generated from temporary toilet equipped with septic tank during construction activities shall be first treated before it being discharge into proper place;
- Sufficient number of portable or temporary toilets should be provided within the work sites. Proper maintenance of these toilets is also necessary.

- A detailed TMP shall be prepared prior site preparation and construction;
- Good planning and coordination will reduce the frequency of delivery;
- Lorry shall undergo tires cleaning process or water trough;
- The project proponent shall install clear speed limit and warning signs;
- The Contractor shall provide sufficient signs and flagmen as per the approved TMP;
- To minimize traffic congestion and accidents, material transportation shall be avoided during the peak hours 7.00 am – 9.00 am;
- An ERT shall be appointed;
- Any public complaints must be investigated and appropriate steps are taken to settle as soon as possible;
- Vehicles conveying construction materials and equipment must not exceed the permissible tonnage; and
- Project Proponent must be responsible for the damage to the JKR road caused by the transport truck and must repair the damage immediately.

- Vegetation cover shall not be removed until the physical works are ready to begin;
- Site clearing shall be limited to construction area;
- Site clearing shall be conducted in phases;
- Felled trees and other biomass (tree stump, branches, bushes and shrubs) can be used as mulch at suitable area to avoid soil erosion at downstream;
- Dumping of biomass along river/ stream area is not allowed;
- Vegetation along rivers, streams and drains must be retained as a buffer;
- Prohibition of wildlife poaching and trapping;
- The remaining areas not affected by the development shall remain intact as the existing condition;
- Collaboration with PERHILITAN is necessary;
- Proper collection and temporary storage of garbage (domestic solid waste) to reduce ‘passive wildlife feeding’;
- Workers are to be warned not to feed the wildlife;
- Signage on “Prohibition on wildlife hunting” should be installed at the project site;
- Project proponent should monitor and take appropriate action to avoid any poaching from occurring.

POTENTIAL IMPACTS

Key:

SYMBOL	IMPACT CLASS
1	Minor adverse environmental impact
2	Moderate adverse environmental impact
3	Major adverse impact
A	Minor Positive Impact
B	Major positive impact
U	Potentially adverse but insufficient information
N	Insignificant impact

ENVIRONMENTAL COMPONENT				PROJECT ACTIVITIES												
				SITE INVESTIGATION			INITIAL SITE PREPARATION				CONSTRUCTION, OPERATION AND MAINTENANCE					ABANDONMENT
				FIELD RECONNAISSANCE	SURVEYING AND MAPPING	SAMPLING	MOBILISATION OF MACHINERY AND EQUIPMENT	ESTABLISHMENT OF TEMPORARY FACILITIES	SITE CLEARING WORKS	EARTHWORK ACTIVITIES	DRAINAGE WORKS	CONSTRUCTION ACTIVITIES	PAVEMENT WORK	UPGRADING THE EXISTING FACILITIES	OPERATION AND MAINTENANCE OF ROAD	ABANDONMENT PLAN
	Water	Water Quality	Sediment Load						2	2	2	2	2	1	1	1
			Turbidity						2	2	2	2	2	1	1	1
			Physical/ Chemical/ Biological						2	2	2	2	2	1	1	1
		Drainage	Channel Morphology						2	2	2	2	2	1	1	1
			Sedimentation						2	2	2	2	2	1	1	1
			Drainage Pattern						2	2	2	2	2	1	1	1
			Localized Flooding						2	2	2	2	2	1	1	1
	Air	Air Quality	Smoke Emission				1	1	2	2	2	2	2	1	1	1
			Exhaust Emission				1	1	2	2	2	2	2	1	1	1
			Dust Generation				1	1	2	2	2	2	2	1	1	1
			Odour Pollution				1	1	2	2	2	2	2	1	1	1
	Noise & Vibration	Noise & vibration	To Site Worker				1	1	2	2	2	2	2	1	1	1
			To Nearest Settlement				1	1	1	1	1	1	1	1	1	1
			To immediate structure				1	1	1	1	1	1	1	1	1	1
	Waste	Waste generation	Schedule Waste				1	1	2	2	2	2	2	1	1	1
			Solid Waste				1	1	2	2	2	2	2	1	1	1
			Biomass Waste				1	1	2	2	2	2	2	1	1	1
			Hazardous Waste				1	1	2	2	2	2	2	1	1	1
	Traffic	Traffic and Transportation	Traffic Congestion				2	1	2	2	2	2	2	1	1	1
			Damage to Public Road				2	1	2	2	2	2	2	1	1	1
	Biological	Species and Population	Vegetation				1	1	1	1	1	1	1	1	1	1
			Birds				1	1	1	1	1	1	1	1	1	1
			Mammals/ Reptiles / Amphibians				1	1	1	1	1	1	1	1	1	1
			Fish and Other Aquatic Life				1	1	1	1	1	1	1	1	1	1
	Soil	Slope Stability	Soil Erosion				1	1	2	2	2	2	2	1	1	1
	Human, socio-economic development	Social-economic	Infrastructure Development									B	B	B	B	
			Income				A	A	A	A	A	A	A	A	A	

Performance Monitoring (PM)

Performance Monitoring (PM) is applied to monitor the effectiveness of the LD-P2M2 during construction phase and monitor the STP during operation phase. Three (3) different types of performance monitoring parameter (biological process):

- To ensure biological process are functioning optimally – pH, DO and nutrients
- To provide diagnostic check on the 'health' status of various unit operations and unit processes – MLSS & MLVSS, SVI
- To indicate overall efficiency of the treatment system – BOD & COD

TYPES OF ENVIRONMENTAL MONITORING	ACTIVITY	REGULATED PARAMETERS	GUIDELINES	APPLICABLE STANDARDS	MONITORING LOCATIONS	FREQUENCIES
Compliance Monitoring (CM)	Water Quality (Discharge from silt trap)	Total Suspended Solid (TSS) Turbidity	National Water Quality Standards (NWQS) for Malaysia	• 50 mg/L • 250 NTU	Outlet of silt traps	Every month and after 12.5 mm of heavy rainfall
	Air quality	PM_{10}	Malaysia Ambient Air Quality Standard (MAAQS) (Standard 2020)	PM_{10} - 100 µg/m^3	Five (5) locations at nearest sensitive receptor	Quarterly
	Noise	LAeq Lmax Lmin L10 L50 L90	Recommended Permissible Sound Level (LAeq) By Receiving Land Use for New Development	Suburban Residential (Medium Density), Recreational • Day time less than 60 dBA • Night time less than 55 dBA	Five (5) locations at nearest sensitive receptor	Quarterly
	Vibration	Vibration Peak Velocity	Recommended Vibration Limits for Human Response and Annoyance from Steady State Continuous Vibrations (Second Schedule)	Day time 0.2 mm/s to 0.4 mm/s Night time 0.2 mm/s	Five (5) locations at nearest sensitive receptor	Quarterly and during piling operation
Impact Monitoring (IM)	Water Quality	pH Biochemical Oxygen Demand (BOD) Chemical Oxygen Demand (COD) Dissolved Oxygen (DO) Oil & grease Total Suspended Solids (TSS) Ammoniacal Nitrogen (NH_3-N) Turbidity E. coli	National Water Quality Standards (NWQS) for Malaysia Class IIB	pH - 6 - 9 BOD - 3 mg/I COD - 25 mg/I DO - 5 - 7 mg/l O&G - Not Detectable TSS - not greater than 50 mg/I AN - not greater than 0.3 mg/I Turbidity - not greater than 50 NTU E. coli - not greater than 400 count/ 100 ml	28 locations of water bodies	Monthly
	Air quality	PM_{10}	Malaysia Ambient Air Quality Standard (MAAQS) (Standard 2020)	PM_{10} - 100 µg/m^3	Five (5) locations at nearest sensitive receptor	Quarterly
	Noise	LAeq Lmax Lmin L10 L50 L90	Recommended Permissible Sound Level (LAeq) By Receiving Land Use for New Development	Suburban Residential (Medium Density), Recreational • Day time less than 60 dBA • Night time less than 55 dBA	Five (5) locations at nearest sensitive receptor	Quarterly
	Vibration	Vibration Peak Velocity	Recommended Vibration Limits for Human Response and Annoyance from Steady State Continuous Vibrations (Second Schedule)	Day time 0.2 mm/s to 0.4 mm/s Night time 0.2 mm/s	Five (5) locations at nearest sensitive receptor	Quarterly and during piling operation