

# LOJI RAWATAN KUMBAHAN (STP) DAN STESEN PAM PENGHUBUNG (NPS)

# **LOKASI TAPAK KERJA & JENIS LOJI**

**Lokasi :**

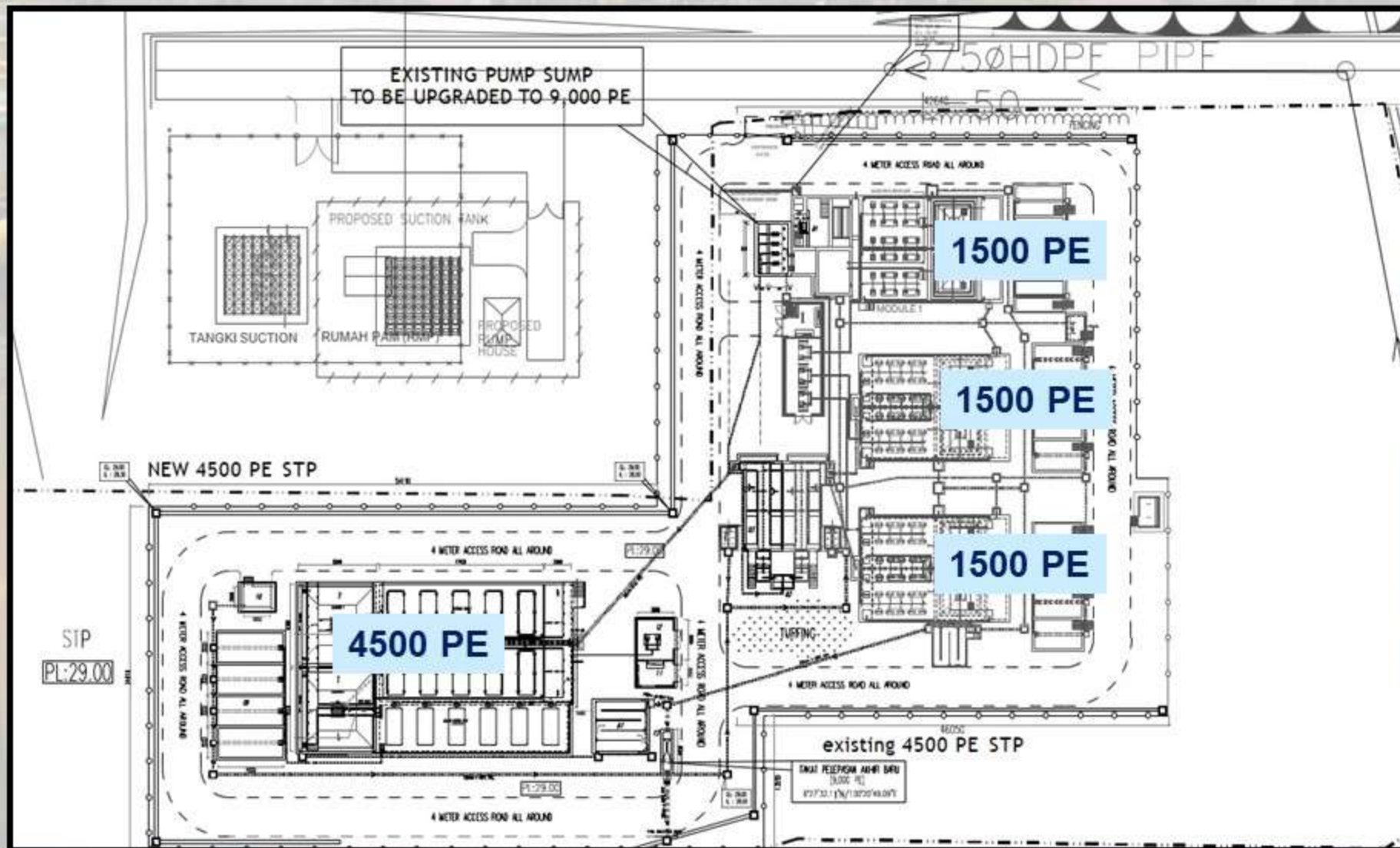
**Kawasan tapak kerja adalah loji rawatan kumbahan (STP) dan Stesen Pam Penghubung (NPS) di Kampus Induk UniMAP**

**JENIS LOJI :**

**PENGUDARAAN LANJUTAN ( EXTENDED AERATION –EA RETENTION)**

- i. Loji Rawatan Kumbahan Berpusat (9,000 PE) iaitu ;**
  - 1,500 PE x 3 module**
  - 4,500 PE x 1 module**
- ii. Stesen Pam Penghubung,NPS (6,500 PE)**

# LOJI RAWATAN KUMBAHAN ( 9,000 PE )

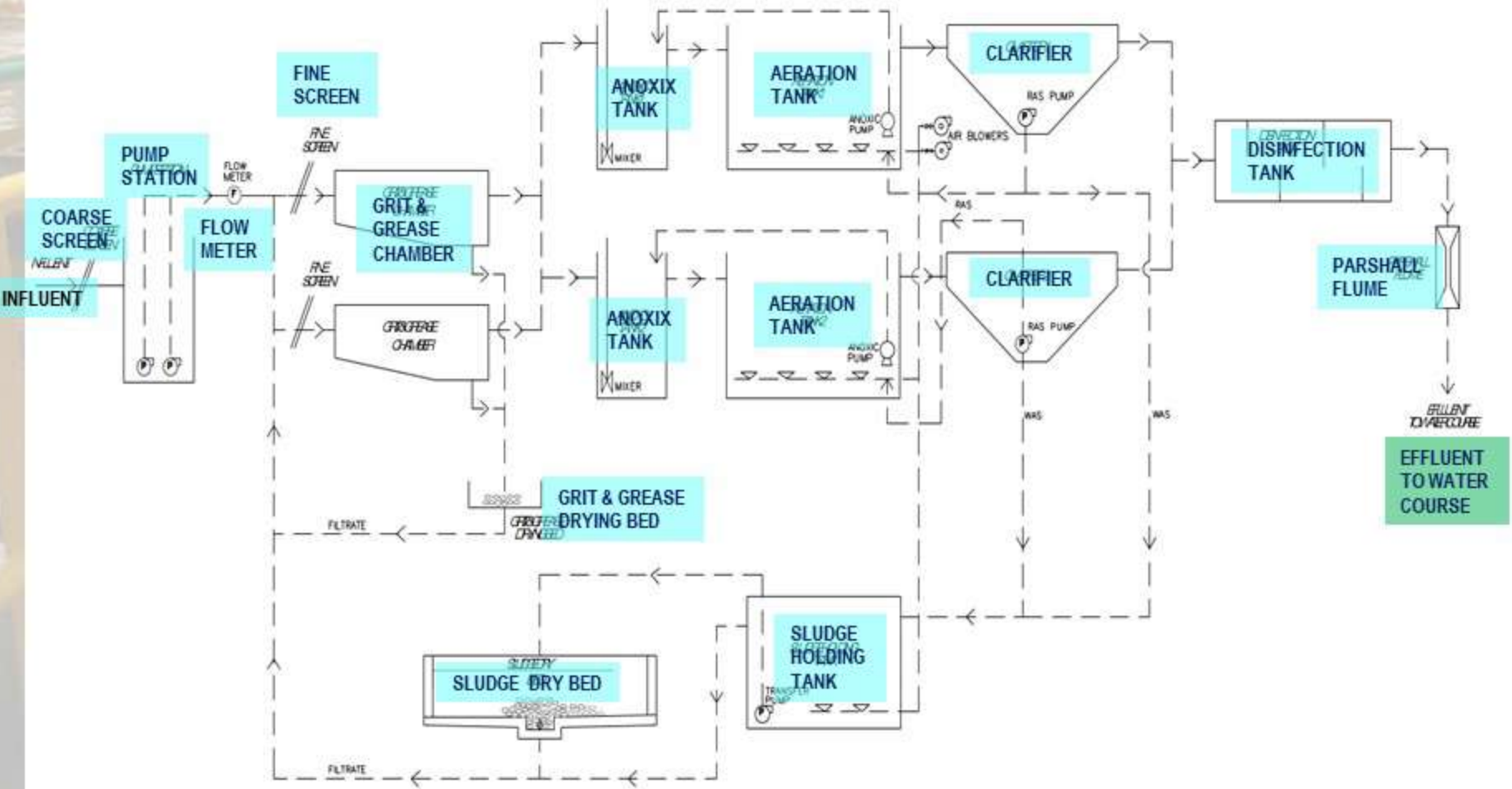


## **PROSES DAN PERALATAN BERKAITAN**

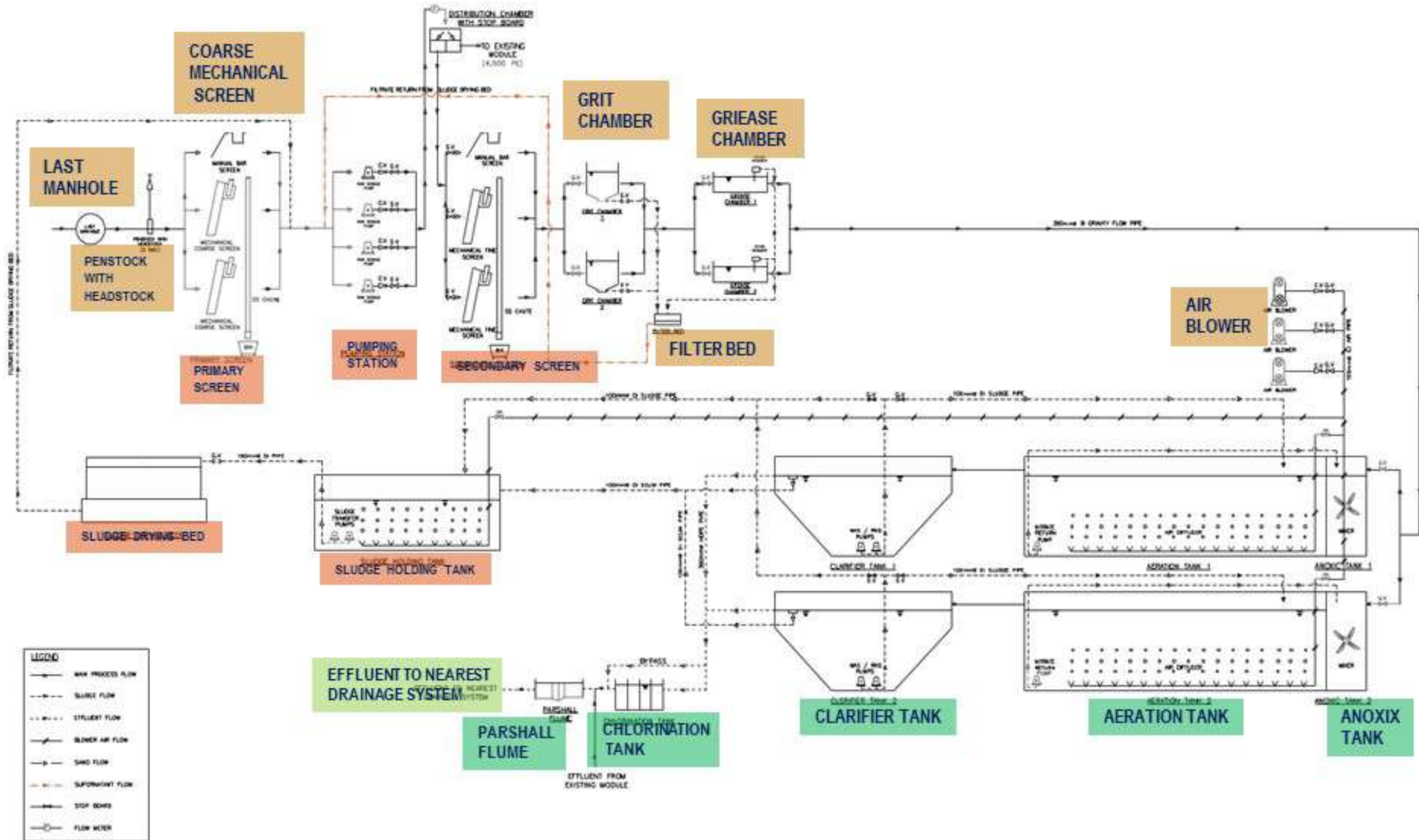
Proses dan peralatan yang terlibat di dalam kontrak ini adalah loji rawatan kumbahan dan stesen pam penghubung dan komponen alat ganti berkaitan. Peralatan seperti berikut :

- i. Primary Screen / Secondary Screen**
  - **Penstock with headstock**
  - **Manual bar screen / Mechanical Coarse Screen**
  - **Control Panel**
- ii. Pumping Station – RAW Sewage Pump c/w control panel**
- iii. Grit Chamber – Grease Chamber – Filter Bed**
- iv. Anoxix Tank – mixer**
- v. Aeration Tank -Air Blower-Air diffuser-Nitrate Return Pump**
- vi. Clarifier Tank - WAS / RAS Pumps**
- vii. Sludge Holding Tank -Sludge Transfer Pumps-Sludge Drying Bed**
- viii. Chlorination Tank**
- ix. Parshall Flume / Flow meter**

# SKEMATIK PROSES LOJI RAWATAN KUMBAHAN



# PROSES STP



## PERALATAN LOJI : STP 9000 PE

NO	EQUIPMENTS	LOCATION	BRAND	MODEL	CAPACITY
1	Raw Sewage Pump	Pump Station	Ebara	100 DML 55.5	Flowrate : 2.6 m <sup>3</sup> /min Head : 6.0 m Nos : 4
2	Coarse Mechanical Screen	Coarse Screen Chamber	Herman	HER-6000F	Width : 0.5 m Depth : 5.5 m Nos : 2
3	Fine Mechanical Screen	Fine Screen Chamber	Herman	Her-700F	Width : 0.5 m Depth : 0.7 m Nos : 2
4	MLSS Return Pump For Anoxic	Aeration Tank	Ebara	100 DML 52.2	Flowrate : 1.4 m <sup>3</sup> /min Head : 3.0 m Nos : 2
5	Anoxic Mixer	Anoxic Tank	Shinmaywa	SM750	Power : 0.75 Kw
6	Sludge Pump	Sludge Holding Tank	Ebara	65 (80) DVS 5.75	Flowrate : 0.25 m <sup>3</sup> /min Head : 5.5 m Nos : 1
7	RAS / WAS Pump	Clarifier	Ebara	65 (80) DVS 5.75	Flowrate : 0.25 m <sup>3</sup> /min Head : 5.5 m Nos : 1
8	Air Blower	Blower Room	Fu-Tsu	TSD-125 TSC 80	Flowrate : 0.25 m <sup>3</sup> /min Pressure : 6,000mm Aq Nos : 3 + 6
9	Penstock	Pump Station	KT penstock	450 mm	-
10	Float Switch	Pump Station -4 Nos	Remoto	RNC 1002	-
11	Fine Bubble Diffuser	Aerotion Tank	Uniflex	U330	-
12	Coarse Bubble Diffuser	Sludge Holding Tank	Uniflex	PT3/4B	-

## PERALATAN : NETWORK PUMP STATION 6,500 PE

NO	EQUIPMENTS	LOCATION	BRAND	MODEL	CAPACITY
1	Raw Sewage Pump	Pump Station	Ebara	150 DML 55.5	Flowrate : 2.0 m <sup>3</sup> /min Head : 7.0 m Nos : 4
2	Coarse Mechanical Screen	Screen Chamber	Herman	HER-6,000F	Width : 0.5 m Depth : 5.5 m Nos : 2
3	Penstock	Pump Station	KT penstock	225mm	-
4	Float Switch	Pump Station -4 Nos	Remoto	RNC 1002	-
5	Gate Valve	All Pump Installation	LYE	100 mm	-
6	Check Valve	All Pump Installation	LYE	100 mm	-



## GAMBAR BERKAITAN



**4,500 PE x 1 module**



**1,500 PE x 3 module**

**10 FEBUARI 2022**

**PEMERIKSAAN LOJI BERSAMA IWK**



**Pemeriksaan loji bersama En Umar ( Ketua Operasi IWK Wilayah Utara )**

# PENGUJIAN DAN PEMERIKSAAN



**Pengujian pH, Suhu dan Oksigen**



**Perbincangan bersama pihak SPAN di tapak**

**28 JULAI 2022**

**LAWATAN DAN PEMERIKSAAN LOJI OLEH SPAN, JAS DAN IWK**



**Taklimat loji oleh pegawai UniMAP kepada Jabatan Alam Sekitar (JAS), Suruhanjaya Perkhidmatan Air Negara (SPAN) dan Indah Water Korsotium (IWK)**

# PENGUJIAN DAN PEMERIKSAAN



**Kerja-kerja persampelan dan pengujian air keluaran (effluent) setiap bulan**

# LAWATAN PELAJAR KEJURUTERAAN AWAM



# SERVIS BERKALA SECARA MINGGUAN DAN BULANAN



Kerja-kerja Servis Coarse Mechanical Screen



Blower Room

# SERVIS BERKALA SECARA MINGGUAN DAN BULANAN



Kerja-kerja pembersihan di Network pump station



# SERVIS BERKALA SECARA MINGGUAN DAN BULANAN



Stesen Pam Penghubung, 6,500 PE



FLOW METER

# SERVIS BERKALA SECARA MINGGUAN DAN BULANAN



Housekeeping & Servis di blower house

# SERVIS BERKALA SECARA MINGGUAN DAN BULANAN



Kerja-kerja pembersihan loji rawatan

# KEPUTUSAN PENGUJIAN MAKMAL BAGI BULAN OKTOBER 2022

## LOJI RAWATAN KUMBAHAN KAMPUS INDUK UNIMAP



**BIO SYNERGY LABORATORIES SDN. BHD.**  
 031-81028777 (090000-00)  
 Lot 1305, M6, Malim, Daerah Kubang Pasu, 08000 Kota, Kedah Darul Aman,  
 No. 18, KAMPUNG SURAU, UTARA AG,  
 01000 KANGAR, KEDAH, MALAYSIA.  
 Website: www.biosynergy.com.my



NO. OF PAGES : 1 OF 2  
 LAB REF. NO. : CL / 22100280  
 REPORT DATE : 19 OCTOBER 2022  
 TO : BUMI FOCUS ENTERPRISE (UNMAP)  
 NO. 78, KAMPUNG SURAU, UTARA AG,  
 01000 KANGAR, KEDAH, MALAYSIA.

**CERTIFICATE OF ANALYSIS**

RECEIVED DATE : 13 OCTOBER 2022  
 TEST PERFORMANCE DATE : 13 OCTOBER 2022  
 SAMPLE DESCRIPTION : ONE (1) PLASTIC BOTTLE OF SAMPLE WAS RECEIVED  
 ONE (1) GLASS BOTTLE OF SAMPLE WAS RECEIVED  
 EFFLUENT WATER.  
 SAMPLE MARKING :

### CHEMICAL / PHYSICAL TEST

TEST PARAMETER	UNIT	METHOD USED	MAXIMUM LIMITS OF EFFLUENT OF STANDARD A	RESULT
Temperature	°C	APHA 2550 B	40	26.0
pH Value	-	APHA 4500 + H	6.0-9.0	8.0
BOD <sub>5</sub> at 20°C	mg/L	APHA 5210 B & APHA 4500 OC	20	2
COD	mg/L	APHA 5220 B	200	8
Suspended Solid	mg/L	APHA 2540 D	50	6
Mercury	mg/L	In-house Method, CLWT/007, Based on APHA 3112B, using FIMS	0.005	ND(<0.001)
Calcium	mg/L	APHA 3120 B	0.01	ND(<0.00)
Chromium, Hexavalent	mg/L	APHA 3500-CI-B	0.05	ND(<0.05)
Chromium, Trivalent	mg/L	In-house Method Based On APHA 3500-CI-B & 3120 B	0.2	ND(<0.05)
Arsenic	mg/L	APHA 3120 B	0.05	ND(<0.001)
Cyanide	mg/L	APHA 4500-CN C & D	0.05	ND(<0.11)
Lead	mg/L	APHA 3120 B	0.10	ND(<0.01)
Copper	mg/L	APHA 3120 B	0.20	ND(<0.01)
Manganese	mg/L	APHA 3120 B	0.20	0.02
Nickel	mg/L	APHA 3120 B	0.20	0.02
Tin	mg/L	APHA 3120 B	0.20	ND(<0.01)
Zinc	mg/L	APHA 3120 B	2.0	ND(<0.01)

ORIGINAL

Malaysia Region Lab (JAMM 93-818)  
 No. 14, Jalan 4/35A, Taman Bukit Jelutong, 40150 Johor Bahru, Johor,  
 Tel: 06 793 1171 (24H) Fax: 06 793 1172  
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 Singapore Region Lab (JAMM 93-818)  
 No. 1, Jalan Marina South 1/1A, Marina South Centre, 40150 Johor Bahru, Johor,  
 Tel: 06 793 1171 (24H) Fax: 06 793 1172

ND denotes Not Detected / NED denotes Not Determined / (P) Parameter method/ detection detection limits / (Q) Symbol / detection parameter which is not specified  
 This report applies and refers only to the sample of the specific test article submitted by the Client at the time of testing as indicated. The result shall NOT be used to indicate an duplicate that they are applicable to other similar articles/products not submitted to test. This document shall be prepared and submitted to the client and its authorized representative with limitation of liability, indemnification and jurisdiction. Results obtained herein, (article to study) not for reproduction, circulation, advertising or any legal proceeding purposes and shall NOT be reproduced except in full without prior written consent and approval of the laboratory.



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### CHEMICAL / PHYSICAL TEST

TEST PARAMETER	UNIT	METHOD USED	MAXIMUM LIMITS OF EFFLUENT OF STANDARD A	RESULT
Boron	mg/L	APHA 3120 B	1.0	0.03
Iron (Fe)	mg/L	APHA 3120 B	1.0	0.03
Silver	mg/L	APHA 3120 B	0.1	ND(<0.01)
Aluminum	mg/L	APHA 3120 B	10	ND(<0.01)
Selenium	mg/L	APHA 3120 B	0.02	ND(<0.01)
Barium	mg/L	APHA 3120 B	1.0	0.09
Fluoride	mg/L	APHA 4110 B	2.0	0.9
Formaldehyde	mg/L	In House Method Based on HACH Spectrophotometer, Method 8010	1.0	ND(<0.1)
Phenol	mg/L	APHA 5530 C	0.001	ND(<0.1)
Free Chlorine	mg/L	In-house Method Based On HACH Spectrophotometer, Method 8001	1.0	ND(<0.1)
Sulphate	mg/L	In-house Method Based On HACH Spectrophotometer, Method 8111	0.30	ND(<0.1)
Oil & Grease	mg/L	APHA 5520 B	1.0	ND(<1)
Ammeniacal Nitrogen	mg/L	APHA 4500-NH <sub>3</sub> B & C	10	ND(<0.1)
Cinical ADMI	-	APHA 2120 F	100	8

**REMARK:**  
 BOD Commencing Date : 13 / 10 / 2022  
 APHA - American Public Health Association, Standard Method for Examination of Water and Wastewater, 21<sup>st</sup> Edition, 2005.  
 ADMI - American Dye Manufacturers Institute

**CHEM KIROO HWA CHUAN**  
 Dir. MAMC (M.212)443140105

ORIGINAL

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