

**Appendices**

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**APPENDIX 1: Land Ownership**

**ORIGINAL**

DATED 09 MAY 2022

**BETWEEN**

**PUNCAK WANGSA SDN. BHD.**  
(Registration No. 199101010411 (220723-P))  
("Vendor")

**AND**

**TAIYO KOKO COMPANY LIMITED**  
(Company No. 1400-01-009113)  
("Purchaser")

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**SALE AND PURCHASE AGREEMENT**

(relating to such part measuring approximately Twenty (20) acres  
of Lot 29132, Mukim Sungai Karang, Daerah Kuantan, Negeri  
Pahang)

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File Ref.: 2022.C2183(SS)JW.TSC.LKM.sh

**JEFF LEONG, POON & WONG**

ADVOCATES & SOLICITORS

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DS\_1 SP (Pln 1/2017)

  
KERAJAAN MALAYSIA

**IBU PEJABAT  
LEMBAGA HASIL DALAM NEGERI MALAYSIA  
MENARA HASIL  
PERSIARAN RIMBA PERMAI  
CYBER 8, 63000 CYBERJAYA  
SELANGOR DARUL EHSAN**

  
LHDN  
MALAYSIA

**SIJIL SETEM**  
**STAMP CERTIFICATE**  
(Sila lekatkan sijil setem ini ke atas surat cara sebagai bukti penyeteman)  
*Please attach this stamp certificate to the instrument as evidence of stamping*

ASAL

<b>Cara Bayaran</b> <i>Payment Method</i>	FPX TRANSACTIONS
<b>No. Adjudikasi</b> <i>Adjudication No.</i>	G01C5194E8XW026
<b>Jenis Surat Cara</b> <i>Type Of Instrument</i>	PERJANJIAN JUAL BELI SURAT CARA UTAMA
<b>Tarikh Surat Cara</b> <i>Date Of Instrument</i>	09/05/2022
<b>Balasan</b> <i>Consideration</i>	RM 20,000,000.00

**Maklumat Pihak Pertama / Penjual / Pemberi** *First Party / Vendor / Transferor / Assignor*  
PUNCAK WANGSA SDN BHD, NO SYARIKAT 220723-P

**Maklumat Pihak Kedua / Pembeli / Penerima** *Second Party / Purchaser / Transferee / Assignee*  
TAIYO KOKO COMPANY LIMITED, NO SYARIKAT 140001009113

**Butiran Harta / Suratkara** *Property / Instrument Description*



Dengan ini disahkan surat cara ini disetem dan diindors seperti maklumat di bawah:  
*This is to certify this instrument is stamped and indorsed as below:*

<b>No. Sijil Setem</b> <i>Stamp Certificate No.</i>	W0260A220357726
<b>Tarikh Penyeteman</b> <i>Date of Stamping</i>	19/05/2022
<b>Duti Setem Dikenankan</b> <i>Amount of Stamp Duty</i>	RM 10.00
<b>Penalti</b> <i>Penalty</i>	RM 0.00
<b>Pelesenan</b> <i>Adjudation</i>	RM 0.00
<b>Jumlah Dibayar</b> <i>Total Amount Paid</i>	RM 10.00
<b>Indorsement</b> <i>Indorsement (Date Stamp 1948)</i>	Sekawan 37



Pemungut Duti Setem

No. Kelulusan Perbandharaan *Treasury Approval No.* : KK/BSKK/10/600-2/1/2/60)Tarikh Cetak *Printed Date* : 19/05/2022 04:55:18

Pengesahan kelulusan Sijil Setem ini boleh dipastikan di [stamps.hasil.gov.my](https://stamps.hasil.gov.my) atau melalui aplikasi telefon pintar

The authenticity of this Stamp Certificate can be verified at [stamps.hasil.gov.my](https://stamps.hasil.gov.my) or by mobile app

Ini adalah cetakan komputer dan tidak perlu ditandatangani

This is a computer generated printout and no signature is required

— tamat/end —



**ORIGINAL**

*Sale and Purchase Agreement* 20 Acres of Lot 29132, Mukim Sungai Karang,  
Daerah Kuantan, Negeri Pahang

**SALE AND PURCHASE AGREEMENT**

**THIS SALE AND PURCHASE AGREEMENT** is made on **09 MAY 2022**

**BETWEEN:**

I. **PUNCAK WANGSA SDN. BHD. (Registration No. 199101010411 (220723-P))**, a company incorporated in Malaysia and having a business address at A-7370, 1<sup>st</sup> Floor, Jalan Kubang Buaya, 25250 Kuantan, Pahang Darul Makmur ("**Vendor**");

AND

II. **TAIYO KOKO COMPANY LIMITED (Company No. 1400-01-009113)**, a company incorporated in Japan and having a business address at 1-1-39 Isobe-dori, Chuo-ku, Hyogo 651-0084, Japan ("**Purchaser**").

**RECITALS**

A. The Vendor is the registered and beneficial owner of all that piece of leasehold land with a lease tenure of Ninety Nine (99) years expiring on 30 October 2106, known as Lot 29132, Mukim Sungai Karang, Daerah Kuantan, Negeri Pahang measuring approximately 505,800 square metres and held under issue document of title No. PN 11892 ("**Master Land**").

B. The document of title to the Master Land is as at the date of this Agreement subject to the following category of land use, express condition and restriction in interest:

i. Category of Land Use : *Perusahaan / Perindustrian*


ii. Express Condition : *Tanah ini hendaklah digunakan untuk Tapak Industri sahaja.  
(The land shall be used as Industrial Site only.)*

iii. Restriction in Interest : *Tanah ini tidak boleh dipindahmilik, dipajak, digadai melainkan setelah mendapat kebenaran bertulis daripada Pihak Berkuasa Negeri.  
(The land shall not be transferred, leased or charged unless after having obtained the written consent from the State Authority.)*

C. The Master Land is presently charged by Vendor to the Existing Chargee (as defined herein).

D. By a letter of the Vendor dated 18 January 2022 and accepted by the Purchaser on 26 January 2022:

i. the Vendor has offered to sell and the Purchaser has accepted the offer and the terms and conditions therein stated to purchase part of the Master Land measuring approximately Twenty (20) acres; and

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20 Acres of Lot 29132, Mukim Sungai Karang,  
Daerah Kuantan, Negeri Pahang

- ii. the Purchaser has paid a sum of Ringgit Malaysia Four Hundred Thousand (RM400,000.00) only towards account of the Purchase Price (as defined herein) ("**Earnest Deposit**") to the Vendor's Solicitors (as defined below) as stakeholders.
- E. Subject to the provisions of this Agreement, the Vendor agrees to sell and the Purchaser agrees to purchase such part of the Master Land measuring approximately Twenty (20) acres and as more particularly delineated in RED in the layout plan annexed to this Agreement (as defined herein) as the Schedule ("**Property**") on an *as is where is* basis, free from Encumbrance (as defined herein), with vacant possession, subject to the category of land use together with all restrictions in interests and conditions of title, whether express or implied, endorsed on and contained in the Document of Title (as defined herein) when issued or applicable thereto, and upon the terms and conditions contained in this Agreement.
- F. The Vendor has appointed **JEFF LEONG, POON & WONG, Advocates & Solicitors** of B-11-8, Level 11, Megan Avenue II, Jalan Yap Kwan Seng, 50450 Kuala Lumpur ("**Vendor's Solicitors**") to act for it in respect of its sale of the Property to the Purchaser under this Agreement, whereas the Purchaser is unrepresented in respect of its purchase of the Property from the Vendor under this Agreement. The Parties (as defined herein) has agreed to appoint the Vendor's Solicitors as agreed stakeholder in relation to receiving and releasing the Deposit (as defined herein) in accordance with this Agreement.

**NOW IT IS HEREBY AGREED BY THE VENDOR AND THE PURCHASER AS FOLLOWS:**

**1. DEFINITIONS AND INTERPRETATION**

- 1.1. **Definitions:** The following words and terms have the following meanings unless the context otherwise requires or stated otherwise –

<b>Adverse Condition</b>	has the meaning as ascribed to it in Clause 3.3.2.a;
<b>Affected Party</b>	has the meaning as ascribed to it in Clause 3.3.2.a;
<b>Agreed Property Area</b>	has the meaning as ascribed to it in Clause 4.1;
<b>Agreement</b>	this Sale and Purchase Agreement duly executed by the Parties, which expression shall include any supplemental, amendment, variation and modification thereto mutually agreed by the Parties in writing;
<b>Applying Party</b>	has the meaning as ascribed to it in Clause 3.3.2.a;
<b>Appropriate Authority</b>	any governmental, semi or quasi government, local and/or statutory department, agency, body or authority for the time being authorized or having liberty and authority to exercise its rights, jurisdiction and/or responsibility in connection with or affecting the Property and/or any matter referred to under or arising out of the terms of this Agreement, including the DOE, PETRONAS and/or its affiliated company and the State Authority;

<i>Sale and Purchase Agreement</i>		20 Acres of Lot 29132, Mukim Sungai Karang, Daerah Kuantan, Negeri Pahang
<b>Balance Deposit</b>	has the meaning as ascribed to it in Clause 4.2.1;	
<b>Balance Land</b>	such part of the Master Land (other than the Property) to be held by the Vendor under a separate issue document of title following completion of the Subdivision;	
<b>Balance Purchase Price</b>	a sum of Ringgit Malaysia Eighteen Million (RM18,000,000.00) only, being Ninety per cent (90%) of the Purchase Price and payable by the Purchaser to the Vendor in accordance with Clause 4.2.2;	
<b>Business Day</b>	any day excluding Saturdays, Sundays and public holidays on which financial institutions licensed under the FSA and/or the IFSA are open for business in both the State of Pahang, Malaysia and Japan;	
<b>Companies Act</b>	the Companies Act 2016 [Act 777];	
<b>Completion Date</b>	has the meaning as ascribed to it in Clause 9;	
<b>Conditional Period</b>	Either the Proposed Project Conditional Period or the period for the relevant conditions precedent stated in Clause 3.1.2, as the case may be;	
<b>Conditions Precedent or CPs</b>	all the Proposed Project CPs and those conditions stated in Clauses 3.1.2 and 3.1.3 to be fulfilled by the relevant Party within the relevant Conditional Period;	
<b>Deposit</b>	both the Earnest Deposit and the Balance Deposit totaling at the sum of <b>Ringgit Malaysia Two Million (RM2,000,000.00)</b> only, being Ten per cent (10%) of the Purchase Price;	
<b>DGIR</b>	the Malaysian Director-General of Inland Revenue;	
<b>Discharge Document</b>	after completion of the Subdivision, being: <ul style="list-style-type: none"> <li>a. the original Document of Title;</li> <li>b. if applicable, the Discharge of Charge; and</li> <li>c. if applicable, the registered Duplicate Charge in Form 16A of the NLC and Annexure (if any) in respect of the Existing Charge and in relation to the Property, or a copy thereof as certified to be true copy by the relevant registry or land office;</li> </ul>	
<b>Discharge of Charge</b>	the executed and stamped Discharge of Charge in Form 16N of the NLC in respect of the Property and in relation to the Existing Charge;	
<b>Disclosing Party</b>	has the meaning as ascribed to it in Clause 22.11.3;	
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<b>Sale and Purchase Agreement</b>		20 Acres of Lot 29132, Mukim Sungai Karang, Daerah Kuantan, Negeri Pahang
<b>Document of Title</b>	the issue document of title to the Property as issued by the Appropriate Authority after the Subdivision Approval and completion of the Subdivision;	
<b>DOE</b>	the Malaysian Department of Environment;	
<b>Earnest Deposit</b>	has the meaning as ascribed to it in Recital D.ii;	
<b>Encumbrance</b>	charge, mortgage, assignment, caveat (private, trust, lien-holder's or registrar's), lease, tenancy, debenture and lien;	
<b>Existing Charge</b>	the existing Charge created by the Vendor over the Master Land in favour of the Existing Chargee via presentation number 4935/2018 on 11 June 2018;	
<b>Existing Chargee</b>	<b>UNITED OVERSEAS BANK (MALAYSIA) BHD. (Registration No. 199301017069 (271809-K))</b> of No. 2, Jalan Besar, 25000 Kuantan, Pahang Darul Makmur, Malaysia;	
<b>Exit Notice</b>	has the meaning as ascribed to it in Clause 2.4;	
<b>Force Majeure Event</b>	has the meaning as ascribed to it in Clause 23.1;	
<b>FSA</b>	the Financial Services Act 2013 [Act 758];	
<b>IFSA</b>	the Islamic Financial Services Act 2013 [Act 759];	
<b>Late Payment Interest</b>	interest on the Purchase Price or any part thereof which remains unpaid or is outstanding upon expiry of the relevant payment period stipulated in this Agreement, at the agreed rate of Eight per cent (8%) per annum calculated on a daily basis from the next day immediately after the expiry of the relevant payment period until the day of the actual receipt of such unpaid or outstanding sum in full by the Vendor or the Vendor's Solicitors as the stakeholders, as the case may be;	
<b>Limited PA</b>	has the meaning as ascribed to it in Clause 5.1;	
<b>Master Land</b>	has the meaning as ascribed to it in Recital A;	
<b>month</b>	a period beginning in One (1) calendar month and ending in the next calendar month on the day numerically corresponding to the day of the calendar month on which it commences or, where there is no date in the next month numerically corresponding as aforesaid, the last day of such calendar month, and "months" and "monthly" shall be construed accordingly;	
<b>NLC</b>	the National Land Code (Revised 2020) [Act 828];	
<b>Nominated Transferee</b>	has the meaning as ascribed to it in Clause 22.3.2;	
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<i>Sale and Purchase Agreement</i>		20 Acres of Lot 29132, Mukim Sungai Karang, Daerah Kuantan, Negeri Pahang
<b>Outgoings</b>	has the meaning as ascribed to it in Clause 11.1;	
<b>Parties</b>	both the Vendor and the Purchaser, and " <b>Party</b> " means either the Vendor or the Purchaser, as the case may be;	
<b>Payment Schedule</b>	has the meaning as ascribed to it in Clause 4.2.2;	
<b>PETRONAS</b>	Petroleum Nasional Berhad (Petronas) (Registration No. 197401002911 (20076-K));	
<b>Property</b>	has the meaning as ascribed to it in Recital E;	
<b>Proposed Project</b>	construction of spent catalyst (generated at RAPID refinery, Pengerang, Johor) recycle plant on the Property;	
<b>Proposed Project Conditional Period</b>	has the meaning as ascribed to it in Clause 3.1.1;	
<b>Proposed Project CPs</b>	all the conditions precedent stipulated in Clauses 3.1.1.a and 3.1.1.b to be fulfilled by the Purchaser within the Proposed Project Conditional Period;	
<b>Proposed Project CPs Fulfilment Date</b>	the date on which all the Proposed Project CPs are fulfilled by the Purchaser within the Proposed Project Conditional Period and/or mutually waived under Clause 3.4.1;	
<b>Purchase Price</b>	the sum of <b>Ringgit Malaysia Twenty Million (RM20,000,000.00)</b> only, being the purchase price (not inclusive of any tax) payable by the Purchaser to the Vendor for the purchase of the Property under this Agreement;	
<b>Purchaser's Outgoings Portion</b>	has the meaning as ascribed to it in Clause 11.1;	
<b>Redemption Statement cum Undertaking</b>	<p>the redemption statement setting out the Redemption Sum and undertaking of the Existing Chargee to the Purchaser in its usual format:</p> <ol style="list-style-type: none"> <li>to deliver the Discharge Document after the Existing Chargee's receipt of the Redemption Sum; and</li> <li>to refund the Redemption Sum received by the Existing Chargee free of interest, if the Discharge of Charge cannot be registered for any reason due to the Existing Chargee, provided that all the Discharge Document are first returned to the Existing Chargee intact within any period stipulated by it;</li> </ol>	
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***Sale and Purchase Agreement***

20 Acres of Lot 29132, Mukim Sungai Karang,  
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<b>Redemption Sum</b>	the redemption sum which the Vendor is required to pay to the Existing Chargee for or towards the discharge and release of the Existing Charge in relation to the Property as stated in the Redemption Statement cum Undertaking;
<b>Ringgit Malaysia or RM</b>	the lawful currency of Malaysia;
<b>RPGT Act</b>	the Real Property Gains Tax Act 1976 [Act 169];
<b>State Authority</b>	has the meaning as ascribed to it in the NLC;
<b>Subdivision</b>	the subdivision of the Master Land into the Property and the Balance Land in accordance with the NLC;
<b>Subdivision Approval</b>	the approval(s) from the Appropriate Authority for the Subdivision under the NLC;
<b>Subdivision Cost</b>	an agreed sum up to Ringgit Malaysia Seven Hundred Seventy Thousand (RM770,000.00) only, comprising: <ul style="list-style-type: none"> <li>d. the cost of <b>Ringgit Malaysia Three Hundred Eighty Thousand (RM380,000.00)</b> only estimated to be incurred by the Vendor to proceed with the Subdivision, and the actual amount of which shall be supported by documentary evidence of the Vendor; and</li> <li>e. Fifty per cent (50%) of the current Quit Rent payable in respect of the Property to facilitate the Subdivision, and at the sum of <b>Ringgit Malaysia Three Hundred Ninety Thousand (RM390,000.00)</b> only;</li> </ul>
<b>Transfer</b>	the instrument of Transfer in Form 14A of the NLC executed by the Vendor in favour of the Purchaser in respect of the Property;
<b>Transfer Consent</b>	has the meaning as ascribed to it in Clause 3.1.3.b;
<b>Unconditional Date</b>	has the meaning as ascribed to it in Clause 3.5; and
<b>Vendor's Solicitors</b>	has the meaning as ascribed to it in Recital F.

1.2. **Interpretation:** Unless the context otherwise requires –

- 1.2.1. words importing the masculine gender shall include the feminine and neuter genders and vice versa;
- 1.2.2. words importing the singular number shall include the plural and vice versa;

*Sale and Purchase Agreement*

20 Acres of Lot 29132, Mukim Sungai Karang,  
Daerah Kuantan, Negeri Pahang

- 1.2.3. all schedules to this Agreement shall be read and construed as part of this Agreement. If there is any conflict or discrepancy between the content of any schedule(s) and the main body of this Agreement, the content of such schedule(s) shall govern and prevail;
- 1.2.4. a reference to a Recital, Clause and sub-Clause is a reference to the relevant recital, clause and sub-clause of this Agreement;
- 1.2.5. the headings and sub-headings to the Clauses are for convenience and shall not be taken into consideration in the interpretation or construction of this Agreement;
- 1.2.6. a reference to a statute includes:
- a. all amendments to that statute;
  - b. regulations, by-laws, rules, statements of policies, orders, circulars and guidelines issued under or in relation to the same; and
  - c. any statutory modification or re-enactment of that statute;
- 1.2.7. if a day on or by which anything is to be done (including any payment is to be made) is not a Business Day, it shall be done or paid on the next Business Day;
- 1.2.8. a reference to any particular date or time is a reference to that date or time at the Federal Territory of Kuala Lumpur, Malaysia;
- 1.2.9. words denoting an obligation on a person or party to do any act, matter or thing include an obligation to procure that it be done, and words placing a person or party under a restriction include an obligation not to permit infringement of the restriction save where otherwise provided;
- 1.2.10. no rule of construction applies to the disadvantage of a Party by reason that it was responsible for the preparation of this Agreement or any part of it;
- 1.2.11. any computation of period for giving of a notice from a Party to the other Party, if so required under this Agreement, shall exclude the date of issue of the notice;
- 1.2.12. in computing time for the purposes of this Agreement, a period of days from the happening of an event or the doing of any act or thing shall be deemed to be exclusive of the day in which the event happens or the act or thing is done;
- 1.2.13. throughout this Agreement, any overlapping periods of delay over any single day shall be counted once only in the computation of any payment period stipulated in this Agreement; and
- 1.2.14. any reference to "pay" or cognate expressions includes payments made in cash, or by way of cheques, cashier's orders or banker's drafts (drawn on a bank licensed to carry on banking business under the provisions of the FSA and/or the IFSA) when cleared or effected through inter-bank transfers to the account of the payee, giving the payee access to immediately available, freely transferable and cleared funds.

*Sale and Purchase Agreement*

20 Acres of Lot 29132, Mukim Sungai Karang,  
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**2. SALE AND PURCHASE OF PROPERTY**

2.1. Subject to Clause 2.4 and the fulfilment of the Conditions Precedent and in consideration of the Deposit paid by the Purchaser towards account of the Purchase Price to the Vendor's Solicitors as stakeholders prior to the date of this Agreement, the Vendor agrees to sell and the Purchaser agrees to purchase the Property at the Purchase Price on the following basis and upon the terms and conditions contained in this Agreement:

2.1.1. on an *as is where is* basis;

2.1.2. save and except as provided for in this Agreement, free from Encumbrance (save for those attributable to the Purchaser);

2.1.3. subject to the category of land use together with all restrictions in interests and conditions of title, whether express or implied, endorsed on and contained in the Document of Title when issued and applicable thereto, and subject to any improvement schemes, plans, zoning (including buffer zoning), proposals or requirements affecting any part of the Property as may be made or imposed by any Appropriate Authority at any time and from time to time after the date of this Agreement;

2.1.4. with vacant possession;

2.1.5. without any representation, warranty, claim, assurance, guarantee or confirmation by, from or on the part of the Vendor, express or implied, save and except as expressly stated herein; and

2.1.6. the Purchase Price shall be final and conclusive, and not subject to any adjustment or variation.

2.2. The Purchaser agrees and acknowledges that the Property is sold on an *as is where is* basis and on the following basis:

2.2.1. the Property is sold to the Purchaser in the nature, state and condition in which it is or will be on the Completion Date and the Purchaser agrees to and accepts the Property in such nature, state and condition;

2.2.2. the Purchaser has fully examined and inspected, or is deemed to have fully examined and inspected the Property and conducted the necessary due diligence, and is satisfied with the state, nature, boundaries, positions, area, measurements, status and condition of the Property under the Document of Title to be issued following the completion of the Subdivision, and accepts the Property in such state, nature, boundaries, positions, area, measurements, status and condition in every respect under the Document of Title to be issued following the completion of the Subdivision, and the Purchaser shall be deemed to have notice and full knowledge of the same and effect thereof; and

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- 2.2.3. the Purchaser is not entitled to terminate this Agreement, or to claim, demand or be entitled for any compensation, costs, loss or damages, or to request for any adjustment of the Purchase Price or variation of any term or condition herein howsoever unless as expressly agreed herein, or to raise any issue, complaint or objection, arising from, due to or in respect of the state, nature, boundaries, positions, area, measurements, status or condition of the Property, including any term, condition or requirement thereof, now or hereafter.
- 2.3. The Vendor makes no representation, warranty, claim, assurance, guarantee, confirmation or whatsoever, whether express or implied, as to the description, quality, condition, measurement, area, suitability, marketability, feasibility, sustainability, profitability or fitness for purpose of the Property save as otherwise expressly provided in this Agreement.
- 2.4. Notwithstanding any provision in this Agreement, either Party may for any reason whatsoever and at any time during the Proposed Project Conditional Period by notice in writing to the other Party ("**Exit Notice**") terminate this Agreement. For the avoidance of doubt, such termination by any Party shall not howsoever be regarded as a default by that Party. In the event any Party elects to terminate this Agreement by way of the Exit Notice, Clauses 17.1.1.a, 17.1.2 and 17.2 shall apply *mutatis mutandis*.

**3. CONDITIONS PRECEDENT**

- 3.1. The sale and purchase of the Property under this Agreement shall be conditional upon the fulfilment of all the following conditions precedent:
- 3.1.1. the Purchaser having fulfilled all the following conditions precedent at its own cost and expense within a period of Six (6) months commencing from the date of this Agreement, or such other period as may be mutually agreed in writing between the Parties ("**Proposed Project Conditional Period**"):
- a. the Purchaser obtaining the written approval from the Malaysian Department of Environment with conditions acceptable to the Purchaser in its sole discretion in respect of the Proposed Project to be carried out on the Property;
  - b. the Purchaser executing the spent catalyst supply contract with the Malaysian national oil company or its relevant contractor on terms and conditions acceptable to the Purchaser at its own discretion for the Proposed Project to be carried out on the Property,
- and for the purpose of this sub-Clause, "**Purchaser**" shall include any affiliated company of the Purchaser as nominated by it in relation to the Proposed Project;
- 3.1.2. neither the Purchaser nor the Vendor has, at any time during the Proposed Project Conditional Period, issued the Exit Notice to the other Party as referred to in Clause 2.4; and
- 3.1.3. the respective Party having fulfilled all the following conditions precedent at its own cost and expense within Fifteen (15) months from the Proposed Project CPs Fulfilment Date or such other extension of time as stated herein or to be mutually agreed by both Parties:
- a. the Vendor having obtained the Subdivision Approval and the Document of Title;

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- b. the Vendor having obtained the relevant unconditional written approval from the relevant state and/or land authority in relation to the sale and transfer of the Property to the Purchaser due to restriction in interest contained in the Document of Title ("**Transfer Consent**"); and
- c. the Purchaser having obtained the relevant unconditional written approval from the relevant state and/or land authority pursuant to Section 433B of the NLC in relation to the acquisition of the Property by the Purchaser as a foreign controlled or owned company,

and the Parties hereby agree:

- I. that in respect of the Vendor's obligation under sub-Clause a above, the Vendor shall at its own cost attend to the Subdivision of the title to the Master Land on which the Property is part of and the issuance of the individual Document of Title to the Property within Twelve (12) months after the Proposed Project CPs Fulfilment Date, with an automatic extension of Six (6) months thereafter if requested in writing by the Vendor and the aforesaid Fifteen (15)—months' period for fulfilment of the relevant Condition Precedent under Clause 3.1.3.a shall be extended accordingly; and
- II. that in respect of the Parties' respective obligation under sub-Clauses b and c above, if any of the relevant written approval remains pending from the relevant state and/or land authority within Fifteen (15) months after the Proposed Project CPs Fulfilment Date, there shall be an automatic extension of Six (6) months thereafter if requested in writing by the Applying Party.

**3.2. Applications by Respective Party**

- 3.2.1. The relevant Party shall forthwith make the relevant application or submission in fulfilling its relevant Conditions Precedent ("**Applying Party**").
- 3.2.2. If required in writing by the Applying Party, the other Party shall promptly furnish the requisite information and documents to the Applying Party, and do all acts and things as may be reasonably required to enable, assist or facilitate the Applying Party in fulfilling the relevant Conditions Precedent within the relevant Conditional Period.

**3.3. Notification and Appeal**

- 3.3.1. The Applying Party shall forthwith furnish a certified true copy of the relevant approval, contract award, consent or any reply from the Appropriate Authority (or if relevant, PETRONAS) in relation to its fulfilment of the relevant Conditions Precedent to the other Party.
- 3.3.2. Prior to the expiry of the relevant Conditional Period, in the event any approval, award or consent in respect of any of the Conditions Precedent is:
  - a. granted by the Appropriate Authority but imposed with condition(s) which materially and adversely affect any Party ("**Adverse Condition**") and the Party affected by any Adverse Condition ("**Affected Party**") is not agreeable with such Adverse Condition;

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or

- b. rejected by the Appropriate Authority,

if any appeal avenue is available, the Applying Party shall at its own costs and within the relevant Conditional Period appeal against (i) the imposition of such Adverse Condition or (ii) such rejection, as the case may be.

- 3.3.3. In the event the Affected Party is not the Applying Party in respect of the relevant Conditions Precedent, the Affected Party shall notify its disagreement to the relevant Adverse Condition by way of a written notice to the Applying Party within Fourteen (14) days after receiving copy(ies) of the relevant approval, award or consent.

- 3.4. **Non-fulfilment of Condition Precedent:** In the event any Condition Precedent is not fulfilled notwithstanding any appeal (if applicable) pursuant to Clause 3.3.2 within the relevant Conditional Period –

- 3.4.1. the Parties may mutually agree to waive the requirement for the fulfilment of such Condition Precedent and proceed with this Agreement, provided always that such fulfilment is not a statutory or regulatory requirement for the purpose of the sale and/or purchase of the Property and/or the completion of this Agreement, and proceed with this Agreement; or

- 3.4.2. if such Condition Precedent is not mutually waived by the Parties, any Party shall have the option, at its discretion, by written notice to the other Party to terminate this Agreement whereupon the relevant provisions under Clause 17 shall apply mutatis mutandis.

- 3.5. **Sale and Purchase Becoming Unconditional:** Provided Always that no Party has elected to terminate this Agreement pursuant to Clause 2.4, the sale and purchase of the Property under this Agreement shall become unconditional on the day the Conditions Precedent are fulfilled (and/or waived under Clause 3.4.1) in accordance with this Agreement ("**Unconditional Date**").

**4. ADJUSTMENT AND PAYMENT OF PURCHASE PRICE**

- 4.1. The Purchase Price has been calculated and agreed on the basis that the area of the Property upon completion of the Subdivision shall be Twenty (20) acres or 80,937.13 square metres or its equivalent ("**Agreed Property Area**") and as per the attached Schedule (Layout Plan of Property).

- 4.2. The Purchaser shall pay the Purchase Price (less the Earnest Deposit) in the following manner:

- 4.2.1. upon the execution of this Agreement by the Purchaser, the Purchaser shall pay a sum of **Ringgit Malaysia One Million Six Hundred Thousand (RM1,600,000.00)** only, being Eight per cent (8%) of the Purchase Price ("**Balance Deposit**") to the Vendor's Solicitors as stakeholders; and

- 4.2.2. the Purchaser shall pay the Balance Purchase Price to the Vendor in accordance with the following schedule ("**Payment Schedule**"):

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	<b>Payment Period</b>	<b>Payment Amount (RM)</b>	<b>Percentage of the Purchase Price (%)</b>
a.	Within Seven (7) Business Days from the Proposed Project CPs Fulfilment Date	8,000,000.00	40
b.	Within Seven (7) Business Days from the Unconditional Date	10,000,000.00	50
<b>BALANCE PURCHASE PRICE</b>		<b>18,000,000.00</b>	<b>90</b>

- 4.3. In the event the Purchaser is unable to pay any part of the Balance Purchase Price on or before expiry of the relevant Payment Period specified in the Payment Schedule, the relevant Payment Period shall be automatically extended for Seven (7) Business Days or such other longer period as the Parties may mutually agree, for the payment of the outstanding sum by the Purchaser subject to the relevant Purchaser's payment of the Late Payment Interest. The Purchaser shall pay to the Vendor the Late Payment Interest simultaneously with such part of the Balance Purchase Price which has fallen due and remains outstanding under Clause 4.2.2.

- 4.4. Nothing in this Agreement shall be construed to mean that the purchase of the Property is subject to or conditional upon the Purchaser obtaining a financing facility to part finance such purchase. Accordingly, the Purchase Price shall be paid in full at the time stipulated in Clauses 4.2 and 4.3, whether or not the Purchaser wishes or is able to obtain such financing facility or to procure the release of such financing facility.

- 4.5. All payments shall be deemed paid by the Purchaser towards account of the Purchase Price only upon receipt of:

4.5.1. in respect of the Deposit, clear funds by the Vendor's Solicitors as stakeholders;

4.5.2. in respect of the Balance Purchase Price, clear funds by the Vendor,

and for the avoidance of doubt, the date of payment by the Purchaser shall be the date the funds are cleared by the relevant financial institution for utilisation by the Vendor's Solicitors as stakeholders or the Vendor, as the case may be.

- 4.6. The Vendor's Solicitors appointed as agreed stakeholders by the Parties are hereby instructed by the Parties to forthwith release the Deposit to the Vendor after the Proposed Project CPs Fulfilment Date.

**5. GRANT OF LIMITED POWER OF ATTORNEY**

- 5.1. The Vendor may upon the Purchaser's written reasonable request grant to a limited power of attorney to and in favour of the Purchaser, appointing the Purchaser as the Vendor's lawful attorney to apply for and obtain all necessary approvals and consents in respect of the Proposed Project from the Appropriate Authority at the Purchaser's own cost and expense ("**Limited PA**"), upon such terms

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mutually agreed between the Parties and contained therein.

- 5.2. The Purchaser hereby acknowledges and declares that upon the Vendor's grant of the Limited PA, the Purchaser shall at all times indemnify and save the Vendor harmless from and against all costs, losses, damage (including damage to any part of the Master Land), demands, actions, claims, proceedings, liabilities and responsibilities howsoever arising from, due or attributable to the act, omission, default or negligence of the Purchaser as the Vendor's lawful attorney in the exercise of any power(s) granted under the Limited PA or any matters herein or arising hereof.

**6. DEPOSIT OF DOCUMENTS**

- 6.1. Within Fourteen (14) business days from the date of this Agreement, the Vendor shall deliver or cause to be delivered the following documents with English translation (if any such document is not in English language) to the Purchaser (if it has not been delivered prior to the date of this Agreement):

6.1.1. two (2) certified true copies each of the Constitution, the Certificate of Incorporation and the Change of Name (if any) and the latest notification under Section 46 of the Companies Act (on the change of registered office), all notifications under Section 78 of the Companies Act (return of allotment of shares) and all notifications under Section 58 of the Companies Act (notification of change of register of directors and company secretaries) of the Vendor;

6.1.2. two (2) certified true copies of the resolution of the board of directors of the Vendor authorising, inter alia, the sale of the Property to the Purchaser, the execution of this Agreement and all other documents relating thereto;

6.1.3. two (2) certified true copies of the resolution of the members of the Vendor authorising, inter alia, the sale of the Property to the Purchaser, the execution of this Agreement and all other documents relating thereto; and

6.1.4. one (1) certified true copy of the current quit rent receipt of the Property.

- 6.2. Within Fourteen (14) business Days from the date of this Agreement, the Purchaser shall deliver or cause to be delivered to the Vendor's Solicitors the following documents with English translation (if it has not been delivered prior to the date of this Agreement):

6.2.1. two (2) certified true copies of the Certificate of Full Registry Records and Article of Incorporation of the Purchaser;

6.2.2. two (2) certified true copies of the resolution of the board of directors of the Purchaser authorizing, inter alia, the purchase of the Property from the Vendor, the execution of this Agreement and all other documents relating thereto; and

**7. ADJUDICATION, STAMPING AND PRESENTATION OF TRANSFER**

- 7.1. The Vendor shall, within Three (3) Business Days from the Unconditional Date, execute and cause to be delivered the Transfer to the Purchaser, and the Purchaser shall deal with the Transfer strictly and only in accordance with Clause 7.2. For the avoidance of doubt, the acknowledgement of receipt of

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consideration stated in the Transfer shall not be construed as payment in full of the consideration stated therein and the Property or any part thereof shall not be deemed to be transferred or conveyed to the Purchaser until the Balance Purchase Price, all Late Payment Interest (if any), the Purchaser's Outgoings Portion and all moneys due and payable to the Vendor in respect of the Property have been fully paid to and received by the Vendor in accordance with this Agreement.

**7.2. The Purchaser shall be entitled:**

7.2.1. to present the Transfer to the Stamp Office for adjudication of stamp duty payable thereon;

7.2.2. to pay the stamp duty as assessed; and

7.2.3. to present the Transfer, within Three (3) Business Days after the Purchaser's receipt of the Discharge Document, for registration at the relevant registry or land office.

**8. REDEMPTION OF PROPERTY**

8.1. The Vendor shall, after its obtaining of the Transfer Consent and at such time as it deems fit, request the Existing Chargee to issue and deliver the Redemption Statement cum Undertaking for the benefits of the Purchaser to the Vendor.

8.2. The Vendor shall arrange and finalize the Redemption Statement cum Undertaking to the Purchaser on or before the Unconditional Date.

**9. COMPLETION OF SALE AND PURCHASE TRANSACTION**

The sale and purchase of the Property under this Agreement shall be deemed completed on the date on which the Balance Purchase Price and all Late Payment Interest (if any) are received in full and in clear funds by the Vendor in accordance with Clauses 4.2 and 4.3 ("**Completion Date**").

**10. DELIVERY OF VACANT POSSESSION**

Vacant possession of the Property on an *as is where is* basis shall be deemed delivered to the Purchaser on the Completion Date.

**11. APPORTIONMENT OF OUTGOINGS**

11.1. All quit rent, assessments, rates and any other outgoings payable by the Vendor in respect of the Property ("**Outgoings**") shall be apportioned between the Parties on the Completion Date. Any sum due by a Party to the other by virtue of such apportionment shall be paid or allowed as the case may be on such date. The Purchaser shall be liable for and shall pay all the Outgoings on and from the Completion Date ("**Purchaser's Outgoings Portion**").

11.2. The Purchaser shall pay the Purchaser's Outgoings Portion in full to the Vendor within Three (3) Business Days from the request of the Vendor's Solicitors.

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- 11.3. The Purchaser shall at its own cost and expense, within Seven (7) days from the Completion Date, notify the Appropriate Authority of the change in ownership of the Property.

**12. RISK**

The Parties agree that the Property shall be at the risk of the Purchaser from (and including) the date of its full payment of the Balance Purchase Price to the Vendor in accordance with this Agreement.

**13. REPRESENTATIONS AND WARRANTIES**

- 13.1. The Vendor hereby represents and warrants to and with the Purchaser as at the date of this Agreement and as at the Completion Date:

13.1.1. that the Vendor is duly incorporated and validly existing under the laws of Malaysia;

13.1.2. that the Vendor is the registered and beneficial owner of the Master Land prior to registration of the Transfer, and has full legal right, power and authority to execute and enter into this Agreement;

13.1.3. that there is no previous sale or agreement for the sale of the Property which is still subsisting and has not been validly and lawfully terminated or rescinded;

13.1.4. that the Vendor shall not have or enter into any agreement with any person or body (other than the Purchaser) to sell, lease or create any Encumbrance over the Property or any part thereof on or after the date of this Agreement; and

13.1.5. that the Vendor has not been wound up nor has any winding up petition been presented against it, nor has any resolution been passed for its winding up.

- 13.2. The Purchaser hereby represents and warrants to and with the Vendor as at the date of this Agreement and as at the Completion Date:

13.2.1. that the Purchaser is duly incorporated and validly existing under the laws of Japan;

13.2.2. that the Purchaser has full legal right, power and authority to execute and enter into this Agreement, and to deliver and perform its obligations under this Agreement;

13.2.3. that the Purchaser has not been wound up nor has any winding up petition been presented against it, nor has any resolution been passed for its winding up;

13.2.4. that there is no judgment, order or pending legal proceeding, action, demand or claim against the Purchaser which may affect in any way its obligations, rights or interests under this Agreement;

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- 13.2.5. that no judgment has been obtained against the Purchaser for any reason which remains unsatisfied for a period of Seven (7) days after service of such judgment upon it and which would otherwise affect in any way its obligation to pay in accordance with this Agreement or any of its right or interests herein;
- 13.2.6. that no arrangement, composition or compromise has been entered into, with or for the benefit of its creditors or any class of them which would otherwise affect its ability to complete its purchase of the Property under this Agreement;
- 13.2.7. that no receiver, receiver and manager, trustee, judicial manager, nominee, supervisor or similar official has been appointed over the whole or any part of its undertakings and assets which affects its ability to complete the purchase of the Property under this Agreement; and
- 13.2.8. that it, by entering into or completing this Agreement, is not and shall not be in breach or contravention of any law, regulation, rules, agreement, contract, deed, instrument or document applicable to it which affects its ability to complete the purchase of the Property under this Agreement.
- 13.3. The Parties agree and acknowledge that each of them has entered into this Agreement in reliance upon the representations and warranties set forth in Clauses 13.1 and 13.2.

**14. DEFAULT**

**14.1. Purchaser's Default: In the event –**

- 14.1.1. the Purchaser defaults in the payment of any part of the Purchase Price, the Late Payment Interest (if any), the Purchaser's Outgoings Portion or other sums due under this Agreement in accordance with the relevant time stipulated in this Agreement; or
- 14.1.2. prior to the Completion Date, there is any default or breach by the Purchaser of any of its covenants, undertakings or obligations under this Agreement which is:
- a. not capable of remedy or rectification; or
  - b. capable of remedy or rectification but is not remedied or rectified within Fourteen (14) days or such other period as mutually agreed between the Parties in writing from its receipt of the Vendor's written notice;

the Vendor shall be entitled by giving written notice to the Purchaser:

- I. to seek the remedy of specific performance against the Purchaser and all reliefs flowing therefrom at the costs and expense of the Purchaser; or
- II. to terminate the sale of the Property and this Agreement whereupon the Deposit shall be forfeited to the Vendor as agreed liquidated damages and the relevant provisions under Clause 17 shall apply *mutatis mutandis*, and thereafter the sale and purchase of the Property under this Agreement shall cease to be of any further force and effect.



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**14.2. Vendor's Default:** In the event –

14.2.1. the Vendor defaults in refusing to complete the sale of the Property for reason not attributable to the Purchaser and fails to remedy the same within Fourteen (14) days or such other period as mutually agreed between the Parties in writing from its receipt of the Purchaser's written notice requiring the same to be remedied; or

14.2.2. prior to the Completion Date, there is any breach by the Vendor of any of its covenants, undertakings or obligations under this Agreement which is:

- a. not capable of remedy or rectification; or
- b. capable of remedy or rectification but is not remedied or rectified within Fourteen (14) days or such other period as mutually agreed between the Parties in writing from its receipt of the Purchaser's written notice requiring the same to be remedied or rectified,

the Purchaser shall be entitled by giving written notice to the Vendor:

- I. to seek the remedy of specific performance against the Vendor and all reliefs flowing therefrom at the costs and expense of the Vendor; or
- II. to terminate the purchase of the Property and this Agreement whereupon the Vendor shall pay to the Purchaser an amount equivalent to the Deposit as agreed liquidated damages in accordance with Clause 17.1.1.c and the other relevant provisions of Clause 17 shall apply *mutatis mutandis*, and thereafter the sale and purchase of the Property under this Agreement shall cease to be of any further force and effect.

**15. NON-REGISTRATION OF TRANSFER**

15.1. In the event the Transfer cannot be registered at the relevant registry or land office for any reason not attributable to a default of either Party, the Parties shall use their best endeavors:

15.1.1. to ascertain the cause or reason for such non-acceptance, rejection or non-registration, as the case may be;

15.1.2. to rectify, remedy and/or overcome such cause or reason; and

15.1.3. to cause the Transfer to be accepted for registration and/or registered.

15.2. In the event that such cause or reason cannot be or is not rectified, remedied and/or overcome within Sixty (60) days from the date of such non-acceptance, rejection or non-registration is made known to the Parties, either Party shall be entitled by giving written notice to the other Party to terminate the sale and purchase of the Property and this Agreement, whereupon the provisions of Clauses 17.1.1.a, 17.1.2 and 17.2 shall apply *mutatis mutandis*.

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**16. COMPULSORY ACQUISITION**

- 16.1. The Vendor has not, as at its execution of this Agreement, received any notice of acquisition or intended acquisition of the Property or any part thereof by the Appropriate Authority.
- 16.2. Notwithstanding anything contained in this Agreement, if a notification under Section 4 or a declaration under Section 8 of the Land Acquisition Act 1960 [Act 486] in respect of any part of the Property is published in the Gazette at any time after the Vendor's execution of this Agreement, the Vendor shall notify the Purchaser in writing of the same and the Purchaser shall inform the Vendor in writing, within Fourteen (14) days from its receipt of the Vendor's written notice or such shorter period as may be allowed by the acquiring Appropriate Authority, of the Purchaser's election:
- 16.2.1. to terminate the purchase of the Property and this Agreement whereupon the provisions of Clauses 17.1.1.a, 17.1.2 and 17.2 shall apply; or
- 16.2.2. to complete the purchase of the Property, whereby:
- a. the Vendor shall notify the acquiring Appropriate Authority of the Purchaser's interest in the Property and if required, the terms of this Agreement;
  - b. the Purchaser shall be entitled to receive all compensation moneys in respect of the Property and to appear and attend at such enquiry or hearings either in the name of the Vendor or the Purchaser, subject to the successful completion of the sale and purchase of the Property by the Purchaser in accordance with this Agreement; and
  - c. there shall be no adjustment to the Purchase Price.
- 16.3. In the event the Purchaser shall fail to or does not elect to terminate its purchase of the Property under this Agreement pursuant to Clause 16.2.1 within the stipulated period, the Purchaser shall be deemed to have elected to complete the purchase of the Property whereupon Clause 16.2.2 shall apply.

**17. CONSEQUENCES OF TERMINATION**

- 17.1. Upon the lawful termination of the sale and purchase of the Property and this Agreement:
- 17.1.1. within Thirty (30) days from the Vendor's giving or receipt of the relevant termination notice, as the case may be, if such termination:
- a. is due to non-fulfilment of any of the Conditions Precedent within the relevant Conditional Period under Clause 3.1.1.a, 3.1.1.b, 3.1.2a, 3.1.2.b and/or 3.1.2.c, the Vendor shall refund or cause to be refunded to the Purchaser free from all interests such part of the Purchase Price (including the Deposit) received by the Vendor less the Subdivision Cost (if incurred on or after the Proposed Project CPs Fulfilment Date);

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- b. is due to the Purchaser's default under Clause 14.1 or the Purchaser decides to abort the sale and purchase of the Property after the Purchaser's conditions precedent under Clauses 3.1.1 a and 3.1.1b are fulfilled, if the Vendor has proceeded with the application of the subdivision of the title to the Master Land, the Vendor shall refund or cause to be refunded to the Purchaser free from all interests such part of the Purchase Price received by the Vendor (less the Deposit as forfeited pursuant to Clause 14.1.II and the Subdivision Cost); or
- c. is due to the Vendor's default under Clause 14.2, if the Vendor has commenced with its application of the subdivision of the title to the Master Land, the Vendor shall refund or cause to be refunded to the Purchaser free from all interests such part of the Purchase Price (including the Deposit) received by the Vendor (less the Subdivision Cost), and pay to the Purchaser an additional amount equivalent to the Deposit as agreed liquidated damages under Clause 14.2.II.;

17.1.2. simultaneously upon the Vendor's compliance with Clause 17.1.1, the Purchaser shall at its own costs and expenses:

- a. return or cause to be returned the Discharge Document, the Transfer and all original documents in respect of the Property (if having been delivered to the Purchaser) to the Vendor's Solicitors free from all Encumbrance and with all the Vendor's rights and interests in the Property remaining fully intact. In the event the Property has been transferred to the Purchaser, the Purchaser shall at its own costs and expense retransfer the Property to the Vendor, with all the Vendor's rights and interests in the Property remaining fully intact;
- b. withdraw and cause to be withdrawn any private caveat lodged by or on behalf of the Purchaser or which is attributable to the Purchaser over the Property with all the Vendor's rights and interests in the Property remaining fully intact. The Purchaser shall forward to the Vendor's Solicitors evidence of such withdrawal including an official title search conducted on the Property after presenting such withdrawal at the relevant registry or land office which does not contain or show the said private caveat; and
- c. re-deliver vacant possession of the Property (if having been delivered to the Purchaser) to the Vendor in the same state and condition when it was delivered to the Purchaser, unless otherwise agreed by the Vendor,

and thereafter the sale and purchase of the Property under this Agreement shall cease to be of any further force and effect, save as provided in Clause 17.2.

17.2. Upon the lawful termination of the sale and purchase of the Property and this Agreement, neither Party shall have any further obligations under this Agreement to the other Party in respect of such transaction other than:

17.2.1. their respective obligations which are to be performed upon such lawful termination;

17.2.2. any obligation which is expressed to survive such termination; and

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17.2.3. any rights or obligations which have accrued to any Party in respect of any breach of any provision of this Agreement prior to such termination.

**18. REAL PROPERTY GAINS TAX**

The Vendor hereby declares and confirms that any gain arising from its disposal of the Property under this Agreement is subject to income tax and does not fall under the ambit of the RPGT Act. As such, no moneys shall be retained by the Purchaser from the Purchase Price for remission to the DGIR in compliance with the relevant provisions of the RPGT Act.

**19. CAVEAT BY PURCHASER**

19.1. The Purchaser shall be entitled at its own costs and expense, after full payment of the Deposit and issuance of the Document of Title upon completion of the Subdivision, to lodge a private caveat in respect of the Property or any part thereof, provided that the Purchaser shall simultaneously execute and deposit with the Vendor a valid and registrable Withdrawal of Private Caveat in Form 19G of the NLC in respect of the Property and in as many copies as may be required together with the necessary registration fee.

19.2. The Vendor shall be entitled to present the said withdrawal form(s) at the relevant registry or land office to withdraw the private caveat at the Purchaser's costs and expense upon termination of the sale and purchase of the Property under this Agreement.

19.3. The Purchaser shall do all acts and things necessary to ensure that the existence of the private caveat does not prevent, hinder or delay the fulfilment of any Condition Precedent, nor the presentation and registration of the Discharge Document or the Transfer.

**20. NOTICES**

20.1. Any notice or communication to be given or made under this Agreement shall be in writing, in the English language and may be given or sent by hand, registered post, facsimile transmission or electronic mail to the other Party at the address set out in this Agreement or to such other address, facsimile number or electronic mail address as either Party may notify to the other Party from time to time, provided that any notice of termination under this Agreement shall be given or sent by hand or registered post.

20.2. Any notice or communication shall be deemed to have been duly served upon and received by the addressee:

20.2.1. if delivered by hand, at the time of delivery;

20.2.2. if sent by registered post, on expiry of Five (5) Business Days after posting;

20.2.3. if transmitted by facsimile transmission before 5pm on a Business Day, at the time of transmission or if sent at any other time, at 9am on the next Business Day immediately after the date of such transmission; or

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- 20.2.4. if sent by electronic mail before 5pm on a Business Day, at the time of acknowledgement of receipt of such electronic mail by the addressee, or if sent at any other time, at 9am on the next Business Day immediately after the date of such electronic mail.
- 20.3. In proving the giving of a notice or communication, it shall be sufficient to show:
- 20.3.1. in the case of delivery by hand, the acknowledgment of receipt by the addressee; or
- 20.3.2. in the case of registered post, that the notice or communication was duly addressed and lodged with the postal authorities for delivery; or
- 20.3.3. in the case of facsimile transmission, that the notice or communication was duly transmitted from the sender's facsimile machine, as evidenced by a transmission report generated by such machine upon completion of the transmission confirming that the transmission was successful, the appropriate number of pages were sent and the addressee's facsimile number to which it was sent is correct; or
- 20.3.4. in the case of electronic mail, the acknowledgment of receipt of such communication received from the addressee whether by way of an electronic mail or an automatic reply from the addressee's electronic mail system.

**21. COSTS**

- 21.1. Unless otherwise agreed by the Parties, each Party shall be responsible for its own expenses (including any solicitors' costs) in connection with the negotiations, preparation and completion of this Agreement. No Party is howsoever authorised or empowered to obligate the others or to incur any such expenses on behalf of the other Party.
- 21.2. The Purchaser shall be responsible for and shall pay all stamp duty and registration fee payable on this Agreement, fulfilment of the relevant Conditions Precedent and the Transfer.
- 21.3. The Vendor shall be responsible for and shall pay all stamp duty and registration fee payable on the Discharge of Charge.

**22. MISCELLANEOUS**

- 22.1. **Time of Essence:** Time wherever mentioned in this Agreement shall be of the essence.
- 22.2. **Amendments:** No amendment, variation, change, modification, supplement or addition to this Agreement shall be binding or effective, unless it is in writing signed by the Parties.
- 22.3. **Assignment**
- 22.3.1. Save for otherwise in accordance with Clause 22.3.2, the Purchaser shall not howsoever assign, novate or transfer this Agreement, or any of its obligations, rights, benefits or interests under this Agreement to any third (3<sup>rd</sup>) party without the prior written agreement of the Vendor which shall be at its sole discretion.

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- 22.3.2. The Purchaser may at its own costs and at any time within One (1) month after it has paid to the Vendor such part of the Balance Purchase Price under Clause 4.2.2.a provide a written notice to the Vendor of its intention to novate or transfer this Agreement together with all its obligations, rights, benefits or interests under this Agreement expenses to a company duly incorporated under the Companies Act in Malaysia, which is wholly owned or the majority shareholding of which is owned or controlled directly by the Purchaser ("**Nominated Transferee**"). The Parties shall within One (1) month after the Purchaser's issue of such notice execute a novation agreement with the Nominated Transferee in such form and substance acceptable to the Parties. For the avoidance of doubt, all stamp duty and costs in connection with such novation agreement shall be borne by the Purchaser and/or the Nominated Transferee.
- 22.4. **Successors In Title and Assigns Bound:** This Agreement shall be binding upon the respective successors in title of the Parties, the permitted assigns of the Purchaser and the assigns of the Vendor.
- 22.5. **Invalidity and Severability:** In the event any provision of this Agreement is or may become under any applicable written law, or is found by any court or administrative body or competent jurisdiction to be illegal, void, invalid, prohibited or unenforceable:
- 22.5.1. such provision shall be ineffective to the extent of such illegality, voidness, invalidity, prohibition or unenforceability;
- 22.5.2. the remaining provisions of this Agreement shall remain in full force and effect; and
- 22.5.3. the Parties shall negotiate and agree in good faith on a substitute provision which is valid and enforceable and achieve to the greatest extent possible the economic, legal and commercial objectives of such illegal, void, invalid, prohibited or unenforceable provision.
- 22.6. **Knowledge or Acquiescence:** Knowledge or acquiescence of a Party of or in any breach of any condition or covenant in this Agreement shall not operate as or be deemed to be a waiver of such condition or covenant or of any of them, and notwithstanding such knowledge or acquiescence, each Party shall be entitled to exercise its respective rights under this Agreement and to require strict performance by the other Party of the terms and conditions in this Agreement.
- 22.7. **Rights and Remedies:** The rights and remedies provided in this Agreement are cumulative and are not exclusive of any rights or remedies of the Parties provided at law or in equity, and no failure or delay in the exercise or the partial exercise of any such right or remedy or the exercise of any other right or remedy shall affect or impair any such right or remedy.
- 22.8. **Effective Date:** This Agreement shall come into force on and take effect from the date first (1<sup>st</sup>) herein above mentioned, irrespective of the diverse date(s) upon which the Parties may have executed this Agreement.
- 22.9. **Governing Law and Jurisdiction:** This Agreement shall be governed by and construed in accordance with the laws of Malaysia and the Parties irrevocably submit to the exclusive jurisdictions of the Courts of Malaysia.

*Sale and Purchase Agreement*

20 Acres of Lot 29132, Mukim Sungai Karang,  
Daerah Kuantan, Negeri Pahang

22.10. **Relationship between Parties:** Nothing in this Agreement shall be deemed or implied to create a joint venture, partnership or any business entity of any kind between the Parties, and no Party shall have any right to bind the other Party, or make any commitment, representation or warranty for or on behalf of the other Party, or pledge the credit of the other Party.

22.11. **Confidentiality**

22.11.1. The Purchaser shall keep confidential and not disclose, announce, circulate or publish any information in respect of, arising from or in connection with the terms, conditions and provisions of this Agreement, and all correspondence and discussions between the Parties in relation to this Agreement, unless:

- a. the disclosure is required by law, made to the Purchaser's legal advisers, or made with the prior written consent of the Vendor;
- b. such information has been in or has entered public domain other than as a result of breach or default of this Agreement by the Purchaser; or
- c. such disclosure is directed by any court of law in Malaysia, provided always that the Vendor is notified at the time such judicial action is initiated as soon as practicable and the Vendor shall have had the opportunity to examine and go through such portion of the documentation or information to be disclosed before its actual disclosure and the Purchaser shall provide cooperation in opposing such compulsion if requested by the Vendor.

22.11.2. Subject to Clause 22.11.3, no disclosure, announcement, press release or other publication concerning this Agreement is to be made by or on behalf of any Party without the prior written consent of the other Party, such consent not to be unreasonably withheld or delayed.

22.11.3. Any disclosure, announcement or circular required by applicable law to be made or issued by any Party may be made or issued by that Party ("**Disclosing Party**"), provided that the Disclosing Party shall, prior to making any of the same, consult the other Party on the relevant contents and the Disclosing Party shall use its best endeavours to incorporate any comments which the other Party may have.

22.11.4. The confidentiality requirements, covenants and obligations in this Clause 22.11 shall continue to be binding on the Purchaser and shall survive the termination or completion of this Agreement.

23. **FORCE MAJEURE**

23.1. No Party shall be held liable or responsible to the other Party, and a Party shall not be deemed to have defaulted under or breached this Agreement for failure or delay in fulfilling or performing any term, condition or obligations of this Agreement (save and except for payment obligations) as a result of the occurrence of any force majeure event(s) which shall include but not limited to the following events ("**Force Majeure Event**");

**Sale and Purchase Agreement**

20 Acres of Lot 29132, Mukim Sungai Karang,  
Daerah Kuantan, Negeri Pahang

- 23.1.1. war (whether declared or not), hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection, military or usurped power, civil war or terrorism;
- 23.1.2. natural catastrophe including but not limited to earthquake, floods, landslides, subsidence, lightning, fire and exceptionally inclement weather;
- 23.1.3. riot, commotion, disorder, criminal damage, sabotage, lock out, strikes, virus outbreak, epidemic or pandemic; or
- 23.1.4. any other event similar to those enumerated above which shall be an event beyond the control of any Party.
- 23.2. In the event any Force Majeure Event occurs which renders any Party unable to perform or fulfill any of its obligations under this Agreement (other than payment obligations), the affected Party(ies) shall notify the other Party of the occurrence of such Force Majeure Event.
- 23.3. The affected Party(ies) shall not be liable for any delay in performing its relevant obligation under this Agreement (other than payment obligations) to the extent that such delay has been caused by One (1) or more Force Majeure Event, and the time for completion of such obligation shall be extended by the duration of the delay caused by such Force Majeure Event.
- 23.4. Notwithstanding Clause 23.3, if the occurrence of a Force Majeure Event is of such severity that it frustrates the original intention and objective of the Parties or is continuing for a period of more than Six (6) months, the Parties shall forthwith take steps to discuss in good faith the circumstances and the consequences of such event and the Party may terminate this Agreement by written notice to other Party, or (2) may consider how best to achieve the objectives of this Agreement in such circumstances and may, if appropriate, discuss about any amendment of this Agreement and the terms and conditions of such amendments with the other Party. In the case of termination under this sub-Clause, Clauses 17.1.1.a, 17.1.2 and 17.2 shall apply mutatis mutandis.

**24. GOOD FAITH**

In entering into this Agreement, the Parties recognize that it is impracticable to make provisions for every contingency that may arise in the course of the performance of this Agreement. Accordingly, the Parties hereby declare it to be their respective intention that this Agreement shall operate between them with fairness and without detriment for the Parties' interests herein, and if in the course of the performance of this Agreement, unfairness to any Party is disclosed or anticipated, then the Parties shall use their best endeavours to agree upon such action as may be necessary and equitable to remove the cause(s) of the same. In the circumstances where there is matter(s) not provided in this Agreement (*lacuna*) or any dispute arises, the Parties shall negotiate in utmost good faith to solve the *lacuna* or dispute and to execute supplementary agreement to that effect.

*(the rest of this page has been left blank intentionally)*



**Appendices**

**Sale and Purchase Agreement**

20 Acres of Lot 29132, Mukim Sungai Karang,  
Daerah Kuantan, Negeri Pahang

IN WITNESS WHEREOF the Parties have set their hands the day and year first above written.

**VENDOR**

Signed by )  
)  
for and on behalf of )  
**PUNCAK WANGSA SDN. BHD.** )  
(Registration No. 199101010411 (220723-P)) )  
in the presence of: )




Witness  
Name: **ENGY TAN SHIN CHIAN**  
(BC/E/292)  
NRIC No.: Peguambela & Peguamcara  
Designation: Advocate & Solicitor  
Kuala Lumpur

Director  
Name: **KONG SOKE YIEN**  
NRIC No.: **600407-06-5148**

**PURCHASER**

Signed by )  
)  
for and on behalf of )  
**TAIYO KOKO COMPANY LIMITED** )  
(Company No. 1400-01-009113) )  
in the presence of: )



Witness  
Name: **MASAHIRO YAMAMOTO**  
NRIC No.: **TK 8590245**  
Designation: **MANAGER OVERSEAS PROJECT**

Director  
Name: **Hiroaki Ono**  
NRIC / Passport No.: **TS1630632**

**Appendices**

*Sale and Purchase Agreement*

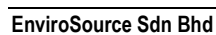
20 Acres of Lot 29132, Mukim Sungai Karang,  
Daerah Kuantan, Negeri Pahang

**SCHEDULE**

**Layout Plan of Property**  
(in relation to Recital E)

JEFF LEONG, POON & WONG

Schedule





**APPENDIX 2: LDP2M2**

**SOIL LOSS ESTIMATION FOR EROSION RISK ASSESSMENT (ERA)**  
Calculation Sheet

<b>PROJECT SITE :</b>	EIA for the Construction and Completion of a Spent Catalyst Recovery Facility (SCaRF) At Gebeng Industrial Area, Kuantan, Pahang.
<b>CATCHMENT :</b>	Catchment 1
<b>SCENARIO :</b>	Before Development

USLE	A	=	R.K.L.S.C.P
	R	=	Rainfall Erosivity Factor (MJ.mm/ha.hr.yr))
	K	=	Soil Erodibility Factor (t.ha.yr/(ha.MJ.mm)
	L	=	Slope Length Factor
	S	=	Slope Steepness Factor
	C	=	Cover and Management Factor
	P	=	Conversion Practice Factor

Reference	Calculation	Output
1. ESCP Guideline, DID, 2010. (Figure 3.7)	1. Determination of Rainfall Erosivity Factor, R Based on Rainfall Erosivity Map for Pahang State (Figure 3.7);  R = 18,500 MJ.mm/ha.hr.yr	R = 18,500 MJ.mm/ha.hr.yr
1. Mohd Fazly Yusof, et. al., 2011.	2. Determination of Soil Erodibility Factor, K The project site was graded to platform level with sandy loam. Hence, the soil considered for erosion risk assessment is sandy loam. The K value used is;  K = 0.036 (ton/ha)(ha.hr/MJ.mm)	K = 0.036 (ton/ha)(ha.hr/MJ.mm)
1. MSMA 2nd Edition, DID, 2012. (Table 12.3)	3. Determination of the slope length and steepness factor (LS) Based on contour map/platform design assessment, slope steepness (s) and length (L, λ) are determined as:  S1 = 0.5 %                      L1 = 250 m Hence; LS = 0.146	LS = 0.146
1. MSMA 2nd Edition, DID, 2012. (Table 12.4a)	4. Determination of Cover management factor, C Bush/Scrub, 25% cover Hence;  C = 0.40	C = 0.40
1. MSMA 2nd Edition, DID, 2012. (Table 12.5)	5. Determination of Landuse/Support Practice, P Bare soil Hence;  P = 1.00	P = 1.00
	6. Soil Loss Estimation  A = 38.89	A = 38.89 tonne/ha/yr

**SOIL LOSS ESTIMATION FOR EROSION RISK ASSESSMENT (ERA)**  
Calculation Sheet

<b>PROJECT SITE</b> :	EIA for the Construction and Completion of a Spent Catalyst Recovery Facility (SCaRF) At Gebeng Industrial Area, Kuantan, Pahang.
<b>CATCHMENT</b> :	Catchment 1
<b>SCENARIO</b> :	During Development Without Control Measures (Worst-Case Scenario)

USLE	A	=	R.K.L.S.C.P
	R	=	Rainfall Erosivity Factor (MJ.mm/ha.hr.yr)
	K	=	Soil Erodibility Factor (t.ha.yr/(ha.MJ.mm))
	L	=	Slope Length Factor
	S	=	Slope Steepness Factor
	C	=	Cover and Management Factor
	P	=	Conversion Practice Factor

Reference	Calculation	Output
1. ESCP Guideline, DID, 2010. (Figure 3.7)	1. Determination of Rainfall Erosivity Factor, R Based on Rainfall Erosivity Map for Pahang State (Figure 3.7);  R = 18,500 MJ.mm/ha.hr.yr	R = 18,500 MJ.mm/ha.hr.yr
1. Mohd Fazly Yusof, et. al., 2011.	2. Determination of Soil Erodibility Factor, K The project site was graded to platform level with sandy loam. Hence, the soil considered for erosion risk assessment is sandy loam. The K value used is;  K = 0.036 (ton/ha)/(ha.hr/MJ.mm)	K = 0.036 (ton/ha)/(ha.hr/MJ.mm)
1. MSMA 2nd Edition, DID, 2012. (Table 12.3)	3. Determination of the slope length and steepness factor (LS) Based on contour map/platform design assessment, slope steepness (s) and length (L, $\lambda$ ) are determined as:  S1 = 0.5 %                      L1 = 250 m Hence; LS = 0.146	LS = 0.146
1. MSMA 2nd Edition, DID, 2012. (Table 12.4c)	4. Determination of Cover management factor, C Bare soil Hence;  C = 1.00	C = 1.00
1. MSMA 2nd Edition, DID, 2012. (Table 12.5)	5. Determination of Landuse/Support Practice, P Bare soil Hence;  P = 1.00	P = 1.00
	6. Soil Loss Estimation  A = 97.24	A = 97.24 tonne/ha/yr

**SOIL LOSS ESTIMATION FOR EROSION RISK ASSESSMENT (ERA)**  
Calculation Sheet

<b>PROJECT SITE :</b>	EIA for the Construction and Completion of a Spent Catalyst Recovery Facility (SCaRF) At Gebeng Industrial Area, Kuantan, Pahang.
<b>CATCHMENT :</b>	Catchment 1
<b>SCENARIO :</b>	During Development with Control Measures

USLE	A	=	R.K.L.S.C.P
	R	=	Rainfall Erosivity Factor (MJ.mm/ha.hr.yr)
	K	=	Soil Erodibility Factor (t.ha.yr/(ha.MJ.mm)
	L	=	Slope Length Factor
	S	=	Slope Steepness Factor
	C	=	Cover and Management Factor
	P	=	Conversion Practice Factor

Reference	Calculation	Output
1. ESCP Guideline, DID, 2010. (Figure 3.7)	1. Determination of Rainfall Erosivity Factor, R Based on Rainfall Erosivity Map for Pahang State (Figure 3.7);  R = 18,500 MJ.mm/ha.hr.yr	R = 18,500 MJ.mm/ha.hr.yr
1. Mohd Fazly Yusof, et. al., 2011.	2. Determination of Soil Erodibility Factor, K The project site was graded to platform level with sandy loam. Hence, the soil considered for erosion risk assessment is sandy loam. The K value used is;  K = 0.036 (ton/ha)/(ha.hr/MJ.mm)	K = 0.036 (ton/ha)/(ha.hr/MJ.mm)
1. MSMA 2nd Edition, DID, 2012. (Table 12.3)	3. Determination of the slope length and steepness factor (LS) Based on contour map/platform design assessment, slope steepness (s) and length (L, λ) are determined as:  S1 = 0.5 %                      L1 = 250 m Hence; LS = 0.146	LS = 0.146
1. MSMA 2nd Edition, DID, 2012. (Table 12.4c)	4. Determination of Cover management factor, C Turfing (40% cover) Hence;  C = 0.10	C = 0.10
1. MSMA 2nd Edition, DID, 2012. (Table 12.5)	5. Determination of Landuse/Support Practice, P Sediment basin Hence;  P = 0.50	P = 0.50
	6. Soil Loss Estimation  A = 4.86	A = 4.86 tonne/ha/yr



**SOIL LOSS ESTIMATION FOR EROSION RISK ASSESSMENT (ERA)**

Calculation Sheet

<b>PROJECT SITE :</b>	EIA for the Construction and Completion of a Spent Catalyst Recovery Facility (SCaRF) At Gebeng Industrial Area, Kuantan, Pahang.
<b>CATCHMENT :</b>	Catchment 1
<b>SCENARIO :</b>	Post-Development

USLE	A	=	R.K.L.S.C.P
	R	=	Rainfall Erosivity Factor (MJ.mm/ha.hr.yr)
	K	=	Soil Erodibility Factor (t.ha.yr/(ha.MJ.mm))
	L	=	Slope Length Factor
	S	=	Slope Steepness Factor
	C	=	Cover and Management Factor
	P	=	Conversion Practice Factor

Reference	Calculation	Output
1. ESCP Guideline, DID, 2010. (Figure 3.7)	1. Determination of Rainfall Erosivity Factor, R Based on Rainfall Erosivity Map for Pahang State (Figure 3.7);  R = 18,500 MJ.mm/ha.hr.yr	R = 18,500 MJ.mm/ha.hr.yr
1. Mohd Fazly Yusof, et. al., 2011.	2. Determination of Soil Erodibility Factor, K The project site was graded to platform level with sandy loam. Hence, the soil considered for erosion risk assessment is sandy loam. The K value used is;  K = 0.036 (ton/ha)/(ha.hr/MJ.mm)	K = 0.036 (ton/ha)/(ha.hr/MJ.mm)
1. MSMA 2nd Edition, DID, 2012. (Table 12.3)	3. Determination of the slope length and steepness factor (LS) Based on contour map/platform design assessment, slope steepness (s) and length (L, λ) are determined as:  S1 = 0.5 %                      L1 = 250 m Hence; LS = 0.146	LS = 0.146
1. MSMA 2nd Edition, DID, 2012. (Table 12.4c)	4. Determination of Cover management factor, C Compacted gravel layer Hence;  C = 0.05	C = 0.05
1. MSMA 2nd Edition, DID, 2012. (Table 12.5)	5. Determination of Landuse/Support Practice, P Grass Buffer Strip (0.5% slope) Hence;  P = 0.60	P = 0.60
	6. Soil Loss Estimation  A = 2.92	A = 2.92 tonne/ha/yr

MUSLE CALCULATION SHEET

		-SEDIMENT YIELD ESTIMATION CATCHMENT 1		Project Title EIA for the Construction and Completion of a Spent Catalyst Recovery Facility (SCaRF) At Gebeng Industrial Area, Kuantan, Pahang.		
				Sheet No. : 1/2	Revision :	
				Made by SS	Date Aug-22	
Reference	SEDIMENT YIELD					Remark
	<b>SEDIMENT YIELD ESTIMATION</b>					
	The Modified Universal Soil Loss Equation (MUSLE) is used to determine the sediment yield for Sediment Trap					
MSMA Table 1.3	The design of all sediment control BMP's required the quantity of the sediment to be trapped.					
	The design rainfall as per requirement of MSMA is set to be 50 mm to the catchment under consideration					
	<b>1) Determination of Runoff Parameters</b>					
	a) Design Storm					
MSMA Table 2.1	Design Storm, D	=	50	mm		
	Catchment Area, A	=	6.1	ha		
	Time of Concentration, $t_c$	=	20	minutes		
	$t_c = \frac{107 \times L^{0.833}}{S^{0.2}}$					
				L = 250 m		(ave.)
				S = 0.5 %		
		n = 0.0275	(From Table 2.2 for bare earth)			
		$t_t = 21.3$	minutes	Adopt $t_c = 20$	minutes	
	Duration of storm, D	=	20	minutes	(Assume 0.3 hrs)	
	Intensity of design storm, I	=	150	mm/h		
MSMA Eqn. 2.3	b) Calculate Peak Discharge, $Q_p$ using Rational Method					
MSMA Table 2.5	Run Off Coefficient, C	=	0.5	(Bare Soil, No Cover)		
	$Q_p = \frac{C \times I \times A}{360}$	=	1.69	m <sup>3</sup> /s		
MSMA Sec 2.3.2	c) Calculate Runoff Volume, V using Rational Method Hydrograph Method (Type 2)					
	$V = 0.5 \times (2 \times t_c) \times (Q_p)$	=	2.025.00	m <sup>3</sup>		
	Where, $t_c$ is in seconds					

MUSLE CALCULATION SHEET

		-SEDIMENT YIELD ESTIMATION CATCHMENT 1		Project Title	
				EIA for the Construction and Completion of a Spent Catalyst Recovery Facility (SCaRF) At Gebeng Industrial Area, Kuantan, Pahang.	
				Sheet No. : 2/2	Revision :
Reference	SEDIMENT YIELD	Made by	SS	Date	Aug-22
	<b>2) Calculation of Sediment Yield</b>				
MSMA Eqn. 12.4	$Y = 89.6(VQ_p)^{0.77}(KLS.C.P)$				
	where,				
	Y =	Sediment yield per storm event (tonnes)			
	V =	Runoff Volume in m <sup>3</sup>			
	Q <sub>p</sub> =	Peak Discharge in m <sup>3</sup> /s			
	K =	Soil erodibility factor			
	LS =	Slope Length and Slope Steepness Factor			
	C =	Cover Management Factor			
	P =	Support Practices Factor			
	} USLE Factor				
	<u>Soil Erodibility Factor</u>				
USLE Calculation Sheet.	Based on USLE calculation sheet,				
	K =	0.0360			
	<u>Slope Length and Slope Steepness Factor, LS</u>				
MSMA 2nd Edition, DID, 2012. (Table 12.3)	Mean LS Factor value:				
	LS =	0.146			
MSMA Table 12.4b Table 12.5	<u>Cover management and Support Practices</u>				
	C =	1			
	P =	1			
	} Considered Nothing done for Soil Yield Calculation				
	<b>As Such, Total Sediment Yield to Load the Sediment Basin per Storm Event</b>				
	Y =	44.9 Tonnes			

PONDS TRAPPING EFFICIENCY

Catchment	Sediment Yield, MT	Ponds	Sediment Storage Capacity - Half of Total Volume <sup>1</sup> , m <sup>3</sup>	Trapping efficiency @90% <sup>1</sup> , MT	Trapping efficiency @90% <sup>2</sup> , m <sup>3</sup>	No. of Storm Events to fill up the Pond	Assuming the designed storm is equal to 3 months ARI, the storage zone is likely to be filled up in:
Phase 1	44.86	SB-1	890	40	28.84	30.87	7.7 years

References:

<sup>1</sup> Table 12.17, MSMA, DID 2012.

<sup>2</sup> Sandy Clay Bulk Density = 1.4 MT/m<sup>3</sup> - Marcelo Zeri, et. al., 2018



**CADANGAN PEMBINAAN SEBUAH KILANG PEMROSESAN XXX,  
SEBUAH GUDANG DAN 2 UNIT KILANG PERINDUSTRIAN DI ATAS  
LOT 29132, KAWASAN PERINDUSTRIAN GEBENG, MUKIM SUNGAI  
KARANG, DAERAH KUANTAN, PAHANG DARUL MAKMUR UNTUK  
TETUAN TAIYO SDN BHD**

**SEDIMENT BASIN REPORT  
(MANUAL SALIRAN MESRA ALAM 2<sup>ND</sup> EDITION)**

JURUTERA PERUNDING

**PERUNDING ORION SDN BHD**

21-1 Medan Hujan Rahmat  
Overseas Union Garden  
Jalan Klang Lama  
58200 Kuala Lumpur

July 2022

Job No. 1866

**CADANGAN PEMBINAAN SEBUAH KILANG PEMROSESAN XXX, SEBUAH GUDANG  
DAN 2 UNIT KILANG PERINDUSTRIAN DI ATAS LOT 29132, KAWASAN  
PERINDUSTRIAN GEBENG, MUKIM SUNGAI KARANG, DAERAH KUANTAN, PAHANG  
DARUL MAKMUR UNTUK TETUAN TAIYO SDN BHD**

**1.0 OBJECTIVE**

The purpose of this report is to presents the design concept and calculation of the temporary sediment basin for the proposed processing plant for Taiyo Sdn. Bhd.

The primary objectives of the sediment basin are: -

- a) To minimize erosion and sedimentation
- b) To reduce impact from other chemical constituents associated with material usage and contractor activities within construction site.
- c) To reduce impact on downstream waterways from the finished project

**2.0 INTRODUCTION**

This proposed development consists of processing facilities, administration building, canteen, workshop, storage facilities etc. There is no major earthwork required as it has been completed under the overall development of the industrial park.

The total land area of the proposed factory development is approximately 20 acres (80,937m<sup>2</sup> = 8.0937Ha) which is located within a developing industrial park at Gebeng Industrial Park.

The proposed site is generally flat and the proposed development are designed to match the surrounding roads and neighbor lots level. There is an existing concrete drain along the southern boundary of this propose site flowing from northeast corner toward northwest corner of the land and discharge via an existing concrete culvert to the main drain along Jalan Gebeng 2/7.

The dry sediment basin is designed to discharge into the existing concrete drain at southwest corner of the site.

**3.0 DESIGN REFERENCE/STANDARD**

Reference used in the design is "Manual Saliran Mesra Alam Malaysia 2<sup>nd</sup> Edition". The design calculation of the proposed sediment basin is shown in Appendix A.

**4.0 DESIGN CRITERIA**

**4.1 Sediment Basin**

a)	Total Catchment Area	:	8.0937 Ha (Minimum 2 Ha)
b)	Location & Station ID	:	Sg Lembing PCC Mill - 3930012
c)	Basin Type	:	Refer Table 12.16
d)	Runoff Quantity Design	:	10 Year ARI
e)	Primary Outlet/Riser	:	Control Stormwater runoff - Drain Within 24 Hrs (Dry Basin) - Drain Within 36 Hrs (Wet Basin)
	Emergency Spillway/Outlet:	:	10 Year ARI
f)	Storage Volumn	:	Refer Table 12.18 (Dry Basin) Refer Table 12.19 (Wet Basin)

## Appendices

- g) Settling Zone Volumn : Half of Total Storage  
Sediment Zone Volumn : Half of Total Storage
- h) Basin Dimension : Min. Length To Width Ratio: 2:1  
Max. Length To Settling Depth Ratio: 200:1  
Min. Settling Zone Depth: 0.6m  
Min. Sediment Storage Zone Depth: 0.3m
- i) Embankment : Side Slope 2(H):1(V) or flatter

Detail design calculation is shown in Appendix A.



APPENDIX A

Perunding Orion Sdn Bhd

**Project: CADANGAN PEMBINAAN SEBUAH KILANG PEMROSESAN XXX, SEBUAH GUDANG DAN 2 UNIT KILANG PERINDUSTRIAN DI ATAS LOT 29132, KAWASAN PERINDUSTRIAN GEBENG, MUKIM SUNGAI KARANG, DAERAH KUANTAN, PAHANG DARUL MAKMUR UNTUK TETUAN TAIYO SDN BHD**

#### **SEDIMENT BASIN DESIGN**

##### **a) Time of Concentration Calculation**

For natural catchment

$$t_c = \frac{F_c L}{A^{1/10} S^{1/5}}$$

$F_c$  = a conversion factor, 58.5 when area A is in km<sup>2</sup>, or 92.5 when area is in Ha

$L$  = length of flow path from catchment divide to outlet ( km )

$A$  = catchment area ( km<sup>2</sup> or Ha )

$S$  = slope of stream flow path ( m/km )

$t_c$  = time of concentration ( minute )

For

$$F_c = 92.5$$

$$L = 0.381 \text{ km}$$

$$A = 8.0937 \text{ ha}$$

$$S = 0.3 \text{ m/km}$$

$$t_c = 36.4 \text{ minutes} \quad \text{say use 36 minutes}$$

#### **Design of Sediment Wet Basin**

Determine Type of Soil

Table 12.16: Sediment Basin Types and Design Considerations

Category	Soil Description	Hydrological Soil Group	Basin Type	Design Considerations
I	Coarse-grained sand, sandy loam: less than 33% <0.02 mm	A	Dry	Settling velocity, sediment storage
II	Fine-grained loam, clay: more than 33% < 0.02 mm	E	Wet	Storm impoundment, sediment storage
III	Dispersible fine-grained clays: more than 10% of dispersible material	C, D	Wet	Storm impoundment, sediment storage, assisted flocculation

From Table 12.16, for the soil type is under category = **I**  
Therefore basin type = **Dry**

##### **b) Sizing of Sediment Basin**

Sediment Basin (MSMA 2) (Rev01)

Perunding Orion Sdn Bhd

From Table 12.18

For time of concentration of basin = 36 minutes

Surface area required = 183 m<sup>2</sup>/Ha

Total basin volume required = 220 m<sup>3</sup>/Ha

Total site area = 8.0937 Ha

Surface area required = 1482.8 m<sup>2</sup>

Total basin volume required = 1780.6 m<sup>3</sup>

Settling zone volume = 890.3 m<sup>3</sup> ( Half of basin volume )

Settling zone depth = 0.6 m ( minimum = 0.6m )

Try settling zone ave. width = 25 m

Length required = 59.4 m use 60 m

Average surface = 1500 m<sup>2</sup> ok

Check dimensions (Table 12.17)

Length/ Depth = 100 < 200 ok

Length/ Width = 2.4 > 2 ok

Storage zone volume req = 890.3 m<sup>3</sup> ( Half of basin volume )

Use 2H : 1V slope for basin edge

Top of storage zone width = 23.8 m

Top of storage zone length = 58.8 m

Volume of storage = y (W-zy) (L-zy)

890.3 = y (W-2y) (L-2y)

Width, W = 23.8 m

Length, L = 58.8 m

Try and error method :

y (m)	Volume (m <sup>3</sup> )
0.64	829.02
0.66	852.82
0.68	876.49
0.70	900.03
0.72	923.45

use storage depth  
= 0.70 m ( Min 300mm )

#### c) Overall Basin Dimensions:

At top water level:  $W_{TWL} = W_1 + 2 \times Z \times Y_1/2 = 26.20 \text{ m}$

$L_{TWL} = L_1 + 2 \times Z \times Y_1/2 = 61.20 \text{ m}$

Sediment Basin (MSMA 2) (Rev01)

Perunding Orion Sdn Bhd

$$W_B = W_1 - 2 \times Z \times (Y_1/2 + Y_2) = 21.00 \text{ m}$$

$$L_B = L_1 - 2 \times Z \times (Y_1/2 + Y_2) = 56.00 \text{ m}$$

$$\begin{aligned} \text{Depth: Sediment Settling Zone, } Y_1 &= 0.60 \text{ m} \\ \text{Sediment Storage Zone, } Y_2 &= 0.70 \text{ m} \end{aligned}$$

$$\text{Side Slope, } Z = 2(H) : 1(V)$$

#### d) Sizing of Primary Outlet/Riser

Outlet riser: 450 mm diameter perforated steel pipe

The pipe is to be provided with sufficient small openings to ensure that the basin will completely drain within 24 hours after filling.

An estimate of the total area of orifice openings required can be obtained by rearranging **Equation 2.15** and using the average surface area and total depth of the basin.

$$\text{Average surface area, } A_{av} = \frac{26.2 \times 61.2 + 21 \times 56}{2} = 1389.72 \text{ m}^2$$

$$\text{Orifices area, } A_{req} = \frac{2 A_{av} \sqrt{y}}{t C_d \sqrt{2g}}$$

t = Time to empty (s) (24 hours for dry basin & 36 hours for wet basin)

= 24 hours for dry basin

= 86400 s

y = 0.80 Depth of water above the centreline in the storage (m)

C<sub>d</sub> = 0.60 Orifice discharge coefficient (0.60 for Do < 50mm, 0.62 for Do ≥ 50mm)

g = 9.81 Gravitation acceleration (m/s<sup>2</sup>)

$$A_{req} = 0.0108 \text{ m}^2$$

Using an orifice size = 30 mm diameter

The area of each orifice, A<sub>0</sub> = 0.000707 m<sup>2</sup>

Total number of orifices required = 15.32 Nos

Use 15 Nos of 30mm diameter orifices

#### e) Sizing of Emergency Spillway

$$Q_{\text{spillway}} = Q_{10} - Q_{\text{riser}}$$

Emergency spillway design to 10 years ARI

The silt level must be set a minimum of 300 mm above the basin top water level.

From Equation 2.2

$$i = \frac{\lambda T^k}{(d + \Theta)^n}$$

Sediment Basin (MSMA 2) (Rev01)

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$i$  = Average Rainfall Intensity (mm/hr)  
 $T$  = Average Recurrence Interval - ARI (0.5<T<12 month and 2<T<100 years)  
 $d$  = Storm duration (hours), 0.08333< d < 72  
 $\Theta, \lambda, k$  and  $n$  are fitting constants depend on the raingauge location (Table 2.B1 in Appendix 2.B)

For location & station ID = 3930012 - Sg Lembing PCC Mill

$T$  = 10 years  
 $d$  = 36 minute  
 $\lambda$  = 45.999  
 $k$  = 0.21  
 $\Theta$  = 0.074  
 $n$  = 0.59

$i$  = 94.154 mm/hr

From Equation 2.3

$Q_{10} = (C I A)/360$   
 $C$  = 0.50 (Table 2.5)  
 $A$  = 8.0937 ha  
 $Q_{10} = 1.058 \text{ m}^3/\text{s}$

Outlet riser: 450 mm diameter perforated steel pipe

Refer Equation 2.6

$$Q_{\text{riser}} = C_0 A_0 \sqrt{2gH_0}$$

$Q$  = 0.232 Orifice flow rate ( $\text{m}^3/\text{s}$ )  
 $C_0$  = 0.60 Discharge coefficient (0.6)  
 $A_0$  = 0.159 X-Section area of orifice ( $\text{m}^2$ )  
 $H_0$  = 0.30 Effective head of the orifice measured from the centroid of the opening (m)  
 $g$  = 9.81 Gravitation acceleration ( $\text{m}/\text{s}^2$ )

$$Q_{\text{spillway}} = Q_{10} - Q_{\text{riser}} = 0.827 \text{ m}^3/\text{s}$$

$$Q = C_{sp} B H_p^{1.5} \quad \text{Equation 2.10}$$

$Q$  = Emergency spillway discharge ( $\text{m}^3$ )  
 $C_{sp}$  = Spillway discharge coefficient  
 $B$  = Emergency spillway base width (m)  
 $H_p$  = Effective head on the spillway crest (m)

$$V_c = 2.14 (Q/B)^{0.33} \quad \text{Equation 2.11}$$

$$S_c = 9.84 n^2 (V_c B/Q)^{0.33} \quad \text{Equation 2.12}$$

$V_c$  = critical velocity  
 $S_c$  = critical slope  
 $n$  = Manning's roughness coefficient

Sediment Basin (MSMA 2) (Rev01)

*Perunding Orion Sdn Bhd*

For:

$$B = 3.50 \text{ m}$$

$$H_p = 0.30 \text{ m}$$

$$C_{sp} = 1.465 \quad \text{Table 2.7}$$

$$n = 0.035 \quad \text{Table 2.3}$$

$$Q = 0.843 \text{ m}^3/\text{s} \quad \text{OK!}$$

$$V_c = 1.338 \text{ m/s}$$

$$S_c = 0.021$$

The dimension of the basin are as follows:


$$W = 26.2 \text{ m} \quad (\text{Top Water Level})$$


$$L = 61.4 \text{ m} \quad (\text{Top Water Level})$$

$$D = 0.6 + 0.7 + 0.3 + 0.3 = 1.90 \text{ m}$$

*Sediment Basin (MSMA 2) (Rev01)*

**APPENDIX 3a - Existing Environment Sampling and Analysis Results – Water Quality**


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Certificate No.	ESF_W00084_0722 (1-8)		
Project Reference	Gebeng		
Sampling Date	05/07/2022		
Date Sample Received	06/07/2022		
Date Sample Reported	18/07/2022		
Sample Description	River water		
Sample ID	W2207/001-WQ1		

Page 1 of 24

Parameter	Unit	WQ1	Date of Analysis	Test Method
pH ( <i>in-situ</i> )		8.37	05/07/2022	APHA 4500H <sup>+</sup> -B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	6.3	05/07/2022	APHA 4500 O <sub>2</sub> -B
Temperature ( <i>in-situ</i> )	°C	26.8	05/07/2022	APHA 2130 B
Turbidity ( <i>in-situ</i> )	NTU	93	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	88	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	6	06/07/2022 11/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	42	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	1.526	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	ND(<0.002)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

Note:  
 [1] \* : Externally provided and accredited.  
 [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005  
 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

**Verified By:**  
  
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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	WQ1/07/004/WQ1

Page 2 of 24

Parameter	Unit	WQ1	Date of Analysis	Test Method
*Cyanide as CN <sup>-</sup>	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, D (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Manganese as Mn	mg/L	0.17	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Nickel as Ni	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	0.03	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron ad Fe	mg/L	0.56	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

Note:  
 [1] \* : Externally provided and accredited.  
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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/001:WQ1

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Parameter	Unit	WQ1	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	ND(<0.01)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.036	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	ND(<0.01)	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.029	06/07/2022	In House Using UV-VIS
*Colour	ADMI	157	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

Note:  
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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/002:WQ2

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Parameter	Unit	WQ2	Date of Analysis	Test Method
pH ( <i>in-situ</i> )		8.68	05/07/2022	APHA 4500H <sup>+</sup> B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	5.5	05/07/2022	APHA 4500 O <sub>2</sub> B
Temperature ( <i>in-situ</i> )	°C	26.1	05/07/2022	APHA 2550 B
Turbidity ( <i>in-situ</i> )	NTU	101	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	96	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	5	06/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	56	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	1.063	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	ND(<0.002)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

Note:  
 [1] \* : Externally provided and accredited.  
 [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005  
 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/002:WQ2

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Parameter	Unit	WQ2	Date of Analysis	Test Method
*Cyanide as CN <sup>-</sup>	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, D (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Manganese as Mn	mg/L	0.18	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Nickel as Ni	mg/L	0.02	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron as Fe	mg/L	0.71	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

Note:  
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 [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005  
 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/002:WQ2

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Parameter	Unit	WQ2	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	0.25	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.027	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	ND(<0.01)	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.034	06/07/2022	In House Using UV-VIS
*Colour	ADMI	163	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

Note:  
 [1] \* : Externally provided and accredited.  
 [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005  
 [3] CFU : Colony Forming Unit  
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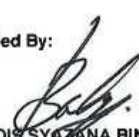
<b>Customer</b>	ENVIROSOURCE SDN BHD (272680-H) No. 13A, Jalan Jernang Jaya 1, Taman Jernang Jaya, Bandar Baru Bangi 43650 Selangor Darul Ehsan, Malaysia.
<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/003;WQ3

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Parameter	Unit	WQ3	Date of Analysis	Test Method
pH ( <i>in-situ</i> )	-	4.01	05/07/2022	APHA 4500H <sup>+</sup> -B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	5.3	05/07/2022	APHA 4500 O-G
Temperature ( <i>in-situ</i> )	°C	27.1	05/07/2022	APHA 2550 B
Turbidity ( <i>in-situ</i> )	NTU	101	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	18	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	3	06/07/2022 - 11/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	28	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	0.880	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	ND(<0.002)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

Note:  
 [1] \* : Externally provided and accredited.  
 [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005  
 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

Verified By:



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CHEMIST  
L/2965/8767/20



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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/003/WQ3

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Parameter	Unit	WQ3	Date of Analysis	Test Method
*Cyanide as CN <sup>-</sup>	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, F (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	0.16	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Manganese as Mn	mg/L	0.19	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Nickel as Ni	mg/L	0.37	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	0.03	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron as Fe	mg/L	0.83	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

Note:

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- [3] CFU : Colony Forming Unit
- [4] ND : Not Detected

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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/003:WQ3

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Parameter	Unit	WQ3	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	0.07	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.738	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	0.01	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.045	06/07/2022	In House Using UV-VIS
*Colour	ADMI	107	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

**Note:**  
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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/004:WQ4

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Parameter	Unit	WQ4	Date of Analysis	Test Method
pH ( <i>in-situ</i> )		5.45	05/07/2022	APHA 4500H <sup>+</sup> -B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	5.6	05/07/2022	APHA 4500 O <sub>2</sub> -B
Temperature ( <i>in-situ</i> )	°C	27.3	05/07/2022	APHA 2550 B
Turbidity ( <i>in-situ</i> )	NTU	65	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	24	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	13	06/07/2022 - 11/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	81	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	3.872	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	ND(<0.002)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

Note:

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- [3] CFU : Colony Forming Unit
- [4] ND : Not Detected

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TESTING  
SAMM NO: 766

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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/004:WQ4

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Parameter	Unit	WQ4	Date of Analysis	Test Method
*Cyanide as CN <sup>-</sup>	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, D (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	0.02	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Manganese as Mn	mg/L	0.32	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Nickel as Ni	mg/L	0.01	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	0.13	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron as Fe	mg/L	1.04	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

**Note:**  
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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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TESTING  
SAMM NO: 716

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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/004:WQ4

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Parameter	Unit	WQ4	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	ND(<0.01)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.174	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	0.86	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.19	06/07/2022	In House Using UV-VIS
*Colour	ADMI	135	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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Certificate No.	ESF_W00084_0722 (1-8)			
Project Reference	Gebeng			
Sampling Date	05/07/2022			
Date Sample Received	06/07/2022			
Date Sample Reported	18/07/2022			
Sample Description	River water			
Sample ID	W2207/005;WQ5			

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Parameter	Unit	WQ5	Date of Analysis	Test Method
pH ( <i>in-situ</i> )		5.91	05/07/2022	APHA 4500H <sup>+</sup> -B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	5.0	05/07/2022	APHA 4500 O <sub>2</sub> -B
Temperature ( <i>in-situ</i> )	°C	28.2	05/07/2022	APHA 2550 B
Turbidity ( <i>in-situ</i> )	NTU	43	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	50	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	5	06/07/2022 - 11/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	98	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	1.388	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	0.002	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/005:WQ5

Page 14 of 24

Parameter	Unit	WQ5	Date of Analysis	Test Method
*Cyanide as CN <sup>-</sup>	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, D (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	0.01	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Manganese as Mn	mg/L	0.15	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Nickel as Ni	mg/L	0.07	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	0.08	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron as Fe	mg/L	2.10	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

Note:

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- [4] ND : Not Detected

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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/005:WQ5

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Parameter	Unit	WQ5	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	ND(<0.01)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.041	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	0.66	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.008	06/07/2022	In House Using UV-VIS
*Colour	ADMI	45	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

Note:

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[3] CFU : Colony Forming Unit

[4] ND : Not Detected

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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/006:WQ6

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Parameter	Unit	WQ6	Date of Analysis	Test Method
pH ( <i>in-situ</i> )	-	6.35	05/07/2022	APHA 4500H <sup>+</sup> -B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	5.8	05/07/2022	APHA 4500 O-G
Temperature ( <i>in-situ</i> )	°C	28.5	05/07/2022	APHA 2550 B
Turbidity ( <i>in-situ</i> )	NTU	24	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	56	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	12	06/07/2022 - 11/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	61	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	0.981	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	ND(<0.002)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

Note:

- [1] \* : Externally provided and accredited.
- [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005
- [3] CFU : Colony Forming Unit
- [4] ND : Not Detected

Verified By:

BALQIS SYAZANA BINTI ABDUL LATIF  
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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/006:WQ6

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Parameter	Unit	WQ6	Date of Analysis	Test Method
*Cyanide as CN <sup>-</sup>	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, D (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	0.02	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Manganese as Mn	mg/L	0.12	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Nickel as Ni	mg/L	0.04	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	0.05	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron as Fe	mg/L	0.77	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

Note:

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- [3] CFU : Colony Forming Unit
- [4] ND : Not Detected

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SAMM NO: T66

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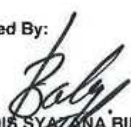
Customer	ENVIROSOURCE SDN BHD (272680-H) No. 13A, Jalan Jernang Jaya 1, Taman Jernang Jaya, Bandar Baru Bangi 43650 Selangor Darul Ehsan, Malaysia.
Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/006:WQ6

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Parameter	Unit	WQ6	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	ND(<0.01)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.028	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	0.54	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.003	06/07/2022	In House Using UV-VIS
*Colour	ADMI	63	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/007:WQ7

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Parameter	Unit	WQ7	Date of Analysis	Test Method
pH ( <i>in-situ</i> )	-	6.48	05/07/2022	APHA 4500H <sup>+</sup> -B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	5.1	05/07/2022	APHA 4500 O-G
Temperature ( <i>in-situ</i> )	°C	28.7	05/07/2022	APHA 2550 B
Turbidity ( <i>in-situ</i> )	NTU	27	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	14	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	8	06/07/2022 - 11/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	42	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	1.910	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	0.002	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

Note:

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 [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005  
 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

Verified By:

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SAMM NO: 755

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<b>Certificate No.</b>	ESF_W00084_0722 (1-8)
<b>Project Reference</b>	Gebeng
<b>Sampling Date</b>	05/07/2022
<b>Date Sample Received</b>	06/07/2022
<b>Date Sample Reported</b>	18/07/2022
<b>Sample Description</b>	River water
<b>Sample ID</b>	W2207/007:WQ7

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Parameter	Unit	WQ7	Date of Analysis	Test Method
*Cyanide as CN	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, D (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	0.02	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Manganese as Mn	mg/L	0.14	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Nickel as Ni	mg/L	0.08	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	0.06	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron as Fe	mg/L	0.55	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

Verified By:



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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/007:WQ7

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Parameter	Unit	WQ7	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	0.09	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.077	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	0.63	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.022	06/07/2022	In House Using UV-VIS
*Colour	ADMI	70	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

Note:

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- [4] ND : Not Detected

Verified By:

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L/2965/8767/20




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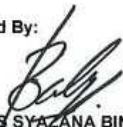
Customer	ENVIROSOURCE SDN BHD (272680-H) No. 13A, Jalan Jernang Jaya 1, Taman Jernang Jaya, Bandar Baru Bangi 43650 Selangor Darul Ehsan, Malaysia.
Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/008:WQ8

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Parameter	Unit	WQ8	Date of Analysis	Test Method
pH ( <i>in-situ</i> )	-	6.77	05/07/2022	APHA 4500H <sup>+</sup> -B
Dissolved Oxygen ( <i>in-situ</i> )	mg/L	5.3	05/07/2022	APHA 4500 O-G
Temperature ( <i>in-situ</i> )	°C	29.5	05/07/2022	APHA 2550 B
Turbidity ( <i>in-situ</i> )	NTU	18	05/07/2022	APHA 2130 B
*Total Suspended Solids	mg/L	38	06/07/2022	APHA 2540 D
*Biochemical Oxygen Demand (5 days at 20°C)	mg/L	13	06/07/2022 – 11/07/2022	APHA 5210 B
*Chemical Oxygen Demand	mg/L	20	06/07/2022	APHA 5220 C
*Ammoniacal Nitrogen	mg/L	3.465	06/07/2022	APHA 4500 NH <sub>3</sub> -N (B&F)
Oil and Grease	mg/L	ND(<1)	06/07/2022	APHA 5520 D
*Mercury as Hg	mg/L	ND(<0.001)	06/07/2022	APHA 3112 B (2005)
*Cadmium as Cd	mg/L	0.004	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Hexavalent	mg/L	ND(<0.003)	06/07/2022	APHA 3500 Cr B (2005)
*Arsenic as As	mg/L	ND(<0.001)	06/07/2022	APHA 3114 B, APHA 3030 F (2005)

Note:  
 [1] \* : Externally provided and accredited.  
 [2] APHA : American Public Health Association (Standard Methods for the Examination of Water and Wastewater), 21<sup>st</sup> Edition, 2005  
 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/008:WQ8

Page 23 of 24

Parameter	Unit	WQ8	Date of Analysis	Test Method
*Cyanide as CN <sup>-</sup>	mg/L	ND(<0.01)	06/07/2022	APHA 4500 CN C, D (2005)
*Lead as Pb	mg/L	ND(<0.01)	06/07/2022	APHA 3111 B, APHA 3030 F (2005)
*Chromium Trivalent	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Cr B (2005)
*Copper as Cu	mg/L	0.01	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Manganese as Mn	mg/L	0.16	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Nickel as Ni	mg/L	0.11	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Tin as Sn	mg/L	ND(<0.01)	06/07/2022	In House Method No.1 (Hydride Method)
*Zinc as Zn	mg/L	0.01	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Boron as B	mg/L	ND(<0.10)	06/07/2022	APHA 4500 B C (2005)
*Iron as Fe	mg/L	0.36	06/07/2022	APHA 3111 B, APHA 3030 F(2005)
*Phenol	mg/L	ND(<0.001)	06/07/2022	APHA 5530 A B C (2005)

Note:

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Certificate No.	ESF_W00084_0722 (1-8)
Project Reference	Gebeng
Sampling Date	05/07/2022
Date Sample Received	06/07/2022
Date Sample Reported	18/07/2022
Sample Description	River water
Sample ID	W2207/008:WQ8

Page 24 of 24

Parameter	Unit	WQ8	Date of Analysis	Test Method
*Free Chlorine	mg/L	ND(<0.1)	06/07/2022	APHA 4500 Cl B (2005)
*Sulphide as S <sup>2-</sup>	mg/L	ND(<0.10)	06/07/2022	APHA 4500 S <sup>2-</sup> C, F (2005)
*Chromium Total	mg/L	ND(<0.02)	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Silver as Ag	mg/L	0.05	06/07/2022	APHA 3011 B, APHA 3030 F (2005)
*Aluminium as Al	mg/L	0.075	06/07/2022	APHA 3500 Al- B (Eriochrome Cyanine R)
*Selenium	mg/L	ND(<0.02)	06/07/2022	APHA 3500 Se c, 21 <sup>st</sup> Edition 2005
*Barium	mg/L	ND(<0.01)	06/07/2022	APHA 3120 B (2005)
*Fluoride as F	mg/L	0.78	06/07/2022	APHA 4500 F-D (2005)
*Formaldehyde	mg/L	0.020	06/07/2022	In House Using UV-VIS
*Colour	ADMI	42	06/07/2022	APHA 2120 F 21 <sup>st</sup> Edition 2005

Note:  
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 [3] CFU : Colony Forming Unit  
 [4] ND : Not Detected

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**APPENDIX 3b**  
**Existing Environment Sampling and Analysis Results – Ambient Air Quality**










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Page 1 of 6

Customer	ESF Lab Sdn. Bhd.				
Our Ref.	LD/0722/7030/01				
Sample Received	20.07.2022				
Sample Reported	26.07.2022				
Sample Description	Air Sampling Media				
Sample Marking	Ambient Air Quality Monitoring				

Test Parameter	Test Method	Results	Malaysia Ambient Air Quality Standard (2020)	^Recommended Malaysian Air Quality Guidelines	Permissible Exposure Limit (PEL)
		A1			
^Total Suspended Particulate (TSP)	USEPA 40 Part 50, Appendix B	46 µg/m³	NA	260 µg/m³	NA
Particulate Matter <10 Micron (PM <sub>10</sub> )	USEPA 40 Part 50, Appendix J	38 µg/m³	100 µg/m³		
Sulphur Dioxide, SO <sub>2</sub>	ISC 704 A	24 µg/m³	250 µg/m³		
*Nitrogen Dioxide, NO <sub>2</sub>	ISC 408	29 µg/m³	280 µg/m³		
Carbon Monoxide, CO	EC-IAQ-01	6 mg/m³	30 mg/m³	NA	14 mg/m³
*Volatile Organic Compound (VOC)	NIOSH 2549	0.31 mg/m³	NA		
*Hydrogen Sulphide, H <sub>2</sub> S	NIOSH 6013	0.5 mg/m³			
*Methane	USEPA Method 3C	0.3 mg/m³			NA

**Note:**

- 1) ^Recommended Malaysian Air Quality Guidelines (Previous old Standard reference)
- 2) USEPA means United States Environmental Protection Agency
- 3) ISC means Intersociety Committee
- 4) NIOSH means National Institute Occupational of Safety and Health
- 5) Permissible Exposure Limit (PEL) based on Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECHH Regulation)
- 6) NA means Not Applicable
- 7) \* Not SAMM Accredited

<p>For:</p> <p><b>ESF LAB SDN. BHD.</b></p> <p>Gebang, Pahang.</p>	<p>Verified by,</p>  <p><b>Ts. ChM. Dr. Nagendran Periaiah</b> B. Sc (Hons) Ind. Chem (UITM), M. Tech. (Env. Mgmt.) (UIM), DBA (Env. Mgmt.) (IUM), Director/Chemist, MMIC Reg. No.: M/3186/4722/05/11</p>
--	--

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**ENVICHEM CONSULTS SDN. BHD (685031-V)**  
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Page 2 of 6

Customer	ESF Lab Sdn. Bhd.				
Our Ref.	LD/0722/7030/02				
Sample Received	20.07.2022				
Sample Reported	26.07.2022				
Sample Description	Air Sampling Media				
Sample Marking	Ambient Air Quality Monitoring				

Test Parameter	Test Method	Results	Malaysia Ambient Air Quality Standard (2020)	^Recommended Malaysian Air Quality Guidelines	Permissible Exposure Limit (PEL)	
		A2				
^Total Suspended Particulate (TSP)	USEPA 40 Part 50, Appendix B	12 µg/m³	NA	260 µg/m³	NA	
Particulate Matter <10 Micron (PM <sub>10</sub> )	USEPA 40 Part 50, Appendix J	9 µg/m³	100 µg/m³			
Sulphur Dioxide, SO <sub>2</sub>	ISC 704 A	18 µg/m³	250 µg/m³			
*Nitrogen Dioxide, NO <sub>2</sub>	ISC 408	21 µg/m³	280 µg/m³			
Carbon Monoxide, CO	EC-IAQ-01	2 mg/m³	30 mg/m³			
*Volatile Organic Compound (VOC)	NIOSH 2549	0.22 mg/m³	NA	NA		
*Hydrogen Sulphide, H <sub>2</sub> S	NIOSH 6013	< 0.1 mg/m³				14 mg/m³
*Methane	USEPA Method 3C	< 0.1 mg/m³				NA

**Note:**

- 1) ^Recommended Malaysian Air Quality Guidelines (Previous old Standard reference)
- 2) USEPA means United States Environmental Protection Agency
- 3) ISC means Intersociety Committee
- 4) NIOSH means National Institute Occupational Safety and Health
- 5) Permissible Exposure Limit (PEL) based on Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECIBI Regulation)
- 6) NA means Not Applicable
- 7) \* Not SAMM Accredited

For:

**ESF LAB SDN. BHD.**

Gebang, Pahang.

Verified by:



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Customer	ESF Lab Sdn. Bhd.				
Our Ref.	LD/0722/7030/03				
Sample Received	20.07.2022				
Sample Reported	26.07.2022				
Sample Description	Air Sampling Media				
Sample Marking	Ambient Air Quality Monitoring				

Test Parameter	Test Method	Results	Malaysia Ambient Air Quality Standard (2020)	^Recommended Malaysian Air Quality Guidelines	Permissible Exposure Limit (PEL)
		A3			
^Total Suspended Particulate (TSP)	USEPA 40 Part 50, Appendix B	54 µg/m³	NA	260 µg/m³	NA
Particulate Matter <10 Micron (PM <sub>10</sub> )	USEPA 40 Part 50, Appendix J	46 µg/m³	100 µg/m³		
Sulphur Dioxide, SO <sub>2</sub>	ISC 704 A	27 µg/m³	250 µg/m³		
*Nitrogen Dioxide, NO <sub>2</sub>	ISC 408	32 µg/m³	280 µg/m³		
Carbon Monoxide, CO	EC-IAQ-01	6 mg/m³	30 mg/m³	NA	
*Volatile Organic Compound (VOC)	NIOSH 2549	0.39 mg/m³	NA		
*Hydrogen Sulphide, H <sub>2</sub> S	NIOSH 6013	< 0.1 mg/m³			14 mg/m³
*Methane	USEPA Method 3C	< 0.1 mg/m³			NA

**Note:**

- 1) ^Recommended Malaysian Air Quality Guidelines (Previous old Standard reference)
- 2) USEPA means United States Environmental Protection Agency
- 3) ISC means Intersociety Committee
- 4) NIOSH means National Institute Occupational of Safety and Health
- 5) Permissible Exposure Limit (PEL) based on Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECHH Regulation)
- 6) NA means Not Applicable
- 7) \* Not SAMM Accredited

For:

**ESF LAB SDN. BHD.**

Gebang, Pahang.

Verified by,



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03-5166 3195

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03-5162 7312

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## Website :

www.envichem.com.my

Customer

Our Ref.

Sample Received

Sample Reported

Sample Description

Sample Marking

ESF Lab Sdn. Bhd.

LD/0722/7030/04

20.07.2022

26.07.2022

Air Sampling Media

Ambient Air Quality Monitoring

Test Parameter

Test Method

Results

A4

Malaysia Ambient Air Quality Standard (2020)

^Recommended Malaysian Air Quality Guidelines

Permissible Exposure Limit (PEL)

^Total Suspended Particulate (TSP)

USEPA 40 Part 50, Appendix B

121 µg/m³

NA

260 µg/m³

NA

Particulate Matter <10 Micron (PM<sub>10</sub>)

USEPA 40 Part 50, Appendix J

63 µg/m³

100 µg/m³

NA

Sulphur Dioxide, SO<sub>2</sub>

ISC 704 A

34 µg/m³

250 µg/m³

\*Nitrogen Dioxide, NO<sub>2</sub>

ISC 408

37 µg/m³

280 µg/m³

Carbon Monoxide, CO

EC-IAQ-01

10 mg/m³

30 mg/m³

\*Volatile Organic Compound (VOC)

NIOSH 2549

0.75 mg/m³

NA

14 mg/m³

\*Hydrogen Sulphide, H<sub>2</sub>S

NIOSH 6013

< 0.1 mg/m³

NA

\*Methane

USEPA Method 3C

< 0.1 mg/m³

NA

Note:

1) ^Recommended Malaysian Air Quality Guidelines (Previous old Standard reference)

2) USEPA means United States Environmental Protection Agency

3) ISC means Intersociety Committee

4) NIOSH means National Institute Occupational of Safety and Health

5) Permissible Exposure Limit (PEL) based on Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECHH Regulation)

6) NA means Not Applicable

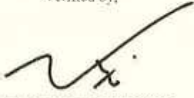
7) \* Not SAMM Accredited

For:

ESF LAB SDN. BHD.

Gebang, Pahang.

Verified by,



Ts. ChM. Dr. Nagendran Periniah

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DBA (Env. Mgmt.) (IUM),

Director/Chemist

MMIC Reg. No.: M/3186/4722/05/11

Note:

- 1) ^Recommended Malaysian Air Quality Guidelines (Previous old Standard reference)
- 2) USEPA means United States Environmental Protection Agency
- 3) ISC means Intersociety Committee
- 4) NIOSH means National Institute Occupational of Safety and Health
- 5) Permissible Exposure Limit (PEL) based on Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECHH Regulation)
- 6) NA means Not Applicable
- 7) \* Not SAMM Accredited

For:

**ESF LAB SDN. BHD.**  
Gebang, Pahang.

Verified by,

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MMC Reg. No.: M/3186/4722/05/11

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Customer	ESF Lab Sdn. Bhd.				
Our Ref.	LD/0722/7030/05				
Sample Received	20.07.2022				
Sample Reported	26.07.2022				
Sample Description	Air Sampling Media				
Sample Marking	Ambient Air Quality Monitoring				

Test Parameter	Test Method	Results	Malaysia Ambient Air Quality Standard (2020)	^Recommended Malaysian Air Quality Guidelines	Permissible Exposure Limit (PEL)
		A5			
^Total Suspended Particulate (TSP)	USEPA 40 Part 50, Appendix B	75 µg/m³	NA	260 µg/m³	NA
Particulate Matter <10 Micron (PM <sub>10</sub> )	USEPA 40 Part 50, Appendix J	57 µg/m³	100 µg/m³		
Sulphur Dioxide, SO <sub>2</sub>	ISC 704 A	36 µg/m³	250 µg/m³		
*Nitrogen Dioxide, NO <sub>2</sub>	ISC 408	39 µg/m³	280 µg/m³		
Carbon Monoxide, CO	EC-1AQ-01	7 mg/m³	30 mg/m³		
*Volatile Organic Compound (VOC)	NIOSH 2549	0.47 mg/m³	NA	NA	14 mg/m³
*Hydrogen Sulphide, H <sub>2</sub> S	NIOSH 6013	< 0.1 mg/m³			
*Methane	USEPA Method 3C	< 0.1 mg/m³			

**Note:**

- 1) ^Recommended Malaysian Air Quality Guidelines (Previous old Standard reference)
- 2) USEPA means United States Environmental Protection Agency
- 3) ISC means Intersociety Committee
- 4) NIOSH means National Institute Occupational Safety and Health
- 5) Permissible Exposure Limit (PEL) based on Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECHH Regulation)
- 6) NA means Not Applicable
- 7) \* Not SAMM Accredited

<p>For:</p> <p><b>ESF LAB SDN. BHD.</b></p> <p>Gebang, Pahang.</p>	<p>Verified by,</p>  <p><b>Ts. ChM. Dr. Nagendran Periaiah</b> B. Sc (Hons) Ind. Chem (UTM), M. Tech. (Env. Mgmt.) (UM), DBA (Env. Mgmt.) (IUM), Director/Chemist MMIC Reg. No.: M/3186/4722/05/11</p>
--	---

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Customer	ESF Lab Sdn. Bhd.				
Our Ref.	LD/0722/7030/06				
Sample Received	20.07.2022				
Sample Reported	26.07.2022				
Sample Description	Air Sampling Media				
Sample Marking	Ambient Air Quality Monitoring				

Test Parameter	Test Method	Results	Malaysia Ambient Air Quality Standard (2020)	Recommended Malaysian Air Quality Guidelines	Permissible Exposure Limit (PEL)
		A6			
^Total Suspended Particulate (TSP)	USEPA 40 Part 50, Appendix B	112 µg/m³	NA	260 µg/m³	NA
Particulate Matter <10 Micron (PM <sub>10</sub> )	USEPA 40 Part 50, Appendix J	54 µg/m³	100 µg/m³		
Sulphur Dioxide, SO <sub>2</sub>	ISC 704 A	38 µg/m³	250 µg/m³		
*Nitrogen Dioxide, NO <sub>2</sub>	ISC 408	42 µg/m³	280 µg/m³		
Carbon Monoxide, CO	EC-IAQ-01	9 mg/m³	30 mg/m³		
*Volatile Organic Compound (VOC)	NIOSH 2549	0.68 mg/m³	NA	NA	14 mg/m³
*Hydrogen Sulphide, H <sub>2</sub> S	NIOSH 6013	< 0.1 mg/m³			
*Methane	USEPA Method 3C	< 0.1 mg/m³			

**Note:**

- 1) ^Recommended Malaysian Air Quality Guidelines (Previous old Standard reference)
- 2) USEPA means United States Environmental Protection Agency
- 3) ISC means Intersociety Committee
- 4) NIOSH means National Institute Occupational Safety and Health
- 5) Permissible Exposure Limit (PEL) based on Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECHH Regulation)
- 6) NA means Not Applicable
- 7) \* Not SAMM Accredited

For:  ESF LAB SDN. BHD. Gebang, Pahang.	Verified by:    Ts. ChM. Dr. Nagendran Periniah B.Sc (Hons) Ind. Chem (UTM), M. Tech. (Env. Mgmt.) (UM), DBA (Env. Mgmt.) (IIUM), Director/Chemist MMHC Reg. No.: M/3186/4722/05/11
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**APPENDIX 3c**  
**Existing Environment Sampling and Analysis Results – Noise Level**





ESF LAB SDN.BHD (1074562-M)

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Customer	ENVIROSOURCE SDN BHD (272680-H) No. 13A, Jalan Jernang Jaya 1, Taman Jernang Jaya, Bandar Baru Bangi 43650 Selangor Darul Ehsan, Malaysia.
Certificate No.	ESF_N00035_0722 (1-4)
Project Reference	Gebeng
Date of Monitoring	05/07/2022
Date Sample Received	07/07/2022
Date of Analysis	07/07/2022
Date Sample Reported	18/07/2022
Station ID	N2207/001: N1, N2207/002: N2

Page 1 of 2

Station	N1		N2	
Parameters / Date & Time	(05/07/2022) 0700 – 2200 hrs	(05/07/2022) to (06/07/2022) 2200 – 0700 hrs	(05/07/2022) 0700 – 2200 hrs	(05/07/2022) to (06/07/2022) 2200 – 0700 hrs
L <sub>eq</sub> dB(A)	50.7	49.2	67.6	63.3
L <sub>max</sub> dB(A)	78.2	70.8	109.4	92.7
L <sub>min</sub> dB(A)	38.4	42.2	37.6	36.3
L <sub>10</sub> dB(A)	52.7	50.6	70.6	66.2
L <sub>90</sub> dB(A)	45.5	45.8	56.9	51.8

NOTE:

[1] Test Method: In-house Method, Ref. No. ESF/N/01, Based on ISO 1996-1:2016 (E)

Verified By:

BALQIS SYAZANA BINTI ABDUL LATIF  
CHEMIST  
L/2965/8767/20



ESF LAB SDN BHD (1074562-M)

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Tel: 03-8211 2340 Fax: 03-8751 3637  
E-mail: esflaboratory@gmail.com

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Customer	ENVIROSOURCE SDN BHD (272680-H) No. 13A, Jalan Jernang Jaya 1, Taman Jernang Jaya, Bandar Baru Bangi 43650 Selangor Darul Ehsan, Malaysia.
Certificate No.	ESF_N00035_0722 (1-4)
Project Reference	Gebeng
Date of Monitoring	05/07/2022
Date Sample Received	07/07/2022
Date of Analysis	07/07/2022
Date Sample Reported	18/07/2022
Station ID	N2207/003; N3, N2207/004, N4

Page 2 of 2

Station	N3		N4	
Parameters / Date & Time	(05/07/2022) to 0700 – 2200 hrs	(05/07/2022) to (06/07/2022) 2200 – 0700 hrs	(05/07/2022) to 0700 – 2200 hrs	(05/07/2022) to (06/07/2022) 2200 – 0700 hrs
L <sub>eq</sub> dB(A)	66.0	62.9	72.3	68.8
L <sub>max</sub> dB(A)	107.5	89.9	108.8	92.2
L <sub>min</sub> dB(A)	38.7	36.7	40.4	41.9
L <sub>10</sub> dB(A)	66.3	61.3	76.0	72.1
L <sub>90</sub> dB(A)	52.2	43.9	57.0	54.9

NOTE:

[1] Test Method: In-house Method, Ref. No. ESF/N/01, Based on ISO 1996-1:2016 (E)

Verified By:

BALQIS SYAZANA BINTI ABDUL LATIF  
CHEMIST  
L/2965/8767/20



ESF LAB SDN BHD (1074562-M)

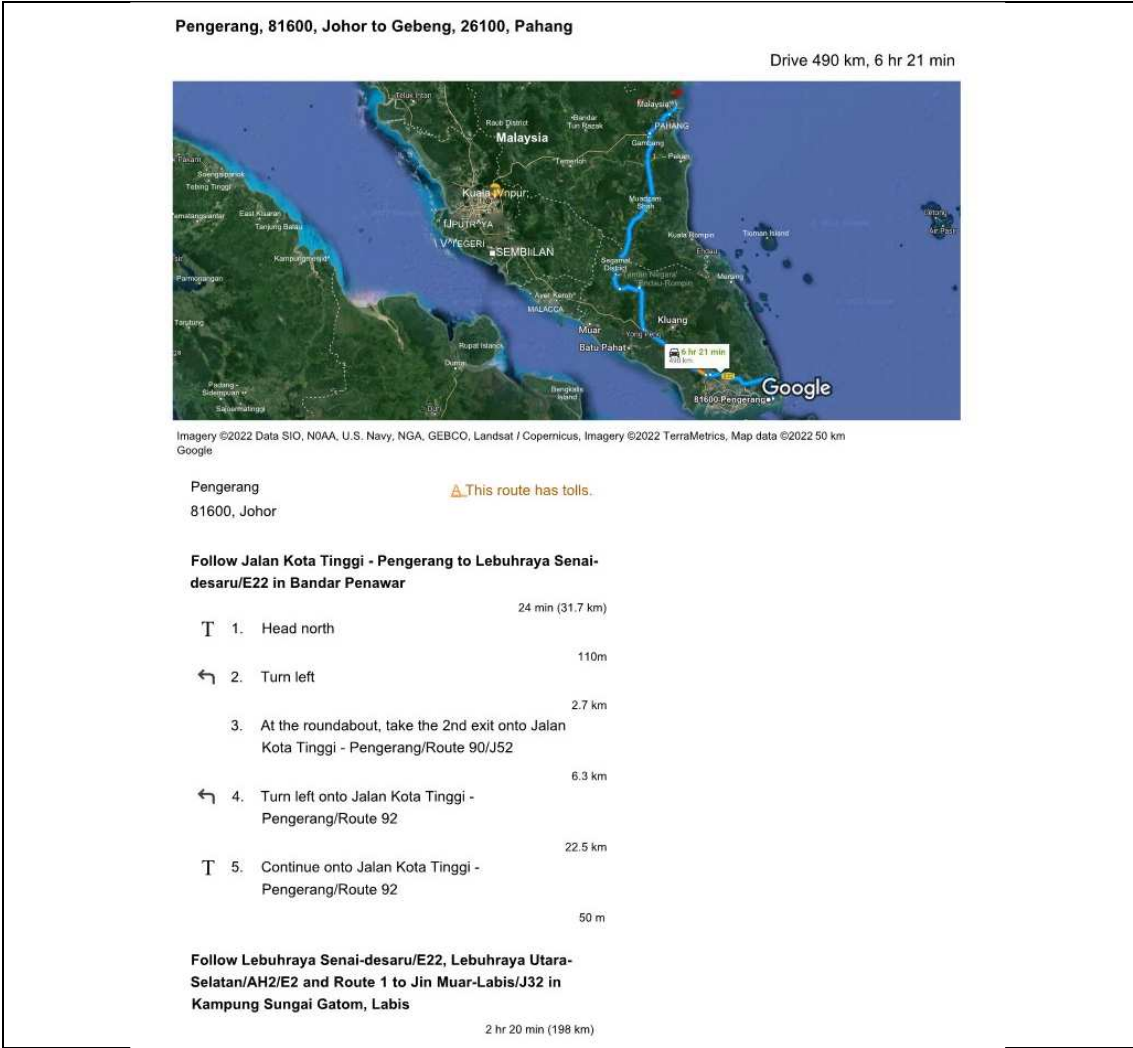
No.18-2, Jalan Impian Mahkota 1, Saujana Impian 43000, Kajang, Selangor.  
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E-mail: esflaboratory@gmail.com

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**APPENDIX 4**  
**Spent Catalyst Transportation**

Appendices



## Appendices

- ← 6. Turn left onto Lebuhraya Senai-desaru/E22  
▲ Toll road  
68.4 km
- ← 7. Take the exit onto Lebuhraya Hubungan Kedua  
Malaysia - Singapura  
5.7 km
- ↗ 8. Use the right lane to merge onto Lebuhraya  
Hubungan Kedua Malaysia - Singapura/E3  
▲ Toll road  
2.0 km
- ← 9- Use the left 2 lanes to take exit 253 toward  
Kulajaya/Kuala Lumpur  
▲ Toll road  
650 m
- ↑ 10. Merge onto Lebuhraya Utara-Selatan/AH2/E2  
▲ Toll road  
74.1 km
- ← 11. Take exit 242-Yong Peng (S) toward Yong  
Peng/Segamat  
▲ Toll road  
1.6 km
- ← 12. Turn left onto Jin Besar/Route 1  
0 Continue to follow Route 1  
0 Pass by Blink-Blink Car Wash (on the right in  
3.9 km)  
45.6 km
- Continue on Jin Muar-Labis/J32 to Segamat  
36 min (41.9 km)
- ← 13. Turn left onto Jin Muar-Labis/J32  
23.4 km
- ↗ 14. Turn right onto Jin Pogoh/J41  
0 Continue to follow J41  
18.5 km
- Take Lebuhraya Tun Razak and LPT/E8 to Jalan Gebeng  
1/11 in Balok. Take the exit toward Kawasan Perindustrian  
Gebeng from Gebeng Bypass  
2 hr 44 min (216 km)
- ←-) 15. Turn left onto Jalan Genuang/Route 1  
0 Continue to follow Route 1  
7.3 km
- n> 16. Turn right onto Lebuhraya Segamat -  
Kuantan/Lebuhraya Tun Razak/Route 12  
0 Continue to follow Lebuhraya Tun Razak  
150 km
- X 17. Take the E8 ramp to Terengganu/Kuala Lumpur  
▲ Toll road  
290 m

- V 18. Keep right at the fork, follow signs for K.  
Terengganu/Kuantan and merge onto LPT/E8  
A Toll road  
33.5 km
- V 19. Keep left at the fork to continue on Gebeng  
Bypass  
A Toll road  
17.8 km
- ↩ 20. Take the exit toward K. Lumpur  
1.1 km
- T 21. Continue onto Gebeng Bypass  
4.9 km
- \*>| 22. Take the exit toward Kawasan Perindustrian  
Gebeng  
450 m
- Continue on Jalan Gebeng 1/11 to your destination**  
3 min (2.8 km)
- ↑ 23. Continue onto Jalan Gebeng 1/11  
800 m
- ↩ 24. Turn left toward Jalan Gebeng 2/7  
8 m
- ↑ 25. Continue onto Jalan Gebeng 2/7  
1.7 km
- ↩ 26. Slight left  
220 m

Spent Catalyst Recovery Facility (SCaRF)  
at Gebeng Industrial Estate (GIE)  
26100, Pahang



## APPENDIX 5: Spent Catalyst Transportation

	<b>EXHIBIT I: SCOPE OF WORK ARDS UNIT CATALYSTS CHANGE-OUT AND SPENT CATALYSTS MANAGEMENT</b>	Contract No: PRPG/TC2/001/2019
		Date: Feb 2019
		Page 11 of 110

2.1.63. Repair work shall only be considered accepted by OWNER once CONTRACTOR has fulfilled the following criteria;

- a) Repair work has been completed as per approve repair procedure.
- b) The approval from DOSH for any repair works on pressure parts.
- c) The repair work has passed all required testing as per repair procedure.

2.1.64. CONTRACTOR is required to prepare daily/shift progress report and submit to OWNER on daily/shift basis.

2.1.65. CONTRACTOR shall submit Final Report after all WORKS and housekeeping completed.

2.1.66. CONTRACTOR shall guarantee that all WORKS to be executed to the highest quality of workmanship, to the satisfaction of OWNER and relevant authorities.

2.1.67. CONTRACTOR shall guarantee the WORKS be completed are free from defect for six (6) months period from the date of OWNER acceptance of Certificate of Work Completion (CWC).

### 2.2. Spent Catalyst Management and Disposal

CONTRACTOR is required to perform spent catalyst (SW 202) collection, transportation, treatment, recovery and disposal at LICENSED PRESCRIBE PREMISES by Department of Environment Malaysia (DOE) or pre-identified list of companies that have done similar work in the past for PETRONAS Group of Companies or in Oil & Gas and Petrochemical Industries.

#### Schedule Waste Information

##### 2.2.1. Spent Catalyst (SW 202) general information:

No.	Sched- uled waste	Spent catalyst type	Source	Esti- mated Quan- ty	Metal tent con-	Packaging	Remarks
1	SW 202	Hydrodemeta- lation Catalyst	Atmospheric Residue Desulfurization Unit, R-	(fresh) 118,214 (wet) 236,428	Nickel Molyb- denum Vanadium	209L drum, Pallet 1.2M x 1.2M	May mixed with sup- port ma-
2	SW 202	Hydrodemeta- lation Catalyst	Atmospheric Residue Desulfurization Unit, R-	(fresh) 186,199 (wet) 372,398	Nickel Molyb- denum Vanadium	209L drum, Pallet 1.2M x 1.2M	May mixed with sup- port ma-
3	SW 202	Hydrodemeta- lation, Hydrodesul- furisation, and Car- bon Residue Re- moval Catalyst	Atmospheric Residue Desulfurization Unit, R- 103/203	(fresh) 237,571 (wet) 475,142	Nickel Molyb- denum Vanadium	209L drum, Pallet 1.2M x 1.2M	May mixed with sup- port ma- terials

	<b>EXHIBIT I: SCOPE OF WORK ARDS UNIT CATALYSTS CHANGE-OUT AND SPENT CATALYSTS MANAGEMENT</b>	Contract No: PRPC/TC2/001/2019 Date: Feb 2019 Page 12 of 110
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4	SW 202	Hydrosulfurisation, Carbon Residue Removal, and Hydrodenitrification Catalyst	Atmospheric Residue Desulfurization Unit, R-104/204	(fresh) 248,280 (wet) 496,560	Nickel Molybdenum Vanadium	209L drum, Pallet 1.2M x 1.2M	May mixed with support materials
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**NOTE:** Waste composition: The data provided are from Chemical Data Sheet supplied by manufacturer. NO sample will be provided due to packaging already SEAL. Based on the data provided, vendor should determine the best reasonable treatment cost. While the weight of spent catalyst may be doubled from initial and may include support materials.

2.2.2. The Scheduled Waste (SW 202) will be packed in containers that are deemed suitable for further treatment by CONTRACTOR for Spent Catalyst Management and/or Disposal.

2.2.3. CONTRACTOR are required to provide lorry or trailer to transport the SCHEDULED WASTE from OWNER's site to proposed treatment or disposal site. The lorry or trailer shall comply with PIC vehicle entry requirement (e.g. spark arrestor and etc.)

2.2.4. Disposal should be commenced based on notice from OWNER.

2.2.5. CONTRACTOR to ensure the SCHEDULED WASTE is safely transport from OWNER and received at PRESCRIBED PREMISES. In case of any spillage or accidental release happened along the way from OWNER to PRESCRIBED PREMISES, CONTRACTOR is responsible to carry out clean-up activities.

2.2.6. CONTRACTOR to ensure all documents but not limited to data and record of the transportation, inventory, treatment and final disposal are available at any time for assurance and verification by SCHEDULED WASTE generator and authority.

2.2.7. CONTRACTOR is strictly not allowed to bring/send the spent catalyst or it's by-products in form of SCHEDULED WASTE to other premises without prior approval from DOE.

**Note:** The above activity shall strictly comply with the Environmental Quality (Scheduled Wastes) Regulations 2005.

2.2.8. CONTRACTOR to provide full report on the scheduled waste collection, transportation, recovery and disposal activity.

#### **Regulatory Requirements**

2.2.9. CONTRACTOR shall have a valid license for prescribed premises as per Environmental Quality (Scheduled Waste) Regulations 2005 by Department of Environment (DOE) Malaysia for the SCHEDULED WASTE code (SW 202) as stated in the scope of work.

2.2.10. CONTRACTOR is encourage to contact below recommended companies for the spent catalyst management and disposal:

a) Qualitest Engineering Sdn Bhd.

Julia Binti Ramli