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ENVIRONMENTAL MONITORING & COMPLIANCE AUDIT REPORT

FOR

PROPOSED REPLANTING AND PLANTING OF 25,000 HA
OF ACACIA MANGIUM AT BENGKOKA PENINSULA,
DISTRICT OF PITAS, SABAH BY ACACIA FOREST
INDUSTRUES SDN BHD.

1ST REPORT OF YEAR 2020

FEBRUARY	JUNE	OCTOBER
✓		

EIA Approval Letter Ref. No. : JPAS/PP/15/600-1/01/3/29

Approval Date : 19th May 2010

Report Reference : CK/MO411/1187-1/20

Date of Report : 20th April 2020



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ACACIA FOREST INDUSTRIES SDN BHD

ENVIRONMENTAL MONITORING AND COMPLIANCE AUDIT REPORT

1.0 Introduction

The Project site covers an area of 25, 000 ha involving planting and replanting of acacia trees within the gazetted land for SAFODA. The said area will be managed as a single Forest Management Unit (FMU) by the Project Proponent. The Project comprises of felling of commercial trees, site clearing and preparation for the replanting and planting on-site. The Project site is located approximately 4 km northeast of Pitas and situated at Bengkoka Peninsula, Pitas and is accessible via the Pitas-Kanibongan Highway.

1.1 Monitoring Information

Project Title	: Proposed Replanting and Planting of 25,000 Ha of Acacia Mangium at Bengkoka Peninsula, District of Pitas, Sabah by Acacia Forest Industries Sdn Bhd
EIA Letter Approval Ref.	: JPAS/PP/15/600-1/01/3/29 dated 19 th May 2010
Monitoring Period	: November 2019 - February 2020
Date of Monitoring	: Compliance Audit : 29 th January 2020 Water Sampling : 29 th January 2020
EIA Consultant	: Kiwiheng Environmental Consultants Sdn. Bhd.

1.2 Project Proponent Information

Project Proponent	: Acacia Forest Industries Sdn. Bhd.
Contact Person	: Mr. Junextopher J. Maing
Tel. No.	: 088 – 438 021
Fax No.	: 088 – 424 077
Environmental Officer	: Mr. Maxzhelson B. Thomas
Contact No.	: 010 – 584 7847 (Mobile)
E-mail	: -

1.3 Post-EIA Consultant Information

Post-EIA Consultant	: Chemsain Konsultant Sdn. Bhd.
Tel. No.	: Office : 088 – 381 277 / 278
Fax No.	: 088 – 381 280
Contact Person	: Agatha Francis / Edgar Nichols Cosmas
Email	: agatha.fr@chemsain.com / edgar.cosmas@chemsain.com

1.4 Project Status

Percentage Completion :	Activities	Percentage (%)
	Replanting	13%
	Planting	6%

Chronology of Evens :

Table 1.0: Chronology of events

No.	Event	Date
1.0	Signing of AEC Ref. No.: JPAS/PP/15/600-1/01/3/29	19 th Mei 2010

2.0 LEGAL REQUIREMENT

The Project is classified as a prescribed activity under the **Second Schedule** of the **Environment Protection (Prescribed Activities) (Environmental Impact Assessment) Order 2005** under **Item 2 (i) & (ii)**.

The Environmental Monitoring and Compliance Audit (EMCA) is a requirement by the Environmental Protection Department (EPD) and to be carried out on quadrimester basis, and reported in accordance to the Approval Conditions as specified in the **Syarat-Syarat Alam Sekitar [Seksyen 12(1) dan 20, Enakmen Perlindungan Alam Sekitar 2002]** of the EPD ref: JPAS/PP/15/600-1/01/3/29 dated 19th May 2010.

3.0 CHANGES TO PROJECT CONCEPT / ENVIRONMENT

3.1 Project Concept

No.	Item	Changes
1.	Project Component	Nil
2.	Changes to Land Lot	Nil
3.	Land Area	Nil

3.2 Surrounding Environment

No.	Item	Changes
1.	Land Use	Nil
2.	River / Costal Morphology	Nil

4.0 MONITORING LOCATIONS

Designated monitoring and sampling location are shown in **Figure 1.0** with details tabulated in **Table 2.0**.

Table 2.0: Environmental monitoring and sampling particulars

Monitoring Component	Key	GPS Coordinates (Datum: Timbalai)	Location Description
Water Quality	W1	N 05° 51' 18.56" E 117° 06' 41.09"	Sg. Gumpa
	W2	N 05° 54' 12.40" E 117° 06' 36.87"	Tributary of Sg. Malubang
	W3	N 06° 50' 02.73" E 117° 09' 31.55"	Sg. Bongkol
	W4	N 06° 51' 22.08" E 117° 12' 06.83"	Sg. Kakarangan

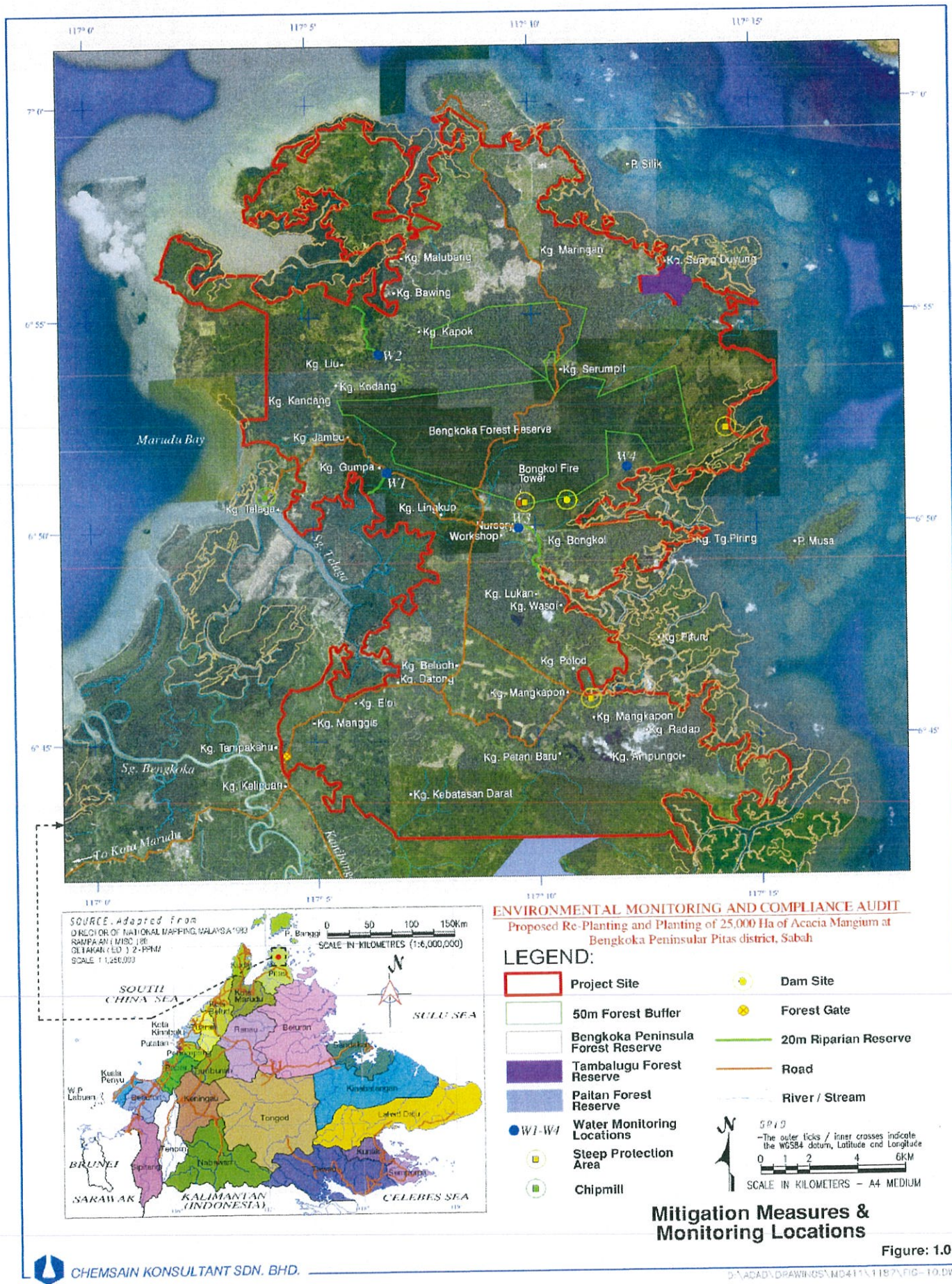


Figure 1.0: Mitigation Measures & Monitoring Locations

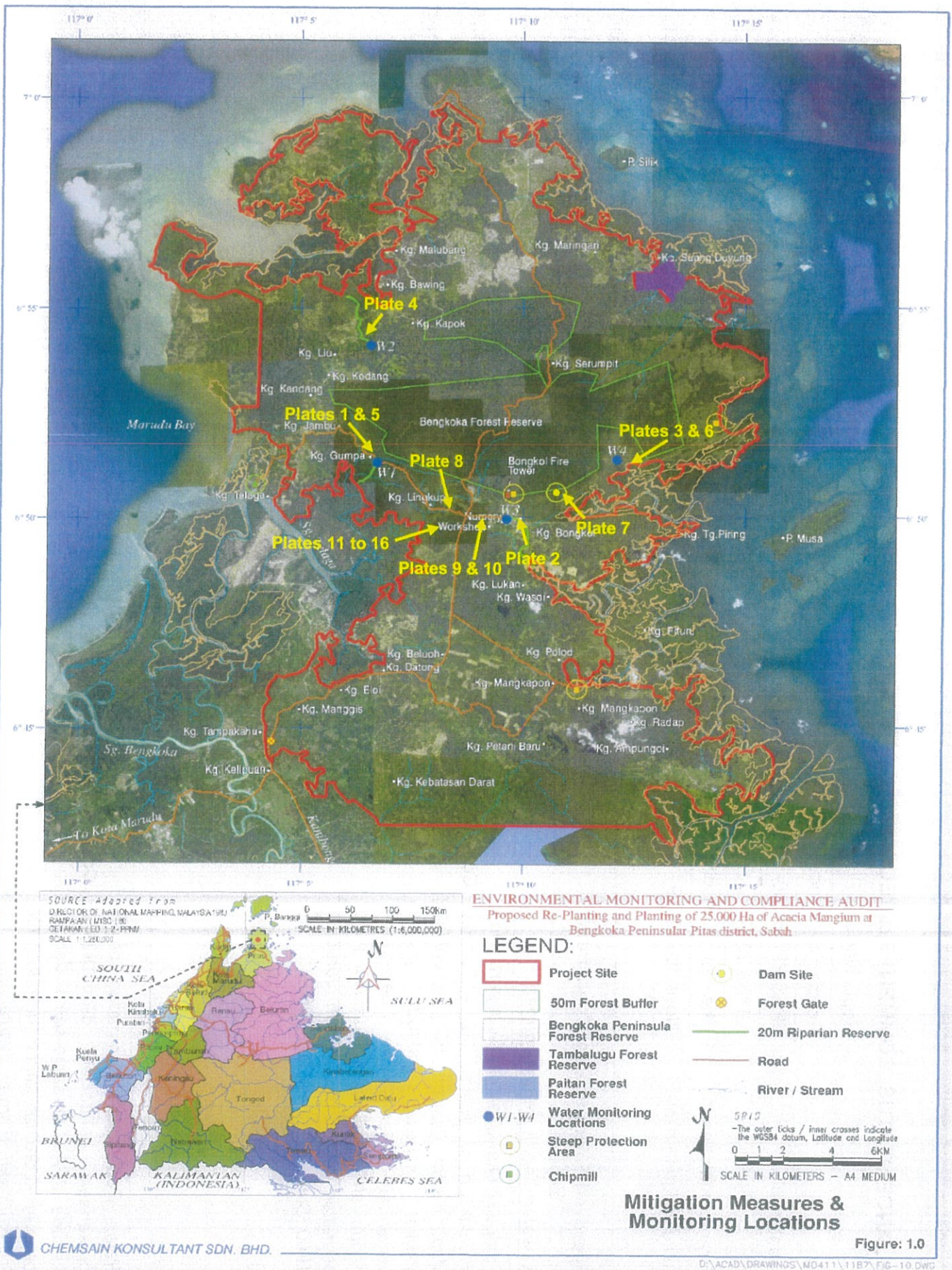


Figure 2.0: Mitigation Measures and Monitoring Location

5.0 COMPLIANCE STATUS, COMMENTS & RECOMMENDATIONS

Nama Projek : Replanting and Planting of 25,000 Ha Acacia Mangium at Bengkoka Peninsula, District of Pitas, Sabah
 Nama Pemaju : Acacia Forest Industries Sdn Bhd
 Rujukan fail jabatan ini : JPAS/PP/15/600-1/01/3/29
 Tarikh Akujanji : 19 Mei 2010
 Penyedia laporan pemuatuhan ini : Chemsain Konsultant Sdn. Bhd.
 Tempoh diliputi oleh laporan ini : November 2019 - February 2020

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
5.1	<u>Kawalan Tapak Pembangunan</u>				
i.	Sempadan kawasan projek seperti yang ditunjukkan di "Figure 3.2 – Locality Map" dalam laporan EIA hendaklah disukat sebelum aktiviti projek dimulakan. Penyukatan berkenaan hendaklah disahkan oleh juruukur yang berdaftar di bawah Ordinan Juruukur 1960 (Surveyor Ordinance 1960).	Non Compliance	<ul style="list-style-type: none"> According to the Project Proponent, the boundary survey that was presented in the previous EIA report was the gazette plan that as owned by SAFODA and was the actual boundary of the Project site for Acacia Forest Industries Sdn. Bhd. SAFODA had previously appointed, Juruukur Dhiya Suria, to conduct the survey. However, it was strongly objected by the local community. 	-	<ul style="list-style-type: none"> A copy of the objection letter was attached in the 3rd Report of 2019, as Appendix D. The letter had been previously written to EPD on this matter.
ii.	Pelan Penyukatan sempadan projek berkenaan hendaklah dikemukakan kepada JPAS bersama-sama dengan bacaan koordinat latitud dan longitud sebelum aktiviti projek dimulakan.	Non Compliance	<ul style="list-style-type: none"> Refer to the comments in AEC 5.1 (i). 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iii	Sempadan kawasan projek yang telah disukat, hendaklah ditanda di lapangan serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti projek dimulakan.	Comply	<ul style="list-style-type: none"> According to the Project Proponent, the demarcation of the Project boundary on-site will be erected in tandem with the Project operation and progress. 	-	-
5.2	<u>Kualiti Sumber Air</u>				
i	Kaedah pemajuan ladang Acacia mangium yang terkawal dan mesra alam serta dengan menyediakan alternatif sumber air kepada penduduk yang terjejas hendaklah diamalkan.	Comply	<ul style="list-style-type: none"> The Project Proponent practices eco-friendly approach towards the planting and replanting activities on-site. Rainwater was utilized as an alternative source of water supply. The Project Proponent ensures that water supply will be provided to the affected villagers (if any). 	-	-
ii	Penggunaan baja dan racun perosak (pesticide) secara terkawal hendaklah diamalkan. Pelupusan atau pembuangan bahan baja dan racun perosak adalah <u>tidak dibenarkan</u> di dalam sungai atau alur air.	Comply	<ul style="list-style-type: none"> There were no signs of any fertilizer or pesticides being disposed into any nearest natural waterways as observed during the site visit. The Project Proponent assured that pesticides and fertilizers were only utilized when necessary. The agrochemical storage area was situated near the nursery on-site. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date				
5.2.1.2	<p>Laporan pemantauan kualiti air juga hendaklah dikemukakan kepada JPAS bersama dengan laporan pematuhan tersebut.</p> <p>Lokasi dan parameter yang perlu dianalisa adalah seperti berikut:</p> <table border="1" data-bbox="598 1422 1061 1971"> <thead> <tr> <th data-bbox="598 1702 654 1971">Lokasi</th> <th data-bbox="598 1422 654 1702">Unit/Parameter</th> </tr> </thead> <tbody> <tr> <td data-bbox="654 1702 1061 1971">Sebagaimana yang ditanda sebagai "Water Sampling Point" di "Figure 6.1" dalam laporan EIA tersebut.</td> <td data-bbox="654 1422 1061 1702">Turbidity, pH, Total Suspended Solids, Oil & Grease, Biochemical Oxygen Demand, Chemical Oxygen Demand, Ammoniacal Nitrogen</td> </tr> </tbody> </table>	Lokasi	Unit/Parameter	Sebagaimana yang ditanda sebagai "Water Sampling Point" di "Figure 6.1" dalam laporan EIA tersebut.	Turbidity, pH, Total Suspended Solids, Oil & Grease, Biochemical Oxygen Demand, Chemical Oxygen Demand, Ammoniacal Nitrogen	Comply	<ul style="list-style-type: none"> Water sampling exercises were conducted at all monitoring locations, W1 – W4, as per Figure 1.0. 	Plates 1 to 3	-
Lokasi	Unit/Parameter								
Sebagaimana yang ditanda sebagai "Water Sampling Point" di "Figure 6.1" dalam laporan EIA tersebut.	Turbidity, pH, Total Suspended Solids, Oil & Grease, Biochemical Oxygen Demand, Chemical Oxygen Demand, Ammoniacal Nitrogen								

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date						
5.3	<u>Perlindungan Sungai</u>										
i	<p>Simpanan sungai seperti berikut hendaklah dilindungi, disukat dan ditanda di lapangan:</p> <table border="1" data-bbox="464 1435 1098 1995"> <thead> <tr> <th data-bbox="464 1715 523 1995">Lokasi</th> <th data-bbox="464 1435 523 1715">Unit / Parameter</th> </tr> </thead> <tbody> <tr> <td data-bbox="523 1715 719 1995">Sg. Gumpa, Sg. Malubang, Sg. Bongkol dan Sg. Kakarangan serta semua sungai lain yang mempunyai kelebaran 3 meter atau lebih</td> <td data-bbox="523 1435 719 1715">Sekurang-kurangnya selebar 20 meter pada jarak mendatar dari tebing sungai.</td> </tr> <tr> <td data-bbox="719 1715 1098 1995">Semua sungai yang mempunyai kelebaran kurang daripada 3 meter</td> <td data-bbox="719 1435 1098 1715">Sekurang-kurangnya selebar 5 meter pada jarak dari tebing sungai.</td> </tr> </tbody> </table>	Lokasi	Unit / Parameter	Sg. Gumpa, Sg. Malubang, Sg. Bongkol dan Sg. Kakarangan serta semua sungai lain yang mempunyai kelebaran 3 meter atau lebih	Sekurang-kurangnya selebar 20 meter pada jarak mendatar dari tebing sungai.	Semua sungai yang mempunyai kelebaran kurang daripada 3 meter	Sekurang-kurangnya selebar 5 meter pada jarak dari tebing sungai.	Comply	<ul style="list-style-type: none"> ▪ Blue signboard was sighted in place at the Riparian Reserves situated within the tributary of Sungai Malubang. ▪ Tree's trunk along the Riparian Reserve belt situated within the tributary of Sg. Malubang was painted with blue colour for demarcation purposes. ▪ However, some part of the Riparian Reserves (i.e. Sungai Kakarangan and tributary of Sungai Gumpa) were not demarcated as observed during the site visit. ▪ According to the Project Proponent, the Riparian Reserves were previously demarcated but the locals took out the pegs and a signboard erected. ▪ Nonetheless, as per their SOP, demarcation of Riparian Reserves on-site will be done 6 months prior to any operation start in the area. ▪ The previous old water pump house located near the Riparian Reserves of Sungai Bongkol had been dismantled by the Project Proponent. 	Plates 4 to 6	
Lokasi	Unit / Parameter										
Sg. Gumpa, Sg. Malubang, Sg. Bongkol dan Sg. Kakarangan serta semua sungai lain yang mempunyai kelebaran 3 meter atau lebih	Sekurang-kurangnya selebar 20 meter pada jarak mendatar dari tebing sungai.										
Semua sungai yang mempunyai kelebaran kurang daripada 3 meter	Sekurang-kurangnya selebar 5 meter pada jarak dari tebing sungai.										

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
ii	Sempadan simpanan sungai hendaklah disukat sebelum aktiviti pemajuan ladang Acacia mangium dimulakan di kawasan projek berkenaan dan hendaklah mencapai ketepatan pengukuran standard kelas ketiga.	Comply	<ul style="list-style-type: none"> According to the Project Proponent, the Riparian Reserves survey work had been previously carried out. 	-	-
iii	Pelan penyukat simpanan sungai dengan skala minima 1:25,000 hendaklah dikemukakan kepada JPAS bersama-sama dengan bacaan koordinat latitud dan longitud sebelum sebarang aktiviti pemajuan ladang Acacia mangium dimulakan di kawasan projek berkenaan.	Comply	<ul style="list-style-type: none"> According to the Project Proponent, the Riparian Reserves survey plan had been previously submitted to the EPD. 	-	-
iv	Sempadan simpanan sungai yang telah disukat, hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda di lokasi-lokasi yang mudah dilihat sebelum aktiviti pemajuan ladang Acacia mangium dimulakan di kawasan projek berkenaan.	Comply	<ul style="list-style-type: none"> According to the Project Proponent, the Riparian Reserves were previously demarcated but the locals took out the pegs and a signboard erected. Nonetheless, the Riparian Reserves was excluded from any Project development (i.e. planting and replanting). 	-	-
v	Sebarang aktiviti pemajuan ladang Acacia mangium dan penumbangan kayu <u>tidak dibenarkan</u> di simpanan sungai ini.	Comply	<ul style="list-style-type: none"> There were no signs of any activities carried out within the Riparian Reserves area as observed during the site visit. There are no signs of any structure constructed within the Riparian Reserves area, except 	Plates 5 & 6	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
vi	Sebarang pembinaan rumah pekerja, kem pekerja, bengkel, tandas atau struktur bangunan lain tidak dibenarkan di simpanan sungai ini.	Comply	<p>for the previous water pump house, which had been dismantled.</p> <ul style="list-style-type: none"> Refer to the comments in AEC 5.3 (v). 	Plates 5 & 6	-
vii	Sebarang penyimpanan bahan minyak atau bahan toksik tidak dibenarkan di simpanan sungai ini.	Comply	<ul style="list-style-type: none"> There were no signs of any oily / toxic material being stored within the Riparian Reserves as observed during the site visit. The oily / toxic material storage area was situated near the workshop area and located at more than 50 m away from any nearest natural waterways. 	Plates 5 & 6	
viii	Sebarang bahan tanah lebihan, sisa tumbuhan, sisa pepejal, kumbahan, bahan minyak, kimia atau bahan-bahan toksik tidak dibenarkan dilupuskan di simpanan sungai, di dalam sungai atau alur air.		<ul style="list-style-type: none"> There is no disposal of any overburden or any types of wastes (i.e. biomass, solid wastes, sewage, oily / toxic material, etc.) into the Riparian Reserves area or any nearest natural waterways as observed during the site visit. 	Plates 5 & 6	
5.4	Hakisan Tanah dan Pemendapan Kelodak				
5.4.1	Larangan Aktiviti Pemajuan Ladang Acacia Mangium atau Pembersihan Kawasan				
i.	Sebarang aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan tidak dibenarkan di kawasan berkecerunan	Comply	<ul style="list-style-type: none"> There are no activities conducted within the high risk area ($\geq 25^\circ$ slope area) as observed during the site visit. 	Plate 7	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
ii	Aktiviti pelupusan atau pembuangan bahan tanah lebihan (overburden) ke dalam sungai atau alur air <u>tidak dibenarkan</u> .	Comply	<p>areas.</p> <ul style="list-style-type: none"> There is no disposal of overburden into the nearest natural waterways as observed during the site visit. 	-	-
5.4.3	<u>Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian</u>				
i	Rumah pekerja, kem pekerja, bengkel atau tapak semaian hendaklah dibina dengan meminimalkan kerja-kerja tanah dan pembersihan kawasan.	Comply	<ul style="list-style-type: none"> The workers' quarters contractor base camp, workshop and nursery were fully utilised on-site. The Project Proponent utilized the existing workshop of the previous related company Hijauan Bengkoka Sdn Bhd. 	Plates 8, 9 & 11	-
ii	Sistem perparitan yang berkesan hendaklah disediakan bagi mengawal larian air permukaan dan air buangan dari kawasan rumah pekerja, kem pekerja, bengkel atau tapak semaian dan hendaklah dilencongkan ke kawasan yang mempunyai tumbuhan dan <u>tidak dibenarkan</u> dialir terus ke dalam sungai atau alur air.	Comply	<ul style="list-style-type: none"> Drainages provided at the workers' quarters area were diverted towards the vegetated area. The drainages provided at the nursery area was diverted towards the sedimentation pond via earth and concrete drainage. Drip tray was provided at the workshop area to contain any oil spillage during vehicular maintenance. 	Plates 8, 10 & 12	-
iii	Kedudukan rumah pekerja atau kem pekerja hendaklah terletak pada jarak mendatar tidak kurang 30 meter dari tebing sungai atau alur air.	Comply	<ul style="list-style-type: none"> The worker's quarters on-site were located at more than 30 m away from any nearest natural waterways as observed 	Plate 8	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	hendaklah dibina bagi mengawal larian air permukaan dari kawasan projek, terutamanya di sekitar kawasan rumah pekerja, kem pekerja, bengkel atau tapak semeaian.		5.43 (ii).		
v	Aliran parit tersebut hendaklah dilencongkan ke kolam perangkap mendap dan <u>tidak dibenarkan</u> dialir terus ke dalam sungai alur air.	Comply	<ul style="list-style-type: none"> Refer to the comments in AEC 5.43 (ii). 	-	-
vi	Sebarang pembinaan sistem perparitan dan kolam perangkap mendap <u>tidak dibenarkan</u> di dalam alur air semulajadi, kawasan simpanan sungai atau di dalam sungai.	Comply	<ul style="list-style-type: none"> Generally, there were no on-site surface runoff mitigation structures constructed within any of the existing natural waterways and the Riparian Reserves on-site. 	-	-
vii	Semua kawasan yang terdedah hendaklah dilindungi dan ditanam dengan tumbuhan tutup bumi untuk mengurangkan hakisan tanah.	Comply	<ul style="list-style-type: none"> The exposed area on-site was planted with cover crops to reduce the risk of soil erosion on-site. 	-	-
5.5	<u>Pemajuan Ladang Acacia mangium Secara Berfasa</u>				
i	Operasi pemajuan ladang Acacia mangium hendaklah dilaksanakan secara berperingkat/berfasa dan terancang.	Comply	<ul style="list-style-type: none"> The development for the Acacia mangium plantation were carried out in phases. 	-	-
ii	Pelan pengurusan operasi pemajuan ladang Acacia mangium hendaklah disediakan dan dilaksanakan serta satu salinan pelan tersebut hendaklah dikemukakan kepada JPAS.	Comply	<ul style="list-style-type: none"> The Operation Management Plan was presented in the EIA report. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iv	pembersihan kawasan dimulakan di kawasan projek berkenaan. Sempadan kawasan zon penampan yang telah disukat, hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda di lokasi-loasi yang mudah dilihat sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan.		<ul style="list-style-type: none"> According to the Project Proponent, the demarcation process will be carried out as the Project Progress in the area. 	-	
5.7	<u>Bahan Minyak dan Sisa Toksik</u>				
i	Bahan minyak dan sisa toksik yang digunakan dalam aktiviti pemajuan ladang Acacia mangium ini adalah <u>tidak dibenarkan</u> dilupuskan atau dibiarkan mengalir ke dalam parit, sungai atau alur air.	Comply	<ul style="list-style-type: none"> There is no disposal of any oily and toxic material into the nearest natural waterways as observed during the site visit. 	-	-
ii	Bahan minyak dan sisa toksik hendaklah dikumpul dan disimpan dalam bekas yang kukuh dan tidak mudah bocor. Bekas-bekas penyimpanan tersebut hendaklah dilabel.	Comply	<ul style="list-style-type: none"> Oily materials and spent oils were stored inside HDPE and metal drum containers, and labelled accordingly. The oil and scheduled waste on-site were stored at the storage facility located near the existing workshop. According to the Project Proponent, the disposal of scheduled wastes was handled by Petrojadi Sdn. Bhd. 	Plates 13 to 15	-
iii	Kawasan penyimpanan bahan minyak dan sisa toksik tersebut hendaklah	Comply	<ul style="list-style-type: none"> The oil and scheduled waste storage facility located near the 	Plates	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	pepejal dan sisa biomass tidak dibenarkan ke dalam parit, alur air, di dalam sungai atau simpanan sungai.		<p>solid wastes and biomass within the Riparian Reserves area or any nearest natural waterways as observed during the site visit.</p> <ul style="list-style-type: none"> ▪ The biomass generated on-site were stacked properly on the exposed area of the Project site and left in-situ for natural decomposition. 		
ii	Kemudahan mengumpul dan mengutip bahan sisa pepejal dan sisa biomass hendaklah disediakan. Lokasi kawasan pengumpulan bahan sisa pepejal dan sisa biomass hendaklah dikaji agar tidak mendatangkan kesan negatif kepada penduduk sekitar.	Comply	<ul style="list-style-type: none"> ▪ Old oil drum were recycled and utilised as garbage bins at the workshop area. ▪ Garbage bins were provided at the workers' quarters and workshop area. ▪ Recycle bins were provided at the workshop, nursery and site office area to facilitate solid waste segregation. 	Plate 16	-
iii	Semua kawasan pengumpulan bahan sisa pepejal dan sisa biomas hendaklah terletak pada jarak mendatar tidak kurang 30 meter dari alur air atau tebing sungai.	Comply	<ul style="list-style-type: none"> ▪ The waste collection facility was located at more than 30 m away from any nearest natural waterway as observed during the site visit. 	Plate 16	-
iv	Semua bahan sisa pepejal seperti botol, tin, plastik, dan besi hendaklah dikumpul secara berasingan dan dikitar semula.	Comply	<ul style="list-style-type: none"> ▪ Scrap metals from old machineries were temporarily stockpiled at the Project site and will be disposed at the later stage or recycled if applicable. ▪ Recycle bins were provided at 	Plate 16	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	tidak selamat atau yang tidak dapat dipastikan selamat, hendaklah dibuka.		5.10 (i).		
iii	Semua tanah yang tercemar dengan bahan minyak dan bahan berbahaya hendaklah dikeluarkan dan dibersihkan.		<ul style="list-style-type: none"> ▪ Refer to the comments in AEC 5.10 (i). 	-	-

APPENDIX A

Plates



Kualiti Sumber Air



Plate 1

Water sampling exercises were conducted at monitoring location, **W1**.

GPS coordinates of the picture taken: N 06° 51' 18.9" E 117° 06' 41.1"



Plate 2

Water sampling exercises were conducted at monitoring station **W3**.

GPS coordinates of the picture taken: N 06° 50' 01.8" E 117° 09' 30.9"

Perlindungan Sungai



GPS coordinates of the picture taken: N 06° 51' 18.9" E 117° 06' 41.1"

Plate 5

View towards the tributary of Sg. Malubang.

No markers were noted to demarcate the riparian reserves as observed during the site visit.



GPS coordinates of the picture taken: N 06° 51' 21.7" E 117° 12' 06.5"

Plate 6

View towards Sg. Kakarangan.

No markers were noted to demarcate the riparian reserves as observed during the site visit.

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian



Plate 9

View towards the nursery located within the Project site.

The facility was located at more than 50 m away from any nearest natural waterways.

GPS coordinates of the picture taken: N 06° 49' 55.0" E 117° 09' 31.2"



Plate 10

The nursery was equipped with concrete drainage that were diverted towards the nearby sedimentation pond.

GPS coordinates of the picture taken: N 06° 49' 55.0" E 117° 09' 31.2"

Bahan Minyak dan Sisa Toksik**Plate 13**

View towards the scheduled waste storage area, which was situated at the workshop nearby the site office.

The facility were equipped with concretized floor and perimeter concrete containment bund.

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"

**Plate 14**

The schedule wastes were stored and labelled accordingly.

GPS coordinates of the picture taken: N 06° 49' 46.1" E 117° 09' 11.8"

APPENDIX B

Environmental Monitoring Report



1.0 SURFACE WATER QUALITY

1.1 MONITORING LOCATION

Water sampling was carried out on the 29th January 2020 at four (4) monitoring locations, **W1**, **W2**, **W3** and **W4** as shown in **Figure 1.0**. The weather was fine and sunny throughout the sampling exercises.

1.2 SURFACE WATER

The surface water monitoring was designed to determine the chemical and physical characteristic of water at the designated monitoring locations shown in **Figure 1.0**. Water samples were collected, preserved and transported to the lab for analysis. Parameters of interest includes pH, Total Suspended Solids (TSS), Turbidity, Biochemical Oxygen Demand (BOD), Oil & Grease, Chemical Oxygen Demand (COD) and Ammoniacal-Nitrogen (as NH₃-N). Sampling and analytical methodologies for these parameters are summarised in **Table 1.0**.

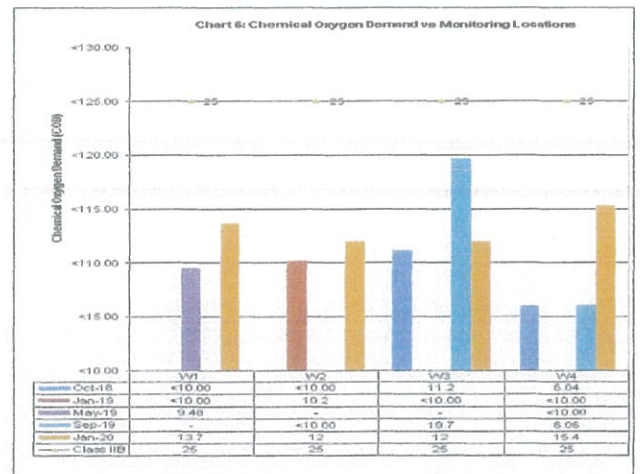
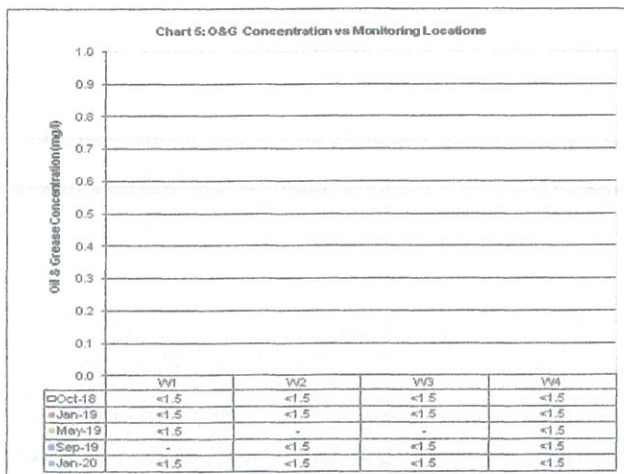
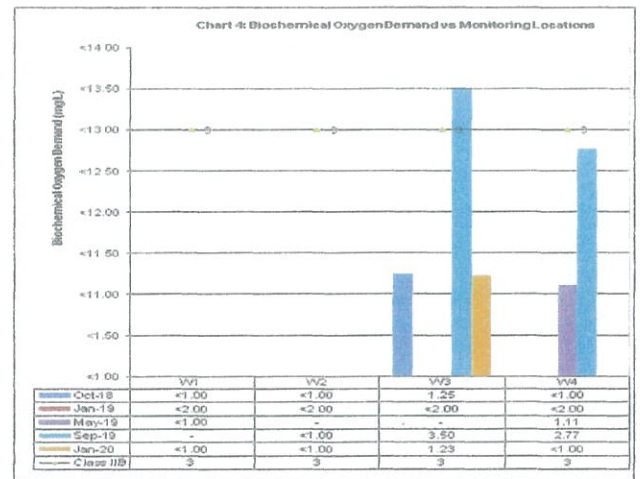
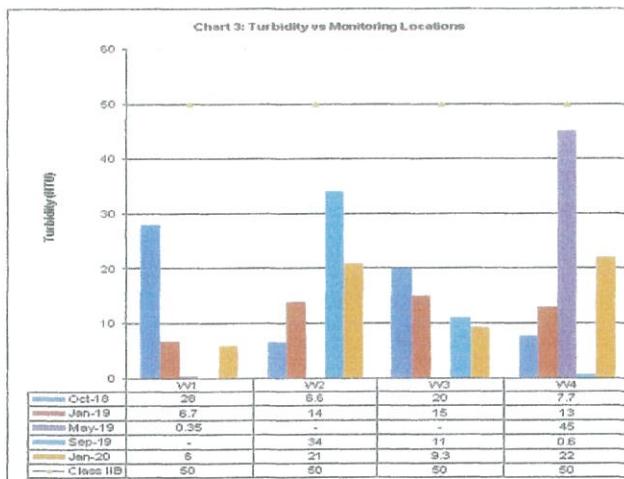
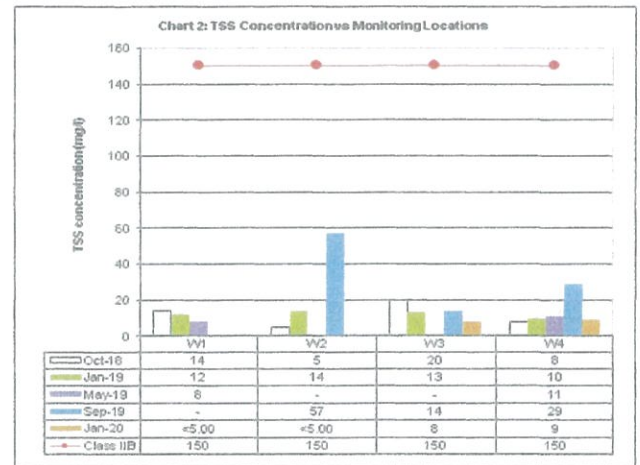
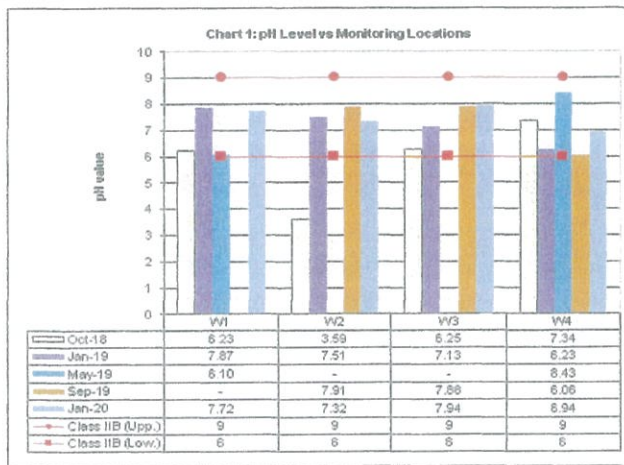
Table 1.0: Sampling and analytical methodologies

Parameter	Method Reference
pH value	APHA 4500-H ⁺ B, 2017
Total Suspended Solids (TSS)	APHA 2540 D, 2017
Turbidity	APHA 2130 B, 2017
Biochemical Oxygen Demand (BOD)	APHA 5210 B & 4500-O G, 2017
Oil & Grease	APHA 5520B B, 2017
Chemical Oxygen Demand	APHA 5220 C, 2017
Ammoniacal-Nitrogen (as NH ₃ -N)	APHA 4500-NH ₃ F, 2017

1.3 RESULTS

Surface water quality results are tabulated in **Table 2.0** and compared against **Class IIB** of **National Water Quality Standards for Malaysia (NWQSM)**. The test reports are presented in **Appendix C**. **Charts 1.0 – 7.0** present the historical surface water quality results for monitoring locations, **W1 – W4**.

HISTORICAL WATER QUALITY RESULTS (W1 – W4)



APPENDIX C

Surface Water Quality Test Report

National Water Quality Standards for Malaysia
(NWQSM)





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TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Customer : Acacia Forest Industries Sdn Bhd
1st Floor, Wisma Perkasa, Jalan Gaya,
88100 Kota Kinabalu, Sabah.

Lab No. : CK/CL405/0416/20
Type (No.) of Sample : River Water (4)
Date Received : 30th January 2020
Date of Report : 11th February 2020
Project Code : CK/MO411/1187/20

Lab No.:	0416-1		
Parameter(s)	W1 Date: 29/01/2020 Time: 2.55 pm	Test Method	* Standard Limit
pH Value @ 25°C (in-situ / 29.01.20)	7.72	APHA 4500-H B. 2017	6-9
Total Suspended Solids, mg/L	<5.00	APHA 2540 D. 2017	50
Turbidity, NTU	6.0	APHA 2130 B. 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	<1.00	APHA 5210 B & 4500-O G. 2017	3
Oil & Grease, mg/L	<1.50	APHA 5520 B. 2017	40:N, 7000:N
Chemical Oxygen Demand, mg/L	13.7	APHA 5220 C. 2017	25
Ammoniacal-Nitrogen (as NH ₃ -N), mg/L	0.18	APHA 4500-NH ₃ F. 2017	0.3

Lab No.:	0416-2		
Parameter(s)	W2 Date: 29/01/2020 Time: 2.26 pm	Test Method	* Standard Limit
pH Value @ 25°C (in-situ / 29.01.20)	7.32	APHA 4500-H B. 2017	6-9
Total Suspended Solids, mg/L	<5.00	APHA 2540 D. 2017	50
Turbidity, NTU	21	APHA 2130 B. 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	<1.00	APHA 5210 B & 4500-O G. 2017	3
Oil & Grease, mg/L	<1.50	APHA 5520 B. 2017	40:N, 7000:N
Chemical Oxygen Demand, mg/L	12.0	APHA 5220 C. 2017	25
Ammoniacal-Nitrogen (as NH ₃ -N), mg/L	0.13	APHA 4500-NH ₃ F. 2017	0.3

Page 1 of 2

NOTE: 1) This Test Report shall not be reproduced, except in full, without the written approval of the laboratory.
2) The above result(s) are based on sample(s) as received.
3) The result(s) relates to the sample(s) tested.



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TEST REPORT

NOT FOR ADVERTISEMENT PURPOSES

Lab No.: CK/CL405/0416/20

Lab No.:	0416-3	0416-4	<i>Test Method</i>	<i>* Standard Limit</i>
<i>Parameter(s)</i>	W3 Date: 29/01/2020 Time: 4.10 pm	W4 Date: 29/01/2020 Time: 3.30 pm		
pH Value @ 25°C (in-situ / 29.01.20)	7.94	6.94	APHA 4500-H B, 2017	6-9
Total Suspended Solids, mg/L	8.00	9.00	APHA 2540 D, 2017	50
Turbidity, NTU	9.3	22	APHA 2130 B, 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	1.23	<1.00	APHA 5210 B & 4500-O G, 2017	3
Oil & Grease, mg/L	<1.50	<1.50	APHA 5520 B, 2017	40:N, 7000:N
Chemical Oxygen Demand, mg/L	12.0	15.4	APHA 5220 C, 2017	25
Ammoniacal-Nitrogen (as NH ₃ -N), mg/L	0.20	0.14	APHA 4500-NH ₃ F, 2017	0.3

Date of commencement of BOD₅ analysis: 30th January 2020

* Class IIB of National Water Quality Standards Malaysia.

----- End -----

ChM. ZAYDIE LEO
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MMIC (3133/5377/08/11)
SENIOR CHEMIST



National Water Quality Standards for Malaysia

PARAMETER	UNIT	CLASS				
		I	IIA/IIIB	III*	IV	V
Al	mg/l	↑	.	(0.06)	0.5	↑
As	mg/l		0.05	0.4 (0.05)	0.1	
Ba	mg/l		1	.	.	
Cd	mg/l		0.01	0.01* (0.001)	0.01	
Cr (IV)	mg/l		0.05	1.4 (0.05)	0.1	
Cr (III)	mg/l		.	2.5	.	
Cu	mg/l		0.02	.	0.2	
Hardness	mg/l		250	.	.	
Ca	mg/l		.	.	.	
Mg	mg/l		.	.	.	
Na	mg/l		.	.	3 SAR	
K	mg/l		.	.	.	
Fe	mg/l		1	1	1 (Leaf) 5 (Others)	
Pb	mg/l		0.05	0.02* (0.01)	5	
Mn	mg/l		0.1	0.1	0.2	
Hg	mg/l		0.001	0.004 (0.0001)	0.002	
Ni	mg/l		0.05	0.9*	0.2	
Se	mg/l		0.01	0.25 (0.04)	0.02	
Ag	mg/l		0.05	0.0002	.	
Sn	mg/l		.	0.004	.	
U	mg/l		.	.	.	
Zn	mg/l		5	0.4*	2	
B	mg/l		1	(3.4)	0.8	
Cl	mg/l		200	.	80	
Cl ₂	mg/l		.	(0.02)	.	
CN	mg/l		0.02	0.06 (0.02)	.	
F	mg/l		1.5	10	1	
NO ₂	mg/l		0.4	0.4 (0.03)	.	
NO ₃	mg/l		7	.	5	
P	mg/l		0.2	0.1	.	
Silica	mg/l		50	.	.	
SO ₄	mg/l		250	.	.	
S	mg/l		0.05	(0.001)	.	
CO ₂	mg/l		.	.	.	
Gross-α	Bq/l		0.1	.	.	
Gross-β	Bq/l		1	.	.	
Ra-226	Bq/l		< 0.1	.	.	
Sr-90	Bq/l		< 1	.	.	
CCE	μg/l		500	.	.	
MBAS/BAS	μg/l		500	5000 (200)	.	
O & G (Mineral)	μg/l		40; N	N	.	
O & G (Emulsified Edible)	μg/l		7000; N	N	.	
PCB	μg/l		0.1	6 (0.05)	.	
Phenol	μg/l		10	.	.	
Aldrin/Dieldrin	μg/l		0.02	0.2 (0.01)	.	
BHC	μg/l		2	9 (0.1)	.	
Chlordane	μg/l		0.08	2 (0.02)	.	
t-DDT	μg/l		0.1	(1)	.	
Endosulfan	μg/l		10	.	.	
Heptachlor/Epoxide	μg/l		0.05	0.9 (0.06)	.	
Lindane	μg/l		2	3 (0.4)	.	
2, 4-D	μg/l		70	450	.	
2,4, 5-T	μg/l		10	160	.	
2,4, 5-TP	μg/l		4	850	.	
Paraquat	μg/l		10	1800	.	

Notes :

* = At hardness 50 mg/l CaCO₃

= Maximum (unbracketed) and 24-hour average (bracketed) concentrations

N = Free from visible film sheen, discolouration and deposits

PARAMETER	UNIT	CLASS					
		I	IIA	IIB	III	IV	V
Ammoniacal Nitrogen	mg/l	0.1	0.3	0.3	0.9	2.7	> 2.7
Biochemical Oxygen Demand	mg/l	1	3	3	6	12	> 12
Chemical Oxygen Demand	mg/l	10	25	25	50	100	> 100
Dissolved Oxygen	mg/l	7	5-7	5-7	3-5	< 3	< 1
pH	-	6.5-8.5	6-9	6-9	5-9	5-9	-
Colour	TCU	15	150	150	-	-	-
Electrical Conductivity*	µS/cm	1000	1000	-	-	6000	-
Floatables	-	N	N	N	-	-	-
Odour	-	N	N	N	-	-	-
Salinity	%	0.5	1	-	-	2	-
Taste	-	N	N	N	-	-	-
Total Dissolved Solid	mg/l	500	1000	-	-	4000	-
Total Suspended Solid	mg/l	25	50	50	150	300	300
Temperature	°C	-	Normal + 2 °C	-	Normal + 2 °C	-	-
Turbidity	NTU	5	50	50	-	-	-
Faecal Coliform**	count/100 ml	10	100	400	5000 (20000) ^a	5000 (20000) ^a	-
Total Coliform	count/100 ml	100	5000	5000	50000	50000	> 50000

Notes :

N : No visible floatable materials or debris, no objectional odour or no objectional taste

* : Related parameters, only one recommended for use

** : Geometric mean

a : Maximum not to be exceeded

CLASS USES

Class I	Conservation of natural environment. Water Supply I – Practically no treatment necessary. Fishery I – Very sensitive aquatic species.
Class IIA	Water Supply II – Conventional treatment required. Fishery II – Sensitive aquatic species.
Class IIB	Recreational use with body contact.
Class III	Water Supply III – Extensive treatment required. Fishery III – Common, of economic value and tolerant species; livestock drinking.
Class IV	Irrigation
Class V	None of the above.

Extracted from Malaysia Environmental Quality Report, 2006 (DOE).