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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 INDUSTRIES SDN BHD.

2ND Report of 2021

FEBRUARY	JUNE	OCTOBER
		✓

EIA Approval Letter Ref. No. : JPAS/PP/15/600-1/01/3/29
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Date of Report : 12th January 2022



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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
AEC Reference	: JPAS/PP/15/600-1/01/3/29 dated 19 th May 2010
Monitoring Period	: July – October 21
Date of Monitoring	: Compliance Audit : 21 st October 2021 Water Sampling : 21 st October 2021
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	: Jessica Malagkas / Edgar Nichols Cosmas
Email	: jessica.malagkas@chemsain.com / edgar.cosmas@chemsain.com

1.4 Project Status

Percentage Completion :

Harvesting Year	Total Area (Ha)	Total Area Completed (Ha)
2019	520	520
2020	1 400	246
2021	456	78
2022	297	-
2023	727	-
2024	612	-
2025	621	-
2026	1 167	-
2027	1485	-
2028	938	-
2029	980	-
Total	9 203	

Percentage of Replanting Completed – 13%

Chronology of Events :

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)**.

Environmental Monitoring and Compliance Audit (EMCA) is 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
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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**. The proposed water quality monitoring programme indicated in **Table 3.0**.

Table 2.0: Environmental Monitoring and Sampling Particulars

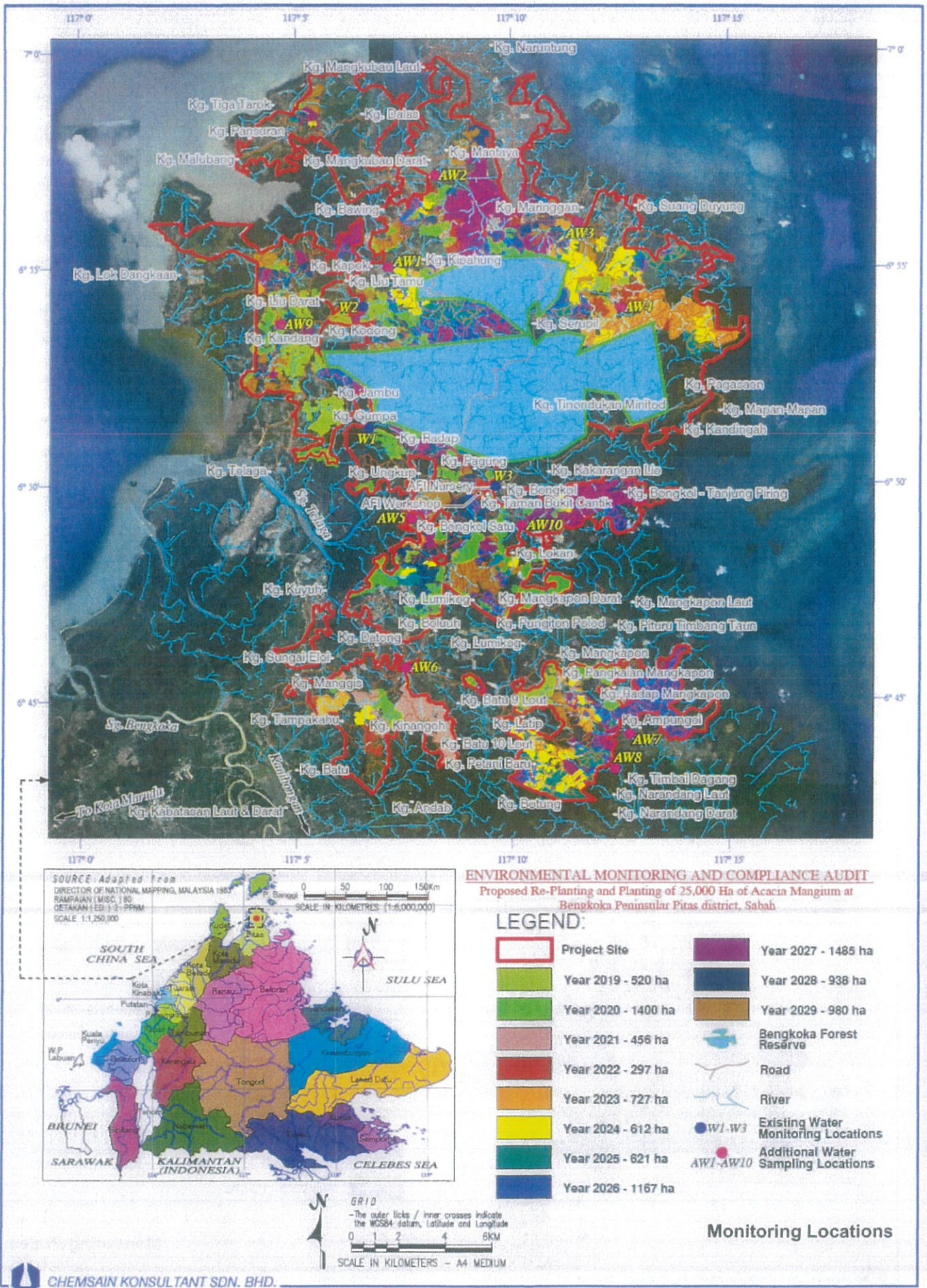
Monitoring Component	Key	GPS Coordinates (Datum: Timbalai)	Location Description
Water Quality	W1	N 05° 51' 18.56" E 117° 06' 41.09"	Sg. Gumpa
	W2	N 05° 54' 12.40" E 117° 06' 36.87"	Tributary of Sg. Malubang
	W3	N 06° 50' 02.73" E 117° 09' 31.55"	Sg. Bongkol
	AW1	N 05° 51' 18.56" E 117° 06' 41.09"	Stream (Kg. Liu Tamu)
	AW2	-	-
	AW3	N 05° 54' 12.40" E 117° 06' 36.87"	Stream (Kg. Maringgang)
	AW4	-	-
	AW5	-	-
	AW6	N 05° 51' 18.56" E 117° 06' 41.09"	Stream (Kg. Datong)
	AW7	-	-
AW8	-	-	

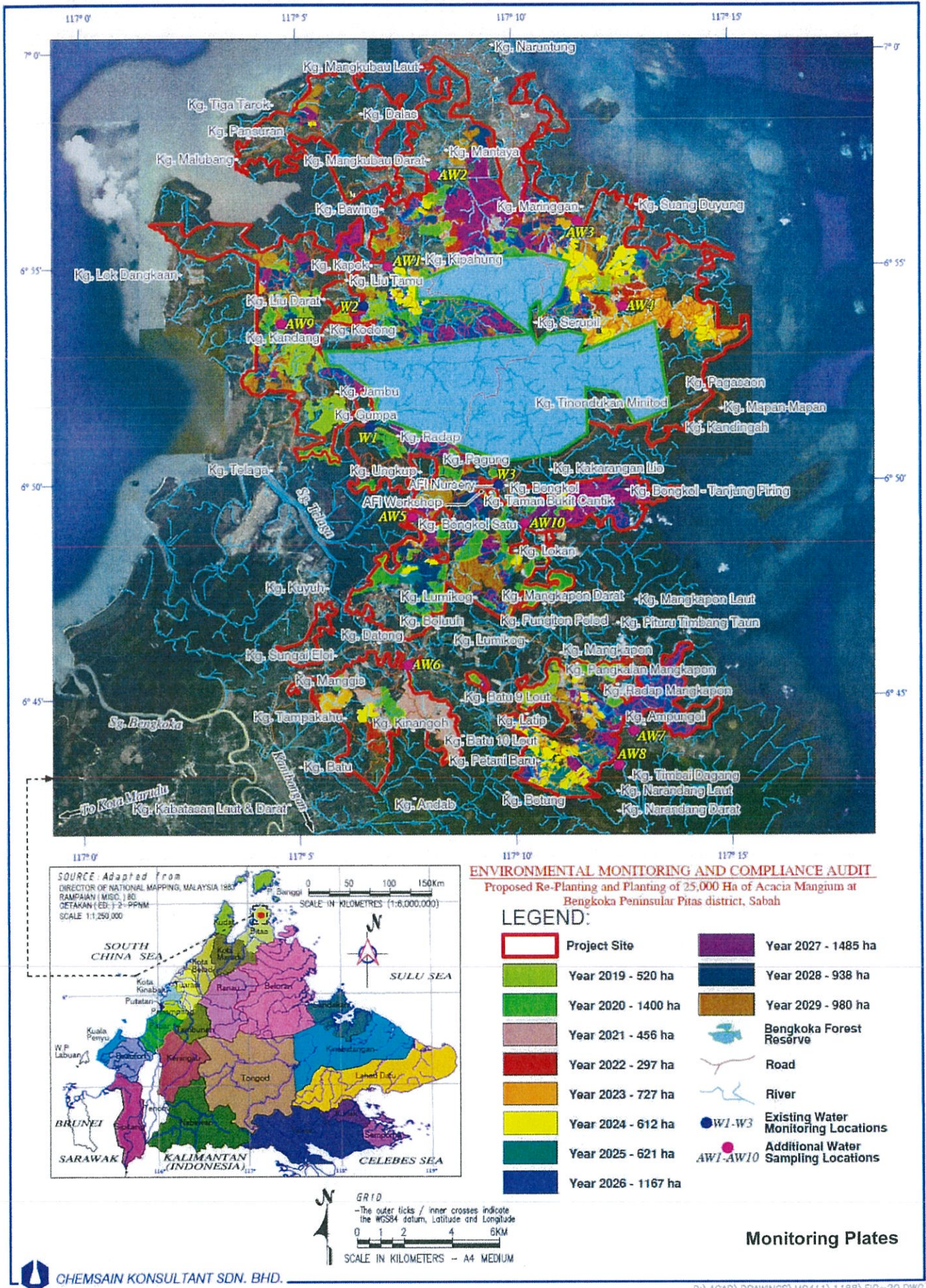
Table 2.0: Environmental Monitoring and Sampling Particulars (cont.)

Monitoring Component	Key	GPS Coordinates (Datum: Timbalai)	Location Description
Water Quality	AW9	N 05° 54' 12.40" E 117° 06' 36.87"	Stream (Kg. Liu Darat)
	AW10	-	-

Table 3.0: Proposed Water Quality Monitoring Programme

Year of Harvesting	Monitoring Locations
2019 – 2021	W1 , W2, W3, AW6 and AW9
2021 -2022	AW1 and AW3
2022 – 2026	AW4 and AW8
2026 – 2029	AW2, AW5, AW7 and AW10





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 pematuhan ini : Chemsain Konsultant Sdn. Bhd.
 Tempoh diliputi oleh laporan ini : July – October 2021

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 presented in the previous EIA report was the gazette plan that was owned by SAFODA and did not represent the actual boundary of the Project site for Acacia Forest Industries Sdn. Bhd. SAFODA had previously appointed Jurukur Dhiya Suria, to conduct the survey. However, it was strongly objected by the local community. 	-	<ul style="list-style-type: none"> The Project Proponent is advised to approach SAFODA to close this issue and shall give an update soonest, February 22.
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 will be erected in tandem with the Project operation and progress. Signboard pertaining to Project information and entrance gate in place to prevent trespassing and function as Project boundary. 	-	-
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 planting and replanting activities onsite. 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 berdasarkan 'Harvesting Programme Schedule' dan 'Proposed Quality Monitoring Programme' sebagaimana dinyatakan dalam Appendix 2.</p> <p>Lokasi dan parameter yang perlu dianalisa adalah seperti berikut:</p> <table border="1" data-bbox="740 1435 1350 1989"> <thead> <tr> <th>Lokasi</th> <th>Unit/Parameter</th> </tr> </thead> <tbody> <tr> <td>Sebagaimana yang ditanda sebagai 'Existing Water Monitoring Locations' dan 'Additional Water Sampling Locations' di Figure 2.0, 'Harvestig Plan, Mitigation Measures & Monitoring Locations'.</td> <td>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 'Existing Water Monitoring Locations' dan 'Additional Water Sampling Locations' di Figure 2.0, 'Harvestig Plan, Mitigation Measures & Monitoring Locations'.	Turbidity, pH, Total Suspended Solids, Oil & Grease, Biochemical Oxygen Demand, Chemical Oxygen Demand, Ammoniacal Nitrogen	Comply	<ul style="list-style-type: none"> Water sampling conducted at all monitoring locations, W1 and W3, as per Figure 1.0. W2 was inaccessible during the site visit due to slippery road condition. Additional sampling was conducted at monitoring locations, AW1 and AW3. 	1 to 4	-
Lokasi	Unit/Parameter								
Sebagaimana yang ditanda sebagai 'Existing Water Monitoring Locations' dan 'Additional Water Sampling Locations' di Figure 2.0, 'Harvestig Plan, Mitigation Measures & Monitoring Locations'.	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	Perlindungan Sungai										
i	<p>Simpanan sungai seperti berikut hendaklah dilindungi, disukat dan ditanda di lapangan:</p> <table border="1"> <thead> <tr> <th>Lokasi</th> <th>Unit / Parameter</th> </tr> </thead> <tbody> <tr> <td>Sg. Gumpa, Sg. Malubang, Sg. Bongkol dan Sg. Kakarangan serta semua sungai lain yang mempunyai kelebaran 3 meter atau lebih</td> <td>Sekurang-kurangnya selebar 20 meter pada mendatar dari tebing sungai.</td> </tr> <tr> <td>Semua sungai yang mempunyai kelebaran kurang daripada 3 meter</td> <td>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 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"> Sg. Malubang was inaccessible during the site visit due to slippery road condition. Riparian reserves at Sungai Gumpa was previously cleared out by the external contractor appointed by the local authority to repair the collapsed bridge. Clearance of riparian reserve was due to the need of the excavator (external contractor), to retrieve the previous collapsed bridge. Nonetheless, as per the Project Proponent's SOP, demarcation of Riparian Reserves on-site will be done 6 months prior to any operation start in the area. 	5	-
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 mendatar dari tebing sungai.										
Semua sungai yang mempunyai kelebaran kurang daripada 3 meter	Sekurang-kurangnya selebar 5 meter pada jarak dari tebing sungai.										
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 penyukatkan simpanan sungai dengan skala minima 1:25,000	Comply	<ul style="list-style-type: none"> According to the Project Proponent, the riparian 	-	-						

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	hendaklah dikemukakan kepada JPAS bersama-sama dengan bacaan koordinat latitud dan longitud sebelum sebarang aktiviti pemajuan ladang Acacia mangium dimulakan di kawasan projek berkenaan.		reserves survey plan has been 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"> Refer to the comments in AEC 5.3 (i). 	-	-
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"> Refer to the comments in AEC 5.3 (i). The Project Proponent has given assurance that riparian reserves shall be excluded from the Project development. 	5	-
vi	Sebarang pembinaan rumah pekerja, kem pekerja, bengkel, tandas atau struktur bangunan lain <u>tidak dibenarkan</u> di simpanan sungai ini.	Comply	<ul style="list-style-type: none"> Refer to the comments in AEC 5.3 (v). 	-	-
vii	Sebarang penyimpanan bahan minyak atau bahan toksik <u>tidak dibenarkan</u> di simpanan sungai ini.	Comply	<ul style="list-style-type: none"> Storage of oils and toxic material inside the riparian reserves was not sighted. The oily / toxic material storage area is situated near the workshop area and located more than 50 m away from 	-	

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
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.		<p>nearest natural waterways.</p> <ul style="list-style-type: none"> Disposal of overburden or any types of wastes (i.e. biomass, solid, sewage, oily / toxic material, etc.) into the Riparian Reserves area or any nearest natural waterways was not sighted. 	-	
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 25 darjah atau lebih dengan keluasan 49 hektar dan kawasan perkampungan, sebagaimana ditunjukkan di "Figure 6.1" dalam laporan EIA tersebut.	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. According to the Project Proponent, this area was not developed as it is part of the Bengkoka Forest Reserve. 	6	-
ii	Sempadan kawasan yang berkecerunan 25 darjah atau lebih dan kawasan berisiko tinggi serta kawasan perkampungan ini hendaklah ditanda di lapangan dengan cat merah serta dipasang dengan papan tanda sebelum aktiviti pembersihan kawasan 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, demarcation high risk area ($\geq 25^\circ$ slope), will be carried out 6 months prior to start of operation in the area (if any). 	-	-
iii	Pelan penyukatan kawasan yang berkecerunan 25 darjah atau lebih dan	Comply	<ul style="list-style-type: none"> Refer to the comment in AEC 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	kawasan berisiko tinggi serta kawasan perkampungan berkenaan hendaklah dikemukakan kepada JPAS bersamasama dengan bacaan koordinat latitud dan longitud sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan.		5.4.1 (ii).		
5.4.2	<u>Pembinaan Jalan</u>				
i	Sistem perparitan hendaklah disediakan bagi mengalirkan air keluar dari struktur jalan dan dilencongkan ke kawasan yang mempunyai tumbuhan.	Comply	<ul style="list-style-type: none"> ▪ Roadside drainage in place along the access road on-site. ▪ The roadside drainage diverted flow into vegetated areas. 	-	-
ii	Aktiviti pelupusan atau pembuangan bahan tanah lebihan (overburden) ke dalam sungai atau alur air tidak dibenarkan .	Comply	<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, workshop and nursery were fully utilised. ▪ The Project Proponent utilized the existing workshop of the previous company, Hijauan Bengkoka Sdn Bhd. 	7, 9 & 11	-
ii	Sistem perparitan yang berkesan hendaklah disediakan bagi mengawal larian air permukaan dan air buangan dari kawasan rumah pekerja, kem	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 	8 & 10	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	pekerja, bengkel atau tapak samaian dan hendaklah dilencongkan ke kawasan yang mempunyai tumbuhan dan <u>tidak dibenarkan</u> dialir terus ke dalam sungai atau alur air.		nursery area was diverted towards the sedimentation pond via earth and concrete drainage. <ul style="list-style-type: none"> ▪ Drip tray was provided at the workshop area to contain any oil spillage during vehicular maintenance. ▪ Saw dust was in place at the workshop area and acted as spillage kits. 		
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 during the site visit. 	7	-
iv	Kedudukan bengkel atau tapak samaian hendaklah terletak pada jarak mendatar tidak kurang 50 meter dari tebing sungai atau alur air.	Comply	<ul style="list-style-type: none"> ▪ The nursery and workshop on-site were located at more than 50 m away from any nearest natural waterways as observed during the site visit. 	9 & 11	-
v	Semua rumah pekerja, kem pekerja, bengkel atau tapak samaian sedia ada yang tidak mematuhi peraturan-peraturan yang dinyatakan dalam syarat-syarat alam sekitar ini, hendaklah dipindah dan dikawal sebagaimana yang ditetapkan.	Comply	<ul style="list-style-type: none"> ▪ The location for the facilities were in compliance with the AEC requirement. 	-	-
5.4.4	<u>Kawalan Larian Air Permukaan</u>				
i	Sistem perparitan dan kolam perangkap mendap (sedimentation pond)	Comply	<ul style="list-style-type: none"> ▪ The drainage at the nursery were diverted towards the 	10	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	hendaklah disediakan di lokasi yang strategik dalam kawasan tapak projek.		nearby sedimentation pond via the earth and concrete drainage.		
ii	Kolam perangkap mendapat tersebut hendaklah diselenggarakan dengan mengeluarkan bahan sedimen sekurang-kurangnya satu (1) kali dalam sebulan.	Comply	<ul style="list-style-type: none"> According to the Project Proponent, they will assure to adhere to this condition. 	-	-
iii	Sebarang penyimpanan atau pelupusan bahan sedimen tidak dibenarkan di kawasan sungai atau simpanan sungai.	Comply	<ul style="list-style-type: none"> There is no disposal of any sediments into any of the nearest natural waterways of the Riparian Reserves area as observed during the site visit. 	-	-
iv	Sistem perparitan yang berkesan hendaklah dibina bagi mengawal larian air permukaan dari kawasan projek, terutamanya di sekitar kawasan rumah pekerja, kem pekerja, bengkel atau tapak semeaian.	Comply	<ul style="list-style-type: none"> Refer to the comments in AEC 5.43 (ii). 	-	-
v	Aliran parit tersebut hendaklah dilencongkan ke kolam perangkap mendapat dan tidak dibenarkan 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 mendapat tidak dibenarkan 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	Comply	<ul style="list-style-type: none"> The exposed area on-site was planted with cover crops to 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	hendaklah dilindungi dan ditanam dengan tumbuhan tutup bumi untuk mengurangkan hakisan tanah.		reduce the risk of soil erosion on-site.		
5.5	<u>Pemajuan Ladang Acacia mangium Secara Berfasa</u>				
<i>i</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. 	-	-
<i>ii</i>	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. 	-	-
5.6	<u>Perlindungan Kawasan Sensitif</u>				
<i>i</i>	Zon penanaman sekurang-kurangnya selebar 50 meter hendaklah disediakan di sepanjang sempadan projek dengan Hutan Simpan Bengkoka dan Tambalugu (Kelas I), Hutan Simpan Semenanjung Bengkoka (Hutan Simpan Bakau Kelas V) dan Hutan Simpan Paitan (Kelas II). Sebarang aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan tidak dibenarkan di dalam kawasan zon penanaman ini sebagaimana yang dinyatakan di bawah perkara "2 (ii)" serta ditunjukkan di "Figure 6.1" dalam maklumat tambahan laporan EIA	Comply	<ul style="list-style-type: none"> The 50 m wide buffer zone was retained as observed during the site visit. According to the Project Proponent, the 50 m wide buffer zone of Hutan Simpan Semenanjung Bengkoka was no longer applicable since the forest reserve had now been developed by others. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
ii	tersebut. Sempadan kawasan zon penanaman ini hendaklah dilindungi dan disukat sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan dan hendaklah mencapai ketepatan pengukuran standar kelas ketiga.	Comply	<ul style="list-style-type: none"> The survey work for the buffer zone had been previously carried out by the Project Proponent. 	-	-
iii	Pelan penyukatan kawasan-kawasan zon penanaman berkenaan hendaklah dikemukakan kepada JPAS bersamasama dengan bacaan koordinat latitud dan longitud sebelum aktiviti pemajuan ladang Acacia mangium atau aktiviti pembersihan kawasan dimulakan di kawasan projek berkenaan.	Comply	<ul style="list-style-type: none"> The survey map was attached together with the EIA report. 	-	-
iv	Sempadan kawasan zon penanaman 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	Bahan Minyak dan Sisa Toksik				
i	Bahan minyak dan sisa toksik yang digunakan dalam aktiviti pemajuan ladang Acacia mangium ini adalah tidak dibenarkan dilupuskan atau dibiarkan mengalir ke dalam parit, sungai atau	Comply	<ul style="list-style-type: none"> Disposal of any oil and toxic material into the nearest natural waterways was not sighted. 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
ii	<p>alur air.</p> <p>Bahan minyak dan sisa toksik hendaklah dikumpul dan disimpan dalam bekas yang kukuh dan tidak mudah bocor. Bekas-bekas penyimpanan tersebut hendaklah dilabel.</p>	Comply	<ul style="list-style-type: none"> ▪ There is no significant amount of scheduled waste stored on-site during the visit. ▪ According to the Project Proponent, the disposal of scheduled wastes was handled by Petrojadi Sdn. Bhd. 	-	-
iii	<p>Kawasan penyimpanan bahan minyak dan sisa toksik tersebut hendaklah terlindung dari hujan dan hendaklah terletak pada jarak mendatar tidak kurang 50 meter dari tebing sungai atau alur air.</p>	Comply	<ul style="list-style-type: none"> ▪ The oil and scheduled waste storage facility located near the existing workshop were located at more than 50 m away from any nearest natural waterways. ▪ The diesel skid tank on-site was located at more than 50 m away from any nearest natural waterways. 	12 & 14	-
iv	<p>Kawasan penyimpanan bahan minyak dan sisa toksik hendaklah disediakan dengan sistem saliran perangkap minyak.</p>		<ul style="list-style-type: none"> ▪ The oil and scheduled waste storage facility located near the existing workshop were equipped with a perimeter concrete containment bund filled with sand to prevent any leakage from seeping directly into the ground. ▪ The diesel skid tank on-site was equipped with an oil trap. ▪ Drip tray was provided at the workshop area, to contain any oil generated from vehicle maintenance. ▪ Saw dust was provided at the 	12 & 15	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
v	Bahan minyak dan sisa toksik tersebut hendaklah dilupuskan mengikut garis panduan, peraturan atau undang-undang kerajaan yang sedang berkuatkuasa.	Comply	<ul style="list-style-type: none"> workshop and diesel skid tank storage building and acted as spillage kit. According to the Project Proponent, the disposal of scheduled wastes was handled by Petrojadi Sdn. Bhd. 	-	-
5.8	<u>Bahan Sisa Pepejal dan Sisa Biomass</u>				
i	Sebarang aktiviti pelupusan bahan sisa pepejal dan sisa biomass tidak dibenarkan ke dalam parit, alur air, di dalam sungai atau simpanan sungai.	Comply	<ul style="list-style-type: none"> There is no disposal of any solid wastes and biomass within the Riparian Reserves area or any nearest natural waterways as observed during the site visit. 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"> 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. 	16 & 17	-
iii	Semua kawasan pengumpulan bahan sisa pepejal dan sisa biomass hendaklah terletak pada jarak mendatar tidak kurang 30 meter dari alur air atau tebing	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 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
iv	sungai. Semua bahan sisa pepejal seperti botol, tin, plastik, dan besi hendaklah dikumpul secara berasingan dan dikitar semula.	Comply	<p>the site visit.</p> <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 the workshop, nursery and site office area to facilitate solid waste segregation. 	-	-
v	Sekiranya tiada kawasan pelupusan yang sesuai dalam kawasan projek, bahan sisa pepejal dan sisa biomas tersebut hendaklah dilupuskan di kawasan yang disediakan oleh pihak berkuasa tempatan	Comply	<ul style="list-style-type: none"> Refer to the comments in AEC 5.8 (ii). 	-	-
5.9	<u>Kawalan Kualiti Udara dan Kebakaran</u>				
i	Pembakaran terbuka adalah <u>tidak dibenarkan</u> .	Comply	<ul style="list-style-type: none"> According to the Project Proponent, traces of open burning on-site were caused by the high heat exposure during the dry season. The Project Proponent assured that no open burning will be conducted during the Project development activities. 	-	-
ii	Pelan pengurusan dan pencegahan kebakaran kawasan pemajuan ladang Acacia mangium hendaklah disediakan dan satu salinan pelan tersebut	Comply	<ul style="list-style-type: none"> The Fire Prevention and Management Plan had been submitted to the EPD via the November 2010 – February 	-	-

AEC No.	Approved Environmental Conditions	Status	Observations / Comments	Photo No.	Corrective Action and Completion Date
	hendaklah dikemukakan kepada JPAS.		2011 ECR (Ref: Y1/2011).		
5.9	<u>Penghentian Projek</u>				
i	Semua struktur binaan yang tidak digunakan hendaklah dibuka secara teratur apabila berlaku penghentian projek tersebut	Not Applicable	<ul style="list-style-type: none"> Not applicable at the current stage of the Project development as it is still in progress. 	-	-
ii	Semua struktur binaan yang didapati tidak selamat atau yang tidak dapat dipastikan selamat, hendaklah dibuka.	Not Applicable	<ul style="list-style-type: none"> Refer to the comments in AEC 5.10 (i). 	-	-
iii	Semua tanah yang tercemar dengan bahan minyak dan bahan berbahaya hendaklah dikeluarkan dan dibersihkan.	Not Applicable	<ul style="list-style-type: none"> Refer to the comments in AEC 5.10 (i). 	-	-

6.0 CONCLUSION

6.1 Overall Compliance



For the Environmental Compliance period of July - October 2021, the Proposed Replanting and Planting of 25, 000 Ha of Acacia Mangium at Bengkoka Peninsula, District of Pitas, Sabah by Acacia Forest Industries Sdn. Bhd., generally complied with the EIA approval conditions, with only **two (2) non-compliances** recorded.

The following mitigation measures are recommended for these two (2) non-compliance to ensure Project operations comply with the EIA approval conditions:

AEC No.	Recommendations	Dateline
<u>Kawalan Tapak Pembangunan</u> 5.1 (i) & (ii)	<ul style="list-style-type: none"> The Project Proponent is advised to approach SAFODA to closed the current boundary issue and shall give an update before the end of, February 2022. 	28 th February 2022

PERAKUAN PAS

Dengan ini saya mengaku telah turut serta dalam odit yang dijalankan oleh perunding alam sekitar dan telah meneliti dan bersetuju dengan isi kandungan Laporan Pematuhan Alam Sekitar bagi projek ini.

Tandatangan : 
 Nama : JUNEXTHOPHER J. MAING
 Jawatan : ~~Protection Manager~~ Resource Manager
 Tarikh : 3 / 2 / 2022
 Cop Rasmi syarikat : 

PERAKUAN PERUNDING ALAM SEKITAR

Dengan ini saya mengaku dan mengesahkan semua kenyataan dan butir-butir dalam Laporan Pematuhan Alam Sekitar yang dikemukakan adalah benar.

Tandatangan : 
 Nama : Jessica Malagkas
 Tarikh : 12th January 2022
 Cop Rasmi syarikat : 

APPENDIX A

Plates



Kualiti Sumber Air



Plate 1

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

GPS coordinates of the picture taken: N 05° 51' 18.56" E 117° 06' 41.09"



Plate 2

Water sampling conducted at monitoring location, **W2**.

GPS coordinates of the picture taken: N 05° 54' 12.40" E 117° 06' 36.87"

Kualiti Sumber Air



Plate 3

Water sampling conducted at monitoring station **AW1**.

GPS coordinates of the picture taken: N 05° 54' 12.0" E 117° 106' 36.87"



Plate 4

Water sampling conducted at monitoring station **AW3**.

GPS coordinates of the picture taken: N 05° 54' 12.0" E 117° 106' 36.87"

Perlindungan Sungai

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

Plate 5

View showing the riparian reserves for Sg. Gumpa.

Riparian reserves was cleared as sighted during the site visit.

It shall be noted that the area was cleared by the external contractor to retrieve the collapse bridge previously.

Larangan Aktviti Pemajuan Ladang Acacia Mangium atau Pembersihan Kawasan

GPS coordinates of the picture taken: N 06° 51' 54.3" E 117° 14' 22.1"

Plate 6

View showing high slope area within the Project site.

According to the Project Proponent, this area was not developed as it is part of the Bengkoka Forest Reserve

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian**Plate 7**

Workers' quarters is located more than 30 m away from the nearest natural waterways.

Perimeter drainage in place to divert surface runoff towards the vegetated area.

GPS coordinates of the picture taken: N 06° 49' 57.3" E 117° 09' 16.7"

**Plate 8**

Perimeter drainage in place at the workers' quarters area, to divert surface runoff towards the vegetated area.

GPS coordinates of the picture taken: N 06° 49' 57.3" E 117° 09' 16.7"

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian

Plate 9

View showing the nursery.

It is located more than 50 m away from natural waterways.



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

Plate 10

The nursery is equipped with concrete drainage diverting flow into the nearby sedimentation pond.



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

Pembinaan Rumah Pekerja, Kem Pekerja, Bengkel atau Tapak Semaian**Plate 11**

View showing the existing workshop on-site.

The facility is situated at more than 50 m away from any natural waterways.

GPS coordinates of the picture taken: N 06° 49' 45.5" E 117° 09' 12.7"

Bahan Minyak dan Sisa Toksik**Plate 12**

Scheduled waste storage building is situated at more than 50 m away from any natural waterways.

It is sheltered from weather exposure, 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"

Bahan Minyak dan Sisa Toksik**Plate 13**

Scheduled waste is contained inside highly durable metal drums and labelled accordingly.

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

**Plate 14**

Diesel skid tank storage building is equipped with concretized floor, bunded and sheltered from weather exposure.

It is located at more than 50 m away from any nearest natural waterways.

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

Bahan Minyak dan Sisa Toksik



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

Plate 15

Diesel skid tank is equipped with an oil trap.

Sisa Pepejal dan Sisa Biomas



GPS coordinates of the picture taken: N 06° 49' 57.3" E 117° 09' 16.7"

Plate 16

Garbage bins provided at the workers' quarters area to facilitate solid waste collection.

Sisa Pepejal dan Sisa Biomas**Plate 17**

Recycle bins provided at the workshop area to facilitate solid waste segregation.

GPS coordinates of the picture taken: N 06° 49' 57.3" E 117° 09' 16.7"

APPENDIX B

Environmental Monitoring Report



1.0 SURFACE WATER QUALITY

1.1 MONITORING LOCATION

Water sampling was carried out on the 21st October 2021 at three (3) existing monitoring locations, **W1**, **W2**, and **W3**, as shown in **Figure 1.0**. Additional water sampling was only conducted at active area of the Project site, **AW1** and **AW3**. The weather was slightly drizzling throughout the sampling exercise. In addition, it shall be noted that it was raining on the night of 21st October 2021 (before sampling activity).

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** represent the historical surface water quality results for existing monitoring locations, **W1 – W3**, as well as the additional water sampling at sampling location, **AW1** and **AW3**.

Table 2.0: Surface Water Quality Monitoring Results

Monitoring Location	W1	W2	W3	AW1	AW3	¹ LIMITS (Class IIB)
Monitoring Date / Time	21/10/2021 12.40 PM	N/A	21/10/2021 10.22 AM	21/10/2021 12.15 PM	21/10/2021 11.15 AM	
<u>Physical / Chemical Analysis</u>						
pH Value	6.84	N/A	7.29	6.81	6.85	6 – 9
Total Suspended Solids, mg/L	<u>214</u>	N/A	34	<u>409</u>	<u>92</u>	50
Turbidity, NTU	<u>300</u>	N/A	<u>390</u>	<u>380</u>	<u>200</u>	50
Biochemical Oxygen Demand, mg/L	1.15	N/A	2.81	1.59	1.56	3
Oil & Grease, mg/L	<1.50	N/A	<1.50	<1.50	<1.50	40;N, 7000;N
Chemical Oxygen Demand, mg/L	24.8	N/A	13.2	16.5	11.6	25
Ammoniacal Oxygen Demand (NH ₃ -N), mg/L	0.09	N/A	0.16	0.08	0.08	0.3

Notes: < > Below / above detection limit
N/A – Not Available

1.4 OBSERVATION

Water quality results at the existing monitoring locations, **W1** and **W3**, as well as the additional water sampling locations, **AW1** and **AW3**, show that overall parameters tested complied and within the limits of **Class IIB** except for the following:

¹ National Water Quality Standards for Malaysia, Malaysia Environmental Quarry Report (DOE, 2006)

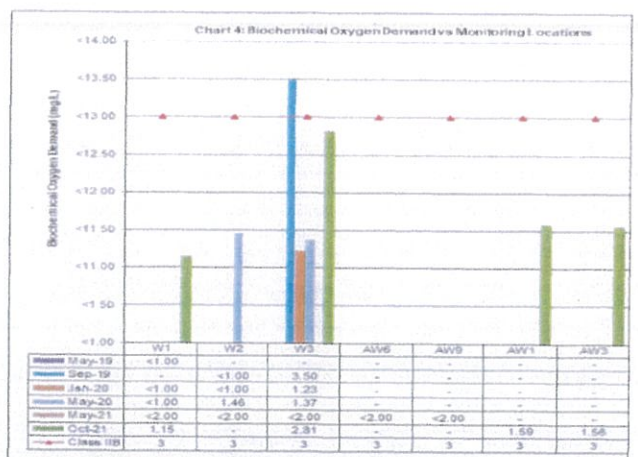
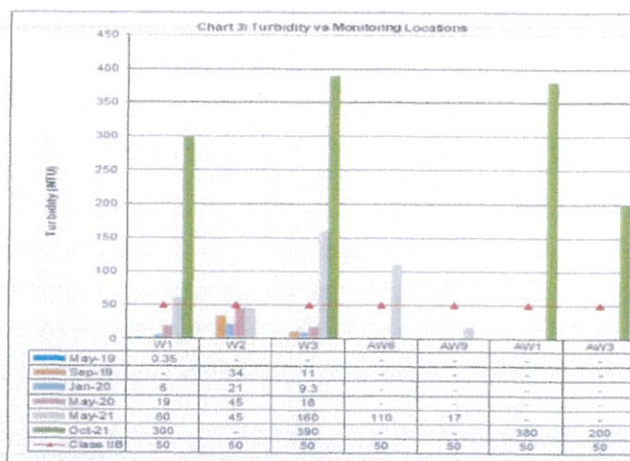
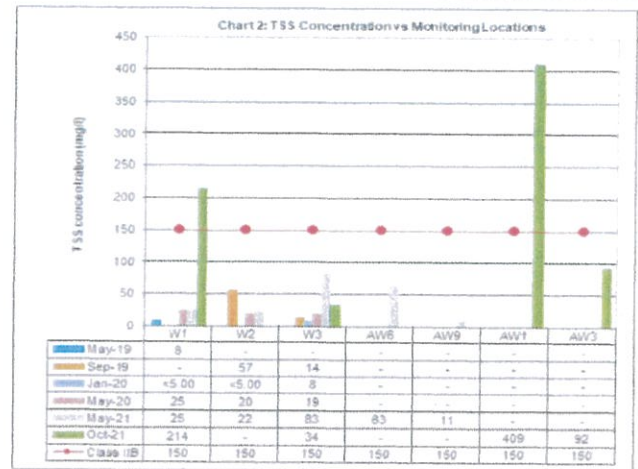
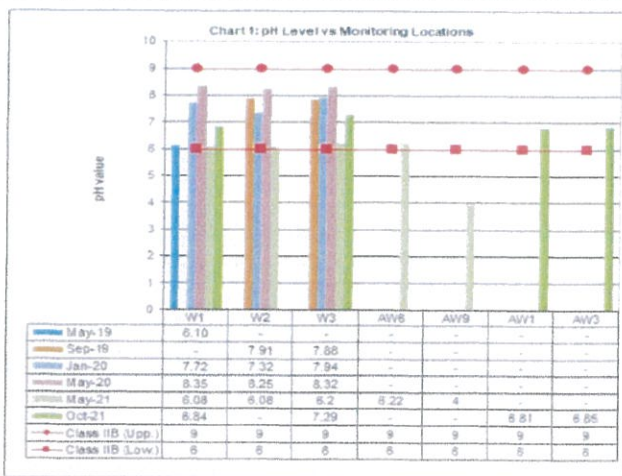
Parameters	Locations
Total Suspended Solids	W1, AW1 & AW3
Turbidity	W1, W3, AW1 & AW3

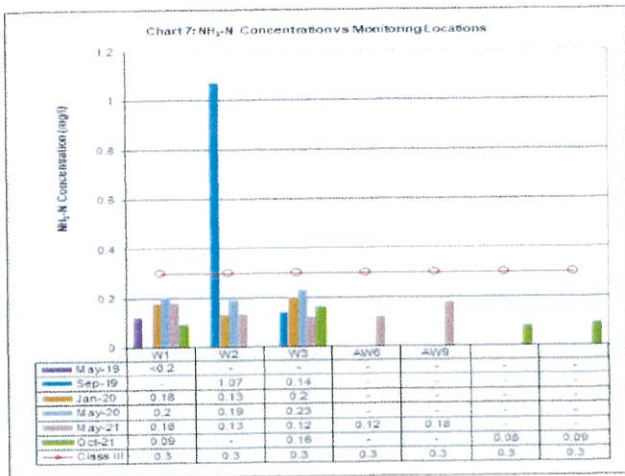
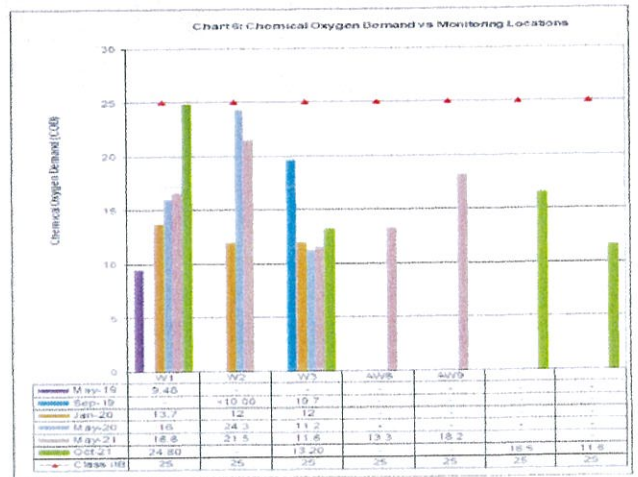
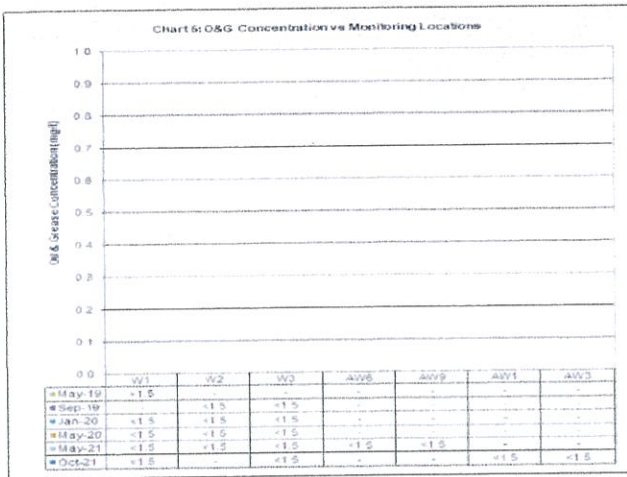
It shall be noted that it was raining day before the sampling activity. The slightly high total suspended solid may have been carried out from the upstream area, during rain events in which will affect turbidity of the water as well.

1.5 RECOMMENDED MITIGATION MEASURES

- ❖ Records to show regular maintenance of the earth drainage systems and sedimentation pond is advised to be kept/ provided.
- ❖ Any maintenance of vehicles and machinery or storage of oily waste and fuel must be carried out at more than 50 meters away from any source of water.
- ❖ Clearing should be done in phases to minimise soil erosion. Cleared and exposed areas not utilized shall be re-vegetated with fast growing cover crops.

HISTORICAL WATER QUALITY RESULTS





V



APPENDIX C

Surface Water Quality Test Report
National Water Quality Standards for Malaysia
(NWQSM)





CHEMSAIN KONSULTANT SDN BHD (130904-U)

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 Tel: +60-88-389671 / 381278 Fax: +60-88-381280
 Email: laboratory.kk@chemsain.com
 www.chemsain.com



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/CL405/4272/21
 Type (No.) of Sample : River Water (2)
 Date Received : 22nd October 2021
 Date of Report : 01st November 2021
 Project Code : CK/MO411/1187/21

Lab No.:	4272-1	4272-2	<i>Test Method</i>	* <i>Standard Limit</i>
<u>Parameter(s)</u>	AW1 Date: 21/10/21 Time: 12.15 pm	AW3 Date: 21/10/21 Time: 11.15 am		
pH Value @ 25°C (in-situ / 21.10.2021)	6.81	6.85	APHA 4500-H B. 2017	6-9
Total Suspended Solids, mg/L	409	92.0	APHA 2540 D. 2017	50
Turbidity, NTU	380	200	APHA 2130 B. 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	1.59	1.56	APHA 5210 B & 4500-O G. 2017	3
Oil & Grease, mg/L	<1.50	<1.50	APHA 5520 B. 2017	40:N, 7,000:N
Chemical Oxygen Demand, mg/L	16.5	11.6	APHA 5220 C. 2017	25
Ammoniacal Nitrogen (as NH ₃ -N), mg/L	0.08	0.09	APHA 4500 NH ₃ F. 2017	0.3

Date of commencement of BOD₅ analysis: 22nd October 2021
 * Class IIB of National Water Quality Standards Malaysia.

End

Sh
 ChM. SHIERLY BINTI SU
 B. Sc. (Hons)
 MMIC (4697/6031/1/1)
 SENIOR CHEMIST





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Email: laboratory.kk@chemsain.com
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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/CL405/4273/21
Type (No.) of Sample : River Water (2)
Date Received : 22nd October 2021
Date of Report : 08th November 2021
Project Code : CK/MO411/1187/21

Lab No.:	4273-1	4273-2	Test Method	* Standard Limit
Parameter(s)	W1 Date: 21/10/21 Time: 12.40 pm	W3 Date: 21/10/21 Time: 10.22 am		
pH Value @ 25°C (in-situ / 21.10.2021)	6.84	7.29	APHA 4500-H ⁻ B, 2017	6-9
Total Suspended Solids, mg/L	214	34.0	APHA 2540 D, 2017	50
Turbidity, NTU	300	390	APHA 2130 B, 2017	50
Biochemical Oxygen Demand in 5 days @ 20°C, mg/L	1.15	2.81	APHA 5210 B & 4500-O G, 2017	3
Oil & Grease, mg/L	<1.50	<1.50	APHA 5520 B, 2017	40:N, 7,000:N
Chemical Oxygen Demand, mg/L	24.8	13.2	APHA 5220 C, 2017	25
Ammoniacal Nitrogen (as NH ₃ -N), mg/L	0.09	0.16	APHA 4500 NH ₃ F, 2017	0.3

Date of commencement of BOD₅ analysis: 22nd October 2021
* Class IIB of National Water Quality Standards Malaysia.

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National Water Quality Standards for Malaysia

PARAMETER	UNIT	CLASS				
		I	IIA/IIB	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).