SITE COMPLIANCE ON ESC : COMMON ISSUES AND POSSIBLE SOLUTIONS

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CONTENTS

LEGAL REQUIREMENT

SECTION 1:
Environmental Quality Act (Amendment) 2012 (Act 1441) & Subsidiary Legislations

INTRODUCTION

- The **Environmental Quality Act** is an act relating to the prevention, abatement, control of pollution and enhancement of the environment, and for purposes connected therewith.

- The **Director General (DG)** of Environmental Quality shall be responsible to administer the Act.

- To date, a total of **38 regulations** under the Act have been published and enforced.

REGULATIONS UNDER ENVIRONMENTAL QUALITY ACT (AMENDMENT) 2012 (ACT 1441) : Related to ESC

1. **Environmental Quality Act 1974 [Act 127] (Amendment 2012)**

   Section 34A : Report on Impact on environment resulting from prescribed activities

2. **Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015**

   22 activities and 90 sub activities

3. **Environmental Quality (Delegation of Powers) (Investigation on Erosion and Sediment Control) Order 2012**

   DG delegates to any technician, assistant engineer or engineer the power to investigate erosion and sediment control for prescribed activities

SAMPLE COMPLIANCE CONDITIONS FOR PRESCRIBED ACTIVITIES

EIA APPROVAL CONDITIONS

BORANG EIA 2-08 – JADUAL PEMATUHAN SYARAT KELULUSAN EIA

Bersambung…….

NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
5.	Zon penampan sejauh **250 meter** di antara lot PT216, Seksyen U12, Shah Alam (kawasan industri) dengan cadangan bangunan Rumahku Selangorku (Kawasan perumahan terhampir) hendaklah disediakan.	Zon penampan sebanyak 250m telah disediakan. Sila rujuk Figure 1.7 Existing Nearest Receptors with distances of the the Project Site di mukasurat 1-15 dalam laporan EMP.	
6.	Sebarangan pengubahan aliran sungai atau anak sungai (lencongan sungai) hendaklah mendapat kelulusan terlebih dahulu daripada Jabatan Pengairan dan Saliran Negeri Selangor dan Lembaga Urus Air Selangor.	Jika sebarangan pengubahan aliran sungai atau anak sungai (lencongan sungai) akan mendapat kelulusan daripda JPS Selangor dan LUAS.	
7.	**KAWALAN HAKISAN DAN SEDIMEN** Pelan Kawalan Hakisan Tanah dan Sedimen *(Erosion and Sediment Control Plan, ESCP)* yang merangkumi struktur *Best Management Practices (BMPs)* sepertimana yang dinyatakan di dalam *Figure 5.6: ESCP Plan Overall* di muka surat 5-40 dalam Laporan EIA hendaklah disediakan sebagaimana yang ditetapkan dalam *Guidelines for Erosion and Sediment Control in Malaysia, October 2010* yang diterbitkan oleh Jabatan Pengairan dan Saliran, Kementerian Sumber Asli dan Alam Sekitar.	Kebenaran Pelan Kerja Tanah dan ESCP telah diperolehi daripada MBSA pada 04hb Oktober 2016, no. ruj.: ( )MBSA/KEJ/KI/A/600-198/2015 (U12). ESCP untuk keseluruhan projek telah disediakan mengikut Guideline for Erosion and Sediment Control in Malaysia-October 2010.	
8.	Semua langkah kawalan hakisan tanah dan sedimen hendaklah dilaksanakan seperti di dalam lukisan *ESCP* yang telah disahkan oleh Jurutera Bertauliah *(Professional Engineer)* dan diperakui *(endorsed)* oleh Jabtan Pengairan dan Saliran **sebelum kerja-kerja tanah dimulakan**. Dua (2) salinan dokumen ESCP ini hendaklah dikemukakan kepada Jabatan Alam Sekitar Negeri Selangor dalam tempoh **dua (2) minggu** selepas diperakui.	Langkah kawalan hakisan tanah dan sedimen sedang dilaksanakan di tapak projek. ESCP telah dilampirkan dalam laporan EMP ini.	

EIA APPROVAL CONDITIONS

Bersambung……..

NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
9.	Tolok hujan *(rain gauge)* hendaklah dipasang di satu kawasan yang terbuka di dalam tapak projek.	Tolok hujan *(rain gauge)* akan dipasang di satu kawasan yang terbuka di dalam tapak projek.	
10.	BMP_s bagi langkah-langkah kawalan hakisan dan sedimen hendaklah disenaraikan dan diperincikan di dalam *Bill of Quantities (BQ)* semasa proses tender projek serta diperincikan dalam Pelan Pengurusan Alam Sekitar (*EMP*).	BMPs telah disenaraikan di dalam BQ.	
11.	Jalan masuk *(acess road)* dan jalan sementara *(construction road)* hendaklah dibina mengikut jajaran dan spesikasi rekabentuk dalam lukisan ESCP.	Jalan masuk dan jalan sementara telah dibina mengikut jajaran dalam lukisan ESCP.	
12.	Bagi kawalan sedimen yang berkesan, *BMPs*, perangkap mendap dan kolam mendapan hendaklah dibina **sebelum kerja-kerja tanah dimulakan** mengikut spesifikasi rekabentuk lukisan *ESCP* dan selaras dengan peringkat kerja tanah.	Langkah kawalan hakisan tanah dan sedimen dan *BMPs* sedang dilaksanakan di tapak projek	
13.	Bagi kawalan air larian permukaan (surface run-off) yang berkesan, perkara-perkara berikut hendaklah dilaksanakan :- i) Kawalan sempadan kawasan kerja *(perimeter control)* dan perparitan sempadan *(perimeter drain)* hendaklah disediakan di tapak projek sebelum sebarang kerja tanah dijalankan; dan ii) Sebarang pelepasan air larian permukaan dari tapak projek di mana kerja tanah dijalankan tidak dibenarkan dilepaskan terus ke mana-mana alur air melainkan hendaklah melalui perangkap mendap atau kolam mendapan terlebih dahulu.	Kawalan air larian permukaan yang berkesan sedang dilaksanakan di tapak projek.	

Tolok Hujan – Rain Gauge

RainLOG™

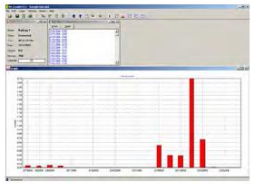
VERSATILE & ECONOMICAL RAINFALL DATA LOGGER

Battery operated for remote rainfall monitoring!

www.rainwise.com/rainlog

- Works with all manufacturer tipping bucket rain gauges.
- Log in one minute increments for up to a year .
- Windows™ based software included, shows both text and graphs.
- Data exports to Excel.
- 2 year warranty.

RainLOG



RainLogger™

THE COMPLETE SYSTEM

Collector, RainLOG ,mounting and software!

www.rainwise.com/rainlogger

- Integrated system for rainfall monitoring in remote or local areas.
- USB equipped datalogger runs on 2 AAA batteries.
- Study environmental characteristics for a wide variety of applications.

Windows Software Included

SKU	MODEL	PRODUCT DESCRIPTION
804-1010	RAINLOG 2.0	Records rainfall data - USB connectivity & alkaline batteries
804-1011	RAINLOG 2.0/RAINEW	Rain gauge with data logger
804-1012	RAINLOGGER 2.0	Complete system for collecting measuring and recording rainfall
804-1013	RAINLOGGER 2.0 -SP	Complete system for collecting measuring and recording rainfall - Includes our RGA industrial rain gauge

1) Precision rain gauge (code: 1048) RM 200

2) Tapered Rain Gauge (code: 1047) RM 100

Examples


RAIN GAUGE
22/02/2017 09:15


RAIN GAUGE
STATION KBS
PIC : ZULFADLI ZAINUDIN
PHONE : 014 -5147610
21/02/2017

EIA APPROVAL CONDITIONS

Bersambung……..

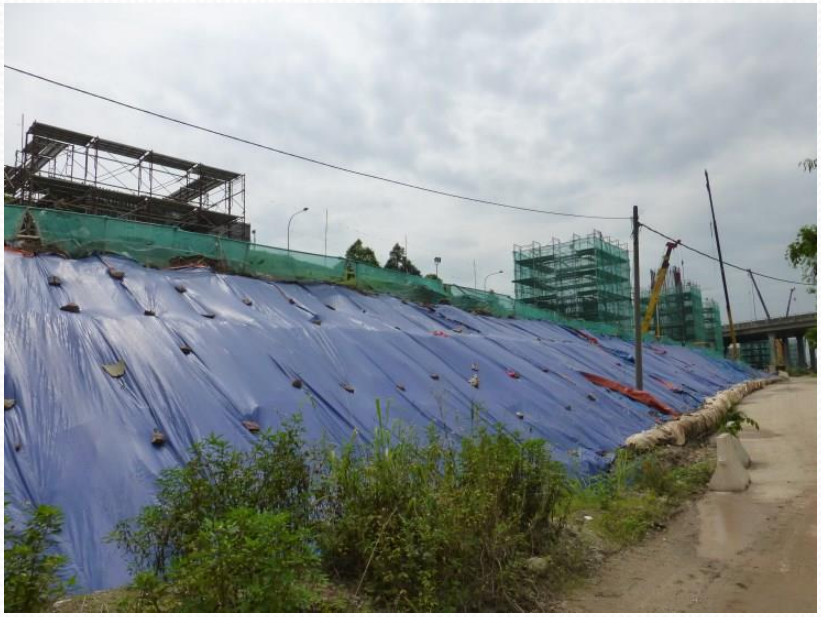
NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
14.	Penyelenggaraan semua komponen *BMPs* hendaklah dilaksanakan dan rekod penyelenggaraan disediakan dan disimpan dengan baik untuk tujuan pemeriksaan.	Penyelenggaraan semua komponen *BMPs* sedang dilaksanakan di tapak projek.	
15.	Pemeriksaan terhadap semua komponen *BMPs* hendaklah dijalankan dalam tempoh 24 jam selepas catatan hujan adalah bersamaan atau melebihi 12.5mm.	Pemeriksaan terhadap semua komponen BMPs sedang dilaksanakan di tapak projek.	
16.	Sebarang tanah-tanih berlebihan *(overburden)* hendaklah ditentukan lokasi pelupusannya, dan dikawal dengan pemampatan, penutup, tanaman penutup bumi dan dibina benteng *(bund)* di sekelilingnya bagi mengelakkan tanah-tanih tersebut masuk ke dalam mana-mana alur air.	Tiada tanah-tanih berlebihan di tapak projek.	
17.	Pelupusan tanah-tanih berlebihan *(overburden)* hendaklah mendapat kelulusan daripada Majlis Bandaraya Shah Alam.	Tiada tanah-tanih berlebihan di tapak projek.	
18.	Kawasan di mana kerja-kerja tanah masih dilaksanakan hendaklah dibuat penstablian tanah sementara dan kawasan terdedah di mana kerja-kerja telah selesai hendaklah ditutup dalam tempoh **14 hari** dari tarikh kerja tanah selesai.	Kerja-kerja yang telah selesai akan ditutup dalam tempoh **14 hari.**	
19.	Penstabilan cerun hendaklah dilaksanakan dengan berkesan seperti berikut :- i) Pembinaan cerun bertingkat hendaklah dilaksanakan di kawasan cerun-cerun tanah potong *(cut slope)* dan tanah tambun *(fill slope)*; dan ii) Cerun tanah tambun *(fill slope)* perlu dipadatkan mengikut spesifikasi rekabentuk lukisan ESCP.	Penstabilan cerun akan dilaksanakan di tapak projek.	

BEST MANAGEMENT PRACTICES
-Site Clearing and Biomass Disposal Plan

Temporary Mulching

- Cleared biomass → mulched at designated open sites (open areas) within the Project boundary;
- Cleared vegetation can be used as temporary protection measure especially at bare slopes to minimize soil erosion on-site

BEST MANAGEMENT PRACTICES
-Erosion Control-

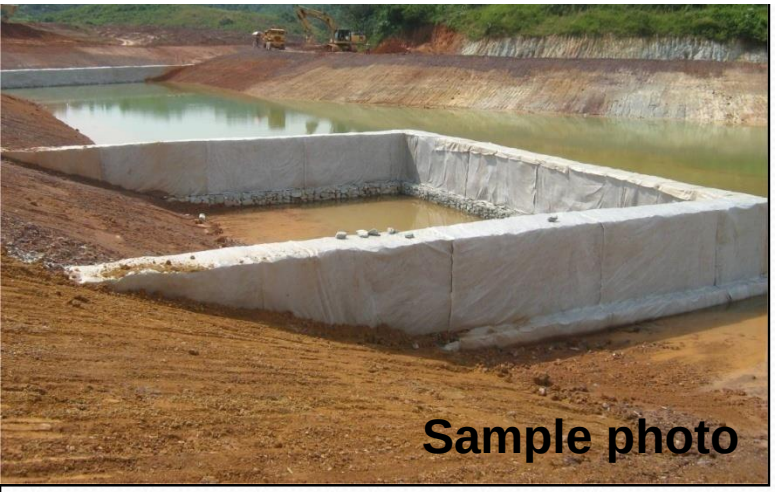


Slope and bare area protection with temporary plastic sheet.

BEST MANAGEMENT PRACTICES
- Soil Erosion & Siltation Control Program

- Banks stabilized by using sand-fill mattress and close turfing
- Maintenance works, i.e., desilting should be conducted regularly.

Sediment forebay established to separate the silt before entering the sediment basin



BEST MANAGEMENT PRACTICES
- Sediment Control

BEST MANAGEMENT PRACTICES
- Sediment Control

EIA APPROVAL CONDITIONS

Bersambung…..

NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
20.	Kawasan-kawasan semulajadi sekiranya ada hendaklah dikekalkan, antaranya:- i) Kawasan zon penampan sungai, cerun bukit melebihi 25 darjah, puncak bukit, sempadan hutan simpan kekal dan had laluan jalan (Right of Way-ROW) hendaklah mengikut lukisan ESCP dan laporan Geoteknikal; dan ii) Pembinaan jalan kekal atau jalan sementara *(construction road)* yang merentasi sungai/alur air sekiranya ada hendaklah menggunakan jambatan atau *culvert*.	Pihak pemaju akan mengikut lukisan ESCP.	
21.	**KELULUSAN/KEBENARAN BERTULIS DAN PEMBERITAHUAN BERTULIS** Sebarang pemasangan alat pembakaran bahan api seperti janakuasa tunggu sedia atau cerobong dan seumpamanya hendaklah **Kelulusan Bertulis** kepada Jabatan Alam Sekitar Negeri Selangor sepertimana ditetapkan dalam Peraturan 5(2), Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 2014, P.U. (A) 151 dalam masa **tiga puluh (30) hari** sebelum **kerja pembinaan bermula**.	Sebarang pemasangan alat pembakaran bahan api akan diberitahu secara bertulis kepada JAS Selangor.	
22.	Pembinaan loji rawatan kumbahan bagi pembuangan atau pelepasan kumbahan ke dalam perairan dalaman hendaklah diberitahu secara bertulis kepada Jabatan Alam Sekitar Negeri Selangor melalui borang di Jadual Pertama, Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan) 2009, P.U. (A) 432.	Pelan Susunatur bagi projek pembangunan telah mendapatkan kelulusan daripada IWK pada tarikh 27/01/2017, no ruj.: IWK/C/SEL04/14/078( ). Semua Infomasi telah dilampirkan di lampiran 5 dalam Laporan EMP.	

EIA APPROVAL CONDITIONS

Bersambung…..

NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
23.	**KAWALAN DAN PENGAWASAN KUALITI AIR** Sebarang pelepasan air larian permukaan dari tapak projek ke luar sempadan tapak projek semasa kerja-kerja tanah dan pembinaan hendaklah **tidak boleh mengandungi** parameter-parameter berikut :- i) Jumlah pepejal terampai *(TSS)* melebihi 50 mg/L; atau ii) Kekeruhan melebihi 250 *Nephelometric Turbidity Unit (NTU);*	Akan dipatuhi dan dilaksanakan di tapak projek.	
24.	Pengawasan kualiti air di takat pelepasan akhir kolam perangkap mendap bagi paramter Pepejal Terampai (Suspended Solid, SS) hendaklah dijalankan **setiap satu (1) bulan sekali** bermula dari kerja tanah sehingga selesai kerja-kerja pembinaan.	Pengawasan kualiti air di takat pelepasan akhir kolam perangkap mendap akan dilaksanakan di tapak projek.	
25.	Pengawasan kualiti air di Sungai Rasau hendaklah **dijalankan setiap satu (1) bulan sekali** bermula dari peringkat kerja tanah sehingga kerja-kerja pembinaan. Kualiti air sungai ini hendaklah dibandingkan dengan Kelas IIA, *National Water Quality Standards (NWQS) for Malaysia* yang diterbitkan oleh Jabatan Alam Sekitar. Lokasi-lokasi percontohan dan parameter pengawasan kualiti air sungai hendaklah mendapat persetujuan Jabatan Alam Sekitar Negeri Selangor.	Pengawasan kualiti air di akan dijalankan setiap bulan.	
26.	Kemudahan tandas sementara yang memenuhi spesifikasi yang ditetapkan oleh Kementerian Kesihatan atau Suruhanjaya Perkhidmatan Air Negara (SPAN) hendaklah disediakan di kem pekerja di sepanjang tempoh pembinaan.	Kemudahan tandas sementara yang memenuhi spesifikasi akan dilaksanakan di tapak projek.	

Water Discharge Compliance Limits

SAMPLE TOTAL SUSPENDED SOLIDS
(for visual inspection purposes)

TSS- 50mg/l

TSS- 100mg/l

TSS- 270mg/l

TSS- 420mg/l

TSS- 880mg/l

TSS- 1500mg/l

TSS- 2900mg/l

TSS- 7200mg/l

EIA APPROVAL CONDITIONS

Bersambung…..

NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
27.	Kumbahan domestik hendaklah diolah terlebih dahulu dan mematuhi **Standard A**, Jadual Kedua (Peraturan Tujuh), Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan) 2009, P.U. (A) 432 sebelum dilepaskan ke mana-mana perairan pedalaman.	Sebarang pelepasan kumbahan dari projek akan diolah terlebih dahulu.	
28.	**KAWALAN DAN PENGAWASAN KUALITI UDARA** Pengawasan kualiti udara ambien hendaklah dijalankan **setiap tiga (3) bulan sekali** bermula dari peringkat kerja tanah sehingga selesai kerja-kerja pembinaan. Parameter-parameter tersebut hendaklah mematuhi had yang ditetapkan dalam Standard Kualiti Udara Ambien 2013 seperti di **LAMPIRAN A**. Lokasi-lokasi percontohan hendaklah mendapat kelulusan Jabatan Alam Sekitar Negeri Selangor terlebih dahulu.	Pengawasan kualiti udara ambient akan dijalankan setiap 3 bulan.	
29.	**Pembakaran terbuka** sisa-sisa tumbuhan atau buangan bahan binaan atau apa-apa buangan dari kawasan projek pada semua peringkat kerja tanah dan pembinaan adalah **dilarang sama sekali**.	Tiada pembakaran terbuka dibenarkan dalam tapak projek	
30.	**KAWALAN DAN PENGAWASAN BUNYI BISING** Bunyi bising hendaklah dikawal supaya tidak melebihi paras yang ditetapkan dalam *Annex A Schedule of Permissible Sound Levels Schedule 1 : Maximum Permissible Sound Level (LAeq) by Receiving Land Use for Planning and New Development* di dalam garis panduan *Planning Guidelines for Environmental Noise Limits and Control* terbitan Jabatan Alam Sekitar, 2007.	Pengawasan bunyi bising akan dijalankan.	

EIA APPROVAL CONDITIONS

Bersambung…..

NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
44.	Laporan secara *on-line* hendaklah dikemukakan kepada Jabatan Alam Sekitar Negeri Selangor yang mengandungi :- a) Pemeriksaan semua BMPs hendaklah dijalankan apabila catatan hujan melebihi 12.5mm. Laporan pemeriksaan hendaklah dikemukakan seperti format di **LAMPIRAN D** dalam tempoh 24 jam selepas pemeriksaan dijalankan. b) Laporan bergambar bagi tindakan pembaikan BMPs di mana perlu hendaklah dikemukakan dalam tempoh **7 hari** dari kejadian.	Akan dipatuhi dan dilaksanakan.	
45.	Laporan analisis pengukuran in-situ bagi parameter kekeruhan (turbidity) di takat pelepasan akhir kolam perangkap mendap yang dicerap dalam tempoh tidak melebihi 30 minit selepas hujan, hendaklah dikemukakan kepada Jabatan Alam Sekitar Negeri Selangor **setiap satu (1) bulan** bermula dari peringkat kerja tanah sehingga selesai kerja-kerja pembinaan.	Akan dipatuhi dan dilaksanakan.	
46.	Laporan-laporan pengawasan alam sekitar hendaklah dikemukakan kepada Jabatan Alam Sekitar Negeri Selangor **setiap tiga (3) bulan sekali** bermula dari dari peringkat kerja tanah sehingga selesai kerja-kerja pembinaan iaitu :- i. Laporan pengawasan kualiti air di takat akhir pelepasan kolam perangkap mendap bagi parameter Jumlah Pepejal Terampai *(TSS)*; ii. Laporan pengawasan dan penilaian kualiti air di takat akhir pelepasan kolam perangkap mendap bagi parameter kekeruhan *(Turbidity)*; iii. Laporan pengawasan dan penilaian kualiti air sungai; iv. Laporan pengawasan dan penilaian kualiti udara ambien; dan v. Laporan pengawasan dan penilaian bunyi bising;	Laporan-laporan pengawasan alam sekitar akan dikemukakan kepada JAS Selangor setiap 3 bulan.	

COA 11 & 39

ESC Online

User Guide

http://eia.doe.gov.my/escv8/login.php

Environment Officer Job

Online Reporting

2/18/2017 eia.doe.gov.my/escv8/jadual_pemeriksaan_bmpslist.php?export=print

No. Rujukan Laporan	KVMRT/MG/SSP/OP/BMP/ENV/HKLX
Laporan bagi Bulan	Januari
Laporan bagi Tahun	2017
Tarikh Hantar	24-01-2017

Example

#	Jenis BMPs	Latitud	Longitud	Komponen Projek	BMPs Berfungsi	Cadangan Tindakan Pembaikan	Tarikh Cadangan Tindakan	Tarikh Tindakan dijangka siap	Pegawai Bertanggungjawab untuk Tindakan Pembaikan	Gambar
1	WASHING BAY HKLX	TBA	TBA	GROUND IMPROVEMENT	Ya	NORMAL CHECKING	24-01-2017	27-01-2017	JOYCE	
2	TEMPORARY SILT TRAP HKLX	TBA	TBA	GROUND IMPROVEMENT	Ya	NORMAL CHECKING	24-01-2017	27-01-2017	JOYCE	
3	GEOTEXTILE PROTECTION	TBA	TBA	SITE ESTABLISHMENT	Ya	NORMAL CHECKING	24-01-2017	27-01-2017	JOYCE	

21/02/2017 11:27

In-situ Measurement

EIA APPROVAL CONDITIONS

Bersambung…..

NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
47.	Analisis parameter-parameter bagi pengawasan dalam sekitar seperti di Syarat No. 46 di atas hendaklah dijalankan oleh makmal yang mendapat pengiktirafan "Skim Akreditasi Makmal Malaysia" daripada Jabatan Standard Malaysia.	Analisis parameter-parameter bagi pengawasan dalam sekitar adalah dijalankan oleh Spectrum Laboratories Sdn. Bhd.	
48.	**AUDIT ALAM SEKELILING** Audit alam sekeliling terhadap projek sepertimana yang dikehendaki di bawah Seksyen 33A, Akta Kualiti Alam Sekeliling, 1974 hendaklah dilaksanakan berpandukan kepada *Environmental Audit Guidance Manual*, terbitan Jabatan Alam Sekitar oleh pihak ketiga iaitu Juruaudit yang berdaftar dengan Jabatan Alam Sekitar dan mempunyai sijil *Certified Erosion, Sediment and Storm Water Inspector* (CESSWI) atau kelayakan yang setara. Audit tersebut hendaklah dilaksanakan **setiap enam (6) bulan sekali** bermula dari peringkat kerja tanah sehingga selesai kerja-kerja pembinaan.	Audit alam sekeliling akan dilaksanakan.	
49.	Segala kos audit alam sekeliling yang dijalankan hendaklah ditanggung oleh pemaju projek.	Segala kos audit alam sekeliling akan ditanggung oleh pemaju projek.	
50.	**PENTADBIRAN** Pemaju projek hendaklah menjadikan syarat-syarat kelulusan laporan EIA dan syor-syor Jururunding EIA dalam Laporan EIA sebagai sebahagian syarat-syarat perjanjian dalam tender dan perjanjian kontrak kepada mana-mana kontraktor/sub-kontraktor yang terlibat dalam pelaksanaan projek ini.	Akan dipatuhi dan dilaksanakan	

EIA APPROVAL CONDITIONS

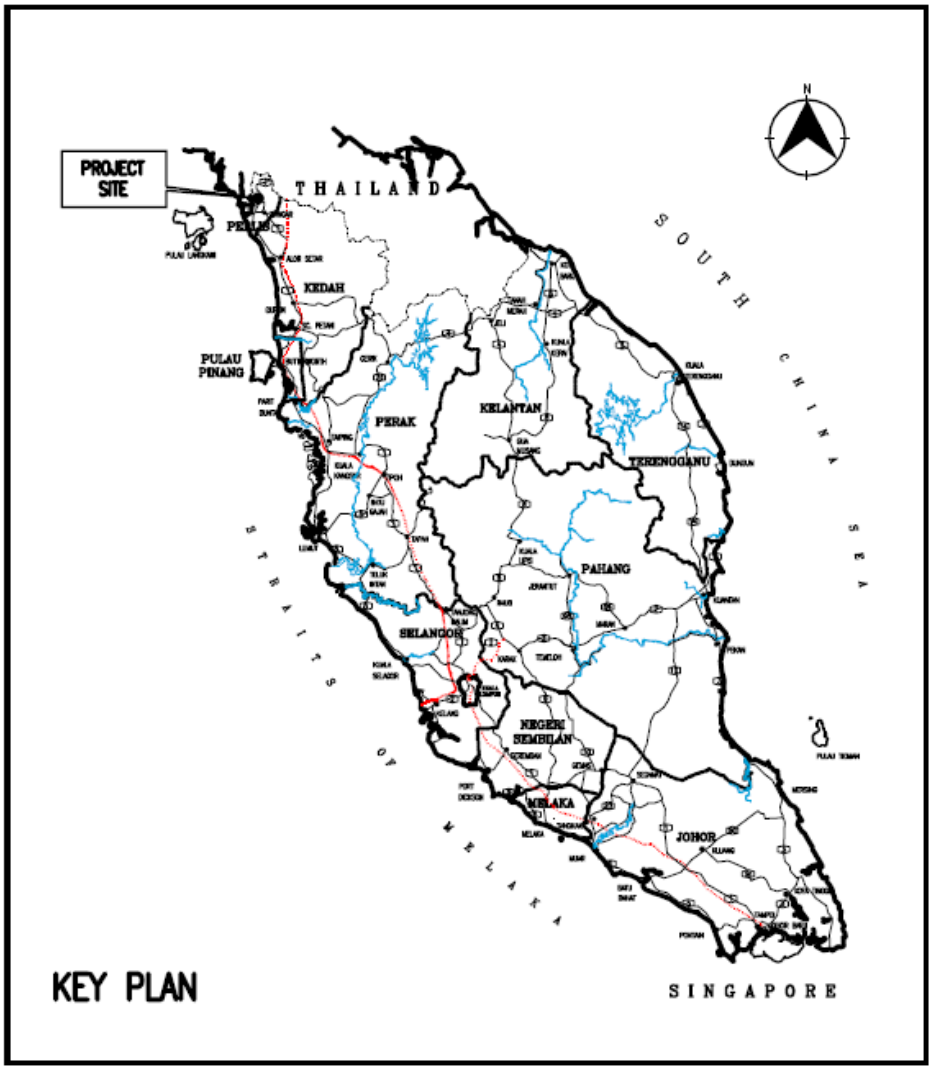
Bersambung…..

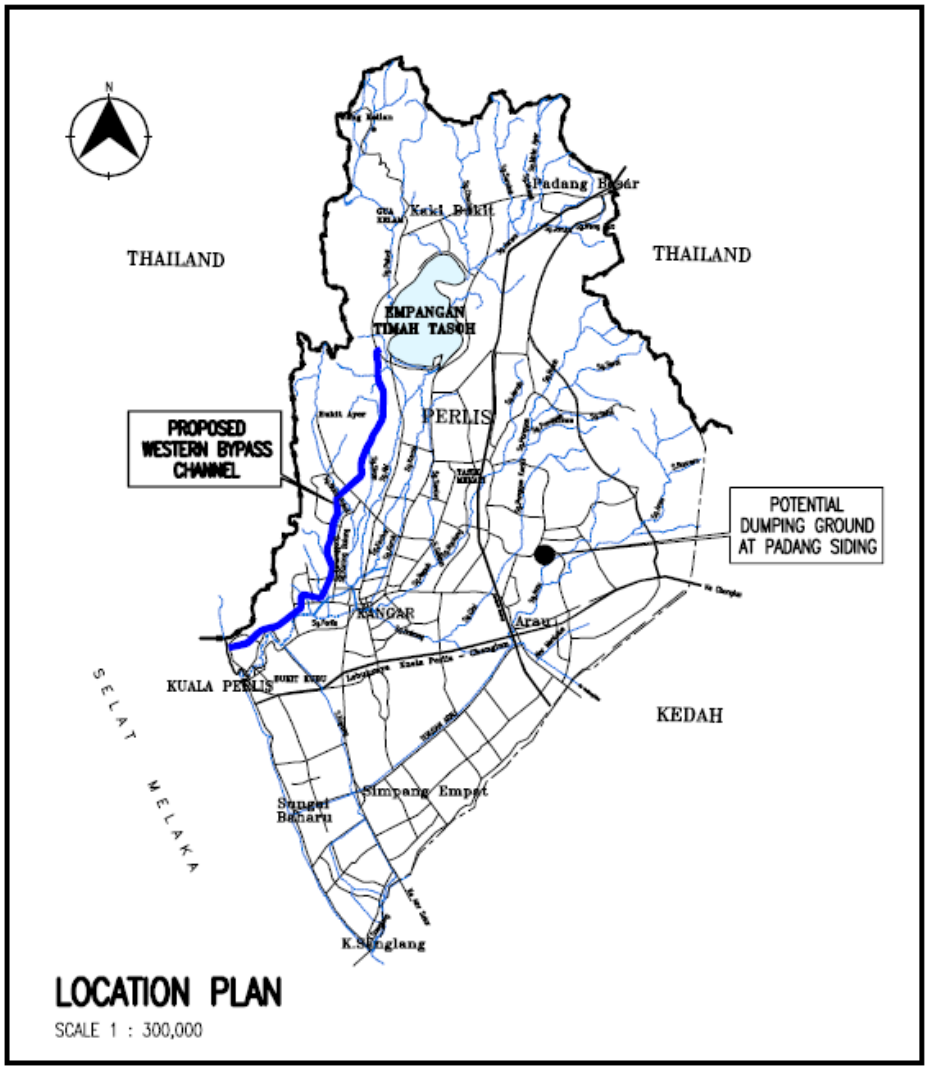
NO.	SYARAT-SYARAT KELULUSAN EIA	ULASAN PEMAJU PROJEK	ULASAN JAS
51.	Satu salinan syarat-syarat kelulusan Laporan EIA ini, bersama-sama dengan setiap salinan dokumen yang menjadi sebahagian daripada syarat-syarat kelulusan dan Laporan EIA hendaklah dipamerkan di suatu tempat yang sesuai dan boleh dilihat dengan jelas di pejabat pengurusan.	Akan dipatuhi dan dilaksanakan.	
52.	*Environment Officer (EO)* yang kompeten dan bertanggungjawab sepenuhnya ke atas perkara-perkara berkaitan pengurusan alam sekitar dan pelaksanaan kesemua langkah-langkah kawalan hendaklah dilantik. Nama, jawatan dan maklumat perhubungan yang lengkap pegawai berkenaan hendaklah dikemukakan kepada Jabatan Alam Sekitar Negeri Selangor tidak lewat daripada **14 hari** sebelum kerja-kerja tanah dan pembinaan dimulakan. Antara tugas pegawai ini ialah :- a) Menyelia kerja-kerja kawalan hakisan dan sedimen di tapak seperti mana ditetapkan dalam *Erosion and Sediment Control Plan (ESCP)* dan Pengurusan Alam Sekitar projek (*EMP*); b) Mengemaskini Buku Harian Tapak; c) Menjalankan pemeriksaan ke atas langkah-langkah kawalan pencemaran serta struktur *Best Management Practices (BMPs)* kawalan hakisan dan sedimen projek (termasuklah *perimeter drain, check dam, silt trap, wash trough, slope protection* dan lain-lain) setiap hari d) Mengadakan mesyuarat tapak setiap dua (2) minggu bersama pemaju projek dan kontraktor; dan e) Menjalankan pengukuran *in-situ* parameter kekeruhan di takat pelepasan akhir dalam tempoh tidak melebihi 30 minit selepas hujan. Sekiranya hujan berterusan melebihi 24 jam, pengukuran hendaklah dijalankan sekali setiap hari. (kegagalan mematuhi syarat ini perlu dicatatkan dengan alasan yang kukuh dan munasabah) **nota : EO bagi kawalan hakisan dan sedimen ini hendaklah mempunyai sijil Certified Erosion, Sediment and Storm Water Inspector (CESSWI) atau kelayakan setara.*	En. Zulazni Ab Karim (h/p no: 012-292 3794) telah dilantik sebagai EO mewakili pihak kami. Maklumat En. Zulazni Ab Karim telah dilampirkan dalam lampiran 8 dalam laporan EMP. Manakala, Pn Siti Hazwani (017-873 2190) adalah sebagai EO di bawah Kontraktor R& D; En. Norazman Md Arof (016-333 2658) adalah sebagai EO di bawah Kontraktor Earthwork; dan En Anas bin Wazir (016-920 7156) adalah sebagai EO di bawah Kontraktor Building. Kerja-kerja EO akan dipatuhi dan dilaksanakan. Rekod akan disediakan dan disimpan di tapak pejabat.	

SAMPLE PROJECT:
ESCP Implementation at Timah Tasoh Dam Western Flood Bypass

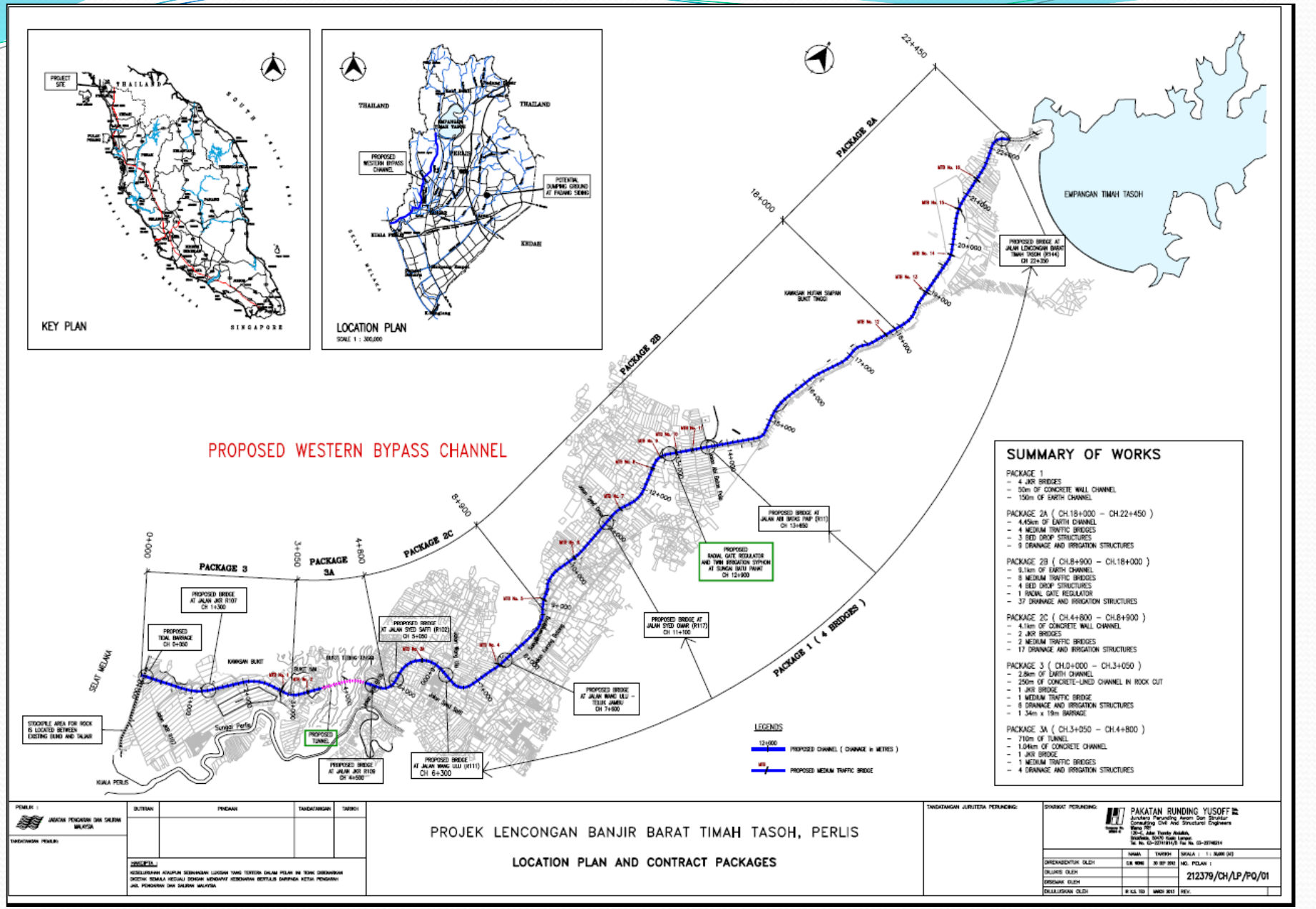
Project	• Timah Tasoh Dam Western Flood Bypass
Project Initiator	• Jabatan Pangairan dan Saliran, Malaysia
Overall Concept of the Project	• Construct a western flood bypass, starting from the Timah Tasoh Dam, passing through agricultural land and Bukit Kurong Bintang Forest Reserve and eventually discharging into Straits of Malacca. • Length – approximately 22.5 km • Width – approximately 65m -120m • Consist of both earthern and concrete lined channel. • 710m section of the bypass channel will be tunneled through the Bukit Kurong Bintang Forest Reserve. • 9 bridges will be built to maintain the current road network connectivity.

KEY AND LOCATION PLAN





OVERALL CHANNEL ALIGNMENT



EMP OBJECTIVES

- To elaborate on the Project description based on the endorsed scope of works;
- To specify environmental management requirements during planning, construction and operational stages of the Project;
- provide support to the planning of environmental management of the project.
- communicate the environmental policy and management practices used on the project to all relevant parties;
- To identify the likely impacts induced by the Project;
- **To formulate the necessary plans in order to address the overall site management issues pertaining to biomass disposal, soil erosion and sedimentation control, etc.;**
- **To recommend the mitigation measures to be implemented on site in order to mitigate against the impacts predicted;**
- To identify any likely emergency scenarios and subsequently to formulate Emergency Response Plan procedures;
- To ensure continuous awareness of necessary compliance to all relevant approval conditions and to ensure familiarity with the recommendations stipulated in the EMP.

MONITORING & AUDIT

Monitoring & Compliance Programme

Detection of non-compliance to specified standards and guidelines;

Sediment Basin discharge outlet – monthly on pH, TSS, DO & NH_3-N;

Water Quality – monthly on WQI parameters

Air, Noise & Vibration – quarterly on TSP & PM10, Noise Level, Vibration Level

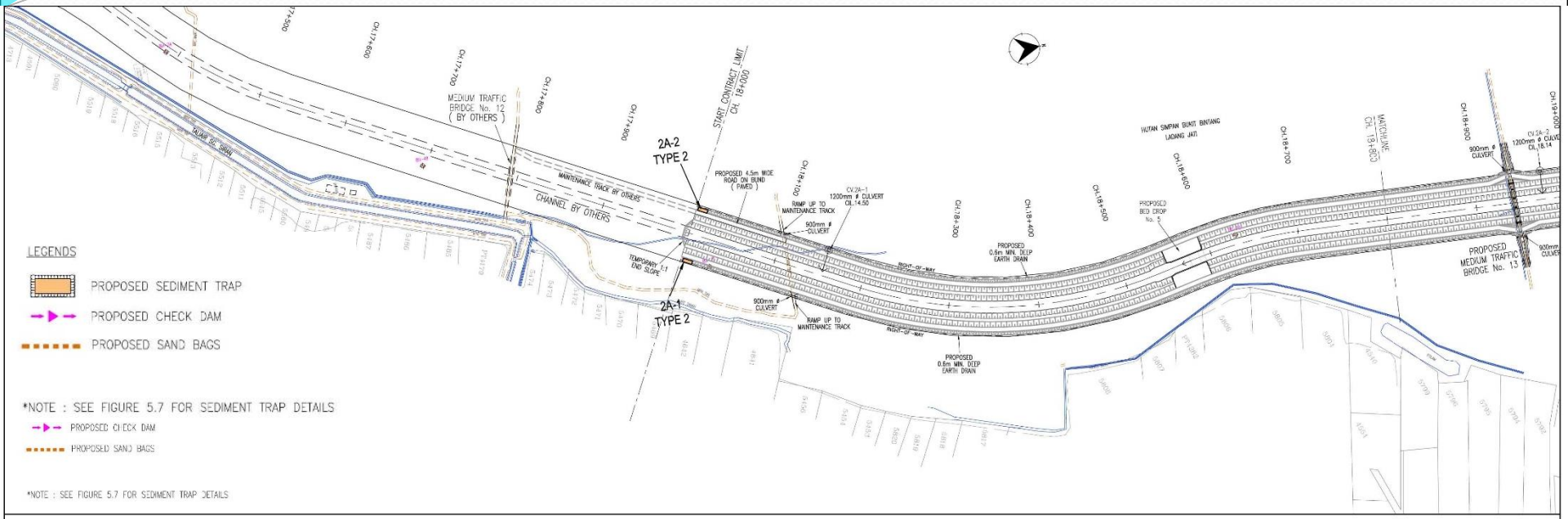
*** As stated in BQ**

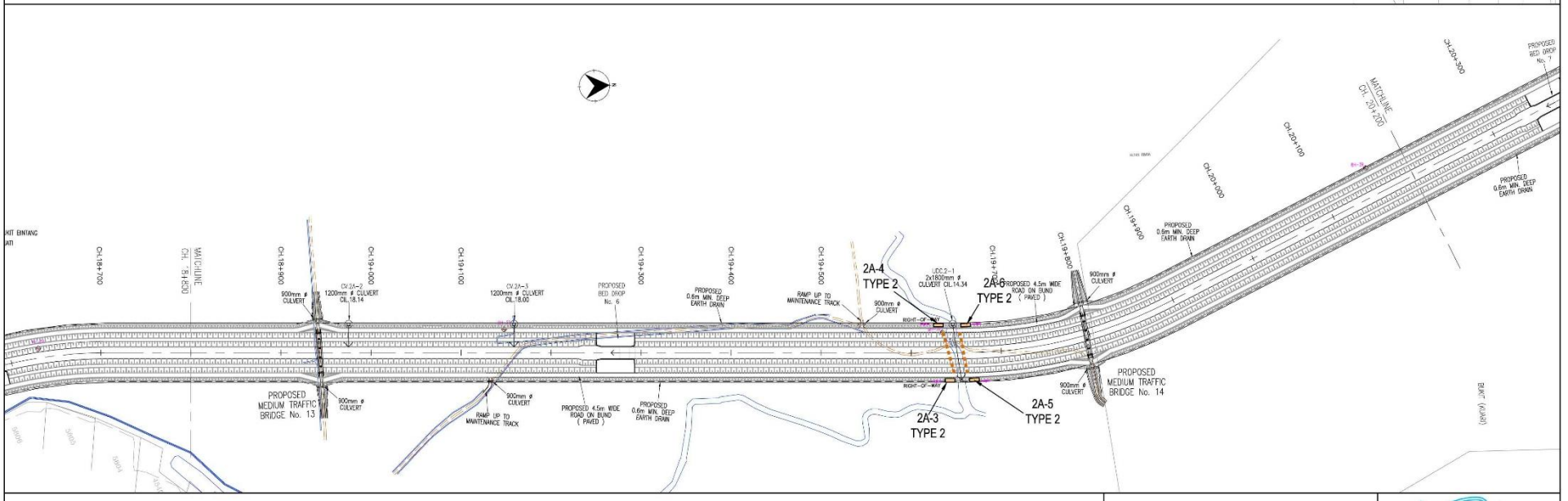
Determines environmental performance and compliance

- Site monitoring, verification of conformance to the stipulated environmental practice;
- Investigation of the implementation of on-site environmental procedures;

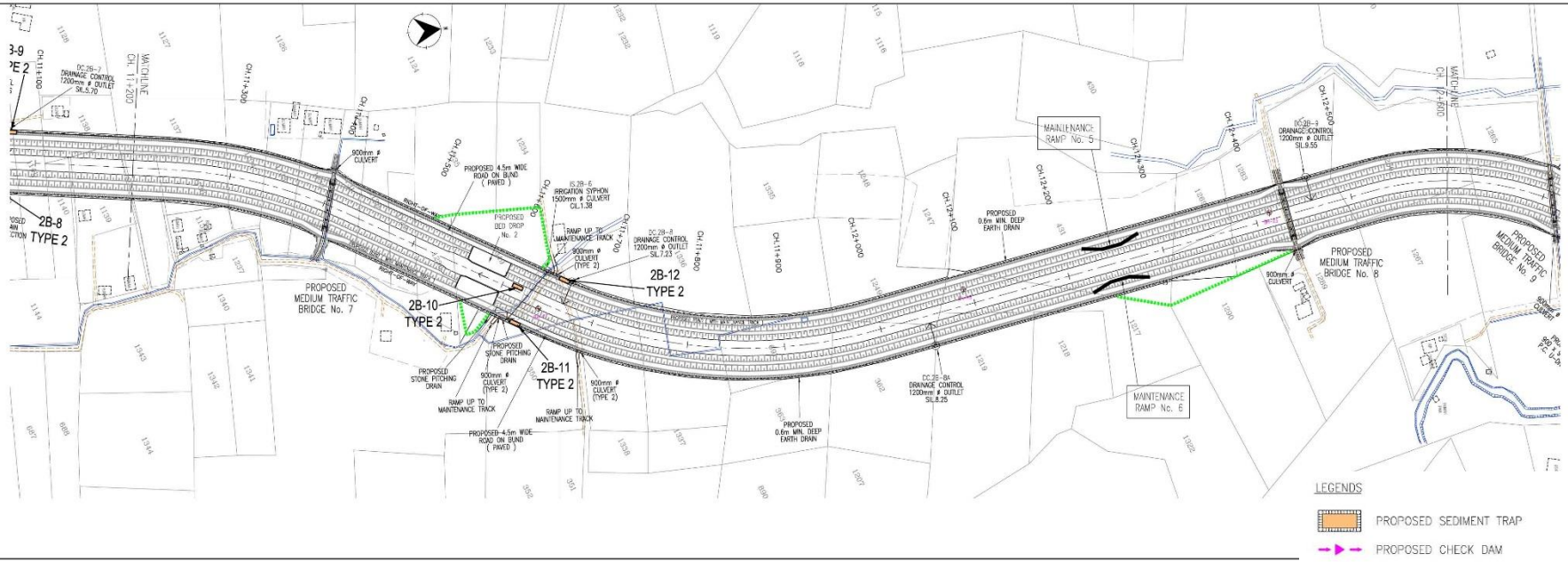
PROPOSED ESCP AT PROJECT SITE

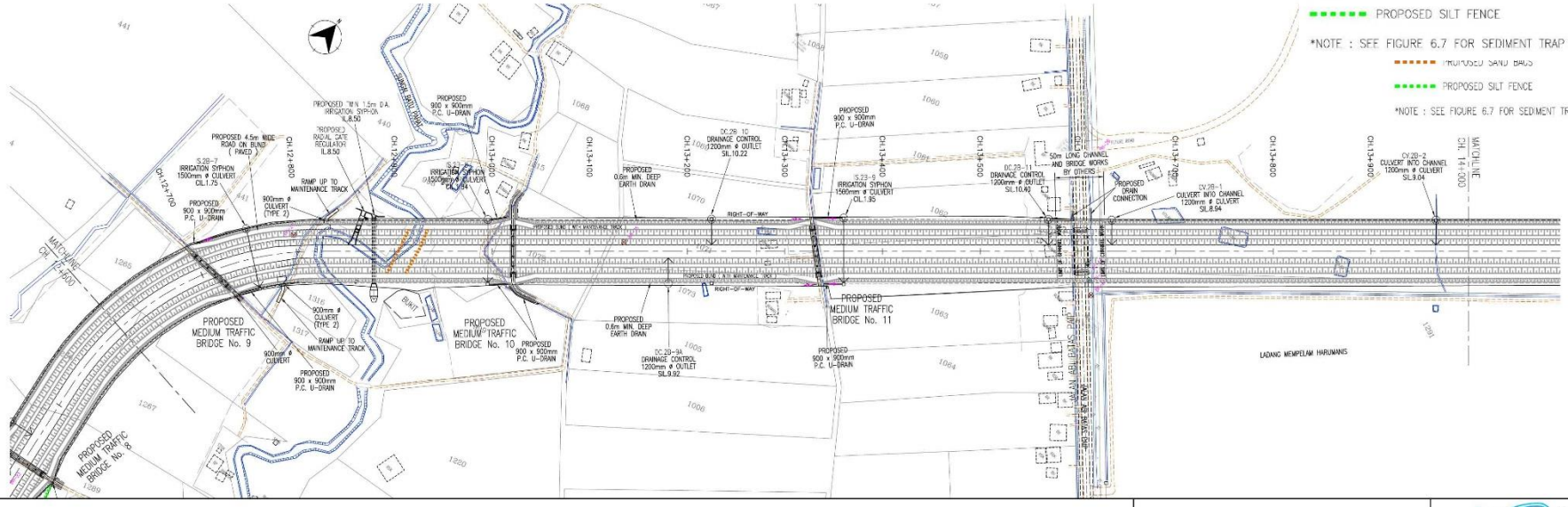
ESCP FOR PACKAGE 2A



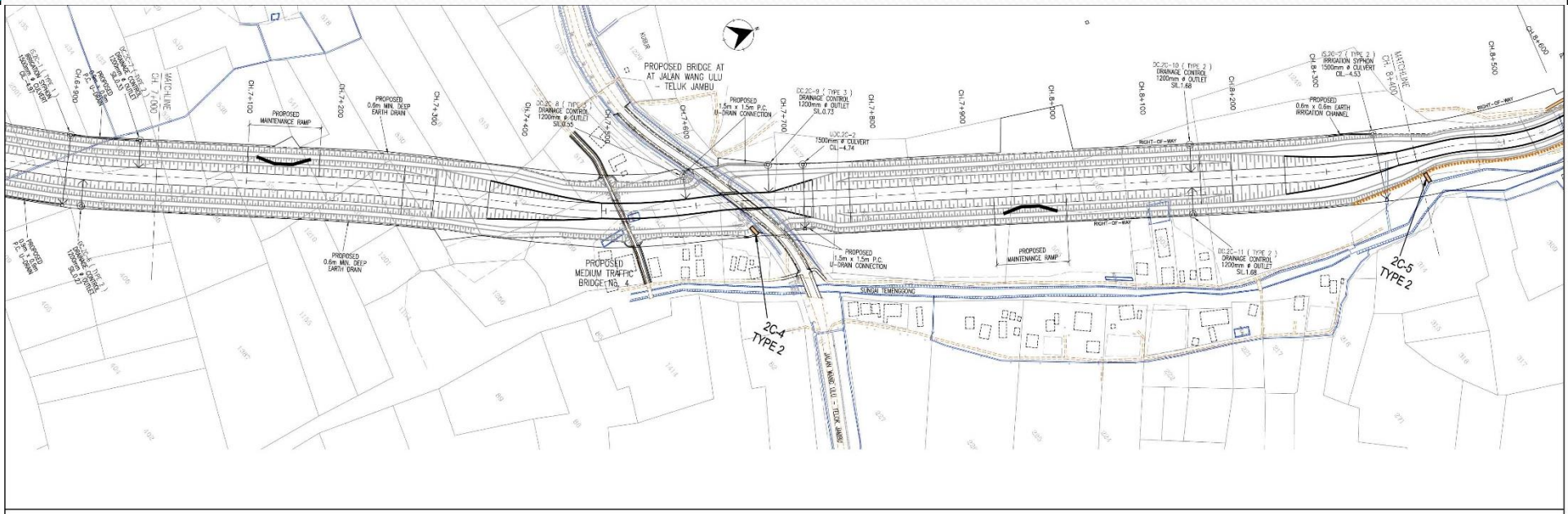


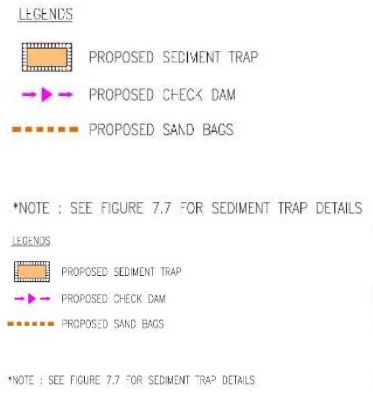
ESCP FOR PACKAGE 2B

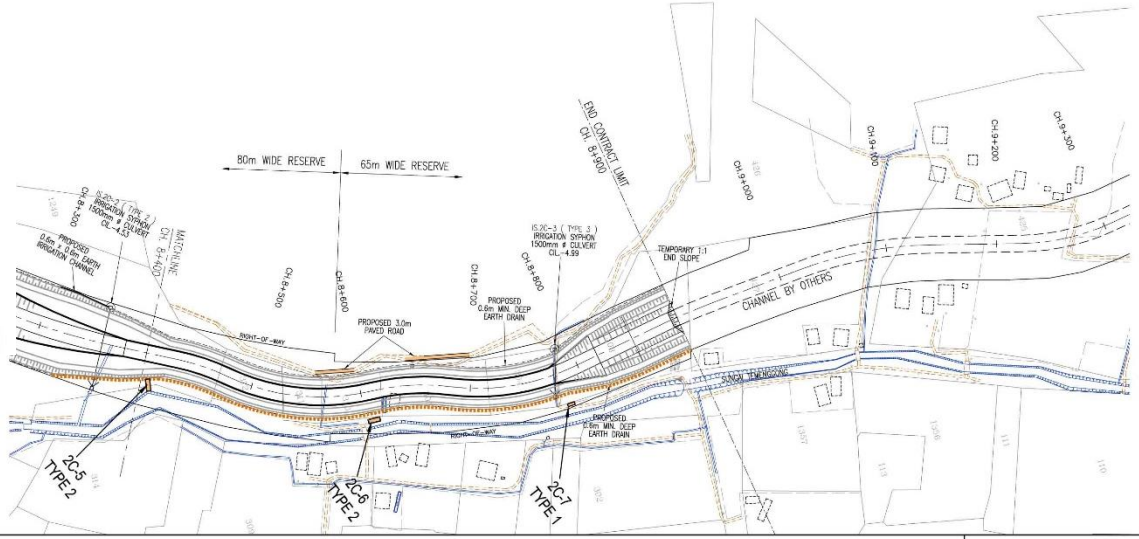




ESCP FOR PACKAGE 2C







ESTABLISHMENT OF ESCP : STATUS

OVERALL SUMMARY OF ESCP (REVISED) ON-SITE

As of the Month of August 2015

- Site visit conducted on 4/8/2015 -10/8/15

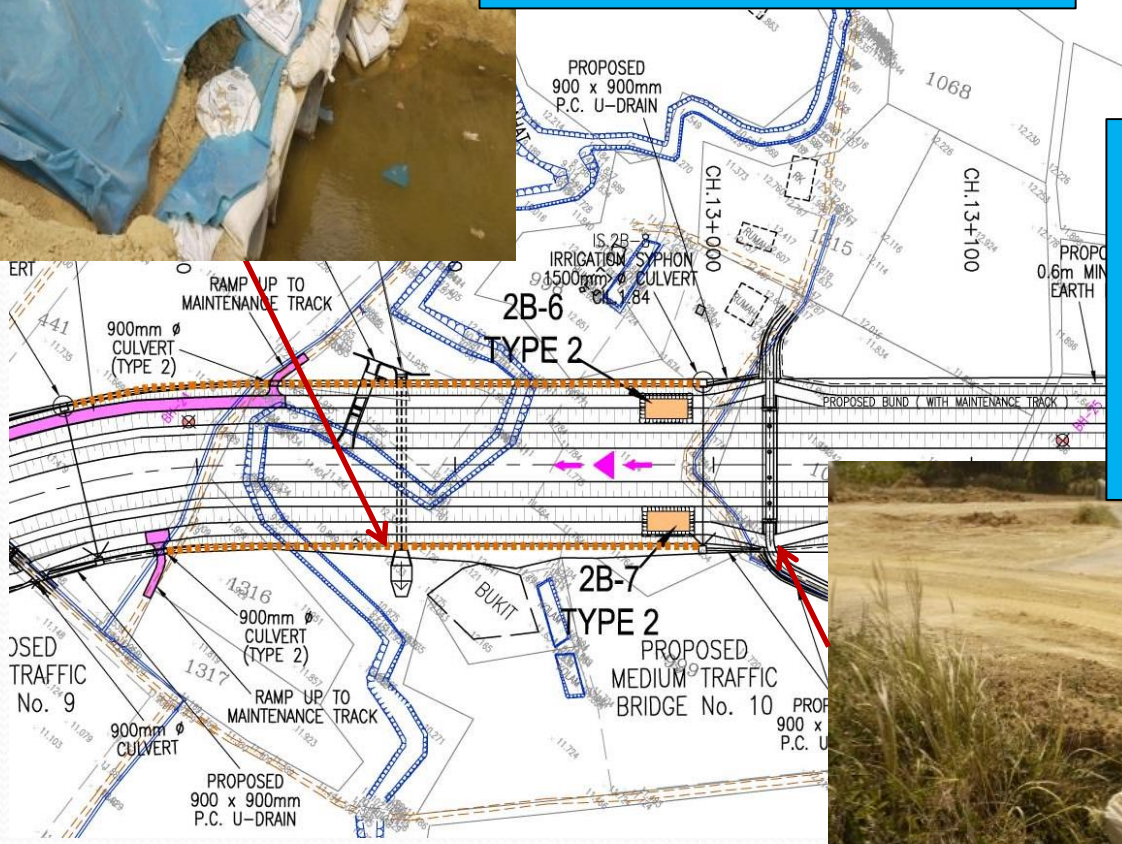
Contractors	Silt Traps	Earth Drains	Check Dams	Silt Fence (m)	Sand Bag Barriers
(Package 1)	NA	100% Constructed	0/1	0/800	0/100
(Package 2A)	4/8	100% Constructed	4/8	0/300	0/400
(Package 2B)	5/14	100% Constructed	0/10	940/1200	350/600
(Package 2C)	0/7	100% Constructed	0/6	250/800	150/3000
(Package 3)	3/4	100% Constructed	0/4	100/800	0/500
(Package 3A)	1/6	50% Constructed	1/6	NA	NA

BEST MANAGEMENT PRACTICES

(Erosion control)

BEST MANAGEMENT PRACTICES

Sand bags are provided together with plastic sheets for slope protection at the Sg. Batu Pahat diversion at CH12900



BEST MANAGEMENT PRACTICES

Sand bags are provided to prevent soil from falling into the earth drain and blocking the culvert

Exposed slope is protected with covering of plastic sheet.

AFTER

AFTER

BEFORE

NCR : ITEM NO. 4(a)

Earth slopes at CH8590 without mitigation along Sg. Temenggong.

BEFORE

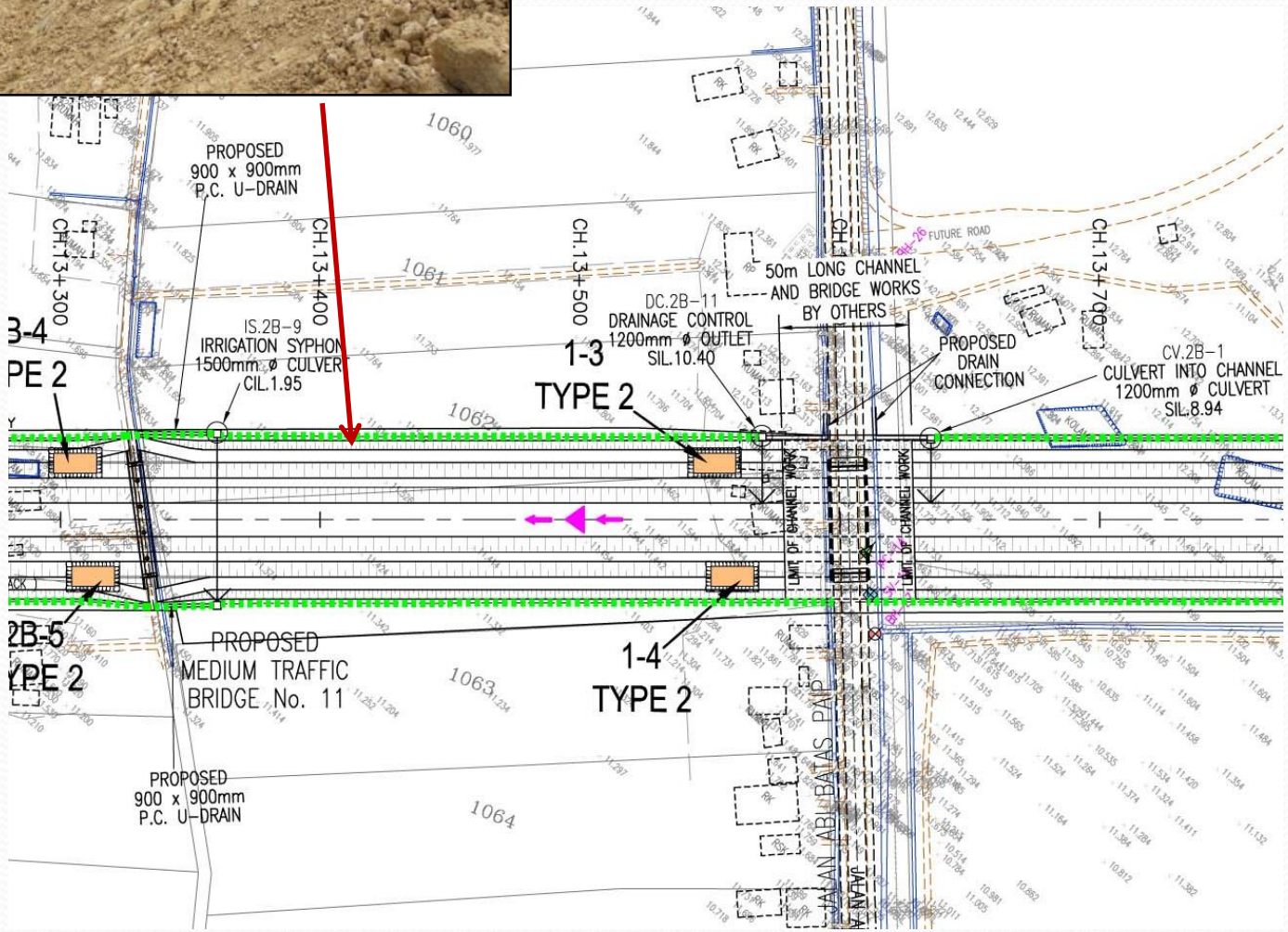
OBSERVATION : ITEM NO. 4(a)

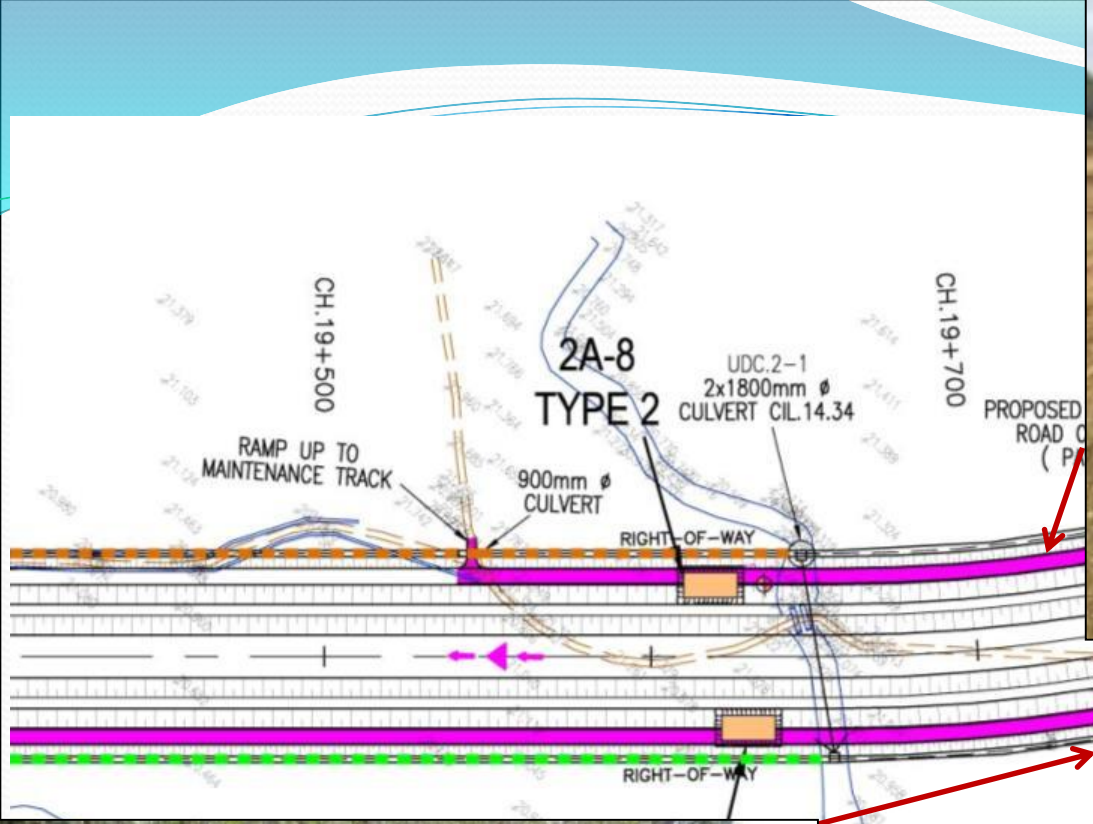
Earth slopes at CH8650 without mitigation along Sg. Temenggong.

BEST MANAGEMENT PRACTICES
(Surface Runoff Control)

BEST MANAGEMENT PRACTICES: ITEM NO.2

Cut off earth drains constructed from CH12900 to CH13500





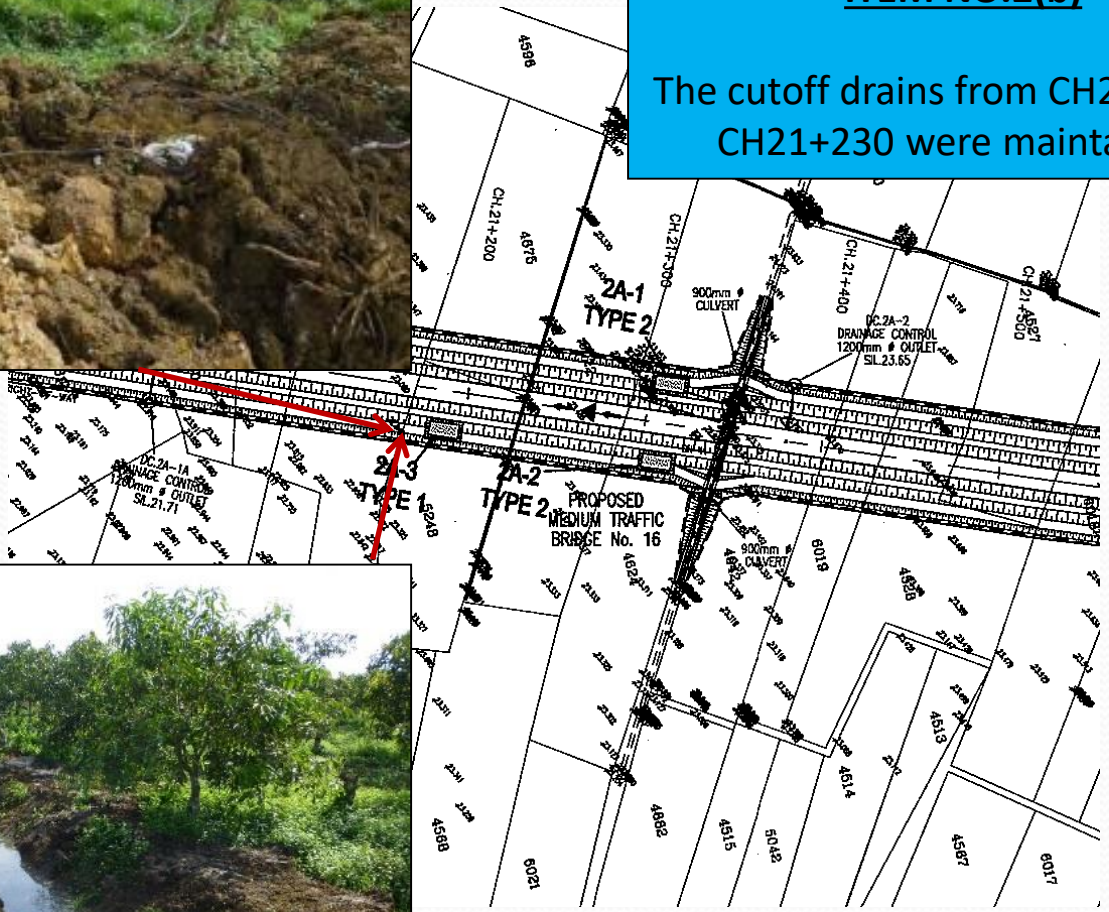
BEST MANAGEMENT PRACTICES:
ITEM NO.2(a)

Cut off earth drains along the ROW boundaries of the working area have been established and maintained

BEFORE

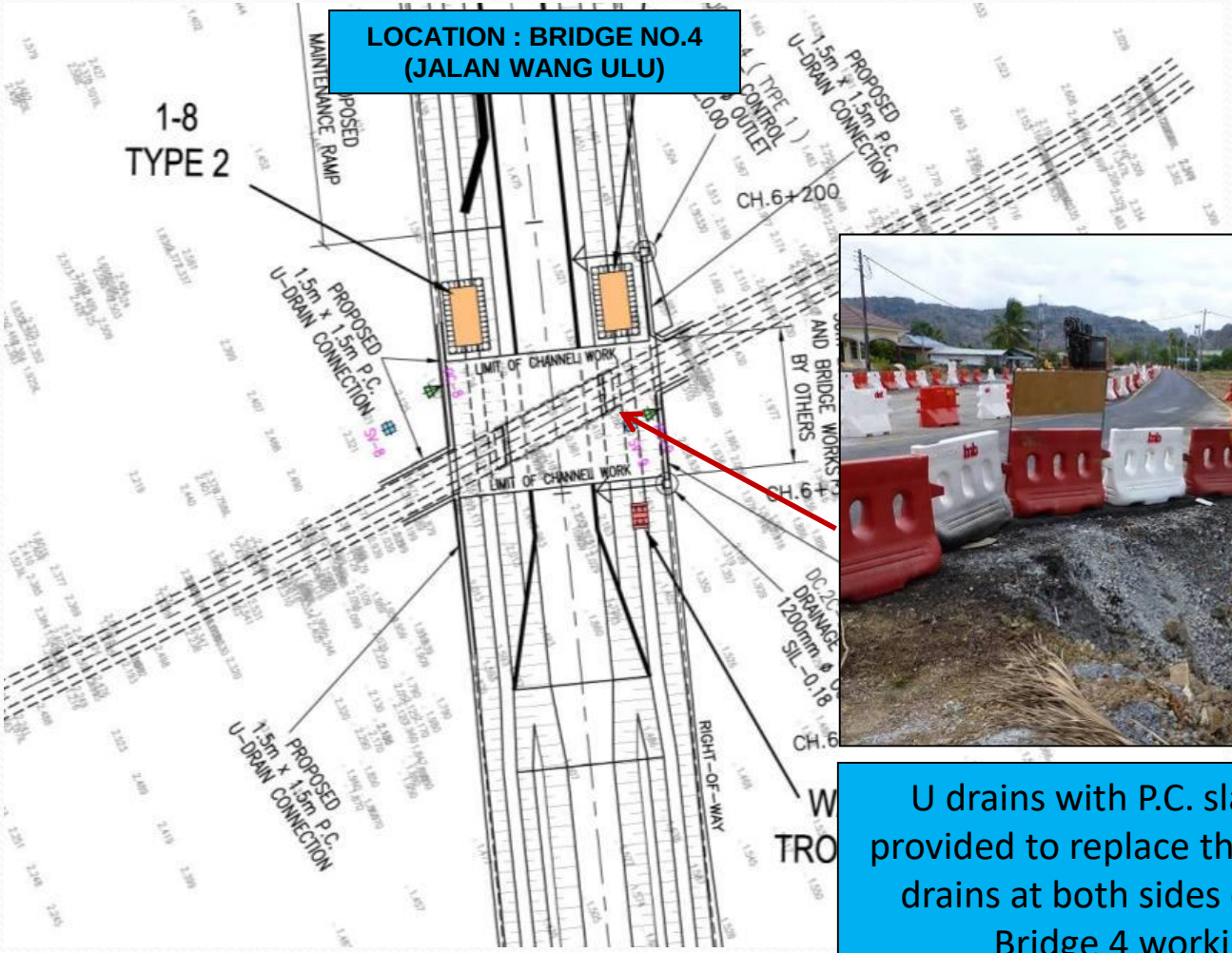
BEST MANAGEMENT PRACTICES: ITEM NO.2(b)

The cutoff drains from CH21+170 to CH21+230 were maintained.



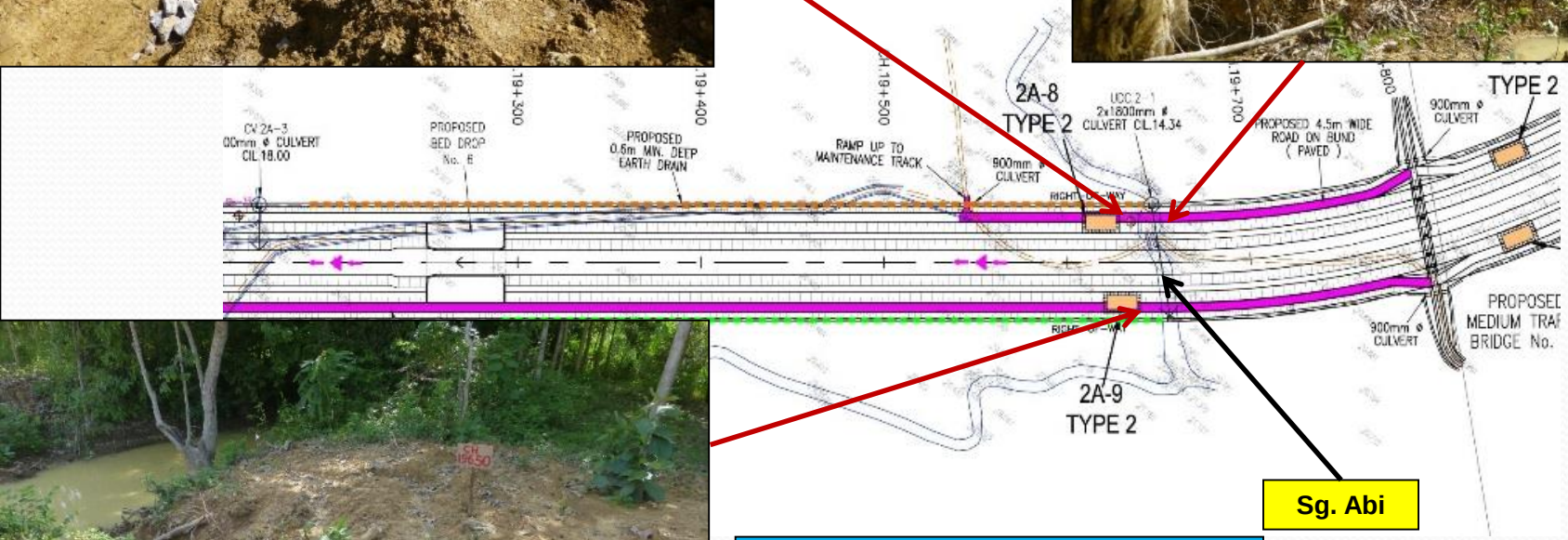
AFTER

LOCATION : BRIDGE NO.4 (JALAN WANG ULU)



U drains with P.C. slab covers are provided to replace the existing earth drains at both sides of the road at Bridge 4 working area.

BEST MANAGEMENT PRACTICES
(Sedimentation Control)

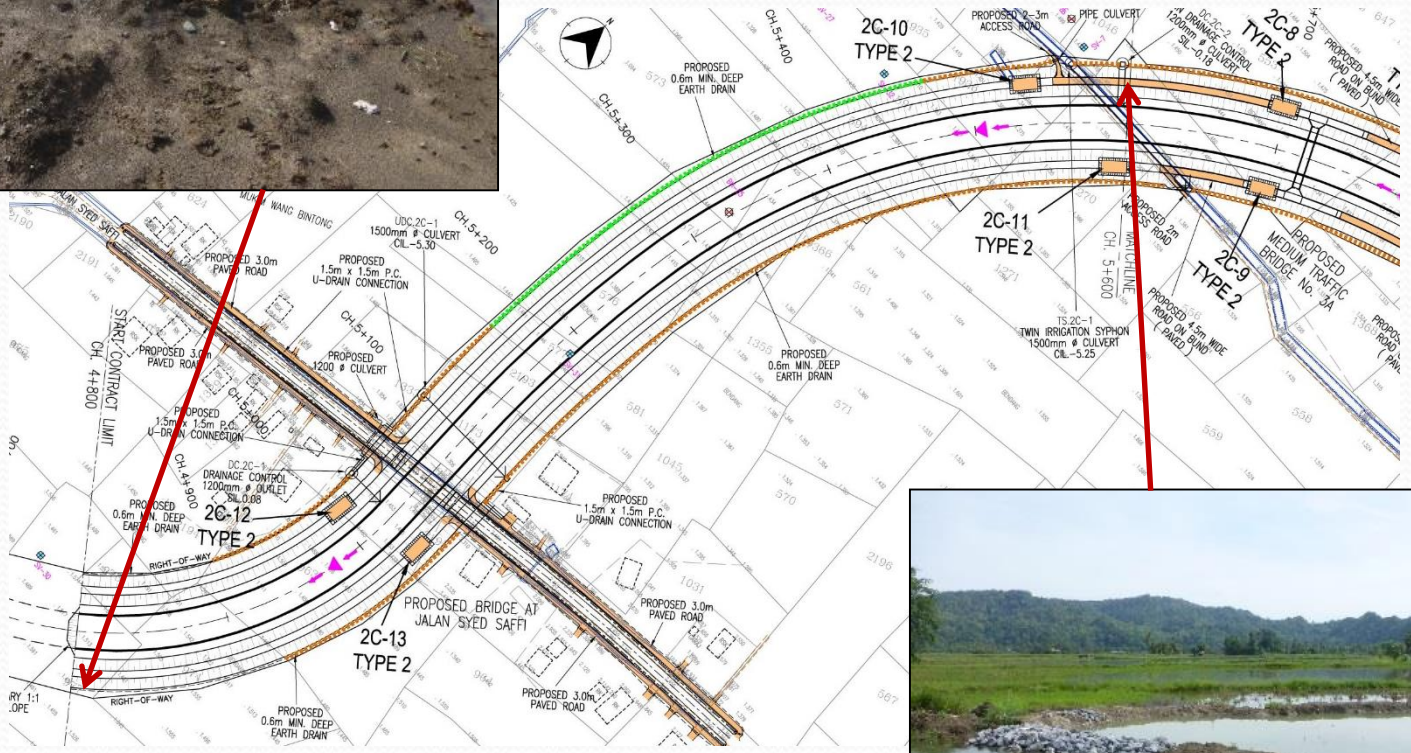


BEST MANAGEMENT PRACTICES: ITEM NO.2(a)

Three (3) checkdams are provided at the earth drains at CH19650.

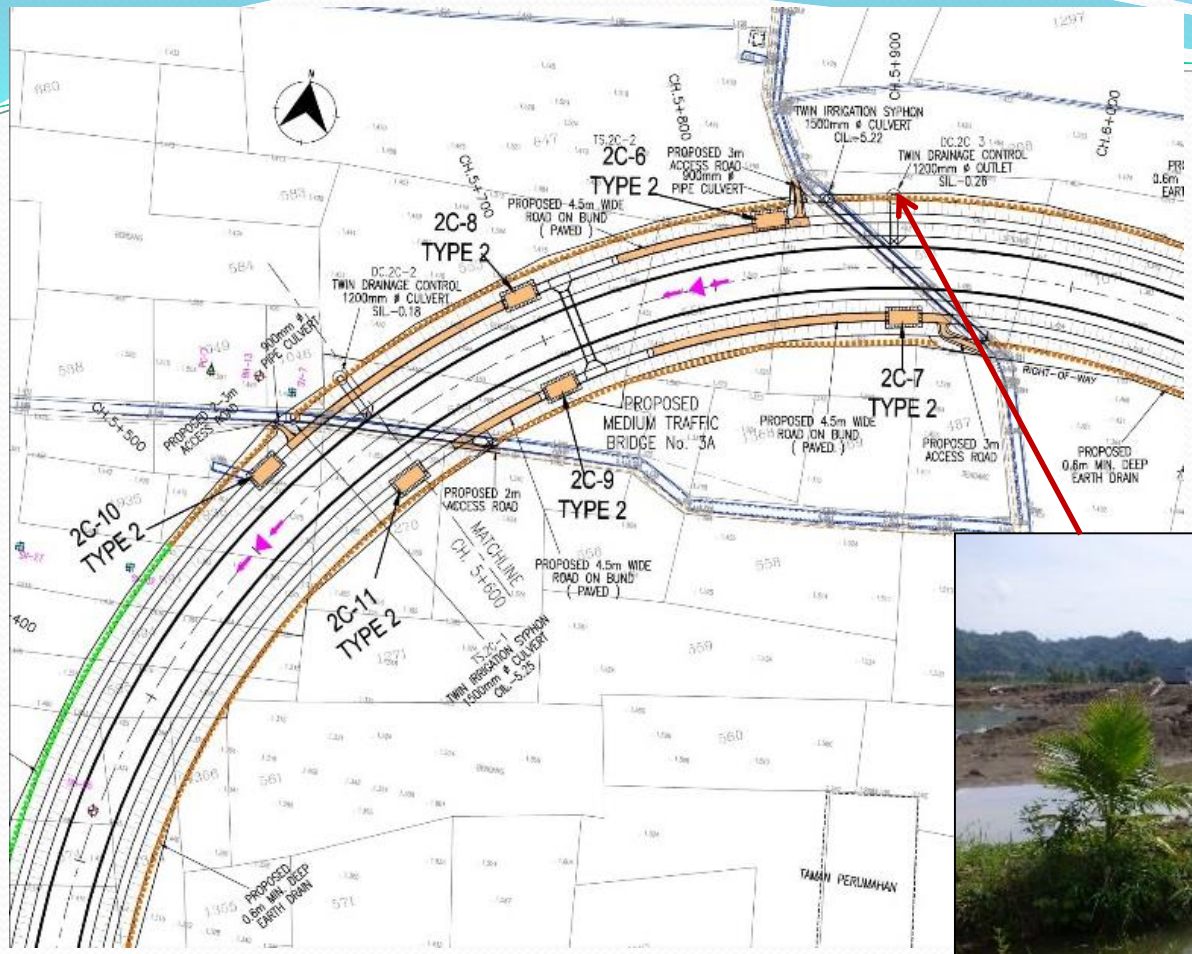
BEST MANAGEMENT PRACTICES: ITEM NO.2(a)

Silt trap/sediment basin has been provided at CH4800



BEST MANAGEMENT PRACTICES: ITEM NO.2(a)

Silt trap/sediment basin has been provided at CH5650.



BEST MANAGEMENT PRACTICES:
ITEM NO.2(a)

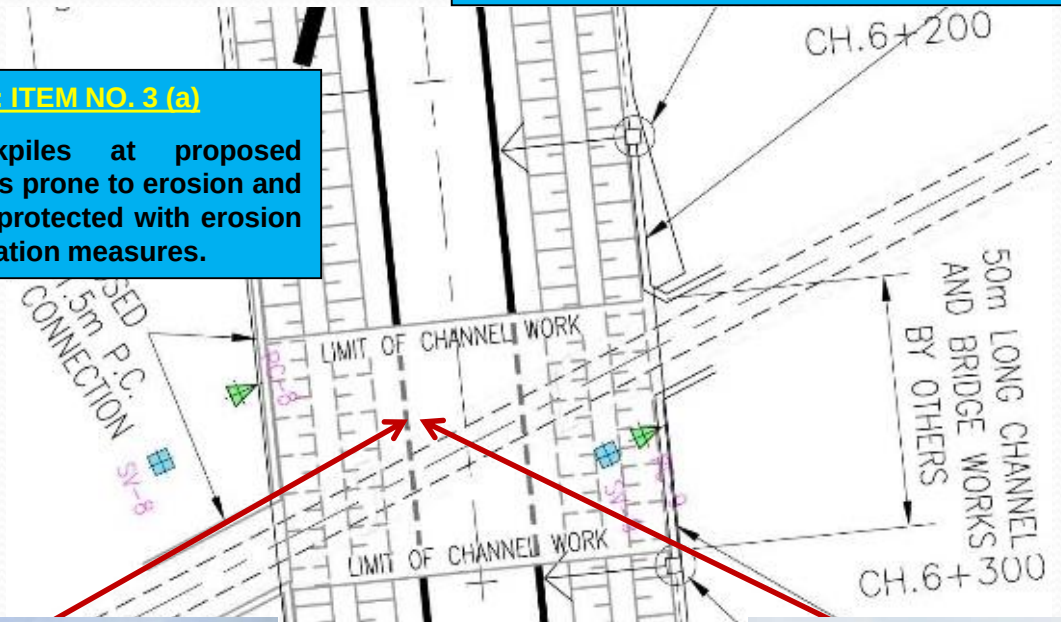
Silt trap/sediment basin has been provided at CH5900.

ESCP NCRs RAISED

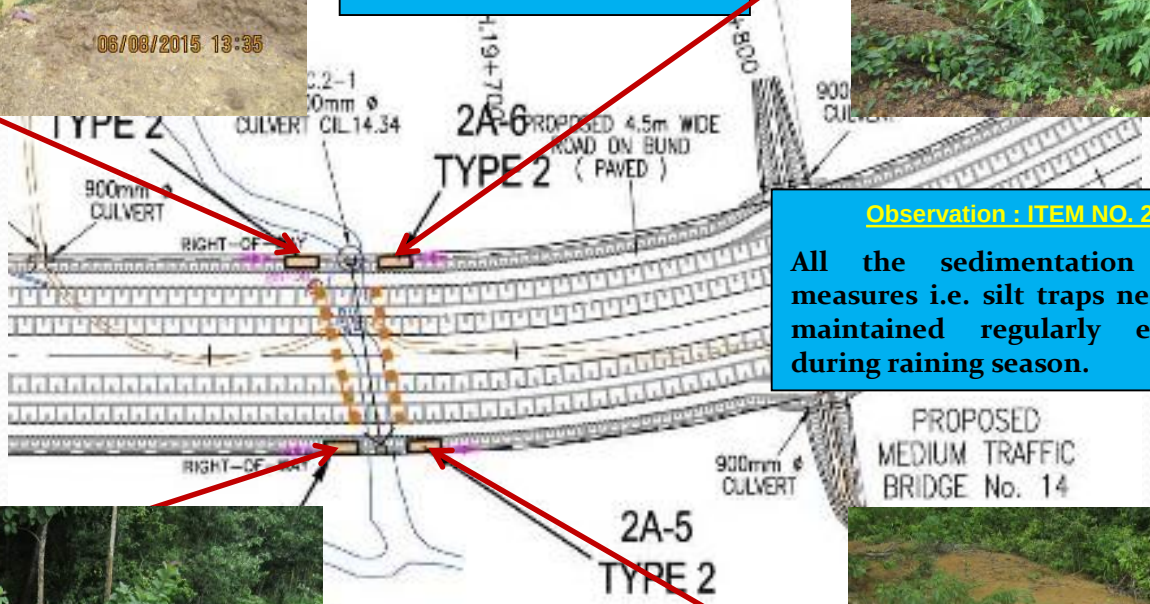
LOCATION : BRIDGE NO. 4 (Jalan Wang Ulu)

NCR : ITEM NO. 3 (a)

Earth stockpiles at proposed Bridge No.4 is prone to erosion and needs to be protected with erosion control mitigation measures.



Package 2A: CH19600 – CH19700

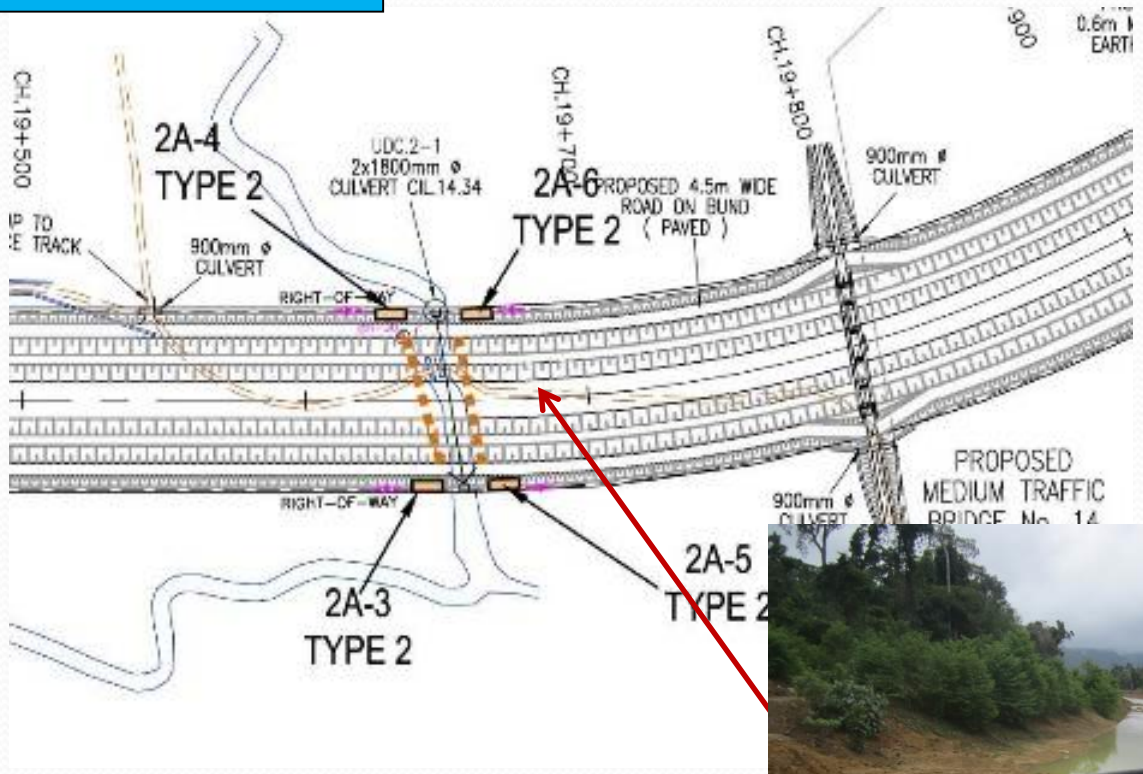


Observation : ITEM NO. 2 (a)

All the sedimentation control measures i.e. silt traps need to be maintained regularly especially during raining season.

Observation : ITEM NO. 2 (b)

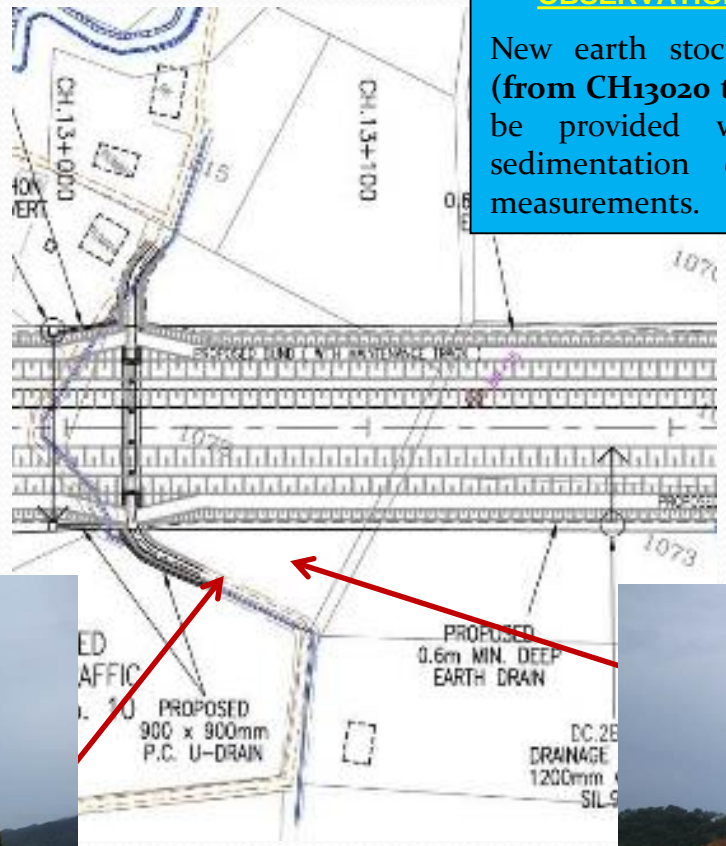
Silted water was observed pumped and discharged into earth drain at CH19+680.



Package 2B: CH13020 to CH13100

OBSERVATION : ITEM NO. 2 (a)

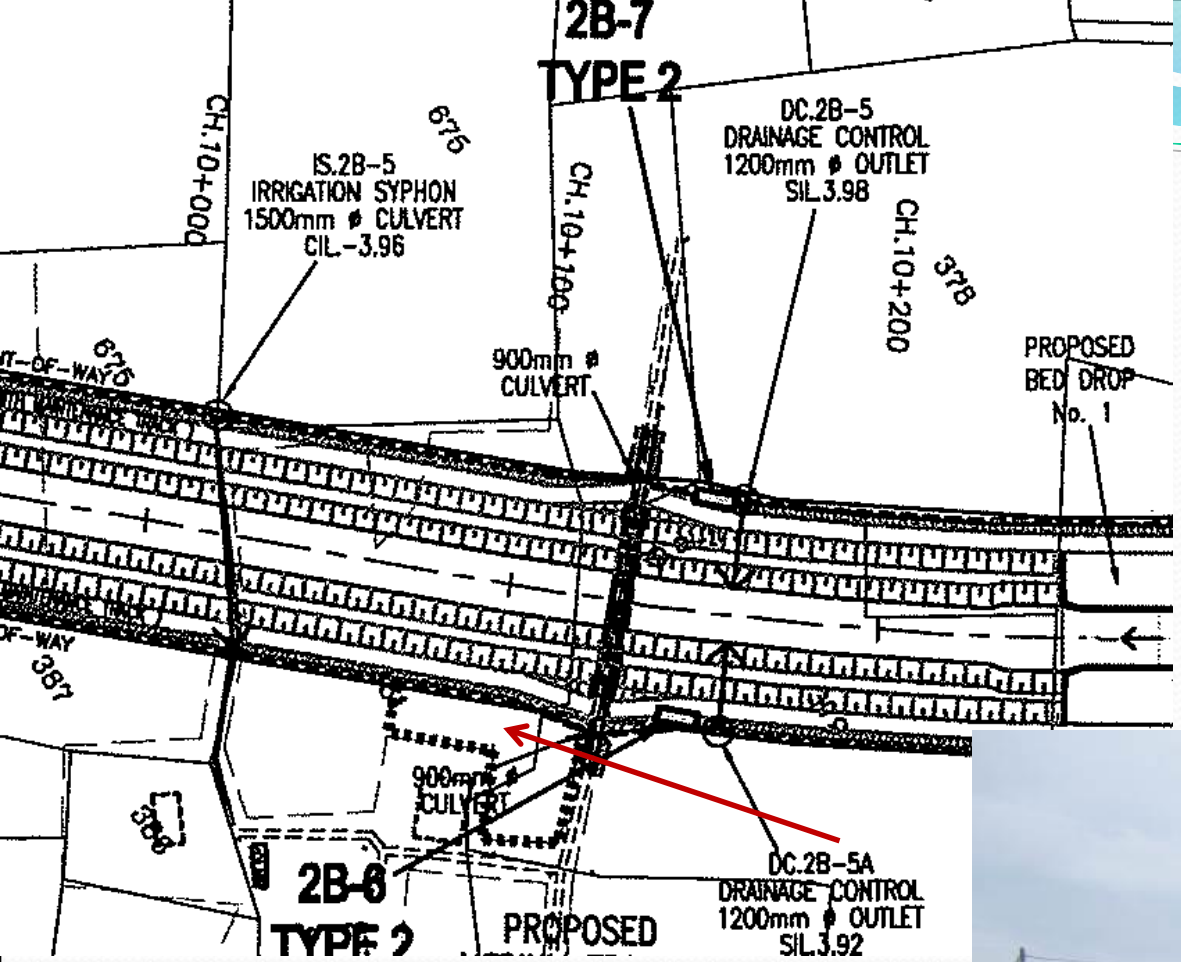
New earth stockpiles at Lot 1072 **(from CH13020 to CH13100)** have to be provided with erosion and sedimentation control mitigation measurements.



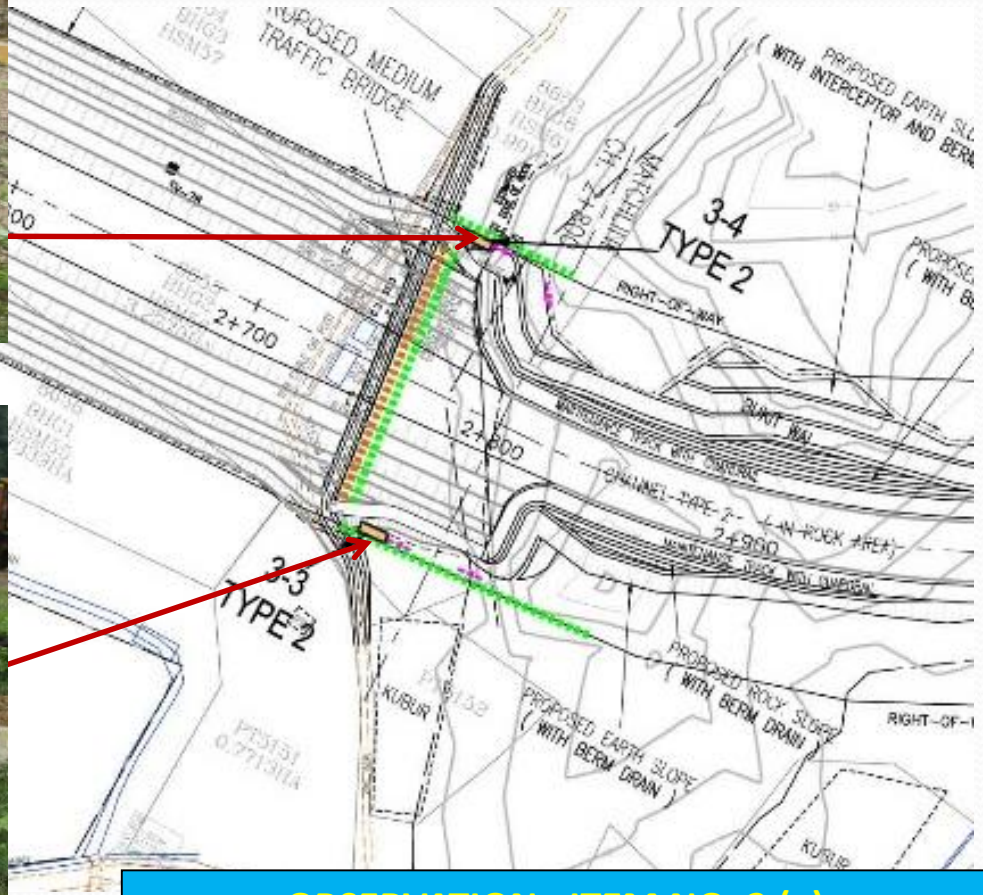
Package 2B: CH10100 Lot 387

OBSERVATION : ITEM NO. 2 (b)

Damaged silt fences at CH10100 Lot 387 need to be maintained and repaired.



Package 3: Bukit Wai CH2750



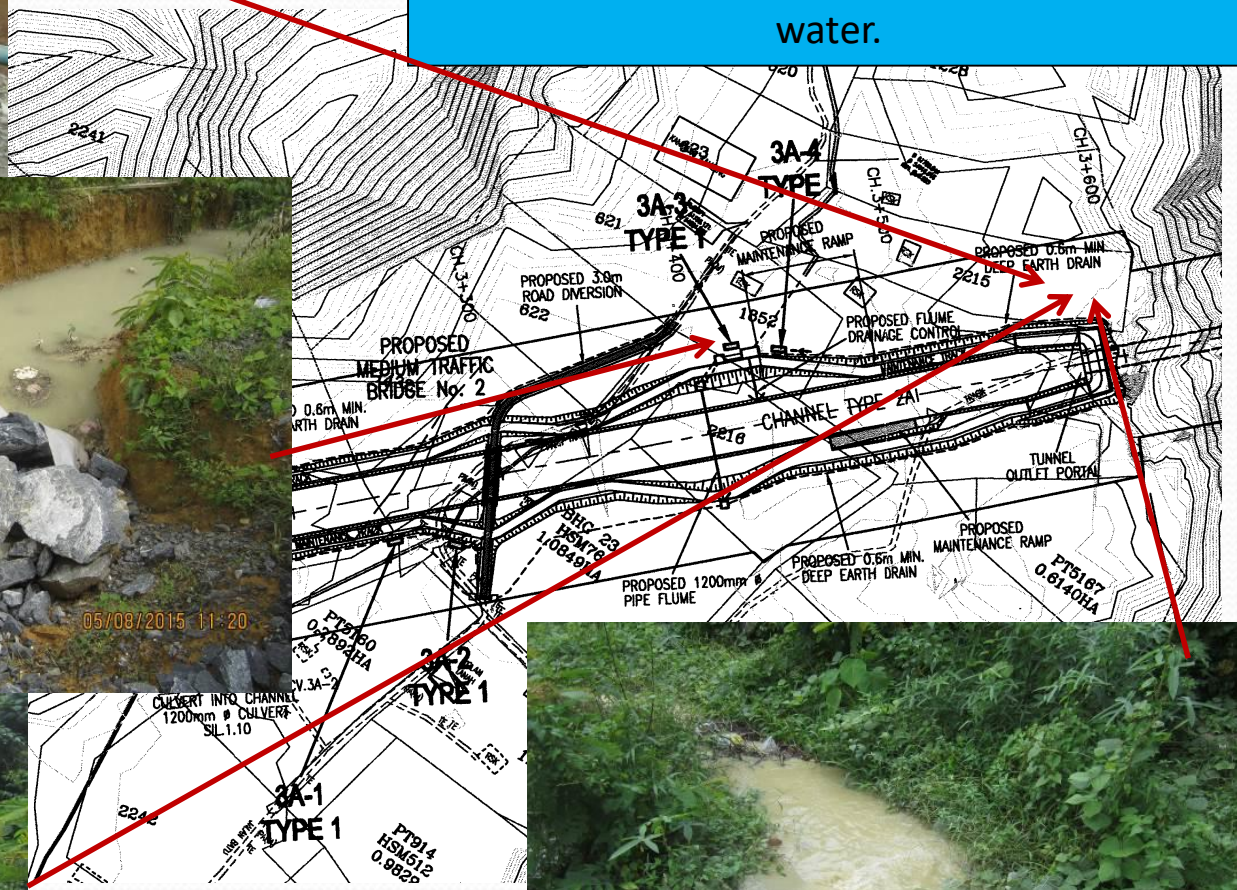
OBSERVATION : ITEM NO. 2 (a)

Silt traps 3-3 and 3-4 at CH2750 have to be provided with gabion and geotextile to mitigate against sedimentation effectively.

Package 3A: Bukit Tebing Tinggi Site

OBSERVATION : ITEM NO. 2(a)

Sedimentation control (i.e. silt traps) has to be installed with geotextiles to filter the silted water.



Take Away Points From Project

- Complaints from Villagers

  During dry season, the villagers need water from earth drain (Project Site) thus the earth drains are damaged to allow water to be diverted into their paddy fields but during the wet season the run off water needs to flow faster out of the site so that it does not overflow and damage the paddy fields.

- Constraint of ROW

  Major work for the Project Site is Earthwork. Thus, there is no adequate area to be used for ESC work such as construction of Silt Trap until nearing completion of the Project.

Take Away Points From Project

- The ESC is mainly needed at the stockpile areas which are generally not addressed in the BQ as separate items;
- Poor understanding of how to cost for ESC items. One contractor only allowed RM5000 for ESC while another costed RM400,000 and has been able to implement all measures proposed;
- Maintenance was not costed in by most contractors;
- Monitoring is under the contractor BQ. No monitoring results has been obtained in the last few months as lab was not paid;
- The need for full time Environmental Officer as requested by DOE will be needed for future contracts under JPS.

ESCP Implementation At Other Developments

-Best Management Practices (BMPs)
-Improper Environmental Practices

EXAMPLE OF BEST MANAGEMENT PRACTICES (BMP)



BEST MANAGEMENT PRACTICES
-Site Clearing-

BIOMASS MATERIAL

- **Secondary forest trees and Rubber** → To be harvested and sold to wood manufacturers in Rawang and Sg. Buloh area.
- **Oil Palm** → To be shredded into the fine fibre by shredder machines and mulched at the designated area
- **Shrubs and Other Secondary Vegetation** → **Mulching Method** → Left to Decompose

Note:

Open burning and disposal into the receiving waterbody is strictly prohibited;
Designated disposal area will be placed away from any waterbody

BEST MANAGEMENT PRACTICES
-Site Clearing-

Temporary Mulching

- Cleared vegetation can be used as temporary protection measure especially at bare slopes to minimize soil erosion on-site.

BEST MANAGEMENT PRACTICES
-Runoff Control-

Swale earth drains

Earth drains laid with gravel

Typical temporary earth drains

BEST MANAGEMENT PRACTICES
-Runoff Control-

Gabions placed in between the temporary earth drain and permanent drain.

BEST MANAGEMENT PRACTICES
-Runoff Control-

Check dams lined with geotextile material

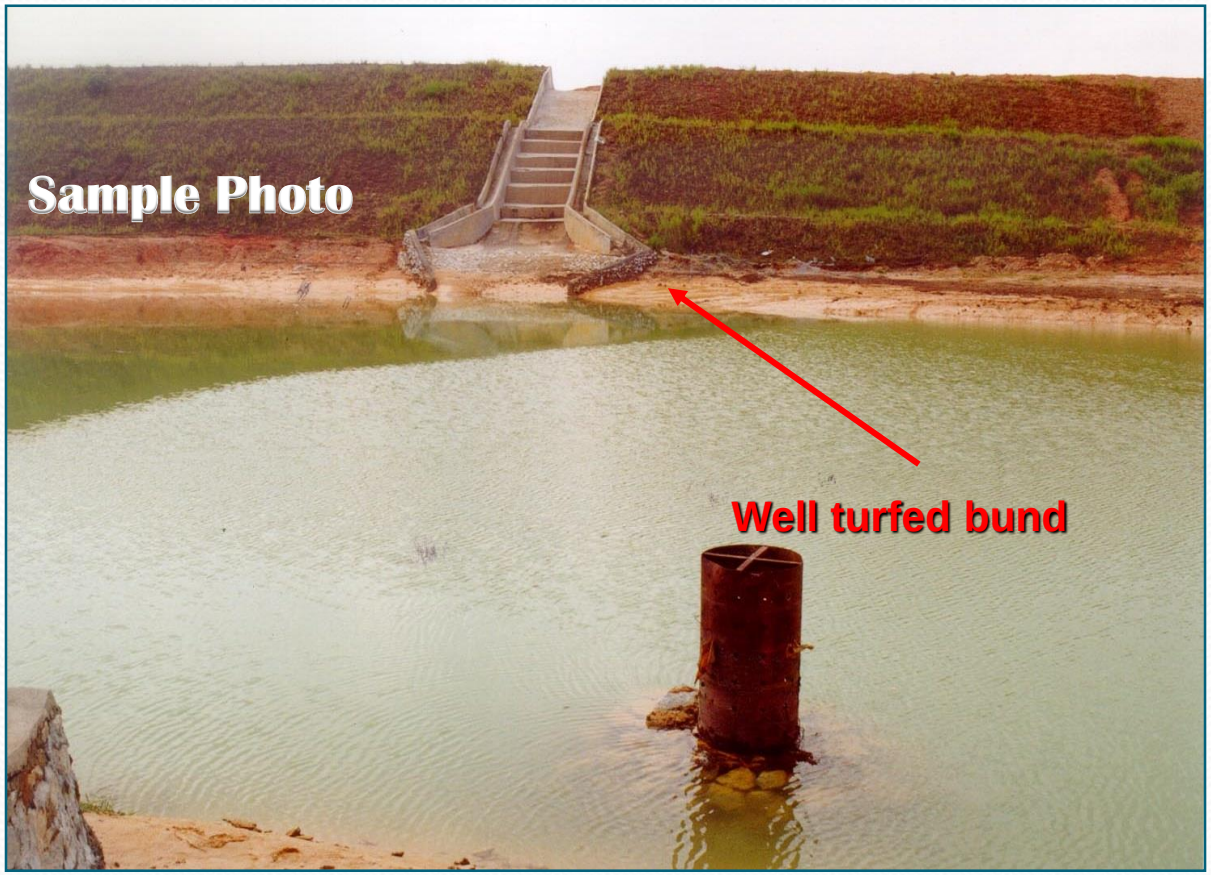
BEST MANAGEMENT PRACTICES
-Sediment Control-

Silt traps constructed in series.

BEST MANAGEMENT PRACTICES
-Sediment Control-

- Silt trap equipped with riser pipe
- Gabions placed at the outlet of silt trap discharge

BEST MANAGEMENT PRACTICES
-Sediment Control-

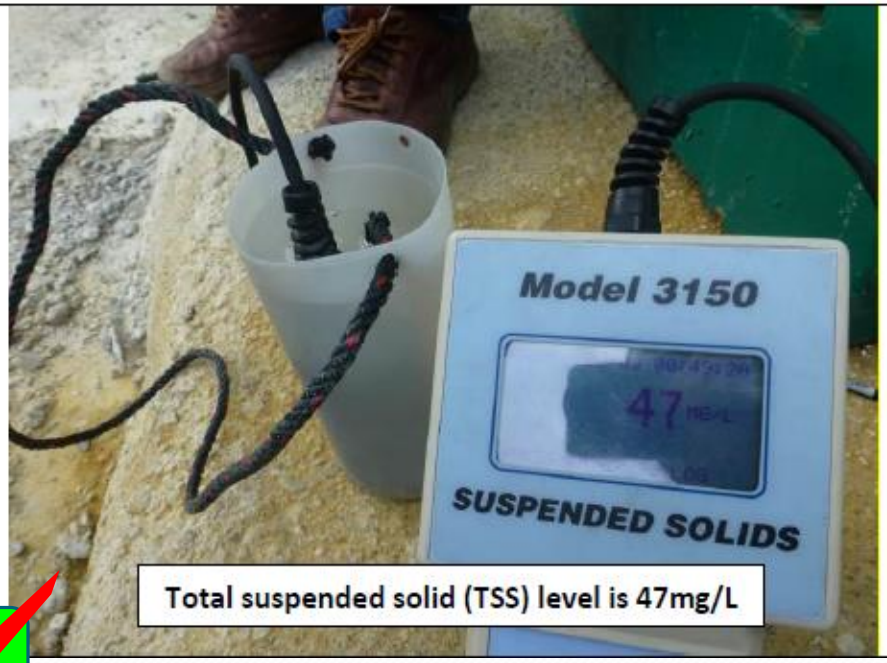


Silt marker provided to indicate the silt level in the pond.

Both wastewater treatment plants with capacity of 80m^3/hour at Pasar Rakyat Station Site

Discharges from both wastewater treatment plants

Water sample was taken from the final discharge from wastewater treatment plants.



Total suspended solid (TSS) level is 47mg/L

BEST MANAGEMENT PRACTICES
-Sediment Control-

Temporary Rolled Erosion Control Product (RECP) channel lining can prevent water runoff & silt from flowing to the area that are not worked on / stabilized site.

BEST MANAGEMENT PRACTICES
-Sediment Control-

Biodegradable silt berm & aggregate bund.

BEST MANAGEMENT PRACTICES
-Sediment Control-

Silt fence

BEST MANAGEMENT PRACTICES
-Sediment Control-

BEST MANAGEMENT PRACTICES
-Sediment Control-

Sand bags lined with geotextile material placed along the perimeter to prevent silt-laden water from flowing onto adjacent land.

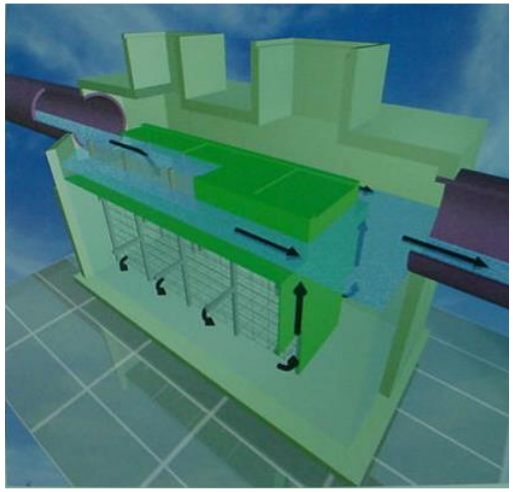
Sand bags lined with plastic sheet material placed along the perimeter to prevent silt-laden water from flowing onto neighbouring land.

PERMANENT CONTROLS

GROSS POLLUTANT TRAP

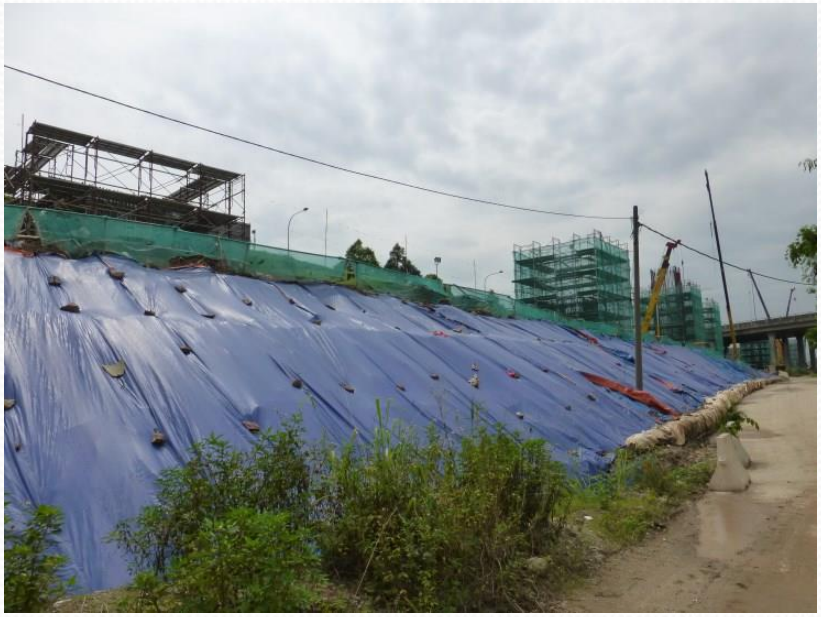
Function :-
To control the flow of sediment and rubbish from entering the main water system eg. river, streams, main drains, lakes

RUBBISH SCREEN/ SEDIMENT TRAP



PATENTED GROSS POLLUTANT TRAPS (eg. ECOSOL, CDS, ROCLA)

BEST MANAGEMENT PRACTICES
-Erosion Control-



Slope and bare area protection with temporary plastic sheet.

BEST MANAGEMENT PRACTICES
-Erosion Control-

Slope area protection with Rolled Erosion Control Protection (RECP).

BEST MANAGEMENT PRACTICES
-Erosion Control-

BEST MANAGEMENT PRACTICES
-Erosion Control-

Slope and bare area protection with temporary plastic sheet.

BEST MANAGEMENT PRACTICES
-Erosion Control-

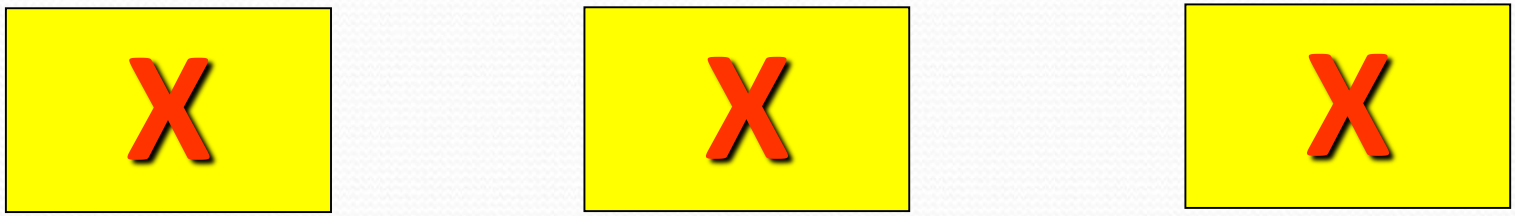
Turf or cover the fringe of the drain with plastic sheet

BEST MANAGEMENT PRACTICES
-Erosion Control-

Turfed Slope

- Permanent slopes should be turfed immediately after completion to prevent slope failure;
- These slopes should be equipped with berm drains and cascading drains as well.

IMPROPER ENVIRONMENTAL PRACTICES/NON-COMPLIANCES



IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Platform Eroded

- Platform not sufficiently compacted;
- Bare land not turfed/covered

.

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Slope

- Exposed slopes not turf or covered with plastic cover
- Formation of gullies

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Silt Trap

- Banks not turf hence eroded.
- Pond heavily silted.

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Silt Trap

- Not constructed according to the design
- Heavily silted

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

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Drainage.

- No temporary drain hence water free-flowing on the ground.

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Discharge.

- Discharge is not within compliance.
- Silted discharge

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Discharge.

- **Silted discharge**

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Discharge

- Heavily silted discharge;
- Exceedance of the permissible limit of 50 mg/L for TSS (Total Suspended Solids).

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Domestic waste

- Rubbish not properly disposed.
- Caused clogging and blockage
- Water dark green in color and foul smelling

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Domestic waste

- Rubbish not properly disposed.

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Bad Housekeeping

- **Tires and rubbish are often seen to be dumped at the existing streams/drains which blocks the flow.**

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

- Toilet not equipped with septic tank.

X

IMPROPER ENVIRONMENTAL PRACTICES/ NON COMPLIANCE

Sewage

- Septic tank not provided
- Desludging of septic tank is not carried out periodically
- Direct discharge into nearby drainage

X

Take Away Points From Projects' ESCP

- Understanding of ESCP

Most projects do not have ESCP as individual items in their BQ as BQs are prepared by QS' who are not familiar with it;

- Allocation for ESCP

Most earthworks contracts do not have sufficient budget allocation for ESCP as it is seen as designed as not being important;

- Scheduling of ESCP

Most projects do not place priority in doing ESCP first before they start earthworks and most ESCP is designed for finished platforms.

THANK YOU