GUIDANCE DOCUMENT
FOR ADDRESSING SOIL EROSION AND SEDIMENT CONTROL ASPECTS IN THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT

REQUIREMENT TO ADDRESS SOIL EROSION AND SEDIMENT CONTROL ASPECTS IN ALL EIA REPORTS

1. All Environmental Impact Assessment (EIA) reports are required to address the aspects of soil erosion and sediment control.

PURPOSE OF THE GUIDANCE DOCUMENT

2. This Guidance Document is prepared to assist project proponents and environmental consultants in addressing the aspects of soil erosion and sediment control in the EIA reports. The information required as specified in this Guidance Document is additional to that required by the handbook of Environmental Impact Assessment Guidelines and EIA specific guidelines for different sectors.

CONTENT OF RELEVANT CHAPTERS ADDRESSING SOIL EROSION AND SEDIMENT CONTROL

3. Soil erosion and sediment control shall be discussed in the following chapters in the EIA report.

3.1 Project Description

The project concept shall take into consideration the following aspects amongst others: terrain, geology, natural topography, hydrology and natural features.

Specifically, the following principles shall be adopted:-

a. Plan the development to fit the particular topography, soils, drainage patterns, natural features and vegetation of the sites, which is to be reflected in the layout plan.

b. Method statement that describes how the major activities of the project that may cause erosion and sedimentation are going to be undertaken. Taking into consideration site conditions involved, the method statement shall also incorporate appropriate phasing (taking into account rainy seasons or monsoon period), preservation of green areas and buffer zones.

3.2 Project Options

Describe options for method statement and layout plans and the reasons why a specific method statement and layout plan has been chosen.

3.3 Description of the Existing Environment

Apart from the information required as described in the Handbook of Environmental Impact Assessment Guidelines, the following information shall be included:-

a. Geological terrain mapping (for development on hills and highlands) in accordance with the requirements of the Department of Minerals and Geoscience (Manual Pemetaan Geologi Terain, JMG 2006).

b. Erosion risk map.

c. Pre development conditions taking into consideration the following factors:- rainfall-runoff erosivity factor (R), soil erodibility (K), topographic factor (LS), cover management factor (C), erosion control practice factor (P), volume of runoff (V) and peak flow (Q) for the storm event in order to determine soil loss and sediment yield using Revised Universal Soil Loss Equation (RUSLE) and Modified Universal Soil Loss Equation (MUSLE).

All factors used in the RUSLE and MUSLE shall be taken from local conditions and results from studies conducted locally.

R= rainfall erosivity data, must be obtained from rainfall station nearest to the project site based on average ten years records.

C = cover management factor must be taken from the published results of studies by the DID Malaysia or other researchers, if unavailable.

K= soil erodibility data, must be obtained from results from tests done for the specific site. Tests must be conducted to obtain values for K (erodibility).

3.4 Potential Significant Impacts

Apart from the information required as described in the EIA Handbook, the information on R, K, LS, C, P, V, and Q for the storm event shall be provided and used to determine soil loss and sediment yield using Revised Universal Soil Loss Equation (RUSLE) and Modified Universal Soil Loss Equation (MUSLE) for the following scenarios:

a. During development/construction:

   i. Without mitigating measures (worst case scenario).

   ii. With mitigating measures.

b. Post development conditions

The calculation to determine the soil loss (RUSLE) and sediment yield (MUSLE) must be performed according to the stages of construction and phases of development.

Mitigation measures shall be instituted to ensure that the pre development's flow conditions at the site are maintained in the post development stage.

The details of RUSLE and MUSLE calculations in paragraphs 3.3c, 3.4a and 3.4b shall be included as an appendix to the EIA report.

4. Mitigation and Abatement Measures

4.1 Principles in Erosion and Sediment Control

To prevent erosion and control sediment, the following primary principles shall be adopted:-

a. Integrate project design with site constraints.

b. Preserve and stabilize drainageways.

c. Minimize the extent and duration of disturbance.

d. Control stormwater flows onto, through, and from the site in stable drainage structures.

e. Install perimeter controls.

f. Stabilize disturbed areas promptly in a timely manner.

g. Protect steep slopes.

h. Use sediment controls to prevent off-site damage.

i. Protect inlets, storm drain outfalls, and culverts.

j. Provide access and general construction controls.

k. Inspect and maintain control measures.

l. Employ experienced and competent personnel.

In addition to the measures taken in conformity with the above principles, erosion and sediment loss from the site shall be effectively controlled by applying appropriate Best Management Practices (BMPs).

4.2 Conceptual Erosion and Sediment Control Drawings

The following information shall be provided:-

Conceptual erosion and sediment control drawings to be superimposed with topography map (example as shown in Appendix A) indicating mitigating measures/ BMPs to be implemented on the site. The BMPs shall include both temporary and permanent measures as described in paragraph 4.1. The drawings shall contain the following information:

i. List of all BMPs indicating their number and location.

ii. Stockpile, overburden and spoil management areas.

iii. Areas to be preserved, critical buffer areas and river reserves.

The drawings shall be drawn to scale and the scale clearly indicated. Drawings shall be legible with standard coding and submitted in A1 or A3 paper depending on the size of the project.

PROFESSIONAL TO PREPARE WRITE-UP ON SOIL EROSION AND SEDIMENT CONTROL IN EIA REPORT

5. The write-up on soil erosion and sediment control as required by this Guidance Document shall be undertaken by an environmental consultant who is knowledgeable and experienced in the subject matter and holds a certification as a certified professional in erosion and sediment control (CPESC)*.

(*Note: As an interim measure, an equivalent certification may be acceptable. Non-CPESC professionals shall submit their certificates to the DOE for verification. Only those approved by the DOE can be assigned to do the write-up on soil erosion and sediment control in the EIA report).

PROVISION OF FUND FOR SOIL EROSION AND SEDIMENT CONTROL

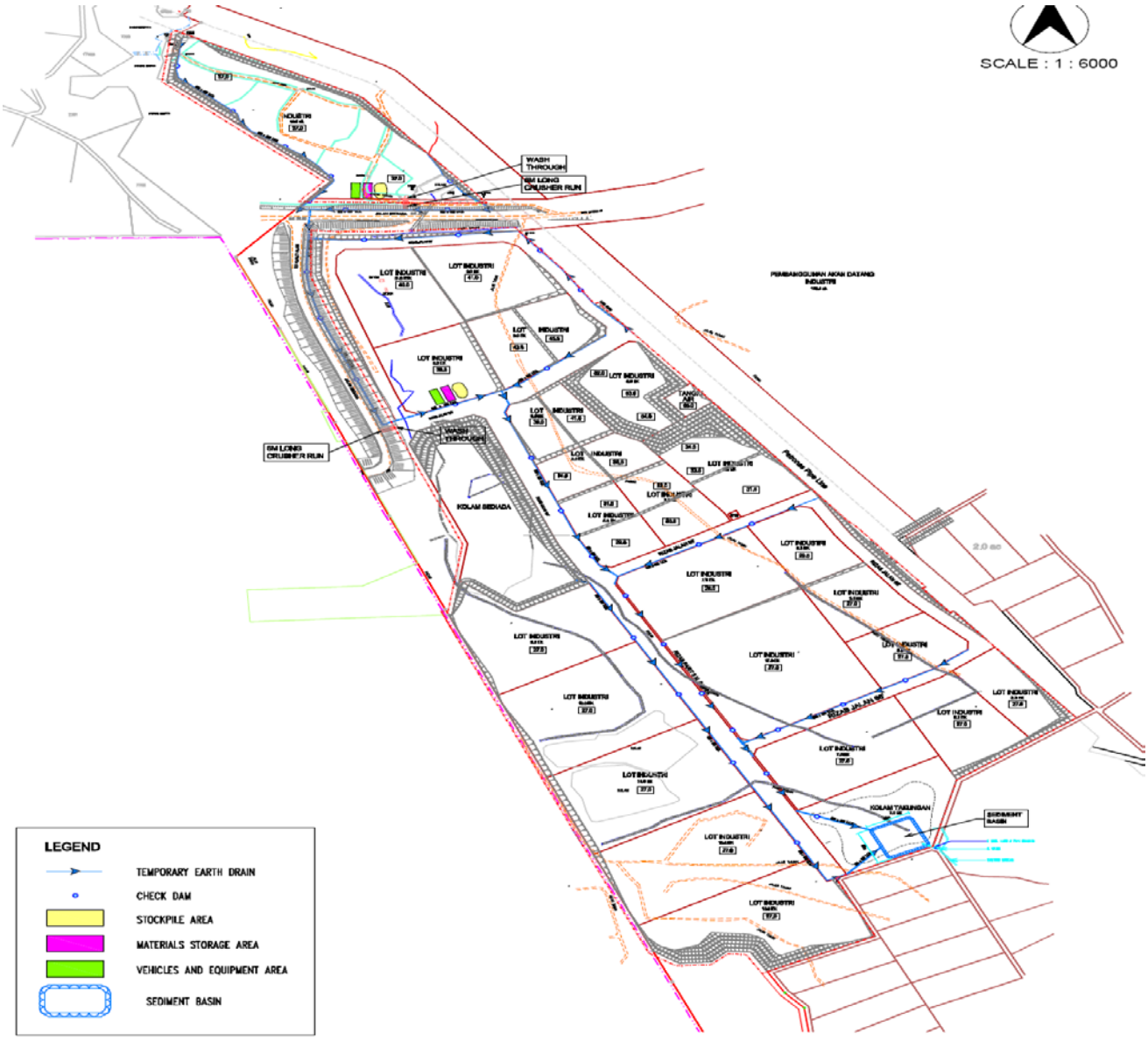
6. Sufficient fund shall be made available for the implementation of BMPs and their maintenance, including EMP preparation, auditing, monitoring and emergencies. The commitment of the project proponent on making the fund available for the above purposes shall be clearly stated in the EIA report.

Department of Environment, Malaysia

December 20, 2010

APPENDIX A

EXAMPLE OF CONCEPTUAL EROSION AND SEDIMENT CONTROL DRAWING



Note : Drawings to be superimposed with topography map shall include :

- All BMPs indicating their number and location.
- Stockpile, overburden and spoil management areas.
- Areas to be preserved, critical buffer areas and river reserves.