

Schedule - D

(See Clause 2.1)

Specifications and Standards

1. Construction

The Contractor shall comply with the Specifications and Standards set forth in Annex-I of this Schedule-D for construction of the Project Highway.

2. Design Standards

The Project Highway including Project Facilities shall conform to design requirements set out in the following documents:

Manual of Specifications and Standards for Two Laning of Highways (IRC: SP: 73), referred to herein as the Manual

Code for Practice of Road Signs IRC 67:2001.

The Hill Road Manual IRC SP 48 -1998 should be referred.

THE NATIONAL GREEN TRIBUNAL PRINCIPAL BENCH, NEW DELHI on 01th Nov, 2018

Following recommendations and suggestions have been made for dumping muck & dumping yard:-

- a. Before dumping muck at the dumping yard first of all retaining/ gabion walls of specified capacity and suitable design should be constructed.
- b. All the dumping sites should be properly designed with retaining wall/gabion structures and should be maintained regularly in order to check the spillage of the muck down the slope and into the rivers and other places.
- c. Wherever boulders are rolling down along with much, gabion structures/retaining wall should have sufficient foundation and bottom width should be 4-5 m. Length of one gabion structure should not be more than 6-8 m. Wherever more length of gabion structure is required one gabion structure should be bound with another
- d. If any new dumping sites are identified in future, then the retaining / gabion structures should be constructed at suitable vertical interval of 5-6 m so that entire disposed muck may not exert pressure only at one wall/ toe wall rather the load of muck should be distributed on different walls.
- e. Angle of repose of muck should be maintained between 30 to 45°. Long slopes should be intercepted to several short ones with the help of 1.5 to 2.0 m wide berms / terraces/ benches in between in order to maintain less than critical velocity for runoff water and simultaneously mass erosion will be controlled.

- f. The capacity/ volume of muck disposal site should be more than volume of muck to be disposed.
- g. Proper sign boards indicating the name, number, location, dumping capacity, etc. should be installed at all the dumping sites.
- h. Dumping sites which are full of their capacity they should be rehabilitated with local grass or shrubs. Jute geo textile (JGT) may also be used for establishment of vegetation at vulnerable sites.
- i. Gabion walls should be constructed above HFL of River. If slope is very high to construct a gabion wall then a RCC/stone masonry retaining wall should be given at bank of River after proper design including foundation. Height of this wall should be well above the HFL of River.
- j. Proper protection measures should be taken along with river-side stretch of the Nalupani area in order to stop spilling/falling of muck into the river.
- k. All construction sites should follow and comply with the provisions of the Construction and Demolition Waste Management Rules, 2016".

3. The contractor shall ensure maintaining plan/profile/x-sections approved by Authority's Engineer and any slope protection required shall be considered incidental to the original work with no extra payment/change of scope on this account.

Annex -I

(Schedule-D)

Annex -I: Specifications and Standards for Construction

1. Specifications and Standards

All Materials, works and construction operations shall conform to the Manual of Specifications and Standards for Two-Laning of Highways (IRC: SP:73) referred to as the Manual, IRC:SP:91-2010, IRC 56-2011 and MORTH Specifications for Road and Bridge Works. Where the specification for a work is not given, Good Industry Practice shall be adopted to the satisfaction of the Authority's Engineer.

2. Deviations from the Specifications and Standards

- (i) The terms "Concessionaire", "Independent Engineer" and "Concession Agreement" used in the Manual shall be deemed to be substituted by the terms "Contractor", "Authority's Engineer" and "Agreement" respectively.
- (ii) Notwithstanding anything to the contrary contained in Paragraph 1 above, the following Specifications and Standards shall apply to the Project Highway, and for purposes of this Agreement, the aforesaid Specifications and Standards shall be deemed to be amended to the extent set forth below:
- (iii) Note 1: Deviations from the aforesaid Specifications and Standards shall be listed out here. Such deviations shall be specified only if they are considered essential in view of project-specific requirements.

Clause Referred in Manual	Item	Provision as per Manual	Modified Provision	Remarks
2.2.1	Minimum design speed in hilly terrain.	40 kmph	At some locations shown in drawing, where the horizontal curve radius is not meeting the criteria as per clause 2.9.4 and table 2.5 of IRC: SP: 73-2015.	Speed is restricted for Curve having radius less 50m.

Note: another part of this annexure to schedule D attached separately.