

**Section 12**  
**Landscaping and**  
**Tree Plantation**

## SECTION 12

**LANDSCAPING AND TREE PLANTATION****12.1 General**

The Concessionaire shall plant trees and shrubs of required number and type at the appropriate locations within the Right of Way and in the land earmarked by the Government for afforestation. The Government shall specify the number of trees which are required to be planted by the Concessionaire as compensatory afforestation. The Concessionaire shall also maintain the trees and shrubs in good condition during the Operation Period as per the maintenance schedule. The guidelines given in this Section shall be followed in plantation of trees and shrubs.

**12.2 Design Considerations in various locations****12.2.1 *Set-back Distance of Trees and Other Plantation***

Trees on the roadside shall be sufficiently away from the roadway so that they are not a hazard to road traffic or restrict the visibility. Most vulnerable locations in this regard are the inside of curves, junction corners and cut slopes. Trees shall be placed at a minimum distance of 10-12 m from the centre line of the extreme traffic lane, to provide recovery area for the vehicle that runs off the road. A second row of trees 6 m further away will also be desirable and planted, wherever possible. Preferably, the first row of trees shall consist of species with thick shade and other rows of vertical growth type providing thin shade. Expansion of the Project Highway to 4-lanes shall be taken into consideration while locating the trees so that land is free of trees when widening takes place.

The distances for alternative rows of trees shall be reckoned from the nearest edge of the pavement. No plantation shall be allowed on the embankment slopes.

**12.2.2 *Set-back of Trees on Curves***

In plain terrain, a stopping sight distance of 180 m corresponding to the design speed of 100 km per hour shall be ensured on all curved sections of state highways along the innermost lane. However, where there are site restrictions, their requirement may be reduced to 120 m corresponding to the design speed of 80 km per hour as a special case. The existing trees and vegetation on the sides have to be suitably thinned/trimmed or even removed, if necessary, and a regular programme of pruning of the offending trees shall be undertaken as part of the maintenance operations.

In the urban section of the Project Highway, trees can be planted on the raised footpaths, provided the distance between the edge of kerb and the nearest edge of tree is not less than 2 m.

In all cases, location of trees shall be checked to ensure that to the motorists, clear visibility of all highway signs/signals is available at all times. Also, the foliage or trees shall not come in the way of roadway lighting.

**12.2.3 *Vertical Clearance of Trees and Other Plantations***

For safe traffic operation, the vertical clearance available across the roadway shall be minimum 5 m. From this angle, the probable size of all

plants shall be anticipated in advance, at the time of initial planting.

To allow for the effects of growth, wind and rain, trees shall be trimmed to 6 m and 6.5 m above the pavement in rural and urban areas respectively.

#### **12.2.4 Spacing of Avenue Trees**

The spacing of avenue trees will depend on the type and growth characteristics of trees, requirement of maintenance, penetration of distant views, etc. A range of 10-15 m would meet the requirement for most varieties.

#### **12.2.5 Choice of Trees**

The following guidelines shall be kept in view while selecting the species of trees to be planted:

- (i) Trees shall be selected with due regard to soil, rainfall, temperature and water level.
- (ii) Trees which become very wide shall

be avoided as their maintenance would cause interference with traffic flow.

- (iii) The species must be capable of developing a straight and clean bole upto a height of 2.5 to 3.5 m from the ground level.
- (iv) The selected trees shall, preferably, be fast growing and wind-firm. These shall not be thorny or drop too many leaves.
- (v) The trees shall be deep rooted as shallow roots injure pavements.
- (vi) In urban areas, the species selected shall be of less spreading type, so that these do not interfere with overhead services, clear view of signs and efficiency of roadway lighting.

### **12.3 Maintenance of Plants**

The Concessionaire shall submit scheme for plantation and maintenance of plants and trees to the Independent Engineer for review and comments, if any.