

Chapter 4 Determination of Planting Feasibility

4-1. Feasibility Analysis

An analysis will be made of the structure during design to determine if and where landscape planting can be permitted. Not all projects will have a satisfactory combination of conditions to permit planting of trees, shrubs, vines, and grasses. In some cases only shrub planting may be feasible, while in other cases grass seeding or sodding may be the best plan. Physical conditions of the site and engineering criteria used in the design and operation and maintenance requirements should determine the appropriate planting scheme. However, environmental objectives shall be a component in all projects, and engineering design of project features should seek to accommodate the maximum possible planting. The design engineer, environmental engineer, biologist, and landscape architect will collaborate during all stages of design. Some of the important site conditions to be considered are described below.

a. Structure foundation. Planting design should consider possible damage to the foundation. The integrity of the foundation could be compromised seriously if potential seepage paths were created by root penetration from certain types of deep-rooting trees and shrubs, thus the requirement for a root-free zone into which plant roots should not penetrate (see paragraph 2-3).

b. Groundwater restraints. Seepage drains, toe drains, pressure relief wells, and other special devices for handling drainage through, around, or beneath the structure must not be encroached upon by vegetative growth.

c. Types of construction material. Type of construction material is an important factor in determining suitability for landscape planting at levees, floodwalls, and embankments. Rock, sand, and many types of compacted clay embankments are examples of materials that provide poor plant growing media. Roots of some types of plants could be expected to penetrate a great distance into a sand levee, thus providing a path for potential piping through the structure. Plants must be selected very carefully with regard to the type of construction materials used to ensure survival of the plant and prevent damage to the structure.

d. Structural alignment. Proposed structure alignments should be reviewed by the landscape architect to determine whether a change in alignment would facilitate planting and still provide a satisfactory solution to the engineering requirements. For example, in urban areas, shifting the alignment a few meters (feet) might allow for plant screening between residences and the structure. Similarly, a shift in alignment might provide space for a small city park or other community open space within the protected area of the project.