

## Part 510 – Planning

### 510.0 General

Planning for the conservation and sustained use of natural resources often requires engineering input, which should be provided early in the planning process. Planning should be in sufficient detail to ensure that decisions by individuals, groups, units of government, and sponsors can be implemented without extensive changes in scope, purpose, or cost. All plans must be formulated so as to be complete, effective, efficient, acceptable, and in conformance with local, State, and Federal laws, rules, and regulations. Additional guidance on specific NRCS planning procedures can be found in Title 180, National Planning Procedures Handbook (NPPH), Part 600, Subpart A, “Framework for Planning.”

### 510.1 Scope

A. The approach taken during a planning study will vary according to the scope, size, and complexity of the issues involved.

- (1) A simple conservation practice involving just one individual might proceed rapidly through planning, design, construction, and operation. However, even simple measures must be planned with due consideration for their impact on the larger system or the plan for the area.
- (2) More complex practices, involving several individuals, ecological components, or both, require more intense planning and input from a number of disciplines and organizations. For these complex practices, several approaches and multiple alternatives within those approaches may need to be developed and evaluated.
- (3) A combination of practices comprising a plan may (or may not) be on a single parcel and address one or more resource concerns. It may require a suite of practices used together to resolve the resource problems.

B. The planning guidance in the NPPH is applicable to planning for all NRCS programs. Plan content and criteria may vary for each individual program or funding source.

C. Preliminary engineering work may be needed during phases I and II of the planning process outlined in the NPPH. The land user or sponsor must understand the scope, size, economics, and operational obligations for each alternative being considered before significant engineering resources are expended in more detailed studies.

D. Site investigations conducted during planning for engineering measures are often less intense than those required for final design. Final design investigations may reveal some adverse conditions not identified during the planning process. Land users or sponsors should be informed by NRCS staff that it is possible that agreements reached on the details of planned measures, needed land rights, and estimated costs in the planning phase may require revision during final design and construction. Upstream and downstream development that takes place after planning can also greatly affect the design.

E. The data collected and the resulting analyses must be sufficiently detailed to aid in selecting alternatives. Engineering job classes should be identified early to establish proper engineering job approval authorities and an appropriate review process. An individual having appropriate engineering job approval authority for the practices being considered must be consulted during the planning process and review and sign the approved engineering plan.

F. Expertise from all appropriate disciplines associated with natural resource management should be involved as early as possible in the planning process.

## 510.2 Documentation

Document engineering investigations and analyses. Computations, other data, and documentation supporting engineering decisions must be checked for accuracy and reasonableness by personnel with appropriate job approval authority. Documentation provides for expediting reviews, allows the work to progress smoothly into final design and construction, and aids in post reviews. The degree of supporting data must be commensurate with the specific situation and the type of project planned. The data are to be documented and filed so that later investigations for detailed design can build on, rather than repeat, investigations and analyses accomplished during the planning phase. Supporting documentation must include the project name and location, who performed the work, who checked the work, and the date of the work. The checker must initial the materials checked.

## 510.3 Engineering Data to Support Plans

A. Perform engineering analysis to the extent necessary to ensure that all engineering measures will function properly and achieve the planned results. Surveys, investigations, and preliminary designs must be performed in sufficient detail to prepare necessary cost estimates, land rights requirements, etc.

B. The size and complexity of planned actions dictate the level of detail required for the engineering report. Design the format and content of the report to meet the needs of the client. The report must clearly describe the problems, investigations, alternatives, and conclusions. Use graphics as necessary to provide a clear understanding. The final planning report must be tailored to meet program requirements, as appropriate. In all cases, the report must be sufficient to document decisions in a professional manner.

C. Review and approval is required for planning reports containing engineering data and analysis. This review and approval includes technical approval of the overall system of engineering measures to ensure that they perform their planned functions.

## 510.4 Criteria

A. Current engineering standards and procedures are to be used for planning all measures.

B. If revisions or modifications are made to the plans, the current criteria must be used for at least the following situations:

- (1) New structural measures not included in the original plan.
- (2) Structural measures modified enough to require a supplement to the plan.
- (3) Structural measures included in the approved plan that, if built according to original criteria, would endanger new structural measures, existing structures, or ones that are to be modified.

## 510.5 Cost Estimates

Determine all costs, including installation costs and expected periodic costs. Costs must be current in accordance with the most recent available information. The costs of engineering measures generally include the following:

- (1) Engineering.—The direct cost of engineers and other personnel for surveys, investigations, design, preparation of plans and specifications, preparation of the operation and maintenance plan, and the cost of inspection during construction.
- (2) Land Rights.—The actual cost or value of land required for construction and operation of the measures, including changes to fixed improvements.

- (3) Water Rights.—The actual cost or value of water rights required by local interests for carrying out the measure.
- (4) Contract Administration.—The expected cost of administering the contracts, cost of permits, and any legal costs.
- (5) Construction.—The expected cost of constructing the measure. Construction estimates during planning should include specific estimates for all the identifiable components. Contingencies should be included to allow for unforeseen conditions and costs that are likely to be identified during the final design and construction phases. Contingencies are established according to the detail of planning. Higher contingencies should be allowed for less detailed planning.
- (6) Operation, Maintenance, and Replacement.—The cost required to operate and maintain the measure, including necessary inspections and repairs for the planned life of the project. Any items to be replaced during the evaluation period must be included.

### **510.6 Postdesign Life Considerations**

At the end of their design life, some practices may create safety, health, and environmental concerns. Those issues should be considered when alternatives are formulated and discussed with the land user, sponsor, or both. Costs for replacement, rehabilitation, or decommissioning of these practices should be anticipated, estimated to the extent possible, documented in the plan report, and communicated to the landowner or sponsor.