

Chapter 3

Plan Preparation

What is a Plan for Erosion and Sediment Control and Stormwater Management

A plan for erosion and sediment control and stormwater management is the document which provides the practices and measures to prevent or reduce erosion on construction sites and minimize the impacts of sediment, turbidity and hydrologic changes off-site. It is the part of a Stormwater Pollution Prevention Plan (defined in glossary) or Construction Best Management Practices Plan (CBMPP) that ensures that erosion and sediment control is appropriate for the planned use of the site. Plan components are described in detail later in this chapter.

Designs of practices are usually prepared after a plan is adopted and, therefore, designs are not considered a part of the plan. Design of practices may also require the plan to be modified based on design requirements. Practice design criteria in Chapter 4 and guidelines for Installation and Maintenance of Best Management Practices in Chapter 3 of Volume II provide a basis for developing sound specifications.

Who is Responsible for the Plan

The owner or lessee of the land planned for development or needing treatment from a previous disturbance has the responsibility for plan preparation and adequacy. Although the owner or lessee may designate a qualified design professional to prepare and implement the plan, the owner or lessee retains the ultimate responsibility.

If during construction it becomes obvious that additional practices or measures are needed or that the system that is planned is not appropriate, the shortcoming should be brought to the attention of the project manager for action by an appropriate design professional and concurrence by the owner or the owner's designee. In this scenario, additional planning must continue to ensure that the plan is up-to-date and adequate.

What Is an “Adequate” Plan

An adequate plan contains sufficient information to describe the system intended to control erosion on the construction site, minimize related off-site sediment delivery and turbidity and address potential problems associated with hydrologic changes off-site. If regulations exist, more details may be required to satisfy the approving authority that the potential problems of erosion and sediment will be adequately addressed.

The length and complexity of the plan should be commensurate with the size and importance of the project, severity of site conditions, and the potential for off-site damage. Obviously, a plan for constructing a house on a single subdivision lot will not need to be as complex as a plan for a shopping center development. Plans for projects undertaken on relatively flat terrain will generally be less complicated than plans for projects constructed with steep slopes with higher erosion and sediment delivery potential. The greatest level of planning and detail should be evident on plans for projects which are adjacent to flowing streams, wetlands, dense population centers, high value properties, coastal resources and other critical habitats where damage may be particularly costly or detrimental to the environment.

The Step-by-Step Procedures for Plan Development outlined later in this chapter are recommended for the development of all plans.

The checklist following the procedures can be used by qualified design professionals as a checklist for plan content and format.

General Considerations for Preparing Plans

Qualified design professionals should have a sound understanding of the state and local laws and regulations related to erosion and sediment control and stormwater management. In addition, they must be competent in the principles of erosion and sediment control and stormwater management.

Developers and qualified design professionals can minimize erosion, off-site sediment delivery, turbidity issues and other construction problems by selecting areas appropriate for the intended use because tracts of land vary in suitability for development. Knowing the soil type, topography, natural landscape values, drainage patterns, receiving stream characteristics and classification, flooding potential, areas of contaminated soil, and other pertinent data are useful in identifying both beneficial features and potential problems and challenges of a site.

A plan should contain enough information to ensure that the party responsible for development of a site can install the measures in the correct sequence at the appropriate season of the year. Sufficient information should be included to provide for maintaining the practices and measures during construction and after installation has been completed. A schedule of regular inspections and repair of erosion and sediment control BMP's should be set forth to ensure that maintenance receives appropriate attention and is accomplished.

Will the development of the site result in increased peak rates of runoff? Will this result in flooding or channel degradation downstream? If so, considerations should be given to stormwater control structures on the site. Local ordinances related to stormwater management must be considered and met.

The length and complexity of a plan should be commensurate with the size and importance of the project, severity of site conditions, and the potential for off-site impacts. A plan may contain a description of the potential erosion and sediment-related problems. If a site is in the coastal zone, in a watershed with a formally designated impacted stream or has contaminated soil or hazardous waste on the site additional attention will be required during plan development – see Areas of Special Concern below.

For regulated sites in Alabama, the plan must satisfy the Alabama Department of Environmental Management requirement that the potential problems related to erosion, sediment and stormwater will be adequately addressed.

New or innovative conservation measures or modifications to standard measures in this handbook may be used if the proposed measure is expected by the qualified design professional to be as effective as the practice for which it is being substituted.

Where applicable, the plan for a site should be included in the general construction contract. To facilitate reviews and its use on the site, the plan should be prepared and assembled so that it may be reviewed as a separate document.

Areas of Special Concern

Contaminated Sites

For sites that are contaminated with hazardous constituents (based on background levels), care should be taken to ensure that the contamination is appropriately managed. When soil potentially containing hazardous constituents (based on background levels) is excavated at a site, it should be stored in covered roll-offs or some other conveyance until an adequate waste determination, as required by both State and federal law has been conducted. Soil that is contaminated above Alabama Department of Environmental Management established toxic concentrations or contaminated with listed hazardous wastes must be manifested and disposed at an approved hazardous waste treatment, storage, disposal (TSD) facility. Also, equipment used in the excavation process must be adequately decontaminated and all waste materials produced as a result of the decontamination procedures disposed in accordance applicable State and federal requirements.

Solid waste that has been disposed illegally (unpermitted solid waste dumps or burial sites) may be encountered during construction activities and a variety of solid waste is generated during construction activity. Persons should contact the Alabama Department of Environmental Management Land Division if there are

questions on how to proceed if illegal solid waste dumps or buried solid waste are encountered, or regarding proper management of solid waste generated during construction. Brownfield sites (see Glossary for definition) may have issues that call for unique approaches for remediation and or construction. The Alabama Department of Environmental Management Land Division provides oversight of assessment and remediation activities concerning these types of sites through its Brownfield Redevelopment and Voluntary Cleanup Program.

Cultural Resources

Cultural resources that may be altered, disturbed or destroyed by project implementation should be reported. Cultural resources consist of prehistoric and historic archaeological sites and historic structures (bridges, objects, buildings, etc., 50 years or older). If a cultural resource is known to exist or is discovered during project implementation, the Alabama Historic Commission should be contacted immediately for further guidance. The Alabama Historical Commission also maintains a listing of Historic Districts and Historic Structures and is responsible for maintaining the Archaeological Site Files, a database that contains the locations and significance of previously recorded archaeological sites. Under normal circumstances, after a cultural resource has been recorded, the project will be allowed to proceed as planned.

Sensitive Waters

Waters that have been designated by the Alabama Department of Environmental Management for special emphasis (i.e. Tier 1) or protection (i.e. Outstanding Alabama Water) may require additional erosion and sediment control measures to provide a higher level of water quality protection than would otherwise be required. Also, additional requirements may be imposed by state regulations for review of plans before permits are issued.

Sites in Coastal Zone

Construction plans prepared for sites in the designated coastal area of Alabama must comply with the guidelines contained in the Coastal Nonpoint Pollution Control Program (CNPCP). While the practices that are needed are similar to those needed throughout the state, except for the dune related practices, there are additional requirements related to permitting in the Coastal Zone that influence the requirements for plan content. An example of such a requirement is the construction of a sand fence which meets the guidance from the CNPCP office and the US Fish and Wildlife Service to benefit endangered and threatened sea turtles.

Stream Alterations

Streams, both perennial and intermittent, are considered “waters” of the United States and are regulated as “wetlands” under the Clean Water Act, Section 404 by the Army Corps of Engineers. Relocating streams or other modifications must be approved by the Corps of Engineers. In-depth guidance for obtaining approval for alterations of streams is beyond the scope of this handbook. Detailed

information should be obtained from the Army Corps of Engineers serving the area

Stream alterations also require a 401 Clean Water Certification from the Corps of Engineers. Alterations also require approval by the Alabama Department of Environmental Management under applicable rules of the department.

Associated with streams are the nearby adjacent areas and local regulations involving buffer zones may prohibit or otherwise restrict disturbances and construction in these areas.

Wetlands

Construction plans must respect the wetland regulations of the Clean Water Act, Section 404, and all applicable Alabama Department of Environmental Management rules. While the details of the regulations are beyond the scope of this handbook, it must be noted that wetlands cannot be altered by dredging and filling except in small increments approved by the Army Corps of Engineers and, in addition, construction plans shall be prepared to prevent negatively impacting wetlands off-site.

Threatened and Endangered Species

Threatened and endangered species habitat that may be altered, disturbed or destroyed should be reported. If a Threatened and Endangered Species is found within the proposed work area, the U. S. Fish and Wildlife Service should be contacted before work proceeds for consultation.

Components of a Plan

This subtopic describes the typical components that should be included in a plan. Local or state regulations may require additional items or more detailed information than listed.

There are typically two components of a plan: a Site Plan Map showing locations of the planned practices and a Written Narrative. Supporting materials are essential to develop the plan and they should be a part of the associated file material available with the plan. In addition, additional components such as a site location map are needed or required to satisfy regulatory requirements..

Site Plan Map (Sometimes Referred to as Treatment Map)

This map may include a site development drawing and a site erosion and sediment control drawing depicting types and, to the extent possible, locations of planned conservation practices. Map scales and drawings should be appropriate for clear interpretation. Site planners are urged to use the standard coding system for conservation practices contained at the end of this chapter. Use of the coding system will result in increased uniformity of plans and better readability for plan reviewers, job superintendents, and inspectors statewide.

Written Narrative

Where needed, additional information that is not included on the site plan map should be included in a plan narrative that is written in a clear, concise manner. Typical items to include are the planned measures. Other items that may be needed include (a) a construction schedule that provides information both on sequence and time of year for installing the various practices and measures. (b) information on maintaining the practices and measures during construction and after installation have been completed and (c) a schedule for regular inspections and repair of erosion and sediment control and stormwater measures during construction. In some instances, existing conditions at the site and adjacent areas and rationale for those decisions involved in choosing erosion and sediment control measures may be included to help clarify the plan.

Adequate information provided by the narrative is important for the plan reviewer, the construction superintendent and the inspector. These details help insure that erosion and sediment control and stormwater measures are understood and properly installed.

Supporting Materials (Referred to later in Chapter as Supporting Data)

These items include inventory information collected and used during the planning process (contour maps, soils maps, charts, or other materials as applicable used in evaluating the site and formulating the plan). Supporting materials are important to all those involved in plan formulation and plan reviews and should be available to those with a specific need for them.

Step-By-Step Procedures for Plan Development

The context of the procedures presented in this subtopic is that a professional skilled in erosion and sediment control and stormwater management will assist another professional that is developing the overall site plan.

Step 1- Data Collection

Data collection includes inventorying the existing site conditions to gather information which will help in developing the most effective erosion and sediment control plan. The information should be shown on a map and explained in well organized notes. This information eventually becomes a part of Supporting Data and is used to analyze and evaluate the site and practice options.

Topography

A large-scale topographic map of the site should be prepared. The suggested contour interval is usually 1 to 2 feet depending upon the slope of the terrain. However, the interval may be increased on steep slopes.

Drainage Patterns

All existing drainage swales and patterns on the site should be located and clearly marked on the topographic map.

Soils

Major soil type(s) on the site should be determined and shown on the topographic map if the information is available. Soils information for previously undisturbed sites can be obtained from a soil survey if one has been published for the county by the Natural Resources Conservation Service. Commercial soils evaluations and borings are available from consultants for many sites. For ease of interpretation, soils information should be plotted directly onto the map or an overlay of the same scale.

Groundcover

The existing vegetation on the site should be determined. Such features as trees and other woody vegetation, grassy areas, and unique vegetation should be shown on the map or described in the notes describing the site. In addition, existing bare or exposed soil areas should be indicated. This information may be important in determining clearing limits and establishing stages of construction.

Adjacent Areas

Areas adjacent to the site should be inventoried and important features that may be impacted by the proposed plan should be marked on the topographic map or identified in the notes. Applicable features include streams, springs, sinkholes, roads, wells, houses, other buildings, utilities and other land areas.

Floodplain Boundaries

Floodplains should be determined. Sources of information include soil surveys available from the Natural Resources Conservation Service, topographic maps and flood plain maps that are available from many municipalities.

Receiving Waters

The use classification and special designation of streams and lakes that receive stormwater from the proposed site should be determined.

Wetlands

Wetlands and other areas that are possibly wetlands should be identified. Wetlands may be quite apparent or there may be areas that are questionable. Maps developed as part of the National Wetlands Inventory, USGS topographic maps and soil surveys should be collected to evaluate an area for wetlands.

Contaminated Sites

Trash, abandoned appliances, potential contaminated soil and hazardous waste or any other material that should not be on the site should be identified. Brownfields fit into this category.

Cultural Resources

If federal funds (grants or other directed federal funds) or federal property is involved, a cultural resources review or survey is required before any ground-disturbing activities may begin (Section 106, National Historic Preservation Act). On public and private lands, the Alabama Historical Commission is the primary state agency responsible for archaeological resources protection and maintains the State Archaeological Site Files. According to the Code of Alabama (Alabama Code), the State reserves the right to explore, excavate and survey prehistoric and historic sites. In addition to cultural resource regulations, there are laws protecting cemeteries and human remains (marked and un-marked); permits are required to excavate graves.

Threatened and Endangered Species

Threatened and endangered species that may exist in the area and their associated habitat should be considered. Lists containing both the species and their habitat characteristics are available from the local office of the Natural Resources Conservation Service.

Step 2- Data Analysis

When all of the data in Step 1 are considered, a picture of a site's potentials and limitations should emerge. The qualified design professional should be able to determine those areas which have potentially critical erosion hazards and the potential for construction disturbances to cause adverse offsite impacts. The following are some important points to consider in site analysis:

Topography

Topographic considerations are slope steepness and slope length and the longer and steeper the slope, the greater the erosion potential from surface runoff. Slope modifications with large cuts and fills may exacerbate the potential for erosion.

Drainage Patterns

Swales, depressions, and natural watercourses, should be evaluated in order to plan where water will concentrate and the measures that will be needed to maintain a stable condition for concentrated flow. Where it is possible, natural drainageways should be used to convey runoff over and off the site to avoid the expense and problems of constructing an artificial drainage system. Man-made ditches and waterways become part of the erosion and turbidity problem if they are not properly stabilized. Potential for flooding and possible sites for stormwater detention ponds and sediment basins should be determined.

Soils

Soil properties such as depth to bedrock, depth to seasonal water table, permeability, shrink-swell potential and texture should exert a strong influence on development decisions. Also, the flood hazard related to the soils can be determined based on the relationship between soils and flooding. A list of common Alabama soils along with interpretations for developmental uses is included in Appendix A1.

Groundcover

Groundcover is the most important factor in terms of preventing erosion. Any existing vegetation which can be saved will help prevent erosion. Trees and other vegetation protect the soil as well as beautify the site after construction. Therefore, it is important to recognize vegetation that can be retained during, and possibly after construction, to assist in stabilizing the site.

Adjacent Areas

Generally, the analysis of adjacent properties should focus on areas downslope or downstream from the construction project. The potential for sediment deposition on adjacent properties because of construction-related erosion should be analyzed so that appropriate erosion and sediment control measures can be planned.

Floodplains

Floodplains are generally restrictive in nature and uses planned within them must be consistent with local regulations. The location of facilities within floodplains should usually be avoided to prevent restriction of flood flows and potential changes in peak flood stages downstream.

Receiving Waters

Watercourses which will receive direct runoff from the site should be of major concern: these streams should be analyzed to determine their use classification and if they have a sensitive water designation. The potential impact from sediment and turbidity pollution on these watercourses should be considered as well as the potential for downstream channel erosion due to increased velocity of stormwater runoff from the site.

Wetlands

Wetlands or the absence of wetlands should be determined by a qualified professional. Wetland boundaries should be clearly marked by a wetland delineator to provide a distinct location and boundary to use during the planning, design and construction phases of a project.

Waste Materials

Sites with known or potential contamination by petroleum, chemical spills, etc. should have a thorough assessment conducted by a qualified professional and result in a comprehensive site assessment. Details of this activity are beyond the scope of this handbook. The Alabama Department of Environmental Management should be contacted for assessment procedures.

Cultural Resources

The presence of cultural resources within the area of potential effect (includes the immediate project area and any off-site areas, such as borrow pits, fill disposal or temporary storage areas, and equipment staging areas) should be considered. Care should be taken to avoid disturbing cultural resources; previously unknown or undocumented cultural resources should be reported to the Alabama Historical Commission.

Threatened and Endangered Species

Habitat for threatened and endangered species should be evaluated. If potential exists for occurrence of species a determination of their occurrence should be made by a qualified professional.

Step 3-Facility Plan Development

This step applies to sites that are in the planning stage where planning of the facilities have not been firmly determined. After analyzing the data about the site and determining any site limitations, the erosion and sediment control professional can assist the professional developing the overall site plan formulate

a site plan that is in harmony with the conditions unique to the site. An attempt should be made to locate the buildings, roads, and parking lots and develop landscaping plans to exploit the strengths and overcome the limitations of the site. Ideally, there can be flexibility in the location of facilities and low-impact development concepts will be exploited. The following are some points to consider in making these decisions:

- Fit development to terrain. The development of an area should be tailored, as much as possible, to existing site conditions. For example, confine construction activities to the least critical areas. This will avoid unnecessary land disturbance while minimizing the erosion hazards and development costs, including cost of erosion and sediment control.
- Cluster buildings together. This minimizes the amount of disturbed area, concentrates utility lines and connections while leaving more open natural space. The cluster concept not only lessens the erodible area, but it generally reduces runoff and development costs.
- Minimize impervious areas. Keep paved areas such as parking lots and roads to a minimum. This goes hand in hand with cluster developments in eliminating the need for duplicating parking areas, access roads, etc. The more land that is kept in vegetative cover, the more water will infiltrate thus minimizing runoff and erosion. Consider the use of special paving products which will allow water to infiltrate or cellular blocks which have soil and vegetation components.
- Utilize the natural drainage system. If the natural drainage system of a site can be preserved instead of being replaced with storm sewers or concrete channels, the potential for downstream damages due to increased runoff can be reduced.
- Determine if there are any “environmentally sensitive” areas (areas of special concern), to be protected during and after project implementation. In general, most erosion and control projects will have an overall beneficial effect to cultural resources since they would be protected from further environmental degradation.

Step 4-Planning for Erosion and Sediment Control and Stormwater Management

When the site facility plan layout has been developed, a plan is developed to minimize erosion on-site and delivery of sediment and turbid water off-site. Additional objectives may include those related to increased peaks and runoff associated with a development, flood control and off-site erosion control.

The following procedure is recommended for formulating the system of practices and measures for erosion and sediment control and stormwater management.

- Divide the site into drainage areas. Determine how runoff will travel over the site.
- Determine limits of clearing and grading. Decide exactly which areas must be disturbed in order to accommodate the proposed construction. Pay special attention to critical areas which can be avoided (areas with high potential for erosion and needing special treatment if disturbed). The important point in this activity is to minimize the areas to be disturbed.
- Select erosion and sediment control and stormwater management practices and measures using a systems concept. Practices and measures should be selected that are compatible and, as a system, can be expected to meet objectives for the development or activity.

Consider how erosion and sediment can be controlled in each small drainage area of the entire site. Remember, it is easier to control erosion than to contend with sediment after it has been carried downslope and downstream.

Plan to sequence construction so that no area remains exposed for unnecessarily long periods of time. On large projects, stage the construction, if possible, so that one area can be stabilized before another is disturbed. Sequencing and staging may influence the choice of practices.

The practices and measures in this Handbook are divided into 6 broad categories to support planning concepts: site preparation, surface stabilization, runoff control, runoff conveyance, storm drain inlet protection, sediment control, stormwater management and stream protection. Other categories that are sometimes used, such as vegetative, structural and management measures, are imbedded into the 6 categories.

Again, review each drainage area, determine the categories that apply and select practice(s) to comprise a technically sound and cost-effective system.

- **Site Preparation** (Construction Exit Pad, Land Grading, and Topsoiling) Construction Exit Pad should be planned for early installation at each access point that vehicles will leave the disturbed area of a construction site and enter a public road. The stockpiling of topsoil should be done as

an initial part of earthmoving. Most sites have enough topsoil available for stockpiling to provide adequate amounts for topsoiling the areas to be established to permanent vegetation. Land grading techniques can be done to compliment erosion control systems.

- **Surface Stabilization** (Preservation of Vegetation, Dust control, Temporary Seeding, Permanent Seeding, Mulching, Sodding, Chemical Stabilization, Erosion Control Blanket, Tree Planting on Disturbed Areas, Retaining Wall, Shrub, Vine and Groundcover, Dune Sand Fence, Dune Vegetation Planting, Dune Walkover and Groundskeeping)

Most qualified design professionals agree that vegetative measures should be maximized to provide as much erosion and sediment control as possible. Structural measures are generally more costly than vegetative controls but they are necessary on areas where vegetation and reinforcement with erosion control blankets or chemical measures will not provide adequate erosion control. Temporary practices from this category are needed on most sites and final stabilization of all landscapes requires one or more practices from this category.

- **Runoff Conveyance** (Check Dam, Diversion, Drop Structure, Grass Swale, Lined Swale, Outlet Protection, Riprap-lined Channel, Subsurface Drain and Temporary Slope Drain)

Diversions are particularly important in (1) diverting clean water away from a disturbed site (2) in preventing flows from eroding cut and fill slopes and (3) in breaking (reducing) slope lengths. The other practices in this category are needed to safely move concentrated flows of stormwater in channels. Concentrated flows are the potential cause of gullies and the runoff conveyance practices are used to prevent gully erosion. Subsurface drains are used to facilitate another practice, such as Grass Swale, in becoming successfully established and maintained. One or more practices from this category are needed on sites with channel flow.

- **Sediment Control** (Block and Gravel Inlet Protection, Brush/Fabric Dam, Fabric Drop Inlet Protection, Filter Strip, Floating Turbidity Barrier, Rock Filter Dam, Sediment Barrier, Sediment Basin and Straw Bale Sediment Trap)

Sediment control practices function primarily on the basis that sediment laden water will deposit at least part of its load while the water is ponded on the construction site by the practice. All of the sediment control practices are considered temporary. The effectiveness of each practice is dependent upon the unique attribute of the practice, the texture of the sediment in suspension and suspension time.

- **Stormwater Management** (Bioretention Area, Stormwater Detention Basin and Porous Pavement)

Stormwater management practices detain or retain stormwater on the construction site. These practices are designed to minimize stormwater

runoff. Stormwater Management in Chapter 2 describes the planning considerations for stormwater management. Local regulations address the requirements for projects that are under their jurisdiction. Even where stormwater detention is not required by regulations, the qualified design professional should determine if detention is needed based on potential impacts. Low impact development measures that slow runoff and increase infiltration, such as bioretention areas and additional green space can contribute significantly to reducing peaks and volume of runoff. If significant storage is needed on-site a stormwater detention pond may be used and, for an additional temporary benefit, retrofitted as a sediment basin to address sediment and turbidity issues.

- **Stream Protection** (Buffer Zone, Channel Stabilization, Streambank Protection and Temporary Stream Crossing)
These stream protection practices are primarily intended to be used to preserve or repair streams. Designing new channels is beyond the scope of this handbook. One or more of these practices should be considered essential where a construction project includes a perennial or intermittent stream.

Step 5-Plan Assembly

The final step of plan development consists of compiling and consolidating the pertinent information into a site-specific plan for erosion control, sediment control and stormwater management. The major plan components are a narrative and a site plan map. Supporting data is assembled to substantiate planning options considered and developed and to aid in review of a plan.

The following checklist may be used in assembling the narrative and site plan map to be sure all major items are included.

Checklist for Plans

Narrative

Explain the solutions for existing and predicted problems in the narrative (tables and charts may be used to display information in a format that is easier to understand).

Project Description

Briefly describe the nature and purpose of the land disturbing activity and the amount of disturbance involved.

Practices and Measures

Identify the practices and methods which will be used to control erosion on the site, prevent or minimize sediment from leaving the site, and address turbidity and hydrologic changes associated with the proposed project. Sequence and staging of construction activities to minimize disturbance and erosion should be addressed.

Inspections

Prescribe a schedule for inspections and repair of practices.

Maintenance

Include statement(s) explaining how the project will be maintained during construction until final stabilization. In some instances, maintenance that will be needed after construction should be included.

Site Plan Map

The site plan map is one or a series of maps or drawings pictorially explaining information contained in the narrative.

Site Plan Label

The label should include the name of owner, name of site or facility, county name, location (township, range and section) name of qualified design professional, and date plan made, and if applicable, date of latest revision.

Existing Contours

The existing contours of the site should be shown on a map (the scale used for this map should be of sufficient scale for meaningful evaluations). The scale of the site plan may range from 1" = 100 feet to 1" = 20 feet.

Existing Vegetation

The existing tree lines, grassy areas, or unique vegetation should be shown on a map.

North Arrow

The direction of north in relation to the site should be shown. The top of all maps should be north, if practical.

Existing Drainage Patterns

The dividing lines and the direction of flow for the different drainage areas should be shown on a map.

Final Contours

Planned contours should be shown on a map.

Development Features

The outline of buildings, roads, drainage appurtenances, utilities, landscaping features, parking areas, improvements, impervious areas, topographic features, and similar man-made installations should be shown to scale and relative location.

Limits of Clearing and Grading

Areas which are to be cleared and graded should be outlined on a map.

Wetlands

The location of wetlands is important and should be shown accurately and preferably on the site map

Cultural Resources

The locations of cultural resources should be shown accurately on the plan map and construction plans. Their location is essential if these areas are to be avoided or protected during project construction.

Location of Practices and Legend

The locations of the erosion and sediment control and stormwater management practices used on the site should be shown on a map. A combination of symbols and acronyms are used to identify the practices. A list of the acronyms is included at the end of this chapter under “Legend of Measures for Erosion and Sediment Control and Stormwater Management.”

Site Location or Vicinity Map (if required by regulatory agency)

Provide a small map locating the site in relation to the surrounding area. A portion of a 7.5 minute series U.S.G.S. topographic map that covers the project area usually meets this requirement.

Supporting Data (relevant materials collected and generated during all stages of planning).

Existing Site Conditions

This material describes the existing topography, vegetation, and drainage.

Adjacent Areas

This material describes the adjacent and neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

Soils

Include a brief description of the soils on the site giving relevant information such as soil names, mapping unit, erodibility, permeability, depth, texture, soil structure, and any other limitations. The boundaries of the different soil types should be shown on a map.

Critical Areas

Identify and describe areas on the site which have potential serious erosion problems.

Areas of Special Concern

Include relevant information affecting planning on Coastal Zone Program requirements, contaminated soils, new or innovative practices, stream alterations, wetlands and cultural resources. If federal lands or federal funds are involved, a letter from the lead federal agency stating that there would be no adverse affect to cultural resources and allowing the project to proceed as planned or amended will be required; a similar letter from the Alabama Historical Commission may be necessary if cultural resources are present on State and private lands.

Calculations and Design Data Needed During Planning

Include estimates used to evaluate practices that are chosen based on peak flows, acres of runoff, etc.

Legend of Measures for Erosion and Sediment Control and Stormwater Management

Site Preparation

(CEP) Construction Exit Pad
(LG) Land Grading
(TSG) Topsoiling

Surface Stabilization

(CHS) Chemical Stabilization
(DSF) Dune Sand Fence
(DVP) Dune Vegetation Planting
(DW) Dune Walkover
(DC) Dust Control
(ECB) Erosion Control Blanket
(GK) Groundskeeping
(MU) Mulching
(PS) Permanent Seeding
(PV) Preservation of Vegetation
(RW) Retaining Wall
(SVG) Shrub, Vine and Groundcover Planting
(SOD) Sodding
(TS) Temporary Seeding
(TP) Tree Planting on Disturbed Areas

Runoff Conveyance

(CD) Check Dam
(DV) Diversion
(DS) Drop Structure
(GS) Grass Swale

(LS) Lined Swale
(OP) Outlet Protection
(RS) Riprap-lined Swale
(SD) Subsurface Drain
(TDS) Temporary Slope Drain

Sediment Control

(BIP) Block and Gravel Inlet Protection
(BFB) Brush/Fabric Barrier
(FIP) Fabric Drop Inlet Protection
(FS) Filter Strip
(FB) Floating Turbidity Barrier
(RD) Rock Filter Dam
(SB) Sediment Barrier
(SBN) Sediment Basin
(SST) Straw Bale Sediment Trap

Stormwater Management

(BA) Bioretention Area
(PP) Porous Pavement
(SDB) Stormwater Detention Basin

Stream Protection

(BZ) Buffer Zone
(CS) Channel Stabilization
(SP) Streambank Protection
(TSC) Temporary Stream Crossing
(SDC) Stream Diversion Channel