SECTION 3.1
BRIEF DEFINITION OF ACTIVITIES AND PRACTICES

The Handbook groups various drainage improvement practices into different activities. These activities as well as practices grouped under each activity will be discussed in detail in Section 5 (Best Management Practices for Drainage Improvement Projects). However, a brief description of various activities and the associated key practices are provided here as a precursor to discussions contained in sections 3 and 4 of the Handbook.

It should be noted that the activities and practices described in the Handbook are not all-inclusive. Drainage improvement activities may also be accomplished through innovative or non-standard practices which may not have been included in this handbook.

Also it is important to note that practices contained in the Handbook are intended to be selected and applied on a case by case basis and for an appropriate reach of a subject ditch or stream. **Nothing in this Handbook is intended to force the application of a practice or its indiscriminate utilization along the entire length of a stream or ditch.** Such indiscriminate utilization of a practice along the entire reach of a drainageway may not only be cost prohibitive, but may also be ineffective in many settings. Planning and selection principles explained later in Section 4 of this Handbook should be utilized to allow selection and use of the most appropriate practice for each specific reach of a drainageway.

COMMON PRACTICES FOR SITE ASSESSMENT AND PREPARATION : Preconstruction site assessment, site preparation practices, and methods for gaining temporary access to construction site.

Practice 101 Site Assessment: Checklist of environmental, sociological, and other considerations prior to implementing a construction project.

Practice 102 Tree Preservation and Protection: Methods to preserve and protect existing trees from damage during construction.

Practice 103 Temporary Wetland Crossing: instructions for placing wooden "rafts" placed beneath the heavy machinery to more evenly distribute the weight.

Practice 104 Temporary Diversion: A channel and supporting ridge constructed across a slope to collect and divert runoff during construction.

Practice 105 Silt Fencing: Temporary fencing of constructed geotextile fabric (filter fabric). The toe of the fabric is entrenched and is stretched across and attached to supporting posts used to intercept sediment-laden runoff from areas of disturbed soil.

Practice 106 Straw Bale Filter: Temporary barrier of entrenched straw bales used to intercept sediment-laden runoff from small drainage areas of disturbed soil.

Practice 107 Clearing and Grubbing: Removal and disposal of trees, snags, logs, stumps, and shrubs prior to construction.

TILE DRAIN INSTALLATION AND REPAIR : Installation and repairs of various types of tiles.

Practice 201 Tile Drain Installation: Installing tile drains.

Practice 202 Tile Drain Repair/Replacement: Repairing and replacing tile drains.

Practice 203 Breather Pipe: Vertical pipes projecting above ground and connected to underground tile drains that allow for ventilation and inspection.

Practice 204 Tile Drain Inlet: Vertical riser with round holes or slots projecting above ground and connected to underground tile drains to provide an inlet for surface water pipes and also allow for ventilation and inspection.

DEBRUSHING : Controlling and removing living, woody vegetation from channel and overbanks.

Practice 301 Chemical Vegetation Control: Killing woody vegetation with a herbicide (broadcast spraying, stump painting, etc.).

Practice 302 Debrushing Using Hand-held Tools: Removing woody vegetation by means of hand-held tools.

Practice 303 Debrushing Using Heavy Machinery: Removing living woody vegetation by means of heavy machinery.

Practice 304 Stump Removal: Removing stumps from channel and overbanks.

LOGJAM REMOVAL AND RIVER RESTORATION : Removing logjams and/or other obstructions impeding the flow of water.

Practice 401 Logjam Removal Using Hand-held Tools: Typical specifications for removing logjams from channel and overbanks using hand-held tools.

Practice 402 Logjam Removal Using Heavy Machinery: Typical specifications for removing logjams from channel and overbanks using heavy machinery (backhoes, bulldozers, etc.) equipped only with bank brush hooks, snags, and hydraulic thumbs (not equipped with excavation tools).

Practice 403 Large-Scale River Restoration: Typical specifications for restoration of channels to their previous capacity and preventing future obstructions by removing logjams, raking or removing sediment bars, cutting leaning trees, and using brushy material as bank protection. (Note that the term "restoration", as used in this Handbook, does not necessarily imply restoration or improvement of water quality or habitat within the channel or its adjacent area.)

ERODED STREAMBANK REPAIR : Vegetative (bio-engineering), structural, and combined methods for repairing and fortifying stream banks subject to bank erosion.

Practice 501 Live Stakes: Live shrub or woody plant cuttings driven into the channel bank as stakes.

Practice 502 Live Fascines: Sausage-shaped bundles of brush tied together and placed in trenches cut into the bank, parallel to the stream.

Practice 503 Branch Packings: Alternating layers of living branches and soil incorporated into a hole or slumped out area in a slope or a streambank.

Practice 504 Tree Revetments: Anchoring dead, cut trees along an eroding streambank to divert flow and assist in erosion control.

Practice 505 Brush Mattress: Mat of live brush fastened down over an eroded bank.

Practice 506 Vegetative Geogrids: Soil lifts wrapped with natural or synthetic geotextile materials between which are placed layers of live branches.

Practice 507 Live Cribwalls: A rectangular framework of logs, rock, and woody cuttings used to protect an eroding streambank.

Practice 508 Lunkers: Oak or plastic (Eco-wood) rectangular boxes built into the toe of a bank to reduce scour and erosion.

Practice 509 A-Jacks: Concrete or wooden jack-like structures used to armor the toe of the slope; generally integrated with vegetative stabilization techniques.

Practice 510 Stone Riprap: Covering a portion of a channel bank with a layer of stone that approximates the natural slope of the channel bank.

Practice 511 Concrete Retaining Wall: A permanent concrete wall which retains a streambank.

Practice 512 Gabion Retaining Wall: Rock-filled baskets wired together to form a wall or mattress for erosion control along streambanks.

Practice 513 Timber Retaining Wall: A permanent timber wall which retains a streambank.

Practice 514 Sheetpile Retaining Wall: Steel, concrete, wood, or plastic sheet piles that interlock to form a continuous wall along a stream channel.

Practice 515 Composite Retaining Wall: Concrete or wood retaining walls integrated with piling.

CHANNEL EXCAVATION/DREDGING : Deepening and/or widening an existing channel ("Channel" is defined as the area between the tops of the banks. "Overbanks" are defined as areas landward of the top of the banks.)

Practice 601 Channel Bottom Dipping: Deepening a channel and/or removing sediment from the bottom with a bucket from one side of the channel.

Practice 602 Channel Bank Excavation: Excavating the banks (side slopes) of a channel employing one-side construction methods.

Practice 603 Channel Overbank Excavation: Excavating overbank areas (this practice may also include excavation of a portion of the bank that is above the ordinary high water line).

RESTORATION OF CHANNEL TO AS-BUILT CONDITIONS : For the purpose of this Handbook, this activity is defined as all potential maintenance/channel reconstruction practices utilized to restore channel cross sections to their as-built or permitted conditions, both in terms of dimensions and material.

DITCH RELOCATION/CONSTRUCTION AND TRANSITIONS : Relocation of segments of existing streams or ditches as well as construction of new ditches, Channel Tie-ins, Grade Transitions (Chutes), and In-Channel Grade Stabilization Structures to safely convey excess water or stormwater runoff.

Practice 701 Channel with Grass Lining: Typical specifications for construction of grass-lined channels.

Practice 702 Channel with Riprap Lining: Typical specifications for construction of riprap-lined channels.

Practice 703 Channel with Concrete Lining: Typical specifications for construction of concrete-lined channels.

Practice 704 Channel Transitions (Tie-ins): Typical specifications for construction of transitional segments, where one stream or ditch joins with another.

Practice 705 Grade Transitions (Chutes): Typical specifications for construction of short, steep open channels (usually paved with rock, concrete block, or reinforced vegetation) which act as a grade transition to convey high-velocity water down a steep slope without erosion.

Practice 706 In-Channel Grade Stabilization Structure: Structures designed to reduce the channel grade and flow velocity.

SEDIMENT CONTROL AND IN-CHANNEL FLOODWATER RETENTION : Permanent measures to reduce sedimentation and enhance stormwater retention volume.

Practice 801 In-Channel Sediment Basin: Area constructed within a channel designed to reduce flow velocities by increasing the cross sectional area (width and depth) of a channel to allow sediment deposition.

Practice 802 In-Channel Floodwater Retention Basin: On-line stormwater retention area designed to decrease peak flow rates downstream.

Practice 803 Hydraulic Dredging: Removal of sediment using a hydraulic dredge.

Practice 804 Vegetative Filter Strip: vegetated strips planted parallel to natural streams or man-made ditches to trap water born sediment before release into the channel.

STREAM CROSSING CONSTRUCTION AND REPAIR : Repair and installation of culverts, bridges, and fords/low water crossings.

Practice 901 Culverts: Construction and repair of culverts.

Practice 902 Bridges: Construction and repair of bridges.

Practice 903 Fords/Low Water Crossings: Construction and repair of permanent fords and low water crossings.

OUTLET PROTECTION : Measures to reduce erosion at the outfall of tile drains, culverts, or open channels.

Practice 1001 Tile Drain Outlet Extension: Extending the outlet of a small tile drain using a metal pipe segment to stabilize the outlet.

Practice 1002 Riprap-Lined Apron: Armoring the outfall areas of a culvert or channel with a riprap apron.

REVEGETATION AND SITE STABILIZATION : Revegetation and stabilization of channel slopes, overbanks, and other disturbed areas following installation of drainage improvement activities. (See "Eroded Streambank Repair" for additional practices.)

Practice 1101 Mulching: The application of usually organic materials designed to reduce erosion on recently seeded soil.

Practice 1102 Vegetative Stabilization and Seeding: Temporary or permanent stabilization of a site using grasses, forbs, and/or woody vegetation.

Practice 1103 Bonded Fiber Matrix: Incorporation of a soil adhesive/mulch complex into hydroseeded plant mixes to control erosion during plant establishment.

Practice 1104 Erosion Control Blankets and Matting: Installation of synthetic/organic rolls or mats to protect recently planted areas from erosion.

MITIGATION MEASURES: Practices implemented to minimize adverse environmental impacts resulting from project construction activities.

Practice 1201 Wetland Replacement: Restoring or creating wetland areas as an enhancement measure or to compensate for wetland losses during construction.

Practice 1202 Stream Environment Enhancement: Measures to improve wildlife habitat and stream water quality.

Practice 1203 Log Check Dams: In-channel structures designed to reduce erosion and create habitat favorable for wildlife.

Practice 1204 Tree Replacement: Planting trees as an enhancement measure or to compensate for trees lost during construction, where tree planting does not interfere with drain maintenance activities.

OTHER RELATED PRACTICES : Measures related to, but not directly a part of, other categories.

Practice 1301 Debris Disposal: Proper disposal of spoil and debris removed from channels and overbank areas.

Practice 1302 Permanent Limited Livestock Access: Creating, maintaining, and repairing of livestock access areas so that access to the stream is limited to a fenced slot with stone paving sufficient to maintain the integrity of the channel banks.

Practice 1303 Permanent Maintenance Access: Constructing permanent access to streams and channels for the purpose of maintaining the channel.