NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

FOREST TRAILS AND LANDINGS

(Feet)

CODE 655

DEFINITION

A temporary or infrequently used route, path or cleared area.

PURPOSE

- Provide routes for temporary or infrequent travel by people or equipment for management activities.
- Provide periodic access for removal and collection of forest products.

CONDITIONS WHERE PRACTICE APPLIES

Trails and landings including skid trails are applicable on forest land. They typically connect to an Access Road.

For roads in a forest, see Indiana (IN) Field Office Technical Guide (FOTG) Standard (560) Access Road and for recreation trails, see IN FOTG Standard (568) Recreation Trail and Walkway.

CRITERIA

General Criteria Applicable To All Purposes

Trails and landings will be of a size, gradient, number and location to accomplish the intended purpose. Avoid locating trails and landings on poorly suited soils of low-bearing strength and sites such as wetlands, riparian areas, critical wildlife habitat, or other environmentally sensitive areas. Locate trails on the contour to the greatest extent possible and incorporate breaks in grade (rolling dips or rolled grades) for trails on slopes. Skid logs uphill (with front ends off the ground) as practicable to minimize mechanical displacement of soil. Trails and landings will be set back from water bodies and water courses in accordance to applicable Best management Practices (BMPs). Stream Crossings, if necessary, will be minimized in size and number.

Assure safe ingress and egress from trails and landings to junctions with access roads. Refer to IN FOTG Standard (560) Access Road for travel-ways including logging spur roads needing construction design and possibly surfacing to accommodate frequent, intensive, or repeated vehicular traffic.

Trails and landings will be located and minimized in number and size to reduce adverse onsite and off-site impacts such as accelerated erosion, slope failure, water quality and riparian area degradation, stream channel and streambank damage, hydrologic modification, aesthetics, unacceptable damage to advance regeneration or residual growing stock, or fragmentation of wildlife habitat.

Those trails and landings intended or anticipated for management activities in subsequent years will be designated for reuse to minimize the need for new trails and landings and associated site impacts.

Timing and use of equipment will be appropriate for site and soil conditions to maintain site productivity and minimize soil rutting, erosion, displacement and compaction.

Drainage and erosion control measures will be integrated with trails and landings and located to minimize detrimental effects of concentrated flow, erosion and sedimentation rates both during and after trail/landing use.

After usage, stream crossings will be restored and stabilized. Refer to applicable drainage and erosion-sedimentation prediction technology and practice standards such as IN FOTG Standard (342) Critical Area Planting, (578) Stream Crossing, and (484) Mulching and state forestry BMPs.

Native plant species will be used whenever possible. Known invasive species will not be used.

Seedbed preparation, species selection, seeding mixes, seeding rates, dates, depths, fertility requirements, site adaptation and planting methods will be consistent with the requirements in the IN NRCS Seeding Tool – Calculator Guidelines found in Section IV of the IN FOTG.

Additional Criteria to Provide Periodic Access for Removal and Collection of Forest Products

Harvest Trails

Harvest trails (skid trails) will be planned and located to reduce damage to the residual stand, reduce soil erosion and stream sedimentation, and prevent riparian zone degradation.

Temporary stream crossings (i.e. bridges and culverts) will be removed as soon as logging activities are completed.

All surface water from harvest trails will be diverted onto stable areas before it enters a riparian zone.

Closing Harvest Trails

All water channeling ruts and berms will be smoothed to grade level. They will be seeded and mulched if needed to control soil erosion and to allow future use of the site. When mulch is used it will be applied according to IN FOTG Standard (484) Mulching and if the site(s) are to be seeded use Table 1 **or** species and seeding rates may be selected using the Indiana NRCS Seeding Calculator using IN FOTG Standard (342) Critical Area Treatment.

Table 1. Seeding Mix

Planting Dates - Mar. 1 – May 15 or Aug. 1 – Sept. 15

Species (seed all of the following)	Seeding Rate/Acre
Orchardgrass	8 pounds
Virginia Wildrye	9.5 pounds
Creeping Red Fescue	11 pounds
Annual Ryegrass	8 pounds
Dormant seeding 12/1 thru 3/1 by increasing seeding rates by 25%	

A cover crop of Winter Wheat or Cereal Rye will be seeded to help control erosion if the site will be unprotected from September and November using a seeding rate 1 - 2 bushels per acre for either species.

Install waterbars as needed to control soil erosion. Waterbars will be constructed and spaced as described in *Indiana Logging and Forestry Best Management Practice, BMP Field Guide, 1999,* Indiana Department of Natural Resources, Division of Forestry. http://www.in.gov/dnr/forestry/2867.htm

Log Landings

Log landings will be located on soils that can support heavy equipment, e.g. moderately well to well drained soils.

If leveling is necessary, cut and fills for log landings will not obstruct the natural drainage of the area.

Log landings will be designed to provide safe access and visibility onto public roads.

Closing Log Landings

All trash, containers, equipment, and other contractor materials will be removed prior to closing. All ruts will be filled and shaped to allow for future use.

Log landings will be seeded and mulched if needed to control soil erosion and to allow future use of the site. When mulch is used it will be applied according to IN FOTG Standard (484) Mulching. If site(s) are going to be seeded, then species and seeding rates will be selected from Indiana NRCS Seeding Calculator using IN FOTG Standard (645) Upland Wildlife Habitat Management, or (327) Conservation Cover, or Table 1.

CONSIDERATIONS

Consider the implementation of IN FOTG Standard (472) Access Control to prevent unwanted use of harvest trails by off-road vehicles.

Consider technical assistance from a professional forester for planning and implementation of this practice.

Consider seeding temporary cover using wheat, rye, or spring oats to aid in the establishment of natural regeneration using IN FOTG Standard (340) Cover Crop.

Consider using the following IN FOTG practices or combination of practices to control surface runoff and soil erosion, (412) Grassed Waterway, (410) Grade Stabilization Structure, (362) Diversion, (350) Sediment Basin, and/or (638) Water and Sediment Control Basin.

Consider using temporary bridges and/or culverts for stream crossings. If a temporary stream crossing is not feasible consider crossings streams at a right angle and limit stream crossing activity to low or normal flow.

Log Landings

Consider applying coarse stone or other stabilizing cover as needed in extreme conditions. Use IN NRCS FOTG Standard (561) Heavy Use Area Protection.

Consider aesthetics when planning log landings next to roadways and other visually sensitive areas by maintaining a buffer screen and by seeding and mulching after logging.

PLANS AND SPECIFICATIONS

Plans and specifications for this practice will be prepared for each site in accordance with the criteria for this practice and will include:

- Site map showing location(s) or a detailed description of harvest trails and log landing specifications.
- Location and specifications for any stream crossings.
- Location of buffer zones for streams, special areas and other sensitive areas that need protection.
- Specifications for operation during wet or dry weather periods to avoid soil erosion, compaction, and potential fires.
- Location or description of sites needing seeding.
- Species and rates for any areas that require seeding.

OPERATION AND MAINTENANCE

Constructed waterbars, closed harvest trails, and log landings will be inspected periodically and maintained as needed, especially after storm events.

REFERENCES

Forestry Handbook, Wenger, Karl, 1984. Society of American Foresters, 2nd Edition

Indiana Logging and Forestry Best Management Practice, BMP Field Guide, 1999. Indiana Department of Natural Resources, Division of Forestry

A Guide to Logging Aesthetics: Practical Tips for Loggers, Foresters and Landowners, NRAES-60, 1993. Jones, Geoffrey, Natural Resource, Agriculture, and Engineering Service

A Landowners Guide to Building Forest Access Roads, NA-TP-06-98. Weist, R.L., 1998. USDA-Forest Service, Northeast Area State and Private Forestry