

EXHIBIT B
OPERATION AND MAINTENANCE PLAN
For
Permit Holder
Road Right-of-Way Special Use Permit
Mark Twain National Forest

Permit Holder

DATE

Sherri Schwenke, Forest Supervisor
Mark Twain National Forest

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This Operation and Maintenance Plan (Plan) is attached to and made a part of the Special Use authorization, PERMIT #, effective on the execution of the authorized officer's signature, and issued PERMIT HOLDER NAME, PERMIT HOLDER ADDRESS. This plan does not supersede or nullify any clauses of the permit.

I. INTRODUCTION: This Operation and Maintenance Plan pertains to the activities authorized in the above identified special use authorization. It is effective on the date of the executed permit and expires on the date that the permit expires. The permit authorizes a right-of-way (access route) across National Forest System (NFS) lands to access private property. Maintenance and use of this right-of-way will be carried out by permittee in its present footprint. Maintenance work required for use normally consists of brushing (trimming and removal of roadside vegetation), surface blading, surface replacement, spot repairs, landslide removal, cleaning of roadside ditches and drainage devices (such as culverts), and litter cleanup. This Permit authorizes use of National Forest System lands only. This permit does not authorize the use of any private, state or other lands.

The Holder is financially responsible for custodial care to keep the road stable, drainage functional, and resource damage at an absolute minimum. Roads should be maintained in a manner that minimizes soil erosion, sedimentation into nearby streams, rutting, and pot holes. Authorized roads used for access to private property should be designed and maintained to provide a road suitable for authorized use. This work will establish a roadway that may be traveled during all weather and that does not degrade the natural environment.

The Holder shall not perform road reconstruction, including widening, straightening, relocation or disturbance of existing cut and fill slopes, or upgrading of the road surface to a hardened surface (asphalt, chip seal, concrete) without written approval from the Forest Service. Any activities by the Holder that may result in **ground-disturbance** on National Forest **outside of the existing disturbed area (which generally includes the road's driving surface, ditches, and other drainage features)** must be evaluated by the Forest Service before implementation.

FOREST SERVICE/HOLDER COMMUNICATION: In an effort to enhance communication and working relations, a designated Forest Service representative and the Holder may schedule dates and times to meet during the period of operation. Periodic inspections will be made by the Forest Service and findings provided to the Holder.

If you have any questions or concerns please contact Realty Specialist [Click here to enter text.](#) at Phone # or District Ranger [Click here to enter text.](#) at phone #.

II. INCIDENT NOTIFICATION: Contact the Authorized Officer or District Ranger as soon as practicable after the following:

- An incident resulting in death, permanent disability, or personal injuries that are life-threatening or that are likely to cause permanent disability;
- A structural, mechanical, or electrical malfunction or failure of a component of a facility designed for passenger transport or any operational actions that impair the function or operation of such a facility in a way that could affect public safety;
- A search and rescue operation to locate a person; or
- Any incident that has high landslides, flooding, fire, structural failures, and release of hazardous materials, potential for serious personal injury or death, or significant property, environmental, or other natural resource damage.
- Immediately contact 911 for life-threatening emergencies.
- Contents of Notification: Specify when, where, and how the incident occurred and who was present or affected by the incident. Provide contact information.

III. GENERAL SPECIFICATIONS

1. The maximum roadbed width shall not exceed the width authorized in the special use permit.
2. All trash will be removed from NFS land resulting from this use. Burying of garbage is prohibited.
3. No waste or by-product shall be discharged into water if it contains a substance in concentration, which will result in harm to fish and wildlife or to human water supplies.

4. There will be no removal or cutting down of standing live or dead timber, unless preapproved by the authorized officer. If any timber that needs to be removed is deemed merchantable, it will be marked and sold to the Permit Holder at current market rates. All cut merchantable timber and stumps must be removed from NFS land or stockpiled in an area agreed upon by the Forest Service.
5. Herbicide use is prohibited. However, grasses and weeds can be mowed with either a lawn mower, weed trimmer, or bush hog.
6. Take care to prevent the introduction and spread of noxious weeds and/or exotic plants. Notify the Forest Service if you believe there may be noxious weed/exotic plant infestations within the authorized area.
7. Equipment and vehicles used for road maintenance shall be free of soil, seeds, vegetative debris, or other matter that could contain seeds or plant parts when such equipment arrives on NFS lands. Any necessary cleaning of such equipment and vehicles shall not be conducted on NFS lands.
8. Do not store personal property on NFS lands.
9. The permittee will take all measures necessary to protect the environment, the natural resources, and the health and safety of all persons affected by the use and occupancy of the permit area. The permittee will comply with all federal, state and local environmental laws and regulations.
10. No blocking of roads with chains, ropes, or similar items.

IV. GENERAL ROAD MAINTENANCE

Key maintenance considerations include:

- Regular inspections – conduct additional inspections following snowmelt or heavy/prolonged rainfall to look for drainage, erosion, or siltation problems
- Reduction of ruts, holes and ponding of water - potholes and/or wheel ruts deeper than 2 inches are not permitted, blade road to remove and re-surface the driving surface.
- Maintenance of crowns and outslopes to keep water off the road – maintain crown and out-slopes between 2% and 6% when blading road
- Replacement of surfacing materials – apply 1” crushed limestone aggregate to harden the driving surface and prevent rutting and pot-holes. Avoid blading surface materials off the road and into ditches.
- Clear sediment, debris, or vegetation (leaves, sticks) blocking ditches and culverts so water drains away freely and does not bypass ditches or culverts. Maintain uniform ditch width, depth, and grade.

- Vegetation control – remove vegetation that interferes in the ability to travel on the road, see clearly, or impedes the flow of water thru ditches or culverts.
- Downed limbs and trees - remove from the roadway. Downed trees may be cut into smaller pieces and scattered outside the clearing width of the road and piled no higher than 3 feet off the ground.

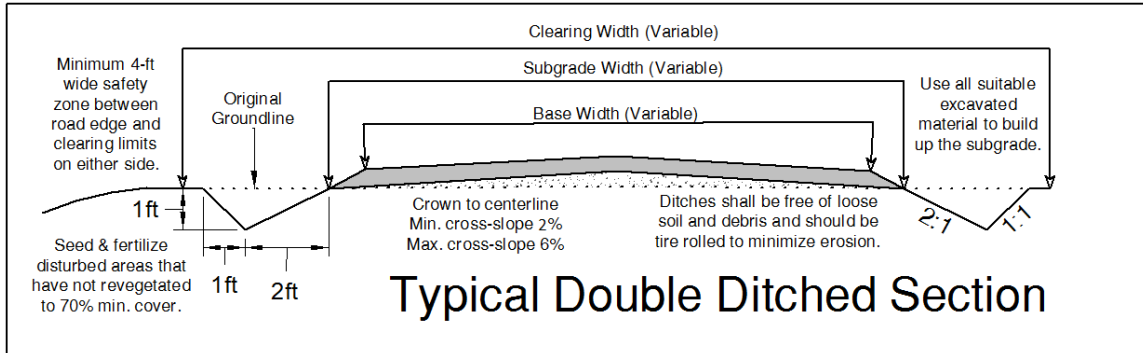


Figure 1: Illustration of Typical Double Ditched Section

V. SITE SPECIFIC DESCRIPTION OF WORK

(Enter Description of Work Here. See Figure 2 to develop a thorough description of work for the road construction elements that are being proposed for consideration.)

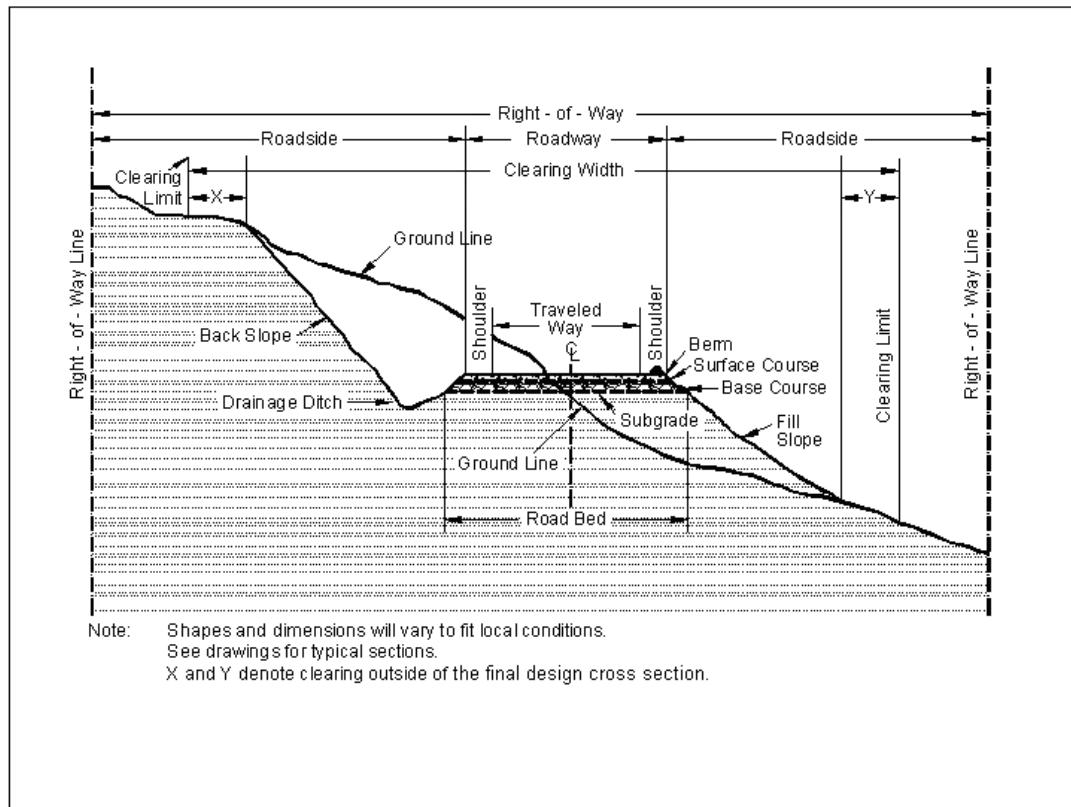


Figure 2: Illustration of Commonly Used Terms in a Road Template

VI. ROAD RECONSTRUCTION AND MAINTENANCE

1. Prior to any earth disturbing activities, Permit Holder shall call the Missouri One Call System (1-800-DIG-RITE) to determine the location of any underground utility lines.
2. Road shall be completed in such a manner that water shall not pond on roadbed or in ditch lines. Road shall not develop ruts or erosion that contributes sedimentation into nearby streams.
3. Excess excavated material from roadway ditches and outlet ditches shall be used to build up the roadway. Drainage excavation may extend beyond clearing limits.
4. No digging or borrow material is authorized outside of the current road prism.
5. Vegetation cut down during reconstruction will be placed beyond the clearing limits and the toe of any roadway template construction. Mixing of soil and cut vegetation shall be avoided.
6. A Forest Products Removal Permit must be obtained prior to removing any merchantable trees over 9” in diameter. These trees will be marked prior to removal. All logs shall be removed.
7. Within the clearing limits, felling of trees that are greater than 3” in diameter and/or is dead, shaggy-barked, hollow, or dying will be done Nov 1st-April 1st unless they have been pre-approved by the Forest Service district biologist.
8. Tops and limbs shall be scattered and cut small enough to be placed no higher than 3 feet above the ground.
9. If stumps are removed from ground they shall be disposed of off NFS lands, unless approved by the Forest Service.
10. Typical Road Cross Section are provided above in Figure 1 and Figure 2.
11. Holder agrees to include and perform the activities listed above in the description of work, as approved by the Forest Service.

VII. DESIGN CRITERIA FOR RECONSTRUCTION WORK

1. Finished roadbed width will be 12-14 feet (or as indicated in the permit) with an appropriate crown to shed water. Ditch will be 1 foot deep. Clearing limits are 20 feet, which include ditches and roadbed. See Figure 2.

2. Construct ditches and lead off ditches as needed to direct water away from the roadway.
3. Depending on the grade of the road, install dips with the following spacing:
 - 0 – 5% Grade: 200 feet apart
 - 6 - 10% Grade: 150 feet apart

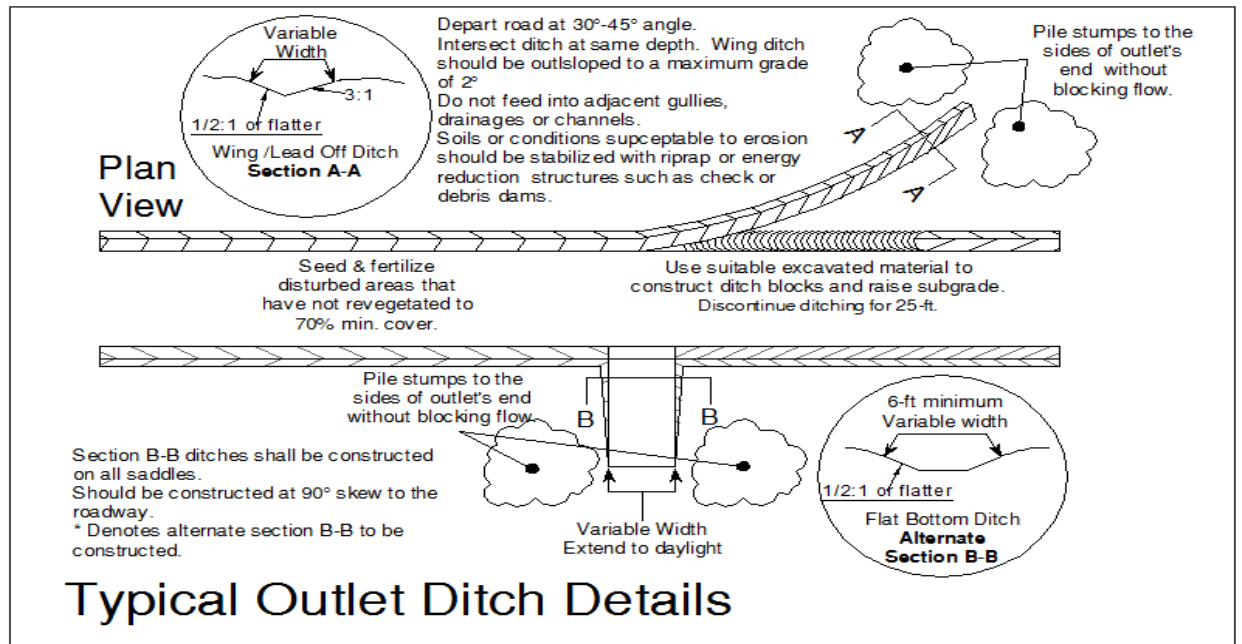


Figure 5: Illustration of A-A and B-B Type Outlet Ditches

4. Rip-rap (4"-6" crushed limestone aggregate) or other Forest Service approved protection shall be placed below discharge ends of dips.
5. Ditches, culverts, and dips shall not discharge directly into streams.
6. Surfacing material will be 1" crushed limestone aggregate.
7. All brush, limbs and downed tree debris shall be scattered a minimum of 10 feet from the edge of the roadbed, no higher than 3 feet above the ground, and placed so as not to block any natural drainage.
8. All disturbed areas will be seeded and mulched per the following specifications.
 - a. Furnish and apply the following kinds and amounts of pure live seed, furnish and apply the following kinds and amounts of seed. Obtain the pounds of seed to furnish per acre by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

Example: $\frac{5 \text{ lbs. Pure Live Seed/Acre}}{\text{Seed/Acre}} = 6.55 \text{ lbs. Commercial Seed/Acre}$

0.90 X 0.85 (Purity = 90% and Germination = 85%)

<u>Kind of Seed</u>	<u>Quantity of Pure Live Seed</u> <u>(Lbs./Acre)</u>
Annual Rye	18
Hard Fescue	6
Orchard Grass	<u>6</u>
Total	30

Seed mixture having a different analysis may be used if approved in advance.

- b. Apply mulch in a separate application from the seed or in a single application with the seed using hydraulic type equipment. If using the dry method of applying mulch use a hand spreader or a spreader utilizing forced air at a rate of 4000 pounds per acre. Apply Mulch within 24 hours after seeding.

VIII. GATES (Road Closure)

To insure against unauthorized public use of the permitted right-of-way without interference with the Government's use for administrative purposes, the Holder may be authorized to install a gate in accordance with design and location approved by the authorized officer. Once installed, the custody, control, and safety maintenance of said gate is the sole duty and responsibility of the holder. Gate shall only be installed if approved by the Forest Service and authorized on the face of the special use authorization. Authorized gates shall be installed according to specifications provided by USDA Forest Service and maintained in good working order.

- a. Gates will be installed with only two posts, these posts will be new, sound and seasoned wood or metal. Used power poles are unacceptable.
- b. Locate posts as to center gate over roadway
- c. A 14' to 16' wide, tube farm gate is approved for use.
- d. Gates must be signed in accordance with the Manual on Uniform Traffic Control Devices. Install and maintain standard red and white barricade markers or reflective tape at least 12 inches in length for each side (left/right) of gate, and "Road Closed" markers on all gates. Ensure reflective material is clean and in good repair. Replace when necessary.
- e. A USDA Forest Service lock will be placed in conjunction with Holders private lock to allow access to Forest Service employees as needed.

IX. SIGNS

Any signage used along the road must be approved by the USDA Forest Service prior to installation. Absolutely no signs that read "No Trespassing" or "Private Property" may

be placed on National Forest System lands, this includes purple paint on trees or posts and purple flagging.

Appendix A: Terms

Base Course. Material placed on the Subgrade to distribute concentrated wheel loads.

Borrow. Select Material taken from designated borrow sites.

Clearing Width: Total width of the authorized right-of-way for vegetation removal.

Crown, Inslope, and Outslope. The cross slope of the Traveled Way to aid in drainage and traffic maneuverability.

Culverts. A conduit or passageway under a road, trail, or other obstruction. A culvert differs from a bridge in that it is usually entirely below the elevation of the Traveled Way.

Drainage Dip. A dip in the Traveled Way which intercepts surface runoff and diverts the water off the traveled way. A Drainage Dip does not block the movement of traffic.

Drainage Structures. Manufactured structures which control the runoff of water from the Roadway including Inslope, overside drains, aprons, flumes, downdrains and downpipes.

During Haul Maintenance. Road maintenance work to be accomplished during the period of timber removal.

Geotextile. A group of construction fabrics with varying attributes designed for different purposes.

Lead-off Ditches. A ditch used to transmit water from a Culvert, Drainage Structure or Drainage Dip outlet to the natural drainage area.

Maintenance Activity. Items of work leading to the restoration and upkeep of a road and necessary to sustain the roads anticipated traffic.

Material. Any substance specified for use in the performance of the work.

Roadbed. The portion of a road between the intersection of Subgrade and sideslopes, excluding that portion of the ditch below Subgrade.

Roadside. A general term denoting the area adjoining the outer edge of the Roadway.

Roadway. The portion of a road within the limits of excavation and embankment.

Sand Hole. A hole that develops in the running surface of the road which is quite soft and dangerous in nature. Usually found in very sandy soils.

Shoulder. That portion of Roadway contiguous with Traveled Way for accommodation of stopped vehicles, for emergency use, and lateral support of Base and Surface Course, if any.

Slide. A concentrated deposit of materials from above or on backslope extending onto the Traveled Way or Shoulders, whether caused by mass land movements or accumulated raveling.

Slough. Material eroded from the backslope which partially or completely blocks the ditch, but does not encroach on the Traveled Way so as to block passage of traffic.

Slump. A localized portion of the Roadbed which has slipped or otherwise become lower than that of the adjacent Roadbed and constitutes a hazard to traffic.

Subgrade. Top surface of Roadbed upon which Base Course or Surface Course is constructed. For roads without Base Course or Surface Course, that portion of Roadbed prepared as the finished wearing surface.

Surface Course. The Material placed on the Base Course or Subgrade to enhance traction, distribute concentrated wheel loads and resist abrasion and the effects of climate. Surface Course may be referred to as surfacing.

Traveled Way. That portion of Roadway, excluding Shoulders, used for the movement of vehicles.

Turnouts. That portion of the Traveled Way constructed as additional width on single lane roads to allow for safe passing of vehicles.