DIVISION 630
HARVESTING

PURPOSE
OAR 629-630-0000

(1) Harvesting of forest tree species is an integral part of forest management by which wood for human use is obtained and by which forests are established and tended.

(2) Harvesting operations result in a temporary disturbance to the forest environment.

(3) The purpose of the harvesting rules is to establish standards for forest practices that will maintain the productivity of forestland, minimize soil and debris entering waters of the state, and protect wildlife and fish habitat.

(4) OARs 629-630-000 through 629-630-800 shall be known as the harvesting rules.

(5) The harvesting rules shall apply to all forest practices regions unless otherwise indicated.

APPLICATION:

This rule is the division 630 purpose statement and is not used for enforcement. Take enforcement action under OAR 629-630-0100 through 0800.

ADMINISTRATION:

This rule provides the broad framework for the remainder of the harvesting rules.

Notification requirement for salvage operations resulting from flood events are not required for processed logs, which are free of limbs and have been bucked on both ends. Downed wood within the riparian management area (RMA), not void of limbs and/or not bucked on both ends, are under the FPA jurisdiction. See OAR 629-642-0100(3), -0105(7) and -0400(3), OAR 629-645-0050 and OAR 629-650-0040. An approved plan for an alternate practice (PFAP) is required to remove downed wood from an RMA for safety or fire hazards, OAR 629-605-0500.

Definitions Used in Division 630

“Effective drainage and filtration” means water bars or other diversions that direct drainage water onto soils (not ponding water on the skid trail) where sediment can be filtered before it enters waters of the state.

"Erosion-prone slopes" means surface erosion (think rills and gullies) where there is decomposed granites or real sandy soil.

“Equipment tracks” from ground-based equipment use on tethered or cable-assist operations are considered “skid trails” for rule interpretation and guidance.
“Slash” for the purposes of OAR 629-630-0600, means any tree tops, limbs, remnants of cut brush and sections of tree trunks, all less than four inches in diameter on the small end or less than ten feet long, and the like that remain after felling, limbing, bucking and yarding. Any larger and longer material will be considered “large wood,” which is valuable as aquatic and upland wildlife habitat.

“Skid roads” are constructed skid trails that generally follow the contour and are used by many skid trails to yard logs to the landing. Constructing skid roads on steep slopes often requires cutting and sidecasting, increasing the disturbed area and stripping off the more productive surface soils leaving less productive subsoils (mineral soils).

“Skid trails” means any area where ground-based equipment conducting yarding operations makes multiple equipment passes to the extent that ground surface disturbance is visible. A single ground-based equipment pass is not considered a skid trail unless ground surface conditions are such that there is evidence of compaction, exposure of subsoil, or visible ruts.

“Soil compaction” means surface soil grains are rearranged and compressed, decreasing void spaces (loose spaces) by repeated ground-based equipment use of skid trails.

"Soil deterioration" means adverse soil disturbance such that the potential for growing trees is reduced substantially or water movement would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Examples of soil deterioration by ground-based equipment in order of severity are soil compaction, soil puddling and soil displacement.

“Soil displacement” means surface soil is moved laterally from narrow ruts or wider areas, altering water infiltration and accumulation patterns or surface soils are partly removed or mixed with subsoils (mineral soils). Severe disturbance if surface soil is removed and subsoil puddles.

“Soil puddling” means surface soil becomes a slurry by the churning or kneading action from ground-based equipment operating during wet soil conditions. Subsoil have become compacted.

“Steep slopes” means slopes that exceed 60 percent. Steep slopes may exceed 40 percent where soils consist of decomposed granite-type materials or other highly erodible materials as determined by the State Forester, OAR 629-630-0150(2) and (3).
**SKIDDING AND YARDING PRACTICES**

**OAR 629-630-0100**

(1) *For each harvesting operation, operators shall select a logging method and type of equipment appropriate to the given slope, landscape, and soil properties in order to minimize soil deterioration and to protect water quality.*

**APPLICATION:**

Section (1) can be used for enforcement action if none of the following sections is a better fit. Where soil productivity is a concern, OAR 629-630-0100(1) and (2) are related. Use section (2) where most of the disturbed soils are considered unstable, wet, or easily compacted. Use section (1) where most of the disturbed soils do not fall into those classifications.

**COMPLIANCE:**

Unsatisfactory Condition: An unsatisfactory condition exists when the operator uses harvesting method(s) that are not suited to minimize soil deterioration and protect water quality, which causes soil compaction, soil puddling or soil displacement, as described below under “soil deterioration.” An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

**Note:** OAR 629-670-0115(1)(c), and it could have been prevented by using “accepted management practices,” OAR 629-670-0105(5)(b).

Damage: There is damage when an unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage when adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. There is damage when there is adverse disturbance of more than 20 percent of the ground in the harvest unit. Refer to “soil deterioration” below.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to rip or subsoil the disturbed areas, mulch, grass seed, or other measures to improve water drainage and minimize the entry of sediment into streams. Consult supervisors and the Forest Practices Field Coordinator before using section (1) for enforcement.

**ADMINISTRATION:**
Section (1) is the purpose statement for falling and yarding practices. Use section (1) as an initial and on-going evaluation of the effects of the entire logging operation (at the unit level) on soil deterioration, site productivity, and water quality.

Planning. Operators should select the felling and harvesting methods / equipment suited to conditions of slope, landscape, and soil type to limit soil deterioration and erosion as much as is practical.

- Cable yared is a logging method that can take advantage of steep terrain, provided there are adequate opportunities for tailholds that provide the cable line deflection to minimize log gouging on yarding turns. For most harvest units, uphill cable yarding provides better protection. Downhill cable yarding tends to increase down slope soil movement and concentrate surface drainage on landings and other exposed soils. See also section (6).
- Ground-based methods (tethered or untethered) should recognize local erosion-prone soils and historic slides, while considering the following: using gentler portions of the slope for skid trails, using natural slope changes for drainage, re-using existing skid trails, adding slash to skid trails, using wide tracked equipment (not rubber tired), designating routes to avoid headwalls, unstable slopes, drainages and wet areas, and reducing activity during wet periods.
- Combinations of felling using ground-based equipment and cable yarding on steep slopes provide year-round opportunities to minimize soil disturbance.

An approved PFAP that provides “equal or better” resource protection is required to use tethered ground-based equipment for operational activities on steep slopes where there is not “intermediate” or “substantial” downslope public safety risk. The PFAP template example can be found on ODF public webpage under publications for modifying the following rules:

- Within 100 feet of any stream channel, regardless if water is present, OAR 629-630-0150(5).
- On all high landslide hazard locations, OAR 620-630-0500(1).

Note: The Stewardship Forester (SF) should consult the ODF geotechnical specialist if there are suspected downslope public safety exposure, including “low” downslope public safety risk, even if slopes are less than the high landslides hazard locations (HLHL) slope thresholds.

Example: An approved PFAP for tethered cutting or yarding could allow cutting within the 100-foot distance from any stream, but not within 30 feet. In some situations, it may be acceptable to allow cutting to the edge of the stream channel. Generally, there is a greater risk for soil disturbance on HLHL for tethered cutting and yarding operations, rather than tethered cutting and cable yarding operations.

"Soil deterioration" means adverse soil disturbance such that the potential for growing trees is reduced substantially or water movement would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Operating ground-based equipment during wet soil conditions will increase evidence of soil deterioration. Examples of soil deterioration by ground-based equipment in order of severity:

1. “Soil compaction” means surface soil grains are rearranged and compressed, decreasing void spaces (loose spaces) by repeated ground-based equipment use of skid trails.
2. “Soil puddling” means surface soil becomes a slurry by the churning or kneading action from ground-based equipment operating during wet soil conditions. Subsoil have become compacted.

3. “Soil displacement” means surface soil is moved laterally from narrow ruts or wider areas, altering water infiltration and accumulation patterns or surface soils are partly removed or mixed with subsoils (mineral soils). Severe disturbance if surface soil is removed and subsoil puddles.

Note: Disturbed soils which have been correctly sub-soiled (where appropriate), stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration. Evaluate the adequacy of soil deterioration control on the basis of the signs of soil sensitivity to harvesting practices, the evidence of soil deterioration, and on the availability of practical preventive methods. Survey the entire unit for evidence of “deteriorated soil”.

Calculating 20% disturbance for this rule means calculating the amount of soil deterioration on the total area of steep slopes, erosion prone slopes and HLHL areas within the unit (both cable and ground-based activity areas).

Drainage on slopes over 35 percent is especially critical, and erosion control measures should be completed before large storms or the rainy season. Refer to OAR 629-630-0300 for guidance on drainage.

The definition of waters of the state include stream, which means a channel that carries water sometime in the year, OAR 629-600-0100. Wet and dry channel require measures to protect water quality.
SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(2) Operators shall avoid ground based yarding on unstable, wet, or easily compacted soils unless operations can be conducted without damaging soil productivity through soil disturbance, compaction or erosion.

APPLICATION:

Section (2) can be used for enforcement. Where soil productivity is a concern, OAR 629-630-0100(1) and (2) are related. Use section (2) where most of the disturbed soils are considered unstable, wet, or easily compacted. Use section (1) where most of the disturbed soils do not fall into those classifications.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when ground-based equipment disturbance threatens to produce major soil displacement, deep compaction, or extensive erosion. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in major displacement, deep compaction, or extensive erosion. There is damage when adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. There is damage when an unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly sub-soiled (where appropriate), stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Adverse disturbance of more than 20 percent of the surface ground in the harvest unit is considered damage.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when ceasing yarding, corrective action, or complete repair is feasible and practical prior to any more than a minor amount of damage occurring. Direct mechanical subsoiling or ripping the disturbed areas when soils are not wet, mulch, grass seeding, or other measures to improve water drainage and minimize the entry of sediment into streams.
ADMINISTRATION:

Section (2) prohibits ground-based yarding on unstable, wet, or easily compacted soils that would damage soil productivity through disturbance, compaction, or erosion. Operators are responsible to plan and operate carefully as needed to meet the objective to protect soil productivity.

For example, an operation map shows exclusion areas that are problematic because of unstable terrain or wet areas. When it appears that skid trail disturbance on a harvest unit will exceed the 20 percent limit, the SF should notify the operator and recommend corrective action with a Written Statement of Unsatisfactory Condition if appropriate.

Identification of damage or potential damage associated with violation of section (2) is usually difficult. Refer to the guidance in section (1).

Note: Operating ground-based equipment during wet soil conditions will increase evidence of soil compaction, soil puddling and soil disturbance.
**SKIDDING AND YARDING PRACTICES**

OAR 629-630-0100

(3) **Operators shall locate skid trails where sidecasting is kept to a minimum.**

**APPLICATION:**

Section (3) can be used for enforcement.

**COMPLIANCE:**

Unsatisfactory Condition: An unsatisfactory condition exists when skid trail sidecast material threatens to cover productive soil over a significant percentage of the unit. An unsatisfactory condition exists when sidecast material is likely to cause slides which will remove productive surface soil from the slope. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory conditions reach proportions that could have been practically limited. There is damage when adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Damage occurs when the combination of slope which has been covered by sidecast and slides from sidecast and ground excavated for the skid road (road plus the cut) exceeds more than 20 percent of the ground in the unit.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when excessive sidecast-related soil disturbance is threatening or just beginning, but major damage has not yet occurred and the unsatisfactory condition can be immediately corrected. Direct the operator to pullback sidecast and place it in the skid road or other stable location, after the operation but prior to the rainy season is generally sufficient.

**ADMINISTRATION:**

Section (3). Operators must limit disturbance by fitting ground-based skid trails to the topography, limiting the area covered by excavation and sidecast, and avoiding sidecasting that is likely to cause landslides. Encourage operators to plan and mark skid trails in advance of construction and use. Note: Advise operators to avoid side casting new material on top of old sidecast when “opening up” previously constructed skid trails, which may result in unexpectedly deep sidecast.

**Excessive sidecast generally means sidecast depth of three feet or more on slopes between 50 percent and 65 percent and two feet or more on slopes over 65 percent.** When evaluating sidecast stability, the SF must consider slope, sidecast depth, extent and soil type, since strength and susceptibility to erosion vary by soil type. Sidecast depth is more about triggering an underlying slope failure (failure surface below the sidecast including natural ground). It's a weight issue, not a surface erosion issue. Consult ODF’s Geotechnical Specialist if more information on sidecast stability is needed.
Sidecast that results in a single small landslide or a few scattered small landslides will not automatically constitute damage under section (3), provided that overall disturbance of the activity area does not exceed 20 percent of the ground in the unit. If waters are affected or threatened, other harvesting rules will usually also apply.
SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(4) Operators shall locate skid trails on stable areas so as to minimize the risk of material entering waters of the state.

APPLICATION:

Section (4) can be used for enforcement.

This section applies to skid trails on steep but otherwise stable slopes. In most situations, OAR 629-623, OAR 629-630-0150, or OAR 629-630-0500 will better fit the circumstances because there are HLHL as defined in OAR 629-600-0100 or steep or erosion-prone slopes, as described in OAR 629-630-0150(2) and (3). Use section (3) only on the remaining steep, but stable sites that are end-hauled or where sidecast is limited and will not enter waters.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when any skid trail is located near a stream or on steep slopes which pose a risk of fill or sidecast material entering waters of the state. An unsatisfactory condition exists when skid trails are located on slopes where serious erosion is likely despite efforts to provide drainage. An unsatisfactory condition exists when preventable sediment or debris has entered or is likely to enter the stream channel or waters of the state.

Damage: There is damage when an unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage when adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when repairs are feasible and practical and can be completed prior to damage occurring. Direct the operator to pullback any unstable sidecast and place it in a stable location, or to install drainage structures as necessary to prevent surface erosion, or to vacate and stabilize any skid trails or landings located on unstable slopes.
ADMINISTRATION:

Section (4) is intended to prohibit landings, skid trails and fire trails from being located on steep slopes or landslide-prone locations where likely to either destabilize the slopes or cause major erosion (gullies).

Locations which are not stable for skid trails (conventional ground-based harvesting activities) include:

1. Actively moving landslides;
2. HLHL (as defined in OAR 629-600-0100);
3. All slopes steeper than 60 percent; or
4. Erosion-prone slopes (very sandy, decomposed granitics, and ash) which are steeper than 40 percent.

After intense fire, stability is further reduced. As a rule of thumb, the slopes listed above should be reduced by ten percent after an intense fire to determine the maximum stable slope for ground-based harvesting (felling and yarding).

When damage from skid trails and fire trails is due to surface erosion which could have been prevented by water bars or other drainage structures, take enforcement action under OAR 629-630-0300.
SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(5) Operators shall avoid excavating skid trails on slumps or slides.

APPLICATION:

Section (5) can be used for enforcement. The section applies when ground yarding is used on units with slumps or slide terrain. However, in most situations, OAR 629-623, OAR 629-630-0150, or OAR 629-630-0500 will fit the situation better. Use section (5) only on the remaining sites, that is, where there are no HLHL and no steep or erosion-prone slopes (as described in OAR 629-630-0150(2) and (3)).

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when operators excavate skid trails (including re-excavation of existing skid trails) on slumps or slides. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: There is damage when an unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris down slope.

Damage also occurs when the unsatisfactory condition results in reactivation of slumps or slides, adversely affecting soil productivity over a significant portion of the harvest unit. Adverse disturbance of more than 20 percent of the ground in the harvest unit is considered damage. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Excavating skid trails on slumps or slides without an approved PFAP is considered a violation of section (5). The rule of thumb here is: if the SF recognized the site as a slide area, then the operator and landowner also should have recognized it.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when skidding may, or has occurred across slumps or slides but no skid trail excavation has been done. Direct the operator to pullback any unstable sidecast and place it in a stable location, or to install drainage structures as necessary to prevent surface erosion, or to vacate and stabilize any skid trails or landings located on unstable slopes.
ADMINISTRATION:

Section (5) is intended to prohibit skid trail construction on slumps or slides. Operators are responsible to plan and operate carefully as needed to meet the objective to protect soil productivity. For example, an operation map shows exclusion areas that are problematic because of slumps or slides. Skid trail construction will usually alter drainage, over steepen the slope, and/or load the slope. Such alterations can reactivate slope movement. Damage to downslope water quality or aquatic habitat is a likely result.

There are situations where skidding across slumps or slides is a reasonable practice Consult the ODF Geotechnical Specialist before approving a PFAP for such situations.
SKIDDING AND YARDING PRACTICES
OAR 629-630-0100

(6) Operators shall limit cable logging to uphill yarding whenever practical. When downhill cable yarding is necessary, operators shall use a layout and system which minimizes soil displacement.

APPLICATION:

Section (6) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when downhill cable yarding is used and there is inadequate deflection to lift at least one-end of the logs off the ground over a substantial portion of the unit. Examples of unsatisfactory conditions are:

1. At least partial suspension has not been achieved for most of the length of the yarding roads.
2. Deep and extensive gouging of the soil surface on slopes which concentrates water, preventing sediment filtering before entering waters of the state.
3. Yarding roads have displaced soil to the extent of burying surface layers and exposing less productive subsoil (mineral soils).

Damage: Damage occurs when the unsatisfactory condition results in adverse soil displacement over a significant portion (over 20 percent) of the unit.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when an unsatisfactory condition is observed prior to damage. Direct the operator to cease yarding and adjust yarding practices before continuing.

ADMINISTRATION:

Section (6) requires operator, when downhill cable yarding systems are used, to do whatever is necessary to limit soil displacement and prevent soil erosion. When cable yarding, the operator must use a system that adequately protects soil productivity and water quality. For most harvest units, uphill cable yarding provides better protection. Downhill cable yarding tends to increase down slope soil movement and concentrate surface drainage on landings and other exposed soils. See also guidance for OAR 629-630-0500 and OAR 629-623-0400 and -0500.

Although uphill cable yarding is generally preferred, downhill cable yarding may be appropriate in some situations. Several examples of these situations are:

- When downhill cable yarding leads to lower overall impact on soils and water quality. For example, when road construction across a high landslide hazard location would be needed for use of an uphill system a well-designed downhill layout may provide better resource protection.
- When cable systems for yarding small logs are designed as downhill systems. These systems are acceptable provided that they meet the resource protection standards described in this guidance.

- When the operator has no practical alternative to downhill yarding, even though uphill yarding would provide better resource protection. The SF should be satisfied that the operator has exhausted all reasonable alternatives, including attempting to gain access over adjacent ownership. Special measures may be needed to protect soils and water quality. The SF may consult district supervisory staff and Forest Practices Field Coordinator if it appears that downhill yarding could degrade soils or waters of the state and there appears to be no reasonable alternative.
GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(1) The purpose of this rule is to reduce the potential for erosion from steep or erosion-prone slopes to enter waters of the state.

APPLICATION:

Section (1) cannot be used for enforcement. It is the purpose statement for OAR 629-630-0150. Sections (4) through (9) of this rule describe specific protection standards used for enforcement.

ADMINISTRATION:

The purpose of this rule is to reduce erosion from steep or erosion-prone slopes into waters of the state. Use OAR 629-630-0100 Skidding and Yarding Practices to address situations where soil disturbance from yarding equipment affects soil productivity. OAR 629-630-0150 applies to slopes that are steep or erosion-prone but are not HLHL.

"Erosion-prone slopes" means surface erosion (think rills and gullys) where there is decomposed granites or very sandy soil.

When HLHL are present, use the following rules for enforcement:

- OAR 629-623-0000 through 0800, Shallow, Rapidly Moving Landslides and Public Safety
- OAR 629-630-0500, Harvesting on High Landslide Hazard Locations
GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(2) Slop[es over 60 percent are subject to the requirements of Sections (4) through (9) of this rule.

(3) Slop[es over 40 percent where soils consist of decomposed granite-type materials, or other highly erodible materials as determined by the State Forester, are considered erosion-prone and subject to the requirements of Sections (4) through (9) of this rule.

APPLICATION:

Sections (2) and (3) cannot be used for enforcement.

ADMINISTRATION:

OAR 629-630-0150 applies to slopes considered “steep” or “erosion-prone.” Under section (2), “steep slopes” are slopes that are steeper than 60 percent gradient but are not HLHL. Operators are expected to be aware of these slopes in their operation unit.

Under section (3), “erosion–prone slopes” are slopes that are steeper than 40 percent (but not HLHL) that have either decomposed granitic soils or other soils that are determined by the State Forester to be highly erodible. Decomposed granitic soils are generally limited to a band running south from near Roseburg, through Grants Pass, to near Ashland; maps and GIS layers showing the locations of these soils are available. Operators are expected to be aware of mapped decomposed granitic soils in their operation unit.

“Other highly erodible materials as determined by the State Forester” include:

- Soils that have become highly erodible after intense wildfire, or
- Soils on slopes with a history of surface erosion problems.

Note: The November 7, 2018 FPA guidance for ground-based operations on steep slopes acknowledged that OAR 629-630-0150 also applies to HLHL where there is an approved PFPA.

Consult with ODF’s Geotechnical Specialist when considering whether to apply the rule in this manner. The department must notify the operator for this rule to apply on “other highly erodible materials.”

Steep slopes over 60% may be viewed on ODF’s Vantage and FERNS platforms. Lidar imagery is available on Vantage.
GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(4) Methods that avoid development of compacted or excavated trails are the preferred alternative for operating on steep or erosion-prone slopes. If the operation will result in excavated or compacted skid trails, operators shall apply sections (5) through (9) of this rule.

APPLICATION:

Section (4) cannot be used for enforcement.

ADMINISTRATION:

Yarding Systems and Requirements. Where steep or erosion-prone slopes are identified based on sections (2) and (3) of this rule, operators should always first consider yarding methods that do not result in excavated or compacted skid trails. The most common alternative yarding method is cable yarding, but other methods may be effective. In their analyses, operators and landowners may determine that these systems are not feasible. Reasons for this determination could be economic (high costs, low timber value, or other considerations) or operational (cable systems won’t work in the situation, the operator has no access to cable systems, or other factors).

Note: The yarding system decision is up to the operator and landowner, not the SF, although the SF can provide advisory input. However, when operators use any yarding system that will result in excavated or compacted skid trails on steep or erosion-prone slopes, they must meet or exceed the protection standards in sections (5) through (9) of this rule. The requirements in sections (5) through (9) apply to existing skid trails only if new excavation or fill is needed.

Note: Operating ground-based equipment during wet soil conditions will increase evidence of soil compaction, soil puddling and soil disturbance.
**GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES**

**OAR 629-630-0150**

(5) If skid trails are located on steep or erosion-prone slopes, operators shall locate them at least 100 feet from any stream channels.

**APPLICATION:**

Section (5) can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed water bars as needed to prevent drainage water from carrying sediment into waters of the state.

**COMPLIANCE:**

**Unsatisfactory Condition.** An unsatisfactory condition exists when excavated or compacted skid trails on steep or erosion-prone slopes are located within 100 feet (slope distance) of any stream. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state. OAR 629-670-0115(1)(c).

**Damage:** Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

**Note:** Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator pullback sidecast pullback (if feasible), water barring, mulching, seeding, or other measures to minimize the entry of sediment into streams.
**ADMINISTRATION:**

Section (5) directs operators to carefully plan skid trail locations on steep or erosion-prone slopes. On steep or erosion-prone slopes, skid trails within 100 feet of streams pose unacceptable risks of erosion into streams. Operators must keep skid trails on steep or erosion-prone slopes at least 100 feet from any stream, regardless of stream type. “Stream” is defined in OAR 629-600-0100. The 100-foot distance is to be measured in slope distance from the high water level.

An approved PFAP that provides “equal or better” resource protection is required to use tethered ground-based equipment for felling or yarding on steep slopes where there is not “intermediate” or “substantial” downslope public safety risk:

- Within 100 feet of any wet or dry stream channel, regardless if water is present.

**Note:** Consult the ODF geotechnical specialist if there are suspected downslope public safety exposure, including “low” downslope public safety risk, even if slopes are less than the HLHL slope thresholds. The PFAP should describe practices that will provide effective drainage to allow drainage water to filter or settle out before the drainage water enters waters of the state.

**Note:** The PFAP template example can be found on ODF public webpage under publications.

**Example:** An approved PFAP for tethered cutting or yarding could allow cutting within the 100-foot distance from any stream, but not within 50 feet rather. In some situations, it may be acceptable to allow cutting to edge of the stream channel. Generally, there is a greater risk for soil disturbance on HLHL for cutting and yarding operations, rather than tethered cutting and cable yarding operations. Other practices should include statements such as, machinery passes will be limited, as will directional changes and track spin and track berms will be knocked down to restore the ground surface and slash placed on the disturbed soil.
GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES
OAR 629-630-0150

(6) Operators shall locate skid trails where water can drain off the skid trail and onto undisturbed soils.

APPLICATION:

Section (6) can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed water bars as needed to prevent drainage water from carrying sediment into waters of the state.

COMPLIANCE:

Unsatisfactory Condition. An unsatisfactory condition exists when skid trails on steep or erosion-prone slopes are located where water cannot be diverted from the skid trails onto undisturbed soils. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator pullback sidecast pullback (if feasible), water barring, mulching, seeding, or other measures to minimize the entry of sediment into streams.
ADMINISTRATION:

Section (6) is the drainage objective for locating skid trails on steep or erosion-prone slopes. The key in this section is for operators to carefully plan skid trail locations on steep or erosion-prone slopes. Repair or correction once the skid trail is in the wrong location can be costly and may not be feasible. Drainage water must run off of skid trails and away from skid trails, not back onto the trails.
**GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES**

**OAR 629-630-0150**

(7) Skid trails shall not be located straight up and down steep or erosion-prone slopes for a distance exceeding 100 feet unless effective drainage and sediment filtration can be achieved.

**APPLICATION:**

Section (7) can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed water bars as needed to prevent drainage water from carrying sediment into waters of the state.

**COMPLIANCE:**

Unsatisfactory Condition. An unsatisfactory condition exists when skid trails are located straight up and down steep or erosion-prone slopes for more than 100 feet slope distance in such a fashion that effective drainage and sediment filtration cannot be achieved. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage
occurring. Direct the operator to pullback sidecast (if feasible), water barring, mulching, seeding, or other measures to minimize the entry of sediment from skid trails into waters of the state.

**ADMINISTRATION:**

Section (7) address planning by operators to identify skid trail locations before operating on steep or erosion-prone slopes. It is often very difficult, if not impossible, to divert water from skid trails that run straight up and down slopes. Drainage water must run off and away from skid trails, not back onto the trails causing further erosion.
APPLICATION:

Section (8) can be used for enforcement.

Sections (5), (6), and (7) of this rule focus on placing skid trails on steep or erosion-prone slopes only in locations where effective drainage is feasible. Use those sections when operators have failed to locate skid trails properly. Use section (8) when skid trails on steep or erosion-prone slopes have been properly located, but operators have not installed effective cross ditches (water bars) as needed to prevent drainage water from ponding or carrying sediment into waters of the state.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition when on skid road located on steep or erosion-prone slopes, operators fail to install cross ditches (water bars) as needed to keep runoff water from carrying eroded sediment into streams or other waters of the state. An unsatisfactory condition when on skid trails located on steep or erosion-prone slopes, operators fail to install effective cross ditches (water bars) which results in ponding water on the slope. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to pullback any unstable sidecast and place it in a stable location, or to install drainage structures as necessary to prevent surface erosion, or to vacate and stabilize any skid trails or landings located on unstable slopes.
ADMINISTRATION:

Section (8) addresses installation of “cross ditch,” which means an excavated water diversion that is deeper than a water bar, with a correspondingly higher mound of soil on the downhill side. Cross ditches will usually be deep and high enough that passenger vehicles (including four-wheel drive pickup) cannot pass. “Effective” means that the cross ditch is located and constructed so that drainage water is directed off of and away from the skid trail and onto soils where sediment can be filtered before entering streams or other waters of the state while not ponding water on the slope. Cross ditches must be located and spaced as needed to avoid erosion into waters of the state; maximum spacing should generally not exceed 200 feet.

Note: Cross ditches should rarely be used on steep slopes. Water bars should only be deep enough to move water off the skid trail, to minimize soil deterioration.
**GROUND-BASED HARVESTING ON STEEP OR EROSION-PRONE SLOPES**
**OAR 629-630-0150**

(9) Operators shall limit the amount of ground with disturbed soils on steep or erosion-prone slopes as described in Sections (2) and (3) of this rule to no more than ten percent of the steep or erosion-prone slopes within the operation area.

**APPLICATION:**

Section (9) can be used for enforcement.

**COMPLIANCE:**

Unsatisfactory Condition. An unsatisfactory condition exists when ground disturbance on steep or erosion-prone slopes is approaching or exceeds ten percent of the area of those slopes within the operation unit.

Damage: Damage occurs when the unsatisfactory condition is not avoided by limiting ground disturbance on steep or erosion-prone slopes to less than ten percent of those slopes within the operation area. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Appropriate corrective actions will vary with the site. Direct the operator pull back sidecast (if feasible), water barring, mulching, or seeding.

**ADMINISTRATION:**

Section (9) is focused on prevention. Higher levels of disturbance are likely to lead to erosion that enters waters of the state. Effective rehabilitation of skid trails on steep or erosion-prone slopes after the fact is often not feasible.

The ten percent disturbance standard in this section is half the standard used in OAR 629-630-0100(2) and (3) because erosion is much more likely on steep or erosion-prone slopes. Calculate the percent disturbance based on the total ground-based and cable harvested area of the slopes within the operation unit that are considered steep or erosion-prone, including HLHL. See OAR 629-630-0150(2) and (3) and definition of HLHL in OAR 629-600-0100.
**LANDINGS**  
**OAR 629-630-0200**

(1) **Operators shall minimize the size of landings to that necessary for safe operation.**

**APPLICATION:**

Section (1) can be used for enforcement. This section applies when operators construct landings larger than needed for the harvest operation.

**COMPLIANCE:**

*Unsatisfactory Condition:* An unsatisfactory condition exists when a landing is larger than is reasonably necessary for safe and practical operation. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

*Damage:* Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state, or when damage to soil productivity cannot be corrected. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

*Written Statement of Unsatisfactory Condition:* Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to pullback and place fill and sidecast onto stable locations, or erosion abatement measures. Restoration methods may include road rock removal, re-grading, and sub-soiling (where appropriate).

**ADMINISTRATION:**

Generally, landings larger than one-quarter acre (approximately 100 feet by 100 feet) are larger than reasonably necessary. Careful consideration of correction and repair is especially important when impacts to soil productivity are a concern. If correction (or repair) is feasible, the entire landing must be restored to a productive condition. For landings constructed without much excavation, removal of road rock (if there is a significant layer or rock) and the use of sub-soiling equipment may be adequate. Where landings include deep cuts, pullback and re-grading of excavated soil may be necessary.

Oversized landings reduce the productive area of forestlands and increase the risk of sediment entering into waters of the state. The SF should encourage operators to limit landing size to what is reasonably necessary for safe operation. The 100 x 100 foot standard is intended as an upper limit. In many operations, landings of smaller sizes will meet safety and operational needs.
Allowance for safety may occasionally necessitate larger landings. When evaluating landing size and safety, the SF may need to consult with a representative from the Oregon Occupational Safety and Health Division (OR-OSHA). On rare occasions, operators may need landings larger than one-quarter acre to meet special operational needs, or to avoid additional road construction on steep slopes. Air operations usually require larger but fewer landings to allow for landing and servicing the aircraft. Aerial yarding usually proceeds more quickly than log hauling requiring more area to deck yarded logs prior to removal.

Consult the Forest Practices Field Coordinator if there are questions about unsatisfactory conditions, repairs, or corrective actions.
LANDINGS
OAR 629-630-0200

(2) Operators shall locate landings on stable areas so as to minimize the risk of material entering waters of the state.

APPLICATION:

Section (2) can be used for enforcement. This section applies when operators locate landings on unstable areas where there is also a risk of material entering waters of the state.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when landings are located in unstable areas. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state. Unstable areas include:

1. Slopes steeper than 60 percent or erosion-prone slopes steeper than 40 percent;
2. HLHL (as defined in OAR 629-600-0100); or
3. Excavated, filled, or side-casted areas may reactivate an old landslide.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to pullback and place fill and side-cast onto stable locations, and erosion abatement measures.

ADMINISTRATION:

Section (2) prohibits locating landings on unstable sites, including very steep slopes, HLHL, and existing slumps or slides. Operators must plan and operate carefully as needed to meet the objective to protect soil productivity. For example, an operation map shows exclusion areas that are problematic because of unstable very steep slopes, slumps or slides. The SF should consult ODF’s Geotechnical Specialist if there are questions about landing stability and the risk of materials entering waters of the state. Prevention of damage may require complete landing reconstruction or removal.
**LANDINGS**  
**OAR 629-630-0200**

(3) Operators shall avoid locating landings in riparian management areas. When no feasible alternative landing locations exist, operators shall submit a written plan to the State Forester before locating landings in riparian management areas.

**APPLICATION:**

Section (3) can be used for enforcement. This section applies when operators locate landings in an RMA without submitting a written plan.

The requirement for a non-statutory written plan under this rule may be waived if the SF determines that the formal plan process is not needed to ensure resource protection. Consideration of the waiver begins when the operator requests the waiver. Unless the department grants the waiver, a non-statutory written plan is required and must be submitted before the practice or operation begins.

**COMPLIANCE:**

Unsatisfactory Condition: An unsatisfactory condition exists when operators locate landings or any portions of landings in RMAs without submitting the required written plan. An unsatisfactory condition exists when a landing is located in an RMA when feasible alternative locations exist, despite the stated intentions in the written plan.

Damage: Resource damage is not a prerequisite for taking enforcement action on a procedural violation. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

It is also resource damage when a landing is located in an RMA when feasible alternative locations exist, despite the stated intentions in the written plan. Landings located in RMAs should be evaluated for resource damage specified in the other sections of this rule.

Written Statement of Unsatisfactory Condition: Under specific conditions listed in OAR 629-670-0125 a written statement of unsatisfactory condition may be issued instead of a citation. A written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring.
ADMINISTRATION:

Section (3) prohibits the location of landings or log decks within the RMA. All areas used for decking logs are considered landings. See also Forest Practices Technical Note 7, Avoiding Roads in Critical Locations.

Written Plans: Statutory written plans are required for activity within 100 feet of Type F, Type SSBT and D and significant wetlands. A non-statutory written plan may be required for activity within the RMAs of large and medium Type N streams and large lakes, as well as for activity that may impact small Type N streams described in OAR 629-605-0170(10). See OAR 629-605-0170, 629-645-0000, and 629-650-0005.

If there are no reasonable alternative locations, this section allows operators to locate landings within RMA areas after submitting a required written plan. The SF must determine that the operator has considered all reasonable alternative locations and methods and that no feasible alternatives are available. Landings in the RMA should be temporary if possible, and the disturbance should always be the minimum necessary for safe operation. The SF may recommend protection and restoration measures that exceed standard FPA requirements, as needed and appropriate for the specific situation. Landings should not be acceptable in the aquatic area or within 20-feet of the high water level. Consultation with Oregon Department of Fish & Wildlife (ODFW) may be appropriate during review of the written plan.

When a written plan for operations near waters is required, the operator should include in the written plan the proposed resource protection measures, including restoration.

Note: A PFAP is not required because the rule provides for the use of a written plan when there are no feasible alternatives.
LANDINGS
OAR 629-630-0200

(4) Operators shall not incorporate slash, logs, or other large quantities of organic material into landing fills.

APPLICATION:

Section (4) can be used for enforcement. This section applies when destabilizing quantities of organic material are buried in landing fills.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when slash, logs, or other large accumulations of organic debris are incorporated into landing fills. An unsatisfactory condition exists when tension cracks or other indicators of soil instability or movement are evident. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering waters of the state through landing slope failure or overland flow. Damage also occurs when the unsatisfactory condition results in adverse impacts to soil productivity over a significant area down-slope due to its causing slope failure. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to pullback and place fill and organic debris onto stable locations.

ADMINISTRATION:

Section (4) is intended to prevent a landing fill failure by keeping organic debris out of landing fills. Organic debris in fills decays over time. Where logs or other large accumulations of organic debris are in fills, the loss of strength that occurs as decay advances can allow the fills to fail under wet soil conditions. This section is generally applicable when slopes are over 50 percent, or when the landing is within 100 feet of waters of the state. Determinations of the causes or likelihood of landslides can be difficult; consult ODF’s Geotechnical Specialist if there are questions relating to landslides and organic material in landing fills. See also guidance for OAR 629-625-0440(3).
LANDINGS
OAR 629-630-0200

(5) Operators shall deposit excess material from landing construction in stable locations well above the high water level.

APPLICATION:

Section (5) can be used for enforcement. This section applies to the disposal of overburden not directly utilized in landing construction.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state. An unsatisfactory condition exists when operators place material from landing construction in any of the following locations:

1. Any location below the 100-year flood level of any water of the state;
2. Any slide, slump, or unstable slope above any water of the state;
3. Any high landslide hazard location.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to move excess material to a stable location above the 100 year flood level. Previous landing construction on hazardous slopes should be relocated.

ADMINISTRATION:

Section (5) is intended to prevent damage to water quality or aquatic habitat from excess material generated by landing construction. Excess landing material such as soil, rock, or clearing debris must be placed in stable locations well above the high water level. "Well above the high water level" means above the 100-year flood level. End hauling excess material to a stable disposal site may be required. See also guidance for division 623, Shallow, Rapidly Moving Landslides and Public Safety.
DRAINAGE SYSTEMS
OAR 629-630-0300

(1) The purpose of this rule is to provide and maintain a drainage system for each landing, skid trail, and fire trail that will control and disperse surface runoff to minimize sediment entering waters of the state.

APPLICATION:

Section (1) is not used for enforcement; it is the rule purpose statement. Take enforcement action as appropriate under OAR 629-630-0300 (2) through (4).

ADMINISTRATION:

Section (1) is intended to minimize the entry of sediment into waters of the state by providing drainage systems on all landings, skid trails, and fire trails.
DRAINAGE SYSTEMS
OAR 629-630-0300

(2) Operators shall construct dips, grade reversals or other effective water diversions in skid trails and fire trails as necessary to minimize soil displacement and to ensure runoff water is filtered before entering waters of the state.

APPLICATION:

Section (2) can be used for enforcement. This section applies to the design, layout, initial construction, and consequent performance of skid trails and fire trail drainage systems.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when an operator fails to construct dips, grade reversals, or other diversions on skid trails or fire trails. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state during or after the operation.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly sub-soiled (where appropriate), stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action is feasible and practical prior to damage occurring. Direct the operator to construct and maintain drainage structures as needed to prevent sediment from entering waters of the state.
ADMINISTRATION:

Section (2) addresses both skid trails and fire trails, and focuses on integrated design and construction features such as dips and grade reversals, in the initial layout and construction. With planning and care, operators can avoid creating trails that are difficult or impossible to drain. Dips and grade reversals can be used to create self-draining sections of skid trails or fire trails.

Drainage should be designed to divert runoff onto locations that will allow filtering of sediment before the runoff enters waters of the state. Water should not be directed onto locations that will be eroded or destabilized. Water bars or other diversions may be needed as well on some sections of trails.

The SF should educate operators on the importance of planning skid trail location and design. Tethered ground-based equipment generally causes less soil disturbance than untethered ground-based equipment that uses skid trails up and down steep slopes rather than closer to the contour. Skid trails that go up and down slopes are very difficult to drain and should be strongly discouraged. See also guidance for OAR 629-630-0100(1).
DRAINAGE SYSTEMS
OAR 629-630-0300

(3) Operators shall drain skid trails by water barring or other effective means immediately following completion of the operation and at all times during the operation when runoff is likely.

APPLICATION:

Section (3) can be used for enforcement. This section applies to the maintenance of skid trails during use, and treatment of skid trails at the completion of use. Since fire trails are not specifically mentioned in this section, Use section (2) for maintenance needs on fire trails.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when operators fail to construct and maintain water bars, or other drainage structures on skid trails. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state during or after the operation.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly sub-soiled (where appropriate), stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action is feasible and practical prior to damage occurring. Direct the operator to construct water bars or use other effective means to facilitate drainage of skid trails.
ADMINISTRATION:

Section (3) focuses on adding water bars or other water diversions after skid trails have been constructed. Drainage structures must be in place and functional immediately after completion of the operation and at all times during the operation when runoff is likely. Drainage structures must be sufficient to remain operative under all uses, including recreational uses, and runoff events until they are rendered unnecessary by re-vegetation or other processes. Maintenance may be necessary.

Water bars and cross ditches should be constructed at an angle and “ditched out” to prevent water retention and only be deep enough to move water off the skid trail. Water bars and cross ditches must be cut into compacted material rather than being constructed by piling loose material on the surface of the skid trail. When feasible, construction equipment should back away from rather than progressing over constructed water bars and drainage ditches. Skid trail fills that block minor swales (depressions with no eroded channel) may pond water during runoff generating events. To avoid fill erosion or washout, fill material in swales should be removed and stabilized prior to wet periods.

Operators should follow Table 1. Guidelines for water bar spacing on skid trails:

<table>
<thead>
<tr>
<th>Slope of Skid Trail</th>
<th>Erodible (silt, sands, granitics)</th>
<th>Less Erodible (loam, gravel, cobble)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 to 15%</td>
<td>150 feet</td>
<td>300 feet</td>
</tr>
<tr>
<td>15 to 35%</td>
<td>100 feet</td>
<td>200 feet</td>
</tr>
<tr>
<td>35 to 50%</td>
<td>50 feet</td>
<td>100 feet</td>
</tr>
<tr>
<td>Over 50%</td>
<td>25 feet</td>
<td>50 feet</td>
</tr>
</tbody>
</table>
**DRAINAGE SYSTEMS**

**OAR 629-630-0300**

(4) Operators shall establish effective drainage on landings during and after use.

**APPLICATION:**

Section (4) can be used for enforcement. This section applies to landing drainage during and after use.

**COMPLIANCE:**

Unsatisfactory Condition: An unsatisfactory condition exists when operators fail to provide effective landing drainage during and after use. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state during or after the operation.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to outslope the landing, ditch water onto stable slopes, or pullback of fill material placing it in a stable location.

**ADMINISTRATION:**

Operators should be encouraged to plan, during layout and construction, for landing drainage and roads and trails that will drain towards landings. Ongoing maintenance of drainage during use is also essential. Debris should be removed from drainage structures during landing use to ensure effective drainage any time it is needed.

Operators must slope or ditch landings so that water running across cut slopes, working surfaces, or fills does not carry sediment into waters of the state. Drainage from landings must not be directed onto HLHL. See the guidance under OAR 629-630-0500 for more information.
TREATMENT OF WASTE MATERIALS
OAR 629-630-0400

(1) Operators shall leave or place all debris, slash, sidecast and other waste material associated with harvesting in such a manner to prevent their entry into waters of the state.

APPLICATION:

Section (1) can be used for enforcement. This section applies to soil and organic waste material, and specifically addresses possible entry into waters of the state.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when waste material generated from harvesting activities is left or placed in waters of the state, or where it is likely to enter waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Remove material as soon as practicable, unless removal is likely to create more damage.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when written statement of unsatisfactory condition should be issued when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to remove or pullback of debris and other material and place in a stable location. Other erosion control measures such as grass seeding and mulching may be necessary.

ADMINISTRATION:

Section (1) applies to slash, other woody debris, and soil or rock debris generated by harvesting activities. Operators must place these materials so that they do not enter waters of the state. Burying of organic debris is acceptable, provided that the debris is not placed in a fill or other location where decay of the debris is likely to cause a mass failure. Operators must follow fire prevention and smoke management rules if they choose to burn slash accumulations.
(2) Where sidecast material or exposed soils are potentially unstable or erodible, the operator shall stabilize it by pullback, spreading out, seeding or other effective means.

APPLICATION:

Section (2) can be used for enforcement. This section applies to areas of potential mass failure or surface erosion.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when operators fail to stabilize sidecast material or exposed soils as prescribed, and that failure creates potential for surface erosion or tension cracks and other evidence of instability. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Damage also occurs when the unsatisfactory condition results in soil disturbance over a significant portion of the operation unit. Disturbance of more than 20 percent of the ground in the harvest unit is considered damage. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to take the appropriate corrective action (or repair): pullback, spreading out, seeding, or other effective means.

ADMINISTRATION:

Section (2) is intended to prevent sediment from entering waters of the state through erosion of exposed soils or from landslides caused by sidecast soil. Exposed soils often do not re-vegetate rapidly enough to prevent erosion, especially if lower soil horizons have been exposed. Stabilization measures may be needed to prevent slope failure or sediment entering waters of the state. Sidecast material is less stable than in-place soil. Stabilization through pullback, spreading
out of material so that the depth is reduced, mulching, or other means, may be necessary to avoid causing landslides.

Operators must remove sidecast materials and debris accumulations from HLHL. Use the guidance under OAR 629-630-0500.
TREATMENT OF WASTE MATERIALS
OAR 629-630-0400

(3) Operators shall remove from the forest all petroleum product related waste material associated with the operation including, but not limited to, crankcase oil, filters, grease and oil containers.

APPLICATION:

Section (3) can be used for enforcement. This section applies to the removal of all petroleum products and prohibits draining oil onto the ground when servicing equipment.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when an operator leaves any of the following items associated with the operation on forestland: crankcase oil, filters, grease or oil containers, or any other petroleum product items. An unsatisfactory condition exists when waste materials have entered or are likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable deposits of petroleum products being left on forestland or entering waters of the state. Also evaluate taking enforcement action under OAR 629-620-0100.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action can be taken prior to damage occurring. Direct the operator to remove the petroleum product (including contaminated soil) from forestlands to a licensed disposal site.

ADMINISTRATION:

Section (3) is intended to prevent damage to water quality, aquatic habitat, and wildlife habitat by requiring the removal of petroleum products and associated filters and containers from the forest. Filters and containers must be removed, not buried on site. Section (3) requires only removal, but the material should be properly disposed of at a landfill or licensed disposal service. Federal and state laws prohibit the application of used oil on road surfaces for dust abatement or other purposes.

If petroleum products enter or are likely to enter waters, take action as described in Directive 6-3-0-002 “Hazardous Materials Incident Reporting and Control.”
TREATMENT OF WASTE MATERIALS
OAR 629-630-0400

(4) Operators shall dispose of all other debris such as machine parts, old wire rope, and used tractor tracks so that such materials do not enter waters of the state.

APPLICATION:

Section (4) can be used for enforcement. This section applies to the disposal of all machinery waste resulting from the operation and is linked to entry into waters of the state.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when machinery waste such as machine parts, old wire rope, used tractor tracks, or similar materials are left in locations where they are likely to enter waters of the state.

Damage: Damage exists when other debris such as machine parts, old wire rope, and used tractor tracks have entered waters of the state.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when the operator can take corrective action to remove and properly dispose of waste material that is feasible and practical prior to damage occurring. Direct the operator to remove machinery and logging equipment waste from forestlands to a licensed disposal site.

ADMINISTRATION:

Section (4) is intended to prevent damage to water quality and aquatic habitat by requiring that machinery wastes be kept out of waters of the state.
HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(1) The purpose of this rule is to prevent timber harvesting-related serious ground disturbance and drainage alterations on all high landslide hazard locations, and to reference additional requirements when there is public safety exposure below the high landslide hazard location.

APPLICATION:

Section (1) is not subject to enforcement. It is the purpose statement for OAR 629-630-0500 Sections (2) through (6).

ADMINISTRATION:

The intent of this rule is to prevent harvest operations that cause adverse ground disturbance, gouging, and side casting on HLHL. These rules apply when operating on any HLHL regardless of public safety exposure. If there is public safety exposure, such as homes or roads below the operation, then the practices described in division 623 may apply.

HLHL may be viewed on ODF’s Vantage and FERNs platforms. Lidar imagery is available on Vantage.

HLHL are determined based on field measurements of the steepest slopes on-the-ground. These field measurements may find slope conditions different from the initial map screen, and take precedence over the screen. Note: Short pitches of steep slopes that are less than 30 feet slope length in otherwise relatively gentle terrain are not considered HLHL. Constructed cutslopes are not considered HLHL, but sidecast and other fillslopes are.

HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(2) Operators and the State Forester shall share responsibility to identify high landslide hazard locations and to determine if there is public safety exposure from shallow, rapidly moving landslides using methods described in OAR 629-623-0100 through 0300. If there is public safety exposure, then the practices described in OAR 629-623-0400 through 0800 shall also apply.

APPLICATION:

Section (2) is not used for enforcement. The intent of section (2) is to identify the shared responsibility of the operator and State Forester to identify HLHL and to determine if there is public safety exposure to shallow, rapidly moving landslides.

ADMINISTRATION:

The operator should conduct pre-harvest screening of proposed harvest operations to determine the presence of HLHL using the procedures described in Forest Practices Technical Note 2, High Landslide Hazard Locations. It is the operator’s responsibility to determine the specific locations of HLHL on the proposed operation. If HLHL are present on or near the proposed harvest unit, an assessment of downslope public safety exposure should be made. If there is downslope public safety exposure, apply the practices described in division 623. Regardless of downslope public safety exposure, sections (3) through (5) of this rule apply to any HLHL.

A HLHL is a specific site that is subject to initiation of a shallow, rapidly moving landslide, see the complete definition in OAR 629-600-0100. HLHL slopes are map reviewed and/or field confirmed:

- Slopes in western Oregon over 80% (or 75% in Tyee core area).
- Headwalls or draws in western Oregon over 70% (or 65% in Tyee core area).
- Atypical conditions anywhere in Oregon where the landslide hazard is equivalent to that on the HLHL slope thresholds identified in 2(d)(i) and (ii), as determined by a geotechnical specialist. The final determination of equivalent hazard is made by the State Forester.
**HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS**

629-630-0500

(3) Operators shall not construct skid roads on high landslide hazard locations.

**APPLICATION:**

Section (3) can be used for enforcement.

**COMPLIANCE:**

**Unsatisfactory Condition:** An unsatisfactory condition exists when skid roads are located on HLHL.

**Damage:** Damage occurs when the unsatisfactory condition results in adverse ground disturbance or drainage alterations on HLHL. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

**Note:** Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to pullback any unstable sidecast and place it in a stable location, or to install drainage structures as necessary to prevent surface erosion, or to vacate and stabilize any skid trails or landings located on unstable slopes.

If the operator was informed of the presence of a high landslide hazard location and constructed a skid road on that location, a citation should be issued.

**ADMINISTRATION:**

Pre-operation planning should precede any proposed harvest on HLHL. Operators should be aware of the location of any HLHL and clearly identify them to any sub-contractors. The SF should evaluate any harvest plan presented to them for operations on HLHL.
HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS
629-630-0500

(4) Operators shall not operate ground-based equipment on high landslide hazard locations.

APPLICATION:

Section (4) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when ground-based equipment is used on HLHL.

Damage: Damage occurs when the unsatisfactory condition results in adverse ground disturbance or drainage alterations on HLHL. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to pullback any unstable sidecast and place it in a stable location, or to install drainage structures as necessary to prevent surface erosion, or to vacate and stabilize any skid trails or landings located on unstable slopes.

ADMINISTRATION:

Pre-operation planning should precede any proposed harvest on HLHL. Operators should be aware of the location of any HLHL and clearly identify them to any sub-contractors. The SF should evaluate any harvest plan presented to them for operations on HLHL.

If the operator was informed of the presence of a high landslide hazard location and ground-based equipment was used on that location, issue a citation.

An approved PFAP that provides “equal or better” resource protection is required to use tethered ground-based equipment for felling or yarding on steep slopes where there is not “intermediate” or “substantial” downslope public safety risk:
• On all high landslide hazard locations, OAR 620-630-0500(1).

**Note:** Consult the ODF geotechnical specialist if there are suspected downslope public safety exposure, including “low” downslope public safety risk, even if slopes are less than the HLHL slope thresholds. The PFAP should describe practices that will provide effective drainage to allow drainage water to filter or settle out before the drainage water enters waters of the state.

**Note:** The PFAP template example can be found on ODF public webpage under publications.

**Example:** An approved PFAP may allow tethered cutting on all steep slopes, but restrict tethered yarding to slopes less than 100%. Generally, there is a greater risk for soil disturbance on HLHL for tethered cutting and yarding operations, rather than tethered cutting and cable yarding operations. Other practices should include statements such as, machinery passes will be limited, as will directional changes and track spin and track berms will be knocked down to restore the ground surface and slash placed on the disturbed soil.
**HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS**
629-630-0500

(5) *Operators shall prevent deep or extensive ground disturbance on high landslide hazard locations during log felling and yarding operations.*

**APPLICATION:**

Section (5) can be used for enforcement action.

**COMPLIANCE:**

**Unsatisfactory Condition:** An unsatisfactory condition exists when felling and yarding operations result in preventable ground disturbance on HLHL.

**Damage:** Damage occurs when the unsatisfactory condition results in deep or extensive ground disturbance, which concentrates water, preventing sediment filtering before entering waters of the state. Damage occurs when the extent of disturbance buries surface layers and exposes less productive subsoil (mineral soils). There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

**Note:** Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to pullback any unstable sidecast and place it in a stable location, or to install drainage structures as necessary to prevent surface erosion, or to vacate and stabilize any skid trails or landings located on unstable slopes.

**ADMINISTRATION:**

Pre-operation planning should precede any proposed harvest on HLHL. Operators should be aware of the location of any HLHL and clearly identify them to any sub-contractors. The SF should evaluate any harvest plan presented to them for operations on HLHL.
**HARVESTING ON HIGH LANDSLIDE HAZARD LOCATIONS**

**629-630-0500**

(6) **Operators concerned about the application of these standards to a specific operation may consult with the State Forester to obtain an evaluation of their harvesting plan and its likelihood of compliance with these standards.**

**APPLICATION:**

Section (6) is not used for enforcement.

**ADMINISTRATION:**

Pre-operation planning should precede any proposed harvest on HLHL. Operators should be aware of the location of any HLHL and clearly identify them to any sub-contractors. The SF should evaluate any harvest plan presented to them for operations on HLHL.
**FELLING; REMOVAL OF SLASH**

**OAR 629-630-0600**

(1) Operators shall fell, buck, and limb trees in ways that minimize disturbance to channels, soils and retained vegetation in riparian management areas, streams, lakes and all wetlands greater than one-quarter acre, and that minimize slash accumulations in channels, significant wetlands and lakes.

**APPLICATION:**

This section can be used for enforcement. However, sections (2) and (3) describe more specific protection standards more appropriate for enforcement.

**COMPLIANCE:**

Unsatisfactory Condition: There is an unsatisfactory condition when the operator fails to apply appropriate and feasible practices to prevent the potential for damage to the protected resource’s functions and values. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: There is damage when adverse and unnecessary disturbance occurs to the *general integrity* of stream beds and banks, soils, retained RMA vegetation, lakes and wetlands. This includes soil disturbance and erosion into wet or dry stream channels, waters of the state; water quality degradation such as turbidity, siltation, excessive nutrient levels, or reduced dissolved oxygen levels; bank disturbance; reduction of the functions and values of retained vegetation; or excessive slash accumulations that may contribute to these effects. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Yarding Damage. If damage is caused by yarding trees that were not felled into the channel or RMA, refer to in OAR 629-630-0700 Yarding; Cable Equipment Near Waters of the State, or OAR 629-630-0800 Yarding; Ground-based Equipment Near Waters of the State.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to apply specific felling, bucking, limbing or yarding practices to avoid damage. Even if felling has not caused a significant adverse disturbance, the SF should consider the potential disturbance that may occur during yarding. A written statement recommending specific yarding practices is also appropriate under OAR 629-630-0600(2)(c) and (3), though not commonly used on a written statement of unsatisfactory condition.

**ADMINISTRATION:**

The purpose statement for the harvesting rules is in OAR 629-630-0000. It establishes forest practices standards that maintain the *general integrity* of specific resources, while recognizing that felling and associated harvest practices cause temporary disturbances. Felling applies to both hand and machine felling practices.
“Away” means perpendicular, at any angle away, or parallel to the channel, as long as the tree does not fall directly onto and/or slide into the bed, banks, or required leave vegetation.

**Note:** A stream means a channel, such as a river or creek that carries flowing surface water during some portion of the year, OAR 629-600-0100. Headwalls, swales, gullies, or draws without a defined channel are not considered streams for the purposes of slash removal, but operator activity in these areas must not cause mud or dirty water to drain downslope into streams. Operators must consider the effects of slash in streams whether there is water in the channel at the time of the operation or not.

*General integrity,* as it is used in this guidance, means the intact purposes, functions and values of the aquatic area, beds, banks, soils, RMA, and RMA vegetation. Except for yarding corridors through RMA vegetation, trees must be left with adequate crowns to provide original canopy cover. Understory vegetation required to be retained in RMAs must remain relatively undisturbed. Aquatic areas and banks must be stable and functional over the entire length within the unit. Slash accumulations are to be limited in the areas below the high water level of streams, significant wetlands, and lakes in order to protect water quality, primarily from dissolved oxygen deprivation.

OAR 629-630-0600(1) requires operators to “minimize disturbances” to the RMA and waters of the state when conducting felling and bucking operations. The section also requires the operator to “minimize slash accumulations” in channels, significant wetlands and lakes. Specific practices for achieving these results are described in OAR 629-630-0600(2) and (3).

**Note:** Retain naturally-occuring wood, in the channel prior to the operation, should be retained.

**Minimize Disturbance:** Disturbance to the *general integrity* of channels, soils and retained vegetation in RMAs is expected to be minimized during felling, bucking, limbing, and yarding. Type N streams and wetlands must be protected from unnecessary disturbance during felling, bucking, limbing, and yarding.

**Minimize Slash Accumulations:** Slash must be removed from Type F, Type SSBT and Type D streams, lakes and significant wetlands as required under OAR 629-630-0600(3)(a). The requirements for minimizing slash accumulations in all Type N streams, lakes without fish use or less than one-half acre, or other wetlands greater than one-quarter acre, are addressed under OAR 629-630-0600(3)(b).

**High Landslide Hazard Locations: Public Safety:** If HLHL are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division OAR 629-623 rules. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If HLHL are present, but risks to public safety are not involved, apply OAR 629-630-0500 rules.

**Debris Torrent-Prone Streams** are designated by the State Forester to include channels and confining slopes that drain watersheds containing high landslide hazard locations that are of sufficient confinement and channel gradient to allow shallow, rapid landslide movement. Minimize slash accumulations in debris torrent-prone stream channels where there is a substantial or intermediate downslope public safety risk, as determined by the State Forester. See guidance for OAR 629-623-0600.
Green Trees to be left Near Type F and D Streams: If felling conifers or hardwoods in or along a Type F, Type SSBT or Type D stream RMA is likely to cause adverse disturbance to the general integrity of the stream or RMA soils and vegetation, the SF should direct the operator to make a reasonable effort to prevent adverse disturbance by retaining up to 25 percent of the green wildlife leave trees in the RMA. This opportunity is available only in harvest type 2 or harvest type 3 units as specified in ORS 527.676(3)(c).

Note: These extra green wildlife leave trees in the RMA are in addition to trees that are required to be left in the RMA. The operator chooses these wildlife leave trees, provided they are in or adjacent to the RMA (see guidance under ORS 527.676(3)(c).
**FELLING; REMOVAL OF SLASH**  
OAR 629-630-0600  

**(2)** During felling operations operators shall:  

**(a)** Whenever possible, fell all conifer trees away from riparian management areas, streams, lakes and significant wetlands, except for trees felled for stream improvement projects.

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**APPLICATION:**

Subsection (2)(a) can be used for enforcement and is applied when conifers are felled near all lakes, significant wetlands all stream types, and their RMAs. Apply subsections (2)(a) to all slopes and subsection (2)(b) to steep slopes.

**COMPLIANCE:**

Unsatisfactory Condition: There is an unsatisfactory condition when an operator purposely or carelessly fells conifer trees across or into RMAs, streams, lakes and significant wetlands when it was safe and feasible to fell them “away” from the protected RMAs and waters. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Exceptions are allowed and not considered an unsatisfactory condition when:

1. Conifer trees are felled across or into RMAs or waters of the state in stream improvement projects; or  
2. The operator determines that a conifer tree or snag is an operational safety hazard that cannot be safely felled away from the protected area; or  
3. The protected vegetation or waters are as well or better protected by felling across or into the RMA, stream, wetland, or lake; or  
4. The operator makes a good faith effort to fell “away”, as directed by rule, but an occasional tree “gets away” because of wind, undetected rot, or other factors beyond the operator’s control; or  
5. The topography is so steep or bisected along small Type N streams that it is just not possible to fell away, or otherwise keep slash out of the channel.

The department recognizes that operators need some discretion in exceptions 3 and 5 above and in determining if it is safe and feasible to fell conifers away from the protected resource. Where written plans are required because operations will be near waters (Type F streams, for example), the operator must describe in the plan any known proposals to fall conifer trees across or into the waters or associated RMAs.

**Note:** Changes can be made by the operator under the exceptions listed above. Only in this very narrow set of circumstances are operators allowed to deviate from the rule practices without creating an unsatisfactory condition. Where written plans are not required (for harvesting operations near most small Type N streams, for example), the operator makes the determination.
However, in this latter situation, the operator should be aware of the desired result and of the fact that the results will be subject to SF review.

**Damage:** There is damage when conifers are deliberately or carelessly felled into an RMA, wet or dry stream channel, lake or significant wetland, adversely disturbing the *general integrity* of soils, beds, banks or vegetation. Damage effects may include: sediment gouged or dragged into waters of the state; exposed soil near the water eroding into the stream; accumulation of slash in waters of the state that changes the hydrologic function; slash accumulations that affect water quality; or impairment of the functions of retained vegetation. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

If enforcement action is under consideration and the operator alleges that it was unsafe or infeasible to fell the conifers away from the protected resource, the SF will need to investigate and judge whether there is evidence to support or refute the operator’s contention.

Resource damage is not a prerequisite for taking enforcement action on a procedural violation. The operator, by not submitting a **written plan,** denies the SF the opportunity to review and comment on the operation.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to apply specific felling, bucking, limbing, or yarding practices when there is an opportunity to avoid damage during or after felling. If felling has not caused a significant impact, the SF should consider the potential damage that may occur during yarding.

**ADMINISTRATION:**

Written Plans: Statutory written plans are required for activity within 100 feet of Type F, Type SSBT and Type D streams and significant wetlands. A non-statutory written plan may be required for activity that may impact Type N streams or within 100 feet of large lakes. See OAR 629-605-0170, 629-645-0000, and 629-650-0005. The written plans should address felling practices to protect the resources listed in subsection (2)(a). The SF should take available opportunities to educate operators that felling conifers away from RMAs, streams, lakes, and significant wetlands is expected to protect the functions and values of those resources.

**Felling Standards:** Subsection (2)(a) sets a “whenever possible” standard of felling conifer trees away from RMAs and certain waters. This means that, with limited exceptions, operators are expected to fell conifer trees in any harvest unit away from RMAs, streams, lakes and significant wetlands by using proper planning and felling techniques. This wording also concedes that there are conditions under which it is safest or most feasible to fell conifer trees across RMAs, streams, lakes, and significant wetlands.

“Away" means perpendicular, at any angle away, or parallel to the channel, as long as the tree does not fall directly onto and/or slide into the bed, banks, or required leave vegetation. The intent is to avoid excessive direct disturbance to the channel and to minimize slash accumulations due to falling.
The rule wording is not prohibitive; therefore, a guidance change was made in a March 17, 2003 memorandum, no longer treating felling across or into RMAs and waters as an Alternate Practice. The requirement to fall conifers away applies to all the listed waters, including all small Type N streams. However, what must be protected varies with the classification of each of the following types of water:

1. For waters with RMAs, including Type F, Type SSBT and D streams, large and medium type N streams, large lakes (greater than 8 acres), other lakes any size with fish, other lakes greater than ½ acre with no fish and significant wetlands, operators must fell conifers away whenever possible to maintain the general integrity of the RMA components.

2. For certain small Type N streams, operators must fell conifers away whenever possible to maintain the non-merchantable vegetation within 10 feet of the high water level. See OAR 629-642-0400(6) Table 7, Vegetation Retention for Specified Small Type N Streams and Figure 1

3. For all waters listed in subsection (2)(a), including all small Type N streams, operators must fell conifers away whenever possible to protect the beds and banks and water quality, and to limit slash accumulations.

The department recognizes that operators need some discretion in exceptions 3 and 5 above and in determining if it is safe and feasible to fell conifers away from the protected resource. Where written plans are required because operations will be near waters (Type F streams, for example), the operator must describe in the plan any known proposals to fall conifer trees across or into the waters or associated RMAs. (Changes can be made by the operator under the exceptions listed above.) Where such plans are not required (for harvesting operations near most small Type N streams, for example), the operator may make the determination. However, in this latter situation, the operator should be aware of the desired result and of the fact that the results will be subject to review by the Stewardship Forester.

Operators should not be allowed to use safety, feasibility, or “good faith effort” to justify routine falling of conifer trees across or into RMAs, streams, lakes or significant wetlands.

Felling conifer trees away from RMAs and waters is an important means of preventing slash accumulations within high water levels. This felling practice is also essential to protect the vegetation retained in required RMAs. Certain small Type N streams are the only waters listed in this rule which are provided no RMA and little or no protected vegetative buffer. See OAR 629-642-0400(6) Table 7. The standards in the guidance for OAR 629-630-0600 (3)(b) describe the slash accumulation limits expected for these small streams while recognizing that felling conifers away from such streams is sometimes difficult.

In judging compliance with OAR 629-630-0600 as a whole, emphasis is on satisfactory post-harvest condition of the beds and banks of waters and retained vegetation within RMAs and retention strips. Compliance requires safe and feasible application of effective felling, bucking, limbing, and yarding practices to protect all functions and values associated with these waters. Any methods used, whether listed in the rule or developed by the operator, must achieve protection of water quality, protect retained vegetation, limit slash accumulations, and limit the effects of potential debris flows. When post-harvest conditions do not achieve the purposes of the rule or the standards in guidance, investigation should be conducted to determine the
applicable practice that should have been applied. Enforcement will then be based on the applicable rule subsection.

High Landslide Hazard Locations; Public Safety: If HLHL are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division 623 rules. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If HLHL are present, but risks to public safety are not involved, apply OAR 629-630-0500 rules.

Debris Torrent-Prone Streams are designated by the State Forester to include channels and confining slopes that drain watersheds containing high landslide hazard locations that are of sufficient confinement and channel gradient to allow shallow, rapid landslide movement. Minimize slash accumulations in debris torrent-prone stream channels where there is a substantial or intermediate downslope public safety risk, as determined by the State Forester. See guidance for OAR 629-623-0600.

Recovery of trees that enter an RMA, stream, lake or wetland - whether intentionally (leaning hardwoods) or inadvertently (“It got away”) must maintain the general integrity of the required vegetation in the RMA while minimizing disturbance to the beds and banks of streams, lakes and wetlands greater than ¼ acres. See also guidance discussion in OAR 629-630-0700 and -0800.
FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(2) During felling operations operators shall:
   (b) On steep slopes, use felling practices such as jacking, line pulling, high stumps, whole tree yarding, or stage-cutting as necessary and feasible to prevent damage to vegetation retained in riparian management areas, soils, streams, lakes and significant wetlands.

APPLICATION:

Subsection (2)(b) can be used for enforcement. In addition to subsection (2)(a), this subsection applies when felling conifers on steep streamside slopes that are generally over 60 percent. The practice is to be applied wherever necessary to minimize trees or logs rolling or sliding downhill and adversely disturbing soils, RMA soils and vegetation, or waters of the state.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when the operator fails to use safe and feasible felling practices on steep slopes that prevent adverse disturbance to vegetation, soils, or waters. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Exceptions are allowed and not considered an unsatisfactory condition when:

1. The operator determines that a conifer tree is an operational safety hazard that cannot be safely felled away from the protected area;
2. The protected vegetation or waters would be as well or better protected by felling across or into the RMA, stream, wetland, or lake;
3. The operator makes a good faith effort to fell “away”, as directed by rule, but an occasional tree “gets away” because of wind, undetected rot or other factors beyond the operator’s control; or
4. The topography is so steep or bisected along small Type N streams that it is just not practical or feasible to fell away.

Damage: There is damage when:

1. The general integrity of the required leave vegetation, stream banks, stream beds, lakes or significant wetlands is not protected; or
2. Soil is exposed to erosion within the high water level of any waters of the state; or
3. Significant slope disturbance results in soil erosion into waters of the state.

If damage has been caused by improper felling practices, enforcement action under this subsection is more appropriate than under the rules for vegetation retention. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.
Resource damage is not a prerequisite for taking enforcement action on a procedural violation. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

**Written Statement of Unsatisfactory Condition:** Issue a written statement or unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to apply specific bucking, limbing or yarding practices when there is an opportunity to avoid damage during or after felling.

If felling has not caused a significant impact, the SF should consider the potential damage that may occur during yarding. The operator’s follow-up action to prevent adverse disturbance to soils, beds or banks should focus on careful yarding methods. Commonly, yarding has greater potential than felling to damage the protected resources. When encountering the felled and bucked unit before yarding, the SF may issue a written statement for yarding under OAR 629-630-0700(1) Yarding; Cable Equipment Near Waters of the State or 629-630-0800(1) Yarding; Ground-based Equipment Near Waters of the State.

**ADMINISTRATION:**

Written Plans: Statutory written plans are required for activity within 100 feet of Type F, Type SSBT and Type D streams and significant wetlands. A non-statutory written plan may be required for activity that may impact Type N streams or within 100 feet of large lakes. See OAR 629-605-0170, 629-645-0000, and 629-650-0005. The written plans should address felling practices to protect the resources listed in subsection (2)(b).

The SF should take available opportunities to educate operators that jacking, lining or other directional felling techniques are expected on steep slopes to prevent adverse disturbance to soils, RMAs, stream beds and banks, lakes or significant wetlands.

**High Landslide Hazard Locations; Public Safety:** If HLHL are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division 623 rules.. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If HLHL are present, but risks to public safety are not involved, apply OAR 629-630-0500 rules.

**Debris Torrent-Prone Streams** are designated by the State Forester to include channels and confining slopes that drain watersheds containing high landslide hazard locations that are of sufficient confinement and channel gradient to allow shallow, rapid landslide movement. Minimize slash accumulations in debris torrent-prone stream channels where there is a substantial or intermediate downslope public safety risk, as determined by the State Forester. See guidance for OAR 629-623-0600.
**FELLING; REMOVAL OF SLASH**

OAR 629-630-0600

(2) During felling operations operators shall:

(c) When hardwoods must be felled into or across streams, lakes or significant wetlands, operators shall:

(A) Buck and yard the trees to minimize damage to beds, banks and retained vegetation.

(B) When it can be done consistently with protecting beds and banks, yard hardwood trees or logs away from the water before limbing.

**APPLICATION:**

Subsection (2)(c) can be used for enforcement. This subsection applies to felling, bucking and yarding hardwood trees. Because hardwoods often lean toward streams, are shorter and have broader crowns, safety and feasibility considerations are likely to interfere with efforts to fell these trees away from streams, lakes and significant wetlands.

**COMPLIANCE:**

**Unsatisfactory Condition:** An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state. An unsatisfactory condition exists when the operator could, safely and feasibly, but does not:

- Fall hardwoods away from streams, lakes or significant wetlands; or
- Buck and yard hardwoods to protect beds, banks and retained vegetation; or
- Protect beds and banks by using appropriate yarding practices.

**Damage:** There is damage when:

1. The *general integrity* of beds, banks and retained vegetation of streams, lakes or significant wetlands is adversely disturbed during felling, bucking or yarding; or
2. Soil is dragged into streams during yarding; or
3. Soil is made subject to erosion within the high water level of any waters of the state; or
4. Significant slope disturbance results in soil erosion into waters of the state; or
5. There is an excessive accumulation of slash (see guidance for OAR 629-630-0600(3)) in streams, lakes, or wetlands due to inadequate methods of felling, bucking, or yarding.

Resource damage is not a prerequisite for taking enforcement action on a procedural violation. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to apply specific bucking and yarding practices to avoid damage in
any unfinished portion of the operation. Even if felling has not caused a significant impact, the Stewardship Forester should consider the potential disturbance that may occur during yarding.

**ADMINISTRATION:**

Written Plans: Statutory written plans are required for activity within 100 feet of Type F, Type SSBT and Type D streams and significant wetlands. A non-statutory written plan may be required for activity that may impact Type N streams or within 100 feet of large lakes. See OAR 629-605-0170, 629-645-0000, and 629-650-0005. The written plans should address felling and yarding practices to protect the resources listed in subsection (2)(c).

Falling leaning hardwoods away from streams, lakes, or significant wetlands often is not safe or feasible. When hardwoods are felled into a stream, lake, or significant wetland, these trees must be bucked and yarded to prevent, as much as possible, additional disturbance to the bed, banks, and retained vegetation. Operators are expected to take into account tree form, site conditions, logging system layout and the like and use limbing, bucking, and yarding practices that will minimize disturbance.

Determining compliance may be difficult. During pre-operation inspections, the SF and the operator may be able to determine if it is safe and practical to fell most hardwoods away from streams, lakes or wetlands. Where pre-operation inspections cannot be conducted, it is important to inform the operator of these felling, bucking, and yarding requirements before felling starts.

**High Landslide Hazard Locations; Public Safety:** If HLHL are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division 623 rules. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If HLHL are present, but risks to public safety are not involved, apply OAR 629-630-0500 rules.

**Debris Torrent-Prone Streams** are designated by the State Forester to include channels and confining slopes that drain watersheds containing high landslide hazard locations that are of sufficient confinement and channel gradient to allow shallow, rapid landslide movement. Minimize slash accumulations in debris torrent-prone stream channels where there is a substantial or intermediate downslope public safety risk, as determined by the State Forester. See guidance for OAR 629-623-0600.
### FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(3) Operators shall minimize the effects of slash that may enter waters of the state during felling, bucking, limbing or yarding by:

(a) Removing slash from Type F, Type SSBT and Type D streams, lakes and significant wetlands as an ongoing process (removal within 24 hours of the material entering the stream) during the harvest operation.

### APPLICATION:

Subsection (3)(a) can be used for enforcement. Both subsection (3)(a) and subsection(3)(b) address lakes and wetlands, but they address different stream, lake, and wetland types. Use subsection (3)(a) for Type F, Type SSBT and D streams, large lakes, other lakes with fish larger than one-half acre and significant wetlands. Apply subsection (3)(b) to Type N streams, other lakes with no fish and other wetlands greater than one-quarter acre.

Subsection (3)(a) can be used for enforcement. Use subsection (3)(a) for Type F, Type SSBT and Type D streams, lakes with fish and significant wetlands within 24 hours for slash removal. Apply subsection (3)(b) for Type N streams, other lakes with no fish and other wetlands greater than one-quarter acre at end of operation for slash removal.

### COMPLIANCE:

**Unsatisfactory Condition:** An unsatisfactory condition exists when felling or yarding operations along Type F, Type SSBT or Type D streams, lakes or significant wetlands are depositing slash below high water levels without removing it as an ongoing process. **Note:** Small amounts of slash, a few branches scattered along a stream reach for example, are considered incidental and do not constitute an unsatisfactory condition.

**Damage:** There is damage when slash (more than incidental) has not been removed in an ongoing fashion and within approximately 24 hours after the material has entered the stream, lake or significant wetland, or when slash has been transported out of the unit by stream flow. The presence of a few, scattered branches does not constitute damage. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to:

1. Remove slash from within the high water level as an ongoing process within approximately 24 hours; and/or
2. Remove slash immediately from waters if the slash is being, or can be, transported by stream flow.
ADMINISTRATION:

Subsection (3)(a) applies when the operator gets slash in Type F, Type SSBT and Type D streams, lakes or significant wetlands, whether unintentionally or carelessly. When improper felling causes excessive slash accumulations in these streams, the SF may take enforcement action under OAR 629-630-0600 (2)(a) through (c) and use this subsection to direct repair of the accumulation if necessary. If slash enters Type F, Type SSBT and Type D streams, lakes or significant wetlands in spite of the operator’s best prevention efforts, removal within approximately 24 hours is required to comply with this subsection. Judgment should be applied in enforcing this 24 hour provision by appropriate discussion of proposals for alternate timing practices that are both protective of water quality and operationally practical.

**Note:** Minimize the expense of slash removal by careful felling, bucking, yarding, and decking.

Retain naturally occurring wood in the channel that existed prior to the operation.

Proper planning in felling, bucking, and yarding trees will limit the amount of slash in the stream. Apply the preventive felling practices in sections (1) and (2) of this rule or devise methods producing equivalent results.

**Note:** Avoid decking logs in Type N streams, in order to maintain the integrity of banks, limit slash accumulation, and meet the vegetation retention requirements.

**High Landslide Hazard Locations; Public Safety:** If HLHL are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division 623 rules. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If HLHL are present, but risks to public safety are not involved, apply OAR 629-630-0500 rules.

**Debris Torrent-Prone Streams** are designated by the State Forester to include channels and confining slopes that drain watersheds containing high landslide hazard locations that are of sufficient confinement and channel gradient to allow shallow, rapid landslide movement. Minimize slash accumulations in debris torrent-prone stream channels where there is a substantial or intermediate downslope public safety risk, as determined by the State Forester. See guidance for OAR 629-623-0600.
FELLING: REMOVAL OF SLASH
OAR 629-630-0600

(3) Operators shall minimize the effects of slash that may enter waters of the state during felling, bucking, limbing or yarding by:

(b) Not allowing slash to accumulate in Type N streams, lakes or wetlands in quantities that threaten water quality or increase the potential for mass debris movement.

APPLICATION:

Subsection (3)(b) can be used for enforcement. Both subsection (3)(b) and subsection (3)(a) address lakes and wetlands, but they address different stream, lake, and wetland types. Use subsection (3)(b) for Type N streams, other lakes with no fish and other wetland types. Use subsection (3)(a) to Type F, Type SSBT and D streams, to large lakes and other lakes larger than one-half acre with fish, and to significant wetlands.

COMPLIANCE:

Subsection (3)(b) applies to streams only as defined in the Forest Practice rules. Headwalls, swales, gullies, or draws without a defined channel are not considered streams for the purposes of the Forest Practice rules. See OAR 629-600-0100 for the definitions of “channel” and “stream.”

Subsection (3)(b) applies whether there is water in the channel at the time of the operation or not. Operators must consider the effects of slash in these waters when water is present and take appropriate preventive action.

Unsatisfactory Condition: There is an unsatisfactory condition when the operator leaves slash in or over the bed and banks of Type N Streams, in other lakes, or in other wetlands (greater than one-quarter acre), and the slash accumulations exceed the standards described below.

Slash Accumulation Standards: Slash left in streams, lakes, or wetlands can reduce dissolved oxygen, alter pH levels, provide excessive nutrients, and/or change channel morphology. To minimize the amount of slash entering streams, operators must apply the preventive felling practices in subsections (1) and (2) of this rule or devise methods producing equivalent results. However, slash often enters Type N streams even if those practices are applied, and slash removal may be required. Because some level of temporary disturbance is unavoidable in harvesting operations, and because slash can provide beneficial functions in streams, lakes, and wetlands in some circumstances, subsection (3)(b) does not require complete removal of slash from all Type N stream reaches, small lakes, and other wetlands.

The following describe the circumstances under which slash must be removed from Type N streams, lakes that do not have fish or that are less than one-half acre with fish, and other wetlands (greater than one-quarter acre).
1. Type N stream reaches of less than 10 percent channel gradient must be left with no more than 50 percent of the bed and banks below the high water level covered by scattered slash; and
2. Slash must not cause ponding (still or nearly still water) of stream water nor may it be allowed to remain in the water in stream reaches that are ponded; and
3. Slash accumulations that cause changes to channel morphology by increasing bank erosion when water is present, must be removed.
4. All slash must be removed from lakes that do not have fish or that are less than one-half acre with fish as an ongoing process and as soon as feasible.
5. In most cases, it is acceptable to leave slash that, in spite of proper felling practices, enters "other" wetlands, but it is not acceptable to push or pile slash into any wetland (see OAR 629-615-0200(4) Mechanical Site Preparation Near Waters of the State).

NOTE: The standards in listed circumstances 1. to 3. above apply independently. For example, if 50 percent of a Type N stream reach is free from slash cover, but some remaining slash is causing ponding in the stream, the operator would be required to remove that slash also.

Damage: There is damage when excessive slash accumulations are not removed from Type N streams, other lakes with no fish or other wetlands greater than one-quarter acre. This must be done as described in the slash accumulation standards of this section by the end of the operation, including seasonal or other extended shutdowns. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to remove the slash from Type N streams, other lakes with no fish or other wetlands greater than one-quarter acre:

1. When slash removal from a lake is not being conducted as an ongoing process;
2. Before the end of the operation, including seasonal or other extended shutdowns;
3. Before the slash is transported by stream flow;
4. Before the slash causes bank erosion from increased stream flow; or
5. Before slash in ponded water begins to deteriorate and affect dissolved oxygen levels in the water.

ADMINISTRATION:

The intent of OAR 629-630-0600 is that operators must first apply the preventive felling practices specified in sections (1) and (2). Preventive felling practices are required by the rule in order to ensure that slash will not accumulate in quantities that affect water quality or increase the potential effects of mass debris movements. After the preventive felling practices have been properly applied, the residual slash need only be removed from Type N streams, other lakes with no fish, and other wetlands greater than one-quarter acre as required by the slash accumulation standards.

RMA Protection: For Type N Streams with RMAs, operators must maintain the general integrity of the RMAs during felling, bucking and limbing. Efforts to protect RMAs during these
operations should also minimize slash accumulations in wet or dry stream channels to the standards described.

**Felling:** Take appropriate opportunities to educate operators in planning felling operations so that slash does not accumulate in Type N streams, other lakes with no fish, or other wetlands greater than one-quarter acre. Proper felling can avoid an unsatisfactory condition and damage. When improper felling practices result in an unsatisfactory condition and damage, enforcement action may be taken under OAR 629-630-0600(2)(a) through (c) along with this subsection, (3)(b).

**Bucking, Limbing and Yarding:** Tree tops that are bucked and left in the stream or below the high water level can become troublesome slash accumulations. Limbing trees that are improperly felled into or across Type N streams, other lakes with no fish or other wetlands greater than one-quarter acre compounds the slash accumulations. Whole tree yarding, or other methods that remove limbs and tops from channels, other lakes, and other wetlands are recommended to minimize slash accumulations.

Retain naturally-occurring wood that existed in the channel prior to the operation.

**Slash Removal Standards,** as noted in Forest Practices Note 11, Type N Streams, Limiting Disturbance and Slash Accumulation and guidance for OAR 629-623-0600(3) for debris torrent-prone streams. Slash left in streams, lakes, or wetlands can reduce dissolved oxygen, alter pH levels, provide excessive nutrients, and/or change channel morphology. Slash must be removed from wet or dry Type N streams, other lakes with no fish and other wetlands greater than one-quarter acre, apply each independently:

1. Stream gradients 10 percent or less, establish at least 50 percent of the bed and banks of the stream reach free from slash cover. Slash may be left scattered on the remaining portions of the stream within the unit.

2. All stream gradients, prevent ponding of stream water, (still or nearly still water).

3. All stream gradients, remove slash as appropriate so as to not increase the risk of bank erosion when water is present.

4. Debris torrent-prone streams gradients greater than 10 percent, remove all slash piles (pile-like accumulations), where the State Forester determined there is a downslope public safety risk.

5. Debris torrent-prone streams, place all slash removed in stable locations above the high water level, which is generally beyond 25 feet of the stream, where the State Forester determined there is a downslope public safety risk.

6. All lakes, remove slash as an on-going process and as soon as feasible.

**Example.** If 50 percent of a Type N stream reach is free from slash cover, but some remaining slash is causing ponding in the stream, the operator would be required to remove that slash also.
Debris Torrent-Prone Streams are designated by the State Forester to include channels and confining slopes that drain watersheds containing high landslide hazard locations that are of sufficient confinement and channel gradient to allow shallow, rapid landslide movement. Minimize slash accumulations in debris torrent-prone stream channels where there is a substantial or intermediate downslope public safety risk, as determined by the State Forester. See guidance for OAR 629-623-0600.

Debris Movements: Debris movements result from shallow soils that come loose and slide off of steep slopes. This information has been developed in the years since adoption of this rule. We no longer believe that slash in channels is a primary cause of debris movements. Therefore, slash is not required to be removed from small Type N stream channels for the purpose of limiting the initiation of debris movements unless the slash accumulation is actually causing water to back up the channel above it or water is eroding the general integrity of stream beds and banks. Preventive felling practices are required by subsection (2) in order to ensure that slash will not accumulate in quantities that might increase the potential effects of mass debris movements.

High Landslide Hazard Locations; Public Safety: If HLHL are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division 623 rules. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If HLHL are present, but risks to public safety are not involved, apply OAR 629-630-0500 rules.
FELLING; REMOVAL OF SLASH
OAR 629-630-0600

(3) Operators shall minimize the effects of slash that may enter waters of the state during felling, bucking, limbing or yarding by:
(c) Placing any slash that is removed from streams, lakes, or wetlands above high water levels where it will not enter waters of the state.

APPLICATION:

Subsection (3)(c) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when slash that is removed from any stream, lake or wetland is placed where it may be picked up by average annual high flows.

Damage: There is damage when the unsatisfactory condition leads to the re-entry of slash into the water of any stream, lake or wetland. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to place slash above the high water level.

ADMINISTRATION:

OARs 629-630-0600(3)(a) and (b) require operators to remove slash from certain waters of the state. This subsection further requires placing the slash far enough above average annual high water levels that it will not re-enter the water of the stream, lake or wetland. Generally, this is several feet above the average annual high water level.

High Landslide Hazard Locations; Public Safety: If HLHL are present and there is a risk to public safety from shallow, rapidly moving landslides, apply division 623 rules. OAR 629-623-0600 contains standards for felling and slash removal where public safety is at risk. If HLHL are present, but risks to public safety are not involved, apply OAR 629-630-0500 rules.

Debris Torrent-Prone Streams are designated by the State Forester to include channels and confining slopes that drain watersheds containing high landslide hazard locations that are of sufficient confinement and channel gradient to allow shallow, rapid landslide movement. Minimize slash accumulations in debris torrent-prone stream channels where there is a substantial or intermediate downslope public safety risk, as determined by the State Forester. See guidance for OAR 629-623-0600.
YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(1) Operators shall maintain the purposes and functions of vegetation required to be retained in riparian management areas and minimize disturbance to beds and banks of streams, lakes, all wetlands larger than one-quarter acre, and retained vegetation during cable yarding operations.

APPLICATION:

Section (1) may be used for enforcement when cable yarding causes damage in ways not specifically addressed by section (3) through (5).

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when yarding operations damage the required vegetation in the RMA or causes preventable, unnecessary disturbance to the beds and banks of water resources. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition exists and results in the required RMA components are removed, or damaged to the extent that the intended functions are no longer provided. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Examples of damage include reduction of potential shade, future large wood supply, and/or sediment-filtering capability of the RMA.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to revise the yarding plan to utilize alternatives to avoid damaging the required vegetation in the RMA or the beds and banks of the water resources.

ADMINISTRATION:

Section (1) provides the water resource protection objectives for cable yarding.

Written Plans: Statutory written plans are required for activity within 100 feet of Type F, Type SSBT and Type D streams and significant wetlands. A non-statutory written plan may be required for activity that may impact Type N streams or within 100 feet of large lakes. See OAR 629-605-0170, 629-645-0000, and 629-650-0005. The written plans should address yarding practices to protect the resources listed in subsection (1).

Downed wood referred to in section (1) is defined as trees or portions of trees that have fallen naturally. Slash in contrast, is defined as trees or portions of trees that have fallen as a result of
harvesting operations.

Recovery of trees that enter an RMA, stream, lake or wetland - whether intentionally (leaning hardwoods) or inadvertently (“It got away”) - must maintain the general integrity of the required vegetation in the RMA while minimizing disturbance to the beds and banks of streams, lakes and wetlands greater than ¼ acres.

If the functions of the RMA, soil or understory vegetation cannot be reasonably maintained or disturbance to bed and banks cannot be minimized during any tree recovery efforts, the operator should retain the felled tree. If there is disturbance during the tree recovery, take enforcement action using a written statement of unsatisfactory condition or citation, depending on whether the level of disturbance crossed the line into “damage.”
YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
629-630-0700

(2) Operators shall minimize the yarding of logs across streams, lakes, significant wetlands, and other wetlands greater than one-quarter acre whenever harvesting can be accomplished using existing roads or other practical alternatives.

APPLICATION:

Section (2) may be used for enforcement. Determination of rule compliance should normally be based on section (3) through (5), and the adequacy of required leave vegetation.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when an operator yards across waters or wetlands when there are available existing roads on both sides of the protected area, or other alternatives that could be readily employed. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs if unsatisfactory conditions described in section (3) through (5) guidance arise. Enforcement action under section (2) is possible. However, enforcement under section (3) through (5) generally serves the same purpose. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to revise the yarding plan to utilize alternatives to avoid yarding over protected areas.

ADMINISTRATION:

Section (2) provides information for the landowner and operator when planning operations. Cable yarding across streams, lakes, or wetlands is an acceptable practice if it results in less road construction and is conducted with equipment that can yard trees over the RMA or through narrow, widely spaced corridors.

When it is practical for operators to yard away from waters of the state, they should do so. If an operator can yard away but proposes not to, the operator must obtain an approved PFAP. The level of impact associated with cable yarding over the water or wetland should be lower than the impact allowed under section (5) of this rule.
YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(1) Operators may use yarding corridors through retained streamside trees as long as the numbers and widths of yarding corridors are minimized. Operators shall submit a written plan to the State Forester when yarding across any of the waters listed in subsection (a) through (f) of this section:
   (a) Type F streams;
   (b) Type SSBT streams;
   (c) Type D streams;
   (d) Large or medium Type N streams;
   (e) Lakes; or
   (f) Significant wetlands

APPLICATION:

Section (3) can be used for enforcement.

A statutory written plan is required to yard across Type F, Type SSBT, and Type D streams and significant wetlands, under ORS 527.670(3). As allowed in that statute, the State Forester has waived the requirement for such plans for certain activities that take place outside the stream RMA; see OAR 629-605-0170(4) and Forest Practices Technical Note Number 10, Waivers of Statutory Written Plan

The requirement for a non-statutory written plan under section (3) may be waived if the SF determines that the formal plan process is not needed to help ensure resource protection. Consideration of the waiver begins when the operator requests the waiver. Unless the department grants the waiver, a non-statutory written plan is required and must be submitted before the practice or operation begins.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when any of following situations occur:

(1) Corridors (see definition below) through the RMA are unnecessarily closely spaced or of greater than minimum widths;
(2) An operator yards across any Type F, Type SSBT or Type D streams or significant wetland without first submitting a statutory written plan which describes the accurate location and size of yarding corridors.
(3) An operator yards across any medium or large Type N stream, or large lake without first submitting, or receiving a waiver of, a required non-statutory written plan which describes the accurate location and size of yarding corridors.
**Damage:** Damage occurs when the unsatisfactory condition exists and results in RMA components, required to be retained, being removed, or damaged to the extent that the intended functions for which they have been retained are no longer provided. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Examples of damage include reduction of potential shade, future large wood supply, and/or sediment-filtering capability of the RMA.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

For statutory written plan violations on Type F, Type SSBT or Type D streams or significant wetlands take enforcement action under OAR 629-605-170(2), (3), or (5), as appropriate, rather than this rule.

For non-statutory written plan violations on large lakes take enforcement action under OAR 629-650-0005 rather than this rule.

For non-statutory written plan violations on large or medium Type N streams, take enforcement action under this rule.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. For written plan violations, a written statement of unsatisfactory condition may be issued instead of a citation when for specific conditions listed in OAR 629-670-0125.

**ADMINISTRATION:**

Section (3) allows operators to use cable logging corridors through the RMA and where necessary, to cut trees within them. Generally, cable yarding corridors should be spaced a minimum of 100 feet apart, and their width should not exceed 20 feet.

Operators should use natural gaps in the RMA for corridors whenever possible. A corridor is any portion of a cable yarding road (location where cables are strung) where the cables cross a stream, lake, or significant wetland. Corridors sometimes, but not always, require the felling of trees adjacent to the cable lay(s).

Statutory written plans are required for operations within 100 feet of Type F, Type SSBT and Type D streams, large lakes, and significant wetlands. Non-statutory written plans should also be required when corridor trees are removed from the RMA of medium and large Type N streams. These written plans should address corridor spacing, corridor width, and methods the operator will use to protect retained vegetation when changing yarding roads.

Damage or removal of trees within the minimum corridor width is to be expected. Trees outside the corridor must be left with adequate crowns to provide original canopy cover (excepting the interior of rub trees).
**Note:** The use of corridors cannot reduce conifer levels below rule standards. However, if the RMA contains fewer conifers than the standard management target, corridors are nonetheless allowed. Those conifers felled for the corridor must either be replaced, left on the ground, or placed or felled in the stream. If corridor trees are felled into the RMA and meet basal area credit requirements (species, length, and diameter), the RMA can be left with conifers meeting the active management target. Where less than the active management target exists, corridor trees cannot be removed, and

Although not specifically addressed by section (3), hanging cables across streams when yarding only one side of a stream would also require a written plan. Removal of streamside trees should not be necessary in such cases, but the physical components of the RMA may be moved, disturbed, or otherwise altered by the operation.

**Example:** A medium Type N stream requires a non-statutory written plan when cables are strung through or over the RMA or any yarding is done across or over the RMA.
YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(2) When yarding across any of the waters listed in subsection (a) through (f) of this section is necessary, it shall be done by swinging the yarded material free of the ground in the aquatic areas and riparian areas.

(a) Type F streams;
(b) Type SSBT streams;
(c) Type D streams;
(d) Large or medium Type N streams;
(e) Lakes; or
(f) Significant wetlands

APPLICATION:

Section (4) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when there is evidence of log turns not being suspended over the channel or riparian area. Single log turn touching the ground or falling into protected areas should not be considered a violation. Gouging in stream banks or destruction of vegetative components is evidence of an unsatisfactory condition, as is soil or debris deposited below the normal high water level by yarding. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in required soil or vegetative RMA components being damaged to the extent that the intended functions are no longer provided. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Examples of damage include reducing: a) potential shade; b) future large wood supply; and c) sediment-filtering capability of the RMA.

Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

There is also damage when required vegetative functions are adversely disturbed.
There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

**Written Statement of Unsatisfactory Condition:** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to reduce the yarding turn size or take other measures to increase deflection over the RMA. Some repair may be necessary to prevent damage.

**ADMINISTRATION:**

Using proper equipment, cable yarding across streams is a desirable practice if it results in less road construction, and is conducted with equipment that can yard trees over the RMA or through narrow, widely spaced RMA corridors. Skyline systems with slack pulling ability and sufficient power can generally be used with little impact to riparian resources, given proper landing location and unit layout.

The written plan must address suspension of logs above the aquatic and riparian areas. If there is question whether suspension is adequate, the SF should request the operator to provide yarding profiles and load analyses for the written plan.
YARDING; CABLE EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0700

(5) Cable yarding across streams classified as small Type N or other wetlands greater than one-quarter acre shall be done in ways that minimize disturbances to the stream channel or wetland and minimize disturbances of retained streamside vegetation.

APPLICATION:

Section (5) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when logs have been cable yarded along or across the wet or dry stream channel or the wetland or the retained streamside vegetation. Evidence includes gouging of the bed or banks, or soil dragged into the channel by yarding. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in retained streamside vegetation being adversely disturbed over 30 percent or more of the stream length within the harvest unit.

Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to achieve the suspension required to prevent damage to the bed and banks of streams or wetlands. Some preventive action may be necessary to prevent damage from occurring.

ADMINISTRATION:

“Minimize disturbance” for cable yarding over small Type N streams means preventing the leading end of the log from dragging across and gouging the ground, or one-end suspension.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(1) Operators shall maintain the purposes and functions of vegetation required to be retained in riparian management areas, and minimize disturbances to beds and banks of streams, lakes, all wetlands larger than one-quarter acre, and retained vegetation during ground-based yarding operations.

APPLICATION:

Section (1) can be used for enforcement when ground-based yarding operations cause damage in ways not specifically addressed by section (2) through (9).

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when yarding operations damage the required vegetation in the RMA or causes preventable, unnecessary disturbance to the beds and banks of water resources. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition exists and results in the required RMA components are removed or damaged to the extent that the intended functions are no longer provided. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Examples of damage include reduction of potential shade, future large wood supply, and/or sediment-filtering capability of the RMA.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to revise the yarding plan to utilize alternatives to avoid damaging the required vegetation in the RMA or the beds and banks of the water resources.

ADMINISTRATION:

Section (1) provides the soil, vegetation, and water resource protection objectives for ground-based yarding operations.

Written Plans: Statutory written plans are required for activity within 100 feet of Type F, Type SS BT and Type D streams and significant wetlands. A non-statutory written plan may be required for activity that may impact Type N streams or within 100 feet of large lakes. See OAR
629-605-0170, 629-645-0000, and 629-650-0005. The written plans should address yarding practices to protect the resources listed in subsection (1).

Downed wood referred to in section (1) is defined as trees or portions of trees that have fallen naturally. Slash in contrast, is defined as trees or portions of trees that have fallen as a result of harvesting operations.

Recovery of trees that enter an RMA, stream, lake or wetland - whether intentionally (leaning hardwoods) or inadvertently (“It got away”) must maintain the general integrity of the required vegetation in the RMA while minimizing disturbance to the beds and banks of streams, lakes and wetlands greater than ¼ acres.

If the functions of the RMA, soil or understory vegetation cannot be reasonably maintained or disturbance to bed and banks cannot be minimized during any tree recovery efforts, the operator should retain the felled tree. If there is disturbance during the tree recovery, take enforcement action using a written statement of unsatisfactory condition or citation, depending on whether the level of disturbance crossed the line into “damage.”
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(2) Operators shall not operate ground-based equipment within any stream channel except as allowed in the rules for temporary stream crossings.

APPLICATION:
Section (2) can be used for enforcement action.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when equipment has operated within or across any wet or dry stream channel except as allowed with temporary crossing in section (4) or (5) of this rule. Evidence may include gouging or rutting of the bed or banks, or soil brought into the channel. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary disturbance to the wet or dry stream channel. Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to cease further crossings until properly planned and constructed crossings described in sections (4) and (5) are identified. Some preventive action may be necessary to stop damage from occurring.

ADMINISTRATION:

Section (2) applies to all ground-based equipment used for moving or yarding logs. When it is necessary to cross a stream, ground-based equipment shall only operate on properly planned and constructed crossings.
When equipment is being used or has been used to build a landing or any portion of a landing in a channel, use OAR 629-630-0200 (2) for enforcement action.

**Note:** If the operation results in the straightening or shortening of any wet or dry stream channel, or causes changes to the stream channel consider use of OAR 629-660-0040 for enforcement action.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(3) Operators shall minimize the number of stream crossings.

APPLICATION:

Section (3) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when multiple crossings are used when topography and proper planning would have required fewer crossings. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable and unnecessary disturbance to the bed, banks, or water quality. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage occurs when the unsatisfactory condition results in preventable and unnecessary sediment or debris entering a wet or dry stream channel or waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to revise the yarding plan to limit the number of stream crossings. Some preventive action may be necessary to stop damage from occurring.

ADMINISTRATION:

"More than minimum" is primarily a function of topography. Stream crossings should be used only when absolutely necessary. With good planning by the operator, it is often possible to limit the number of temporary stream crossings to just one.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(4) For crossing streams that have water during the periods of the operations, operators shall:
   (a) Construct temporary stream crossing structures such as log crossings, culvert installations, or fords that are adequate to pass stream flows that are likely to occur during the periods of use. Structures shall be designed to withstand erosion by the streams and minimize sedimentation.

APPLICATION:

Subsection (4)(a) can be used for enforcement. Subsection (4)(a) requires the use of "temporary crossing structures" when ground-based yarding equipment crosses streams that are likely to have flow during the expected time of the operation.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state. An unsatisfactory condition exists when:

1. Structures are either not installed or are inadequate to pass expected stream flows.
2. Stream flow has eroded the crossing structure.
3. The structure has altered or diverted stream flow, resulting in erosion of the bed or banks.
4. Water is backed up (ponded) by the fill, threatening or causing fill saturation or overtopping of the fill.

Damage: Damage occurs when the unsatisfactory condition results in preventable and unnecessary disturbance to the bed, banks, and associated water quality. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to design and construct appropriate stream crossings to prevent
unnecessary sedimentation. Some preventive action may be necessary to stop damage from occurring.

**ADMINISTRATION:**

Suitable temporary crossing structures vary from improved fords to bridges. The appropriate structure for the site depends on the stream size, time of year, presence of fish, and volume of logs to be brought across the crossing. Examples of temporary stream crossing structures:

- Log crib. Logs placed parallel to the culvert in the stream to allow water and fish passage.
- Log crib without culvert: Single layer of logs placed parallel within the stream channel.
- Rock fill. Non-organic fill may be used with a culvert for water and fish passage.
- Combination. Log crib and rock fill with culvert in the fill portion with seasonal high water and soil fill layered above the seasonal high water flow.
- Bridge. Logs bound by cable and extended beyond the stream banks.
- Bridge. I-beams with wood planking extended beyond the stream banks.
- Ford. Used rarely for yarding. Requires stable banks, stream bed and one-end suspension.

**Note:** Remove fill material to reestablish the pre-operation stream bed and bank conditions. Culverts must be long enough to allow 1 ½ to 1 natural fill slope.

In those areas where summer thunderstorms are the primary source of high stream flows, operators should install culverts or other drainage structures large enough to pass potential peak flows. **Note:** Special attention should be given to areas that have recently burned, as large thunderstorms and high flows appear to be more common in these locations.

**Example:** An operator plans to use an existing low-water ford crossing on a Type F stream to get his track equipment across the stream to pre-bunch logs for a cable yarding operation. A statutory written plan is required per OAR 629-605-0170(2). The plan must address:

- Timing of the crossing (seek ODFW’s input if outside the in-stream work guidelines),
- Adequacy of the streambed to support the equipment crossing,
- Necessity of importing rock fill material or temporary placement of a log crib,
- Prevention of sedimentation from the approaches to the crossing and
- Prevention of petroleum contamination into the stream during crossings.

**Note:** The temporary crossing must not impair fish movement on Type F or Type SSBT streams, OAR 629-630-0800(d).

Subsection (4)(e) addresses timely removal of all temporary crossings.

See additional discussion on fords and fish passage in Forest Practices Technical Note 4.
APPLICATION:

Subsection (4)(b) is used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when temporary crossings for ground-based equipment are located in narrow canyons, incised channels, actively eroding or exposed soil banks, wetlands, or slide areas. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable and unnecessary disturbance to the bed, banks, or water quality. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to locate appropriate stream crossings that minimize cuts and fills or other disturbances to the stream banks. Some preventive action may be necessary to stop damage from occurring.

ADMINISTRATION:

Compliance is achieved when the operator makes an on-the-ground evaluation of all the practical alternatives and selects the crossing which least disturbs stream banks. The operator must choose stream crossing locations in consideration of the soil properties, condition of the stream bank, channel form, and the ability to get the skid trail away from the stream as quickly as possible.

Operators should avoid actively eroding or exposed soil streambanks area. Crossing should be located where there is a single narrow channel rather than multiple braided or side channels.
YARDING: GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(4)  For crossing streams that have water during the periods of the operations, operators shall:
   (c)  Minimize the volume of material in any fills constructed at a stream crossing. Fills over eight feet deep contain such a large volume of material that they can be a considerable risk to downstream beneficial uses should the material move downstream by water. For any fill for a temporary crossing that is over eight feet deep, operators shall submit to the State Forester a written plan that includes a description of how the fills would be constructed, passage of water, and the length of time the fills would be in the stream.

APPLICATION:

Subsection (4)(c) is used for enforcement.

A statutory written plan is required to cross Type F, Type SSBT or Type D streams, and significant wetlands, ORS 527.670(3) and cannot be waived by the SF. OAR 629-605-0170.

The requirement for a non-statutory written plan under this rule may be waived if the SF determines that the formal plan process is not needed to help ensure resource protection. Consideration of the waiver begins when the operator requests the waiver. Unless the SF grants the waiver, a non-statutory written plan is required and must be submitted before the practice or operation begins. OAR 629-605-170(10).

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when a temporary crossing fill is constructed over eight feet deep and a required written plan for such a deep fill was not submitted or waived. An unsatisfactory condition exists when the volume of the fill is greater than reasonably necessary. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Resource damage is not a prerequisite for taking enforcement action on a procedural violation. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.
Written Statement of Unsatisfactory Condition: Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to stabilize or remove the fill. Some preventive action may be necessary to stop damage from occurring.

Under specific conditions listed in OAR 629-670-0125 (Using the Written Statement of Unsatisfactory Condition for Noncompliance with Procedural Rules), a written statement of unsatisfactory condition may be issued instead of a citation.

ADMINISTRATION:

Subsection (4)(c) requires a written plan for any temporary stream crossing fill which is over eight feet, including small Type N streams and that the volume of fill be minimized. The width of the fill must be as narrow as safety considerations permit. Fills should not be used as waste areas for excavated material from skid trail construction. Measure the fill depth for a temporary stream crossing in the same manner as a permanent stream crossing; see guidance for OAR 629-625-0320(1)(b)(B).

Measure Fill Height. Measure the vertical distance from the running surface of the downhill side of the fill to the stream bed. There are several methods that can be used to calculate the fill depth using a measuring tape and clinometer or a laser range finder. Consult with the Forest Practices staff as needed.

A field inspection of the operation is required to evaluate the need for any high fills. If an alternative structure or location is feasible, the operator should be advised to construct the crossing at such location.
### YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE

**OAR 629-630-0800**

(4) For crossing streams that have water during the periods of the operations, operators shall:

(d) Design temporary structures so that fish movement is not impaired on Type F or Type SSBT streams.

### APPLICATION:

Subsection (4)(d) is used for enforcement.

### COMPLIANCE:

**Unsatisfactory Condition:** An unsatisfactory condition exists when a temporary crossing structure on a Type F or Type SSBT stream does not allow for fish passage. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

**Damage:** Damage exists when a stream crossing structure on a Type or Type SSBT stream that does not allow for fish passage and remains in place during periods of possible fish movement. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

**Written Statement of Unsatisfactory Condition.** Issue a written statement of unsatisfactory condition when corrective action is feasible and practical prior to damage occurring. Direct the operator to remove the temporary structure or to alter it to allow for fish passage before periods of possible fish movement.

### ADMINISTRATION:

Upstream movement by anadromous fish to reach spawning grounds is usually not a consideration for the period of time a temporary crossing structure is in place. However, juvenile and adult fish may need to move upstream or downstream to seek cool water refuges. The presence and movement of resident fish must also be considered. The temporary crossing structure does not have to meet the 50-year return interval.

Refer to Forest Practices Technical Note 4, Fish Passage for the same design criteria for temporary skid trail crossings if a culvert is going to be used.
Note: Follow ODFW’s in-water work period guidance to minimize impact to aquatic species during installation and removal of structures. Short bridges (including log crib stream crossings) are preferred to protect the natural stream bottom.

The statutory written plan should address fish passage through temporary crossings on Type F or Type SSBT streams, OAR 629-605-0170. Consult with the Forest Practices staff to determine noncompliance, damage, and enforcement under this subsection.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(4) For crossing streams that have water during the periods of the operations, operators shall:
   (e) Remove all temporary stream crossing structures immediately after completion of operations or prior to seasonal runoff that exceeds the water carrying capacity of the structures, whichever comes first. When removing temporary structures, operators shall place fill material where it will not enter waters of the state.

APPLICATION:

Subsection (4)(e) is used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when a temporary crossing structure has not been removed after completion of the operation or prior to seasonal run high stream flows that exceed the capacity of the crossing, whichever comes first, provided there is no damage. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. Damage occurs if there is evidence of high stream flows eroding the crossing structure, bed, or banks as a result of the unsatisfactory condition. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to immediately remove the crossing.

ADMINISTRATION:

All soil, structural material, and fine slash used in the crossing and below the high water level must be removed and placed in stable locations above the 100 year flood level. Banks should be shaped to a 1 ½ to 1 natural fill slope to avoid creating unstable, undercut or over-steepened banks.
**Example:** A horizontal distance of 3 feet and vertical distance is 2 feet equals a slope of $1 \frac{1}{2}: 1$.

**Note:** Follow ODFW’s in-water work period guidance to minimize impact to aquatic species during installation and removal of structures.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(5) For stream crossings where the channels do not contain water during the periods of
the operations, operators are not required to construct temporary crossings as long
as disturbances are no greater than what would occur if structures were constructed.
Soil that enters the channels during the yarding operations must be removed after
completion of the operation or prior to stream flow, whichever comes first. When
removing such materials from the channels, operators shall place the materials in
locations where they will not enter waters of the state.

APPLICATION:

Section (5) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition when loose, erodible material associated
with the crossing structure is not removed from a crossing or when it is placed where it is likely
to enter waters of the state. An unsatisfactory condition exists when sediment or debris has
entered or is likely to enter a stream channel or waters of the state. An unsatisfactory condition
exists when disturbance is not limited. Examples: Adverse disturbance to banks and stream
channels caused by ground-based equipment can include soil compaction, track or wheel
churning, rutting, and mixing, displacing, or removing soil or stream bed material.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary
sediment or debris entering a stream channel or waters of the state. There is damage if adverse
disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest
practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the
entry site (a 10 percent or more increase over background turbidity), and it continues for two or
more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory
condition when corrective action or complete repair is feasible and practical prior to damage
occurring. Direct the operator to remove soil from the channel before stream flow occurs. Other
erosion control measures such as grass seeding and mulching may be necessary to prevent
damage.

ADMINISTRATION:

Section (5) allows yarding logs across dry stream channels without a temporary crossing
structure as long as stream flow does not occur during the operation, the streambed and banks are
neither wet nor fragile, and water quality is not damaged when stream flow resumes.
**Note:** To ensure activity in the dry stream channel does not cause disturbance greater than what would occur if temporary structures were constructed, the operator should provide one-end suspension of logs. Also, placement of a single layer of parallel logs within the stream channel will act as a running surface to protect the stream banks and bed.

If stream flow occurs, whether expected or unexpected, the operator must immediately cease using equipment in the channel and water bar the skid trail approaches on both sides of the crossing. Use of the crossing must cease until a temporary structure is constructed as indicated in section (4), or dry conditions return.

After use of such a stream crossing, the operator must remove all loose soils or logs used to protect the stream bank and bed that are below high water levels and place them above the 100-year flood level. Loose soils include the sides of ruts, bank material which has fallen toward the channel, and any material which falls from tracks or tires.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(6) Operators shall construct effective sediment barriers such as water bars, dips, or other water diversion on stream crossing approaches after completion of operations, or prior to rainy season runoff, whichever comes first.

APPLICATION:

Section (6) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when sediment barriers have not been installed in a timely manner. An unsatisfactory condition exists when there is evidence of skid trail runoff directly entering the stream or eroding the crossing approach. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or repair is feasible and practical prior to damage occurring. Direct the operator to construct effective sediment barriers prior to expected runoff events.

ADMINISTRATION:

If a major storm event is forecast, effective sediment barriers should be installed immediately, even if the crossing will continue to be used.

"Effective sediment barriers” means the barriers divert water off the skid trail (not ponding water on the skid trail) and onto non-compacted soil or slash, and sediment in the runoff water is filtered or settled out to keep it out of the stream water. Such structures should be placed a short distance (less than 20 feet) above the high water level (the top of stream bank for high banks, and the edge of floodplain for low banks) so that infiltration or settling is possible. For medium and large streams, sediment barriers should also be placed at the outside boundaries of the RMA.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
OAR 629-630-0800

(7) Machine activity near (generally within 100 feet) streams, lakes, and other wetlands greater than one-quarter acre shall be conducted to minimize the risk of sediment entering waters of the state and preventing changes to stream channels. Operators shall only locate, construct, and maintain skid trails in riparian management areas consistent with the harvesting rules.

APPLICATION:
Section (7) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when any skid trail within 100 feet of any stream, lake, or wetland over one-quarter acre has inadequate water bars or other drainage measures. An unsatisfactory condition exists when there is evidence of skid trail runoff directly entering the stream. An unsatisfactory condition exists when skid trails divert wet or dry stream channels because they are too close to streams and are not properly drained. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.
Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to install water bars or other effective drainage measures prior to any expected runoff events.

ADMINISTRATION:

Operators must apply effective sediment barriers near streams, lakes and wetlands to minimize the risk of sediment entering waters of the state.

Operators are responsible for locating streams, lakes, and wetlands in the operation unit prior to commencing activity. Operations must be conducted to minimize disturbance around wetlands, lakes, and streams. Machine activity, associated disturbance, and drainage practices must all combine to minimize erosion and subsequent delivery of sediment to waters of the state. Equipment should be kept as far away from any water as practicable. Logs should be removed by reaching with grapples or pulling winch line.

Note: If ground-based equipment enters and begins to sink into a wetland, it should back out of the wetland immediately and cease work in the immediate area until the boundaries of the wet soil area are identified.

Operators should follow Table 1. guidelines for water bar spacing on skid trails:

Table 1. Maximum Water Bar Spacing in Skid Trails by Soil Type

<table>
<thead>
<tr>
<th>Slope of Skid Trail</th>
<th>Erodible (silt, sands, granitics)</th>
<th>Less Erodible (loam, gravel, cobble)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 to 15%</td>
<td>150 feet</td>
<td>300 feet</td>
</tr>
<tr>
<td>15 to 35%</td>
<td>100 feet</td>
<td>200 feet</td>
</tr>
<tr>
<td>35 to 50%</td>
<td>50 feet</td>
<td>100 feet</td>
</tr>
<tr>
<td>Over 50%</td>
<td>25 feet</td>
<td>50 feet</td>
</tr>
</tbody>
</table>
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE  
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(8) Operators shall minimize the amount of exposed soils due to skid trails within riparian management areas. Except at stream crossings, operators shall not locate skid trails within 35 feet of Type F, Type SSBT or Type D streams. Operators shall provide adequate distances between all skid trails and waters of the state to filter sediment from runoff water.

APPLICATION:

Section (8) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when any skid trail results in preventable, unnecessary soil disturbance within any RMA or near any stream, lake, or wetland. An unsatisfactory condition exists when a skid trail is constructed or reconstructed within 35 feet slope distance of the high water level of a Type F, Type SSBT or a Type D stream. An unsatisfactory condition exists when there is evidence of sediment-bearing skid trail runoff directly entering the stream. An unsatisfactory condition exists when sediment or debris has entered or is likely to enter a wet or dry stream channel or waters of the state.

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sediment or debris entering a wet or dry stream channel or waters of the state. There is damage if adverse disturbance has occurred or is likely to occur and cannot be immediately corrected. Damage is adverse soil disturbance by skid trails or ground-based equipment tracks such that water would not likely infiltrate the soil but become channelized or have the potential to move loosened soil or debris downslope. Refer to the discussion of “soil deterioration” in the guidance for OAR 629-630-0100(1).

Note: Disturbed soils which have been correctly stabilized or corrected to protect exposed subsoil and allow sediment-laden waters to infiltrate are not considered deteriorated soils. Additionally, soils where track berms have been knocked down, slash placed on the impacted soil, and effective drainage and erosion control established do not constitute adverse soil disturbance or soil deterioration.

Damage exists when skid trails are located within 35 feet of Type F, Type SSBT or D streams without effective measures to prevent sediment-bearing runoff water from entering the stream.

Resource damage is not a prerequisite for taking enforcement action related to failure to submit a written plan. The operator, by not submitting a written plan, denies the SF the opportunity to review and comment on the operation.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the
entry site (a 10% or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

**Written Statement of Unsatisfactory Condition.** Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to install water bars or complete other corrective action, such as sub-soiling (where appropriate) prior to expected runoff events. Other erosion control measures including grass seeding and mulching may be necessary to prevent damage.

**ADMINISTRATION:**

The distance required for effective filtration of sediment is sometimes more than 35 feet (see reference). For Type N streams, all lakes, and all wetlands, noncompliance occurs when the opportunity for effective filtering has been lost. The required setback distance depends on the level of disturbance, soil properties, and slope (see the reference).

A SF may allow use of an existing skid trail which is closer than 35 feet to a Type F, Type SSBT or Type D stream in limited locations if all other feasible harvesting alternatives would result in greater resource damage. Effective drainage must be used to keep sediment-bearing run-off water out of the stream. Placing brush and slash in the trail before use can reduce the amount of exposed soils resulting from yarding operations. Such activity should be described in a statutory written plan under OAR 629-605-0170 and an approved PFAP under, OAR 629-605-0173.

<table>
<thead>
<tr>
<th>Soil</th>
<th>Slope in percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 to 35%</td>
</tr>
<tr>
<td>Normal</td>
<td>20 feet</td>
</tr>
<tr>
<td>Erodible</td>
<td>35 feet</td>
</tr>
</tbody>
</table>

Table 2. Skid Trail Setback Guidelines for Filtering Muddy Runoff

Should ruts or exposed subsoils appear when operating closer to the stream than the distances shown in Table 2, the operator should cease operating in the affected areas immediately.
YARDING; GROUND-BASED EQUIPMENT NEAR WATERS OF THE STATE
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(9) Operators shall locate and construct skid trails so that when high stream flow occurs water from the stream will not flow onto the skid trail.

APPLICATION:

Section (9) can be used for enforcement.

COMPLIANCE:

Unsatisfactory Condition: An unsatisfactory condition exists when normal high water levels has entered or is likely to encroach on skid trails. An unsatisfactory condition exists when sedi

Damage: Damage occurs when the unsatisfactory condition results in preventable, unnecessary sedi

Damage occurs when the unsatisfactory condition results in preventable effects on channel morphology.

There is damage due to noncompliance with the turbidity water quality standard when forest practices cause a visible increase in turbidity from the water conditions 100 feet upstream of the entry site (a 10 percent or more increase over background turbidity), and it continues for two or more hours in a twenty-four hour period.

Written Statement of Unsatisfactory Condition. Issue a written statement of unsatisfactory condition when corrective action or complete repair is feasible and practical prior to damage occurring. Direct the operator to re-grade the skid trail, construct effective grade reversals, or other effective corrective action prior to expected runoff events.

ADMINISTRATION:

Compliance is best accomplished when skid trails are kept well above high water levels of any stream. When it is necessary to cross a stream, skid trails should climb away from the channel on both sides. However, this needs to be balanced by grade breaks or reversals, as close as practicable, to minimize the length of trail draining towards the crossing.

Any skid trail located below the 100-year flood levels must contain frequent grade reversals or large rolling dips. Skid trails, which might be covered by flood flows, must not be constructed along the same gradient as the stream. Grade reversals are essential when trails are parallel to channels, or when crossing channels.
REFERENCES FOR DIVISION 630:

- Forest Practices Technical Note 2, High Landslide Hazard Locations,
- Forest Practices Technical Note 4, Fish Passage
- Forest Practices Technical Note 7, Avoiding Roads in Critical Locations
- Forest Practices Technical Note 10, Waivers of Statutory Written Plan
- Forest Practices Note 11, Type N Streams, Limiting Disturbance and Slash Accumulation
- Miller, Richard, S. Colbert, L. Morris, NCAIS 2004. Effects of heavy equipment on physical properties of soils and on long-term productivity: a review of literature and current research, Technical Bulletin No. 997,