

Guideline Monitoring On-Site Cover Sheet

Site No. _____

Landowner contact information:

- Name and phone number of landowner contact
 - Name: _____
 - Phone: _____
- Time and date that landowner was contacted:
 - *Time : _____ *Date: _____
 - *Name of contact if different from above: _____
 - *Did landowner ask to be present for site visit? Yes No
 - *Was the landowner present during the site visit? Yes No

Is it necessary to cross another private ownership to access this site? Yes No

- Additional landowner contacts required to gain access to the site:
 - *Name: _____
 - *Phone: _____
 - *Time : _____ *Date: _____
 - *Name of contact if different from above: _____
 - *Name: _____
 - *Phone: _____
 - *Time : _____ *Date: _____
 - *Name of contact if different from above: _____

*** These items must be completed by the contractor, as appropriate, or the file will not be accepted for payment.**

FOREST MANAGEMENT GUIDELINES - ON-SITE MONITORING GUIDE

Visual Quality – FC_VST

Complete the visual quality questions for all sites and any feature that would allow the public an opportunity to view the site from a public road, trail, or waterway, regardless of the visual quality sensitivity rating (VQSR) and regardless of whether the VQ ratings have been established for the county the site is in. Identify a new VISTA and answer all visual quality (VQ) questions for any feature that allows the public to view the harvest area and therefore triggers potential visual quality concern including: public travel routes, recreation facilities, public trails, lake or navigable stream. There may be more than one visually sensitive feature affected by forest management activities on the site. Only sites that provide no public view of the site do not need to have a VQ ratings, these include sites that have a closed or private road, or inaccessible road such as a winter bog road, or sites that do not have public trails, lakes etc. ...

For all VISTAs and visual quality measures, take into consideration the vantage point where the public views the site, for example a recreational trail, a public road or a lake or navigable stream. Take this assessment before you walk out onto the site when possible.

In counties with VQ sensitivity ratings, refer to http://dnr.state.mn.us/forestry/visual_sensitivity/index.html OR the visual Quality GIS layer on the Surface Pro Tablet and the text description for each county in the Appendix for features such as lakes, streams, and designated recreational trails.

For some sites the landowner/manager may have indicated the VQ standard they applied. For sites in counties that have a VQ sensitivity rating (see Appendix) use the county VQ sensitivity rating. For other sites use the landowner/land manager indicated rating. See Question 3 below for further clarification. All site VQ to be verified to county VQ sensitivity rating.

View the site in the same manner as the public would view it. If the VISTA is from a road that passes the site which has a typical speed of 30 mph, then drive by the site at 30 mph and view the site prior to going out onto the site. If the vista is from a walking trail, then walk past the site on the trail to rate the VQ measures. Some VQ measures require that you walk out onto the site to complete the rating such as determining how slash or borrow pits were hidden from view of the public. Other measures require that you only consider the view that the public typically gets of the site such as estimating the apparent harvest size. To the extent possible, evaluating the visual quality impacts should be done first and prior to entering the site to conduct the other evaluations.

Prior to visiting a site verify the correct VQSR by looking at the visual Quality GIS layer (or http://dnr.state.mn.us/forestry/visual_sensitivity/index.html), written documentation in the pre-site or sale documents for sites without a county VQ rating, or if nothing is indicated use your professional judgement. If in doubt, ask for confirmation. There may be features encountered in the field that should be evaluated for visual quality that were not apparent from photos or documentation. The most common such features are streams, lakes, and recreational trails.

RA_id _____

Create the feature in Collector, click link to fill out Survey.

Identify Vista feature: _____

Options include but are not limited to; road, hiking trail, snowmobile trail, ski trail, navigable stream, lake, campground.....Trails should be either signed as such or identified on a map.

- Visual Quality Sensitivity ☐ Most ☐ Moderate ☐ Less

a) Determined by:

- ☐ County VQ map ☐ Written documentation ☐ On-site assessment (only if no County VQ data exists or if no indication is given on the pre-site form or the sale documents)

For this question check “County VQ map” for all sites that have a county VQ sensitivity rating. For other sites, check “written documentation” if the landowner/manager has indicated a VQ sensitivity, OR as a last resort check “on-site assessment if no county VQ exists and no indication is given in the pre-site or sale docs.

Roads

- Is the logging road for the harvest site visible from the main road or trail (visually sensitive feature) used by the public? _____ ☐ Yes ☐ No ☐ N/A (Use NA only if there is no road)

a) If yes, was the logging road ROW constructed or cleared for the harvest? _____ ☐ Yes ☐ No ☐ Unknown

i) If yes, was all merchantable timber utilized within the road clearing? _____ ☐ Yes ☐ No ☐ N/A ☐ Unknown

Merchantable timber in this case means merchantable bolewood.

ii) If yes, is road clearing debris visible from travel routes or recreation areas? _____ ☐ Yes ☐ No ☐ N/A

- b) If yes to #4, can the logging site be seen at the point where the access road joins the main road or trail (visually sensitive feature) used by the public? _____ ☐ Yes ☐ No ☐ N/A
- i) If no, is this due to a curve in the access road? _____ ☐ Yes ☐ No

Excavation

- Was a borrow or gravel pit(s) created or reused on this site as part of Activity being monitored? _____ ☐ Yes ☐ No ☐ Unknown
- a) If yes, is the borrow or gravel pit(s) visible from the travel route or recreation area? _____ ☐ Yes ☐ No
- i) If no, how was the borrow or gravel pit(s) and crushing operations kept from public view?
 - ☐ Located out of visible corridor
 - ☐ Screened from view with vegetation or landscape berms

Evidence of whether or not a pit has been used for the project includes: fresh fill applied to roads or trails on the site or leading to the site, tied with recent activity in a borrow pit on or near the site. If trees or woody vegetation are growing throughout the pit consider this as evidence that the pit has not been recently used.

Timber Harvest

- What is the apparent harvest size? _____ ☐ Not visible ☐ < 5 acres ☐ 5 - 10 acres ☐ > 10 acres
Indicate the apparent size of the harvest area. Remember to view the site as the public might view it.
- Which of the following techniques resulted in limiting apparent harvest size?
 - ☐ Actual size of harvest site
 - ☐ Left patches of trees to break up harvest area
 - ☐ Left buffer strip of trees between travel route and harvest area
 - ☐ Created narrow openings into the harvest area
 - ☐ Utilized natural terrain
 - ☐ Shaped clearcuts to look more like natural openings
 - ☐ Adjusted contiguous linear feet of harvest frontage along travel routes relative to travel speeds
 - ☐ Applied multiple-stage cuts or other management methods
 - ☐ Other (list): _____
 - ☐ None of the above

Indicate which of the techniques above were used to limit the apparent harvest size.

Managing Slash

- Are there slash piles on the site? _____ ☐ Yes ☐ No
- a) If yes, are the slash piles visible from the travel route or recreation area? _____ ☐ Yes ☐ No
- i) If yes, are the slash piles conspicuous? _____ ☐ Yes ☐ No

For the purposes of this process conspicuous can be defined as being readily seen and is dominating the view

- Are windrows present on the site? _____ ☐ Yes ☐ No
- b) If yes, are windrows visible from the travel route or recreation area? _____ ☐ Yes ☐ No
- i) If yes, are the windrows conspicuous? _____ ☐ Yes ☐ No

For the purposes of this process conspicuous can be defined as being readily seen and is dominating the view

- Is scattered slash visible within 50 feet of the travel route or recreation area? _____ ☐ Yes ☐ No
- Is scattered slash visible beyond 50 feet of the travel route or recreation area? _____ ☐ Yes ☐ No
- If scattered slash is visible, what is the average height of the slash? _____ Feet

Travel route is a public travel route. An access route specifically for a timber harvest is often not a public travel route.

Snags *(A dead tree stem at least 8 feet tall and 6 inches DBH)*

- Can snags be seen (conspicuously) in the foreground of the timber harvest? _____ ☐ Yes ☐ No

For the purposes of this process, foreground can be defined as the area of the sale readily visible by the public that is not hidden or disguised by standing trees on the backside of the harvest area.

Landings

All landings must be considered in Questions 13-15. You may not have identified the landings at this point in the on-site review. If so and you answer yes to any of Questions 13-15 you will need to select "New" and identify the location of the landings that

are visible from the vista to get a feature ID number in Collector. Remember – feature locations can be modified as you walk around the site and get a more precise location.

- Are any landings visible from travel route or recreation area? ☐ Yes ☐ No ☐ NA
 c) If yes, list which landings: (RA_id, identify each if more than one, copy from Collector) _____
In this instance we are talking about obvious or conspicuous signs of a landing such as bare soil, bone piles, or clearing debris, not just some slash that happens to be on a landing that you cannot see. This must clearly be a landing. Use NA if no landings on the site.
 - Are any landings located in the travel route right-of-way? ☐ Yes ☐ No ☐ NA
 a) If yes, list which landings: (RA_id, copy from Collector) _____
In this situation we are only concerned about ROW for public roads or trails. We are not referring to the ROW for the access route or an access route leading on to additional sites.
 - Are slash piles or clearing debris on a landing visible from the travel route or recreation area? ☐ Yes ☐ No ☐ NA
 a) If yes, list which landings: _____
For purposes of monitoring, grubbed means trees, stumps and roots cleared from an area and left as waste or spoil on the site.
-

Cultural Resources – FC_CUR

Check the sale documents and landowner questionnaire to see if known cultural resources are present on the site. Also answer questions below if previously unidentified cultural resources are found during the on-site visit. If you find a cultural resource on the site, complete this feature.

- RA_id _____
Create the feature in Collector, click to fill out Survey.
 a) Identify cultural resource: _____
Identify and/or describe the cultural resource e.g. old cabin, cemetery etc.....
- Were measures taken to protect these resources? ☐ Yes ☐ No ☐ Not needed ☐ Unknown
 a) If yes, which techniques were used to protect the cultural resources? (check all that apply):
 - ☐ Excluded the cultural resources from the operational area of the project
 - ☐ Located roads away from the cultural resource
 - ☐ Located skid trails away from the cultural resource
 - ☐ Located landings away from the cultural resource
 - ☐ Located fueling and maintenance areas away from the cultural resource
 - ☐ Avoided felling trees onto historic buildings, structures or surfaces
 - ☐ Re-vegetated archaeological sites to prevent erosion
 - ☐ Stabilization measures used to prevent erosion
 - ☐ Protective cover placed over the cultural resource for temporary protection
 - ☐ Other (list): _____
- Was timber harvested in the cultural resource area? ☐ Yes ☐ No
 a) If yes, did felling equipment operate in the cultural resource area? ☐ Yes ☐ No ☐ Unknown
Answer yes when timber has been harvested within the bounds of the actual cultural resource itself
- Are or were there roads, trails or landings located in the cultural resource area? ☐ Yes ☐ No ☐ Unknown

It should be rare to use unknown – it should be clear if located in the area or not.

- Is mineral soil exposed in the cultural resource area? _____ ☐ Yes ☐ No
 - a) If yes, what percentage of the surface area is exposed? _____ %
 - b) If yes, how is this disturbance distributed? _____ ☐ Dispersed ☐ Concentrated
- Did repeated rutting greater than 6" deep occur in the cultural resource area? _____ ☐ Yes ☐ No
 - a) If yes, what was the percentage of rutting? _____ %
 - b) If yes, how is the rutting distributed? _____ ☐ Dispersed ☐ Concentrated
 - c) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown
 - i) If no, what was the cause? (list) _____

Measure the percentage of rutting by measuring the actual surface area or footprint of the rutting. Measure from one side of a tire rut and berm to the other side of the rut and berm and multiply by length. Total this for all ruts and divide by the total surface area of the cultural resource.

- Were water diversion and erosion control structures installed to divert water off the cultural resource area before the water enters the wetland or water body (**excluding roads, skid trails, or landings**)? _____ ☐ Yes ☐ No ☐ Not Needed
 - d) If yes, indicate the types of water diversion structures and erosion control practices used (check all that apply):
 - ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
 - ☐ Scattered slash
 - ☐ Road profile
 - ☐ Cross drain culverts
 - ☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.)

This was included as a water quality practice to be rated in situations where the cultural resource required water diversion or erosion control to prevent it from contributing to sediment in a wetland or water body. This would rarely be used.

- Were these practices installed properly? _____ ☐ Yes ☐ No
- Has erosion occurred in the cultural resource area associated with equipment operation and harvest activity? _____ ☐ Yes ☐ No ☐ Not evident
 - a) If yes, is sediment reaching a wetland or water body? _____ ☐ Yes ☐ No ☐ Not evident
 - i) If yes, which wetland or water body is affected? _____
Water Body RA_id (**copy from Collector**) _____

For additional information on how the cultural resource was protected, examine the landowner questionnaire or the timber sale documentation.

Steep Slopes - Equipment Operation – FC_STS

For purposes of guideline monitoring steep slopes are identified as **slopes >35% and longer than 40 feet**. In the guidelines we discourage the operation of equipment or the development of roads or skid trails on slopes greater than 35%. Otherwise we do not specifically state that harvesting cannot occur on slopes greater than 35%. Specific guidelines include:
 P 26 TH - Avoid construction of skid trails with grades exceeding 35%.
 P20 TH - Employ harvesting techniques that minimize the need to operate equipment on steep slopes (such as winching logs off steep slopes or cable yarding). Employ appropriate harvesting techniques and equipment when harvesting on steep slopes. Hand felling may also be appropriate.

- If you identify an area where there are somewhat steep slopes that are being clearly protected by leave tree clumps or no harvest zones, identify these as steep slopes even if they do not fit the exact criteria.

- RA_id_____

Identify and create a feature in Collector, click to fill out Survey.

- Was harvesting conducted on steep slopes (> 35%)? _____ ☐ Yes ☐ No

a) If yes, identify the skidding systems used for harvesting on steep slopes (check all that apply):

- ☐ Unknown ☐ Cable skidder ☐ Grapple skidder ☐ Forwarder
☐ Cable yarding system ☐ Other (list): _____

b) If yes, identify the felling systems used for harvesting on steep slopes (check all that apply):

- ☐ Unknown ☐ CTL processor ☐ Chain saw felling ☐ Feller with fixed mounted head
☐ Feller with boom mounted head ☐ Other (list): _____

c) If yes, is there evidence of equipment operation on steep slopes? _____ ☐ Yes ☐ No

The evidence that we are looking for here is more than just cut stumps. We are looking for evidence of equipment operation such as skid trails, tracks, or soil disturbance from equipment

Are there roads constructed on steep slopes? _____ ☐ Yes ☐ No

- Are there skid trails constructed on steep slopes? _____ ☐ Yes ☐ No

We are specifically looking for "constructed skid trails" here, such as cut & fill. "Not evident" should not be used

- Is mineral soil exposed on the steep slopes (excluding roads, skid trails, or landings)? _____ ☐ Yes ☐ No

a) If yes, what percentage of the surface area is exposed? _____ %

b) If yes, how is this disturbance distributed? _____ ☐ Dispersed ☐ Concentrated

- Did repeated rutting greater than 6" deep occur on steep slopes (excluding roads, skid trails, or landings)? _____ ☐ Yes ☐ No

a) If yes, what was the percentage of rutting? _____ %

b) If yes, how is the rutting distributed? _____ ☐ Dispersed ☐ Concentrated

c) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown

i) If no, what was the cause? (list) _____

For 31a above, measure the percentage of rutting by measuring the actual surface area or footprint of the rutting. Measure from one side of a tire rut and berm to the other side of the rut and berm and multiply by length. Total this for all ruts and divide by the total surface area of the steep slope.

- Were water diversion and erosion control structures installed to divert water off the disturbed area before the water enters a wetland or water body (excluding roads, skid trails, or landings)? _____ ☐ Yes ☐ No ☐ Not Needed

Use **Yes**, in situations where water diversion or erosion control structures were installed.

Use **No** in situations where water diversion or erosion control structures were not installed but should have been.

Use **Not Needed** in situations where slopes are clearly stable, well vegetated, and not susceptible to erosion.

a) If yes, indicate the types of water diversion structures and erosion control practices used (check all that apply):

- ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
☐ Scattered slash ☐ Road profile ☐ Cross drain culverts
☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.)

- Were these practices installed properly? _____ ☐ Yes ☐ No
- Has erosion occurred on steep slopes associated with equipment operation and harvest activity (**excluding roads, skid trails, or landings**)? _____ ☐ Yes ☐ No ☐ Not evident
If the area is vegetated with little exposed soil and there is no evidence of erosion, then check "No".
If the area has exposed soil with little vegetation and looks like there is potential for erosion but none is evident, then check "not evident".
If the area has evidence of erosion (sheet, rill, gully...) then check "yes"
 - a) If yes, check the most appropriate box describing the type of erosion feature:
☐ Sheet ☐ Rill ☐ Gully ☐ Sloughing ☐ Other: _____
See definitions and criteria in Appendix B
 - b) If yes, what is the estimated volume of eroded soils? _____ ☐ L x W x D = Vol: _____ ft³
☐ Trace (un-measurable, <1ft³)
Measure volume, by estimating length x width x depth.
 - c) If yes, is sediment reaching a wetland or water body (or bank full zone in streams)? _____ ☐ Yes ☐ No ☐ Not evident
See sedimentation criteria in Appendix B
 - i) If yes, which wetland or water body is affected?
Water Body RA_id (**copy from Collector**) _____
If you check yes to Question above, you must identify which wetlands or water bodies were impacted. Ensure that the number correlates to the feature number in Collector. You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so and you answer yes to the Questions above you will need to select "New" and create a new wetland or water body feature to get an RA_id. Remember – feature locations can be edited as you walk around the site and get a more precise location.
 - ii) If yes, what is the estimated volume of sediment entering the water body or within bank full zone of streams?
☐ L x W x D = Vol: _____ ft³
☐ Trace (un-measurable, <1ft³)
☐ Sediment has been flushed away (rarely the case for wetlands)
Measure volume by measuring length x width x depth of sediment. If un-measurable indicate "trace". If sediment has been washed or flushed away indicate "sediment has been flushed away"
 - d) If yes, can erosion/sedimentation be expected to continue to occur during the next storm event?
☐ Yes, sedimentation will likely continue
☐ No, sedimentation will not likely continue
☐ Unknown
- Was the steep slope protected by retaining leave trees on the steep slope? _____ ☐ Yes ☐ No
You will see a similar question in other features. The goal here is to document when the use of leave trees or leave tree clumps (green tree retention) is used to protect sensitive features. In the case of steep slopes, if a leave tree clump was retained on a steep slope, or if harvest was avoided on steep slopes by modifying harvest boundaries, answer YES to this question.

Water Body – FC_NWB, FC_OWB, FC_STR

Identify the location and water body type of all wetlands and water bodies on or adjacent to a site. Also identify the location and waterbody type of all off-site wetlands and waterbodies that have located within them or within their filter strips roads, skid trails, or landings associated with the site being monitored.

When recording in Collector, open the Feature type and select; open water wetlands, non-open water wetlands (lakes are included in open water wetland), or streams. Collector will assign a Feature ID number.

“On site” is defined as being within the harvest site boundaries, either partially or entirely.

“Adjacent to site” is defined as being within the recommended filter strip width or 2 times the recommended RMZ width (if OWW, lake or stream), even if the water body is not part of the landowner’s property.

“Off site” is defined as greater than the recommended filter strip width or 2 times the recommended RMZ width (if OWW, lake or stream), away from the harvest site. **If the sale documents indicate that an RMZ is being managed; you must document the waterbody and later collect the RMZ data even though it is further from the boundary of the sale.**

- *If wetlands are partially on-site and part off-site treat them as on-site wetlands.*
- *If mapping wetlands that are very close together, treat them as one wetland unless there is something unique about them.*
- RA_id _____
- Where is the wetland or water body?
 - ☐ On site ☐ Adjacent to site ☐ Off site
- Wetland or water body type:
 - ☐ Non-open water wetland or water body ☐ Stream ☐ Lake ☐ Open water wetland
 - a) If non-open water wetland or water body, choose one of the following:
 - ☐ Non-open water wetland ☐ Seasonal pond
 - ☐ Seep or Spring ☐ Beaver pond
 - ☐ Man-made pond ☐ Sinkholes
 - ☐ Other: _____
 - Do not identify a beaver pond separately if it is within a larger non-open water wetland that is also identified. However, if a stream runs through the pond, you must identify the stream and its approximate stream course.*
 - b) If non-open water wetland or water body, what is its size in acres? _____ acres
 - c) If stream, choose one of the following:
 - ☐ Intermittent ☐ Perennial ☐ Dry wash
 - d) If stream, choose one of the following:
 - ☐ Non-trout water ☐ Designated trout water or tributary
 - e) If stream, what is its width in feet? _____ ft.
 - f) If lake, choose one of the following:
 - ☐ Non-trout water ☐ Designated trout water
 - g) If lake, what is its size in acres? _____ acres
 - h) If open water wetland, what is its size in acres? _____ acres

For size of wetlands –

Enter size of wetland from Collector feature.

- Is there slash or logging debris present in the wetland or water body **that originated from outside the wetland or water body?** _____ ☐ Yes ☐ No ☐ Not evident
 - a) If yes, how much in square feet? _____ sq. ft.
 - b) If yes, what is the material (check all that apply)? ☐ slash ☐ soil ☐ full tree ☐ chips or debarking debris ☐ other landing debris ☐ not evident

We are looking for concentrations of slash or tops greater than 400 feet here (20x20, 10x40), not just one or two tops. Record square feet of woody material estimated to nearest 100ft²

- Was the water body protected by retaining leave trees? _____ ☐ Yes ☐ No ☐ NA

In the case of wetlands and water bodies, if a leave tree clump was retained adjacent to or surrounding a wetland or waterbody, or if harvest was avoided adjacent to water bodies, answer YES to this question. Include the use of RMZs in this question – if an RMZ was used (all or in part) answer YES to this question, if no specific attempt was made to protect the waterbody utilizing leave

trees answer NO.

- Did repeated rutting greater than 6" deep occur in the wetland or water body (excluding roads, skid trails, or landings)? _____ ☐ Yes ☐ No
 - a) If yes, what was the percentage of rutting? _____ %
 - b) If yes, how is the rutting distributed? _____ ☐ Dispersed ☐ Concentrated
 - c) If yes, is there rutting deeper than 6 inches that bisects the wetland or water body, or is continuous for a distance of 300 feet, or more than 50% of the width of the wetland or water body in the vicinity of the rutting, whichever is less? _____ ☐ Yes ☐ No
 - d) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown
 - i) If no, what was the cause? (list) _____

Repeated rutting is when there is more than one set of ruts occurring in the wetland or waterbody. If the rutting is on a skid trail resulting from several passes with equipment, rate this under skid trials or crossings depending on the situation.

For the question above, measure the percentage of rutting by measuring the actual surface area or footprint of the rutting. Measure from one side of a tire rut and berm to the other side of the rut and berm and multiply by length. Total this for all ruts and divide by the total surface area of the water body

- Was the normal water flow in the wetland or water body disrupted? _____ ☐ Yes ☐ No ☐ N/A ☐ Unknown
Examples of disruption include higher water levels and dead trees up-gradient of some obstruction to water flow, or changes in ground vegetation (e.g., sedges).
- Was the wetland drained? _____ ☐ Yes ☐ No ☐ N/A ☐ Unknown
- How many filter strips are affiliated with this wetland? _____ #
- Number of these filter strips that meet guideline recommendations: _____ #

- Number of these filter strips that do not meet guideline recommendations: _____ #

For all filter strips that do not meet guideline recommendations, create a filter strip feature in Collector and fill out Survey.

Filter strip guidelines are located in the guideline manual on following pages:

- *General Guideline's pages 14, 22, 24-28, 70-71, 73.*
- *Roads pages 13, 21, 23, 31-32, 44 and*
- *Timber harvesting pages 22 & 26.*

- Number of Approaches NOT associated with a crossing: _____ #
 - a) Number of these approaches that meet guideline recommendations: _____ #
 - b) Number of these approaches that should have had water diversion /erosion control practices implemented: _____ #
 (Including from rutting)

For number 45 above, the goal is to capture only those approaches that are not affiliated with a crossing. Other approaches affiliated with a crossing will be covered in the "Crossings" feature.

** For all approaches that **should have** water diversion /erosion control practices implemented (soil or slash waterbars, seeding, mulching etc..., complete a full approach feature starting on question #69 whether the practice was implemented or not. Therefore some Approach features will have approaches that meet guidelines.*

Complete an Approach feature for approaches that have water diversion or erosion control practices implemented OR that should have had water diversion /erosion control practices implemented OR that do not meet guideline recommendations. So, if an approach triggers the need for water diversion or erosion control it should be recorded whether they are implemented or not.

Criteria for approaches that do not meet guidelines include but are not limited to:

- *Conditions that could result in sediment to wetland or water body*
- *Bare soils susceptible to erosion*
- *Rutting on approach*
- *Erosion on approach*
- *Lack of water diversion / erosion control were needed*

Filter Strip – FC_FIS

Full filter strip features will only be created for those filter strips that apparently do not meet guideline recommendations (question 44 above). Filter strip feature will be located on Collector for these filter strips and all questions within the filter strip section will be completed as appropriate.

When there is a water body within a water body, such as a stream within a NOWW, each water body will have separate filter strips. In such instances, the filter strip of the interior water body will be in-part or entirely within the outer water body, and can overlap with the filter strip of the outer water body.

- RA_id _____
Identify the feature location on the photo. Collector will assign a feature number. Ensure that the number assigned by Collector correlates with the Survey.
- Associated Water Body RA_id _____
If water body has not yet been identified, you will need to identify the water body on Collector and get a Feature ID to complete this question.
- What condition(s) caused this filter strip to not meet guideline recommendations (trigger completing feature data)? (check all that apply)
 - ☐ Greater than 5% exposed mineral soil distributed through filter strip
 - ☐ Exposed mineral soil concentrated in filter strip
 - ☐ Erosion occurring within filter strip
 - ☐ Sediment being deposited into wetland or water body
 - ☐ Road constructed within filter strip (other than crossing)
 - ☐ Skid trail developed within filter strip (other than crossing)
 - ☐ Landing located within filter strip
 - ☐ Repeated Rutting occurring within filter strip
 - ☐ Pre-existing infrastructure issues (e.x., roads)
 - ☐ Other (list): _____

Filter strip guidelines are located in the guideline manual on pages:

General Guideline's pages 14, 22, 24-28, 70-71, 73.

Roads pages 13, 21, 23, 31-32, 44 and

Timber harvesting pages 22 & 26.

- What is the average slope of the filter strip? _____ %
Measure the average slope within the filter strip; this may need to be averaged over several measures along the extent of a filter strip
- What is the recommended filter strip width? _____ feet
Determine from table XX in the Appendix or page 25 in the General Guidelines chapter.
- Do any roads or skid trails enter the filter strip that do not enter the wetland or water body? _____ ☐ Yes ☐ No ☐ Not evident
For example a road or trail may enter the filter strip and run parallel to the waterbody but not cross it. If it crosses, then it is taken care of in the crossings or approaches sections.
- Were there any landings located in the filter strip? _____ ☐ Yes ☐ No
Answer yes to this question if all or any part of the landing falls within the filter strip

- **Repeated Rutting:**

- a) Other than on approaches, did repeated rutting greater than 6" deep occur on roads, skid trails, or landings in the filter strip? ☐ Yes ☐ No
- i) If yes, did it occur on:
- (1) Roads? ☐ Yes ☐ No
- (a) Road # _____
- (2) Skid Trails? ☐ Yes ☐ No
- (3) Landings? ☐ Yes ☐ No
- (a) Landing # _____

You may not have identified the Road or Landing impacted at this point in the on-site review. If so and you answer yes to any of Questions 53 you will need to select "New" and identify the location of the Road or Landing impacted to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.

- ii) If yes, what was the percentage of filter strip that was rutted due to rutting on roads, skid trails, or landings within the filter strip? _____% *This is percent rutting of the general filter strip due to rutting on road/landing or skid trail. Not the % rutting of the road/landing or skid trail itself. E.g. if a road was entirely rutted but only occupied 10% of the filter strip, then indicate 10%.*
- iii) If yes, how is the rutting distributed on roads, skid trails, or landings in the filter strip? ☐ Dispersed ☐ Concentrated
- iv) If yes, was rutting on roads, skid trails, or landings in the filter strip caused primarily from timber harvesting activity? ☐ Yes ☐ No ☐ Unknown
- (1) If no, what was the cause? (list) _____

Repeated rutting is when there is more than one set of ruts occurring within the filter strip. If the rutting is on a skid trail resulting from several passes with equipment rate this under skid trials in filter strips.

For Q51 above, measure the percentage of rutting by measuring the actual surface area or footprint of the rutting. Measure from one side of a tire rut and berm to the other side of the rut and berm and multiply by length. Total this for all ruts and divide by the total surface area of the Filter Strip

- b) Other than on approaches did repeated rutting greater than 6" deep occur in the general filter strip? ☐ Yes ☐ No
- i) If yes, what was the percentage of rutting in the general filter strip? _____%
- ii) If yes, how is the rutting distributed in the general filter strip? ☐ Dispersed ☐ Concentrated
- iii) If yes, was rutting in the general filter strip caused primarily from timber harvesting activity? ☐ Yes ☐ No ☐ Unknown
- (1) If no, what was the cause? (list) _____

- **Mineral Soil Exposure:**

- a) Other than on approaches and crossings, is mineral soil exposed on roads, skid trails, or landings in the filter strip? ☐ Yes ☐ No
- i) If yes, did it occur on:
- (1) Roads? ☐ Yes ☐ No
- (a) Road # _____
- (2) Skid Trails? ☐ Yes ☐ No
- (3) Landings? ☐ Yes ☐ No
- (a) Landing # _____
- ii) If yes, what percentage of the surface area is exposed due to roads, skid trails, or landings in the filter strip? _____%
- iii) If yes, how is this disturbance from roads, skid trails, or landings distributed? ☐ Dispersed ☐ Concentrated
- b) Other than on approaches is mineral soil exposed in the entire filter strip? ☐ Yes ☐ No
- i) If yes, what percentage of the surface area is exposed in the entire filter strip? _____%
- ii) If yes, how is this disturbance distributed in the entire filter strip? ☐ Dispersed ☐ Concentrated

- Other than on approaches, were water diversion and erosion control structures installed to divert water off the disturbed area of the filter strip before the water enters the wetland or water body? ☐ Yes ☐ No ☐ Not Needed
- Use Yes, in situations where water diversion or erosion control structures were installed.*
- Use No in situations where water diversion or erosion control structures were not installed but should have been.*
- Use Not Needed in situations where slopes are less than 2% and/or where the surface is clearly stable, well vegetated, and not susceptible to erosion.*

- a) If yes, indicate the types of water diversion structures and erosion control practices used (check all that apply):

- ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
- ☐ Scattered slash
- ☐ Road profile
- ☐ Cross drain culverts
- ☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.)

- Were these practices installed properly? _____ ☐ Yes ☐ No ☐ N/A

Refer to site-level guidelines book for specifics on proper installation

- Other than on approaches, has erosion occurred within this filter strip? _____ ☐ Yes ☐ No ☐ Not evident

If the area is vegetated with little exposed soil and there is no evidence of erosion, then check "No".

If the area has exposed soil with little vegetation and looks like there is potential for erosion but none is evident, then check "not evident". If the area has evidence of erosion (sheet, rill, gully...) then check "yes"

- a) If yes, is sediment reaching a wetland or water body (or bank full zone in streams)? _____ ☐ Yes ☐ No ☐ Not evident

- i) If yes, which wetland or water body is affected?

Water Body # _____ Water Body # _____ Water Body # _____

If you check yes to Question above, you must identify which wetlands or water bodies were impacted. Ensure that the number correlates to the feature number in Collector. You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so, you will need to select "New" and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.

- ii) If yes, what is the estimated volume of sediment entering the water body or within bank full zone of streams?

- ☐ $L \times W \times D = \text{Vol: } ______ \text{ ft}^3$
- ☐ Trace (un-measurable, $<1 \text{ ft}^3$)
- ☐ Sediment has been flushed away (rarely the case for wetlands)

Measure volume, by estimating length x width x depth.

- b) If yes, can erosion/sedimentation be expected to continue to occur during the next storm event?

- ☐ Yes, sedimentation will likely continue
- ☐ No, sedimentation will not likely continue
- ☐ Unknown

RMZs – (Excluding Landings, Skid Trails and Roads) – FC_RMZ

(Complete an RMZ Field Data Sheet (including 3 cross sections) for each RMZ in Survey123- summarize the data here)

Map RMZs for all water bodies (that require an RMZ) that are within 2 times the recommended RMZ width of the harvest area. If sale documents indicate that an RMZ is being managed for a water body that is further than 2 times the recommended width, you must complete the RMZ measures for that waterbody.

Identify & map the feature location in Collector which will assign a feature number.

Identify which water body or filter strip ID is associated with this RMZ. If you have not yet identified the water body or the filter strip associated with this RMZ the program will ask you to identify the location so that it can assign a feature ID for those features.

Beaver ponds do not require a RMZ. However, if the beaver pond is on a stream, the RMZ should be determined by the estimated location of the stream channel within the beaver pond

In COLLECTOR, Map the actual RMZ as managed on the ground even if it is wider or narrower than the recommended RMZ. The RMZ crosssection data should reflect at a minimum, the composition of the recommended RMZ width OR the actual managed width if the managed width is wider than the recommended width.

- RMZ # _____
- Filter Strip # _____
- Water Body # _____
- What is the recommended RMZ width (use the most current version of the guidelines)? _____ feet
 - a) Which version of the guidelines does it appear that the land manager is utilizing? ☐ 2005 ☐ 2012 ☐ None

Obtain recommended RMZ width from tables Y, YY, XY in the Appendix or pages 29-67 of the General Guidelines. Some situations may call for no RMZ such as certain swamp conifer – see table GG3 on pages 48&49. OR if land manager is using the new guidelines see page 47 in pocket guide. Refer to trout streams& lakes layer for identification of trout waters and tributaries.

**Note that intermittent streams connected to designated trout waters, are considered tributaries to trout streams.*

61a: indicate which version of the RMZ guidelines (2005 or 2012 or none) the land manager used to establish the width of the RMZ. In many cases this information is in the pre-site documentation. In some cases (NIPF) you may have to use your best judgement to answer this question.

- Does the top of the adjacent slope occur within the recommended RMZ? _____ ☐ Yes ☐ No
 - a) If yes, is the forest maintained to the top of the adjacent slope (BA > 25 sq.ft./ac.)? _____ ☐ Yes ☐ No
- What is the management strategy for the RMZ?
 - ☐ Even aged ☐ Uneven aged ☐ No harvest ☐ Unknown

Indicate above the management strategy specific to the RMZ, which may be different from the remainder of the site.

- Indicate the typical composition of the actual managed RMZ OR the recommended RMZ, whichever is wider
 - (a) _____ **feet non-forested** (sedge, brush or scattered trees with no harvesting, but BA less than 25 sq.ft./ac.)
 - (b) _____ **feet forested** (no harvesting with a BA greater than 25 sq.ft./ac.) BA _____ (sq.ft./ac.)
 - (c) _____ **feet partial cut** (retained at least the minimum sq.ft./ac. of BA recommended for the size and type of water body) BA _____ (sq.ft./ac.)
 - (d) _____ **feet clearcut** (BA below 25 sq.ft./ac.) BA _____ (sq.ft./ac.)

The BA for RMZs is to include all trees 1" DBH and larger.

- What is the distribution pattern of the residual trees in the RMZ?
 - ☐ Relatively evenly distributed ☐ Gaps or clumps ☐ No trees ☐ N/A
 - ☐ Other (list): _____

- If the RMZ contains a harvested area, how many down logs per acre (CWD) greater than 6" diameter (at the small end) are there in the RMZ? _____ leave logs per acre

Enter CWD plot data in Survey123 for each RMZ transect.

See next page for visual indicators...

Count only leave logs greater than 6" diameter at the small end and at least 6 feet long, that fall into category 1&2 of the following decay classes. This estimation applies to the portion of the RMZ that is harvested.

Decay Class	Visual indicators (Harmon et al. 1986)	
	<u>Hollow</u>	<u>Solid</u>
1	<i>bark intact part or all of heartwood gone bole possibly broken on impact</i>	<i>bark intact solid through to center unbroken bole</i>
2	<i>bark part or totally gone inner/outer sapwood colonized* some fragmentation remaining heartwood colonized</i>	<i>bark part or totally gone outer sapwood only colonized bole still solid</i>
3	<i>color change in wood complete sapwood completely colonized log x-section becoming elliptical extensive fragmentation little remaining heartwood</i>	<i>color change in sapwood sapwood mostly colonized heartwood being colonized bole still intact form</i>
4	<i>pile of well colonized fragments possibly merges with class 5</i>	<i>bole starting to collapse decay well into heartwood</i>
5	<i>pile of well decayed fragments</i>	<i>completely collapsed well integrated into humus</i>

RMZ Residual Trees

This is a new format for this question. Enter all data in Survey123. Add a record to the repeated question for each of the top 5 species present. If there are less than 5 residual species only add the actual number of residual species.

- Choose the most common (by frequency) species left in the RMZ:

<input type="checkbox"/> Ash, Black	<input type="checkbox"/> Aspen	<input type="checkbox"/> Balsam Fir	<input type="checkbox"/> Balm of Gilead
<input type="checkbox"/> Basswood	<input type="checkbox"/> Birch	<input type="checkbox"/> Cedar	<input type="checkbox"/> Elm
<input type="checkbox"/> Maple, Red	<input type="checkbox"/> Maple, Sugar	<input type="checkbox"/> Oak, Northern Red	<input type="checkbox"/> Oak, Burr
<input type="checkbox"/> Pine, Jack	<input type="checkbox"/> Pine, White	<input type="checkbox"/> Pine, Norway	
<input type="checkbox"/> Spruce, White	<input type="checkbox"/> Spruce, Black	<input type="checkbox"/> Tamarack	
<input type="checkbox"/> Other: _____			

- Choose the second (2nd) most common (by frequency) species left in the RMZ
- Choose the third (3rd) most common (by frequency) species left in the RMZ:
- Choose the forth (4th) most common (by frequency) species left in the RMZ:
- Choose the fifth (5th) most common (by frequency) species left in the RMZ:

- Did blowdown occur within the RMZ? _____ ☐ Yes ☐ No

Blowdown should be estimated to have occurred since the harvest.

- If yes, indicate the percentage of blowdown: _____ %

- If yes, choose the most common (by frequency) major species that suffered blowdown:

This is a new format for this question. Enter all data in Survey123. Add a record to the repeated question for each of the top 3 species affected. If there are less than 3 species affected only add the actual number of species affected.

<input type="checkbox"/> Ash, Black	<input type="checkbox"/> Aspen	<input type="checkbox"/> Balsam Fir	<input type="checkbox"/> Balm of Gilead
<input type="checkbox"/> Basswood	<input type="checkbox"/> Birch	<input type="checkbox"/> Cedar	<input type="checkbox"/> Elm
<input type="checkbox"/> Maple, Red	<input type="checkbox"/> Maple, Sugar	<input type="checkbox"/> Oak, Northern Red	<input type="checkbox"/> Oak, Burr
<input type="checkbox"/> Pine, Jack	<input type="checkbox"/> Pine, White	<input type="checkbox"/> Pine, Norway	
<input type="checkbox"/> Spruce, White	<input type="checkbox"/> Spruce, Black	<input type="checkbox"/> Tamarack	
<input type="checkbox"/> Other: _____			

- c) If yes, choose the second (2nd) most common (by frequency) major species that suffered blowdown:
- d) If yes, choose the third (3rd) most common (by frequency) major species that suffered blowdown:

RMZ Super Canopy Trees (Trees 25% taller than the surrounding mature tree canopy)

- Are there Super Canopy trees in the RMZ? _____ ☐ Yes ☐ No ☐ N/A
 - a) If yes, choose the most common (by frequency) super canopy tree species in the RMZ:
This is a new format for this question. Enter all data in Survey123. Add a record to the repeated question for each of the top 5 species present. If there are less than 5 residual species only add the actual number of residual species.

<input type="checkbox"/> Ash, Black	<input type="checkbox"/> Aspen	<input type="checkbox"/> Balsam Fir	<input type="checkbox"/> Balm of Gilead
<input type="checkbox"/> Basswood	<input type="checkbox"/> Birch	<input type="checkbox"/> Cedar	<input type="checkbox"/> Elm
<input type="checkbox"/> Maple, Red	<input type="checkbox"/> Maple, Sugar	<input type="checkbox"/> Oak, Northern Red	<input type="checkbox"/> Oak, Burr
<input type="checkbox"/> Pine, Jack	<input type="checkbox"/> Pine, White	<input type="checkbox"/> Pine, Norway	
<input type="checkbox"/> Spruce, White	<input type="checkbox"/> Spruce, Black	<input type="checkbox"/> Tamarack	
<input type="checkbox"/> Other: _____			
 - b) How many trees? _____
 - c) If yes, choose the second (2nd) most common (by frequency) super canopy tree species in the RMZ:
 - d) How many trees? _____
 - e) If yes, choose the third (3rd) most common (by frequency) super canopy tree species in the RMZ:
 - f) How many trees? _____
 - g) If yes, choose the fourth (4th) most common (by frequency) super canopy tree species in the RMZ:
 - h) How many trees? _____
 - i) If yes, choose the fifth (5th) most common (by frequency) super canopy tree species in the RMZ:
 - j) How many trees? _____

Approaches -Skid Trail and Forest Road Crossing Approaches – FC_APP

Crossing Approaches: To be completed for approaches that have water diversion or erosion control practices implemented OR that should have had water diversion /erosion control practices implemented OR that do not meet guideline recommendations. So, if an approach triggers the need for water diversion or erosion control it should be recorded whether they are implemented or not.

Fill out information for every approach of a skid trail, road or landing entering or crossing a wetland or water body, that does not meet the guideline recommendations for approaches OR has BMPs implemented.

Criteria for approaches that do not meet guidelines include but are not limited to:

- Conditions that could result in sediment to wetland or water body
- Bare soils susceptible to erosion OR Erosion on approach
- Rutting on approach
- Lack of water diversion / erosion control were needed
- Slope steepness and slope length such that water diversion or erosion control is necessary (see water bar table).

Measure each approach from the edge of the wetland or water body to the end of the filter strip or RMZ, or to the point beyond that where the road or trail no longer slopes toward the wetland or waterbody, whichever is furthest.

- Associated Water Body # _____

- Associated Crossing # _____

If approach is not associated with a crossing enter "0"

- Approach # _____

Identify the feature location on Collector/photo. COLLECTOR will assign a feature number.

- a) Approach is via:

☐ Forest road

☐ Skid trail

☐ Landing

- i) Road # _____ Landing# _____

You may not have identified the Road or Landing impacted at this point in the on-site review. If so, you will need to select "New" and identify the location of the Road or Landing to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.

- b) Where is the approach located?

☐ On site

☐ Off site

"On site" is defined as being within the harvest site boundaries, either partially or entirely.

- c) Percent grade _____ % *(indicate the average slope of the approach)*

- d) Length of approach _____ feet

The length of the approach must be at least the width of the filter strip or RMZ whichever is greater. The approach length is measured beyond this minimum to the point beyond which water will not flow down road or trail toward the water body.

- Is there rutting greater than 6" deep on the approach? _____ ☐ Yes ☐ No

- a) If yes, what was the percentage of rutting? _____ %

Measure the linear feet of the Approach that has rutting (either one side or both sides) and divided by the total length of the Approach.

- b) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown

- i) If no, what was the cause? (list) _____

- c) If yes, did the rutting result in the widening of the approach? _____ ☐ Yes ☐ No

Item C refers to the situation where traffic has made the road wider by vehicles driving out around the rutting or trying to avoid rutting with one or more wheels thereby increasing the footprint of the road.

- Is the approach vegetated? _____ ☐ Yes ☐ No

- a) If yes, what percent is vegetated? _____ %

- Were water diversion and erosion control structures installed to divert water off this approach before the road, skid trail, or landing enters the wetland or water body? _____ Yes ☐ No ☐ Not Needed

*Use **Yes**, in situations where water diversion or erosion control structures were installed.*

*Use **No** in situations where water diversion or erosion control structures were not installed but should have been.*

*Use **Not Needed** in situations where slopes are less than 2% and/or where the surface is clearly stable, well vegetated, and not susceptible to erosion.*

- a) If yes, indicate the types of water diversion structures and erosion control practices used (check all that apply)

- ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
☐ Scattered slash
☐ Road profile
☐ Cross drain culverts
☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.) _____

- Were these practices installed properly? _____ ☐ Yes ☐ No

See Site-Level Guidelines Book for specifics on proper installation

- Has erosion occurred on this approach? _____ ☐ Yes ☐ No ☐ Not evident

If the area is vegetated with little exposed soil and there is no evidence of erosion, then check “No”.

If the area has exposed soil with little vegetation and looks like there is potential for erosion but none is evident, then check “not evident”.

If the area has evidence of erosion (sheet, rill, gully...) then check “yes”

- a) If yes, check the most appropriate box describing the type of erosion feature:

- ☐ Sheet ☐ Rill ☐ Gully ☐ Sloughing ☐ Other: _____

See definitions and criteria in Appendix B

- b) If yes, what is the estimated volume of eroded soils? _____ ☐ L x W x D = Vol: _____ ft³
☐ Trace (un-measurable, <1ft³)

Measure volume, by estimating length x width x depth.

- c) If yes, is sediment reaching a wetland or water body (or bank full zone in streams)? _____ ☐ Yes ☐ No ☐ Not evident

See sedimentation criteria in Appendix B

- i) If yes, which wetland or water body is affected?

Water Body # _____ Water Body # _____ Water Body # _____

If you check yes to Question b above, you must identify which wetlands or water bodies were impacted. Ensure that the number correlates to the feature number in Collector. You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so, you will need to select “New” and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.

- ii) If yes, what is the estimated volume of sediment entering the water body or within bank full zone of streams?

- ☐ L x W x D = Vol: _____ ft³
☐ Trace (un-measurable, <1ft³)
☐ Sediment has been flushed away (rarely the case for wetlands)

Measure volume by measuring length x width x depth of sediment. If un-measurable indicate “trace”. If sediment has been washed or flushed away indicate “sediment has been flushed away”

- d) If yes, can erosion/sedimentation be expected to continue to occur during the next storm event?

- ☐ Yes, sedimentation will likely continue
☐ No, sedimentation will not likely continue
☐ Unknown

Crossings – FC_CRS

- Crossing # _____
Record all crossings. Identify the feature location on the photo. Collector will assign a feature number.
- Associated Water Body # _____
You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so, you will need to select “New” and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.
- Type of water body associated with crossing:

<input type="checkbox"/> Stream	<input type="checkbox"/> Dry wash	<input type="checkbox"/> Lake	<input type="checkbox"/> Open water wetland
<input type="checkbox"/> Mineral soil wetland	<input type="checkbox"/> Shallow peat wetland	<input type="checkbox"/> Deep peat wetland	<input type="checkbox"/> Seasonal pond
<input type="checkbox"/> Seep or Spring	<input type="checkbox"/> Sinkhole	<input type="checkbox"/> Beaver pond	<input type="checkbox"/> Man-made pond
- Crossing is part of:

<input type="checkbox"/> Forest road	<input type="checkbox"/> Skid trail	<input type="checkbox"/> Landing
--------------------------------------	-------------------------------------	----------------------------------

 i) Road # _____ Landing # _____
You may not have identified the Road or Landing associated with the crossing at this point in the on-site review. If so, you will need to select “New” and identify the location of the Road or Landing to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.
- Where is the crossing located? _____ ☐ On site ☐ Off site
“On site” is defined as being within the harvest site boundaries, either partially or entirely.
- What is the length of the crossing? _____ feet
- Could this crossing have been avoided and still accomplish the site objective without unreasonable costs or reduced safety?

<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Unknown or unsure
------------------------------	-----------------------------	--

 a) If yes, which situation best describes the reason why this crossing could have been avoided?

<input type="checkbox"/> Two crossings close together when one would be adequate	<input type="checkbox"/> Could have easily driven around this wetland (e.x., for small wetlands or seasonal ponds OR tried to drive around but still crossed the tip of the wetland	<input type="checkbox"/> Did not need to cross (e.x., because no harvesting was occurring on the other side)	<input type="checkbox"/> Other (list): _____
--	---	---	--

Provide your best professional judgment on whether or not this crossing could have been avoided. Examples of crossings that could have been avoided include but are not limited to:

- Sites where multiple crossings of one wetland or waterbody exist
- could have easily gone around the wetland or waterbody
- No need to cross, such as no wood harvested on the other side of wetland or waterbody.

You should not indicate that a crossing could have been avoided because another crossing existed and then answer the same for the other crossing.....essentially indicating that both could have been avoided, unless that is actually the case.

- Number of Approaches associated with this crossing _____ #

a) Number of these approaches that meet guideline recommendations _____ #
b) Number of these approaches that do not meet guideline recommendations (i.e. should have had water diversion /erosion control practices implemented, erosion occurring or rutted...) ? _____ #

*** For all approaches that have water diversion or erosion control practices implemented OR that should have had water diversion /erosion control practices implemented OR that do not meet guideline recommendations, complete a full approach feature.**

Criteria for approaches that do not meet guidelines include but are not limited to:

- Conditions that could result in sediment to wetland or water body
- Bare soils susceptible to erosion
- Rutting on approach
- Erosion on approach
- Lack of water diversion / erosion control were needed

Crossings -- Crossing #_____ (continued)**Stream, Dry Wash, Lake or Open Water Wetland Crossings**

- If crossing type is stream or dry wash,
what is the bank-full width of the stream (**in a straight section of the stream**)? _____ feet
Measure stream width at the top of the bank at the narrowest point of a straight section of the stream
- If crossing type is stream or dry wash,
what is the angle of the crossing to stream direction? _____ degrees
- Did the approaches to water body banks have low-percent slopes
and short slope lengths? _____ ☐ Yes ☐ No
Less than 10% slopes equals low, Greater than 10% slopes equals not low. Short length should be relative to the site.
- Was there a location with shorter lengths and lower percent slopes? _____ ☐ Yes ☐ No
Implied here is that the location is a better location and that it is practical- Is there a better location?
- Was the water body cross sectional area changed? _____ ☐ Yes ☐ No
 - a) If yes, did construction disrupt a minimum amount
of the natural water body or basin? _____ ☐ Yes ☐ No ☐ Unknown
 - b) Does crossing impede fish migration? _____ ☐ Yes ☐ No ☐ Unknown ☐ N/A
- Type of crossing structure (check all that apply):
☐ Unknown ☐ Bridge ☐ Culvert ☐ Ice bridge ☐ Low water ford
☐ Other (list) _____
- **Bridge only:** Length of open span: _____ feet
- **Low-water ford only:** Was the ford constructed? _____ ☐ Yes ☐ No ☐ Unknown
- **Culverts (Crossings only):** Are the culverts still in place? _____ ☐ Yes ☐ No
 - a) Number of culverts: _____ # _____
 - b) What is the average culvert diameter? _____ inches
 - c) Depth of fill over culverts: _____ inches
 - d) Culvert shape: ☐ Round ☐ Oval ☐ Arch ☐ Other (list): _____
 - e) Percent of culvert diameter buried below the streambed (round culverts only): _____ %
 - f) Was the culvert installed with gradient of stream? _____ ☐ Yes ☐ No ☐ Unknown

All Stream, Dry Wash, Lake or Open Water Wetland Crossings:

- Types of materials or fill placed in the water body for this structure:
☐ None ☐ Slash, brush, or logs ☐ Native soil
☐ Riprap ☐ Concrete ☐ Compacted sand and gravel
☐ Gabions ☐ Other (list): _____
- Type of crossing: _____ ☐ Permanent ☐ Temporary
 - a) If temporary:
 - i) Has the crossing structure been removed? _____ ☐ Yes ☐ No ☐ N/A
 - ii) Was fill removed? _____ ☐ Yes ☐ No ☐ N/A ☐ Unknown
 - iii) Was structure anchored at one end? _____ ☐ Yes ☐ No ☐ N/A ☐ Unknown
 - b) Was the crossing stabilized? _____ ☐ Yes ☐ No ☐ Not Needed ☐ Unknown
 - c) Was the crossing reshaped to the approximate original contour? _____ ☐ Yes ☐ No ☐ Not Needed ☐ Unknown

A low water ford may be a removable structure if wood mats or similar removable materials are used. If constructed by placement of rock or other materials, it is fill. If the existing streambed was utilized alone, there is no fill or removable structure.

Crossings -- Crossing #_____ (continued)**Non-Open Water Wetland, Seasonal Pond, Seep or Spring, Sinkhole, Beaver Pond, or Man-Made Pond Crossing**

- Width of crossing _____ ft.
- Type of crossing structure (check all that apply):

<input type="checkbox"/> Unknown	<input type="checkbox"/> Frozen ground	<input type="checkbox"/> Ground not frozen	<input type="checkbox"/> Culvert
<input type="checkbox"/> Native soil fill	<input type="checkbox"/> Sand and gravel	<input type="checkbox"/> Corduroy or slash mat	
<input type="checkbox"/> Wood mats	<input type="checkbox"/> Other (list): _____		
- Type of crossing: _____ ☐ Permanent ☐ Temporary
 - a) If temporary,
 - i) Has the crossing structure been removed? _____ ☐ Yes ☐ No ☐ N/A
 - ii) Was fill removed? _____ ☐ Yes ☐ No ☐ N/A ☐ Unknown
- Is the water level higher on one side of the crossing than the other? _____ ☐ Yes ☐ No ☐ N/A ☐ Unknown
- Is there rutting greater than 6" deep in the crossing? _____ ☐ Yes ☐ No
 - a) If yes, what was the percentage of rutting? _____ %
 - b) Did the rutting result in a widening of the road, skid trails, or landing? _____ ☐ Yes ☐ No
 - c) Is there rutting deeper than 6 inches that bisects the wetland, or is continuous for a distance of 300 feet or more than 50% of the width of the wetland or water body, whichever is less? _____ ☐ Yes ☐ No
 - d) Was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown
 - i) If no, what was the cause? (list) _____

For question 101a) above, measure the linear feet of the crossing that has rutting (either one side or both sides) and divided by the total length of the crossing

For question 101c) above, the key concern is the disruption of water flow through the wetland, this occurs on longer crossings when ruts exceed 300 feet in length or on crossings less than 300 feet long when ruts bisect the entire width of the wetland.

- Was the crossing rehabilitated? _____ ☐ Yes ☐ No ☐ Not Needed ☐ Unknown
 - a) If yes, what techniques were used to rehabilitate roads (check all that apply):

<input type="checkbox"/> Grading	<input type="checkbox"/> Seeding	<input type="checkbox"/> Fertilization	<input type="checkbox"/> Mulch	<input type="checkbox"/> Silt fencing
<input type="checkbox"/> Other (list): _____				

Not Needed would be used for situations such as a frozen winter crossing where the vegetation is still intact.

- **Culverts (Crossings only):** Is the culvert(s) still in place? _____ ☐ Yes ☐ No ☐ N/A
 - a) If yes,
 - i) Number of culverts: _____ #
 - ii) Average distance between culverts: _____ feet
 - iii) What is the (average) culvert diameter? _____ inches
 - iv) What is the (average) depth of fill over culvert? _____ inches
 - v) Percent of culvert diameter buried below the surface of the wetland: _____ %
- **Ditches (Crossings only):** Are road or trail side ditches present? _____ ☐ Yes ☐ No ☐ N/A
 - a) On the approaches to the crossing? _____ ☐ Yes ☐ No
 - b) Alongside the crossing in the wetland? _____ ☐ Yes ☐ No
 - i) If yes, were they constructed immediately adjacent to the toe of the fill slope? _____ ☐ Yes ☐ No

Forest Roads – FC_ROD

Roads are traffic routes used by licensed highway vehicles, such as the log trucks that haul logs to a mill.

Portions of roads directly adjacent to or within harvest boundaries are considered “on-site”.

Calculate acres to 1 decimal place.

Instructions on which roads we are monitoring and which we are not:

- 1) *We will monitor a road if it is a new road constructed for the purpose of the forest management activity OR if it is a pre-existing road where recent use was primarily for the forest management activity being monitored and that management activity altered the road by changing the width, grade, location etc... If uncertain of the latter, record the road information.*
- 2) *If a road appears to be a pre-existing road:*
 - a. *If it is a public road such as a township road or a major forest system road, or if it is a public road that passes through the harvest area and goes beyond, it is pre-existing and should not be monitored.*
 - b. *If it is a pre-existing road that is not a public system road, measure only the section of pre-existing road that was used for the operation as an access road, skid trail, or landing. If the road follows the perimeter of the site monitor the part of the road that was used by the operation as a road, skid trail or landing. Note that this perimeter road is considered an on-site road.*
 - c. *If there is an existing road on or adjacent to the site and the logger constructed a new road into the site, count the portions of both roads if the logging operation used both.*
- 3) *If a portion of a road is both on-site as well as off-site, rate the two portions as separate roads.*
- 4) *If the access road intersects with and joins an existing road used primarily for other purposes, only monitor back to the intersection of the new road with the existing road, or ¼ mile whichever is less.*

• Road # _____

Identify the feature location on the photo. Collector will assign a feature number.

- a) Where is the road located?

☐ On site ☐ Off site

“On site” is defined as the portion of the road that is on-site or directly adjacent to site.

“Off site” is defined as the portion of road that is off the site.

Calculate areas for “on-site” roads only.

- b) Average width of road: _____ feet
- c) Length (new) _____ feet
- d) Length (old) _____ feet
- e) Acres occupied by road: _____ acres

- Road status: ☐ Unknown ☐ Active ☐ Temporarily closed ☐ Permanently closed

It is not always clear what the status of the road is. Look to the pre-site data to determine if the road status is indicated. Some examples of closed roads include situations where culverts have been removed, boulders or root wads are blocking entrance to road. A gate may indicate temporary closure or active, depending on how the road is being used. A winter road or bog road that crosses a large wetland that is not crossable in the non-frozen season should be considered “Temporarily closed” due to non-frozen season. Examine the pre-site form for indications of road status.

- Is the road being regularly maintained? _____ ☐ Yes ☐ No ☐ Unknown
 - a) If yes, are there berms along edge of the road? _____ ☐ Yes ☐ No
 - i) If yes, are there breaks in the berms to allow water to be diverted off of the road? _____ ☐ Yes ☐ No
- Is access to the site controlled? _____ ☐ Yes ☐ No ☐ Unknown
 - a) If yes, what types of barriers were used to control access?

☐ Gate ☐ Berm ☐ Rock ☐ Slash or Root wads

☐ Other (list): _____
- Was access posted with “road closed” signs at the beginning of the road? _____ ☐ Yes ☐ No ☐ N/A
- Is unauthorized traffic utilizing the road? _____ ☐ Yes ☐ No ☐ Unknown
- **Total number of segments on this road:** _____ # *(count all segments that meet segment criteria)*

- a) Number of segments in good condition - not vulnerable to erosion: _____ #
 - b) Number of segments either eroding or vulnerable to erosion (bare soils or needed WD/EC): _____ #
 - Number of segments with water diversion / erosion control practices implemented (properly): _____ #
 - Number of segments with potential to negatively impact water quality: _____ #
- For segments with potential to negatively impact water quality, complete a “segment” feature in COLLECTOR and answer segment questions.

- **Other than on approaches and crossings,**
is there rutting greater than 6" deep in the road? _____ ☐ Yes ☐ No
- a) If yes, did such rutting occur on UPLAND roads? _____ ☐ Yes ☐ No
 - i) If yes, what was the percentage of rutting on UPLAND roads? _____ (_____ %)
 - ii) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown
 - (1) If no, what was the cause? (list) _____
 - iii) How is the rutting distributed? _____ ☐ Dispersed ☐ Concentrated
- b) If yes, did such rutting occur on WETLAND roads? _____ ☐ Yes ☐ No
 - i) If yes, what was the percentage of rutting on WETLAND roads? _____ (_____ %)
 - ii) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown
 - (1) If no, what was the cause? (list) _____
 - iii) How is the rutting distributed? _____ ☐ Dispersed ☐ Concentrated
 - iv) For roads in but not crossing a wetland, is there rutting deeper than 6 inches that bisects the wetland, or is continuous for a distance of 300 feet, or more than 50% of the width of the wetland in the vicinity of the rutting, whichever is less? _____ ☐ Yes ☐ No

For questions above, measure the linear feet of the road that has rutting (either one side or both sides) and divided by the total length of the road.

- **Other than on approaches, and crossings,**
Has material been cleared or excavated for road construction or maintenance? _____ ☐ Yes ☐ No ☐ Unknown
- a) If yes, is clearing debris and excess material deposited in stable locations outside of filter strip(s) of lakes, streams, wetlands and seasonal ponds? _____ ☐ Yes ☐ No ☐ Unknown
 - i) If no, which wetland or water body is affected?
Water Body # _____ Water Body # _____ Water Body # _____
- b) If yes, is clearing debris and excess material deposited outside of (waterbody itself) lake(s), stream(s), wetland(s) or seasonal ponds? _____ ☐ Yes ☐ No ☐ Unknown
 - i) If no, which wetland or water body is affected?
Water Body # _____ Water Body # _____ Water Body # _____
- c) Is the disturbed area vegetated? _____ ☐ Yes ☐ No
 - i) If yes, what percent is vegetated? _____ %

You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so and you answer yes to Question above you will need to select “New” and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location

Cut and Fill – FC_CAF

Cut and Fill determined as minimum of 10 foot linear cut with 6 inches in height average to trigger. Create FC ECO if present.
For all upland portions of a road or skid trail, including approaches and segments:

- Cut and Fill#.
- Cut and fill associated with:
 - ☐ Forest road ☐ Skid trail ☐ Landing
 - a) Road # _____ Landing # _____
- Where is the cut and fill section located? _____ ☐ On site ☐ Off site
- - a) What is the total length for all cut and fills? _____ feet
 - b) What is the average height for all cut and fills? _____ feet
- Is the cut and fill pre-existing or new construction?
 - ☐ New ☐ Pre-existing
 - a) Which of the following best describes the average inslope and backslope ratios?
 - ☐ < 1:1 ☐ 1:1 ☐ 1.5:1 ☐ 2:1 ☐ >2:1
- Is the cut & fill area vegetated? _____ ☐ Yes ☐ No
 - a) If yes, what percent is vegetated? _____ %
- Were water diversion and erosion control structures installed to divert water off this cut & fill area before the road, skid trail, or landing enters the wetland or water body? _____ ☐ Yes ☐ No ☐ Not Needed
 - a) If yes, indicate the types of water diversion structures and erosion control practices used? (Check all that apply):
 - ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
 - ☐ Scattered slash
 - ☐ Road profile
 - ☐ Cross drain culverts
 - ☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.)
- Has erosion occurred on the inslope and/or backslope? _____ ☐ Yes ☐ No ☐ Not evident
 - a) If yes, is sediment reaching a wetland or water body? _____ ☐ Yes ☐ No ☐ Not evident
 - i) If yes, which wetland or water body is affected?
 - Water Body # _____ Water Body # _____ Water Body # _____

Segments – FC_SEG

For the purposes of guideline monitoring, a segment is a stretch of road or skid trail where the combination of slope and distance triggers the need for a water diversion device as indicated the appendix or on table ROAD-2 (Water Bar Spacing) page 30 of the roads guideline chapter (2005 version). Complete a segment feature only for those segments that have potential to impact water quality. In other words, those segments that could contribute runoff or sediment to a wetland or waterbody even if they do not enter the wetland or waterbody.

- Segment # _____

Identify the feature location on the photo. If recording in Collector, it will assign a feature number.

- Segment associated with:

☐ Forest road ☐ Skid trail ☐ Landing

a) Road # _____ Landing # _____

You may not have identified the Road or Landing impacted at this point in the on-site review. If so, you will need to select "New" and identify the location of the Road or Landing to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.

- Where is the segment located? _____ ☐ On site ☐ Off site

a) Is this segment in a location or position to impact water quality? ☐ Yes ☐ No

"On site" is defined as being within the harvest site boundaries, either partially or entirely.

"Off site" is defined as Off site – this should be consistent with road status especially if segment is on a road.

- Percent grade _____ %

- Length of segment _____ feet

- Is there rutting greater than 6" deep? _____ ☐ Yes ☐ No

a) If yes, what was the percentage of rutting? _____ %

b) Was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown

i) If no, what was the cause? (list) _____

b) Did the rutting result in a widening of the road or trail? _____ ☐ Yes ☐ No

For 129 a) above, measure the linear feet of the segment that has rutting (either one side or both sides) and divided by the total length of the segment.

- Is the segment vegetated? _____ ☐ Yes ☐ No

a) If yes, what percent is vegetated? _____ %

- Were water diversion and erosion control structures installed to divert water off this segment before the road, skid trail, or landing enters the wetland or water body? _____ ☐ Yes ☐ No ☐ Not Needed

*Use **Yes**, in situations where water diversion or erosion control structures were installed.*

*Use **No** in situations where water diversion or erosion control structures were not installed but should have been.*

*Use **Not Needed** in situations where slopes are less than 2% and/or where the surface is clearly stable, well vegetated, and not susceptible to erosion.*

- a) yes, indicate the types of water diversion structures and erosion control practices used? (Check all that apply):

- ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
 - ☐ Scattered slash
 - ☐ Road profile
 - ☐ Cross drain culverts
 - ☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.)
-

- Were these practices installed properly? _____ ☐ Yes ☐ No
Refer to the Site-Level Guidelines book for specifics on proper installation of practices
- Has erosion occurred on this segment? _____ ☐ Yes ☐ No ☐ Not evident
*If the area is vegetated with little exposed soil and there is no evidence of erosion, then check “No”.
If the area has exposed soil with little vegetation and looks like there is potential for erosion but none is evident, then check “not evident”.
If the area has evidence of erosion (sheet, rill, gully...) then check “Yes”*
 - a) If yes, check the most appropriate box describing the type of erosion feature:
☐ Sheet ☐ Rill ☐ Gully ☐ Sloughing ☐ Other: _____
See definitions and criteria in Appendix B
 - b) If yes, what is the estimated volume of eroded soils? _____ ☐ L x W x D = Vol: _____ ft³
☐ Trace (un-measurable, <1ft³)
Measure volume, by estimating length x width x depth.
 - c) If yes, is sediment reaching a wetland or water body (or bank full zone in streams)? _____ ☐ Yes ☐ No ☐ Not evident
See sedimentation criteria in Appendix B
 - i) If yes, which wetland or water body is affected?
Water Body # _____ Water Body # _____ Water Body # _____
If you check yes to Question b above, you must identify which wetlands or water bodies were impacted. Ensure that the number correlates to the feature number in Collector. You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so, you will need to select “New” and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.
 - ii) If yes, what is the estimated volume of sediment entering the water body or within bank full zone of streams?
☐ L x W x D = Vol: _____ ft³
☐ Trace (un-measurable, <1ft³)
☐ Sediment has been flushed away (rarely the case for wetlands)
Measure volume by measuring length x width x depth of sediment. If un-measurable indicate “trace”. If sediment has been washed or flushed away indicate “sediment has been flushed away”
 - d) If yes, can erosion/sedimentation be expected to continue to occur during the next storm event?
☐ Yes, sedimentation will likely continue
☐ No, sedimentation will not likely continue
☐ Unknown

Borrow Pits – FC_BOP

- Borrow pit# _____
- Where is the borrow pit?
 - ☐ On site ☐ Adjacent to site ☐ Off site
- Is the borrow pit located outside filter strips and RMZs? _____ ☐ Yes ☐ No
 - a) If no, which wetland or water body is affected?
 - Water Body # _____ Water Body # _____ Water Body # _____
- What is the current status of the borrow pit?
 - ☐ Unknown ☐ Active ☐ Temporarily closed
 - ☐ Permanently closed at the end of the project monitored
- Has material been cleared to open or expand this borrow pit? _____ ☐ Yes ☐ No
 - a) If yes, is the clearing debris and excess material deposited outside of filter strips? _____ ☐ Yes ☐ No ☐ Not evident
 - i) If no, which wetland(s) or water body(s) is affected?
 - Water Body # _____ Water Body # _____ Water Body # _____
- Which of the following best describes the average inslope and backslope ratios of the borrow pit or excavated area?
 - ☐ < 1:1 ☐ 1:1 ☐ 1.5:1 ☐ 2:1 ☐ >2:1
- Is the borrow pit area vegetated? _____ ☐ Yes ☐ No
 - a) If yes, what percent is vegetated? _____ %
- Were water diversion and erosion control structures installed to divert water from the borrow pit into a vegetated area before the water enters a wetland or water body? _____ ☐ Yes ☐ No ☐ Not Needed
 - a) If yes, indicate the types of water diversion structures and erosion control practices used (check all that apply):
 - ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
 - ☐ Scattered slash
 - ☐ Road profile
 - ☐ Cross drain culverts
 - ☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.)
- Has erosion occurred? _____ ☐ Yes ☐ No ☐ Not evident
 - a) If yes, has sedimentation occurred to a water body? _____ ☐ Yes ☐ No ☐ Not evident
 - i) If yes, which wetland or water body is affected?
 - Water Body # _____ Water Body # _____ Water Body # _____

Landings – FC_LND

- Landing # _____
Identify the feature location on the photo. If recording in Collector, it will assign a feature number. If utilizing paper form, ensure that the paper map matches Collector numbering.
- Is the landing: ☐ New ☐ Pre-existing ☐ No landing or location unknown
 ☐ Used landing on another harvest site ☐ Landing altered for other use post-harvest
- Where is the landing? ☐ On-site ☐ Off-site
“On site” is defined as being within the harvest site boundaries, either partially or entirely, or directly adjacent.
- Landing location (check all that apply for each landing):
 ☐ Upland ☐ Wetland ☐ Within filter strip ☐ Within RMZ
 ☐ Atop cultural resource ☐ Other, such as an open field (list): _____
- a) If located in a wetland, filter strip, or RMZ, which wetland or water body is affected?
 Water Body # _____ Water Body # _____ Water Body # _____
You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so, you will need to select “New” and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.
- b) If located in a wetland, filter strip, or RMZ, were upland areas reasonably available? _____
 ☐ Yes ☐ No
- c) If located in a wetland, filter strip, or RMZ, why was it located there? (use info from the land manager or logger, otherwise make a best guess. If no reason can be found, write “unknown”): _____
**This is a new question. Use pre-site or harvest documents to determine if there was a reason for the landing being located where it is. If no documentation is found, use your best professional judgement, or indicate “Unknown”. Some reasons could include: safety, least amount of wetland impacts, only available location, ease of operation, convenient flat spot... Note that reasons do not need to “justify” the location from a guidelines standpoint.
*** NOTE: most if not all of Q 146 does not show up in the current Collector for data entry. However, we still want to capture this data. When you encounter a landing that is located within a wetland, filter strip or RMZ, please use the paper form or some other method to document the responses for the questions within 146-146c.*
- Landing size: _____ acres
Physically measure landing size on the ground. Include in the landing area any high traffic or high impact areas, as well as bone piles, dense slash piles, root wades or chip piles that would result in reduced regeneration or productivity. Record to 1 decimal place.
- Is there evidence of fueling and maintenance activities or spills on any of the landings? _____ ☐ Yes ☐ No ☐ Not evident
You should almost never use not evident here.
- a) If yes, list evidence: _____
- Has material been cleared or excavated for this landing? _____ ☐ Yes ☐ No ☐ Unknown
- a) If yes, is clearing debris and excess material deposited in stable locations outside of filter strip(s) of lakes, streams, wetlands and seasonal ponds? _____ ☐ Yes ☐ No ☐ Unknown
- i) If no, which wetland or water body is affected?
 Water Body # _____ Water Body # _____ Water Body # _____
- b) If yes, is clearing debris and excess material deposited outside of lake(s), stream(s), wetland(s) or seasonal pond(s)? _____ ☐ Yes ☐ No ☐ Unknown
- i) If no, which wetland or water body is affected?
 Water Body # _____ Water Body # _____ Water Body # _____
- Is the landing vegetated? _____ ☐ Yes ☐ No
- a) If yes, what percent is vegetated? _____ %

- Is there rutting greater than 6" deep? _____ ☐ Yes ☐ No
 - a) If yes, what was the percentage of rutting? _____ %
 - b) Is there rutting deeper than 6 inches that bisects the wetland, or is continuous for a distance of 300 feet or more than 50% of the width of the wetland, whichever is less? _____ ☐ Yes ☐ No ☐ N/A
 - c) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown
 - i) If no, what was the cause? (list) _____

For question above, measure the percentage of rutting by measuring the actual surface area or footprint of the rutting. Measure from one side of a tire rut and berm to the other side of the rut and berm and multiply by length. Total this for all ruts and divide by the total surface area of the Landing.

- Is there a concentration of organic debris (slash, chips, saw dust, etc.) on this landing that will inhibit regeneration of woody or herbaceous plants? _____ ☐ Yes ☐ No
 - a) If yes, what percent of the landing has this concentration of debris _____ %
 - b) If yes, what is the origin of the debris (choose all that apply) ☐ Dense slash ☐ Debris from chipping ☐ Saw dust ☐ Other: _____
 - c) If yes, was the origin of the material from: _____ ☐ Upland ☐ Wetland ☐ Unknown ☐ Other: _____

**This is a new question. The goal here is to document situations where dense debris essentially represents a loss of productivity for this area considered landing. For landings in wetlands, the dense debris might represent a "fill" situation. Often times this accumulation of dense material is associated with a chipping operation but could result from any harvest operation.*

- Were water diversion and erosion control structures installed to divert water off this landing before the runoff enters a wetland or water body? _____ ☐ Yes ☐ No ☐ Not Needed

*Use **Yes**, in situations where water diversion or erosion control structures were installed.*

*Use **No** in situations where water diversion or erosion control structures were not installed but should have been.*

*Use **Not Needed** in situations where slopes are less than 2% and/or where the surface is clearly stable, well vegetated, and not susceptible to erosion.*

- a) If yes, indicate the types of water diversion structures and erosion control practices used (check all that apply):
 - ☐ Earth berm water bars, log or slash water bars, broad-based dips, open-top culverts
 - ☐ Scattered slash
 - ☐ Road profile
 - ☐ Cross drain culverts
 - ☐ Other (such as lead-off ditch, hay bales, mulch, silt fencing, erosion blankets, seeding, etc.) _____

- Were these practices installed properly? _____ ☐ Yes ☐ No

- Has erosion occurred on this landing (other than approaches)? _____ ☐ Yes ☐ No ☐ Not evident

If the area is vegetated with little exposed soil and there is no evidence of erosion, then check "No".

If the area has exposed soil with little vegetation and looks like there is potential for erosion but none is evident, then check "not evident".

If the area has evidence of erosion (sheet, rill, gully...) then check "yes"

- a) If yes, check the most appropriate box describing the type of erosion feature:
 - ☐ Sheet ☐ Rill ☐ Gully ☐ Sloughing ☐ Other: _____

See definitions and criteria in Appendix B

- b) If yes, what is the estimated volume of eroded soils? _____ ☐ L x W x D = Vol: _____ ft³
 - ☐ Trace (un-measurable, <1ft³)

Measure volume, by estimating length x width x depth.

- c) If yes, is sediment reaching a wetland or water body (or bank full zone in streams)? _____ ☐ Yes ☐ No ☐ Not evident

See sedimentation criteria in Appendix B

- i) If yes, which wetland or water body is affected?
 - Water Body # _____ Water Body # _____ Water Body # _____

If you check yes to Question b above, you must identify which wetlands or water bodies were impacted. Ensure that the number correlates to the feature number in Collector. You may not have identified the wetlands or water bodies impacted

at this point in the on-site review. If so, you will need to select “New” and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location.

ii) If yes, what is the estimated volume of sediment entering the water body or within bank full zone of streams?

- ☐ L x W x D = Vol: _____ ft³
- ☐ Trace (un-measurable, <1ft³)
- ☐ Sediment has been flushed away (rarely the case for wetlands)

Measure volume by measuring length x width x depth of sediment. If un-measurable indicate “trace”. If sediment has been washed or flushed away indicate “sediment has been flushed away”

d) If yes, can erosion/sedimentation be expected to continue to occur during the next storm event?

- ☐ Yes, sedimentation will likely continue
- ☐ No, sedimentation will not likely continue
- ☐ Unknown

• Is logging trash present on the landing? _____ ☐ Yes ☐ No

• Is there other trash present on the landing? _____ ☐ Yes ☐ No

a) If yes, what appears to be the source of the trash? (list) _____

Indicate source and type of trash present.

Site – FC_SIT

In Collector, the Site feature data form is pulled up by entering the “SIT” number indicated on Collector under the site ID.
***** Do not delete this feature – it will delete the entire site and the data associated with it.**

Harvest System

- How is the site being managed? ☐ Even-age ☐ Uneven-age ☐ Don't know
- Which of the following best describes the general site harvest method? (*Select only one*)

<input type="checkbox"/> Clearcut-sprouting	<input type="checkbox"/> Pre-commercial Thinning
<input type="checkbox"/> Clearcut-with reserves-sprouting	<input type="checkbox"/> Row thinning-commercial
<input type="checkbox"/> Clearcut-natural seeding	<input type="checkbox"/> Strip thinning-commercial
<input type="checkbox"/> Clearcut-with reserves-natural seeding	<input type="checkbox"/> Single tree selection
<input type="checkbox"/> Clearcut-artificial regeneration	<input type="checkbox"/> Group selection
<input type="checkbox"/> Clearcut-with reserves-artificial regeneration	<input type="checkbox"/> Salvage/Sanitation cut
<input type="checkbox"/> Clearcut-with reserves-sprouting-artificial regen	<input type="checkbox"/> TSI
<input type="checkbox"/> Seed tree	<input type="checkbox"/> Biomass harvest only
<input type="checkbox"/> Shelterwood	<input type="checkbox"/> Other: _____

Skid Trails (General)

Because we are not mapping the location of skid trails on the map, the skid trail data lies within the “sites” feature type. Select feature type sites, indicate feature ID number as the secondary site number seen on the map for example “22SIT”
 Skid trails are locations where logging equipment has made repeated (3 or more) passes.

- Is there rutting greater than 6" deep on the skid trails **other than on approaches and crossings**? ☐ Yes ☐ No
 - a) If yes, did such rutting occur on UPLAND skid trails? ☐ Yes (_____ %) ☐ No
 - i) If yes, was rutting caused primarily from timber harvesting activity? ☐ Yes ☐ No ☐ Unknown
 - (1) If no, what was the cause? (list) _____
 - ii) How is the rutting distributed? ☐ Dispersed ☐ Concentrated
 - b) If yes, did such rutting occur on WETLAND skid trails? ☐ Yes (_____ %) ☐ No
 - i) If yes, was rutting caused primarily from timber harvesting activity? ☐ Yes ☐ No ☐ Unknown
 - (1) If no, what was the cause? (list) _____
 - ii) How is the rutting distributed? ☐ Dispersed ☐ Concentrated
 - iii) For skid trails in but not crossing a wetland, is there rutting deeper than 6 inches that bisects the wetland, or is continuous for a distance of 300 feet, or more than 50% of the width of the wetland in the vicinity of the rutting, whichever is less? ☐ Yes ☐ No

For 159 a) above, measure the percentage of rutting by measuring the length of the skid trail segment that is rutted. Measure the linear feet of the trail that has rutting (either one side or both sides or trail) and divided by the total length of the trails on the site.

- **Other than on approaches and crossings,**
 - was material cleared or excavated for skid trail construction or maintenance? ☐ Yes ☐ No ☐ Unknown
 - a) If yes, is clearing debris and excess material deposited outside of filter strip(s)? ☐ Yes ☐ No ☐ Not evident
 - i) If No, which wetland or water body is affected?

Water Body # _____	Water Body # _____	Water Body # _____
--------------------	--------------------	--------------------

You may not have identified the wetlands or water bodies impacted at this point in the on-site review. If so, you will need to select “New” and identify the location of the wetland or water body to get a feature ID number. Remember – feature locations can be modified as you walk around the site and get a more precise location. Same for #160 b) i) below.

- b) If yes, is clearing debris and excess material deposited outside of wetlands or water bodies? ☐ Yes ☐ No ☐ Not evident
 - i) If No, which wetland or water body is affected?

Water Body # _____	Water Body # _____	Water Body # _____
--------------------	--------------------	--------------------
- c) If yes, is the disturbed area vegetated? ☐ Yes ☐ No
 - i) If Yes, what percent is vegetated? _____ %

- Total number of segments on skid trails _____ #
 - a) Number of segments in good condition, not vulnerable to erosion _____ #
 - b) Number of segments either eroding or vulnerable to erosion (bare soils or in need of WD/EC) _____ #
- Number of segments with water diversion / erosion control practices implemented _____ #
- Number of segments with potential to negatively impact water quality _____ #

For segments with potential to negatively impact water quality complete a “segment” feature in COLLECTOR and answer segment questions.

Skidding Patterns

- Do you know what types of skidding equipment were used on this site? _____ ☐ Yes ☐ No
 - a) If yes, identify the skidding equipment used on this site (check all that apply):
 - ☐ Grapple skidder ☐ Cable skidder ☐ Forwarder
 - ☐ Horse logging ☐ Other (list): _____

Determine this answer by referring to the landowner questionnaire, timber sale documentation or by physical evidence. Be careful that the skidding equipment and skidding method agree with the slash disposal method identified for question 168 below. If the slash is piled at the landing, the skidding method has to be full tree, and the skidding equipment cannot be forwarder.
- Do you know what skidding methods were used on this site? _____ ☐ Yes ☐ No
 - a) If yes, identify the skidding methods used on this site (check all that apply):
 - ☐ Full tree ☐ Tree length ☐ Forwarder ☐ Shortwood
 - ☐ Other (list): _____
- Identify which skidding pattern below best describes the skidding pattern evident on the site:
 - ☐ Skidding focused on skid trails
 - ☐ Skidding randomly distributed over most of the site
 - ☐ Skidding pattern is not evident

Rutting in the General Harvest Area

- Is there repeated rutting greater than 6" deep in the upland portion of the general harvest area? _____ ☐ Yes ☐ No ☐ N/A
 - a) If yes, what was the percentage of rutting? _____ %
 - b) If yes, was rutting caused primarily from timber harvesting activity? _____ ☐ Yes ☐ No ☐ Unknown ☐ N/A
 - i) If no, what was the cause? (list) _____
 - c) How is the rutting distributed? _____ ☐ Dispersed ☐ Concentrated ☐ N/A

For 167 a) above, measure the percentage of rutting by measuring the actual surface area or footprint of the rutting in the general harvest area. Measure from one side of a tire rut and berm to the other side of the rut and berm and multiply by length. Total this for all ruts and divide by the total surface area of the general harvest area. If an area is generally rutted up, where most of the area is impacted by rutting, measure the entire area and compare to the general harvest area.

Slash Management - *Be careful that the slash disposal method agrees with the skidding method identified earlier.*

- Which of the following best represents the **slash disposal** method(s) used on this site (check all that apply):
 - ☐ Slash retained at the stump (such as in lop & scatter) ☐ Slash redistributed back onto the site
 - ☐ Slash piled at the landing ☐ Slash piled and burned at the landing
 - ☐ Slash piled or windrowed across the site ☐ Slash piled or windrowed and burned across site
 - ☐ Slash broadcast burned ☐ Slash used as slash mat on skid trails
 - ☐ Slash utilized as biomass (removed from site) ☐ Other _____

You can select multiple methods of slash retention. Only select the methods that were “primarily” used on the site.

- Is slash more or less evenly distributed? (all sites) _____ ☐ Yes ☐ No

Site Continued

- Has **biomass** (tops & limbs) been harvested / removed from this site? _____ ☐ Yes ☐ No
 - a) If yes, is there evidence that at least 1/3 (33%) of tops, limbs, and incidental breakage were retained and scattered on the site? _____ ☐ Yes ☐ No ☐ N/A
 - i) If yes, what evidence?
 - ☐ Clumps (clutches) of slash or tops evident across the site
 - ☐ Scattered slash or tops evident across the site
 - ☐ Logging debris and incidental breakage scattered across the site
 - ☐ Other _____
 - b) If yes, were regulations written to retain approximately 1/3 of FWD? _____ ☐ Yes ☐ No ☐ unknown
 - i) If yes, note where in the documentation this was found: _____.
 - c) If yes, is there evidence that FWD from incidental breakage has been retained? _____ ☐ Yes ☐ No

Coarse Woody Debris (General harvest area)

- What is the per acre number of down logs per acre greater than 6" diameter and at least 6 feet long?

Enter actual number per acre from count or sample plot data: _____

Count only leave logs greater than 6" diameter at the small end and at least 6 feet long, which fall into category 1&2 of the following decay classes.

<i>Decay Class</i>	<i>Visual indicators (Harmon et al. 1986)</i>	
	<u>Hollow</u>	<u>Solid</u>
1	bark intact part or all of heartwood gone bole possibly broken on impact	bark intact solid through to center unbroken bole
2	bark part or totally gone inner/outer sapwood colonized* some fragmentation remaining heartwood colonized	bark part or totally gone outer sapwood only colonized bole still solid
3	color change in wood complete sapwood completely colonized log x-section becoming elliptical extensive fragmentation little remaining heartwood	color change in sapwood sapwood mostly colonized heartwood being colonized bole still intact form
4	pile of well colonized fragments possibly merges with class 5	bole starting to collapse decay well into heartwood
5	pile of well decayed fragments	completely collapsed well integrated into humus

Snags

- How many snags 6" DBH and ≥8 feet tall were retained on the site?
Enter actual number per acre from count or sample plot data: _____

Leave Trees (Clearcut, Seed Tree, biomass harvest, salvage)

- Which best describes the distribution of leave trees on the site?
 - ☐ None
 - ☐ Clumps (greater than ¼ acre in size)
 - ☐ Scattered individual trees ≥ at least 6 inches in diameter
 - ☐ Both clumps and scattered individual trees

Scattered Leaf Trees

Use this section to summarize leaf tree data from sample plots. For the purposes of this monitoring, a leaf tree must be at least 6 inch diameter (dbh) to be counted as a leaf tree. Enter all sample plot data for large and small trees in Survey123.

*For purposes of monitoring, a **leaf tree clump must be at least ¼ acre in size and contained within the boundaries of the harvest area OR adjacent or close to the site and clearly indicated in the sale documents and/or pre-site questionnaire. The basal area of the clump must be at least 80 sq. ft. per acre OR not less than the BA of the adjacent un-harvested stand. If the clump does not meet these criteria, then the trees within the clump are to be averaged in with the calculation for scattered leaf trees.***

- Indicate the number of scattered leaf trees per acre retained within the harvest site:

(enter actual number per acre from sample plot data): _____

*For question 175 below: **This is a new format for this question. Only check one box in each of 175, 175b, 175d, 175f, and 175h as appropriate. If there are less than 5 species, check “None of the above (all species accounted for)” in the remaining questions.***

- Choose the most common (by frequency) scattered leaf tree species within the harvest site:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack Tamarack | |
| <input type="checkbox"/> Other: _____ | | <input type="checkbox"/> None of the above (all species accounted for) | |

a) How many trees? _____

- b) Choose the second (2nd) most common (by frequency) scattered leaf tree species within the harvest site:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack Tamarack | |
| <input type="checkbox"/> Other: _____ | | <input type="checkbox"/> None of the above (all species accounted for) | |

c) How many trees? _____

- d) Choose the third (3rd) most common (by frequency) scattered leaf tree species within the harvest site:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack Tamarack | |
| <input type="checkbox"/> Other: _____ | | <input type="checkbox"/> None of the above (all species accounted for) | |

e) How many trees? _____

- f) Choose the fourth (4th) most common (by frequency) scattered leaf tree species within the harvest site:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack Tamarack | |
| <input type="checkbox"/> Other: _____ | | <input type="checkbox"/> None of the above (all species accounted for) | |

g) How many trees? _____

h) Choose the fifth (5th) most common (by frequency) scattered leave tree species within the harvest site:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack | |
| <input type="checkbox"/> Other: _____ | | <input type="checkbox"/> None of the above (all species accounted for) | |

i) How many trees? _____

- Did blowdown of leave trees occur? _____ ☐ Yes ☐ No

a) If yes, indicate the percentage of blowdown: _____ %

b) If yes, choose the most common (by frequency) major leave tree species that suffered blowdown:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack | |
| <input type="checkbox"/> Other: _____ | | | |

c) If yes, choose the second (2nd) most common (by frequency) major leave tree species that suffered blowdown:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack | |
| <input type="checkbox"/> Other: _____ | | | |
| <input type="checkbox"/> None of the above (all species accounted for) | | | |

d) If yes, choose the third (3rd) most common (by frequency) major leave tree species that suffered blowdown:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack | |
| <input type="checkbox"/> Other: _____ | | | |
| <input type="checkbox"/> None of the above (all species accounted for) | | | |

Note: your plot data will contain more information than what is specifically asked for here. Plot data should contain all of the items in the following example from 2014 monitoring. In addition a column should be added to indicate if smaller (3-6" dbh) trees are present on the site. These smaller trees could be put into categories of frequency rather than an absolute count/acre. See Item question 225.

Site #		1906		Date: 6/25/2014						Blowdown			PWD (Biomass Only)			
Plot # (218)	spp. (219)	# Leave Trees (219)	Total Leave Trees	# of Snags (221)	# CWD Logs (222)	Decay Evidence (Y/N) (223)	How Many (223)	Dominant/Codominant (Y/N) (224)	How Many (224)	Present	Spp.	Number	Present Y/N	a. 20%	b.	c.
1	Cedar	9	9	4	2	Yes	1	Yes	8	No						
2	Red Maple	3	4	0	11	Yes	1	Yes	4	No						
	Cedar	1														
3	Cedar	4	4	0	3	No	-	Yes	4	No						
4	Cedar	3	3	2	6	No	-	Yes	3	No						
5				2	11					No						
6	Cedar	1	1	0	10			Yes	1	No						
7	Bur Oak	5	10	1	13	No		Yes	9	No						
	Cedar	3														
	Red Maple	1														
	Elm	1														
Totals			31	9	56											
Per Acre			8.86	2.57	80.00											
Per Acre																
Cedar		21	6.0													
Red Maple		4	1.1													
Bur Oak		5	1.4													
Elm		1	0.3													
		62	8.9													

Leave Tree Clumps – FC_LTC

For purposes of monitoring, a leave tree clump must be:

- At least $\frac{1}{4}$ acre in size,
- Contained within the boundaries of the harvest area (no documentation on harvest docs necessary for on-site clumps) OR adjacent or close to the site and clearly indicated in the sale documents and/or pre-site questionnaire.
- The basal area of the clump must be at least 80 sq. ft. per acre **OR** not less than the BA of the adjacent un-harvested stand (whichever is less).

If the clump does not meet these criteria, then the trees within the clump are to be averaged in with the calculation for scattered leave trees.

- Leave tree clump # _____

Identify the feature location on the photo. Collector will assign a feature number. For on-site or directly adjacent leave tree clumps, change the boundary of the site to show the leave tree clump is within the boundary of the site.

- Leave tree clump size: _____ acres

(Calculate the measured acres and report to 1 decimal place)

- a) Clump location: *Check all that apply – for exterior clumps check general harvest area.*

- | | |
|--|---|
| <input type="checkbox"/> General harvest area | <input type="checkbox"/> Adjacent to an RMZ |
| <input type="checkbox"/> Around/ or in a seasonal pond | <input type="checkbox"/> Around/ or in a non-open water wetland |
| <input type="checkbox"/> Around a cultural resource | <input type="checkbox"/> As a VQ buffer |

For question 179 below: This is a new format for this question. Enter the top 5 species present in the repeated question in Survey123. If there are less than 5 species, check “ ☐ None of the above (all species accounted for) ” in the final repeat.

- Choose the most common (by frequency) species left in the leave tree clump:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack | |

☐ Other: _____

- a) Choose the second (2nd) most common (by frequency) species left in the leave tree clump:
- b) Choose the third (3rd) most common (by frequency) species left in the leave tree clump:
- c) Choose the fourth (4th) most common (by frequency) species left in the leave tree clump:
- d) Choose the fifth (5th) most common (by frequency) species left in the leave tree clump:

- Did blowdown of leave trees occur? ☐ Yes ☐ No

- a) If yes, Indicate the percentage of blowdown: _____ %

New format to questions below

- b) If yes, choose the most common (by frequency) major leave tree species that suffered blowdown:

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> Ash, Black | <input type="checkbox"/> Aspen | <input type="checkbox"/> Balsam Fir | <input type="checkbox"/> Balm of Gilead |
| <input type="checkbox"/> Basswood | <input type="checkbox"/> Birch | <input type="checkbox"/> Cedar | <input type="checkbox"/> Elm |
| <input type="checkbox"/> Maple, Red | <input type="checkbox"/> Maple, Sugar | <input type="checkbox"/> Oak, Northern Red | <input type="checkbox"/> Oak, Burr |
| <input type="checkbox"/> Pine, Jack | <input type="checkbox"/> Pine, White | <input type="checkbox"/> Pine, Norway | |
| <input type="checkbox"/> Spruce, White | <input type="checkbox"/> Spruce, Black | <input type="checkbox"/> Tamarack | |

☐ Other: _____

- c) If yes, choose the second (2nd) most common (by frequency) major leave tree species that suffered blowdown:
- d) If yes, choose the third (3rd) most common (by frequency) major leave tree species that suffered blowdown:

- Was this leave tree clump protecting a feature (i.e., visual quality corridor, steep slope, wetland, lake, stream, etc.)?
☐ Yes ☐ No
- a) If yes, indicate which feature type the leave tree clump is protecting:
 - ☐ Visual quality corridor ☐ Steep slope ☐ Open water wetland
 - ☐ Non-open water wetland ☐ Lake/pond ☐ Stream/river

Water Diversion/Erosion Control Structures – FC_ECO

*When answering questions throughout Collector/Survey123 you will encounter questions relating to the presence or use of water diversion devices and erosion control measures. When you indicate that any of these devices or measures **have been used**, this portion of the view should become active. You will be required to answer the questions in this section for all situations where water diversions devices or erosion control measures are used.*

For example, if you indicate that earth berm water bars or log water bars are used on a road segment, you will need to complete all the questions below on earth berm water bars or log water bars

Earth Berm Water Bars, Log & Slash Water Bars, Broad-Based Dips, Open-Top culverts

- Water Diversion/Erosion Control structures used (check all that apply):

<input type="checkbox"/> Earth Berm Water Bar	<input type="checkbox"/> Log & Slash Water Bar
<input type="checkbox"/> Broad Based Dip	<input type="checkbox"/> Open-top Culvert

- a) Number of this type of structure recommended by Guidelines _____
(based on % slope and length of disturbed area)

For reference see tables XX and AX in the Appendix or pages 25-32 in the forest roads chapter.

- b) Number of structures installed _____

- Structure(s) associated with (choose one):

- ☐ Segment #
- ☐ Approach #
- ☐ Landing #
- ☐ Cultural Resource #
- ☐ Steep Slope #
- ☐ Cut & Fill #
- ☐ Filter Strip #
- ☐ Borrow pit #

Associated Feature ID _____

Copy and paste Unique ID for Associated Feature from Collector.

Answer the following questions on this page for cumulative conditions observed at this location.

- For Earth Berm Water bars and Broad-Based Dips: Are structures constructed so that the top of the berm is at least 12 inches higher than the bottom of the trench? _____ ☐ Yes ☐ No ☐ N/A
- Average drop from upper end of the structure to the outlet
 - a) What is the average vertical distance from upper end of the structure to the outlet? _____ inches
 - b) What is the average horizontal distance from the upper end of the structure to the outlet? _____ feet
- Are structures installed at approximately a 30 to 45 degree angle from perpendicular to the road or skid trail? _____ ☐ Yes ☐ No
- Are structures installed so that water cannot bypass uphill end? _____ ☐ Yes ☐ No
- Are structures installed so that the outlet is open and empties into a ditch or vegetated area? _____ ☐ Yes ☐ No
- Are structures maintained and in good working order? _____ ☐ Yes ☐ No
- Has erosion occurred or is water moving past the structures? _____ ☐ Yes ☐ No ☐ Not evident

Other Water Diversion Structures

- Water Diversion/Erosion Control structures used (check all that apply):
 - ☐ Lead off ditch
 - ☐ Hay bales
 - ☐ Mulch
 - ☐ Silt fencing
 - ☐ Erosion blankets
 - ☐ Seeding
 - ☐ Natural breaks
 - ☐ Other (list): _____

- Have these structures or practices been maintained in good working order? ☐ Yes ☐ No

- Has erosion occurred despite use of these practices? _____ ☐ Yes ☐ No ☐ Not evident

Cross-Drains in upland areas – FC_CRD

Cross drains are culverts or other installations that are meant to move water from one side of a road or trail to the other but are not associated with a wetland or stream crossing. If associated with a wetland or stream crossing, then collect and complete the data in the crossings section.

If the cross drain is located on a segment or an approach, then it is not a mappable feature in Collector. If the cross drain occurs anywhere else on the site, then it is a mappable feature, and you must identify the location and let Collector assign a cross drain #. Therefore, if you answer Yes to the first question below, you will not need to map the location, if you answer No to the first question below, you will need to map the cross-drain location and let Collector assign an ID number.

- Is the cross drain located on a segment or an approach? ☐ Yes ☐ No
 - a) If yes, what feature is the cross drain associated with:
 - ☐ Segment # _____
 - ☐ Water body # _____ (Crossing # _____ Approach # _____)
 - ☐ Landing # _____
 - ☐ Cultural Resource # _____
 - ☐ Steep Slope # _____
 - ☐ Cut & Fill # _____
 - ☐ Filter Strip # _____
 - ☐ Borrow pit # _____
 - b) If no, Cross drain # _____
 - i) Cross drain is associated with: ☐ Forest road ☐ Skid trail
 - (1) Road # _____
 - ii) Where is the cross drain located? _____ ☐ On site ☐ Off site

Answer the questions below for all cross drains.

- Type of cross drain structure (**other than for a segment, approach, or stream or wetland crossing**):
 - ☐ Open-top culvert ☐ Pipe culvert ☐ Broad based dip
 - ☐ Other (list): _____
- a) **If pipe culvert, and the culvert has not been removed, answer the following:**
 - i) Culvert diameter: _____ inches
 - ii) Depth of fill over culvert: _____ inches
 - iii) Does culvert length reach the toe of the fill without changing the sideslope of the fill?
 - ☐ Yes ☐ No ☐ Unknown
- Has the cross drain been removed? _____ ☐ Yes ☐ No ☐ Not Needed
- Length of the cross drain structure? _____ feet
- Drop across the length of the cross drain structure from the upper end to the outlet
 - a) What is the average vertical distance from the upper end of the cross drain structure to the outlet?
 - _____ inches
 - b) What is the average horizontal distance from the upper end of the cross drain structure to the outlet?
 - _____ feet
- Angle of cross drain to the direction of water flow? _____ degrees
- Was a ditch block installed at the inlet of cross drain? _____ ☐ Yes ☐ No ☐ Unknown
- Was the cross drain outlet unobstructed? _____ ☐ Yes ☐ No
- Was an outlet or leadoff ditch installed for this cross drain? _____ ☐ Yes ☐ No
- Was cross drain armored? _____ ☐ Yes ☐ No
 - a) Where? _____ ☐ Inlet ☐ Outlet ☐ Both inlet and outlet
- Did erosion occur at outlet of cross drain? _____ ☐ Yes ☐ No ☐ Not evident ☐ Unknown
- Did sedimentation occur at outlet of cross drain? _____ ☐ Yes ☐ No ☐ Not evident ☐ Unknown
- Has erosion occurred at the inlet of cross drain? _____ ☐ Yes ☐ No ☐ Not evident ☐ Unknown
- Did sedimentation occur at inlet of cross drain? _____ ☐ Yes ☐ No ☐ Not evident ☐ Unknown

For question 209, measure the angle representing the change in direction of flow the stream or drainage caused by the alignment of the culvert.

Sample Plots – FC_SAP

Site ID: _____

The plot locations will be mapped in Collector. To the extent feasible, plot locations should be random, but the plots should not overlap roads, landings, or open water bodies. Plot locations should be representative of leave tree conditions on the site.

- Plot # _____
Identify the feature location on the photo. COLLECTOR will assign a feature number. Ensure that the number on the Survey correlates with the number in Collector.

- List the number of scattered leave trees (live trees, $\geq 6"$ DBH) by species in the 0.5 acre circular plot:

1 _____ #	2 _____ #
3 _____ #	4 _____ #
5 _____ #	6 _____ #
7 _____ #	8 _____ #
9 _____ #	10 _____ #

- What is the total number of scattered leave trees (live trees, $\geq 6"$ DBH) in the 0.5 acre circular plot? _____ # trees
- How many snags were there in the 0.5 acre circular plot? _____ #snags
- How many CWD logs were there in the 66' x 66' rectangular plot? _____ CWD logs
- Are trees present that have evidence of decay? _____ ☐ Yes ☐ No Approx. how many _____
- Are trees present that are dominants or codominant? _____ ☐ Yes ☐ No Approx. how many _____
- Are smaller, healthy, trees present? _____ ☐ Yes ☐ No Approx. how many _____

Fine Woody Debris (FWD) – use this information to answer FWD retention questions in “site” feature

Are scattered tops and branches created during the harvesting operation present on the plot? _____ ☐ Yes ☐ No

- Is there evidence that at least 20% of slash is intentionally retained and scattered on the site at this location? _____ ☐ Yes ☐ No
- If yes, what evidence?
 - ☐ Clumps (clutches) slash evident across the site that represents approx. 20% or more.
 - ☐ Scattered slash evident across the site that represents approx. 20% or more.
 - ☐ Slash from one species that represented about 20% of original stand
 - ☐ Regulation or specific language in timber sale docs that indicates at least 20% slash retention
Note where in docs this was found _____.
 - ☐ Other _____
- If yes, is there evidence that FWD from incidental breakage has been retained? ☐ Yes ☐ No

Leave Tree & Snag Plot size = .5 acre

Coarse woody debris plot size = 66' x 66'

Scattered leave trees or snags/acre = (# trees/#plot)/.5

Coarse woody debris/acre = (#logs/#plots)/plot

Sample Plot Design

Plot Size: Fixed area circular plots with a radius of 28 yards as measured with a range finder. This is approximately equal to 0.5 acres.

Sample Plot layout: A minimum of 5 sample plots and a maximum of 15 sample plots per site. Sites of 10 acres or less will have five sample plots, with one additional plot added for each 5-acre increment up to the maximum of 15 sample plots/site. Initial site size and layout of the plots should be based on the initial site photo as well as the supporting documents in the site packet (for example, timber sale documents should have indications of site size). Best estimates should be made to determine sample plot distribution, however, the actual size of the site may not be known until after the field work is complete. If it becomes evident that the site will be larger than estimated, additional plots will be taken.

Plot locations: Plots should be more or less evenly distributed over the site while avoiding leave tree clumps, RMZs, roads and landings or other non-representative locations.

Plot Data: The following data should be collected at all plots and recorded in Xcel spreadsheets. These individual sheets become part of the site data and are analyzed separate from Collector. Each plot should include the following data:

- Number by species of all live trees greater than 6” in diameter within the 0.5 acre plot
 - Summarize to trees/acre for recording on the “sites” feature.
- Number of snags (dead standing trees)
- Number of sound down logs meeting the CWD criteria (sound logs, at least 6” diameter and at least 6 feet long).
- Number of dominants and codominants present on the plot
- Approximate # of trees with indications of decay or hollow
- Approximate # of small trees present (i.e. 3-6” dbh), as per worksheet
- Evaluate biomass & FWD indications as per worksheet