FPG Refresher & Review

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...some Deer(e) can’t swim...
Keeping the Water Clean

Why is it bad to get dirt in the creek?

**Too much sediment in the water can:**
- Raise costs to treat & filter public water supply
- Smother and choke-out fish, amphibians, aquatic life

Why is it bad if woody debris gets in the creek?

**Too much leaf / needle / branches in the water can:**
- Block water flow, make flooding worse
- Draw out oxygen from the water, when it de-composes
What Are The Rules? - Outline

N.C. “Forest Practice Guidelines Related to Water Quality” (FPGs)

N.C. General Statutes (G.S.)

Petroleum Spill Notification

DWR ‘Riparian Buffer Rules’
The Rules: FPGs

The FPGs are 9 performance standards:

- Goal-oriented, results-based, not prescriptive
- Each FPG section describes the desired outcome, not necessarily how to achieve it
- You may be able to achieve FPG compliance by using Best Management Practices ("BMPs"), or some other suitable methods
- As long as the outcome/standard of the FPG is being achieved, “I don’t care how you do it…”
The Rules: FPGs

The 9 FPG standards: (02 NCAC 60C.0100 - .0209)

.0201 Streamside Management Zone - SMZ
.0202 Prohibition of Debris Entering Streams and Waterbodies
.0203 Access Roads and Skid Trail Stream Crossings
.0204 Access Road Entrances
.0205 Prohibition of Waste Entering Streams, Waterbodies and Groundwater
.0206 Pesticide Application
.0207 Fertilizer Application
.0208 Stream Temperature
.0209 Rehabilitation of Project Site

Two common themes: Prevent / control / restrain “accelerated erosion” & “visible sediment”
Streamside Management Zone - SMZ

Key Points
Establish SMZ on intermittent stream, or perennial stream, or perennial waterbody
Maintain ground cover
Keep skid trails, log decks, & roads out of SMZ

Purpose
Keep sediment and debris out of water
Retain some shade on water (perennial str.)

BMPs That Can Help
(1) Leave 50-foot SMZ. (2) Retain 50% shade.
(3) Minimize overall harvest disturbance.
BMPs for Streamside Management Zone - SMZ

Wrap the end of SMZ around the head of the stream.

Risk Management…. Lowers the risk of a problem.

50-feet wide is the general BMP recommendation:

However…… for those who want to be flexible:

- Sediment Control: 30 to 150 feet
- Nutrient Management: 15 to 200 feet
- Streambank Stability: 25 to 55 feet
- Wildlife / Aquatics: 25 to 300 feet
Types of Streams Where FPG / SMZ Apply

“Intermittent Stream”: Wet periods of the year (30% to 90% of the time) and flows in a continuous well-defined channel.

“Perennial Stream”: Flows throughout a majority of the year (greater than 90% of the time) and in a well-defined channel.

What about ditches or streams - that - look - like - ditches ???

- If it’s a ‘ditchified stream’……than it’s still a stream!
- If it’s really just a plain ditch…adhere to the state law prohibiting obstructions and use common sense.

Maps Do Not Matter for FPG SMZs:

If it’s a stream, It’s a stream,….. and It Needs a SMZ!
Quiz Time: Which is a “stream” and which is a “ditch”? It’s the same channel (left side & right side of this crossing), so don’t jump to conclusions without fully investigating. Ask NC Forest Service for help.
SMZ’s left in place during a logging job

What about trout stream buffers?
What about water supply watershed buffers?
Forestry is exempt \textit{IF THE SITE} is in compliance with the FPG’s.
SMZ left in place during a logging job

Don’t overlook “sausage link” SMZ’s
Q – Are you allowed to cut trees from the SMZ?
A – Yes. As long as FPG standards are met.
The Rules: FPG .0202
Prohibition of Debris Entering Streams and Waterbodies

Key Points
Keep debris, soil, other stuff out of creek.

Purpose
Prevent water backing-up. Keep sediment out of water. Too much woody material can draw out oxygen from water.

BMPs That Can Help
Do not skid across, or build a road/deck next to streams. Fell & de-limb trees away from SMZ.
Debris in this stream....must be removed!
Bridgemats work, but only if used right
The Rules: FPG .0203
Access Road and Skid Trail Stream Crossings

Key Points

“Stream crossings shall be avoided whenever possible”.

Must keep sediment & debris out of stream.
Do not use stream as a skid trail or road.
Protect stream banks from damage.
Minimize # of times..... no criss-crossing.
Rehab and stabilize right away (10 days).

Crossings are #1 frequent violation + highest risk potential
The Rules: FPG .0203 (con’t.)
Access Road and Skid Trail Stream Crossings

Purpose
If there is going to be a problem.....it is likely to be at the stream crossing.
.....And if there is a problem at a stream crossing.....it is likely to cause a water quality concern.

BMPs That Can Help
Do not install a new stream crossing.
If you must cross....use bridgemats. And use them right.
For log roads, consider a ford... instead of a culvert.

Crossings are #1 frequent violation + highest risk potential
TOP: Culvert set below-water level. Headwall reinforced. Good BMPs, low risk

Crossings are #1 frequent violation + highest risk potential

BOTTOM: Culvert set atop of stream bed. This disconnects the stream flow. Soil eroding off road side edge. Needs BMP work. This is a high risk scenario.
Crossings are #1 frequent violation + highest risk potential

Bertie Co, ditch road crossing

Durham Co, stream skid trail crossing
Log pole crossing in a dry ditch, Northampton Co.

Crossings are #1 frequent violation + highest risk potential

Ford crossing, ample ballast on each approachway and side banks grassed-over, Franklin Co.
Stream Crossings: Bridgemats

Wilkes Co.

- Bridgemats butted tight together
- Road approachways stabilized with stone

Crossings are #1 frequent violation + highest risk potential
Stream Crossings: Bridgemats

If you are dragging this much soil onto your bridgemat stream crossing....
Then you are not effectively managing risk!

Crossings are #1 frequent violation + highest risk potential
Skid Trail Stream Crossings: Stabilize the Approachways
What about this crossing?

Crossings are #1 frequent violation + highest risk potential
The Rules: FPG .0204
Access Road Entrances

Key Points
Keep excessive soil & debris off the public road.

Purpose
Prevent sediment from washing off the highway and into nearby stream.

BMPs That Can Help
Stone or wood mats, 50 to 100 feet in from public entrance.

Also helpful (but not related to FPG rules):
- Do not plug-up the DOT road ditch (NO LOGS IN DITCH).
- Keep public highway safe from mud & debris.
Keep mud & soil off the road!

Question: What are some ways to prevent this?
One way to avoid high cost of stone...
One way to avoid high cost of stone...
...Keep the DOT road ditch open -- don’t dam it up!
The Rules: FPG .0205
Prohibition of Waste Entering Streams, Waterbodies and Groundwater

Key Points
Do not dump or discharge oil, fuel, chemicals, or waste.

Purpose
Keep pollution out of the water.
Surface water (streams, ditches, lakes) AND groundwater.

BMPs That Can Help
Fix & prevent persistent leaks. (1 drop/sec = 5 gallons/day)
Have spill-kit material to control spill or leak.
Keep fluid containers collected, upright, sealed.
You don’t have to be next to a stream or ditch for oil / fluid spills to create water pollution.
The Rules: FPG .0206

Pesticide Application

Follow the label (that *is* the law…)
Dispose containers properly.
Apply in accordance with state rules (drift, waters)

The Rules: FPG .0207

Fertilizer Application

Prevent adverse impacts to water quality.
Stream Temperature

Key Points
Retain adequate shade in SMZ
Applies to any “natural perennial stream”

Purpose
Minimize changes to water temperature, to protect aquatic habitat (fish, insects, amphibians)

BMPs That Can Help
If cutting in SMZ, retain 50% of pre-harvest shade.

The Rules: FPG .0208
SMZ left in place alongside a stream

Good shade
Streambank protected
Is this a good SMZ?

- No shade
- Unstable streambank
- Debris in stream
Rehabilitation of Project Site

Key Points
Install erosion control measures and/or groundcover.
Stabilize areas with “potential” for accelerated erosion or sedimentation.
Must stabilize within 30 days of ceasing work, even if you plan to return to the site and finish later.

Purpose
Prevent accelerated erosion or sedimentation.
Protect stream banks.
Conserve soil resources.
The Rules: FPG .0209 (con’t.)

Rehabilitation of Project Site

BMPs That Can Help

Apply and pack-down slash / tree tops / laps on the skid trails & stream crossing approachways, do it FROM THE START OF THE JOB.

- (leave gaps on steep skid trails for future waterbars?)

Conduct rehab in phases: do not wait until whole site is completed (that could leave it exposed for weeks)

- If you see runoff moving soil,….. fix it now!

Sub-contract rehab work (???)
Stream Crossing with Bridgemats. Logging is Done. Looks good. Little Rehab, Low Risk Management
What Not To Do:

Stream crossing soil exposed with no groundcover.

Rutted, compacted soil on approachway. Will funnel runoff into stream.

Only a token brush-pile dropped on the slope.
FPG Summary:

- Apply statewide on “forestry related” activities.
- Part of the NC Sedimentation Pollution Control Act.
- Primary objectives:
  - erosion & sediment control.
  - overall pollution prevention.
- Goal-oriented / Performance-based.
- Apply to any Intermittent Stream... any Perennial Stream... any Perennial Waterbody.
- Maps Do Not Matter...for FPGs.
The Rules:

Clean Water Act, Sec.404 Silvicultural Exemption

Silviculture is exempt from USACE permitting to fill or discharge into a waters (or wetlands) or the U.S.
- Must be “normal, established, ongoing” silviculture.

So long as... certain conditions are met:
- For forestry roads, must comply with 15 baseline federally-defined BMPs, and apply State BMPs.
- For mechanical site prep, must comply with 6 baseline BMPs established by USACE & USEPA.

The 15 federal road BMPs apply to any road stream crossing. It is not just for “down east in the swamps”...
Two state laws prohibit waterway obstructions.

- Applies to streams, ditches and natural drainages.
- NCFS has authority when occurs “in woodlands”.
- These are technically treated as crimes.

These are different from FPG .0202 “Prohibition of Debris Entering Streams and Waterbodies”.

These laws are:

- **N.C. GS 77-13 Obstructing Streams a Misdemeanor**
- **N.C. GS 77-14 Obstructions in Streams and Drainage Ditches**
**The Rules: Petroleum Spill Notification Law**

Spill notification rules are cited in N.C. General Statute 143-215.85(b)

Notify NC-DEQ within 24 hours of discharge / spill **IF:**
- Amount is 25 gallons or more; **OR**
- Spill causes a sheen on nearby surface water; **OR**
- Spill occurs within 100 feet of any surface water.

No notification is needed, but cleanup must still occur **IF:**
- Amount is less than 25 gallons; **AND**
- No sheen is produced on nearby surface water; **AND**
- The spill is located more than 100 feet from surface water.

Notify NC-DEQ immediately **IF:**
- Amount is less than 25 gallons; **AND**
- You cannot effectively clean it up within 24-hours of spill; **OR**
- Spill causes a sheen on surface water.

**Bottom Line = If you spill... clean it up ASAP & notify as needed!**

Also refer to page 117 in the BMP Manual or page 9-1 in BMP pocket Field Guide.
Mandatory rules enforced by DWR (Div. of Water Resources)

Rules are *in addition to* the 9 FPGs and 2 stream/ditch Obstruction Laws.

Currently in 6 regions:

- Identified streams in the Neuse River Basin
- Identified streams in the Tar-Pamlico River Basin
- Catawba River & mainstem Lakes
- Identified streams in the Randleman Lake watershed
- Identified streams in the Jordan Lake watershed
- Identified streams in the Goose Creek watershed (Union and Mecklenburg Co.)
Riparian Buffer Rules

- 50-foot buffer zone, 100-ft or 200-ft in Goose Crk.
- Subdivided into Inner Zone 1... Outer Zone 1... Zone 2.
- Diameter Limit Cut, def. by rule. Streambank trees must remain.
  - Inner Zone 1 = 0 ft. -- 10 ft. Only “High Value” trees can be cut.
  - Outer Zone 1 = 10 ft. -- 30 ft. Half of # trees >5” DBH can be cut.
  - Zone 2 = 30 ft. – 50 ft. Can be clearcut so long as groundcover maintained.

- Rules restrict forestry operations that occur within a buffer zone alongside designated streams and bodies of water.
- Each rule is a little bit different.
- Restrictions cover harvesting, burning, chemicals, site prep....all forestry operations.

Only apply to specific types of streams or ditches. Different from FPGs. 
Reference “WQ” Forestry Leaflets >> ncforestservice.gov
### Where do the Buffer Rules Apply?

**Applies to:**
- Perennial streams
- Intermittent streams
- Lakes and reservoirs
- Ponds (incl. beaver ponds)
- Estuaries
- Modified Natural Streams

**Does not apply to:**
- Ditches & Manmade conveyances*; unless constructed for navigation or boat access
- Ephemeral streams
- Ponds that are not attached to streams
- Agricultural ponds

* **Randleman Lake Watershed exception:**
  “Kick-In Clause”: The buffer rule also applies if other site specific evidence indicates the presence of waters that are not otherwise shown on either of the two maps.
Which Streams do the Buffer Rules Apply To?

Intermittent Streams or Perennial Streams that are “approximately shown” on the *most recently published version* of either:

- USGS Topographic 1:24,000 scale map,
- *or*
- Published printed copy of NRCS Soil Survey map.

*Intermittent Streams & Perennial Streams for these Buffer Rules are defined differently than in FPGs!*
U.S. Geological Survey Maps
1:24,000 scale (7.5 minute series) maps

*!* BEWARE *!* 

- Often leave out streams in the piedmont and mountain regions
- Often show man-made ditches in the coastal plan region
**!* BEWARE *!***

- **Must be the most-recently printed / published version.**
- **“Web Soil Survey” or GIS layers are not acceptable.**

NRCS website list of soil survey publication years:
http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist soils/survey/state/?stateId=NC
“Approximately Shown”: What Does It Mean?

- USGS Topo Map shows a water feature on the east side...
“Approximately Shown”: What Does It Mean?

- NRCS Soil Survey Map shows a water feature on the west side…
- It also shows the same water feature from the Topo Map (at the arrow)
“Approximately Shown”: What Does It Mean?

- Ground-Truthing revealed that the water feature from the Soil Survey had been moved some time in the past, and is currently located as drawn on this photo.
- The logger clearcut both Riparian Buffers. It is a violation, because that stream is “approximately shown” on either the topo or soils map.
In FPGs, “intermittent” and “perennial” definitions are broader. If stream is on-the-ground... it needs a SMZ!

It is very possible – and often happens – that a tract of timber has multiple streams on it:
- Some streams require both the Buffer Rule Zone + SMZ...
- Some streams require only a SMZ.

You cannot pick & choose which rule to follow. Both sets of rules must be in compliance.
The Rules: Summary

BMP recommendations can be used anywhere

Only in a wetland

Wetlands laws, rules & guidance

Only in certain areas

(6) Riverbasin & Watershed Riparian Buffer Rules

Apply Statewide

(9) Forest Practices Guidelines = FPG’s.
(2) G.S. stream/ditch obstruction laws.
(1) Petroleum spill law.
BMPs are a logger’s best friend...

“Risk Management”:
- Low risk, Low cost
- High return-on-investment
- High likelihood of success
- Easy to implement

Logging is all about risk management....
- Eliminate Safety Risk
- Reduce Business Risk
- Contain Cost Risk
- Manage Environmental Risk  >>>>>>  BMPs