

## National and State Resource Concerns and Quality Criteria

## SOIL

National Natural Resource Concern	Description of Concern	Quality Criteria	State Quality Criteria	Measurement Units	* Assessment Tools for Quality Criteria Evaluation
<b>Soil Erosion - Sheet and Rill</b>	Detachment and transport of soil particles caused by rainfall splash and runoff degrade soil quality.	Sheet and rill erosion does not exceed the Soil Loss Tolerance "T".	SAME AS NATIONAL	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit	Water Erosion Prediction Tools (RUSLE2)
<b>Soil Erosion - Ephemeral Gully</b>	Small channels caused by surface water runoff degrade soil quality and tend to increase in size. On cropland, they can be obscured by	Surface water runoff is controlled sufficiently to stabilize the small channels and prevent reoccurrence of new channels.	SAME AS NATIONAL	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	Volume calculation (L x W x D x 96lbs/ft <sup>3</sup> ÷ 2000 = Tons)
<b>Soil Erosion - Classic Gully</b>	Deep, permanent channels caused by the convergence of surface runoff degrade soil quality. They enlarge progressively by headcutting and lateral widening.	Surface water runoff is controlled sufficiently to stop progression of headcutting and widening.	SAME AS NATIONAL	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	Volume calculation (L x W x D x 96lbs/ft <sup>3</sup> ÷ 2000 = Tons)
<b>Soil Erosion - Streambank</b>	Accelerated loss of streambank soils restricts land and water use and management.	Accelerated streambank soil loss does not exceed a level commensurate with upstream land use and normal geomorphological processes on site.	Accelerated stream bank soil loss does not exceed a level commensurate with upstream land use and normal geomorphologic processes on site. <i>The stream bank is stabilized (80% or more is vegetated or mechanically treated).</i>	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	Volume calculation (L x W x D x 96lbs/ft <sup>3</sup> ÷ 2000 = Tons)

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<b>Soil Erosion - Mass Movement</b>	Soil slippage, landslides, or slope failure, normally on hillsides, result in large volumes of soil movement	Shallow slumps, slides, or slips are prevented or minimized so that the mass movement of soil material does not exceed naturally occurring rates.	Shallow slumps, slides, or slips are prevented or minimized so that the mass movement of soil material does not exceed naturally occurring rates. <i>Sites are stabilized and revegetated. Livestock/and equipment is excluded until permanent vegetation is established.</i>	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	Volume calculation (L x W x D x 96lbs/ft <sup>3</sup> ÷ 2000 = Tons)
<b>Soil Erosion – Road, Road Sides and Construction Sites</b>	Soil loss occurs on areas left unprotected during or after road building and/or construction activities.	Sites are adequately protected from soil loss during and after road building and construction activities.	Sites are adequately protected from soil loss during and after road building and construction activities. <i>Off-site effects of erosion or sedimentation is eliminated.</i>	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit	Water Erosion Prediction Tools (RUSLE2) for sheet and rill erosion  <b>OR</b> Volume calculation (L x W x D x 96lbs/ft <sup>3</sup> ÷ 2000 = Tons)
<b>Soil Condition - Organic Matter Depletion</b>	Soil organic matter has or will diminish to a level that degrades soil quality.	Soil Conditioning Index is positive.	Soil Conditioning Index is positive.	Soil Conditioning Index improvement – positive improvement in index for the field or planning area/unit.	Soil Conditioning Index within RUSLE2
<b>Soil Condition - Compaction</b>	Compressed soil particles and aggregates caused by <i>livestock</i> or mechanical compaction adversely affect plant-soil-moisture relationships.	Mechanically compacted soils are renovated sufficiently to restore plant root growth and/or water movement.	Mechanically compacted soils are renovated sufficiently to restore plant root growth and/or water movement. <i>Livestock is excluded from the area.</i>	Non Measurable	Documented visual assessment of plant root systems (e.g. photographs, Conservation Assistance Notes, LTP 300-4, etc.)

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<b>Soil Condition – Contaminants: Animal Waste and Other Organics – N</b>	Nitrogen nutrient levels from applied animal waste and other organics restrict desired use of the land.	Nitrogen nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	SAME AS NATIONAL	Pounds/Acre/Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit	Presidedress Nitrogen Test (PSNAT) - corn only <b>OR</b> 590 Nutrient Budget Worksheets in combination with the client application records/history
<b>Soil Condition – Contaminants: Animal Waste and Other Organics – P</b>	Phosphorus nutrient levels from applied animal waste and other organics restrict desired use of the land.	Phosphorus nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	Phosphorus nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results. <i>Except for the Potomac Valley, where P values do not exceed 80lbs/acre and/or the P index requirements are met.</i>	Pounds/Acre/Year – average annual pounds of phosphorus (P) reduced per acre for the field or planning area/unit	Soil test or lab analysis and client application records/history <b>OR</b> Phosphorus Index for the State of WV - Potomac Valley Only
<b>Soil Condition – Contaminants: Commercial Fertilizer – N</b>	Overapplication of nitrogen degrades plant health and vigor or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of nitrogen do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	SAME AS NATIONAL	Pounds/Acre/Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit.	Documented client application records/history
<b>Soil Condition – Contaminants: Commercial Fertilizer – P</b>	Overapplication of phosphorus degrades plant health and vigor or exceeds the soil capacity to retain nutrients.	Soil nutrient levels of phosphorus do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	Soil nutrient levels of phosphorus do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained. <i>P values do not exceed 80lbs. for the full crop rotation.</i>	Pounds/Acre/Year – average annual pounds of phosphorus (P) reduced per acre for the field or planning area/unit.	Soil test or lab analysis and client application records/history

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<b>Soil Condition - Contaminants - Residual Pesticides</b>	Residual pesticides in the soil have an adverse effect on non-target plants and animals.	Pesticides are applied, stored, handled, and disposed of so that residues in the soil do not adversely affect non-target plants and animals.	SAME AS NATIONAL	Non Measurable	Documentation of conditions or adverse effects on non-target plants and/or animals, etc.
<b>Soil Condition - Damage from Soil Deposition</b>	Sediment deposition damages or restricts land use/management or adversely affects ecological processes.	Sediment deposition is sufficiently reduced to maintain desired land use/management and ecological processes.	SAME AS NATIONAL	Acres/Year – average annual acres of sediment deposition reduced for the field or planning area/unit	RUSLE2 coupled with sediment deposition calculations <b>OR</b> Area calculation

\* Assessment tools shown are the principle tool(s) used in determining the presence or absence of this resource concern. **If a particular resource concern is selected, documentation of the use and/or application of the tool(s) is required.** Other tools may be available that provide additional data or supporting information.