

Natural Resource Concern	Description of Concern	Virginia Quality Criteria	Assessment Tools for Quality Criteria Evaluation	Measurement Unit
Soil Erosion - Sheet and Rill	Detachment and transport of soil particles caused by rainfall splash and runoff degrade soil quality.	SAME AS NATIONAL Sheet and rill erosion does not exceed the Soil Loss Tolerance "T".	<ul style="list-style-type: none"> • Visual assessment (pedestals, rills) • Erosion-bridge method; erosion meters – N/A in Virginia • Special inventory methods (e.g., Rangeland Health Evaluation Worksheet) – N/A in Virginia • RUSLE2 	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit
Soil Erosion - Ephemeral Gully	Small channels caused by surface water runoff degrade soil quality and tend to increase in size. On cropland, they can be obscured by heavy tillage.	SAME AS NATIONAL Surface water runoff is controlled sufficiently to stabilize the small channels and prevent reoccurrence of new channels.	<ul style="list-style-type: none"> • Visual assessment • Volume calculation 	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit
Soil Erosion - Classic Gully	Deep, permanent channels caused by the convergence of surface runoff degrade soil quality. They enlarge progressively by headcutting and lateral widening.	SAME AS NATIONAL Surface water runoff is controlled sufficiently to stop progression of headcutting and widening.	<ul style="list-style-type: none"> • Visual assessment • Volume calculation • Aerial photo trend analysis 	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit
Soil Erosion - Streambank	Accelerated loss of streambank soils restricts land and water use and management.	SAME AS NATIONAL Accelerated streambank soil loss does not exceed a level commensurate with upstream land use and normal geomorphological processes on site.	<ul style="list-style-type: none"> • Visual assessment, e.g., Stream Visual Assessment Protocol, Proper Functioning Condition (PFC) • Aerial photo trend analysis • Engineering Field Handbook, Chapter 16 	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit
Soil Erosion - Shoreline	Soil is eroded along shorelines by wind and wave action, causing physical damage to vegetation, limiting land use, or creating a safety hazard.	SAME AS NATIONAL Shoreline erosion is stabilized to a level that does not restrict the use or management of adjacent land, water or structures.	<ul style="list-style-type: none"> • Visual assessment • Aerial photo trend analysis • Volume calculation • Erosion transects/pins 	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit

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Soil Erosion – Irrigation-induced	Improper irrigation water application and equipment operation are causing soil erosion that degrades soil quality.	SAME AS NATIONAL Irrigation-induced erosion does not exceed the Soil Loss Tolerance “T”.	<ul style="list-style-type: none"> • SRFR (Surface Irrigation Model) • CPED (Center Pivot Evaluation and Design) • NRCS National and State Irrigation Guides 	Tons/Acre/Year – average annual tons of erosion reduced per acre for the field or planning area/unit
Soil Erosion - Mass Movement	Soil slippage, landslides, or slope failure, normally on hillsides, result in large volumes of soil movement	SAME AS NATIONAL Shallow slumps, slides, or slips are prevented or minimized so that the mass movement of soil material does not exceed naturally occurring rates.	<ul style="list-style-type: none"> • Visual assessment • Aerial photo trend analysis • Volume calculation • NASIS (State Soil Database) 	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit
Soil Erosion – Road, road sides and Construction Sites	Soil loss occurs on areas left unprotected during or after road building and/or construction activities.	SAME AS NATIONAL Sites are adequately protected from soil loss during and after road building and construction activities.	<ul style="list-style-type: none"> • Visual assessment • Volume Calculation • Water and wind erosion prediction tools (RUSLE2 and WEQ) 	Tons/Year – average annual tons of erosion reduced for the field or planning area/unit
Soil Condition - Organic Matter Depletion	Soil organic matter has or will diminish to a level that degrades soil quality.	SAME AS NATIONAL Soil Conditioning Index is positive.	<ul style="list-style-type: none"> • Soil Conditioning Index • Soil Quality Kit • Soil testing and analysis 	Soil Conditioning Index improvement – positive improvement in index for the field or planning area/unit
Soil Condition - Compaction	<p>Compressed soil particles and aggregates caused by mechanical compaction adversely affect plant-soil-moisture relationships.</p> <p>Compressed soil particles and aggregates caused by livestock adversely affect plant-soil –moisture relationships.</p>	<p>Mechanically compacted soils are renovated sufficiently to restore plant root growth and/or water movement.</p> <p>Reduce livestock traffic so compacted zone does not limit plant root growth or water movement.</p>	<ul style="list-style-type: none"> • Assessment of plant root systems • Bulk density test-Soil Quality Kit • Dial penetrometer • STIR Value (RUSLE2) • Soil Quality Thunderbook <p>ftp://ftp.nssc.nrcs.usda.gov/pub/lightle/scifiles</p> <p>* Schedule of rotational grazing and forage balance worksheet</p>	Non Measurable

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Soil Condition - Contaminants - Animal Waste and Other Organics - N	Nitrogen nutrient levels from applied animal waste and other organics restrict desired use of the land.	SAME AS NATIONAL Nitrogen nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	<ul style="list-style-type: none"> • Soil test • Plant tissue test • Application records • Yield records/history • Nutrient Budget Calculator • DCR Certified Nutrient Management Plan 	Pounds/Acre/Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit
Soil Condition - Contaminants - Animal Waste and Other Organics -P	Phosphorus nutrient levels from applied animal waste and other organics restrict desired use of the land.	SAME AS NATIONAL Phosphorus nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	<ul style="list-style-type: none"> • Soil test • Phosphorus Index • Plant tissue test • Application records • Yield records/history • Nutrient Budget Calculator • DCR Certified Nutrient Management Plan 	Pounds/Acre/Year – average annual pounds of nitrogen (P) reduced per acre for the field or planning area/unit
Soil Condition - Contaminants - Animal Waste and Other Organics - K	Potassium nutrient levels from applied animal waste and other organics restrict desired use of the land.	SAME AS NATIONAL Potassium nutrient application levels do not exceed soil storage/plant uptake capacities based on soil test recommendations and risk analysis results.	<ul style="list-style-type: none"> • Soil test • Plant tissue test • Application records • Yield records/history • Nutrient Budget Calculator • DCR Certified Nutrient Management Plan 	Pounds/Acre/Year – average annual pounds of nitrogen (K) reduced per acre for the field or planning area/unit
Soil Condition – Contaminants - Commercial Fertilizer – N	Over application of nitrogen degrades plant health and vigor, or exceeds the soil capacity to retain nutrients.	SAME AS NATIONAL Soil nutrient levels of nitrogen do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	<ul style="list-style-type: none"> • Soil Test • Soil Quality Kit-pH meter • Virginia Tech or other qualified lab crop fertility recommendations • DCR Certified Nutrient Management Plan 	Pounds/Acre/Year – average annual pounds of nitrogen (N) reduced per acre for the field or planning area/unit

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Soil Condition – Contaminants - Commercial Fertilizer – P	Over application of phosphorus degrades plant health and vigor, or exceeds the soil capacity to retain nutrients.	SAME AS NATIONAL Soil nutrient levels of phosphorus do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	<ul style="list-style-type: none"> • Soil Test • Soil Quality Kit-pH meter • Virginia Tech or other qualified lab crop fertility recommendations • DCR Certified Nutrient Management Plan 	Pounds/Acre/Year – average annual pounds of nitrogen (P) reduced per acre for the field or planning area/unit
Soil Condition – Contaminants - Commercial Fertilizer – K	Over application of potassium degrades plant health and vigor, or exceeds the soil capacity to retain nutrients.	SAME AS NATIONAL Soil nutrient levels of potassium do not exceed crop needs based on realistic yield goals and appropriate pH levels are maintained.	<ul style="list-style-type: none"> • Soil Test • Soil Quality Kit-pH meter • Virginia Tech or other qualified lab crop fertility recommendations • DCR Certified Nutrient Management Plan 	Pounds/Acre/Year – average annual pounds of nitrogen (K) reduced per acre for the field or planning area/unit
Soil Condition - Contaminants - Residual Pesticides	Residual pesticides in the soil have an adverse effect on non-target plants and animals.	SAME AS NATIONAL Pesticides are applied, stored, handled, and disposed of so that residues in the soil do not adversely affect non-target plants and animals.	<ul style="list-style-type: none"> • Visual assessment • WIN-PST • NAPRA • Soil test • Plant and animal tissue test • Label Instructions • IPM Plan 	Non Measurable
Soil Condition - Damage from Soil Deposition	Sediment deposition damages or restricts land use/management or adversely affects ecological processes.	SAME AS NATIONAL Sediment deposition is sufficiently reduced to maintain desired land use/management and ecological processes.	<ul style="list-style-type: none"> • Visual assessment • Volume calculation • Current water and wind erosion prediction tools (RUSLE2 and WEQ) coupled with sediment delivery ratios • Plant and animal community assessment 	Acres/Year – average annual acres of sediment deposition reduced for the field or planning area/unit