

Scene 45 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16908, -86.27180 · Generated October 23, 2026

OVERALL SCORE

4.5

Poor



Front: Looking downstream, a very small stream channel winds through a rural pastoral landscape. The channel is narrow (roughly 2-4 feet wide) with shallow brown water flowing over rocky/silty substrate. Scattered bare deciduous trees line the corridor with dormant grass on both sides. A small structure or equipment item (possibly a deer stand or old equipment) is visible in the mid-ground left of center.

Right: Looking to the right bank (when facing downstream), the view shows a gently sloping open pasture/lawn area rising uphill toward a rural residential property with a white building, carport with a red truck, utility pole, and scattered mature bare deciduous trees. The grass is a mix of green and dormant brown. The riparian buffer on this side is essentially absent — mowed grass extends close to the stream bank.

Back: Looking upstream, the narrow stream channel is visible with shallow brown water flowing over rocky substrate. The left bank shows moderate erosion with bare soil and exposed rock/rubble along the bank edge. Dormant grass and scattered trees are visible on both sides. Some flat rock pieces are visible at the bank edge — these appear to be natural limestone fragments consistent with the local Middle Tennessee geology, showing natural layering and irregular edges rather than engineered placement.

Left: Looking to the left bank (when facing downstream), the view shows an open agricultural/pasture landscape with scattered bare deciduous trees and one large evergreen tree (likely eastern red cedar). A fenceline is partially visible. In the far background, a red structure (possibly a barn) is visible through the trees. The riparian buffer is very narrow to absent, with open pasture extending close to the channel. Dormant grass and dead herbaceous material dominate the ground cover.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	6		marginal
Hydrologic Alteration	6		Fair
Sediment Deposition	5		Fair
Left Bank Stability	4		Fair
Right Bank Stability	5		Fair
Left Vegetative Protection	4		Fair
Right Vegetative Protection	4		Fair
Riparian Canopy Cover	2		Poor
Floodplain Vegetation	2		Poor
Water Appearance	5		Fair
Nutrient Enrichment	7		Good
Epifaunal Substrate	-		-

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 45

Black Branch at scene #45 is a small headwater stream (1st-2nd order, approximately 2-3 feet wide) in a rural area of Wilson County, Tennessee, flowing through pasture and residential land. The stream is rated as 'poor' condition overall, primarily due to severely deficient riparian buffers on both banks (mowed grass/pasture extends directly to the channel edge), extremely limited instream habitat (no LWD, no pool-riffle complexity, silt-dominated bed), and fine sediment impairment from adjacent land use. The channel retains a natural planform and floodplain connectivity, and no stormwater outfalls or illicit discharges were observed. This reach has high restoration potential through riparian buffer establishment, which would address multiple limiting factors simultaneously.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears natural without direct structural alteration. However, adjacent land use (pasture extending to bank edge, lack of riparian buffer) has likely altered hydrology and sediment delivery, resulting in a channel that is slightly incised and laterally eroding in places. No straightening or armoring observed. Score of 6 reflects natural form with some degradation from land use impacts.
Hydrologic Alteration	6	The channel shows slight incision with banks approximately 1.5-2 feet above the water surface. Floodplain appears accessible during moderate events. No major impoundments or withdrawals visible. Adjacent pastoral land use has likely increased flashiness of runoff. Score of 6 reflects slight alteration from land use changes.
Sediment Deposition	5	The bed substrate is dominated by fine silt/mud, indicating significant fine sediment loading from adjacent pasture and agricultural land. While no large point bars are forming (channel is too small), the pervasive fine sediment coverage of the bed (~20-30% affected beyond natural conditions) suggests moderate sediment deposition issues. Score of 5 reflects noticeable sediment enrichment.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	4	4	26_50_percent	Left bank shows active erosion from pasture runoff and lack of woody riparian vegetation. Fencing partially visible suggesting livestock may be present or recently removed. Bank composed primarily of soil with some embedded limestone fragments.
Right	5	4	1_25_percent	Right bank transitions to mowed residential lawn with gentle slope. Riparian buffer essentially absent — mowed grass extends to bank edge. Less erosion than left bank but vulnerable due to lack of woody root reinforcement.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	2	Canopy cover is very low, estimated at less than 15-20%. The UP face confirms mostly open sky with only scattered bare tree branches. Even in full leaf season, the sparse trees would provide only partial shade. Score of 2 reflects inadequate canopy cover for a warmwater stream.
Left Buffer Width	under 10ft	Score: 2/10
Right Buffer Width	under 10ft	Score: 1/10
TDEC 30ft Buffer Met?	L: No / R: No	Both banks are severely deficient in riparian buffer relative to TDEC MS4 permit section 4.2.5.4 requirements. The 30-foot minimum buffer standard is not met on either side. High restoration potential exists if willing landowners can be engaged — the flat terrain and existing soil conditions would readily support tree/shrub plantings. This is a priority location for buffer restoration.

Water Quality & Infrastructure · Scene 45

Water Quality Indicators

Metric	Score	Notes
Water Appearance	5	Water has a brown/tan coloration typical of streams with fine sediment substrates. Clarity appears moderate — objects on the bed are visible but water has noticeable turbidity. No oil sheen, foam, or algal growth observed. The brown color may be partly natural (dissolved organics from leaf litter) but likely also reflects fine sediment suspension. Score of 5 reflects fair water appearance with moderate turbidity.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	Fencing is partially visible on the left bank side suggesting potential livestock access or recent fencing for exclusion. Adjacent pasture land could support livestock. No manure is directly visible in or near the stream, and no waste pipes or discharge observed. However, the pastoral land use and fencing suggest potential livestock access. Score of 7 reflects possible but not confirmed livestock impact.
Surface Contamination	-	Sheen: No · Foam: No · Odor: none

Stormwater Infrastructure

No outfall detected at this location.

Instream Habitat

Metric	Score	Notes
Epifaunal Substrate	-	

Stream Characteristics

Field	Value
Stream Type	perennial
Gradient	low_flat

Management Recommendations

Action	Priority	Timeline
Document this reach as having severely deficient riparian buffers for watershed planning purposes	medium	90_days
Confirm no stormwater outfalls exist upstream or downstream that may not have been visible from this scene position	low	annual

Terrain360 · terrain360.com/trail/black-branch-2/scene/45/analysis