

Scene 44 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16908, -86.27167 · Generated October 23, 2026

OVERALL SCORE

4.5

Poor



Front: Looking downstream, a narrow stream channel curves slightly to the right through a rural landscape. The left bank has scattered deciduous trees (bare) and one evergreen (likely eastern red cedar). The right bank is bordered by dormant grass and herbaceous vegetation with a residential structure visible in the far right background. The channel is very narrow with shallow water.

Right: Right bank (left bank when facing downstream) shows a gently sloping mowed/grazed pasture rising to a white farmhouse with carport, a red truck, and utility poles. The riparian buffer is essentially absent on this side - grass extends nearly to the stream bank edge with only dormant herbaceous weeds providing minimal bank protection. A barn or outbuilding is visible to the far right.

Back: Looking upstream, the narrow stream channel is visible winding through a narrow corridor of scattered trees including an evergreen (eastern red cedar) and bare deciduous trees. Rocky/stony substrate is visible in the channel bed. The banks are low with dormant herbaceous vegetation. Open agricultural fields extend on both sides beyond the thin tree line. The bed substrate includes flat, angular stone pieces that could be natural limestone or potentially placed material.

Left: Left bank (right bank when facing downstream) shows a narrow strip of deciduous trees and shrubs along the stream, mostly bare in winter. Beyond the thin riparian corridor, expansive agricultural fields extend to the distance with a red barn or farm building visible in the background. The bank appears moderately steep with some root exposure and bare soil. Vines and dormant herbaceous understory are present along the bank top.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	6		marginal
Hydrologic Alteration	6		Fair
Sediment Deposition	4		Fair
Left Bank Stability	5		Fair
Right Bank Stability	5		Fair
Left Vegetative Protection	3		Poor
Right Vegetative Protection	5		Fair
Riparian Canopy Cover	3		Poor
Floodplain Vegetation	2		Poor
Water Appearance	4		Fair
Nutrient Enrichment	6		Fair
Epifaunal Substrate	-		-

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 44

Black Branch at this location (scene 44 of 53) is a small, low-gradient headwater stream flowing through an agricultural/rural residential landscape near coordinates 36.169079, - 86.271672. The stream is severely impacted by inadequate riparian buffers, particularly on the left bank where mowed pasture extends to the channel edge. Heavy fine sediment loading has created a silt-dominated substrate with very limited aquatic habitat diversity. Key management priorities include riparian buffer establishment through fencing and native planting on both banks, with the left bank as the highest priority. No stormwater infrastructure or outfalls were observed at this location, and no illicit discharge indicators were noted.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears natural without structural alteration; however, the channel is narrow with some bank erosion and the adjacent land use (agriculture, pasture) has likely influenced channel form. No channelization or armoring present. Some lateral erosion visible but not excessive. Channel maintains floodplain connection. Score between 5-7 range due to minor impacts from surrounding land use.
Hydrologic Alteration	6	The stream shows slight incision with banks 2-3 feet in height near the surveyor but maintains some floodplain connectivity. The low banks in some areas suggest the stream can access its floodplain during higher flow events. No dams or major structures visible. Agricultural land use may have slightly altered hydrology through increased runoff.
Sediment Deposition	4	The turbid brown water and silt-dominated substrate indicate significant fine sediment loading from surrounding agricultural land. The bed appears to be heavily silted with little visible coarser substrate except in the upstream view. Sediment deposition is likely affecting 30-50% of the channel bottom. Pool habitat appears to be filled or reduced by sediment.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	3	1_25_percent	Left bank lacks adequate riparian buffer. Mowed/grazed pasture extends to within a few feet of channel edge. Grass provides minimal root depth for bank stabilization. Agricultural runoff enters stream directly from this side.
Right	5	5	1_25_percent	Right bank has a thin corridor of trees providing marginally better protection than the left bank. Undercutting visible at base in some areas. Agricultural field extends beyond the narrow tree line.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	3	With winter leaf-off and the sparse tree cover, canopy shade is well below 25%. Even during full leaf-on conditions, shade would be limited to perhaps 25-40% due to the very thin riparian corridor on only one side. Currently <15% shade.
Left Buffer Width	under 10ft	Score: 1/10
Right Buffer Width	10 25ft	Score: 3/10
TDEC 30ft Buffer Met?	L: No / R: No	Both banks fail to meet TDEC MS4 minimum 30ft buffer requirements. Left bank is the most critical with pasture/mowing extending to the stream edge. Right bank has partial tree cover but is insufficient. Buffer restoration through fencing and planting would significantly improve water quality and habitat. This is a priority for MS4 compliance under section 4.2.5.4.

Water Quality & Infrastructure · Scene 44

Water Quality Indicators

Metric	Score	Notes
Water Appearance	4	Water is turbid with brown coloration consistent with suspended sediment. Visibility appears to be approximately 0.5-1 foot based on the down face view where the bed is barely visible in shallow areas. No oil sheen, foam, or algal mats observed. The turbidity may be partly due to the surveyor's wading disturbance but the overall brown color suggests elevated sediment from recent precipitation and agricultural runoff. Score of 4 between marginal and fair.
Nutrient Enrichment	6	Algae: none
Manure/Waste	7	The left bank appears to be grazed pasture with mowed grass extending to the stream edge, suggesting potential livestock access. No direct evidence of manure in the stream or on banks is visible, but the pasture condition and proximity to the stream suggests livestock may have access. No waste pipes or direct discharges visible. Score of 7 accounts for indirect evidence of pastoral use.
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 inadequate riparian buffer conditions for watershed management plan updates	medium	90_days
Coordinate with agricultural programs (NRCS, USDA) for voluntary buffer establishment	medium	annual

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