

Scene 41 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16929, -86.27147 · Generated October 23, 2026

OVERALL SCORE

4.5

Poor



Front: Looking downstream, a very small stream channel is visible on the left side of the view, running along the edge of a mowed grass yard. The channel is narrow, incised, and bordered by dormant brown vegetation and brush. Scattered deciduous trees in bare condition and a few evergreens line the stream corridor. A red barn/outbuilding is visible in the far left background beyond agricultural fields.

Right: Looking toward the right bank, the view is dominated by a large mowed grass yard extending uphill to a rural residential property with a white house, outbuildings, and sheds. A utility pole with overhead electric lines is prominently visible. The yard is closely mowed with no riparian buffer between the lawn and the stream bank. Trees along the property are deciduous and bare.

Back: Looking upstream, the view shows a mowed grass area extending to the left with bare deciduous trees scattered about. An old structure with a rusted tin roof (possibly a barn or cabin) is visible in the middle distance. The stream corridor is barely visible to the right side with dormant shrubs and brush lining it. The landscape is gently rolling rural terrain with mixed pasture and scattered trees.

Left: Looking toward the left bank, the small stream channel is clearly visible with very low flow over exposed bedrock or flat rock substrate. The channel is narrow and incised with steep eroded banks showing bare soil and exposed rock. Beyond the channel, dormant brush and weedy vegetation extend to open agricultural fields with a red barn visible in the far distance. A single evergreen tree (likely eastern red cedar) stands prominently near the channel. The rock in the streambed appears to be flat, layered limestone - examining carefully for concrete indicators: the rock shows natural geological layering consistent with Middle Tennessee limestone bedrock, not concrete.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	5		marginal
Hydrologic Alteration	4		Fair
Sediment Deposition	6		Fair
Left Bank Stability	4		Fair
Right Bank Stability	3		Poor
Left Vegetative Protection	4		Fair
Right Vegetative Protection	3		Poor
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 41

Black Branch at this location (scene #41 of 53) is a small, incised headwater stream in poor condition, flowing through rural residential and agricultural land near Lebanon, Tennessee. The stream suffers from severe riparian buffer deficiency on both banks, with the right bank mowed to the channel edge and the left bank having only a narrow, degraded strip of dormant brush. The channel has incised to bedrock, disconnecting from its floodplain, and instream habitat is extremely limited with no large woody debris and minimal substrate diversity. Water quality indicators are moderate but the physical habitat degradation is the primary limiting factor for aquatic life support.

Primary Stressors

riparian loss, bank erosion, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	5	Channel appears natural with no direct structural alterations, but shows evidence of incision and downcutting to bedrock. The channel has cut down significantly, disconnecting from its floodplain. This is likely a response to changes in watershed hydrology from agricultural land use and impervious surfaces. Score of 5 reflects natural channel form but with significant geomorphic adjustment.
Hydrologic Alteration	4	Channel is moderately incised with banks 3-6ft high relative to a narrow stream. The channel appears disconnected from its floodplain with flooding likely only during significant storm events. Agricultural land use changes and mowing to bank edge have likely accelerated runoff delivery.
Sediment Deposition	6	Bedrock-dominated substrate with limited sediment deposition visible. The bedrock exposure actually suggests more erosion than deposition. Some fine sediment (mud/silt) visible in low spots but not excessive. The channel appears to be sediment-starved in areas with exposed bedrock.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	4	4	26_50_percent	Left bank (looking downstream) is the outer bank adjacent to agricultural fields. Dormant brush provides partial buffer but bank is actively eroding in sections. Some exposed bedrock at base of bank may provide natural resistance to further downcutting.
Right	3	3	26_50_percent	Right bank is adjacent to maintained residential lawn that extends to the bank edge with no riparian buffer. Mowing to the edge removes any potential for woody vegetation establishment and limits bank stabilization capacity. This is a significant concern for long-term bank stability and riparian function.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	2	The UP face confirms virtually no canopy cover over the stream at this location. The bare deciduous trees and absence of mature riparian trees mean even in full leaf, shade would be minimal. Currently in early spring with bare branches, shade is essentially zero. Even in summer, the few scattered trees would provide well under 25% shade cover.
Left Buffer Width	10 25ft	Score: 3/10
Right Buffer Width	under 10ft	Score: 1/10
TDEC 30ft Buffer Met?	L: No / R: No	Both banks fail to meet TDEC MS4 permit section 4.2.5.4 buffer requirements. The right bank is severely impacted by residential lawn maintenance extending to the bank edge. The left bank has a narrow, degraded buffer dominated by shrubs with no mature tree component. Both sides have high restoration potential - the right bank could benefit from cease-mowing zones and native tree/shrub planting, while the left bank could be enhanced with native tree planting and invasive removal.

Water Quality & Infrastructure · Scene 41

Water Quality Indicators

Metric	Score	Notes
Water Appearance	5	Water appears slightly turbid with a brownish color, possibly from fine sediment suspension or natural tannins. The extremely shallow depth makes clarity assessment difficult but the water is not excessively turbid. No oil sheen, film, or algal mats visible. The brown color may be partially from disturbed mud substrate. Score of 5 reflects moderate conditions.
Nutrient Enrichment	7	Algae: none
Manure/Waste	8	No direct evidence of manure, waste, or livestock access visible at this location. No livestock are observed in any direction. Adjacent agricultural fields appear to be crop fields rather than active pasture. No waste pipes or waste storage facilities visible. Score of 8 rather than 10 because agricultural fields in the vicinity could contribute runoff.
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 riparian buffer deficiency for MS4 visual stream survey records	medium	90_days
Confirm dry weather flow is natural baseflow and not from illicit connections upstream	low	annual

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