

Scene 39 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16943, -86.27121 · Generated October 22, 2026

OVERALL SCORE

4.9

Poor



Front: Looking downstream, a small stream channel is visible on the left side of the view flowing through a narrow, incised corridor. The right side shows open mowed pasture/grassland extending to the distance. The stream bank on the left has sparse deciduous vegetation (bare dormant trees and shrubs) with one evergreen cedar tree. Some flat rock slabs are visible in and along the channel bed.

Right: Open mowed pasture/grassland dominates the view extending to rural residential structures in the distance. Several large deciduous trees are bare, scattered across the landscape. A white house and outbuildings are visible in the middle distance. A utility pole with power lines is visible on the far right. The grass is a mix of green and dormant brown, typical of early spring transition.

Back: Looking upstream, the small stream channel is visible on the right side flowing toward the camera with shallow clear-to-slightly-turbid water over what appears to be natural limestone bedrock and gravel substrate. The left bank has scattered mature deciduous trees (bare) over mowed green grass. The right bank has denser shrub and tree vegetation including evergreen cedars. The channel is narrow, approximately 3-5 feet wide, with low banks.

Left: Dense dormant shrub and herbaceous vegetation dominates the view, forming a thicket along the left bank (when facing downstream). Rolling hills are visible in the far background. The vegetation is primarily dormant brown shrubs with some early spring green growth beginning. A few bare tree branches extend overhead from the upper left. Some structures are barely visible in the far right distance through the vegetation.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	5		marginal
Hydrologic Alteration	4		Fair
Sediment Deposition	6		Fair
Left Bank Stability	5		Fair
Right Bank Stability	3		Poor
Left Vegetative Protection	6		Fair
Right Vegetative Protection	3		Poor
Riparian Canopy Cover	3		Poor
Floodplain Vegetation	2		Poor
Water Appearance	6		Fair
Nutrient Enrichment	7		Good
Epifaunal Substrate	-		-

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 39

Black Branch scene #39 shows a small headwater stream flowing through a rural agricultural/pasture landscape near coordinates 36.169433, -86.271209. The stream is significantly impaired by the near-complete absence of riparian buffer on the right bank (mowed pasture to bank edge) and an inadequate narrow buffer on the left bank. The channel is moderately incised (Rosgen F-type), disconnected from its floodplain, and lacks instream habitat diversity including woody debris and deep pools. Water quality appears fair during dry weather conditions with no evidence of illicit discharge, but the degraded riparian and habitat conditions indicate the stream is not fully supporting its designated aquatic life uses. Priority management actions include riparian buffer establishment on both banks and long-term monitoring of channel stability.

Primary Stressors

riparian loss, bank erosion, sedimentation, channelization

Channel Assessment

Metric	Score	Notes
Channel Condition	5	Channel appears natural with no direct structural modifications, but shows moderate incision (3-6 ft bank heights for a stream this small indicate downcutting). The channel is somewhat entrenched relative to the adjacent floodplain pasture. No riprap or channelization observed, but natural geomorphic adjustment is occurring likely in response to land use changes.
Hydrologic Alteration	4	The channel shows moderate incision with banks 3-6 feet high for a stream that is only 3-5 feet wide. The adjacent pasture/floodplain appears well above normal flow levels, suggesting the stream has downcut and is partially disconnected from its floodplain. Mowed pasture extending to the bank edge on the right side likely increases flashiness through increased runoff.
Sediment Deposition	6	Limited sediment deposition observed. The channel bed shows primarily gravel and natural limestone substrate without heavy sediment accumulation. Some fine sediment may be present but the stream is small enough that it is difficult to assess precisely. The slightly turbid water may indicate some sediment transport.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	6	1_25_percent	Left bank has better vegetative cover with dense shrub thicket. Bank is moderately incised but root systems provide some stability. Natural limestone outcrops may provide localized bank toe protection.
Right	3	3	26_50_percent	Right bank is the most impacted. Mowed pasture extends directly to the bank edge with zero woody riparian buffer. This is a significant compliance concern regarding TDEC buffer requirements. Active erosion and bare soil visible on the steep bank face. This bank is a priority for riparian restoration.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	3	Currently in dormant season with bare deciduous canopy, so shade is very limited. Even in full leaf, the right bank has no canopy trees and the left bank has only scattered trees. Estimated summer canopy cover would be approximately 20-30% at best, concentrated on the left bank. The stream is largely exposed to direct sunlight.
Left Buffer Width	10 25ft	Score: 5/10
Right Buffer Width	under 10ft	Score: 1/10
TDEC 30ft Buffer Met?	L: No / R: No	This is a significant buffer compliance concern. The right bank has no functional riparian buffer, with mowed pasture extending directly to the bank edge. The left bank has some natural vegetation but it is narrow and does not meet the 30 ft minimum. Riparian restoration on both banks, particularly the right bank, should be a high priority. The flat, accessible terrain of the right bank floodplain makes restoration feasible with high potential for success.

Water Quality & Infrastructure · Scene 39

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water appears slightly turbid with a brownish tint but the bed is visible through the shallow water. Clarity appears reasonable for a small pasture stream during dry weather conditions. No oil sheen, foam, or film observed. The slight turbidity may be natural for this substrate type.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure or livestock waste observed in or near the stream. However, the adjacent pasture land could potentially be used for livestock grazing. No livestock, fencing to exclude livestock, or manure deposits are visible in the images. The mowed grass condition suggests the area may be maintained as lawn rather than active pasture.
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 on both banks, particularly the right bank with zero woody buffer	high	30_days
Map this reach as a priority area for riparian buffer restoration in the MS4 watershed plan	high	90_days
Verify no upstream stormwater outfalls are contributing to channel incision	medium	90_days

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