

Scene 11 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17007, -86.26896 · Generated October 23, 2026

OVERALL SCORE

5.6

Marginal



Front: Looking downstream, the channel curves slightly to the right through a narrow, wooded riparian corridor. A pool of standing/slow-moving water is visible with brown-tinted, slightly turbid water reflecting bare tree canopy. Large woody debris including a fallen log spans across the channel. Open agricultural field is visible to the left beyond the thin riparian strip.

Right: Looking toward the right bank (left bank when facing downstream), a steep wooded slope rises from the channel. Several deciduous trees in bare winter condition are present, along with a large fallen tree spanning horizontally. The ground is covered with leaf litter and some small rocks/rubble visible at the base near the channel. Beyond the riparian trees, an open agricultural or pasture field is faintly visible through the tree trunks.

Back: Looking upstream, the channel is visible as a shallow, flowing reach with brown-tinted water over a substrate that appears to be a mix of exposed rock and gravel. Significant root exposure is visible on the left bank (right bank facing downstream) where trees are perched above eroded banks. The channel appears slightly wider upstream. Open fields are visible on both sides beyond the narrow riparian corridor. Some flat rock fragments in the channel could be natural limestone bedrock or potentially concrete rubble—warrants closer inspection.

Left: Looking toward the left bank (right bank when facing downstream), an open agricultural pasture/field extends to the horizon. A red barn or agricultural building is visible in the distance. The riparian corridor is extremely narrow at this point, consisting of only a single row of bare deciduous trees and sparse shrubs. The transition from pasture to stream bank is abrupt with minimal buffer. Some green herbaceous growth is visible at ground level suggesting early spring emergence.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 11

Black Branch at this location is a small perennial warmwater stream in marginal condition, primarily impacted by inadequate riparian buffers and agricultural land use encroachment. The channel has incised to form an unstable Rosgen F-type, disconnecting from its floodplain and producing moderate bank erosion on both sides. Fine sediment from agricultural runoff is degrading substrate quality and water clarity. No stormwater infrastructure or outfalls are present at this rural location, but the absence of agricultural BMPs such as riparian buffers and livestock exclusion fencing represents a significant nonpoint source pollution concern for MS4 watershed management.

Primary Stressors

riparian loss, bank erosion, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears natural with no engineered modifications visible, but shows evidence of active incision and lateral erosion. The channel is somewhat entrenched relative to the adjacent floodplain, with moderate to steep banks. Root exposure on banks suggests ongoing downcutting. No artificial structures but the channel is responding to altered hydrology from surrounding agricultural land use.
Hydrologic Alteration	4	Channel shows moderate incision with banks 3-6 feet high relative to the bed. The stream appears disconnected from its floodplain, meaning only larger flood events access the floodplain. Agricultural drainage from surrounding fields likely increases flashiness and contributes to incision. Low flow conditions at the time of assessment further suggest altered hydrology.
Sediment Deposition	5	Moderate sediment deposition is evident. The downstream pool has brown/turbid water suggesting fine sediment inputs. Some aggradation is apparent from the exposed channel bed at the camera position, though the limestone substrate provides some resistance. Agricultural runoff is a likely sediment source. Approximately 20-30% of visible channel bottom appears affected by fine sediment deposition.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	4	4	26_50_percent	Left bank shows moderate erosion with active undercutting. Riparian buffer is narrow with agriculture immediately adjacent. Root exposure indicates ongoing lateral migration. Bank would benefit from buffer expansion and stabilization.
Right	5	5	1_25_percent	Right bank is slightly more stable than left with denser woody vegetation. Some fallen trees contribute natural bank armoring. Agricultural field visible beyond the riparian strip but buffer appears marginally wider on this side. Moderate erosion on outside of bends.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	4	Currently in winter bare-tree condition, canopy shade is very low, well under 25%. Even during full leaf-on conditions, the narrow riparian strip and sparse tree coverage would only provide approximately 30-50% shade over the channel. The combination of narrow buffer width and seasonal leaf loss results in low overall shade.
Left Buffer Width	under 10ft	Score: 3/10
Right Buffer Width	10 25ft	Score: 4/10
TDEC 30ft Buffer Met?	L: No / R: No	Significant buffer deficiency on both banks. Agricultural use extends to near the bank edge, particularly on the left bank. High potential for buffer restoration through agricultural set-aside or riparian planting programs. This is a priority area for buffer establishment to reduce sediment and nutrient loading from agricultural fields.

Water Quality & Infrastructure · Scene 11

Water Quality Indicators

Metric	Score	Notes
Water Appearance	5	Water has a brown/tan color with slight turbidity. In the downstream pool, clarity appears to be 1-2 feet with some objects partially visible through the water. No oil sheen, foam, or algal mats are observed. The brown color is consistent with suspended fine sediment typical of streams draining agricultural land in the region. During dry weather base flow, this turbidity level suggests ongoing fine sediment inputs.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure, waste, or livestock access to the stream is visible in this scene. The adjacent fields appear to be pasture or hay fields without current livestock presence visible. No manure on banks or in the stream. However, the pasture land use suggests potential for livestock access in other locations along the reach. Score slightly reduced from 10 due to agricultural land use context.
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	medium	90_days
Coordinate with agricultural extension services regarding voluntary riparian buffer establishment programs	medium	annual

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