

Scene 6 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17007, -86.26855 - Generated October 23, 2026

OVERALL SCORE

5.4

Poor



Front: Looking downstream, a very narrow thread of low flow water winds through a bed dominated by flat, angular limestone/shale substrate. Exposed tree roots from a large fallen or leaning tree are prominent on the right side of the channel. Dense dormant deciduous shrubs and small trees line both banks with early spring leaf-out beginning. A building or structure is faintly visible in the far left background through the vegetation.

Right: Looking toward the right bank (when facing downstream), dense dormant deciduous shrubs and small trees form a thick riparian thicket. Early spring green leaves are emerging on some shrubs, possibly bush honeysuckle or privet based on early leaf-out timing. The bank edge shows exposed roots, woody debris, and some flat rock fragments. Visibility into the landscape beyond is limited by the dense vegetation.

Back: Looking upstream, the narrow channel continues with very low flow over flat limestone/shale substrate. The bed is largely exposed with angular rock fragments. Dense dormant shrubs line both sides. A branch partially obstructs the camera view. Through gaps in vegetation on the right side, open pasture/agricultural land and distant structures are visible, indicating the stream corridor is bordered by agricultural land use. The bank on the right shows some bare soil exposure.

Left: Looking toward the left bank (when facing downstream), trees and sparse shrubs reveal open agricultural pasture beyond with a distant red barn/farm structure visible. The riparian buffer on this side is narrow — only a thin line of trees separates the stream from the open pasture. The bank shows exposed rock and soil. Some small deciduous trees are present but the buffer appears to be only 10-25 feet wide before transitioning to open grassland.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 6

Black Branch scene #6 reveals a small, entrenched headwater stream with low baseflow flowing through a narrow channel dominated by flat limestone/shale substrate. The stream is moderately impaired primarily due to channel incision disconnecting it from the floodplain, an inadequate riparian buffer on the left bank adjacent to agricultural pasture, and invasive shrub species dominating the right bank buffer. Water quality appears visually acceptable at baseflow, but habitat diversity is poor with limited pools and only 2 of 4 velocity-depth regimes present. No stormwater infrastructure or outfalls were observed at this rural location. Priority management actions include left bank riparian buffer restoration and invasive species management on the right bank.

Primary Stressors

bank erosion, riparian loss, sedimentation

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears natural with no direct structural modifications, but shows evidence of incision with moderately steep banks (3-6ft) and exposed tree roots indicating downcutting. The channel is entrenched below the surrounding floodplain. No riprap or channelization observed, but hydrologic alteration from adjacent agricultural land use has likely contributed to channel instability.
Hydrologic Alteration	4	Moderate channel incision with banks approximately 3-6ft high. The channel appears disconnected from its floodplain under normal conditions. Agricultural land use in the watershed has likely increased peak flows and contributed to channel degradation. Low flow conditions suggest possible flashy hydrology.
Sediment Deposition	5	The bed is dominated by flat limestone/shale fragments with some fine sediment accumulation. Some deposition of fines visible between rock fragments. No significant point bars or mid-channel bars observed, but the uniform nature of the bed suggests sediment transport issues. Estimated 10-30% of bed affected by fine sediment deposition among rock fragments.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	4	26_50_percent	Left bank has a narrow riparian buffer with sparse tree cover. Open agricultural pasture is visible directly beyond the thin tree line. Bank is steep with moderate height. Less vegetative protection than the right bank.
Right	5	6	1_25_percent	Right bank has dense shrub vegetation providing good coverage, but significant root exposure at bank toe indicates active undercutting. Early leaf-out species may be invasive bush honeysuckle or privet. Dense thicket extends well beyond bank top.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	During the early spring dormant-to-leaf-out period, canopy shade is approximately 25-50%. With deciduous trees mostly bare, shade is currently reduced. When in full leaf, the dense shrub thicket on the right bank and scattered trees on the left would likely provide 50-75% shade. Current conditions are adequate for a warmwater stream but marginal.
Left Buffer Width	10 25ft	Score: 3/10
Right Buffer Width	25 50ft	Score: 6/10
TDEC 30ft Buffer Met?	L: No / R: Yes	Left bank buffer is below TDEC 30ft minimum standard. Agricultural pasture extends within the required buffer zone. This is a high priority for buffer restoration. Right bank meets minimum width but would benefit from invasive species management to restore native vegetation composition.

Water Quality & Infrastructure · Scene 6

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water appears relatively clear at the thin flow thread with no obvious discoloration, sheen, or odor indicators. The water is slightly turbid but bed is visible through the shallow flow. Clarity appears reasonable for baseflow conditions in an agricultural watershed. No signs of oil sheen, foam, or algal growth observed.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No direct evidence of manure or waste in the stream channel. However, adjacent agricultural pasture on the left bank is clearly visible and livestock access to the riparian zone cannot be ruled out. No fencing visible to exclude livestock. The narrow riparian buffer on the left bank provides limited filtering of potential agricultural inputs.
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	moderate

Management Recommendations

Action	Priority	Timeline
Document inadequate riparian buffer on left bank for watershed management planning	medium	90_days
Continue downstream visual survey to document full reach conditions and identify any outfalls or illicit discharges	medium	annual

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