

Scene 47 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16897, -86.27192 · Generated October 23, 2026

OVERALL SCORE

4.6

Poor



Front: Looking downstream, a very narrow shallow stream channel flows through a semi-rural landscape. The channel is 3-5 feet wide with exposed rocky/rubble substrate. Bare deciduous trees line the channel corridor. Beyond the riparian zone, open pasture/agricultural fields extend on both sides. Some scattered litter is visible along the channel margins.

Right: Looking toward the right bank (left bank when facing downstream from upstream), the view shows a mowed grass area transitioning to open pasture/agricultural fields. Bare deciduous trees stand along the bank with some brush piles and debris. Power/utility lines are visible in the background. A structure (possibly a barn or shed) is partially visible in the far left background. The bank shows moderate height with some bare soil and erosion evident.

Back: Looking upstream, the stream bank is heavily vegetated with dense shrubs and invasive-looking evergreen vegetation (likely privet or bush honeysuckle retaining green leaves in early spring). A large bare deciduous tree stands prominently. The bank appears steep with exposed roots and soil. Open pasture is visible beyond the vegetation. The stream channel is partially visible at lower right with flowing water over rocky substrate.

Left: Looking toward the left bank (right bank facing downstream), open pasture/agricultural land extends into the distance with scattered deciduous trees. The stream channel is visible at the left edge of the frame with flowing turbid water. The bank is low with grass and herbaceous vegetation. The landscape is flat to gently rolling with dormant winter/early spring grass. A fence post is visible suggesting agricultural use. The riparian buffer is very narrow here, transitioning quickly to open grassland.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 47

Black Branch at position 47 of 53 is a small headwater stream in poor condition, flowing through an agricultural landscape with severely deficient riparian buffers on both banks. The channel is very shallow and uniform with limited habitat diversity — no pools, minimal woody debris, and only 2-3 fish cover types present. Bank erosion is active on the right bank with invasive privet colonizing the disturbed areas. The primary stressors are riparian loss from agricultural encroachment, sedimentation from pasture runoff, and active bank erosion. No stormwater infrastructure or outfalls were observed at this rural location. Riparian buffer restoration is the highest priority management action for this reach.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	6	Channel appears largely natural with no direct engineered alterations visible. However, adjacent agricultural land use has likely influenced channel form over time. Some bank erosion and incision is apparent but not severe. The channel maintains connection to its floodplain. Score of 6 reflects a generally natural channel with some degradation from surrounding land use.
Hydrologic Alteration	6	Channel appears to have slight incision with banks of moderate height visible in some views. Floodplain appears accessible during higher flows. No dams or major structures limiting connectivity. Agricultural land use may have increased peak flows and altered hydrology. Score of 6 reflects slight hydrologic modification primarily from land use change.
Sediment Deposition	6	Some fine sediment deposition is evident on the channel margins and between larger substrate particles. The channel bed shows a mix of cobble and smaller particles with some fines filling interstitial spaces. Not heavy deposition but more than minimal. Score of 6 reflects moderate sediment input likely from surrounding agricultural land.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	4	1_25_percent	Left bank is lower than right bank with grass-dominated cover. Minimal riparian buffer; pasture extends close to bank edge. Fence post visible indicating agricultural property boundary. Low bank height reduces erosion risk but lack of deep-rooted vegetation limits long-term stability.
Right	4	5	26_50_percent	Right bank is higher and steeper than left bank with active erosion processes including undercutting and slumping. Dense invasive shrub growth (likely privet) on upper bank. Mowed grass area visible beyond the immediate bank, suggesting property maintenance extends close to the stream. Overhead utility lines cross near the right bank.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	3	Current canopy cover is very low due to dormant season conditions with bare deciduous trees. Even at full leaf-out, the sparse tree coverage along this reach would provide less than 25% shade. The open agricultural landscape allows significant solar exposure. Score of 3 for warmwater stream with less than 25% 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	Both banks fall well short of TDEC MS4 permit section 4.2.5.4 minimum buffer requirements. Agricultural use (pasture) extends nearly to the stream bank on the left side. The right side has some woody vegetation but is dominated by invasive species. High potential for buffer restoration through native tree and shrub planting and invasive removal. Fencing to exclude livestock may also be needed.

Water Quality & Infrastructure · Scene 47

Water Quality Indicators

Metric	Score	Notes
Water Appearance	5	Water has slight brown turbidity but is not severely clouded. The stream is so shallow that the bed is easily visible throughout. The brownish color suggests some suspended sediment, likely from upstream agricultural sources. No sheen, foam, or algal mats observed. Score of 5 reflects slightly turbid water under apparent dry weather conditions.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	Adjacent pasture land suggests livestock use of the area, and the minimal fencing visible indicates potential livestock access to the riparian zone. However, no direct evidence of manure in the stream or on the banks is visible in these images. Score of 7 reflects potential but not confirmed livestock impact.
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 watershed planning and buffer restoration prioritization	medium	90_days
Verify no illicit discharges upstream contributing to turbidity — confirm base flow turbidity is from diffuse agricultural sources	low	annual

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