

Scene 42 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16919, -86.27151 · Generated October 23, 2026

OVERALL SCORE

4.5

Poor



Front: Looking downstream, a small narrow stream channel is visible flowing through a rural area. The left bank has dense dormant shrubs and a few scattered trees including an eastern red cedar, with agricultural fields visible in the background including a red barn structure. The right bank has mowed grass extending to the stream edge with minimal riparian buffer.

Right: The right bank (left when facing downstream) shows a wide expanse of mowed grass lawn extending to a white residential house with an outbuilding/carport. A utility pole with power lines is visible. The lawn is mowed right up to the stream edge with essentially no riparian buffer. A few scattered deciduous trees are present in the yard, mostly bare.

Back: Looking upstream, the narrow stream channel is visible on the right side of the frame with shallow water flowing through it. The left side shows a wide mowed lawn extending to several outbuildings and an older farmhouse with a metal roof. The stream bank on the right has dormant shrubby vegetation. Some flat rock material is visible in and along the stream bed which could be natural limestone outcrops consistent with the region's geology.

Left: The left bank (right bank when facing downstream) shows the stream channel with moderately steep eroding banks. Dense dormant shrubby vegetation lines the bank top with some scattered cedars and deciduous trees. Beyond the narrow riparian strip, agricultural pasture or hay fields extend into the distance. Exposed soil and some rock fragments are visible along the bank face. The bank shows active erosion with undercut areas.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	5		marginal
Hydrologic Alteration	4		Fair
Sediment Deposition	5		Fair
Left Bank Stability	5		Fair
Right Bank Stability	3		Poor
Left Vegetative Protection	5		Fair
Right Vegetative Protection	2		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 42

Black Branch at this location (Scene #42) is a small, incised headwater stream in poor condition, flowing through rural agricultural and residential land. The stream exhibits severe riparian buffer deficiency on both banks, with mowed lawn extending to the stream edge on the right bank and only a narrow shrub strip on the left bank. Channel incision has disconnected the stream from its floodplain, leading to active bank erosion and a degraded geomorphic condition. Instream habitat is extremely limited with silt-dominated substrate, no significant large woody debris, and uniform shallow flow lacking pool-riffle development. No stormwater outfalls or MS4 infrastructure were observed, consistent with the rural setting. Priority management actions should focus on riparian buffer establishment on both banks and addressing the root causes of channel incision.

Primary Stressors

riparian loss, bank erosion, sedimentation, channelization

Channel Assessment

Metric	Score	Notes
Channel Condition	5	The channel appears naturally formed without direct structural alterations, but there is evidence of channel incision and active bank erosion. The stream is downcutting into its floodplain, likely driven by increased runoff from the surrounding agricultural land use and lack of riparian buffer. No riprap or channelization is present, but the active downcutting and lateral cutting warrants a mid-range score.
Hydrologic Alteration	4	The channel appears moderately incised with banks approximately 3-6ft high relative to the narrow channel. The stream is likely disconnected from its floodplain for most flow events. The surrounding agricultural land use and mowed yards may contribute to flashier hydrology. Incision level suggests flooding of the adjacent floodplain occurs only during significant events.
Sediment Deposition	5	The stream bed appears to be silt-dominated with fine sediment throughout. While no distinct point bars or mid-channel bars are visible, the uniform silt substrate suggests chronic sediment loading from the surrounding agricultural land. The lack of defined pools and riffles indicates sediment deposition has homogenized the channel.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	5	5	26_50_percent	Left bank has a narrow strip of dormant shrubby vegetation but transitions quickly to agricultural pasture/hay fields beyond. The narrow buffer provides limited protection. Active undercutting and scour evident at bank toe. Moderate 3-6ft bank heights with steep angles.
Right	3	2	26_50_percent	Right bank is severely compromised by mowing practices extending grass to the stream edge. No woody riparian vegetation buffer exists. Bank faces show active erosion with steep angles. Residential property with house visible approximately 100-150ft from stream.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	2	Canopy cover is very limited, estimated at less than 25%. The UP face confirms mostly open sky with only scattered bare branches. A few cedars and deciduous trees provide minimal shade. During leaf-out, canopy may increase slightly but will remain well below 25% given the sparse tree distribution.
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 more severely impacted with active mowing to the bank edge and a residential structure within 150ft. The left bank has some natural regeneration that could be enhanced. Both banks present good restoration potential if mowing practices change and riparian planting is implemented.

Water Quality & Infrastructure · Scene 42

Water Quality Indicators

Metric	Score	Notes
Water Appearance	5	Water appears slightly turbid with a brown coloration, likely from suspended fine sediments. Clarity appears to be approximately 0.5-1ft based on the ability to partially see the bed in shallow areas. No oil sheen, algal mats, or scum are visible. The brown color is consistent with silt-laden water from the surrounding agricultural land use.
Nutrient Enrichment	7	Algae: none
Manure/Waste	8	No direct evidence of manure or waste discharge is visible. No livestock are present and no signs of livestock access to the stream are apparent. The agricultural fields adjacent appear to be hay or pasture but no animals are visible. The farmstead buildings are set back from the stream. Minor score reduction because of the proximity of agricultural operations.
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 this reach as lacking adequate riparian buffer per TDEC buffer requirements on both banks	medium	90_days
Verify reach inclusion in MS4 outfall mapping; no outfalls detected but confirm no unmapped inputs exist	low	annual

Terrain360 - terrain360.com/trail/black-branch-2/scene/42/analysis