

Scene 37 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16955, -86.27103 · Generated October 22, 2026

OVERALL SCORE

4.8

Poor



Front: Looking downstream, a very narrow, shallow stream channel flows over exposed flat rock substrate through a rural pastoral setting. The channel is approximately 2-4 feet wide with minimal water depth. On the left side, dormant herbaceous vegetation and a few scattered trees including eastern red cedars line the bank. On the right, a mowed green pasture extends to the channel edge. A red barn or agricultural building is visible in the far left background.

Right: Looking toward the right bank (facing downstream), an open mowed green pasture extends from the channel edge. Several scattered deciduous trees (bare) are present, and a white agricultural outbuilding or shed is visible in the middle distance. A utility pole with overhead lines is visible on the far left. The pasture grass extends very close to the stream channel with essentially no riparian buffer zone. The landscape is flat rural agricultural land.

Back: Looking upstream, the narrow stream channel continues with exposed flat limestone bedrock substrate and very shallow flow. The channel meanders slightly through a pastoral landscape with scattered deciduous trees on both sides. The left bank (right side looking upstream) shows mowed green pasture extending very close to the channel. The right bank (left side looking upstream) has slightly more herbaceous/shrub cover with dormant vegetation. Several trees line the channel intermittently. Flat rock substrate is prominently exposed in the channel.

Left: Looking toward the left bank (facing downstream), dense dormant herbaceous vegetation including tall dried grasses, weeds, and scattered shrubs extends from the bank. Several deciduous trees (bare) and eastern red cedars provide some overhead structure. The vegetation is thicker and more natural on this side compared to the mowed right bank. Behind the immediate riparian zone, more open agricultural land and distant tree lines are visible. This side has a more functional, though narrow, buffer compared to the right bank.

Assessment Scores

Component	Score	Visual	Rating
Channel Condition	7		fair
Hydrologic Alteration	7		Good
Sediment Deposition	7		Good
Left Bank Stability	7		Good
Right Bank Stability	6		Fair
Left Vegetative Protection	7		Good
Right Vegetative Protection	5		Fair
Riparian Canopy Cover	3		Poor
Floodplain Vegetation	2		Poor
Water Appearance	7		Good
Nutrient Enrichment	8		Good
Epifaunal Substrate	-		-

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 37

Black Branch at this location is a very small headwater stream flowing over exposed limestone bedrock in a rural agricultural setting near Nashville, TN. The stream is severely impacted by the near-complete absence of riparian buffer, particularly on the right bank where mowed pasture extends directly to the channel edge. Instream habitat is extremely limited with bedrock-dominated substrate, no large woody debris, minimal pool habitat, and only 2 fish cover types available. While water quality appears visually adequate and the channel maintains natural geomorphology with full floodplain connectivity, the lack of riparian functions (shading, bank stabilization, organic matter input, filtering) severely limits overall stream health. No stormwater infrastructure, outfalls, or illicit discharges were observed in this rural reach.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	7	The channel appears natural with no evidence of straightening, riprap, or concrete modification. The bedrock substrate provides natural grade control. However, the very narrow and shallow nature of the channel, combined with adjacent pasture use, suggests some historical impact from agricultural land clearing. The channel maintains floodplain connectivity with low banks.
Hydrologic Alteration	7	The stream has low banks and appears to maintain floodplain connectivity. No incision is evident - the channel sits at grade with the surrounding pasture. The bedrock substrate prevents downcutting. Agricultural land use in the watershed may have altered hydrology somewhat, but floodplain access is maintained.
Sediment Deposition	7	The bedrock substrate dominates and shows minimal fine sediment deposition. Some mud and silt is visible in low spots between rock in the down view, but overall deposition is minor. The bedrock nature of the channel limits sediment accumulation potential.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	7	7	0_percent	Left bank has better vegetative cover than right bank. Low, stable banks with moderate herbaceous and shrub buffer. Some eastern red cedars provide additional structure. Winter dormancy limits visual assessment of vegetation density.
Right	6	5	1_25_percent	Right bank severely lacks riparian buffer. Mowed pasture extends directly to channel edge with no transition zone. While banks are naturally stable due to low height and bedrock, the lack of woody vegetation reduces long-term bank stability and ecosystem function.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	3	During winter dormancy, canopy cover is very low with bare deciduous trees providing minimal shade. Even during growing season, the scattered nature of trees and lack of continuous canopy would likely result in less than 25% shade over this reach. The right bank contributes almost no shading.
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 reach has significant riparian buffer deficiency on both banks. The right bank is most critically impacted with mowed pasture extending to the channel edge. Agricultural land use patterns make buffer restoration feasible if landowner cooperation can be obtained. This area would benefit greatly from TDEC MS4 permit section 4.2.5.4 buffer restoration efforts.

Water Quality & Infrastructure · Scene 37

Water Quality Indicators

Metric	Score	Notes
Water Appearance	7	Water appears relatively clear where visible, with the bed easily discernible through the shallow water. Some slight turbidity or brownish color is noted in the down view, but water clarity appears adequate. No sheen, foam, or discoloration observed. The shallow depth limits clarity assessment, but visibility through the water column appears good.
Nutrient Enrichment	8	Algae: none
Manure/Waste	7	While no manure is directly visible in the stream, the mowed pasture extending to the channel edge on the right bank indicates livestock or agricultural use. The area appears to be actively managed agricultural land. No livestock are visible in the current scene, but the land use suggests potential for livestock access. No waste pipes or obvious manure deposits observed.
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	intermittent
Gradient	low_flat

Management Recommendations

Action	Priority	Timeline
Document this reach as having severe riparian buffer deficiency for watershed planning purposes	medium	90_days
Verify no livestock have direct access to stream channel; if present, recommend exclusion fencing	medium	90_days

Terrain360 - terrain360.com/trail/black-branch-2/scene/37/analysis