

Scene 14 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17006, -86.26923 · Generated October 23, 2026

OVERALL SCORE

6.3

Marginal



Front: Looking downstream, a narrow shallow stream flows over exposed flat limestone/bedrock substrate with scattered thin rock slabs. The channel is very narrow (approximately 3-5 feet wide) with minimal water depth. Deciduous trees (bare) and cedar trees line both banks, with open agricultural fields visible to the left beyond a thin riparian strip. Dense dormant brush and debris are present along both banks.

Right: Looking toward the right bank (facing downstream), a cedar tree with exposed roots stands at the bank edge. The bank rises moderately with dense dormant brush, vines, and dead herbaceous vegetation. Beyond the narrow riparian strip, what appears to be agricultural land or open fields with structures (possibly farm buildings) are faintly visible through the bare vegetation. The bank shows some root exposure and bare soil patches.

Back: Looking upstream, the narrow channel continues with shallow water flowing over exposed bedrock/limestone substrate. A large cedar tree with significant root exposure grows on the left bank, leaning over the channel. Flat limestone bedrock forms the channel bed with thin sheets of rock visible. The right bank shows exposed rock ledges. Dense dormant vegetation and open agricultural fields are visible beyond the narrow riparian corridor on the right side. A person in safety gear (the surveyor's equipment) is partially visible at the right edge.

Left: Looking toward the left bank (facing downstream), a field surveyor wearing a Petzl safety helmet and high-visibility gear is visible wading in the stream. The left bank is low with bare soil and scattered flat limestone rock fragments. Beyond the narrow band of dormant trees and shrubs, open agricultural fields with a red barn or farm building are clearly visible, indicating a very thin riparian buffer on this side. The bank has moderate bare soil exposure with some dormant herbaceous cover.

Assessment Scores

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

Urgency: MEDIUM TERM 6 12 MONTHS

Detailed Observations · Scene 14

Black Branch Scene #14 is a small bedrock-controlled headwater stream flowing through an agricultural landscape in Wilson County, Tennessee. Water quality appears good with clear flow over exposed Ordovician limestone bedrock. The primary limitations are habitat-related: the bedrock substrate lacks pool depth and habitat complexity, large woody debris is essentially absent, and the narrow riparian buffer (particularly on the left bank where agriculture encroaches to within 10-25 feet) limits both ecological function and TDEC buffer compliance. No stormwater infrastructure, outfalls, or illicit discharges were observed in this rural setting. Management priorities should focus on riparian buffer restoration and enhancement of instream habitat complexity.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	8	Channel appears natural with no visible alteration, straightening, or armoring. Bedrock-controlled channel limits downcutting. Some minor bank erosion but within natural range for a bedrock stream. The channel form appears to reflect natural geomorphic processes.
Hydrologic Alteration	7	The channel appears slightly incised into the bedrock but low banks suggest reasonable floodplain connectivity. Adjacent agricultural land use may have altered watershed hydrology somewhat through increased runoff. The channel appears to access floodplain during moderate events given the low bank heights.
Sediment Deposition	8	Bedrock-dominated channel shows very little sediment deposition. Some fine sediment has accumulated in crevices and low spots of the bedrock, but overall the bed is clean bedrock with minimal deposition. The bedrock substrate inherently resists significant sediment accumulation.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	6	5	1_25_percent	Left bank transitions quickly from narrow riparian strip to open agricultural fields. Thin buffer is the primary concern. Red barn/farm building visible beyond buffer. Bank is naturally low and relatively stable due to bedrock control.
Right	6	6	1_25_percent	Right bank has somewhat better vegetative protection than left bank, with cedar trees providing year-round root stabilization. Some undercutting evident at the base of the cedar tree. Agricultural land and possible structures visible beyond the riparian strip but buffer appears slightly wider on this side.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	During winter leaf-off conditions, canopy coverage is approximately 25-40% based on bare branch structure and cedar trees. During the growing season, deciduous leaf-out would increase coverage to perhaps 50-70%. The narrow buffer width limits the extent of overhead shading, particularly on the left bank side where agriculture is close.
Left Buffer Width	10 25ft	Score: 3/10
Right Buffer Width	25 50ft	Score: 5/10
TDEC 30ft Buffer Met?	L: No / R: Yes	The narrow riparian buffer on the left bank is a compliance concern. Agricultural fields extend close to the stream channel. Buffer restoration through replanting and establishment of a wider vegetated corridor would significantly improve filtering function and TDEC compliance. The flat topography and agricultural setting suggest high potential for buffer restoration.

Water Quality & Infrastructure · Scene 14

Water Quality Indicators

Metric	Score	Notes
Water Appearance	8	Water is very clear at this location. The bedrock substrate is clearly visible through the shallow water with excellent clarity. No turbidity, discoloration, oil sheen, or algal growth observed. The water appears clean and free of contaminants. Some slight brown tint may be from natural tannins but overall clarity is excellent.
Nutrient Enrichment	8	Algae: minor
Manure/Waste	8	No evidence of manure, waste, or livestock access observed at this specific location. The adjacent agricultural land appears to be crop-based rather than pasture based on the visible open field conditions. No livestock, fencing for livestock exclusion, or manure deposits observed. However, farm buildings are visible nearby.
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 narrow left bank riparian buffer for TDEC buffer compliance tracking	medium	90_days
Verify agricultural operations are not contributing direct runoff to stream during growing season	low	annual

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