

Scene 36 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.16962, -86.27094 · Generated October 22, 2026

OVERALL SCORE

5.5

Marginal



Front: Looking downstream, a very narrow channel (approximately 3-5 feet wide) flows through a pastoral landscape. The channel has exposed flat rock substrate with thin sheet flow over it. Scattered deciduous trees line the corridor, all bare of leaves. The right side shows mowed green pasture extending to the horizon, while the left side has dormant herbaceous cover and some shrubby growth.

Right: Looking toward the right bank, a mowed green pasture extends across a gently rolling landscape. A single mature deciduous tree with lichen-covered bark stands prominently. Beyond the pasture, a dense thicket of bare shrubs and small trees forms a hedgerow. The grass is short and well-maintained, indicating active grazing or mowing. No stream infrastructure visible.

Back: Looking upstream, the narrow channel continues with exposed bedrock and thin flowing water over limestone. Both banks are low with some minor erosion visible on the left bank where turf has been undercut. A yucca plant grows on the left bank edge. The right bank has dormant herbaceous vegetation and scattered shrubs. Mature deciduous trees line both sides at varying distances. The landscape is open pastoral on the left with denser shrub/tree cover on the right.

Left: Looking toward the left bank, a moderately dense thicket of dormant deciduous trees and shrubs extends from the stream corridor. The understory has dormant herbaceous growth with some green patches. A few yucca plants are visible in the understory, which are non-native ornamental plants that may indicate past homestead activity. Some evergreen trees (possibly cedar) visible in the mid-ground. The vegetation is denser on this side compared to the right bank pasture.

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	5		Fair
Left Vegetative Protection	6		Fair
Right Vegetative Protection	5		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 36

Black Branch at scene #36 is a small, bedrock-controlled headwater stream flowing through a rural agricultural/pastoral landscape east of Nashville. The channel exhibits natural morphology with limestone bedrock controlling grade and preventing incision, and good floodplain connectivity. However, the stream is significantly limited by severely deficient riparian buffer on the right bank where mowed pasture extends to the channel edge, complete absence of large woody debris, and extremely shallow flow over featureless bedrock providing minimal aquatic habitat diversity. Water quality indicators are fair with no evidence of contamination, but the lack of riparian buffer on one side creates vulnerability to nutrient runoff, thermal stress, and continued bank erosion. No stormwater infrastructure or outfalls were observed at this rural location.

Primary Stressors

riparian loss, sedimentation, bank erosion

Channel Assessment

Metric	Score	Notes
Channel Condition	8	Channel appears natural with no evidence of straightening, riprap, or other structural alteration. The bedrock-controlled channel limits downcutting. Some minor lateral erosion at bank edges but overall the channel form is natural. Score reduced slightly from 10 because the adjacent pasture land use may have historically influenced the channel corridor, and some minor bank scour is evident.
Hydrologic Alteration	7	Channel is bedrock-controlled with very low banks, suggesting good floodplain connectivity. The flat pasture on the right bank likely receives flood waters during higher flows. No incision evident - bedrock prevents downcutting. Minor score reduction due to upstream agricultural land use potentially altering hydrology with faster runoff from maintained pasture.
Sediment Deposition	8	Bedrock-dominated substrate shows minimal sediment deposition. The bedrock is largely exposed with very little accumulated fine sediment. Some thin mud/silt wash over the bedrock but no significant bar formation. The bedrock control limits deposition potential.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	6	6	1_25_percent	Left bank has better riparian buffer than right bank with denser shrub/tree cover extending away from the channel. Some yucca plants present which may indicate old homestead site. Minor erosion at bank-channel interface.
Right	5	5	1_25_percent	Right bank has minimal riparian buffer - mowed pasture extends to channel edge. Scattered mature trees provide some shade but insufficient woody root structure for bank protection. This is the more compromised bank in terms of riparian function.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	Currently in winter with bare deciduous trees, shade is minimal (<25%). During summer leaf-out, the scattered trees along the corridor would provide perhaps 25-50% shade over the narrow channel. The narrow channel width means that even scattered trees can provide moderate shade when in leaf. Current winter condition is unshaded but this would improve significantly in growing season. Score reflects estimated annual average condition.
Left Buffer Width	25 50ft	Score: 7/10
Right Buffer Width	under 10ft	Score: 3/10
TDEC 30ft Buffer Met?	L: Yes / R: No	The right bank has severe buffer deficiency with mowed pasture/lawn extending to the channel edge. This is a significant deviation from TDEC MS4 permit section 4.2.5.4 requirements. Buffer restoration on the right bank would be highly beneficial and feasible given the flat terrain and available area. Left bank buffer is marginally adequate.

Water Quality & Infrastructure · Scene 36

Water Quality Indicators

Metric	Score	Notes
Water Appearance	6	Water is slightly turbid with a brownish tint, which is partially attributable to the limestone bedrock color showing through the very shallow water. The water does not appear heavily turbid but is not crystal clear either. No oil sheen, foam, or other contamination indicators visible. Depth is too shallow to properly assess clarity depth. Score reflects slightly brownish water that may be influenced by minor sediment or natural bedrock coloration.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No manure or waste is visible in the stream or on the banks. The mowed pasture on the right bank could support livestock, but no animals are visible and no manure, hoof prints, or livestock access trails are evident. Fencing visible in the right bank view may serve to restrict livestock access. Score of 7 rather than 10 because the pastoral land use creates potential for livestock-related impacts even if not currently 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	perennial
Gradient	low_flat

Management Recommendations

Action	Priority	Timeline
Document lack of riparian buffer on right bank as part of visual stream survey inventory	medium	annual
Verify that upstream and downstream reaches are included in outfall mapping inventory even though no outfalls found at this scene	low	annual

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