

Scene 22 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17008, -86.26977 · Generated October 22, 2026

OVERALL SCORE

3.8

Poor



Front: Looking downstream, a narrow channel (approximately 2-3 feet wide) flows through a heavily disturbed area. A red-roofed open-front agricultural storage shed/barn is visible on the left bank, set back approximately 30-40 feet from the channel. The channel bed is dominated by flat, angular rock fragments that appear to be broken concrete rubble rather than natural bedrock, with some weathered pieces showing aggregate patterns. A gravel driveway/pad is visible adjacent to the shed.

Right: Looking toward the right bank (facing downstream), dense thicket of shrubs and vines dominates. Many of the green-leaved shrubs appear to be bush honeysuckle or privet based on their semi-evergreen leaf retention in winter. Bare deciduous trees are visible above the shrub layer. The bank slopes upward from the channel through this dense vegetation.

Back: Looking upstream, the very narrow channel is visible with thin water flow over flat rock/concrete substrate. The channel is bordered by dense shrubby invasive vegetation and bare deciduous trees. The substrate consists of flat, angular pieces that appear to be broken concrete or limestone rubble. Open agricultural fields are visible beyond the right bank tree line. Orange-colored objects (possibly osage orange fruits) are scattered on the ground.

Left: Looking toward the left bank (facing downstream), an expansive open agricultural field (pasture or hay field) extends into the distance. The riparian buffer on the left bank is extremely narrow - only a few scattered trees separate the stream from the open field. A few farm structures (red barn/buildings) are visible in the distance. A piece of white litter (possibly fabric or plastic) is visible on the ground near the stream. The buffer is clearly insufficient, perhaps only 10-20 feet of sparse tree cover.

Assessment Scores

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

Urgency: SHORT TERM 1 6 MONTHS

Detailed Observations · Scene 22

Black Branch at Scene 22 is a severely degraded headwater stream flowing through an agricultural landscape in Wilson County, TN. The channel bed has been filled with concrete rubble/construction debris, eliminating natural substrate and destroying aquatic habitat. The left bank riparian buffer is critically deficient (under 10 feet) due to encroachment by an agricultural storage shed and gravel driveway, while the right bank is dominated by invasive shrubs (likely bush honeysuckle or privet). Water quality indicators are fair, with no obvious contamination, but the absence of functional habitat renders the reach nearly devoid of ecological value. Key MS4 compliance concerns include potential unpermitted fill material in the stream channel, a green hose/tubing of unknown purpose, and failure to meet minimum 30-foot riparian buffer requirements.

Primary Stressors

sedimentation, channelization, riparian loss, other

Channel Assessment

Metric	Score	Notes
Channel Condition	3	The channel bed is heavily altered with dumped concrete rubble. While there is no formal channelization, the substrate has been completely replaced with artificial material. The concrete debris fills much of the channel cross-section and has altered natural channel morphology. Adjacent agricultural shed and gravel pad indicate historic site modification. Score of 3 reflects substantial alteration but floodplain connection still partially intact.
Hydrologic Alteration	5	The channel is slightly incised but not deeply entrenched. The low banks suggest the channel can still access its floodplain during moderate events. Adjacent agricultural fields appear relatively flat and accessible. The concrete rubble fill may have altered local hydraulics but overall connection appears moderate. Green hose suggests possible water withdrawal.
Sediment Deposition	3	While much of the bed is concrete rubble rather than natural sediment deposits, fine sediment has accumulated around and between the concrete pieces. The uniform, shallow flow suggests pools have been filled with debris and sediment. The concrete rubble itself acts as a form of deposition/fill that has drastically altered the channel bed. Score of 3 reflects moderate artificial and natural deposition.

Bank Assessment

Side	Stability	Veg. Protection	Erosion	Notes
Left	4	3	1_25_percent	Left bank is the more impacted side due to proximity of agricultural infrastructure (shed, gravel drive). The riparian buffer is critically narrow. Concrete rubble dump along bank toe. Open agricultural field begins within approximately 20 feet of channel.
Right	6	5	0_percent	Right bank is better vegetated but dominated by invasive shrubs. Dense thicket provides physical stability but poor ecological function. Agricultural fields visible beyond the riparian zone suggest buffer is narrow on this side as well.

Riparian Assessment

Metric	Score/Value	Notes
Canopy Cover	5	Currently in winter leaf-off, so shade assessment is limited. The canopy structure suggests approximately 50-75% shade when in full leaf on the right bank, but the left bank would receive substantial direct sunlight due to the narrow buffer and open field. Overall estimated summer shade of 25-50% across the channel. Score of 5 reflects moderate shading potential.
Left Buffer Width	under 10ft	Score: 2/10
Right Buffer Width	25 50ft	Score: 5/10
TDEC 30ft Buffer Met?	L: No / R: No	Left bank buffer is critically deficient with agricultural structures and gravel driveway within 20 feet of channel. Right bank buffer exists but is dominated by invasive species. Buffer restoration should focus on widening the left bank buffer and replacing invasive species on the right bank with native plantings. TDEC MS4 permit section 4.2.5.4 buffer requirements are not met at this location.

Water Quality & Infrastructure · Scene 22

Water Quality Indicators

Metric	Score	Notes
Water Appearance	5	Water appears slightly gray/turbid but flow is so shallow that clarity assessment is difficult. No obvious sheen, foam, or scum is visible. The gray color may be partly due to sediment suspension from the concrete substrate. No strong discoloration or obvious contamination indicators. Score of 5 reflects the difficulty in assessment due to very shallow water and slightly turbid appearance.
Nutrient Enrichment	7	Algae: minor
Manure/Waste	7	No manure or direct livestock access visible at this location. However, the adjacent agricultural field and farm structures suggest potential livestock activity in the area. No fencing prevents animal access to the stream. The green hose in the channel could be for animal watering. Score of 7 reflects no direct evidence but potential for livestock access.
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
Investigate concrete rubble dumping in channel for potential Section 404/ARAP violation	high	30_days
Investigate green hose/tubing in channel for potential unpermitted discharge or withdrawal	high	30_days
Document riparian buffer encroachment on left bank for buffer compliance records	medium	90_days
Complete dry weather screening of upstream contributing area to identify potential inputs	medium	90_days

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