

# Scene 20 · MS4 Assessment

Black Branch 2

City of Lebanon TN

36.17008, -86.26969 · Generated October 22, 2026

OVERALL SCORE

5.5

Marginal



**Front:** Looking downstream, a very narrow channel with minimal water flow is visible winding through exposed rocky substrate. A structure with a red/orange roof is visible in the background on the left bank, partially obscured by bare deciduous trees. Large fallen tree trunk and woody debris are prominent on the right side of the channel.

**Right:** The right bank (left bank when facing downstream) shows a moderately steep wooded hillside with bare deciduous trees and dense understory of dormant vines and shrubs. A large fallen/leaning tree trunk crosses diagonally through the view. The ground is covered with leaf litter and some early green herbaceous growth. No water or channel is visible from this angle.

**Back:** Looking upstream, the narrow channel continues with exposed rocky substrate and very shallow water. A prominent tree trunk stands in the center of view. Through the bare trees, an open agricultural field is visible in the distance on the left side (right bank when facing downstream). The channel bed shows flat rock pieces and cobble with water visible between rocks.

**Left:** The left bank (right bank when facing downstream) shows a narrow riparian buffer of bare deciduous trees and one prominent eastern red cedar/pine giving way to a large open agricultural field in the background. The field appears to be fallow or recently harvested with brown/tan exposed soil visible. Farm equipment (red-colored) is visible in the distant field. The riparian buffer is very narrow here, perhaps 25-50 feet wide.

## Assessment Scores

| Component                   | Score | Visual      | Rating   |
|-----------------------------|-------|-------------|----------|
| Channel Condition           | 6     | <div></div> | marginal |
| Hydrologic Alteration       | 5     | <div></div> | Fair     |
| Sediment Deposition         | 5     | <div></div> | Fair     |
| Left Bank Stability         | 6     | <div></div> | Fair     |
| Right Bank Stability        | 5     | <div></div> | Fair     |
| Left Vegetative Protection  | 6     | <div></div> | Fair     |
| Right Vegetative Protection | 5     | <div></div> | Fair     |
| Riparian Canopy Cover       | 5     | <div></div> | Fair     |
| Floodplain Vegetation       | 2     | <div></div> | Poor     |
| Water Appearance            | 6     | <div></div> | Fair     |
| Nutrient Enrichment         | 7     | <div></div> | Good     |
| Epifaunal Substrate         | -     |             | -        |

Urgency: MEDIUM TERM 6 12 MONTHS

## Detailed Observations · Scene 20

Black Branch at this location (#20 of 53) is a small, intermittent headwater stream flowing through a narrow riparian corridor with agricultural land immediately adjacent on the right bank. The channel is moderately incised and disconnected from its floodplain, with a limestone cobble/slab substrate carrying low flow. The left bank has a reasonable wooded buffer of 50+ feet, but the right bank buffer is marginal at only 25-50 feet before transitioning to row crop agriculture. Key concerns include the narrow agricultural buffer compromising water quality filtering, channel incision limiting floodplain function, and limited habitat diversity. No stormwater infrastructure or outfalls were observed. A residential structure with red roof is visible nearby on the left bank. The stream rates as marginal overall with the greatest improvement potential through right bank riparian buffer enhancement.

### Primary Stressors

riparian loss, sedimentation, bank erosion

### Channel Assessment

| Metric                | Score | Notes                                                                                                                                                                                                                                                                                                                               |
|-----------------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Channel Condition     | 6     | Channel appears generally natural but shows evidence of incision. No artificial structures visible but the channel is somewhat entrenched relative to floodplain. Some downcutting evident from bank heights and exposed rock bed. Adjacent agricultural use has likely contributed to altered hydrology.                           |
| Hydrologic Alteration | 5     | Channel appears moderately incised with banks 3-6 feet high relative to channel bottom. The stream is disconnected from its floodplain based on visible bank heights. Agricultural land conversion likely increased runoff volumes and flashiness, contributing to channel incision. Flooding of the floodplain appears infrequent. |
| Sediment Deposition   | 5     | Some fine sediment deposition visible between cobbles. The channel bed shows a mix of exposed rock and areas of sediment fill. Not severe but noticeable, likely from agricultural runoff. Approximately 20-30% of bottom affected by fine sediment deposition.                                                                     |

### Bank Assessment

| Side  | Stability | Veg. Protection | Erosion      | Notes                                                                                                                                                                                                                            |
|-------|-----------|-----------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Left  | 6         | 6               | 1_25_percent | Left bank is the wooded hillside. Moderate stability with dormant tree and shrub cover. Some natural scour at base. The wooded buffer extends at least 50+ feet on this side.                                                    |
| Right | 5         | 5               | 1_25_percent | Right bank has a much narrower riparian buffer compared to left bank. Agricultural field begins within approximately 25-50 feet of the channel. This narrow buffer is a significant concern for stream health and water quality. |

### Riparian Assessment

| Metric                | Score/Value    | Notes                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Canopy Cover          | 5              | Currently all trees are bare so actual shade is minimal. When in full leaf, the canopy from the left bank trees would provide moderate shade (estimated 40-60% of channel). The right bank contributes less shade due to narrower buffer. Overall seasonal shade is moderate but asymmetric.                                                                                                                                    |
| Left Buffer Width     | 50 100ft       | Score: 7/10                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Right Buffer Width    | 25 50ft        | Score: 4/10                                                                                                                                                                                                                                                                                                                                                                                                                     |
| TDEC 30ft Buffer Met? | L: Yes / R: No | The right bank riparian buffer is the primary compliance concern. Agricultural cultivation appears to extend within or close to the 30ft minimum buffer zone. Buffer restoration on the right bank through agricultural set-asides or riparian planting would significantly improve stream condition and compliance. The structure visible on the left bank may also represent encroachment but appears to be set back further. |

## Water Quality & Infrastructure · Scene 20

### Water Quality Indicators

| Metric                | Score | Notes                                                                                                                                                                                                                                                                                                                           |
|-----------------------|-------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water Appearance      | 6     | Water appears slightly turbid with a brownish color. Given the very shallow depth, the bottom is visible throughout suggesting reasonable clarity. No oil sheen, foam, or scum observed. The brownish tint could be from tannins or fine sediment. Water quality appears fair for visual assessment during low-flow conditions. |
| Nutrient Enrichment   | 7     | Algae: minor                                                                                                                                                                                                                                                                                                                    |
| Manure/Waste          | 8     | No direct evidence of manure, livestock access, or waste discharge visible. The adjacent field appears to be row crop agriculture rather than pasture. No livestock fencing or access points observed. No waste pipes visible.                                                                                                  |
| 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    | moderate     |

### Management Recommendations

| Action                                                                                                                              | Priority | Timeline |
|-------------------------------------------------------------------------------------------------------------------------------------|----------|----------|
| Map this reach segment and document the narrow right bank buffer condition for watershed planning purposes                          | medium   | 90_days  |
| Verify substrate material composition at this location — some flat rock slabs may be old concrete fragments requiring documentation | low      | annual   |

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