APPENDIX E

Stream Condition Assessments

Stream Condition – Site: S01

Map Grid Location: **D10** Site visit date/ team): 4/13/15 / BK, JZ Drainage Area (Sq. Mi.): 0.89
Stream name & Location: Stream along Corn Mill Shoals Trail
Streambed Substrate: Sand / Gravel Length (ft): +/- 235 Bankfull Width (ft): +/- 6

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **2**

- ☐ stormwater input
- ☒ sediment input
- ☐ trampled banks
- ☐ equine/dog impacts
- ☒ trail crossing
- ☒ trail in buffer
- ☒ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — **3**

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☐ eroding banks
- ☐ head-cutting
- ☐ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — **3**

- ☐ incised channel
- ☐ entrenched channel
- ☒ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — **3**

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☐ poor overstory/tree cover
- ☐ bare areas/mineral soil (banks/floodplain)

5. Habitat — **3**

- ☐ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of diverse bedform/ flow
- ☐ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **14**

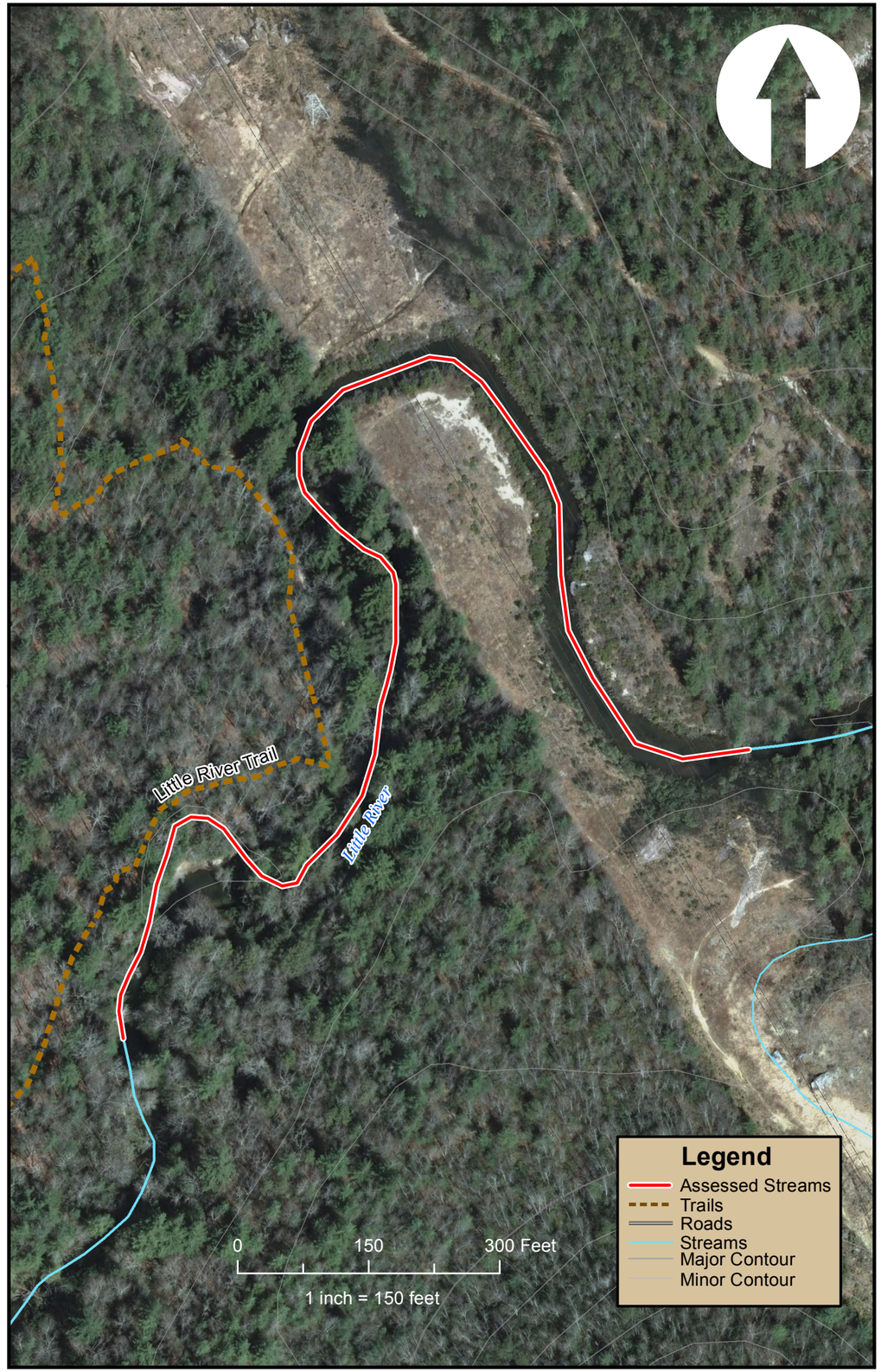
Potential Solutions

- ☒ relocate/close trail
- ☒ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☐ in-stream structures
- ☐ watershed improvements
- ☐ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

See also P07; Corn Mill Shoals Trail in buffer, providing sediment/ stormwater source.

Kee Mapping & Surveying



Stream Condition – Site: S02

Map Grid Location: **E9** Site visit date/ team): 4/13/15 / BK, JZ Drainage Area (Sq. Mi.): 18.3
Stream name & Location: Little River above Bridal Veil Falls
Streambed Substrate: Sand Length (ft): +/-1860 Bankfull Width (ft): +/- 35

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **2**

- ☒ stormwater input
- ☒ sediment input
- ☒ trampled banks
- ☐ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☒ utilities

2. Channel Morphology and Condition — **2**

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☒ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — **2**

- ☒ incised channel
- ☒ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — **3**

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☐ poor overstory/tree cover
- ☐ bare areas/mineral soil (banks/floodplain)

5. Habitat — **2**

- ☒ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of diverse bedform/ flow
- ☐ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **11**

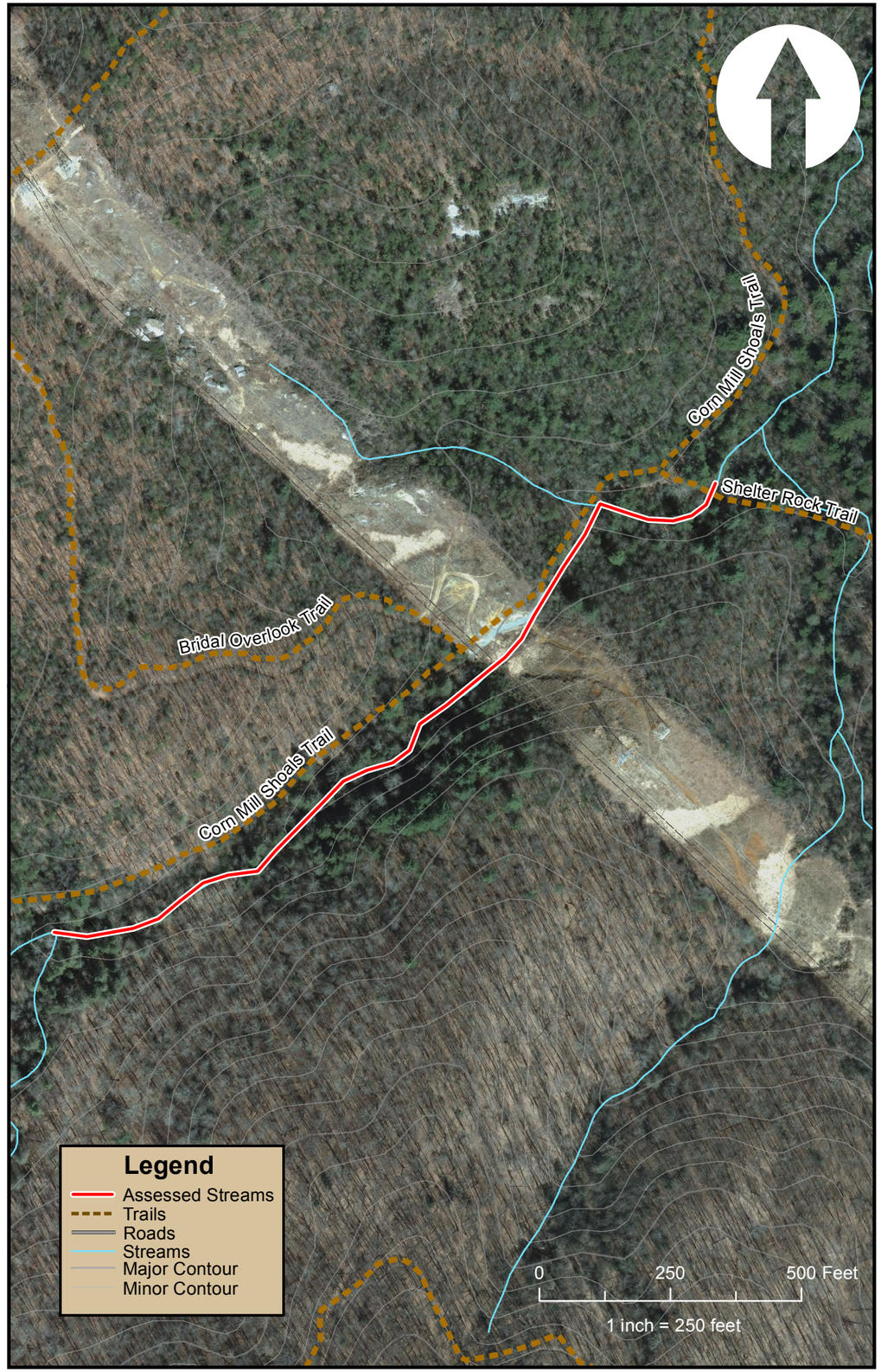
Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☒ mechanical grading
- ☐ in-stream structures
- ☐ watershed improvements
- ☒ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Trail (both open and closed – though still used) in buffer. Trails provide sediment source and restrict buffer vegetation. Lengthy powerline crossing affects buffer.

Kee Mapping & Surveying



Stream Condition – Site: S03

Map Grid Location: **E10** Site visit date/ team): 8/31/15 / JZ Drainage Area (Sq. Mi.): < 0.1

Stream name & Location: Tributary along Corn Mill Shoals Trail

Streambed Substrate: sand, gravel Length (ft): +/-1665 Bankfull Width (ft): +/- 8

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **2**

- ☒ stormwater input
- ☐ trampled banks
- ☐ trail crossing
- ☒ bridge/culvert/armoring
- ☒ sediment input
- ☐ equine/dog impacts
- ☒ trail in buffer
- ☒ utilities

2. Channel Morphology and Condition — **3**

- ☐ overwide
- ☐ straightened
- ☐ head-cutting
- ☐ high bed scour
- ☐ incised
- ☐ eroding banks
- ☐ lack of bedform diversity
- ☒ excessive sediment deposition

3. Floodplain Morphology — **3**

- ☐ incised channel
- ☐ floodplain fill/ levees
- ☒ entrenched channel
- ☐ irregular/ obstructed floodplain

4. Vegetation — **3**

- ☒ narrow buffer width
- ☐ poor overstory/tree cover
- ☐ invasive plants (banks/floodplain)
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — **3**

- ☐ lack of woody debris
- ☐ lack of diverse bedform/ flow
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **14**

Potential Solutions

- ☒ relocate/close trail
- ☒ vegetation planting
- ☐ in-stream structures
- ☐ preservation/ exclusion
- ☐ maintenance
- ☐ trail crossing improvement
- ☐ mechanical grading
- ☐ watershed improvements
- ☐ culvert rehabilitation/ replacement
- ☐ signs

Comments

Trail in buffer with sediment/ stormwater runoff from trail directed to stream. Upland erosion from power line crossing is also sediment source.

Kee Mapping & Surveying

Stream Condition – Site: S04

Map Grid Location: F9 Site visit date/ team): 8/31/15 / JZ Drainage Area (Sq. Mi.): 0.42

Stream name & Location: Tributary along Barn Trail

Streambed Substrate: sand, cobble Length (ft): +/- 380 Bankfull Width (ft): +/- 10

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions **2**

- ☐ stormwater input
- ☒ sediment input
- ☐ trampled banks
- ☐ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition **3**

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☐ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology **3**

- ☐ incised channel
- ☒ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation **3**

- ☐ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☐ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat **3**

- ☐ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☐ lack of diverse bedform/ flow
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) **14**

Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☐ in-stream structures
- ☐ watershed improvements
- ☒ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Trail in buffer with sediment/ stormwater runoff from trail.

Kee Mapping & Surveying

Stream Condition – Site: S05

Map Grid Location: **F10** Site visit date/ team): 8/17/15 / JZ Drainage Area (Sq. Mi.): 0.06

Stream name & Location: Tributary at Conservation Road

Streambed Substrate: silt Length (ft): +/- 515 Bankfull Width (ft):+/- 10

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **2**

- ☒ stormwater input
- ☐ trampled banks
- ☐ trail crossing
- ☒ bridge/culvert/armoring
- ☒ sediment input
- ☐ equine/dog impacts
- ☐ trail in buffer
- ☐ utilities

2. Channel Morphology and Condition — **1**

- ☒ overwide
- ☐ straightened
- ☐ head-cutting
- ☐ high bed scour
- ☐ incised
- ☐ eroding banks
- ☒ lack of bedform diversity
- ☐ excessive sediment deposition

3. Floodplain Morphology — **4**

- ☐ incised channel
- ☐ floodplain fill/ levees
- ☐ entrenched channel
- ☐ irregular/ obstructed floodplain

4. Vegetation — **3**

- ☐ narrow buffer width
- ☒ poor overstory/tree cover
- ☐ invasive plants (banks/floodplain)
- ☐ bare areas/mineral soil (banks/floodplain)

5. Habitat — **2**

- ☐ lack of woody debris
- ☒ lack of diverse bedform/ flow
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **12**

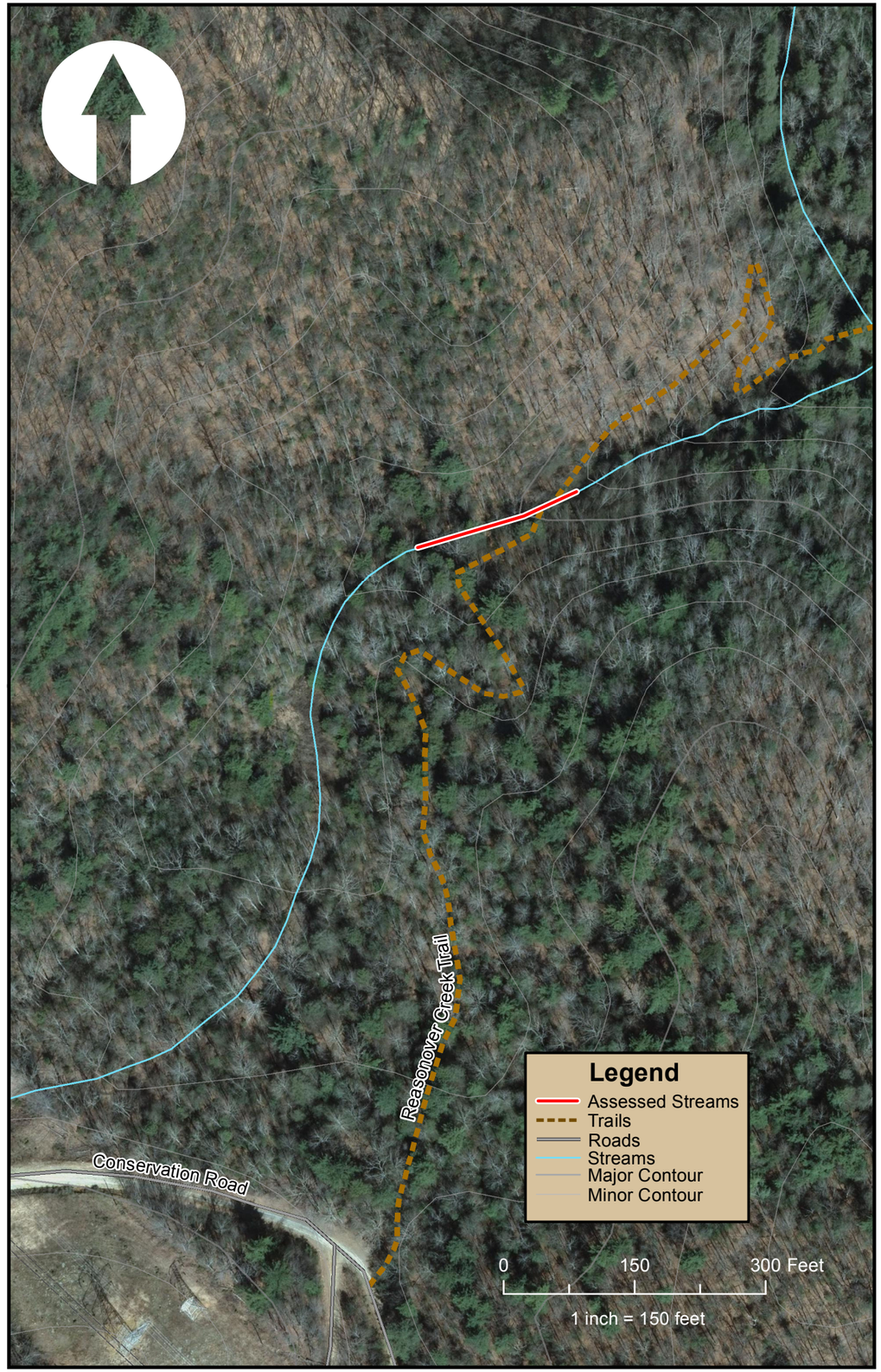
Potential Solutions

- ☐ relocate/close trail
- ☒ vegetation planting
- ☐ in-stream structures
- ☐ preservation/ exclusion
- ☒ maintenance
- ☐ trail crossing improvement
- ☐ mechanical grading
- ☐ watershed improvements
- ☒ culvert rehabilitation/ replacement
- ☐ signs

Comments

Culvert clogged upstream of Conservation Road, creating large area of backwater in channel; woody vegetation has died as a result.

Kee Mapping & Surveying



Stream Condition – Site: S06

Map Grid Location: **G11** Site visit date/ team): 8/17/15 / JZ Drainage Area (Sq. Mi.): 0.06
Stream name & Location: Tributary to Reasonover Creek
Streambed Substrate: Clay, fine gravel, bedrock Length (ft):+/- 200 Bankfull Width (ft): +/- 10

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **2**

- ☐ stormwater input
- ☒ sediment input
- ☐ trampled banks
- ☐ equine/dog impacts
- ☒ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — **2**

- ☐ overwide
- ☒ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☒ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — **3**

- ☒ incised channel
- ☒ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — **3**

- ☐ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☐ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — **2**

- ☐ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of diverse bedform/ flow
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **12**

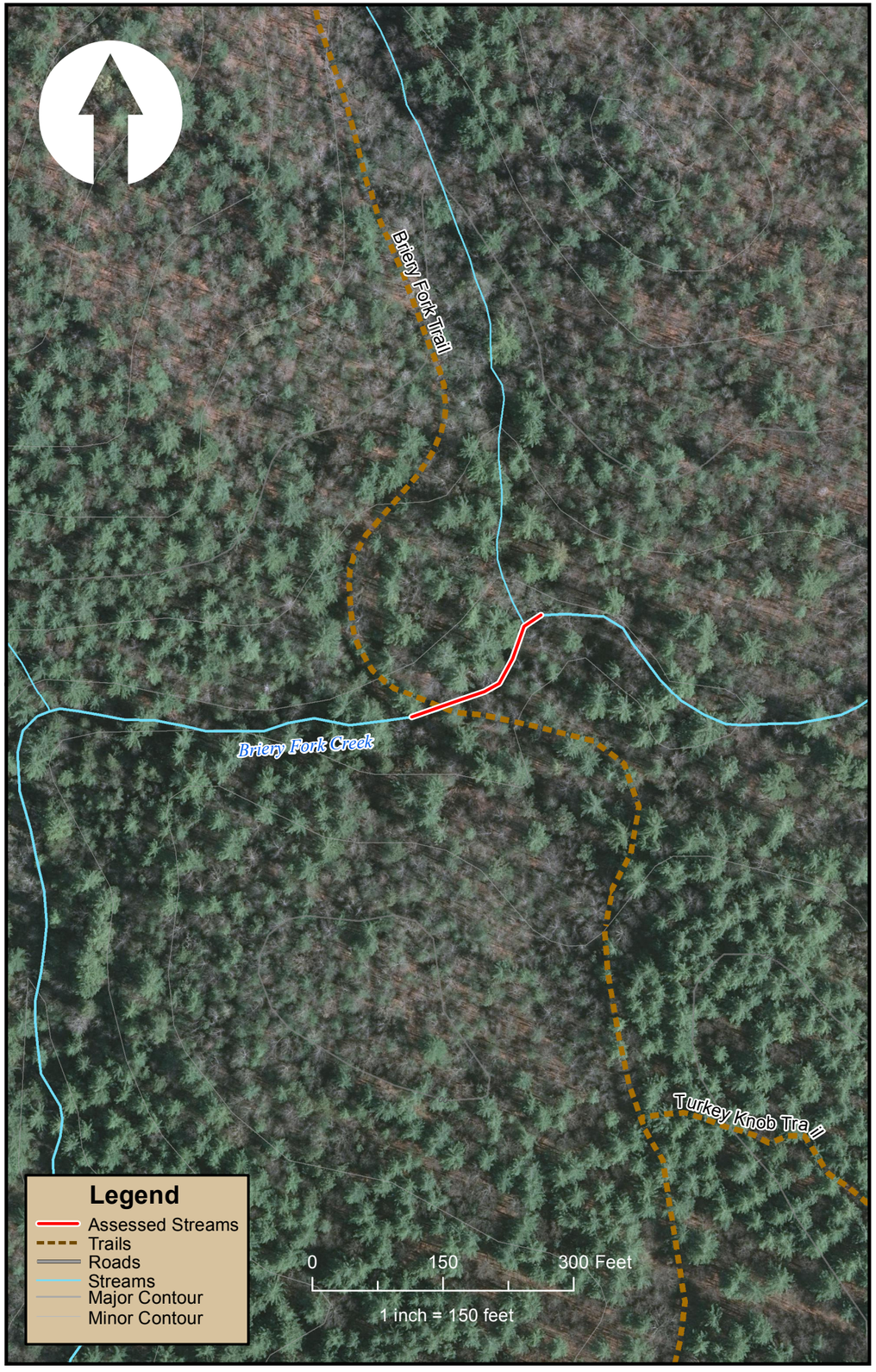
Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☒ in-stream structures
- ☐ watershed improvements
- ☐ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Eroding left bank just downstream of bedrock grade control, fine sediment deposition in channel; trail near channel serves as sediment source.

Kee Mapping & Surveying



Stream Condition – Site: S07

Map Grid Location: **I 8** Site visit date/ team): 8/30/15 / JZ Drainage Area (Sq. Mi.): 1.14

Stream name & Location: Briery Fork Creek at Briery Fork Creek Trail

Streambed Substrate: Sand, gravel, cobble Length (ft): +/- 225 Bankfull Width (ft): +/- 15

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **1**

- ☒ stormwater input
- ☒ sediment input
- ☒ trampled banks
- ☐ equine/dog impacts
- ☒ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — **2**

- ☒ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☒ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — **3**

- ☐ incised channel
- ☐ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — **2**

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☐ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — **2**

- ☐ lack of woody debris
- ☒ poor water quality (turbid, algae, temperature)
- ☒ lack of diverse bedform/ flow
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **10**

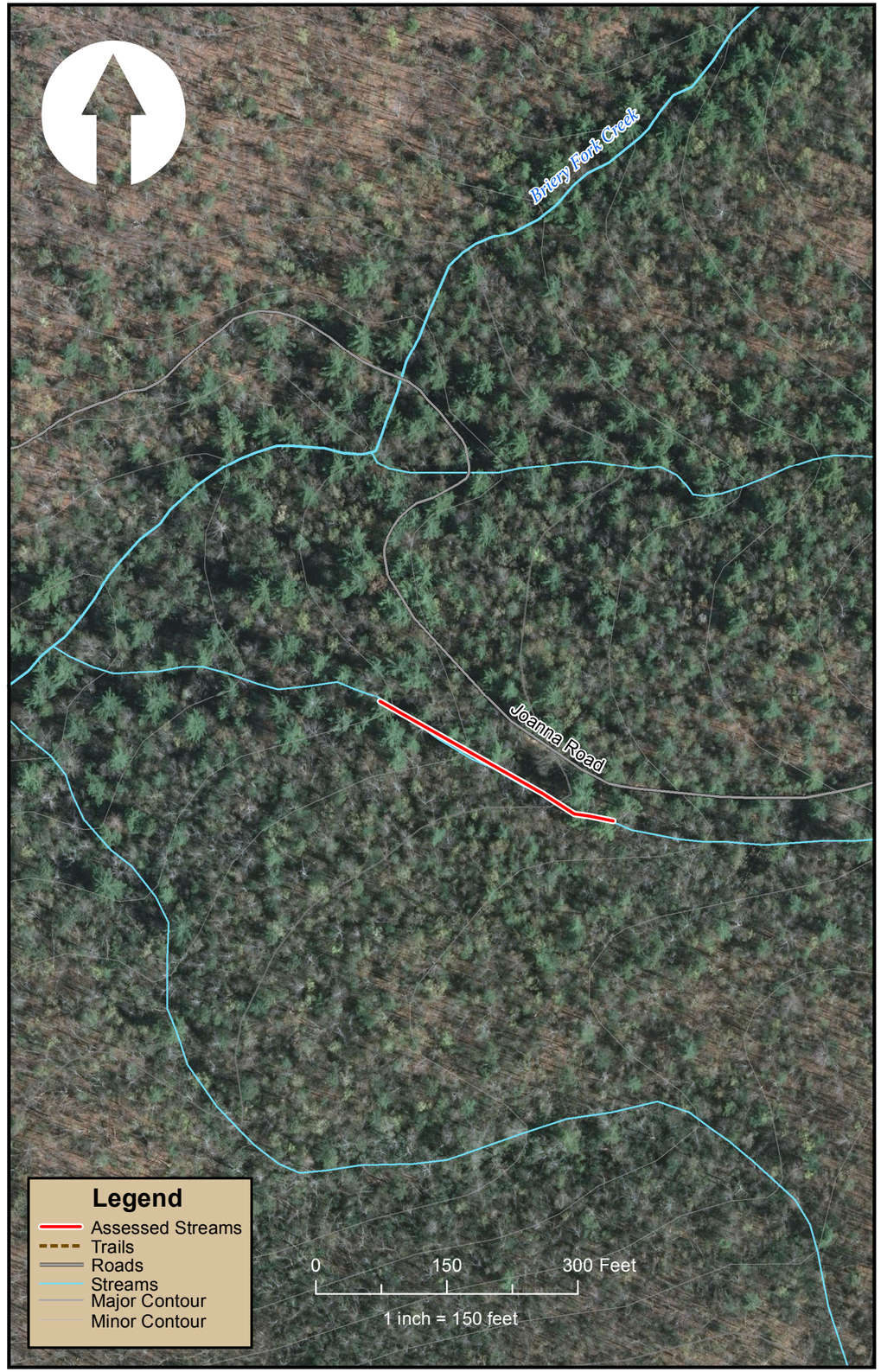
Potential Solutions

- ☒ relocate/close trail
- ☒ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☒ in-stream structures
- ☐ watershed improvements
- ☒ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Trail in buffer with unstable crossing (eroding banks, overwide channel, sediment deposition).

Kee Mapping & Surveying



Stream Condition – Site: S08

Map Grid Location: J8 Site visit date/ team): 8/30/15 / JZ Drainage Area (Sq. Mi.): < 0.1
Stream name & Location: Tributary at Briery Fork Creek
Streambed Substrate: Boulder Length (ft): +/- 300 Bankfull Width (ft): +/- 8

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — 2

- ☐ stormwater input
- ☒ sediment input
- ☐ trampled banks
- ☐ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — 4

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☐ eroding banks
- ☐ head-cutting
- ☐ lack of bedform diversity
- ☐ high bed scour
- ☐ excessive sediment deposition

3. Floodplain Morphology — 3

- ☐ incised channel
- ☒ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — 3

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☐ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — 4

- ☐ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☐ lack of diverse bedform/ flow
- ☐ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — 16

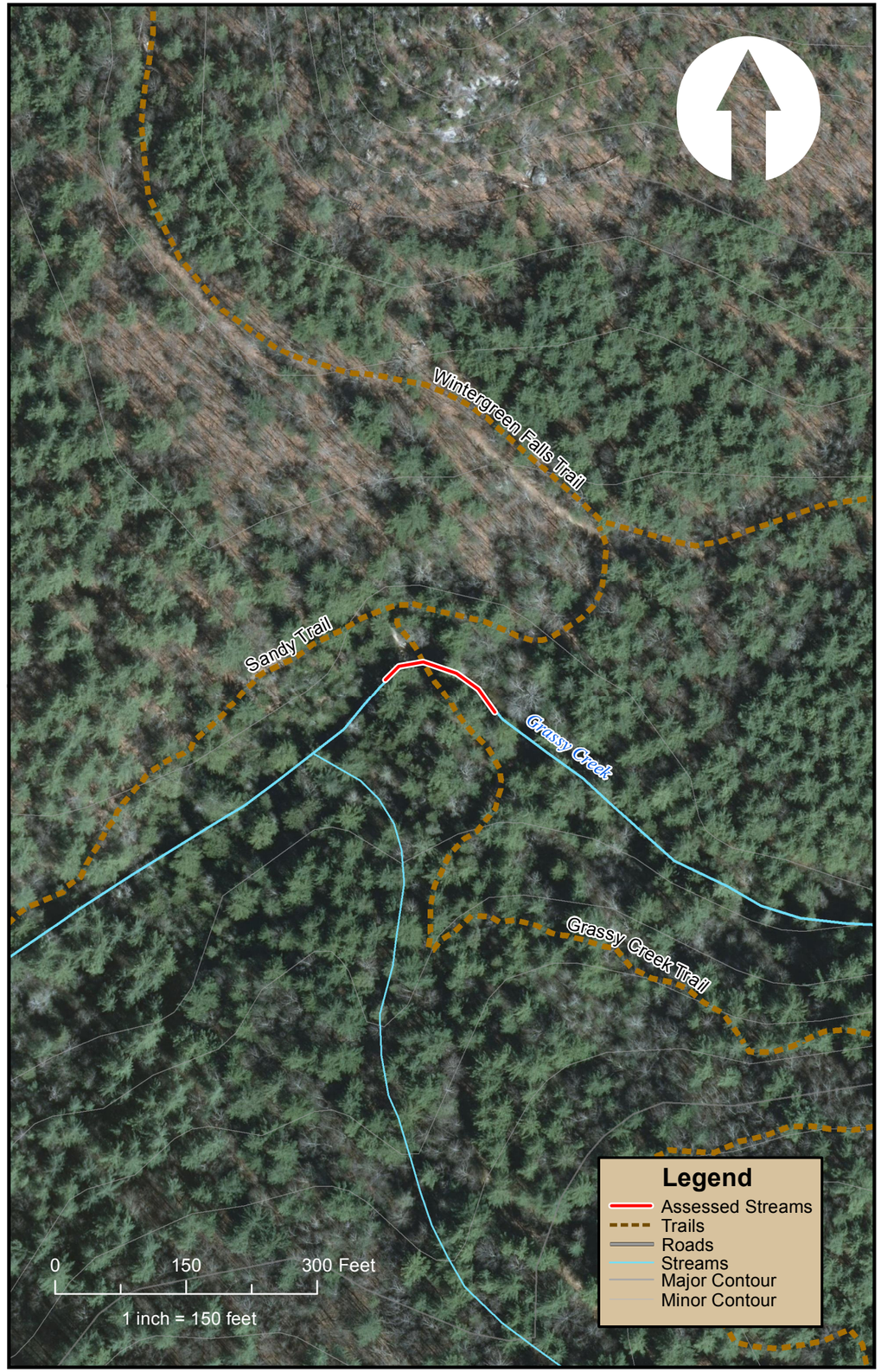
Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☐ in-stream structures
- ☐ watershed improvements
- ☐ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Joanna Road within buffer of stream is serving as sediment source.

Kee Mapping & Surveying



Stream Condition – Site: S09

Map Grid Location: **H6** Site visit date/ team): 8/26/15 / JZ Drainage Area (Sq. Mi.): 4.11
Stream name & Location: Grassy Creek along Sandy Trail
Streambed Substrate: Silt, sand, cobble Length (ft): +/- 150 Bankfull Width (ft): +/- 25

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — 2

- ☐ stormwater input
- ☒ sediment input
- ☐ trampled banks
- ☐ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — 2

- ☒ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☒ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — 3

- ☐ incised channel
- ☒ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — 2

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☒ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — 2

- ☒ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of diverse bedform/ flow
- ☐ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — 11

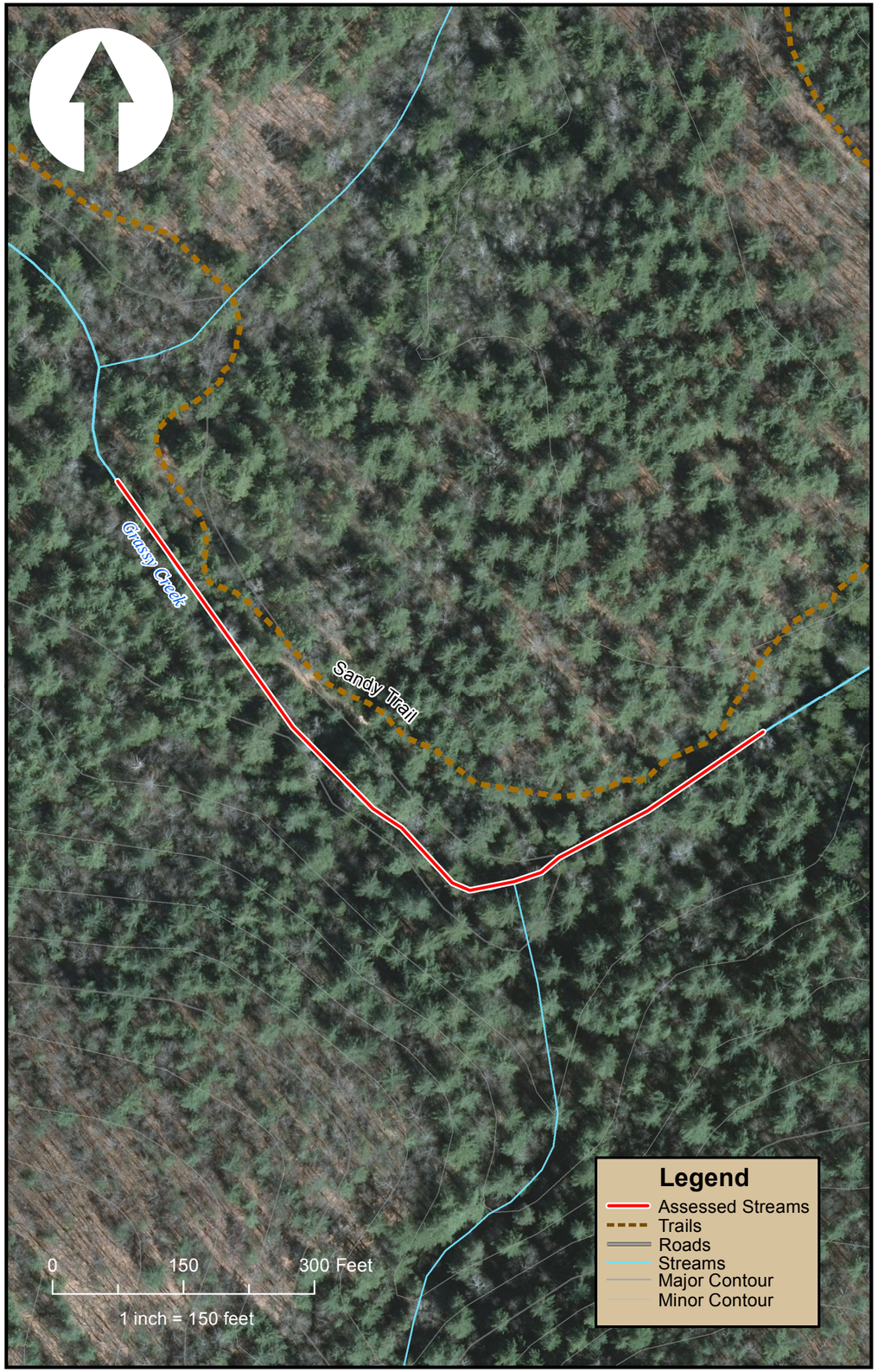
Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☒ in-stream structures
- ☐ watershed improvements
- ☐ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Trail crossing stable. However, trail in buffer with minor stream bank erosion.

Kee Mapping & Surveying



Stream Condition – Site: S10

Map Grid Location: **H6** Site visit date/ team): 8/26/15 / JZ Drainage Area (Sq. Mi.): 4.35
Stream name & Location: Grassy Creek along Sandy Trail
Streambed Substrate: sand, cobble Length (ft): +/-1015 Bankfull Width (ft): +/- 25

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — 3

- ☐ stormwater input
- ☐ sediment input
- ☐ trampled banks
- ☐ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — 3

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☐ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — 2

- ☒ incised channel
- ☐ entrenched channel
- ☒ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — 2

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☐ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — 3

- ☒ lack of woody debris
- ☒ poor water quality (turbid, algae, temperature)
- ☐ lack of diverse bedform/ flow
- ☐ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — 13

Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☒ in-stream structures
- ☐ watershed improvements
- ☐ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Stream generally stable, though trail and levee in buffer are detrimental.

Kee Mapping & Surveying

Stream Condition – Site: S11

Map Grid Location: **F8** Site visit date/ team): 8/31/15 / JZ Drainage Area (Sq. Mi.): 6.70

Stream name & Location: Reasonover Creek below Lake Julia

Streambed Substrate: bedrock Length (ft): +/- 630 Bankfull Width (ft): +/- 50

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — 1

- ☐ stormwater input
- ☒ sediment input
- ☒ trampled banks
- ☒ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☒ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — 1

- ☒ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☒ lack of bedform diversity
- ☐ high bed scour
- ☐ excessive sediment deposition

3. Floodplain Morphology — 2

- ☐ incised channel
- ☒ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — 1

- ☐ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☒ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — 0

- ☒ lack of woody debris
- ☒ poor water quality (turbid, algae, temperature)
- ☒ lack of diverse bedform/ flow
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — 5

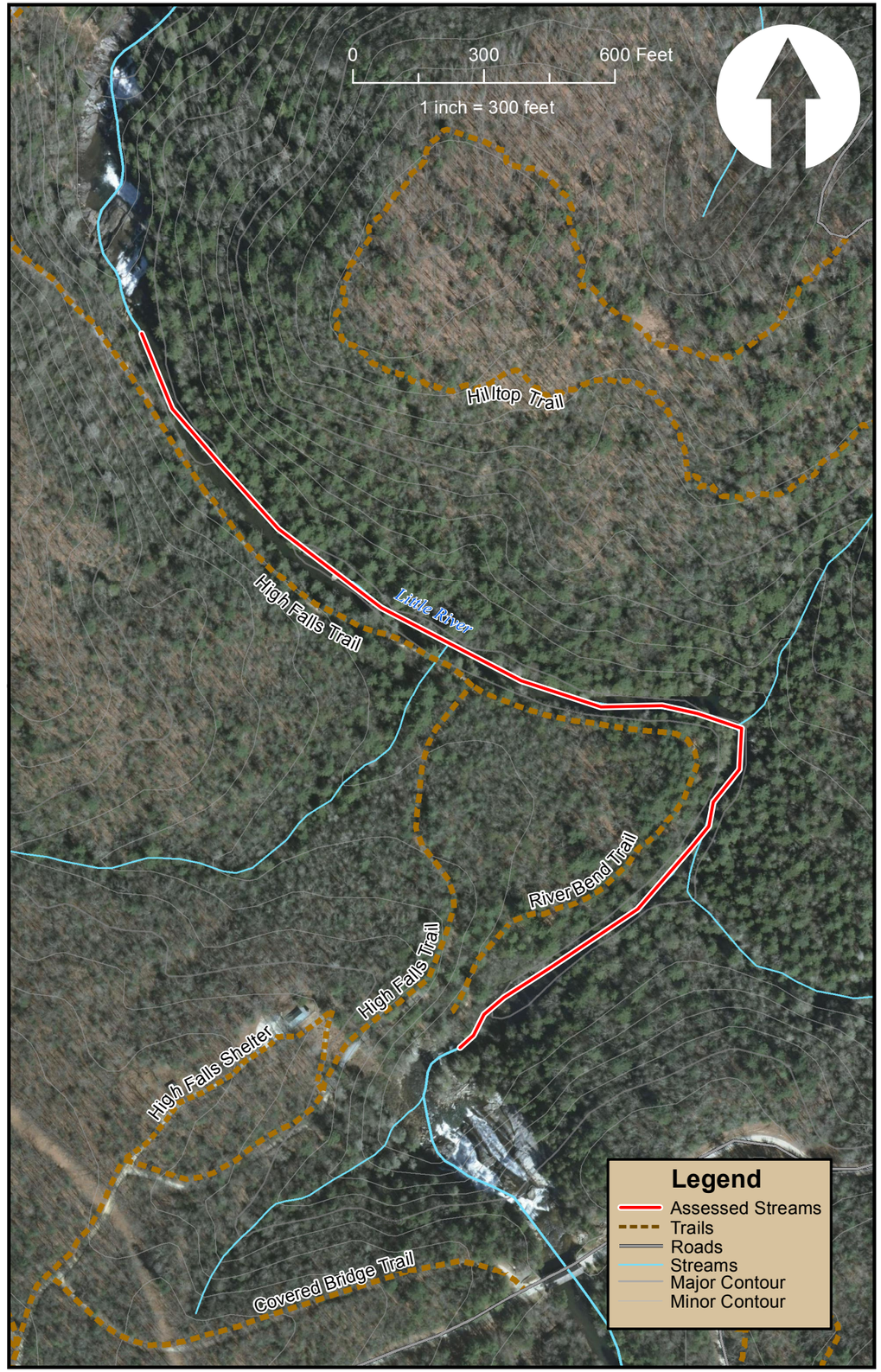
Potential Solutions

- ☐ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☒ mechanical grading
- ☒ in-stream structures
- ☐ watershed improvements
- ☐ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Stream over widened on bedrock with steep, unvegetated banks. Restoration challenging due to bedrock bed and lack of soil. Consider retrofit to Lake Julia outlet to lower water temperature.

Kee Mapping & Surveying



Stream Condition – Site: S12

Map Grid Location: **F6** Site visit date/ team): 8/19/15 / JZ Drainage Area (Sq. Mi.): 33.2
Stream name & Location: Little River between High Falls and Triple Falls
Streambed Substrate: Cobble/ boulder, silt Length (ft):+/- 2750 Bankfull Width (ft): +/- 45

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **3**

- ☒ stormwater input
- ☐ trampled banks
- ☐ trail crossing
- ☐ bridge/culvert/armoring
- ☒ sediment input
- ☐ equine/dog impacts
- ☒ trail in buffer
- ☐ utilities

2. Channel Morphology and Condition — **3**

- ☐ overwide
- ☐ straightened
- ☐ head-cutting
- ☐ high bed scour
- ☐ incised
- ☒ eroding banks
- ☐ lack of bedform diversity
- ☒ excessive sediment deposition

3. Floodplain Morphology — **2**

- ☒ incised channel
- ☐ floodplain fill/ levees
- ☒ entrenched channel
- ☐ irregular/ obstructed floodplain

4. Vegetation — **2**

- ☒ narrow buffer width
- ☒ poor overstory/tree cover
- ☐ invasive plants (banks/floodplain)
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — **2**

- ☐ lack of woody debris
- ☒ lack of diverse bedform/ flow
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **12**

Potential Solutions

- ☒ relocate/close trail
- ☒ vegetation planting
- ☒ in-stream structures
- ☒ preservation/ exclusion
- ☒ maintenance
- ☐ trail crossing improvement
- ☐ mechanical grading
- ☐ watershed improvements
- ☐ culvert rehabilitation/ replacement
- ☐ signs

Comments

Trail along river leads to sediment and stormwater input. Some eroding banks and fine sediment in river. BMPs exist on road, but require maintenance.

Kee Mapping & Surveying

Stream Condition – Site: S13

Map Grid Location: **E-F 5** Site visit date/ team): 8/19/15 / JZ Drainage Area (Sq. Mi.): 33.3
Stream name & Location: Little River upstream Staton Road
Streambed Substrate: Boulder, bedrock Length (ft): +/- 390 Bankfull Width (ft): +/- 45

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **2**

- ☒ stormwater input
- ☒ sediment input
- ☒ trampled banks
- ☐ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☐ utilities

2. Channel Morphology and Condition — **2**

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☐ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — **3**

- ☐ incised channel
- ☒ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — **2**

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☒ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — **2**

- ☒ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☐ lack of diverse bedform/ flow
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **11**

Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☐ in-stream structures
- ☐ watershed improvements
- ☒ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☒ signs

Comments

Wide trail in buffer serves as sediment source and lacks vegetation. Several informal trails to the water contribute to buffer impacts.

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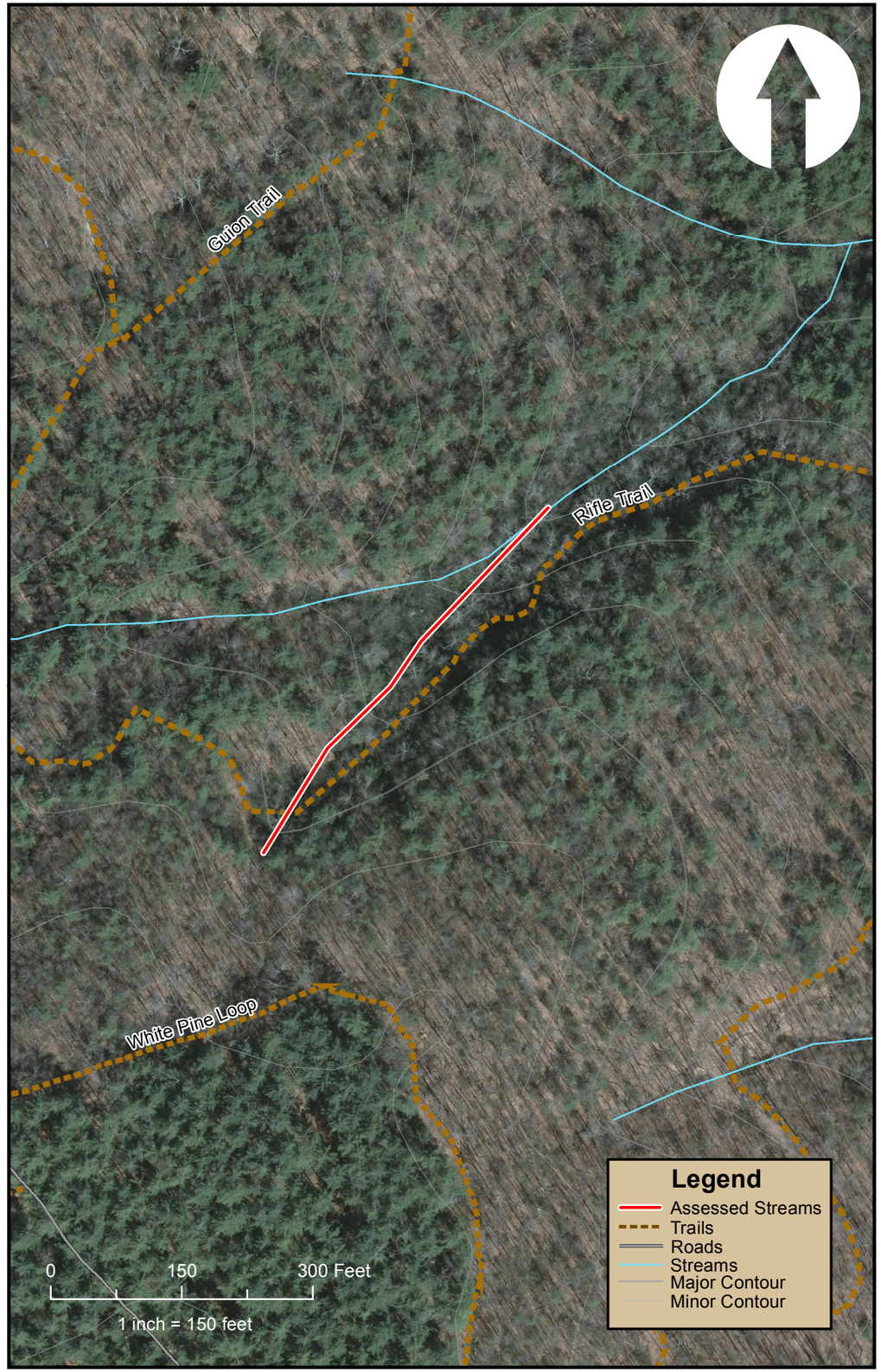


Stream Condition – Site: S14

Map Grid Location: **H2** Site visit date/ team): 8/26/15 / JZ Drainage Area (Sq. Mi.): < 0.1
Stream name & Location: Tributary along Rifle Trail
Streambed Substrate: Sand Length (ft): +/- 515 Bankfull Width (ft): +/- 5

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **1**

- ☒ stormwater input
- ☐ trampled banks
- ☒ trail crossing
- ☐ bridge/culvert/armoring
- ☒ sediment input
- ☐ equine/dog impacts
- ☒ trail in buffer
- ☐ utilities

2. Channel Morphology and Condition — **2**

- ☐ overwide
- ☐ straightened
- ☐ head-cutting
- ☐ high bed scour
- ☐ incised
- ☐ eroding banks
- ☒ lack of bedform diversity
- ☒ excessive sediment deposition

3. Floodplain Morphology — **1**

- ☒ incised channel
- ☒ floodplain fill/ levees
- ☒ entrenched channel
- ☐ irregular/ obstructed floodplain

4. Vegetation — **2**

- ☒ narrow buffer width
- ☐ poor overstory/tree cover
- ☐ invasive plants (banks/floodplain)
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — **2**

- ☐ lack of woody debris
- ☒ lack of diverse bedform/ flow
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **8**

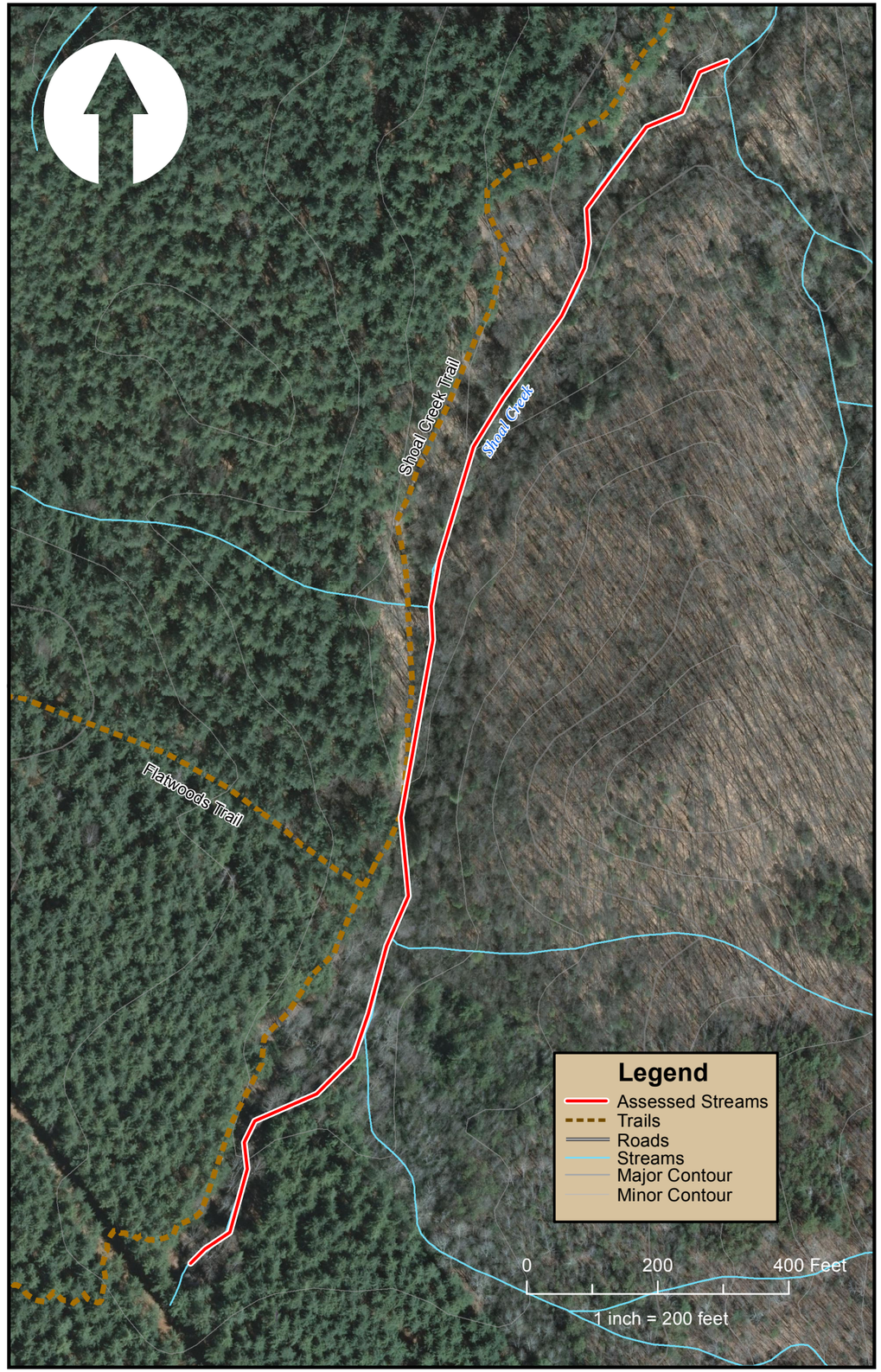
Potential Solutions

- ☒ relocate/close trail
- ☒ vegetation planting
- ☐ in-stream structures
- ☒ preservation/ exclusion
- ☐ maintenance
- ☐ trail crossing improvement
- ☐ mechanical grading
- ☐ watershed improvements
- ☐ culvert rehabilitation/ replacement
- ☒ signs

Comments

Trail in buffer provides multiple sources of fine sediment, which is frequently evident in stream bed.

Kee Mapping & Surveying



Stream Condition – Site: S15

Map Grid Location: **H3** Site visit date/ team): 8/26/15 / JZ Drainage Area (Sq. Mi.): 0.14

Stream name & Location: Shoal Creek

Streambed Substrate: Sand Length (ft):+/- 2135 Bankfull Width (ft): +/- 5

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — 1

- ☐ stormwater input
- ☐ sediment input
- ☐ trampled banks
- ☐ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☒ utilities

2. Channel Morphology and Condition — 1

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☒ head-cutting
- ☐ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — 1

- ☒ incised channel
- ☒ entrenched channel
- ☒ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — 2

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☒ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — 2

- ☐ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☒ lack of diverse bedform/ flow
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — 7

Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☒ in-stream structures
- ☐ watershed improvements
- ☒ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☐ signs

Comments

Power line through watershed, trail and old road/ trail in buffer. Head-cut at top of reach, some bank erosion throughout reach.

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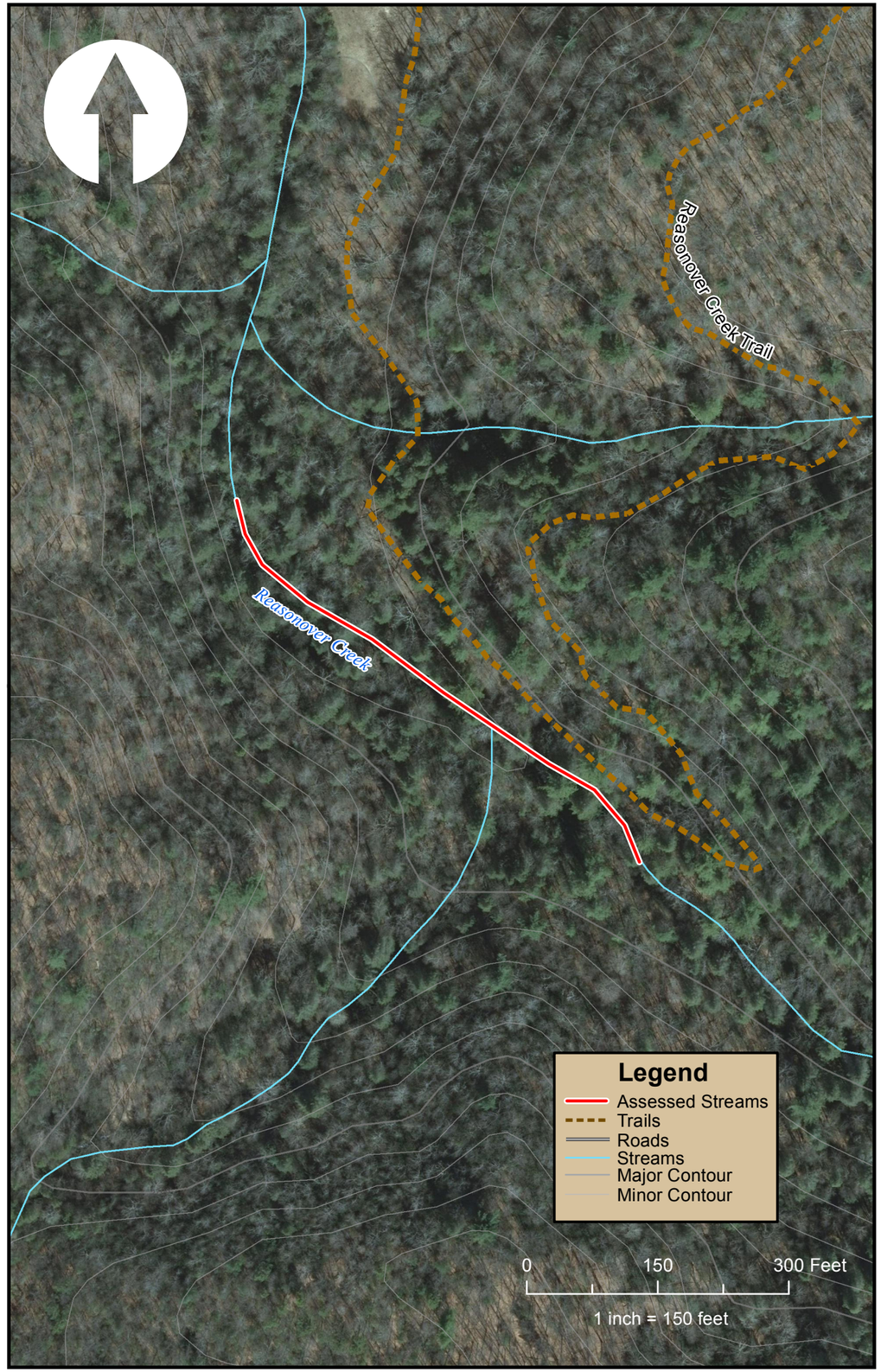

Stream Condition – Site: S16

Map Grid Location: **F10** Site visit date/ team): 8/19/15 / JZ Drainage Area (Sq. Mi.): 2.92
Stream name & Location: Reasonover Creek along trail
Streambed Substrate: Cobble, boulder Length (ft): +/- 635 Bankfull Width (ft): +/- 30

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions **3**

- ☒ stormwater input
- ☐ trampled banks
- ☐ trail crossing
- ☐ bridge/culvert/armoring
- ☒ sediment input
- ☐ equine/dog impacts
- ☒ trail in buffer
- ☐ utilities

2. Channel Morphology and Condition **3**

- ☐ overwide
- ☐ straightened
- ☐ head-cutting
- ☐ high bed scour
- ☐ incised
- ☐ eroding banks
- ☐ lack of bedform diversity
- ☒ excessive sediment deposition

3. Floodplain Morphology **3**

- ☐ incised channel
- ☐ floodplain fill/ levees
- ☒ entrenched channel
- ☐ irregular/ obstructed floodplain

4. Vegetation **2**

- ☒ narrow buffer width
- ☐ poor overstory/tree cover
- ☐ invasive plants (banks/floodplain)
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat **4**

- ☐ lack of woody debris
- ☐ lack of diverse bedform/ flow
- ☐ poor water quality (turbid, algae, temperature)
- ☐ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) **15**

Potential Solutions

- ☒ relocate/close trail
- ☒ vegetation planting
- ☐ in-stream structures
- ☒ preservation/ exclusion
- ☐ maintenance
- ☐ trail crossing improvement
- ☐ mechanical grading
- ☐ watershed improvements
- ☐ culvert rehabilitation/ replacement
- ☐ signs

Comments

Trail within buffer, resulting in reduced vegetation and sediment input.

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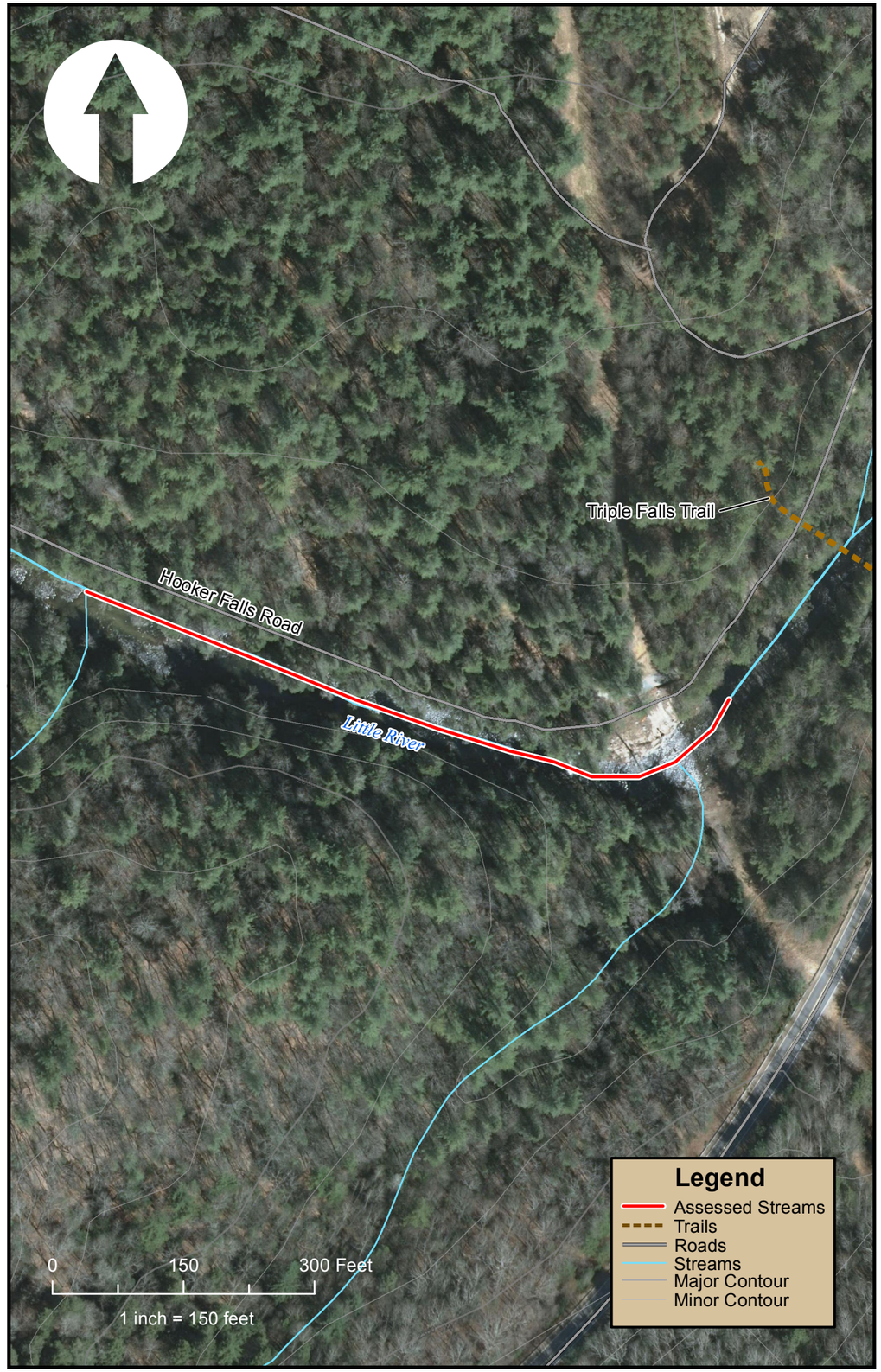

Stream Condition – Site: S17

Map Grid Location: **E5** Site visit date/ team): 8/19/15 / JZ Drainage Area (Sq. Mi.): 35.6
Stream name & Location: Little River at Hooker Falls Road
Streambed Substrate: Boulder, bedrock Length (ft): +/- 810 Bankfull Width (ft): +/- 50

Stream Condition and Function: Score from 0 to 4 indicating natural stream integrity and health (circle contributing factors): *0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent*

1. Site and Watershed Conditions — **1**

- ☐ stormwater input
- ☒ sediment input
- ☒ trampled banks
- ☒ equine/dog impacts
- ☐ trail crossing
- ☒ trail in buffer
- ☐ bridge/culvert/armoring
- ☒ utilities

2. Channel Morphology and Condition — **2**

- ☐ overwide
- ☐ incised
- ☐ straightened
- ☒ eroding banks
- ☐ head-cutting
- ☐ lack of bedform diversity
- ☐ high bed scour
- ☒ excessive sediment deposition

3. Floodplain Morphology — **4**

- ☐ incised channel
- ☐ entrenched channel
- ☐ floodplain fill/ levees
- ☐ irregular/ obstructed floodplain

4. Vegetation — **2**

- ☒ narrow buffer width
- ☐ invasive plants (banks/floodplain)
- ☒ poor overstory/tree cover
- ☒ bare areas/mineral soil (banks/floodplain)

5. Habitat — **3**

- ☒ lack of woody debris
- ☐ poor water quality (turbid, algae, temperature)
- ☐ lack of diverse bedform/ flow
- ☒ lack of fine roots, leaf packs, coarse substrate

Score (of 20) and Rating (Poor 0-7; Fair 8-12; Good 13-17; Excellent 18-20) — **12**

Potential Solutions

- ☒ relocate/close trail
- ☐ trail crossing improvement
- ☒ vegetation planting
- ☐ mechanical grading
- ☐ in-stream structures
- ☐ watershed improvements
- ☒ preservation/ exclusion
- ☐ culvert rehabilitation/ replacement
- ☐ maintenance
- ☒ signs

Comments

Human access along Hooker Falls Road has led to excessive bore areas and sediment input. Potential solutions include relocating trail away from river and revegetating.

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