Chattanooga, TN
October 20, 2017

Technical Report
SR- 8 Signal Mountain Blvd.

TN TDOT Department of Transportation

Study Area

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Route Data

- 2020 AADT 15,710
- 2040 Projected AADT 18,220
- 2020 and 2040 LOS D
- Statewide Average Crash Rate 2.556
- Actual Crash Rate 2.508

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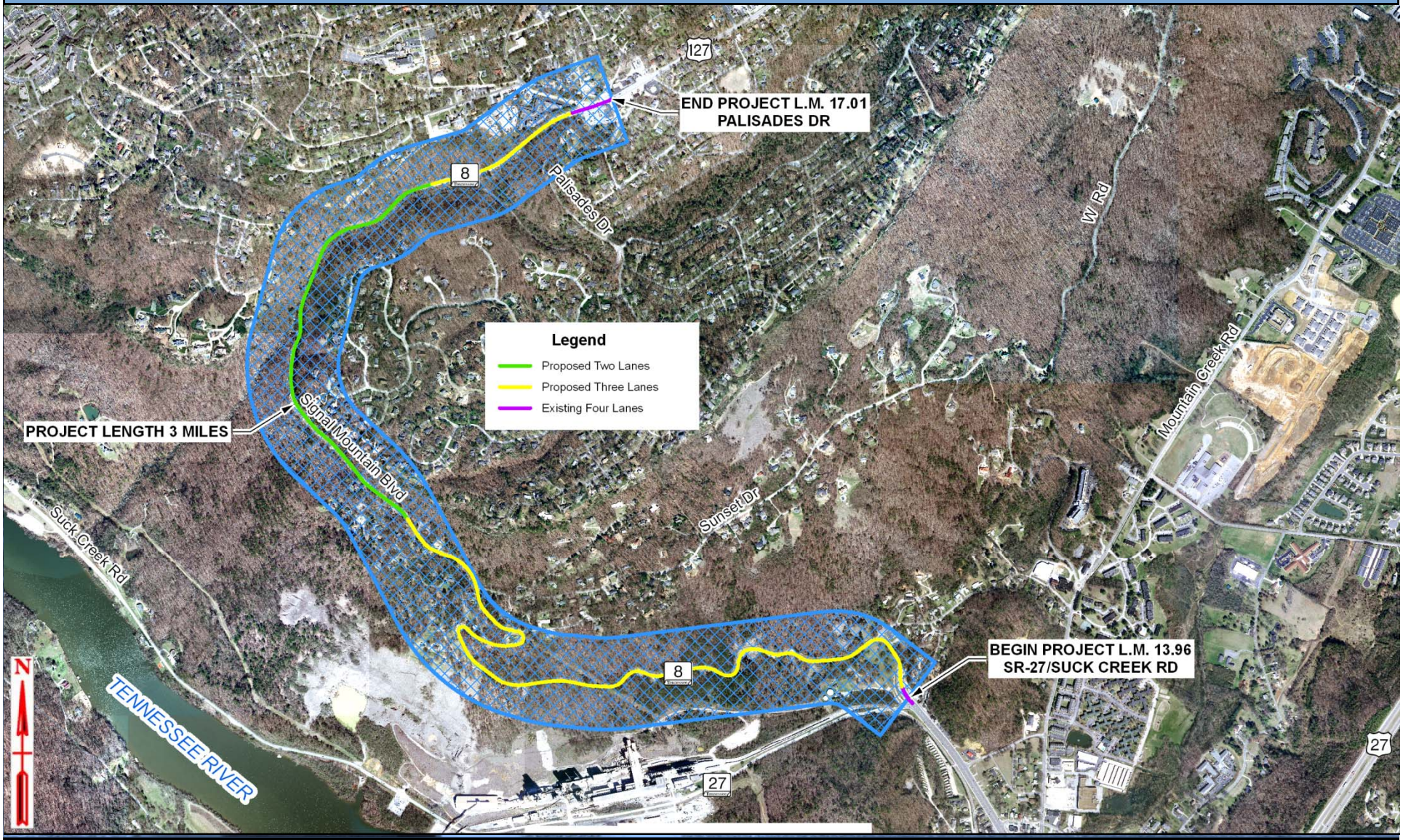
Reconstructing SR-8



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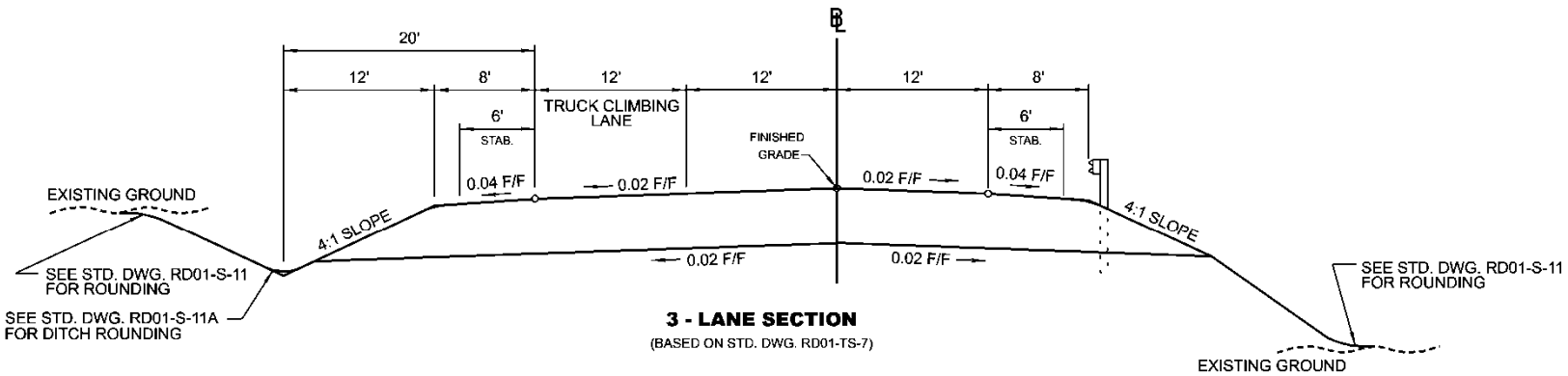
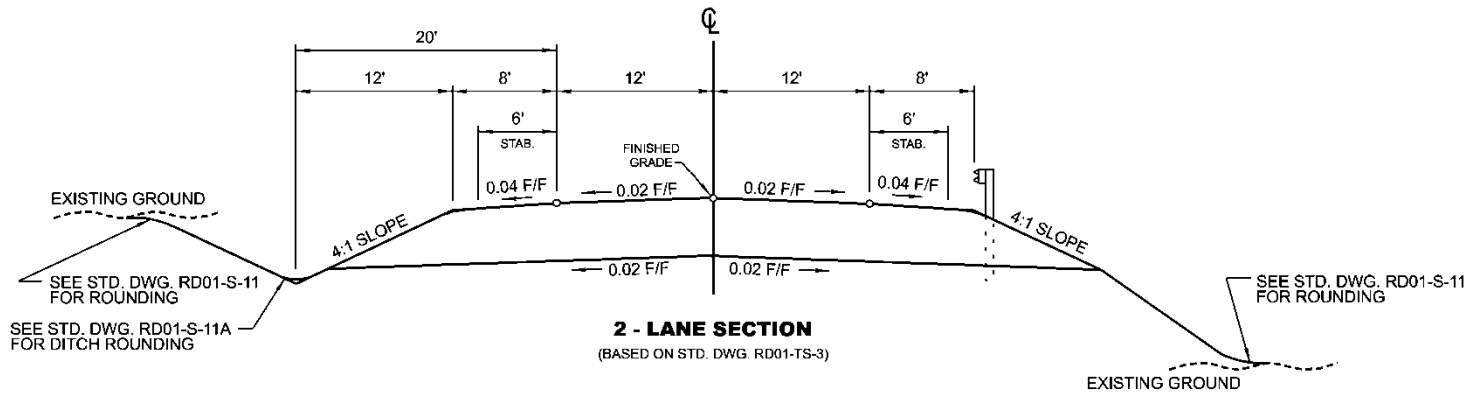
Reconstruction Typical Sections



3 - LANE SECTION

(BASED ON STD. DWG. RD01-TS-7)



2 - LANE SECTION

(BASED ON STD. DWG. RD01-TS-3)

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Positive Impacts of Reconstruction

- ✓ Provides 12’ lanes and adequate shoulders
- ✓ Improves reliability
- ✓ Improves safety
- ✓ Decreases travel time

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Negative Impacts of Reconstruction

- 2.5 Year Construction Project
  - 2 Year Road Closure (W Road Detour)
  - 0.5 Year Partial Road Closures
- Considerable Impacts to adjacent property owners
- Significant Visual Impacts
- Cost
  - Estimated cost $75 million
  - Cost/mile $25 million

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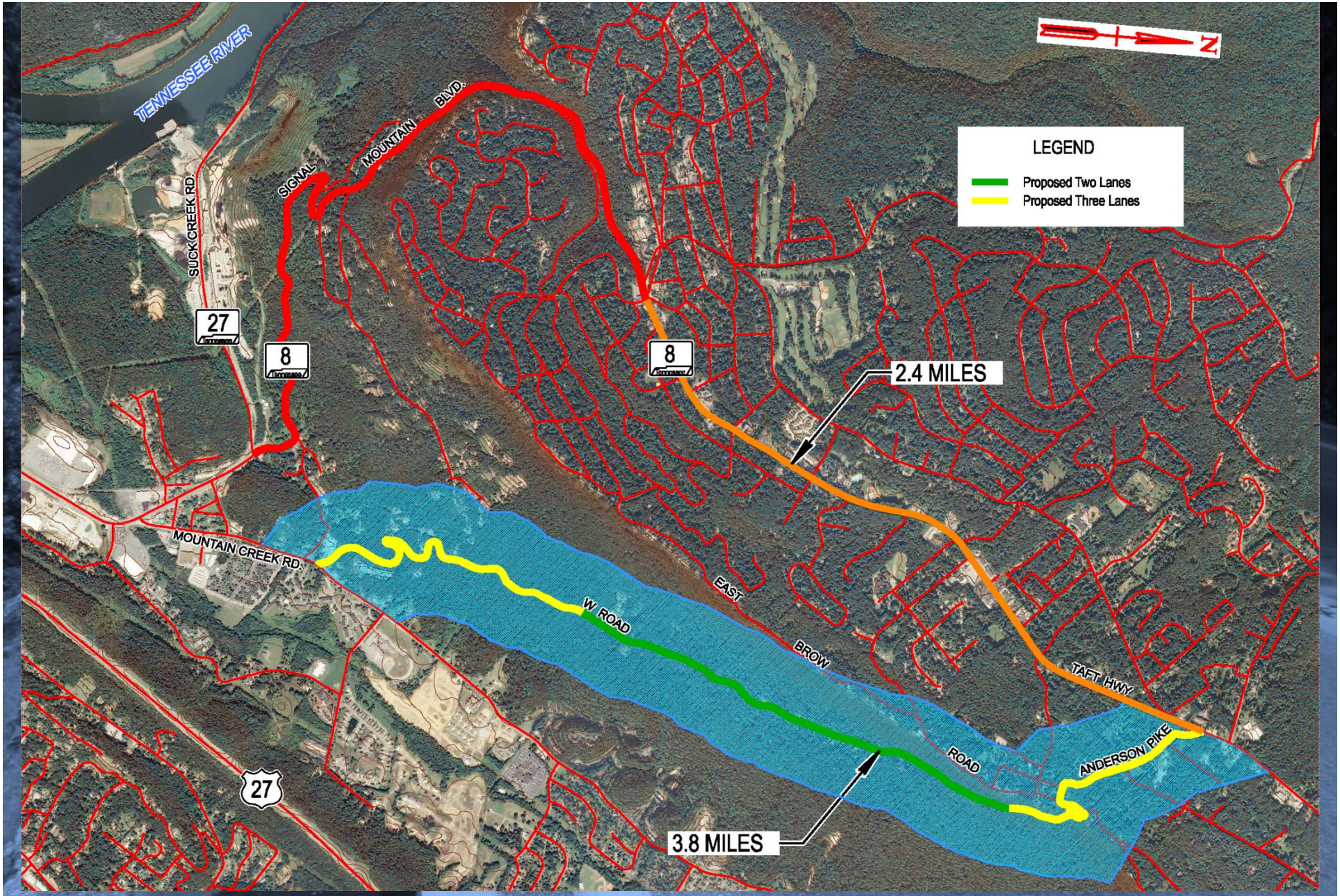

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Positive Impacts of New Route

- ✓ Improves traffic flow
- ✓ Improves reliability
- ✓ Minimal construction delays (SR 8 would remain open)
- ✓ Should reduce crash rates

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Negative Impacts of New Route

- Increases Route Length
  - SR 8 - 3.0 miles
  - New Route - 6.2 miles
- Significant impacts to adjacent property owners
- Substantial Visual Impacts
- Estimated cost $114 million
  - Cost/mile $30 million

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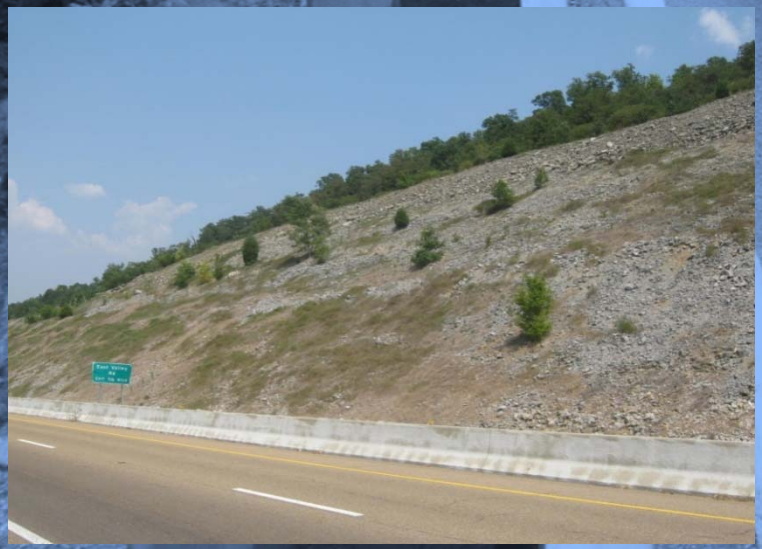
Typical Reconstruction Photos

SR 28
US 127
Fentress
County



SR 111
Hamilton
County

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Potential Rock Fall Area

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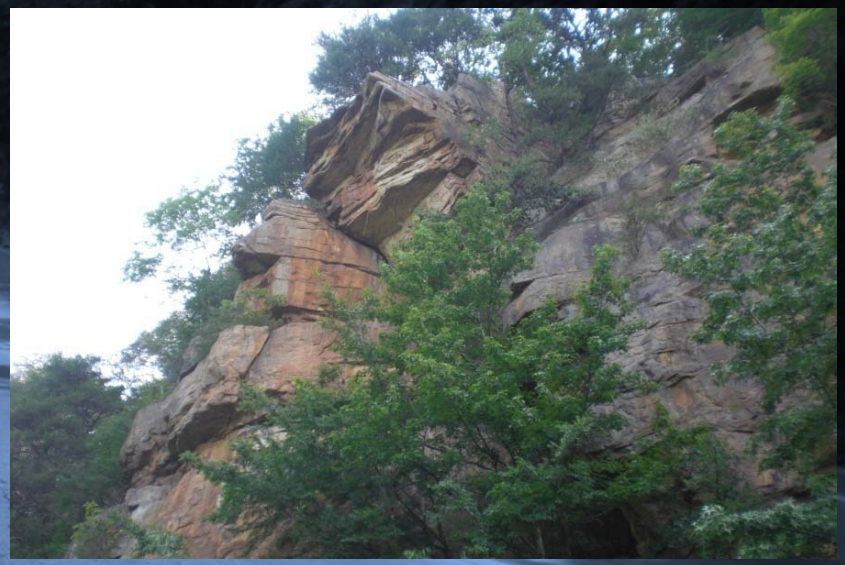
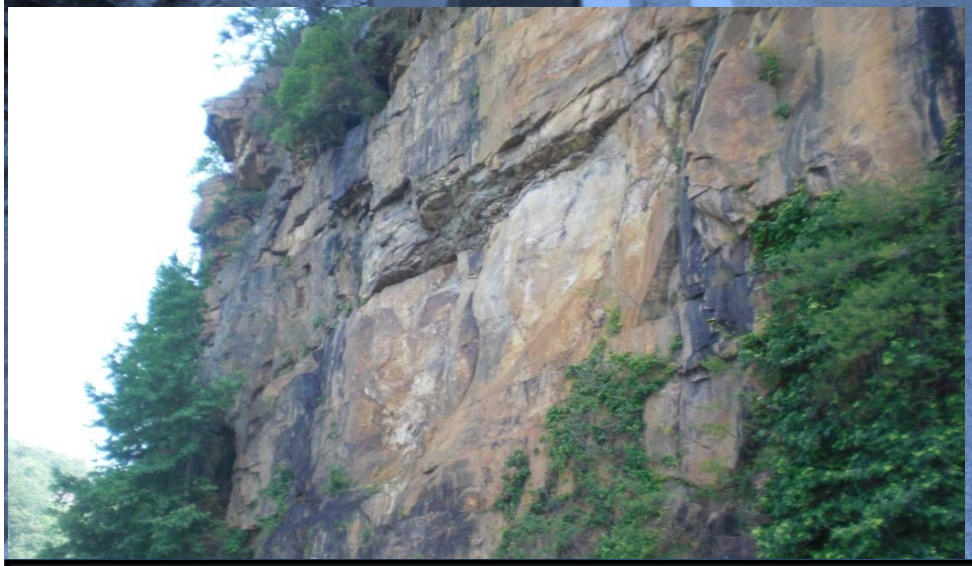
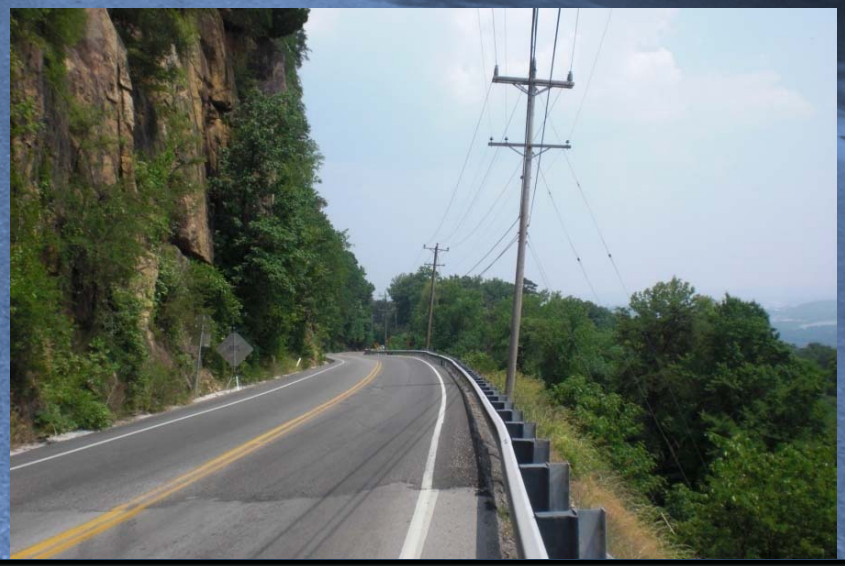
Typical Areas of Geologic Stability Concern







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Options for Abating Rock Falls

- Remove vegetation
- Remove loose rock and debris
- Install rock bolts and shotcrete
- Install rock fall barriers and catch fences
- Modify rock slopes

Roadway Stability Concern Areas

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Typical Areas of Roadway Stability Concern

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2009 Rock Slide

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Options for Roadway Stabilization

- Improve drainage
- Drill and install soil nails and rock anchors
- Drill and install drains in slope
- Replace and add retaining walls

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Typical Drainage Concerns

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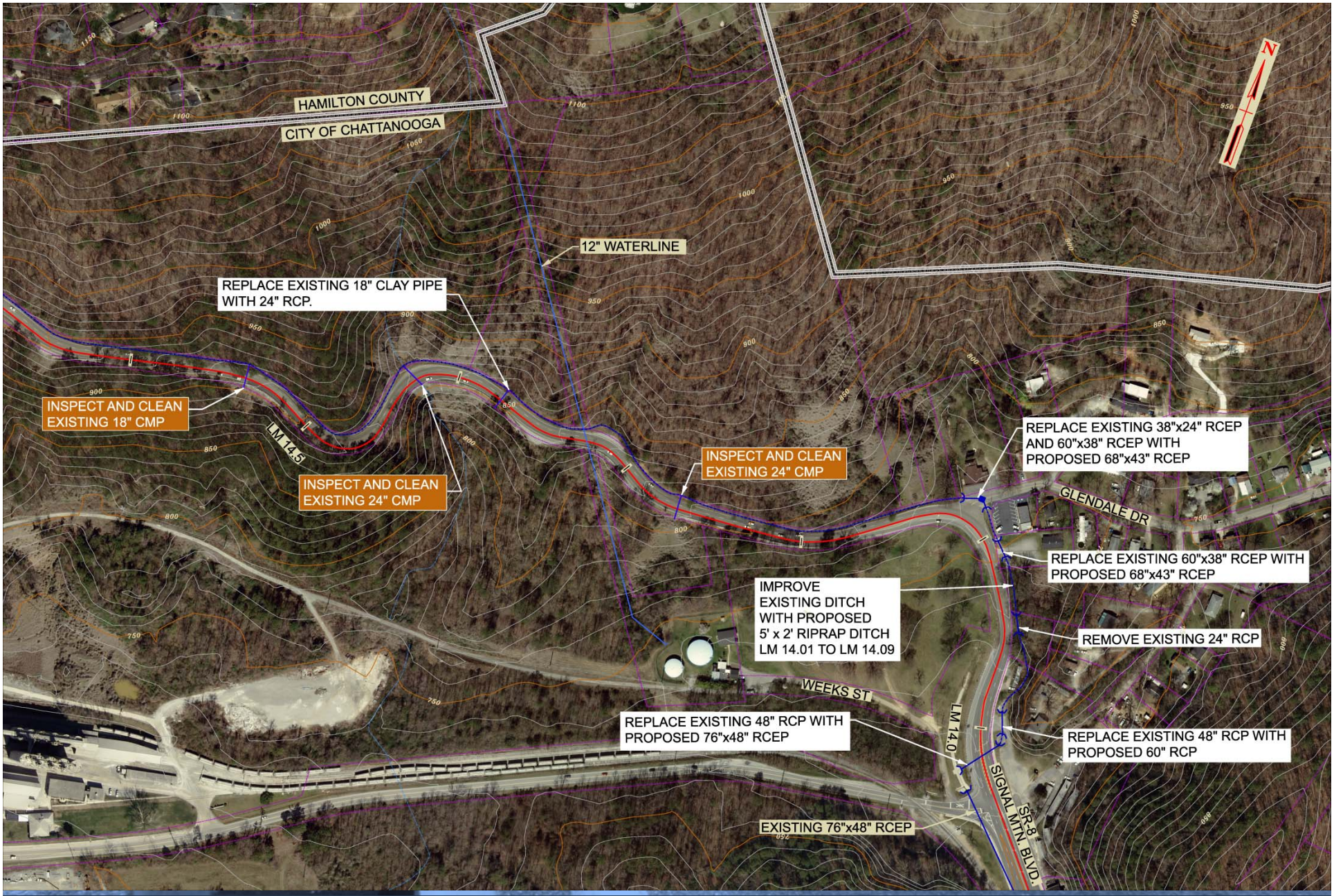

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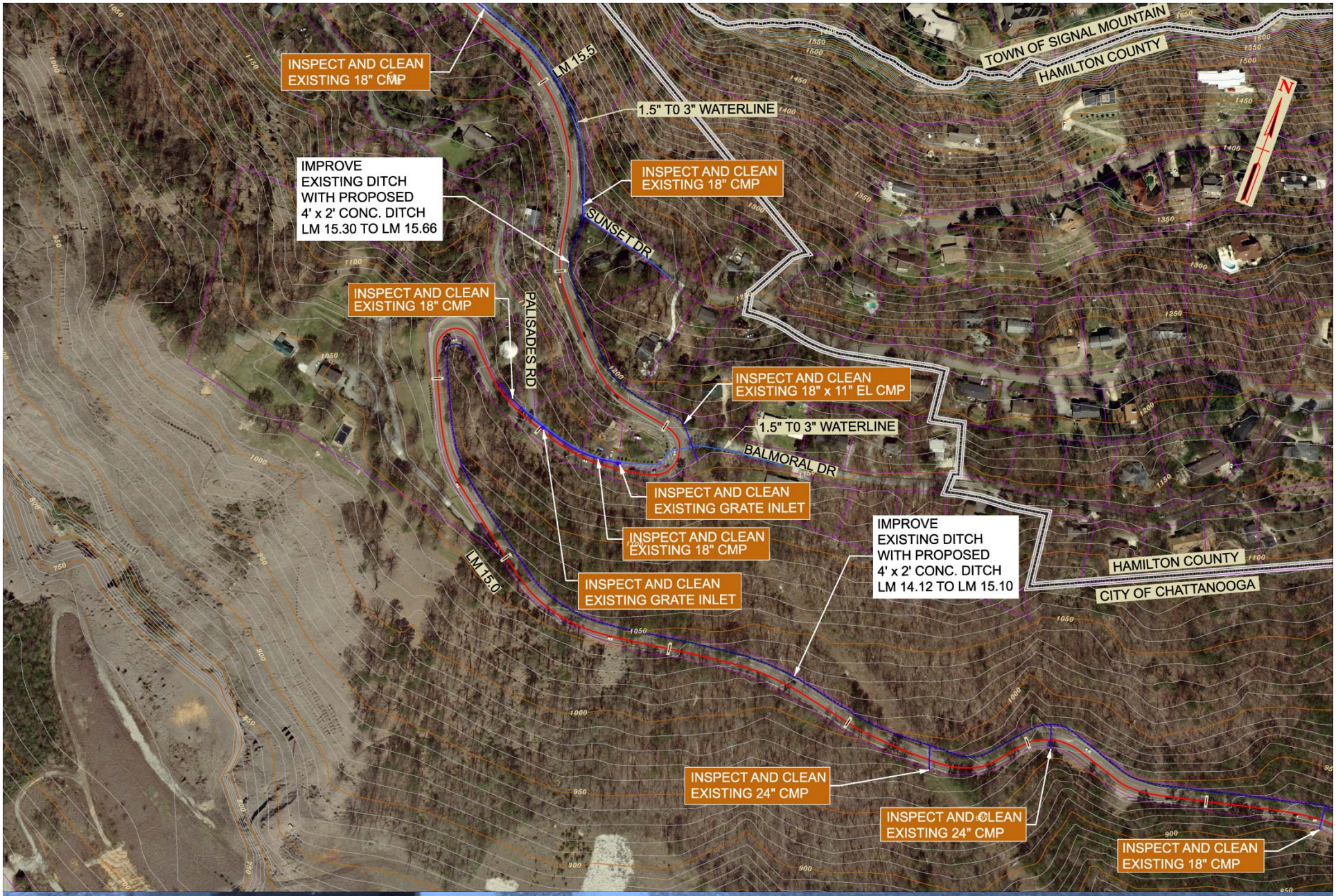

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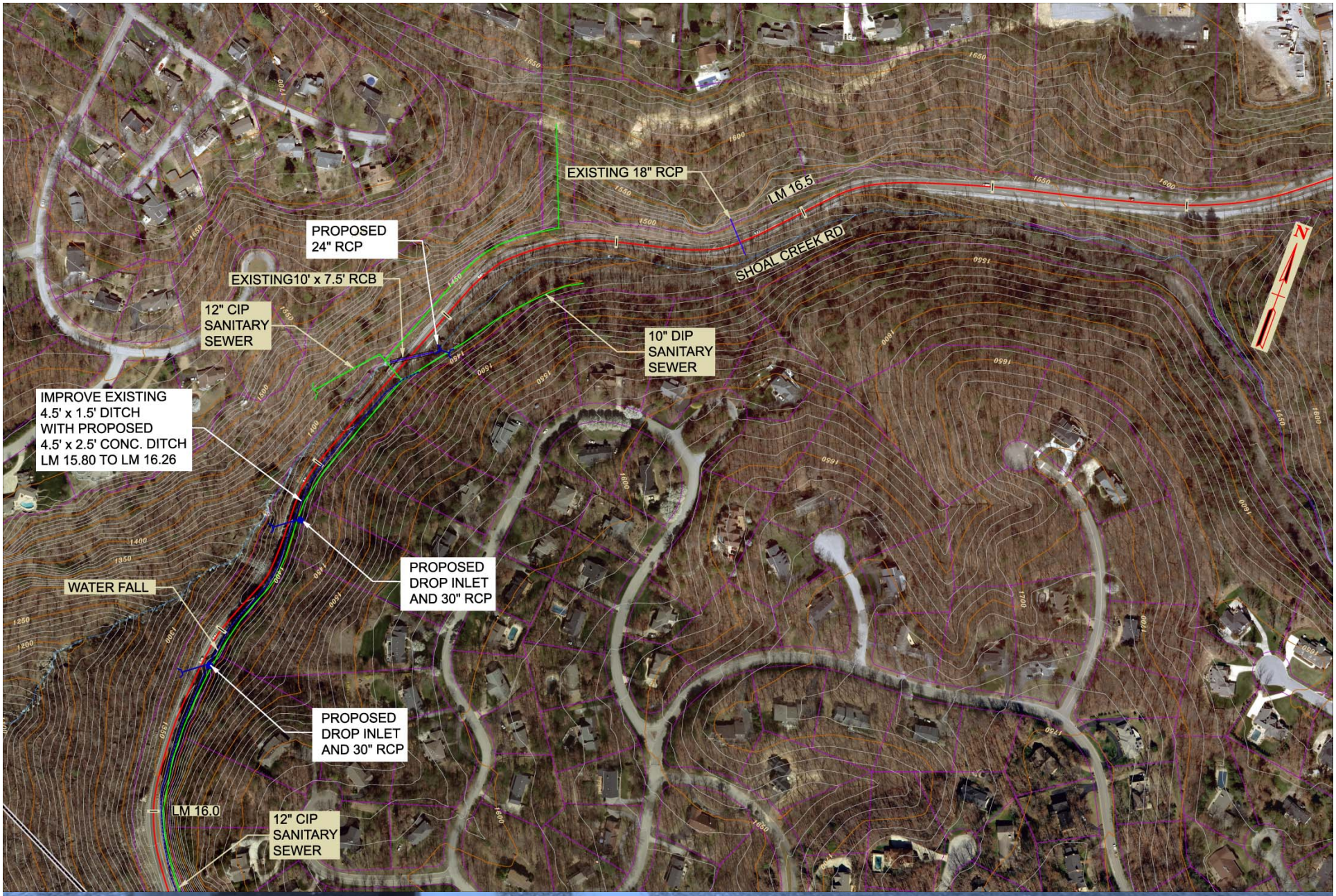

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Drainage Improvements

- System Maintenance Plan
  - Periodic Inspection
  - Inspection following significant rainfall events
- Install additional culverts
- Replace undersized culverts
- Upgrade/improve ditches

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Positive Impacts of Spot Improvements

- ✓ Improves safety
- ✓ Improves stability and reliability
- ✓ Cost

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Estimated Cost of Spot Improvements

Rock Fall Mitigation Options

- **Vegetation removal and scaling - $325,000**
- Vegetation removal, scaling, shotcrete and rock bolting - $700,000
- Vegetation removal, scaling and nail and net - $900,000
- Cut 1:1 Slopes - $10,000,000

Roadway Stabilization Options

- **Rebuild roadway stability concern areas - $890,000**
- **Drill and install soil nails, anchors and drains - $1,600,000**
- Retaining walls - $3,400,000

Drainage Improvements

- **Culvert replacement / installation – $950,000**
- **Upgrade and/or improve ditches – $6,500,000**

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Spot Improvement Scenario

Total Estimated Cost

- $10.2 million
- Cost/mile $3.4 million

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Negative Impacts of Spot Improvements

- Road closures during construction
- Continued need for maintenance
- Considerable visual impacts

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Environmental Scan

- Possible Threatened & Endangered Species
  - Indiana or Gray bat
  - White Fringeless Orchid
- Shoal Creek is on the TDEC 303(d) list of impaired waters and on the TDEC Known Exceptional Tennessee Waters List
- Hazardous Materials
  - Pyritic Rock
- No Historic Property impacts anticipated
- No Wetland or Floodplain impacts anticipated
- No Superfund Sites are anticipated

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