



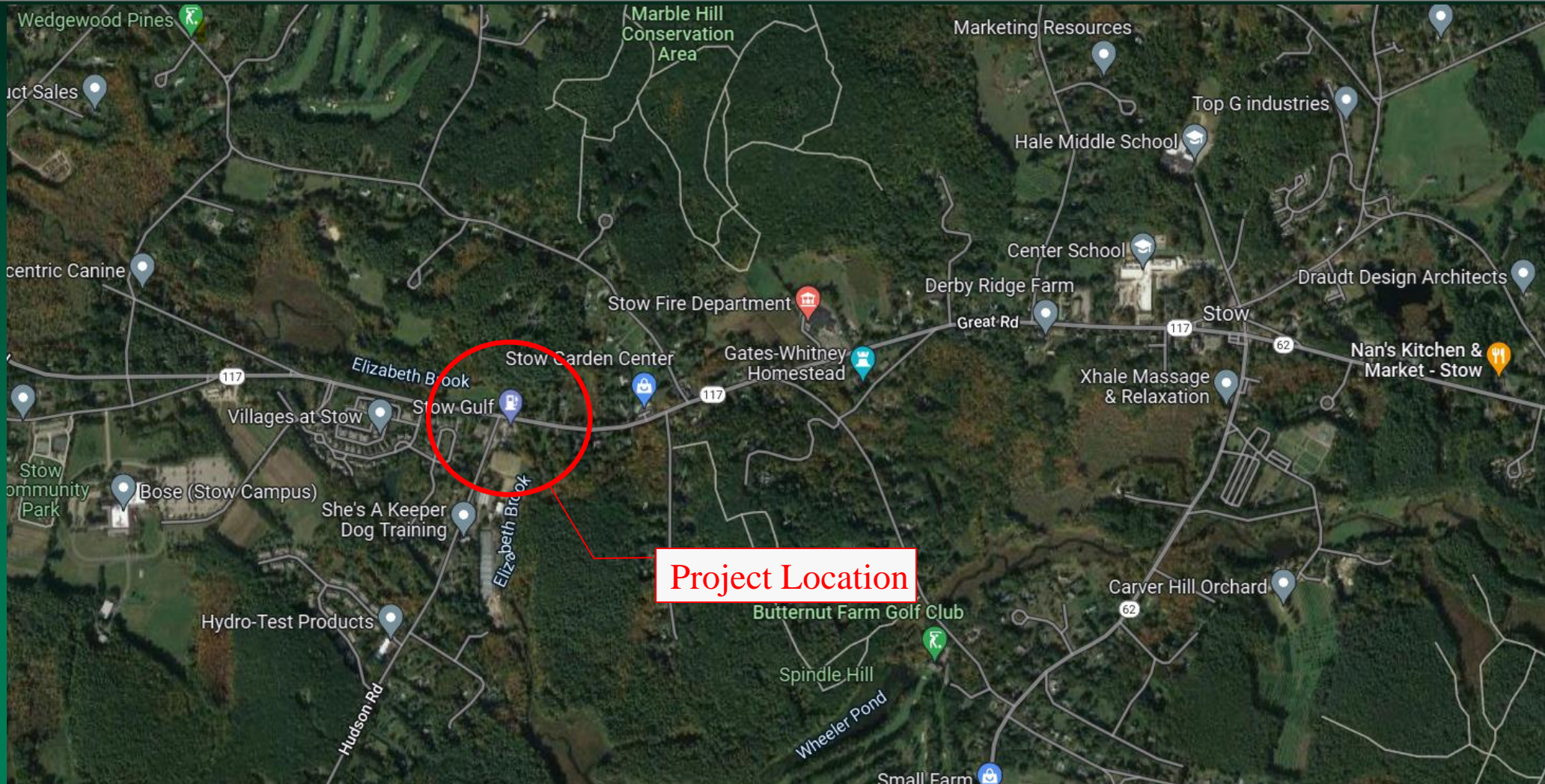
Route 117 (Great Road) & Hudson Road Intersection Improvements

Conceptual Design

Designed By:
Green International Affiliates, Inc.
January 10, 2023



Locus Map



Project Need

- ☐ Poor Traffic Operations

- ☐ LOS D and F per 2016 report by the Central Transportation Planning

- ☐ Road Safety Audit

- ☐ 3 Signal Warrants Met

- ☐ Warrant 1: Eight-Hour Vehicular Volume
- ☐ Warrant 2: Four-Hour Vehicular Volume
- ☐ Warrant 7: Crash Experience

- ☐ New housing developments

- ☐ Substandard pedestrian facilities

Existing Conditions

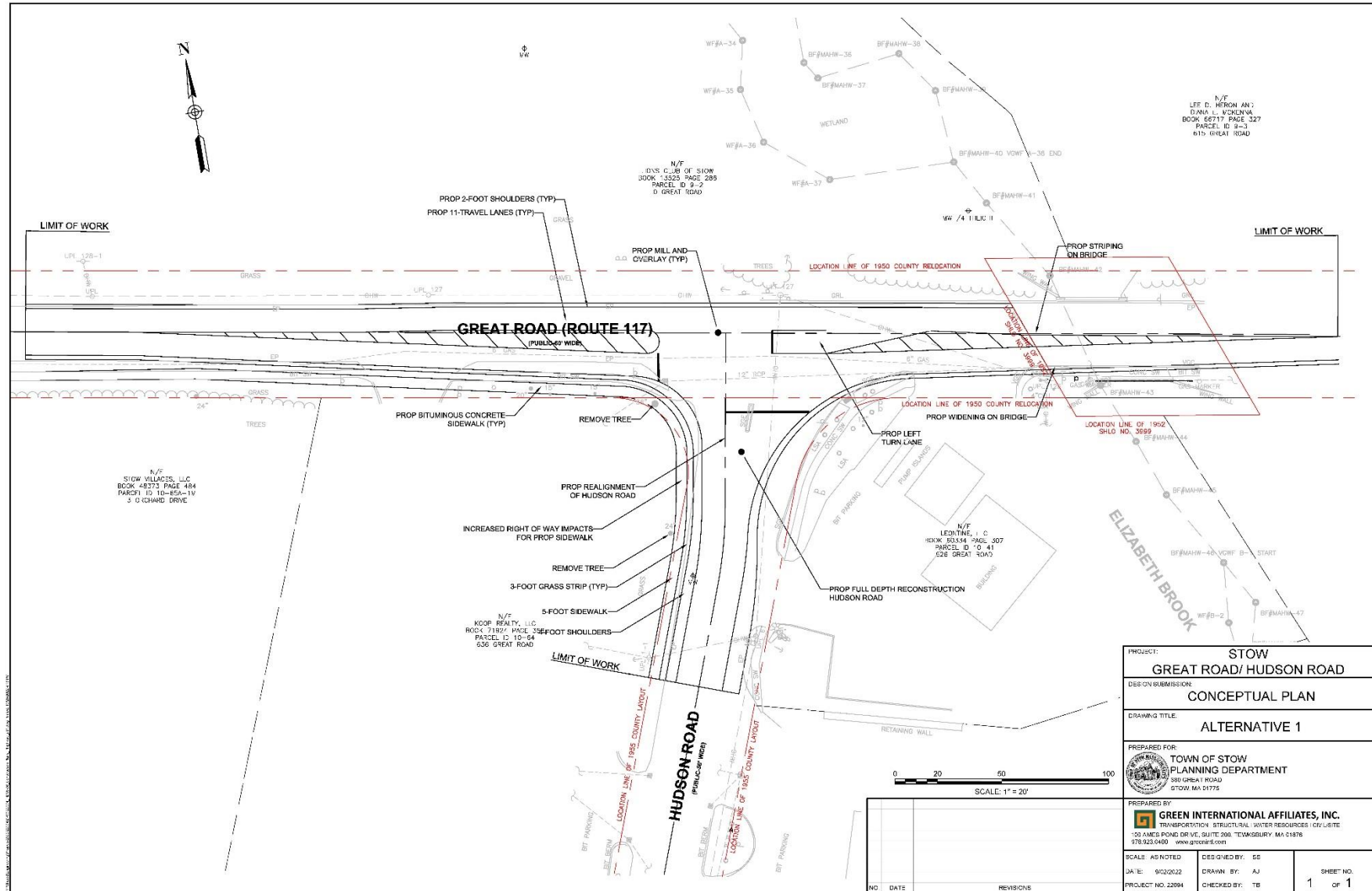
- ☐ Route 117 (Great Road)
 - ☐ Principal Arterial
 - ☐ Posted Speed Limit of 40 mph
 - ☐ 48-feet-wide with two 12-foot-wide lanes and 2-foot-wide shoulders
 - ☐ No designated bicycle accommodations
 - ☐ Pedestrian accommodations on south side of roadway
- ☐ Hudson Road
 - ☐ Collector
 - ☐ Posted Speed Limit of 40 mph (25 mph near intersection)
 - ☐ 11-foot-wide lanes with 4-foot-wide shoulders
 - ☐ Stop controlled
 - ☐ No pedestrian or bicycle accommodations

Conceptual Design Evaluations

- ☐ Signalize the intersection
- ☐ ADA compliant sidewalks on the south side of Route 117 and the west side of Hudson Road
- ☐ Evaluate a left turn lane on Route 117
- ☐ Avoid/minimize impacts to environmental sensitive areas
- ☐ Avoid/minimize impacts to abutters
- ☐ Avoid/minimize impacts to the Elizabeth Brook Bridge on Route 117 (MassDOT jurisdiction)
- ☐ Improve access management at the Gulf gas station and Buscemi's Liquor Store curb cuts

Alternative 1

- Signalized intersection with a left turn lane on Route 117
- Maintain alignment on Route 117 and widen roadway to the south
- Realign Hudson Road



Alternative 1

✓ Alternative 1 Pros

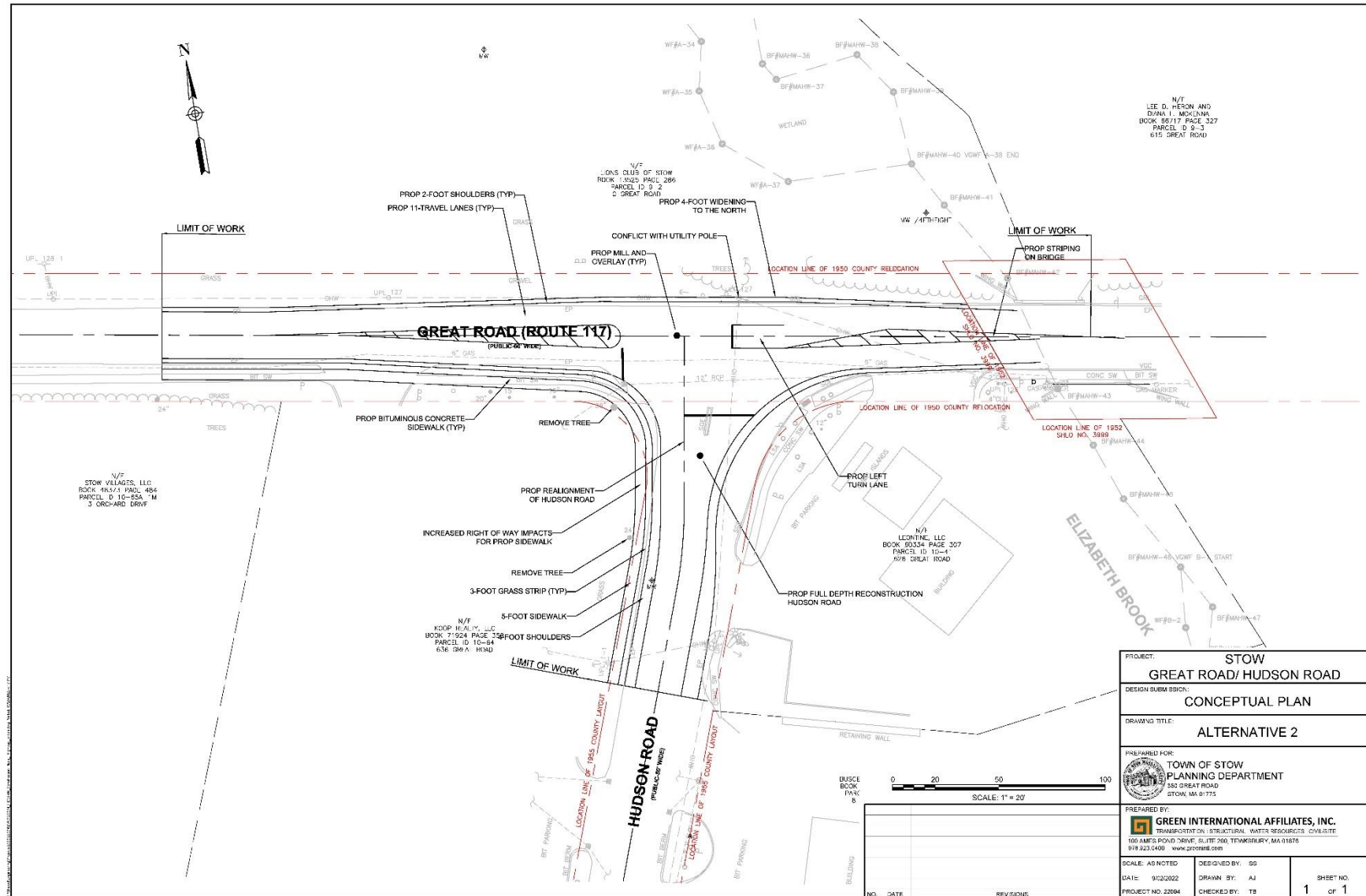
- ✓ Left turn lane on Route 117 slightly improves operations

✗ Alternative 1 Cons

- ✗ Left turn lane only has storage length for 1 car
- ✗ Striping and structural impacts to the bridge within MassDOT jurisdiction
- ✗ Significant right-of-way impacts for the installation of new sidewalk on the west side of Hudson Road
- ✗ Impacts to trees
- ✗ Increases impervious area
- ✗ Higher construction costs
 - ✗ Box widening on Route 117
 - ✗ Full depth reconstruction and realignment on Hudson Road

Alternative 2

- Signalized intersection with a left turn lane on Route 117
- Maintain alignment on Route 117 and widen roadway to the north
- Realign Hudson Road



Alternative 2

✓ Alternative Pros

- ✓ Left turn lane on Route 117 slightly improves operations
- ✓ Avoids structural impacts to the bridge with MassDOT jurisdiction

✗ Alternative Cons

- ✗ Left turn lane only has storage length for 1 car
- ✗ Striping impacts to the bridge within MassDOT jurisdiction
- ✗ Utility pole impacts on the north side of Route 117
- ✗ Impacts to guardrail and bridge guardrail
- ✗ Significant right-of-way impacts for the installation of new sidewalk on the west side of Hudson Road
- ✗ Increases impervious area
- ✗ Higher Construction Costs
 - ✗ Box Widening on Route 117
 - ✗ Full depth reconstruction and realignment on Hudson Road

- Signalized intersection with a lead green phase for westbound traffic
- Maintain alignment on Route 117
- Maintain alignment on Hudson Road



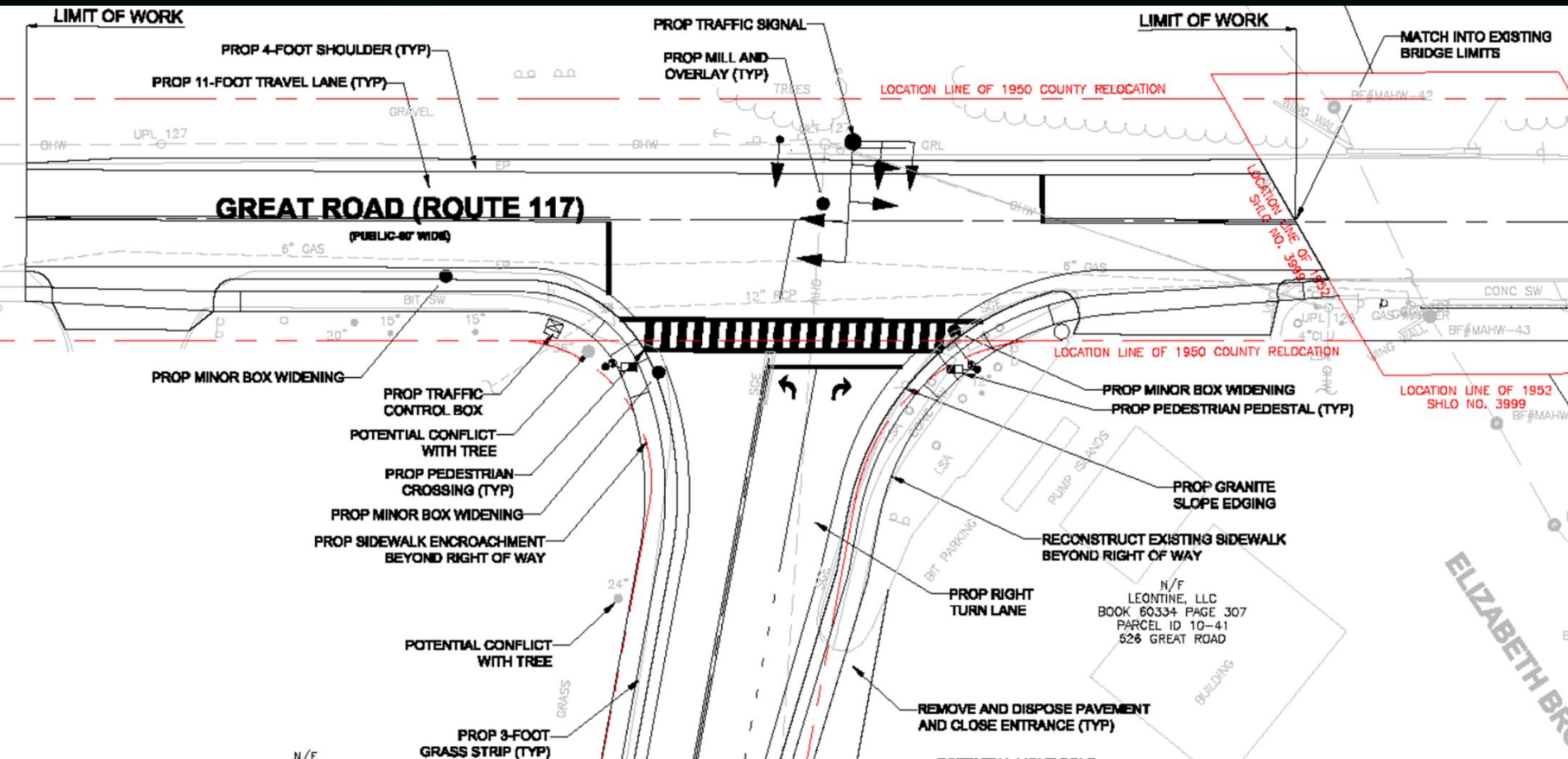
Alternative 3 (Recommended Alternative)

✓ Alternative Pros

- ✓ No utility impacts
- ✓ No guardrail or bridge rail transition impacts
- ✓ Reduced ROW impacts for the new sidewalk on the west side of Hudson Road
- ✓ No impacts to the bridge
- ✓ Lower Construction Costs
 - ✓ Mill and overlay both Route 117 and Hudson Road
 - ✓ Minor box widening
- ✓ Minimized expanded impervious area

✗ Alternative Cons

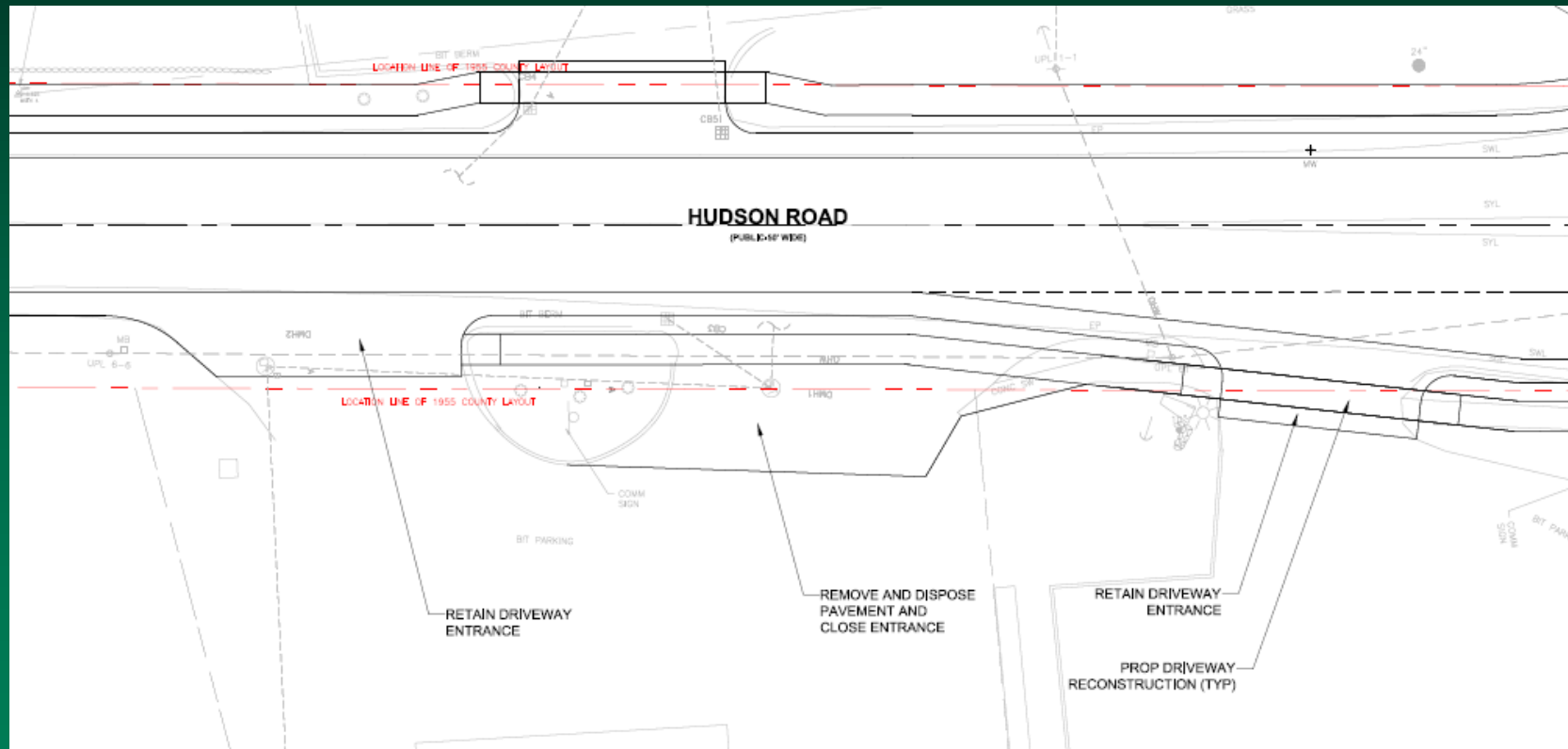
- ✗ No left turn lane



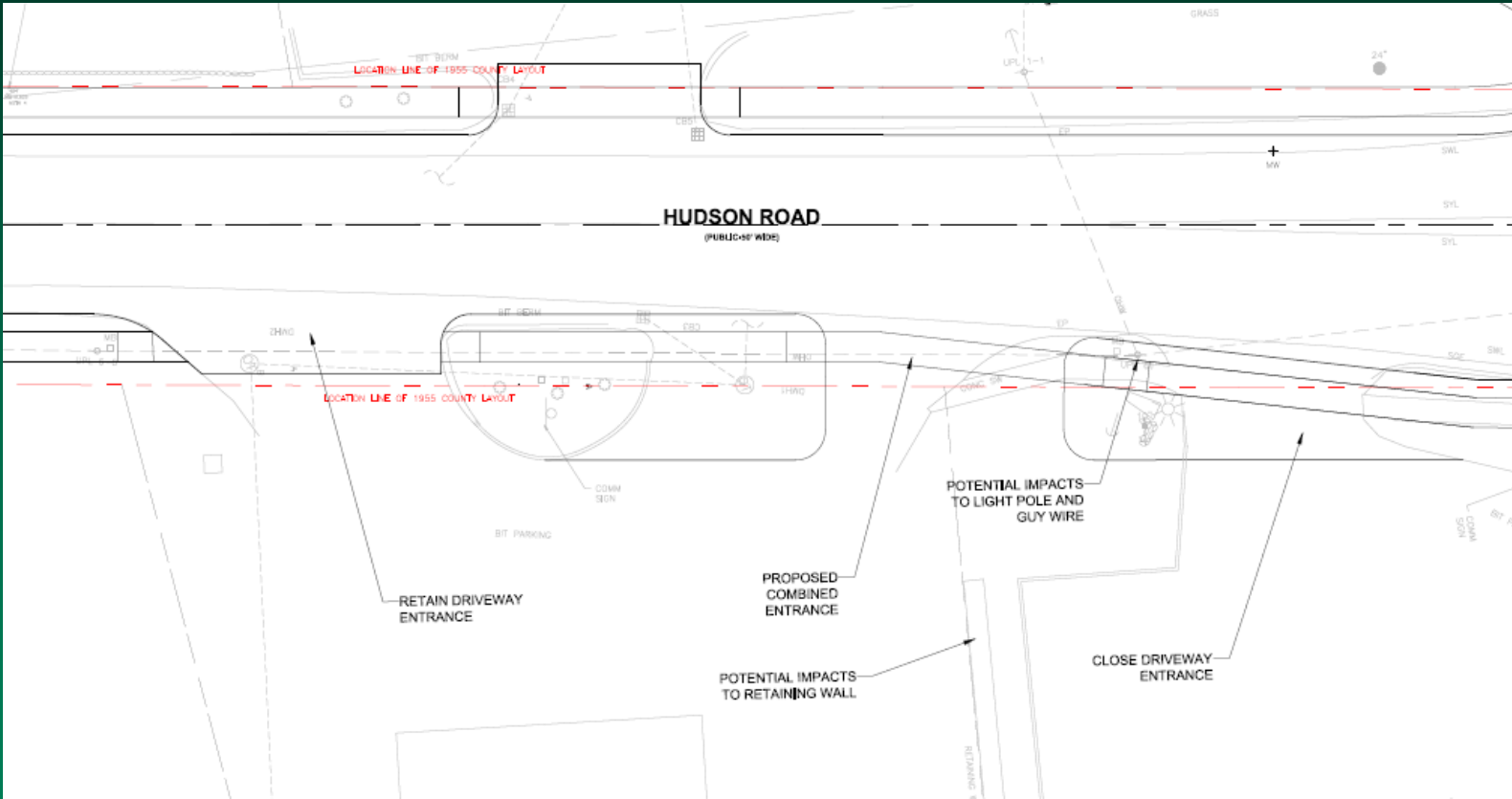
Proposed Design

- ☐ Level of Service C will be provided in PM peak hour
- ☐ Level of Service A will be provided in AM peak hour
- ☐ Lead phase for left turning westbound traffic on Route 117
- ☐ Dual Mast Arm with supplemental 10-foot traffic signal post
- ☐ New pedestrian signal equipment
- ☐ New signal will be synchronized with the signal at Harvest Drive
- ☐ Minimal impacts to abutters, trees, utilities and environmental resources
- ☐ Estimated Cost: \$750,000

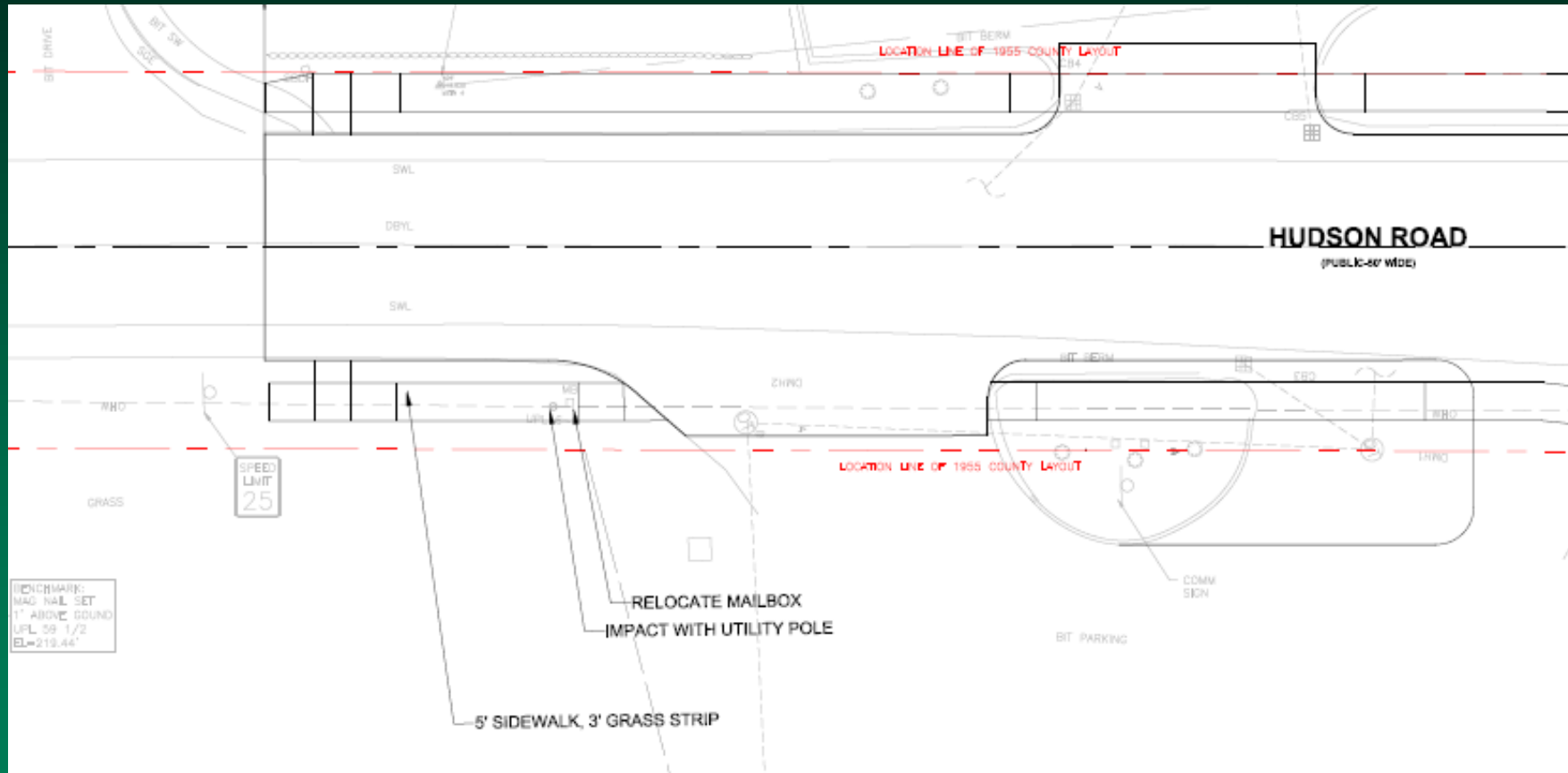
Gulf Gas Station/Buscemi's Driveways



Gulf Gas Station/Buscemi's Driveways



Hudson Road Sidewalk Extension



Questions

