Noble Creek Alternatives

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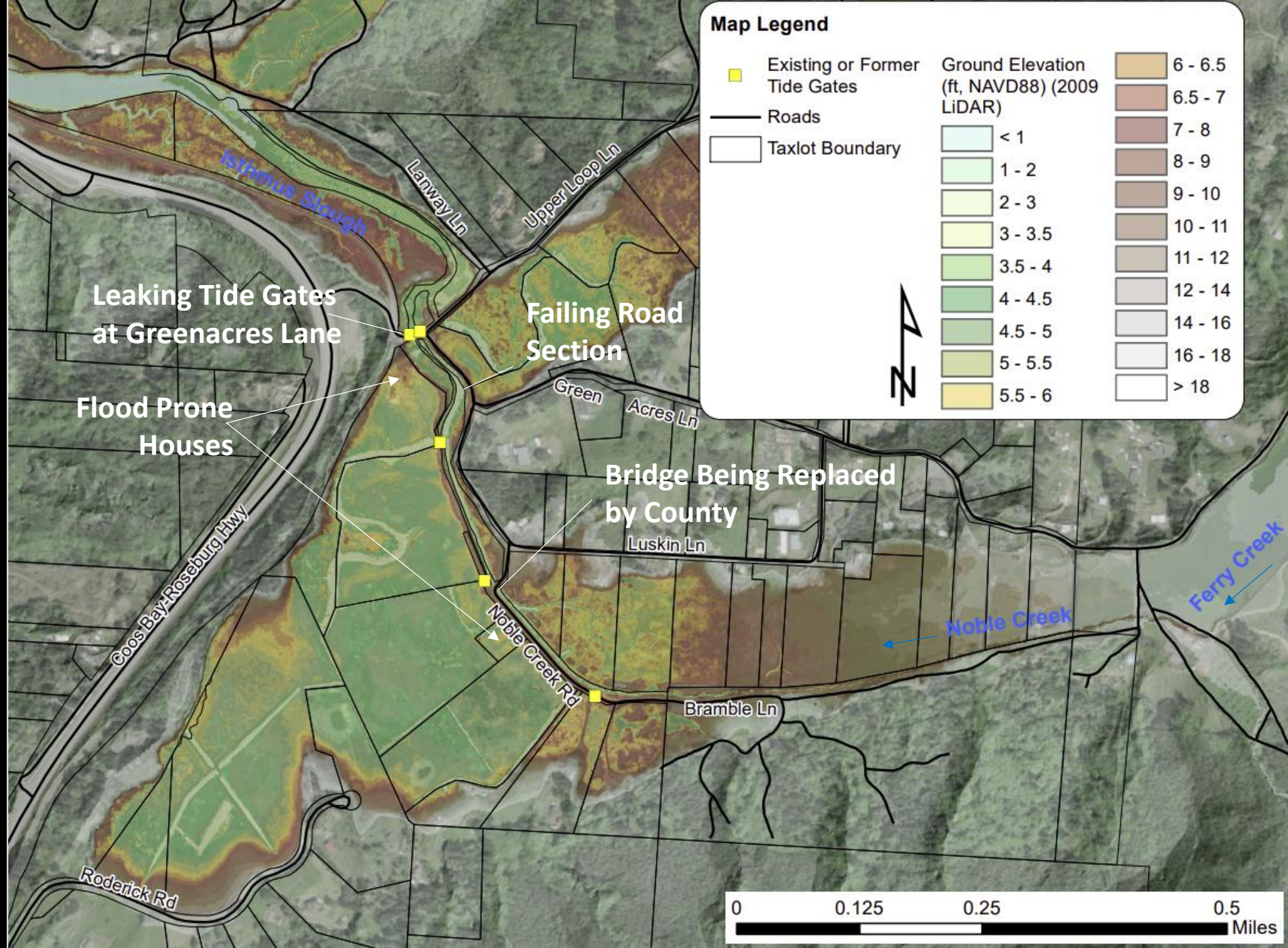
WATERWAYS CONSULTING, INC.
Santa Cruz, CA | watways.com | Portland, OR

Overview

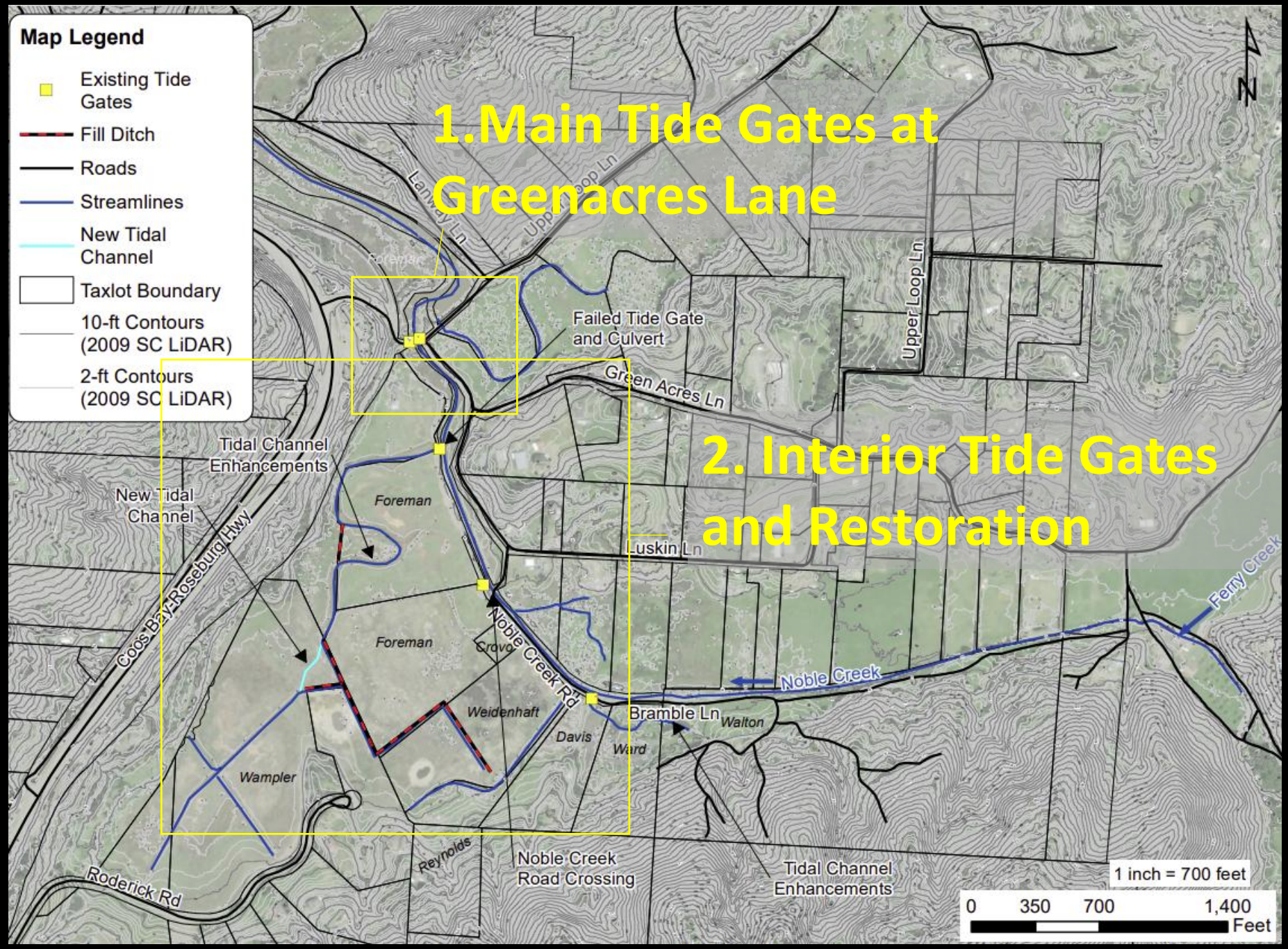
- Crossing with failing tide gates is the only vehicle access to the community
- Little to no fish access to ~100 acres of pastures with potential tidal rearing habitat
- Project Goal:

Improve water level management and vehicle access and maximize benefits for salmon



Project

- 2-part project:
  1. The main tide gates
  2. Interior tide gates and restoration
- The preferred alternative for #2 depends on the selected alternative for #1
- Alternatives Analysis must begin with deciding what to do at the main tide gates first



1. Main Tide Gates

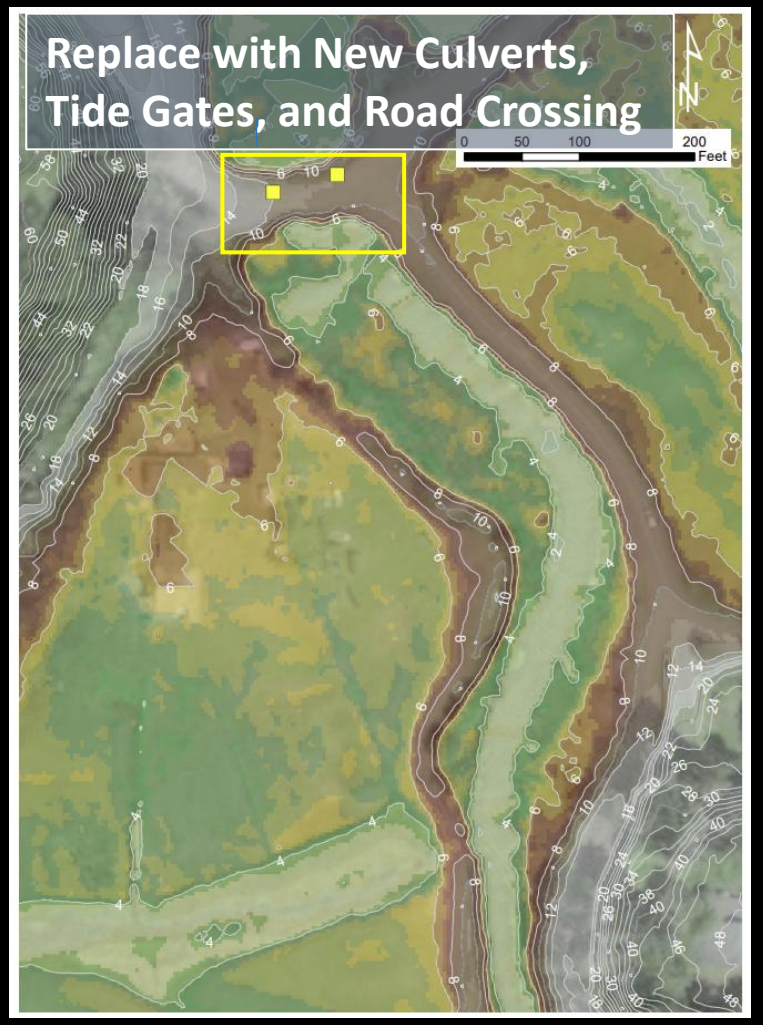
Alternatives at Main Tide Gates

- Tide gates leak and are failing
- Erosion and undercutting threatens Greenacres Lane, a main access point for the community
- Tidal flooding potential behind the tide gates
- Current tide gates are a restriction to upstream migrating adult fish and full barrier for juveniles attempting to move upstream
- 3 Alternatives:
    1. New Bridge at GAL without Tide Gates
    2. Replace Existing Tide Gated Culverts at GAL
    3. New Bridge at GAL with Tide Gated Culverts placed upstream.

Alternative 1

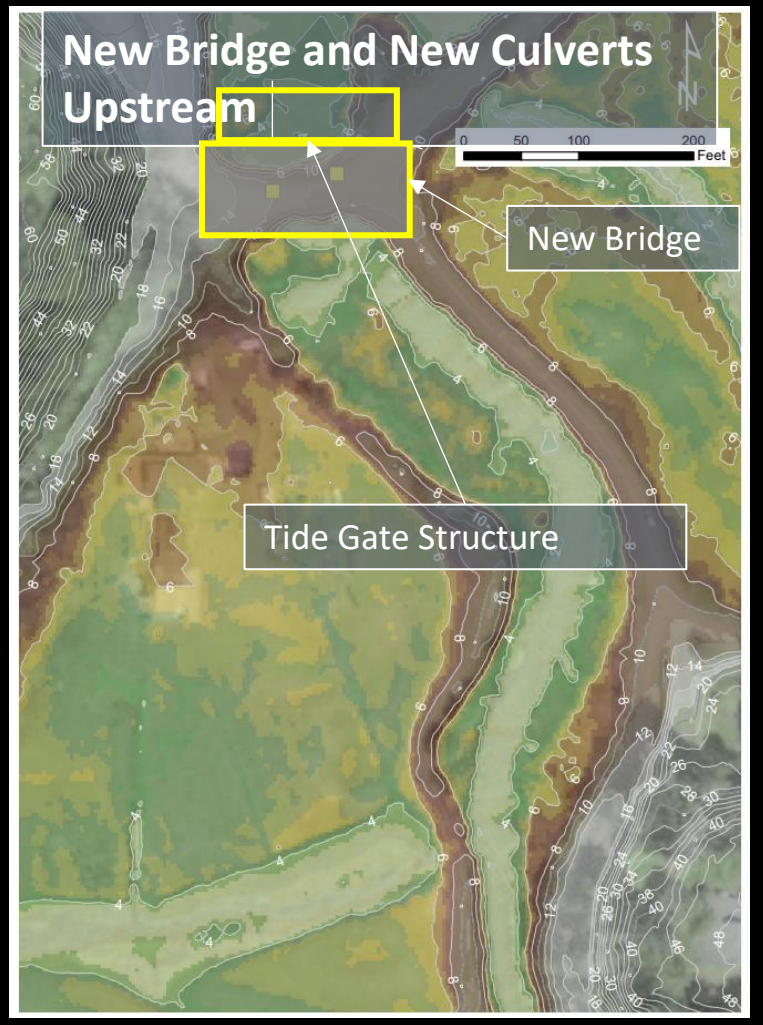
- Simplest option
- May not provide enough flood control

Alternative 2



- Improved water level control
- Improved fish access
- Difficult to maintain access during construction

Alternative 3

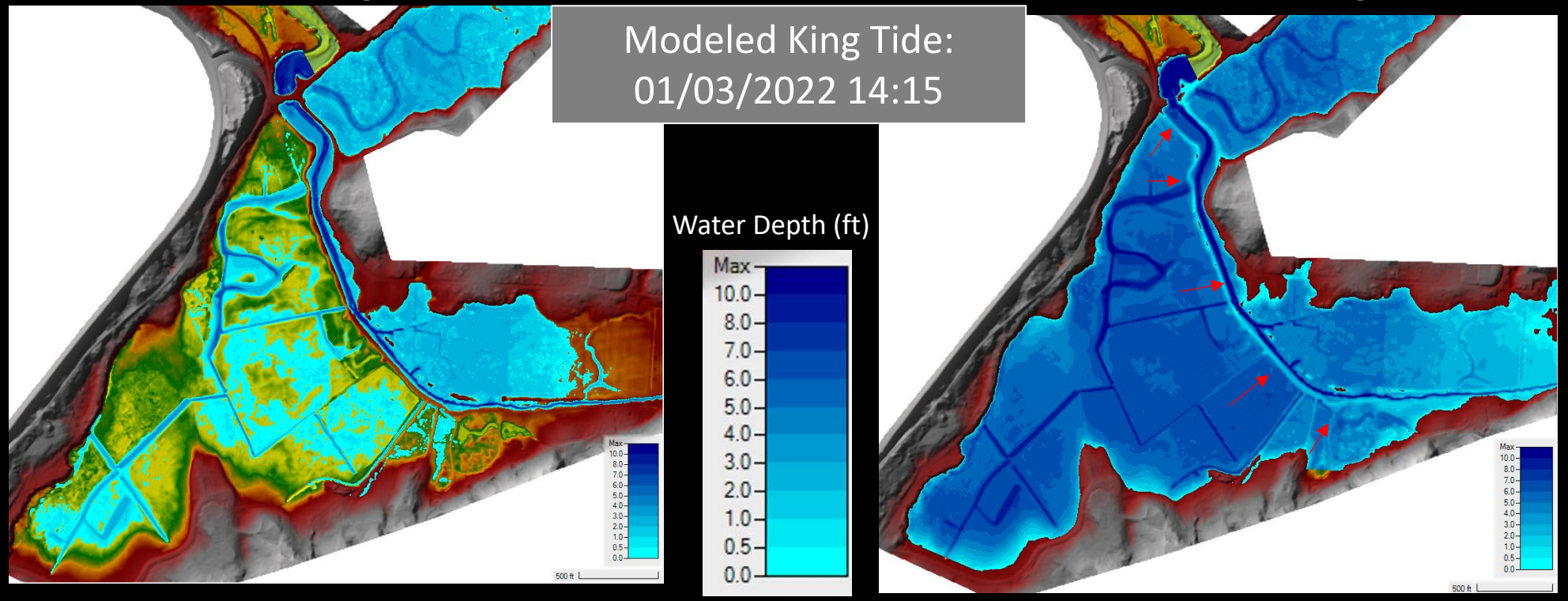


- Build culvert and tide gate first
- Use new culvert as temporary access during construction

Alternative 1 – Replace Main Tide Gates With a New Bridge, Upgrade Interior Tide Gages

Existing Condition

With Bridge

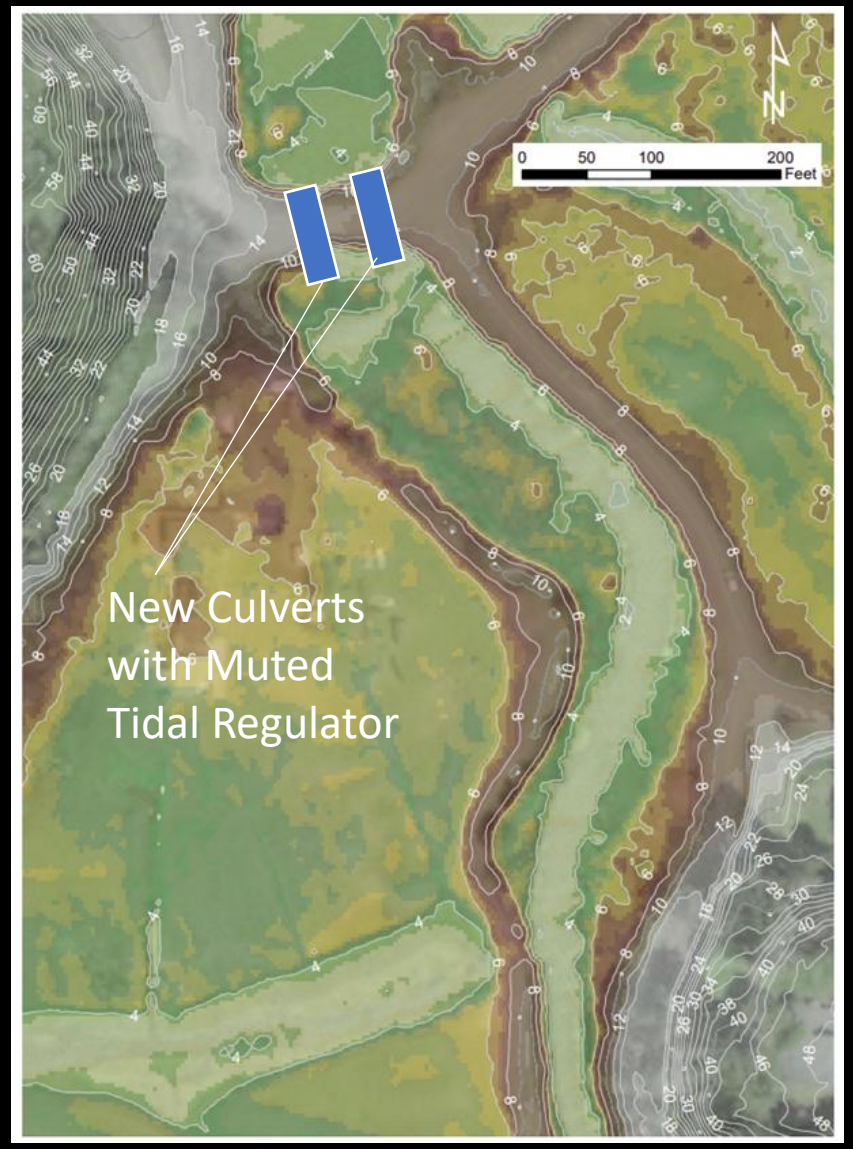


- Tide gates currently leak, allowing some water to get into Noble Creek valley
- For now, leaking tide gates still prevent more widespread flooding in king tides
- Without main tide gates, king tides will cause flooding

- Model shows multiple overtopping points (red arrows). It will be difficult or impossible to control tidal flooding with a bridge and only interior tide gates, and extensive levee construction and long-term levee maintenance would be required.

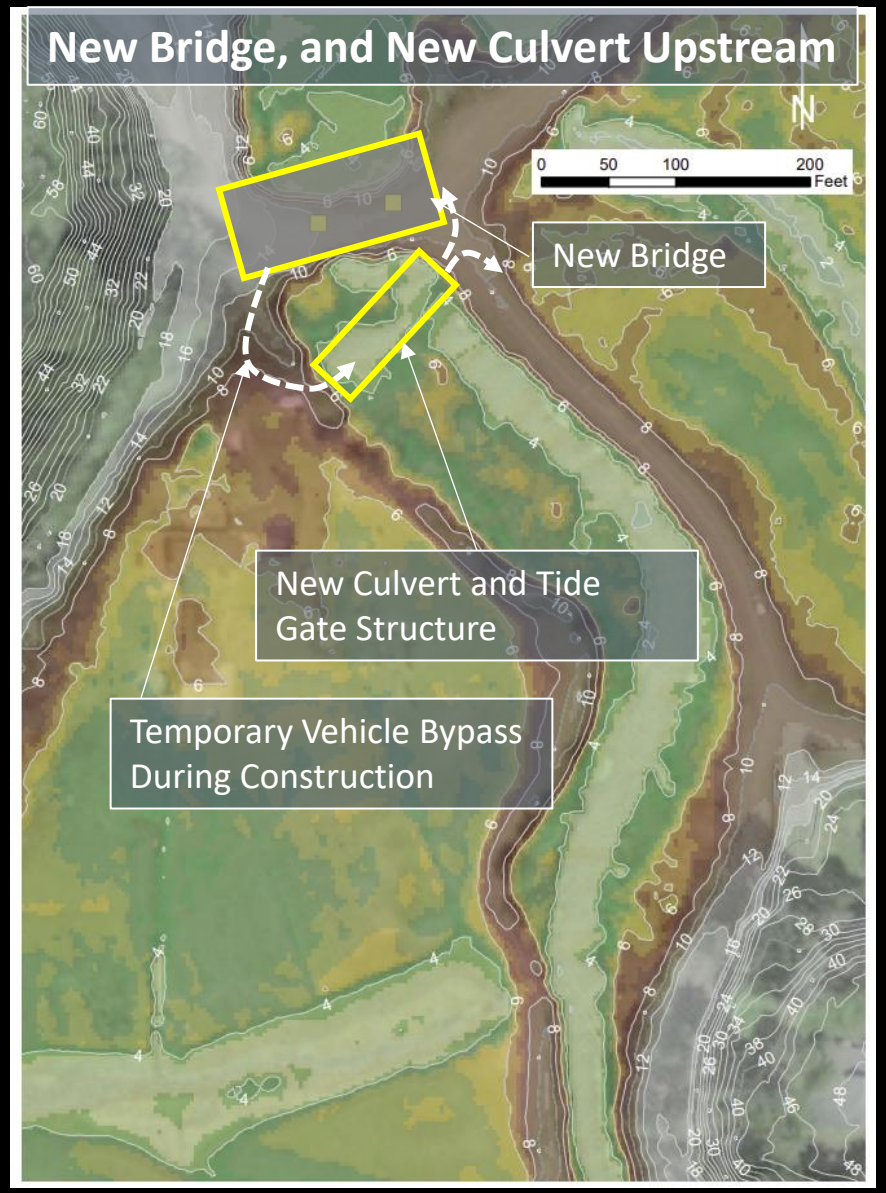
➢ New tidegated culvert at or near GAL is almost certainly required as main water control

Alternative 2 – Replace Main Tide Gates With a New Culvert and Tide Gate



- Alternative 2 will improve fish passage and provide long term reliable vehicle access
- Long term maintenance responsibilities could be unclear as the new tide gate and culverts will be integrated with the county road crossing
- Tide gate infrastructure may be more accessible by the public than in Alternative 3

Alternative 3 – Bridge and Culverts Built as Separate Structures



- Build culvert and tide gate first, then divert traffic over new tide gate during bridge construction
- Temporary disruption and traffic at Foreman's property during construction
- Clearer maintenance responsibilities for tide gates and roadway
- More limited access to tide gate infrastructure

Discussion about main tide gate Alternatives 2 and 3

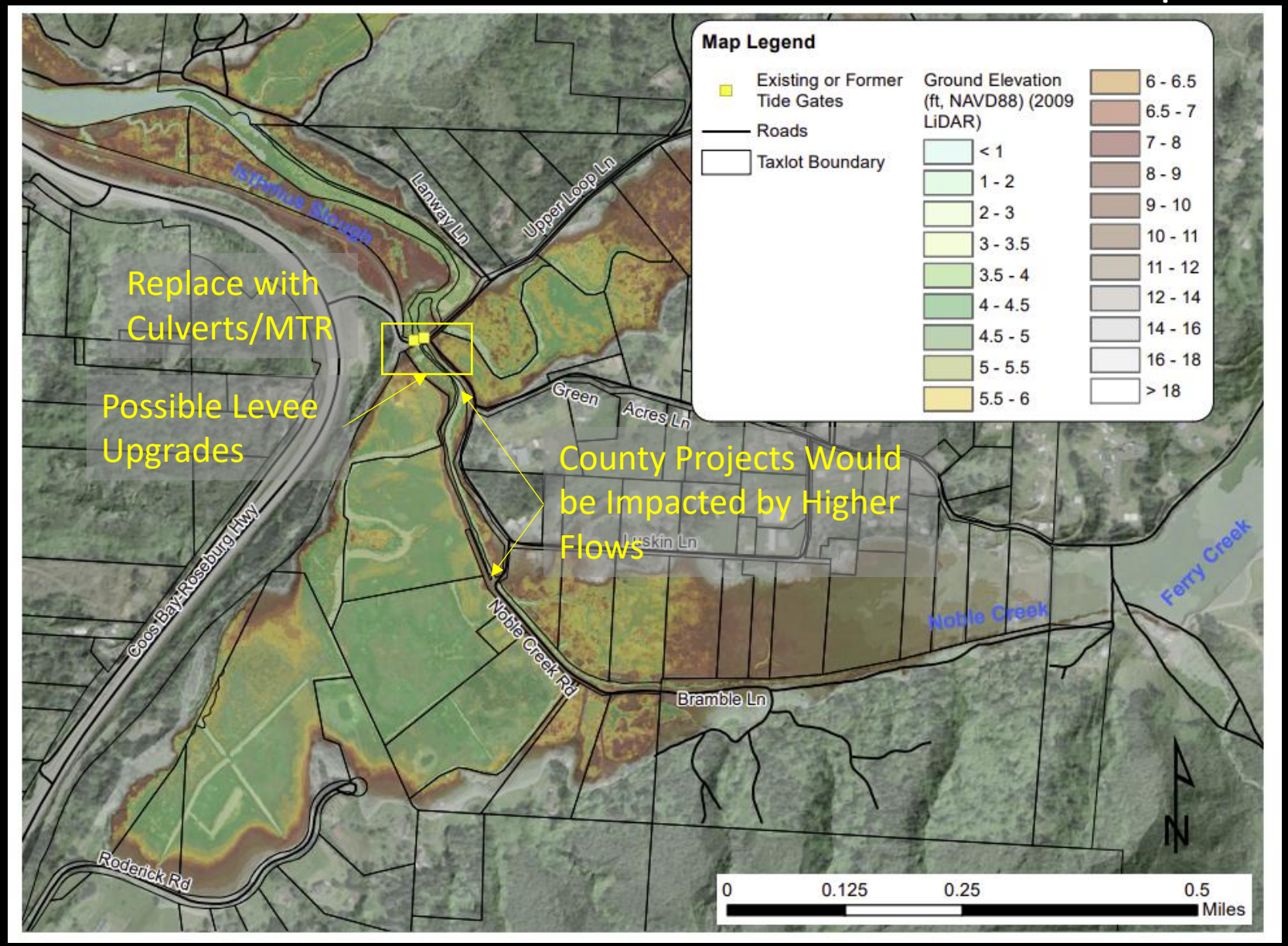
- Notes:

2. Interior Restoration Alternatives

Alternatives for Interior Tide Gates and Restoration

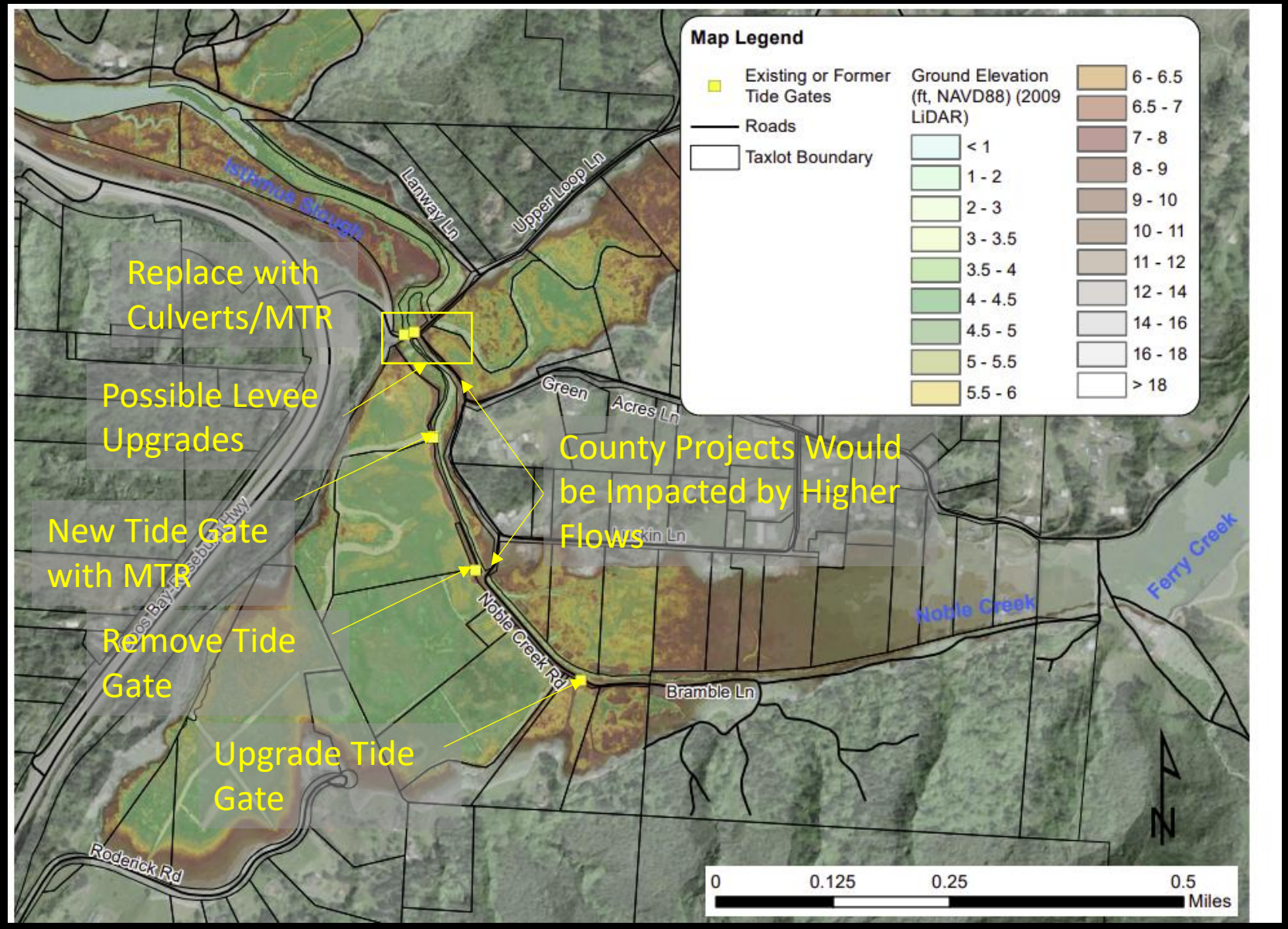
- The following Alternatives assume the main tide gates will be replaced with a culvert with MTR (Alt 2 or 3).
- This provides the starting point for a significant fish habitat restoration project in the area upstream of the tide gate.
- Upgrades to interior tide gates may be needed to protect properties and other infrastructure.
- Three Proposed Alternatives:
    1. No restoration actions on interior. Minor levee upgrades may be needed
    2. Upgrade interior tide gates/levees to improve fish access and protect properties
    3. Upgrade infrastructure plus partial tidal restoration to floodplain

Alternative 1 – No Interior Improvements



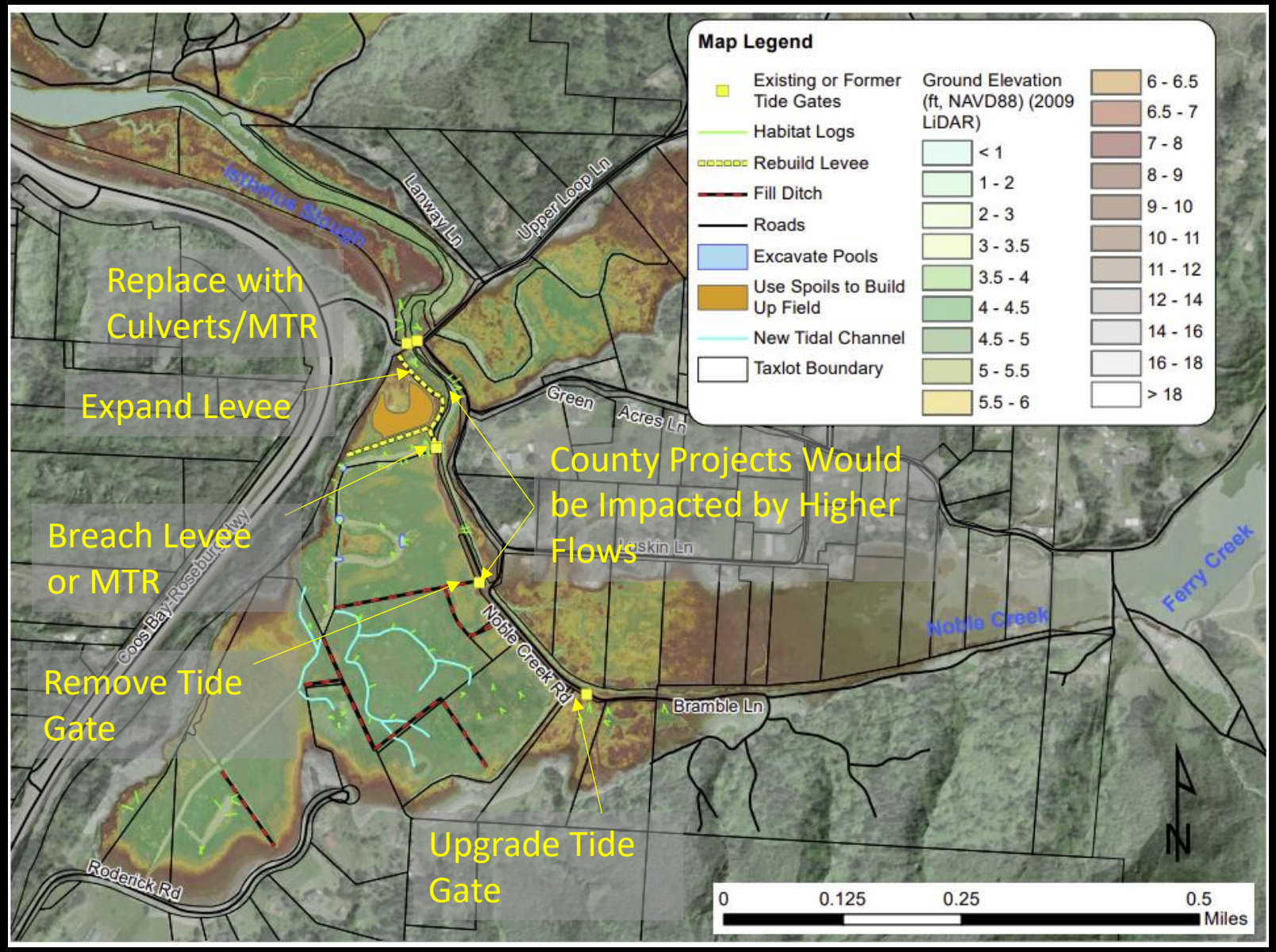
- Just replace the main tide gate and culvert, no interior upgrades to tide gates or restoration actions
- Foreman's levee may need to be upgraded to accommodate higher flows
- Water management plan would set MTR to 6' elev.
- Coordinate with County on their projects upstream that would be impacted
- Could be difficult to get construction funding without restoration component

Alternative 2 – Interior Tide Gate Upgrades



- Just replace the main tide gate and culvert, no interior upgrades to tide gates or restoration actions
- Foreman's levee will need to be rebuilt to handle highest storm surge level of tides
- MTR would be set to limit flooding to 6' or so
- Coordinate with County on their projects upstream that would be impacted
- More difficult to fund without more restoration components

Alternative 3 – Interior Tide Gates and Restoration



- This option would include maximizing the habitat restoration benefit for the project
- Levee breach or interior tide gate at the abandoned channel
- Expand levee to protect Foreman's property
- Dig new tidal channels, and fill ditches
- Add habitat logs
- Much more benefit to fish
- Could make obtaining grants for construction funding easier

Discussion about Interior Restoration

- Notes: