

PROJECT SCOPE

Purpose and Need

The purpose of this Resurface, Restoration, and Rehabilitation (3R) project is to upgrade the intersection to:

- Decrease crash rates and enhance safety
- Alleviate traffic congestion
- Accommodate future increase in capacity
- Improve mobility for vehicles and pedestrians
- Provide a safe wildlife crossing to adjacent areas

Challenges

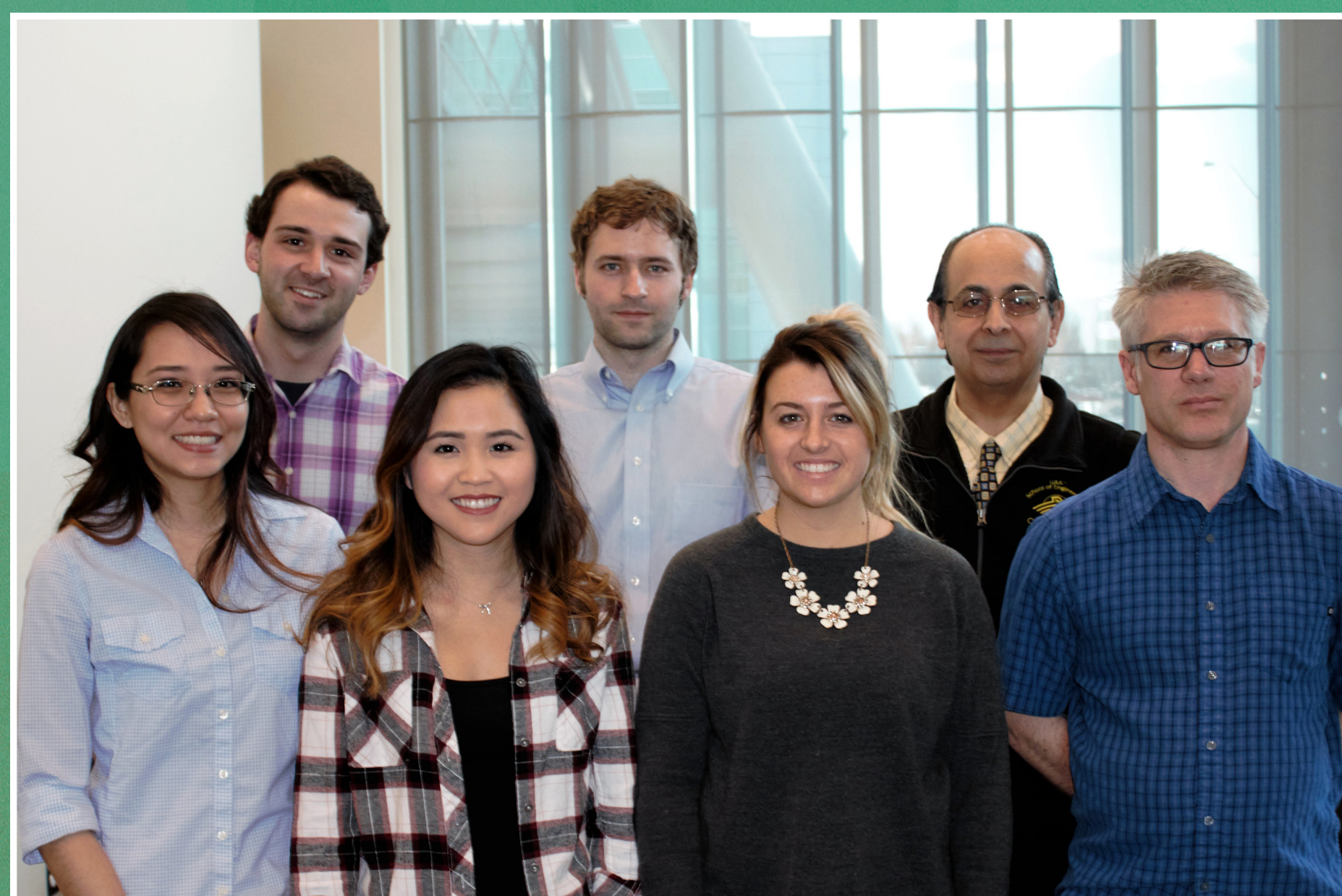
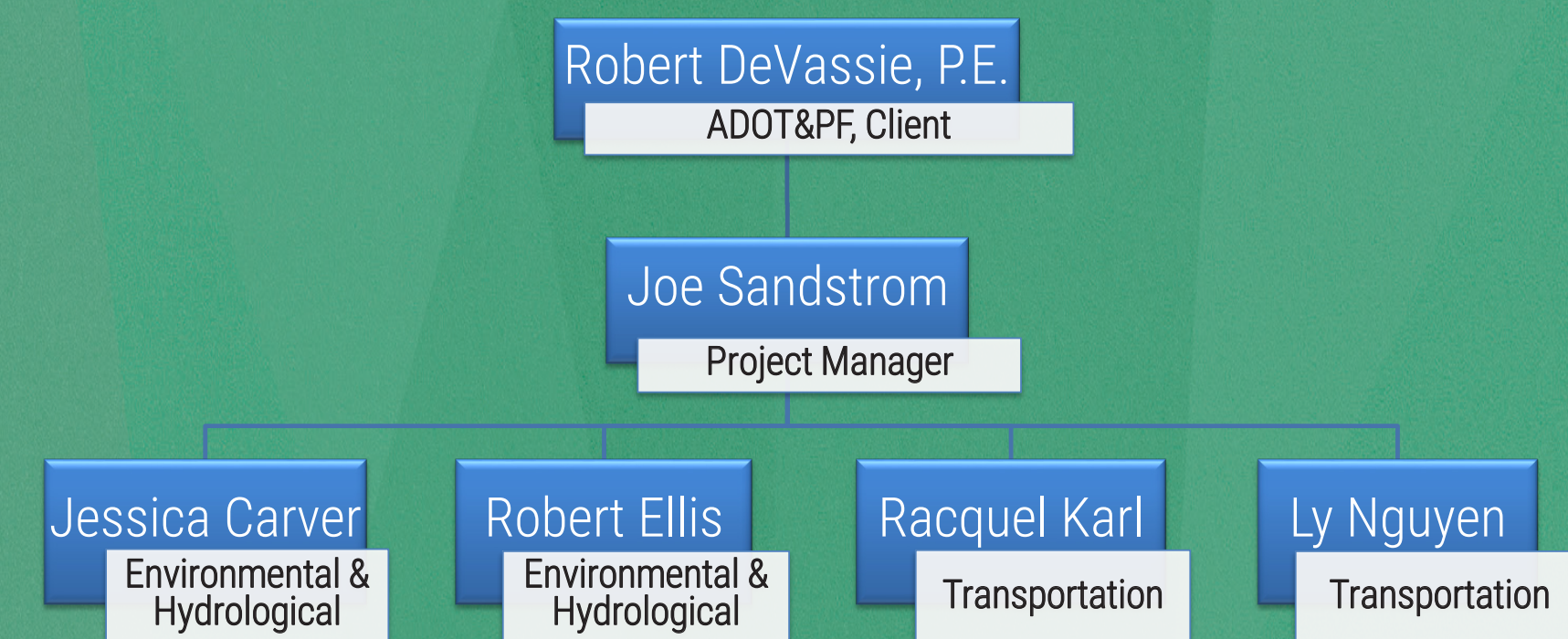
- Analyze design year (2036) capacity
- Developing design in AutoCAD Civil3D
- Little Meadow Creek hydrologic modeling
- Environmental concerns

Technical Teams

To maximize efficiency, two technical teams were assembled based on team member expertise:

- **Transportation**
Joe Sandstrom, Racquel Karl, Ly Nguyen
- **Environmental/Hydrological**
Jessica Carver, Robert Ellis

PROJECT TEAM



From left: Racquel Karl, Joe Sandstrom, Ly Nguyen, Robert Ellis, Jessica Carver, Osama Abaza, Robert DeVassie

TRANSPORTATION

Proposed Improvements

The following improvements were included in the design:

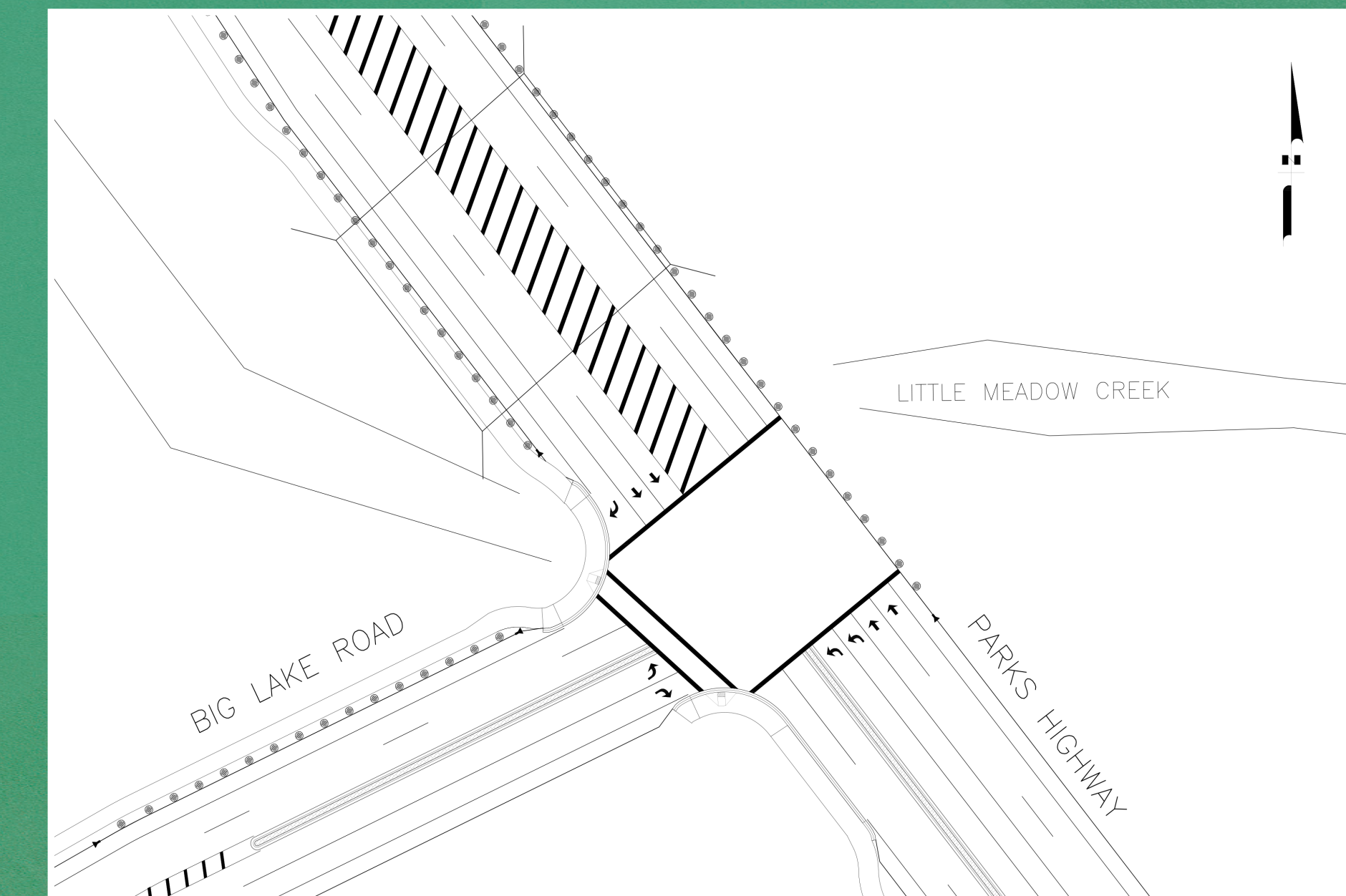
- Signalized intersection
- Additional turn and through lanes
- Striped and raised medians
- Separated pedestrian pathway
- Pedestrian crossing through intersection
- Construction of a bridge over Little Meadow Creek north of intersection
- Wildlife crossing under bridge



Aerial photograph of existing intersection.

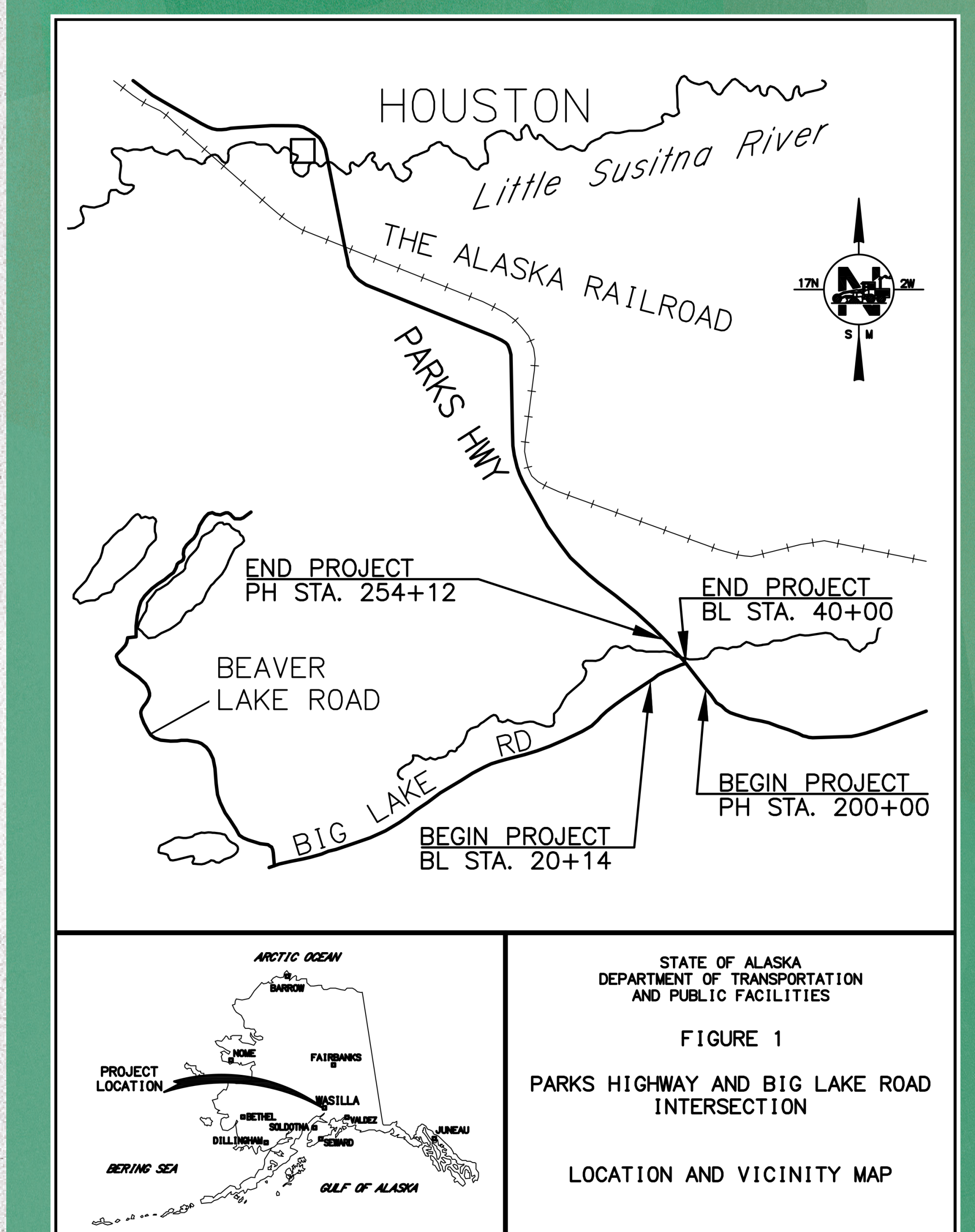
Intersection Design

- **Parks Highway Northbound**
Addition of one through and one median-protected left turn lane
- **Parks Highway Southbound**
Addition of one through lane
- **Big Lake Road Eastbound**
Median-protected left turn lane
- **Big Lake Road Westbound**
Addition of one through lane



Proposed intersection design.

PROJECT LOCATION



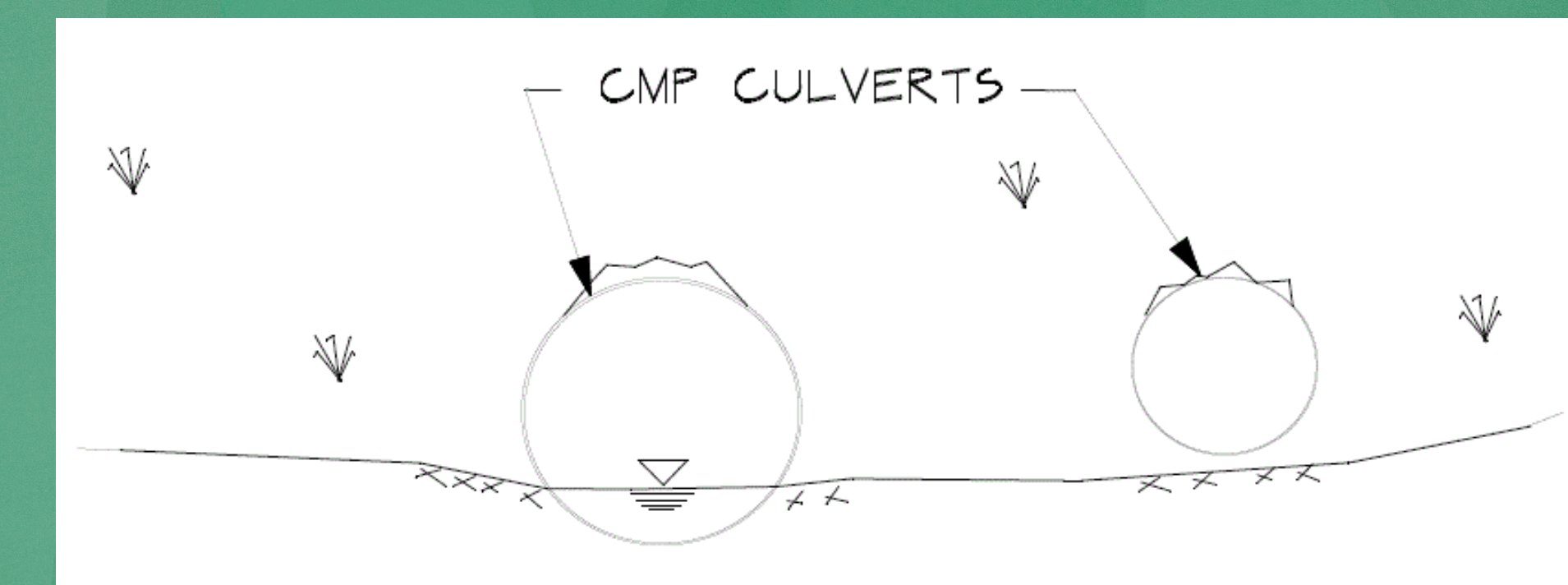
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
FIGURE 1
PARKS HIGHWAY AND BIG LAKE ROAD
INTERSECTION
LOCATION AND VICINITY MAP

ENVIRONMENTAL

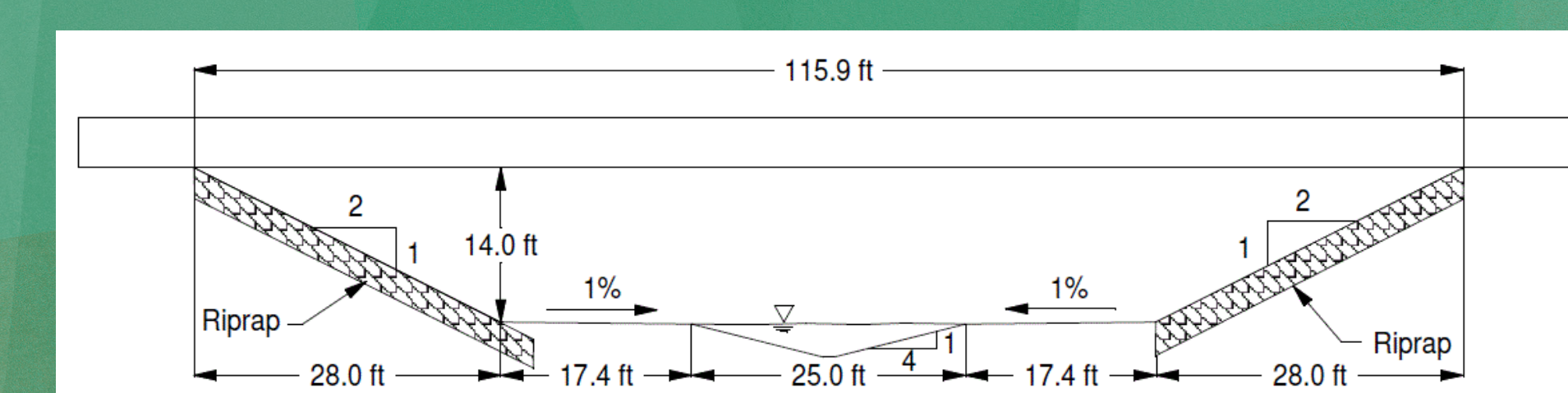
Environmental Considerations

To minimize impacts to Little Meadow Creek and surrounding wetlands, the following documents were required:

- Erosion and Sediment Control Plan (ESCP)
- Environmental Re-Evaluation
- U.S. Army Corps of Engineers Clean Water Act Section 404 permit
- Department of Environmental Conservation Section 404 permit



Existing Little Meadow Creek crossing.



Proposed crossing design.

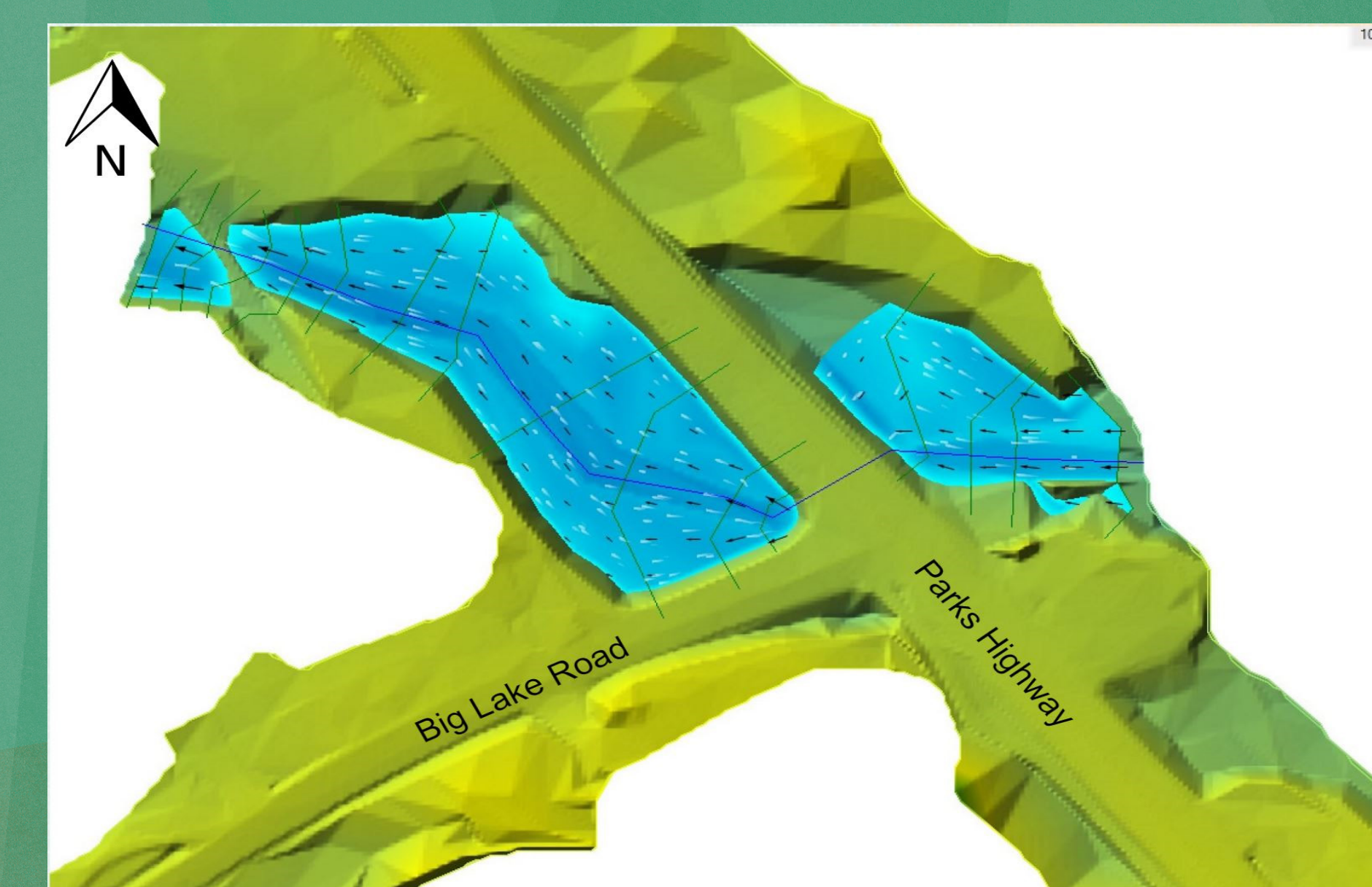
HYDROLOGICAL

Hydrological Considerations

Model 100-year flood event using HEC-RAS and USGS Regression Equations

The proposed bridge over Little Meadow Creek will:

- Replace existing culverts with an open crossing design
- Restore creek to its historical flow path
- Create a flow channel that will mimic a natural creek bed to improve fish passage
- Address potential for scour and erosion



HEC-RAS modeling of 100-year flood event for proposed crossing.

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Jeanne Bowie, P.E., Ph.D, Kinney Engineering, LLC
Trevor Strait, P.E., HDL Engineering Consultants, LLC



Existing site conditions overlooking Little Meadow Creek and surrounding wetlands from Big Lake Road.