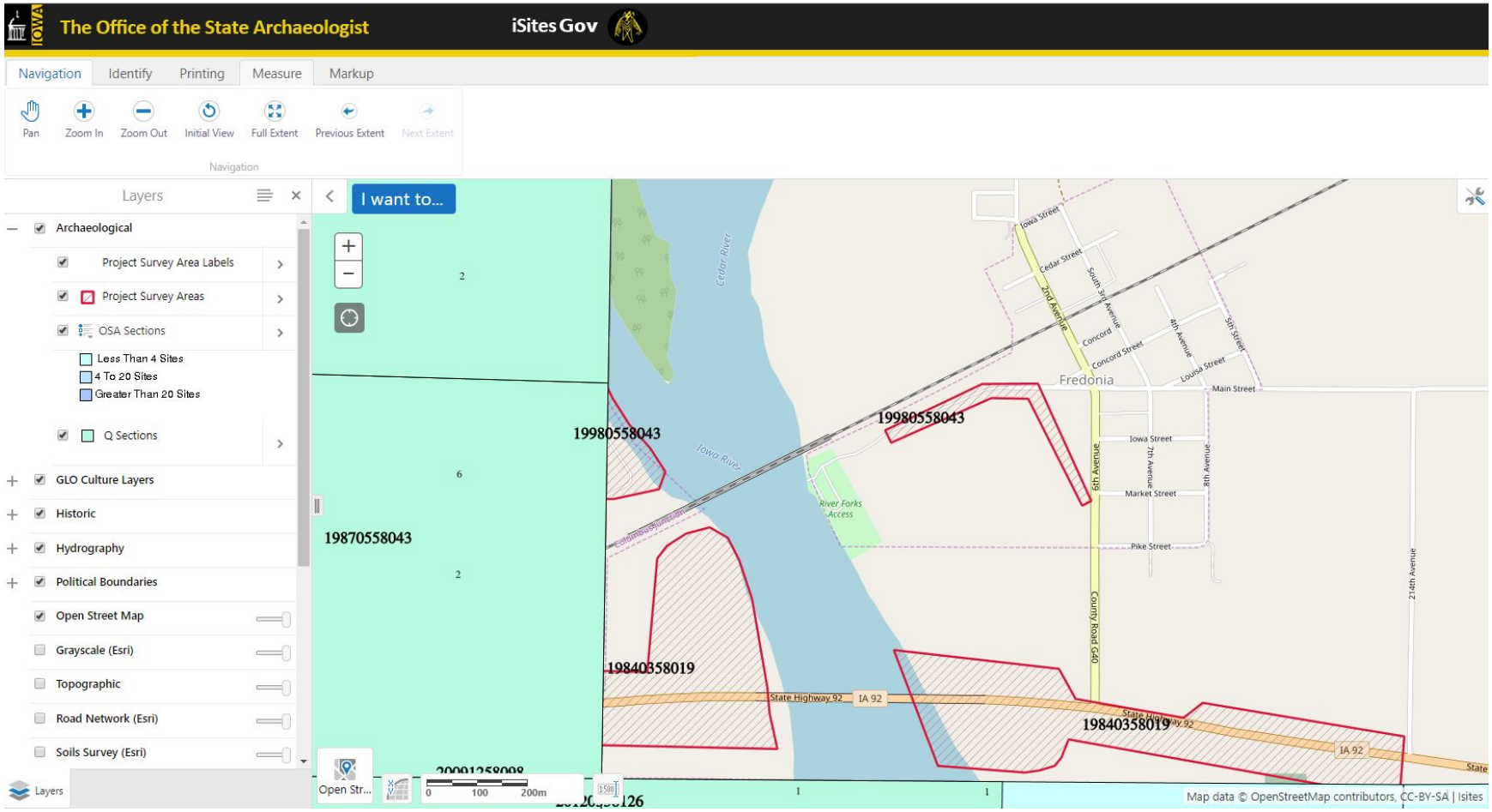
FREDONIA

Project location:

Start at west extent : 41d 17’ 08.59” N ; 91d 20’ 21.89” W (41.285691; -91.339406)

End at East extent: 41d 17’ 11.94”N ; 91d 20’ 11.69” W (41.286703; -91.336524)

Fredonia Topography


The Office of the State Archaeologist
iSites Gov
Navigation
Identify
Printing
Measure
Markup
Pan
Zoom In
Zoom Out
Initial View
Full Extent
Previous Extent
Next Extent
Navigation
Layers
I want to...
Archaeological
Project Survey Area Labels
Project Survey Areas
OSA Sections
Less Than 4 Sites
4 To 20 Sites
Greater Than 20 Sites
Q Sections
GLO Culture Layers
Historic
Hydrography
Political Boundaries
Open Street Map
Grayscale (Esri)
Topographic
Road Network (Esri)
Soils Survey (Esri)
Layers
Open Str...
0
100
200m
19980558043
19870558043
19840358019
Cedar River
Iowa River
River Forks Access
Fredonia
Iowa Street
Cedar Street
2nd Avenue
South 3rd Avenue
Concord
Concord Street
4th Avenue
Louisa Street
5th Street
Main Street
6th Avenue
7th Avenue
8th Avenue
Market Street
Pike Street
County Road G40
214th Avenue
State Highway 92
IA 92
Map data © OpenStreetMap contributors, CC-BY-SA | Isites

DRAINAGE

CITY OF FREDONIA

Letting Date XXXXXXXXXX

IOWA

CITY OF FREDONIA

PLANS OF PROPOSED IMPROVEMENT ON THE

LOCAL DRAINAGE SYSTEM CITY OF FREDONIA

DRAINAGE

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES 2001. PLUS THE APPLICABLE GENERAL SUPPLEMENTAL SPECIFICATIONS, DEVELOPMENTAL SPECIFICATION, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS, SHALL APPLY TO CONTRUCTION WORK ON THIS PROJECT.

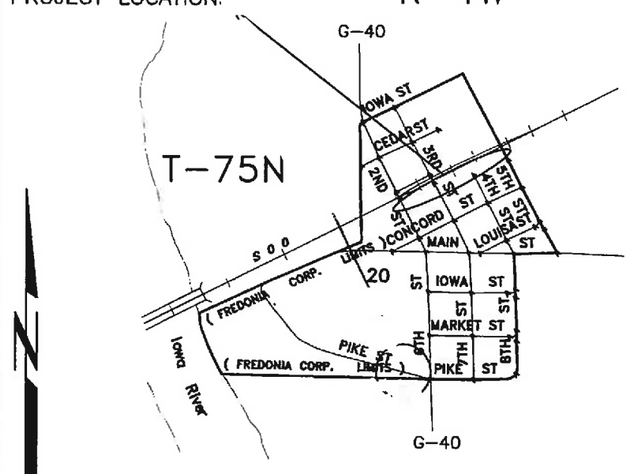
Scales: As Noted

LOCATION

IN THE CITY OF FREDONIA

CITY OF FREDONIA

PROJECT LOCATION: R-4W



SCALE IN MILES

0 0.1 0.2 0.3 0.4 0.5

0 0.1 0.2 0.3 0.4 0.5 1.0

SCALE IN KILOMETERS

STORM WATER PERMIT NOTE:

"THIS PROJECT IS COVERED BY THE IOWA DEPARTMENT OF NATURAL RESOURCES NPDES GENERAL PERMIT NO. 2. THE CONTRACTOR SHALL CARRY OUT THE TERMS AND CONDITIONS OF GENERAL PERMIT NO. 2 AND THE STORM WATER POLLUTION PREVENTION PLAN WHICH IS A PART OF THESE CONTRACT DOCUMENTS. REFER TO SECTION 2602 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL INFORMATION. "

PLAN AND PROFILE SHEETS INCLUDED IN THE PROJECT ARE FOR THE PURPOSE OF ALIGNMENT, LOCATION ANS SPECIFIC DIRECTIONS FOR THE WORK TO BE PERFORMED UNDER THIS CONTRACT. IRRELEVANT DATA ON THISE SHEETS IS NOT TO BE CONSIDERED A PART OF THE CONTRACT.

Project No.

INDEX OF SHEETS

No.	Description
A.01	TITLE SHEET
D.01–D.02	PLAN AND PROFILE SHEETS

MILEAGE SUMMARY

Div.	Location	Lin. Ft.	Miles
1	STA. 0+00 TO STA. 8+66.74	866.74	

Road Standard Plans

The following Standard Plans shall be considered applicable to construction work on this project.

IDENTIFICATION	Date	IDENTIFICATION	Date	IDENTIFICATION	Date

Approved City of Fredonia

LICENSED PROFESSIONAL ENGINEER LARRY J. ROEHL 13211 IOWA

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly licensed Professional Engineers under the laws of the State of Iowa.

Signature: Larry Roehl Date: 9/18/2019

Larry Roehl
Printed or Typed Name

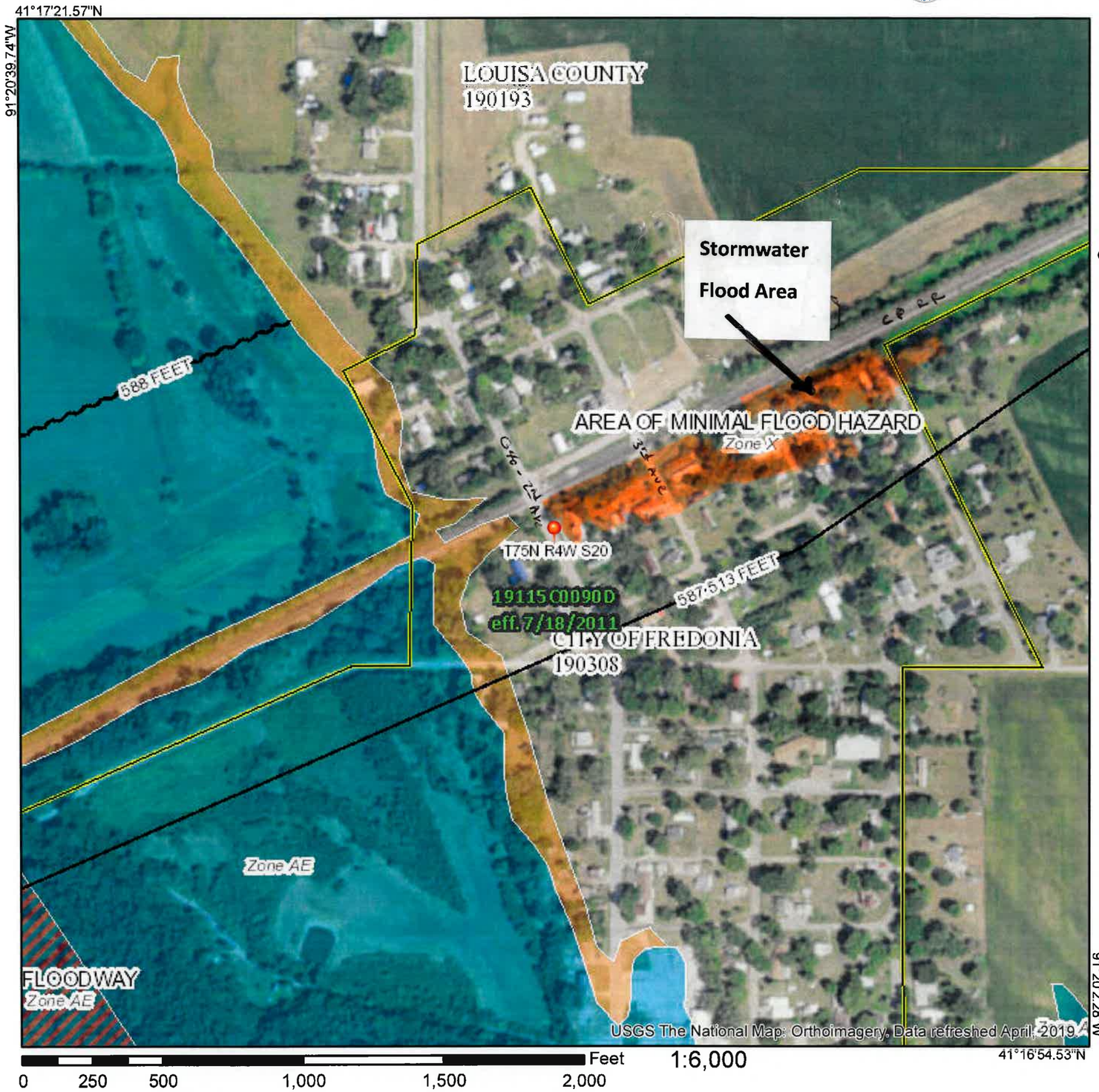
My license renewal date is December 31, 2020

Pages or sheets covered by this seal: All

FREDONIA Project Number: Sheet No. A.01

National Flood Hazard Layer FIRMette

FEMA



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- B 20.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- 8 Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/3/2019 at 10:00:34 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

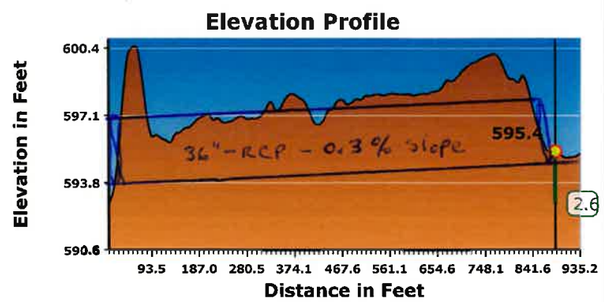
This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

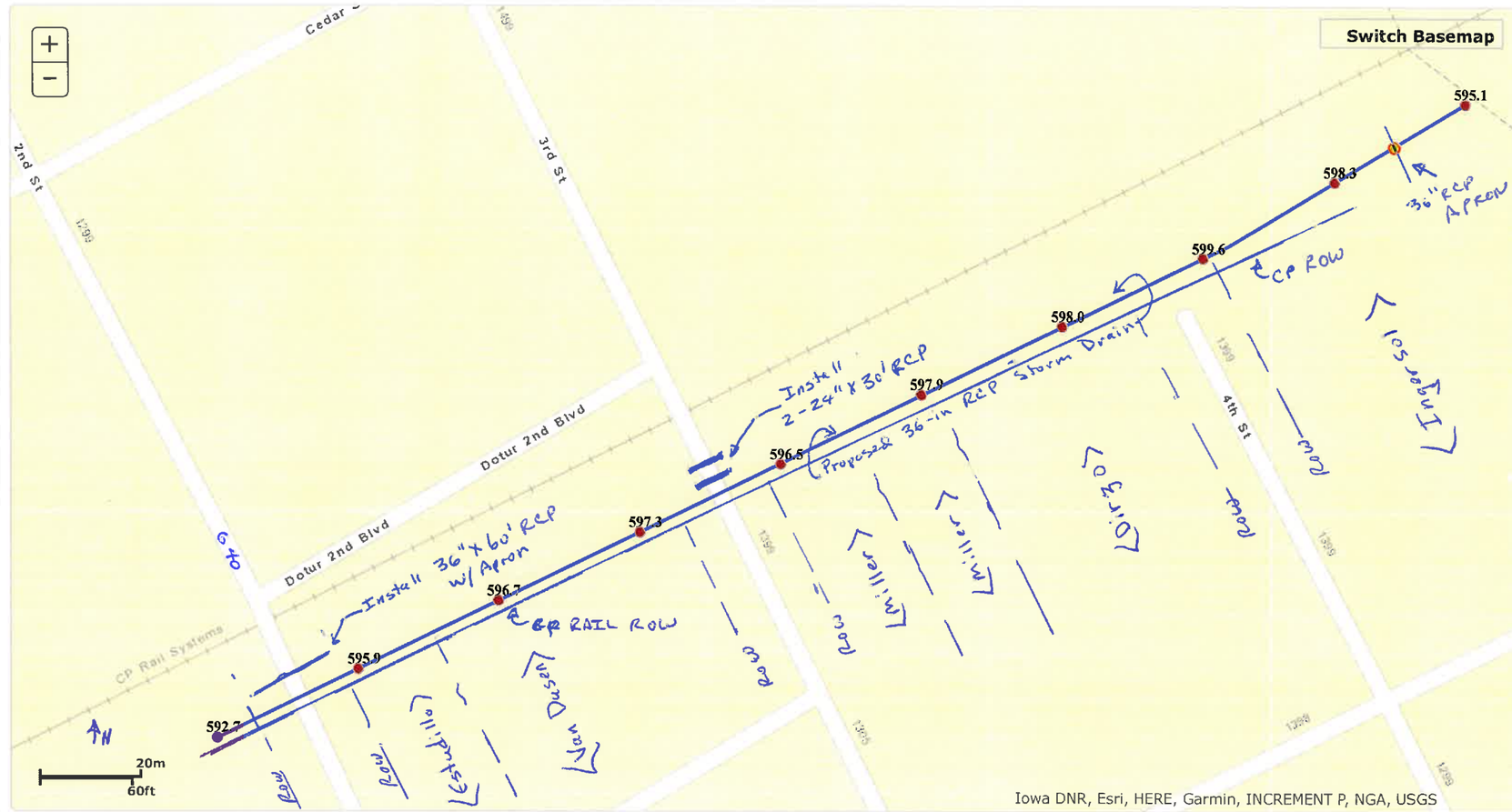
Iowa Elevation Tools How to use the tool

Data 3m Posts derived from LiDAR More about the data

Clear Point Multipoint Polyline Profile

Profile Data Table





Find address or place

T95NR45W02 Search by Township

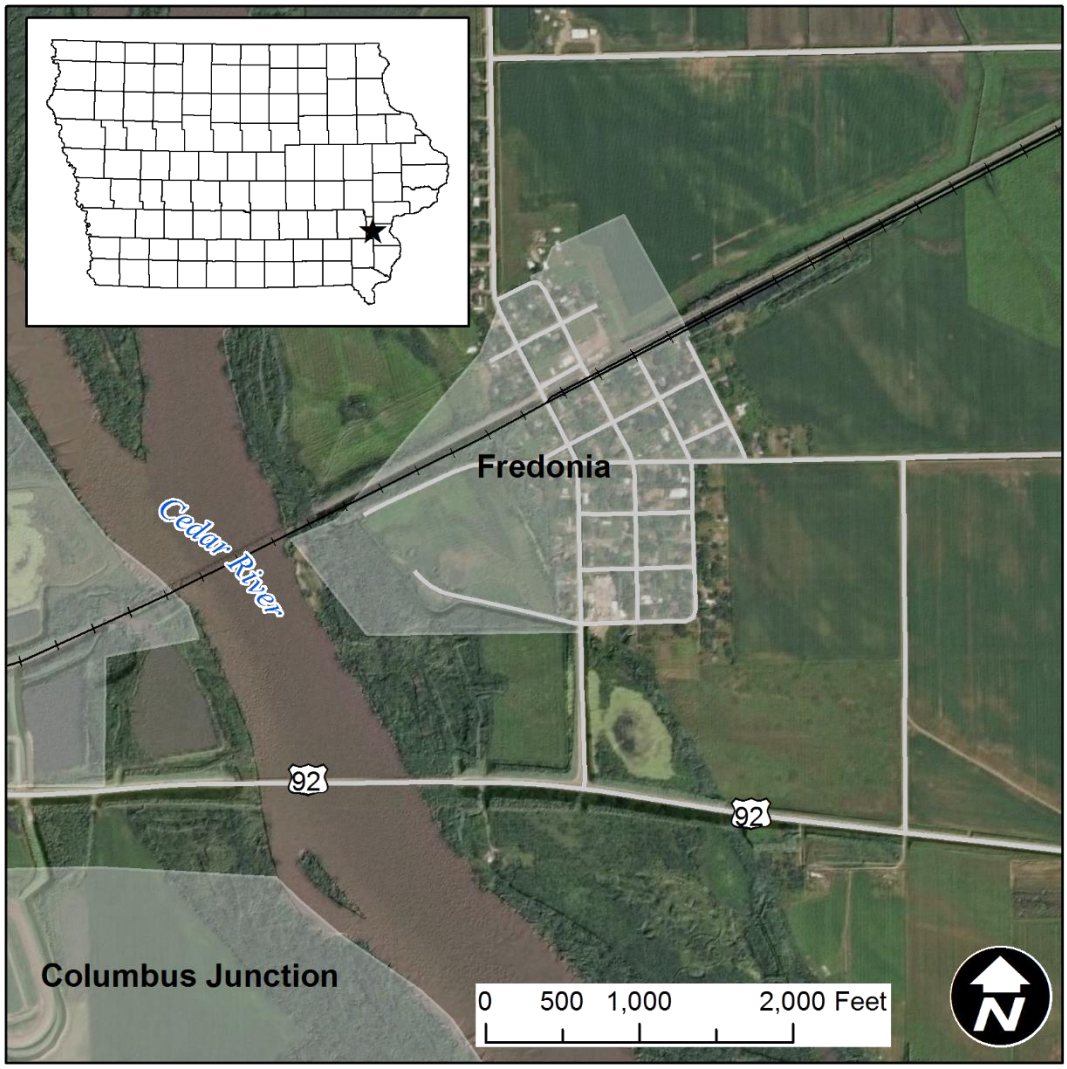


Figure 2.1. The City of Fredonia is located on a floodplain terrace along the Cedar River.

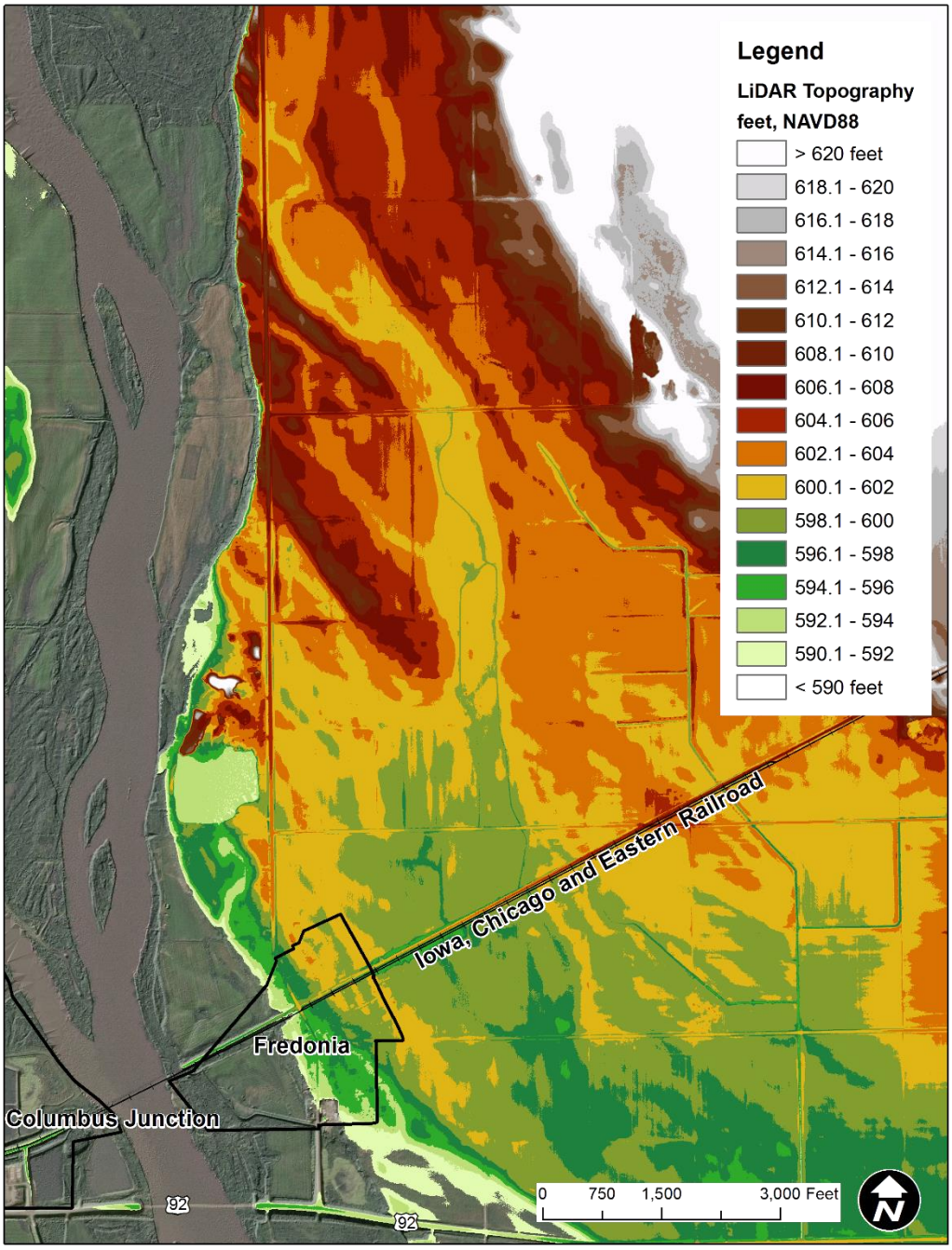


Figure 2.2. Base-earth LiDAR elevations (ft, NAVD88). Fredonia is partially located on the Cedar River floodplain and an upland floodplain terrace.

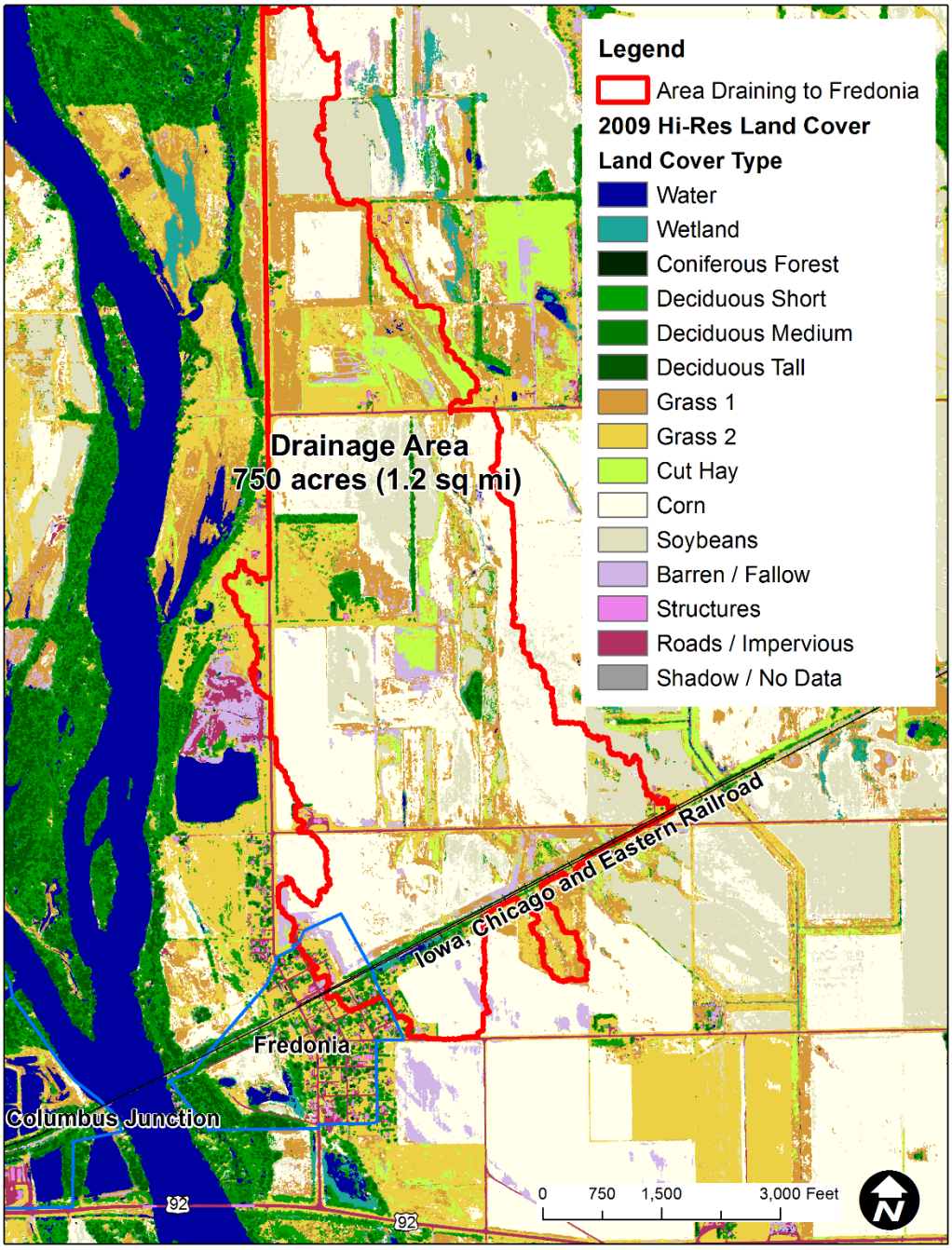


Figure 2.3. Land use in the study area based on High-Resolution Land Cover data provided by the Iowa DNR (2009).

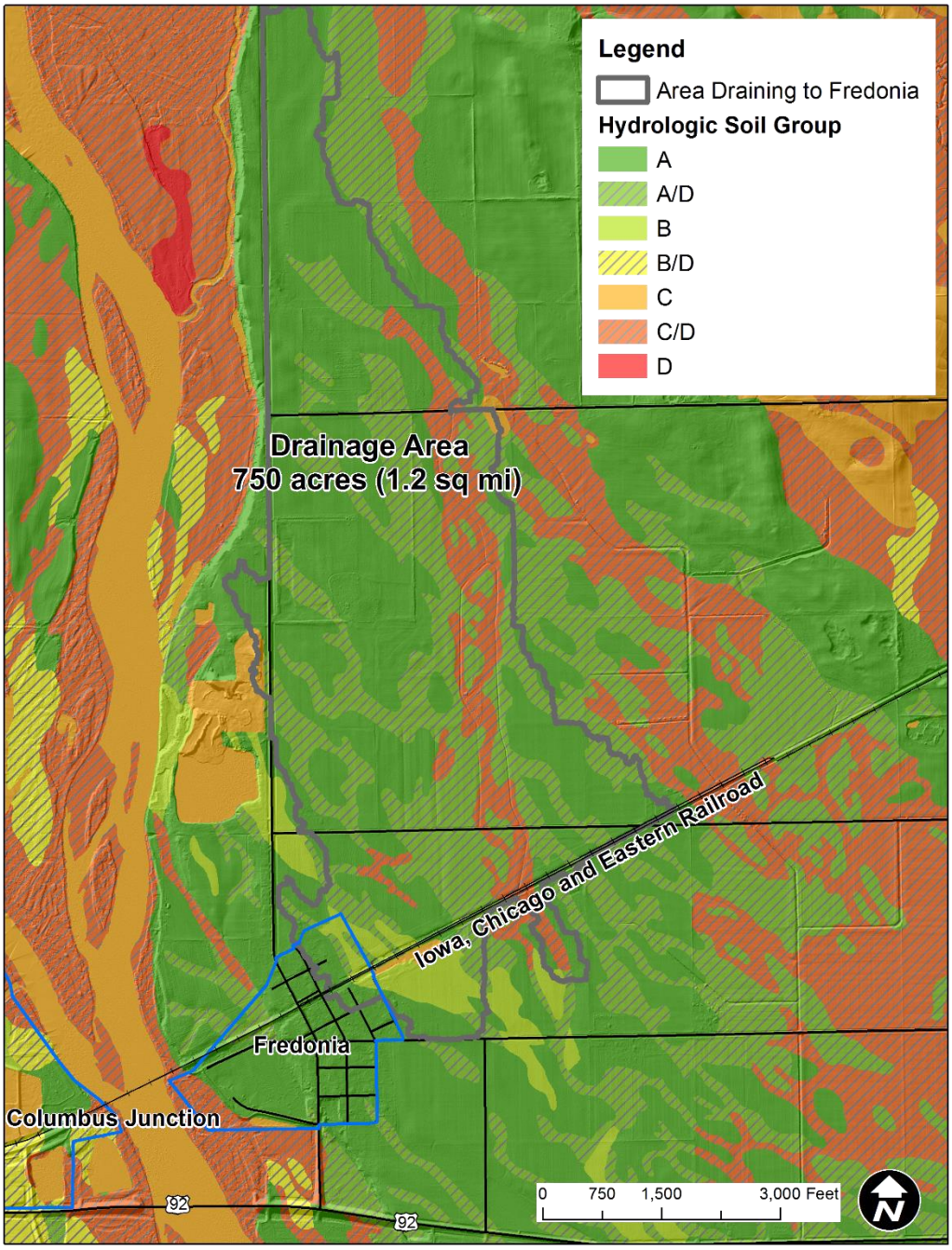


Figure 2.4. Hydrologic soil types based on the USDA/NRCS SSURGO dataset. Dual classifications (e.g., A/D) indicate a seasonal water table within 24 inches of the surface.

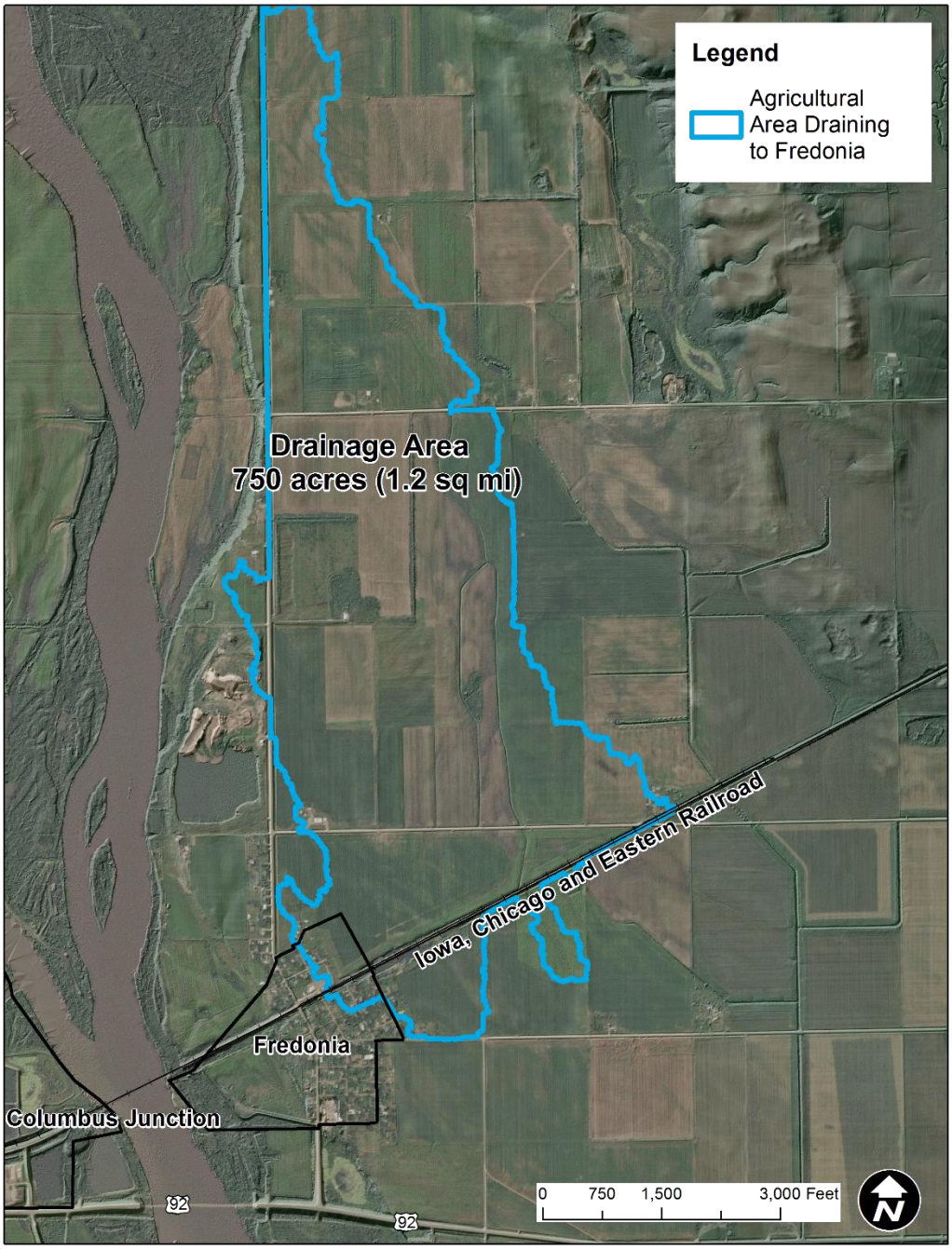


Figure 2.5. Area likely draining into ponds northeast of Fredonia.

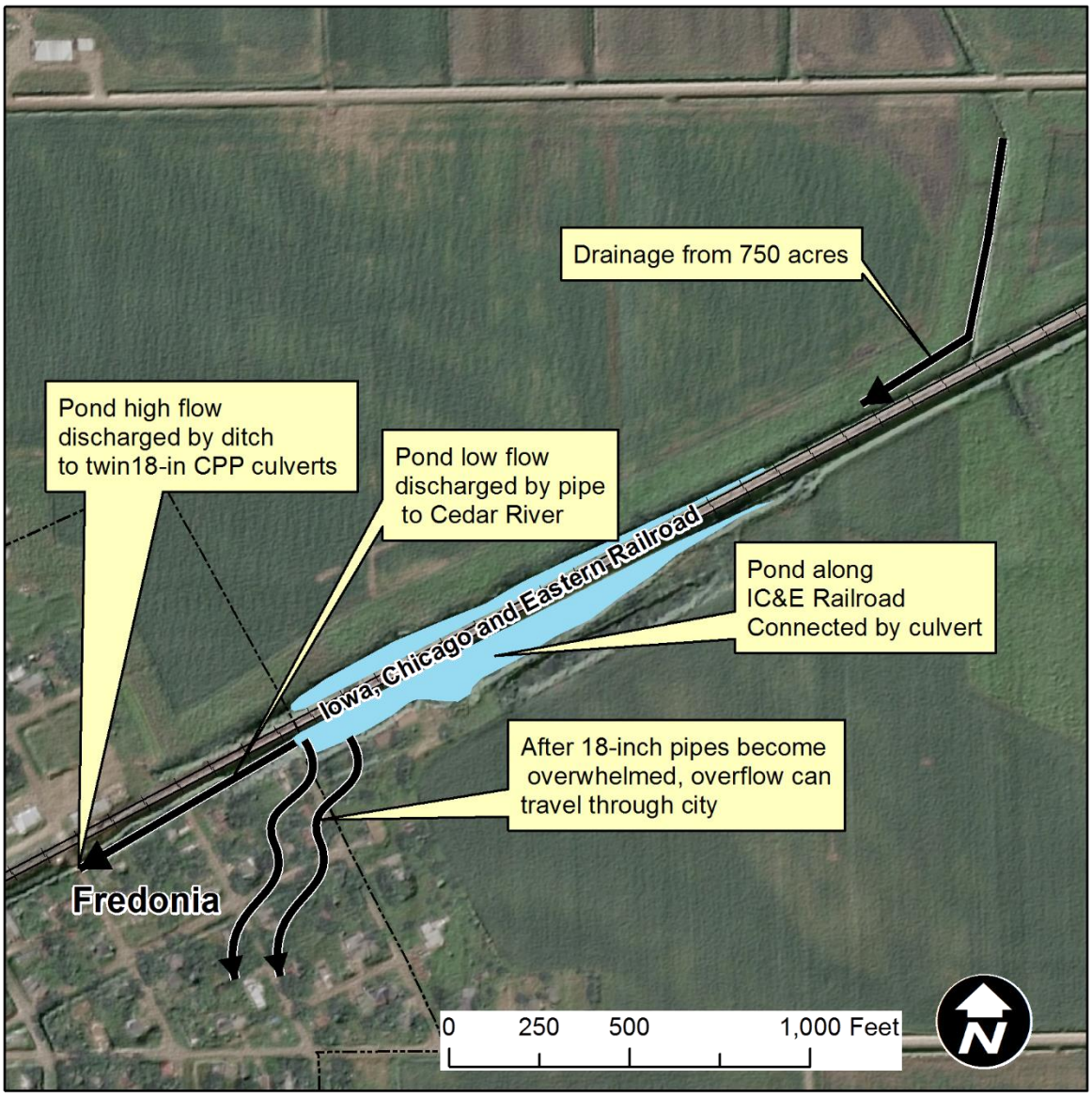


Figure 2.6. Typical pond inflow and outflow characteristics

The natural flow path of this drainage area appears to have been to the southeast, following the gentle slope of the upland terrace. This is emphasized in **Figure** 2.11 along with the LiDAR topography. The flow path was likely diverted when the railroad embankment was constructed.

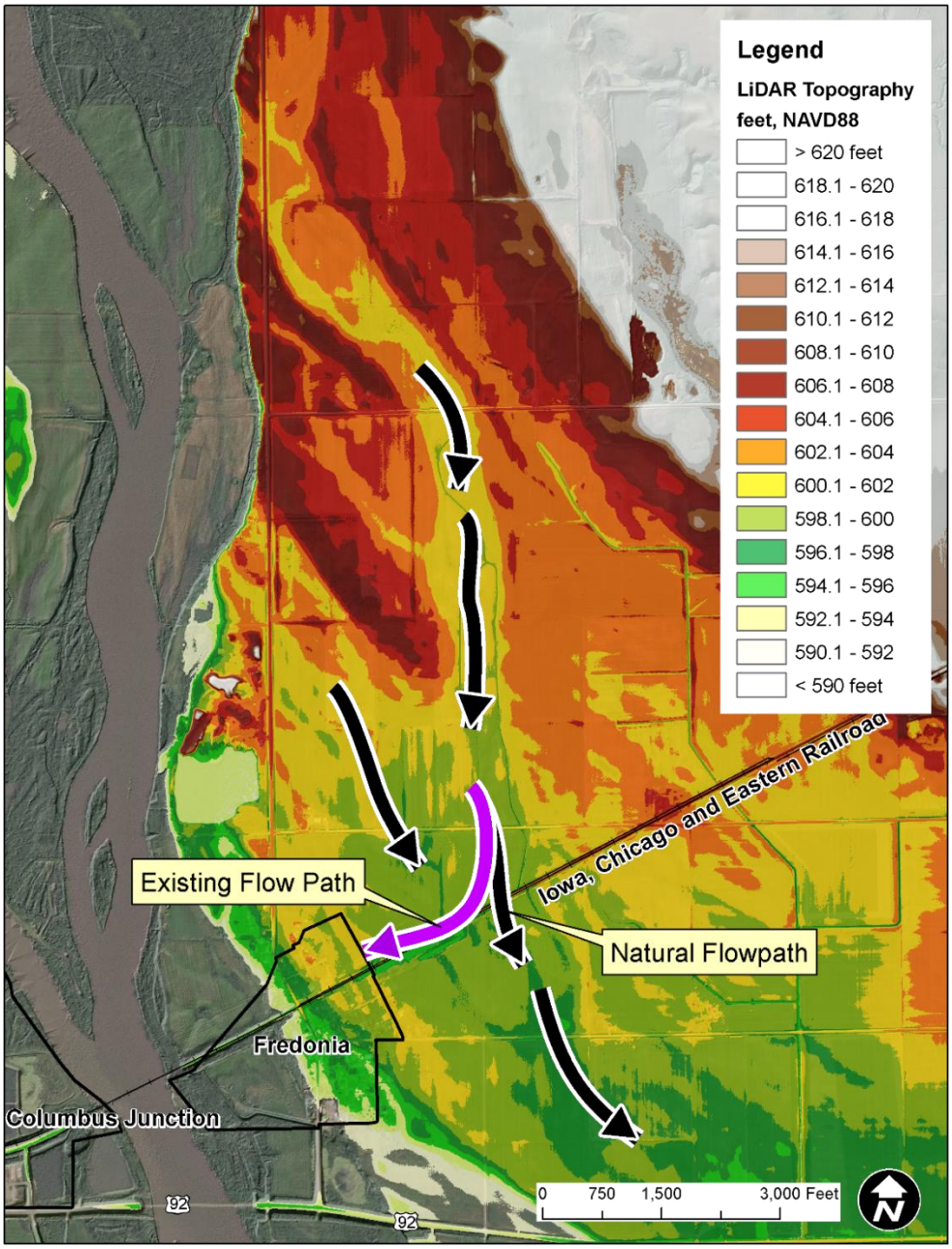


Figure **2.11**. LiDAR terrain indicates the original flow path for this drainage area was likely to the southeast, rather than the existing flow path, which flows along the railroad to the southwest.

using the SCS curve number (CN) method. Routing of runoff downstream was accomplished using Muskingum Routing, assuming a flow velocity of 3 feet per second. Assuming average antecedent moisture conditions, CNs ranged from 60 – 72, indicating moderately low runoff potential as a result of HSGs and agricultural land use. A schematic of the HEC-HMS model elements are shown in Figure 4.1.

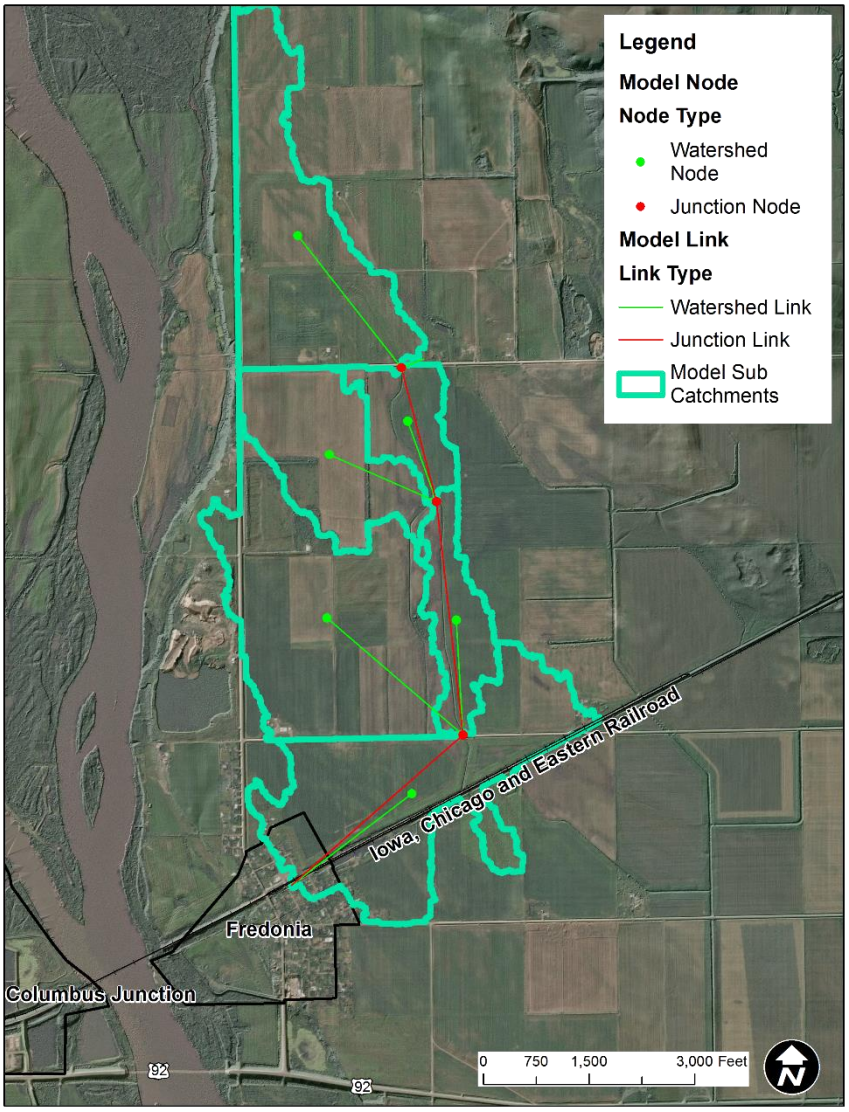


Figure 4.1. HEC-HMS model schematic showing connected elements used to model runoff and convey runoff downstream.

Pond outflow relationships for pipes, culverts, ditches and overflow were modeled using