

PEI Department of Agriculture and Fisheries – Sustainable Agriculture Using new technology for Soil Conservation



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Sustainable Agriculture Section:

Support Beneficial Management Practices to the Agriculture Sector

➤ *Soil Conservation*

- Residue Management
- Storage Management – fuel, pesticide, silage, manure
- Riparian/Buffer Zone Management - stream crossing, watering systems
- Improved irrigation efficiency
- On-farm water use efficiency
- Well water management
- Nutrient management
- Soil Health/Soil Quality
- Integrated pest management
- On-farm energy efficiency



CAP Program (Canadian Agricultural Partnership)

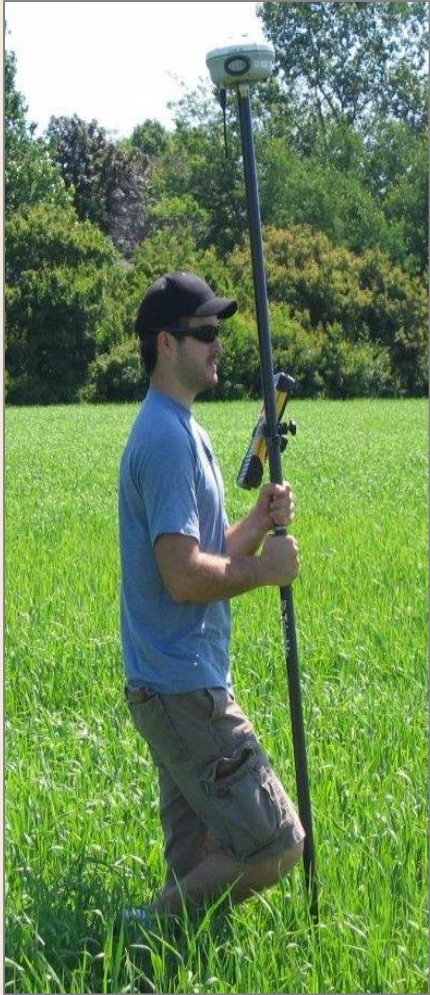
Soil Management: Erosion Control Structures BMP	
Purpose	The installation of erosion control structures reduces topsoil loss due to erosion and helps to prevent the contamination of surface and/or groundwater from materials bound to the eroded soil particles.
Eligible Activities	<ul style="list-style-type: none">• Construction of diversion terraces, grassed waterways and farmable berms.
Eligible Expenses	<ul style="list-style-type: none">• Soil excavation costs;• Field consolidation work;• Erosion control matting, silt fencing, rock, straw and energy dissipaters;• Seedbed preparation, fertilizer, lime, and grass seed;• Surface inlets and culverts; and• Silt retention ponds.
Ineligible Expenses	<ul style="list-style-type: none">• Water control structures solely for subsurface drainage
Project Requirements	<ul style="list-style-type: none">• All construction work must be completed by September 15 and should only be performed <i>after</i> discussing the work plan with a DAF Project Advisor;• Erosion control structures are to be seeded immediately after construction with a recommended grass/cereal mix and then immediately stabilized with erosion control matting as prescribed by the Project Advisor;• Project construction work must be completed as per a standard approved by the DAF. The DAF will provide technical support for the project's design, layout of the project in the field, guidance to the contractor, and an inspection when the project is completed; and• In order to mitigate the potential for environmental risks, successful applicants must adhere to the Construction Guidelines provided by the Project Advisor for their erosion control structures project.
Successful Applicant Requirements	Successful applicants must: <ul style="list-style-type: none">• verify the BMP project location and requirements with the project's contractor prior to construction;• have obtained all required licenses, permits, approvals and/or authorizations and must comply with all applicable municipal, provincial and federal legislation;• perform recommended farm management practices, particularly with respect to the timing and application rates of manure, commercial fertilizers and pesticides in order to avoid surface and groundwater contamination;• receive permission from adjoining landowner(s) prior to discharging surface or subsurface drainage across property boundaries; and• agree to maintain and properly manage, including repairing of damage, all works constructed through their approved project for a minimum 15 years.
Funding	<ul style="list-style-type: none">• 66% of assistance up to \$75,000 is available for eligible erosion control structures' eligible expenses over the life of the CAP Framework Agreement (2018-2023).

Erosion Issues...

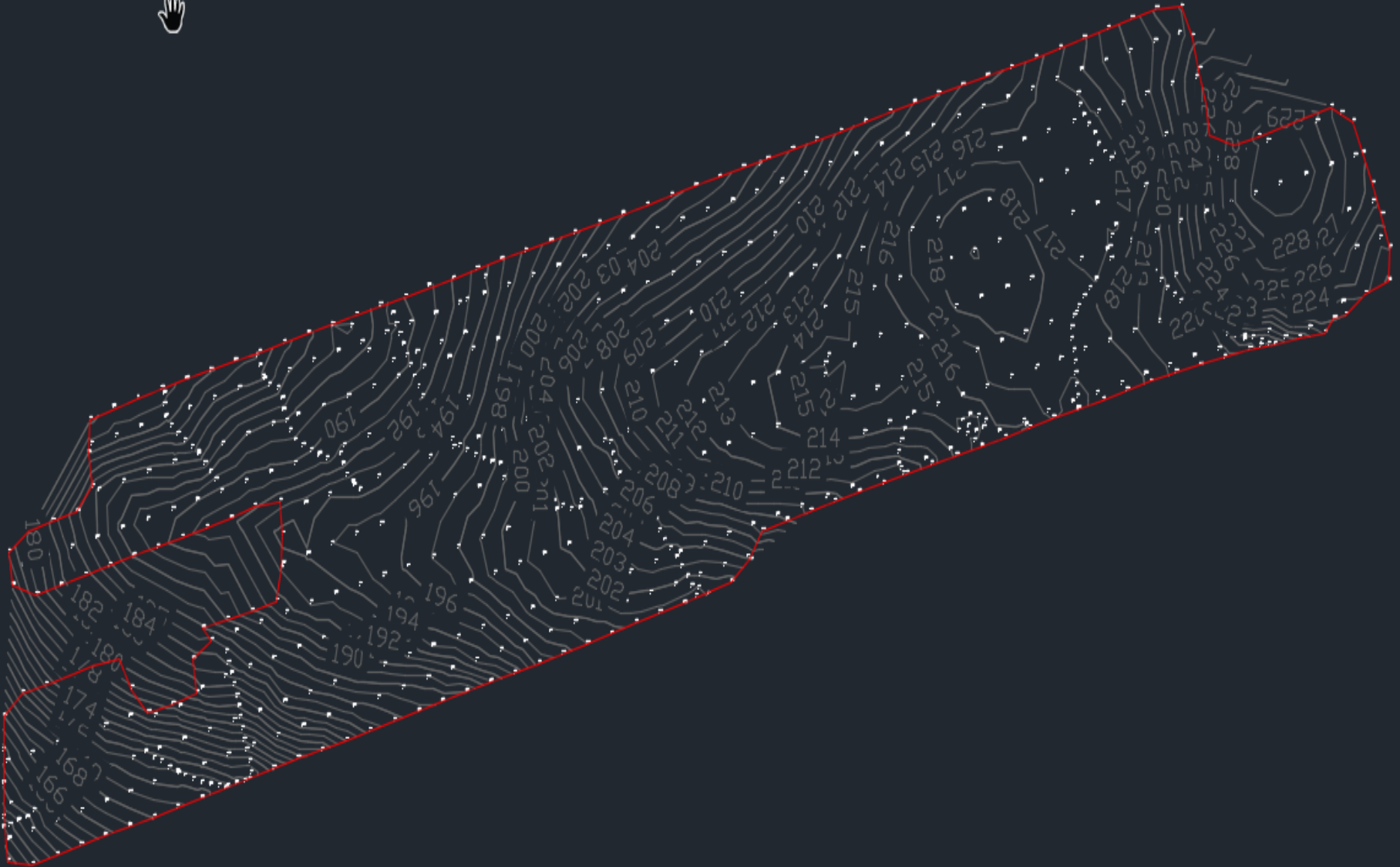


Soil Conservation Projects: Step 1 - Survey

Prehistoric survey gear...



Soil Conservation Projects: Survey Result



Soil Conservation Projects: Drone Technology Spring 2017

Surveyed over 7,000 acres in 2017...



UAV's Changing The Face Of Topographical Surveying

While Unmanned Aerial Vehicles (UAVs) have become more commonplace in recent years, many industries are still only just beginning to tap into what the technology can be utilised for and what project planning goals UAVs can help achieve.







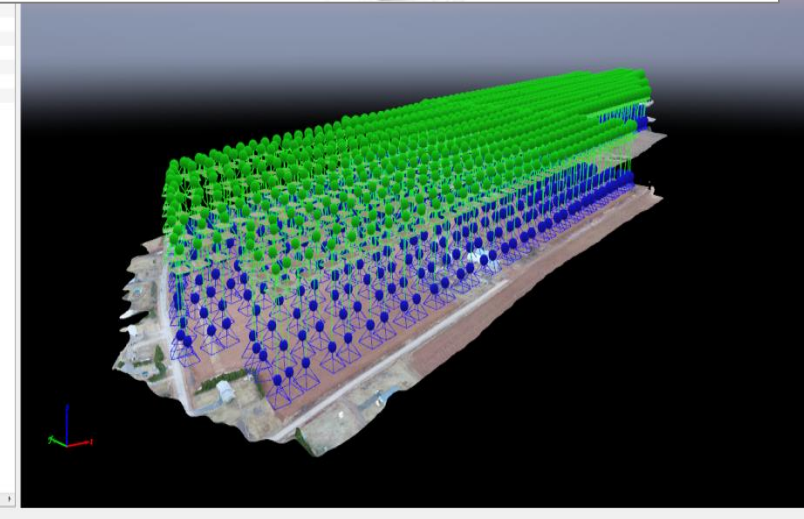
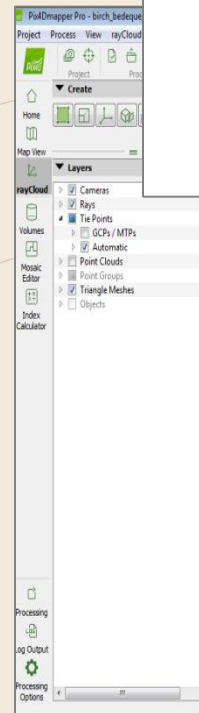
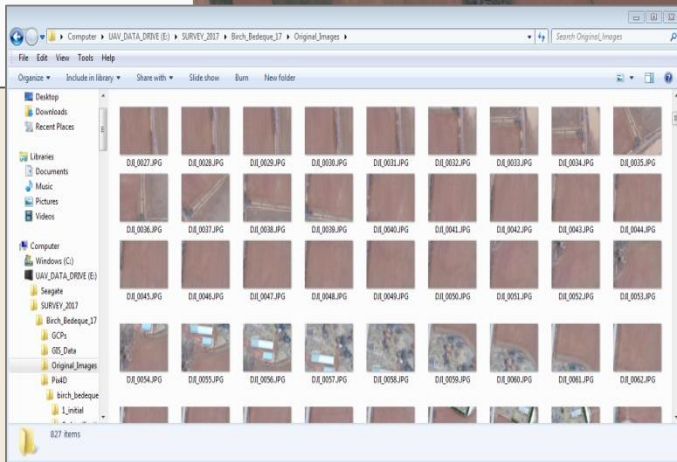
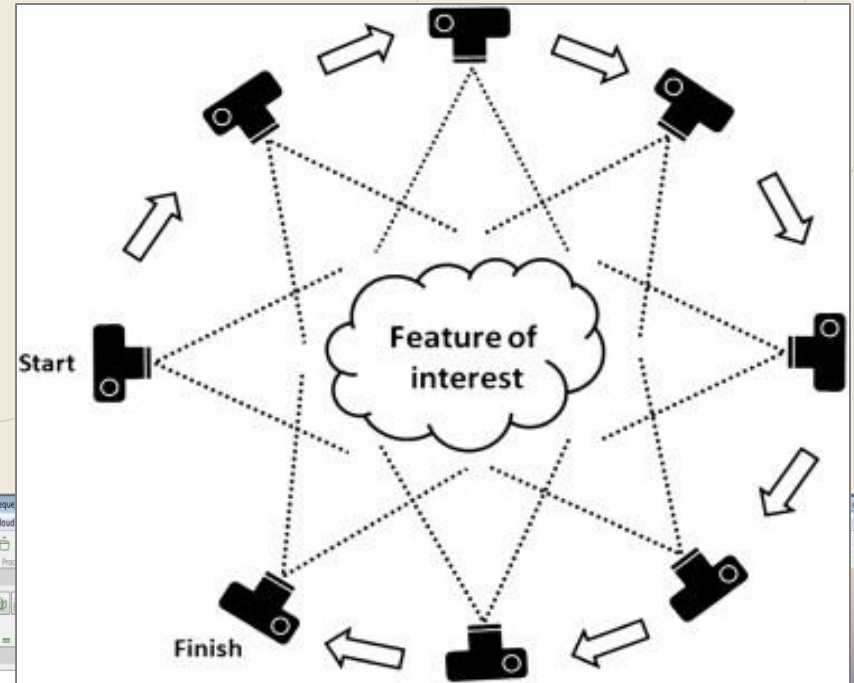
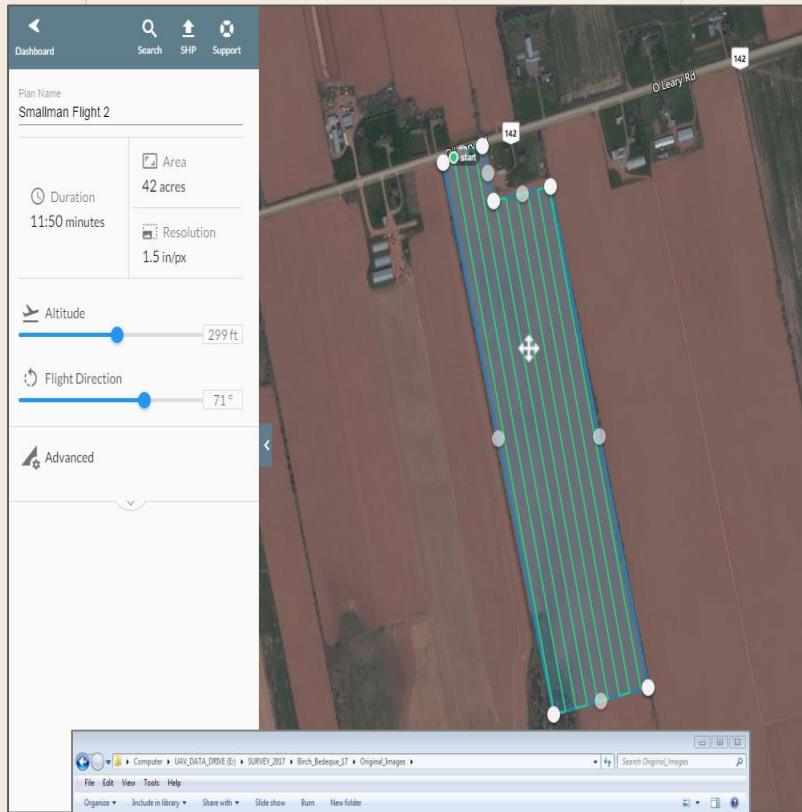




The background features several thin, light beige, wavy lines that create a sense of movement and depth. These lines are irregular and organic in shape, flowing across the frame. The overall color palette is a soft, warm beige, giving the image a clean and minimalist aesthetic.

More than just pretty pictures...

Getting Elevations from Drone Surveys – How it Works



High resolution survey grade data used to make decisions:



Construction / Seeding of Soil Conservation Structures



Construction / Seeding of Soil Conservation Structures



Soil Conservation
Project 2017

Before
(April, 2017)

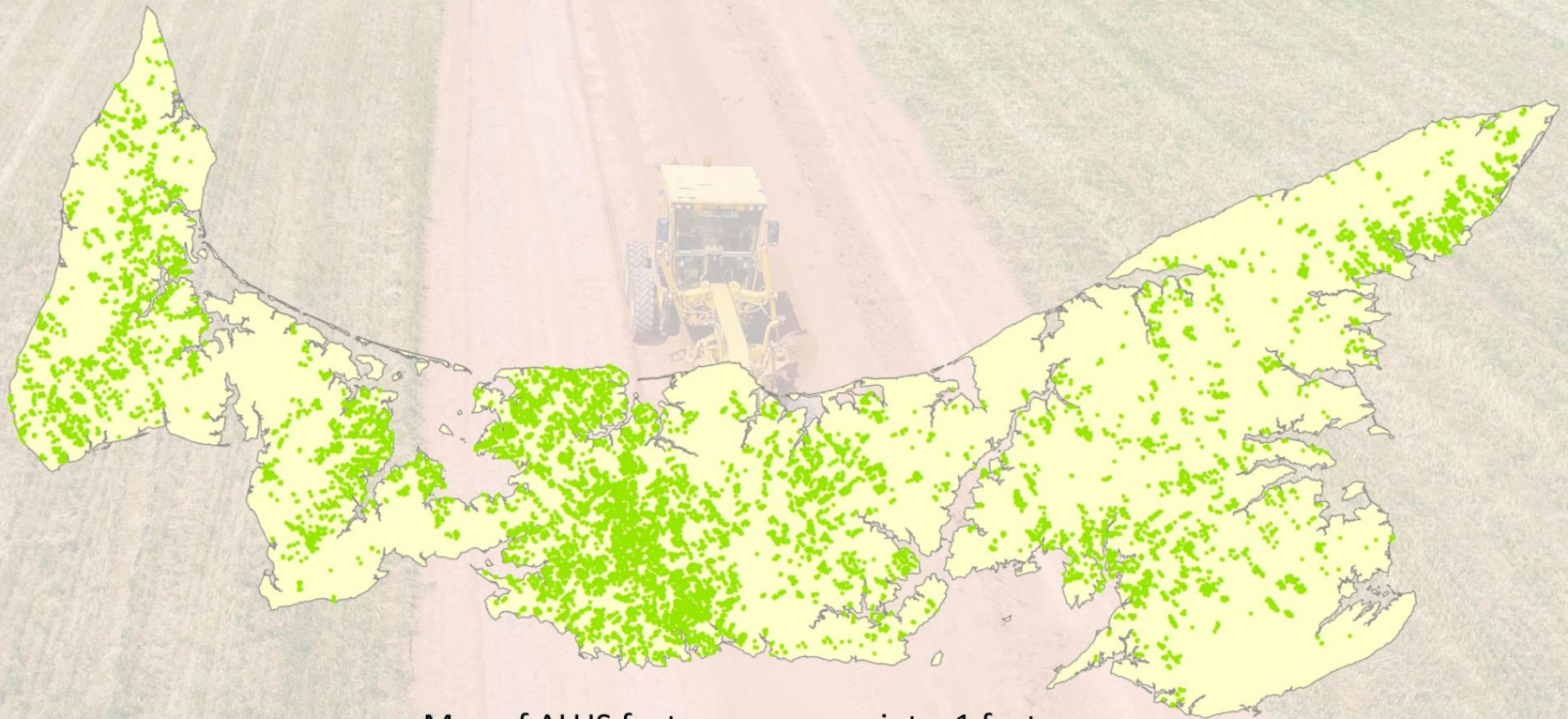


After
(October, 2017)

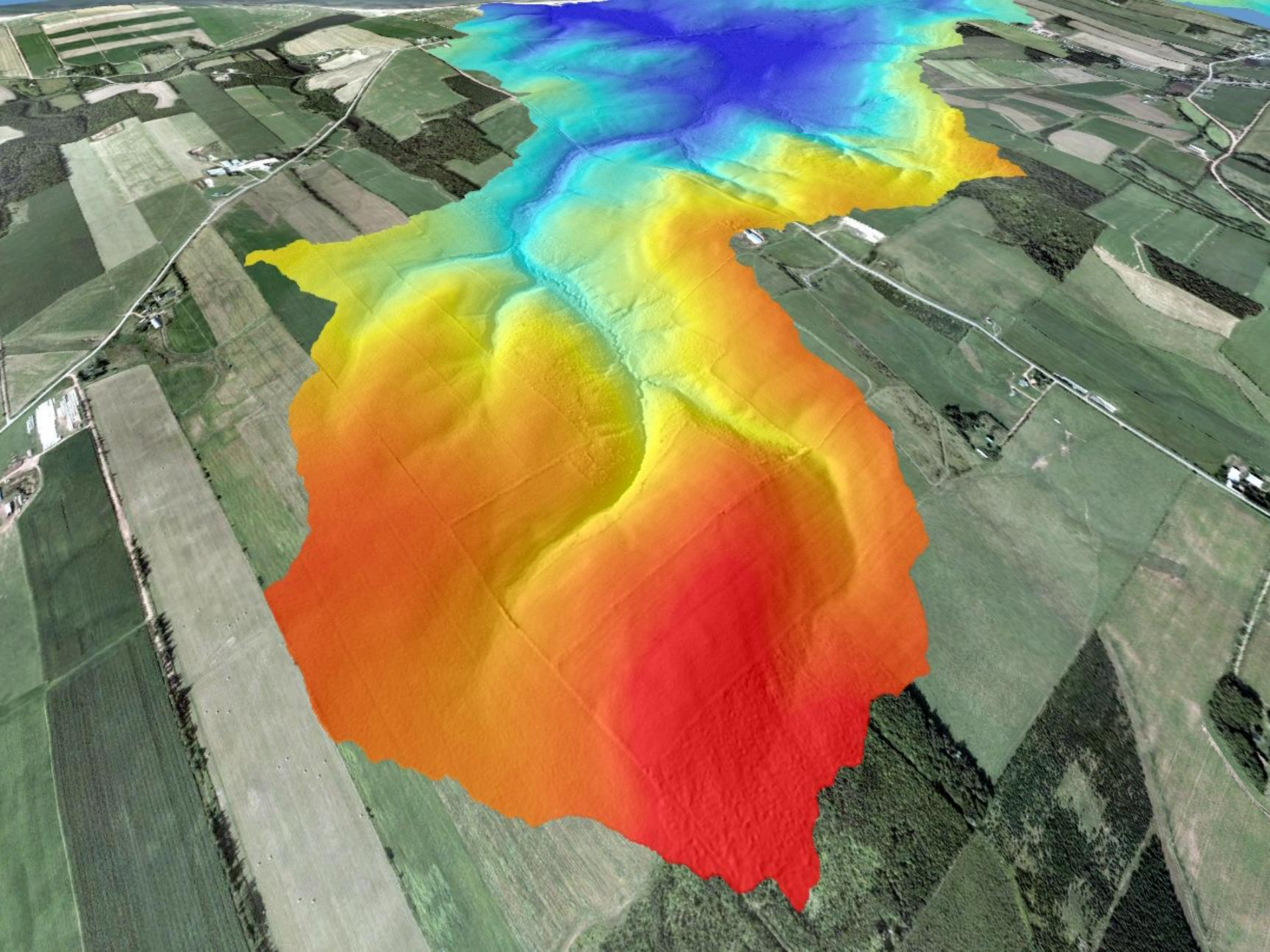


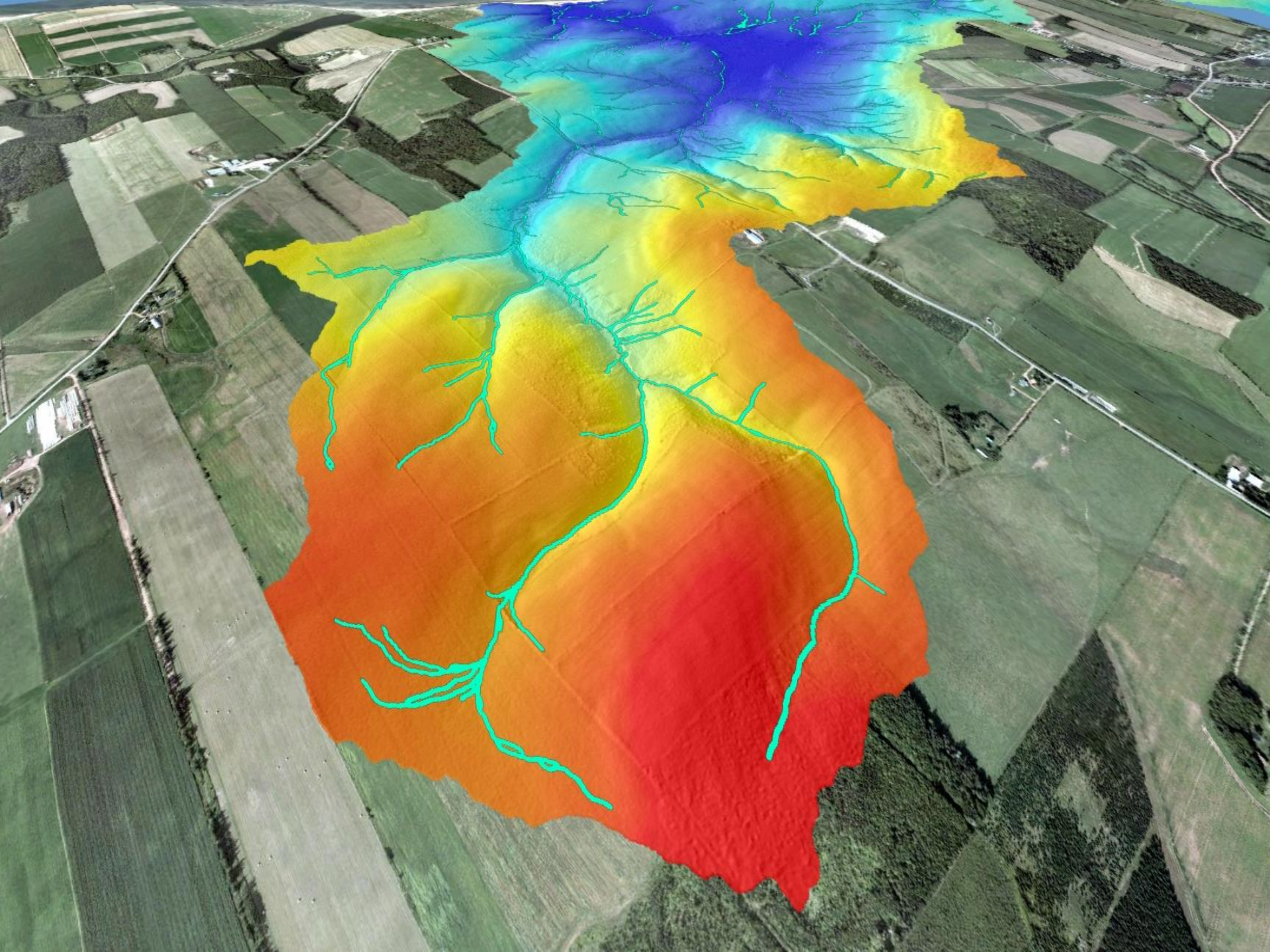
ALUS Feature Statistics (as of 2017):

- 332,000 ft of farmable berm (PEI to Moncton, NB)
- 1,300,000 ft of terrace (PEI to Houlton, ME)
- 2,400,000 ft of grassed waterway (PEI to Montreal, QC)



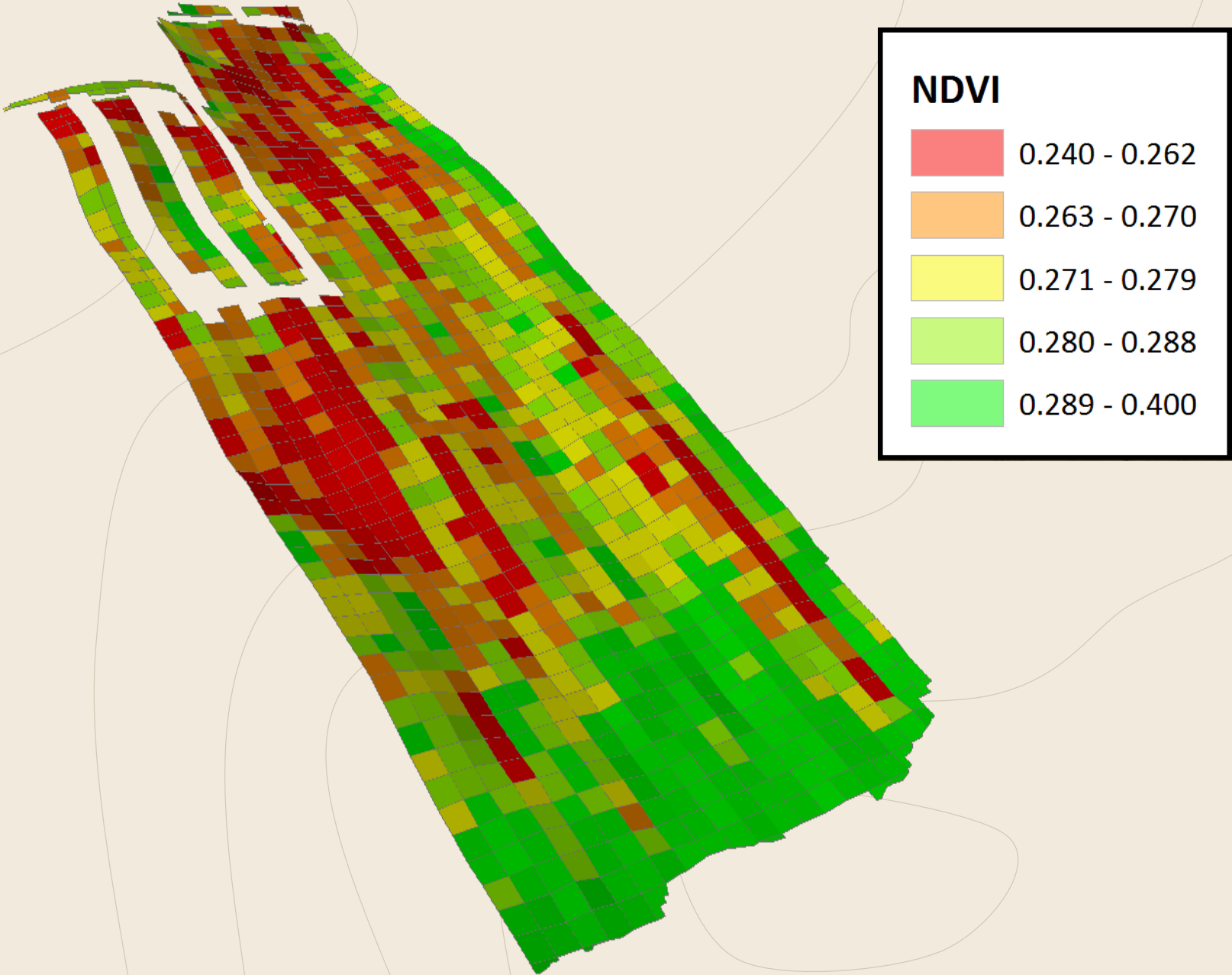
Map of ALUS features – one point = 1 feature



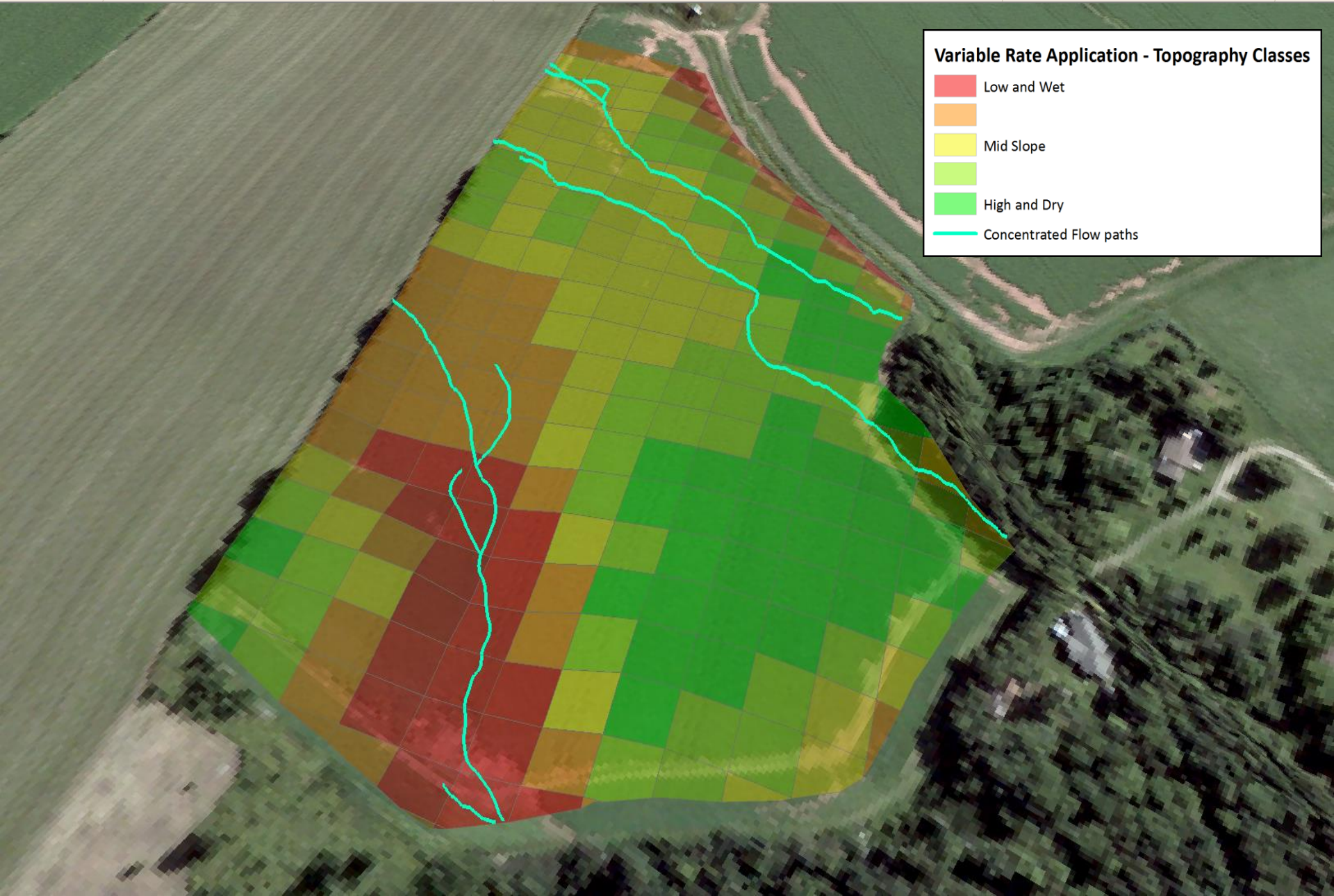




Precision Agriculture – potential for reducing inputs (fertilizer, herbicide, pesticide, etc.)



Other uses for Elevation Data (Drone/RTK/LiDAR)... Variable Rate Application based on Topographic Data



Thank you!

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