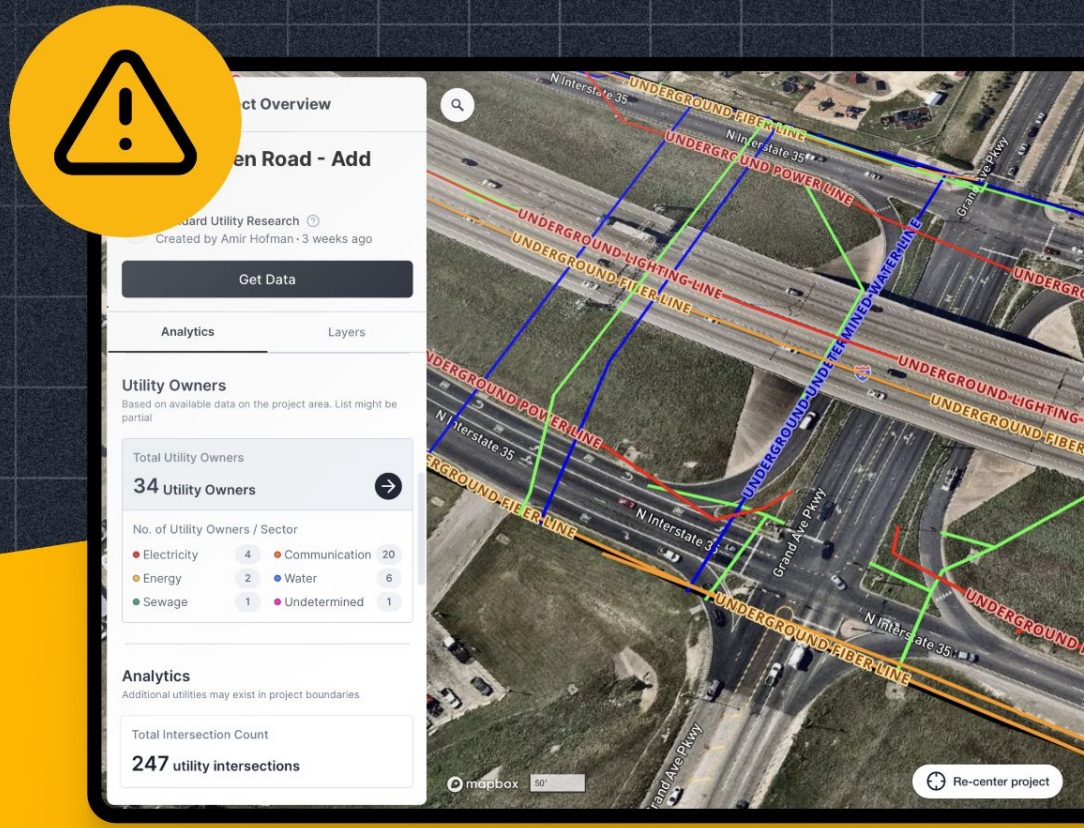
The Digital Transformation Journey

The South Plains Transportation Center

September 19th, 2023



Raz Ezra, 4M
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Risk Mitigation Ecosystem

Any construction project involves significant efforts of designating & locating activities that are paid for many times, which are:

Planning | Design | Construction | Maintenance

ASCE 38-22 (SUE) | Damage Prevention

Pursuits, Bidding & Scoping	SUE & Engineering	Private Locating	Public Locating	Screening & Ticketing
$2B	$2B	$1.5B	$3.5-4B	$1.5B
4M Analytics	T2 utility engineers KCI Colliers	ELM UTILITY SERVICES GPRS RECONN UTILITY SERVICES	USIC STAKE CENTER LOCATING UtiliQuest	KorTerra Urbint 811 IrthSolutions

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The Challenge

See the unseen

1. There is no single source for utilities data
2. Huge variety of unstructured datasets
3. Underground utilities detection is extremely challenging computer vision task
4. Scalable, Repeatable and Cost Effective

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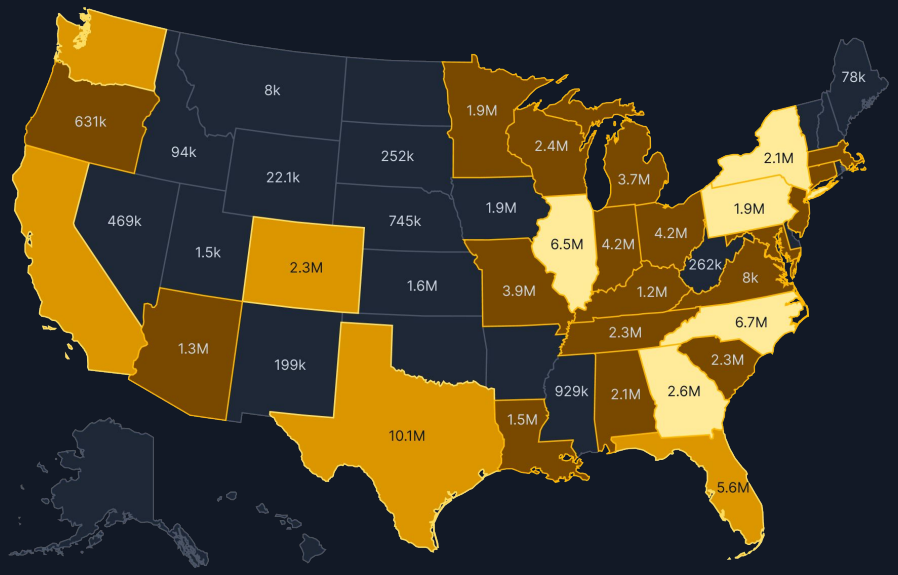
There is a better way.

Execution Strategy

To build the search engine of utility & infrastructure data



Completed EO 2023 2024

Annual ticket volume by state of USIC

*** 4M's data can be provided in all 50 states on-demand within a couple days ***

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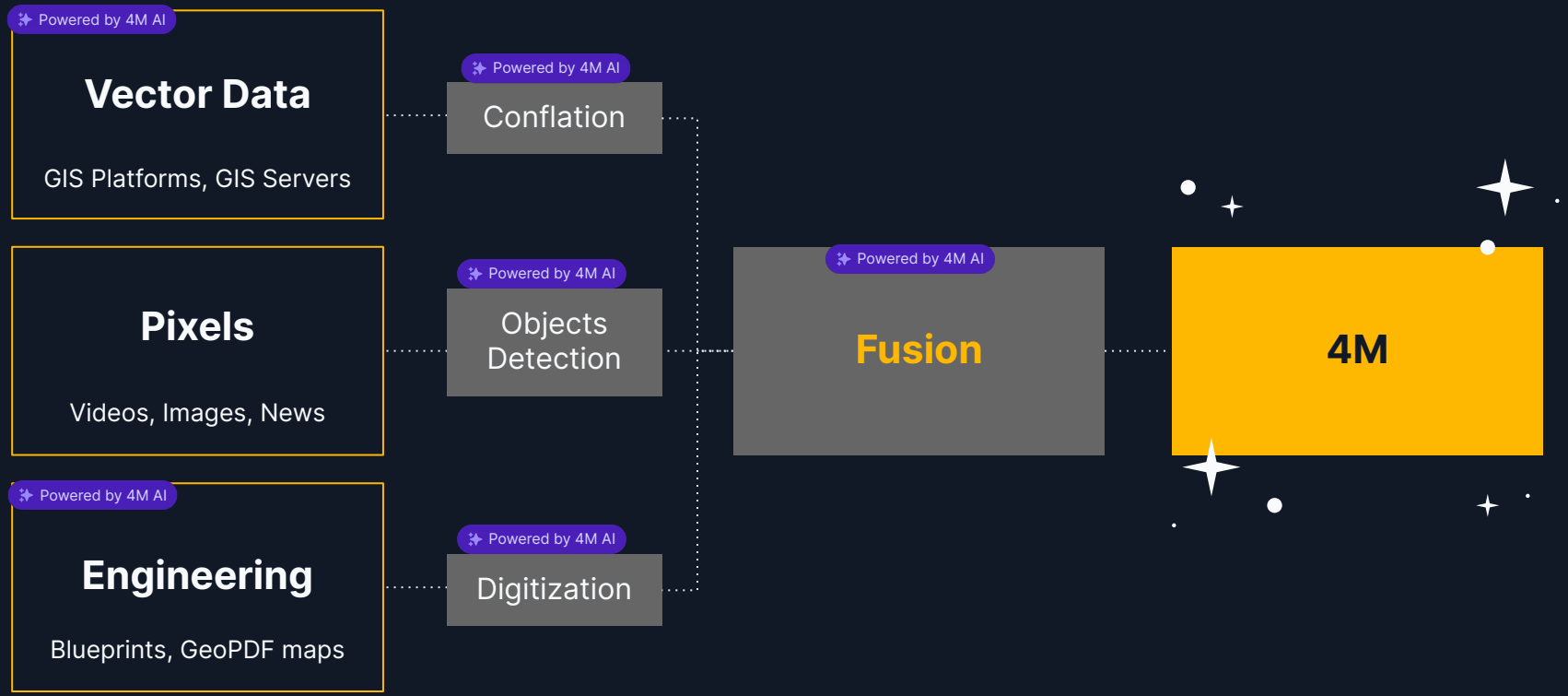
How Technology Can Improve the Process

Data Collection To Product



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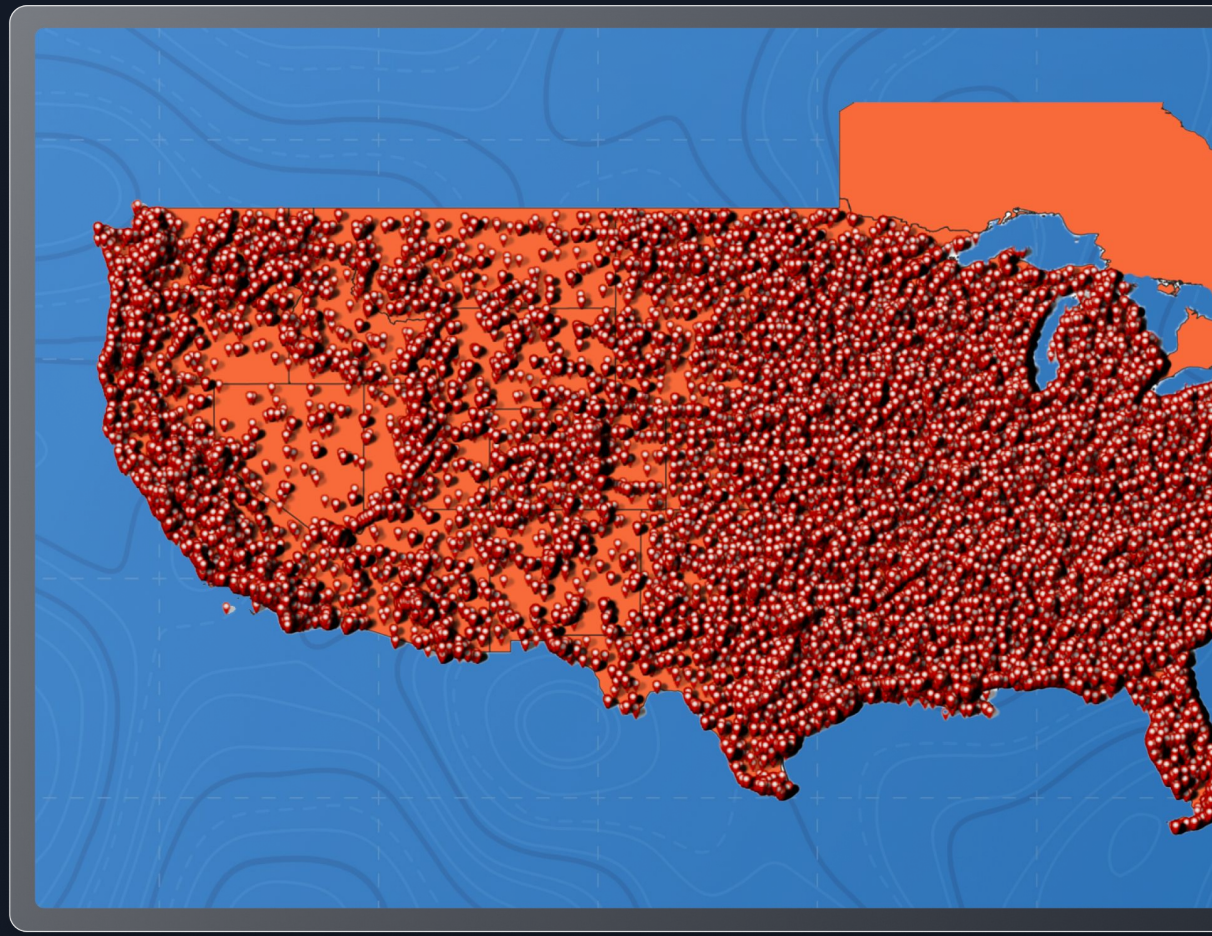
Geo Tagging

4M's as-built repository

Geotagging



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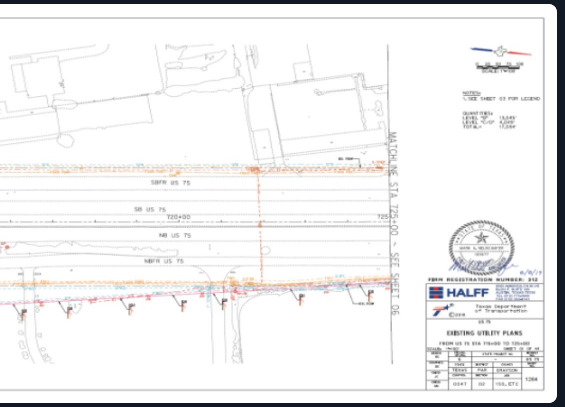
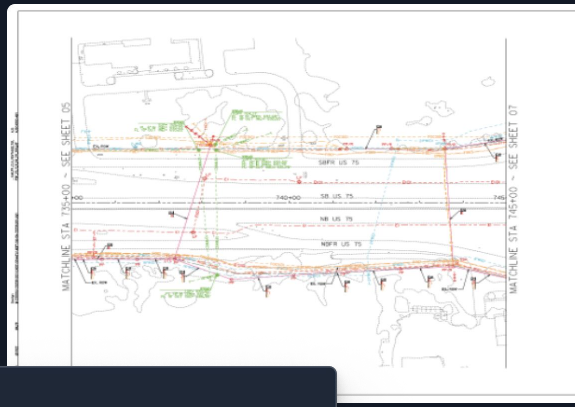
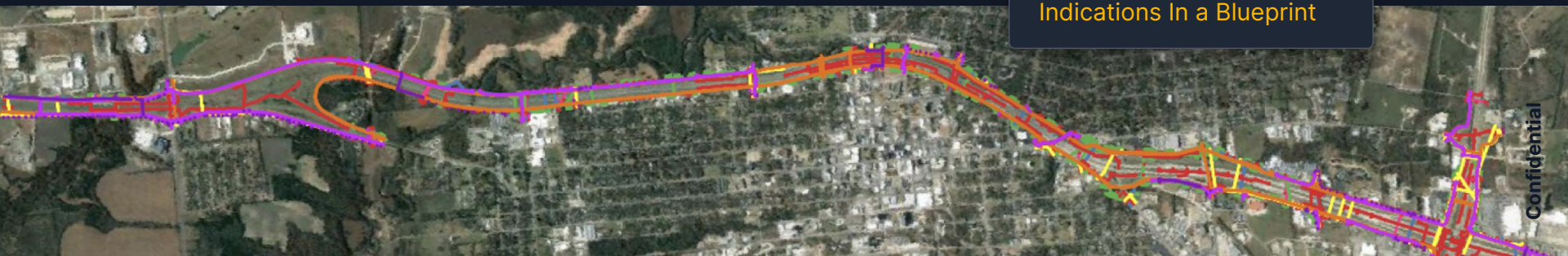
Blueprints Digitization

AI based digitization engine transforms PDF/Image based engineering file to an accurate, geo aligned vectorial layer





Examples for Utilities Indications In a Blueprint



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Vertical Object Detection

State of the art AI technologies to detect objects in order to increase data quality, coverage and confidence.

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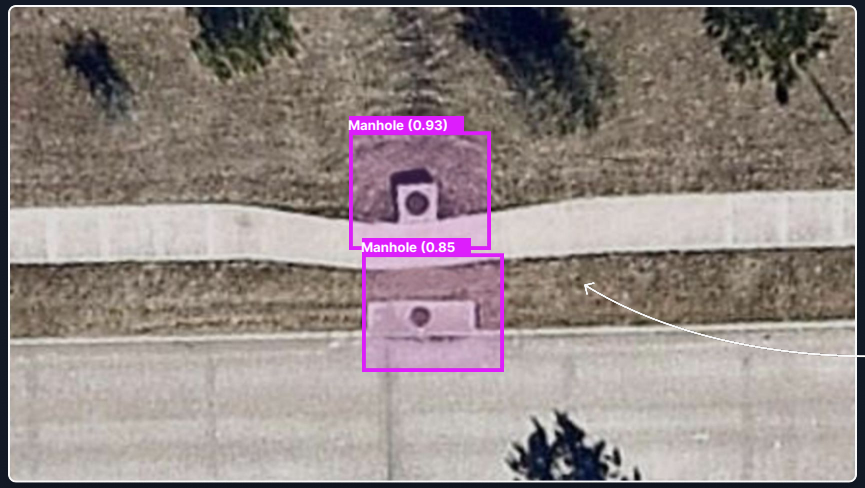

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Horizontal Object Detection

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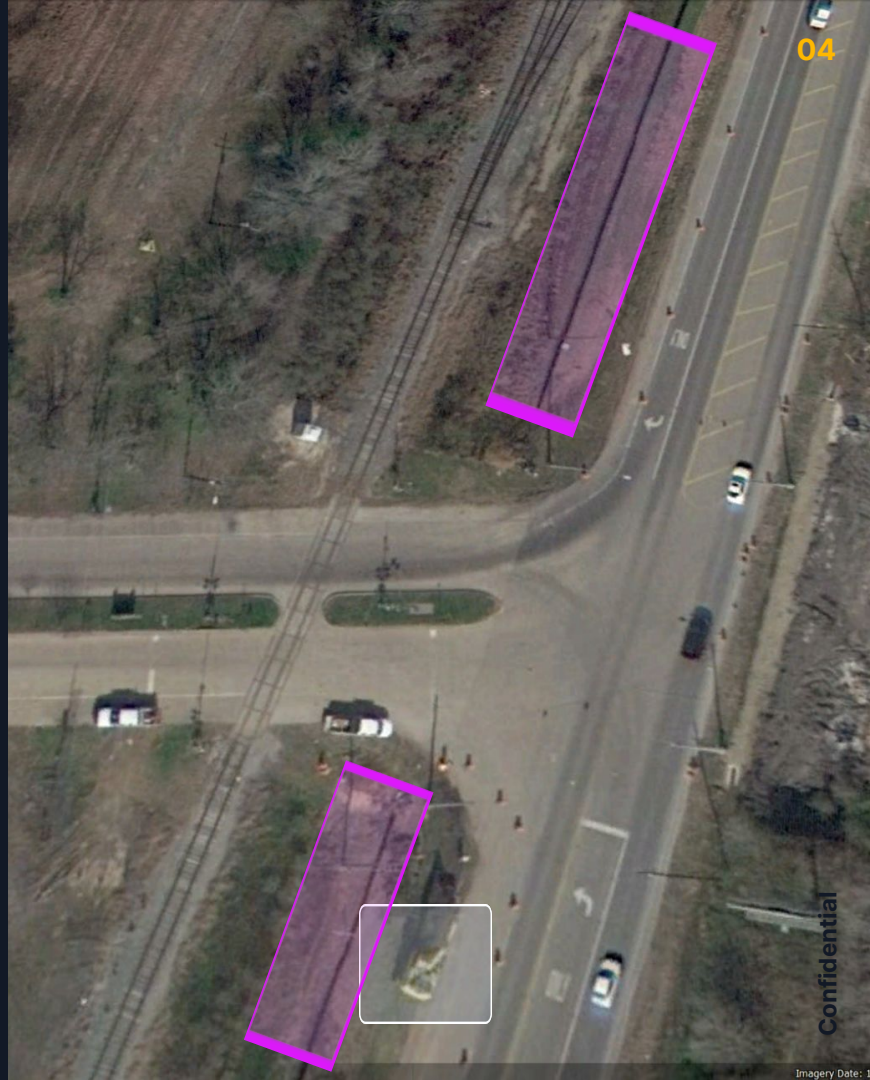
Object Detection



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Object & Change Detection

Object detection algorithms scan current & historical satellite and aerial imagery, highlighting **visual evidence** that indicate the existence of buried utilities , increasing data quality, coverage and confidence.

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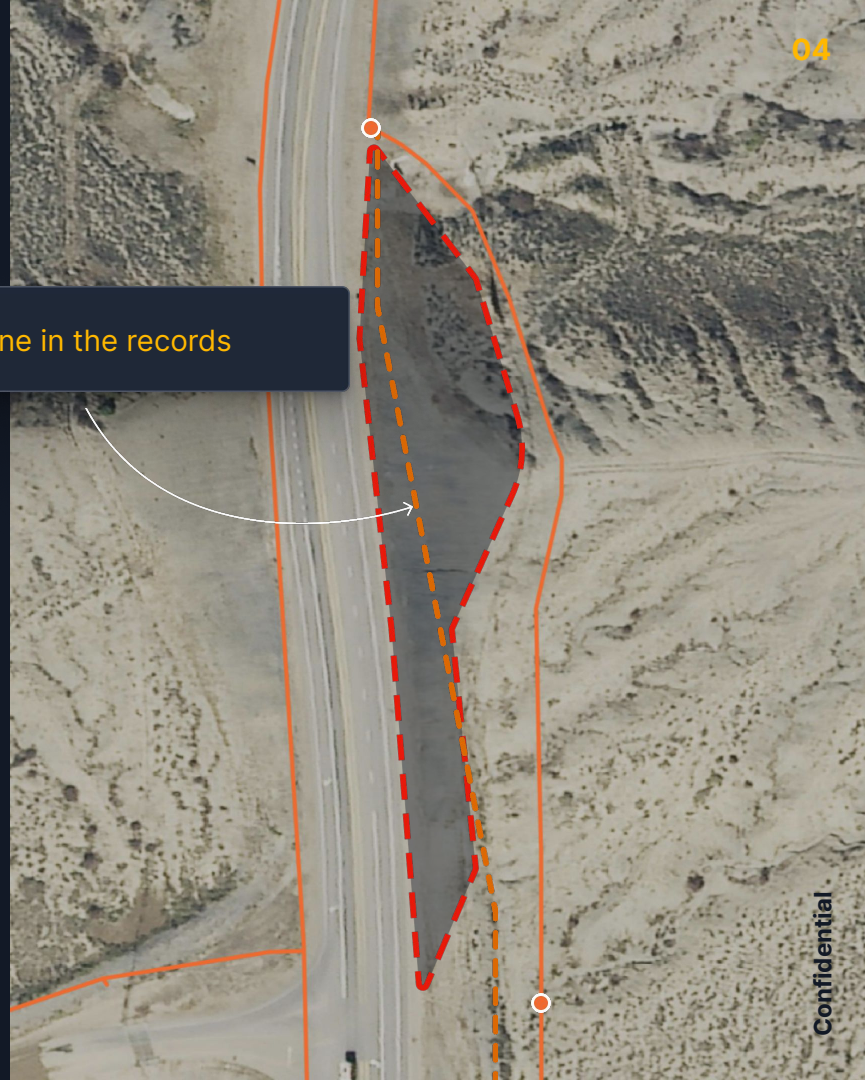
Engineering Logic



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Engineering Logic

Telecom line in the records

Unworkable slope

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Engineering Logic

Unworkable slope

Telecom line in the records

Telecom line in 4M

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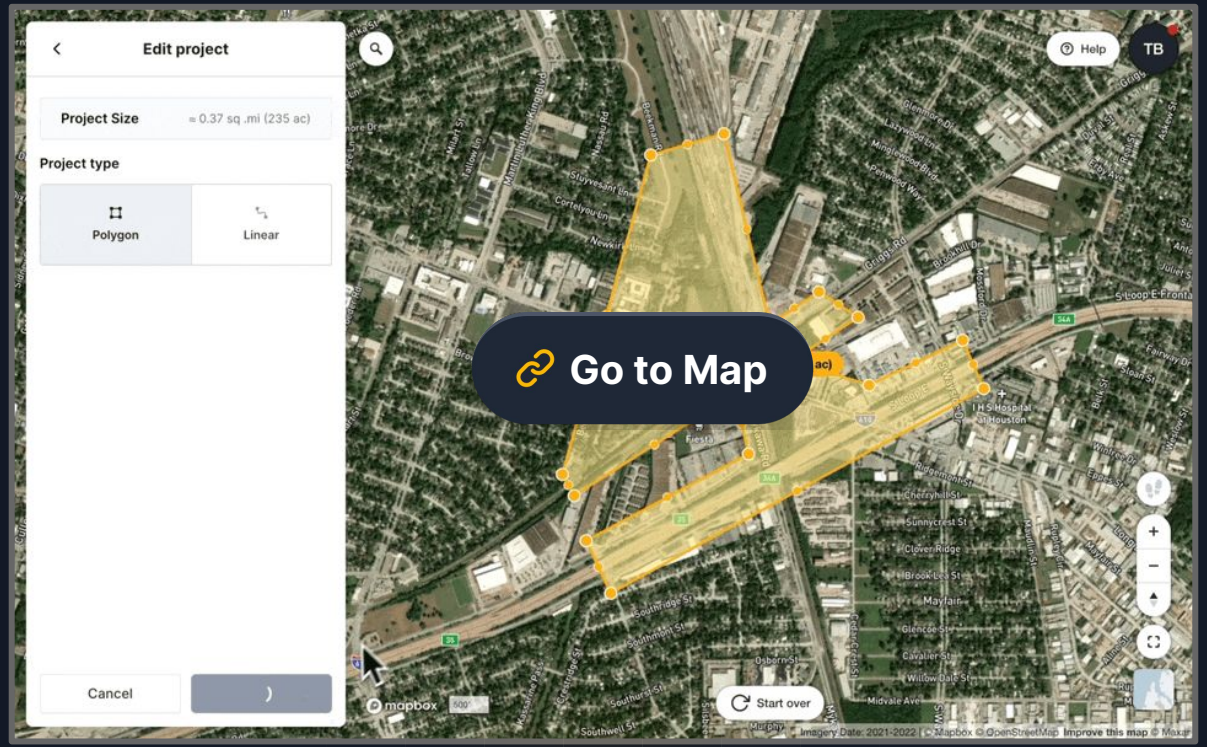
Product Demo



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Thanks