

Scan to BIM and to Design

Mohamad Khalouf
Solutions Engineer – Infrastructure

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AGENDA



AUTODESK

- Reality Capture Strategy
- Point Clouds in Recap Pro
- Point Clouds in ACC
- Scan to Design
- Scan to BIM

“

I need rich existing conditions for my design and decision making, which ...

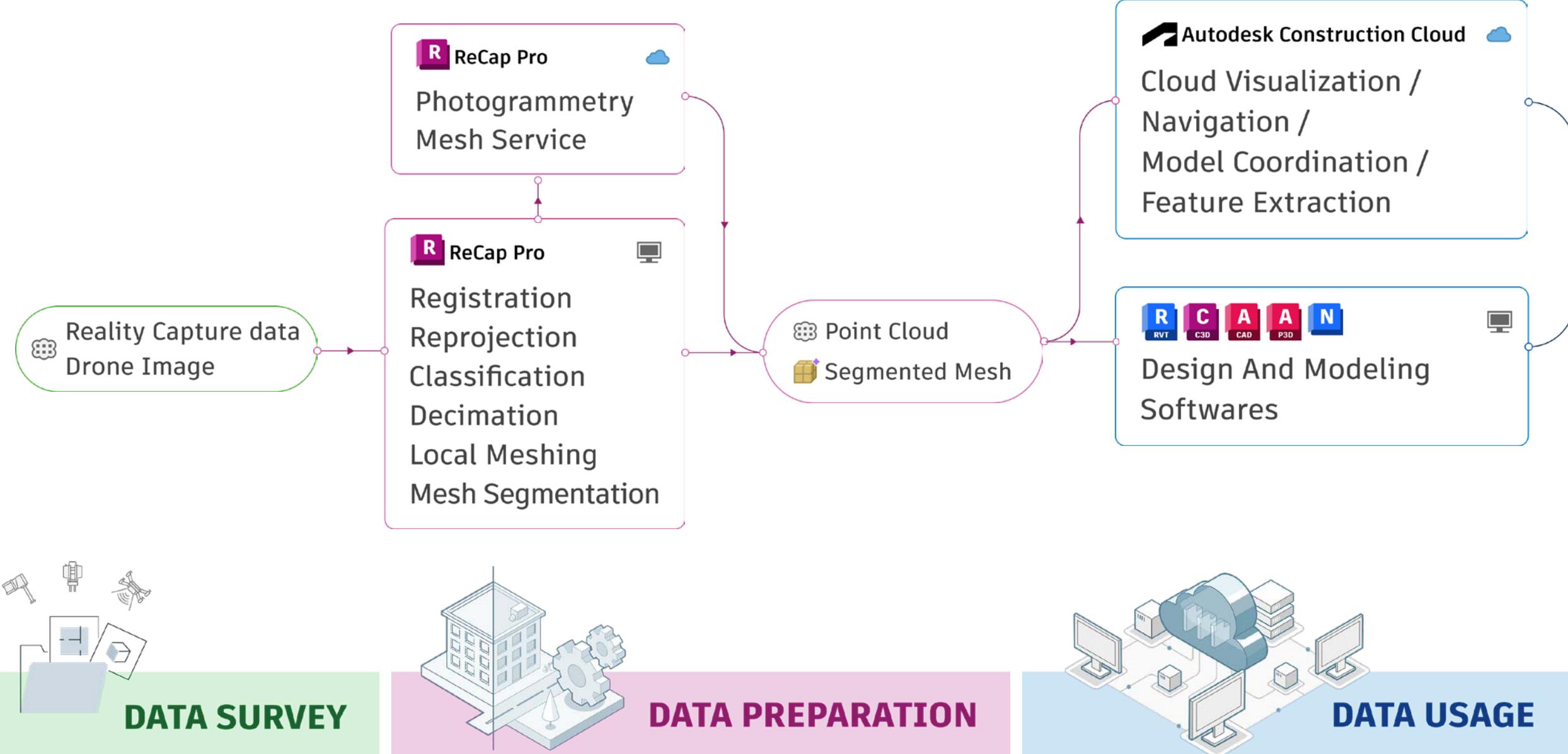
... is easy to use and simple to manage

... focuses on the key information that I need

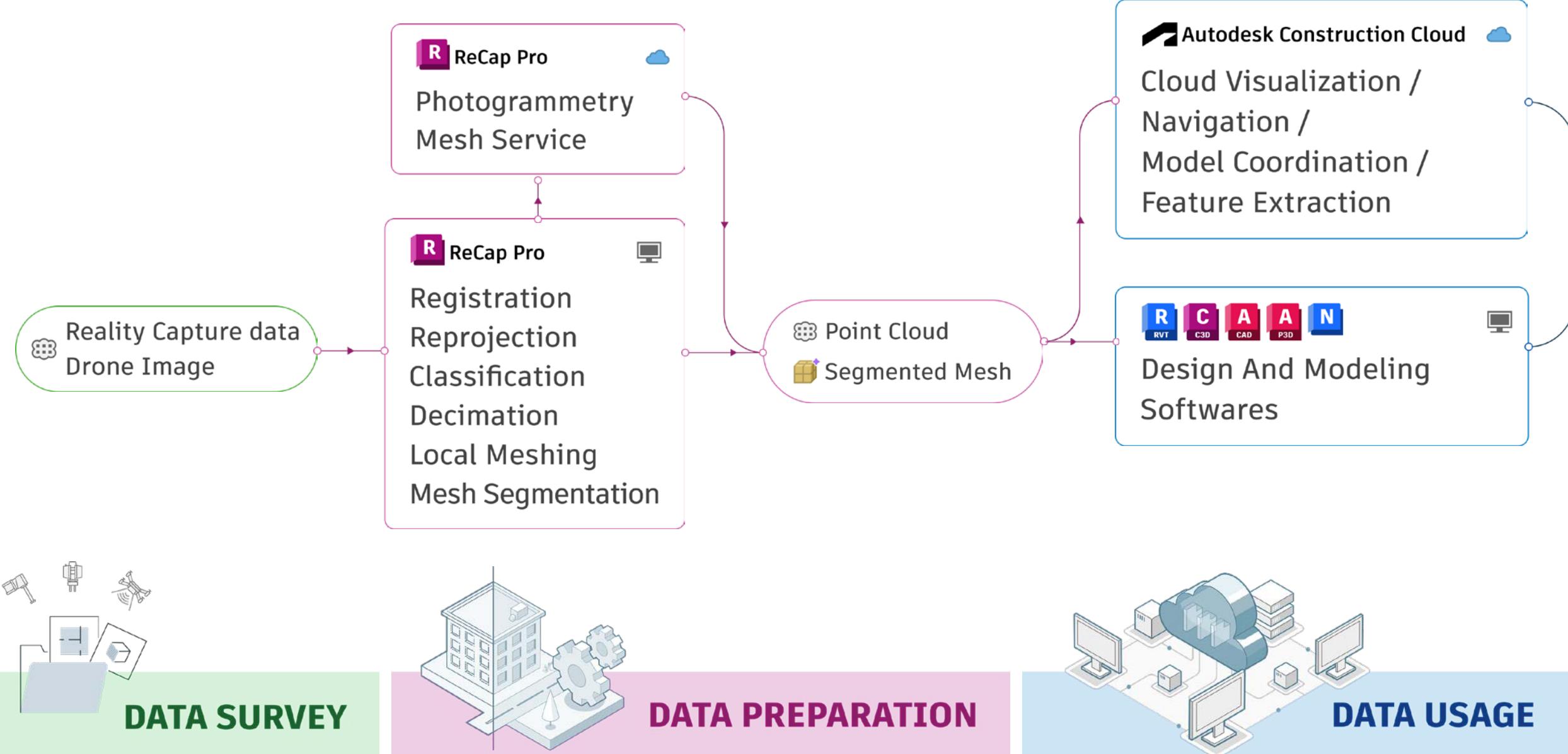
*... provides information **earlier, accurate, and with sustainability insights***

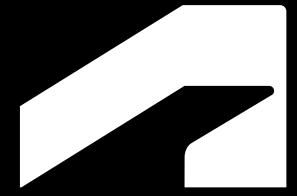
”

Reality Capture Strategy



Reality Capture Strategy





Point Clouds in Recap Pro

“

I need to prepare my large reality capture data and share it for my team in a way that is practical to ...

... cleanup and optimize large data so its not too heavy

... get it ready in the right format for others to use

... publish it to ACC so my team can view and collaborate in one place

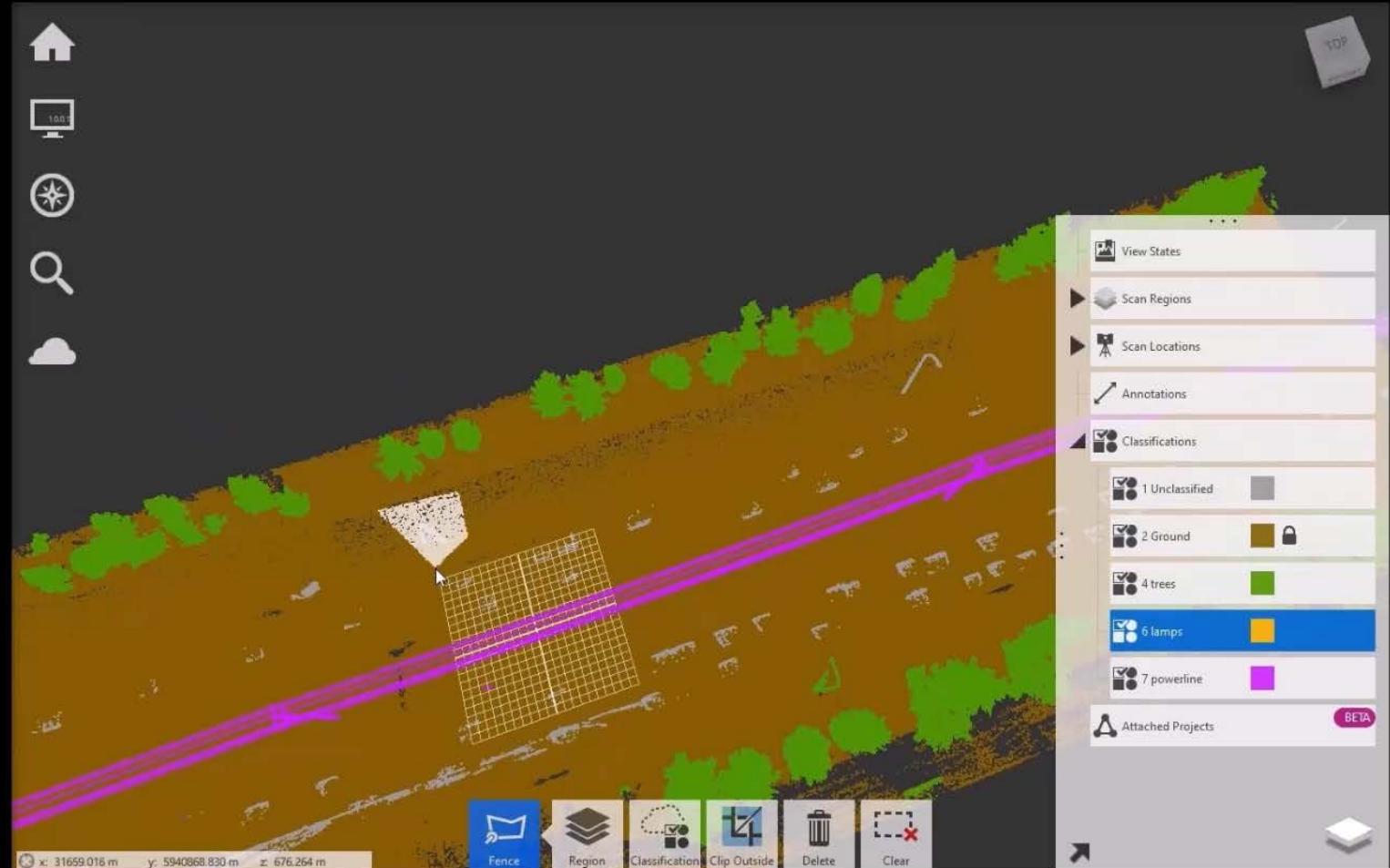
”

Convert point clouds to meaningful surfaces

Automatic
classification

User-defined
feature
classes

Interactive
point
selection

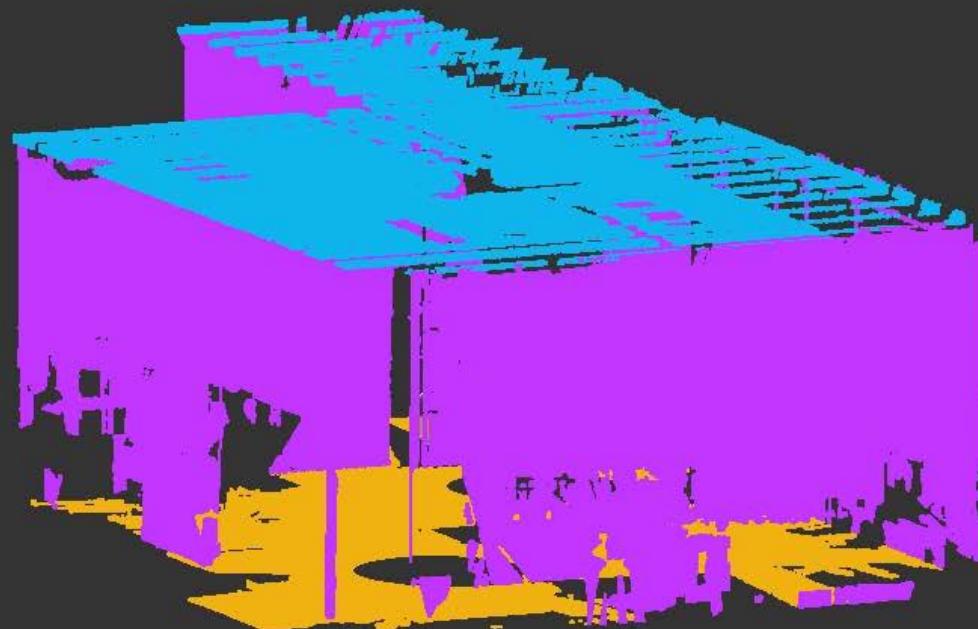


Intelligent Decimation

Intelligent
point cloud
decimation

Up to 90%
fewer points

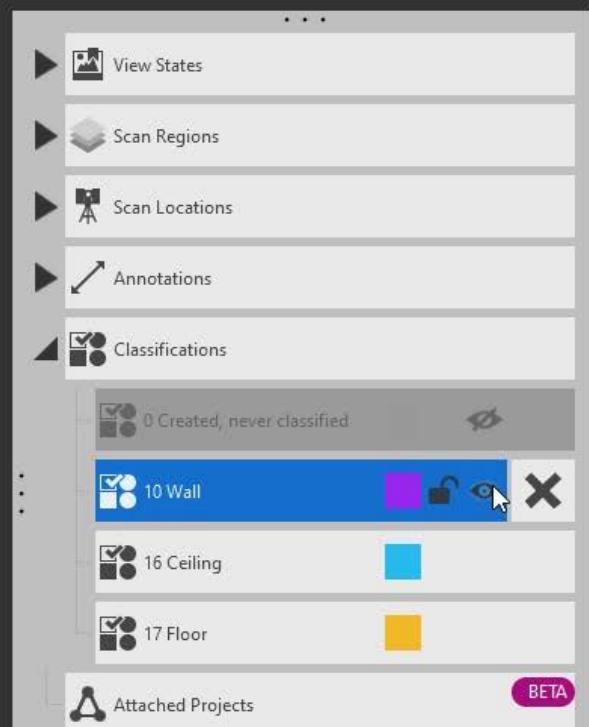
Less than
0.5%
measurable
deviation



x: - m

y: - m

z: - m





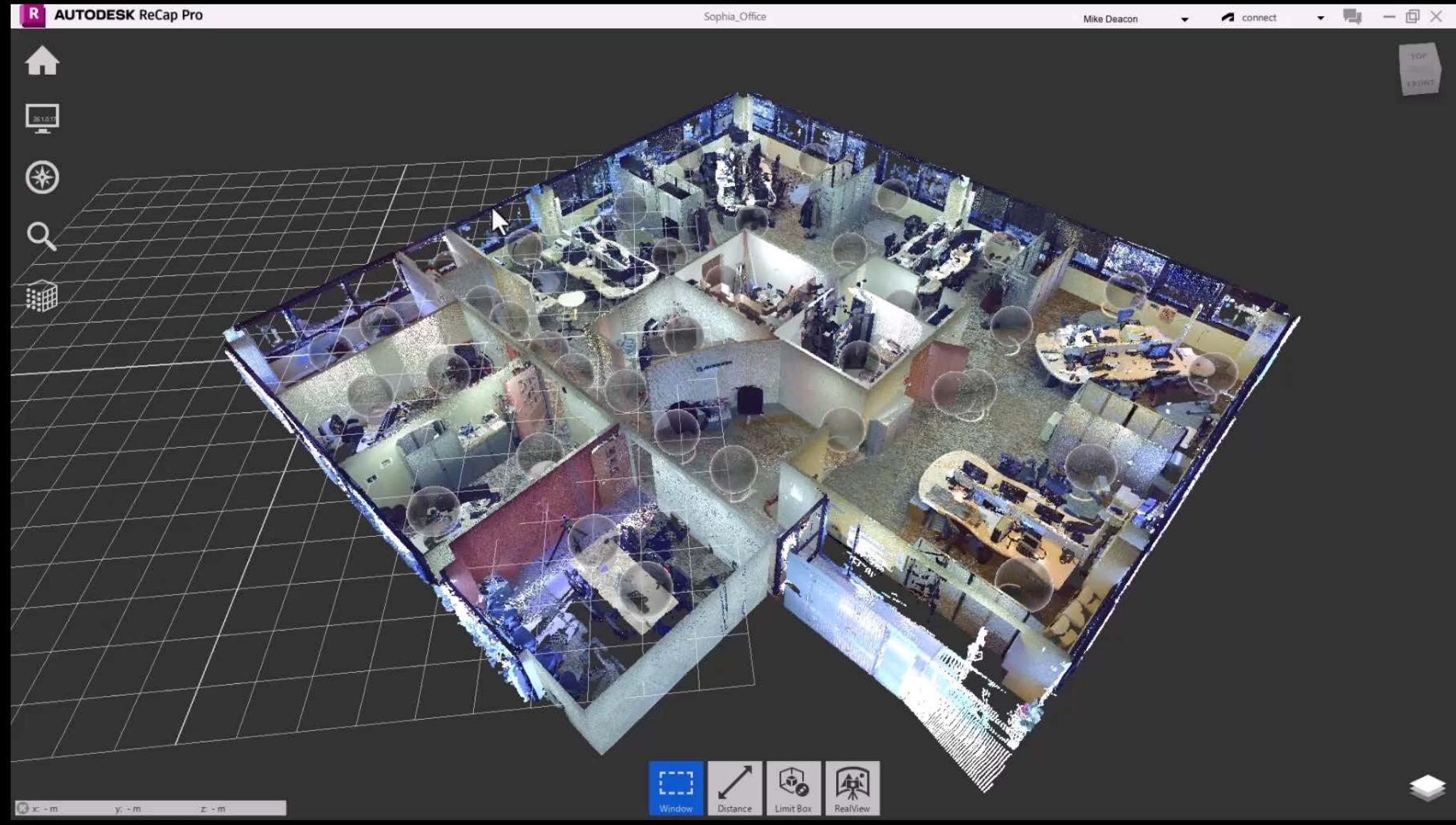
BETA

AI Classification

Industry-specific
smart object
recognition

Automated
Scan-to-BIM
workflow

Driven by
Autodesk AI



Smart tiling to enable large project uploads to ACC

Smart decimation reduces data size efficiently

Efficiently manage large volume publish and track progress

Bulk File Manager - Publishing to ACC

Bulk File Manager

Uploading files from source local folder to target project folder...
Total 803 files to be uploaded, 797 files pending upload, 6 files successfully uploaded and 0 failed to upload.

Cancel 0% Estimated time: 9 Hr, 50 Min, 55 Sec.

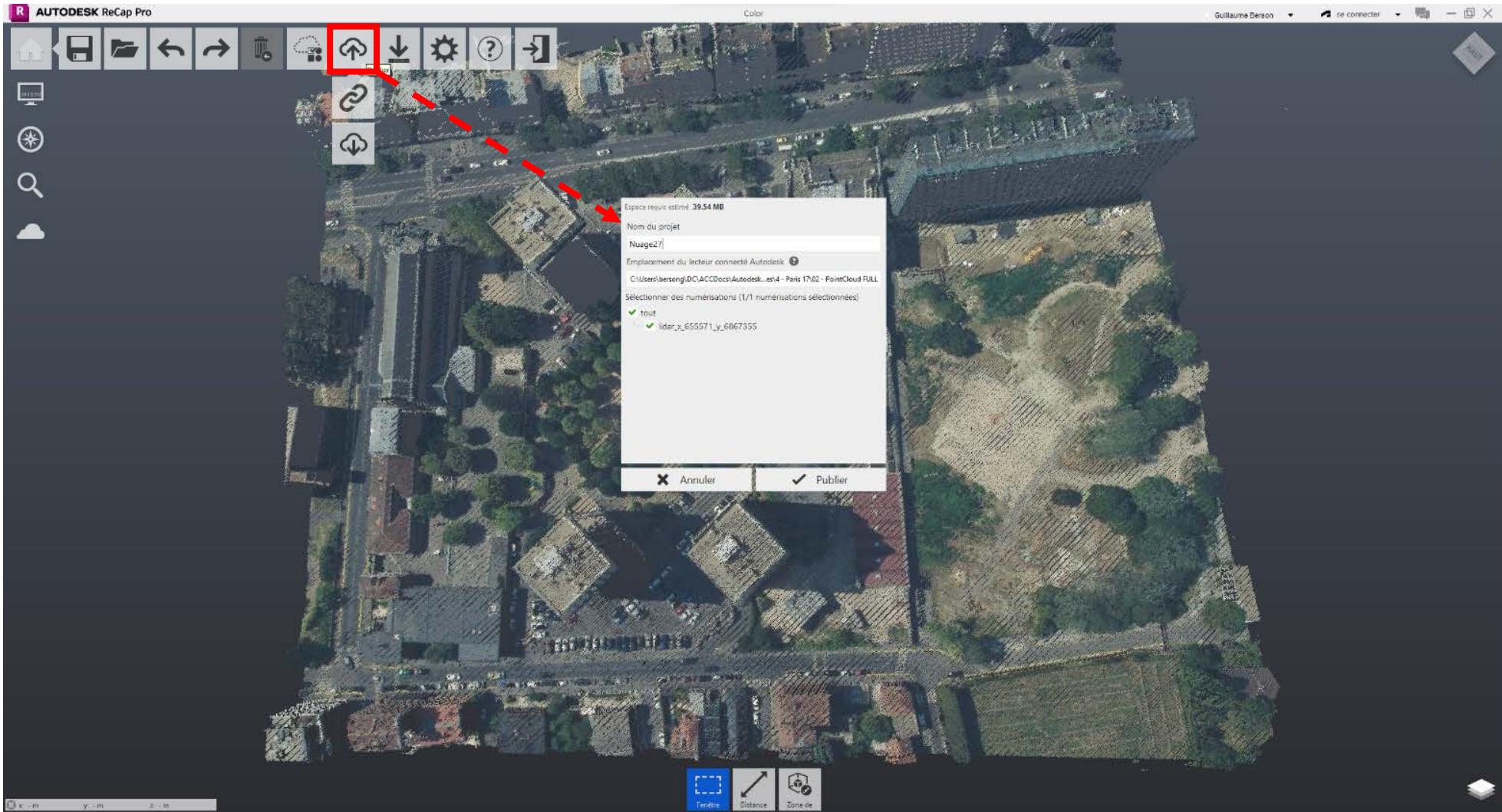
Uploading - f7646a3f-13ee-44fd-a666-f4a9c931951a.nibp to S3 [Size: 1.52 MB]

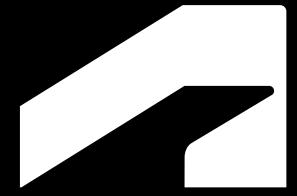
File name	Local folder path	Status	Target folder
faro_scan_024.thumbnail	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_025.diff	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_025.llt	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	✅	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_025.rcc	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_025.rcs	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_025.temp09	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	✅	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_025.thumbnail	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_026.diff	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_026.llt	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_026.rcc	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_026.rcs	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_026.temp09	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_026.thumbnail	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_027.diff	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...
faro_scan_027.llt	D:\Datasets\Scan_TrainStation\TrainStationCleaned Support\faro_sc...	🕒	Reality Solutions\ReCap Pro\Project Files\Rishov\Pro\TrainStationCle...

Files per page: 50 1-50 of 803

Back

ReCap Pro - Publishing to ACC





Point Clouds in ACC

“

I need to easily view and work with my reality capture data in the cloud that enable me to

... visualize my scans in the browser without desktop tools

... explore and extract critical information

... have a smooth performance even with large datasets

”

RELEASED

Visualize
large
datasets in
ACC

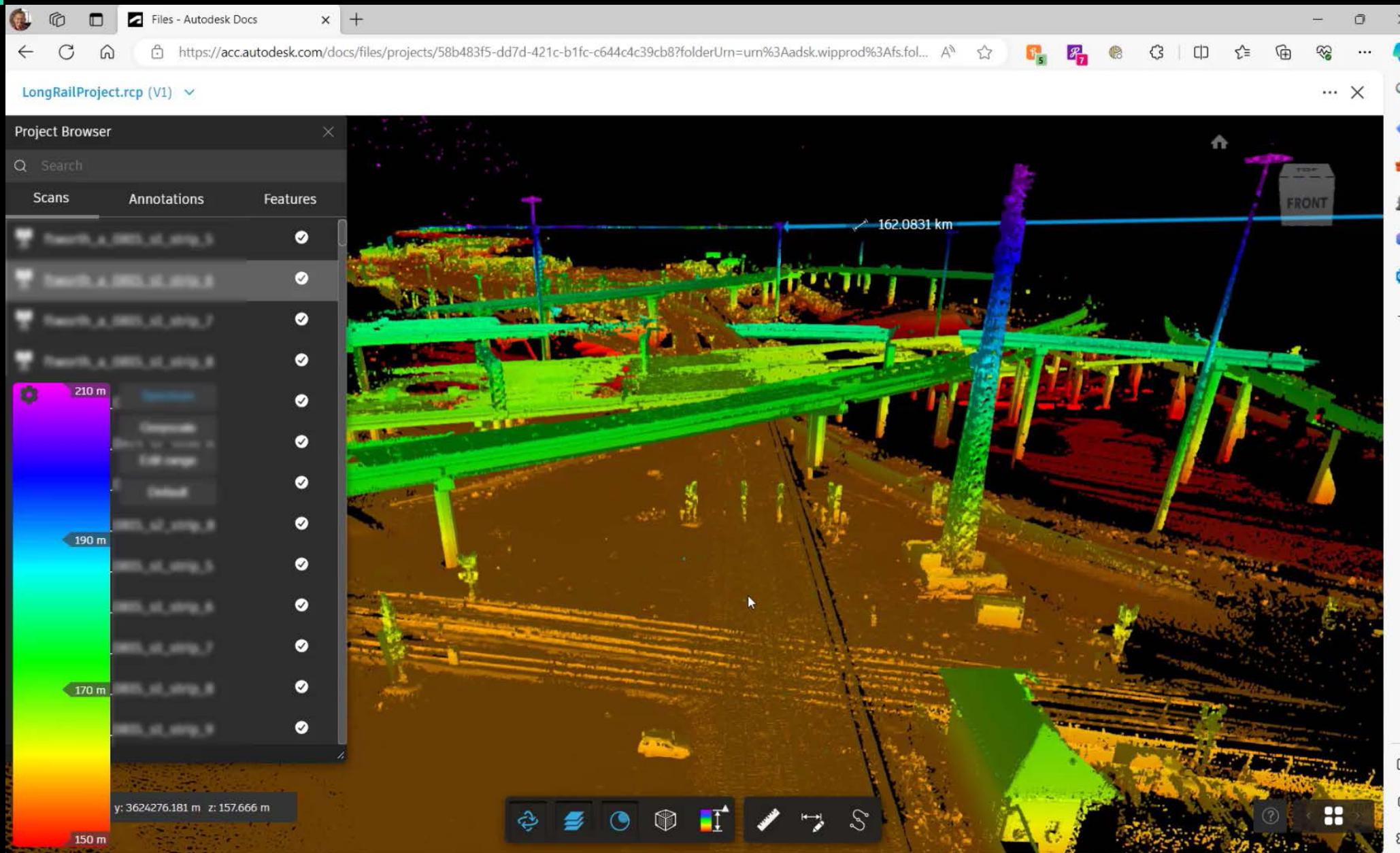
Easily view,
share, and
reuse large
reality
capture data

Integrated
with ACC
Model
Coordination



AUTODESK
ReCap

ACC: Viewing Large Point clouds



ACC: Scan Groups

Organized
scan
collections

Improved
team
collaboration

Desktop – ACC
viewer sync

Efficient large
projects
management

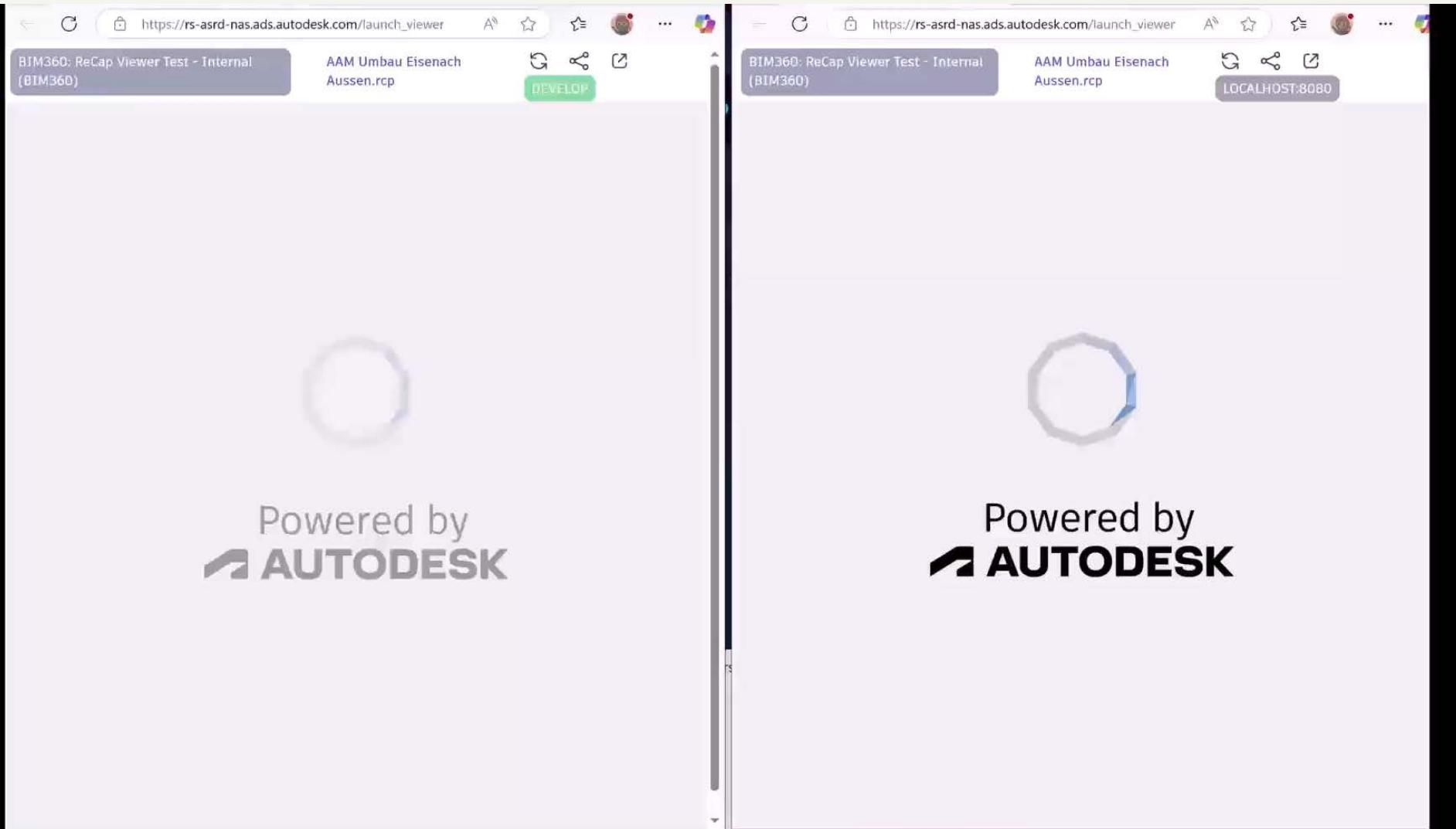


ACC: Continuous Improvement on Experience & Scalability

Faster UI
initialization

Improved
camera
rotation
rendering
performance

Supports
projects with
over 1000
scans

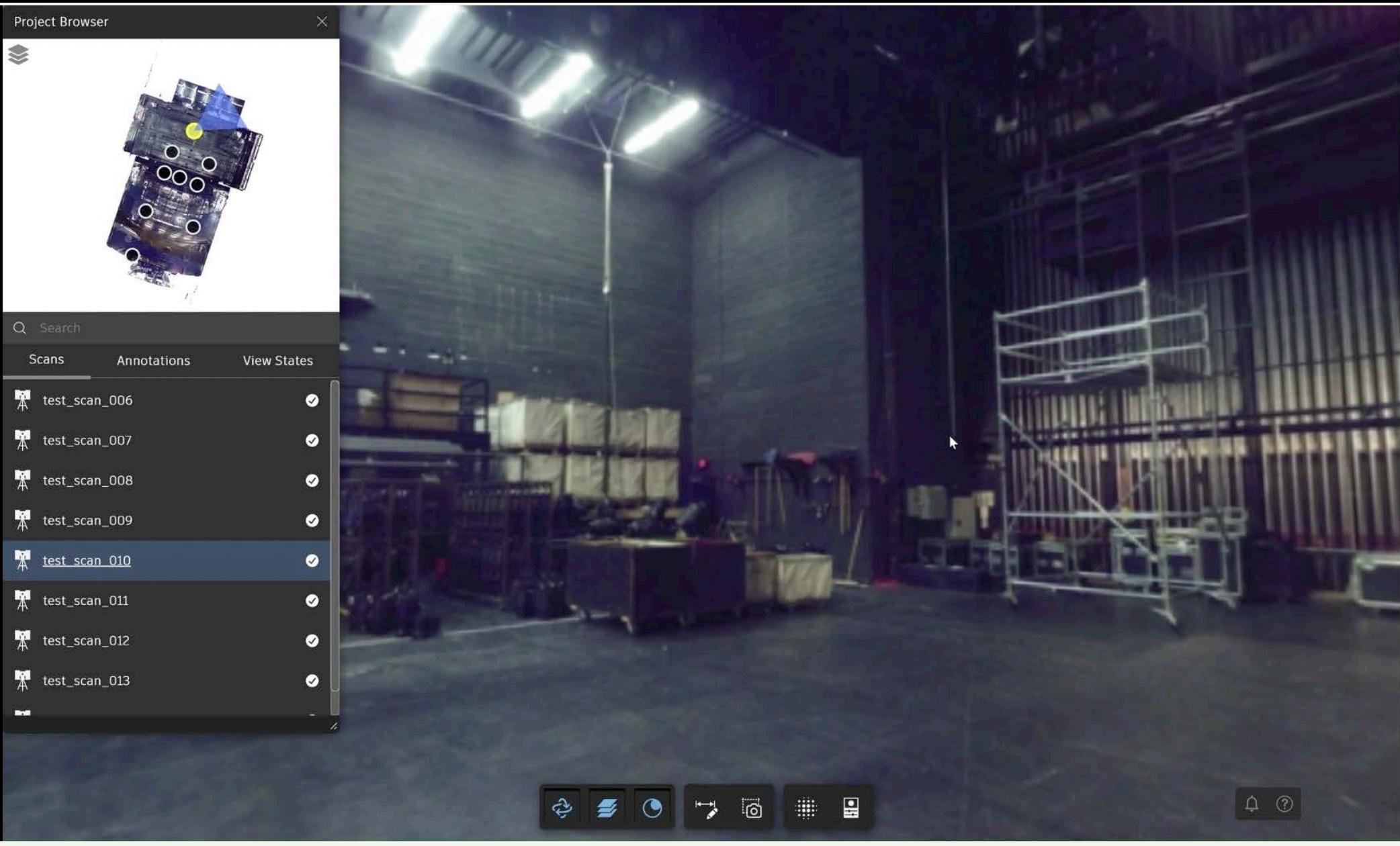


ACC: Real View Performance

Image-based
intuitive
navigation

Boosted
visualization
performance

High-quality
streaming of
images



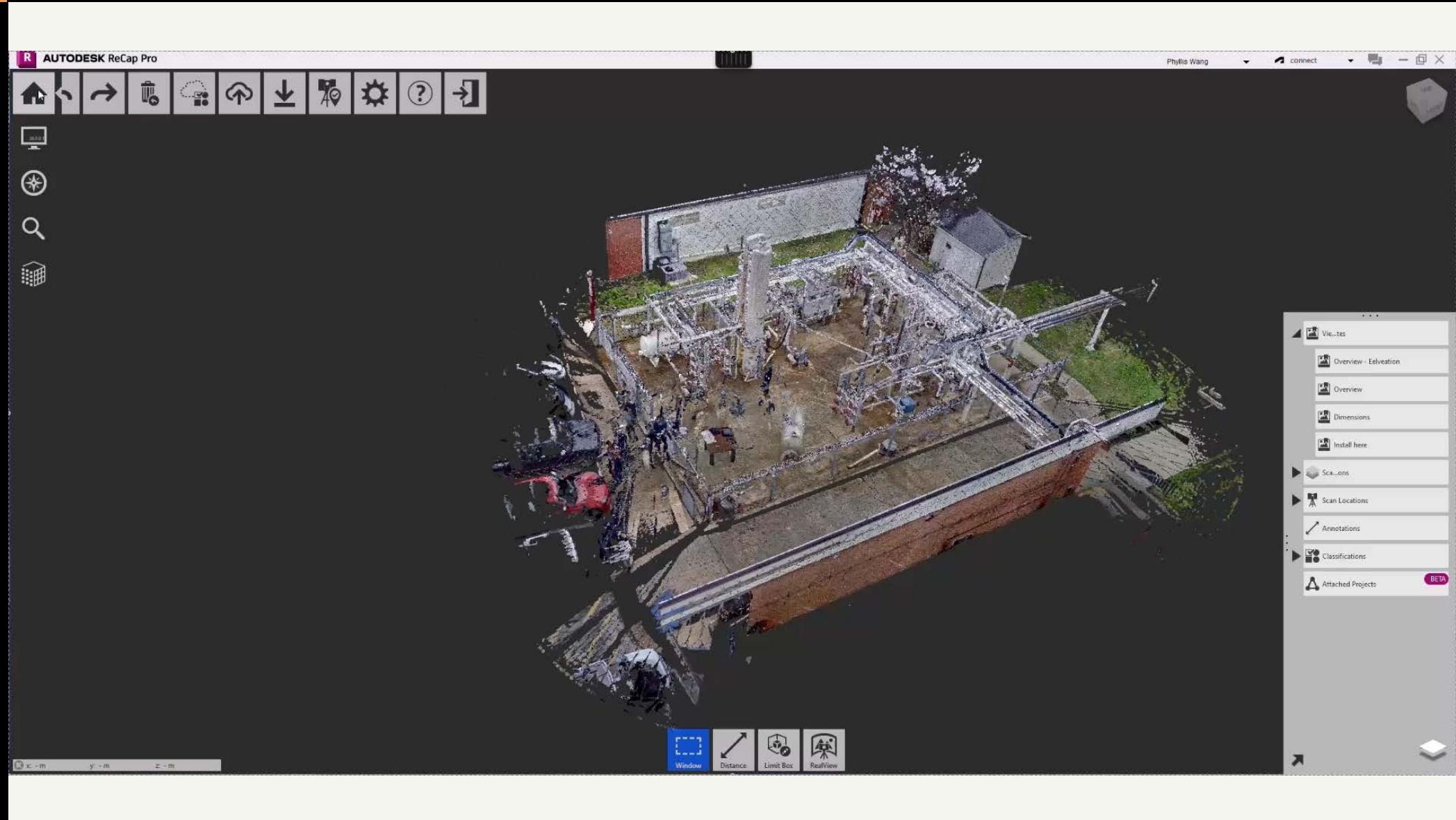
Save and recall
multiple
viewpoints

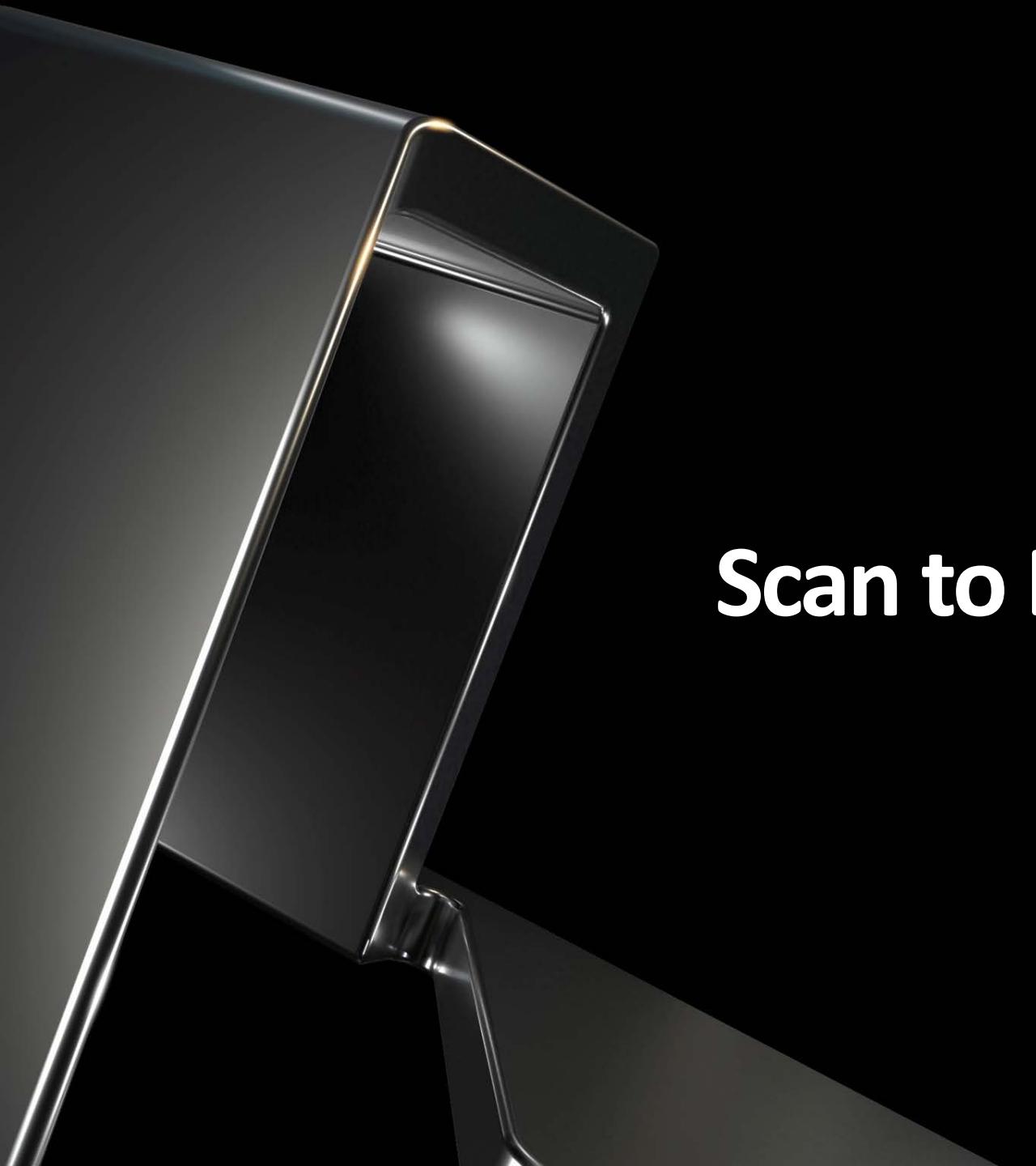
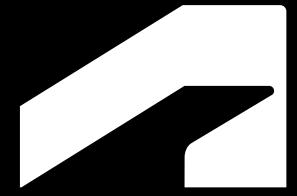
Integrate
viewpoints
with
annotations

Customize
settings by
data types

Animate
transitions
between views

ACC: View States





Scan to Design

“

I need to extract linear features and assets for transportation design that empowers me ...

... to automatically generate breaklines from reality capture data

... to capture transportation assets with less manual effort

... deliver usable design inputs directly into my design workflows.

”

Cloud-based
collaboration
across teams,
and
timezones

Automated
feature
extraction

Leverage
extracted
features as
design-ready
lines in Civil
3D

Scan-to-Design: Linear feature extraction

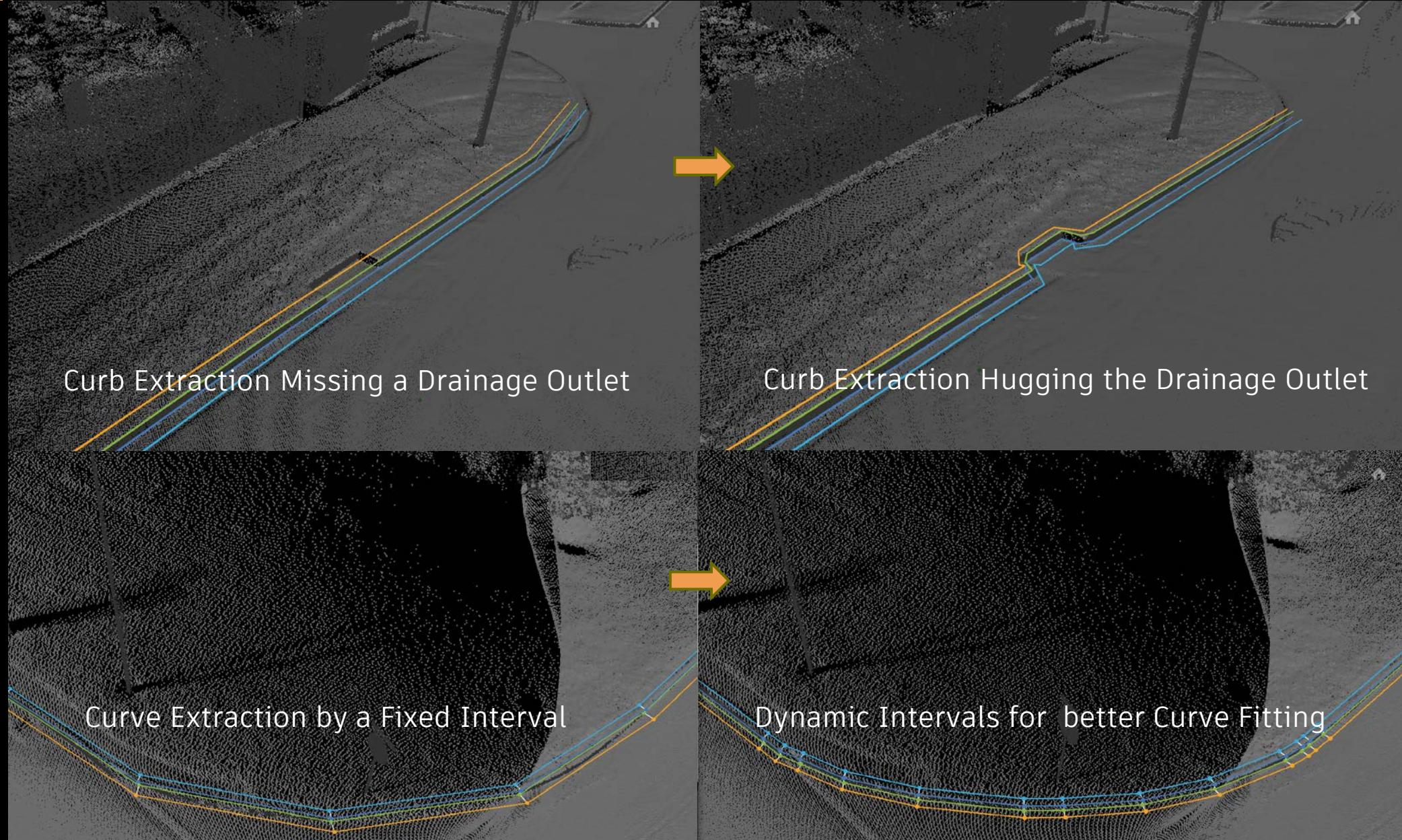


Scan-to-Design: Linear Feature Extraction Enhancements

Enhanced
feature
extraction
for greater
accuracy

Dynamic-
interval
curve
extraction

Optimized
and smooth
feature
extraction

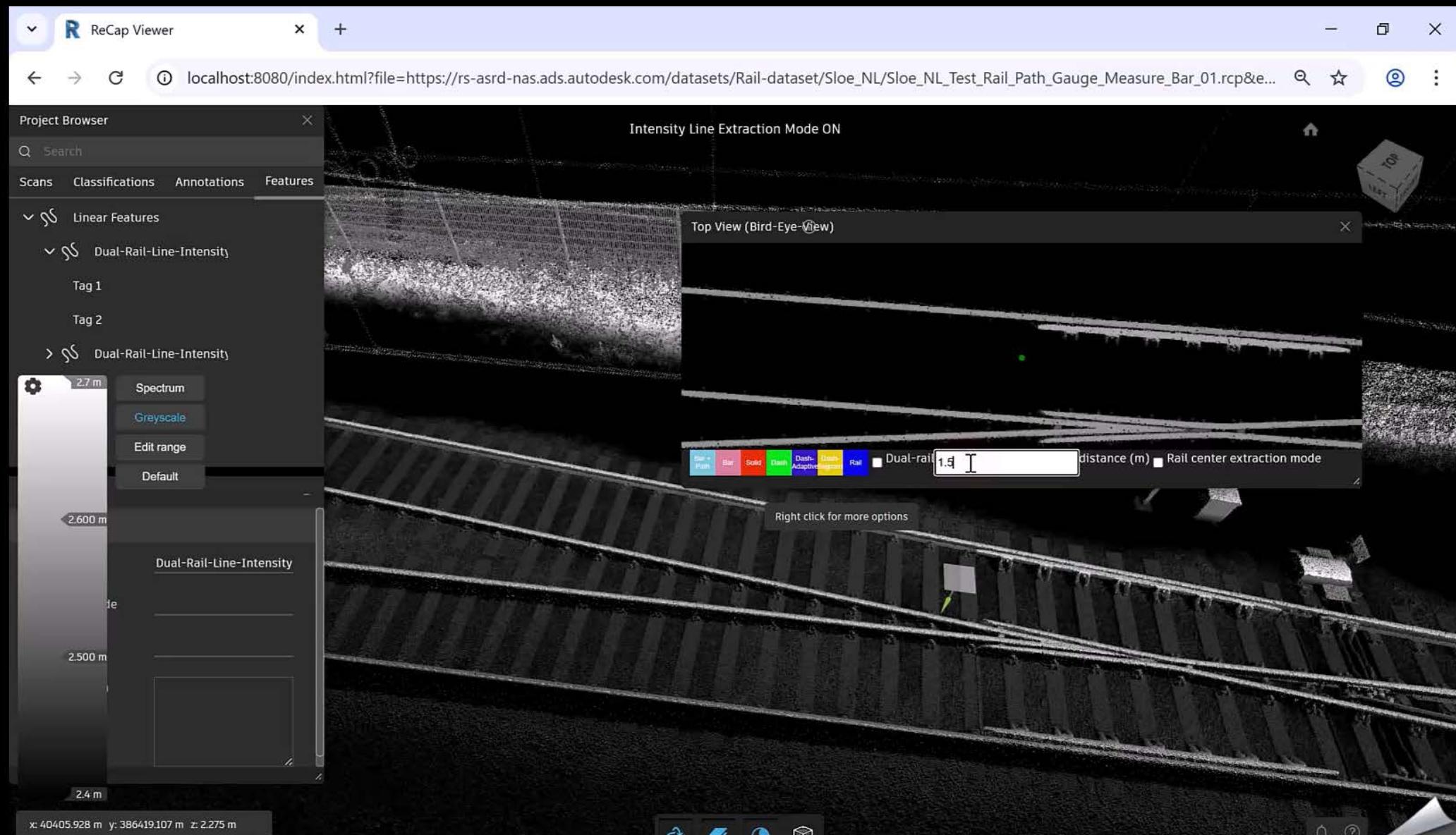


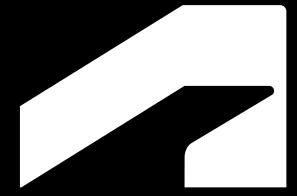
Gauge Line
as key
existing rail
condition

Automatic
path
tracing for
consistency

Alignment
refitting in
Civil 3D

Scan-to-Design: Rail Extraction





Scan to BIM

“

*I need to transform my reality capture data into actionable BIM format
that ...*

... unlocks the full intelligence hidden in scans

... speak designers' and modelers' language

... makes complex workflows instantly intuitive

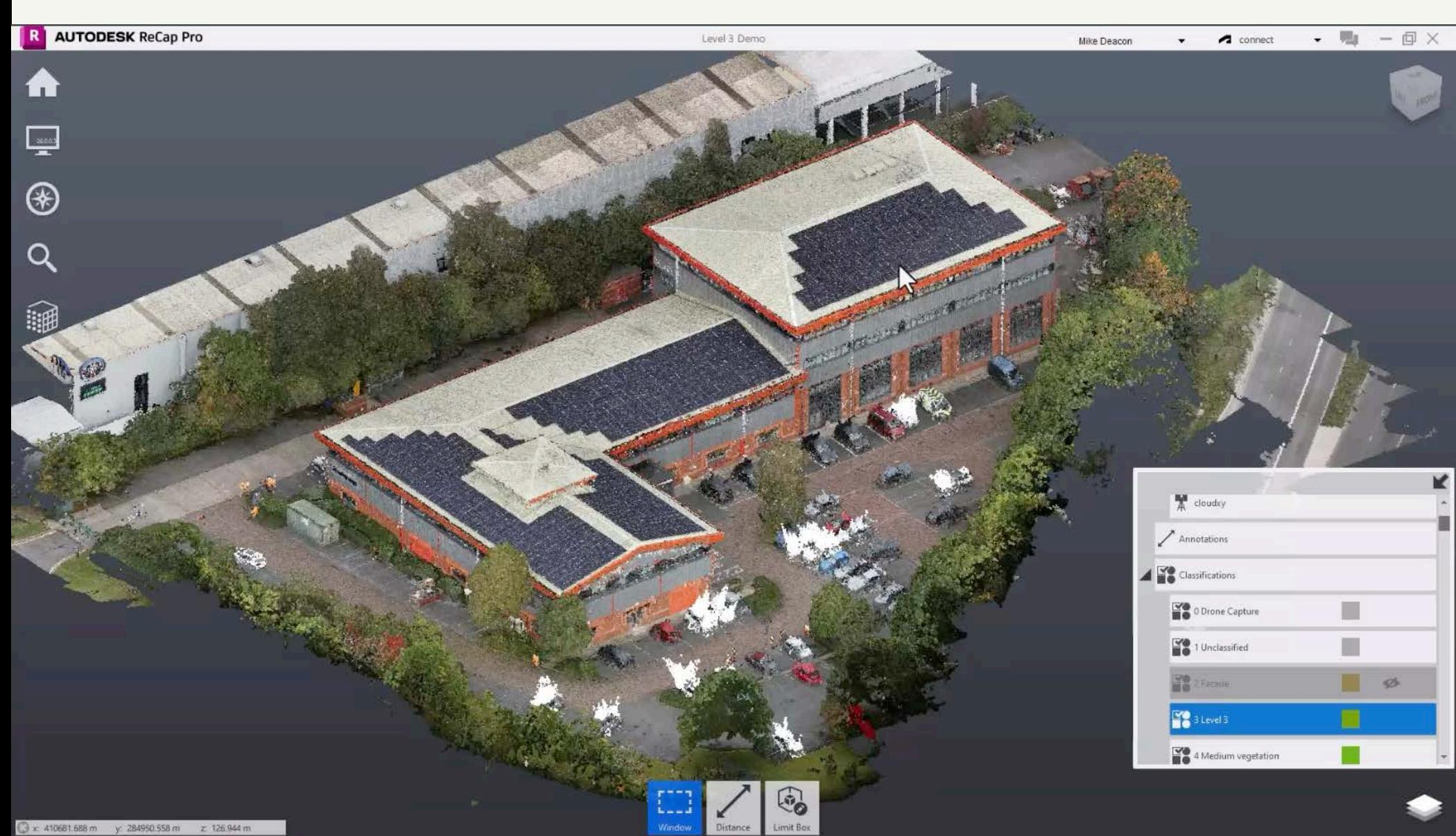
”

Segmented
mesh
creation and
editing in
ReCap Pro

Revit tools
for targeted
BIM
conversion

Improved
modeling
control and
accuracy

Scan to BIM for Buildings

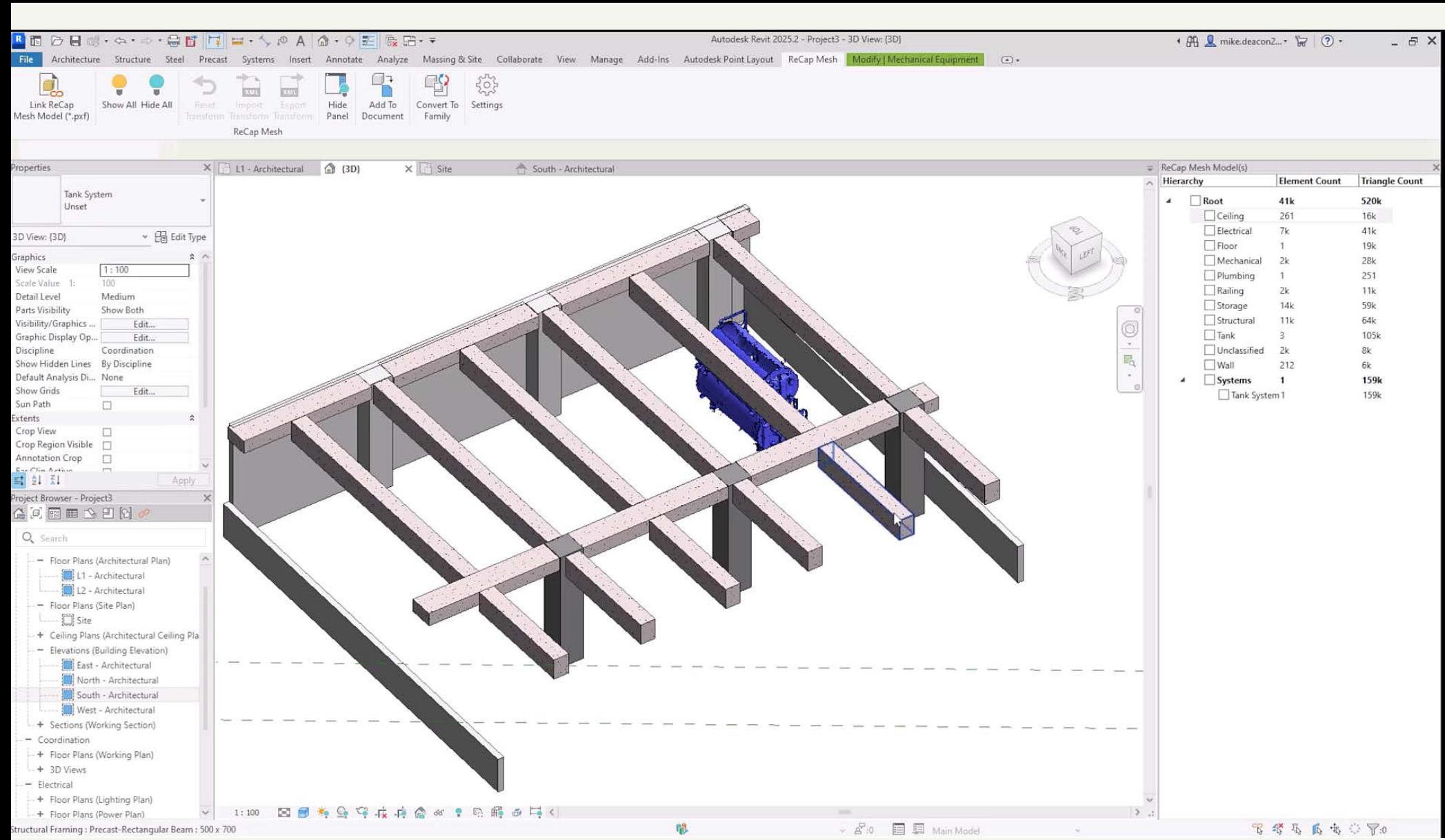


Scan to BIM for MEP

Segmented
mesh creation
and editing in
ReCap Pro

Revit tools for
targeted BIM
conversion

Improved
modeling
control and
accuracy

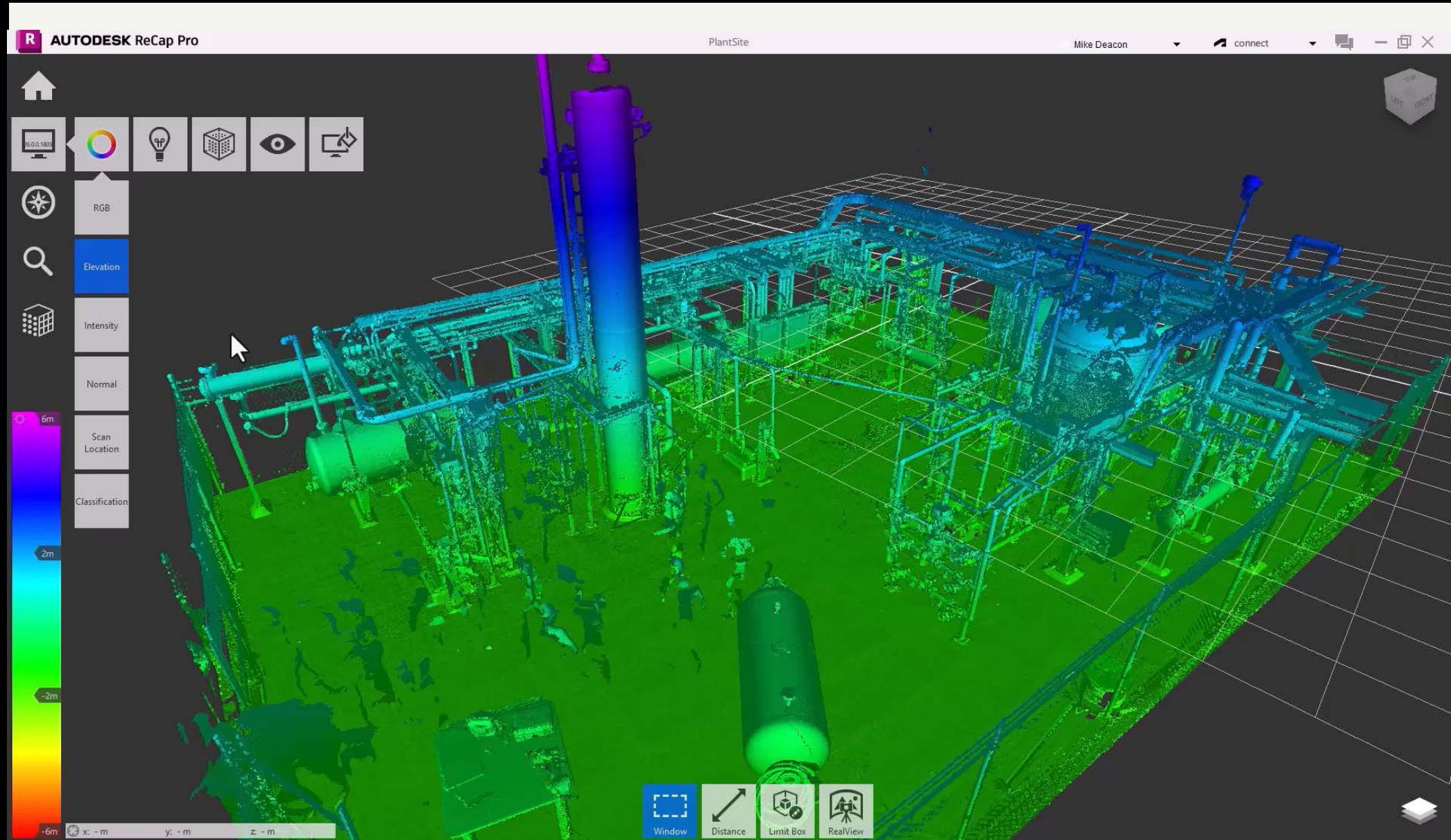


Scan to BIM for Plants

Segmented
mesh creation
and editing in
ReCap Pro

Revit tools for
targeted BIM
conversion

Improved
modeling
control and
accuracy

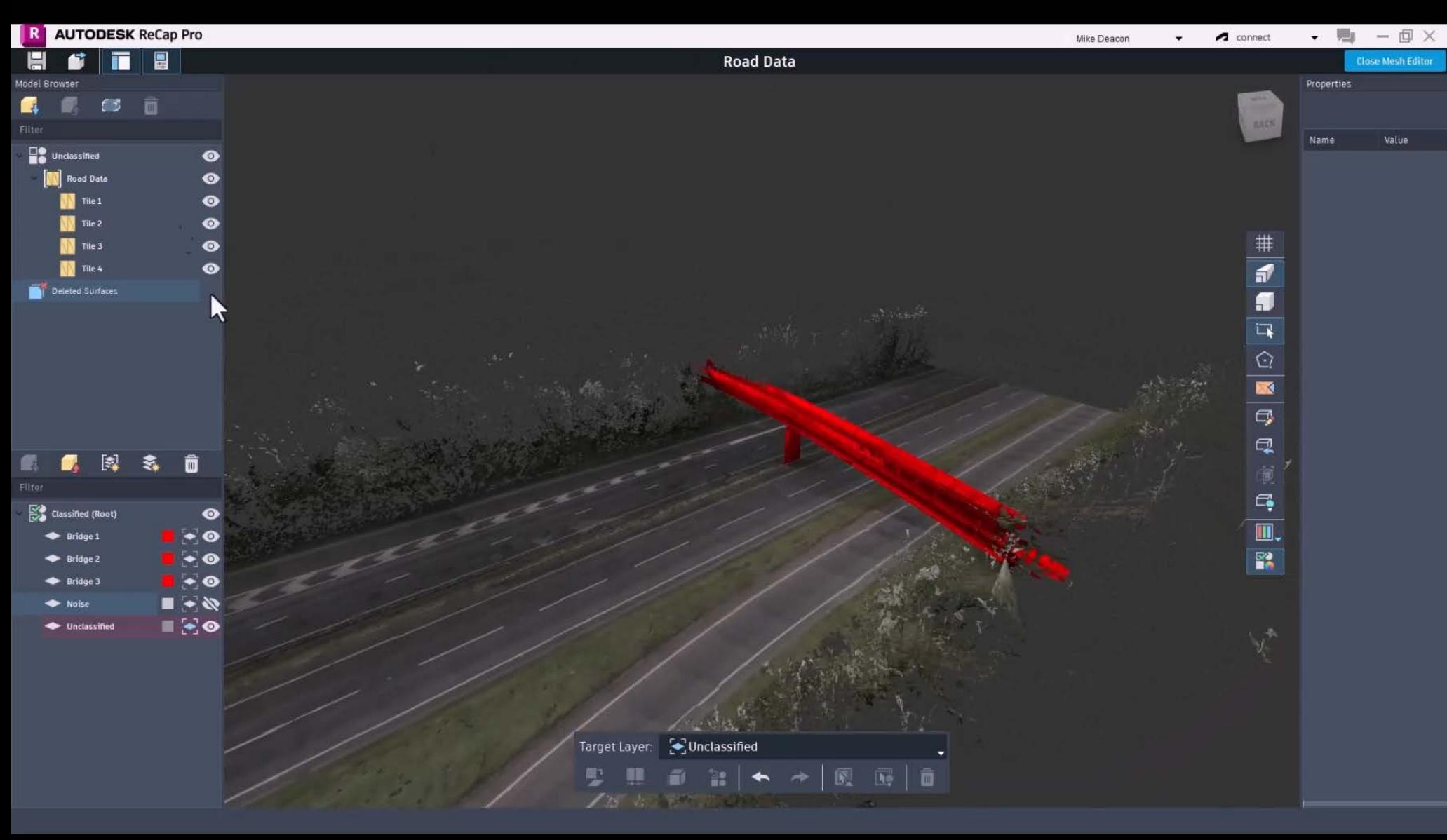


Scan to BIM for Civil Infrastructure

Segmented
mesh
creation and
editing in
ReCap Pro

Revit tools
for targeted
BIM
conversion

Improved
modeling
control and
accuracy

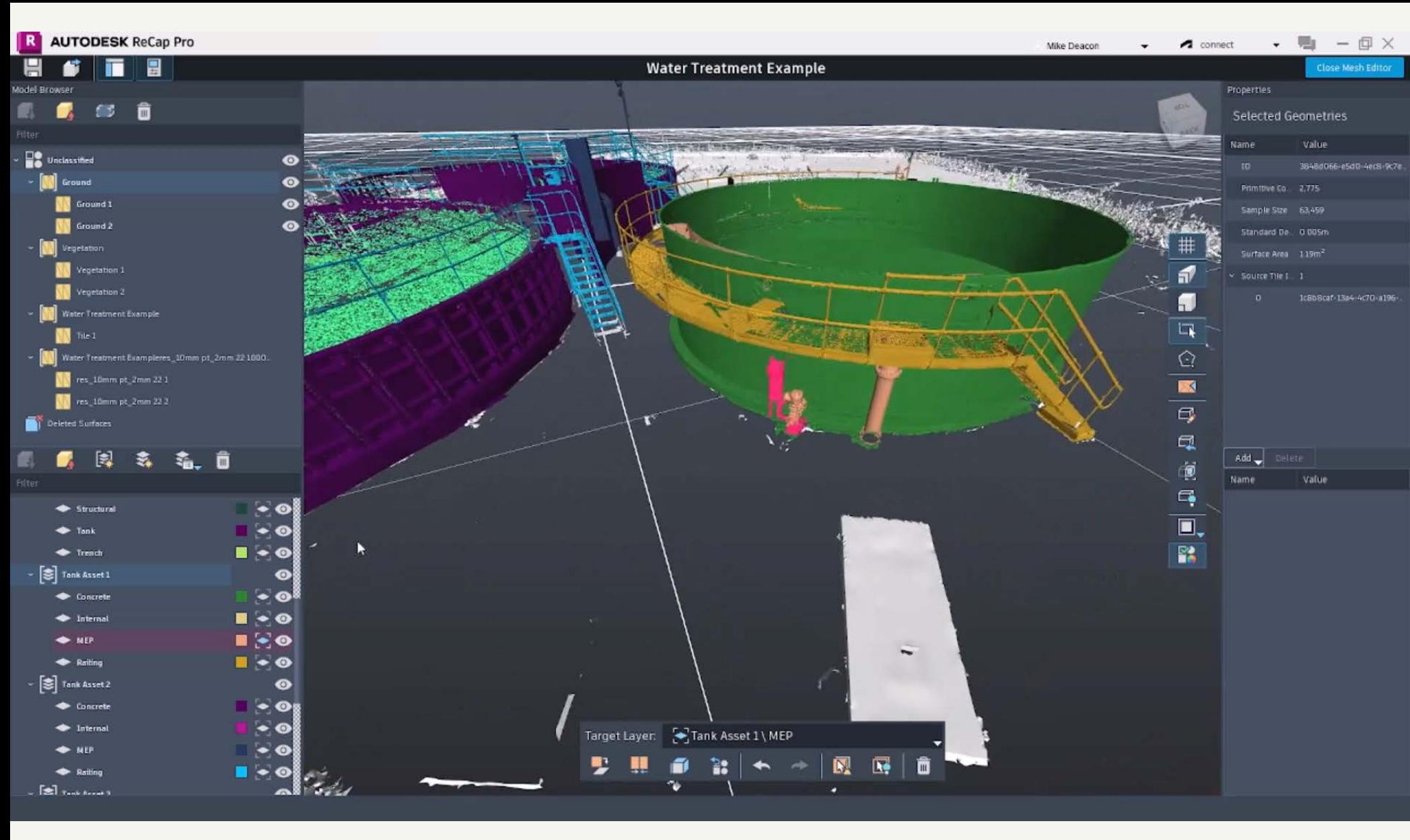


Segmented
mesh
creation and
editing in
ReCap Pro

Revit tools
for targeted
BIM
conversion

Improved
modeling
control and
accuracy

Scan-to-BIM for Water

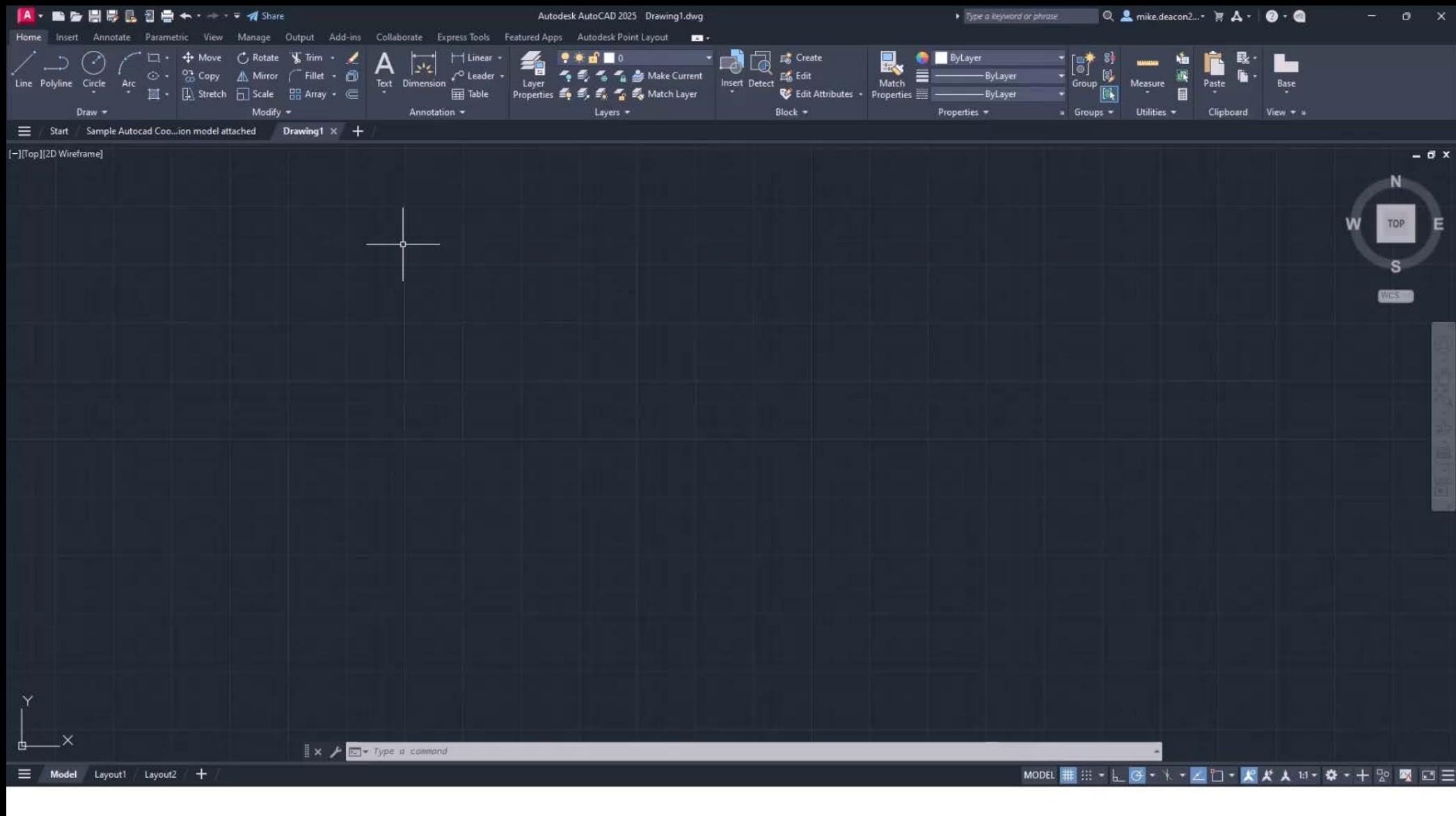


Segmented mesh in AutoCAD

Attach meshes
to CAD
Drawing

Snap to extract
floorplan and
measurements

View in 2D and
export as PDF

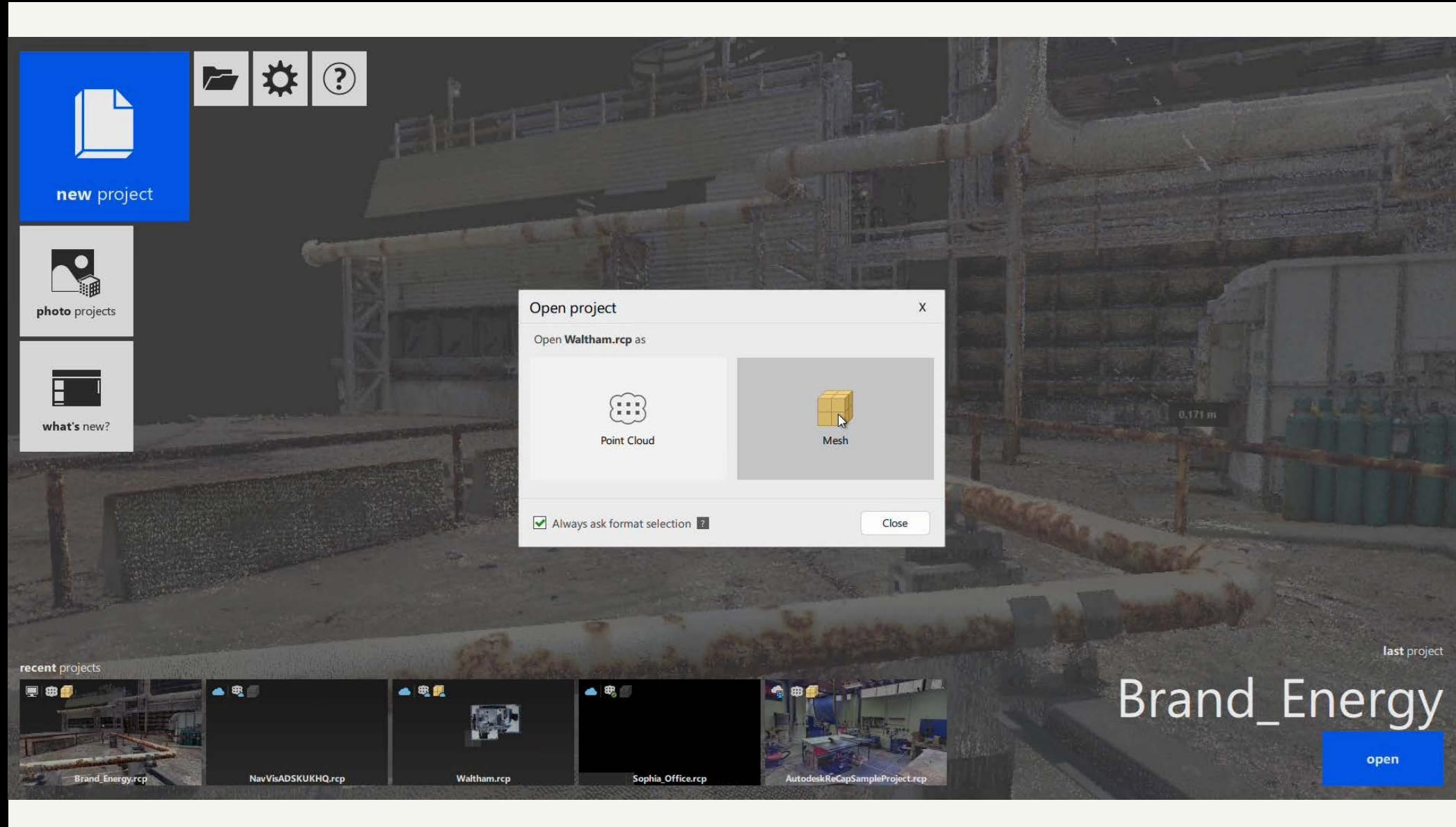


Faster Access to segmented mesh

Navigate directly to segmented mesh models

Faster access to segmented mesh from ACC

Visual signals for project status and content availability

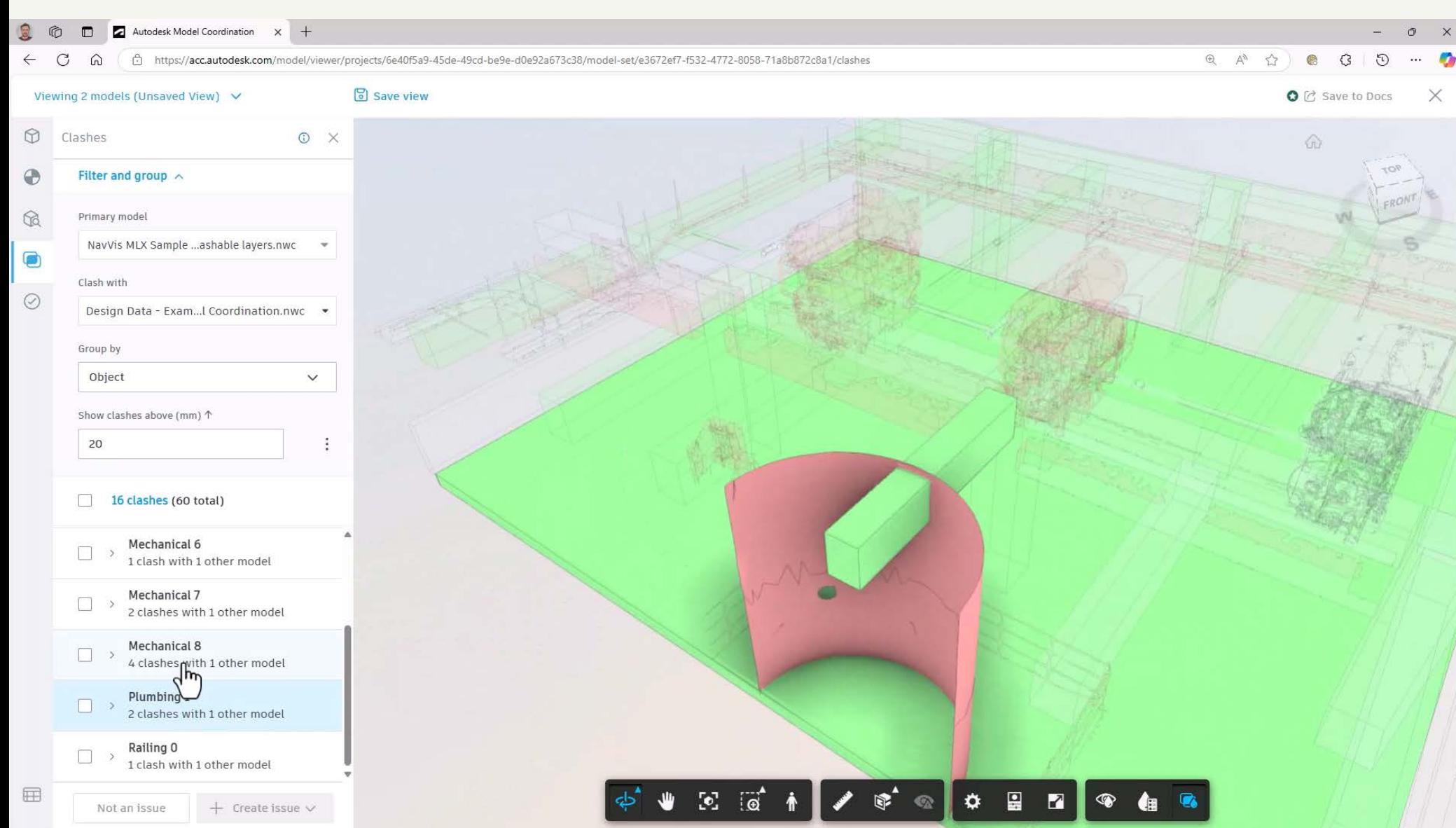


ACC Model Coordination

Collaborate using NWC meshes in ACC

Enables design verification through model Coordination

Group and filter clashes by type



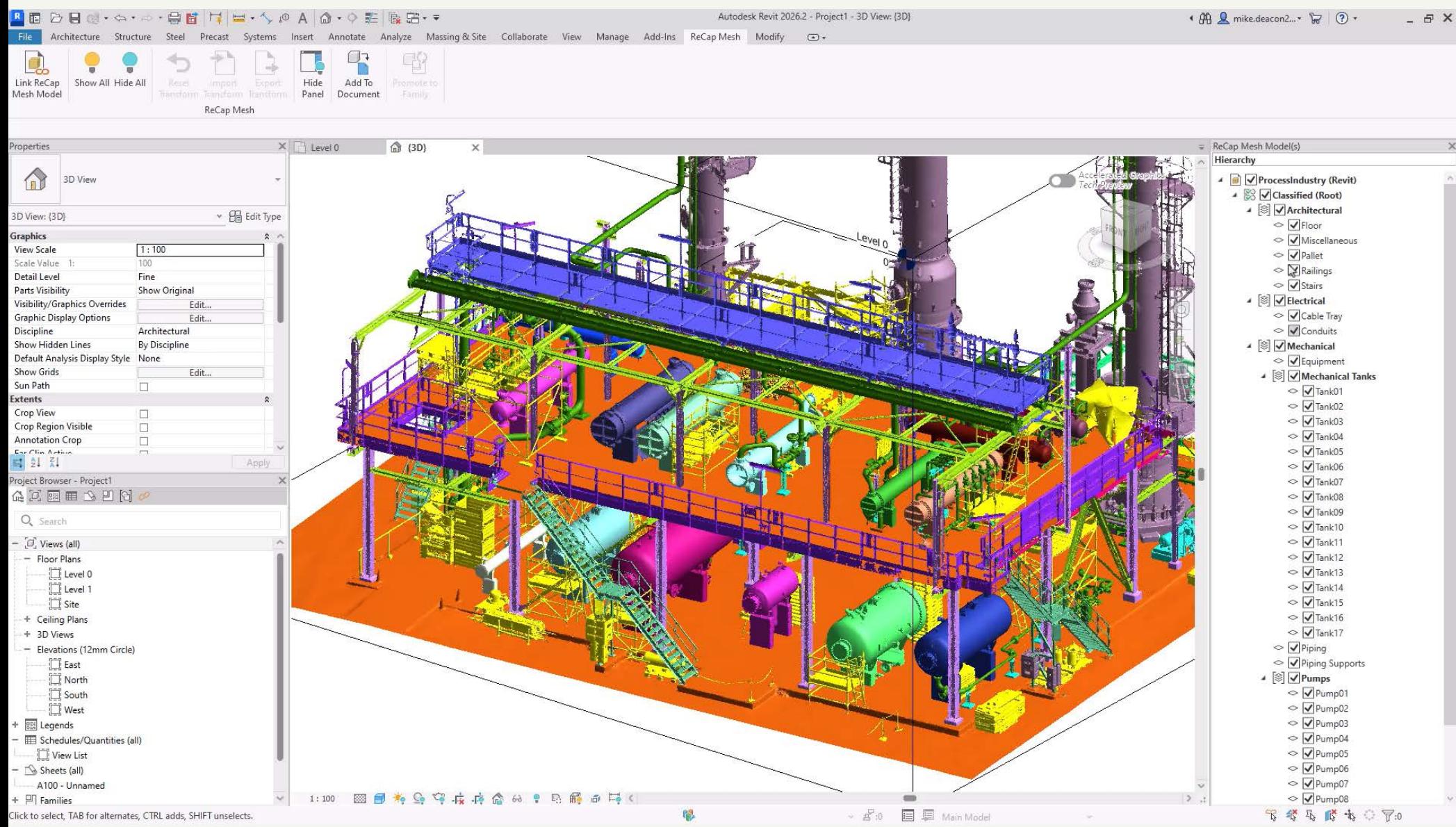
RELEASED

Integrates
with ACC
Build for
assets and
issues

Faster, cost-
effective
model
generation

Easy onsite
data/asset
access

ACC Build, Assets and Issue Tracking





BETA

Use
segmented
mesh to build
digital twin

Organize and
classify mesh
assets in
Tandem

Attach
metadata and
live data
streams to
asset

Digital Twin in Tandem

Autodesk Tandem

Process Plant

Search Process Plant

Friday, August 15, 2025, 3:31 AM GMT+1

Connections

Filters

Assets

Files

Docs

Systems

Connections

Users

Streams

History

Inventory

Ab

Auto View

View Charts

Pump02

Element Type

Asset Properties

Common

Name: Pump02

Level: Root

Assembly Code: Electronic Monitoring...

Tandem Category: Sensor

System Class: Select System Class

Classification: Sensors and detectors

Pump Sensors

Noise: 91.76dB

Operating Status: Idle

Power Consumption: 0.74 kW

RELATIONSHIPS

Host: Pump02 0

Rooms: No Assignable Rooms

Systems: No Assigned Systems

Search

Connected

Pump01 (Pump01 0)

Pump02 (Pump02 0)

Pump03 (Pump03 0)

Pump04 (Pump04 0)

Pump05 (Pump05 0)

Pump06 (Pump06 0)

Pump07 (Pump07 0)

Pump08 (Pump08 0)

Streams

Grid

Charts

Showing 1 of 8

Follow selection

Thresholds

Select heatmap

Pump01 Pump01 0

Noise: 81.63dB

Operating Status: Idle

Power Consumption: 0.72 kW

5 hours ago

5 hours ago

5 hours ago

Noise (dB)

Operating Status

Power Consumption (kW)

Pump02 (Pump02 0)

110

100

90

80

12pm 8/14/25

12am 8/15

12pm 8/16

12pm 8/14/25

12am 8/15

12pm 8/16

12pm 8/14/25

12am 8/15

12pm 8/16

1.0

0.8

0.6

0.4

0.2

0.0

12pm 8/14/25

12am 8/15

12pm 8/16

12pm 8/14/25

12am 8/15

12pm 8/16



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