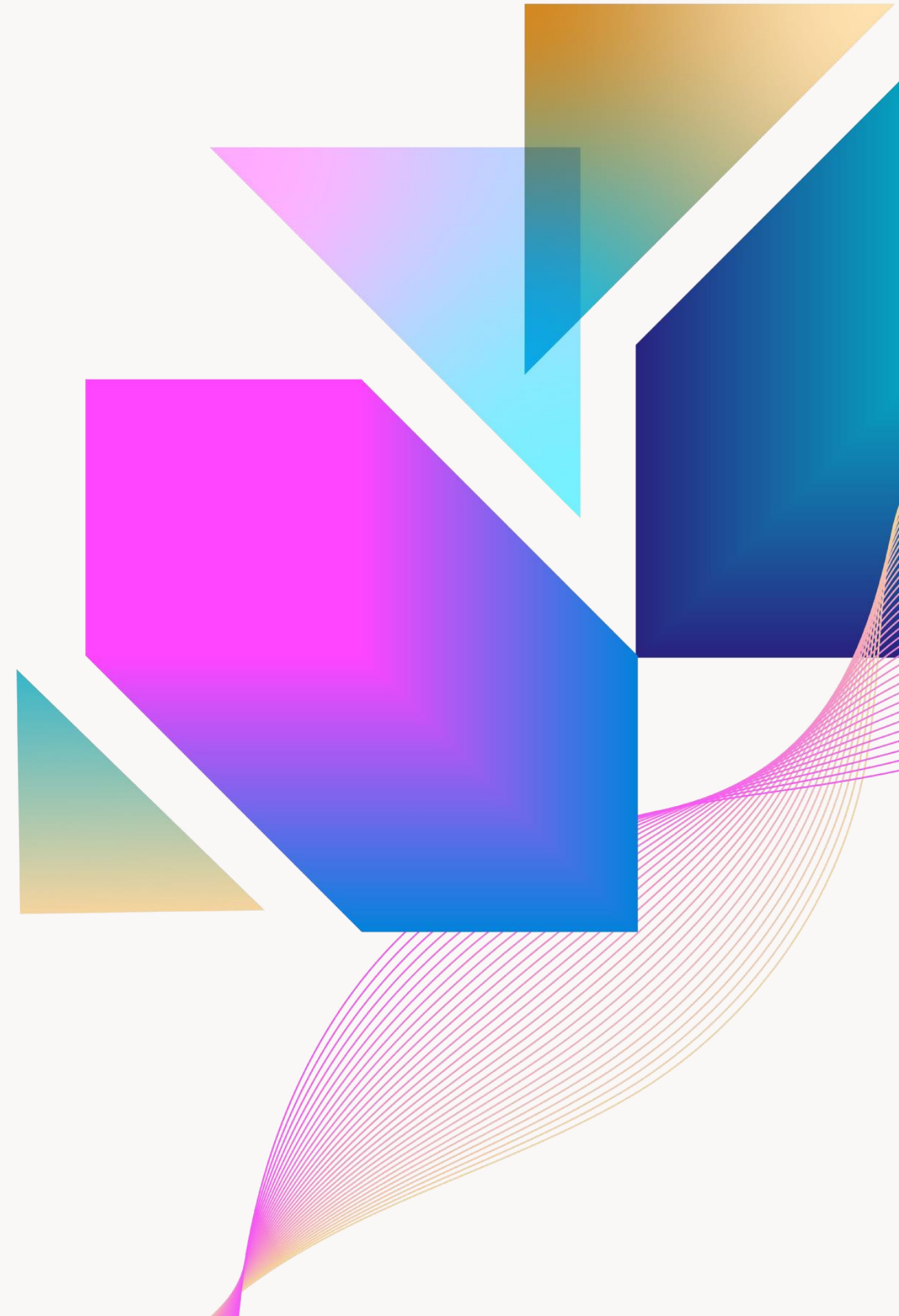




Leveraging Bluebeam Sessions and Tools for Efficient Survey Tracking in Large-Scale Transit Projects: The Kimley-Horn Approach

Enhancing collaboration and accuracy in survey management

John Armendariz & Cassie Gavin



Agenda

01 Background:

- Challenges in Survey Tracking for Large Scale Projects

02 Essential Tools:

- Bluebeam Revu Project & Sessions

03 Establishing the Tracker:

- Create Rollplot PDFs & Revu Profile

04 Workflow & Management:

- Design Team, Field Crew, & Manager Roles

05 Advantages and Outcomes

- Time management, Accountability, & Clarity

Background:

Scope & Challenges in Survey Tracking

Survey Scope for Civil Projects

Right-of-way:

- Parcel Lines, Property Boundaries, Private vs. Public

Topography:

- Surface information
- Site features: building features, trees, sidewalk, fences, bike racks, door stoops,

Utilities:

- Storm, Sanitary, Telecom, Water Mains, etc.

Traditional Survey Request and Tracking Methods

Email-based Survey Requests:

- Fragmented communication
- Lost information
- Delayed updates
- Lack of workflow structure

Spreadsheet Tracking Challenges:

- Lack real-time updates
- Limited version control
- No visual component to requests

Complexities of Large-Scale Transit Project Surveys

Multiple Survey Areas

Organize survey requests to accommodate large geographic areas

Team Coordination Challenges

Coordinate with multiple stakeholders, sub consultants, and AHJs throughout the project that can span multiple cities.

Documentation Management

Account for different project phases, scope increases, and changing environment.

Desired Features of an Improved Survey Tracking Process

- **Visual** component to survey requests
- Centralized information **storage**
- Established **workflow**
- Time-based **status** updates
- **Accessible** information for all project members
- **Flexibility** for scope increases and built environment changes

Essential Tools

Bluebeam Revu Project and Sessions

Key Bluebeam Revu Features

Markup Annotations

Users can cloud and comment directly on survey documents for clear communication.

Status Stamps

Provide visual cues to track the progress and approval stages of survey requests.

Alerts and Notifications

Notify users of important updates and deadlines to ensure timely survey management.

Session Summaries

Compile all changes and comments to provide an overview of survey progress and collaboration.

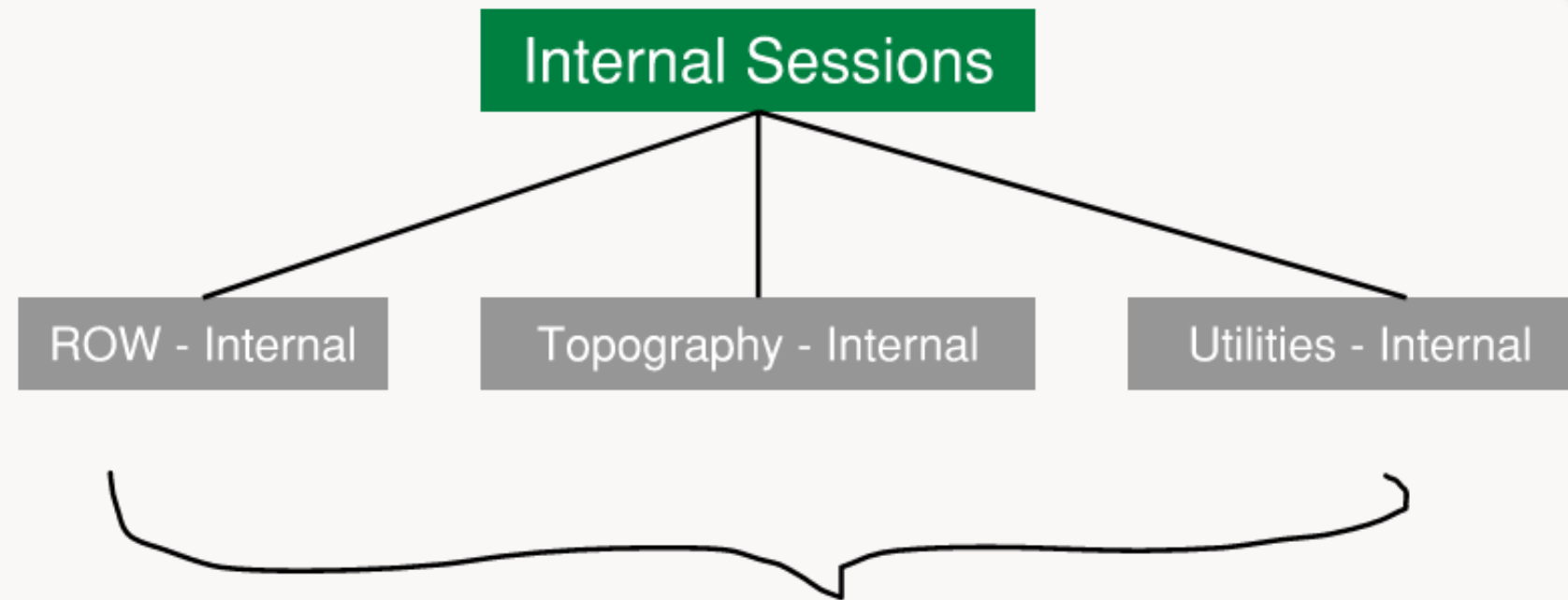
Project Archives

Stores previous PDF versions and updates active PDFs with the latest aerial and survey information.

Establishing a Survey Tracker with Bluebeam Tools

Bluebeam Revu Projects & Sessions

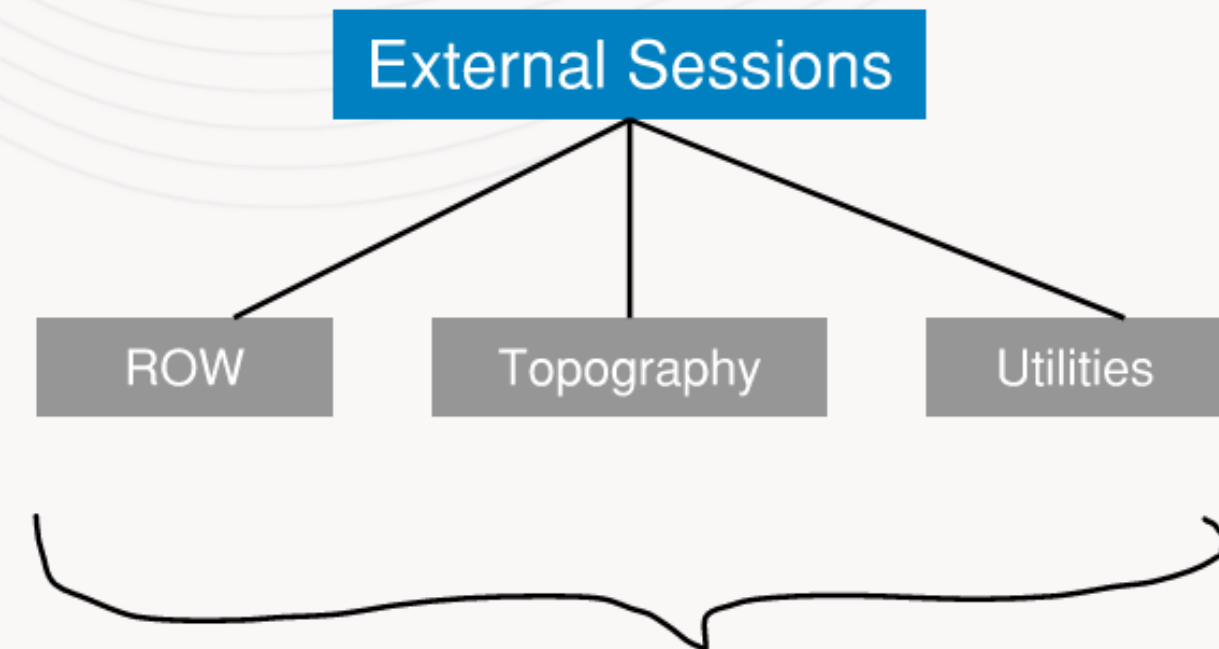
Survey Tracker Structure



KH/Consultants: Upload their CDR markups to the respective sessions.

KH BB Manager: Review CDRs prior to uploading the CDR markups to the external sessions.

SUE/Survey Team: No Access

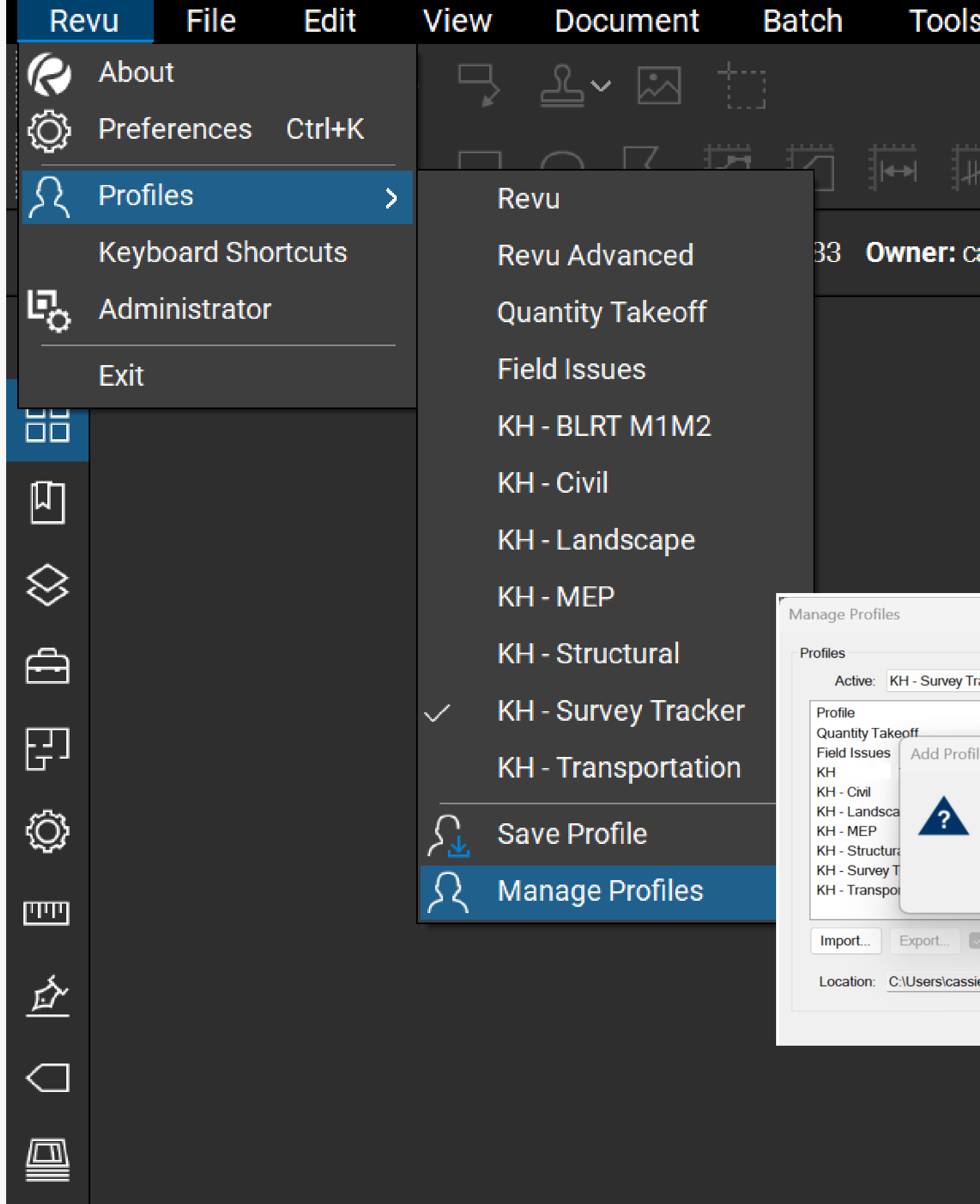


KH/Consultants: View CDR Statuses and Replies

KH BB Manager: Transfer CDR Markups from Internal Sessions to External Sessions, Initiate Statuses and Alert SUE/Survey Team of new CDRs, Close Out CDR once completed, manage the .csv file output

SUE/Survey Team: Receive alerts when CDR is uploaded to External Session, Update CDR Statuses and Replies, Alert KH Manager when CDR info has been uploaded to CAD, View CDR Statuses and Replies

Setting up a Bluebeam Revu Profile



Setting up Profile Custom Statuses

Manage Status

State Models

Models:

▲

▼

✕

☐ Review

☐ Migration

☐ QC Review

☒ Survey

Add...

Modify...

Default: Survey ▼

Save to Profile

Delete from Profile

States:

Requested

Scheduled

Field Work Completed

CAD Update Completed

Closed Out

▲

▼

✕

Add...

Modify...

Default: ▼

OK

Cancel

State Properties

Name:

Text:

☐ Color:

OK

Cancel

1 of 1

8.50 x 11.00 in

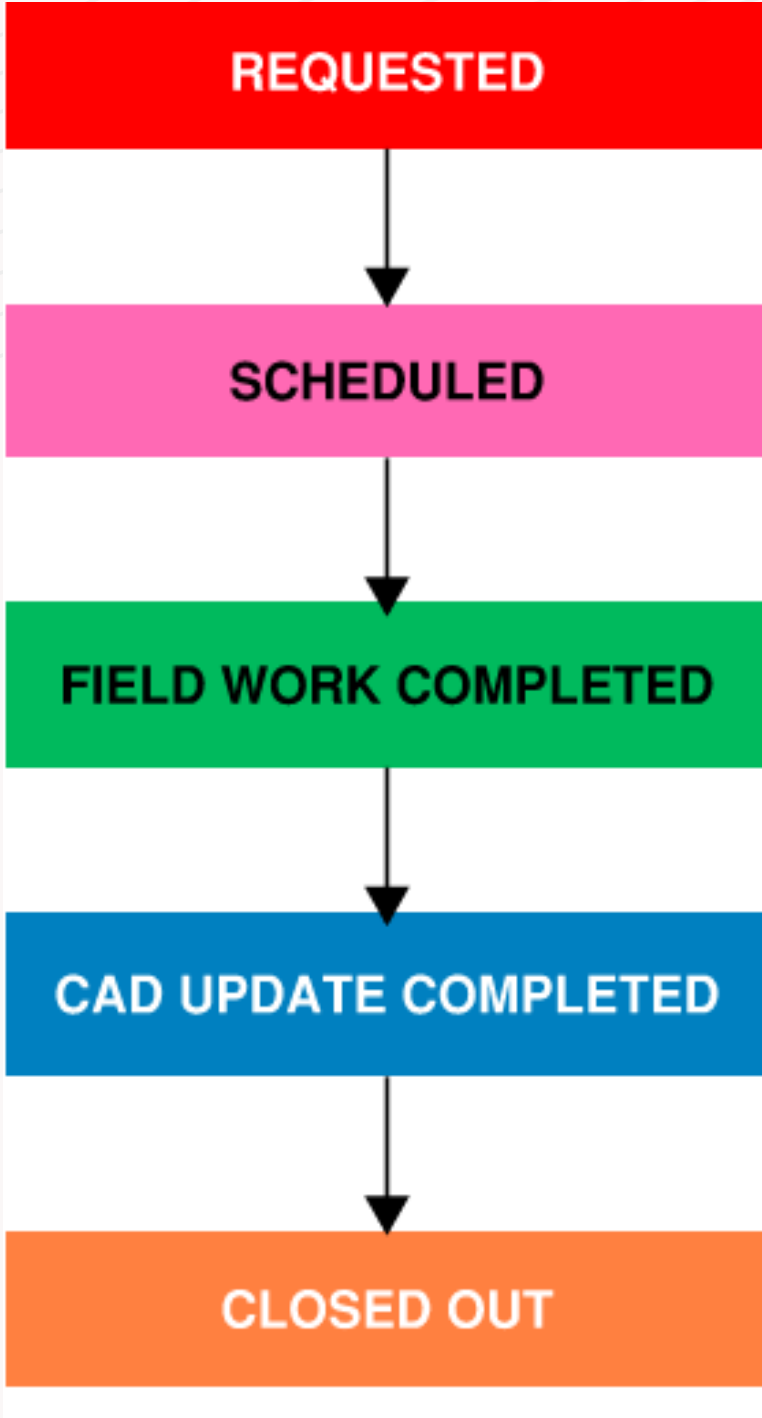
Author

Status

Page

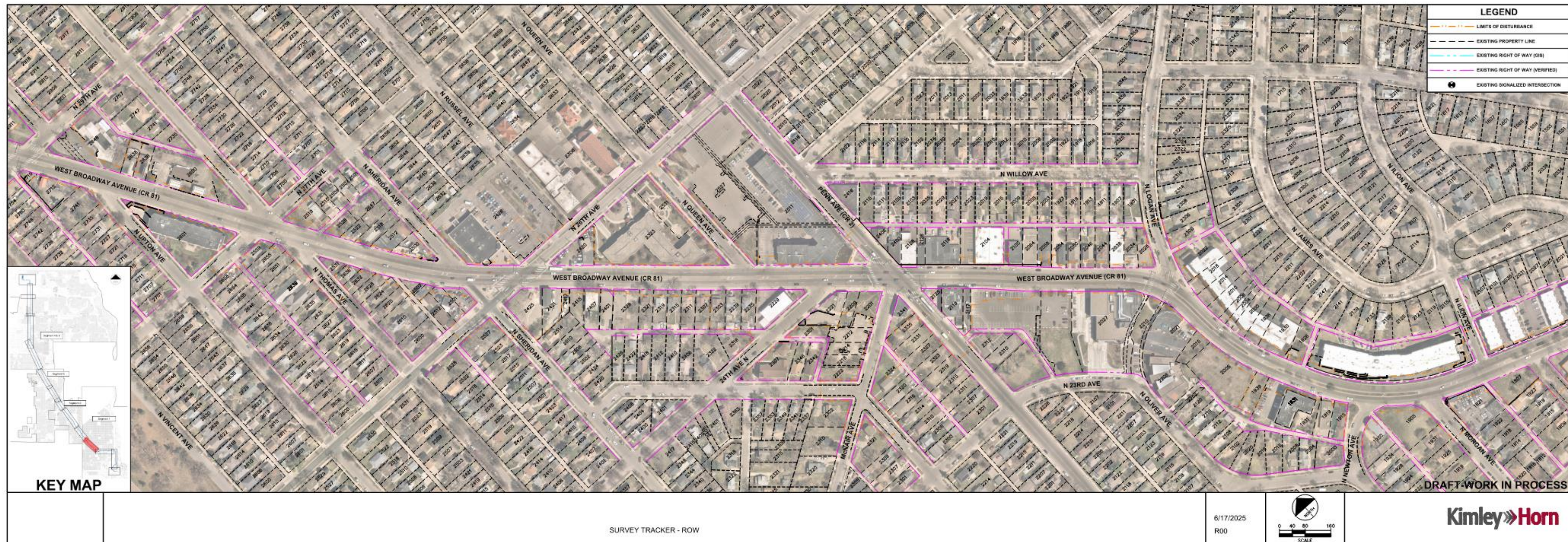
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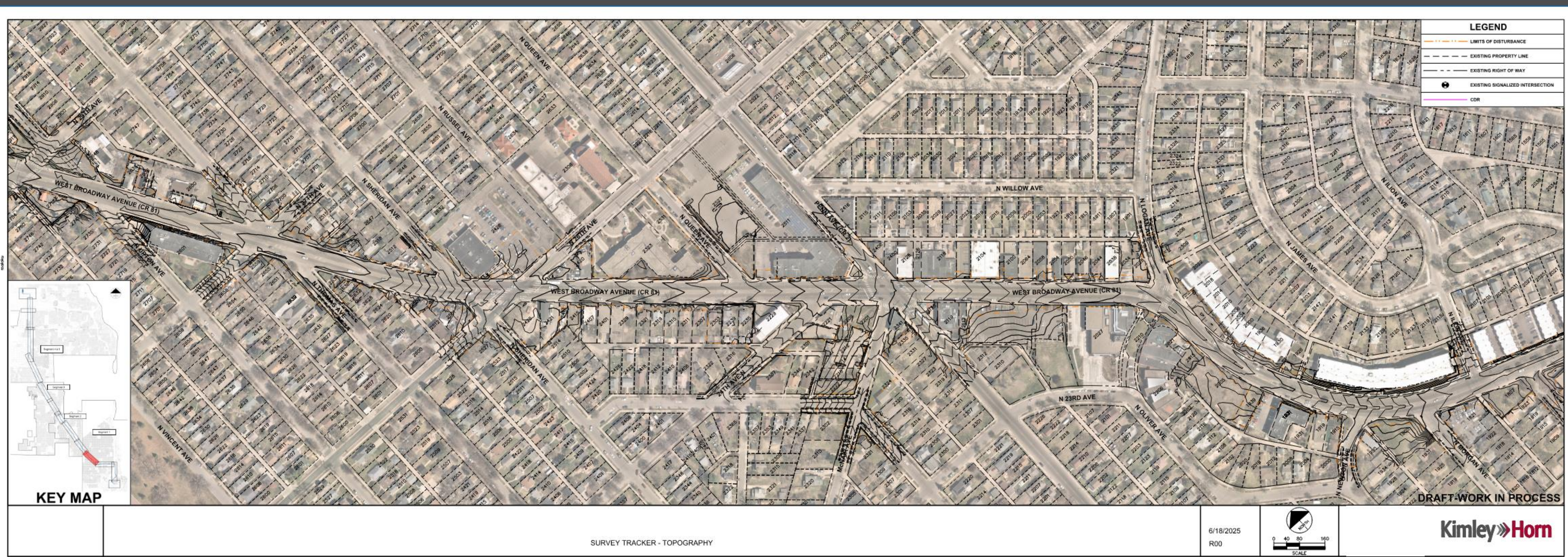
Setting up Rollplot PDFs with Critical Project Data

ROW EXAMPLE



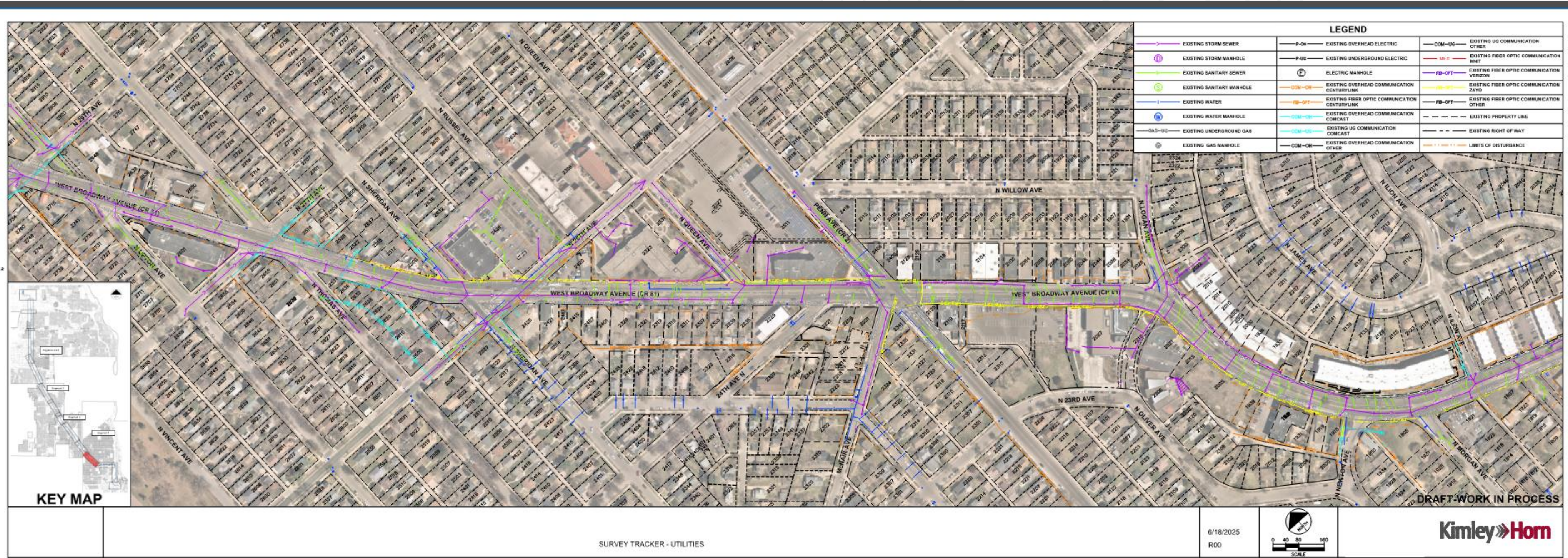
Setting up Rollplot PDFs with Critical Project Data

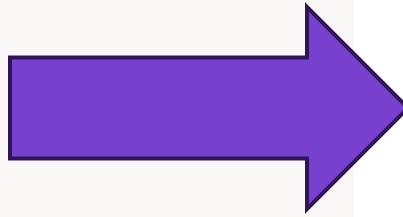
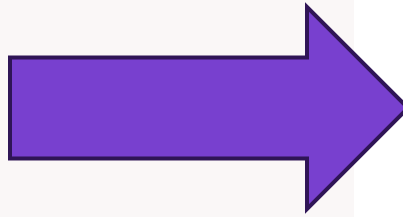
TOPOGRAPHY EXAMPLE



Setting up Rollplot PDFs with Critical Project Data

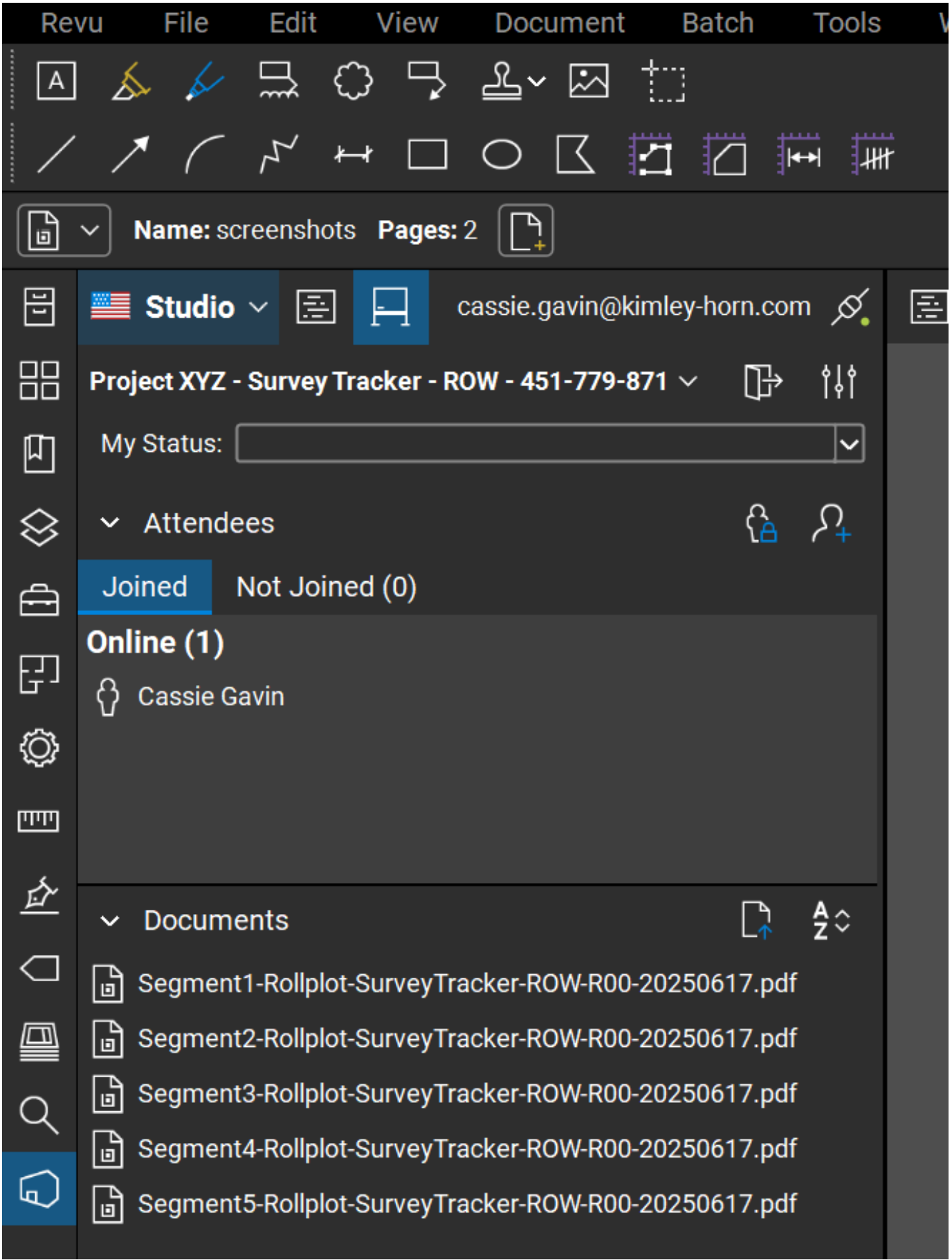
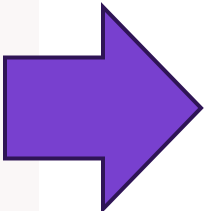
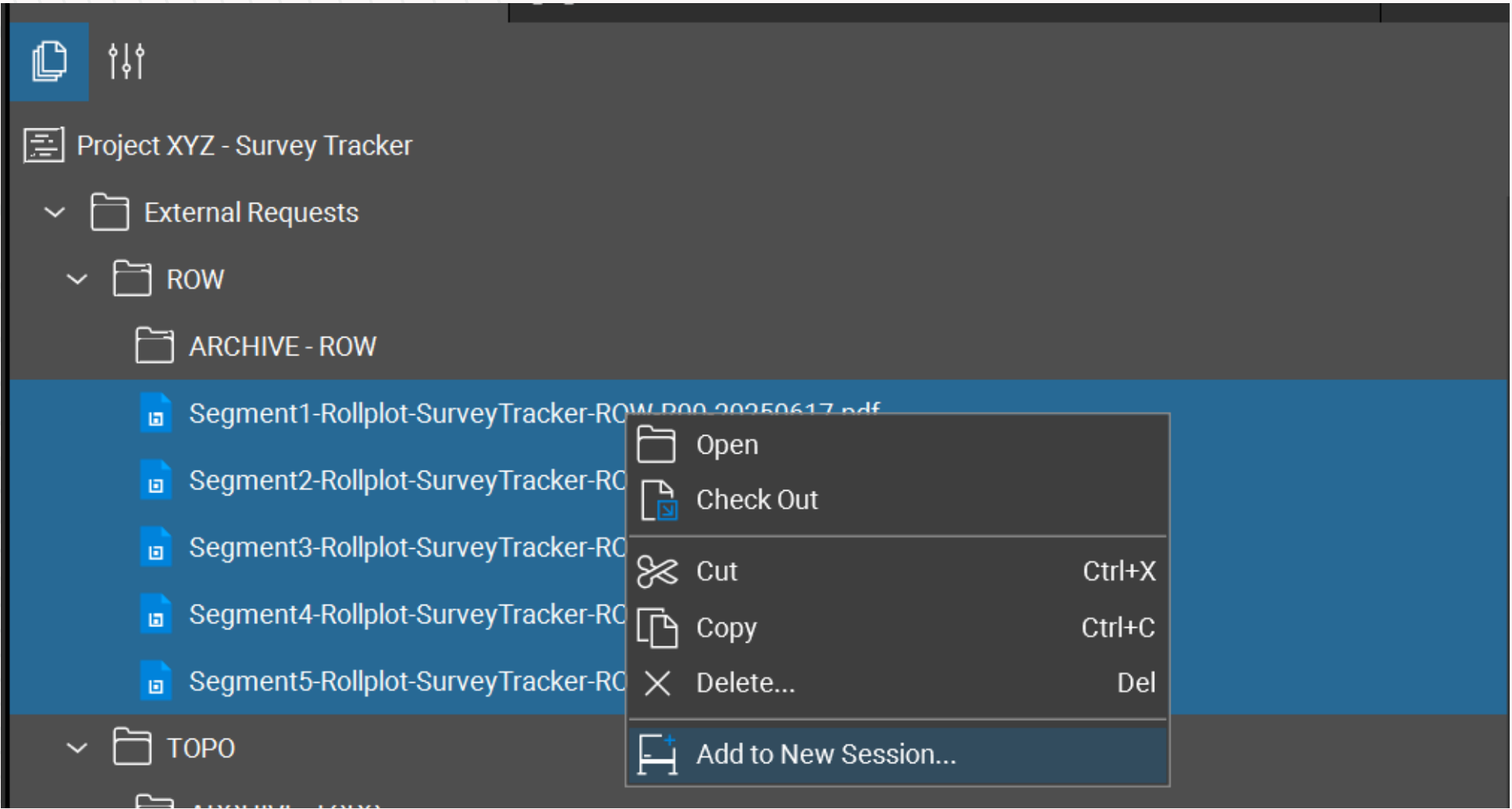
UTILITIES EXAMPLE





Creating Bluebeam Revu Sessions within Bluebeam Project

ROW EXAMPLE:



Requesting Survey Areas Internally

Use Markup Tools

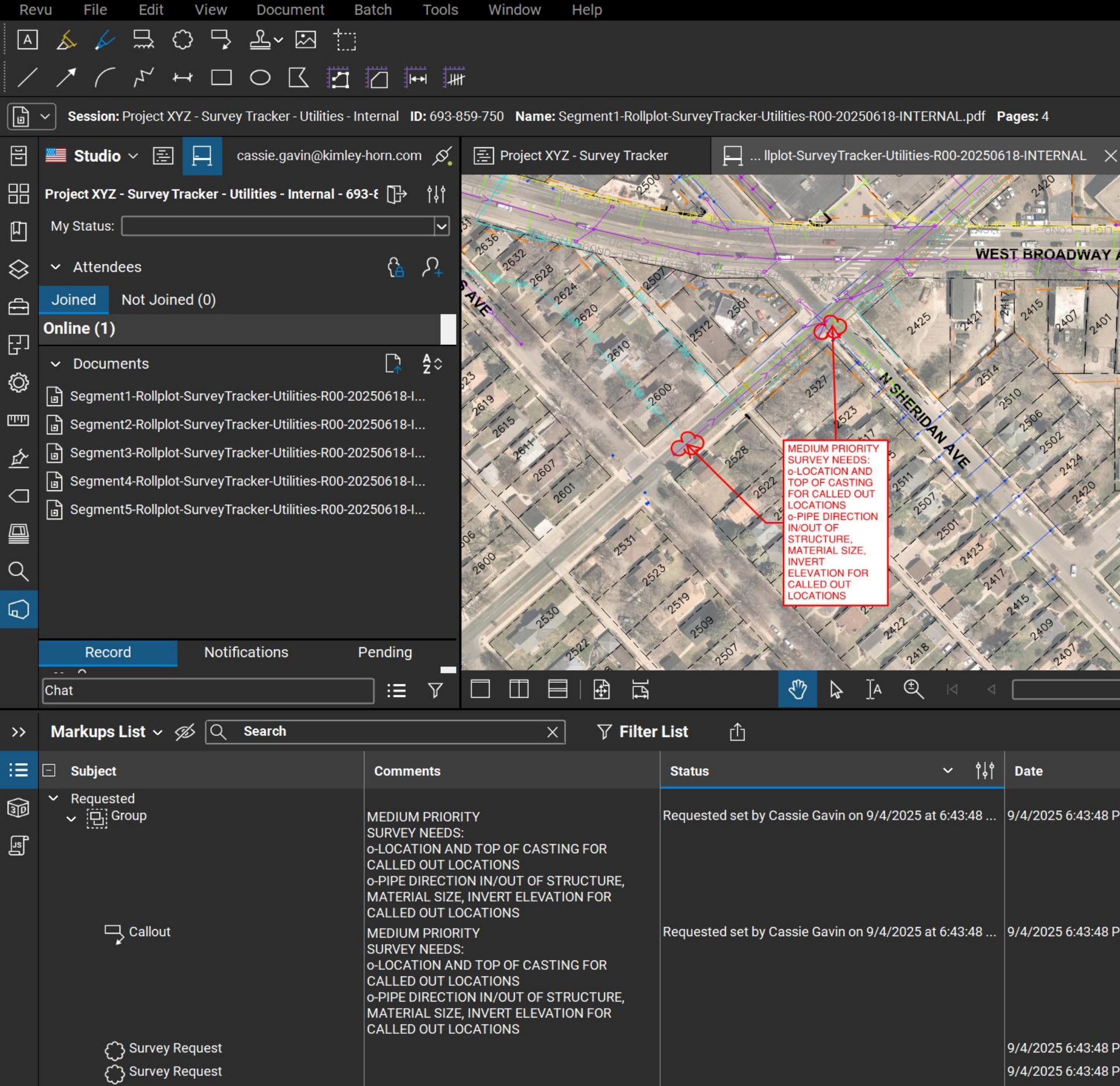
Bluebeam markup tools enable users to highlight specific survey areas on rollplot PDFs accurately and efficiently.

Precise Communication

Markups on PDFs ensure clear and precise communication of survey scope and location within project documents.

Use Alert Tool

Notify project leadership via Bluebeam which will send an email notification to the alerted user with a preview of the markup.



Requesting Survey Areas Externally

Transfer Mark-Ups

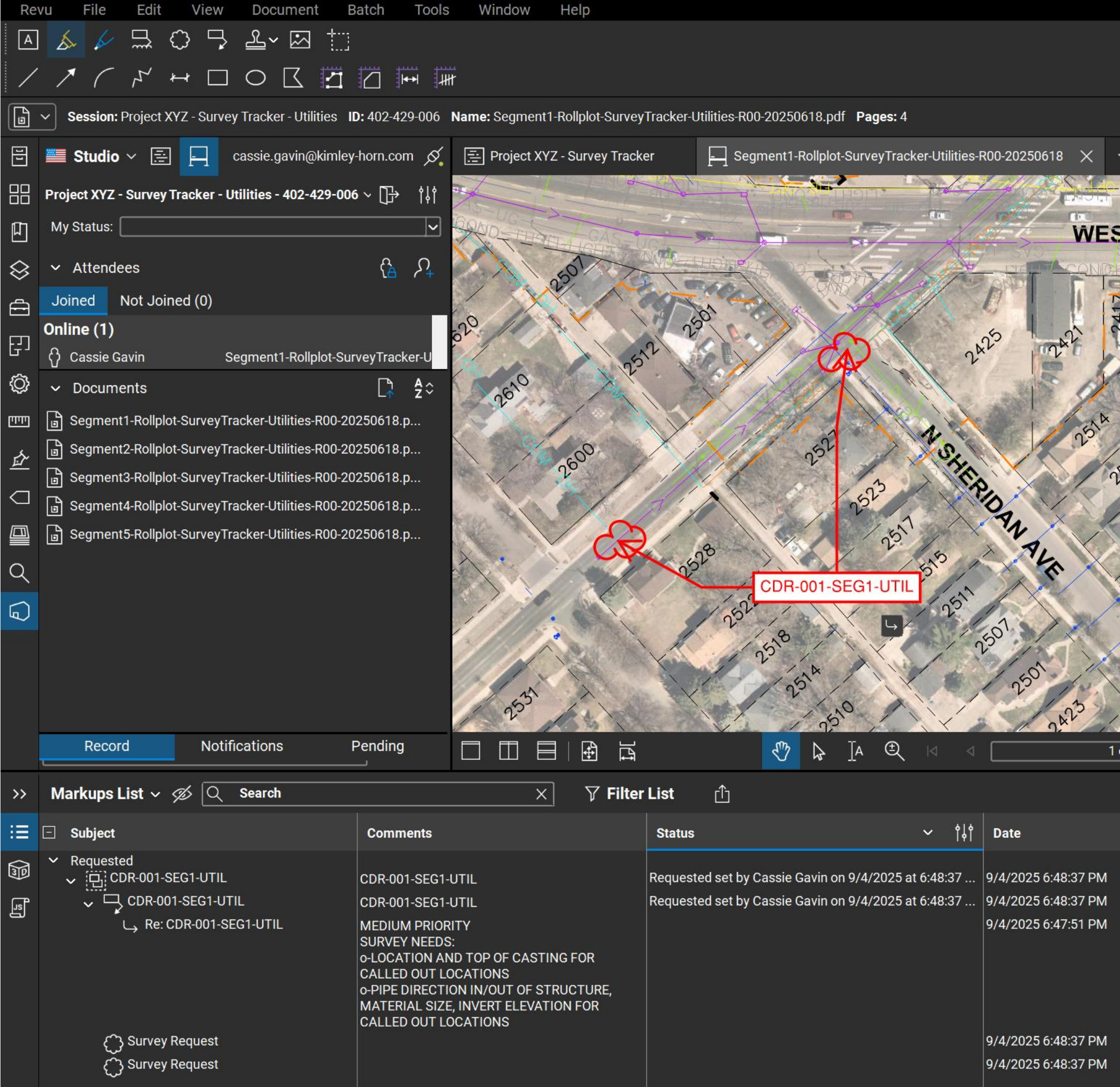
Once the internal markups are approved, markups are transferred to the external session

Establish a Naming Convention

Include number, segment identifier, and survey type.

Use "Replies" to Provide Detail

Include specific survey request information, priority level, the date needed by, and any other additional information.



Workflow: Managing Survey Requests and Status Updates

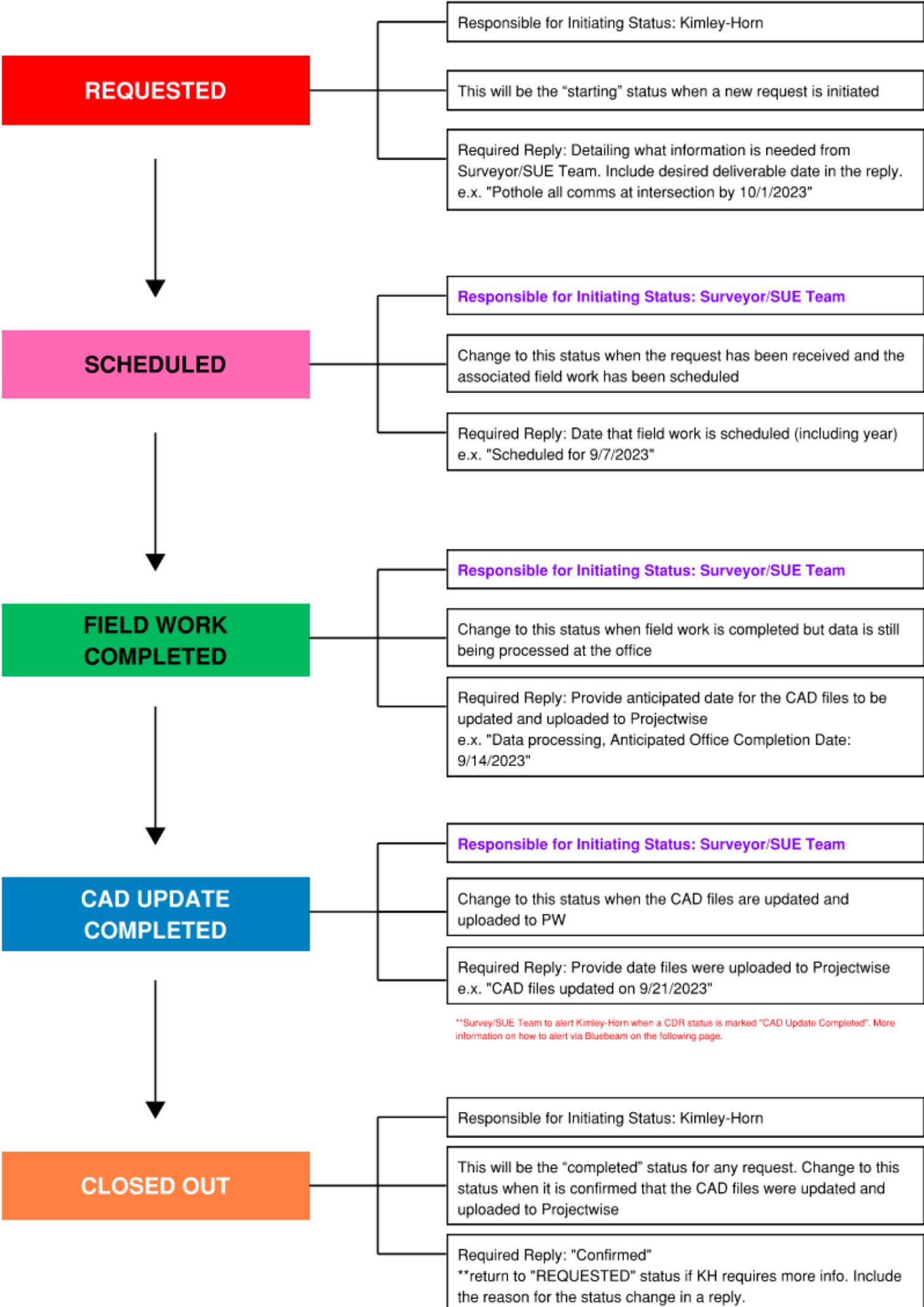
Using the Bluebeam 'Reply' Feature for Detailed Requests

Facilitates Detailed Communication




















The reply feature enables users to add detailed clarifications and extra information on survey requests efficiently.

Supports Team Collaboration

Allows multiple team members to engage in ongoing dialogue directly within document context, improving teamwork.

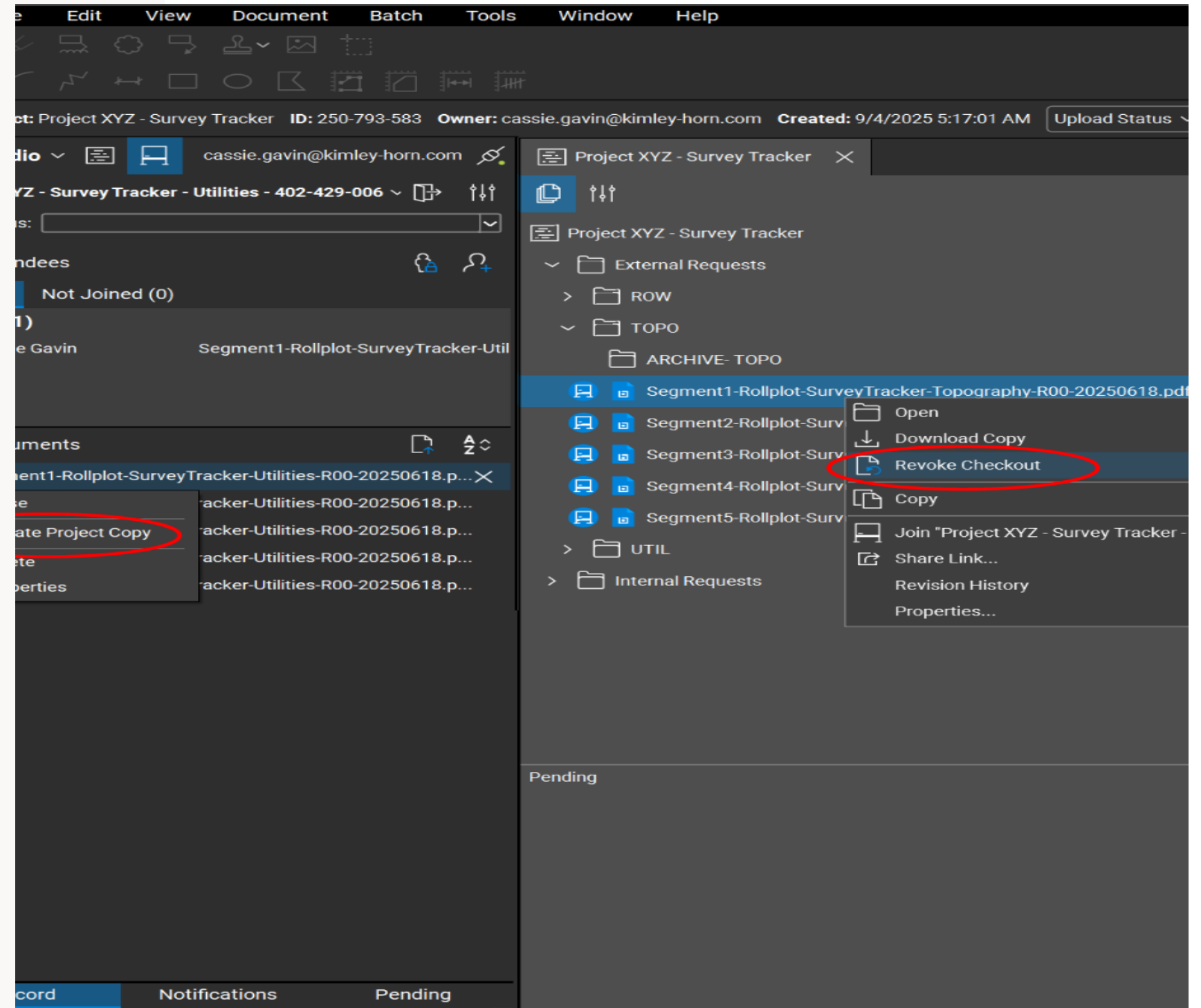




>> Markups List  <input type="text" value="Search"/>   Filter List 									
	 Subject	Comments 	Status 	Date	Author	Page Label	Color	Layer	Space
 	▼ CDR-005-SEG1-UTIL (1)								
	▼  CDR-005-SEG1-UTIL	CDR-005-SEG1-UTIL	Requested set by Cassie Gavin on 9/5/2025 at 5:30:21 AM Scheduled set by Cassie Gavin on 9/5/2025 at 5:39:30 AM Field Work Completed set by Cassie Gavin on 9/5/2025 at CAD Update Completed set by Cassie Gavin on 9/5/20...	9/5/2025 5:43:37 AM	Cassie Gavin				
	▼  CDR-005-SEG1-UTIL	CDR-005-SEG1-UTIL	Requested set by Cassie Gavin on 9/5/2025 at 5:30:21 AM Scheduled set by Cassie Gavin on 9/5/2025 at 5:39:30 AM Field Work Completed set by Cassie Gavin on 9/5/2025 at CAD Update Completed set by Cassie Gavin on 9/5/20...	9/5/2025 5:43:37 AM	Cassie Gavin				
	↳ Re: CDR-005-SEG1-UTIL	MEDIUM PRIORITY SURVEY NEEDS: o-LOCATION AND TOP OF CASTING FOR CALLED OUT LOCATIONS o-PIPE DIRECTION IN/OUT OF STRUCTURE, MATERIAL SIZE, INVERT ELEVATION FOR CALLED OUT LOCATIONS		9/5/2025 5:42:50 AM	Cassie Gavin				
	 Survey Request			9/5/2025 5:39:37 AM	Cassie Gavin				
	 Survey Request			9/5/2025 5:39:37 AM	Cassie Gavin				

Updating PDF Rollplots

- Reprint rollplot PDFs with updated information
- Export markups from previous PDF version
- Import markups from previous PDF to new PDF
- Archive previous PDF in Bluebeam Project
- Upload the new PDF to the Bluebeam Project
- Add new PDF to the Bluebeam Session



Exporting Session Data with Bluebeam 'CSV Summary' For Reporting

CSV Data Export

Export session data as CSV summaries for easy access and further data analysis.

Progress Tracking

Use exported data to track project progress and monitor key performance indicators.

Reporting for Decision-Making

Share CSV summaries with project managers to support informed and timely decisions.

Markup Summary

Files

Name	Pages
Segment1-Rollplot-SurveyTracker-Utilities-R00-20250618.pdf	All Pages (1 - 4)

Add

Remove

Save...

Load...

Columns

Filter and Sort

Output

Export as:

CSV

Export to:

C:\Users\cassie.gavin\Downloads

...

☐

Overwrite Existing File

File name:

Segment1-Rollplot-SurveyTracker-Utilities-R00-20250618

☐

Create Multiple Reports Per Comments

☐

Append Date to Title

Include:

☒

Markups

☐

Totals

☐

Markups & Totals

☒

Column Headers

☐

ID Columns

☒

Include Measurement Units

☒

Format Numbers

☒

Replies

☒

Full Status History

☒

Include Status Author and Time

☒

Open File After Creation

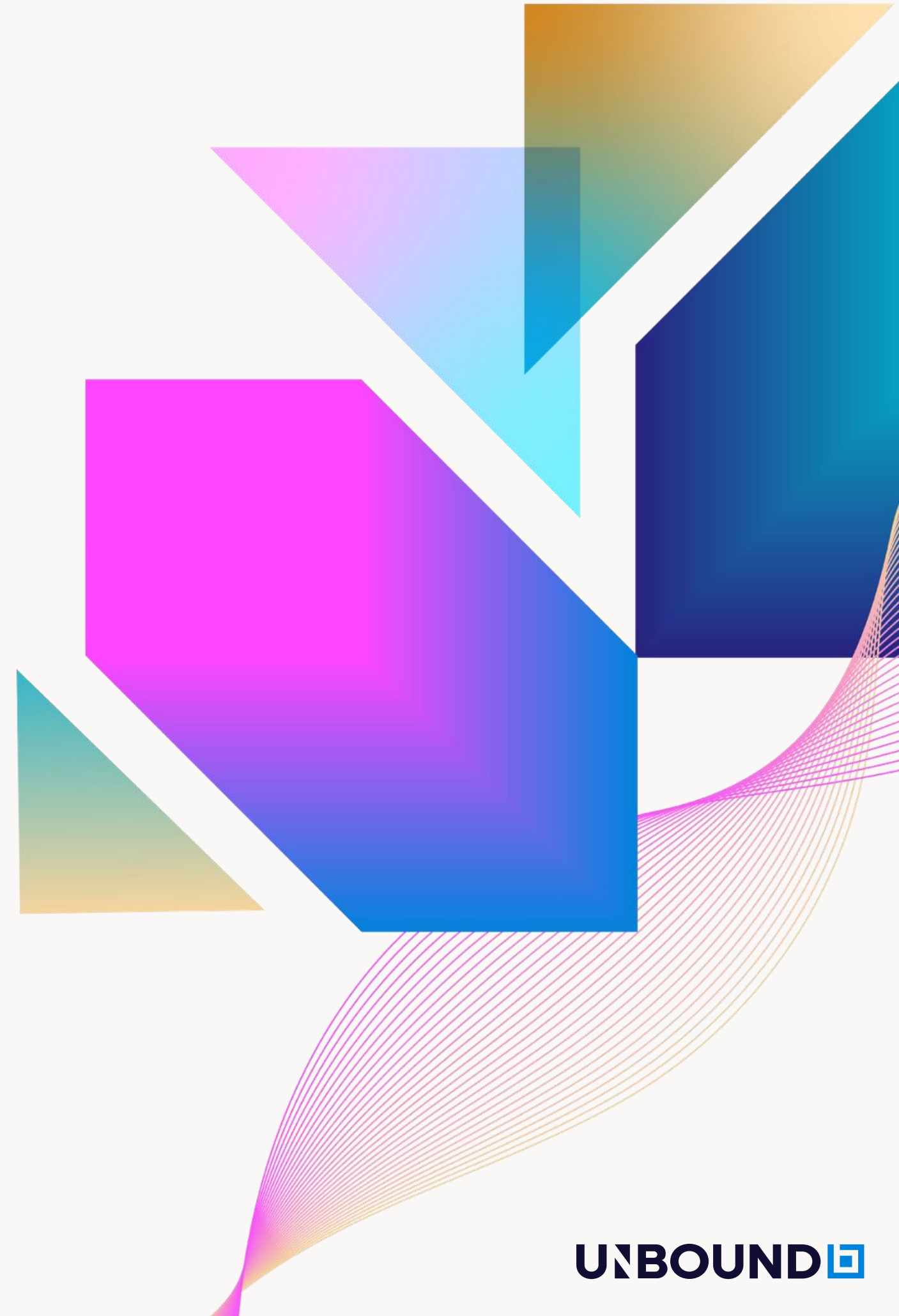
Save Config

Load Config

OK

Cancel

Advantages and Outcomes of the Bluebeam-Based Survey Tracker



Conclusion

Enhanced Accuracy

Bluebeam Sessions improve survey tracking accuracy in large-scale transit projects by facilitating precise data management.

Improved Communication

The approach fosters better communication among project teams, streamlining collaboration and information sharing.

Increased Efficiency

Using Bluebeam Sessions enhances workflow efficiency, reducing delays and supporting timely project delivery.