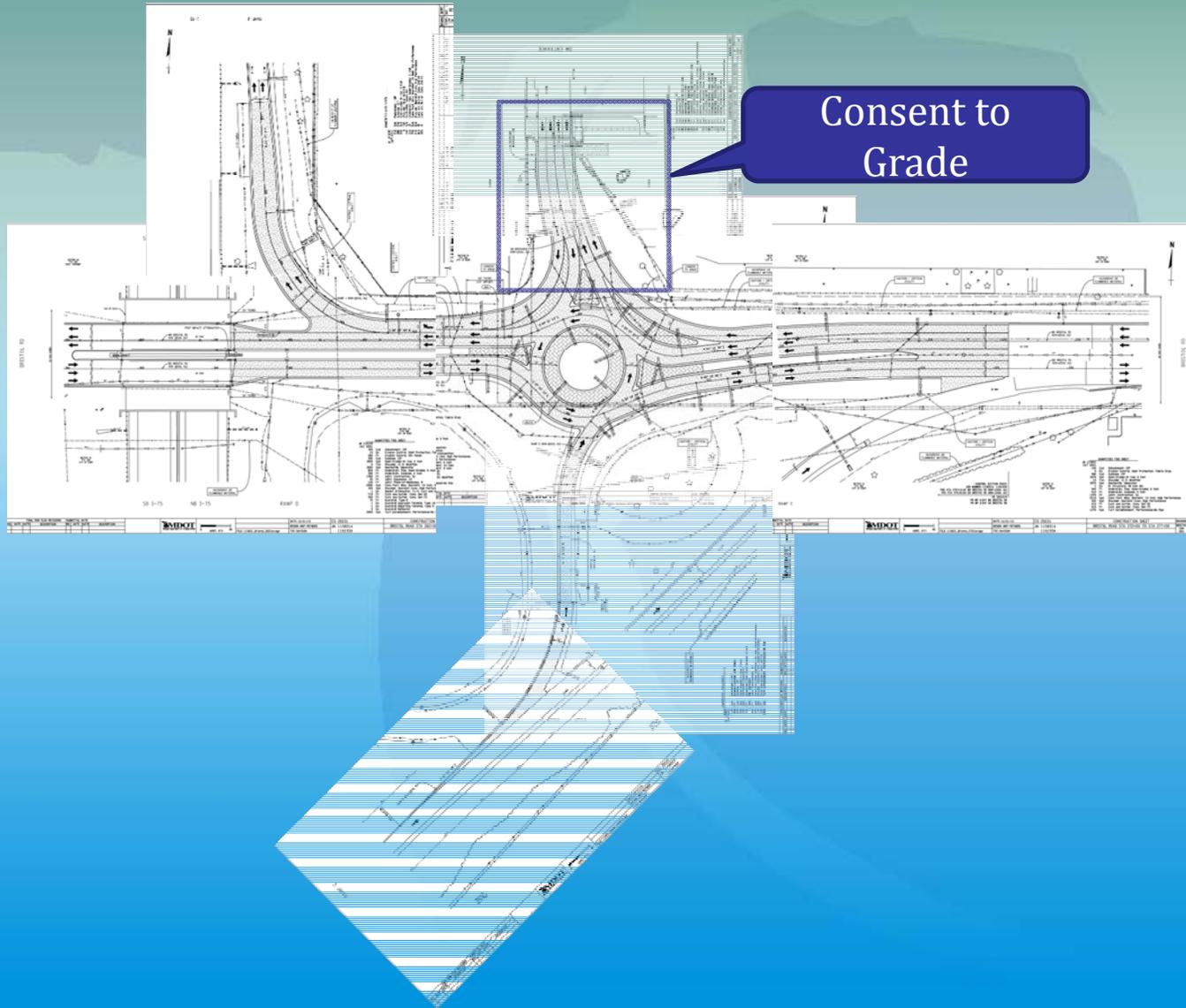


Process Improvement And RID

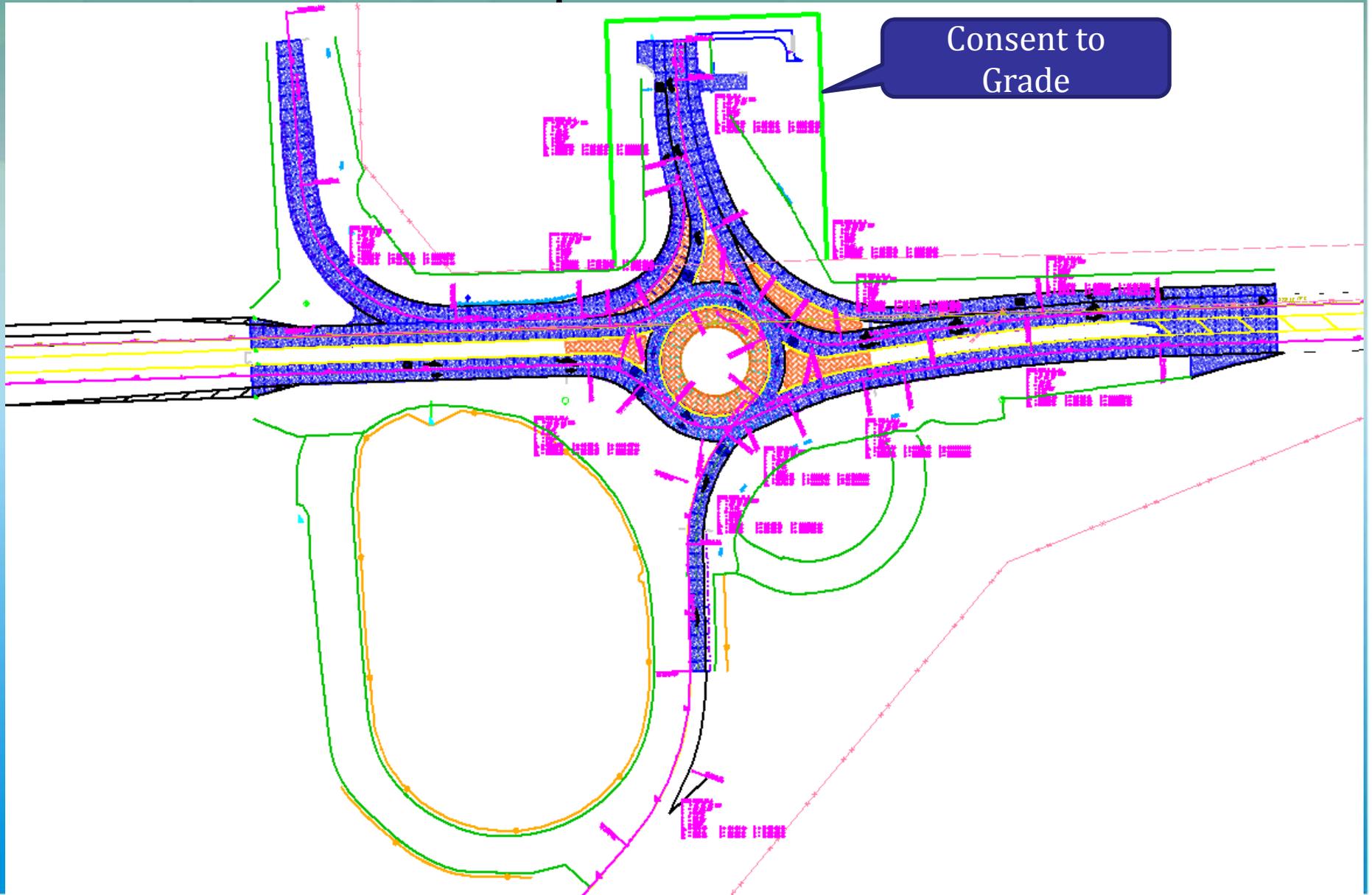
John Wilkerson, PE - MDOT



Process Improvement Goal



Plan Improvement Goal



Roadway Modeling and Software Updates

- Training Update
- Bentley Power SS4 Implementation
 - Version 08.11.09.851
 - Earthwork Reporting

**Tentative Date:
MDOT 02 Workspace
Required: April 1, 2016**

Consultant Power GEOPAK SS2 Usage Poll

- https://www.research.net/r/MDOT_01_Survey

MDOT_01/PowerGEOPAK SS2: Consultant Survey Poll

Instructions: Please only provide one survey per firm. With MDOT02 workspace becoming mandatory for jobs starting April 2016 we are investigating how many projects remain are SS2 and the MDOT01 workspace.

Please Enter your Firm Name.

How many projects is your firm currently working on or going to start working on prior to April, 2016 using the MDOT_01 Workspace?

Please provide the Major Job Number, phase status and anticipated construction year(s) for the active projects.

(ex:
123456, 2016
345678, 2017
234567, 2018)

Please provide the Major Job Number and phase status for the "shelf job(s)".

(ex: 123456, Base
345678, Plan Review
234567, OEC
258369, Final)

**Currently Reviewing
Data from Surveys**

Workspace and Software Versions

- Current
- Upcoming

2.2.2 MDOT Road Design Software Requirements

Programs to be used in the design process will be installed on the MDOT design computers. The design computers will be configured with the following software versions:

| Power GEOPAK | | |
|---|--------------|-----------|
| Program | Version | Workspace |
| Power GEOPAK V8i (SS4 Open Roads Edition) | 08.11.09.851 | MDOT_02 |
| Power GEOPAK V8i (SS2) | 03.11.07.566 | MDOT_01 |

| GEOPAK Civil Engineering Suite | |
|---|---------------|
| Program | Version |
| MicroStation V8i (SS4) | 08.11.09.714 |
| GEOPAK Civil Engineering Suite V8i (SS4 Open Roads Edition) | 08.11.09.851 |
| GEOPAK Civil Engineering Suite V8i (SS2) | 03.11.07.615* |

Utility Legend Sheets Update

- Utility Legend Sheets Revisions
 - Purpose: *To standardize Legend Sheets for all projects statewide for plans production consistency and accurate 3D engineered models.*
 - Affected design disciplines: **Municipal Utilities, Traffic Signals** and **ITS**
 - Minor changes to **Signs** and **Maintaining Traffic** Legends
 - CADD standard development currently in progress

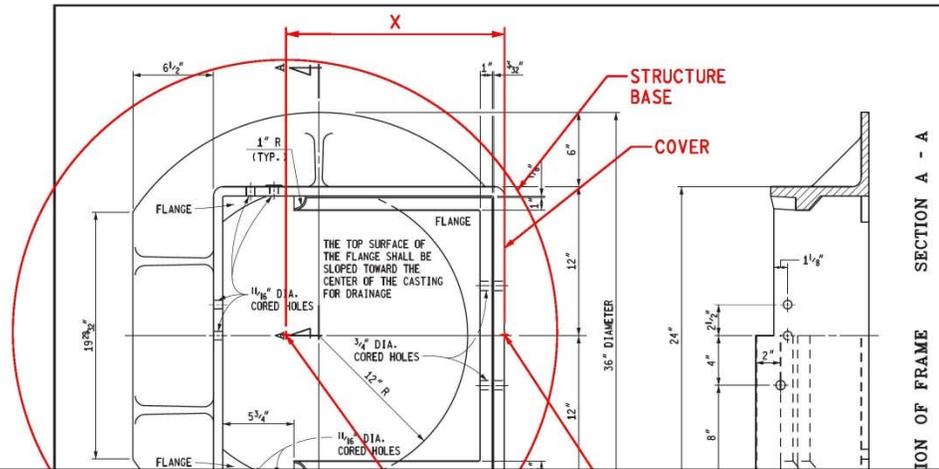
Utility Legend Sheets Preview

| ELECTRICAL | ARCHITECTURAL | ITS / SIGNALS | | CABLING / WIRING DIAGRAM |
|---|--|---|--|--|
| <p>ELECTRICAL</p> <ul style="list-style-type: none"> CONTROLLER CABINET - PAD MOUNTED HANDHOLE MANHOLE POLE UTILITY - EXISTING POLE UTILITY TRANSFORMER - PAD MOUNTED TRANSFORMER - POLE MOUNTED CABLE CABLE - TO BE REMOVED CABLE OVERHEAD CABLE OVERHEAD - TO BE REMOVED CABLE IN CONDUIT CABLE IN CONDUIT - TO BE REMOVED CABLE IN CONDUIT - DIRECTIONAL BORE | <p>ARCHITECTURAL</p> <ul style="list-style-type: none"> EXIT SIGN WITH EMERGENCY LIGHT LIGHT RECESSED FIXTURE MOTOR OUTLET BOX OUTLET SINGLE OUTLET TELEPHONE SERVICE DISCONNECT SERVICE METER SWITCH SWITCH THREE WAY WALL BRACKET FIXTURE <p>LIGHTING</p> <ul style="list-style-type: none"> CONTROL PANEL - EXISTING CONTROL PANEL LIGHT STANDARD EXISTING - TO BE REMOVED & SALVAGED LIGHT STANDARD DOUBLE ARM - EXISTING LIGHT STANDARD DOUBLE ARM LIGHT STANDARD POST TOP - EXISTING LIGHT STANDARD POST TOP LIGHT STANDARD SINGLE ARM - EXISTING LIGHT STANDARD SINGLE ARM LIGHT POLE - TEMPORARY LUMINAIRE WALL MOUNTED UNDERBRIDGE - EXISTING LUMINAIRE WALL MOUNTED UNDERBRIDGE TOWER LIGHTING UNIT - EXISTING TOWER LIGHTING UNIT | <p>ITS / SIGNALS</p> <ul style="list-style-type: none"> DYNAMIC MESSAGE SIGN - EXISTING DYNAMIC MESSAGE SIGN ESS SITE FIBER OPTIC SPLICE PEDESTAL HANDHOLE, ROUND, 3 FOOT DIAMETER HANDHOLE, ROUND, COMMUNICATIONS HANDHOLE, ROUND, ELECTRIC HANDHOLE, TYPE D ITS CABINET - EXISTING ITS CABINET MICROWAVE VEHICLE DETECTION SYSTEM - EXISTING MICROWAVE VEHICLE DETECTION SYSTEM MICROWAVE VEHICLE DETECTION SYSTEM ZONE COVERAGE - EXISTING MICROWAVE VEHICLE DETECTION SYSTEM ZONE COVERAGE SPUN CONCRETE POLE - EXISTING SPUN CONCRETE POLE SURVEILLANCE SYSTEM - EXISTING SURVEILLANCE SYSTEM SURVEILLANCE SYSTEM, TOWER MOUNT - EXISTING SURVEILLANCE SYSTEM, TOWER MOUNT WIRELESS LINK - EXISTING WIRELESS LINK COMMUNICATIONS CABLE IN CONDUIT COMMUNICATIONS CABLE IN CONDUIT - TO BE REMOVED | <ul style="list-style-type: none"> ANTENNA CASE SIGN (1-WAY OR 2-WAY) CASE SIGN (4-WAY) DEDICATED SHORT RANGE COMMUNICATIONS CONTROLLER CABINET - POLE MOUNTED CONTROL EMERGENCY PREEMPTION OPTICOM DILEMMA ZONE DETECTION GLOBAL POSITIONING SYSTEM MODULE GUY ANCHOR PEDESTRIAN PEDESTAL PEDESTRIAN PUSHBUTTON POLE MAST ARM (LENGTH VARIES) - EXISTING POLE MAST ARM (LENGTH VARIES) POLE STRAIN ROAD SIGN W/ FLASHING SIGN OPTICAL (1-WAY) SIGNAL HANDHOLE - 30 INCH ROUND SIGNAL HANDHOLE - 36 INCH ROUND SIGNAL HANDHOLE - SQUARE SIGNAL HEAD PEDESTRIAN 1-WAY - EXISTING SIGNAL HEAD PEDESTRIAN 1-WAY SIGNAL HEAD PEDESTRIAN 2-WAY SIGNAL HEAD VEHICLE - EXISTING SIGNAL HEAD VEHICLE 1-WAY SIGNAL HEAD VEHICLE 2-WAY SIGNAL HEAD VEHICLE 3-WAY SIGNAL HEAD VEHICLE 4-WAY SIGNAL HEAD VEHICLE BAGGED SIGNAL HEAD VEHICLE PROGRAMMABLE VEHICLE DETECTION CAMERA VEHICLE DETECTION CAMERA - HEMISPHERICAL VEHICLE DETECTION LOOP VEHICLE DETECTION - RADAR WIRELESS VEHICLE DETECTION RADIO RECEIVER WIRELESS VEHICLE DETECTION RADIO REPEATER WIRELESS VEHICLE DETECTION SENSOR - EXISTING WIRELESS VEHICLE DETECTION SENSOR | <p>CABLING / WIRING DIAGRAM</p> <ul style="list-style-type: none"> CIRCUIT BREAKER COILED WIRE FUSE FUSE SWITCH GROUND ILLUMINATED CASE SIGN METER SERVICE DISCONNECT SIGNAL HEAD |

| | | | | | | | | | | | | |
|--------------------------|------|-----------------|-------------|--|-----------------|-------|------|---------------|-------|-------------|--------------|-----|
| FINAL ROW PLAN REVISIONS | | SUBMITTAL DATE: | | | NO SCALE | DATE: | CS: | DRAWING SHEET | | | | |
| NO. | DATE | AUTH. | DESCRIPTION | | | NO. | DATE | | AUTH. | DESCRIPTION | DESIGN UNIT: | JN: |
| | | | | | | | | | | | | |
| FILE: | | | | | | TSC: | | | | | | |

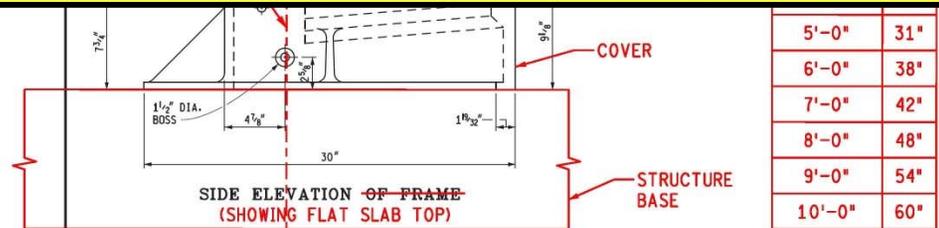
Drainage Sta

- Proposed revisions pre Association of Michigan



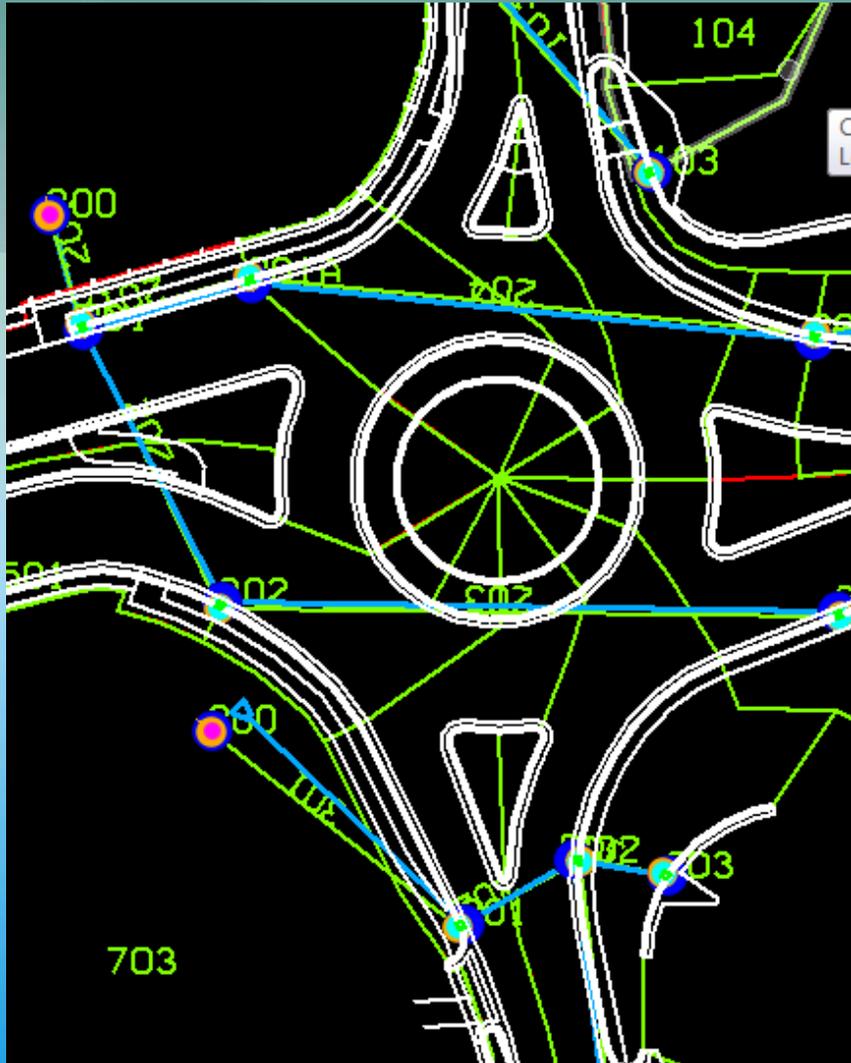
| STRUCT NO. | COVER STATION | COVER OFFSET | RIM ELEV | Dr Structure, -- inch dia | | | Dr Structure Cover Type - | | | Dr Structure, Add Depth of -- inch dia, 8 foot to 15 foot | | | Mh Riser | Mh, Precast Tee, C.I.V. 54 inch | Dr Structure, Tap, -- inch | | | | Sewer Tap, -- inch | | | | APPROX. STRUCT BASE STATION* | APPROX. STRUCT BASE OFFSET* | | | |
|------------|---------------|--------------|----------|---------------------------|----|----|---------------------------|----|----|---|----|----|----------|---------------------------------|----------------------------|----|----|----|--------------------|----|----|----------|------------------------------|-----------------------------|----|----|----|
| | | | | 24 | 48 | 60 | 72 | C | B | K | 48 | 60 | | | 72 | 10 | 12 | 12 | 15 | 18 | 24 | 24 | | | 48 | 60 | 72 |
| | | | | Eq | Eq | Eq | Eq | Ft | Ft | Ft | Ft | Ft | | | Ft | Eq | Eq | Eq | Eq | Eq | Eq | Eq | | | Eq | Eq | Eq |
| 3 | 30+20.33 | 10.50 RT | 644.76 | | 1 | | | 1 | | | 1 | | | | | | | | | | | 30+20.25 | 10.89 RT | | | | |
| 4 | 30+35.38 | 35.90 RT | 645.80 | | 1 | | | | 1 | | 1 | | | | | | | | | | | 30+33.31 | 35.56 RT | | | | |
| 5 | 30+85.00 | 14.00 LT | 646.69 | | 1 | | | 1 | | | 1 | | | | | | | | | | | 30+85.00 | 14.75 LT | | | | |
| 6 | 31+60.00 | 26.00 LT | 647.72 | | 1 | | | 1 | | | 1 | | | | | | | | | | | 31+60.00 | 26.75 LT | | | | |

* STRUCTURE BASE STATION AND OFFSET IS APPROXIMATED BASED ON THE STRUCTURE ORIENTATION SHOWN. BASE MAY BE MOVED AT THE CONTRACTOR'S DISCRETION.



| | | | | |
|--|---|--|--------------|-------------------------|
| <p>PREPARED BY DESIGN DIVISION DRAWN BY: B.L.T. CHECKED BY: W.K.P.</p> | <p>DEPARTMENT DIRECTOR Kirk T. Steudle</p> <p>APPROVED BY: <i>Randy V. Pithell</i> DIRECTOR, BUREAU OF FIELD SERVICES</p> <p>APPROVED BY: <i>Mad. A. Van Pelt</i> DIRECTOR, BUREAU OF HIGHWAY DEVELOPMENT</p> | <p>MICHIGAN DEPARTMENT OF TRANSPORTATION BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR</p> <p>COVER C FOR USE WITH CONCRETE CURB & GUTTER, DETAIL D</p> | | |
| | <p>9-30-2014 F.H.W.A. APPROVAL</p> | <p>5-15-2014 PLAN DATE</p> | <p>R-8-D</p> | <p>SHEET 1 OF 3</p> |

GEOPAK Drainage



US-41 at 2nd Street, Ishpeming, Mi



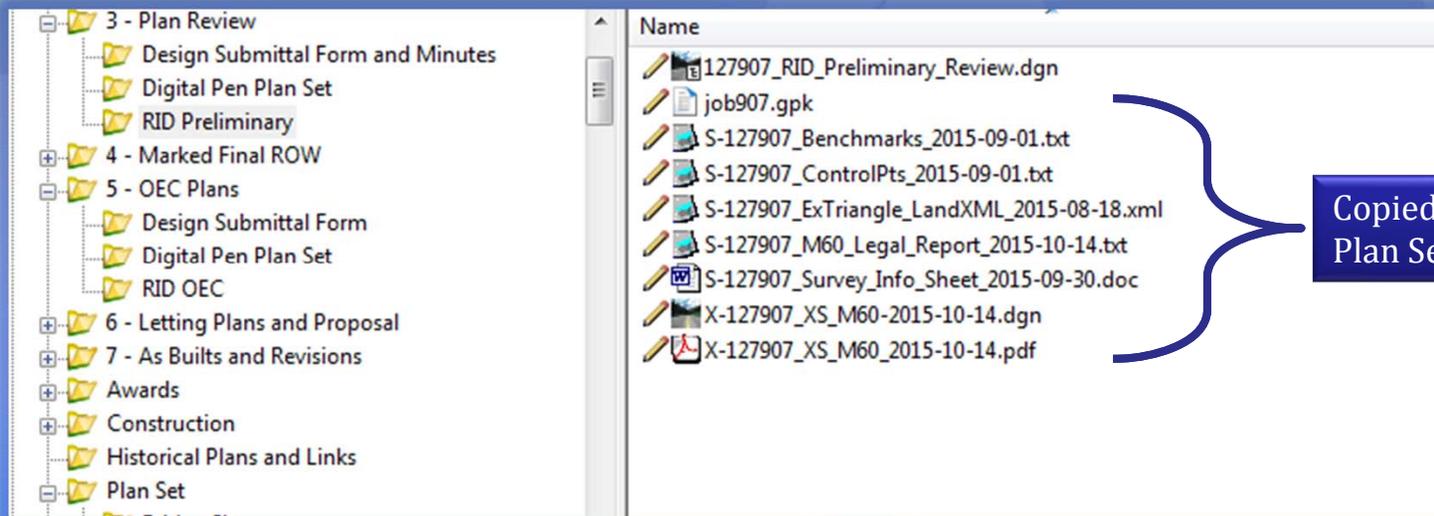
Updated RID Workflow

The image shows a Windows file explorer window. The left pane displays a tree view of a project directory. The right pane shows a list of files. A blue starburst graphic is overlaid on the right pane, pointing to the files '127907_RID_Index.xlsm' and '127907_RID_Review_Checklist.xlsm'. The starburst contains the text 'New Location for these files'.

File Explorer Structure:

- _Design PI Project
 - Supporting Documents
 - Design Exception
 - RID Preparation**
 - 1 - Scope Verification
 - 2 - Base Plans
 - 3 - Plan Review
 - Design Submittal Form and Minutes
 - Digital Pen Plan Set
 - RID Preliminary
 - 4 - Marked Final ROW
 - 5 - OEC Plans
 - Design Submittal Form
 - Digital Pen Plan Set
 - RID OEC
 - 6 - Letting Plans and Proposal
 - 7 - As Builts and Revisions
 - Awards
 - Construction
 - Historical Plans and Links
 - Plan Set
 - Bridge Sheets
 - Design files
 - Bridge
 - Drainage
 - Real Estate
 - Road

Updated RID Workflow



Updated RID Workflow

The image shows a file explorer window with a tree view on the left and a file list on the right. The tree view is organized into several main sections:

- 3 - Plan Review**
 - Design Submittal Form and Minutes
 - Digital Pen Plan Set
 - RID Preliminary
- 4 - Marked Final ROW**
- 5 - OEC Plans**
 - Design Submittal Form
 - Digital Pen Plan Set
 - RID OEC
- 6 - Letting Plans and Proposal**
- 7 - As Builts and Revisions**
- Awards**
- Construction**
- Historical Plans and Links**
- Plan Set**
 - Bridge Sheets
 - Design files
 - Bridge
 - Drainage
 - Real Estate
 - Road
 - Traffic
 - Drainage Sheets
- Pre-Construction**
 - Correspondence
 - Environmental
 - Final Design Calculations
 - Geotechnical
 - Photos
 - Real Estate
 - Record Plan Set Review Comments
 - Stakeholder Engagement
 - Survey
 - Traffic
 - Working Design

The file list on the right shows the following files:

- 127907_RID_Preliminary_Review.dgn
- job907.gpk
- S-127907_Benchmarks_2015-09-01.txt
- S-127907_ControlPts_2015-09-01.txt
- S-127907_ExTriangle_LandXML_2015-08-18.xml
- S-127907_M60_Legal_Report_2015-10-14.txt
- S-127907_Survey_Info_Sheet_2015-09-30.doc
- X-127907_XS_M60-2015-10-14.dgn

A blue arrow points from the file **127907_RID_Preliminary_Review.dgn** to the file **RID_Milestone_Review.dgn**. A blue rounded rectangle highlights a list of design files:

- A-127907_Align_2015-10-14.dgn
- A-127907_Prof_2015-10-14.dgn
- D-127907_Const_2015-10-14.dgn
- D-127907_Topo_2015-10-14.dgn
- M-127907_PrCorridor_M60_2015-10-14.dgn
- M-127907_PrLineString_Surf_Roadway_M60-2015-10-14.dgn

Below this list, another file list is visible:

- S-127907_Align_2015-08-25.dgn
- S-127907_ExTriangle_2015-08-18.dgn
- S-127907_Survey_2D_2015-08-18.dgn
- S-127907_Survey_3D_2015-08-18.dgn

RID Updates



Michigan Department of Transportation

RID Review Checklist

Control Section(s):

Job Number(s):

Version Date: 10/19/2015

Design Unit (Consultant Firm):

Design Team Lead (Consultant PM):

MDOT Project Manager:

Version of Workspace Used:

Primary Project Description:

Project Mainline Lane Miles:

Comment Legend: Design Team Comments

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| | L | M | N | O | P | Q | R |
|--|---|---|---|---|---|---|---|

Michigan Department of Transportation

RID Review Checklist

Date:

SHOW ALL

Control Section(s):

Job Number(s):

Version Date: 10/19/2015

Design Unit (Consultant Firm):

Design Team Lead (Consultant PM):

MDOT Project Manager:

Model Reviewers:

Version of Workspace Used: MDOT01

Primary Project Description: ROAD - REHABILITATION AND RECONSTRUCTION

Project Mainline Lane Miles: 3

Comment Legend: Design Team Comments
Reviewer Comments

Approval: Date:

| X | Project Design Team checked | Reviewer Checked | Item | | | | Preliminary Comments | OEC Com |
|---|-----------------------------|------------------|------|--|---|--|---|---------|
| | | | X | | X | | | |
| X | | | X | | X | | Does the alignment labeling on the plans match the DGN files. | |
| | | | | | | | Design Files | |
| X | | | X | | X | | D-XXXXXX_Const.dgn | |

RID Updates

| Date: | | | | | Approval: | Date: |
|----------|--------------------|-----------------------------|------------------|--------------------------------|-----------|-------|
| SHOW ALL | Required RID Files | Project Design Team Checked | Reviewer Checked | Item | | |
| | | | | Alignment Files | | |
| | X | | | A-XXXXXXX_Align.dgn | | |
| | X | | | A-XXXXXXX_Prof.dgn | | |
| | X | | | A-XXXXXXX_LandXML_Geometry.xml | | |
| | | | | Design Files | | |

Development Guide Resources

- ProjectWise Workflows - [ProjectWise Pre-Bid Processes.](#)

The screenshot displays a web application interface with a teal header and a white content area. On the left, there is a navigation menu with a Michigan state logo and various links like 'Main page', 'Standard Files', and 'Development Resources'. The main content area features a breadcrumb trail 'Page Discussion', a search bar, and a title '1.2 The Plan Review ProjectWise Process'. Below the title is a folder tree with '3 - Plan Review' highlighted. A 'Contents [hide]' box lists sub-sections like '1.2.1 Package Submittal' and '1.2.2 Review'. The '1.2.1 Package Submittal' section is expanded, showing a state of 'Plan Review - Pending Submittal' and a task 'PPMS Task: 3580 - Develop Preliminary Plans'. A table with columns 'Step' and 'Action' is partially visible, with the first row containing 'Design Team - Create PDF of:'. On the right, there are two sidebars: 'ProjectWise Pre-Bid Processes' with sub-sections like 'Base Plans Review' and 'The Plan Review', and 'Design Submittal Requirements' with a 'By Chapter' list.

1.2 The Plan Review ProjectWise Process

Folder:

- Supporting Documents
- 1 - Scope Verification
- 2 - Base Plans
 - Design Submittal Form
 - Digital Pen Plan Set
- 3 - Plan Review**
 - Design Submittal Form and Minutes
 - Digital Pen Plan Set
 - RID Preliminary

Contents [hide]

- 1.2.1 Package Submittal
 - State: Plan Review - Pending Submittal
 - State: Plan Review - Review
- 1.2.2 Review
 - State: Plan Review - Pending
 - State: Plan Review - Request for Meeting
 - State: Plan Review - Assigned to Reviewer
 - State: Plan Review - Scheduling and Distribution
 - State: Plan Review - Ready for Review
 - State: Plan Review - PM Review in Progress
 - State: Plan Review - Ready for Meeting
 - State: Plan Review - Draft Meeting Report Pending
 - State: Plan Review - Final Report Distribution
 - State: Plan Review - Final Meeting Report
- 1.2.3 Preliminary RID Review
 - State: Preliminary RID Review - Pending
 - State: Preliminary RID Review - Review in Progress
 - State: Preliminary RID Review - Complete

1.2.1 Package Submittal [edit]

State: Plan Review - Pending Submittal [edit]

PPMS Task: 3580 - Develop Preliminary Plans

| Step | Action |
|------|------------------------------|
| | Design Team - Create PDF of: |

ProjectWise Pre-Bid Processes

- Base Plans Review**
 - Package Submittal - Review
- The Plan Review**
 - Package Submittal - Review - RID Review
- OEC Plans Review**
 - Package Submittal - Review - RID Review
- Letting Plans Review**
 - RID Review
- Design Exceptions**

Design Submittal Requirements

By Chapter

- Chapter 1 - ProjectWise_Pre-Bid_Processes
- Chapter 2 - Data Requirements
- Chapter 3 - Standard_Naming_Conventions
- Chapter 4 - Developing Electronic Data
- Chapter 5 - RID Process
- Chapter 6 - Quality Management of Electronic Data
- Chapter 7 - Plan and Proposal Preparation

Development Guide Resources



[Main page](#)
[Standard Files](#)
[Folder Structure](#)
[Training Materials](#)
[Community portal](#)
[Current events](#)
[Recent changes](#)
[Random page](#)
[Help](#)
[Content Revision Procedures](#)

▼ [Development Resources](#)
[Design Submittal Requirements](#)
[Survey Manual](#)

▼ [Toolbox](#)
[What links here](#)
[Related changes](#)
[Upload file](#)
[Special pages](#)
[Printable version](#)
[Permanent link](#)

Page [Discussion](#)

Folder Structure

The purpose of this page is to show all of the Project folders located in the template and provide examples/directions of the types of files that should go in each one.

Contents [\[hide\]](#)

[Base Folder Template Map](#)
[Milestone](#)
[Plan Set Folder Template Map](#)
[Pre-Construction Folder Template Map](#)

Base Folder Template Map

| Base Folder Template Map | |
|--------------------------------|---|
| Folder Name | Folder Descriptions or File Examples |
| Supporting Documents | |
| 1 - Scope Verification | |
| 2 - Base Plan | |
| 3 - Plan Review | |
| 4 - Marked Final ROW | |
| 5 - OEC Plans | |
| 6 - Letting Plans and Proposal | |
| 7 - As Builts and Revisions | |
| Awards | For Contracts use |
| Construction | For Construction use |
| Historical Plans and Links | Links to old plans |
| Plan Set | DGN plan files and Power Geopak files - See Plan Set tab for a detail of the subfolders |
| Pre - Construction | Design Project Documents - See Pre - Construction tab for a detail of the subfolders |

Milestone

Development Guide Updates

Design Services Update

11/4/2015

Update Highlights

- Recent updates to the Development Guide.
- Updated Engineer of Development in all sheet borders from Mark Van Port Fleet to Brad Wieferich.
- Updated plan sheet order to reflect changes in Road Design Manual.
- Updated all horizontal alignments to include a 50 scale option.
- Resolved bug in the "Ground Point Profile" tool involving the presence of multiple station equations.
- Revised one existing
- Updated Superelev
- station equation m
- Added new feature
- Pavement Repair, C
- Added configuratio
- Added a GEOPAK D
- Updates to Structur
- Reassigned the CLIF
- "Terrain_Ex_Clip_B
- same level.
- Added level remap

Development Guide Updates

The following Sections/Files have been updated:

- Design Submittal Requirements Chapter 8 – ProjectWise Pre-Bid Processes page has been moved to [Chapter 1 - ProjectWise Pre-Bid Processes](#).
- Design Submittal Requirements Chapter 1 – Introduction has been moved to [Design Submittal Requirements](#).
- Design Submittal Requirements Chapter 4 – Developing 3D Models has been moved to [Chapter 4 - Developing Electronic Data](#).
- Design Submittal Requirements Chapter 6 – 3D Model QA/QC has been moved to [Chapter 6 - Quality Management of Electronic Data](#).

The following Pages/Information have been added:

- Navigation Boxes (Navbox) have been added on the right to the Development Resources shown in the sidebar. The Development Resources currently include the [Design Submittal Requirements](#) and the [Survey Manual](#).

Other Resources



[Roads and Travel](#)

[Rail and Public Transit](#)

[Bridges, Borders and](#)

Support Services

Help, training and support information is provided below pertaining to the creation of digital design content for bridge, roadway and subsurface utility modeling as well as survey, general workspace and plans production topics. These categories are provided to allow content creators a single location to find additional

Select a Help and Support category from the drop down menu:

General

Aerial Imagery

- [Bay Region](#)
- [Grand Region](#)
- [Metro Region](#)
- [North Region](#)
- [Southwest Region](#)
- [Superior Region](#)
- [University Region](#)

Base Maps

- [County](#)
- [CADD Resource Files](#)
- [Sheets](#)
- [Workspaces](#)

Help and Support Documents

- [CADD](#)
- [Plan Set](#)
- [Printing](#)

User Updates

Design Services Updates

- [2015-01-06 MDOT Workspace Updates January 2015.pdf](#)
- [2015-03-03 MDOT Workspace Updates March 2015.pdf](#)
- [2015-05-06 MDOT Workspace Updates May 2015.pdf](#)
- [2015-07-01 MDOT Workspace Updates July 2015.pdf](#)

Quarterly Update Webinars

- [EngineeringSupportQuarterlyUpdate2014_07.mp4](#)
- [Engineering Support Quarterly Update 2014_10.mp4](#)
- [EngineeringSupportQuarterlyUpdate2015_02.mp4](#)
- [EngineeringSupportQuarterlyUpdate2015_06.mp4](#)

0773 or send an e-mail to

What's Next with RID



[Main Page](#)
[Standard Files](#)
[Category Standard Files](#)
[Standard Files](#)
[Category Tree](#)
[Folder Structure](#)
[Development Resources](#)
[Categories](#)
[Field Resources](#)
[Categories](#)
[Training Materials](#)
[Development Resources](#)
[Training Materials](#)
[Field Resources](#)
[Training Materials](#)
[Category Training Materials](#)
[Community portal](#)
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[Recent changes](#)
[Random page](#)
[Help](#)

▼ [Test Pages](#)
[External File Links](#)
[Content Manager](#)
[Resources](#)

▼ [Development Resources](#)
[Design Submittal Requirements](#)
[Engineering Support Services](#)
[Design QA](#)
[Innovative Contracting](#)
[Land Surveying](#)
[Road Design Manual](#)

Category [Discussion](#)

Category:RID

This page provides an overview of the RID Process.

Generally the Design Submittal Requirements were developed to incorporate the RID Process into the design process.

Contents [\[hide\]](#)

- [Scoping](#)
- [Base Design File Creation](#)
- [Milestone Submittal](#)
- [Construction Use of RID](#)
- [Folder Population of Completed Project](#)

Scoping

To determine what RID information should be included for the scope of my project I went to **Chapter 2 - Data Requirements** and

- The files required for a given category are then determined by the project scope and conveyed to **MDOT RID Support** using [redacted] should be noted as N/A in the **RID Review Checklist**. If the project scope would normally require a model to be developed,
-

Base Design File Creation

- Since I don't want to have to rename my base design files I looked at the **Standard Naming Convention** as I created them.

Milestone Submittal

Construction Use of RID

Folder Population of Completed Project

Pages in category "RID"

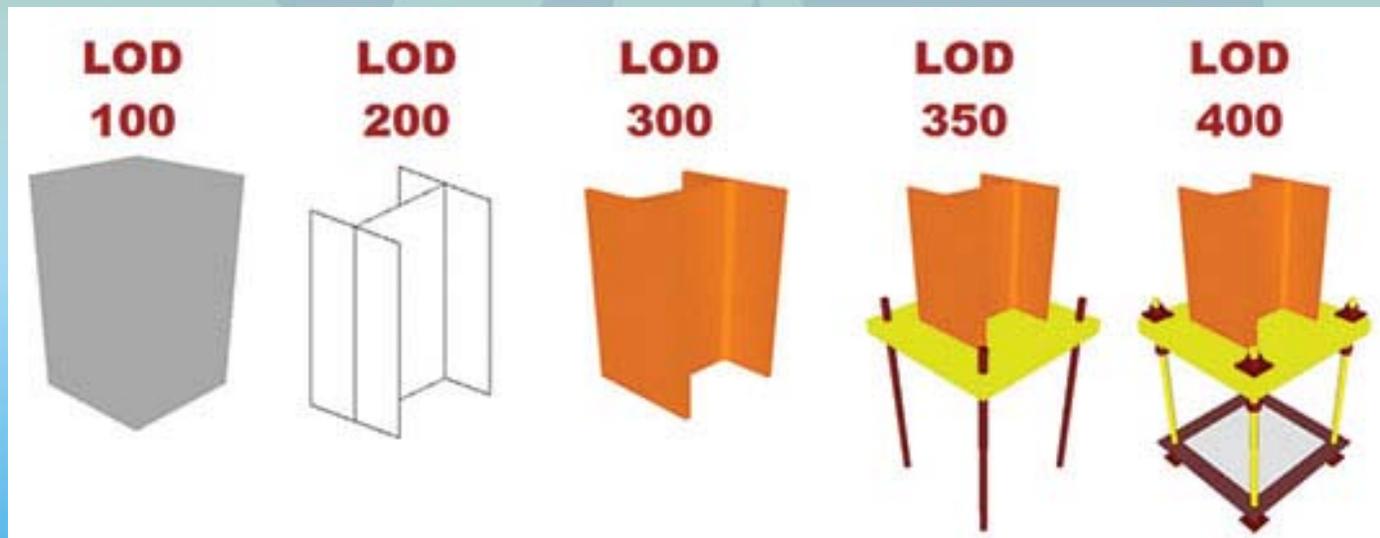
The following 5 pages are in this category, out of 5 total.

C

- [Chapter 1 - ProjectWise Pre-Bid Processes](#)
- [Chapter 2 - Electronic Data Requirements](#)
- [Chapter 3 - Standard Naming Conventions](#)
- [Chapter 4 - Developing Electronic Data](#)
- [Chapter 5 - RID Process](#)

What's Next with RID

- Level of Development – Defines Characteristics of a Model Element

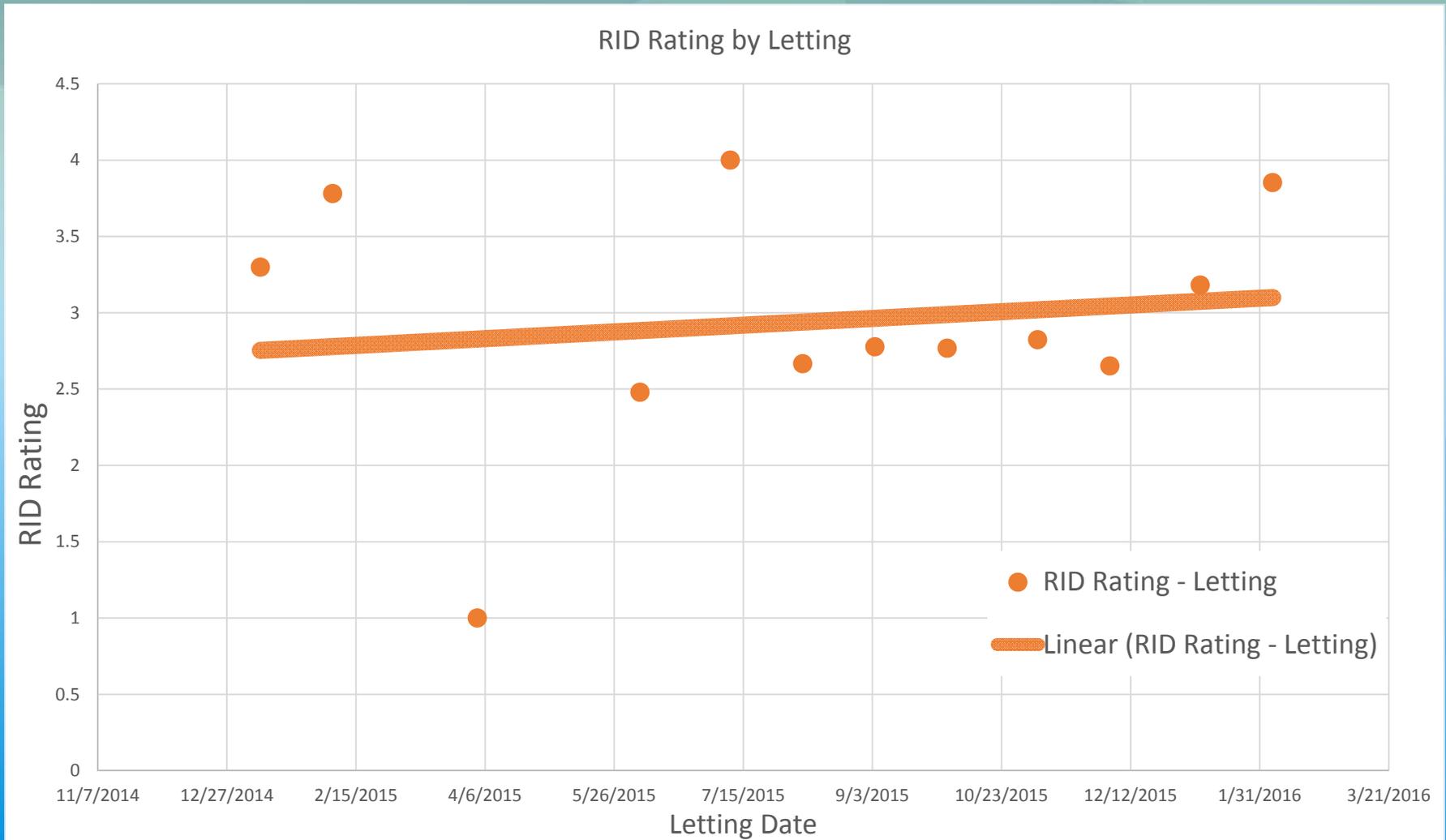


3D Engineered Models & Electronic Data

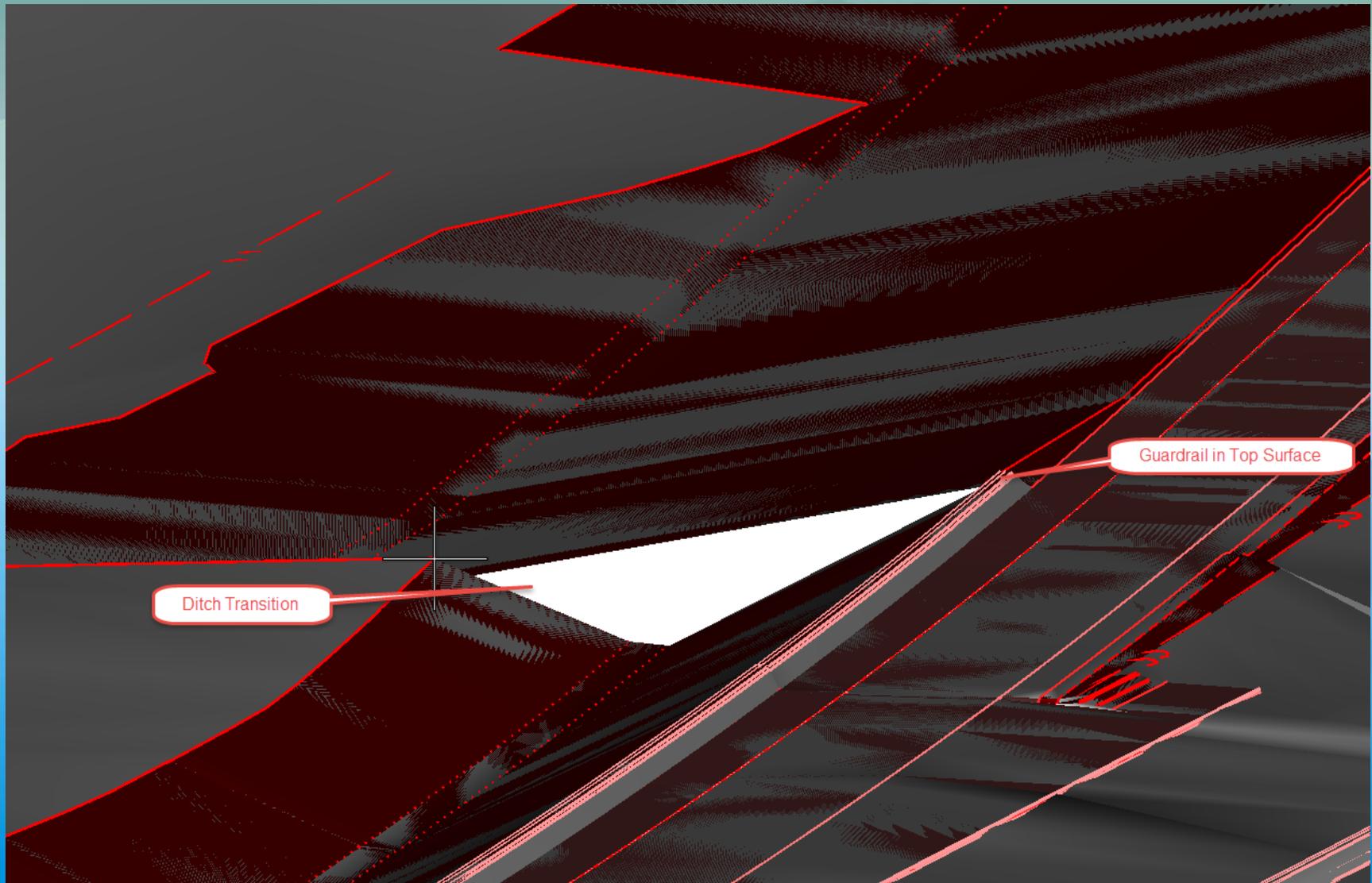
WHY?

| Better | Faster | Cheaper | Safer | Smarter |
|---|--|--------------------------------------|-----------------------------|--|
| Easier to visualize | Changes in Design | Construction Implementation | Less stakes | Reduces Errors & Omissions |
| Parametric with Civil Cells | Machine Guidance | Promotes contractor creativity | No strings | More opportunities for contractor automation |
| Transparency - Quantities & Design Intent | Stringless Paving | 10%-30% Reduction in Earthwork Costs | Fewer field support workers | Risk reduction in controlled environment |
| Uniformity | Data to field - fast! | Reduces hauling and staging costs | Less stakeout | Collaborative |
| Geospatial Data Collaboration | Tight integration of deliverables and field software | Saves fuel | Minimal re-staking | FHWA says so! |
| Quality of life | | | | Our customers demand it |

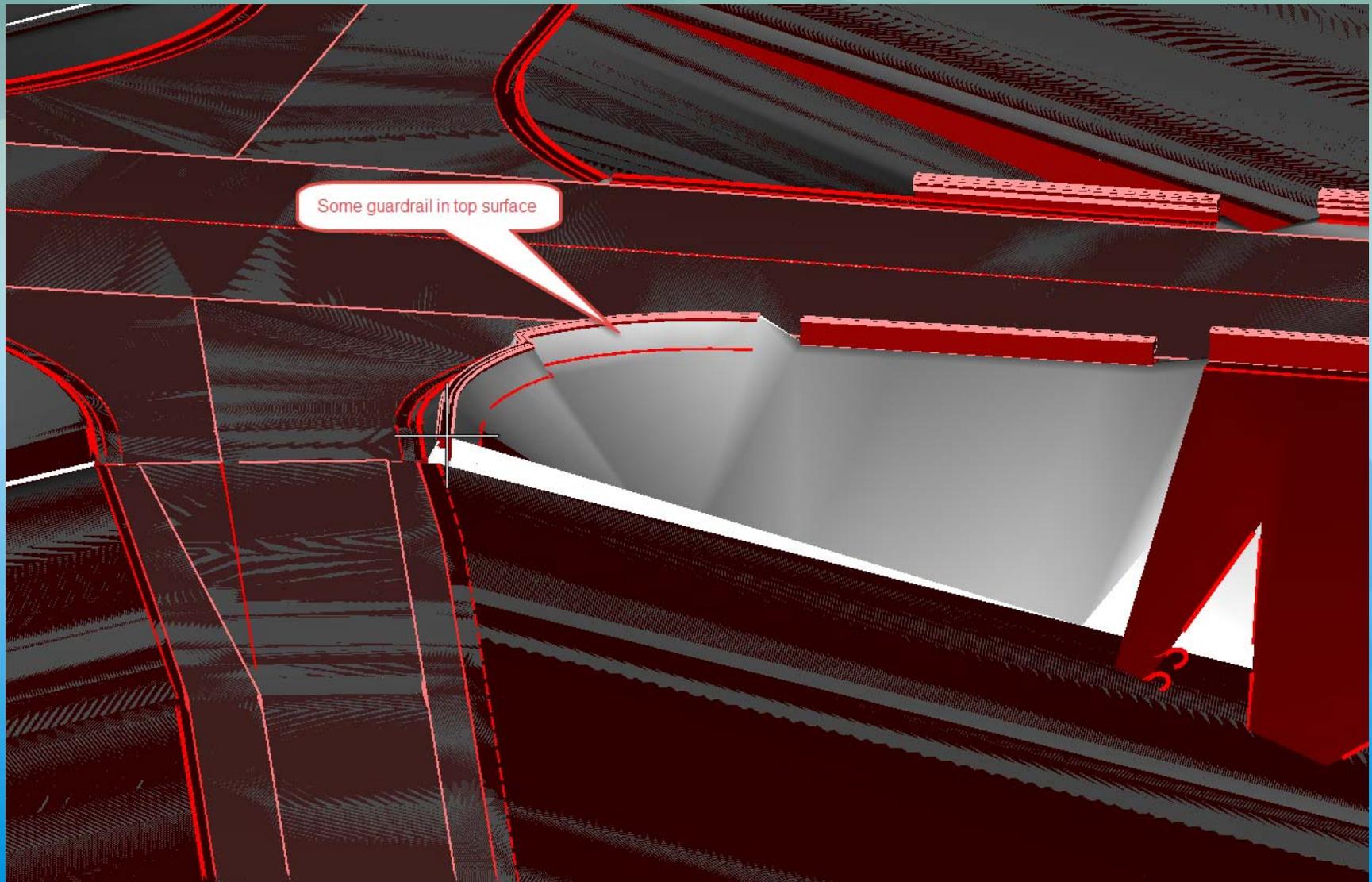
Average RID Ratings



Common Corrections



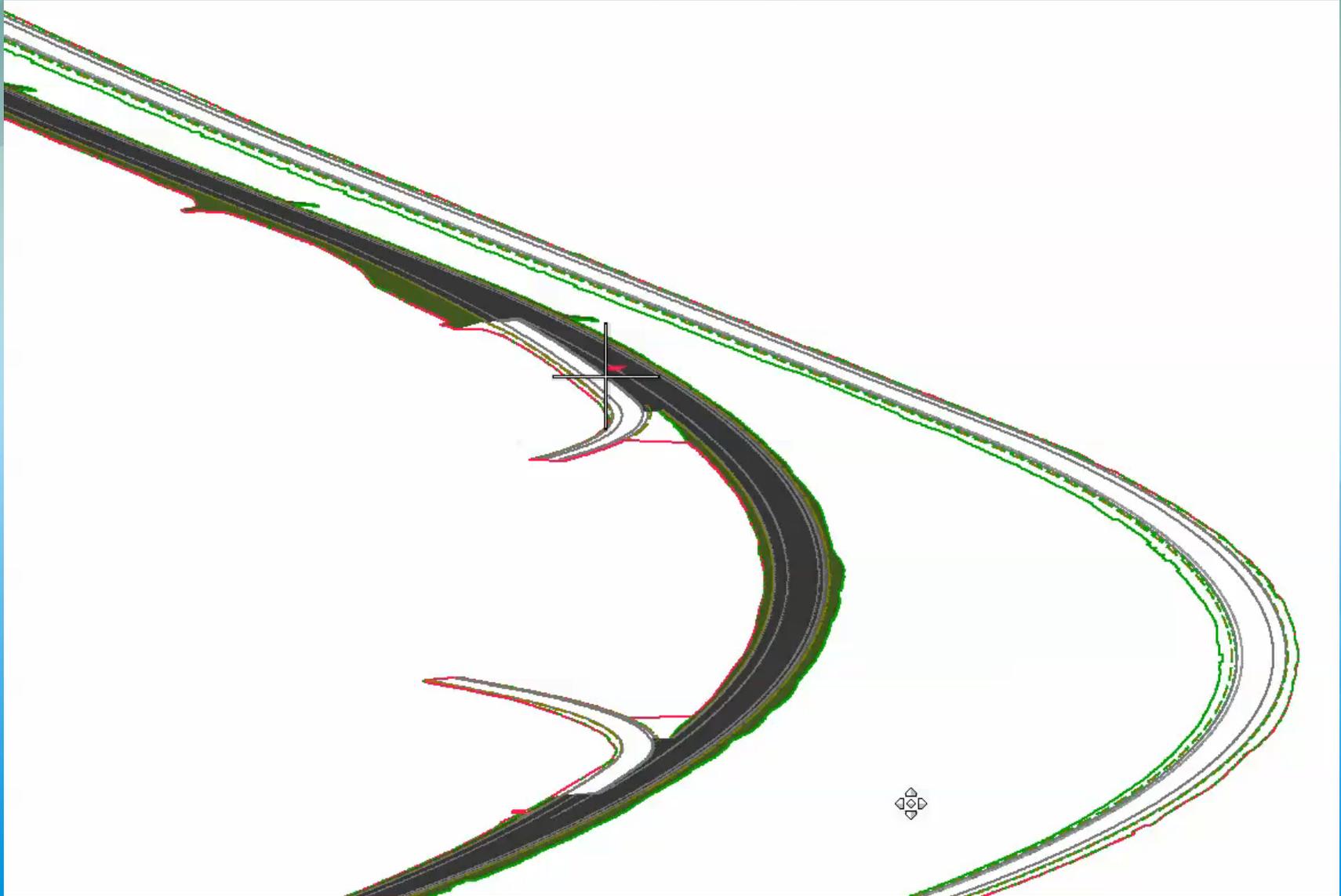
Common Corrections



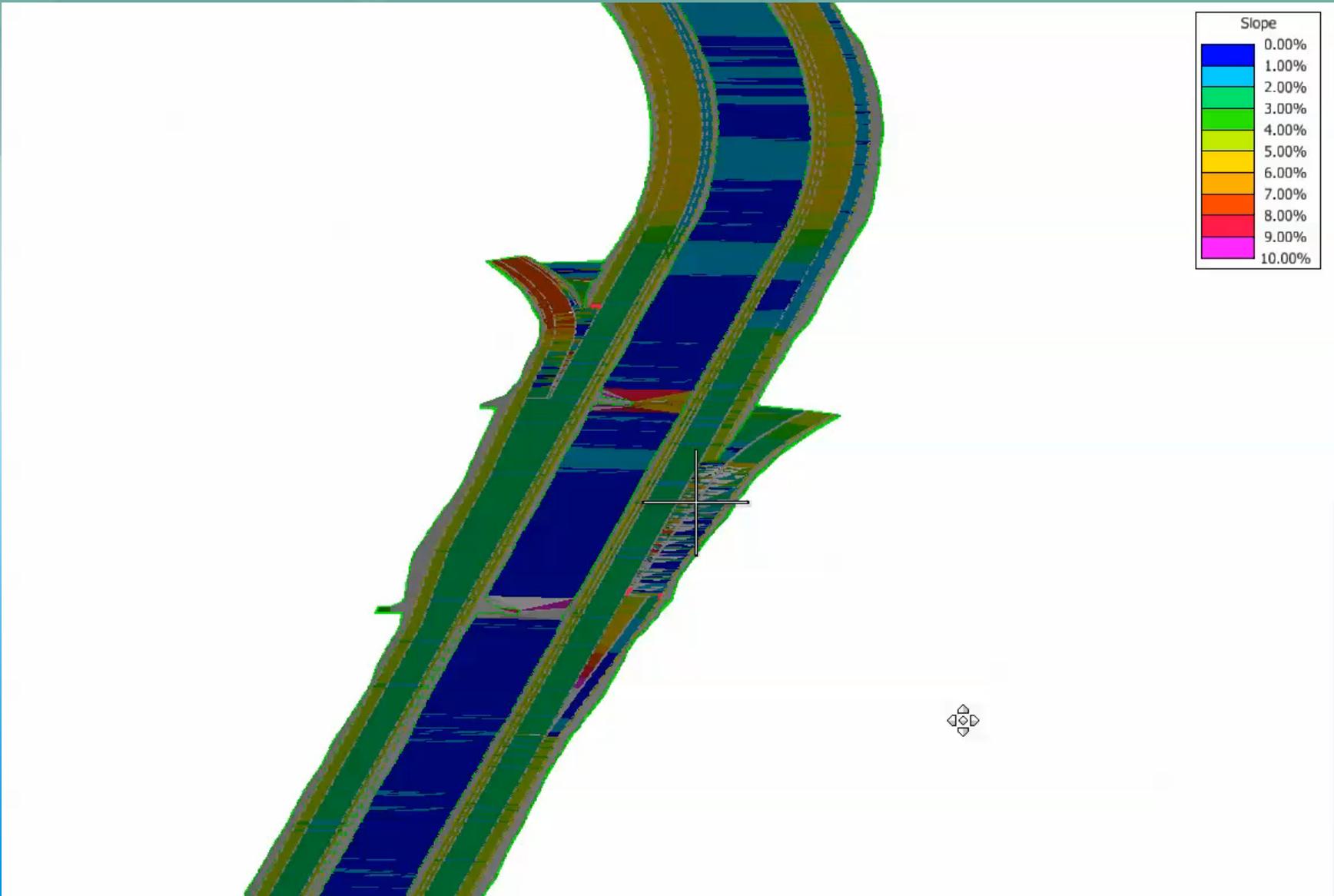
Common Corrections



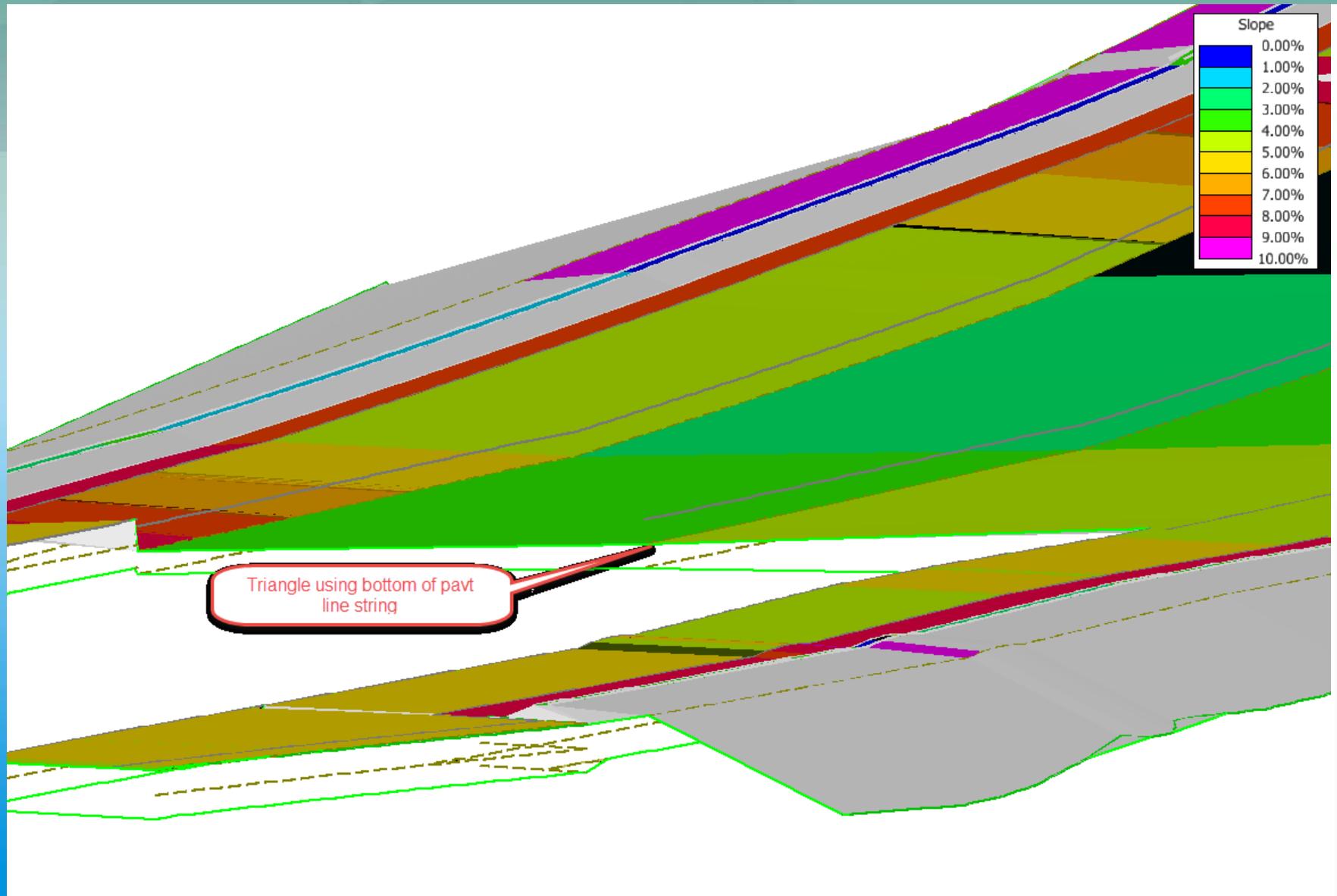
Common Corrections



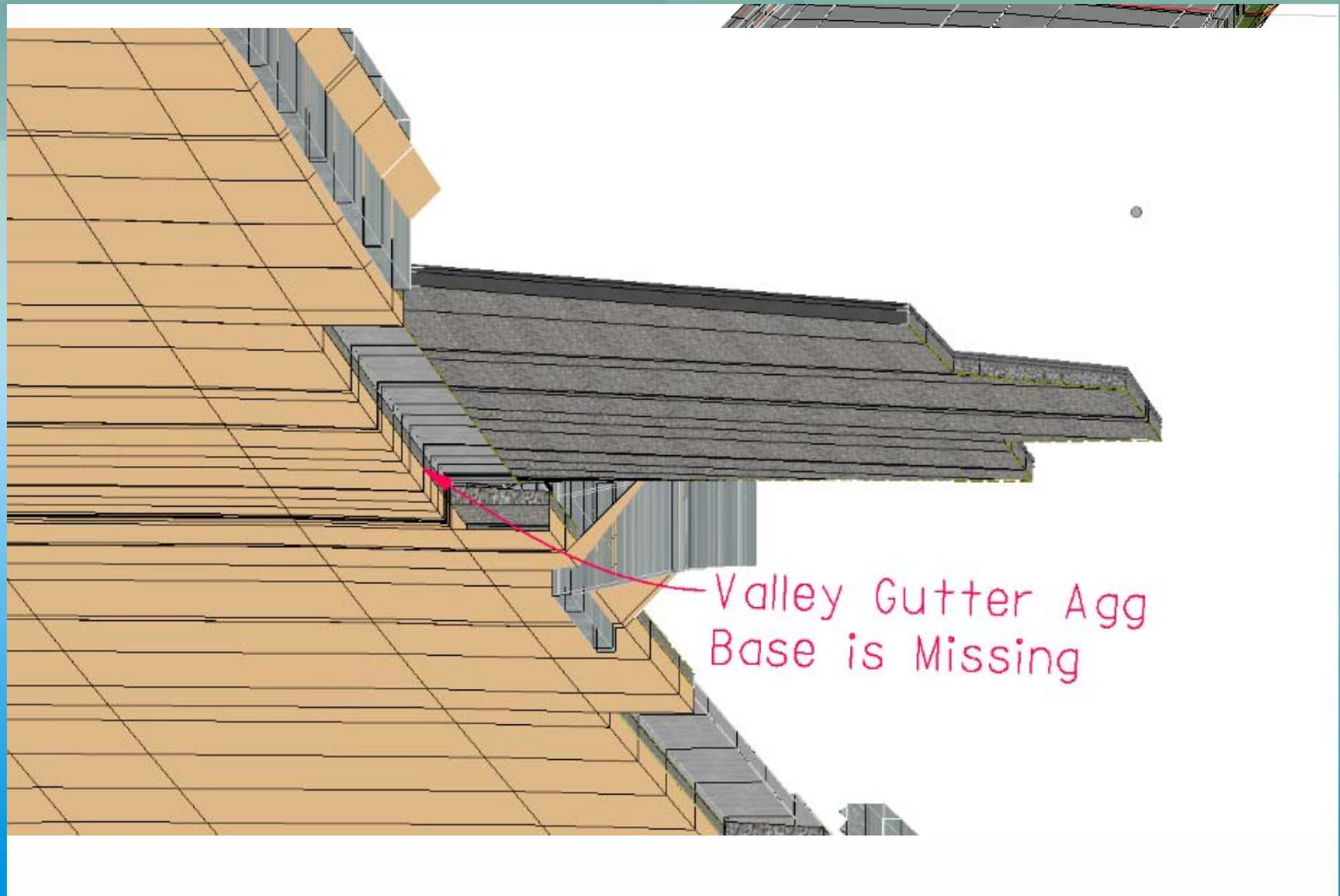
Common Corrections



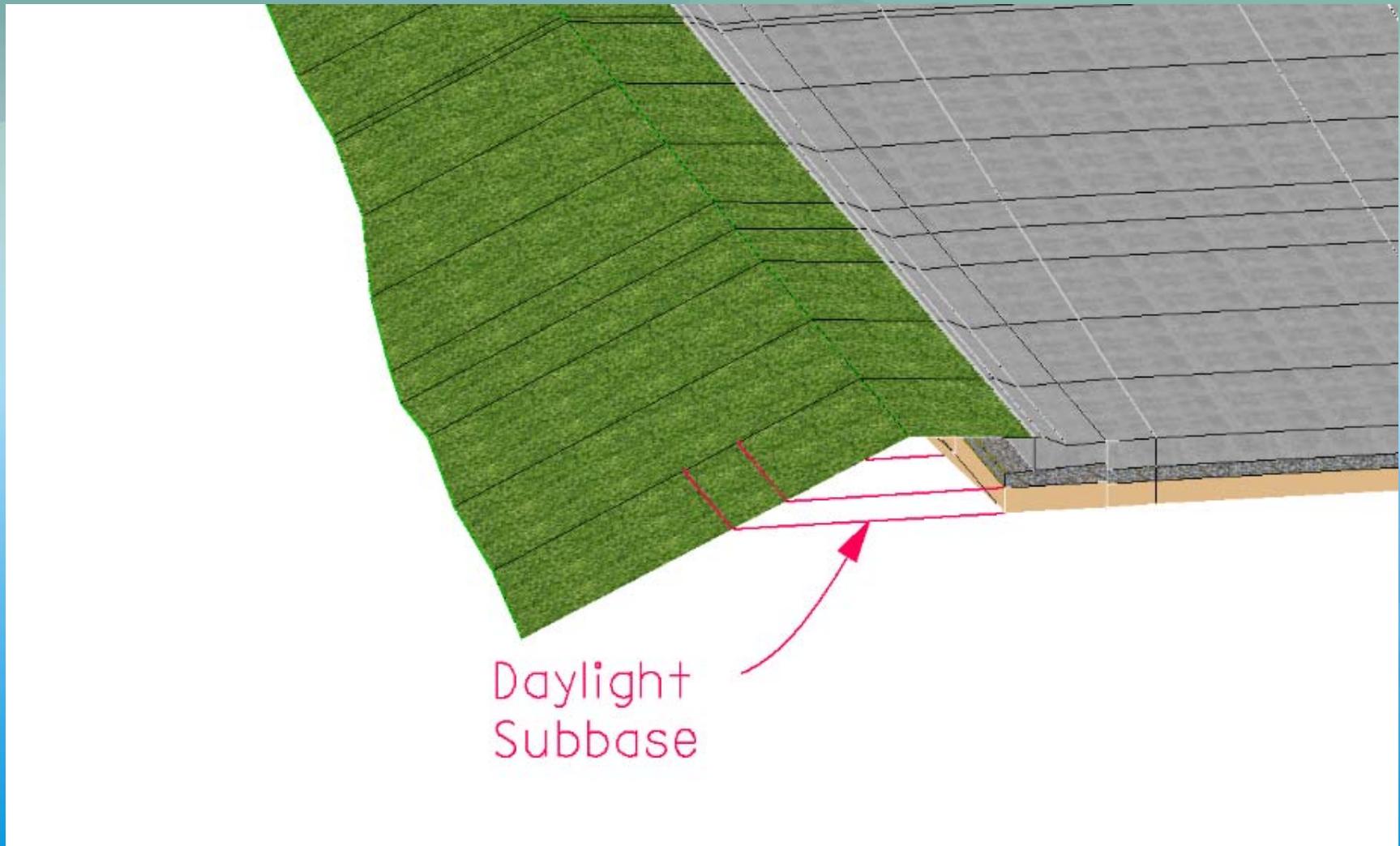
Common Corrections



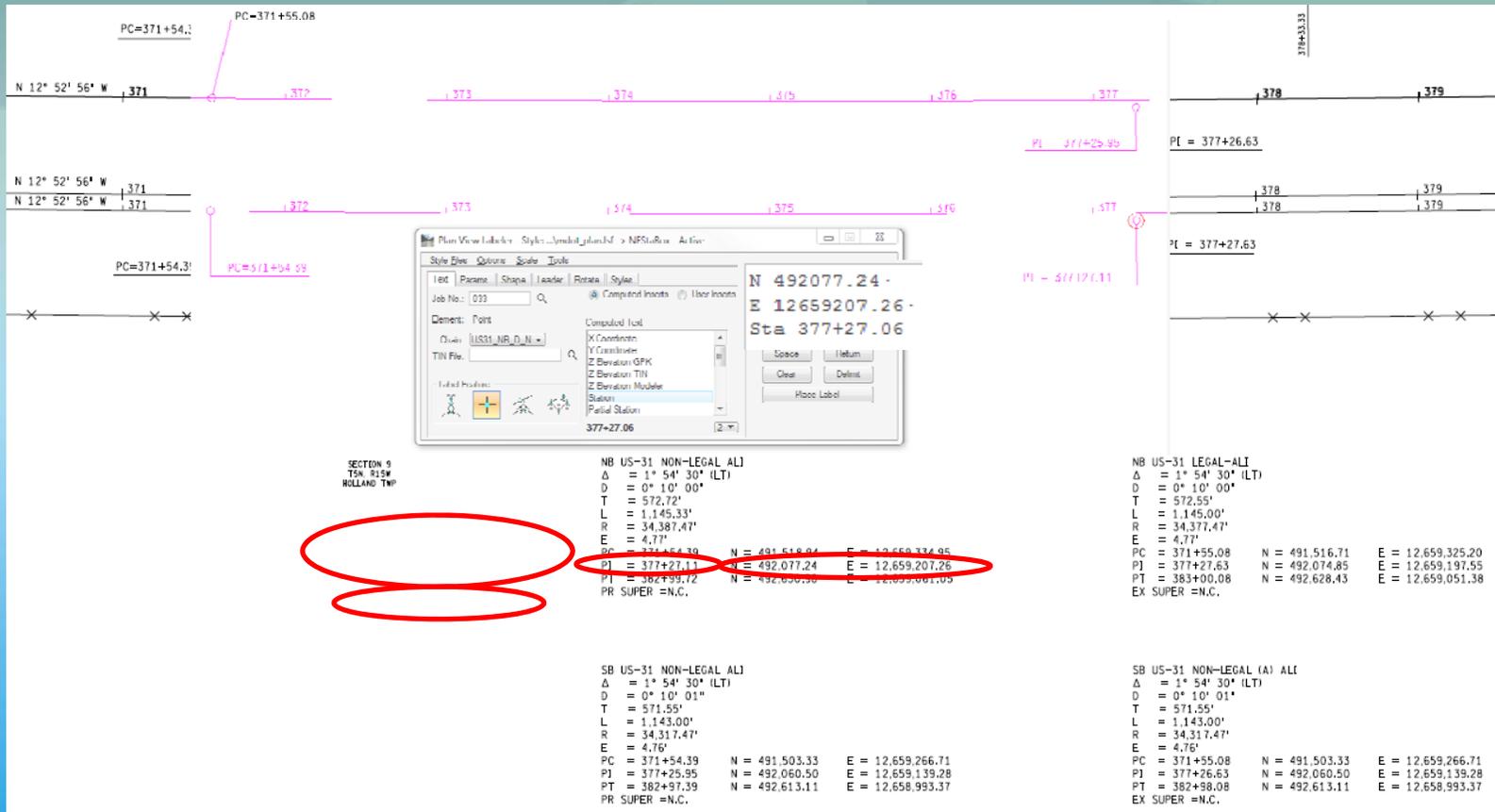
Common Corrections



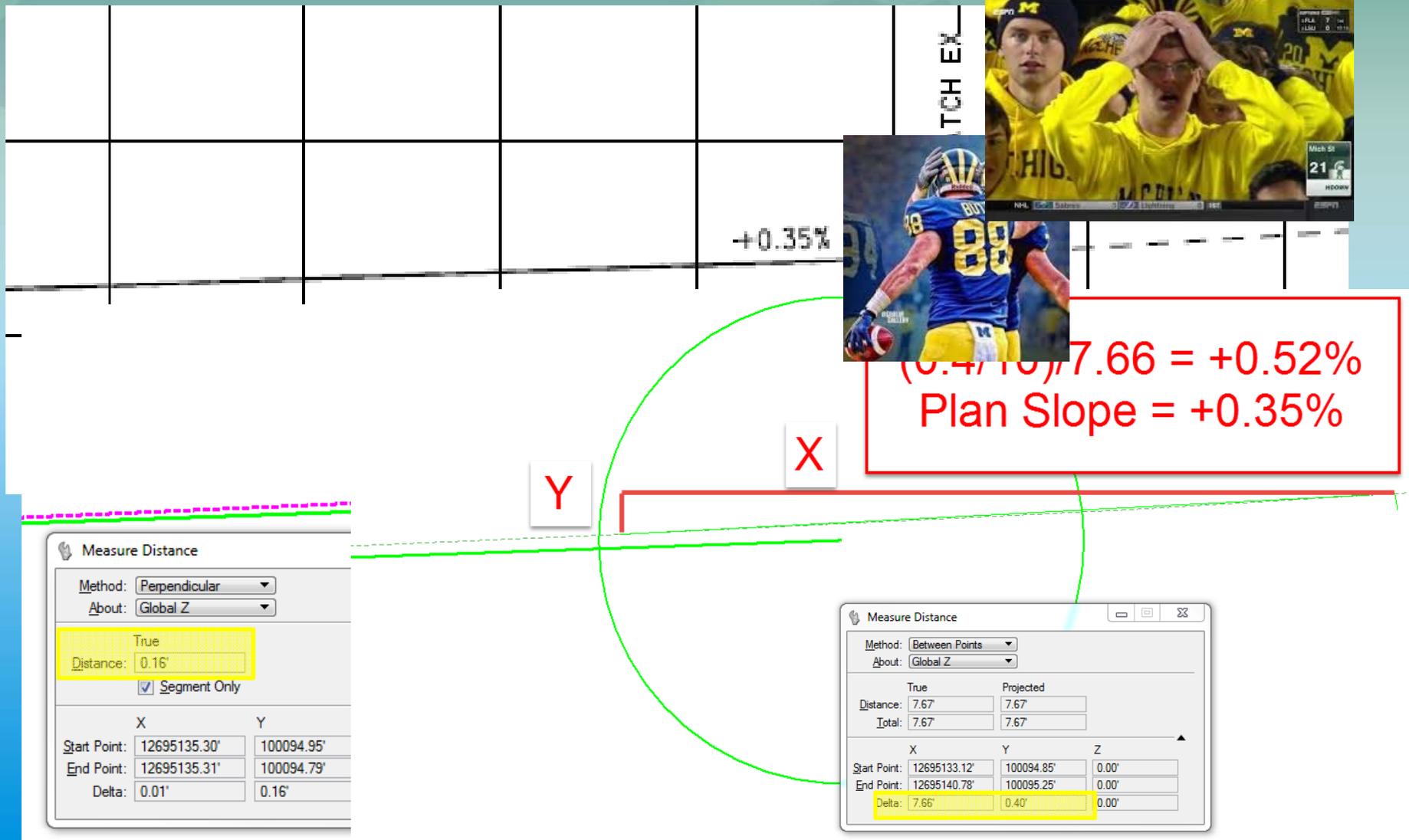
Common Corrections



RID to Plan Comparison



RID to Plan Comparison



+0.35%

$(0.47 / 10) / 7.66 = +0.52\%$
Plan Slope = +0.35%

Measure Distance

Method: Perpendicular
 About: Global Z

Distance: True
 0.16'

Segment Only

| | X | Y |
|--------------|--------------|------------|
| Start Point: | 12695135.30' | 100094.95' |
| End Point: | 12695135.31' | 100094.79' |
| Delta: | 0.01' | 0.16' |

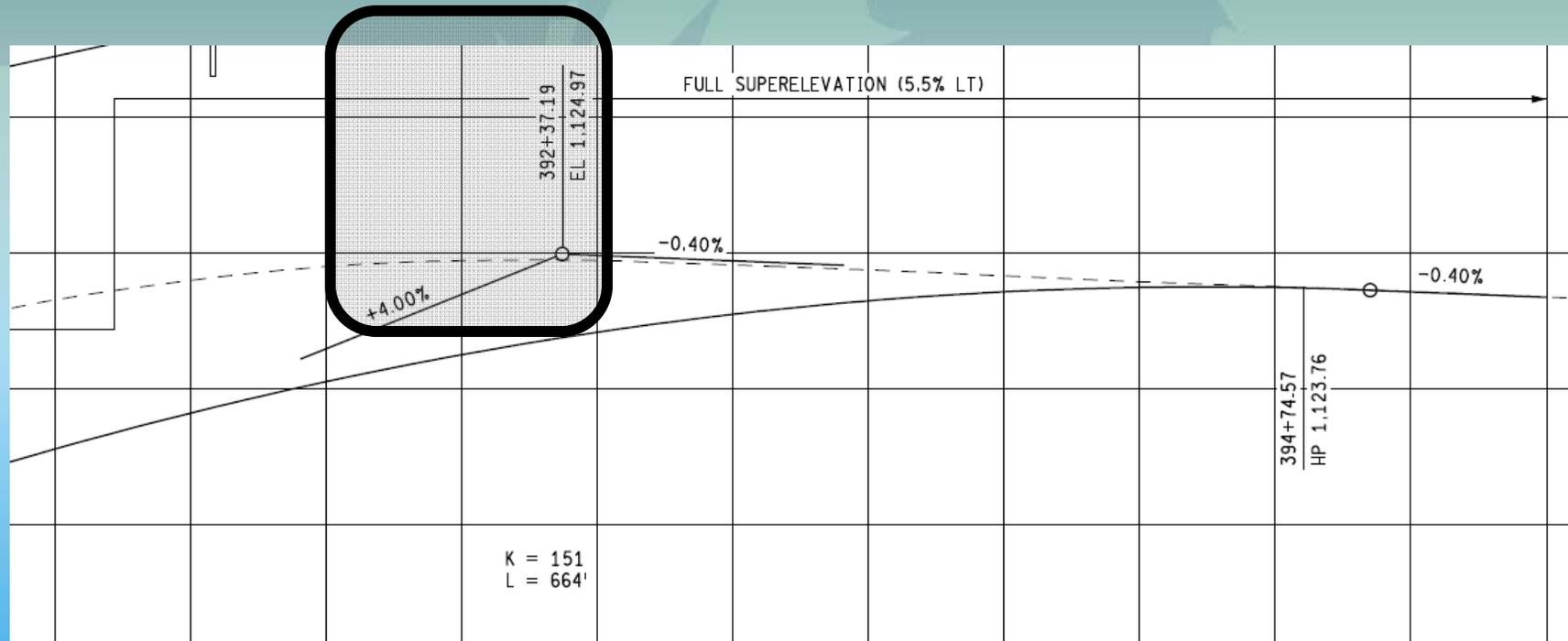
Measure Distance

Method: Between Points
 About: Global Z

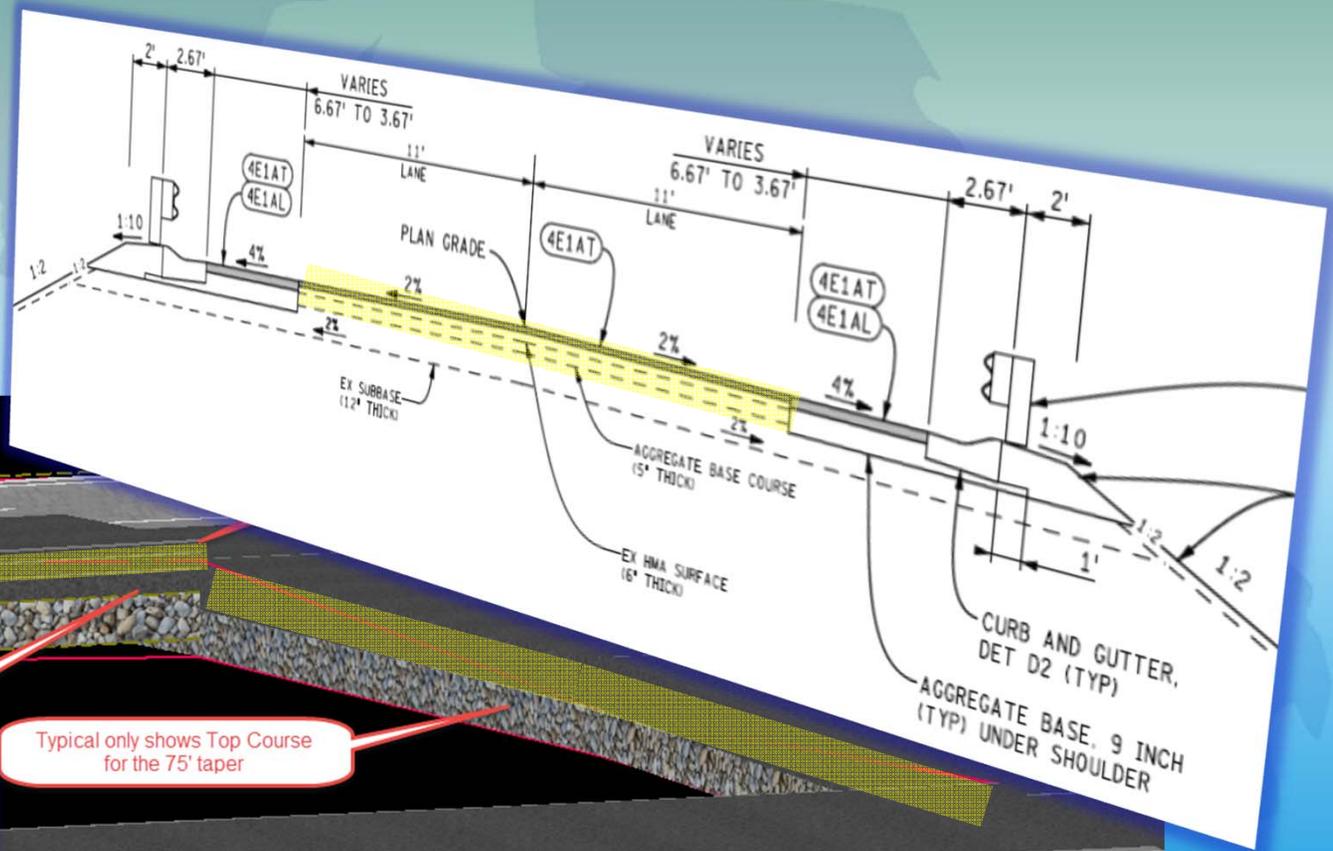
| | True | Projected |
|-----------|-------|-----------|
| Distance: | 7.67' | 7.67' |
| Total: | 7.67' | 7.67' |

| | X | Y | Z |
|--------------|--------------|------------|-------|
| Start Point: | 12695133.12' | 100094.85' | 0.00' |
| End Point: | 12695140.78' | 100095.25' | 0.00' |
| Delta: | 7.66' | 0.40' | 0.00' |

RID to Plan Comparison

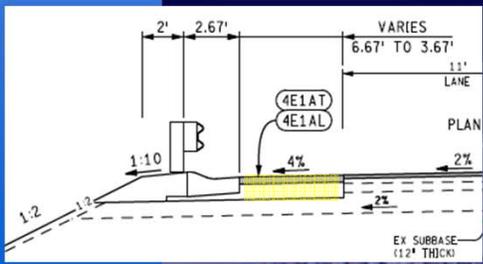


RID to Plan Comparison



Typical shows 2 course HMA with 9" Agg

Typical only shows Top Course for the 75' taper



Why are Details Important?

- Leica Captivate - Ability to use 3D Lines and Calculate Grades

The screenshot displays the Leica Captivate software interface, which is divided into several panels. The top panel shows the application name 'LeicaCaptivate' and various status icons, including a home icon, a person icon with a notification, and a battery icon. The top right corner displays the heading 'Hz 309°28'32"', the vertical angle 'V 87°49'39"', and the time '09:56am'. The main interface is split into three vertical sections. The leftmost section, titled 'I-96', shows a 3D perspective view of a road with a scale bar indicating '1300 fi'. The middle section, titled 'Task', shows a 3D view of a road with a tree and two points labeled '5.1+40.50' and '5.1+20.100'. The rightmost section, titled 'Check Layer', displays a 3D view of a road with a camera icon and a scale bar. Below the 'Check Layer' section, a data table provides the following information:

| Property | Value |
|---------------|-------------|
| Chainage | 511.9052 fi |
| CL offset | -46.2349 fi |
| Layer ht diff | -0.0085 fi |

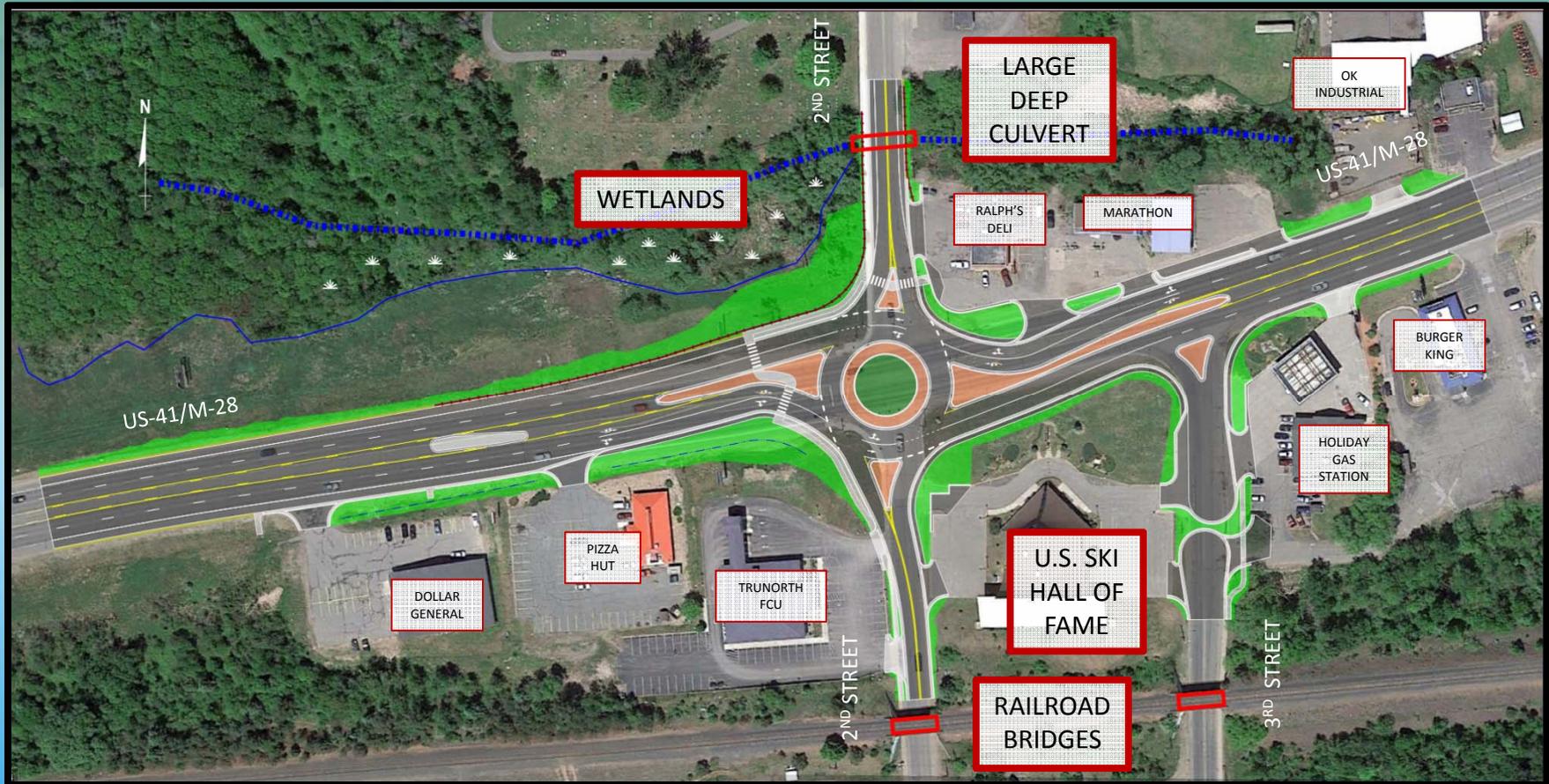
The bottom of the interface features a navigation bar with the following buttons: 'Fn', 'OK', 'Measure', 'Distance', 'Store', 'Page', and 'Fn'.

US-41 at 2nd Street, Ishpeming, Mi



- MDOT Ishpeming, TSC
- MDOT Project Manager
Ken Filpus, P.E.
- 2016 Construction

Background



US-41 at 2nd Street, Ishpeming, Mi



3D Modeling – MDOT_01/Geopak SS2



MINIMIZED IMPACTS
TO SKI HALL OF FAME

AVOIDED WETLANDS

AVOIDED IMPACTS TO THE CULVERT UNDER THE NORTH
LEG AND THE RAILROAD BRIDGES TO THE SOUTH

US-41 at 2nd Street, Ishpeming, Mi



Bristol at I-75



Provided by MDOT Bay Region



Questions?

Support Resources

| Support Resource | Description |
|--|---|
| MDOT-RIDSupport@michigan.gov  | Contact for questions related to 2D and 3D files posted to the RID folders. This resource will also be responsible for providing comments as part of an independent review of the RID files. |
| MDOT-BridgeDesignSupport@michigan.gov  | Contact for questions related to Bridge Design. |
| MDOT-CADDSupport@michigan.gov  | Contact for questions related to drawing tools and workspace installation. |
| MDOT-PowerGEOPAKSupport@michigan.gov  | Contact for questions related to geometry tools and roadway modeling |
| MDOT-Drainage-Utility@michigan.gov  | Contact for questions related to drainage and utility design software. |
| MDOT-Survey_Support@michigan.gov  | Contact for questions related to Surveys. |