

QA/QC Module and SCDOT Enhancements

Emily Berry, P.E., Assoc. DBIA

Assistant State Bridge Maintenance Engineer

SCDOT Director of Maintenance Office



Agenda

- Introduction
- BrM Enhancements
 - Inspection Assignment Enhancements
 - Inspection Procedures Module
 - Inspection Page Enhancements
- QA/QC Module
- Questions and Answers



Inspection Assignment Enhancements


- Configuring Inspection Types and Equipment Types at an Agency Level within BrM
- Using existing User Groups within BrM to Create Inspection Teams
- Map Views
- Creating Assignments and Assigning Inspections
- My Assignment Page for Inspectors
- Monitoring Past, Current, and Upcoming Inspection Assignments at an Agency Level



Inspection Assignment Enhancements: *Inspection Types*

Admin > General Config > Inspection Types

Inspection Types

<div>Search   Export </div>								
Name 	Show in Insp. Assign Module 	Default Frequency (months) 	NBI Reportable Insp. Type 	Notes 	Active 	Updated By 	Updated On 	
Complex	T	24	Routine	Replacing routine inspection for complex bridges.	T	MURDZIA, Daniel	06/24/2021	 
Damage	T				T	MURDZIA, Daniel	06/24/2021	 
Fracture Critical	T	24			T	USER, Pontis	04/23/2021	 
Initial	T			For recording baseline data.	T	SALATA, Steve	07/08/2021	 
Load Rating	T				T	MURDZIA, Daniel	06/24/2021	 
Other Special (Cloned)	T		Other Special	Cloned from Other Special inspection.	F	SALATA, Steve	07/22/2021	 
Other Special	T				T	SALATA, Steve	07/22/2021	 
Routine	T	24			T	USER, Pontis	04/23/2021	 
Underwater	T	60			T	SALATA, Steve	07/23/2021	 

« 1 »

9 items in 1 page



Inspection Assignment Enhancements: *New Inspection Type*

Admin > General Config > Inspection Types

Add New Inspection Type

Inspection Type Details

Name:	<input type="text"/>	Show in Insp. Assign Module:	<input checked="" type="checkbox"/>
Default Frequency:	<input type="text"/> Months		
NBI Reportable Insp. Type:	<input type="text"/>	Active:	<input checked="" type="checkbox"/>
Notes:	<div><input type="text"/></div>		

Inspector Requirements

Signature Required on File in BrM:	<input type="checkbox"/>	Stamp Required on File in BrM:	<input type="checkbox"/>
Qualification Required:	<div>Bridge Inspection Team Leader Complex Bridge Design Engineer Complex Bridge Inspection Team Leader Fracture Critical Inspector</div>		



Inspection Assignment Enhancements: *Equipment*

Admin > General Config > Equipment

Procedure Types

Insp. Type: All

Search



Export

+ Add New

Name	Equipment Roll-Up	Active		
12' Folding Ladder	A01 Ladder	T		
30' Extension Ladder	A01 Ladder	T		
A01 Ladder		T		
A02 Bucket lift vehicle		T		
A03 Under bridge inspection vehicle		T		
A04 Rigging		T		
A05 Waders		T		
A06 Boat		T		
A07 Snorkel		T		
A08 SCUBA		T		
A09 Surface supplied air		T		
A10 Remotely Operated Vehicle (ROV)		T		
A11 Video pole		T		



Insp. Assignment Enhancements: *Unassigned Inspections*

Inspection Management > Inspection Assignments

Unassigned Inspections

Unassigned Inspections Due in Next 3 Months.



Export

Due Date ▾	Inspection Type ▾	Bridge ID ▾	District ▾	County ▾	Facility Carried ▾	Feature Intersected ▾	Owner ▾	Maint ▾	Previous Group Assigned ▾	Requested Reassignment ▾	Reassignment Comment ▾	
09/01/2021	Underwater	000000000000568	District 2	(36) Newberry	SC 121	SALUDA RIVER	State Highway Agency	State Highway Agency				
09/01/2021	Underwater	000000000000607	District 2	(30) Laurens	US 25 BUS	SALUDA RIVER	State Highway Agency	State Highway Agency				
09/01/2021	Underwater	000000000000889	District 5	(35) Marlboro	US 1 SB	GREAT PEE DEE RIVER	State Highway Agency	State Highway Agency				
09/01/2021	Underwater	000000000001288	District 6	(10) Charleston	US 17 NB	WALLACE RIVER	State Highway Agency	State Highway Agency				
09/01/2021	Underwater	000000000001391	District 5	(35) Marlboro	US 15	GREAT PEE DEE RIVER	State Highway Agency	State Highway Agency				
09/01/2021	Underwater	000000000001726	District 1	(28)	S-28-18	SWIFT CREEK	State	State				



Inspection Assignment Enhancements: *Current Assignments*

Current Assignments

Search

Q

Export

Add New

Name ↕	All Inspections Performed By ↕	All Reviews Complete By ↕	User Group ↕	Expected Cost ↕	No. of Inspections ↕	Not Started ↕	Entered in BrM ↕	In Review ↕	Review Complete ↕
District 1 July 2021	07/31/2021	08/31/2021	District 1		4				<div>✎</div>
District 1 Richland County Secondary	08/31/2021	09/30/2021	Test Special Group		8				<div>✎</div> <div>🗑</div>
District 2 August 2021	08/31/2021	09/30/2021	District 2		3				<div>✎</div> <div>🗑</div>
District 5 October 2021	10/31/2021	11/30/2021	District 5		1				<div>✎</div> <div>🗑</div>

«

1

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4 items in 1 page



Inspection Assignment Enhancements: *My Assignments*

Inspection > My Assignments

My Group(s) Assignments

Assignment Details

Assignment Name:

District 1 July 2021

Assigned Group:

District 1

All Inspections Performed By:

07/31/2021

All Reviews Completed By:







08/31/2021

Search



Export

Map

Inspection Type	Bridge ID	District	County	Facility Carried	Feature Intersected	Owner	Maint	Equipment Needed	Inspection Procedures
Routine	000000000006921	District 1	(40) Richland	S-40-52 EB	I-77	State Highway Agency	37	0	  
Routine	000000000009586	District 1	(40) Richland	S-40-1274	BEE RIDGE RD	State Highway Agency	37	0	
Routine	000000000009585	District 1	(40) Richland	S-40-52	US 1 & CSX	State Highway Agency	37	0	
Routine	000000000001670	District 7	(03) Allendale	S-3-66	LOWER THREE RUN CREEK	State Highway Agency	37	0	

« 1 »

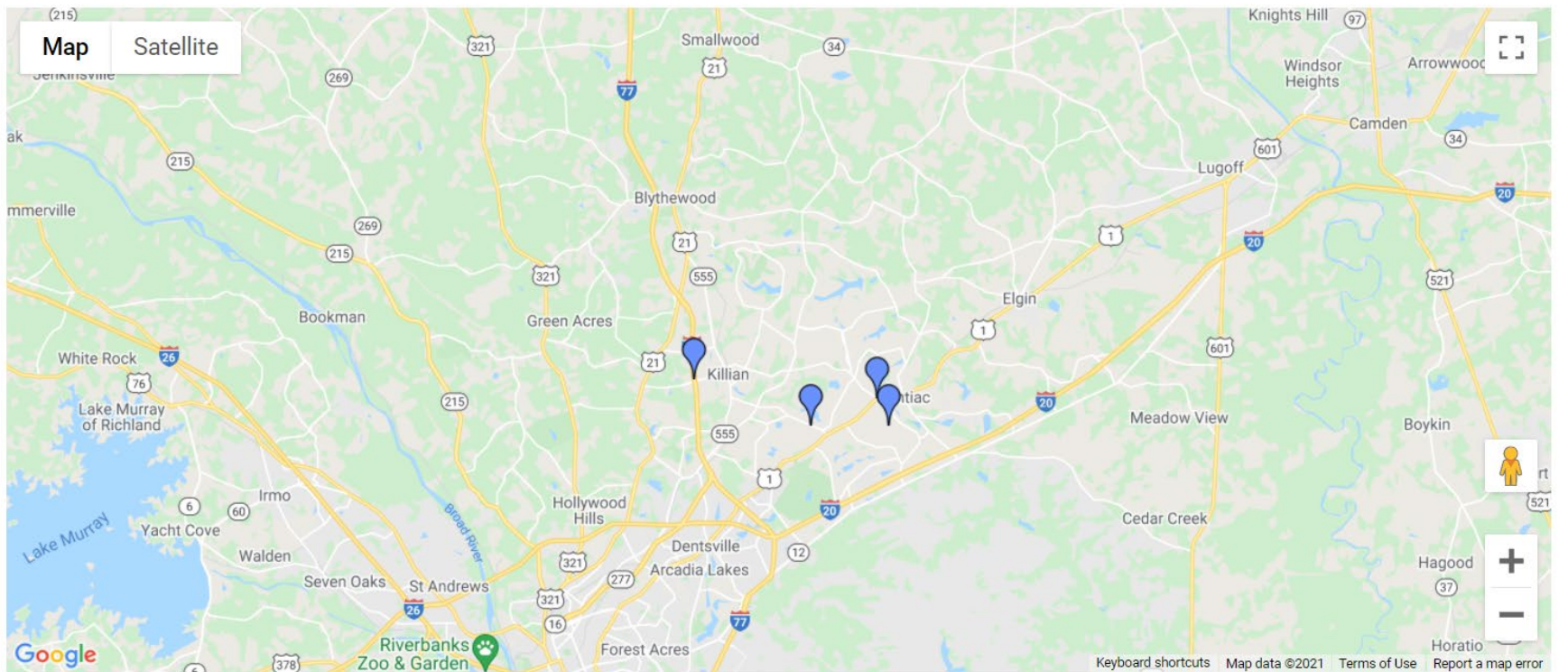
4 items in 1 page



Inspection Assignment Enhancements: *Assignments Map*

Inspection > My Assignments

Inspections Map



Inspection Procedures Module

- Configuring Inspection Procedures at an Agency Level within BrM
- Creating and Managing Inspection Procedures at a Bridge level



Inspection Procedures Module: *Procedure Type*

Admin > General Config > Inspection Procedures



Procedure Types

[Export](#)[+ Add New](#)

Name	Active	
Cables	T	
Fracture Critical	T	
Inspect Gussets	F	
Photographs	T	
Saddle Check	T	
Traffic Control	F	
Underwater	T	



« 1 »

7 items in 1 page



Inspection Procedures Module: *Procedure Template*

Procedure Templates

[Export](#)[+ Add New](#)

Procedure Type	Name	Inspection Type	Default Details	Updated By	Updated On	
Cables	Cable Check	Routine	Evaluation of interior strands of each cable in cable-stayed bridge needed.	SALATA, Steve	07/25/2021	
Photographs	Inventory Photos	Routine	Inventory photographs are required every ten years. Please don't forget to take the elevation shots.	MURDZIA, Daniel	06/24/2021	
Saddle Check	Saddle Check	Routine	Inspector to note on bridge specific page which saddles to check with ladders.	MURDZIA, Daniel	06/24/2021	
Underwater	FHWA Level I	Underwater	Per BIGD 5.3.7.2, Close visual inspection at arm's length with minimal cleaning to remove marine growth of the submerged portions of the bridge.	MURDZIA, Daniel	06/24/2021	
Underwater	FHWA Level II	Underwater	Surface cleaning required at low waterline, near the mudline and midway between mudline and waterline.	MURDZIA, Daniel	06/22/2021	
Underwater	FHWA Level III	Underwater	Requires NDT of underwater surfaces.	MURDZIA, Daniel	06/24/2021	

[«](#) [1](#) [»](#)

6 items in 1 page



Inspection Procedures Module: *Edit Template*

Inspection Procedures

Edit Procedure Template

* **Procedure Type:** Underwater

* **Name:** FHWA Level II

* **Inspection Type:** Underwater

* **Default Details:** Surface cleaning required at low waterline, near the mudline and midway between mudline and waterline.

Save Cancel Delete

marine growth of the submerged portions of the bridge.



Inspection Procedures Module: *Bridge Level*

Inspection > Procedures

The Inspection Procedure was saved successfully!

Bridge Inspection Procedures

Bridge

Feature Intersected (006A): TURKEY CREEK

Facility Carried (007): SC 41

Export

Add New

Procedure Type	Inspection Type	Procedure Template	Frequency	Date	Custom Details	Details	Updated By	Updated On	
Underwater	Underwater	FHWA Level II	Every	F	Surface cleaning required at low waterline, near the mudline and midway between mudline and waterline.	Murdzia, Daniel	8/22/2021		

1

1 item in 1 page



Inspection Procedures Module: *Customized Option*

Add New Procedure

* Procedure Type:

Underwater

* Inspection Type:

Underwater

* Procedure Template:

FHWA Level II

* Frequency:

Every

Customize Details for this Bridge:



* Details:

Surface cleaning required at low waterline, near the mudline and midway between mudline and waterline.



 Save

 Cancel



Inspection Page Enhancements

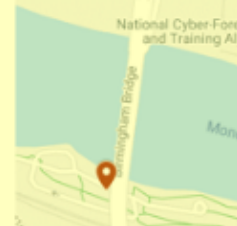
- Beginning a new inspection within BrM
- Creating and updating inspection logistics within BrM
- Creating and updating inspection schedules within BrM
- Creating and updating sketch templates within BrM
- Creating and updating inspection-level sketches within BrM
- Viewing a list of completed work candidates within BrM



Inspection Page Enhancements: *Logistics Page (1)*

Facility Carried (007): read only

Notes: read only read only read only read only read only read only read only
read only read only read only read only read only read only read only
read only read only



Inspection Date:*

Inspector:*

Entered By:*

Engineer of Record:

Inspection Type	Associated Inspections in Same Assignment
<input checked="" type="checkbox"/> Inspection Type 1	<i>assigned to your inspection group and due MM/DD/YYYY</i>
<input type="checkbox"/> Inspection Type 2	<i>assigned to your inspection group and due MM/DD/YYYY</i>
<input type="checkbox"/> Inspection Type 3	
<input type="checkbox"/> Inspection Type 4	
<input type="checkbox"/> Inspection Type 5	
<input type="checkbox"/> (etc)	

Create Cancel



Inspection Page Enhancements: *Logistics Page (2)*

Inspection Procedures				
<button>Export</button>				
Complete	Procedure Type	Name	Inspection Type	Details
<input type="checkbox"/>	Type 1	Procedure 1	Inspection Type	Details details details details details details details details details details Details details details details details details details details details details details details details
<input type="checkbox"/>	Type 1	Procedure 2	Inspection Type	Details details details details details details details details details details Details details details details details details details details details details Details details details details details details details details details details details details details
<input type="checkbox"/>	Type 2	Procedure 3	Inspection Type	Details details details details details details details details details details details details details
<input type="checkbox"/>	Type 3	Procedure 4	Inspection Type	Details details details details details details

Procedure Notes:

Equipment Used in This Inspection

Manage Equipment

Name	Hours	Cost
Equipment 1		
Equipment 2		
Equipment 3		
Equipment 4		
Equipment 5		
Equipment 6		
Equipment 7		
Equipment 8		
Equipment 10		

Total Cost \$ XX,XXX.XX

Equipment Notes:



Inspection Page Enhancements: *Equipment*

Manage Equipment

Available Equipment

Search:

Equipment 1
Equipment 2
Equipment 3
etc

>>
>
<
<<

Selected Equipment

Search:

Equipment 4
Equipment 5
etc

Save

Cancel



Inspection Page Enhancements: *Schedule*

Bridge: Facility Carried (007): Inspection:

Summary			
Date Entered:*	<input type="text"/>	Inspection Date:*	<input type="text"/>
Inspector:*	<input type="text" value="drop down"/>	Entered by:*	<input type="text" value="drop down"/>
Engineer of Record:	<input type="text"/>		

Schedule							
Inspection Types	Inspections Being Performed	Inspections Required	Most Recent Inspection Date	Frequency (months)	Next Inspection Est. Date	Inspection Assignment Name	Inspection Assignment Group
Routine	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MM/DD/YYYY	##	MM/DD/YYYY	Assignment Name	Group Name
Fracture Critical	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MM/DD/YYYY	##	MM/DD/YYYY	Assignment Name	Group Name
Underwater	<input type="checkbox"/>	<input type="checkbox"/>					
Other Special	<input type="checkbox"/>	<input type="checkbox"/>					
Agency Specific 1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MM/DD/YYYY	##	MM/DD/YYYY	Assignment Name	Group Name
Agency Specific 2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	MM/DD/YYYY	##	MM/DD/YYYY	Assignment Name	Group Name
NBI Reportable Inspections Summary	Inspections Required	Most Recent Inspection Date	Frequency (months)	Next Inspection Est. Date			
Routine	<input checked="" type="checkbox"/>	(090) MM/DD/YYYY	(091) ##	MM/DD/YYYY			
Fracture Critical	(092AA) <input checked="" type="checkbox"/>	(093A) MM/DD/YYYY	(092AB) ##	MM/DD/YYYY			
Underwater	(092BA) <input type="checkbox"/>	(093B)	(092BB)				
Other Special	(092CA) <input type="checkbox"/>	(093C)	(092CB)				
Schedule Notes: <input type="text"/>							



Inspection Page Enhancements: *Sketch Tool*

Create Sketch

Bridge: *read only* Inspection: *read only*

Sketch Details

Sketch Name:*

Span:

Downstation Bent:

Orientation:

Beam:

Upstation Bent:

Sketch

Edit

Save

Save & Close

Delete

Cancel



QC/QA Module

- Configuring Inspection Review Workflow at Agency Level
- Performing Inspection Review with Comments/Flags
- Automatically Assigning Inspection Reviews w/ Configured Rules and Checking User Certifications
- Viewing a list of inspections...
 - Pending Review User Group
 - Inspections In Review by a User









QC/QA Module: *Adding Review Steps*

Inspection Review Workflow Steps

Steps will be checked in order. A step is chosen for a given inspection when any condition in the step matches the given inspection. System checks all steps for all inspection types.

Add New

click here

Order	Name	Days to Complete	Generate Report	Updated By	Updated On	
1	Step Name 1	##	<Report Name>	LastName, FirstName	MM/DD/YYYY	 
2	Step Name 2	##		LastName, FirstName	MM/DD/YYYY	 
3	Step Name 3	##	<Report Name>	LastName, FirstName	MM/DD/YYYY	 

Add New Button:

Step Details

Name:*

Days from Inspection Date to Complete Step:*

Generate Report:

drop down

Save

Cancel

click here to see page after initial save









QC/QA Module: *Listing Conditions of a Step*

Step Conditions

This Inspection Review Workflow Step is completed when at least one of the below conditions is met. Conditions are checked in order until a match is found.

[click here](#) [Add New](#)

Order	Name	Reviewer Group	% of Inspections	Expiration Date	Updated By	Updated On	
1	Condition Name 1	User Group	##		LastName, FirstName	MM/DD/YYYY	 
2	Condition Name 2	User Group	##		LastName, FirstName	MM/DD/YYYY	 
3	Condition Name 3	User Group	##	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 

[Save](#) [Cancel](#) [click here to return to previous page](#)



QC/QA Module: *Create Condition Page*

Condition Details	
Name:*	<input type="text"/>
% of Inspections:*	<input type="text" value="drop down"/>
Expiration Date:	<input type="text"/>

















Reviewer Details	
User Group Assigned as Reviewers:*	<input type="text" value="drop down"/>
Apply Inspection Type Qualifications:	<input type="text" value="Inspection Type 1
Inspection Type 2
Inspection Type 3
etc"/>
Signature Required:	<input type="checkbox"/>
Stamp Required:	<input type="checkbox"/>

Rule Builder						
<input type="button" value="Add Condition"/>		<input type="button" value="Add Group"/>				
Type:*	<input type="text" value="drop down"/>	When*	<input type="text" value="drop down"/>	Is/In*	<input type="text" value="multi drop down"/>	<input type="button" value="Remove Condition"/>
<input type="text" value="AND/OR"/>						
Group 1						
<input type="button" value="Add Condition"/>		<input type="button" value="Add Group"/>		<input type="button" value="Remove Group"/>		
Type:*	<input type="text" value="drop down"/>	When:*	<input type="text" value="multi select list"/>	Is/In*	<input type="text" value="multi select list"/>	<input type="button" value="Remove Condition"/>
<input type="text" value="AND/OR"/>						
Type:*	<input type="text" value="drop down"/>	When:*	<input type="text" value="multi select list"/>	Is/In*	<input type="text" value="multi select list"/>	<input type="button" value="Remove Condition"/>
<input type="text" value="AND/OR"/>						
Group 2						
<input type="button" value="Add Condition"/>		<input type="button" value="Add Group"/>		<input type="button" value="Remove Group"/>		
Type:*	<input type="text" value="drop down"/>	When:*	<input type="text" value="multi select list"/>	Is/In*	<input type="text" value="multi select list"/>	<input type="button" value="Remove Condition"/>

<input type="button" value="Save"/>	<input type="button" value="Save & Close"/>	<input type="button" value="Delete"/>	click here to return to previous page
-------------------------------------	---	---------------------------------------	---



QC/QA Module: *Select Data for Review*

Data Values								
Export			Add New					
Order	Number	Name	Database field	Created by	Created on	Updated by	Updated on	
1	##	NBI Value 1	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 
2	##	NBI Value 2	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 
3	##	NBI Value 3	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 
4	##	NBI Value 4	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 
5	##	NBI Value 5	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 
6	##	NBI Value 6	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 
7	##	NBI Value 7	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 
8	##	NBI Value 8	tablename.columnname	LastName, FirstName	MM/DD/YYYY	LastName, FirstName	MM/DD/YYYY	 

Create Data Value

Database table:*

Database field:*



QC/QA Module: *Starting a Review*

Inspections Pending Review

Search: [Excel](#)

[click here](#)

Due Date ▾	Days Remaining ▾	Status ▾	Bridge ID ▾	District ▾	County ▾	Facility Carried ▾	Feature Intersected ▾	Inspector ▾	Previous Review Completed By ▾	
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	▶

<< 1 >>

8 item(s) on 1 page(s)

My In-Progress Inspection Reviews

Search: [Excel](#)

Due Date ▾	Days Remaining ▾	Status ▾	Bridge ID ▾	District ▾	County ▾	Facility Carried ▾	Feature Intersected ▾	Inspector ▾	Previous Review Completed By ▾	
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗
MM/DD/YYYY	##	Status	#####	District	County	Facility	Feature	LastName, FirstName	LastName, FirstName	🔗

<< 1 >>

8 item(s) on 1 page(s)



QC/QA Module: *Performing a Review (1)*

Inspected	Element	Str. Unit	Env.	Description		Tot. Qty.	Units	Qty 1	Qty 2	Qty 3	Qty 4	Flagged in Previous Step	
Y/N	##	##	##	Element Description	Previous Insp. Value	##	units	##	##	##	##	Y, N, N/A	<div><div><div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div></div></div>
				Current Insp. Value	##	units	##	##	##	##			
	##	##	Prot.	Element Description	Previous Insp. Value	##	units	##	##	##	##		
				Current Insp. Value	##	units	##	##	##	##			
	##	##	Defect	Element Description	Previous Insp. Value	##	units	##	##	##	##		
				Current Insp. Value	##	units	##	##	##	##			
Y/N	##	##	##	Element Description	Previous Insp. Value	##	units	##	##	##	##	Y, N, N/A	<div><div><div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div></div></div>
				Current Insp. Value	##	units	##	##	##	##			
Y/N	##	##	##	Element Description	Previous Insp. Value							Y, N, N/A	<div><div><div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div></div></div>
				Current Insp. Value	##	units	##	##	##	##			
Y/N	##	##	##	Element Description	Previous Insp. Value	##	units	##	##	##	##	Y, N, N/A	<div><div><div><div></div></div></div><div><div></div><div></div><div></div></div><div><div></div></div></div>
				Current Insp. Value									

Data Value: ☑ 🚩 🗨

Multimedia: ☑ 🚩 🗨 📷 📁

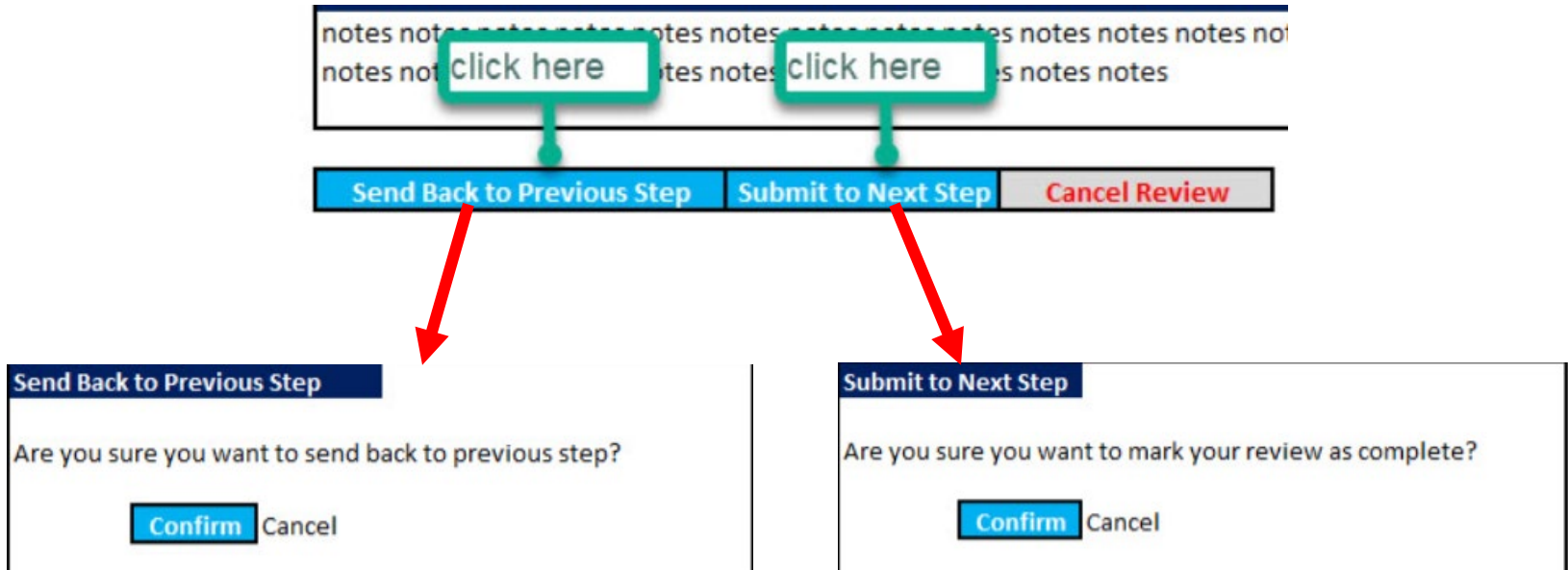
Cross Sections: ☑ 🚩 🗨 📷



QC/QA Module: *Performing a Review (2)*

[illegible]

QC/QA Module: *Performing a Review*



Question and Answer

- Emily Berry, P.E., Assoc. DBIA
 - berryej@scdot.org
 - SCDOT Director of Maintenance Office
 - Assistant State Bridge Maintenance Engineer

