



# AASHTOWare Bridge Management Customizations

PENNSYLVANIA TURNPIKE COMMISSION

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# AASHTOWare BrM Customizations

- General Overview
- Technical Overview



# General Overview

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BRIDGE & TUNNEL MAINTENANCE COORDINATOR,  
PENNSYLVANIA TURNPIKE COMMISSION



## PTC BrM

- Same User Interface
- Additional Tabs
  - PTC
  - Ancillary Structures
  - PennDOT
  - Structure Maintenance

**Menu**

- [View List](#)
- [Select All](#)
- [Unselect All](#)
- [Select Page](#)
- [Unselect Page](#)
- [Just Selected](#)
- [Apply Grid Settings](#)
- [Reset Grid Settings](#)
- [Printable View](#)
- [Manage Layouts](#)
- [Manage Filters](#)
- [New Inspection](#)
- [Suff Rate](#)
- [Validate](#)
- [Create Struct](#)
- [Copy Struct](#)
- [Remove Struct](#)
- [Manage Bridge Analysis Groups](#)
- [Mapping](#)

**Bridges Reports Admin Inspection Gateway Analysis PTC Ancillary Structures PennDOT Structure Maintenance**

Filter: BrM - None Layout: Default Jump to Bridge:

	Bridge ID	District	County	Facility Carried	Feature Intersected	Own	Maint	Built
<input checked="" type="checkbox"/>	A020.43	District 6	Montgomery	PA TPK (I-476)	T-645	PTC	PTC	2014
<input type="checkbox"/>	A021.00	District 6	Montgomery	LR 46143,SR 3012	PA TPK(I-476)	PA DOT	PTC	2010
<input type="checkbox"/>	A021.43	Unknown	Montgomery			PTC	PTC	1954
<input type="checkbox"/>	A021.75	Unknown	Montgomery			PTC	PTC	1955
<input type="checkbox"/>	A021.76	District 4	Montgomery	PA TPK (I-476)	LR46154, SR3001	PTC	PTC	2014
<input type="checkbox"/>	A022.10	Unknown	Montgomery			PTC	PTC	1954
<input type="checkbox"/>	A022.62	District 6	Montgomery	PA TPK (I-476)	T-346	PTC	PTC	2014
<input type="checkbox"/>	A022.88	District 6	Montgomery	PA TPK (I-476)	Tributary to Stony Creek	PTC	PTC	1955
<input type="checkbox"/>	A023.01	District 6	Montgomery	PA TPK (I-476)	T-369	PTC	PTC	2014
<input type="checkbox"/>	A023.42	District 6	Montgomery	LR 178, SR 0202	PA TPK (I-476)	PA DOT	PTC	2010
<input type="checkbox"/>	A023.83	District 6	Montgomery	PA TPK (I-476)	S Branch Stony Creek	PTC	PTC	1955
<input type="checkbox"/>	A024.66	District 6	Montgomery	PA TPK (I-476)	SEPTA RR & CSX RR	PTC	PTC	2014
<input type="checkbox"/>	A024.70	District 6	Montgomery	PA TPK (I-476)	N Branch of Stony Creek	PTC	PTC	1955
<input type="checkbox"/>	A024.81	District 6	Montgomery	PA TPK (I-476)	T-377	PTC	PTC	2014
<input type="checkbox"/>	A024.87	District 6	Montgomery	PA TPK (I-476)	SR0073	PTC	PTC	2014
<input type="checkbox"/>	A025.62	Unknown	Montgomery			PA DOT	PA DOT	2008
<input type="checkbox"/>	A026.22	District 6	Montgomery	PA TPK (I-476)	T-379	PTC	PTC	2016
<input type="checkbox"/>	A026.38	Unknown	Montgomery			PTC	PTC	1955
<input type="checkbox"/>	A026.75	Unknown	Montgomery			PTC	PTC	1955
<input type="checkbox"/>	A026.77	District 6	Montgomery	PA TPK (I-476)	SR 2002, LR46130	PTC	PTC	2016
<input type="checkbox"/>	A027.20	District 6	Montgomery	LR 46159,SR 2001	PA TPK(I-476);NB-129	PA DOT	PTC	2011
<input type="checkbox"/>	A027.59	Unknown	Montgomery			PTC	PTC	1955



## Summary of BrM Customizations

- Bridge Module
- Ancillary Structures
- Data Exchange with PennDOT
- Integration with Structure Maintenance Application





## Bridge Module Customizations

- Custom BrM Forms
  - Makes Data from Legacy Bridge Management System (RAMS) Available in BrM
- Multimedia Attachments Enhancement
  - Allows BrM Multimedia Attachments to Be Stored in Hierarchical Folder Structure on a File Server.



# Bridge Module Customizations

- History
  - PTC Legacy Bridge Management System (RAMS)
    - 1400+ bridges and culverts
    - Data Storage
      - SQL Server
      - 25,000+ Attachments on File Server
    - Desktop Application



PTC Bridge Log



General Bridge Information

Route and Milepost:  Current Bridge Number:  Previous Bridge Numbers:  Structure Type:  Showing record 2 of 1404 records selected.

**Structure Data**

Location

Inspections

Load Ratings

Clearances

Misc

Structure Information

BMS Number:  Wearing Surface:  Skew Angle:   
Structure Type:  Overlay Year:  PennDOT Bridge Numbers:   
Structure Owner:  Deck Length:   
Year Built:  Deck Width:  Inspect?:   
Year Reconstructed:  Deck Area:  Last Inspection Date:

Span Information:

	Number	Length	Type
▶	1	29.08	

Total Span Length:

PTC Bridge Log



General Bridge Information

Route and Milepost:  Current Bridge Number:  Previous Bridge Numbers:  Structure Type:  Showing record 2 of 1414 records selected.

Structure Data

**Location**

Inspections

Load Ratings

Clearances

Workorders

Misc

Location Information

PTC Station:

UNITS	TYPE	STATION
▶ English	Original	155+79,ORIG.42+85

Offset Direction:

Offset Distance:

County:

Crossing Indicator:

Township:

Crossing Feature:

Maintenance District:

Section:

Local Name:

Latitude:  Deg.  Minutes

Longitude:

PTC Bridge Log



General Bridge Information

Route and Milepost:  Current Bridge Number:  Previous Bridge Numbers:  Structure Type:  Showing record 2 of 1414 records selected.

Structure Data

Location

**Inspections**

Load Ratings

Clearances

Workorders

Misc

General Inspection Information

Inspection Date:  Consultant:  Snoopers Hours:   
 Rigging Used:  Next Inspection Date:  Snoopers Used:

Inspection Images

Inspection Man Hours and Cost:

Engineering Hours:   
 Office Hours:   
 Engineering Cost:   
 Office Cost:   
 Total Hours:   
 Total Cost:

Condition Ratings:

Approach Slab Rating:  Safety Features:   
 Wear Surface Rating:  Paint Code:   
 Deck Rating:   
 Superstructure Rating:   
 Substructure Rating:   
 Culvert Rating:   
 PTC Rating:

Other Inspections:

PTC Bridge Log



General Bridge Information

Route and Milepost:  Current Bridge Number:  Previous Bridge Numbers:  Structure Type:  Showing record 2 of 1414 records selected.

Structure Data

Location

Inspections

**Load Ratings**

Clearances

Workorders

Misc

Design Load Ratings:

Design Ratings Method:

Ratings Performed By:

Load Rating Date:

Program and Controlling Member Used:

Program Used:

Controlling Member:

Ratings:

	Inventory:	Operating:
Load Type H:	<input type="text" value="28"/>	<input type="text" value="47"/>
Load Type HS:	<input type="text" value="45"/>	<input type="text" value="75"/>
Load Type ML80:	<input type="text" value="33"/>	<input type="text" value="56"/>
Load Type P82:		<input type="text" value="99"/>

Other Load Ratings:

PTC Bridge Log



General Bridge Information

Route and Milepost:  Current Bridge Number:  Previous Bridge Numbers:  Structure Type:  Showing record 2 of 1414 records selected.

- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances**
- Workorders
- Misc

Clearances

		Number of Lanes		Clearances		Clearance Date						
		Left	Right	Left	Right							
Horizontal Clearances (ft.ft.)	On:	<input type="text" value="4"/>	<input type="text" value="31.5"/>	<input type="text" value="31.4"/>	<input type="text" value="6/15/2006"/>							
	Under:	<input type="text" value="2"/>	<input type="text" value="00.0"/>	<input type="text" value="31.6"/>								
Vertical Clearances (ft. In.)	PT A	PT 1	PT 2	PT 3	PT 4	PT B	PT C	PT 5	PT 6	PT 7	PT 8	PT D
	<input type="text"/>	<input type="text" value="1409"/>	<input type="text" value="1405"/>	<input type="text" value="1405"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="1603"/>	<input type="text" value="1510"/>	<input type="text" value="1509"/>	<input type="text"/>	<input type="text"/>
Changed?	<input type="text" value="N"/>	<input type="text" value="Y"/>	<input type="text" value="Y"/>	<input type="text" value="Y"/>	<input type="text" value="N"/>	<input type="text" value="N"/>	<input type="text" value="N"/>	<input type="text" value="Y"/>	<input type="text" value="Y"/>	<input type="text" value="Y"/>	<input type="text" value="N"/>	<input type="text" value="N"/>
Consultant	<input type="text"/>						Other Clearances	<input type="text" value="6/15/2006"/>				

- 
- 
-

PTC Bridge Log



General Bridge Information

Route and Milepost:  Current Bridge Number:  Previous Bridge Numbers:  Structure Type:  Showing record 2 of 1414 records selected.

Structure Data

Location

Inspections

Load Ratings

Clearances

**Workorders**

Misc

WorkOrders

Work Order Number:  Crew Size:  Entered Date:   
Submit Date:  Requested Completion Date:  Other Work Orders:

Work Required:

\*Stabilize roadway embankment erosion.  
\*Monitor loose concrete and remove, if necessary. (beams 7 & 8)

Equipment Used:

Materials Used:

Transmit Work Order to SOMS

View Workorder in SOMS

SOMS Workorder Number:



PTC Bridge Log



General Bridge Information

Route and Milepost:  Current Bridge Number:  Previous Bridge Numbers:  Structure Type:  Showing record 2 of 1414 records selected.

Structure Data

Location

Inspections

Load Ratings

Clearances

Workorders

**Misc**

Miscellaneous Information

Field Notes:

\*Install hazard markers on all four corners along T-645.

Miscellaneous:

Recent Repairs/Rehab:

Microfilm Numbers:

Misc Structural

Fracture critical:

Critical Rate Factor:

Sufficiency Rating:

Struct Deficient/  
Functionally  
Obsolete:

Bridge Active?

On Ten Year Plan:

Year Painted:

Paint Contract:

Steel Area (Sq. Ft.):

Paint System:

Federal Paint Code:

Paint Color:

Stream/Scour Information:

Over Water:

Under Water Inspection:

Inspection Date:

Scour Report:

Report Date:



# Custom Bridge Module Forms

CUSTOM BRM FORMS

Menu

- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances
- Miscellaneous
- Attachments
- Work Requests

Bridge  Bridge Number: **NB-104**  Metric  English

**Structure Information**

Route (005D): A	Milepost (011): 20.43 mi	Wearing surface: C
BMS Number (008): 46747699002043	Overlay Year: 0	Skew Angle (034): 75
Structure Type: P/S SpBB	Deck Length: 49.560 ft	Inspect: <input checked="" type="checkbox"/>
Structure Owner (022): PTC	Deck Width (052): 123.375 ft	Last Inspection Date: 6/22/2016
Year Built (027): 2014	Deck Area: 6114.000 (SF)	Report to PennDOT: <input checked="" type="checkbox"/>
Year Recon (106):		

<p><b>Structure Type</b></p> <p>Main Spans</p> <p>Material (043A): 5 Prestressed Concrete</p> <p>Design (043B): 06 Single/Spread Box</p> <p>Approach Spans</p> <p>Design (044B): Not Applicable (P)</p>	<p><b>BMS2 Structure Type</b></p> <p>Main Spans</p> <p>Material: 4 Prestressed precast co</p> <p>Physical Makeup: 2 Pretensioned</p> <p>Span Interaction: 2 Simple, composite</p> <p>Structure Configuration: 06 Box beam - multiple (</p>	<p><b>Approach Spans</b></p> <p>Material: Not Applicable</p> <p>Physical Makeup: Not Applicable</p> <p>Span Interaction: Not Applicable</p> <p>Structure Configuration: <b>! (FIX PARAM VALUES)</b></p>
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Number	Length	Type
1	48	

Total Span Length: 48.00 ft [Create New Bridge Span](#)

[Delete Structure](#) [Save](#) [Save & Close](#) [Cancel](#)

- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances
- Miscellaneous
- Attachments
- Work Requests

Bridge  Bridge Number: **NB-104**  Metric  English

**Location Information**

PTC Station: <input type="text" value="155+79,ORIG.42+85"/>	County (003): <input type="text" value="Montgomery"/>
Offset Direction: <input type="text" value="Neither"/>	Township (004): <input type="text" value="Plymouth"/>
Offset Distance: <input type="text"/> ft	Maintenance District: <input type="text" value="4"/>

Crossing Indicator:

Crossing Feature:

Local Name:

- Menu
- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances
- Miscellaneous
- Attachments
- Work Requests

Bridge:  Bridge Number: **NB-104** Inspection:  Type: **P/S SpBB**

Metric  English

**General Inspection Information**

Inspection Date (090):  Consultant:   
 Next Inspection Date:  Snooper Used:

<p><b>Inspection Man Hours and Cost</b></p> <p>Engineering Hours: <input type="text" value="8"/>          Office Hours: <input type="text" value="6"/>          Engineering cost: <input type="text" value="840"/>          Office Cost: <input type="text" value="630"/></p>	<p><b>Condition Ratings</b></p> <p>Approach Slab Rating: <input type="text" value="8 Very Good"/>          Wear Surface Rating: <input type="text" value="8 Very Good"/>          Deck Rating (058): <input type="text" value="8 Very Good"/>          Superstructure Rating (059): <input type="text" value="8 Very Good"/>          Substructure Rating (060): <input type="text" value="7 Good"/>          Culvert Rating (062): <input type="text" value="N N/A (NBI)"/>          Structural Evaluation (067): <input type="text" value="7 Above Min Criteria"/></p>	<p><b>Safety Features:</b> <input type="text" value="8888"/>  <b>Paint Code:</b> <input type="text" value="NN"/></p>
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**Misc Structural**

Fracture Critical:   
 Critical Rate Factor:   
 Sufficiency Rating:   
 Struct Deficient/Functionally Obsolete:

- Menu
- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances
- Miscellaneous
- Attachments
- Work Requests

Bridge:  Bridge Number: **NB-104** Load Ratings:

Metric  English

**Design Load Ratings**

Design Load Method
Ratings Performed By
Load Rating Date

Load Factor
Century
1/28/2016

Current Load Rating on File:

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**Program and Controlling Member Used**

Program Used:

Controlling Member:

**Ratings**

Load Type	Inventory	Operating
H:	33.000 ton	62.000 ton
HS:	43.000 ton	79.000 ton
ML80:	35.000 ton	70.000 ton
TK-527:	40.000 ton	79.000 ton
(FIX PARAM VALUES)	<input type="text"/>	<input type="text"/>
Load Type P82:	<input type="text" value="133.000 ton"/>	

[Create New Load Ratings](#)



- Menu
- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances
- Miscellaneous
- Attachments
- Work Requests

Bridge:  Bridge Number: **NB-104** Clearance Date:  Metric  English

**Horizontal Clearances**

Horizontal Clearances	Number of Lanes		Left		Right	
	On:	Under:	Distance A:	Distance C:	Distance B:	Distance D:
	<input type="text" value="6"/>	<input type="text" value="2"/>	<input type="text" value="10.750"/> ft	<input type="text" value="10.500"/> ft	<input type="text" value="9.750"/> ft	<input type="text" value="10.000"/> ft

Legend

**Vertical Clearances**

	PT A	PT 1	PT 2	PT 3	PT 4	PT B
Vertical Clearances	<input type="text" value="16.910"/> ft	<input type="text" value="16.290"/> ft	<input type="text" value="15.720"/> ft	<input type="text" value="15.810"/> ft	<input type="text" value="21.660"/> ft	<input type="text" value="15.910"/> ft
Changed	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	PT C	PT 5	PT 6	PT 7	PT 8	PT D
Vertical Clearances	<input type="text" value="21.580"/> ft	<input type="text" value="20.910"/> ft	<input type="text" value="20.770"/> ft	<input type="text" value=""/> ft	<input type="text" value=""/> ft	<input type="text" value="20.830"/> ft
Changed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Legend

Consultant:  Clearance Date:

- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances
- Miscellaneous
- Attachments
- Work Requests

Bridge  Bridge Number: **NB-104**  Metric  English

**Miscellaneous Information**

**Field Notes**

**Miscellaneous**

**Recent Repairs/Rehab**

<b>Misc Structural</b>	Year Painted: <input type="text" value="0"/>
Fracture Critical: 9	Paint Contract: <input type="text"/>
Critical Rate Factor: 9993	Steel Tonnage: <input type="text" value="0.00"/> ton
Sufficiency Rating:	Paint System: <input type="text"/>
Structure Rating:	Federal Paint Code: <input type="text"/>
	Paint Color: <input type="text"/>

**Stream/Scour Information**

Under Water Inspection    Inspection Date:      Scour Report:     Report Date:



# Ancillary Structures



# Ancillary Structures

- History
  - RAMS
    - Supported only Sign Structures
    - Data Storage in SQL Server
    - User Interface
      - Structure Data
      - Inspections
- Ancillary Structures Tab In BrM 5.2.1
  - Supports
    - Sign Structures
    - Noise Barriers
    - Retaining Walls
    - High Mast Lighting Poles

Menu

- Structures
- Structure List
- Create Structure
- Create Filter
- Edit Filters
- Structure
- Attachments
- Work Requests

Select Filter:  Select to Open Structure:

Structure ID	Structure Name	Route	Milepost	District	County	Year Built	Structure Type	Last Inspection Date
A020.00	A020.00	A	20				Sign Structure	
A020.01	SS A020.01	A	20.01	District 4	Montgomery		Sign Structure	7/29/2014 12:00:00 AM
A020.09	RE A020.09	A	20.09	District 4	Montgomery		Retaining Wall	10/17/2012 12:00:00 AM
A020.12	N A020.12	A	20.12	District 4	Montgomery	2013	Noise Barrier	12/23/2013 12:00:00 AM
A020.19	N A020.19	A	20.19	District 4	Montgomery	2013	Noise Barrier	12/23/2013 12:00:00 AM
A020.20	RE A020.20	A	20.2	District 4	Montgomery	1992	Retaining Wall	10/17/2012 12:00:00 AM
A020.22	RE A020.22	A	20.22	District 4	Montgomery	2013	Retaining Wall	12/23/2013 12:00:00 AM
A020.36	RE A020.36	A	20.36	District 4	Montgomery		Retaining Wall	10/17/2012 12:00:00 AM
A020.45	SS A020.45	A	20.45	District 4	Montgomery	2014	Sign Structure	7/10/2014 12:00:00 AM
A020.67	SS A020.67	A	20.67	District 4	Montgomery	2014	Sign Structure	
A020.92	SS A020.92	A	20.92	District 4	Montgomery		Sign Structure	
A021.18	SS A021.18	A	21.18	District 4	Montgomery		Sign Structure	12/14/2014 12:00:00 AM
A021.23	N A021.23	A	21.23	District 4	Montgomery	2013	Noise Barrier	12/11/2013 12:00:00 AM
A021.31	N A021.31	A	21.31	District 4	Montgomery	2013	Noise Barrier	12/11/2013 12:00:00 AM
A021.40	RE A021.40	A	21.4	District 4	Montgomery	2013	Retaining Wall	12/11/2013 12:00:00 AM
A021.55	SS A021.55	A	21.55	District 4	Montgomery		Sign Structure	9/25/2014 12:00:00 AM
A021.74	RE A021.74	A	21.74	District 4	Montgomery	2013	Retaining Wall	12/11/2013 12:00:00 AM
A021.80	RE A021.80	A	21.8	District 4	Montgomery	2013	Retaining Wall	12/11/2013 12:00:00 AM
A021.95	SS A021.95	A	22.3	District 4	Montgomery		Sign Structure	9/26/2014 12:00:00 AM
A022.03	RE A022.03	A	22.03	District 4	Montgomery	2013	Retaining Wall	12/11/2013 12:00:00 AM
A022.21	SS A022.21	A	22.21	District 4	Montgomery	2014	Sign Structure	
A022.30	SS A022.30	A	22.3	District 4	Montgomery		Sign Structure	12/14/2014 12:00:00 AM
A022.36	SS A022.36	A	22.36	District 4	Montgomery	2014	Sign Structure	5/7/2015 12:00:00 AM
A022.48	N A022.48	A	22.48	District 4	Montgomery	2013	Noise Barrier	12/11/2013 12:00:00 AM
A022.62	RE A022.62	A	22.62	District 4	Montgomery	2013	Retaining Wall	12/11/2013 12:00:00 AM
A022.84	N A022.84	A	22.84	District 4	Montgomery	2013	Noise Barrier	12/11/2013 12:00:00 AM
A022.87	RE A022.87	A	22.87	District 4	Montgomery	2013	Retaining Wall	12/11/2013 12:00:00 AM
A022.92	RE A022.92	A	22.92	District 4	Montgomery	2013	Retaining Wall	12/11/2013 12:00:00 AM
A022.99	N A022.99	A	22.99	District 4	Montgomery	2013	Noise Barrier	12/11/2013 12:00:00 AM
A023.02	N A023.02	A	23.02	District 4	Montgomery	2013	Noise Barrier	12/11/2013 12:00:00 AM
A023.30	SN A023.30	A	23.3	District 4	Montgomery	2013	Retaining Wall	12/23/2013 12:00:00 AM

Menu

- Structures
- Structure
- Structure Data
- Inspections
- Attachments
- Work Requests

Structure:  Structure ID: **A020.01**

**Structure Information**

Structure ID:	<input type="text" value="A020.01"/>	Structure Type:	<input type="text" value="Sign Structure"/>
Structure Name:	<input type="text" value="SS A020.01"/>	Structure Configuration:	<input type="text" value="Steel Truss"/>
Route:	<input type="text" value="A"/>	Structure Owner:	<input type="text" value="PTC"/>
Milepost:	<input type="text" value="20.010"/>		

**Description**

Sign structure is in good condition overall. West guiderail and concrete curb has 20' long severe collision damage in front of structure.

**Location**

District:	<input type="text" value="District 4"/>	PTC Station:	<input type="text"/>
County:	<input type="text" value="Montgomery"/>	Offset:	<input type="text" value="-0.08"/>
Township:	<input type="text" value="Plymouth"/>	Interchange Number:	<input type="text"/>
Latitude:	<input type="text" value="40d 06' 46.11''"/>	Interchange Name:	<input type="text"/>
Longitude:	<input type="text" value="-75d 16' 41.57''"/>	Facility/Facility Intersected:	<input type="text"/>

**Inventory Data**

Year Built:  Lighting:

**Sign Structure**

Mounting type:	<input type="text" value="Overhead"/>	<b>Sign Information</b>
Column Height:	<input type="text" value="33.50"/> ft	Number of Signs: <input type="text" value="2"/> <a href="#">Add New</a>
Direction:	<input type="text" value="South"/>	
Length:	<input type="text" value="62.50"/> ft	
Vertical Clearance:	<input type="text" value="19.40"/> ft	
Number of Lanes:	<input type="text" value="3"/>	

	Direction	Width (ft)	Height (ft)	Area(sqft)
X	<input type="text" value="South"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="422"/>
X	<input type="text" value="South"/>	<input type="text" value="15"/>	<input type="text" value="11"/>	<input type="text" value="165"/>

[Save](#) [Save & Close](#) [Cancel](#) [Delete Structure](#)



Menu

- Structures
- Structure
- Structure Data
- Inspections
- Attachments
- Work Requests

Structure:  Structure ID: **A020.01** Inspection:  [Create New Inspection](#)

**Inspection Information**

Inspection:  Inspection Man Hours:

Inspected By:  Inspection Type:

Weather Condition:

---

**Sign Condition Ratings**

Horizontal Member: <input type="text" value="8 - Very Good"/>	Surface: <input type="text" value="8 - Very Good"/>
Column: <input type="text" value="8 - Very Good"/>	Guide Rail: <input type="text" value="5 - Fair"/>
Light: <input type="text" value="N - N/A (NBI)"/>	Sign: <input type="text" value="8 - Very Good"/>
Base: <input type="text" value="8 - Very Good"/>	Overall Inspection Rating: <input type="text" value="8 - Very Good"/>
Access: <input type="text" value="N - N/A (NBI)"/>	

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**Overall Condition**

Sign structure is in good condition overall. West guiderail and concrete curb has 20' long severe collision damage in front of structure.

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**Recommendations**

Paint the areas of worn galvanization and light surface rust at the columns and truss members. Repair or replace west guiderail and concrete curb with severe collision damage.

---

**Possible Problem Area**

None.

[Save](#) [Save & Close](#) [Cancel](#) [Delete Inspection](#)

- Menu
- Structures
- Structure
- Structure Data
- Inspections
- Attachments
- Work Requests

Structure:  Structure ID: **A020.12**

**Structure Information**

Structure ID:	<input type="text" value="A020.12"/>	Structure Type:	<input type="text" value="Noise Barrier"/>
Structure Name:	<input type="text" value="N A020.12"/>	Structure Configuration:	<input type="text" value="Concrete Posts and Concrete Panels"/>
Route:	<input type="text" value="A"/>	Structure Owner:	<input type="text" value="PTC"/>
Milepost:	<input type="text" value="20.120"/>		

**Description**

**Location**

District:	<input type="text" value="District 4"/>	PTC Station:	<input type="text"/>
County:	<input type="text" value="Montgomery"/>	Offset:	<input type="text"/>
Township:	<input type="text" value="Plymouth"/>	Facility/Facility Intersected:	<input type="text"/>
Latitude:	<input type="text"/>		
Longitude:	<input type="text"/>		

**Inventory Data**

Year Built:	<input type="text" value="2013"/>	Roadway Side:	<input type="text" value="North-bound"/>
Milepost Start:	<input type="text" value="20.120"/>	Post Type:	<input type="text" value="_ (FIX PARAM VALUES)"/>
Milepost End:	<input type="text" value="20.180"/>	Panel Type:	<input type="text" value="_ (FIX PARAM VALUES)"/>
Maximum Height:	<input type="text"/>	Restrainer Type:	<input type="text" value="_ (FIX PARAM VALUES)"/>
Length:	<input type="text" value="1510.00"/> ft		

- Menu
- Structures
- Structure
- Structure Data
- Inspections
- Attachments
- Work Requests

Structure:  Structure ID: **A020.09**

Structure Information	
Structure ID:	<input type="text" value="A020.09"/>
Structure Name:	<input type="text" value="RE A020.09"/>
Route:	<input type="text" value="A"/>
Milepost:	<input type="text" value="20.090"/>
Structure Type:	<input type="text" value="Retaining Wall"/>
Structure Configuration:	<input type="text" value="Reinforced Earth"/>
Structure Owner:	<input type="text" value="PTC"/>

**Description**

MSE wall along left shoulder of Ramp N, 476 NB, separating Ramp N and Ramp M. Switched from SB to NB.

**Location**

District:	<input type="text" value="District 4"/>	PTC Station:	<input type="text"/>
County:	<input type="text" value="Montgomery"/>	Offset:	<input type="text"/>
Township:	<input type="text" value="Plymouth"/>	Facility/Facility Intersected:	<input type="text"/>
Latitude:	<input type="text"/>		
Longitude:	<input type="text"/>		

**Inventory Data**

Year Built:	<input type="text"/>	Length:	<input type="text" value="160.00"/> ft
Milepost Start:	<input type="text" value="20.090"/>	Roadway Side:	<input type="text" value="North-bound"/>
Milepost End:	<input type="text" value="20.060"/>	Maximum Height:	<input type="text"/> ft

- Menu
- Structures
- Structure
- Structure Data
- Inspections
- Attachments
- Work Requests

Structure:  Structure ID: **F000.00**

**Structure Information**

Structure ID:	<input type="text" value="F000.00"/>	Structure Type:	<input type="text" value="High Mast Lighting Pole"/>
Structure Name:	<input type="text" value="F000.00"/>	Structure Configuration:	<input type="text" value="HMLP"/>
Route:	<input type="text" value="F"/>	Structure Owner:	<input type="text" value="PA DOT"/>
Milepost:	<input type="text" value="0.000"/>		

**Description**

**Location**

District:	<input type="text" value="Unknown"/>	PTC Station:	<input type="text"/>
County:	<input type="text" value="Unknown (P)"/>	Offset:	<input type="text"/>
Township:	<input type="text" value="Unknown"/>	Facility Name:	<input type="text"/>
Latitude:	<input type="text" value="40d 07' 27.31"/>	Facility Type:	<input type="text" value="Unknown"/>
Longitude:	<input type="text" value="-74d 51' 29.30"/>	Facility/Facility Intersected:	<input type="text"/>

**Inventory Data**

Year Built:	<input type="text" value="2016"/>	Height (ft):	<input type="text" value="100.00"/> ft
Roadway Side:	<input type="text" value="West-bound"/>	Pole Material:	<input type="text" value="Galvanized Steel"/>
Pole Manufacturer:	<input type="text" value="Light Poles Plus"/>	Tapered:	<input checked="" type="checkbox"/>
Number of Lamps:	<input type="text" value="8"/>	Number of Base Plate Bolts:	<input type="text" value="16"/>
Foundation Type:	<input type="text" value="Concrete"/>		



# Enhanced Multimedia Attachments

STORAGE OF FILES IN A HIERARCHICAL FOLDER STRUCTURE

Menu

- Structures
- Structure
- Attachments
- Manage Folders
- Manage Files
- Work Requests

Structure: T353.02 Structure ID: T353.02

**Target Location**  
Base Folder Name: T353.02  
Full Path to Base Folder: ~\Multimedia\T353.02

**Subfolders**

**View Folders**

- T353.02
  - Correspondence
  - Inspection Files
    - 2010-2011 Inspection
    - 2014-2015 Inspection
    - 2018-2019 Inspection
    - 2022-2023 Inspection
  - Misc. Photos

Delete Folder

**Create Folders**

Current Selected Folder: ~\Multimedia\T353.02\  
Enter New Folder Name Below:  
  
Create New Folder  
Create Basic Folders

Cancel



- Structures
- Structure
- Attachments
- Manage Folders
- Manage Files
- Work Requests

Structure: T353.02 Structure ID: T353.02

Multimedia

Context: STRUCTURE Root Directory: ~\Multimedia\T353.02

Target Folder

- T353.02
  - Correspondence
  - Inspection Files
    - 2010-2011 Inspection
    - 2014-2015 Inspection
    - 2018-2019 Inspection
    - 2022-2023 Inspection
  - Misc. Photos

File List

Name	Agency Type	Report Flag	Sort Order	Created	Modified	Size	Status	Notes	View File
T353.02 Sign Structure -	Design Document	<input type="checkbox"/>		1/5/2016		2760704 bytes	Available	<input type="checkbox"/>	
T353.02 Sign Structure -	Design Document	<input type="checkbox"/>		1/5/2016		73216 bytes	Available	<input type="checkbox"/>	
T353.02 Sign Structure -	Design Document	<input type="checkbox"/>		1/5/2016		616960 bytes	Available	<input type="checkbox"/>	
T353.02 Sign Structure -	Design Document	<input type="checkbox"/>		1/28/2016		11198464 bytes	Available	<input type="checkbox"/>	

[Unlink](#)

Upload File

[Browse...](#)

Current Link Context: STRUCTURE  
 Current Target Folder: ~\Multimedia\T353.02\Correspondence/

[Link](#)

[Save](#) [Save & Close](#) [Cancel](#)



# Structure Maintenance

Menu

- Structure Data
- Location
- Inspections
- Load Ratings
- Clearances
- Miscellaneous
- Attachments
- Work Requests

Bridge  Bridge Number: **B-432** Work Request Date:

**Functional Location Number:** PTC-D01-LRD-HARC-T-B-X-069.15  
**Equipment Number:**  
 Pontis Work Request  
**Work Request Number:** d9a4e0c3-fa1f-442c-846e-3f4da6e48058  
**Entered Date:** 8/18/2016  
**Requested Completion Date:** 9/30/2016  
**Short Work Description:** Clean / Flush deck expansion joint  
**Long Work Description:**  
 This is for Bridge B-432 at MP T069.15 which carries T-544 over the mainline Turnpike (I-76) in Hempfield Township, Westmoreland County.  
 Clean and flush bridge deck joint over the north abutment. Remove, collect, and properly dispose of any accumulated debris. See the attached photos.  
**Approval Status:**   
**Ready to Submit:**   
**Submission Status:**

**SAP Notification**  
**Notification Number:** 000010269282  
**Receipt Date:** 8/22/2016  
**Notification Status:**   
**SAP Work Order Number:** 000004265044  
**Work Order Receipt Date:** 8/22/2016  
**Planned Date:** 8/19/2016  
**Technically Complete Date:**

**Attachments**  
 Select File to upload:

- 
- 
- 
-

Menu **Bridges Reports Admin Inspection Gateway Analysis PTC Ancillary Structures PennDOT Structure Maintenance**

- Maintenance
- Work Requests
- New Work Request
- Exchange Logs
- Associations

Number of Records: 277  
 All Work Requests

<input type="checkbox"/>		View	Structure/Bridge ID	Structure Type	SAP Structure Description	Work Request Date	Short Work Description	Approval Status	Ready to Submit	Submission Status	Notification Status	Notification Number	Work Order Number
<input type="checkbox"/>			A020.43	Bridge	Bridges	7/18/2016 12:00:00 AM		None	No	None	None		
<input type="checkbox"/>			A021.00	Bridge	Bridges	3/3/2015 12:00:00 AM	MPT for PennDOT Bridge Inspection	Approved	Yes	Submitted	Notification Completed	000010208606	000004208282
<input type="checkbox"/>			A021.00	Bridge	Bridges	2/11/2016 12:00:00 AM	MPT for PennDOT Bridge Inspection	None	No	None	None		
<input type="checkbox"/>			A021.76	Bridge	Bridges	7/21/2016 12:00:00 AM	Clean/Flush deck joints; Patch pothole in approach	Approved	Yes	Submitted	Notification in Process	000010266031	000004262261
<input type="checkbox"/>			A022.10	Culvert	Culverts	3/16/2016 12:00:00 AM		None	No	None	None		
<input type="checkbox"/>			A022.88	Culvert	Culverts	7/21/2016 12:00:00 AM	Cut/trim trees and vegetation at culvert headwalls.	Approved	Yes	Submitted	Notification Completed	000010266029	000004262263
<input type="checkbox"/>			A023.42	Bridge	Bridges	3/3/2015 12:00:00 AM	MPT for PennDOT Bridge Inspection	Approved	Yes	Submitted	Notification Completed	000010208607	000004208283
<input type="checkbox"/>			A024.70	Culvert	Culverts	7/21/2016 12:00:00 AM	Cut/trim the trees growing at Southeast headwall	Approved	Yes	Submitted	Notification Completed	000010266030	000004262264
<input type="checkbox"/>			A024.87	Bridge	Bridges	9/30/2015 12:00:00 AM	Replace Damaged ITS JB Lid	Approved	Yes	Submitted	Notification Completed	000010233374	000004229662
<input type="checkbox"/>			A030.90	Bridge	Bridges	1/20/2015 12:00:00 AM	Recommended Maintenance Repairs	Approved	Yes	Submitted	Notification Completed	000010217186	000004213812
<input type="checkbox"/>			A033.03	Bridge	Bridges	11/13/2015 12:00:00 AM	Various Bridge Repairs	Approved	Yes	Submitted	Notification Completed	000010237653	000004233867
<input type="checkbox"/>			A033.62	Culvert	Culverts	11/25/2015 12:00:00 AM	Repair Embankment Erosion	Approved	Yes	Submitted	Notification Completed	000010239000	000004235174
<input type="checkbox"/>			T355.21	Bridge	Bridges	4/22/2016 12:00:00 AM	Remove loose concrete	Approved	Yes	Submitted	Notification in Process	000010256571	000004252871
<input type="checkbox"/>			T355.76	Bridge	Bridges	10/2/2015 12:00:00 AM	MPT For PennDOT Bridge Inspection - Overhead	Approved	Yes	Submitted	Notification Completed	000010233587	000004229982
<input type="checkbox"/>			T355.77	Bridge	Bridges	10/2/2015 12:00:00 AM	MPT For PennDOT bridge Inspection - overhead	Approved	Yes	Submitted	Notification Completed	000010233680	000004229983
<input type="checkbox"/>			T357.10	Bridge	Bridges	10/15/2015 12:00:00 AM	MPT for PennDOT Bridge Inspection	Approved	Yes	None	None		
<input type="checkbox"/>			T357.70	Bridge	Bridges	5/16/2016 12:00:00 AM	Remove loose concrete	Approved	Yes	Submitted	Notification in Process	000010259231	000004255167
<input type="checkbox"/>			T359.57	Sign Structure	Sign Structures	2/11/2016 12:00:00 AM		None	No	None	None		

- Maintenance
- Exchange Logs
- Associations

- 2016
  - September
    - 09/12/2016
    - 09/09/2016
    - 09/08/2016
    - 09/07/2016
    - 09/06/2016
    - 09/05/2016
    - 09/02/2016
    - 09/01/2016
  - August
  - July
  - June
  - May
  - April
  - March
  - February
  - January
- 2015

View	Log Type	Timestamp	Any Errors?
	Interface A	9/12/2016 4:00:03 AM	No
	Interface B	9/12/2016 3:00:03 AM	No

Interface A Log Report at 9/12/2016 4:00:03 AM

- General Information
- Export Summary
- Processing Messages
- Export Processing Messages

### General Information

XML file name: InterfaceA.xml  
 Export started at: 9/12/2016 4:00:01 AM  
 Number of records found: 1  
 Number of records exported: 1  
 Total number of attachments: 1  
 Number of errors: 0  
 Export completed at: 9/12/2016 4:00:03 AM

### Export Summary

Record ID	Functional Location	Equipment	Pontis Structure ID	Pontis Work Request	Successful?	Num Attachments
A-20160912-040001-0001	PTC-D01-LRD-DNGL-T-B-X-087.75		T087.75	6e772254-6b52-4454-8302-7b9e8caa9ee0	Yes	1

### Processing Messages

APPBASEFOLDER is C:\websites\www.pontis.com\BrM\

Attempting to remove existing upload folder /PTCExchange/InterfaceA/  
 250 RMD command successful.

Attempting to create new upload folder /PTCExchange/InterfaceA/  
 257 "PTCExchange/InterfaceA" folder created.

226 Transfer complete. 919136 bytes transferred. 919136 bps.

Attempting to upload file C:\websites\www.pontis.com\BrM\WorkRequestSubmissions\Archive\InterfaceA\20160912-040001\InterfaceA.xml to ftpsecure.mbakercorp.com  
 226 Transfer complete. 912 bytes transferred. 912 bps.

C:\websites\www.pontis.com\BrM\WorkRequestSubmissions\Archive\InterfaceA\20160912-040001\InterfaceA.xml upload successful.

### Export Processing Messages

Record ID	Functional Location	Messages
A-20160912-040001-0001	PTC-D01-LRD-DNGL-T-B-X-087.75	Processing Record ID: A-20160912-040001-0001 Functional Location ID: PTC-D01-LRD-DNGL-T-B-X-087.75, Equipment Number: ((Empty)) Object : Donegal Mainline Bridges 087.75 C:\websites\www.pontis.com\BrM\WorkRequestAttachments\MPT087.75_B-437A\T087.75 Priority Maintenance Repair.pdf upload successful.





# Data Exchange with PennDOT



- XML Export
- Bridge X-Ref
- User X-Ref
- Struct-Unit X-Ref

**Selected Bridges**

Bridge ID	District	County
A041.20	Unknown	Bucks
A041.65	Unknown	Bucks
A041.85	District 6	Bucks
T067.40	District 12	Westmoreland
T069.15	District 12	Westmoreland

Selected: 5 Total: 1356

Export what?

Include:

Export which bridges?

Selected Bridges

All Bridges in the Database



# Technical Overview

MEHRDAD ORDOOBADI, PMP, CSM  
PROJECT MANAGER,  
MICHAEL BAKER INTERNATIONAL



## Technical Overview

- Business Values
- Phases of Implementation



## Business Values

- Conversion of Legacy BMS to BrM
- Implementation of Ancillary Structures Asset Management in BrM
- Integration With Internal Structure Maintenance Application (SAP)
- Bridge Inspection Data Exchange with PennDOT
- BrM Hosting and Software Maintenance



## Phases of Implementation

- **Phase I** – Conversion of Inventory Data for Element Level Evaluation  
2007-2009
- **Phase II** – Conversion of PTC Bridge Inspection Application to Pontis  
5.1.0  
2008-2010
- **Phase III** – Integration of Pontis and SAP (Structure Maintenance Application)  
2014-2015
- **Phase IV** – Expanding Pontis for Other Assets (Ancillary Structures)  
2011-2013
- **Phase V** – Transfer of Bridge Inspection Data from PTC to PennDOT  
2013
- **Phase VI** – Collection of Element Level Data for National Highway System Bridges (BrM 5.2.1)  
2015-2016



## Phase I

- Conversion of Inventory Data for Element Level Evaluation
- Project Manager: Thomas Ryan, Michael Baker International
- 2007 – 2009
- This Phase Included Efforts to Determine:
  - CoRe Elements of the Commission's 831 bridges and culverts.
  - Calculate Total Quantities of the Identified CoRe Elements
  - Calculate the Scale Factor Measurements for the Appropriate CoRe Elements





## Phase II

- Conversion of PTC Bridge Inspection Application to Pontis 5.1.0
- 2008 – 2010
- This Phase Included:
  - Transferring Bridge Inventory and Inspection Data from RAMS to Pontis Database
  - Importing CoRe Elements and Quantities for 831 PTC Bridges and Culverts from Phase I
  - Creating Pontis Custom Forms



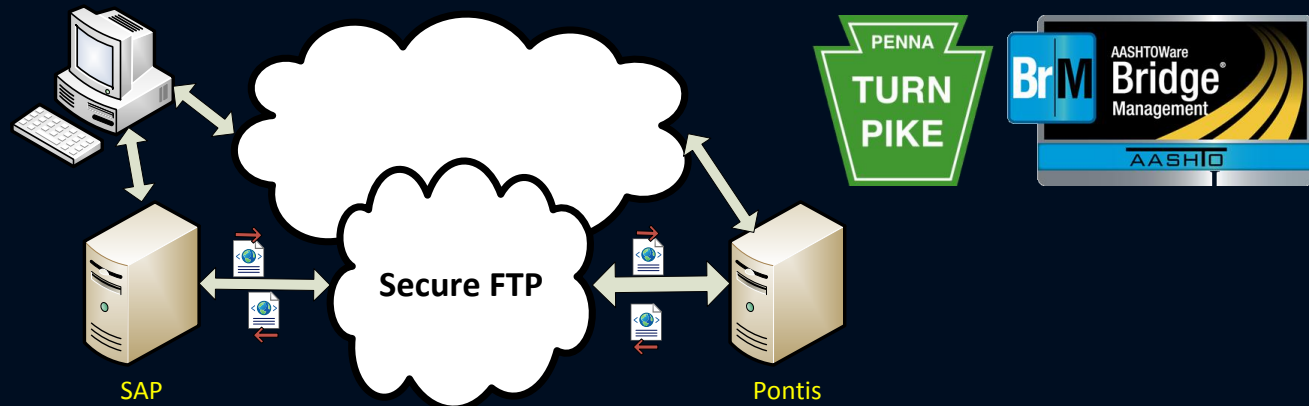
## Phase IV

- Expanding Pontis for Other Assets (Ancillary Structures)
- 2011 - 2013
- This Phase Included:
  - Transferring Existing Sign Structure Data from RAMS to Pontis Database
  - Creating Custom Pontis Forms to Support Ancillary Structure Types
    - Sign Structures
    - Retaining Walls
    - Noise Barriers
    - High Mast Lighting Poles



## Phase V

- Transfer of Bridge Inspection Data from PTC to PennDOT
- 2013
- This Phase Included:
  - Cross Referencing PTC and PennDOT Bridges
  - Developing Capability to Export Bridge and Inspection Data to PennDOT's BMS2 XML Format.
  - Creating PennDOT Tab Custom Pontis Forms



## Phase III

- Integration of Pontis and SAP (Structure Maintenance Application)
- 2014-2015
- Automates Entering of Maintenance Requests:
  - Requests Are Only Entered Once in Pontis
  - Requests Are Automatically Submitted to SAP
  - Status Updates for Maintenance Requests Communicated Back to Pontis
- This Phase Included:
  - Adding Software Components to Pontis and SAP for Periodic Exchange of Bridge and Ancillary Structure Maintenance Request Data
  - Creating Custom Pontis Forms for Bridge and Ancillary Structure Maintenance Requests



## Phase VI

- Collection of Element Level Data for National Highway System Bridges and Upgrade to BrM 5.2.1
- 2015-2016
- This Phase Included:
  - Upgrading the Application and Database from Pontis 5.1.0.3 to BrM 5.2.1
  - Porting Pontis 5.1 Custom Forms to BrM 5.2.1
  - Migrating CoRe Element Inspection Data to NBE's Using Custom Migration Rules and Rules from PennDOT.



## Custom BrM Forms

- Created Using BrM API and Agency "Navigation & Field Security" Feature in BrM
- No Changes Were Made to Official Pontis or BrM Source Code.
- ASP .NET
- Same Look and Feel as Standard BrM Forms



- Security
- Parameters
- Element Spec
- Definitions
- Options
- Cost Index
- Formulas
- Export Options
- Data Dict.
- Checked Out Bridges
- ReNUMBER Brkey
- Logging
- Navigation & Field Security
  - Standard
  - Agency
- Sync Mapping
- Utility

Type

Navigation  Security

Object

Tabs  Tasks  Groups  Controls

Tab Name

PTC
Ancillary Structures
PennDOT
Structure Maintenance

PTC Properties

Name: **PTC**

Label:

Visible:

Read Only:

Enabled:

ToolTip:

Add New Tab

Tab Name:

- Security
- Parameters
- Element Spec
- Definitions
- Options
- Cost Index
- Formulas
- Export Options
- Data Dict.
- Checked Out Bridges
- ReNUMBER Brkey
- Logging
- Navigation & Field Security
  - Standard
  - Agency
- Sync Mapping
- Utility

Type

 Navigation  Security

Object

 Tabs  Tasks  Groups  Controls

Select

Tab: PTC v

---

**Task Name**

- Calendar
- Multimedia Notes
- PTC\_Attachments
- PTC\_BridgeWorkRequest
- PTC\_Clearances
- PTC\_Inspections
- PTC\_Load Ratings
- PTC\_Location
- PTC\_ManageFiles
- PTC\_ManageFolders
- PTC\_Misc
- PTC\_Misc\_Notes
- PTC\_StructureData
- PTC\_WorkOrders

Delete
Delete All

**PTC\_StructureData Properties**

Name: PTC\_StructureData

Label:

Parent Task: None

Visible:

Read Only:

Bridge Task:

Click to See Structure Information

ToolTip:

---

**Add New Task**

Task Name:

Parent Task: None v

Add New

Save

- Security
- Parameters
- Element Spec
- Definitions
- Options
- Cost Index
- Formulas
- Export Options
- Data Dict.
- Checked Out Bridges
- Renumber Brkey
- Logging
- Navigation & Field Security
  - Standard
  - Agency
  - Sync Mapping
  - Utility

Type

 Navigation  Security

Object

 Tabs  Tasks  Groups  Controls

Select

Tab:  Task:

---

Group Name

- Approach Spans
- BMS Approach Spans
- BMS Main Spans
- BMS Structure Type
- Culvert Info
- FooterSub2 Save Btns
- HeaderSub1 - brkey
- HeaderSub2 Eng.Metric
- Inspection Footer
- Main Spans
- No Caption
- Struct Data Header
- Struct Data Span grid box
- Struct-BMS Types
- Structure Info
- Structure Info Sub 1
- Structure Info Sub 12
- Structure Info Sub 2
- Structure Info Sub 3
- Structure Type

Approach Spans Properties

**Name:** Approach Spans

**Parent Group:** Structure Type

**Group Type:** Content Group

**DeskTop Url:** None

**Label:**

**Visible:**

**Read Only:**

**Span Across:**

**Collapsable:**

**Horizontal Alignment:**  **Height:**

**Vertical Alignment:**  **Width:**

**Repeat Direction:**  **Cell Spacing:**

**Repeat Count:**  **Cell Padding:**

**SkinID:**

---

Add New Group

**Group Name:**

**Parent Group:**

**Group Type:**

**Desktop Url:**

- Security
- Parameters
- Element Spec
- Definitions
- Options
- Cost Index
- Formulas
- Export Options
- Data Dict.
- Checked Out Bridges
- ReNUMBER Brkey
- Logging
- Navigation & Field Security
  - Standard
  - Agency
  - Sync Mapping
  - Utility

<b>Type</b> <input checked="" type="radio"/> Navigation <input type="radio"/> Security	<b>Object</b> <input type="radio"/> Tabs <input type="radio"/> Tasks <input type="radio"/> Groups <input checked="" type="radio"/> Controls	<b>Select</b> Tab: PTC    Task: PTC_Structure    Group: Approach Spans		
<b>Control Name</b> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="background-color: #e0f0ff;">Material Main Spans</td></tr> <tr><td>Design Main Spans</td></tr> </table>	Material Main Spans	Design Main Spans	<b>Material Main Spans Properties</b> Name: Material Main Spans Control Type: DropDownList Table Name: bridge Column Name: materialappr Table Override: None Field Override: None Order: 1 Label: Material Visible: <input type="checkbox"/> Read Only: <input type="checkbox"/> ValueBoldInd: <input type="checkbox"/> Value Color: None Field Width: 150 px Label Width: 100 %	
Material Main Spans				
Design Main Spans				
<input type="button" value="Delete"/> <input type="button" value="Delete All"/>				



Questions?



## Contact Information

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