

## Inspection Form Completion



Technical Standards Branch  
Class B Bridge Inspection  
Course



## Verifying and Updating Inventory Data

- Inspector is responsible for obtaining, verifying and updating inventory data during inspection
- Check off each inventory item to indicate it was verified
- If item cannot be confirmed/verified do not check off – make comment why
- Not necessary to change data if measurement is only slightly different
- Inventory changes are made directly on the inspection form



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## Verifying and Updating Inventory Data

Alberta Transportation Bridge Inspection & Maintenance System (Web 2005)									
Bridge Culvert Inspection									
Bridge File Number	77153-2		Form Type	CULM					
Year Built	2014		Lot No.	4					
Bridge or Town Name	Three Sisters		Inspector Name	G. Blawie					
Located Over	Pigeon Creek (2)		Assistant Class	C.I.A					
Located On	Local Road		Inspection Date	Jan 26/15					
Water Body CI/Year			Arrive Time	3:00 PM					
Navigabil. CI/Year			Depart Time	4:50 PM					
Legal Land Location	SE Sec 13 Twp 24 Rge 10 N5/4		Date Entry By						
Longitude, Latitude	-115:15:21 51:02:27		Reviewer Name						
Road Authority	RD of Sisson RR 8		Review Date						
Contract Main Area	Valhalla		Dept. Reviewer Name						
Clear Roadway/Skew	9.0		Follow Up By						
ASOT/Year	70/2015								
Road Classification	RL4-208-100								
Detour Length (km)	1								
Bridge Culvert Information									
Number of Culverts	2								
Pipe #	Barrel	Span	Rise (or Dia.)	Type	Length	Corr. Profile	PI/Slab Thickness	Shape	
1	MAIN	4370	2870	APP	28.9	152x51	4.0	Arch	
2	MAIN	4370	2870	APP	28.9	152x51	4.0	Arch	
2									
Special Features									
Special Features Comment									

- Inventory changes or revisions are made directly on the inspection form



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## Verifying and Updating Inventory Data

Alberta Transportation Bridge Inspection & Maintenance System (Web 2005) 00501-1 Bridge									
Substructure									
Bridge Component	Last			Now			Explanation of Condition		
Abutments									
(Extended Backwall Piles (Y/N): Y)									
(Extended Backwall Piles Spacing (mm): 1500) <del>1500</del> 1500									
(Total Number of Caps/Corbels: 11)									
Bearing Seats/Caps/Corbels Detail Ratings									
	N (count)	1 (count)	2 (count)	3 (count)					
Last	0	0	0	1					
Now	0	0	0	1	Cap replaced in 2015				
Bearing Seats/Caps/Corbels									
(Type: TREATED TIMBER)									
(Depth (mm): 325) <del>325</del> 325									
(Width (mm): 350) <del>350</del> 350									
Backwalls/Breastwalls									
Greatest Height (m)									
		2.40			5	5			
Wingwalls									
(Total Number of Bearing Piles: 2) <del>2</del> 2									
Piles Detail Ratings									
	N (count)	1 (count)	2 (count)	3 (count)					
Last	0	0	0	0					
Now	0	0	0	0					
Piles									
				4	4				

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## Verifying and Updating Inventory Data

Wearing Surface (Material Type: )	<i>None</i>	X	X	Remnants of chipseal at W half of deck.
(Thickness: )				No connection
Lateral Connection Problem (Y/N)	No	<input checked="" type="checkbox"/>		
Deck Top		5	5	
Deck Rideability		6	6	
Deck Joints		4	5	Butter angles with section removed at South - no problem
Rings (Y/N)	No	<input checked="" type="checkbox"/>		
Deck Drainage		7	7	
Drains Clogged (Y/N)	No	<input checked="" type="checkbox"/>		
Curbs/Median		4	8	Curbs damaged @ corner - asphalt trimmings removed
(Curb Type: Standard)	<input checked="" type="checkbox"/>			Repaired
Scaling (Percent Area)	10			
Bridge Rail	<i>Galvalume Fluted beam</i>	5	9	<i>REPAIR</i>
(Type: <del>STRONG-BOND</del> <del>CONCRETE</del> <del>WASHER PLATES</del> )				<i>Concrete rail 1/2 posts 1/2 of rail bolts</i>
Bridge Rail Posts	<i>CCA</i>	3	7	<i>Aluminum posts equal to 2 top posts for each span</i>
(Type: <del>TREATED TIMBER</del> <del>TREATED TIMBER</del> )				
Bridge Rail/Poles Coating		4	5	<i>Galvalume</i>
(Type: <del>PAINT</del> <del>Galvanized</del> )				
Slidewalk		X	X	
Grider Detail Ratings				
N (count)	1 (count)	2 (count)	3 (count)	
Last	0	0	0	
Now	0	0	0	
Griders		5	5	Wide cracks in sound concrete of AZ at G3-7, end of rail of G1
Last Complete Inspection Date	<i>18-Aug-2011</i>	<i>14-Jul-2014</i>		1 point increase for type PG griders and 2 points for work.
Cracking (Y/N)	Yes	<input checked="" type="checkbox"/>		
Scaling (Percent Area)	5			
Lift or Connector Pocket (Shaded) (Y/N)	Yes	<input checked="" type="checkbox"/>		
Number of Griders	<i>11</i>			

- Inventory changes are made directly on the inspection form

## Verifying and Updating Inventory Data

Culvert Component	Downstream End		Explanation of Condition
	Last	Now	
Direction			
End Treatment (Concrete, Steel, STEEL, Others, None)	<i>W</i>	<i>W</i>	
Headwall		X	X
Collar		X	X
Wingwalls		X	X
(Shape: )			
Cutoff Wall		X	X
Bevel End			Rocks in bevel
Heading (mm)	0	7	7
Invert Above/Below Stream Bed	BELOW		
Above/Below (mm)	300		
Scour Protection		7	7
(Type: <del>PILE</del> <del>None</del> )			All protection washed out
(Avg. Rock Stream) - <i>apt</i>			
Scour/Erosion		7	3
Deavers (Y/N)	No		
Downstream End General Rating	7	3	<i>6 x 10 x 1 M deep Scour left off base and scoured along both sides</i>

- Inventory changes are made directly on the inspection form

## Verifying and Updating Inventory Data

- Culvert design dimensions are shown on first page of culvert form
- SPCSP equivalent round should be changed to correct dimensions
- Used to determine sagging and deflecting measurements
- If culvert is not deformed, large sag and deflection values may indicate wrong design dimensions - then use measurements from both ends

## Verifying and Updating Inventory Data

- Incorrect Inventory data is changed by crossing out recorded value and writing in new information
- Update and verify Inventory data directly on the form
- Record data only in values that box is asking for (mm, m, %, Y/N)
- Minor changes to things like roadway width are not required

### Supporting Information

- Ratings of 4 or less must have an explanation of condition
- Ratings of 3 or less must have 3 things;
  1. Supporting comment
  2. Supporting photograph
  3. Recommendation for action
- Action may be in the form of:
  - Maintenance recommendations
  - Monitoring on regular inspection cycle
  - Monitoring on a shorter inspection cycle if warranted
  - Don't overuse monitoring
- Photographs, quantities, measurements and/or sketches are provided for ratings of 3 or less or any maintenance recommendation regardless of rating

### BIM Y/N Inventory Questions

- Explanation of condition is required when answering YES for certain areas
- Exceptions for Class B inspector are
  - approach guardrail meeting standards
  - Longitudinal seams proper lap
  - Longitudinal seams staggered
- if NO, provide comments explaining why

### Significant Changes From Previous Rating

- Ratings of most elements do not change significantly over an inspection cycle
- Provide an explanation of condition if rating has changed significantly
- Required even if rating is 5 or more
- For example:
  - treated timber piles rated 8 and 21 months later piles rated 5 - why the big change?

### Significant Changes From Previous Rating

- Some elements are expected to change significantly over an inspection cycle
- For example:
  - Timber strip deck rated 8 and 57 months later, rating reduced to 4
  - Scour protection rated 7 and after flood reduced to 3

### Measurement Based Ratings

- Record the actual measured values in space provided or if space not provided in Explanation of Condition
- Record the location of any measurements of defects in space provided or if space not provided in the Explanation of Condition
  - 250 x 400 spall in A1 abutment seat under G3
  - wide longitudinal crack in unsound concrete of Sp1-G3 AZ in 1 leg.

### Previous Comments

- Comments from previous inspection which no longer apply must be deleted
- Carry over previous comments if information cannot be confirmed or denied
  - place brackets around comment or part thereof and add date the comment originated – if known. (deck ices in WBL)
- If element cannot be seen or is not accessible to confirm comments or data
  - Do not check mark data (don't confirm)
  - Explain why inaccessible or not visible
  - Retain comment in brackets. Add date comment originated - if known

### Previous Comments

- Types of information retained:
  - measurements that cannot be verified
  - previous high water marks
  - information recorded during particular weather conditions
  - information recorded during particular season

### Sample Completed Form

### Photographs and Sketches

- Excellent means of providing supporting information
- Required for all ratings of 3 or less
- Required for all maintenance recommendations regardless of rating
- Not acceptable to say “see photo” on form
- 4 standard photos normally required;
  - Road alignment looking increasing chainage
  - Profile – normally U/S
  - Channel alignment looking U/S
  - Channel alignment looking D/S

### Photographs and Sketches

- Submit color photos with inspection form to AT data entry consultant
- Minimum 5 megapixels
  - One hard copy of all photographs if AT managed structure
  - Two hard copies if non AT structure
- Two photos per page (3 ½ x 5 or 4 x 6) with descriptive text, inspector and stream name, date, BF# , Page #.
- Submit electronic copies of photos with inspection reports in pdf file with min. 300 dpi and unlocked for copying in following format;

BF12345-01\_LVL1\_YYYYMMDD\_P.pdf

### Photographs and Sketches BF01310-01\_LVL1\_20130823\_P



### Photographs and Sketches BF01310-01\_LVL1\_20130823\_P



## Estimating Quantities

- Inspectors are to estimate quantities for recommended repairs and maintenance
- Record in Maintenance Inspector Comments (expandable). Use separate sheet only if necessary
- Place in pre-prepared maintenance areas whenever possible
- Examples:
  - PLACE ADDITIONAL RIPRAP - 3m<sup>3</sup> Class 1 rock at D/S end
  - PATCH DECK - 5 timber stripdeck planks, each 75x300x 3 m long

## Inspection Checks

- Inspector should do the following checks before leaving the site:
  - all ratings have been entered
    - » element condition ratings entered
    - » General Rating entered
    - » Estimated Replacement Year
  - condition ratings consistent with BIM manual
  - ratings are supported by
    - » explanations of condition (ratings of 4 or less)
    - » photos (and sketches if necessary) (3 or less)
    - » recommendations for maintenance, monitoring, other appropriate action (3 or less)
  - inventory information verified or changed
  - maintenance recommendations are appropriate
  - maintenance recommendations are supported with material dimensions and quantities.

## Inspection Checks

- Office follow-up:
  - Low rating advisories or 2 Notifications sent to Bridge Manager (and LRA if applicable)
  - Answer questions raised during the inspection
  - Review previous inspection history in BIS
  - Review standard or site specific drawings
  - Review for appropriate maintenance, monitoring and timing
  - load restrictions and other signing
  - notify road authority
  - prepare photos in standard format with descriptive comments
  - Prepare electronic photos

## Bridge Maintenance Recommendations

Item Type	Item	Rating	Inspector Comments	Disposition Comments
CONCRETE BRIDGE INSPECTION		3.0	Abuse of Chalkboard walls	
REINFORCED CONCRETE BRIDGE		3.0		
PAVEMENT		3.0	Approx. 1.5m <sup>2</sup> P.D. Repair	
SKIN SHEET		3.0		
UTILITY BRICK		3.0		
DEFORMATION AND CRACK JOINTS		3.0		
INTERSECTION/PAVEMENT		3.0	The edge of cut and patch patch	
SKINNING		3.0	Edge and 1/2m	
LOWE TRUSS BRIDGE		3.0		
REINFORCED CONCRETE BRIDGE		3.0		
BRIDGE MAINTENANCE RECOMMENDATIONS		3.0	Replace 200 L x 200 L x 300 L	
PAVEMENT REPAIR		3.0	AT 22	
BRIDGE MAINTENANCE RECOMMENDATIONS		3.0		
BRIDGE MAINTENANCE RECOMMENDATIONS		3.0		

- Place recommendations in pre-prepared areas.
- Use "Other Action" only if maintenance item is not available on "pick list" (refer to Supplemental Binder)
- Record "Recommended Year" based on priority levels associated with ratings
- Provide material sizes and quantities in "Inspector Comments" area

## Culvert Maintenance Recommendations

Work Type	Status	Date	Inspector Comments	Department Comments
PLACE ADDITIONAL SURF		2/27	2.5m <sup>2</sup> of 1.0m <sup>2</sup> surf	
REMOVE UNDESIRABLE MATERIAL		2/27	6.0m <sup>2</sup>	
Install Grates		2/27	1.5m <sup>2</sup> in A1-A2	
Catch Pile		2/27	Full length	
Other Action		2/27	Install aluminum along left shoulder	

- Place recommendations in pre-prepared areas.
- Use "Other Action" **only** if maintenance item is not available on "pick list" (refer to Supplemental Binder)
- Record "Recommended Year" based on priority levels associated with ratings
- Provide material sizes and quantities in "Inspector Comments" area

## Level II Inspections

- Detailed inspection requiring specialized equipment and/or expertise
- Gathers specific measurements or observations
- Recommended by Level I inspectors
- Reviewed by Bridge Manager and/or LRA
- Do not proceed until Bridge Manager an/or LRA has been contacted regarding:
  - technical need
  - funding

## Timber Coring

- Recommended when there is suspicion of rot in structural timber
- Carried out by Class A inspector
- Focus normally on critical structural elements:
  - caps
  - piles
  - stringers

## Level 2 - Culvert Barrel Measurement

- Recommended when critical barrel elements rated 3 or less and safety concerns identified
  - roof rating
  - sidewall rating
  - longitudinal seam rating
- Recommend when two inspections completed without access to barrel section
  - or
  - schedule Level I inspection during low flow or winter conditions
- Some culverts barrels are inaccessible year round

Forms Completion


## Estimated Replacement Year Standard Bridges (Table 11.1)

TYPE	LIFE EXPECTANCY		
	LOW	AVE	HIGH
Untreated Timber	10	15	20
Treated Timber	35	40	45
Prestressed - Composite	55	60	70*
Prestressed **	40	45	60*
Precast (Except PA & PX)**	30	35	50
Precast (PA) & Other (PX)	25	30	45


\*Use maximum of 50 years for timber substructure  
 \*\*Add 5 years if overlaid with concrete

Considerations:

- Traffic - volume, amount of truck traffic, log haul
- Salt usage - road surfacing, traffic, climatic conditions
- Deck drainage, leakage
- Decay favourable conditions



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## Estimated Replacement Year Culverts


TYPE	LIFE EXPECTANCY		
	LOW	AVE	HIGH
Concrete	40	60	80
Corrugated Steel	25	45	60
Timber and Other	20	35	60

Considerations:

- Deformation and cracking (quality of installation)
- Corrosive or chemically aggressive environment
- Abrasive bed load
- Decay favorable conditions, preservative treatment
- Refer to Table 13.4 – Life Expectancy Table for Culverts



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## Special Comments


<b>Special Comments for Next Inspection</b>	Inspect struts yearly. 2 Notification sent to LRA and Bridge Manager June 6, 2015. Cracks stable since last inspection, but sidewall deflection appears to be worse. Currently scheduled for design in 2015 and replacement in 2016.
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•Special comments useful for next inspection

- Notification to BM and/or LRA of low structural ratings (2 Notifications)
- Measurements for monitoring purposes
- Monitoring locations
- Recommendation for reduced cycle
- Data is not sortable



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## Supporting Information

Structural Condition Rating (Last/Now)	SE.825.6 (2)	Sufficiency Rating (Last/Now)	SE.826.4 (2)	Est. Repl. Yr	2030	Mark. Repl. (Y/N)	Yes
2/4		7/10					


Special Comments for Next Inspection: Abut seats require cleaning, resulting to allow full inspection of abuts and bearings.

Previous Inspector's Name: Jerry Roberts      Previous Assistant's Name: Jim Davies  
 Next Inspection Date: 20 Mar 2018      Previous Inspection Date: 11 Sep 2014  
 Inspector's Code (Default: jroberts): 21

- Information provided by TIMS data base
- Inspection Cycle shown is normally default but may be reduced
- Reduction to inspection cycle cannot be done by inspector – only recommended by inspector
- Reduced Cycle set by Department



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# Questions??



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