

### BIM Advisory Bulletin #5 – January 15, 2017

Alberta Environment and Parks (AEP) released the Roadway Watercourse Crossing Inspection Manual in 2015. The intent of the manual is to better manage the road-related risks to fish in Alberta and it provides a standardized protocol to assess crossing sites for erosion / sedimentation concerns and for fish passage. Most of the data required to complete these assessments is already contained in BIS as inventory data, or collected as part of regular Level 1 BIM inspections. To ensure that we have **all** data required to complete the assessments we now require BIM inspectors to record some additional data on the BIM forms. The additional data to be recorded, and where to record it, is detailed in the following sections of this bulletin.

#### Erosion / Sedimentation

Additional data to assess the erosion / sedimentation risk at a crossing is to be recorded for all crossings (bridge and culvert) in the Explanation of Condition section for Channel - Bank Stability. Note if there is **active erosion** or **potential erosion** (no evidence of soil movement, but exposed earth on fill slopes or in ditches leading to stream) in the vicinity of the crossing. Note the source of the erosion (eg. ditch gully, bank slump, fill slope, road surface, other) and indicate whether it is occurring at the inlet, the outlet or both. Note if there is any intact erosion control or established vegetation between the erosion area and the stream and note the size of the erosion area (m<sup>2</sup>). See Figure 1 for an example. Bank Stability shall still be rated according to Section 9.2 or Section 13.7.2 of the BIM Inspection Manual.

Structure Usage				
		Last	Now	Explanation of Condition
<b>Channel (U/S and D/S)</b>				
Alignment		6	6	
Bank Stability		7	5	Active erosion, outlet end, bank slump, 3m <sup>2</sup> Potential erosion, inlet end, bare fill slope, 6m <sup>2</sup> , intact silt fence protecting stream
HWM (m below Top of Culvert)				No HWM visible
Drift (Y/N)		No		
Channel Bottom Degrading/Aggrading		Degrading		
Beavers (Y/N)		No		
(Fish Compensation Measure 1 : <b>NONE</b> )				
(Fish Compensation Measure 2 : <b>NONE</b> )				
<b>Channel General Rating</b>			6	

Figure 1. Sample record of Erosion / Sedimentation data

**Culvert Status**

The following additional information shall be recorded in the Explanation of Condition section for Culvert Barrel – Fish Passage Adequacy for all stream crossing culvert sites. For multiple culvert sites, record the information for the primary culvert only, or for the worst case culvert (from a fish passage perspective) when no obvious primary structure exists. For all culvert sites, use the headings shown in Figure 2 to identify each of the following four sets of data. Also note if any fish are observed in the stream adjacent to the culvert or in the culvert itself. Fish Passage Adequacy shall still be rated according to Section 13.6.12 of the BIM Inspection Manual.

**Debris Blockage:** If the culvert is obstructed by debris at any point, indicate the percentage of the culvert diameter that is obstructed and the cause of the obstruction.

**Substrate in Culvert:** Note if there is substrate in the culvert and the dominant type (sand, gravel, cobble, boulder, silt, other). Estimate and note the percentage of the culvert length that contains substrate.

**Backwater in Culvert:** Backwater is the upstream extension of the standing water outlet pool into the culvert. Flowing water in the culvert is not backwater. Estimate and record how far up into the culvert (% of culvert length from the outlet) backwater can be found.

**Outlet Pool Depth:** Measure the depth of the pool to the nearest centimeter at the outlet of the culvert. The measurement should be taken within one culvert diameter of the end of the culvert. If the outlet pool depth is highly variable, take several measurements and record the average.

Bridge Culvert Barrel				
Culvert Component		Last	Now	Explanation of Condition
(Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): 5080, Rise (mm): 2388, Type: CPA)				
Ponding (Y/N)	No			
Fish Passage Adequacy		7	7	Blockage: 20% Drift Substrate: 25% Sand Backwater: 50% Pool Depth: 35 cm
Baffle		X	X	
(Type: )				

**Figure 2. Sample record of culvert status data**

It is anticipated that future modifications to the BIM forms will allow for direct collection and input of the data. Until these modifications are complete, we ask that the data be collected and recorded as outlined above.

If you have any questions on this matter, please contact the undersigned.



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