

| Bridge Culvert Inspection |   |                     |                |
|---------------------------|---|---------------------|----------------|
| Bridge File Number        | 71968 -1 Bridge Culvert                                 | Form Type           | CUL1           |
| Year Built                | 1989  | Lot No.             | 4              |
| Bridge or Town Name       | RAYMOND   | Inspector Name      | Jon Davies     |
| Located Over              | TRIBUTARY TO MILK RESERVOIR,<br>11.9.6.3.1, WATERCRS-ST | Inspector Class     | BR CLS B       |
| Located On                | 506:02 C1 22.374  | Assistant Name      |                |
| Water Body Cl./Year       |   | Assistant Class     |                |
| Navigabil. Cl./Year       |   | Inspection Date     | 04-Jun-2012    |
| Legal Land Location       | SE SEC 1 TWP 5 RGE 20 W4M                               | Data Entry By       | Kelsey Roberts |
| Longitude, Latitude       | -112:34:14, 49:20:55                                    | Data Entry Date     | 23-Jun-2012    |
| Road Authority            | Alberta Transportation (AIT)                            | Reviewer Name       | Garry Roberts  |
| Contract Main. Area       | CMA25   | Review Date         | 15-Jun-2012    |
| Clear Roadway/Skew        | 10.1 /  | Dept. Reviewer Name | Tim Davies     |
| AADT/Year                 | 290 / 2011 (A)  | Dept. Review Date   | 29-Jun-2012    |
| Road Classification       | RCU-209-110   | Follow-Up By        |                |
| Detour Length (km)        | 10  |                     |                |

**Bridge Culvert Information**

|                          |        |      |                |      |        |               |                    |       |
|--------------------------|--------|------|----------------|------|--------|---------------|--------------------|-------|
| Number of Culverts       | 1      |      |                |      |        |               |                    |       |
| Pipe #                   | Barrel | Span | Rise (or Dia.) | Type | Length | Corr. Profile | Pl./Slab Thickness | Shape |
| 1                        | MAIN   | -    | 2740           | SP   | 36.6   | 152X51        | 3.0                | ROUND |
| Special Features         |        |      |                |      |        |               |                    |       |
| Special Features Comment |        |      |                |      |        |               |                    |       |

**Utilities (Located at)**

|                     |          |               |    |
|---------------------|----------|---------------|----|
| Utility Attachments |          |               |    |
| Telephone           | S. DITCH | Gas           |    |
| Power               |          | Municipal     |    |
| Others              |          | Problem (Y/N) | No |
| Remarks             |          |               |    |

**Approach Road / Embankment**

|  |       | Last     | Now      | Explanation of Condition |
|--|-------|----------|----------|--------------------------|
| Horizontal Alignment                             |       | 9        | 8        | Bottom of a sag          |
| Vertical Alignment                               |       | 6        | 6        |                          |
| Roadway Width (m)                                | 9.600 |          |          |                          |
| Embankment                                       |       | 7        | 7        |                          |
| Sideslope ( __:1)                                | 4.0   |          |          |                          |
| (Height of Cover(m) : 1.8)                       |       |          |          |                          |
| Guardrail (Y/N)                                  | No    |          |          |                          |
| <b>Approach Road / Embankment General Rating</b> |       | <b>6</b> | <b>6</b> |                          |

**Upstream End**

| Culvert Component                             |       | Last | Now | Explanation of Condition |
|---|-------|------|-----|--------------------------|
| Direction                                     |       |      |     | South                    |
| End Treatment (Concrete, Steel, Others, None) | STEEL |      |     |                          |
| Headwall                                      |       | X    | X   |                          |
| Collar  |       | X    | X   |                          |
| Wingwalls                                     |       | X    | X   |                          |
| (Shape : )                                    |       |      |     |                          |
| Cutoff Wall                                   |       | X    | X   |                          |

| Upstream End  |             |          |          |  |
|---|-------------|----------|----------|--|
| Culvert Component   |             | Last     | Now      | Explanation of Condition                         |
| Bevel End   |             | 7        | 7        |  |
| Heaving (mm)  | 0           |          |          |  |
| Invert Above/Below Stream Bed   | BELOW       |          |          |  |
| Above/Below (mm)  | 600         |          |          |  |
| Scour Protection  |             | 7        | 7        |  |
| (Type : <b>RIP RAP</b> )  |             |          |          |  |
| (Avg. Rock Size(mm) : <b>350</b> )  |             |          |          |  |
| Scour/Erosion   |             | 7        | 7        |  |
| Beavers (Y/N)   | No          |          |          |  |
| <b>Upstream End General Rating</b>  |             | <b>7</b> | <b>7</b> |  |
| Bridge Culvert Barrel   |             |          |          |  |
| Culvert Component   |             | Last     | Now      | Explanation of Condition                         |
| (Pipe # : <b>1</b> , Primary Span, Location Code: <b>MAIN</b> , Span (mm): , Rise (mm): <b>2740</b> , Type: <b>SP</b> ) |             |          |          |  |
| Barrel Last Accessible Date   | 20-Jun-2009 |          |          | Not accessible due to high water level.          |
| Special Features  |             |          |          |  |
| Special Feature   |             |          |          |  |
| (Type : )   |             |          |          |  |
| Special Feature   |             |          |          |  |
| (Type : )   |             |          |          |  |
| Roof  |             | 8        | N        | P.R. 8   |
| Measured Rise (mm)  | 2733        |          |          | Viewed from D/S end- general roof shape is good. |
| Measured At Ring No.  | 3           |          |          |  |
| Sag (mm)  | 7           |          |          |  |
| Percent Sag   | 0           |          |          |  |
| Sidewall  |             | 8        | N        |  |
| Measured Span (mm)  | 2745        |          |          | Viewed from D/S end- general roof shape is good. |
| Measured At Ring No.  | 5           |          |          |  |
| Deflection (mm)   | 5           |          |          |  |
| Percent Deflection  | 0           |          |          |  |
| Floor   |             | 7        | N        |  |
| Bulge (mm)  | 0           |          |          | Viewed from D/S end- general roof shape is good. |
| Measured At Ring No.  |             |          |          |  |
| Abrasion (Y/N)  | No          |          |          |  |
| Circumferential Seams   |             | 8        | 9        | P.R. 8   |
| Separation (mm)   | 0           |          |          |  |
| Longitudinal Seams  |             | 7        | N        | P.R. 7   |
| Total No. of Cracked Rings  | 0           |          |          | Viewed from D/S end- general roof shape is good. |
| Total No. of Rings with Two Cracked Seams   |             |          |          |  |
| Min. Remaining Steel Between Cracks (mm)  |             |          |          |  |
| Proper Lap (Y/N)  | No          |          |          |  |
| Longitudinal Stagger (Y/N)  | Yes         |          |          |  |
| Longitudinal Stagger (mm)   |             |          |          |  |
| Coating   |             | 7        | N        | P.R. 7   |
| Corrosion By Soil (Y/N)   |             |          |          | Viewed from D/S end- general roof shape is good. |
| Corrosion By Water (Y/N)  |             |          |          |  |
| Camber POS/ZERO/NEG   | ZERO        |          |          |  |
| Ponding (Y/N)   | No          |          |          |  |

| Bridge Culvert Barrel   |     |           |          |  |
|---|-----|-----------|----------|--|
| Culvert Component   |     | Last      | Now      | Explanation of Condition   |
| (Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 2740, Type: SP) |     |           |          |  |
| Fish Passage Adequacy   |     | 5         | 5        |  |
| Baffle<br>(Type : )   |     | X         | X        |  |
| Waterway Adequacy   |     | 6         | 5        | (In June 2002 water backed up on the S side in high runoff, 0.5m over pipe)  |
| Icing (Y/N)   | No  |           |          |  |
| Silting (Y/N)   | No  |           |          |  |
| Drift (Y/N)   | No  |           |          |  |
| <b>Barrel General Rating</b>  |     | <b>8</b>  | <b>N</b> | P.R. 8   |
| Downstream End  |     |           |          |  |
| Culvert Component   |     | Last      | Now      | Explanation of Condition   |
| Direction   |     |           |          | NORTH  |
| End Treatment (Concrete, Steel, Others, None)   |     | STEEL     |          |  |
| Headwall  |     | X         | X        |  |
| Collar  |     | X         | X        |  |
| Wingwalls<br>(Shape : )   |     | X         | X        |  |
| Cutoff Wall   |     | X         | X        |  |
| Bevel End   |     | 7         | 7        |  |
| Heaving (mm)  | 0   |           |          |  |
| Invert Above/Below Stream Bed   |     | BELOW     |          |  |
| Above/Below (mm)  | 600 |           |          |  |
| Scour Protection<br>(Type : <b>RIP RAP</b> )<br>(Avg. Rock Size(mm) : <b>350</b> )      |     | 4         | 4        | minor scour- used as cattle water hole<br>Large scour hole 10mx18mx1.2m around pipe & in the channel.<br>Riprap has been washed d/s 20m from high runoff |
| Scour/Erosion   |     | 4         | 4        |  |
| Beavers (Y/N)   |     | No        |          |  |
| <b>Downstream End General Rating</b>  |     | <b>4</b>  | <b>4</b> |  |
| Structure Usage   |     |           |          |  |
|   |     | Last      | Now      | Explanation of Condition   |
| Channel (U/S and D/S)   |     |           |          |  |
| Alignment   |     | 8         | 8        |  |
| Bank Stability  |     | 8         | 8        |  |
| HWM (m below Top of Culvert)  | 1.5 |           |          | No HWM visible   |
| Drift (Y/N)   |     | No        |          |  |
| Channel Bottom<br>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>   |     | <b>8</b>  | <b>8</b> |  |

| Maintenance Recommendations                       |                  |  |                           |               |                 |                   |    |
|---|------------------|--|---------------------------|---------------|-----------------|-------------------|----|
| Inspector Recommendations                         | Year             | Inspector Comments                       | Department Comments       | Target Year   | Est. Cost       | Cat #             |    |
| SHOTCRETE REPAIRS                                 |                  |  |                           |               |                 |                   |    |
| PLACE ADDITIONAL RIP RAP                          |                  |  |                           |               |                 |                   |    |
| REMOVE DRIFT ACCUMULATION                         |                  |  |                           |               |                 |                   |    |
| INSTALL CONCRETE/STEEL LINING                     |                  |  |                           |               |                 |                   |    |
| INSTALL STRUTS                                    |                  |  |                           |               |                 |                   |    |
| INSTALL CONCRETE COLLAR/CUTOFF                    |                  |  |                           |               |                 |                   |    |
| REPAIR SEAMS                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| OTHER ACTION                                      |                  |  |                           |               |                 |                   |    |
| <b>Structural Condition Rating (Last/Now) (%)</b> | <b>88.9/55.6</b> | <b>Sufficiency Rating (Last/Now) (%)</b> | <b>77.0/58.6</b>          | Est. Repl. Yr | 2044            | Maint. Req. (Y/N) | No |
| Special Comments for Next Inspection              |                  |  | Department Comments       |               |                 |                   |    |
| Maintenance Reviewed By                           |                  |  | Date                      |               | Estimated Total | 0                 |    |
| Proposed Long-Term Strategy                       |                  |  |                           |               |                 |                   |    |
| On 3-Year Program (Y/N)                           |                  |  |                           |               |                 |                   |    |
| Proposed Action                                   |                  |  |                           |               |                 |                   |    |
| Previous Inspector's Name                         | Garry Roberts    |  | Previous Assistant's Name |               |                 |                   |    |
| Next Inspection Date                              | 04-Sep-2015      |  | Previous Inspection Date  | 20-Jun-2009   |                 |                   |    |
| Inspection Cycle (Default) (months)               | 39               |  |                           |               |                 |                   |    |
| Comment   |                  |  |                           |               |                 |                   |    |