

| Bridge Culvert Inspection |                                  |  |                     |                |
|---------------------------|----------------------------------|--|---------------------|----------------|
| Bridge File Number        | 77435 -1 Bridge Culvert          |  | Form Type           | CUL1           |
| Year Built                | 1971                             |  | Lot No.             | 1              |
| Bridge or Town Name       | OLDS                             |  | Inspector Name      | Owen Salava    |
| Located Over              | TRAIL CREEK, 3.89.4, WATERCRS-ST |  | Inspector Class     | BR CLS A       |
| Located On                | 27:06 C1 26.667                  |  | Assistant Name      |                |
| Water Body Cl./Year       |                                  |  | Assistant Class     |                |
| Navigabil. Cl./Year       |                                  |  | Inspection Date     | 23-Oct-2012    |
| Legal Land Location       | NW SEC 31 TWP 32 RGE 2 W5M       |  | Data Entry By       | Marcia Chavez  |
| Longitude, Latitude       | -114:17:05, 51:47:33             |  | Data Entry Date     | 09-Nov-2012    |
| Road Authority            | Alberta Transportation (AIT)     |  | Reviewer Name       | John O'Brien   |
| Contract Main. Area       | CMA29                            |  | Review Date         | 30-Oct-2012    |
| Clear Roadway/Skew        | 11.2 / 30 deg. (RHF)             |  | Dept. Reviewer Name | Andrew Smikles |
| AADT/Year                 | 4,400 / 2011 (A)                 |  | Dept. Review Date   | 19-Nov-2012    |
| Road Classification       | RAU-211.8-110                    |  | Follow-Up By        |                |
| Detour Length (km)        | 6                                |  |                     |                |

| Bridge Culvert Information |        |                    |                |      |        |               |                    |       |
|----------------------------|--------|--------------------|----------------|------|--------|---------------|--------------------|-------|
| Number of Culverts         |        | 1                  |                |      |        |               |                    |       |
| Pipe #                     | Barrel | Span               | Rise (or Dia.) | Type | Length | Corr. Profile | PI./Slab Thickness | Shape |
| 1                          | MAIN   | -                  | 1500           | MP   | 42.1   | 68X13         |                    | ROUND |
| Special Features           |        | VERT TIMBER STRUTS |                |      |        |               |                    |       |
| Special Features Comment   |        |                    |                |      |        |               |                    |       |

| Utilities (Located at) |                          |  |                  |
|------------------------|--------------------------|--|------------------|
| Utility Attachments    |                          |  |                  |
| Telephone              | At downstream end South. |  | Gas              |
| Power                  |                          |  | Municipal        |
| Others                 |                          |  | Problem (Y/N) No |
| Remarks                |                          |  |                  |

| Approach Road / Embankment                       |        |          |          |  |
|--|--------|----------|----------|--|
|  |        | Last     | Now      | Explanation of Condition   |
| Horizontal Alignment                             |        | 6        | 6        | On a superelevated curve with limited sight distance. No passing EB. |
| Vertical Alignment                               |        | 6        | 6        |  |
| Roadway Width (m)                                | 11.200 |          |          |  |
| Embankment                                       |        | 7        | 7        | 6:1 north side.  |
| Sideslope (__:1)                                 | 4.0    |          |          |  |
| (Height of Cover(m) : 2.5)                       |        |          |          |  |
| 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                                     |       | N    |     |                          |
| 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   |             | 6        | 6        |   |
| Heaving (mm)  | 50          |          |          |   |
| Invert Above/Below Stream Bed   |             |          |          |   |
| Above/Below (mm)  | 0           |          |          |   |
| Scour Protection  |             | N        | 5        |   |
| (Type : <b>NATURAL</b> )  |             |          |          |   |
| (Avg. Rock Size(mm) : )   |             |          |          |   |
| Scour/Erosion   |             | N        | 5        |   |
| Beavers (Y/N)   | No          |          |          |   |
| <b>Upstream End General Rating</b>  |             | <b>5</b> | <b>5</b> |   |
| Bridge Culvert Barrel   |             |          |          |   |
| Culvert Component   |             | Last     | Now      | Explanation of Condition  |
| (Pipe # : 1, Primary Span, Location Code: MAIN, Span (mm): , Rise (mm): 1500, Type: MP) |             |          |          |   |
| Barrel Last Accessible Date   | 23-Oct-2012 |          |          |   |
| Special Features  |             |          |          |   |
| Special Feature   |             | 4        | 4        | Strut @ South end 1/3 L only. North end strut not plumb. Loose at nailer. |
| (Type : <b>VERT TIMBER STRUTS</b> )   |             |          |          |   |
| Special Feature   |             |          |          |   |
| (Type : )   |             |          |          |   |
| Roof  |             | 3        | 3        | Unable to measure due to ice.   |
| Measured Rise (mm)  | 1350        |          |          |   |
| Measured At Ring No.  | 2           |          |          |   |
| Sag (mm)  | 150         |          |          |   |
| Percent Sag   | 10          |          |          |   |
| Sidewall  |             | 4        | 4        | North of struts.<br><br>9.3%  |
| Measured Span (mm)  | 1640        |          |          |   |
| Measured At Ring No.  | 2           |          |          |   |
| Deflection (mm)   | 140         |          |          |   |
| Percent Deflection  | 9           |          |          |   |
| Floor   |             | N        | N        | Ice covered.  |
| Bulge (mm)  | 0           |          |          |   |
| Measured At Ring No.  |             |          |          |   |
| Abrasion (Y/N)  | No          |          |          |   |
| Circumferential Seams   |             | 4        | 4        | 30mm vertical gap SW @ 3rd seam. Sounds hollow for 0.5m each direction.   |
| Separation (mm)   | 110         |          |          |   |
| Longitudinal Seams  |             | X        | X        |   |
| Total No. of Cracked Rings  |             |          |          |   |
| Total No. of Rings with Two Cracked Seams   |             |          |          |   |
| Min. Remaining Steel Between Cracks (mm)  |             |          |          |   |
| Proper Lap (Y/N)  |             |          |          |   |
| Longitudinal Stagger (Y/N)  |             |          |          |   |
| Coating   |             | 5        | 5        | Superficial rust floor & lower sidewall.                                  |
| Corrosion By Soil (Y/N)   | No          |          |          |   |
| Corrosion By Water (Y/N)  | Yes         |          |          |   |
| 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): 1500, Type: MP) |           |          |          |                          |
| Fish Passage Adequacy   |           | X        | X        |                          |
| Baffle  |           | X        | X        |                          |
| (Type : )   |           |          |          |                          |
| Waterway Adequacy   |           | 5        | 5        |                          |
| Icing (Y/N)   | No        |          |          |                          |
| Siltting (Y/N)  | No        |          |          |                          |
| Drift (Y/N)   | No        |          |          |                          |
| <b>Barrel General Rating</b>  |           | <b>3</b> | <b>3</b> |                          |
| Downstream End  |           |          |          |                          |
| Culvert Component   |           | Last     | Now      | Explanation of Condition |
| Direction   |           | S        |          |                          |
| End Treatment (Concrete, Steel, Others, None)   | STEEL     |          |          |                          |
| Headwall  |           | X        | X        |                          |
| Collar  |           | X        | X        |                          |
| Wingwalls   |           | X        | X        |                          |
| (Shape : )  |           |          |          |                          |
| Cutoff Wall   |           | X        | X        |                          |
| Bevel End   |           | 6        | 6        |                          |
| Heaving (mm)  | 150       |          |          |                          |
| Invert Above/Below Stream Bed   | ABOVE     |          |          |                          |
| Above/Below (mm)  | 200       |          |          |                          |
| Scour Protection  |           | N        | 5        |                          |
| (Type : <b>NATURAL</b> )  |           |          |          |                          |
| (Avg. Rock Size(mm) : )   |           |          |          |                          |
| Scour/Erosion   |           | N        | 5        |                          |
| Beavers (Y/N)   | No        |          |          |                          |
| <b>Downstream End General Rating</b>  |           | <b>5</b> | <b>5</b> |                          |
| Structure Usage   |           |          |          |                          |
|   |           | Last     | Now      | Explanation of Condition |
| <b>Channel (U/S and D/S)</b>  |           |          |          |                          |
| Alignment   |           | 7        | 7        | No defined channel.      |
| Bank Stability  |           | 7        | 7        |                          |
| HWM (m below Top of Culvert)  |           |          |          | HWM not 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>   |           | <b>7</b> | <b>7</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                                | 2013                | Straighten & secure loose strut.     |                     |                      |             |                          |           |  |  |  |
| INSTALL CONCRETE COLLAR/CUTOFF                |                     |                                      |                     |                      |             |                          |           |  |  |  |
| REPAIR SEAMS                                  |                     |                                      |                     |                      |             |                          |           |  |  |  |
| OTHER ACTION                                  | 2013                | Fill void at 3rd circular seam.      |                     |                      |             |                          |           |  |  |  |
| OTHER ACTION                                  |                     |                                      |                     |                      |             |                          |           |  |  |  |
| OTHER ACTION                                  |                     |                                      |                     |                      |             |                          |           |  |  |  |
| OTHER ACTION                                  |                     |                                      |                     |                      |             |                          |           |  |  |  |
| <b>Structural Condition Rating (Last/Now)</b> | <b>33.3/33.3</b>    | <b>Sufficiency Rating (Last/Now)</b> | <b>40.6/41.0</b>    | <b>Est. Repl. Yr</b> | <b>2017</b> | <b>Maint. Req. (Y/N)</b> | <b>No</b> |  |  |  |
| 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                     | Owen Salava         | Previous Assistant's Name            |                     |                      |             |                          |           |  |  |  |
| Next Inspection Date                          | 23-Jul-2014         | Previous Inspection Date             | 07-Feb-2011         |                      |             |                          |           |  |  |  |
| Inspection Cycle (Default) (months)           | 21                  |                                      |                     |                      |             |                          |           |  |  |  |
| Comment                                       |                     |                                      |                     |                      |             |                          |           |  |  |  |

**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                                    | 2013             | Straighten & secure loose strut.         | Next time on site         |  |                 |                      |
| INSTALL CONCRETE COLLAR/CUTOFF                    |                  |  |                           |  |                 |                      |
| REPAIR SEAMS                                      |                  |  |                           |  |                 |                      |
| OTHER ACTION                                      | 2013             | Fill void at 3rd circular seam.          | Next time on site         |  |                 |                      |
| OTHER ACTION                                      |                  |  |                           |  |                 |                      |
| OTHER ACTION                                      |                  |  |                           |  |                 |                      |
| OTHER ACTION                                      |                  |  |                           |  |                 |                      |
| <b>Structural Condition Rating (Last/Now) (%)</b> | <b>33.3/33.3</b> | <b>Sufficiency Rating (Last/Now) (%)</b> | <b>40.6/41.0</b>          | Est. Repl. Yr                                | 2017            | Maint. Req. (Y/N) No |
| Special Comments for Next Inspection              |                  |  | Department Comments       | Currently programmed for replacement in 2019 |                 |                      |
| Maintenance Reviewed By                           | Andrew Smikles   |  | Date                      | 07-Jan-2013                                  | Estimated Total | 0                    |
| Proposed Long-Term Strategy                       |                  |  |                           |  |                 |                      |
| On 3-Year Program (Y/N)                           |                  |  |                           |  |                 |                      |
| Proposed Action                                   |                  |  |                           |  |                 |                      |
| Previous Inspector's Name                         | Owen Salava      |  | Previous Assistant's Name |  |                 |                      |
| Next Inspection Date                              | 23-Jul-2014      |  | Previous Inspection Date  | 07-Feb-2011                                  |                 |                      |
| Inspection Cycle (Default) (months)               | 21               |  |                           |  |                 |                      |
| Comment   |                  |  |                           |  |                 |                      |