

CULVERT FISH BAFFLES

Fish Passage

M27

FACTSHEET

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INTRODUCTION

- Increase bed roughness to reduce culvert flow velocities
- Provide rest areas for fish at regular intervals along the culvert invert
- Trap and retain bed material along the culvert invert



APPLICABILITY

- Culverts where fish passage is required and velocities cannot be lowered by means of culvert modifications, invert depression or replicated natural stream
- Especially suited to retrofits of existing culverts that block fish passage

ADVANTAGES

- Can assist fish passage through long, steep culverts where this cannot be achieved by alternative methods
- Can be used to maintain substrate on the culvert invert

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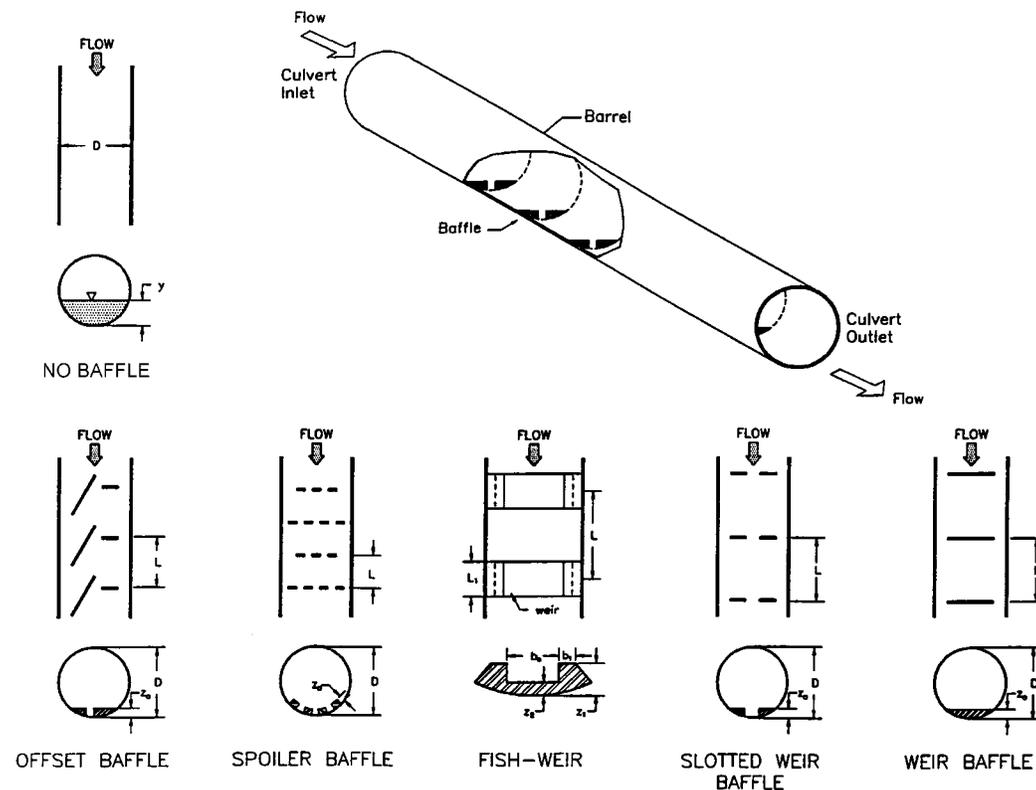
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LIMITATIONS

- May reduce culvert flood passage capacity: be sure to check when retrofitting existing culverts
- Susceptible to debris accumulation

DESIGN CONSIDERATIONS

- Determine fish passage requirements (species, life stage, timing)
- Determine fish passage design discharge
- Select baffle design: a selection of alternatives is shown below
- Calculate fish passage culvert and baffle hydraulics
- Ensure that fish swimming ability exceeds culvert lengths and velocities
- Ensure that culvert flood conveyance capacity remains adequate
- Culvert and baffle fish passage designs should only be undertaken by a qualified professional with the approval of Alberta Environment and the Canada Department of Fisheries and Oceans
- Proprietary designs for fish baffle inserts are available to retrofit existing culverts



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MAINTENANCE CONSIDERATIONS

- Maintenance of fish passage remains the responsibility of the owner for the life of the structure
- Regular inspection of fish passage structures should be undertaken in conjunction with culvert inspections
- Ensure that baffles remain free of debris and are not buried by bed material
- Post-construction studies may be required to confirm fish passage

REFERENCES AND FURTHER READING

Alberta Transportation. 1999. Fish Habitat Manual – Guidelines and Procedures for Watercourse Crossings in Alberta.

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