Grade Separation Inspection & Ratings

Grade Separation
Inspection and Rating

Technical Standards Branch
Class B Bric ection Course

BIM
Bridge Repedin and Maintenance

Grade Separation Inspection & Ratings Grade Separation Form Applies to structures which have traffic going over and under Applies to Wildlife/Cattlepass or Pedestrian Underpass structures Replaces channel section Has items specific to under/overpass rather than Generated automatically Can be requested for blank forms Refer to Chapter 10 in BIM Manual for Bridges Refer to Chapter 13 - section 13.8 for Culverts Technical Standards Branch Alberta Class B Bridge Inspection Course BIM

Grade Separation Form

• Generated for following usage types:

- GS - vehicle grade separation

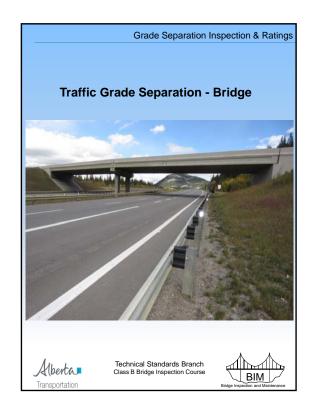
- PS - pedestrian grade separation

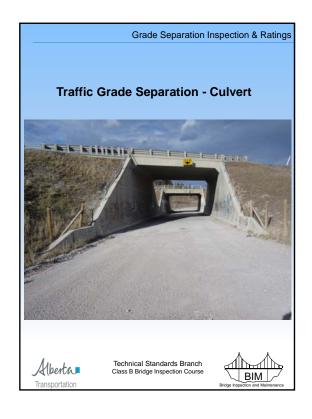
- SP - stockpass or cattlepass

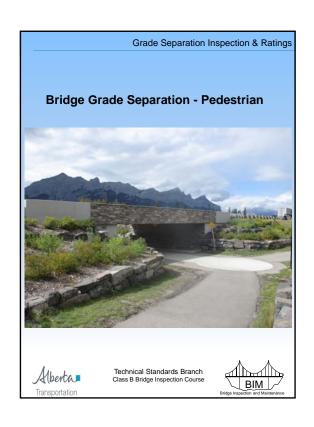
- RO - railway overpass

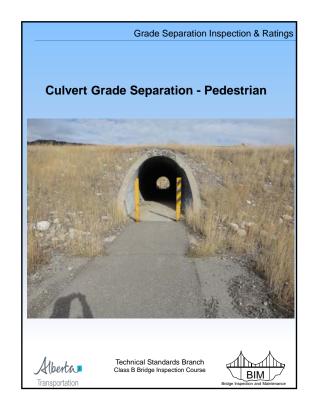
- RU - railway underpass

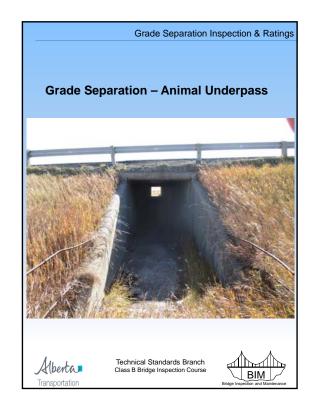
- All types above can be either bridge or culvert Grade Separation

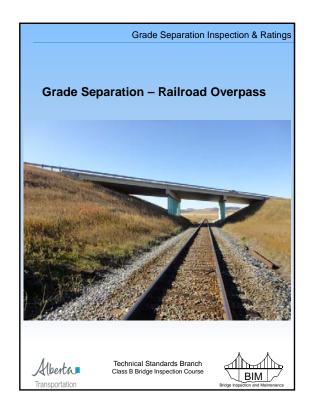


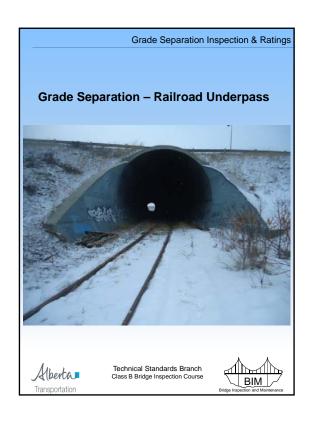


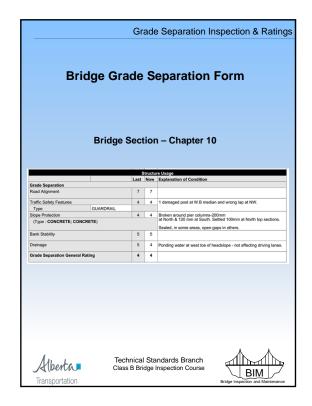


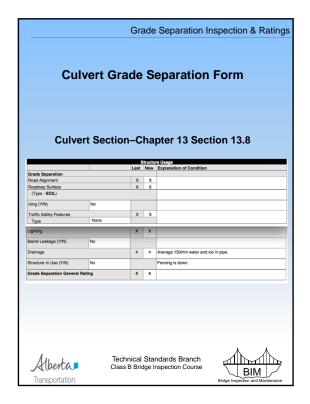












Grade Separation Inspection & Ratings

Road Alignment

- Refers to alignment up to and through the Bridge/Culvert including surface condition
- Look for:
 - Cracks, heaves & roughness
 - Super elevation & orientation
 - Accessibility for stock
 - Collision potential
- If alignment can be safely driven at legal or posted speed limit, rate 5 or more.
- For Railway, Pedestrian and Animal underpasses rate alignment "X".



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Roadway Surface

- Refers to Culvert Grade Separations and Animal/Pedestrian Underpasses
- Purpose is to provide a surface for traffic usage
 - Smooth surface
 - No holes, depressions or projections
 - Not slippery
- Record type of surface
 - Asphalt
 - Concrete
 - Gravel
 - Soil
- · Look for defects that might affect high load vehicles
- Defects that create hazards to traffic or pedestrians
- Record the presence of icing on the roadway Y/N comment if Yes. May affect Drainage rating.
- If defects a problem for stock/traffic, rate 4 or less
- If hazardardous, rate 2 or less (holes, projections, icing on traffic or pedestrian surfaces)



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Traffic Safety Features

- Refers to curbs, medians, guardrails, advance warning signs, crash protection, etc.
- Not applicable for stock underpasses
- Indicate type and rate condition and functionality
- If not present record type as "None" and rate "X"



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Slope Protection

- Refers to protection system on headslopes
- Look for:
 - evidence of settlement
 - cracked, broken or bulging concrete protection
 - Deck drainage away from system
 - voids under concrete slabs
- Note graffiti
- Rate 4 or less for:
- Significant settlement or moving downwards
- Significant heaving or cracking of concrete slope protection
- > Voids under concrete slope protection



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Bank Stability

- · Refers to stability of bridge headslopes
- Look for:
 - damage or displacement
 - settlement at abutment and piers
 - bulging at toe of slope
 - loss of material at toe of slope

Rate 4 or less if:

- Settled and exposing underside of abutment seat
- Instability that affects the Substructure or Superstructure
- > Instability requiring monitoring



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Drainage

- · Refers to the ability to dispose of water at:
- > Toe of headslopes and transitions on bridges
- Roadway surface from Culvert Grade Separations
- > Ends and barrel of Pedestrian or Animal underpasses
- Typ. water sources are deck and approach road drainage, ditch drainage, and weep holes.
- Some underpasses are also designed for water flow
 - See "Special Comments for Next Inspection"



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Grade Separation Inspection & Ratings

Drainage

- On Bridge or Culvert Grade Separations handling vehicle traffic look for:
 - Ponding at toe of headslopes and transitions or inside culverts
 - Blockage of existing drainage systems
 - Damage to embankments
 - Record "Yes" if barrel leakage comment

Ratings:

- If functioning and no damage to slope protection, embankments and no bank instability rate 5 or more
- > If damage or slope instability rate 4 or less
- If drainage causes ponding or icing on travel lanes and potential traffic hazard rate 2 or less



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Grade Separation Inspection & Ratings

Drainage

- On Pedestrian/Animal Underpasses look for:
 - Ponding in culvert barrel or at ends
 - Any condition contributing to icing
 - Damage to sideslopes or embankments
- Record "Yes" if barrel leakage and provide comment. Rating is not required but if "Yes" leakage may effect rating of Roadway surface and Drainage
 - Ratings:
 - ➤ If functioning and no damage to sideslope or embankment rate 5 or more
 - > If poor drainage causes icing or ponding around animal underpasses rate 4 or less
 - If drainage causes ponding or icing and potential hazard on pedestrian underpass 2 or less



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