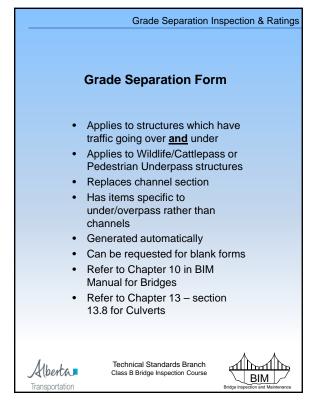
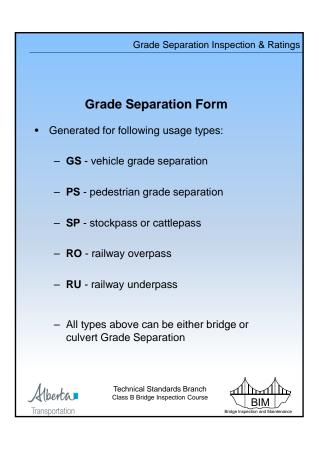
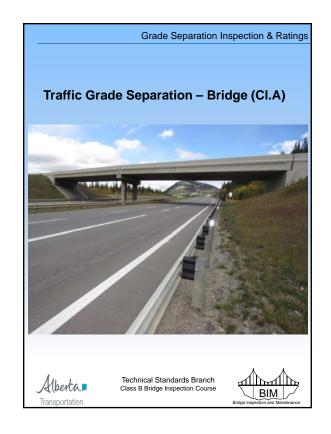
Grade Separation
Grade Separation
Inspection and Rating

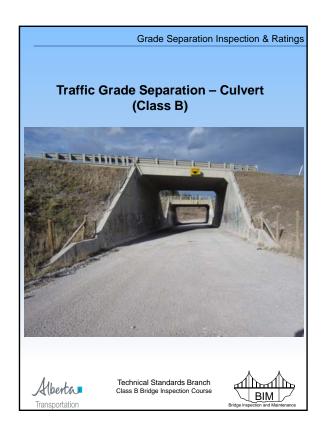
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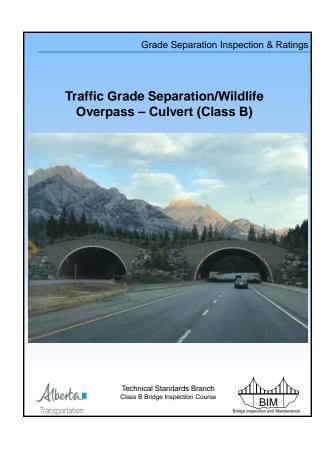
BIM

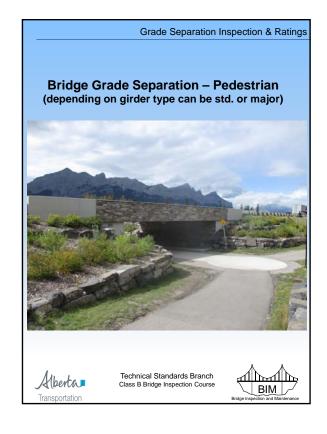


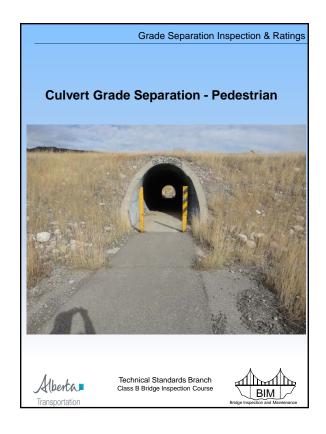


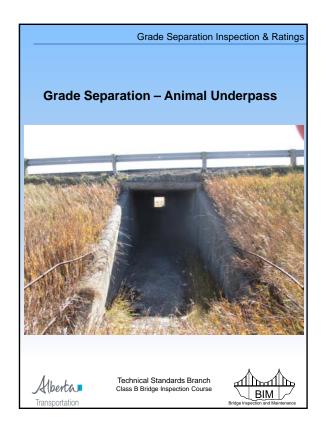


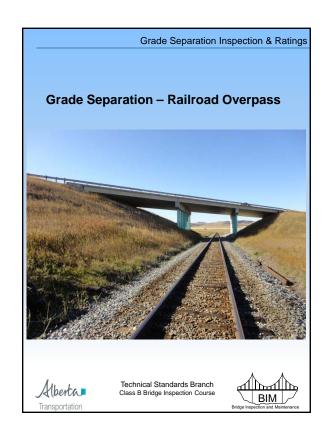


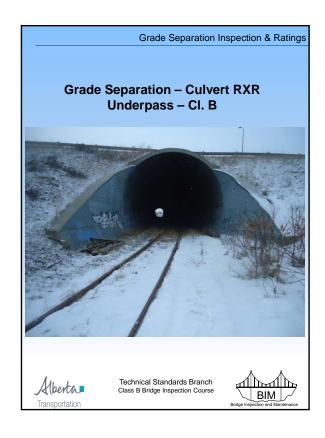


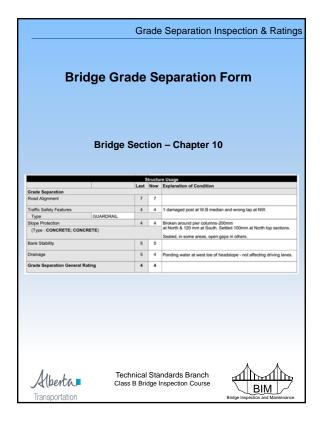


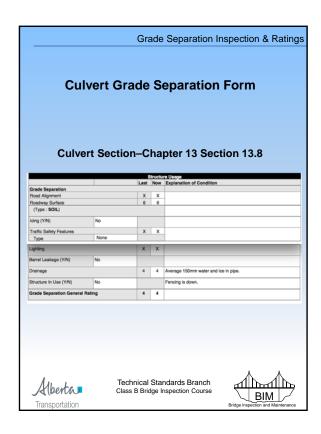


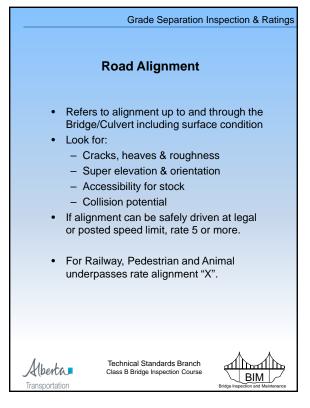


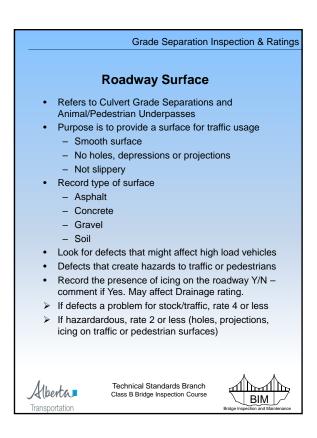


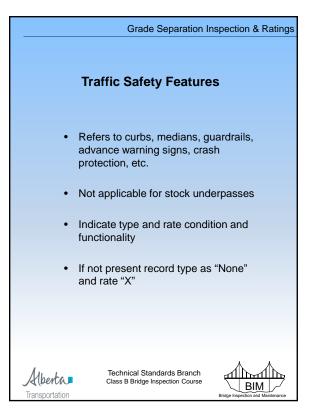












Grade Separation Inspection & Ratings

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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Grade Separation Inspection & Ratings

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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Grade Separation Inspection & Ratings

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
- $\,\succ\,$ 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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Grade Separation Inspection & Ratings

Animal Underpass – Other Drainage Considerations

- Normally these are not applicable (rate "X")
 - scour and scour protection at ends
 - fish passage in barrel
 - waterway adequacy in barrel
- · If designed to also handle water flow
 - Note in "Special Comments for Next Inspection" (This culvert also handles drainage. 05/06/2016)
 - Inspect and provide ratings for:
 - scour and scour protection at ends
 - · fish passage
 - waterway adequacy



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