Ministry of Forests & Range

ENGINEERING BRANCH, FIELD OPERATIONS DIVISION

STANDARD BRIDGE DESIGN VEHICLES

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ASSUME NOT TO SCALE
1 DESIGN VEHICLES

1.1 BRIDGES SHALL NOT BE DESIGNED FOR LOADS LESS THAN THE BCL-625. ALTERNATIVELY, BRIDGES SHOULD BE DESIGNED FOR THE L100, L150 OR L165 DESIGN VEHICLES AS SPECIFIED IN THE CONTRACT DOCUMENTS.

1.2 DESIGN LANES
- BRIDGES LESS THAN 3.66 M (12 FT) WIDE SHALL BE DESIGNED FOR A SINGLE LANE OF TRAFFIC.
- MULTI-LANE LOADING
  - WHERE A BRIDGE IS ABLE TO BILLIION AND SUPPORT MORE THAN ONE LANE OF TRAFFIC, THE DESIGNER SHOULD SEEK CLARIFICATION FROM THE MFR ON HOW TO ACCOUNT FOR MULTIPLE LOADS.
- THE DESIGN DRAWINGS SHOULD CLEARLY IDENTIFY THE VEHICLE COMBINATIONS USED FOR THE BRIDGE DESIGN INCLUDING NUMBER OF DESIGN LANES AND LOADS APPLIED TO EACH DESIGN LANE.

1.3 BCL-625 (63710KG G.V.W.)
- THE BCL-625 IS AN IDEALIZED MULT-AXLE HIGHWAY LEGAL DESIGN VEHICLE.
- THE BCL-625 LANE LOAD CONSISTS OF A BCL-625 TRUCK WITH EACH AXLE REDUCED TO 80% OF THE SPECIFIED VALUE SUPERIMPOSED WITHIN A UNIFORMLY DISTRIBUTED LOAD OF 9 kN/m, AND 3.0 m WIDE AS SHOWN IN FIGURE 1.
- THE CLEARANCE ENVELOPE SHALL BE AS SHOWN IN FIGURE 1.

APPLICATION
- TRUCK AXLES THAT REDUCE THE LOAD EFFECT SHALL BE NEGLECTED.
- THE UNIFORMLY DISTRIBUTED PORTION OF THE LANE LOAD SHALL NOT BE APPLIED TO THOSE PARTS OF A DESIGN LANE WHERE ITS APPLICATION DECREASES THE LOAD EFFECT.
- FOR FLS AND SLS COMBINATION 1 AND 2, THE TRAFFIC LOAD SHALL BE ONE TRUCK ONLY, PLACED AT THE CENTRE OF THE TRAVELLED LANE. THE LANE LOAD SHALL NOT BE CONSIDERED.
- FOR ULS, THE TRAFFIC LOAD SHALL BE THE TRUCK LOAD INCREASED BY THE DYNAMIC LOAD ALLOWANCE OR THE LANE LOAD, WHICHEVER PRODUCES THE MAXIMUM EFFECT. THIS LOAD SHALL BE PLACED LONGITUDINALLY AND TRANSVERSELY WITHIN THE DESIGN LANE AT A LOCATION AND IN A DIRECTION THAT PRODUCES THE MAXIMUM LOAD EFFECT BASED ON THE FOLLOWING:
  - FOR 4268 mm (14') WIDE DECKS, THE MAXIMUM TRANSVERSE ECCENTRICITY THAT SHOULD BE CONSIDERED FOR THE TRUCK AND LANE LOAD IS 400 mm FROM THE ROAD CENTRELINE.
  - FOR DECK WIDTHS > 4268 mm increase the transverse eccentricity from the road centreline for the truck and lane load by 50% of deck width over 4268 mm.
- THE LATERAL WHEEL LOAD DISTRIBUTION FOR THE TRUCK AND LANE LOAD SHALL BE 60%-40%.
- FOR DECKS AND OTHER COMPONENTS WHERE DESIGN IS GOVERNED BY THE AXLE LOADS, THE TANDEM AXLE INCREASED BY THE APPLICABLE DYNAMIC LOAD ALLOWANCE SHALL BE CONSIDERED. FOR DECK OVEHANGS OR ADJACENT TO A CURB, RAILING, OR BARRIER, THE MINIMUM DISTANCE FROM THE CENTRES OF THE WHEELS TO THE CURB, RAILING OR BARRIER WALL SHALL BE 0.40 M.

1.4 L100 OFF-HIGHWAY LOGGING TRUCK (90,680KG G.V.W.)
- THE L100 IS AN IDEALIZED FIVE AXLE OFF-HIGHWAY LOGGING TRUCK DESIGN VEHICLE.
- THE L100 LANE LOAD CONSISTS OF A L100 TRUCK WITH EACH AXLE REDUCED TO 65% OF THE SPECIFIED VALUE SUPERIMPOSED WITHIN A UNIFORMLY DISTRIBUTED LOAD OF 25 kN/m AS SHOWN IN FIGURE 2.
- THE UNIFORMLY DISTRIBUTED PORTION OF THE LANE LOAD SHALL NOT BE APPLIED TO THOSE PARTS OF A DESIGN LANE WHERE ITS APPLICATION DECREASES THE LOAD EFFECT.
- FOR FLS AND SLS COMBINATION 1 AND 2, THE TRAFFIC LOAD SHALL BE ONE TRUCK ONLY, PLACED AT THE CENTRE OF THE TRAVELLED LANE. THE LANE LOAD SHALL NOT BE CONSIDERED.
- FOR ULS, THE TRAFFIC LOAD SHALL BE THE TRUCK LOAD INCREASED BY THE DYNAMIC LOAD ALLOWANCE OR THE LANE LOAD, WHICHEVER PRODUCES THE MAXIMUM EFFECT. THIS LOAD SHALL BE PLACED LONGITUDINALLY AND TRANSVERSELY WITHIN THE DESIGN LANE AT A LOCATION AND IN A DIRECTION THAT PRODUCES THE MAXIMUM LOAD EFFECT BASED ON THE FOLLOWING:
  - FOR 4268 mm (14') WIDE DECKS, THE MAXIMUM TRANSVERSE ECCENTRICITY THAT SHOULD BE CONSIDERED FOR THE TRUCK AND LANE LOAD IS 400 mm FROM THE ROAD CENTRELINE.
  - FOR DECK WIDTHS > 4268 mm (14'), INCREASE THE TRANSVERSE ECCENTRICITY FROM THE ROAD CENTRELINE FOR THE TRUCK AND LANE LOAD BY 50% OF DECK WIDTH OVER 4268 mm.
- THE LATERAL WHEEL LOAD DISTRIBUTION FOR THE TRUCK AND LANE LOAD SHALL BE 50%-50%.
- THE LATERAL WHEEL LOAD DISTRIBUTION SHALL BE 60%-40% FOR DECKS AND OTHER COMPONENTS WHERE DESIGN IS GOVERNED BY THE AXLE LOADS.
- THE TANDEM AXLE INCREASED BY THE APPLICABLE DYNAMIC LOAD ALLOWANCE SHALL BE CONSIDERED. THE LATERAL WHEEL LOAD DISTRIBUTION SHALL BE 60%-40%. FOR DECK OVERHANGS OR ADJACENT TO A CURB, RAILING, OR BARRIER, THE MINIMUM DISTANCE FROM THE CENTRES OF THE WHEELS TO THE CURB, RAILING, OR BARRIER WALL SHALL BE 0.40 M.

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REVISION

ASSUME NOT TO SCALE
1.5 L150 (136,090kg. G.V.W.)
- THE L150 IS AN IDEALIZED FIVE AXLE OFF-HIGHWAY LOGGING TRUCK DESIGN VEHICLE.
- THE L150 LANE LOAD CONSISTS OF A L150 TRUCK WITH EACH AXLE REDUCED TO 65% OF THE SPECIFIED VALUE SUPERIMPOSED WITHIN A UNIFORMLY DISTRIBUTED LOAD OF 37 kN/m AS SHOWN IN FIGURE 3.

APPLICATION
- TRUCK AXLES THAT REDUCE THE LOAD EFFECT SHALL BE NEGLECTED.
- THE UNIFORMLY DISTRIBUTED PORTION OF THE LANE LOAD SHALL NOT BE APPLIED TO THOSE PARTS OF A DESIGN LANE WHERE ITS APPLICATION DECREASES THE LOAD EFFECT.
- FOR FL1 AND SL1 COMBINATION 1 AND 2, THE TRAFFIC LOAD SHALL BE THE TRUCK LOAD INCURRED BY THE LATERAL WHEEL LOAD DISTRIBUTION ON THE LANE LOAD, WHICHEVER PRODUCES THE MAXIMUM EFFECT. THIS LOAD SHALL BE PLACED LONGITUDINALLY WITHIN THE DESIGN LANE AT A LOCATION AND IN A DIRECTION THAT PRODUCES THE MAXIMUM LOAD EFFECT BASED ON THE FOLLOWING:
  - FOR 4876 mm (16') WIDE DECKS, THE MAXIMUM TRANSVERSE ECCENTRICITY THAT SHOULD BE CONSIDERED FOR THE TRUCK AND LANE LOAD IS 400 mm FROM THE ROAD CENTRELINE.
  - FOR DECK WIDTHS > 4876 mm (16'), INCREASE THE TRANSVERSE ECCENTRICITY FROM THE ROAD CENTRELINE FOR THE TRUCK AND LANE LOAD BY 50% OF DECK WIDTH OVER 4876 mm.
- THE LATERAL WHEEL LOAD DISTRIBUTION FOR THE TRUCK AND LANE LOAD SHALL BE 50%-50%.

1.6 L165 (149,700kg. G.V.W.)
- THE L165 IS AN IDEALIZED FIVE AXLE OFF-HIGHWAY LOGGING TRUCK DESIGN VEHICLE.
- THE L165 LANE LOAD CONSISTS OF A L165 TRUCK WITH EACH AXLE REDUCED TO 65% OF THE SPECIFIED VALUE SUPERIMPOSED WITHIN A UNIFORMLY DISTRIBUTED LOAD OF 41 kN/m AS SHOWN IN FIGURE 4.

APPLICATION
- TRUCK AXLES THAT REDUCE THE LOAD EFFECT SHALL BE NEGLECTED.
- THE UNIFORMLY DISTRIBUTED PORTION OF THE LANE LOAD SHALL NOT BE APPLIED TO THOSE PARTS OF A DESIGN LANE WHERE ITS APPLICATION DECREASES THE LOAD EFFECT.
- FOR FL1 AND SL1 COMBINATION 1 AND 2, THE TRAFFIC LOAD SHALL BE THE TRUCK LOAD INCURRED BY THE LATERAL WHEEL LOAD DISTRIBUTION ON THE LANE LOAD, WHICHEVER PRODUCES THE MAXIMUM EFFECT. THIS LOAD SHALL BE PLACED LONGITUDINALLY WITHIN THE DESIGN LANE AT A LOCATION AND IN A DIRECTION THAT PRODUCES THE MAXIMUM LOAD EFFECT BASED ON THE FOLLOWING:
  - FOR 4876 mm (16') WIDE DECKS, THE MAXIMUM TRANSVERSE ECCENTRICITY THAT SHOULD BE CONSIDERED FOR THE TRUCK AND LANE LOAD IS 450 mm FROM THE ROAD CENTRELINE.
  - FOR DECK WIDTHS > 4876 mm (16'), INCREASE THE TRANSVERSE ECCENTRICITY FROM THE ROAD CENTRELINE FOR THE TRUCK AND LANE LOAD BY 50% OF DECK WIDTH OVER 4876 mm.
- THE LATERAL WHEEL LOAD DISTRIBUTION FOR THE TRUCK AND LANE LOAD SHALL BE 55%-45%.

ASSUME NOT TO SCALE