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PROJECT NAME: TELKWA 62.2
 BULKLEY RIVER CROSSING, WIDENING OF 24.0m SPAN, TPG BRIDGE
 TASK: 6. SUPERSTRUCTURE ANALYSIS AND DESIGN

SUBTASK: 6.11. DECK PLATE

JOB NUMBER: CNRAIL0802
 DESIGNED: CHECKED
 DGT:
 DATE: 5-Aug-08
 DATE:

REFERENCES:

AREMA, CHAPTER 15
 § 1.3.4.2.

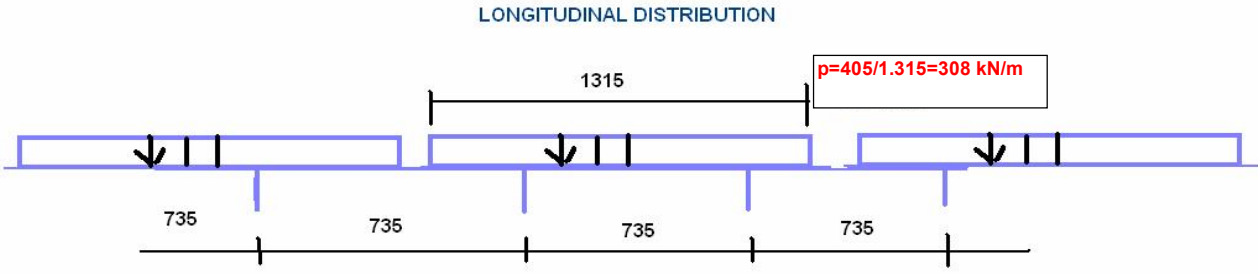
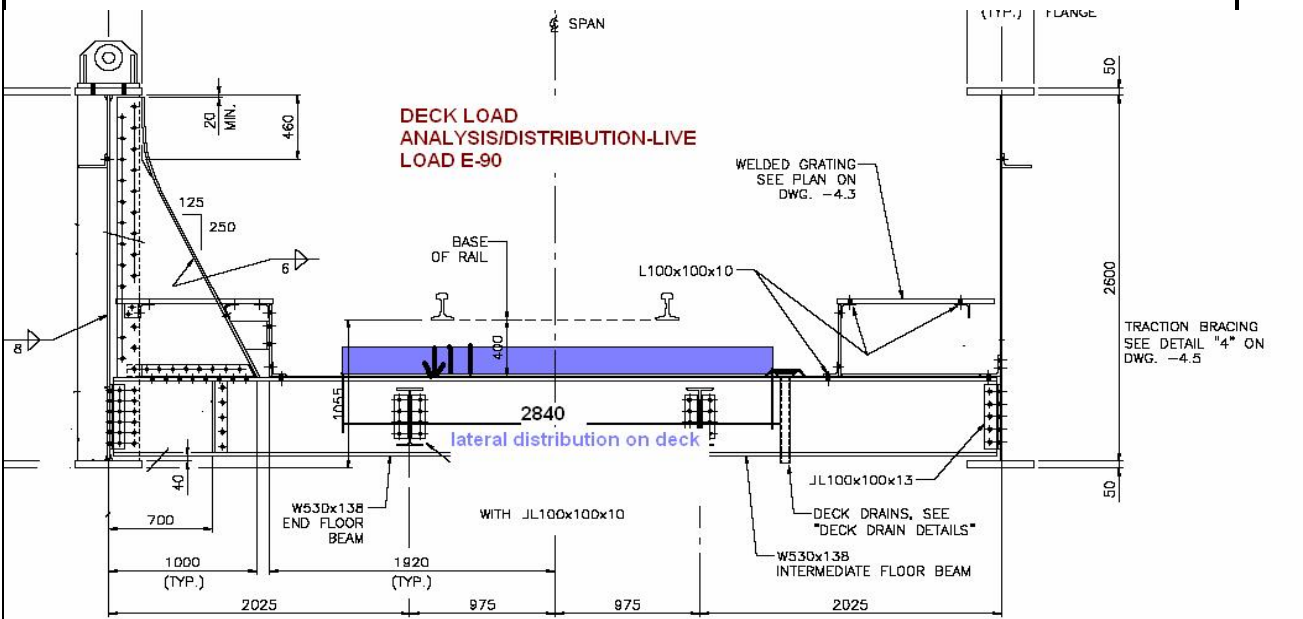
6.11.1. LOAD PARTICIPATION (BALLASTED DECK STRUCTURE)

- .2.1. As per § 1.3.4.2.2 DECK
- (a) Longitudinal distribution Long=3*(305)+400, but no more than 5*305 nor 1400(axle spacing)
 - 1315
 - 1525
- (b) Lateral distribution is equal to the length of lateral tie=8*305+400
 - 2840

SUPPORT CONDITIONS
 supported on floor beams spaced at 735mm continuously

6.11.2. RATIOS/SLENDERNESS

- As per § 1.3.4.2.2 DECK
- (c) Thickness of deck shall not be less than 12.7mm
- deck thickness: **16 mm**
- L/d =735/16 **45.9375**



6.11.3. MOMENTS, SHEARS,

calculations are for deck strip 2.84m wide
 DECK SPAN

	width	thick	unit weight	
deck selfweight	2.84 x	0.016	77	3.50 kN/m
ballast	2.84 x	0.711	18.7	37.76 kN/m
track, rails etc.				4.20 kN/m
total dead weight				45.46 kN/m
live load from E-90 distributed ove 1.315m				308.00 kN/m
live load impact, LL=29.2%				89.94 kN/m
total live load				397.94 kN/m
TOTAL LOAD				443.39 kN/m



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MAX $M=1/12 \cdot \text{SPAN}^2 \cdot \text{LOAD}$
 MAX SHEAR= $1/2 \cdot \text{SPAN} \cdot \text{LOAD}$
 MAX DEFLECTION FROM LIVE+IMPACT=
 MAX TOTAL DEFLECTION

19.96 kN-m
 162.95 KN

6.11.4. DECK SECTIONAL PROPERTIES 92.84m WIDTH)

WIDTH	2840
THICKNES	16
AREA	45440 mm ²
MOMENT OF INERTIA	969386.667 mm ⁴
SECTIONAL MOMENT	121173.333 mm ³

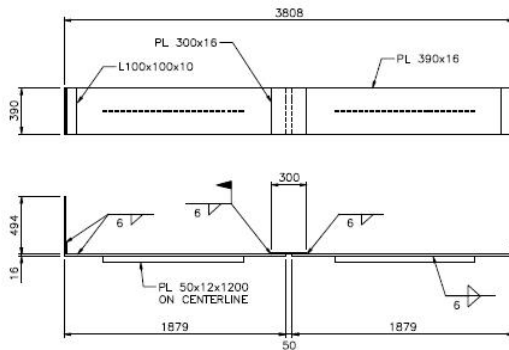
EXTREME COMPRESSION/TENSION STRESSES IN THE DECK:
 DUE TO LIVE LOAD+IMPACT **147.84 Mpa**
 DUE TO TOTAL LOAD **164.73 Mpa**

DECK MATERIAL, $F_y =$ 350 MPA
 allowable stress, as per Table 15.1.11. 192.5 MPA

EXTREME SHEAR STRESS 3.59 Mpa

CONNECTION TO THE FLOOR BEAMS

USED TYPICAL CONNECTION AS PER CNN DESIGN GUIDELINES, DRAWING S10



DECK JOINT COVER PLATE DETAIL