Characterizing highwall slopes at the Line Creek Mine, British Columbia using terrestrial photogrammetry

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Characterization of pit wall stability at Line Creek Coal Mine requires an understanding of the role of structural geology (folds, faults and jointing) in both providing kinematic release and as a control on rock mass quality. This thesis discusses the application of digital photogrammetry in the mapping of highwall structures within two pits in Line Creek Coal Mine. The photogrammetric data are used to characterize fold type, geometry and attitude using classical structural geology techniques. Detailed discontinuity mapping using digital terrain models created from photogrammetric software allows measurement of orientation, trace length and spacing for different discontinuity sets. Kinematic and limit equilibrium analyses indicate that bench-scale failures and rockfall are mainly structurally controlled in Line Creek Coal Mine. The variation of debris height on benches, loss of bench width and variation in rockfall size can all be determined from digital terrain models and used to assess pit wall stability.