

V.B. Rockfall Corrections Checklist

C-R-S:	PID:	Reviewer:	Date:
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If you do not have a rock slope correction or rock cut on the project, you do not have to fill out this checklist.

Investigation	
Y N X 1	Have a site plan and cross sections been provided to compare ground surface conditions, before and after failure?
Y N X 2	Has the history of the rockfall area been researched, including movement history, maintenance work, and past corrective measures?
Y N X 3	Has the investigation included representative profiles of the rock face?
Y N X 4	Has instrumentation been installed?
Y N X	a If yes, has instrumentation of the site adequately characterized the rock slope condition(s)?
Y N X 5	Has the investigation identified the groundwater conditions on the slope?
Y N X 6	In the vicinity of the rock slope, were any underground voids detected in the hillsides through drilling, geophysics, or surface observations?
Y N X 7	In accordance with GB 3, Rock Cut Slope & Catchment Design , has the boring program adequately characterized the rock and soil conditions (including the rock/soil interface)?
Y N X 8	Have the discontinuities along the rock slope been identified and recorded?
Y N X 9	Has the investigation included a review of climatic conditions (e.g. snow melt, heavy precipitation) preceding the slope failure?
Y N X 10	Has the investigation included a large enough area to accommodate all potential remediation measures?
Y N X 11	Has the subsurface investigation program adequately characterized the soils and bedrock formations in both the vertical and horizontal directions?
Y N X 12	Has the subsurface investigation program identified the presence of geologic formations noted in GB 3 as requiring special care?

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Analysis				
Y	N	X	13	Has the cause and effect of any existing rockfall conditions been determined?
Y	N	X	14	Has bedding and jointing of the bedrock formations been identified as a significant factor affecting the slope stability?
Y	N	X	15	If so, were rose diagrams and stereo nets completed and analyzed?
Y	N	X	16	Has the impact from surface and groundwater conditions been assessed?
Y	N	X	17	If differential weathering is a concern, have the weatherable rock formations been tested in accordance with GB 3?
Y	N	X	18	Have other environmental factors (e.g., acid mine drainage, mine openings, karst features) been considered?
Y	N	X	19	Have the areas above, below and along the terminal ends of the site been addressed for secondary impacts of the project?
Y	N	X	20	In accordance with GB 3, has the critical cross-section been modeled for rockfall using CRSP or equivalent software?

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Design				
Y	N	X	21	Has the rock slope design adequately incorporated bedrock, soil, and groundwater conditions?
Y	N	X	22	When possible, has the vertical profile of the road been established to reduce exposure of weak/soft bedrock conditions?
Y	N	X	23	In accordance with GB 3, has the design considered the stratigraphy, structure, and discontinuities of the bedrock?
Y	N	X	24	Has the design incorporated catchment areas in accordance with GB 3?
Y	N	X	25	In accordance with GB 3, has the vertical and horizontal placement of benching adequately addressed soft rock formations and differential weathering?
Y	N	X	26	Have various methods of remediation been considered in selection of the preferred alternative? {rock fence, rock bolting, rock webbing, wire meshing, benching, redesign of cut face, catchment ditch, cable anchoring, drainage control, re-sloping, other}
Y	N	X	27	Has the design minimized launching features?
Y	N	X	28	In accordance with GB 3, has the design considered differential weathering, joints and bedding in the long-term assessment of slope stability?
Y	N	X	29	Has the design considered hydrogeologic characteristics of the site?
Y	N	X	30	Has the design included adequate surface and subsurface drainage controls?
Y	N	X	31	Has a monitoring plan for groundwater and stability been included?
Y	N	X	32	Has secondary catchment (e.g., wire fencing, concrete barrier walls) been included?
Y	N	X	33	Has a cost comparison been performed to evaluate a recommended solution compared to others?

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Plans and Contract Documents				
Y	N	X	34	Has the information obtained from the investigation and analysis been incorporated into the project design?
Y	N	X	35	Is the sequencing of work and project design constructable?
Y	N	X	36	Have all the necessary plan notes, details, etc. been included to address special rock slope stabilization methods (e.g., rockfall, catch ditch, wire mesh, shotcrete, rock bolts)?
Y	N	X	37	Have all necessary notes, specifications, and plan details been developed?
Y	N	X	38	Have the need, location, plan notes, and reading schedule of instrumentation been determined?
Y	N	X	39	Have the effects of the design on the construction schedule and maintenance of traffic been accounted for on the plans?
Y	N	X	40	Have the effects of the original failure and proposed correction on any structures (e.g., bridges, buildings, culverts, utilities) or adjacent properties been evaluated and solutions to any issues incorporated into final design?

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