Response to Referee #2 Comments

Dear reviewer,

We appreciate the time and effort you expended in providing valuable feedback on our work. We considered and addressed all the suggestions.

Line 52: please specify what you mean with damage characteristics.

Response: We have modified this sentence to "A series of field investigations were conducted to recognize the trajectories of the rockfalls and gather information on the rockfalls and flexible barrier damage."

Line 73: the sentence "This paper provides …" is not clear, please rephrase;

Response: We have modified this sentence to "This paper provides a detailed investigation and analysis of one of the three disaster sites where the intercepted rockfalls were still inside the protection system, so that more information can be gathered at that site. (Figs. 1b & 4)."

Line 85: Bentley 2021: the year is different from the reference. Please correct one of it;

Response: We have modified "Bentley 2021" to "Bentley 2023".

Line 161: Please rephrase the sentence "… rockfall was simulate to ",. "… rockfall was used to ".

Response: We have modified this sentence.

Line 165: What do you mean "were in line with"?

Response: We have modified this sentence to "the slope characteristic parameters employed in this study refer to Hu et al. (2018)"

Line 168: what do you mean with "10,000 computation cycles"? Do you refer to 10,000 block movement was simulated?

Response: We have modified this sentence to "The number of rocks to throw was 10000 in this simulation."

Line 504: Yu et al. (2019a) is in the reference list but the authors did not cite in the manuscript. Please remove it.

Response: We have modified remove it.

In general in the text the acronyms are note specified please add a figure or a table specifying the meaning of them, otherwise some figures and some text portion are not understandable. Furthermore, it is need a table to specify the model parameter values used in the numerical simulations.

Response: Tow figures and an appendix of abbreviations have been added in order to enhance the understandable of the acronyms and symbols. Furthermore, Table 3 has been updated to show the parameter values used in the numerical simulations.
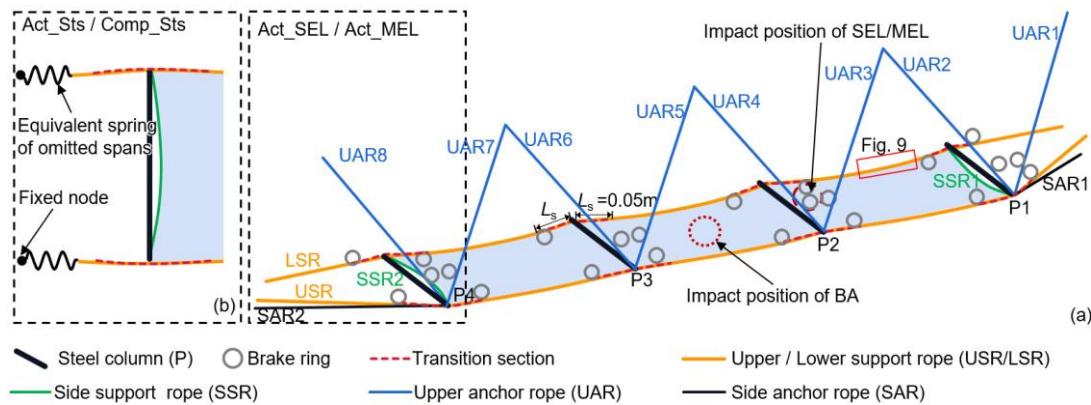
Figure 1: Structure representation of the actual model (Act_) and the comparative analysis model (Comp_). (a) Act_SEL and Act_MEL. (b) Act_Sts and Comp_Sts.
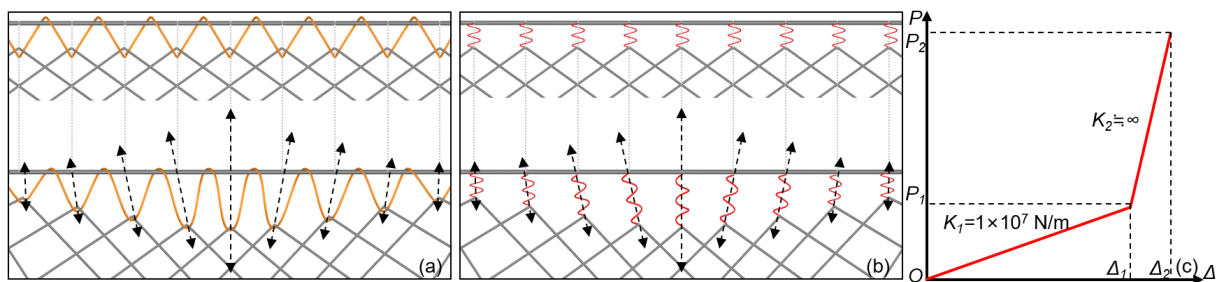
Figure 2: Spring equivalent model for winding rope. (a) Before and after winding rope deformation. (b) Before and after spring equal model deformation. (c) Bilinear constitutive model of the winding rope spring.

Appendix: Abbreviations

_MEL: Maximum Energy Level load

_SEL: Service Energy Level load

_Sts: 4 stones load

Act_: actual structure in survey case

Com_: structure of the comparative analysis

EDD: Energy Dissipating Device

FE: Finite Element

HN: narrow flange H-beam

LSR: Lower Support Rope

Opt_: optimized structure

P: pillar, steel column

PPS: Passive Protection System

S: span, the barrier unit between two columns is one span

SAR: Side Anchor Rope

SSR: Side Support Rope

UAV: Unmanned Aerial Vehicle

USR: Upper Support Rope

Table 3: Summary of parameters used in the numerical simulations

Items *Material *Section	Material parameter [units]	Values	Reference
Steel wire rope & **Steel wire rope net** *071_CABLE_DISCRETE_BEAM * BEAM discrete beam	Mass density [kg/m^3] Young's modulus [MPa]	7900 $1.5{\times}10^5$	(Yu et al., 2021)
Steel column *024_PIECEWISE_LINEAR_PLASTICITY_2D * SHELL	Mass density [kg/m^3] Young's modulus [MPa] Poisson's ratio Yield stress [MPa] Tangent modulus [MPa] Strain rate parameter, C&P	7900 $2.06{\times}10^5$ 0.3 235 600 5000 & 1.2	(Zhi et al., 2018)
Column base *024_PIECEWISE_LINEAR_PLASTICITY * SOLID	Mass density [kg/m^3] Young's modulus [MPa] Poisson's ratio Yield stress [MPa] Tangent modulus [MPa] Strain rate parameter, C&P	7900 $2.06{\times}10^5$ 0.3 235 600 5000 & 1.2	(Zhi et al., 2018)
Rockfall *020_RIGID * SOLID	Mass density [kg/m^3] Young's modulus [MPa] Poisson's ratio	2500 $3.0{\times}10^4$ 0.2	(Yu et al., 2021)