

SUMMARY EXPERT OPINION INDEPENDENT ANALYSIS: OVERSHADOWING

266 Longueville Road Lane Cove

3 May 2018

Revised and reissued 22 August 2018

Signed,



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Steve King

1.0 PRELIMINARIES

1.1 I have undertaken an independent evaluation of potential **overshadowing impact** on neighbouring residential dwellings arising from the proposed aged care and independent living unit development at 266 Longueville Road Lane Cove. I supply the following independent expert opinion.

This is a revised and reissued version of my report of 3 May 2018. The purpose of the revision is to reflect for the record any impact of amendments to the DA, undertaken in response to advice of the Sydney North Planning Panel.

1.2 For documents on which I rely, refer to *2.0 Documents*.

1.3 For my credentials, refer to *Appendix C*.

2.0 DOCUMENTS

2.1 I base my report on:

- Amended DA Architectural drawings, by Thomson Adsett Architects, **Rev. D** transmitted digitally 22 August 2018:

DA.000	COVER PAGE
DA.001	SITE ANALYSIS
DA.002	SITE ANALYSIS - ENVIRONMENT
DA.100	SITE PLAN
DA.101	DEMOLITION PLAN
DA.200	LEVEL 1 FLOOR PLAN
DA.210	LEVEL 2 FLOOR PLAN
DA.220	LEVEL 3 FLOOR PLAN
DA.230	LEVEL 4 FLOOR PLAN
DA.240	LEVEL 5 FLOOR PLAN (STREET LEVEL)
DA.250	LEVEL 6 FLOOR PLAN
DA.260	LEVEL 7 FLOOR PLAN
DA.270	ROOF PLAN
DA.300	ELEVATIONS
DA.301	ELEVATIONS
DA.302	ELEVATIONS
DA.304	STREET ELEVATION
DA.305	SOUTH ELEVATION COMPARISON
DA.310	SECTIONS

DA.311	SECTIONS
DA.312	SECTIONS
DA.350	DRIVEWAY PLAN- STORMWATER
DA.400	SHADOW DIAGRAMS
DA.403	VERTICALSHADOW ANALYSIS
DA.404	VERTICALSHADOW ANALYSIS
DA.405	VIEWSFROM THE SUN
DA.411	AREA PLANS
DA.420	COMPLIANCE STUDY
DA.600	EXTERNAL BUILDING FINISHES
DA.651	PERSPECTIVES 02
DA.652	PERSPECTIVES 03
DA.690	NOTIFICATION PLANS
DA.691	NOTIFICATION PLANS

- 3D digital model in .DWG format exported by the architects from their Revit CAD application.

3.0 SITE



Figure 1: Aerial view of site

3.1 The site is an irregular trapezoid shaped block illustrated in Figure 1, with Longueville Rd to the west and golf links to the east boundary. The north boundary is to a series of single dwelling sites fronting Richardson Street West. The south boundary is to a RFB, known as 'Timbertops'.

3.2 Summary inspection of the aerial photograph of the site and the surroundings confirms that the only property which can suffer adverse winter overshadowing from the proposed development is 268 Longueville Rd., directly to the south.

4.0 OVERSHADOWING ANALYSIS METHODOLOGY

4.1 3D digital model

4.1.1 My review and analysis are undertaken in *Trimble SketchUp* software.

4.1.2 The 3D digital model is exported from the CAD file prepared by the architects. I independently geolocated the 3D digital model and checked the direction of true north by online reference to cadastral grid north. I have spot checked a limited number of relevant heights and dimensions against the architectural drawings, and am satisfied that the model is sufficiently accurate for the purpose of solar access assessment.

4.1.3 I examine the model by use of 'views from the sun'. The projection referred to as a 'View from the Sun' shows all sunlit surfaces at a given time and date. Figure 2 illustrates the technique.

Note that a 'view from the sun' by definition does not show any shadows. The advantage of views from the sun is that they show directly the relationship between a shadow and the object which causes it.

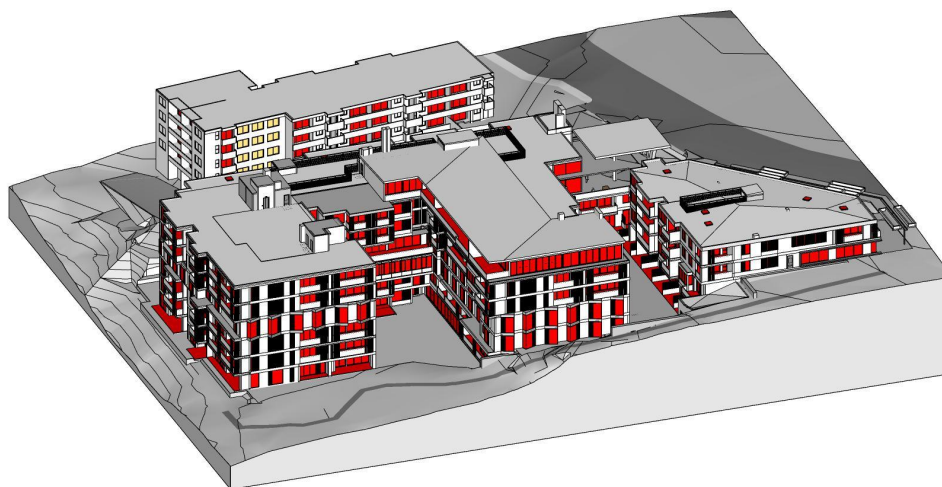


Figure 2: Geolocated detailed model in SketchUp. View from the sun at 10.00am.

I include at Appendix A copies of half-hourly views from the sun for June 21.

4.2 Overshadowing impact

4.2.1 Comparison of existing and prospective overshadowing

To quantify the likely overshadowing impact on individual apartments in 'Timbertops', I compare the existing overshadowing with that which can be attributed to the subject proposed development. Note that the 'existing' condition is represented in the model by 'turning off' the proposed development, but without the detailed topography of the existing bowling greens.

Table 1 records the half-hourly direct sun exposure of Living room glazing for each apartment between 9 AM and 3 PM on June 21.

Level	UNIT	9	930	10	1030	11	1130	12	1230	13	1330	14	1430	15	POS 9-3
LEVEL 2	No.13	L	L	L	L	L	L	L	L	L	L	L	L	S	YES
	No.14	L	L	L	L	L	L	L	L	L	L	L	L	L	
LEVEL 3	No.1	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.2	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.7	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.8	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.15	S	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.16	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
LEVEL 4	No.17	L	L	L	L	L	L	L	L	L	L	L	L	L	
	No.3	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.4	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.9	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.10	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.18	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
LEVEL 5	No.19	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.20	L	L	L	L	L	L	L	L	L	L	L	L	L	
	No.5	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.6	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.11	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.12	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.21	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.22	L	L	L	L	L	L	L	L	L	L	L	L	L	YES
	No.23	L	L	L	L	L	L	L	L	L	L	L	L	L	

Table 1: Detailed table of complying sun to glazing and private open space at 'Timbertops'

4.2.3 Interpreting the detailed compliance table

The detailed compliance table records direct sun in a graphic format, on the same half hourly basis as the views from the sun in Appendix A.

A pink shaded cell with the code 'L' signifies that the designated area of glazing either receives no additional shadow, or retains a minimum of 1 m² sun patch during the relevant half-hour period. The blue shading and 'S' code identify the half hour periods when additional shading reduces the sunpatch on the relevant glazing to less than 1 m².

Summary inspection of the views from the sun, and of the full table confirms that only Apartments 13 & 15 lose sun to glazing – each for a half hour period at late afternoon and early morning respectively.

5.0 CONCLUSIONS

I carried out my own independent analysis and quantification of the predicted overshadowing impact of the subject proposal.

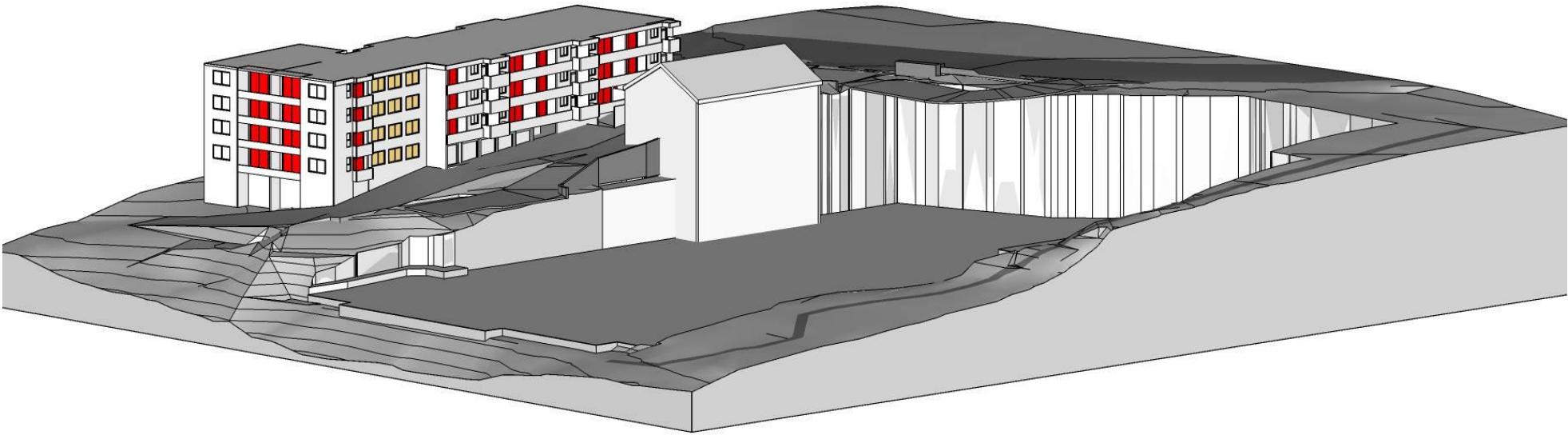

I note that the effect of the amended plans is to further improve the solar access for 'Timbertops'. The conclusions remain the same as previously:

The full 3D model analysis confirms that between 9 AM and 3 PM on June 21 additional overshadowing of 'Timbertops' can be expected to affect only two apartments, each for approximately half an hour, where those apartments otherwise have the benefit of sun throughout the day.

In my considered opinion overshadowing impact of the proposed aged care and independent living unit development on neighbouring residential property is so small as to be negligible.

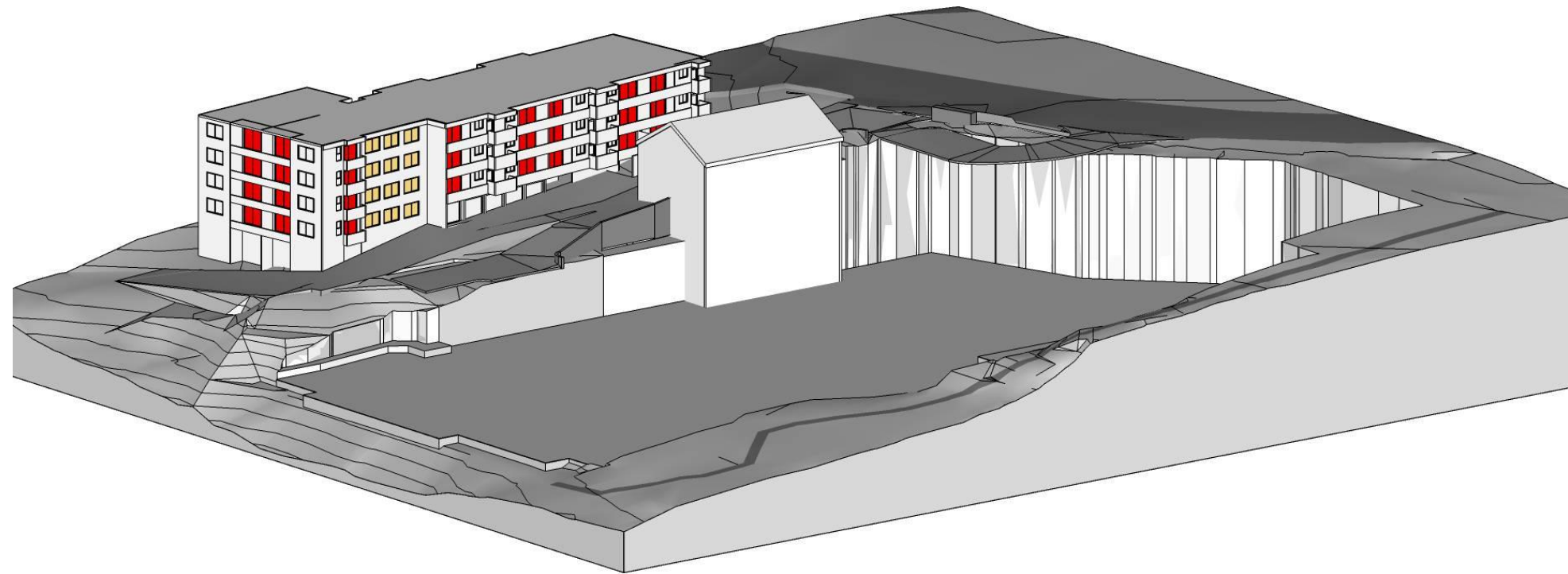
APPENDIX A

The table below shows the views from the sun on a half-hourly basis on June 21.

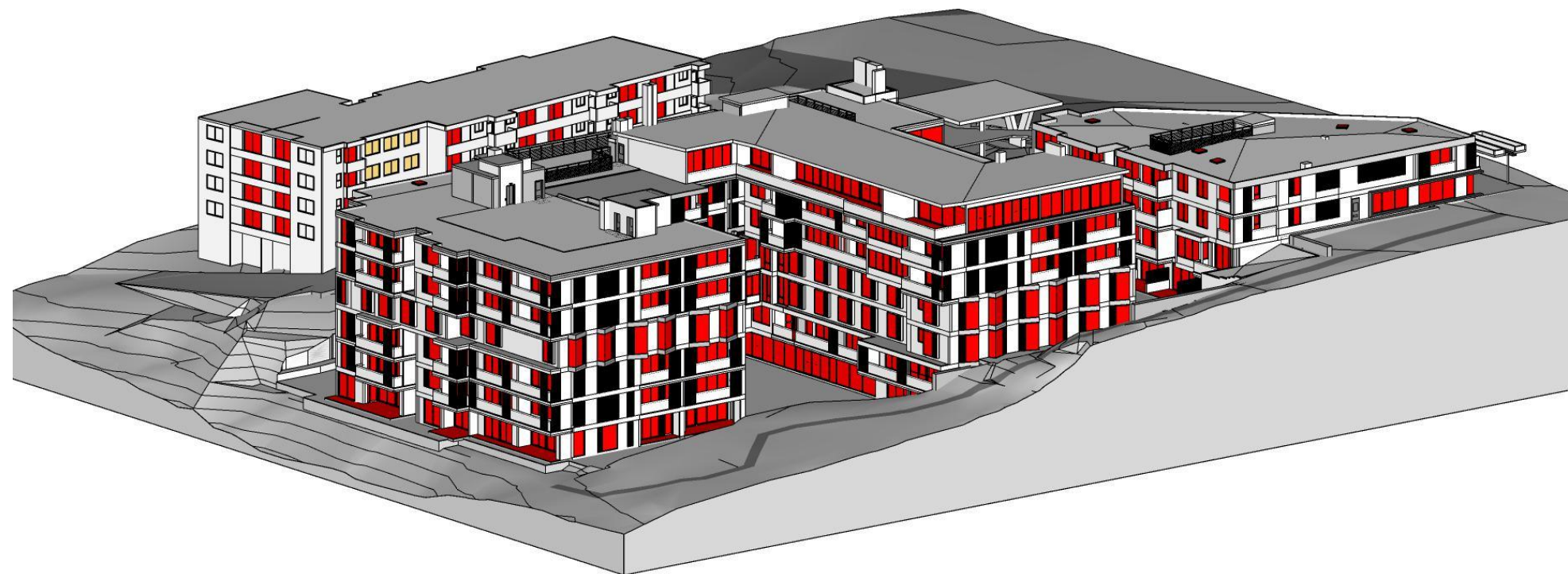
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<div data-bbox="216 1407 418 1570" data-label="Text"><p>Proposed Amended scheme</p></div>	

0830

Existing

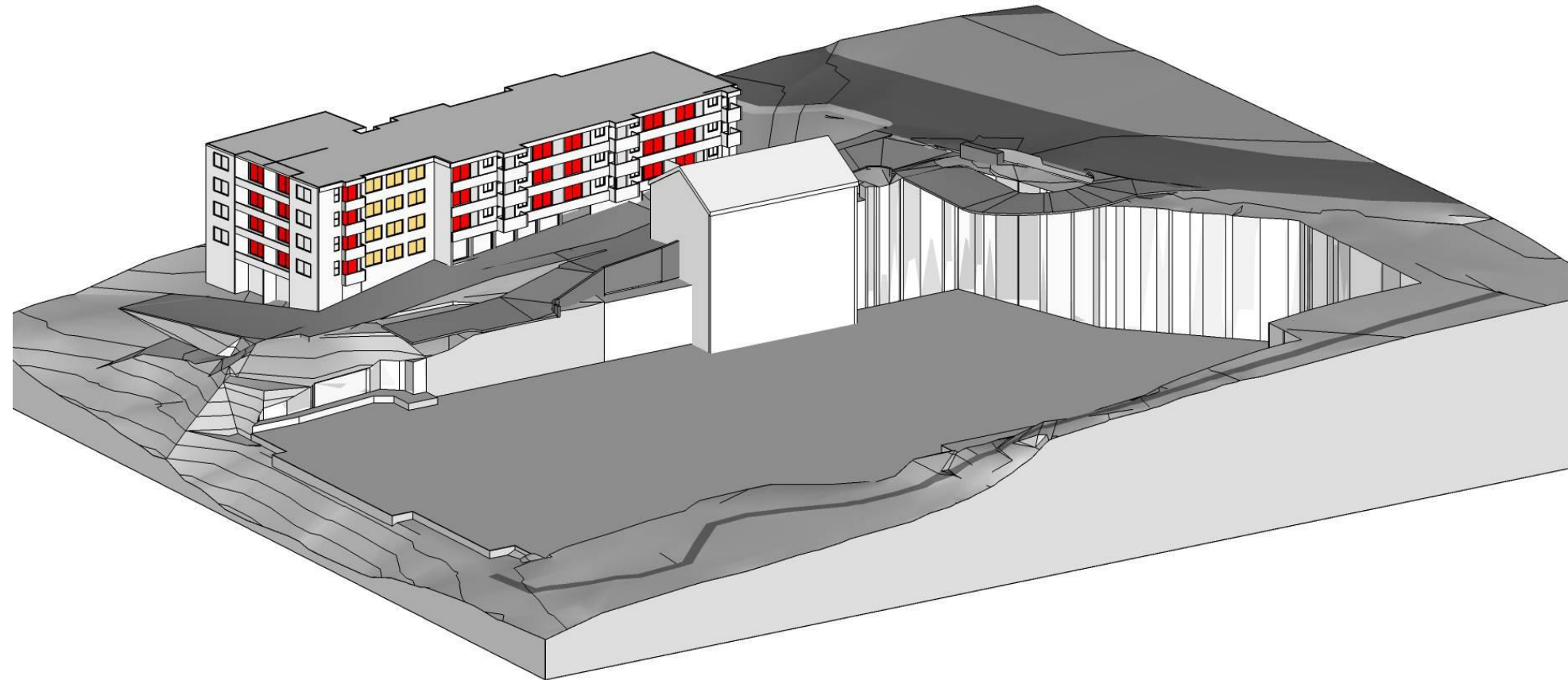


Proposed
Amended
scheme



0900

Existing

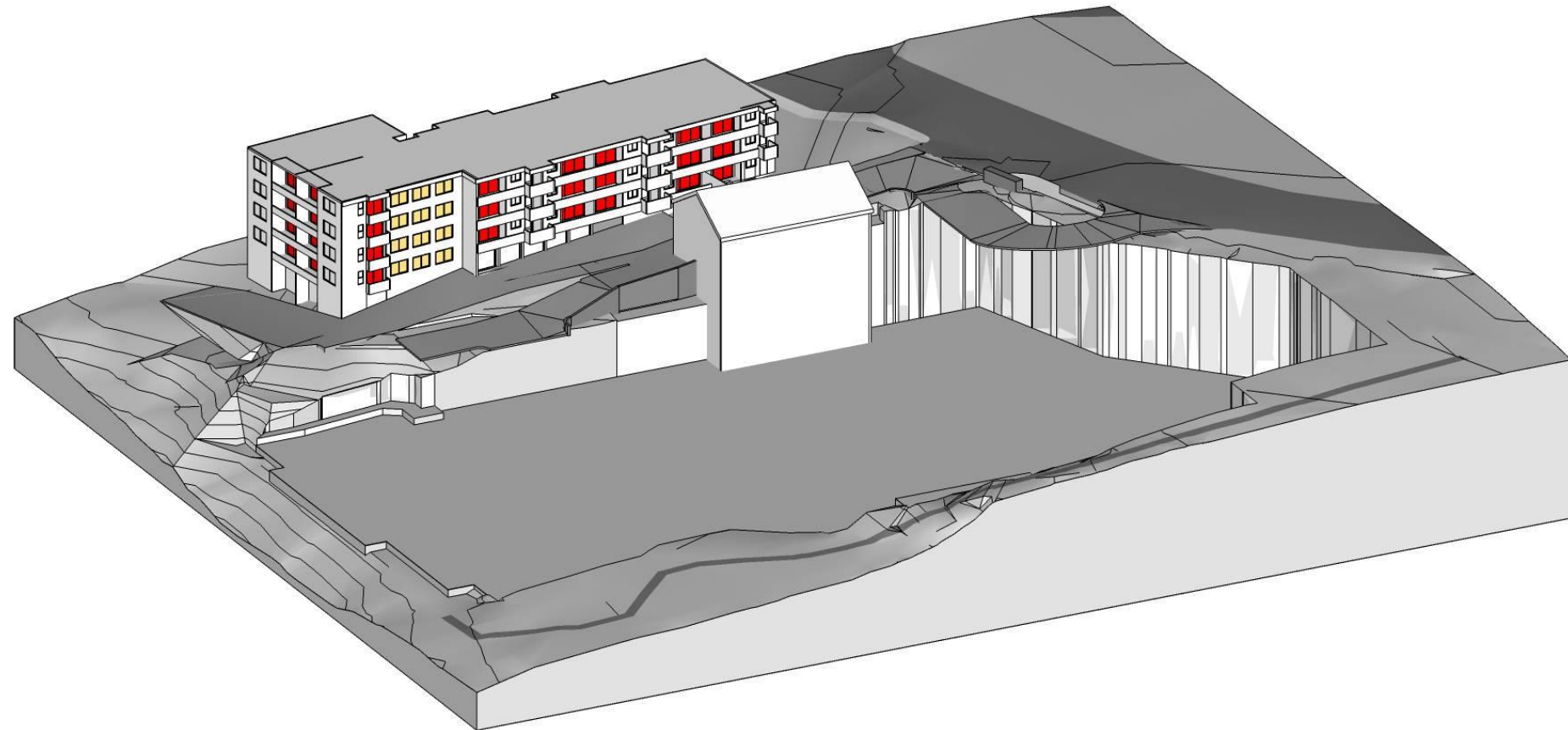


Proposed
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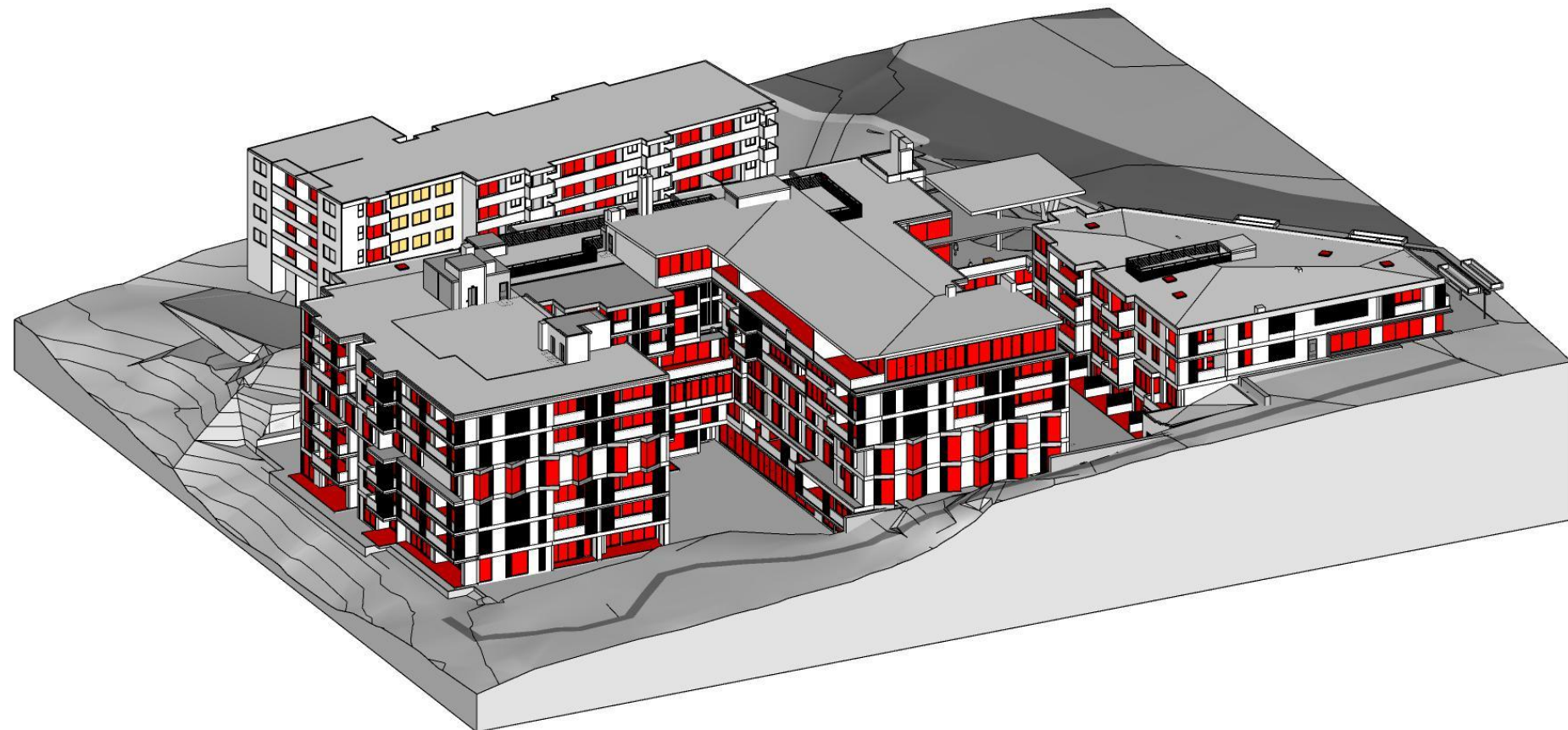


0930

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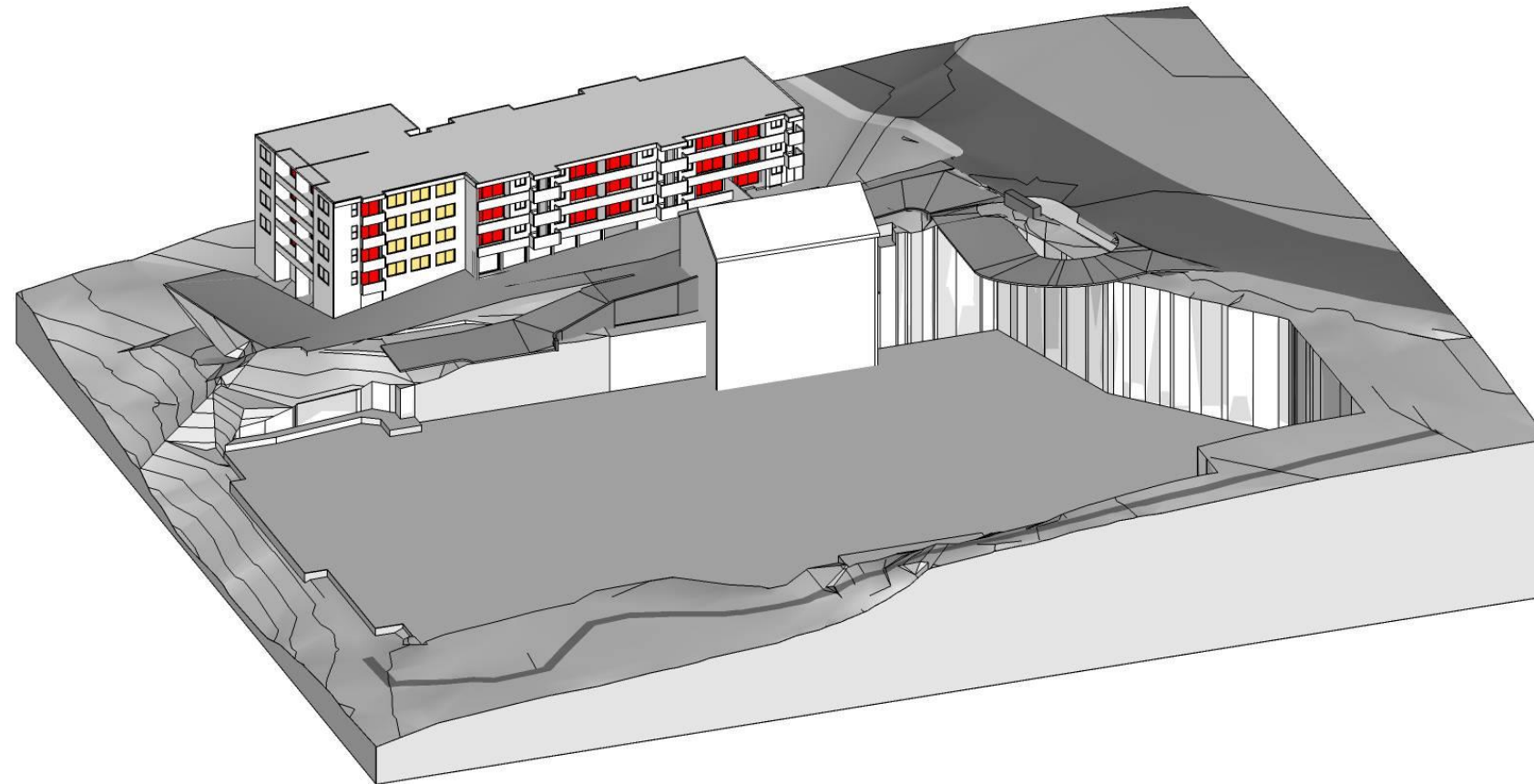


Proposed
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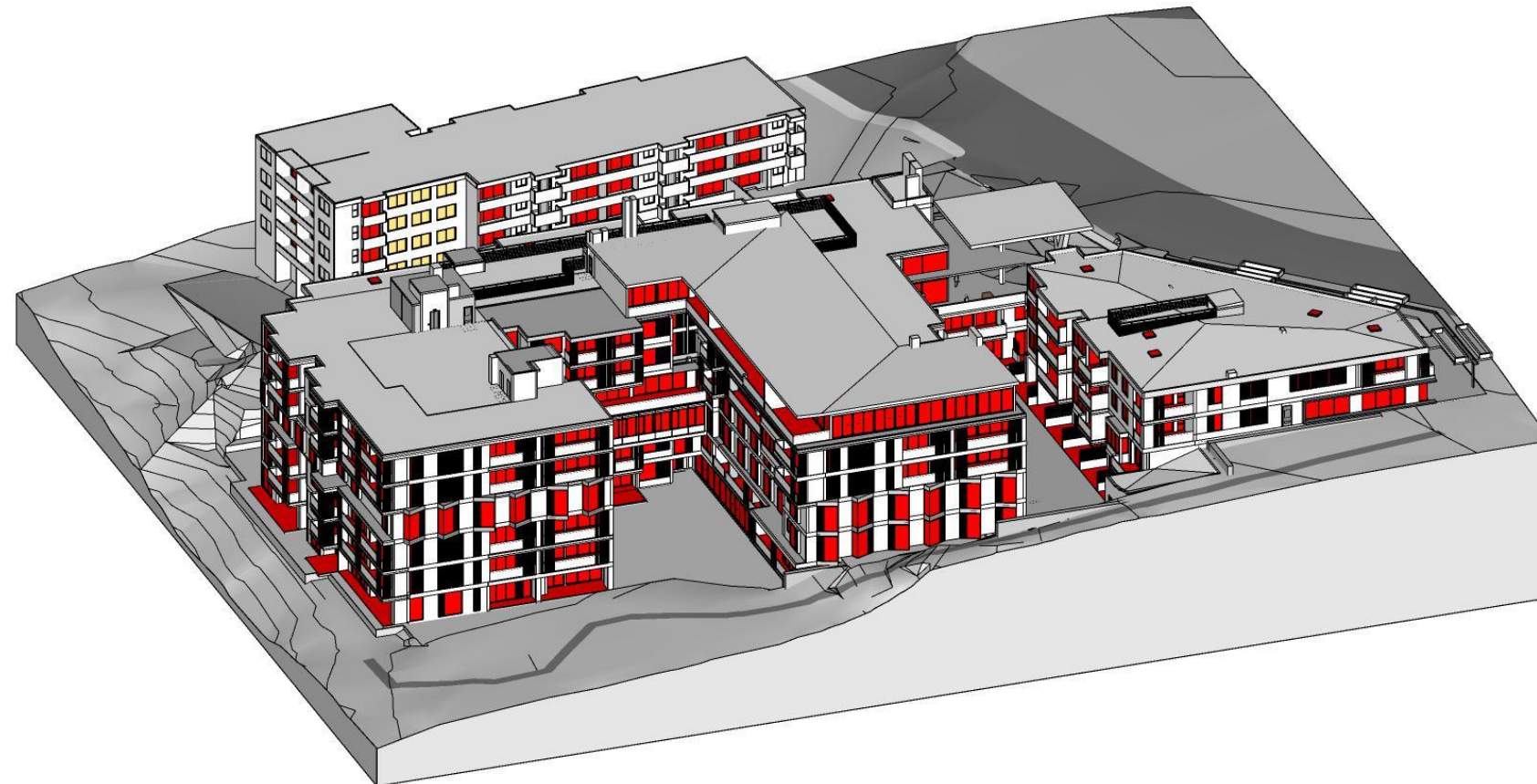


1000

Existing

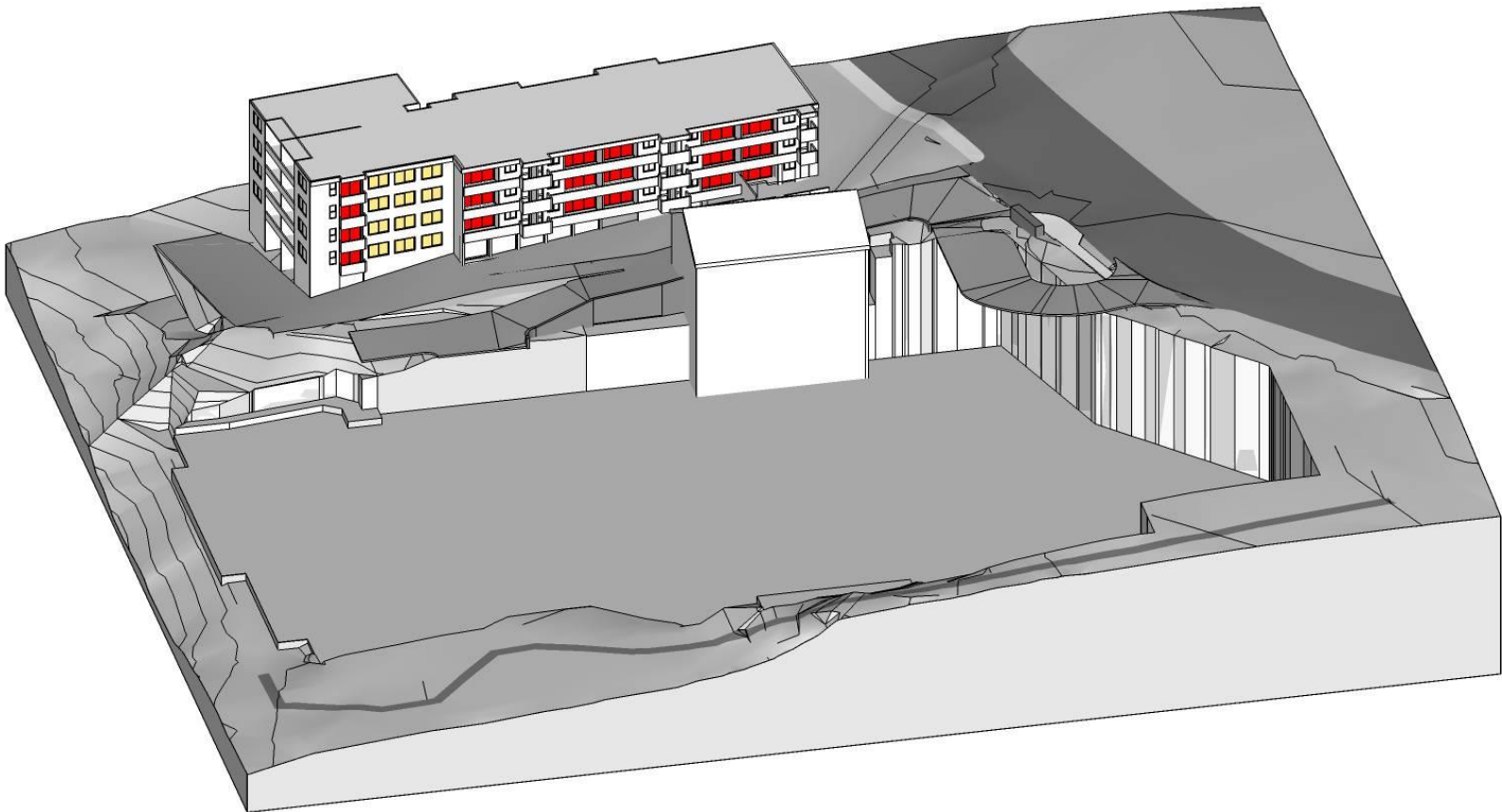


Proposed
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1030

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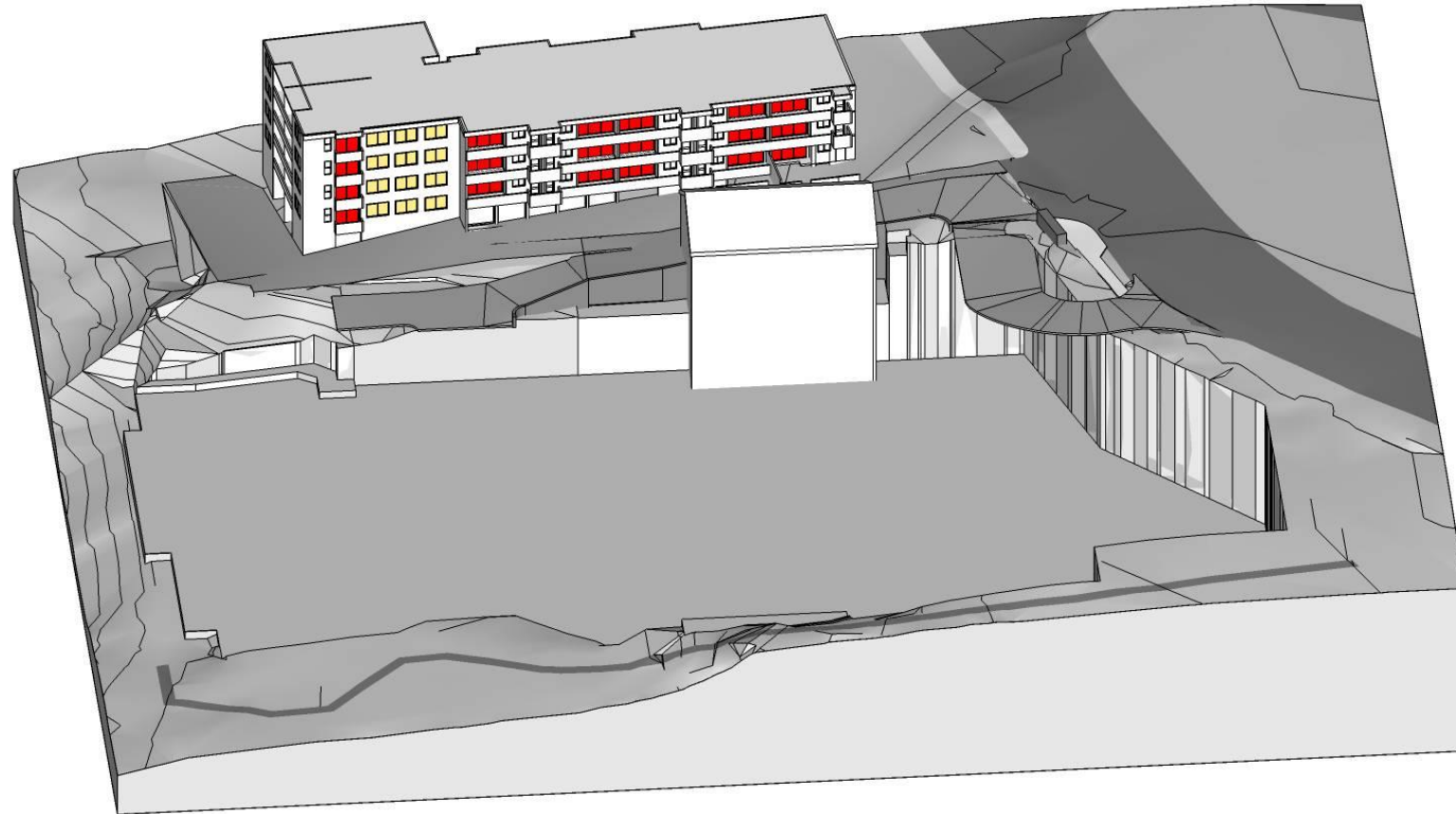


Proposed
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1100

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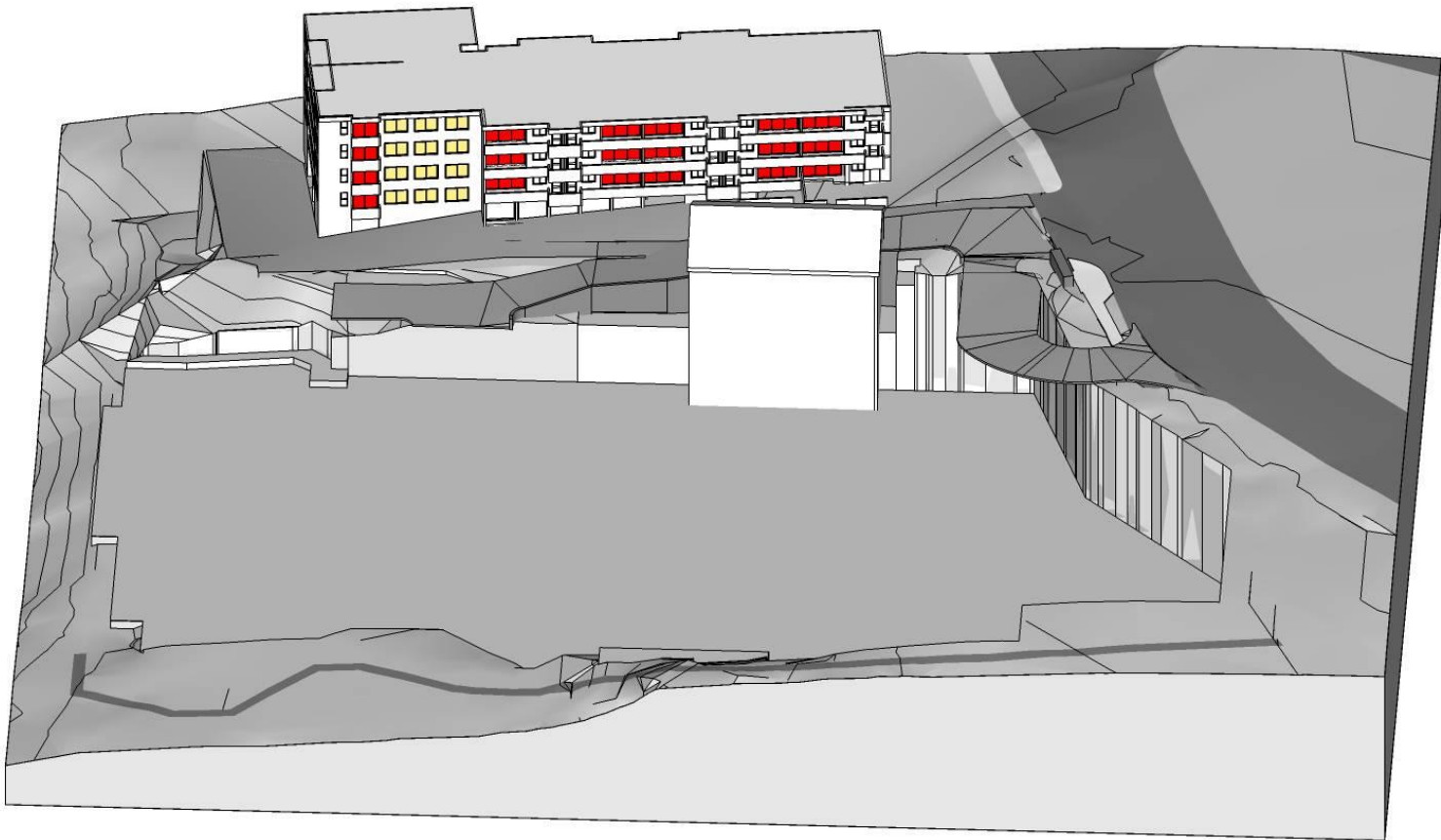


Proposed
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1130

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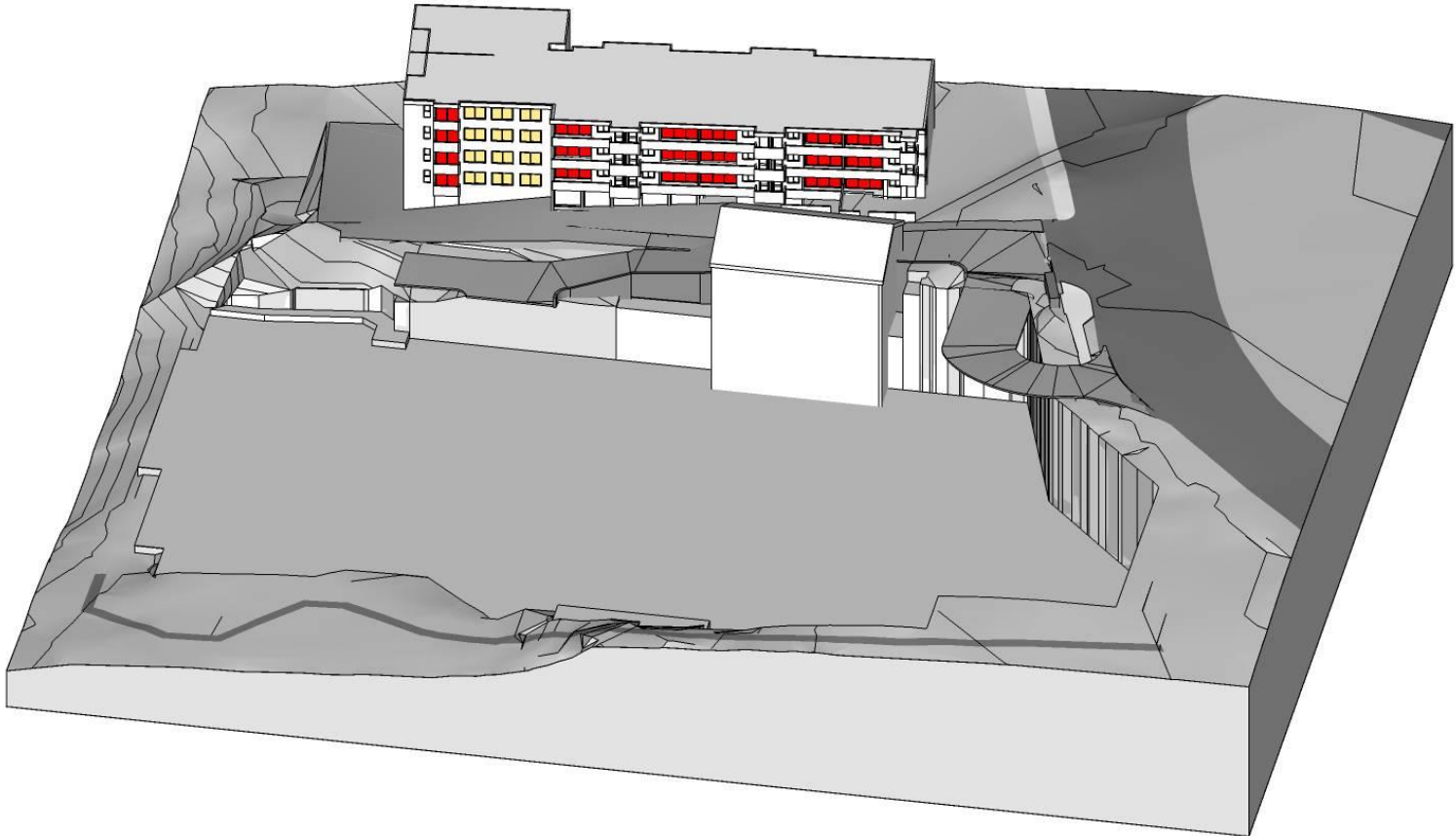


Proposed
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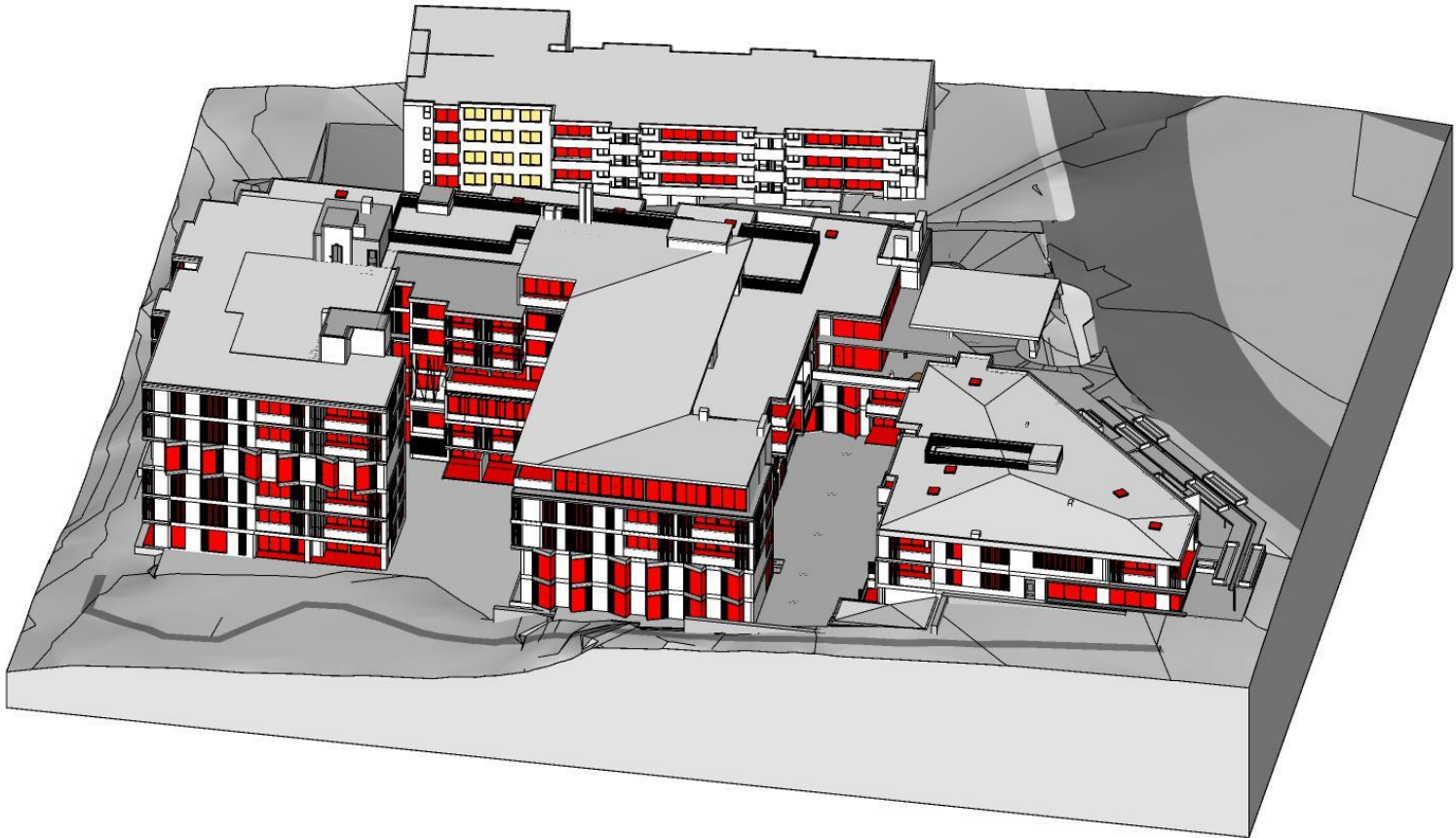


1200

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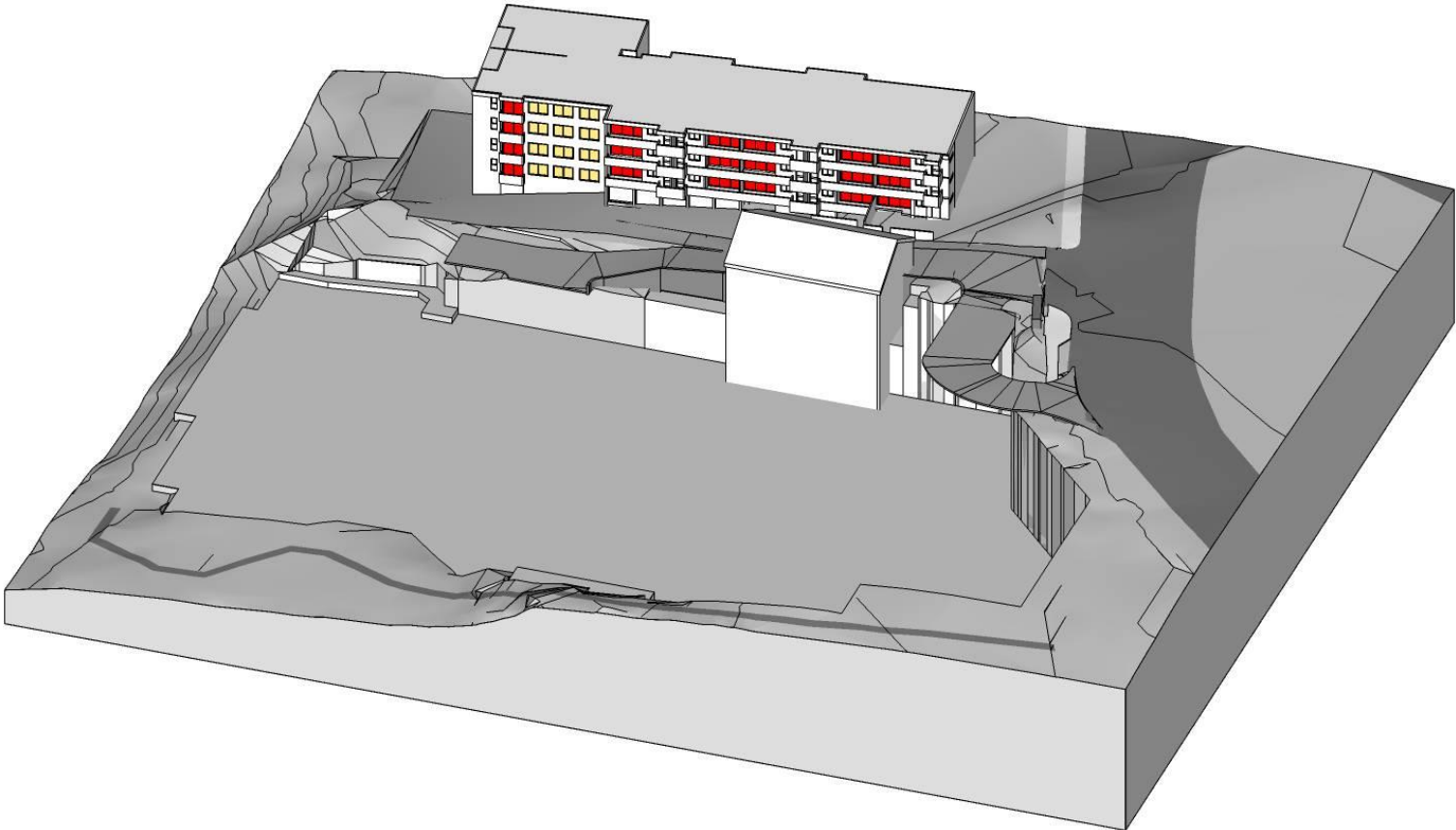


Proposed
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scheme



1230

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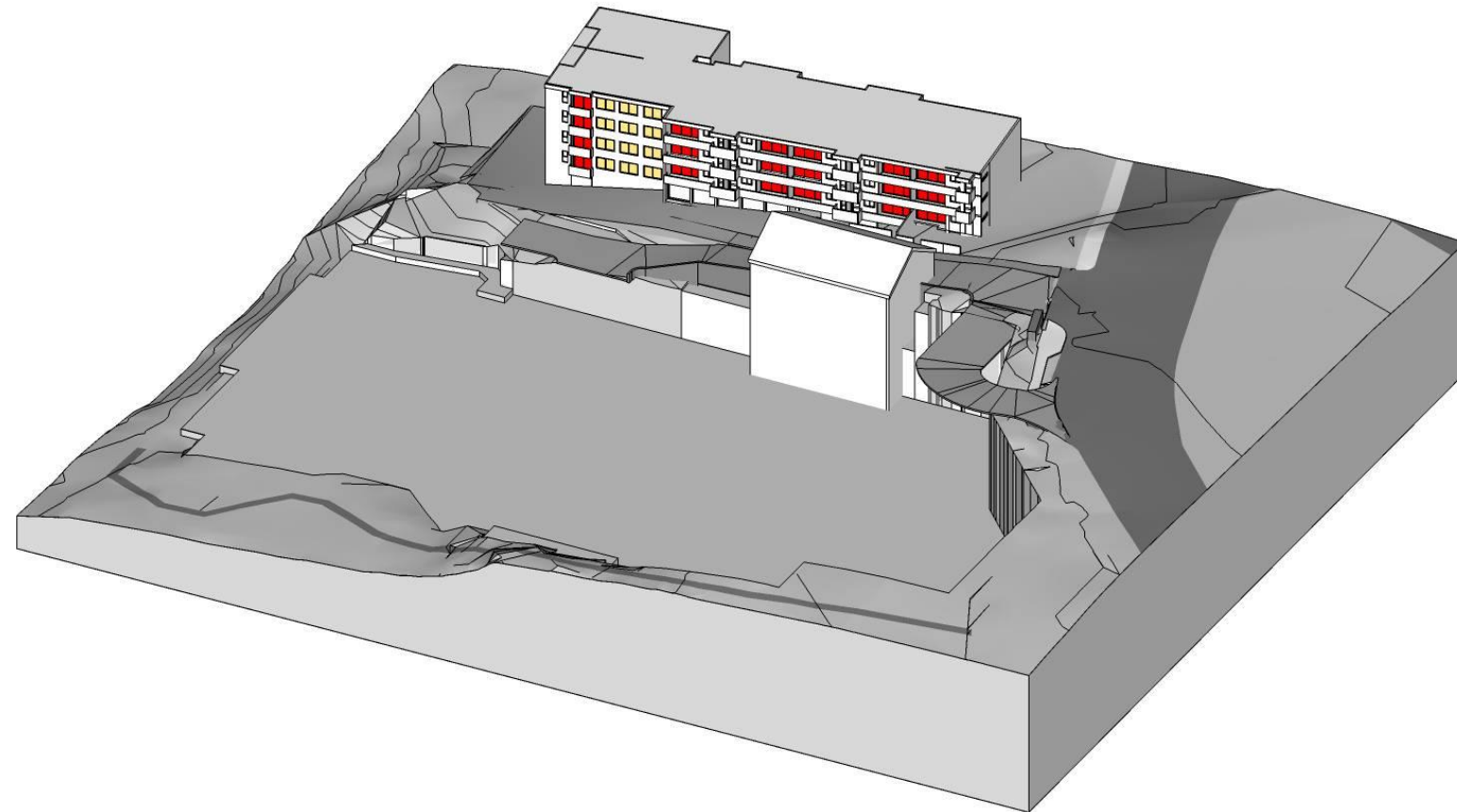


Proposed
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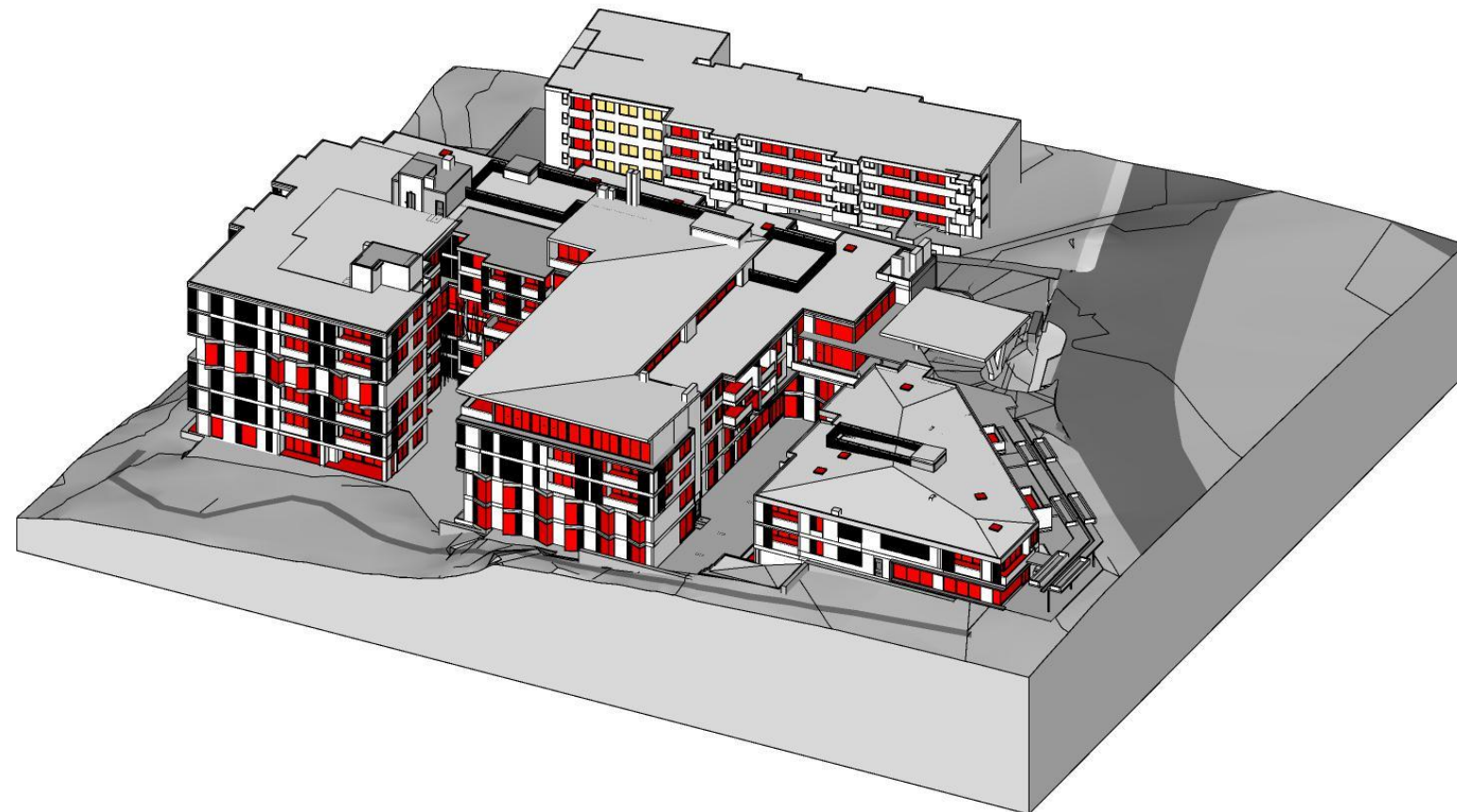


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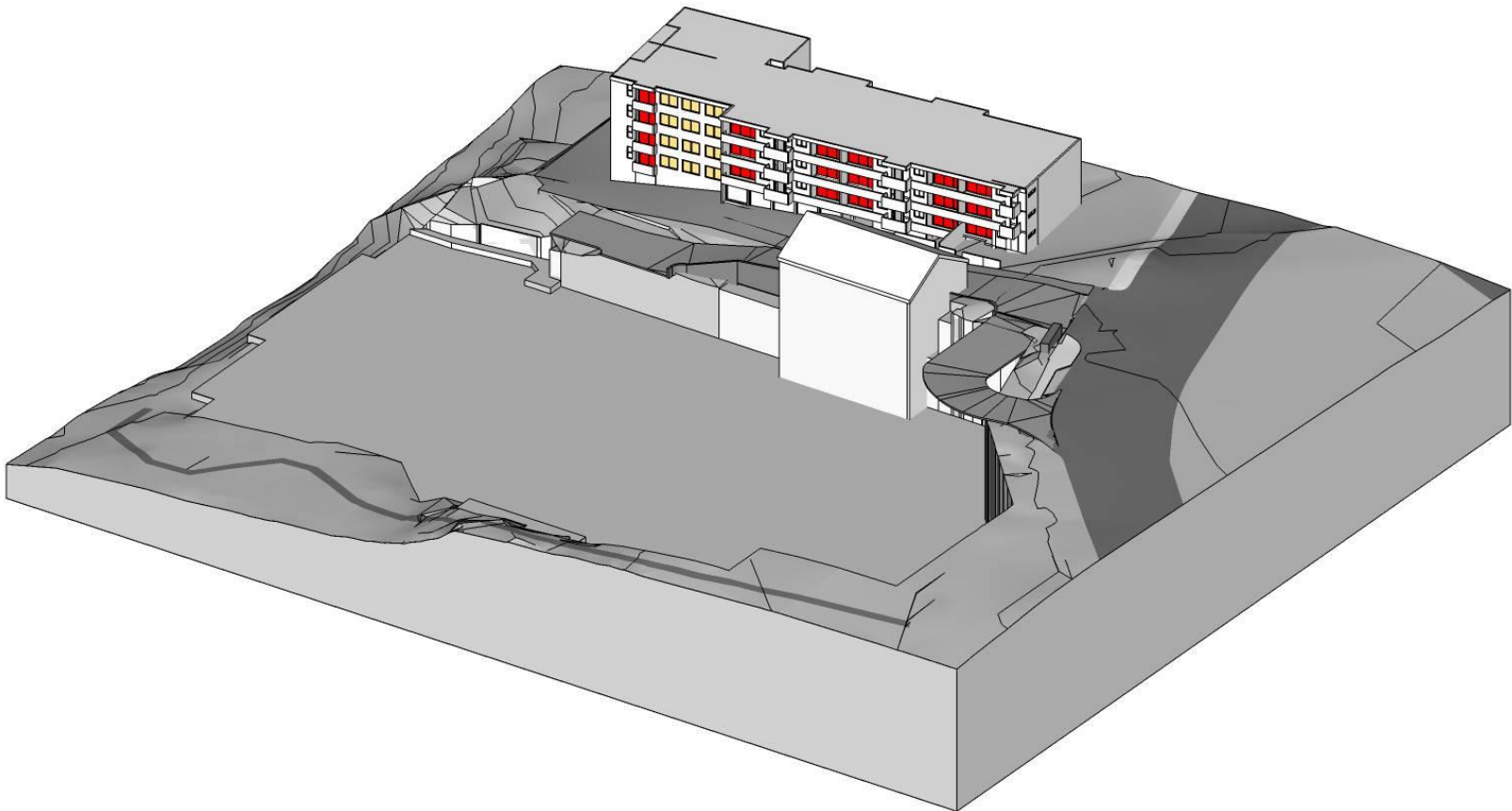


Proposed
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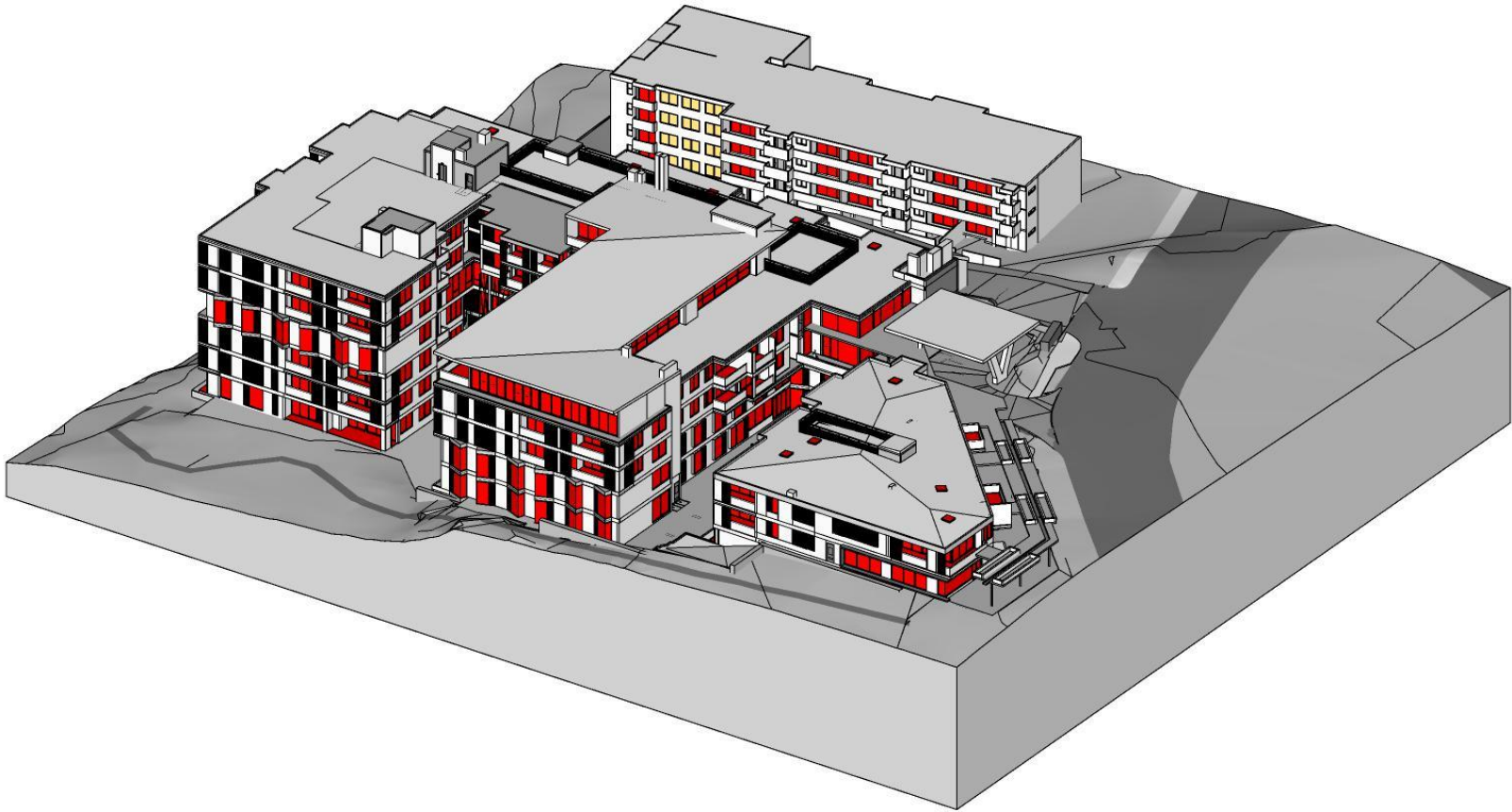


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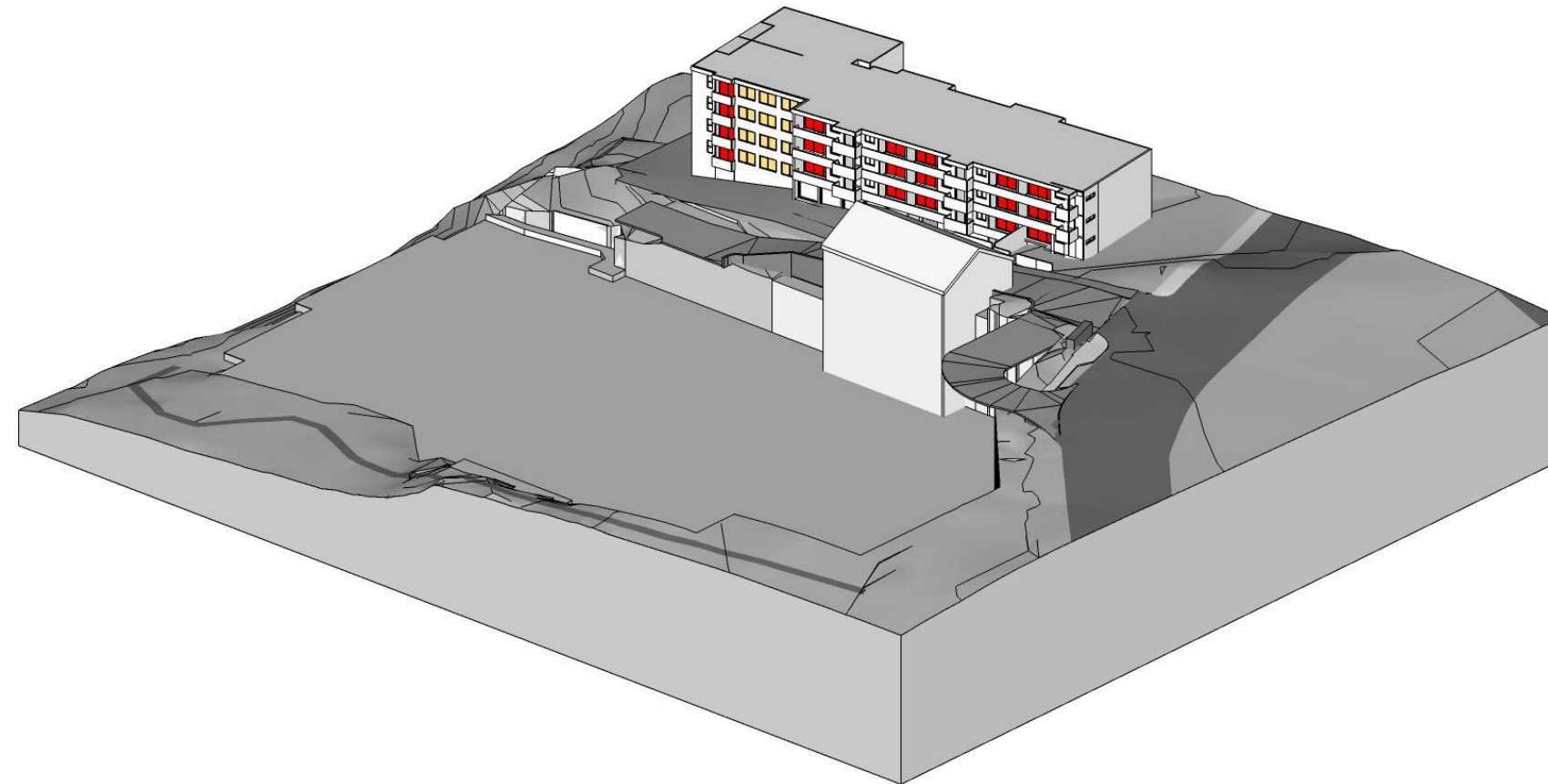


Proposed
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1400

Existing

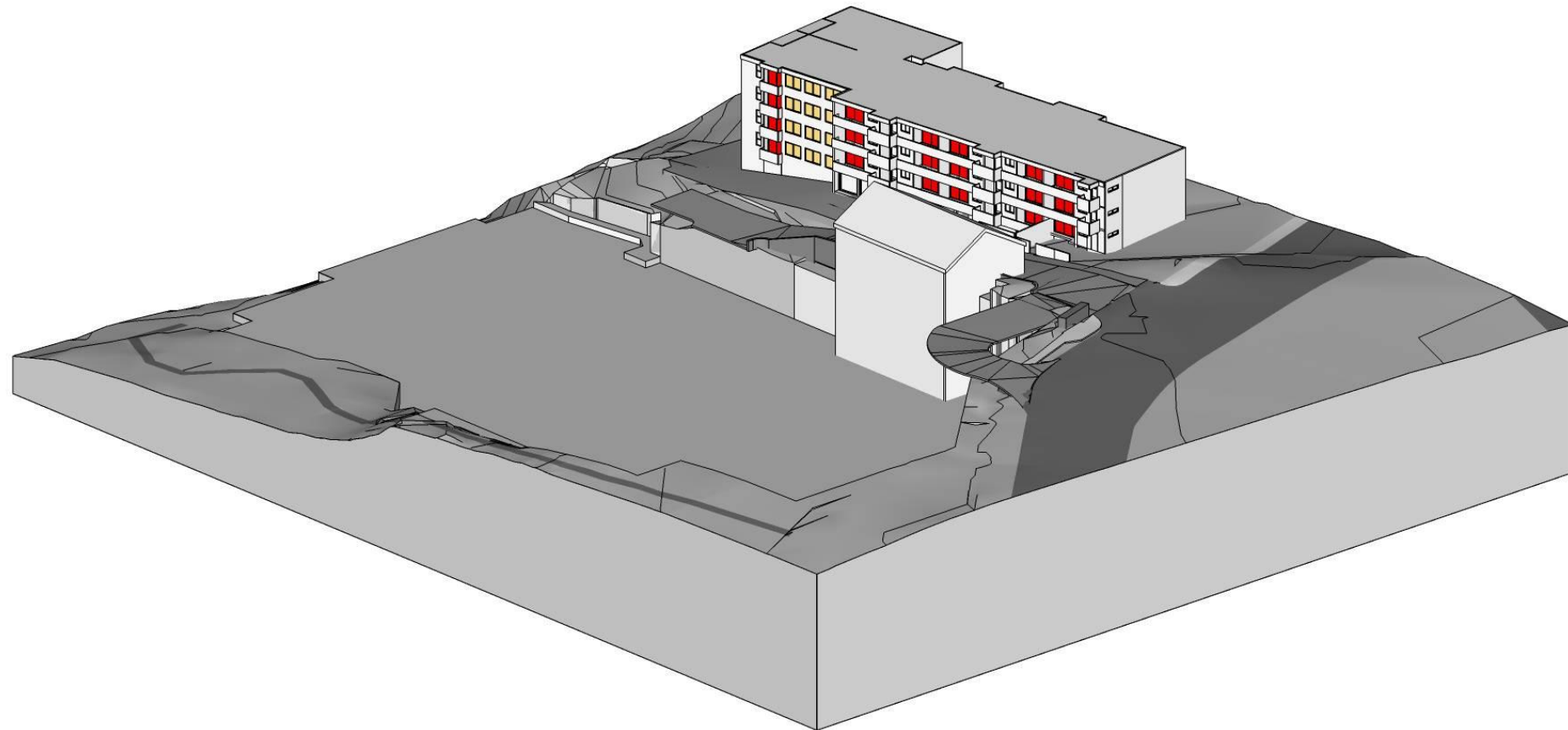


Proposed
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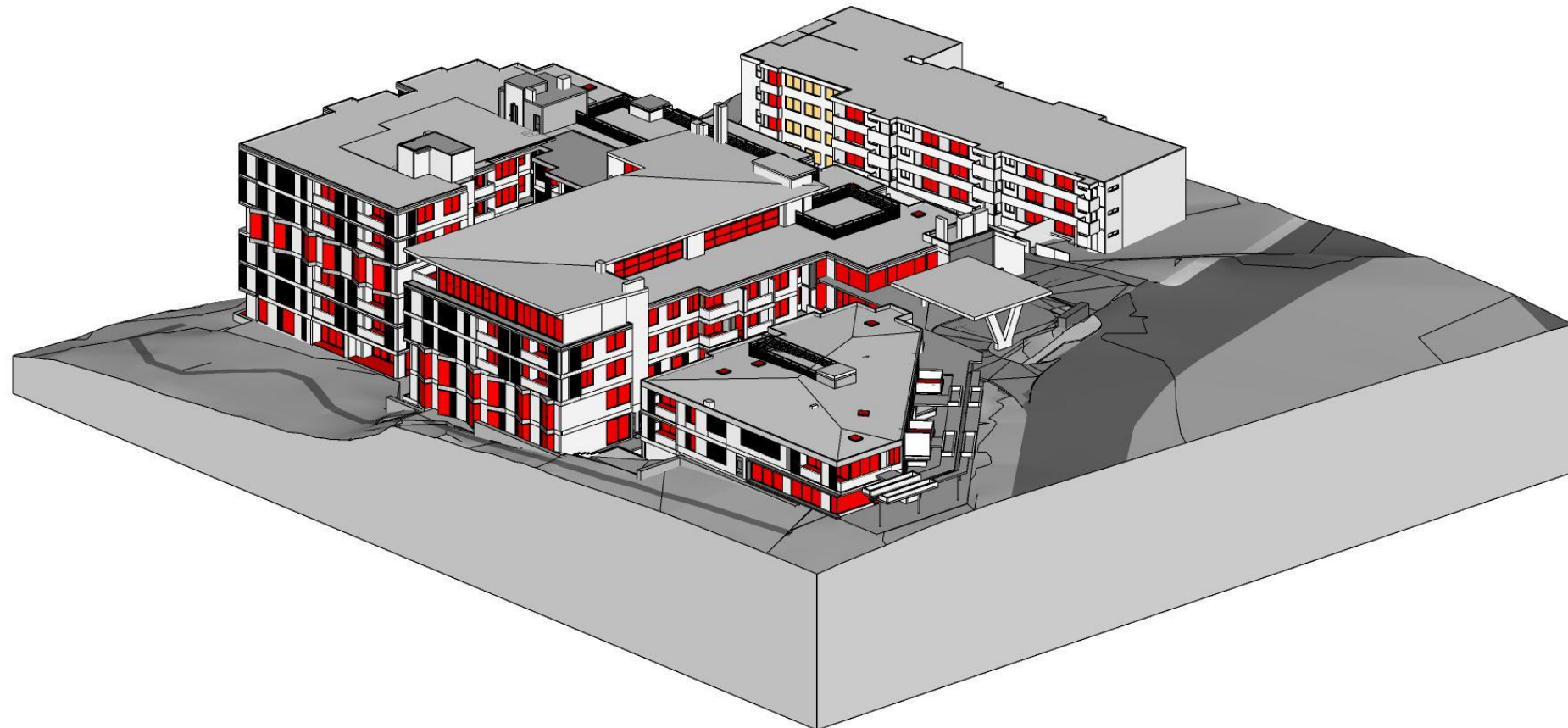


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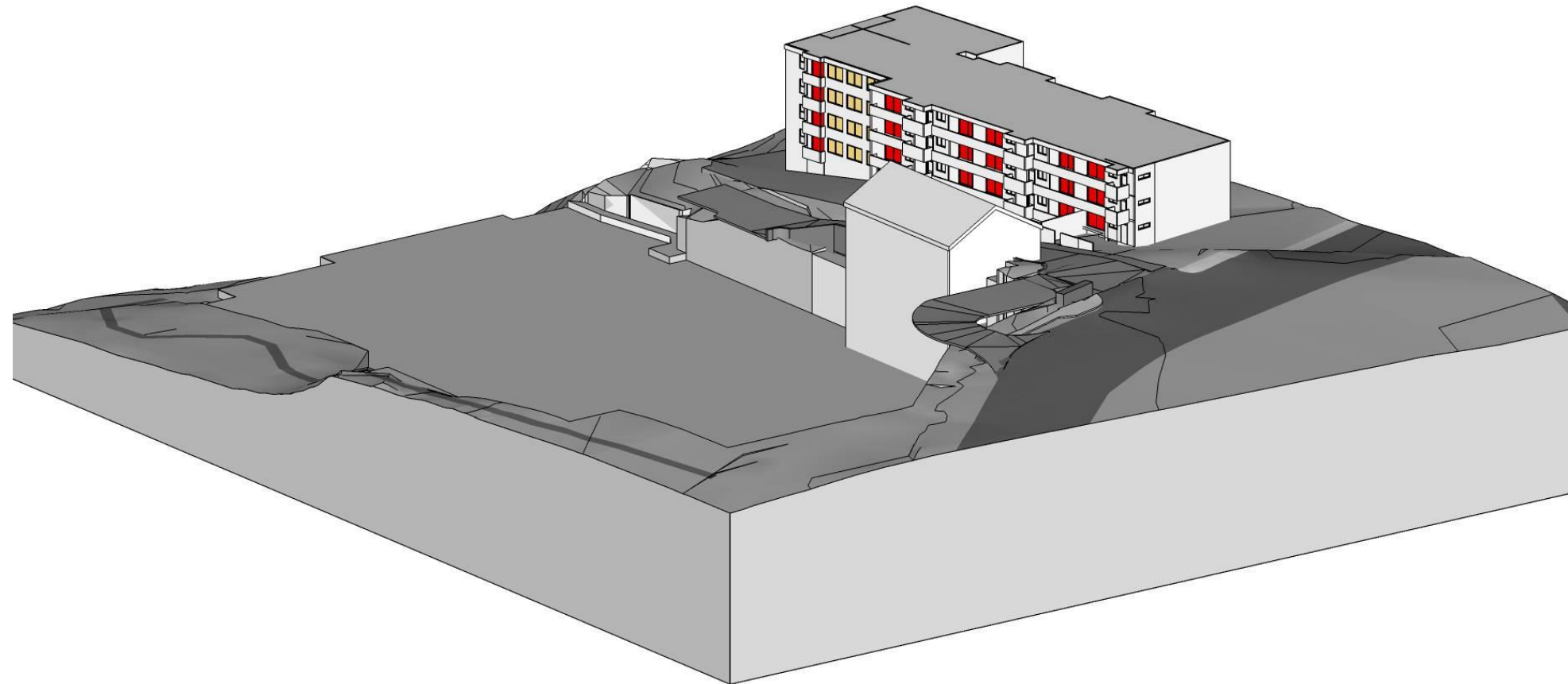


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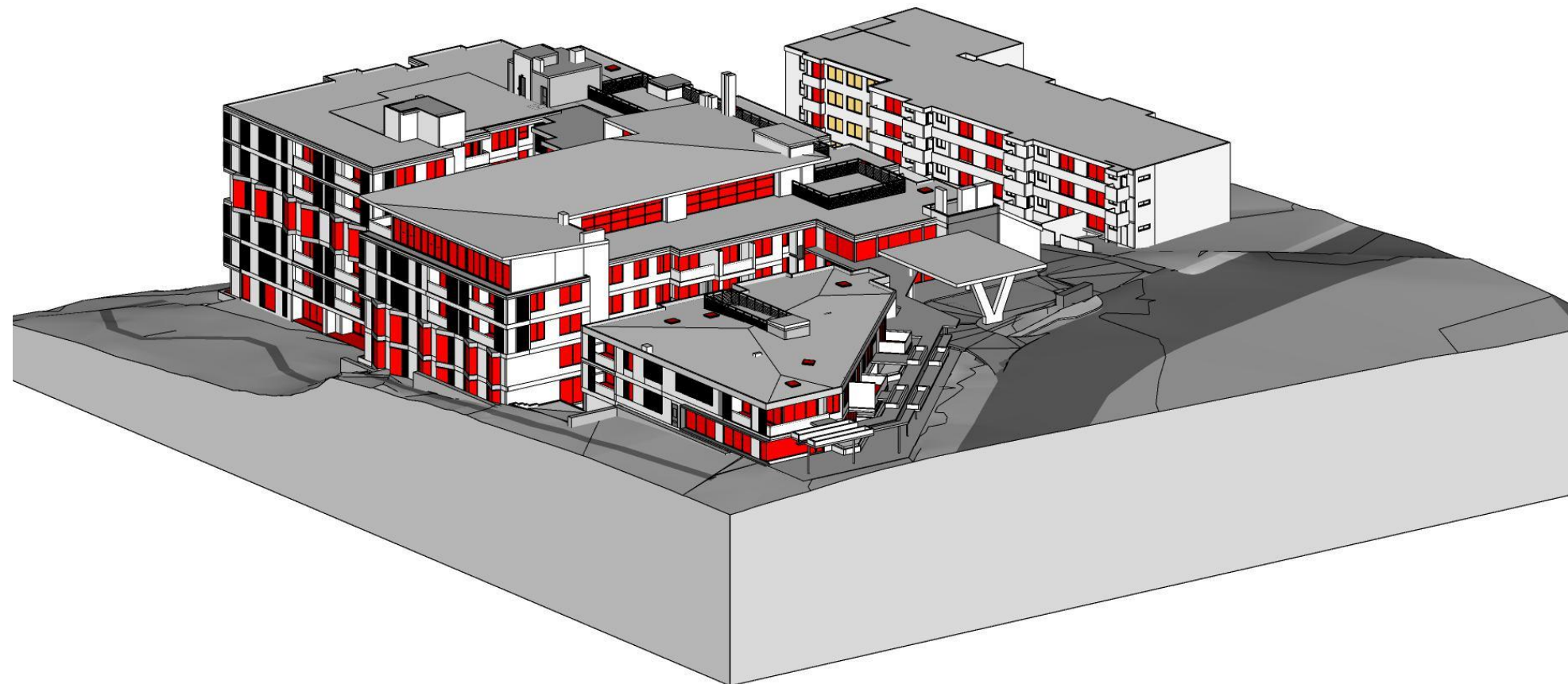


1500

Existing



Proposed
Amended
scheme



APPENDIX C: CREDENTIALS

I taught architectural design, thermal comfort and building services at the Universities of Sydney, Canberra and New South Wales since 1971. From 1992, I was a Research Project Leader in SOLARCH, the National Solar Architecture Research Unit at the University of NSW, and until its disestablishment in November 2006, I was the Associate Director, Centre for Sustainable Built Environments (SOLARCH), UNSW.

My research and consultancy includes work in solar access, energy simulation and assessment for houses and multi-dwelling developments, building assessments under the NSW SEDA Energy Smart Buildings program, appropriate design and alternative technologies for museums and other cultural institutions, and asthma and domestic building design. I am the principal author of *SITE PLANNING IN AUSTRALIA: Strategies for energy efficient residential planning*, funded by the then Department of Primary Industry and Energy, and published by AGPS, and of the RAIA Environment Design Guides on the same topic.

SOLARCH/UNISEARCH were the contractors to SEDA NSW for the setting up and administration of the House Energy Rating Management Body (HMB), which accredits assessors under the Nationwide House Energy Rating Scheme (NatHERS), NSW. I was the technical supervisor of the HMB, with a broad overview of the dwelling thermal performance assessments carried out in NSW over five years. I have been a member of the NSW BRAC Energy Subcommittee, and also a member of the AGO Technical Advisory Committee on the implementation of AccuRate, the new mandated software tool under NatHERS. I undertook the Expert Review for the NSW Department of Planning, of the comparison of NatHERS and DIY methods of compliance for Thermal Comfort under BASIX, and was subsequently a member of a three person expert panel advising on the implementation of AccuRate in BASIX.

Through UNISEARCH, NEERG Seminars and Linarch Design, I conduct training in solar access and overshadowing assessment for Local Councils. I have delivered professional development courses on topics relating to energy efficient design both in Australia and internationally, including the key papers in the general area of assessment of ventilation and solar access performance and compliance for NEERG Seminars, cited by Commissioners of the LEC. Senior Commissioner Moore cited my assistance in reframing of the Planning Principle related to solar access (formerly known as the Parsonage Principle) in *The Benevolent Society v Waverley Council [2010] NSWLEC 1082*.

I practiced as a Registered Architect from 1971-2014, and now maintain a specialist consultancy practice advising on passive environmental performance and sustainability in buildings. I regularly assist the Land and Environment Court as an expert witness in related matters.