

# Appendix

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## CHERRYWOOD TOWN CENTRE

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### BUILDING HEIGHT AND DENSITY REVIEW

29.03.2023

# Traffic

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# Town Centre Traffic Modelling Initial Modelling Assessment

## Land use review

LAND USE	PERMITTED 2021	PROPOSED AMENDMENT 2023	DIFFERENCE
TC 1	346	1,107	761
TC 2	384	534	150
TC 3	358	650	292
TC 4	512	696	184
<b>TOWN CENTRE</b>	<b>1,600</b>	<b>2,987</b>	<b>1,387</b>

### Number of apartments that landowner seeks to increase in Town Centre:

- TC1: Increase apartments to 750 in TC1B, additionally 357 in TC1A (from the current of 346 max total in TC1)
- TC2: Increase to 534 apartments (from the current 384 max total)
- TC3: Increase to 650 apartments (from the current of 358 max total)
- TC4: Increase to 696 apartments (from the current of 512 max total)

## Trip Generation Increase - Town Centre

ZONE	RESIDENTS CHANGE	AM		PM	
		ORIGIN TRIPS	DEST TRIPS	ORIGIN TRIPS	DEST TRIPS
TC 1	761	125	1	45	62
TC 2	150	25	0	9	12
TC 3	292	48	0	17	24
TC 4	184	30	0	11	15
<b>TOTAL</b>	<b>1,387</b>	<b>228</b>	<b>1</b>	<b>82</b>	<b>113</b>

### Scenarios Tested

- Permitted 2021 - Cherrywood Planning Scheme 2014, updated in April 2021 (1600 residential units in TC)
- Proposed Amendment 2023 - Planning Scheme Parameters and Landowners' Submissions to Building Height Amendment No.8 (2987 residential units in TC)

## Trip Generation Overall impact - Town Centre

	AM		PM	
	ORIGIN TRIPS	DEST TRIPS	ORIGIN TRIPS	DEST TRIPS
PERMITTED TC	460	1569	1562	959
AMENDMENT 2023	228	1	82	113
<b>OVERALL IMPACT</b>	<b>50%</b>	<b>0%</b>	<b>5%</b>	<b>12%</b>

### The number of car trips created due to the increase of 1387 apartments:

Comparing Proposed Amendment 2023 and Permitted 2021, there is an increase of 229 car trips in the morning peak and 195 car trips in the afternoon peak.

The overall impact is a 50% increase in trips originating from the Town Centre in the AM peak (no impact on trips to TC). The impact is smaller in the PM peak, 5% more car trips from TC and 12% more car trips to TC.

**Note that both sets numbers include Proposed Parking Ratio of 0.9**

**Should the parking ratio be adjusted to 0.6 there will be further reductions in trip generation.**



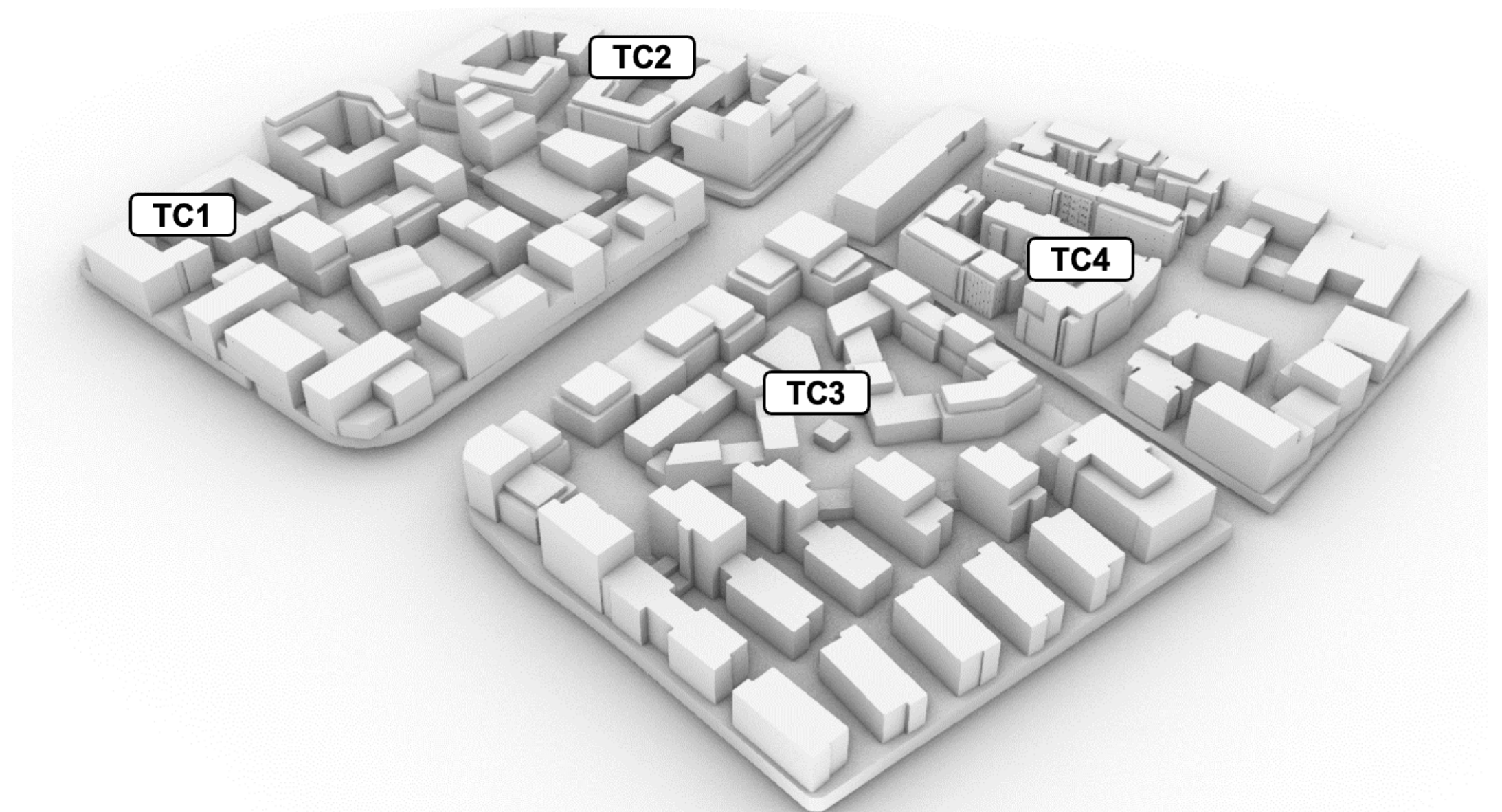
# Microclimate

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# Wind Microclimate

An assessment of the wind microclimate environment within the Cherrywood Town Centre development was carried out using a computational fluid dynamics simulations together with Arup's experience working in similar development in Dublin.

The assessment provided insights to the project team through the design review process. It outlined the relationship between the massing and orientation of the development with respect to the prevailing winds and identified building typologies that are more susceptible to the wind.

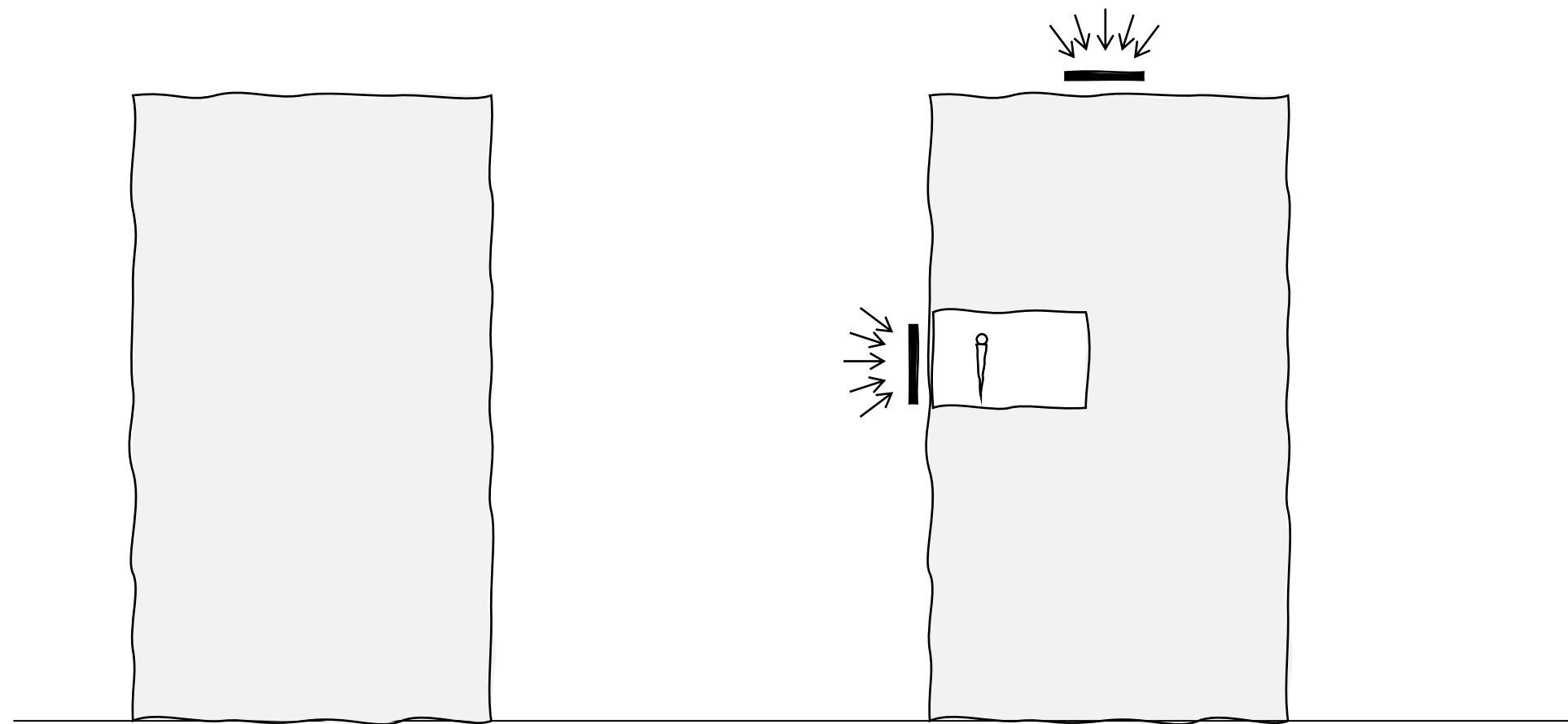


# Daylight

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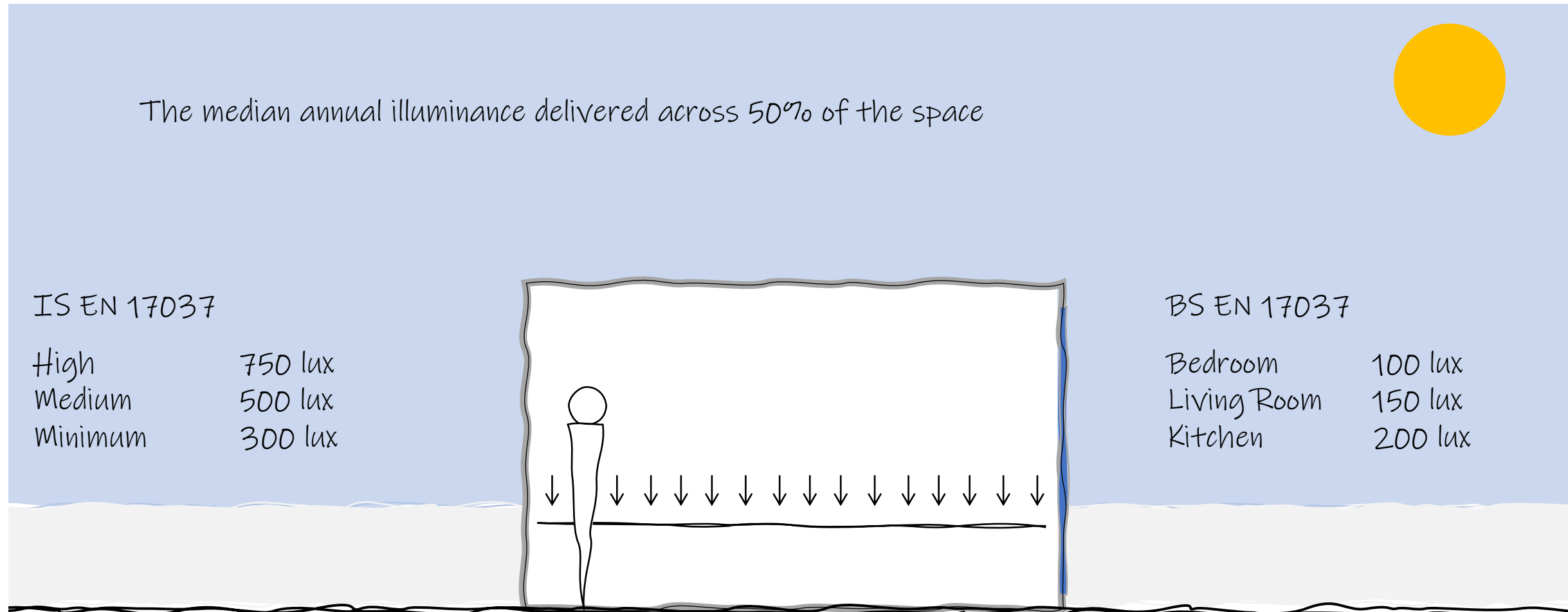
# Daylight

Ratio of diffuse light on the vertical vs that from unobstructed CIE overcast sky



Vertical Sky Component

# Daylight



## Daylight Provision





# Daylight

Sample bedroom – dims 4.7m\*2.8m\*2.6m – window 2.1m\*2.4m  
 Sample kitchen – dims 6.4m\*3.4m\*2.6m – window 2.4m\*2.4m

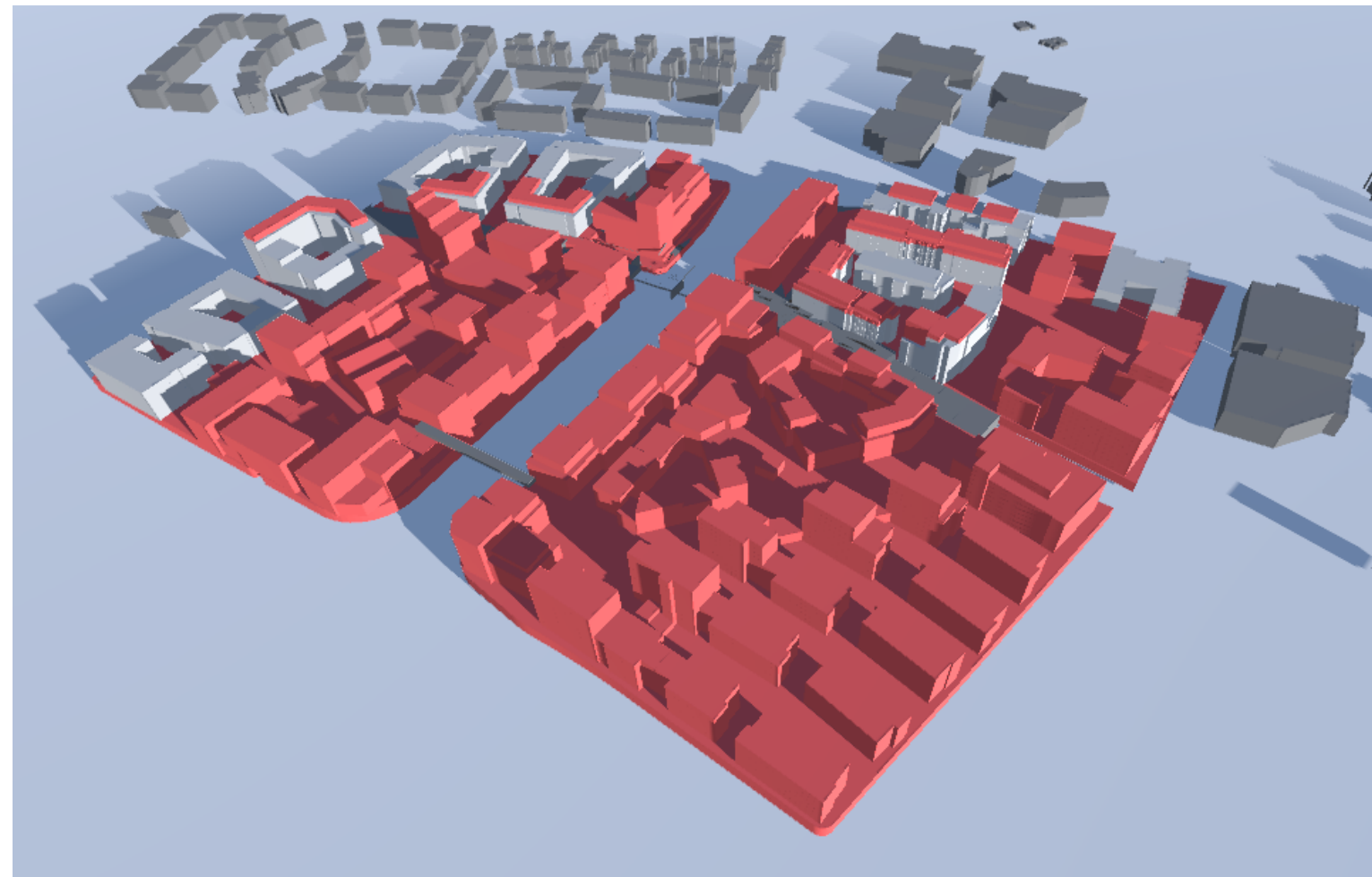
VSC	Bedroom (lux)	Kitchen (lux)
5%	101 lx	92 lx
10%	134 lx	104 lx
15%	157 lx	135 lx
20%	190 lx	166 lx
25%	228 lx	209 lx
30%	292 lx	257 lx

Approx. relationship between VSC and daylight provision



# Daylight

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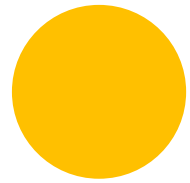


[Click on the image to download the tool](#)

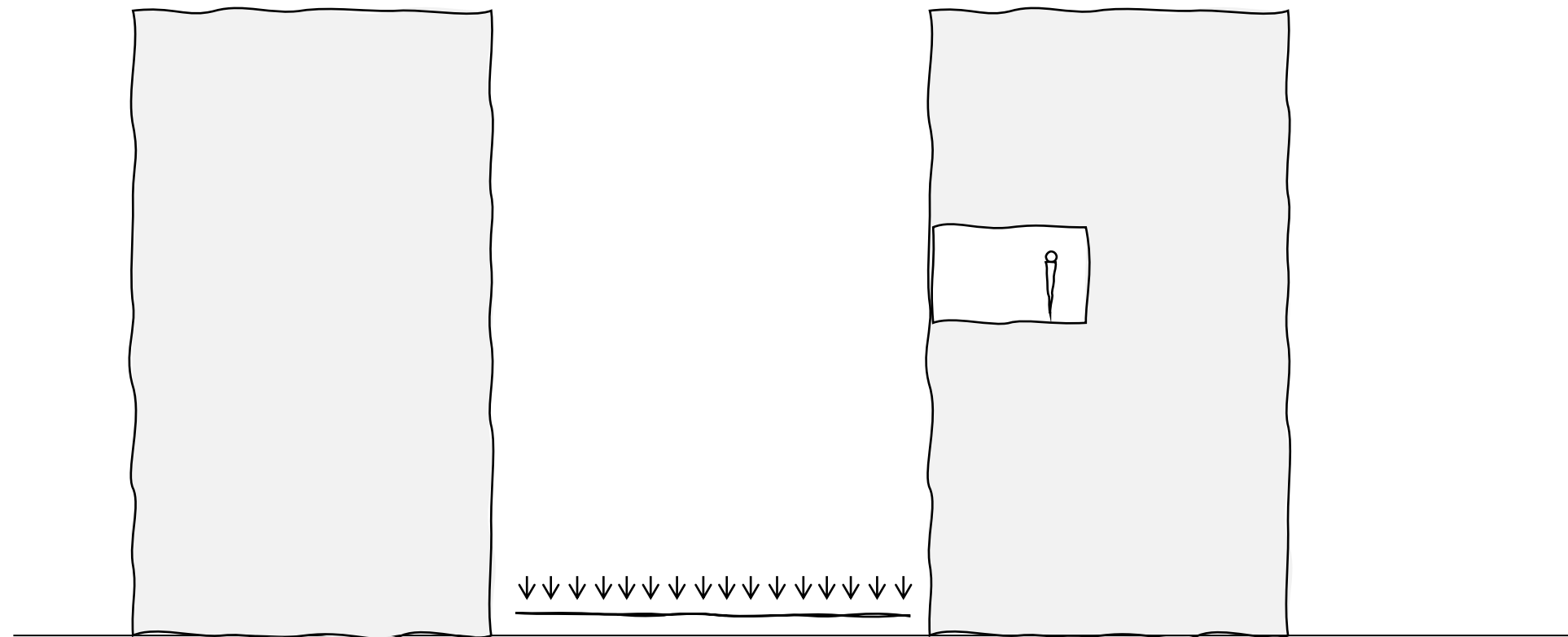
Current Massing



# Daylight



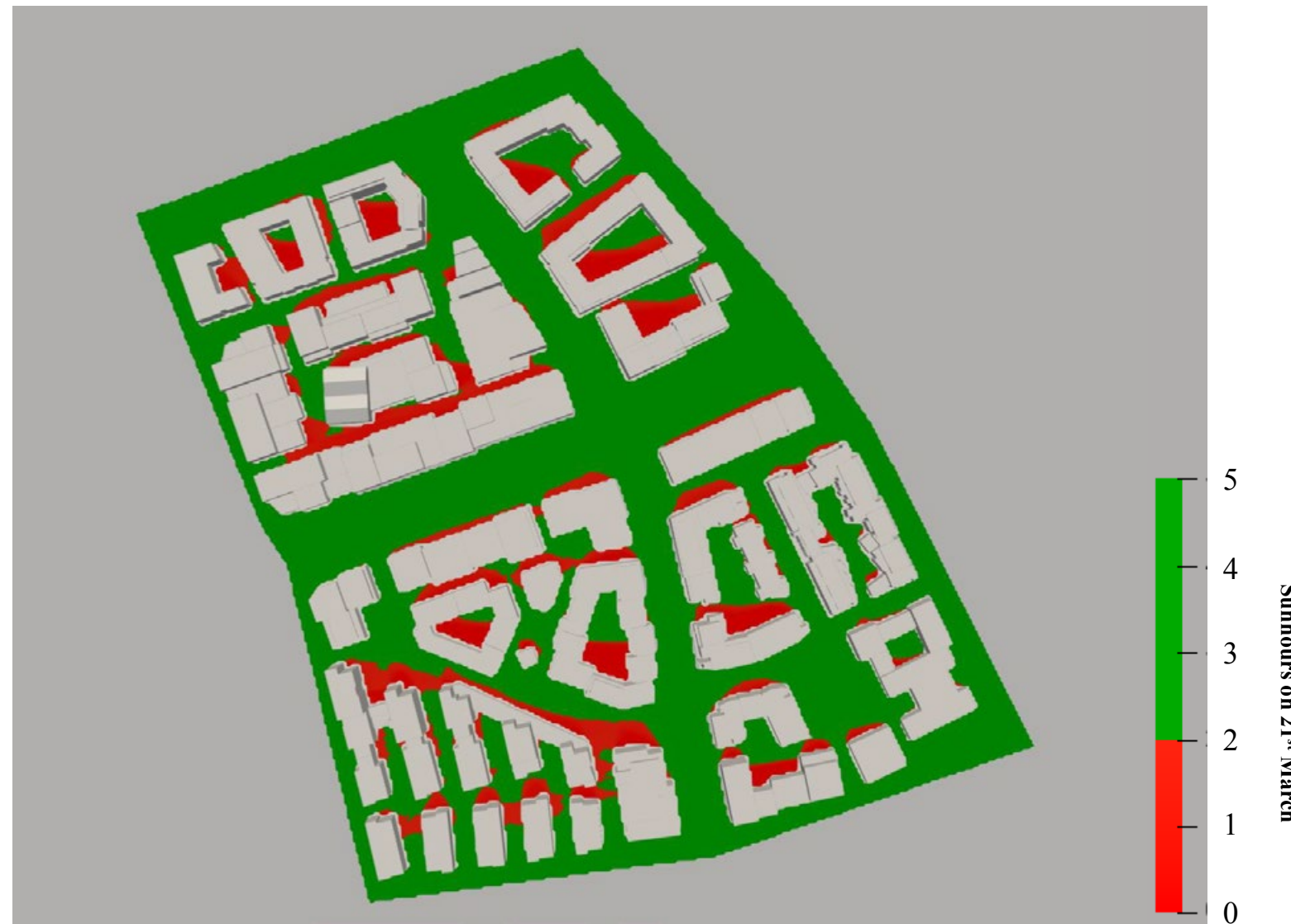
50% of the area of amenity spaces > 2 hours sunlight on March 21<sup>st</sup>



Sunlight in Amenity Spaces



# Daylight



Current Massing





# Power

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# Cherrywood TC – Power Loads, March 2023

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## TC1

Decrease of 1,929kW. Increase in residential units and non-retail offset by reduction in retail, HIE and community.

## TC2

Increase of 1,286kW. Increase in residential and non-retail offset by decrease in hotel.

## TC3

Decrease of 1,176kW. Increase in residential offset by decrease in HIE and non-retail.

## TC4

Increase of 4,523kW. Increase in residential, HIE and non-retail.

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## Assessment Conclusion

- Sufficient core infrastructure in the ground capable of carrying additional demand
- As is normal, discussions with ESB needed to determine capacity within the network.
- Existing SDZ ESB substation has 30MW capacity, based on level of development within the SDZ to date there is currently sufficient capacity within the existing substation.



# Water

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## Water Demand

ZONE	Consented (2017)		Current Proposal (2023)		% change
	l/s	l/day	l/s	l/day	
TC 1	4.17	359,901	6.98	602,719	67%
TC 2	2.55	220,290	3.6	311,248	41%
TC 3	5.08	439,264	7.16	618,682	41%
TC 4	4.26	367,906	5.64	487,718	33%
<b>TOTAL</b>	<b>16.06</b>	<b>1,387,361</b>	<b>23.38</b>	<b>2,020,367</b>	<b>46%</b>

### Assessment Conclusion

- Sufficient core infrastructure in the ground capable of carrying additional demand
- As is normal, discussions with IW needed to determine capacity within the network.



## Wastewater Loadings

ZONE	Masterplan loadings (2015)		Current Proposal (2023)		% change
	l/day	l/s	l/day	l/s	
TC 1	446269	31	928236	64.5	108
TC 2	263197	18.3	440497.5	30.6	67.3
TC 3	210415	14.6	487915.4	33.9	131.9
TC 4	458948	31.9	487778	33.9	6.3
<b>TOTAL</b>	<b>1378829</b>	<b>95.8</b>	<b>2344426.9</b>	<b>162.8</b>	<b>70</b>

### Assessment Conclusion

- Sufficient core infrastructure in the ground capable of carrying additional demand
- As is normal, discussions with IW needed to determine capacity within the network.