

Westminster United Shadow Study

4094 Tomken Rd,
Mississauga, ON

2024.02.28

SITE LATITUDE AND LONGITUDE:

43° 35' 20" N x 79° 38' 40" W

ASTRONOMIC NORTH:

Astronomic north was determined by using the Site Survey prepared by Speight, Van Nostrand & Gibson Ltd.

ORIGIN/SOURCE OF BASE PLAN:

The Site Plan is drawn based on the Site Survey prepared by Speight, Van Nostrand & Gibson Ltd.

AREAS NOT MEETING THE SHADOW IMPACT CRITERIA:

Two single detached residential houses are not meeting the no impact requirements.

1010 Wetherby Lane - Impact on June 21st 4:20pm, 5:20pm, 6:20pm, 7:20pm (4 consecutive hourly test times)

1006 Wetherby Lane - Impact on June 21st 5:20pm, 6:20pm, 7:20pm (3 consecutive hourly test times)

MITIGATION FEATURES INCORPORATED:

The massing has been adjusted since the last submission to reduce the shadow impact on both 1010 Wetherby Lane, and 1006 Wetherby Lane. We have removed all impact on 1014 Wetherby Lane for June 21 at 4:20pm, as well as removed all impact from 1018 Wetherby Lane for June 21 at 5:20pm based on shifting the massing around to reduce the shadows.

The massing has shifted more of the building to face Tomken Road by moving the outdoor terrace level on Level 6 to the west side of the building which reduces the shadow impacts on the low rise residential neighbours to the south-east of Building 2.

3.2 COMMUNAL OUTDOOR AMENITY AREAS

Sun Access Factor:

The Sun Access Factor requires at least 50% for all of the specified outdoor areas including the Community Garden, Playground, Level 6 Outdoor Terrace, Montessori School, and Building 1 Outdoor Amenity. These at grade elements have been strategically placed in the most sun lit spaces at grade possible on the site and generally have good sun coverage throughout the year. The range of the Sun Access Factor spans from 9% to 87% with an average for all outdoor amenity spaces of 47% in the summer 44% in the fall and 34% in the winter. In every season at 1pm-2pm both the Community Garden and the Playground have daylighting where other outdoor areas that we could place the amenity spaces in do not have daylight due to the existing buildings.

The Level 6 outdoor landscape area/terrace has very high sun access factors of 66 - 87%.

No proposed shadows reach the central communal outdoor space associated with the neighbouring properties of 4105 and 4125 Tomken Road for more than 1 hour. The only time there is a proposed shadow that lands on that location is December 21 at 2:17pm. The shadows on September 21 at 5:12pm are for one hour on their shared surface parking space.

See below for detailed calculations and Sun Access Factors for each space.

	Community Garden	Playground	Level 6 OLA/Terrace	Montessori School	Bldg 1 Outdoor Amenity		Community Garden	Playground	Level 6 OLA/Terrace	Montessori School	Bldg 1 Outdoor Amenity		Community Garden	Playground	Level 6 OLA/Terrace	Montessori School	Bldg 1 Outdoor Amenity	
June 21 7:07am	0.0	0.0	8.9	86.0	44.2													
June 21 7:20am	0.0	0.0	8.9	107.7	43.4													
June 21 8:20am	0.0	0.0	45.6	172.4	41.8													
June 21 9:20am	0.0	0.0	73.6	200.0	40.5													
June 21 10:20am	0.0	0.0	109.0	247.3	38.6	Sept 21 8:35am	0.0	0.0	101.5	53.2	39.1							
June 21 11:20am	67.3	29.8	115.0	267.9	16.0	Sept 21 9:12am	0.0	0.0	113.0	17.3	38.1							
June 21 12:20pm	82.0	127.0	115.0	279.9	0.0	Sept 21 10:12am	0.0	0.0	115.0	0.0	4.3							
June 21 1:20pm	82.0	127.0	115.0	291.0	41.7	Sept 21 11:12am	20.6	0.0	115.0	97.1	0.0							
June 21 2:20pm	57.4	102.8	115.0	291.0	50.1	Sept 21 12:12pm	59.0	77.3	115.0	217.1	0.0		Dec 21 9:19am	0.0	0.0	62.9	0.0	0.0
June 21 3:20pm	26.8	35.2	115.0	214.2	52.9	Sept 21 1:12pm	82.0	127.0	115.0	252.2	0.0		Dec 21 10:17am	0.0	0.0	83.0	0.0	0.0
June 21 4:20pm	4.0	4.5	115.0	123.7	56.1	Sept 21 2:12pm	76.0	101.3	115.0	233.4	47.3		Dec 21 11:17am	0.0	0.0	115.0	0.0	0.0
June 21 5:20pm	0.0	0.0	115.0	62.0	59.9	Sept 21 3:12pm	64.4	35.7	115.0	78.4	49.0		Dec 21 12:17pm	54.7	0.0	115.0	115.4	0.0
June 21 6:20pm	0.0	0.0	87.6	30.8	64.1	Sept 21 4:12pm	38.1	0.0	115.0	0.0	51.6		Dec 21 1:17pm	82.0	72.2	115.0	65.6	0.0
June 21 7:20pm	0.0	17.7	0.0	0.0	67.8	Sept 21 5:12pm	0.0	0.0	80.2	0.0	53.9		Dec 21 2:17pm	79.0	120.4	115.0	0.0	0.0
June 21 7:33pm	0.0	45.3	0.0	0.0	68.4	Sept 21 5:48pm	0.0	0.0	0.0	0.0	55.4		Dec 21 3:15pm	5.0	94.2	55.7	0.0	47.5
<i>Average Area of Sunshine ($A_{S Avg}$) m^2</i>	21.31	32.62	75.91	158.25	45.70	<i>Average Area of Sunshine ($A_{S Avg}$) m^2</i>	30.91	31.03	99.98	86.25	30.80		<i>Average Area of Sunshine ($A_{S Avg}$) m^2</i>	31.53	40.98	94.51	25.86	6.79
<i>Area of Community Space (A_T) m^2</i>	82	127	115	291	73	<i>Area of Community Space (A_T) m^2</i>	82	127	115	291	73		<i>Area of Community Space (A_T) m^2</i>	82	127	115	291	73
Sun Access Factor Season Average	26%	26%	66%	54%	63%	Sun Access Factor Season Average	38%	24%	87%	30%	42%		Sun Access Factor Season Average	38%	32%	82%	9%	9%
			47%						44%						34%			

3.3 PUBLIC REALM

Mixed Use, Commercial, Employment and High Density Residential Streets:

For both Rathburn Road East and Tomken Road we are in compliance with the requirements of daylighting for the public realm as shown below.

Tomken Road:

Full sunlight on the opposite boulevard including the full width of the sidewalk on September 21 for at least 5 hours is achieved on the following hours:

9:12am
10:12am
11:12am
12:12pm
1:12pm
2:12pm

Note that we are complying with the required 2 hour period between 12:12pm and 2:12pm.

Rathburn Road East:

Full sunlight on the opposite boulevard including the full width of the sidewalk on September 21 for at least 5 hours is achieved on the following hours:

11:12am
12:12pm
1:12pm
2:12pm
3:12pm
4:12pm
5:12pm
5:48pm

Note that we are complying with the required 2 hour period between 12:12pm and 2:12pm.

3.4 TURF AND FLOWER GARDENS IN PUBLIC PARKS

We are not able to provide full sun for the Community Garden for 6 hours of direct sunlights on Septmeber 21, however it has been strategically placed on the site to get the most daylight during the March to October growing season. Refer to the Sun Access factor chart to see the partial sun that is on the Community Garden for 6 test times on September 21.

3.5 BUILDING FACES TO ALLOW FOR THE POSSIBILITY OF USING SOLAR ENERGY

September 21:

There are no additional shadows added to the roofs, front, rear and exterior side walls 3m from the building in September other than 5:12pm which is within the one hour allowed for shadow impacts for solar energy. On September 21 at 5:12pm we are affecting 1010 and 1014 Wetherby lane for 1 hour which is within the allowed impacts.

There is an impact in terms of the solar energy potential for 4105 Tomken Road apartments on September 21 at 4:12pm, 5:12pm and 6:12pm. However mitigation measures have been taken and the shadows have been reduced to no longer affect 4105 Tomken Road on September 21 at 2:12pm and 3:12pm.



Existing Shadow

Net New Shadow

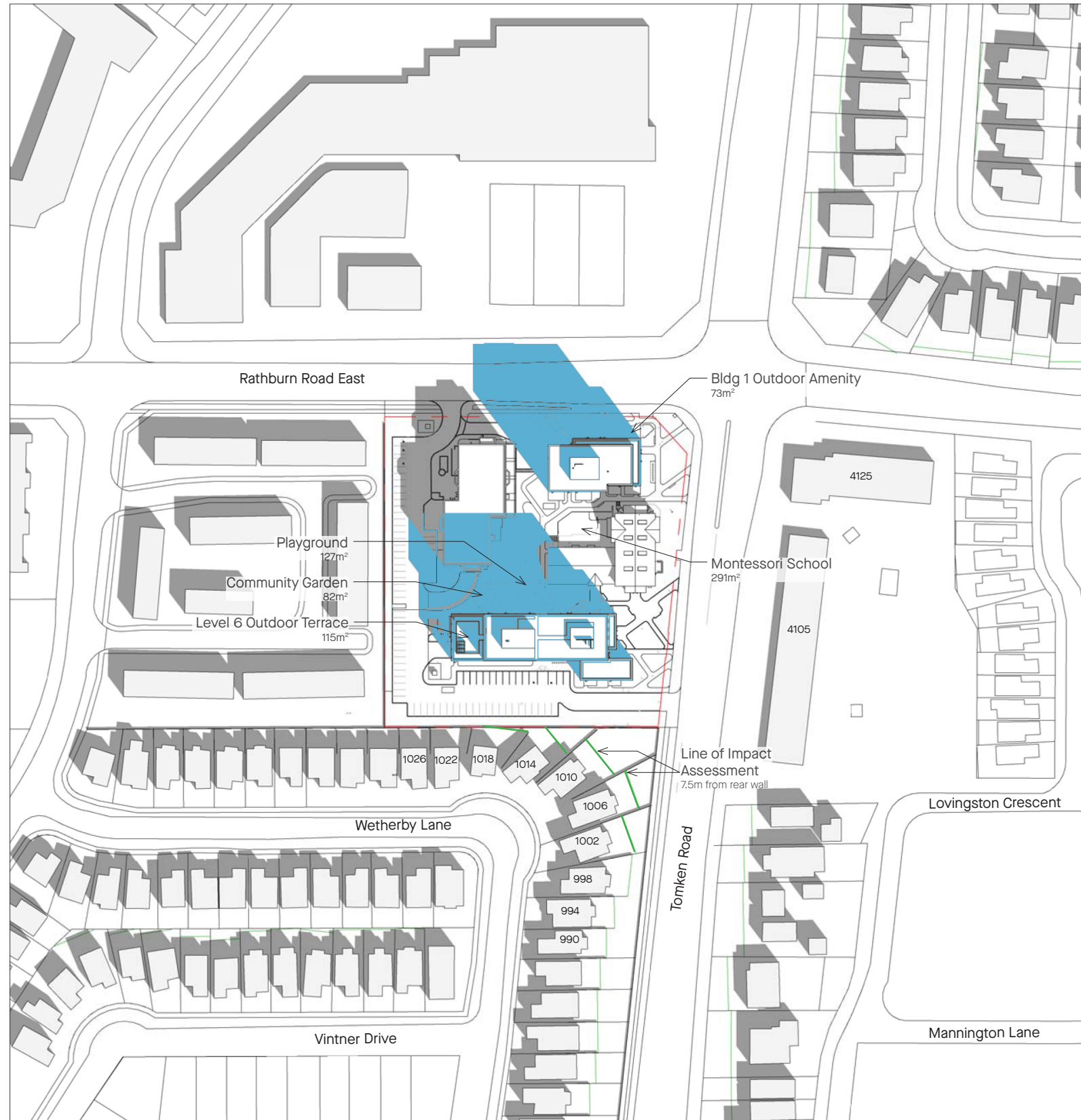
JUNE 21, 7:07AM



Existing Shadow

Net New Shadow

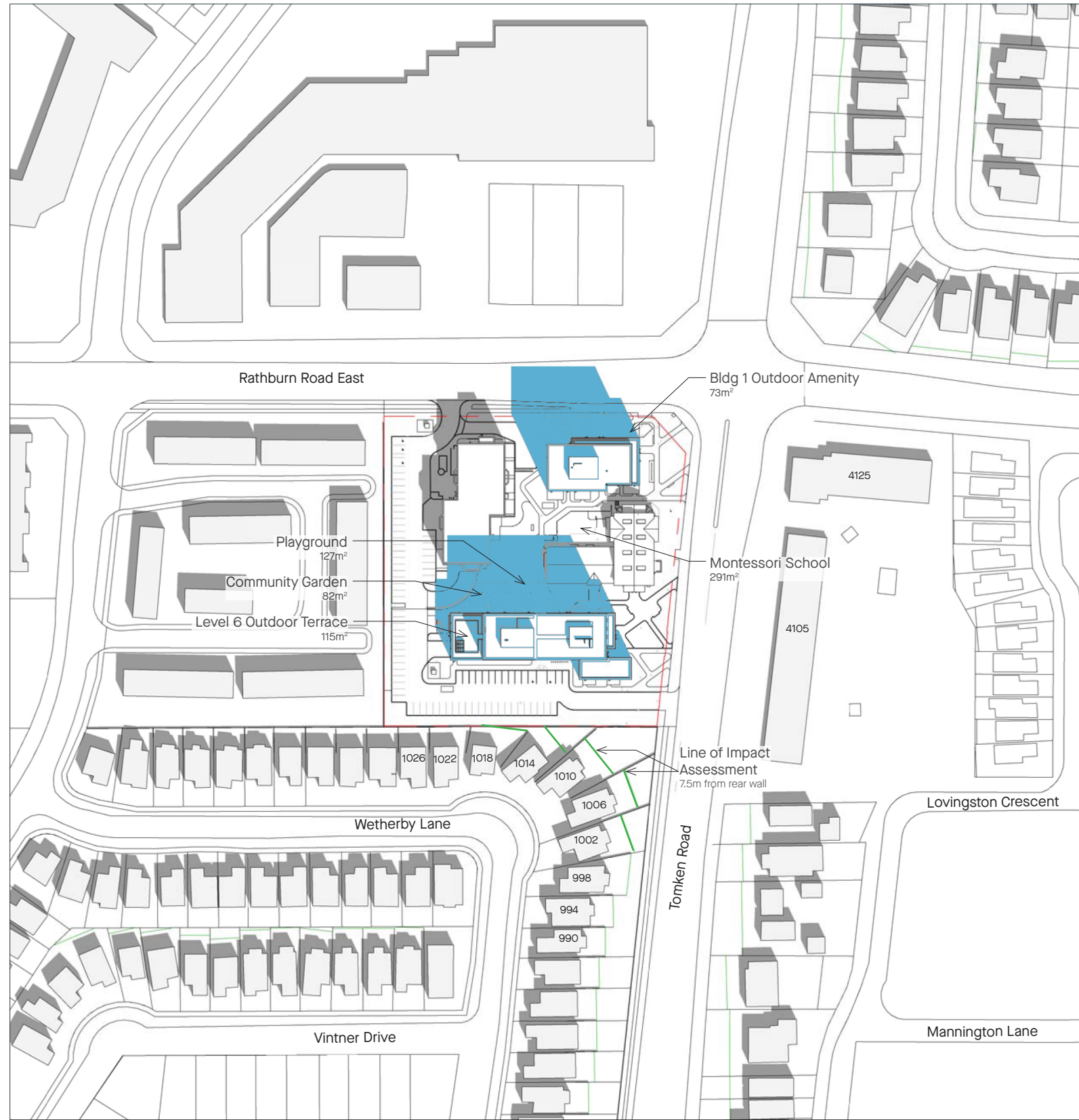
JUNE 21, 7:20AM



Existing Shadow

Net New Shadow

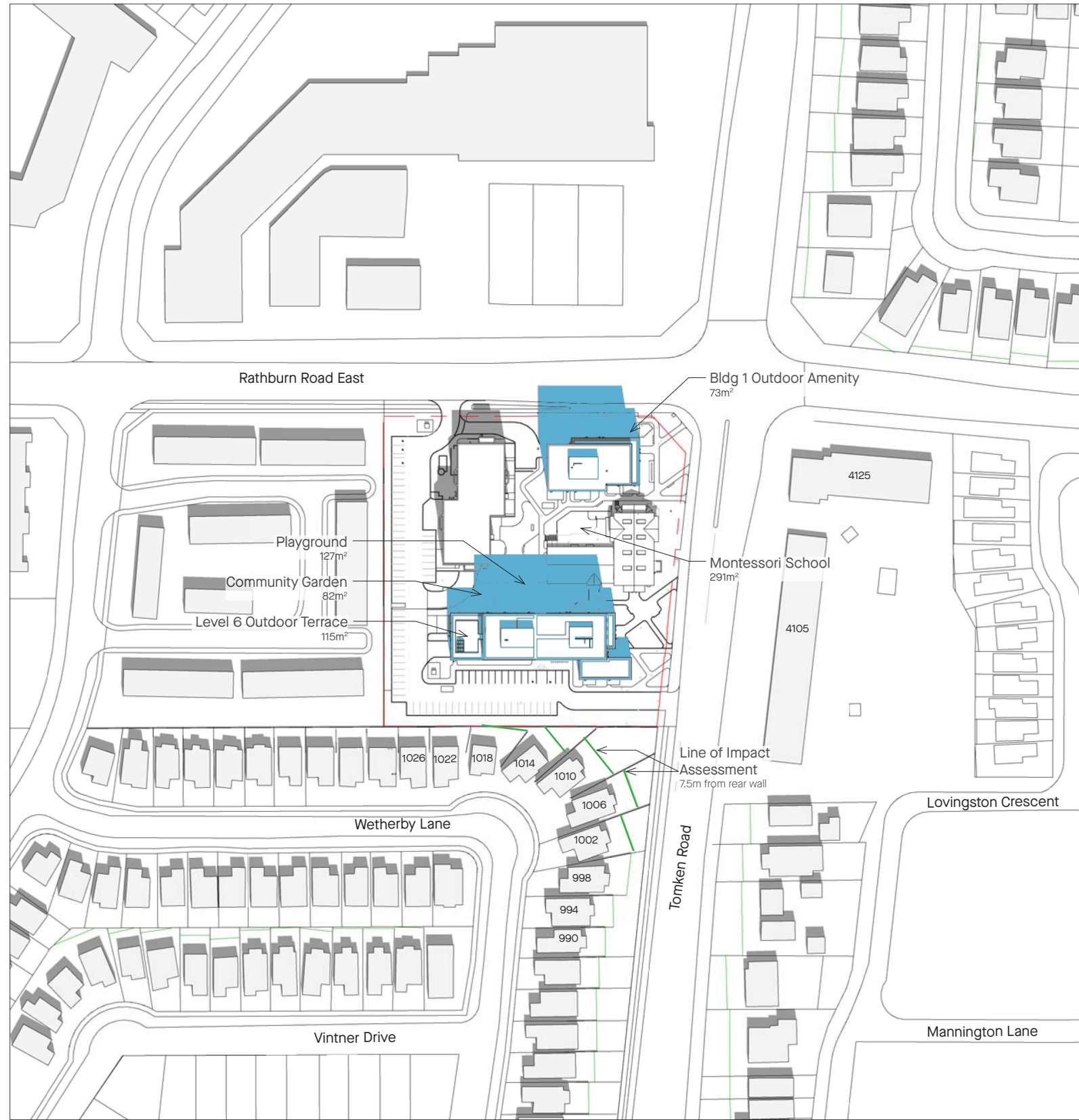
JUNE 21, 8:20AM



Existing Shadow

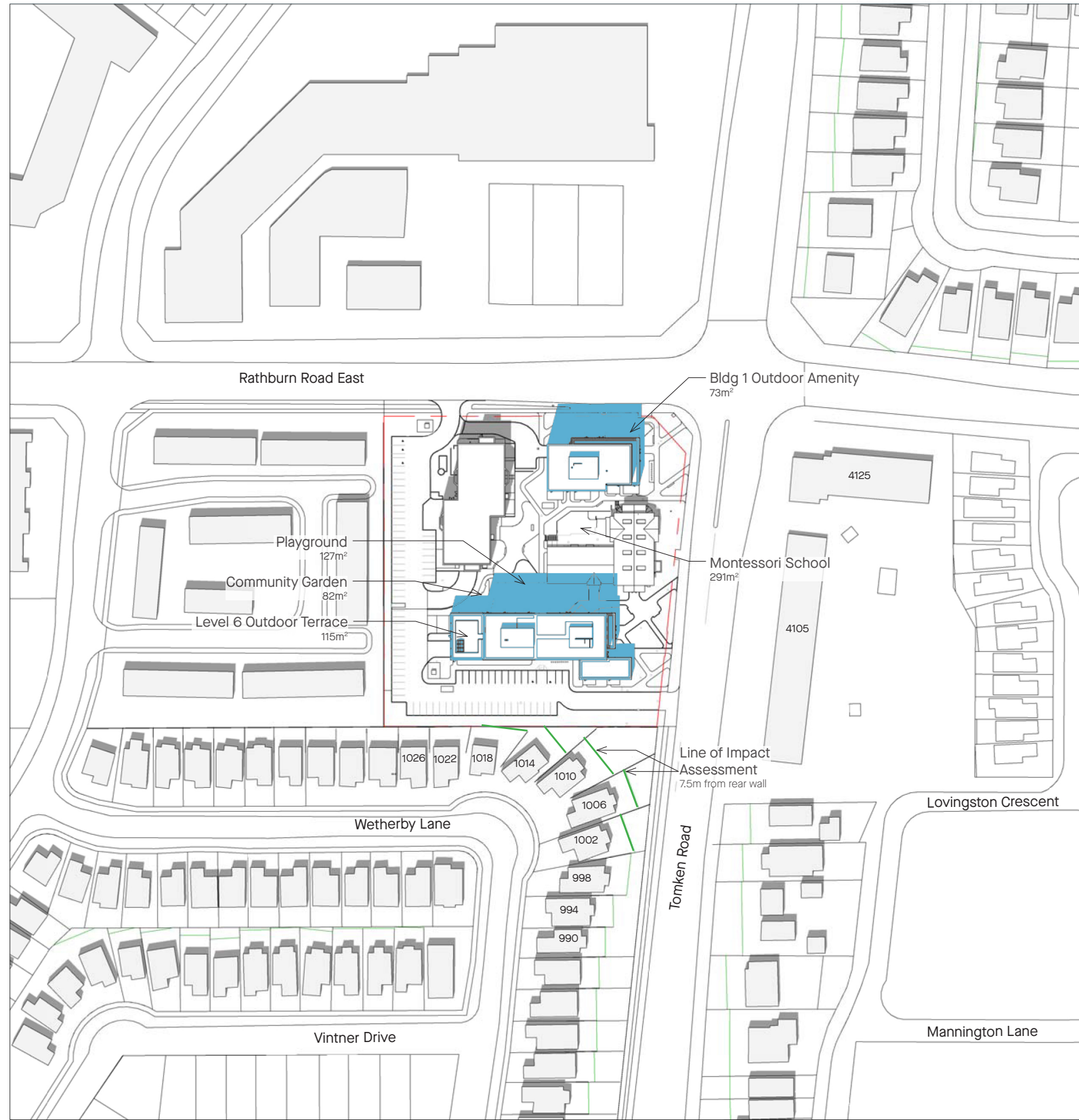
Net New Shadow

JUNE 21, 9:20AM



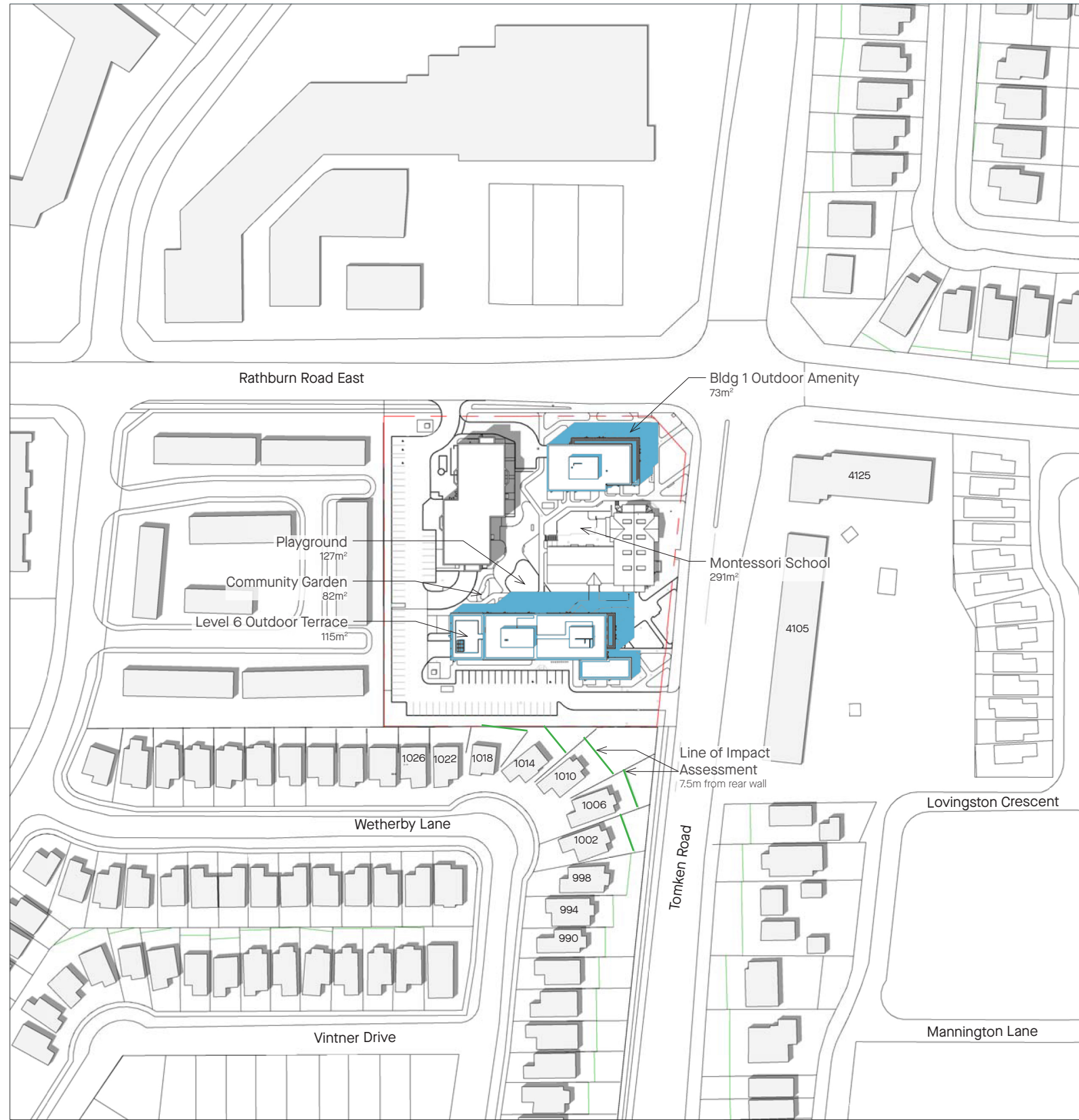
Existing Shadow
 Net New Shadow

JUNE 21, 10:20AM



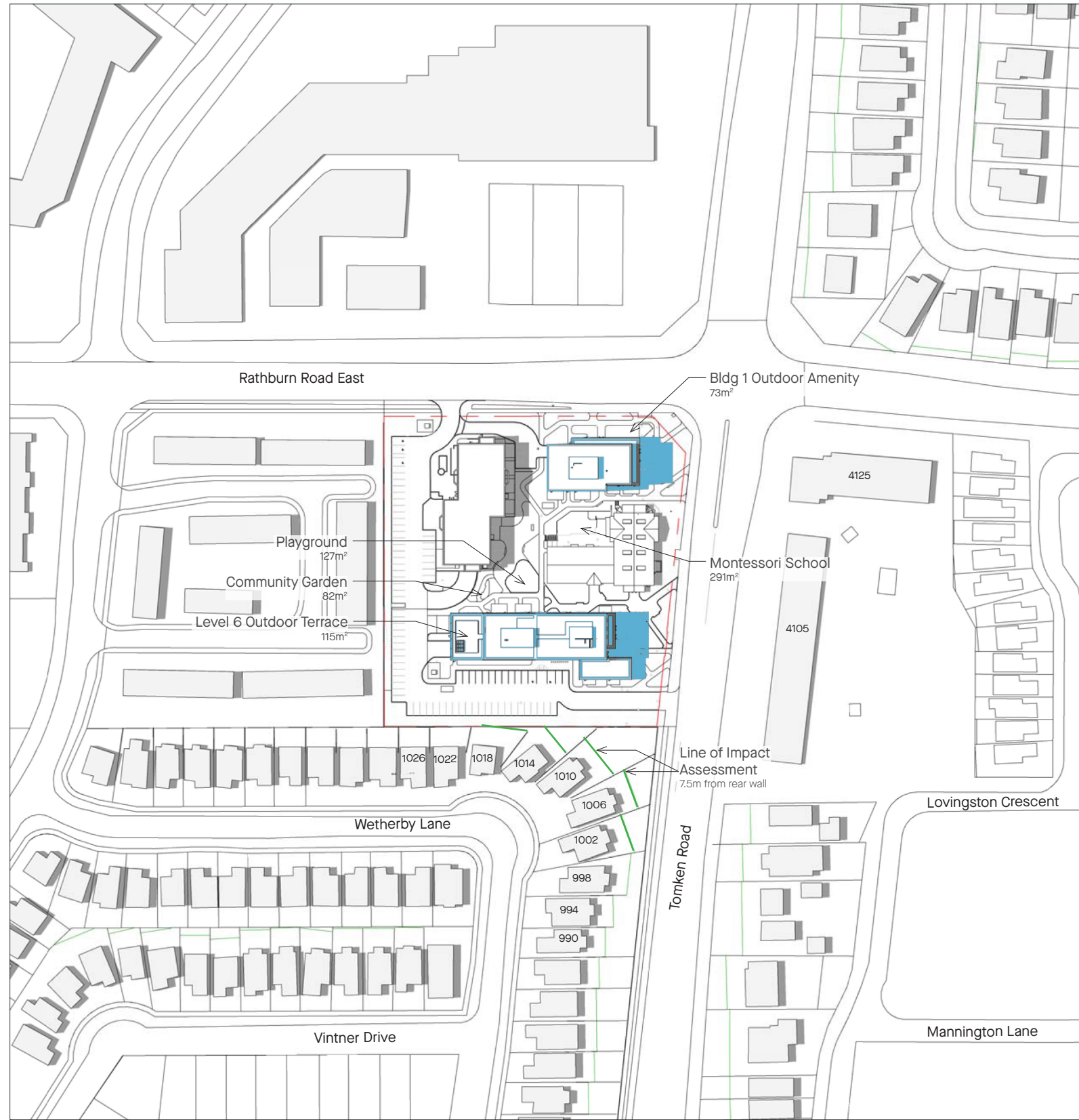
Existing Shadow Net New Shadow

JUNE 21, 11:20AM



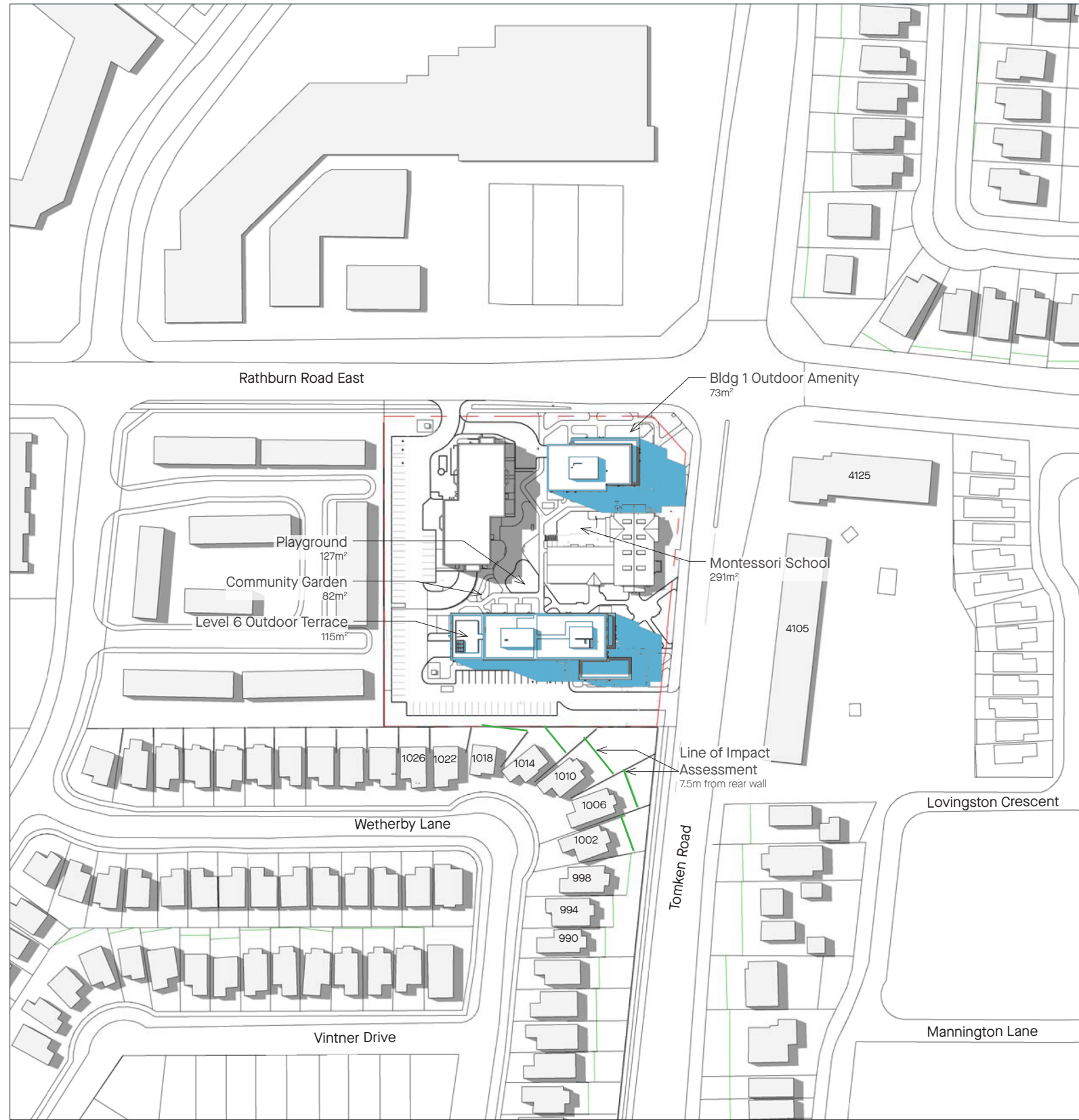
Existing Shadow
 Net New Shadow

JUNE 21, 12:20PM



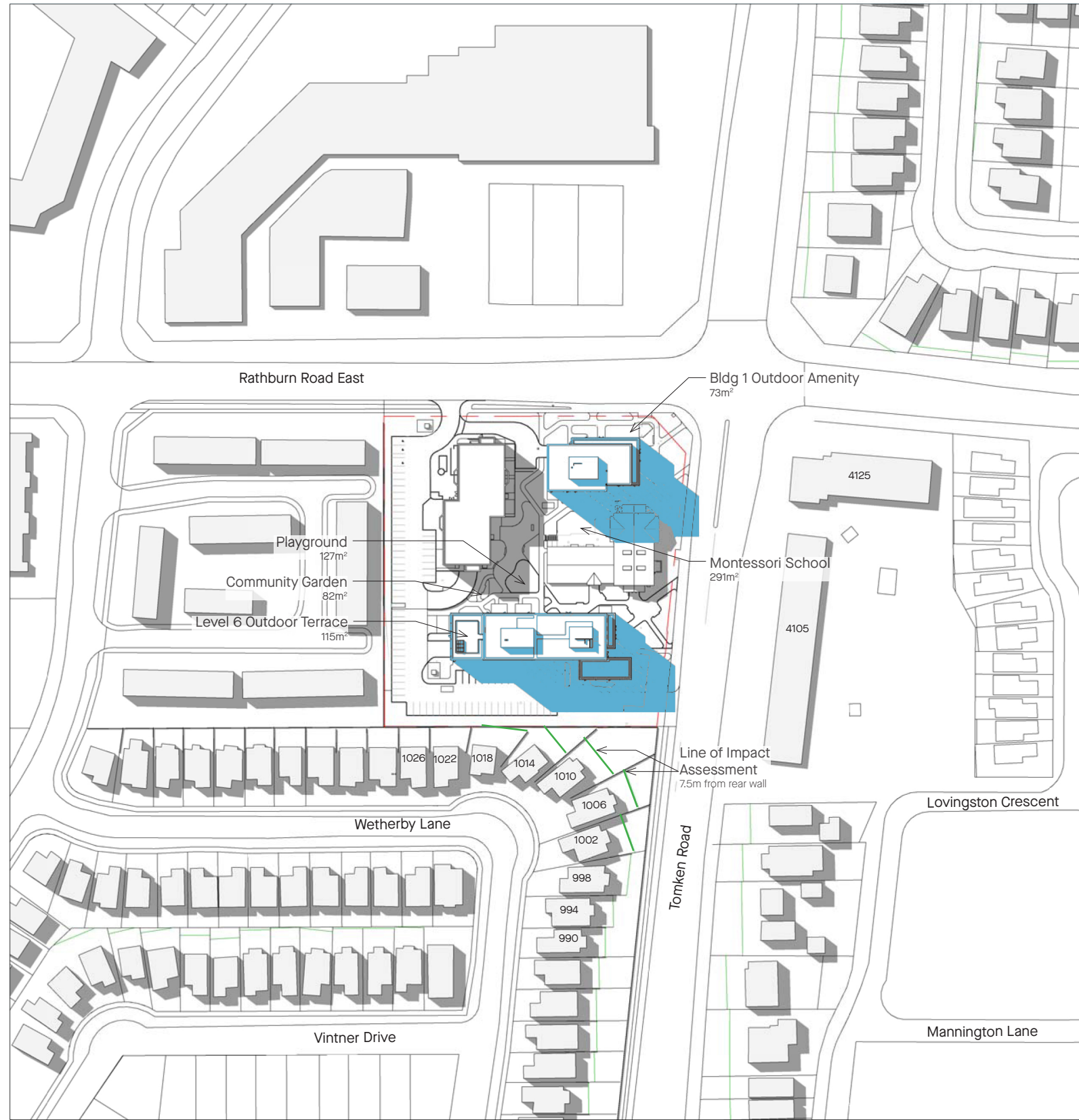
Existing Shadow
 Net New Shadow

JUNE 21, 1:20PM



Existing Shadow
 Net New Shadow

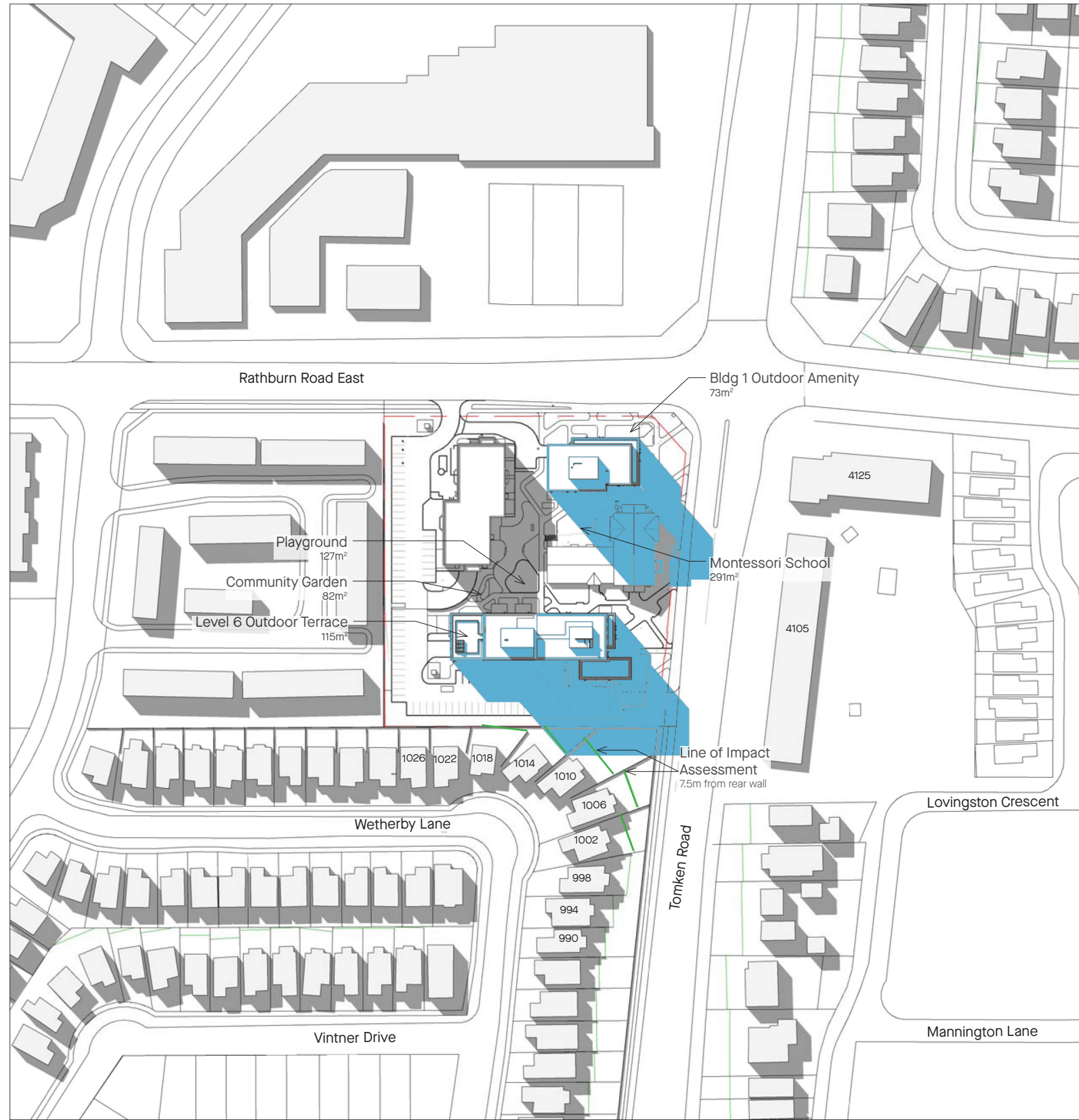
JUNE 21, 2:20PM



Existing Shadow

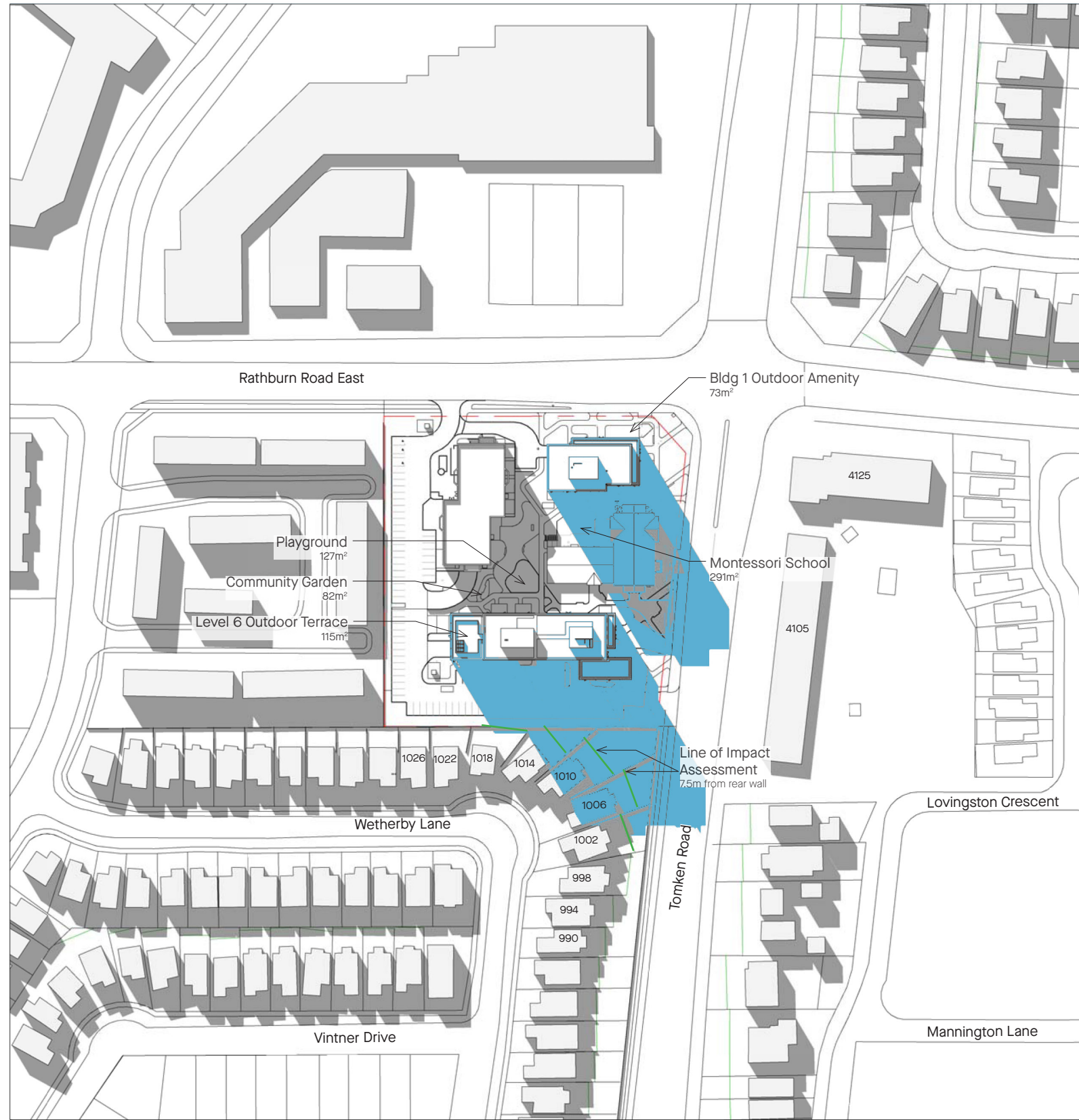
Net New Shadow

JUNE 21, 3:20PM



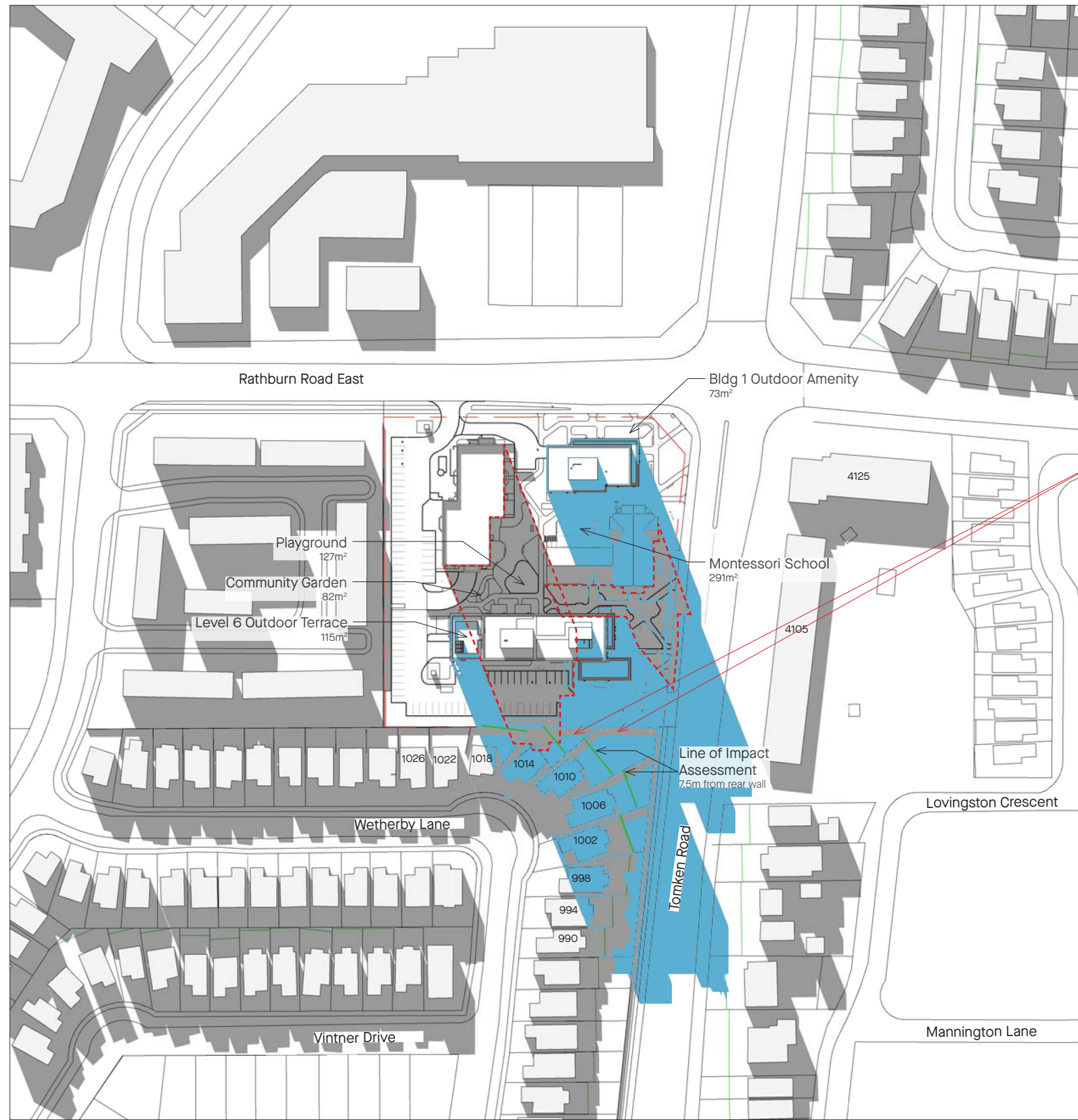
Existing Shadow

Net New Shadow

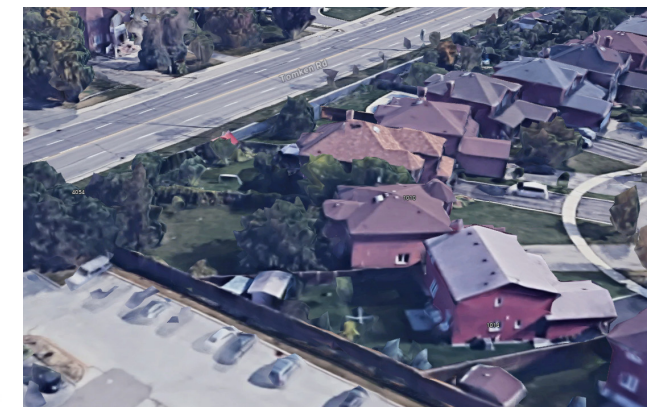


Existing Shadow Net New Shadow

JUNE 21, 5:20PM



Note the shadows from the existing wood fencing



Existing Shadow Net New Shadow

JUNE 21, 6:20PM



Note the shadows from the existing wood fencing



Existing Shadow

Net New Shadow



Existing Shadow

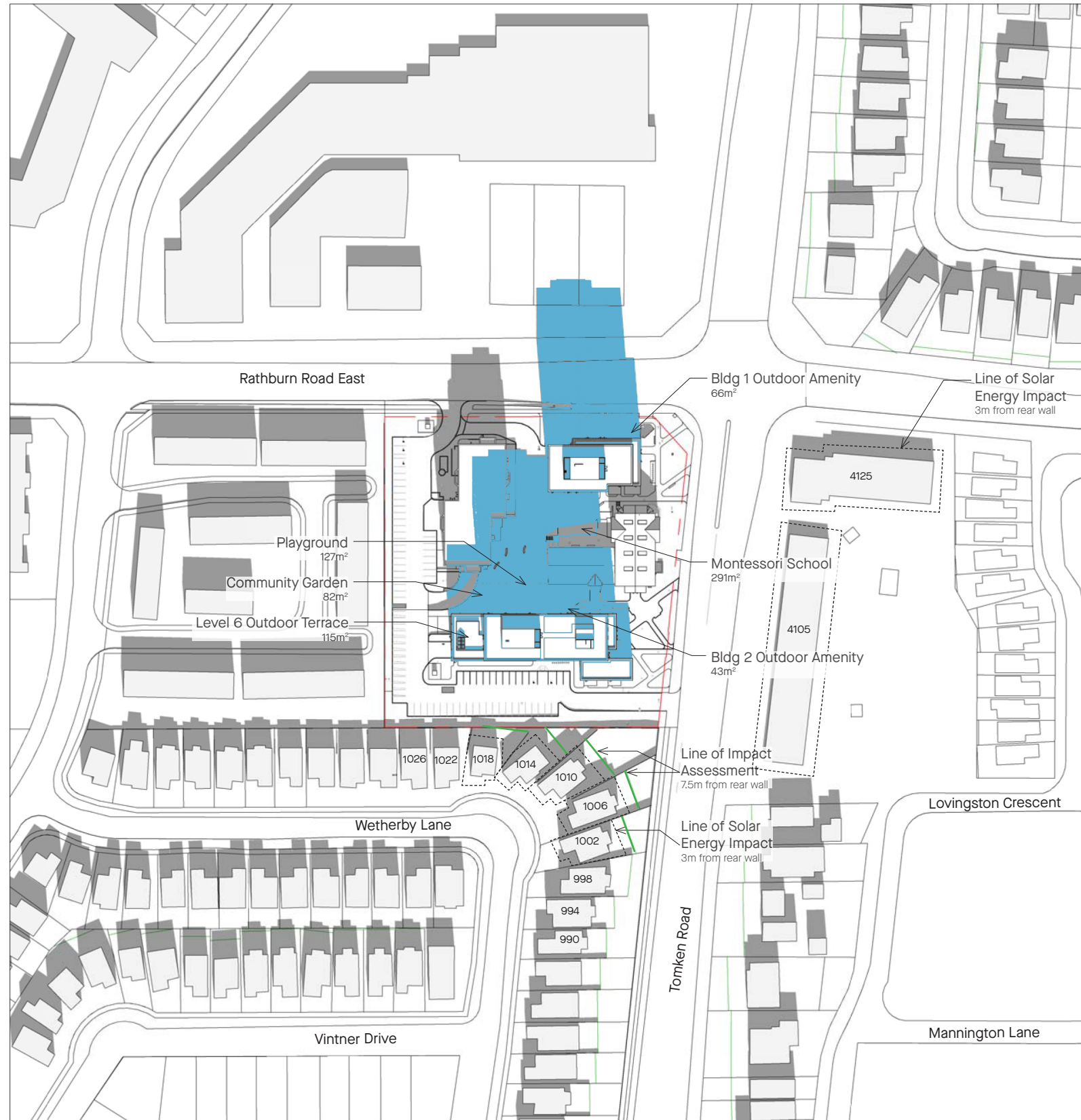
Net New Shadow

JUNE 21, 7:33PM



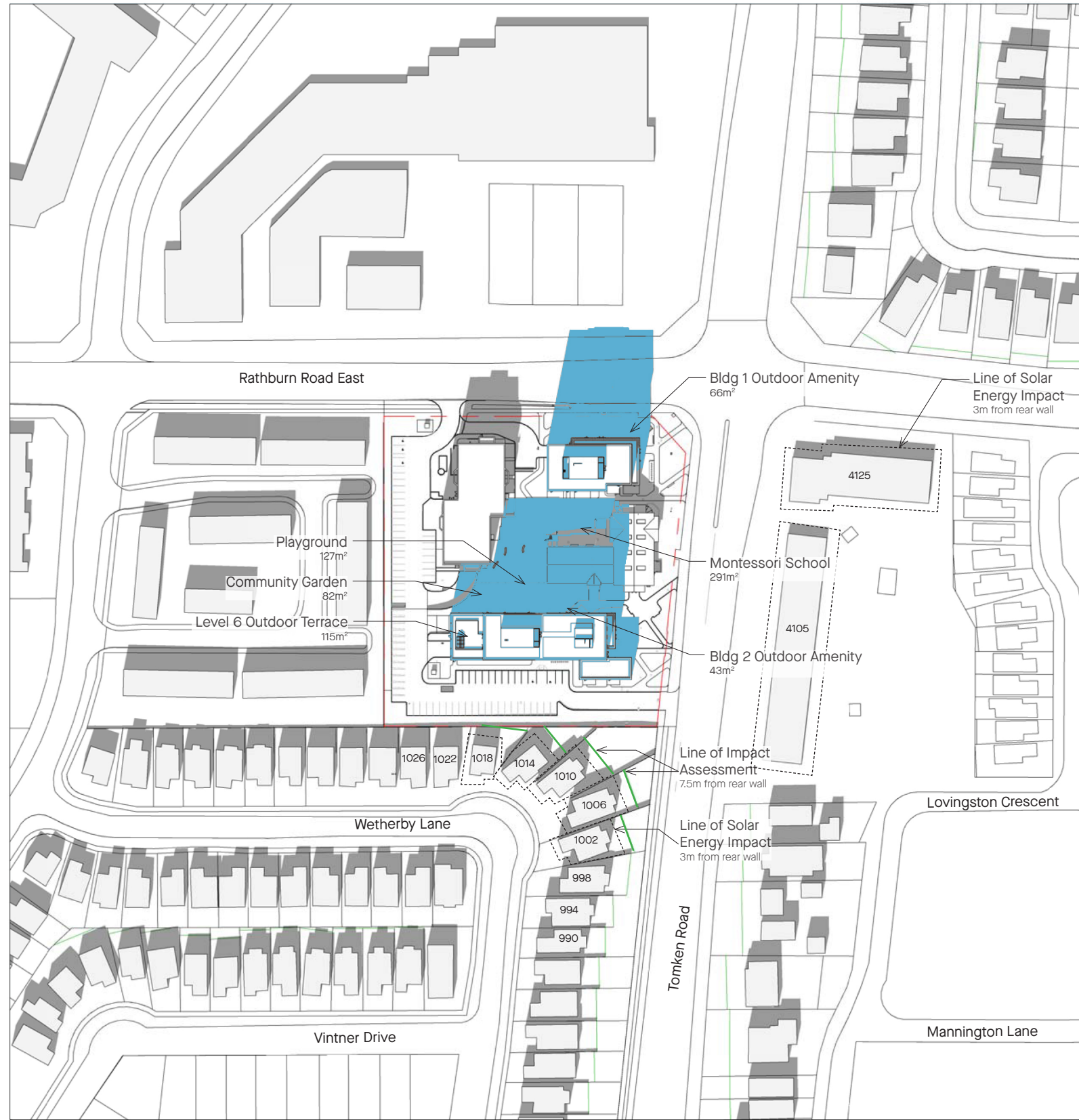
Existing Shadow Net New Shadow

SEPTEMBER 21, 8:35AM



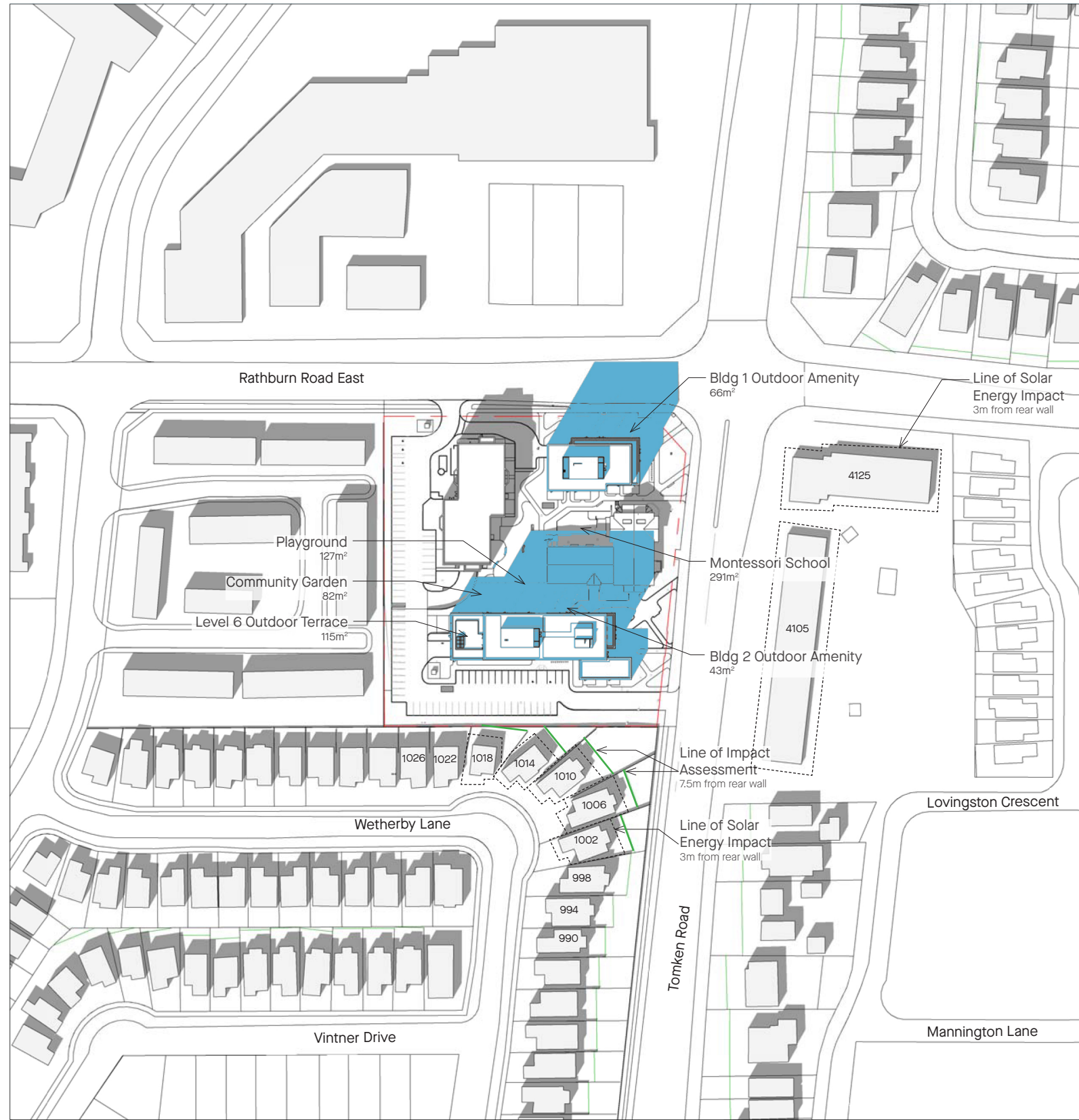
Existing Shadow Net New Shadow

SEPTEMBER 21, 9:12AM



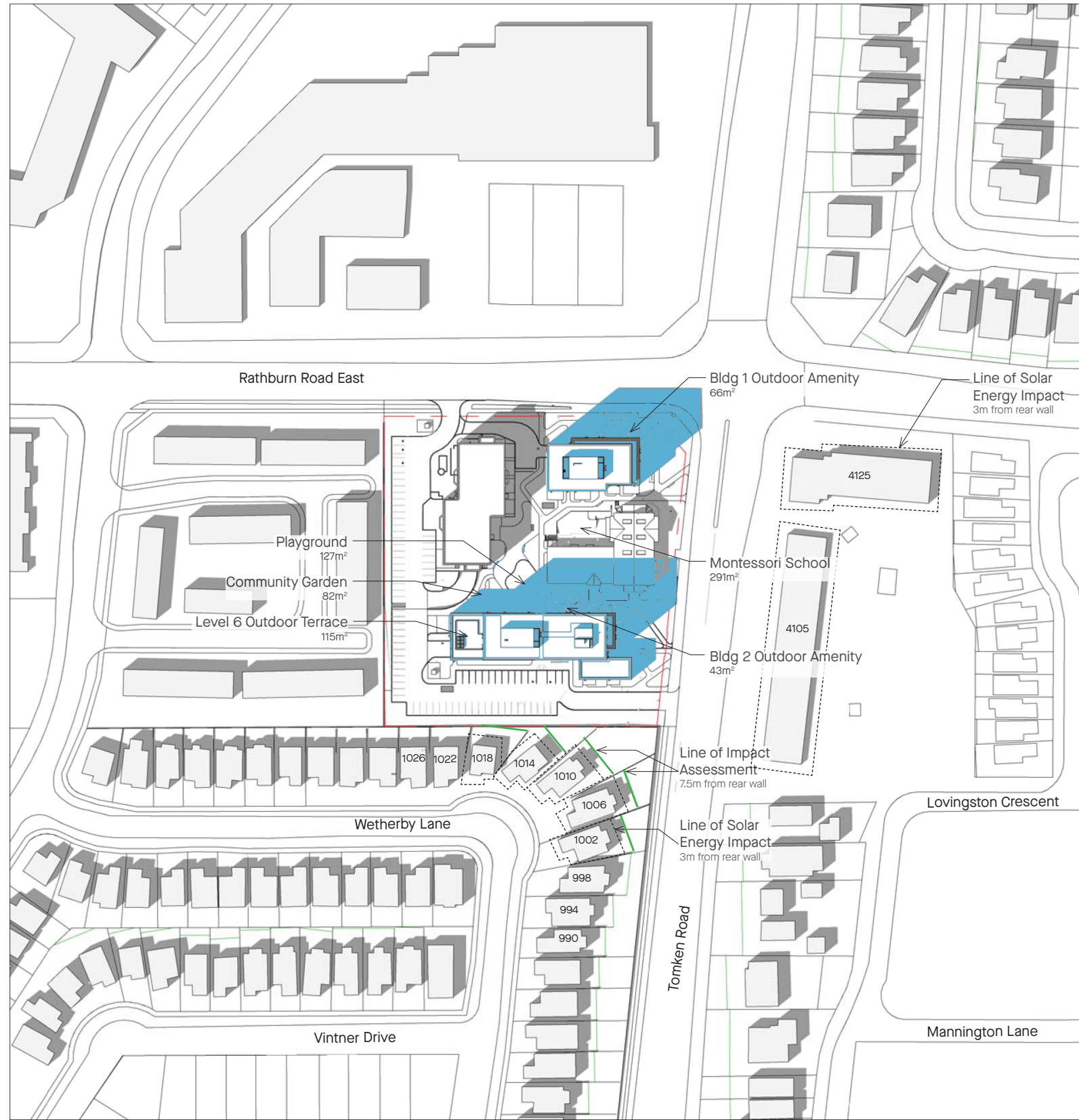
Existing Shadow Net New Shadow

SEPTEMBER 21, 10:12AM



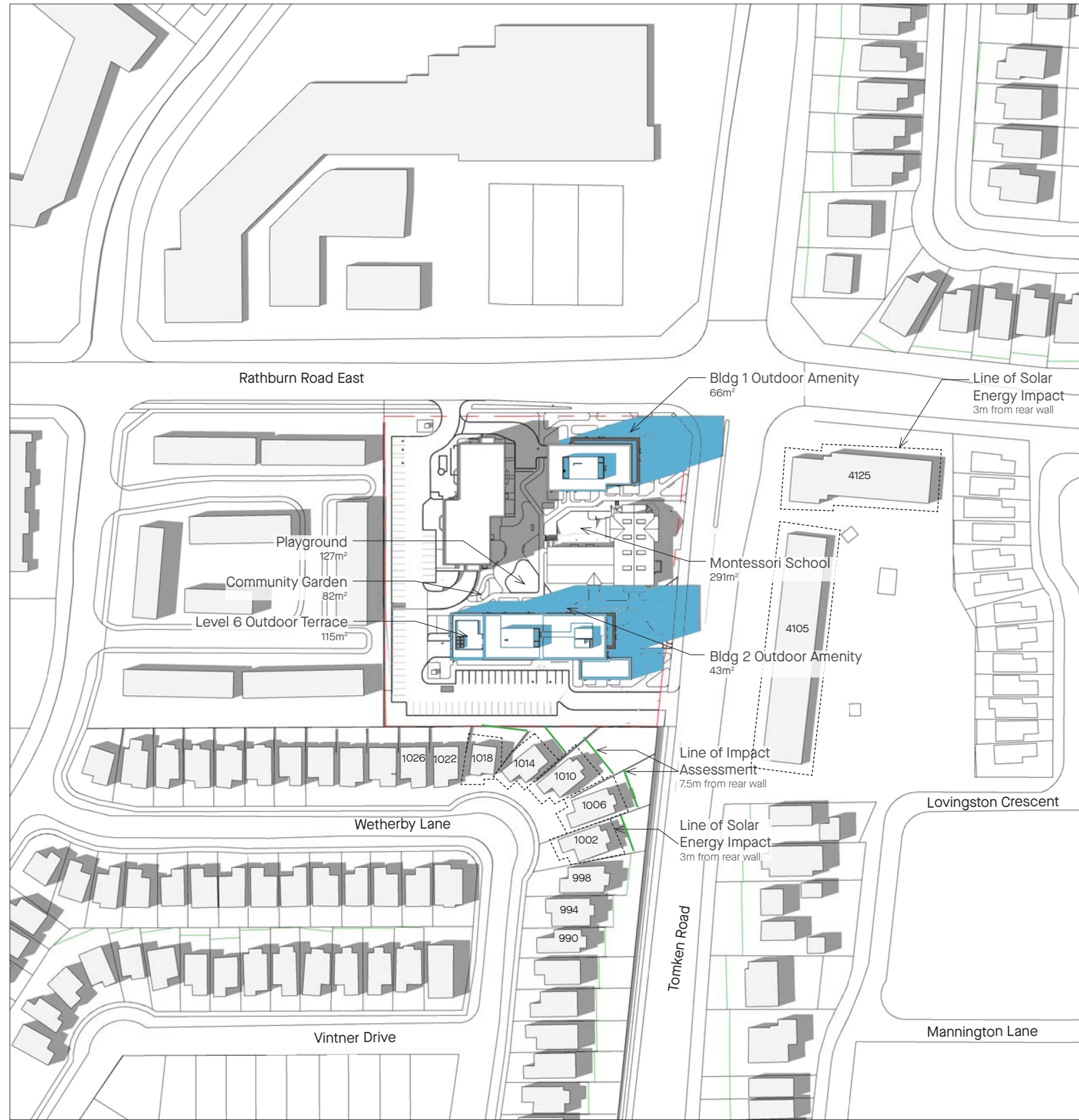
Existing Shadow Net New Shadow

SEPTEMBER 21, 11:12AM



Existing Shadow
 Net New Shadow

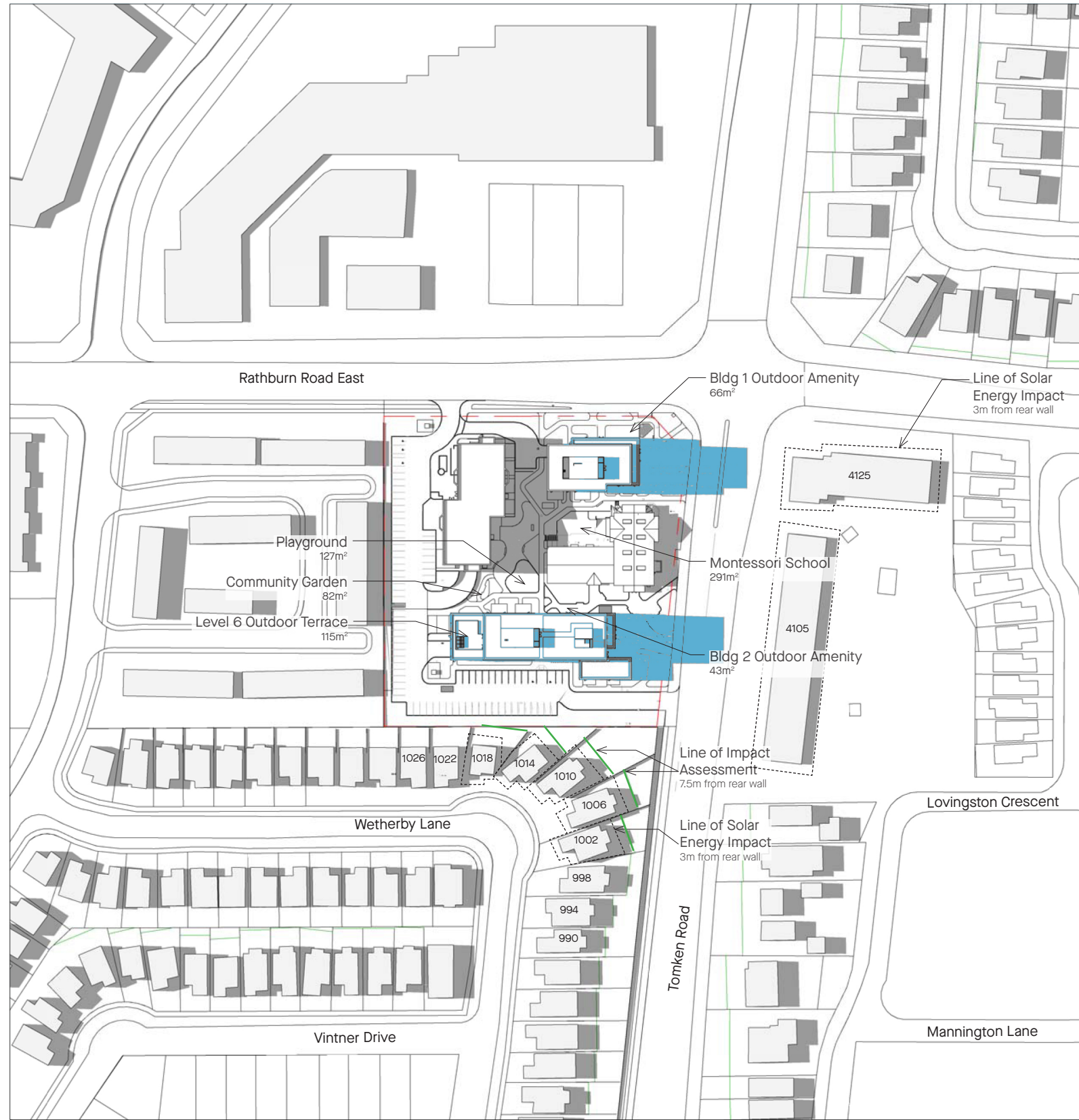
SEPTEMBER 21, 12:12PM



Existing Shadow

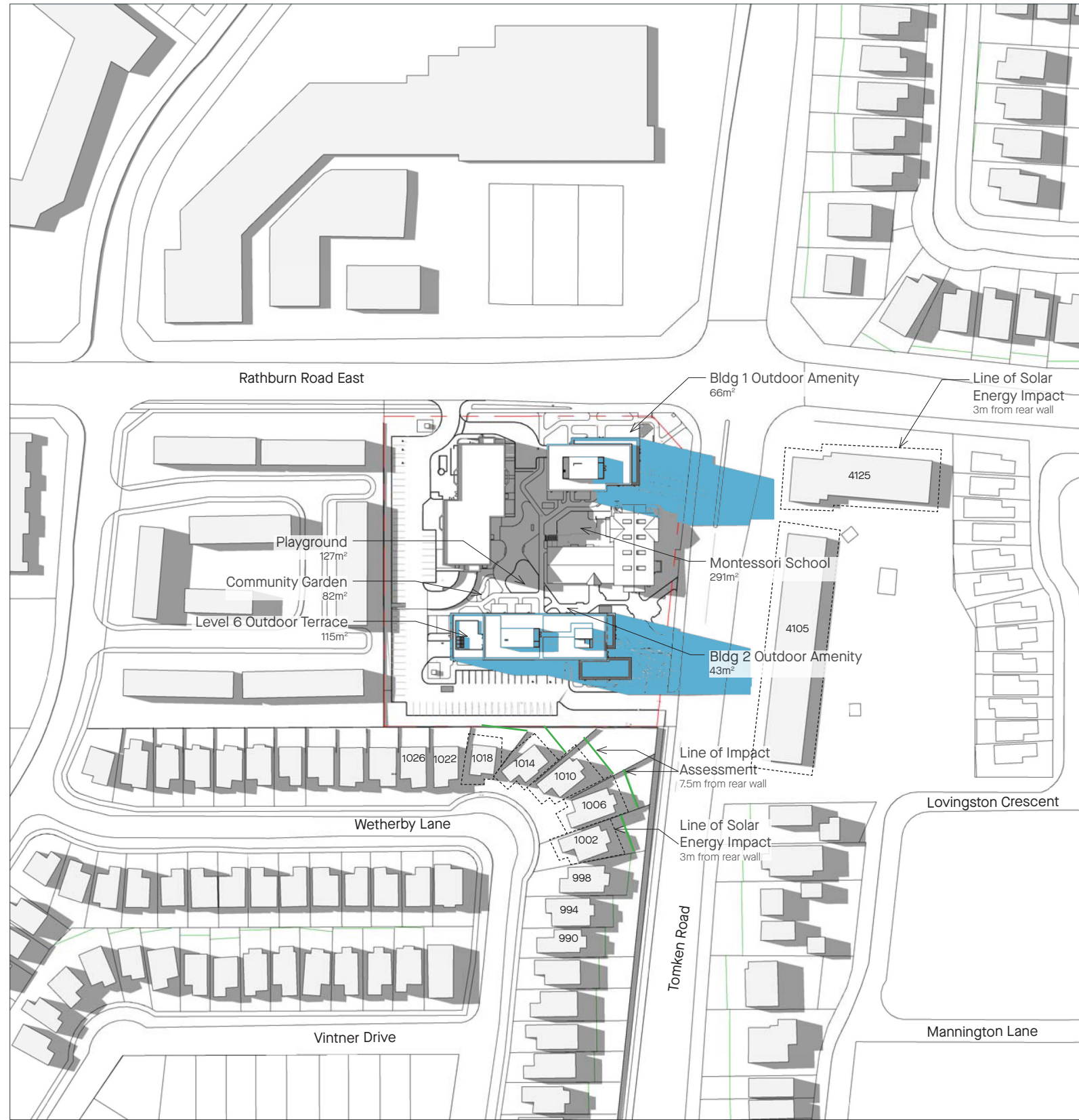
Net New Shadow

SEPTEMBER 21, 1:12PM



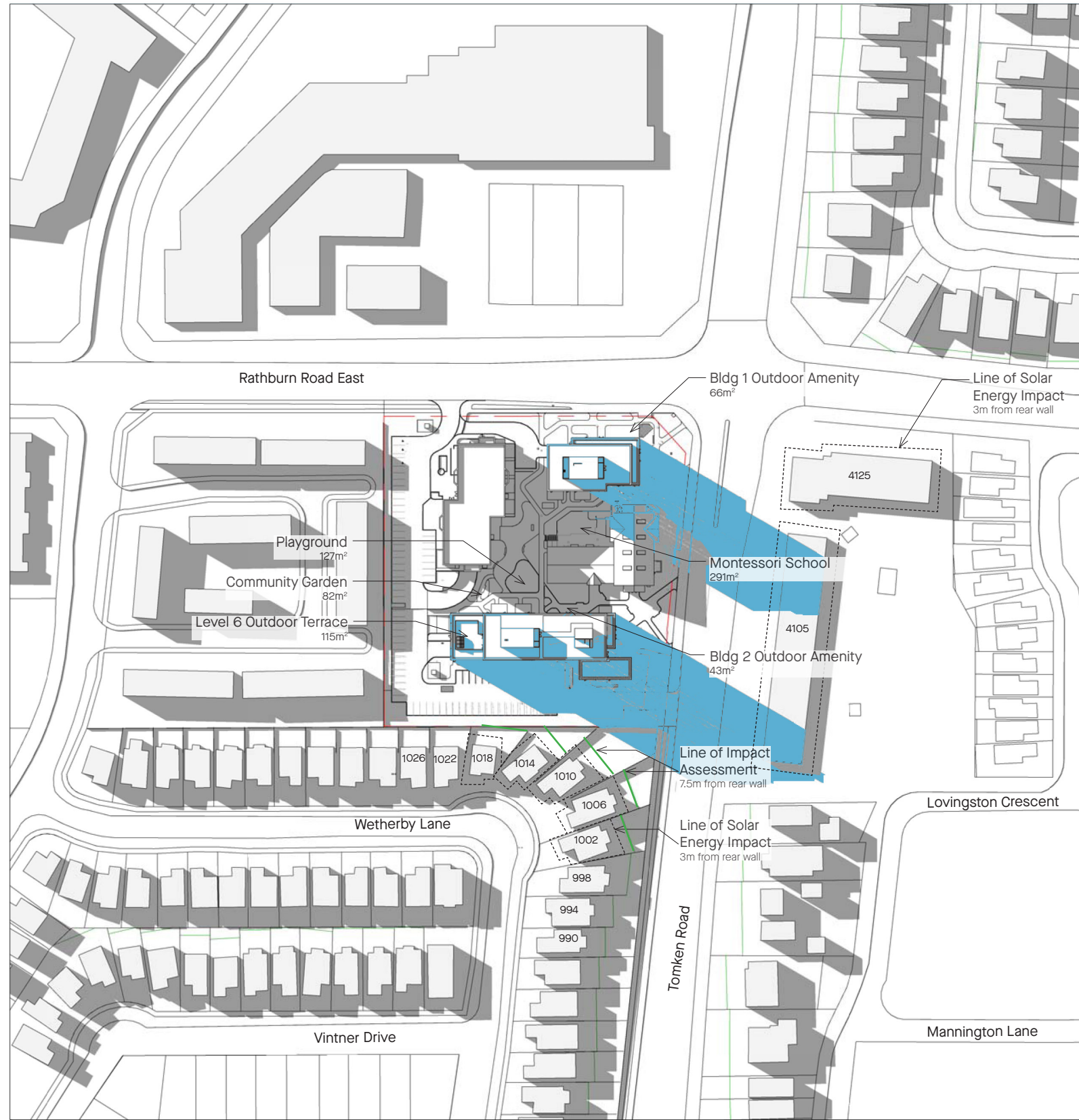
Existing Shadow
 Net New Shadow

SEPTEMBER 21, 2:12PM



Existing Shadow Net New Shadow

SEPTEMBER 21, 3:12PM



Existing Shadow Net New Shadow

SEPTEMBER 21, 4:12PM



Existing Shadow

Net New Shadow

SEPTEMBER 21, 5:12PM



Existing Shadow

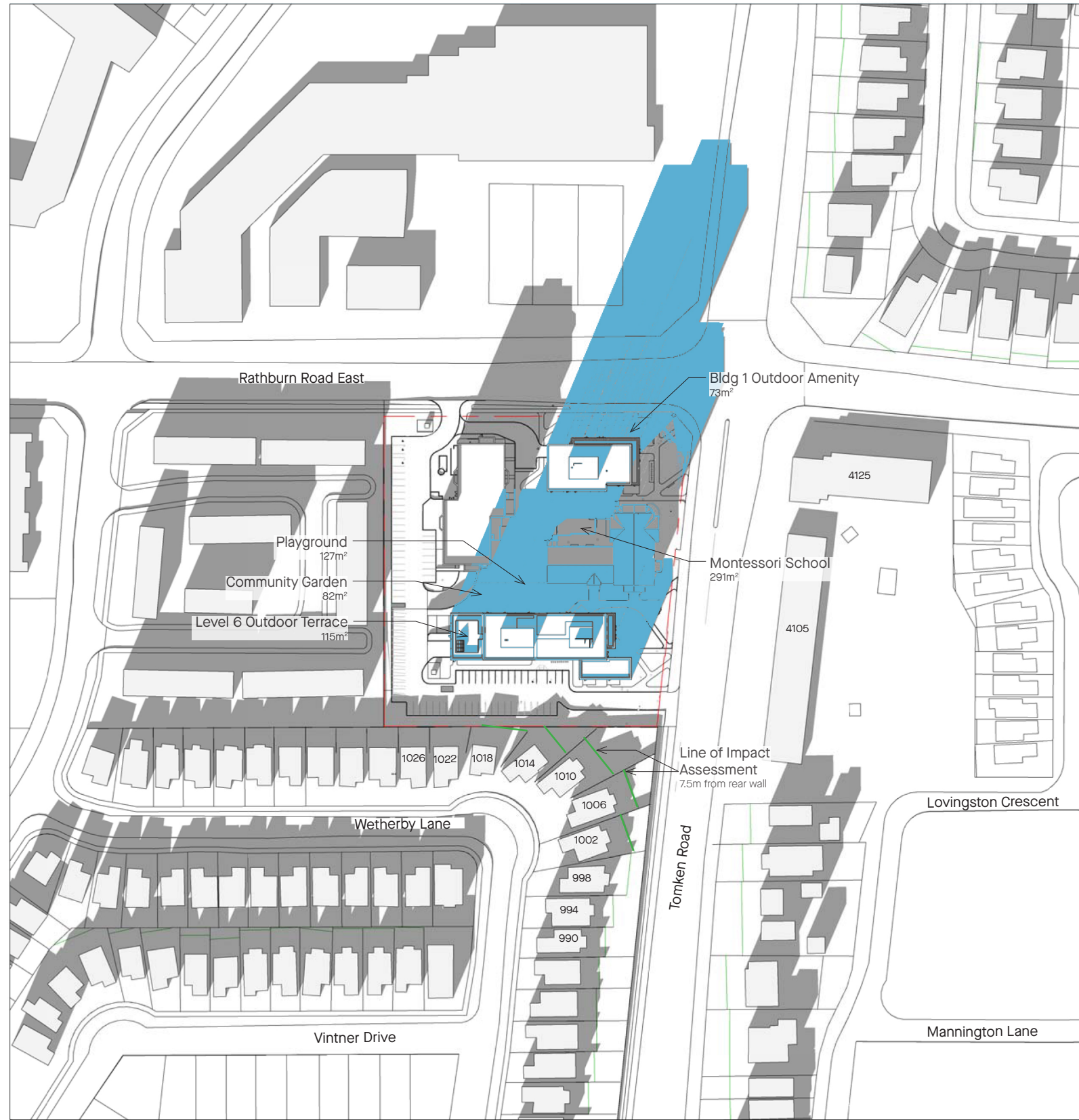
Net New Shadow

SEPTEMBER 21, 5:48PM



Existing Shadow
 Net New Shadow

DECEMBER 21, 9:19AM



Existing Shadow

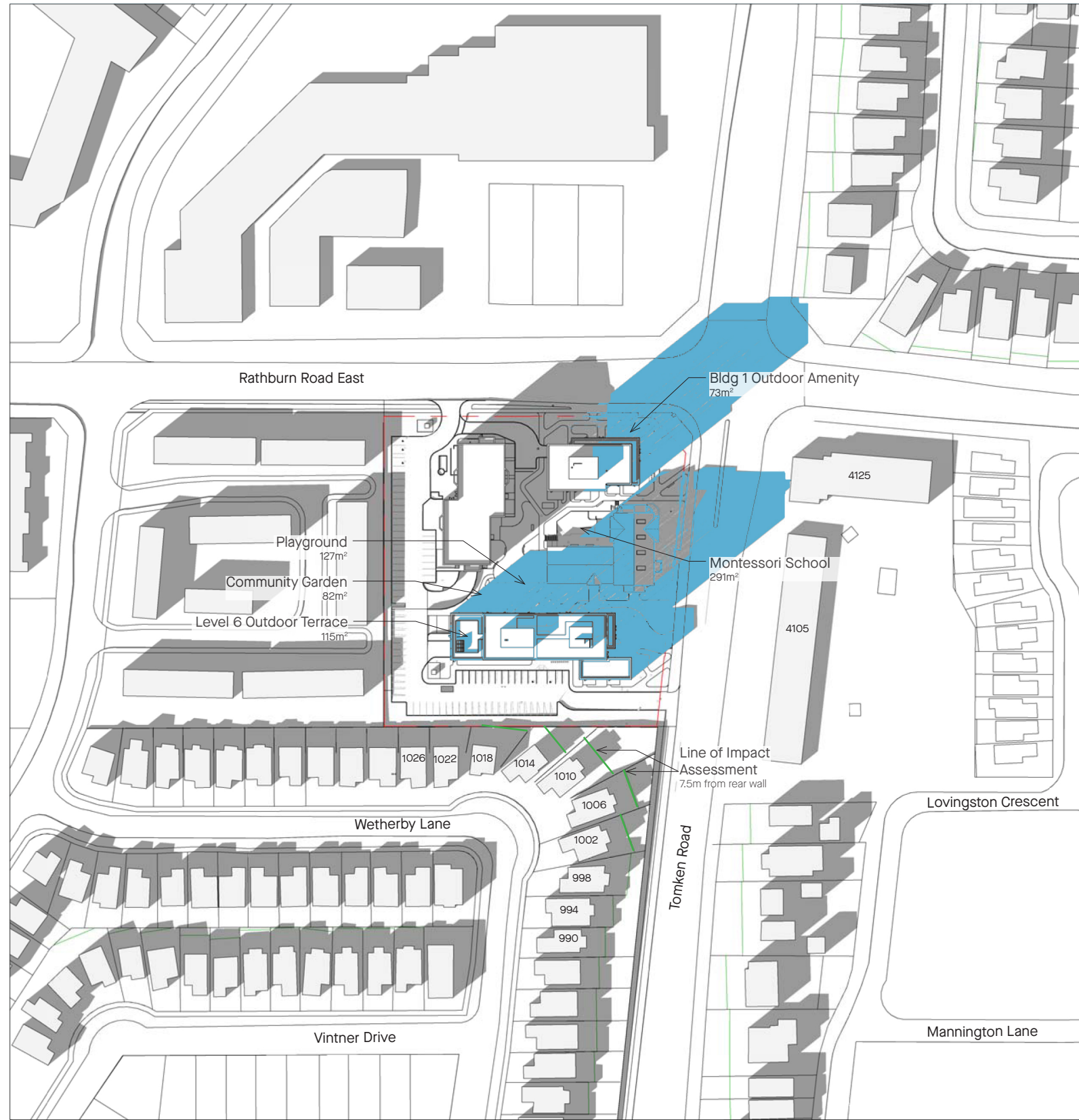
Net New Shadow

DECEMBER 21, 10:17AM



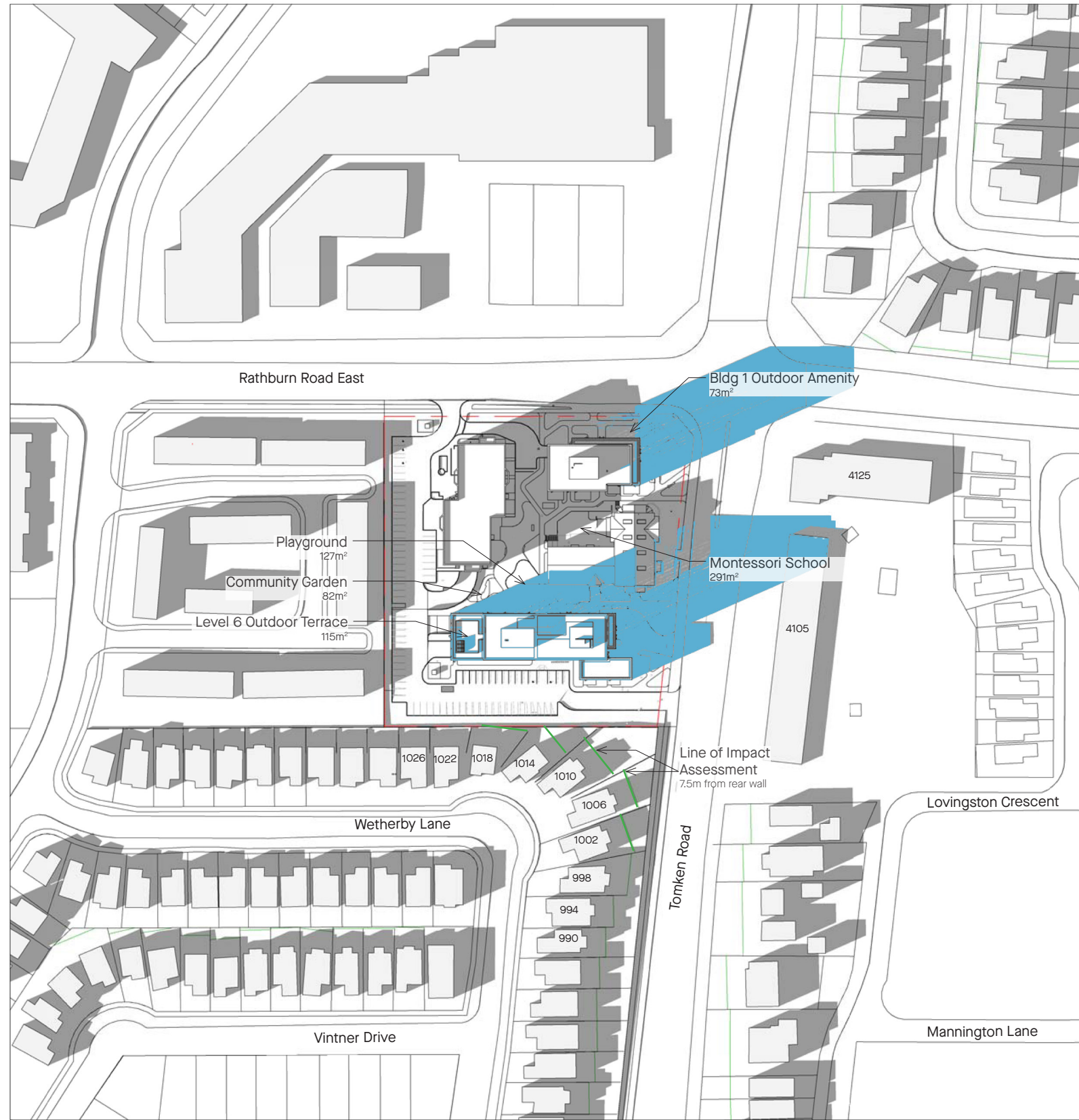
Existing Shadow Net New Shadow

DECEMBER 21, 11:17AM



Existing Shadow
 Net New Shadow

DECEMBER 21, 12:17PM



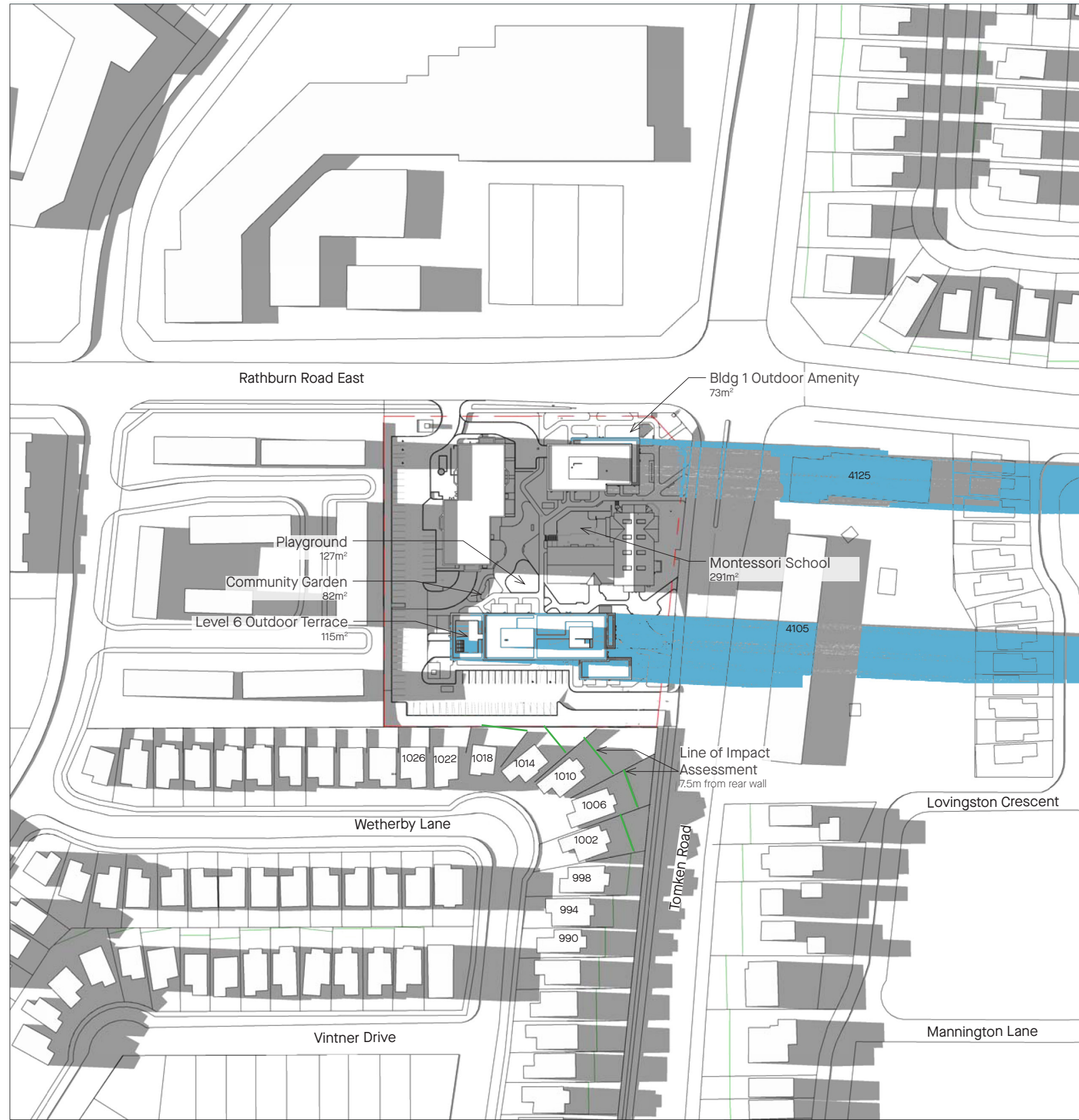
Existing Shadow Net New Shadow

DECEMBER 21, 1:17PM



Existing Shadow
 Net New Shadow

DECEMBER 21, 2:17PM



Existing Shadow
 Net New Shadow

DECEMBER 21, 3:15PM