

The following shadow diagrams depict various development scenarios for 34 Brecon Street and show them in the context of PC50 agreed as relevant by the experts for QLDC and BSPL.

The document has been structured to work sequentially through each agreed scenario (A) to (F), at the times of 0800, 1000, 1200, 1400, 1600 and 1800 on each of December 21, September 21, and June 21.

All images have been included for completeness and the document is substantial. The following is provided to help users work through the key issues quickly:

1.) When the shadows of PC50 and other elements are understood they demonstrate that in relation to the 34 Brecon Street site, the only shadows of relevance to the submission for additional height are those that fall on June 21, particularly between 10:00am and 2:00pm (although an image for completeness at 2:30pm has also been included which shows that the shading that does occur is very transient). These are included on **pages 38 and 39** of the document. These have been zoomed in and the shadows augmented to identify the shadow source. They demonstrate that the additional height sought at 34 Brecon Street will cause minimal "unique" or new shadows - shown in red hatching - that would not be otherwise cast by other buildings, trees, or the mountains.

2.) The next most helpful images are those for **OPTION E, at pages 26 - 31, with the 10:00am image on June 21 at page 30** being the most relevant. It shows that PC50 as proposed in conjunction with the existing environment (trees) would already cast shadows over much of the adjacent camp ground site (assuming academically that it was not subject to redevelopment under PC50 itself). When that image is compared to the **10:00am on June 21 Image for OPTION B, on page 12** it is clear that in the context of PC50, the additional height sought has a minimal additional shadowing impact on the Holiday park site.

3.) The next most helpful images are those for **OPTION B on page 12**, compared with those for **OPTION D on page 24**. They illustrate that the potential Cemetery Road land swap will not lead to materially more problematic shadow effects.

Each user will of course wish to reach their own conclusions after studying all images in detail.

Queenstown District Council Plan Change 50 Sun Shading Diagrams

for Expert Witness Conferencing

February 2016

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Site location Plan - PC50
Site plan showing site in context with proposed building footprints for new zoning.

Subject site

OPTION A:
Full plan change 50 site.
Cemetery Rd remains
Site contains 12m high buildings.

OPTION B:
Full plan change 50 site.
Cemetery Rd remains
Site contains 15m high building for 17m from cemetery and 24 high buildings for remainder of the site.



Site location Plan - Land Swap
Site plan showing site in context with proposed building footprints for new zoning where Cemetery Rd is revised and 34 Brecon St site is moved south.

Subject site

OPTION C:
Full plan change 50 site.
Cemetery Rd moves to align with cemetery (20m wide) and consequential land is swapped for 34 Brecon St.
Site contains 12m high buildings.

OPTION D:
Full plan change 50 site.
Cemetery Rd moves to align with cemetery (20m wide) and consequential land is swapped for 34 Brecon St.
Site contains 12m high building on area of former Cemetery Rd to the south and 24 high buildings for remainder of the site.



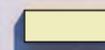
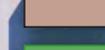
Site location Plan
Site plan showing site in context with existing campground complex and proposed building footprints for new zoning.

Subject site

OPTION E:
Full plan change 50 site.
Cemetery Rd remains.
Queenstown Holiday park remains.
Site contains 12m high buildings.

OPTION F:
Full plan change 50 site.
Cemetery Rd remains.
Queenstown Holiday park remains.
Site contains 15m high building for 17m from cemetery and 24 high buildings for remainder of the site.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option A: 12m height with plan change 50



December 21, 2015, 8am (daylight savings):

Sun Altitude = 19.0947°
Sun Azimuth = 345.4966°

8am:
The sun has risen.
With the setback of the buildings from the cemetery, the only shadows cast that fall outside 34 Brecon St's boundaries and confined to the road.



December 21, 2015, 10am (daylight savings):

Sun Altitude = 40.1116°
Sun Azimuth = 6.0831°

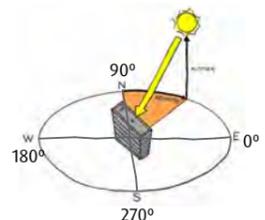
10am:
The sun is higher. There is a slight shadow over the north eastern side of Cemetery Rd.



December 21, 2015, 12pm (daylight savings):

Sun Altitude = 59.8147°
Sun Azimuth = 36.8522°

12pm:
The sun is high. Shadows are minimal to the north eastern side of Cemetery Rd.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option A: 12m height with plan change 50



December 21, 2015, 2pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

2pm:
 The sun is still high and shadows are limited to the north eastern side of Cemetery Rd and the south western side of Brecon St.



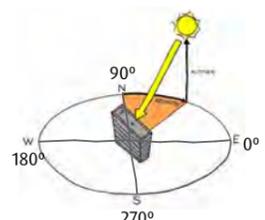
December 21, 2015, 4pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

4pm:
 Shadows are lengthening, however shadows from 34 Brecon St fall on Cemetery Rd and Brecon St only.



December 21, 2015, 6pm (daylight savings):
 Sun Altitude = 34.5011°
 Sun Azimuth = 179.7878°

6pm:
 Sunset is an hour away, however the mountain has begun to have a significant shadowing effect.

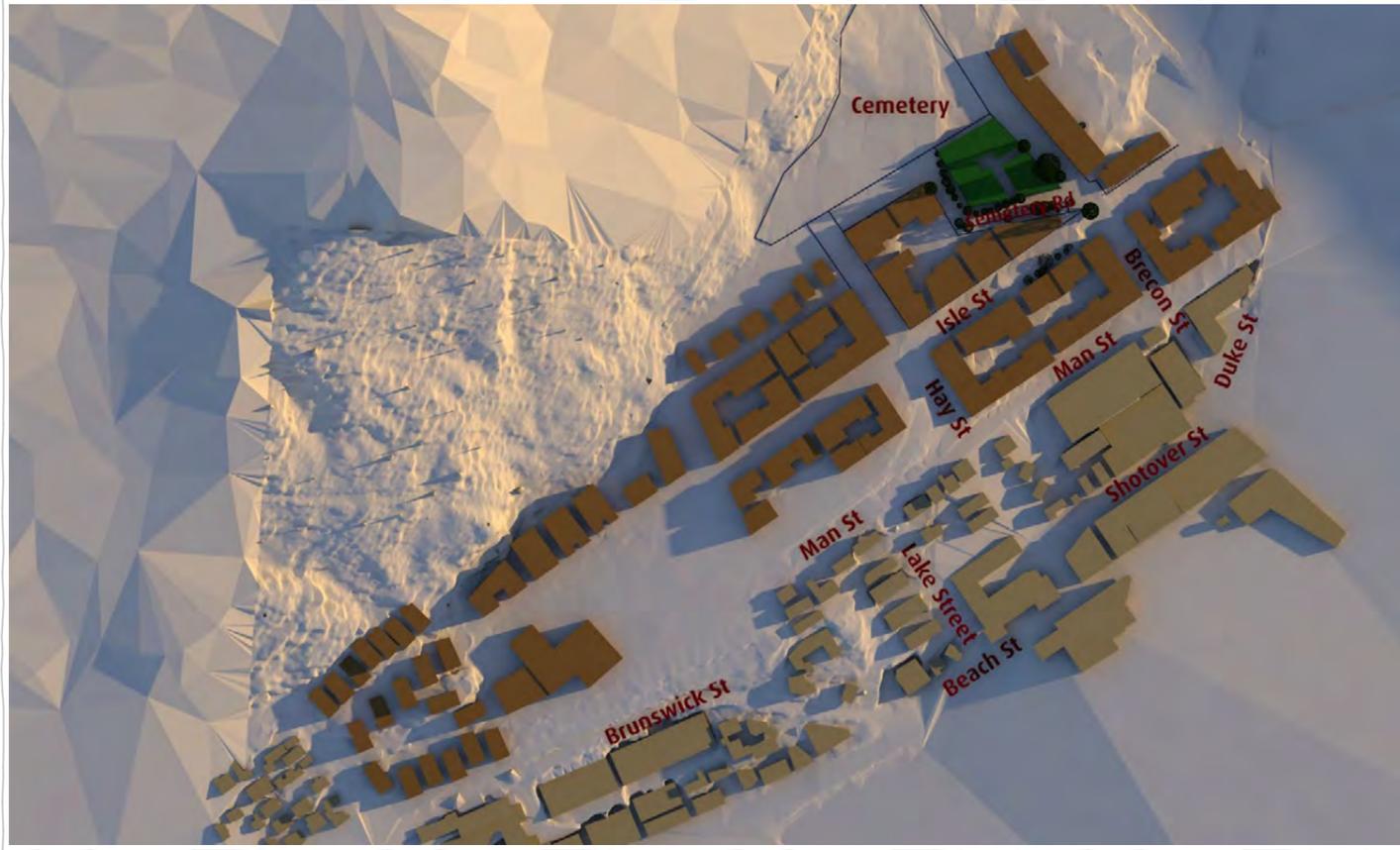


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

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- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option A: 12m height with plan change 50



September 21, 2015, 8am:
 Sun Altitude = 13.7233°
 Sun Azimuth = 15.3278°

8am:
 The sun is out, the shadow of Queenstown Hill can be seen to be receding (top right corner). Shadows caused by 34 Brecon Street are just touching the southern edge of the cemetery. Other effecting shadows are the combined result of the trees on Cemetery Rd which are higher than the buildings.



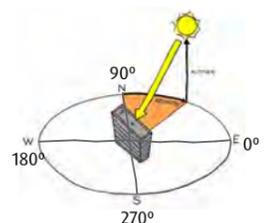
September 21, 2015, 10am:
 Sun Altitude = 32.3522°
 Sun Azimuth = 41.0882°

10am:
 The sun is out. There are no shadows on the cemetery and there is no impact on the surrounding buildings, only on the north eastern side of Cemetery Rd. Existing trees are the primary source of shadows.



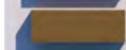
September 21, 2015, 12pm:
 Sun Altitude = 43.3978°
 Sun Azimuth = 76.8009°

12pm:
 The sun is high. 34 Brecon Street overshadows no buildings, only the north eastern side of Cemetery Rd.

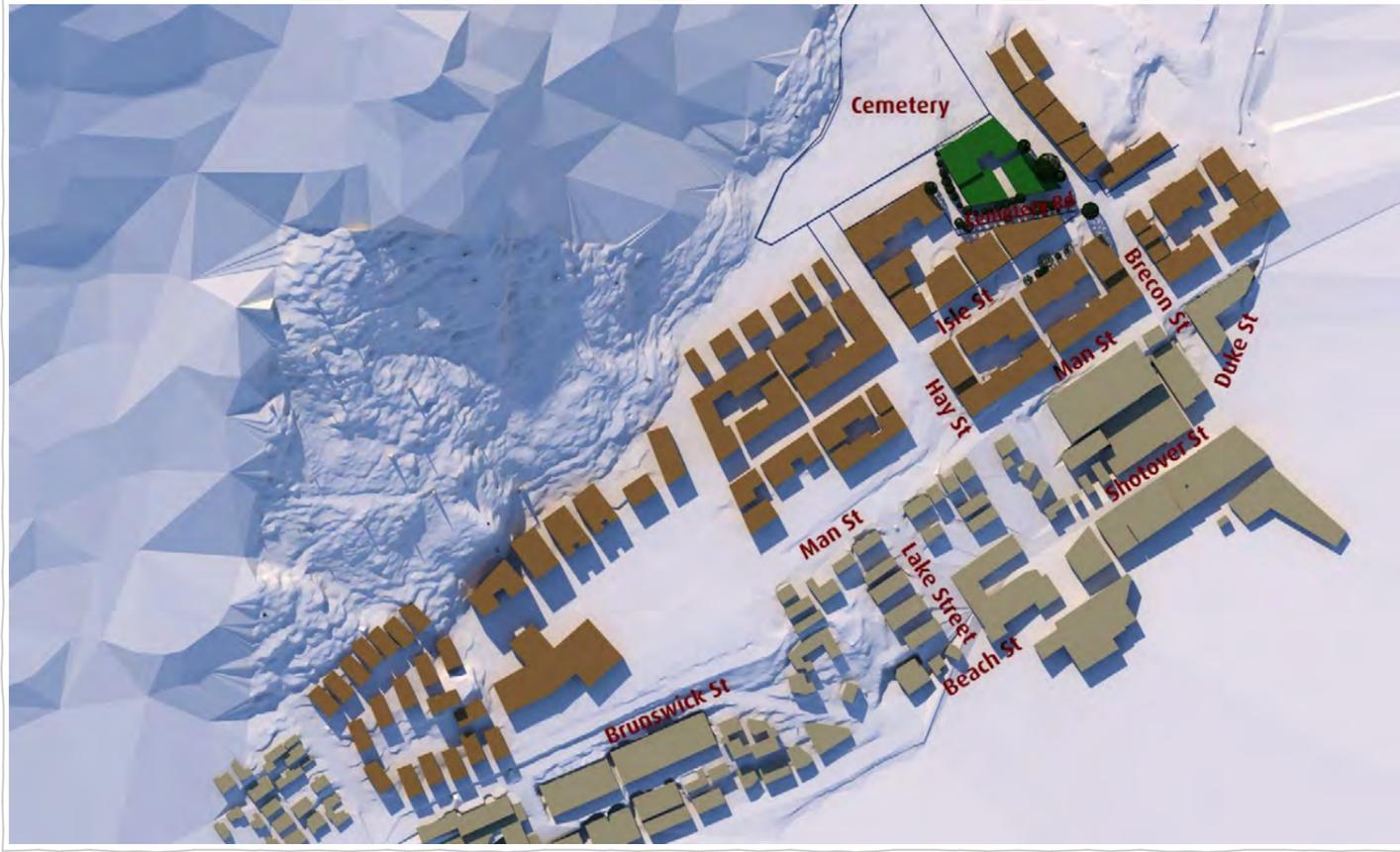


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option A: 12m height with plan change 50



September 21, 2015, 2pm:
 Sun Altitude = 40.7179°
 Sun Azimuth = 117.4463°

2pm:
 The sun is out. 34 Brecon Street overshadows no buildings, only on the north eastern side of Cemetery Rd.



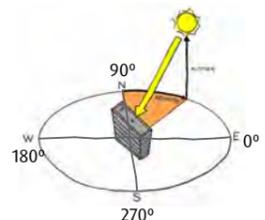
September 21, 2015, 4pm:
 Sun Altitude = 26.1200°
 Sun Azimuth = 149.1689°

4pm:
 The sun is falling towards the horizon. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



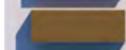
September 21, 2015, 6pm:
 Sun Altitude = 6.11793°
 Sun Azimuth = 172.6624°

6pm:
 The sun has set below the mountains. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

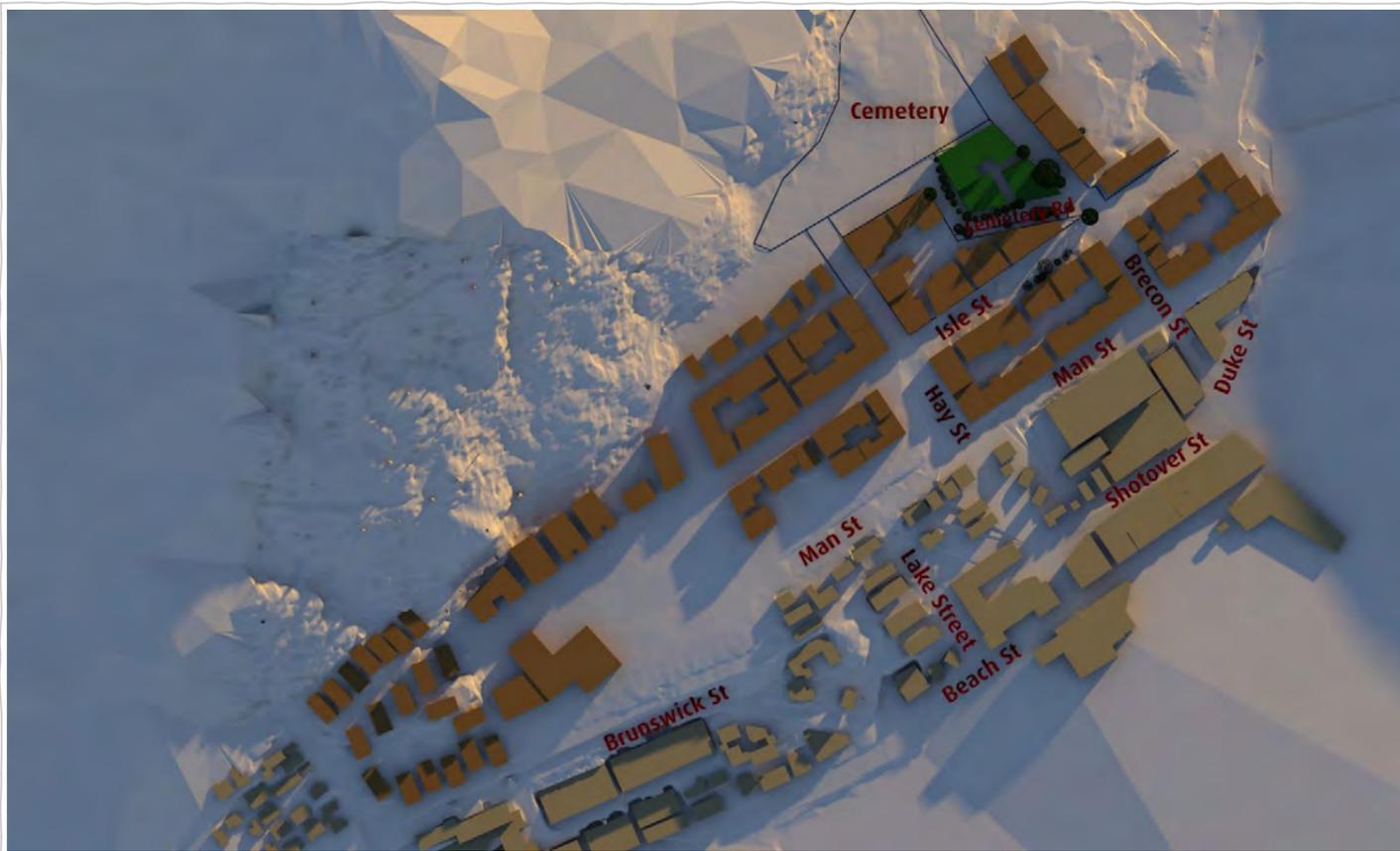
-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option A: 12m height with plan change 50



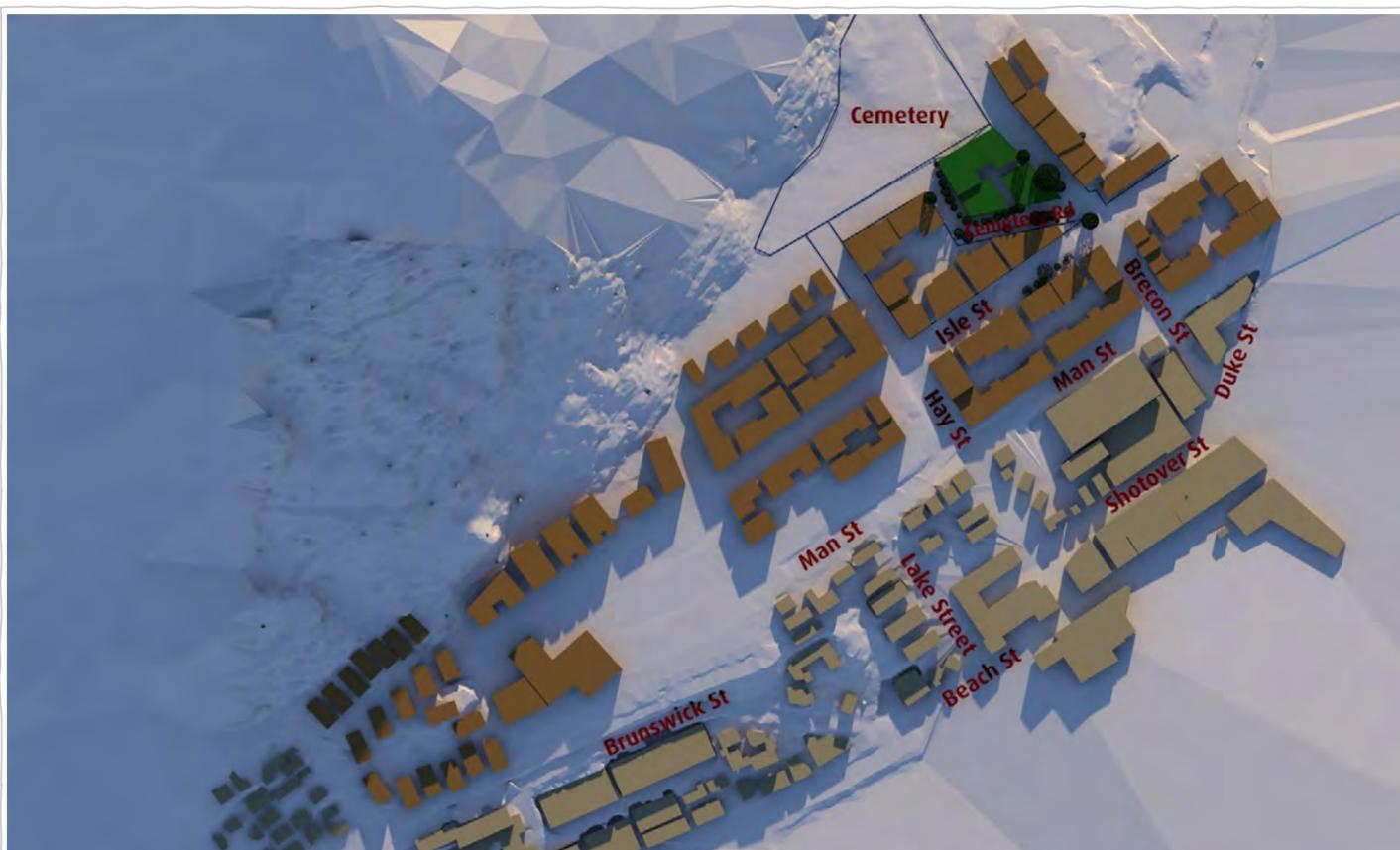
June 21, 2015, 8am:
 Sun Altitude = -4.5301°
 Sun Azimuth = 29.1303°

8am:
 The sun has not yet risen.



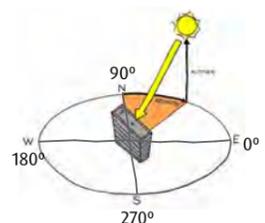
June 21, 2015, 10am:
 Sun Altitude = 11.6183°
 Sun Azimuth = 51.4595°

10am:
 The sun is rising, however has only just reached over Queenstown hill to shed sunlight onto the main town centre. The buildings at 34 Brecon Street are causing shadows over Cemetery Rd and some of the buildings of the former Holiday park site. Shadows from trees as making a greater impact.



June 21, 2015, 12pm:
 Sun Altitude = 20.6212°
 Sun Azimuth = 78.5191°

12pm:
 The buildings at 34 Brecon Street are causing shadows over Cemetery Rd and some of the buildings of the former Holiday park site. Shadows from trees as making a greater impact.

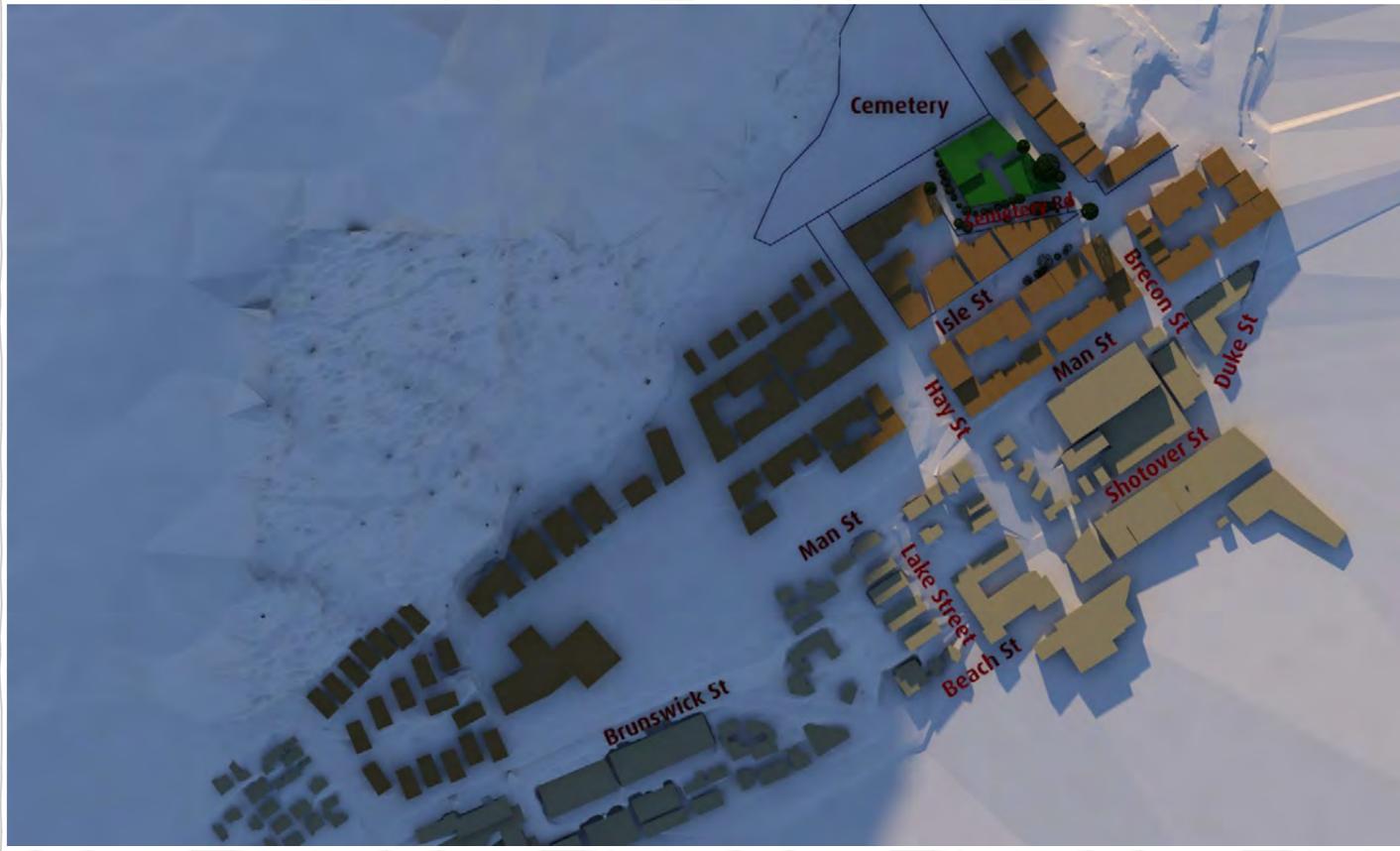


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Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option A: 12m height with plan change 50



June 21, 2015, 2pm:
 Sun Altitude = 19.4511°
 Sun Azimuth = 107.7613°

2pm:
 Bobs Peak is starting to overshadow the PC50 area.
 The buildings at 34 Brecon Street are causing shadows over Cemetery Rd and some of the buildings of the former Holiday park site.
 Shadows from trees are making a greater impact.



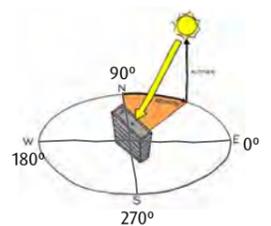
June 21, 2015, 4pm:
 Sun Altitude = 8.5674°
 Sun Azimuth = 133.8062°

4pm: The town is in the full shadow of the mountains.



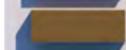
June 21, 2015, 6pm:
 Sun Altitude = -8.6610°
 Sun Azimuth = 155.2716°

6pm: It is night time.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option B: 24m height with plan change 50



December 21, 2015, 8am (daylight savings):

Sun Altitude = 19.0947°
Sun Azimuth = 345.4966°

8am:
The sun has risen. 34 Brecon Street has a shadow effect from the buildings to the cemetery, the rest of the shadows cast that fall outside 34 Brecon St's boundaries are confined to Cemetery Rd.



December 21, 2015, 10am (daylight savings):

Sun Altitude = 40.1116°
Sun Azimuth = 6.0831°

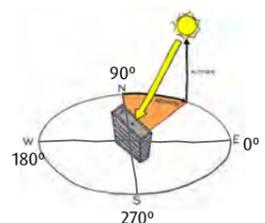
10am:
The sun is higher. There is a slight shadow over the north eastern edge of Cemetery Rd.



December 21, 2015, 12pm (daylight savings):

Sun Altitude = 59.8147°
Sun Azimuth = 36.8522°

12pm:
The sun is high. Shadows are minimal to Cemetery Rd.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

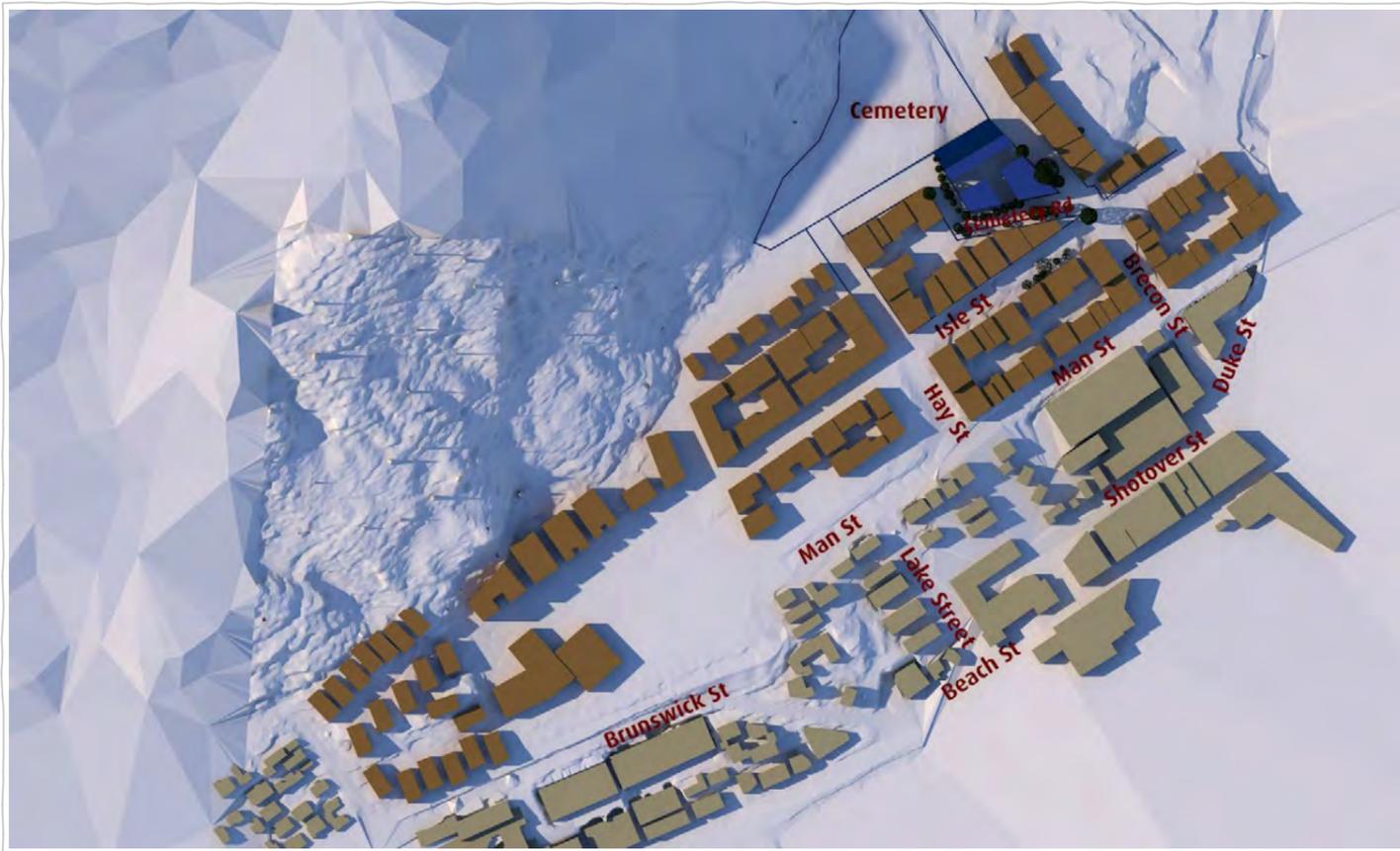
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option B: 24m height with plan change 50



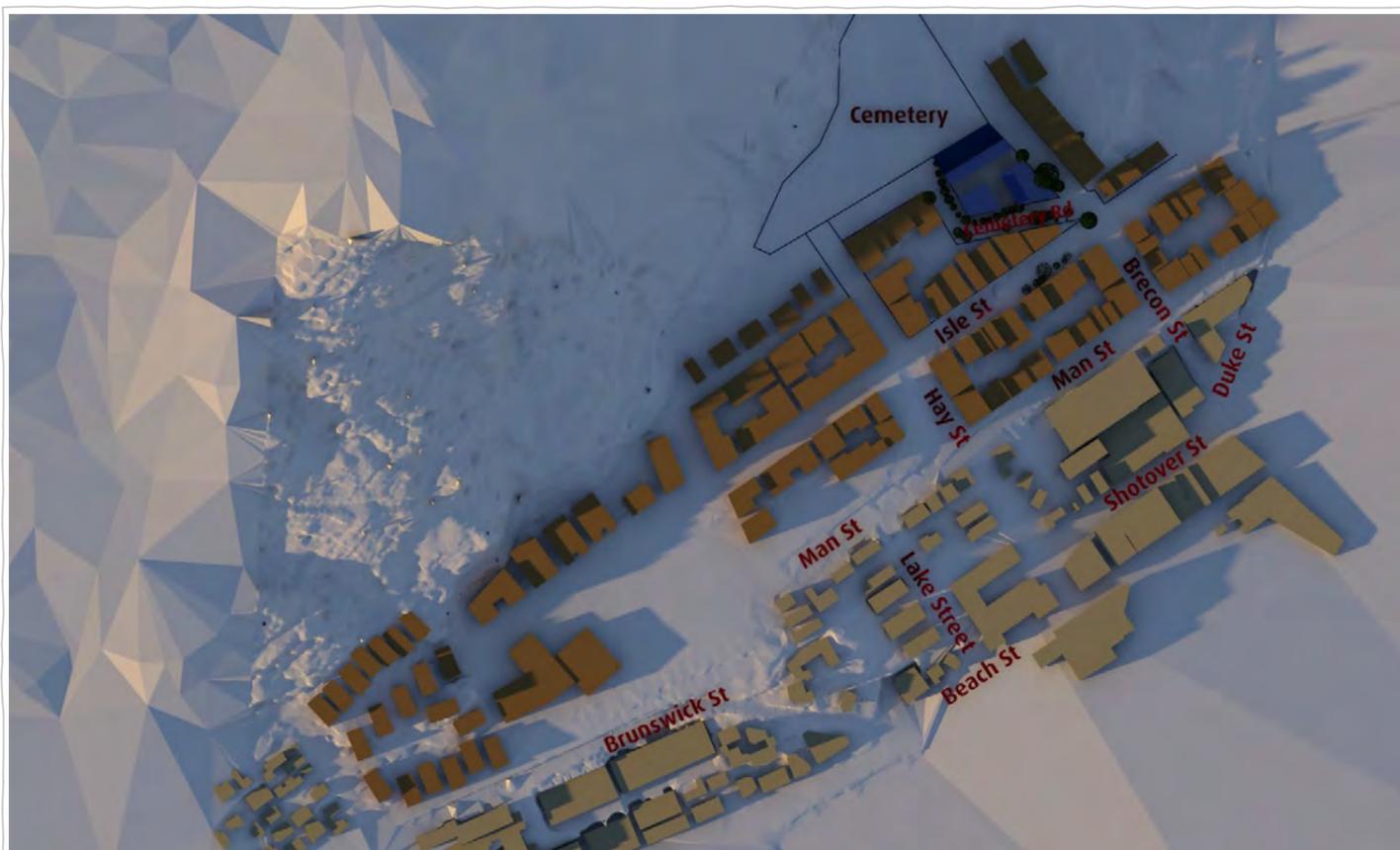
December 21, 2015, 2pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

2pm:
 The sun is still high and shadows are limited to the north eastern side of Cemetery Rd and south western side of Brecon St.



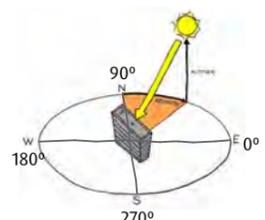
December 21, 2015, 4pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

4pm:
 Shadows are lengthening, however shadows from 34 Brecon St fall on the road network, just reaching the far side of Brecon St. The existing trees on Brecon St have an effect on the Brecon St buildings to the North East.



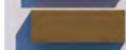
December 21, 2015, 6pm (daylight savings):
 Sun Altitude = 34.5011°
 Sun Azimuth = 179.7878°

6pm:
 Sunset is an hour away, however the mountain has begun to have a significant shadowing effect.

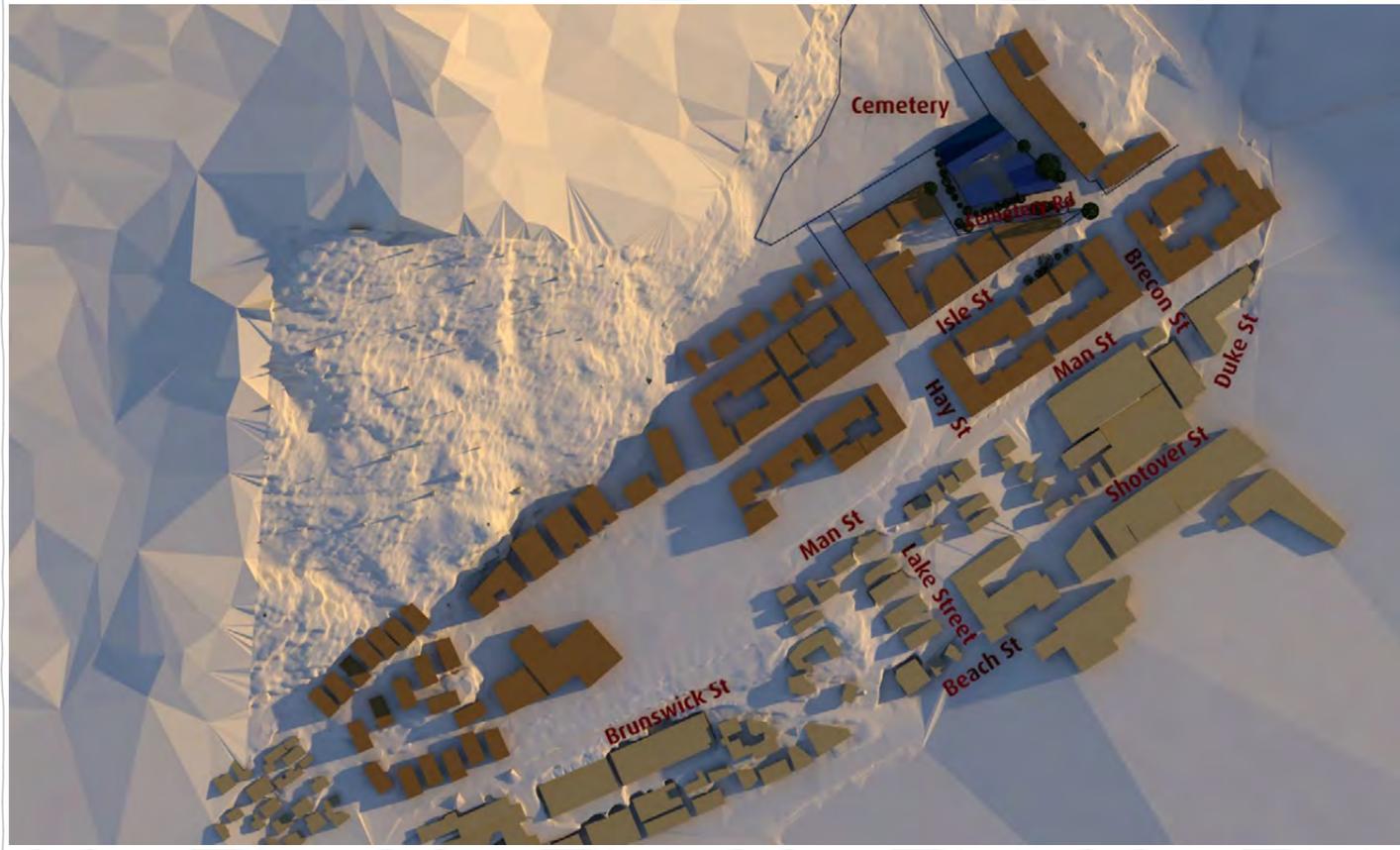


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Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option B: 24m height with plan change 50



September 21, 2015, 8am:
 Sun Altitude = 13.7233°
 Sun Azimuth = 15.3278°

8am:
 The sun is out, the shadow of Queenstown Hill can be seen to be receding (top right corner). Shadows caused by 34 Brecon Street are just touching the southern edge of the cemetery. Other effecting shadows are the combined result of the trees on southern length of Cemetery Rd and the south west corner building at 34 Brecon St.



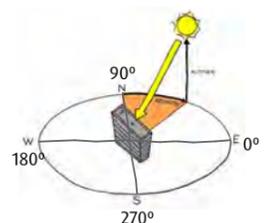
September 21, 2015, 10am:
 Sun Altitude = 32.3522°
 Sun Azimuth = 41.0882°

10am:
 The sun is out. There are no shadows on the cemetery. The south western corner building has a small effect on the property to the west of Cemetery Rd. Existing trees are the primary source of shadows.



September 21, 2015, 12pm:
 Sun Altitude = 43.3978°
 Sun Azimuth = 76.8009°

12pm:
 The sun is high. 34 Brecon Street shadows just reach the buildings on the south western side of Cemetery Rd.

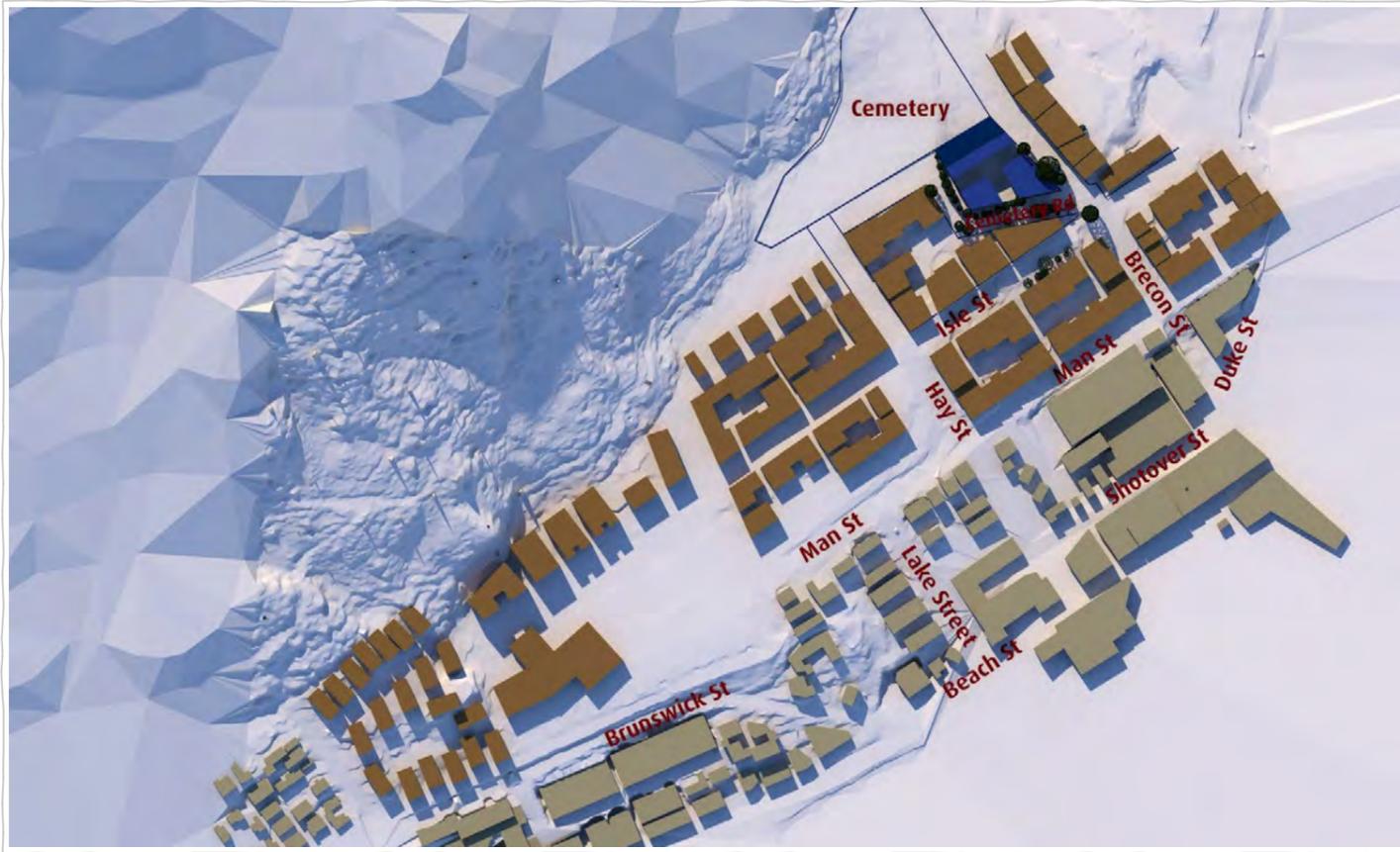


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

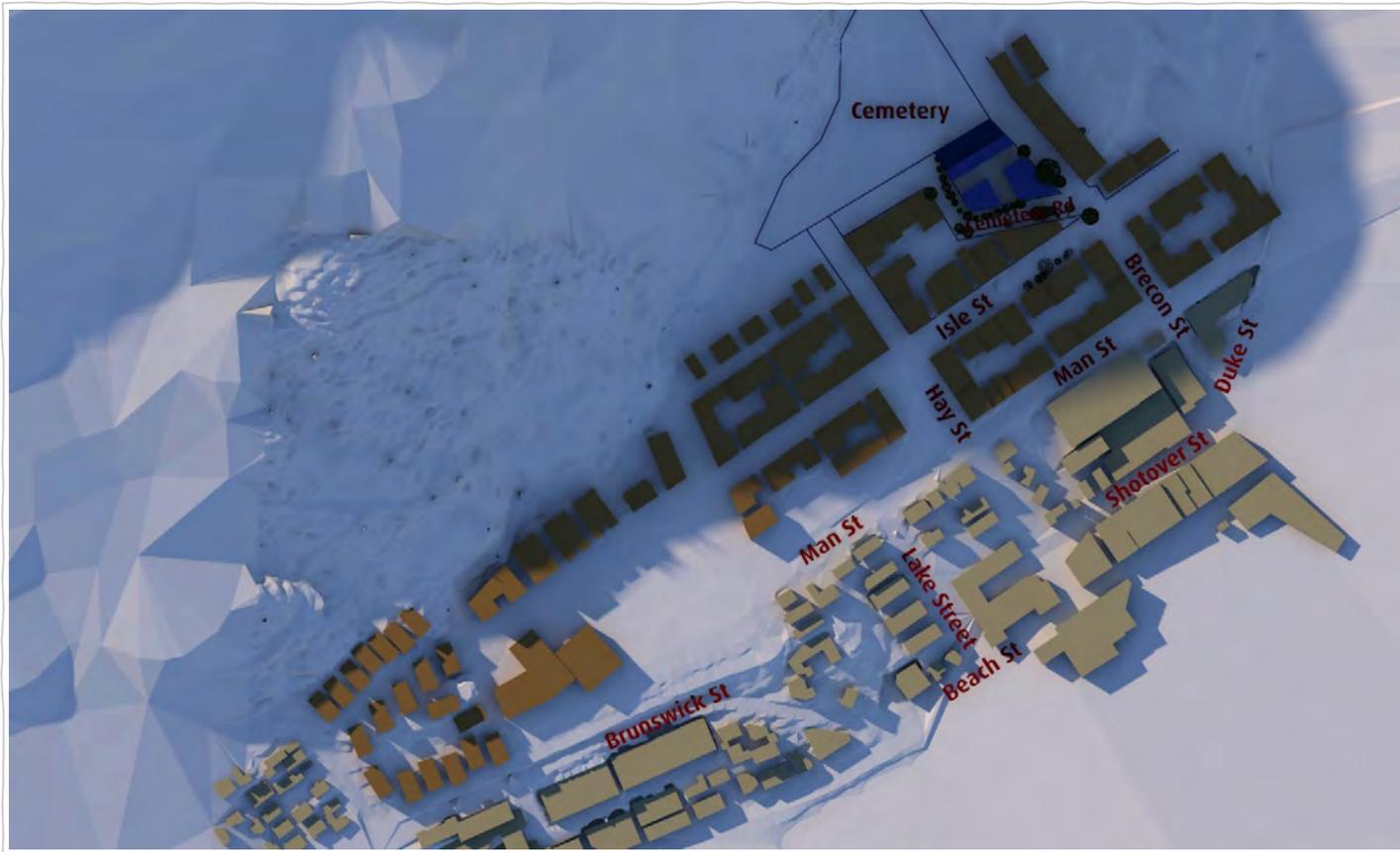
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option B: 24m height with plan change 50



September 21, 2015, 2pm:
 Sun Altitude = 40.7179°
 Sun Azimuth = 117.4463°

2pm:
 The sun is out. 34 Brecon Street overshadows no buildings, only Cemetery Rd.



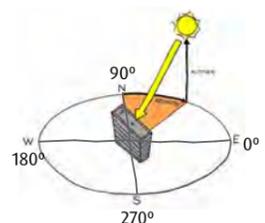
September 21, 2015, 4pm:
 Sun Altitude = 26.1200°
 Sun Azimuth = 149.1689°

4pm:
 The sun is falling towards the horizon. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



September 21, 2015, 6pm:
 Sun Altitude = 6.11793°
 Sun Azimuth = 172.6624°

6pm:
 The sun has set below the mountains. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

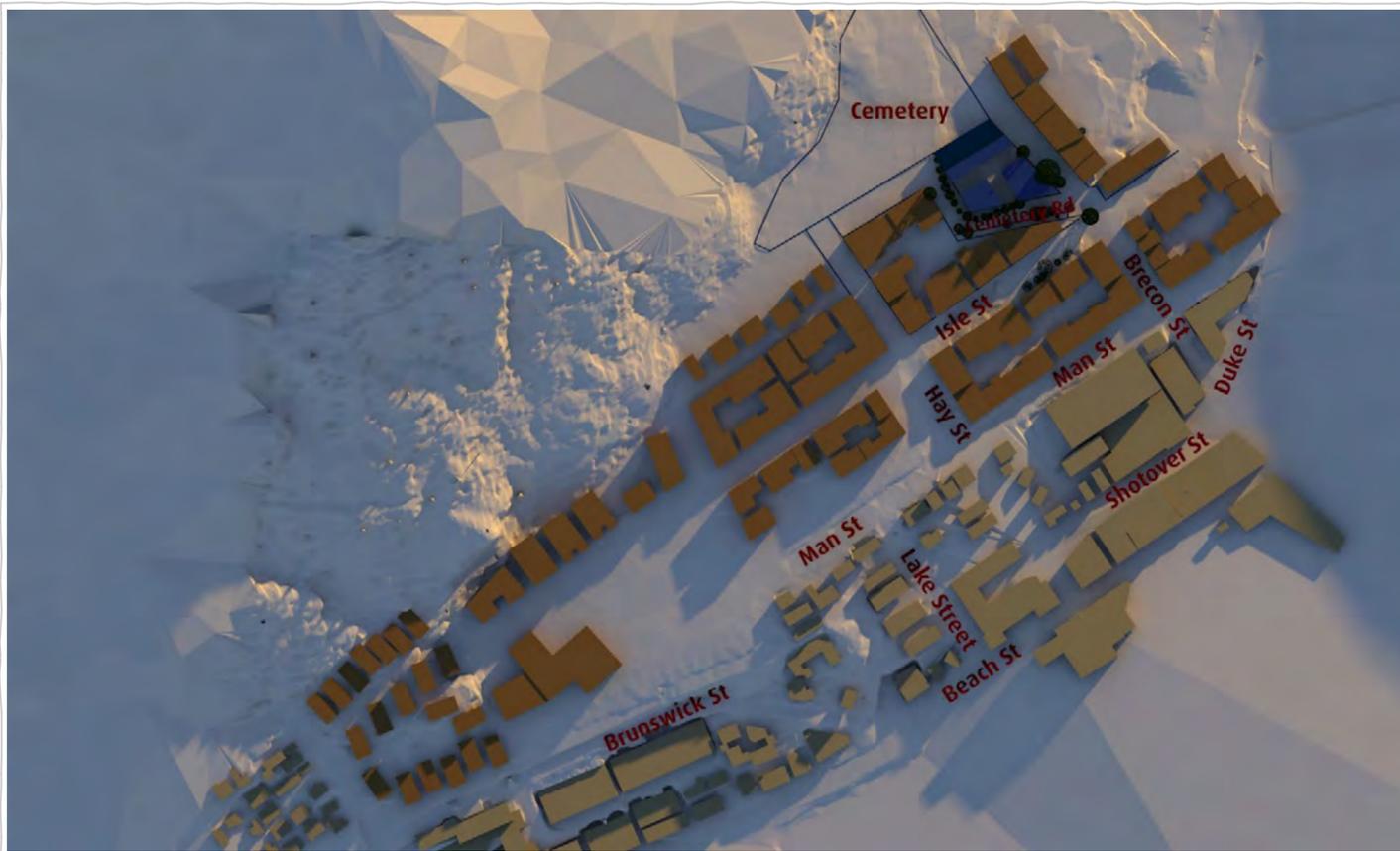
-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option B: 24m height with plan change 50



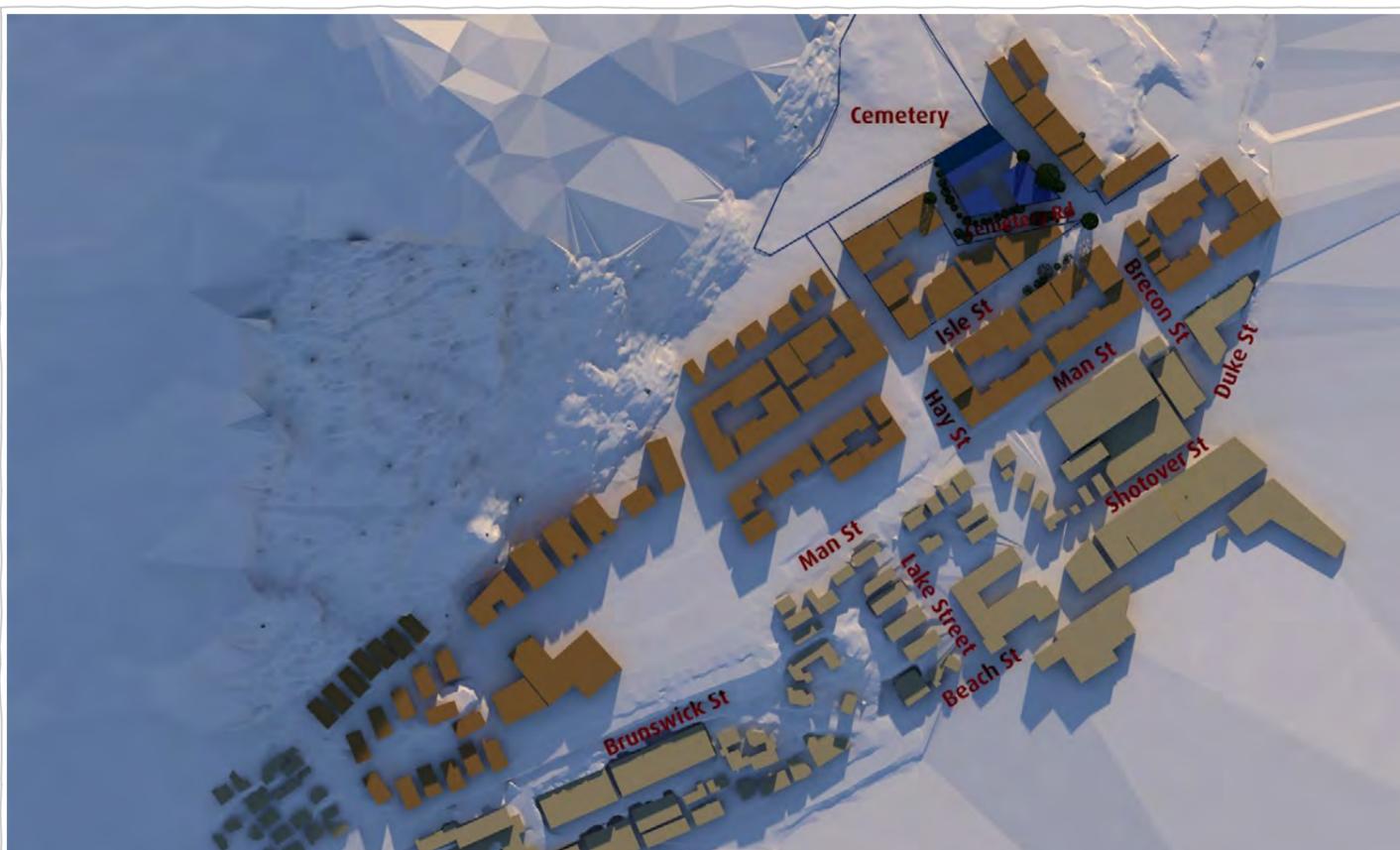
June 21, 2015, 8am:
 Sun Altitude = -4.5301°
 Sun Azimuth = 29.1303°

8am:
 The sun has not yet risen.



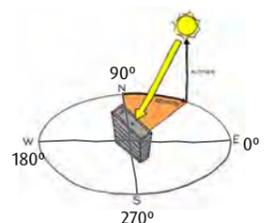
June 21, 2015, 10am:
 Sun Altitude = 11.6183°
 Sun Azimuth = 51.4595°

10am:
 The sun is rising, however has only just reached over Queenstown hill to shed sunlight onto the main town centre. The buildings at 34 Brecon Street are causing shadows over both side of Cemetery Rd and some of the buildings of the former Holiday park site. Shadows from trees along Cemetery Rd and Brecon St are making a greater impact.



June 21, 2015, 12pm:
 Sun Altitude = 20.6212°
 Sun Azimuth = 78.5191°

12pm:
 The buildings at 34 Brecon Street are causing shadows over both sides of Cemetery Rd and some of the buildings of the former Holiday park site. Shadows from trees along Cemetery Rd and Brecon St are making an impact.

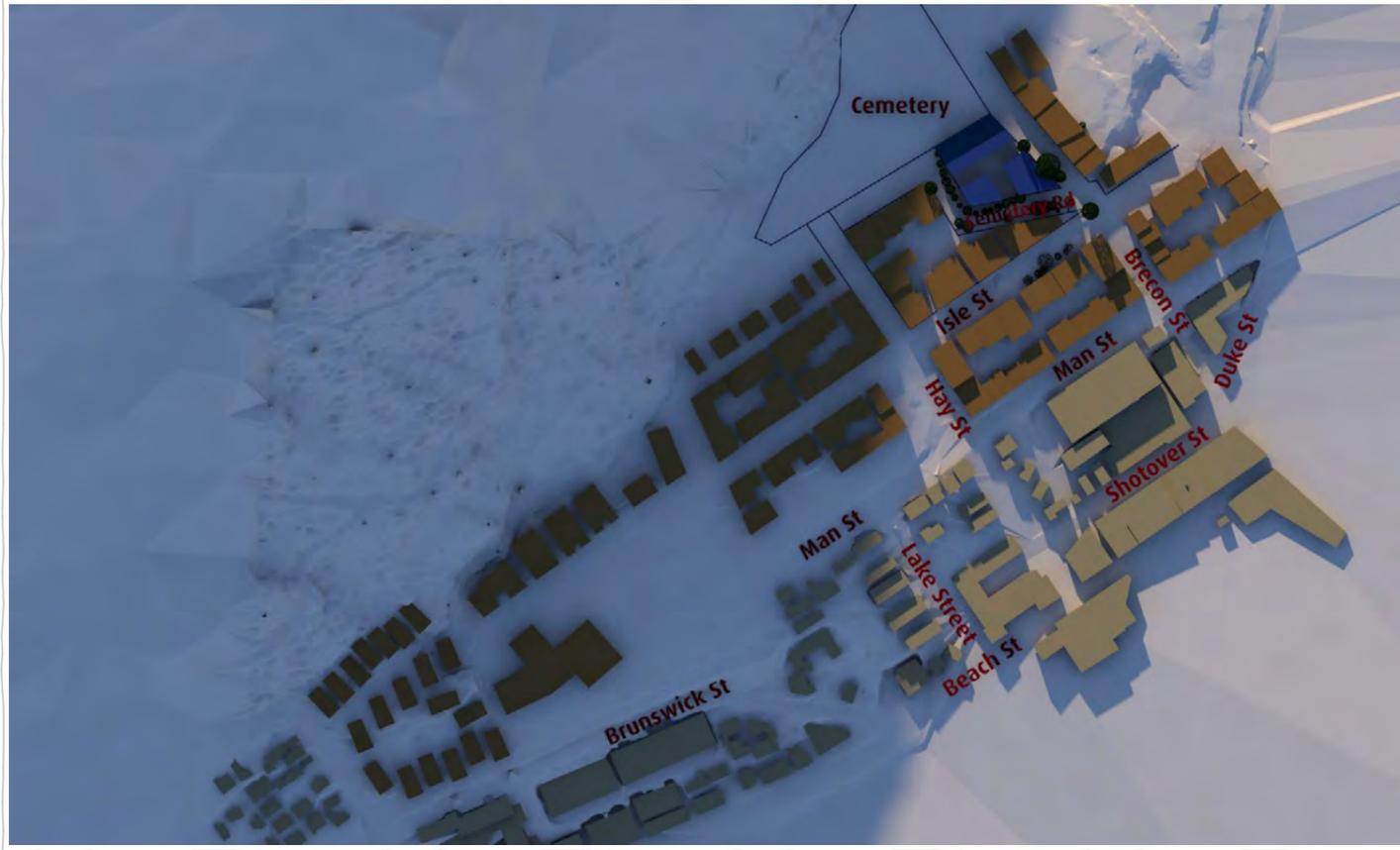


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option B: 24m height with plan change 50



June 21, 2015, 2pm:
 Sun Altitude = 19.4511°
 Sun Azimuth = 107.7613°

2pm:
 Bobs Peak is starting to overshadow the PC50 area.
 The buildings at 34 Brecon Street are causing shadows over Cemetery Rd and some of the buildings of the former Holiday park site.
 Shadows from trees along Cemetery Rd and Brecon St are making an impact.



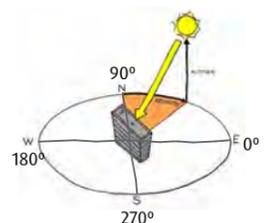
June 21, 2015, 4pm:
 Sun Altitude = 8.5674°
 Sun Azimuth = 133.8062°

4pm: The town is in the full shadow of the mountains.



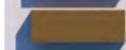
June 21, 2015, 6pm:
 Sun Altitude = -8.6610°
 Sun Azimuth = 155.2716°

6pm: It is night time.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option C: 12m height with plan change 50 & Cemetery Rd land swap



December 21, 2015, 8am (daylight savings):

Sun Altitude = 19.0947°
Sun Azimuth = 345.4966°

8am:
The sun has risen.
The shadows from 34 Brecon Street are on the north eastern side of Cemetery Rd.



December 21, 2015, 10am (daylight savings):

Sun Altitude = 40.1116°
Sun Azimuth = 6.0831°

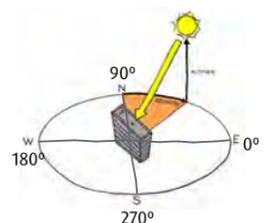
10am:
The sun is higher.
34 Brecon St has caused a small amount of shadow on the north eastern side of Cemetery Rd.



December 21, 2015, 12pm (daylight savings):

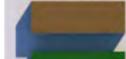
Sun Altitude = 59.8147°
Sun Azimuth = 36.8522°

12pm:
The sun is high. Shadows are minimal.

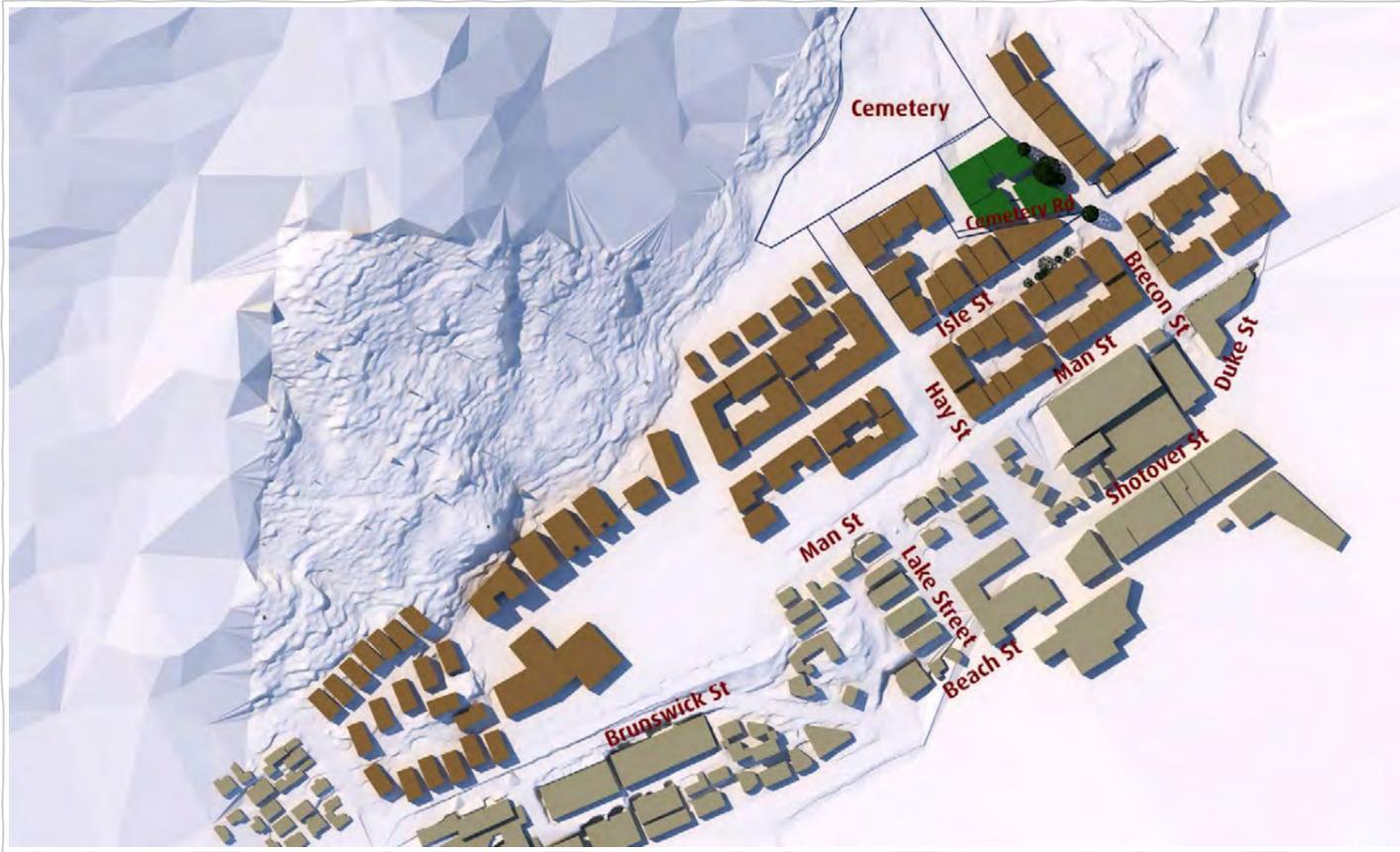


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

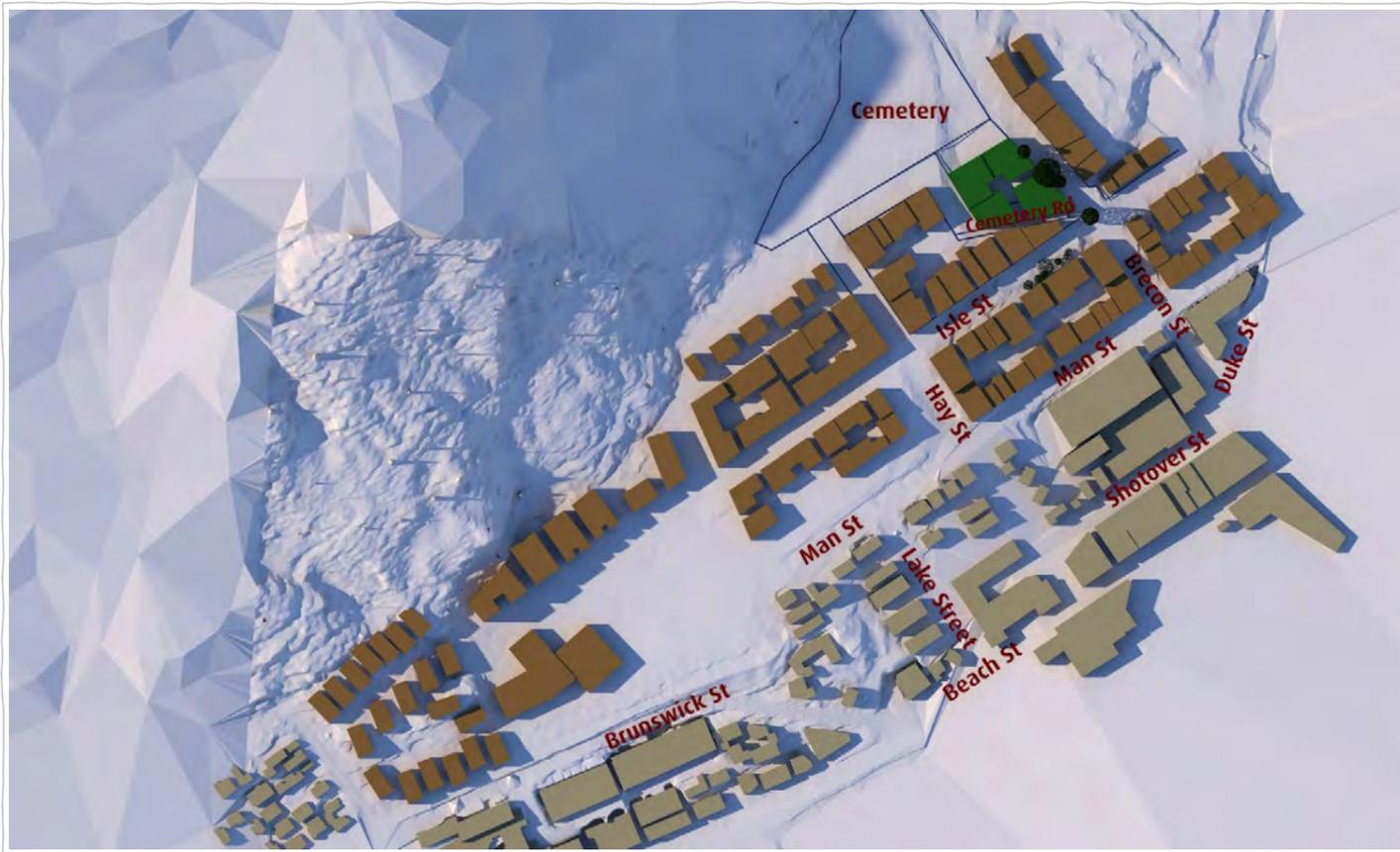
-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option C: 12m height with plan change 50 & Cemetery Rd land swap



December 21, 2015, 2pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

2pm:
 The sun is still high.
 Shadows are minimal and are on the south western side of Brecon St.



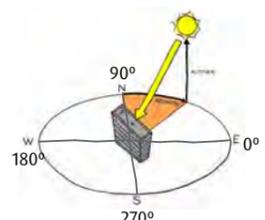
December 21, 2015, 4pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

4pm:
 The sun is lower.
 34 Brecon St is causing shadows over the northeastern side of Brecon St.
 Shadows from the trees along Brecon St are creating a greater shading impact.



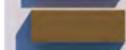
December 21, 2015, 6pm (daylight savings):
 Sun Altitude = 34.5011°
 Sun Azimuth = 179.7878°

6pm:
 The sun is almost at sunset.
 All buildings are creating long shadows and 34 Brecon St is overshadowed by Bobs Peak.

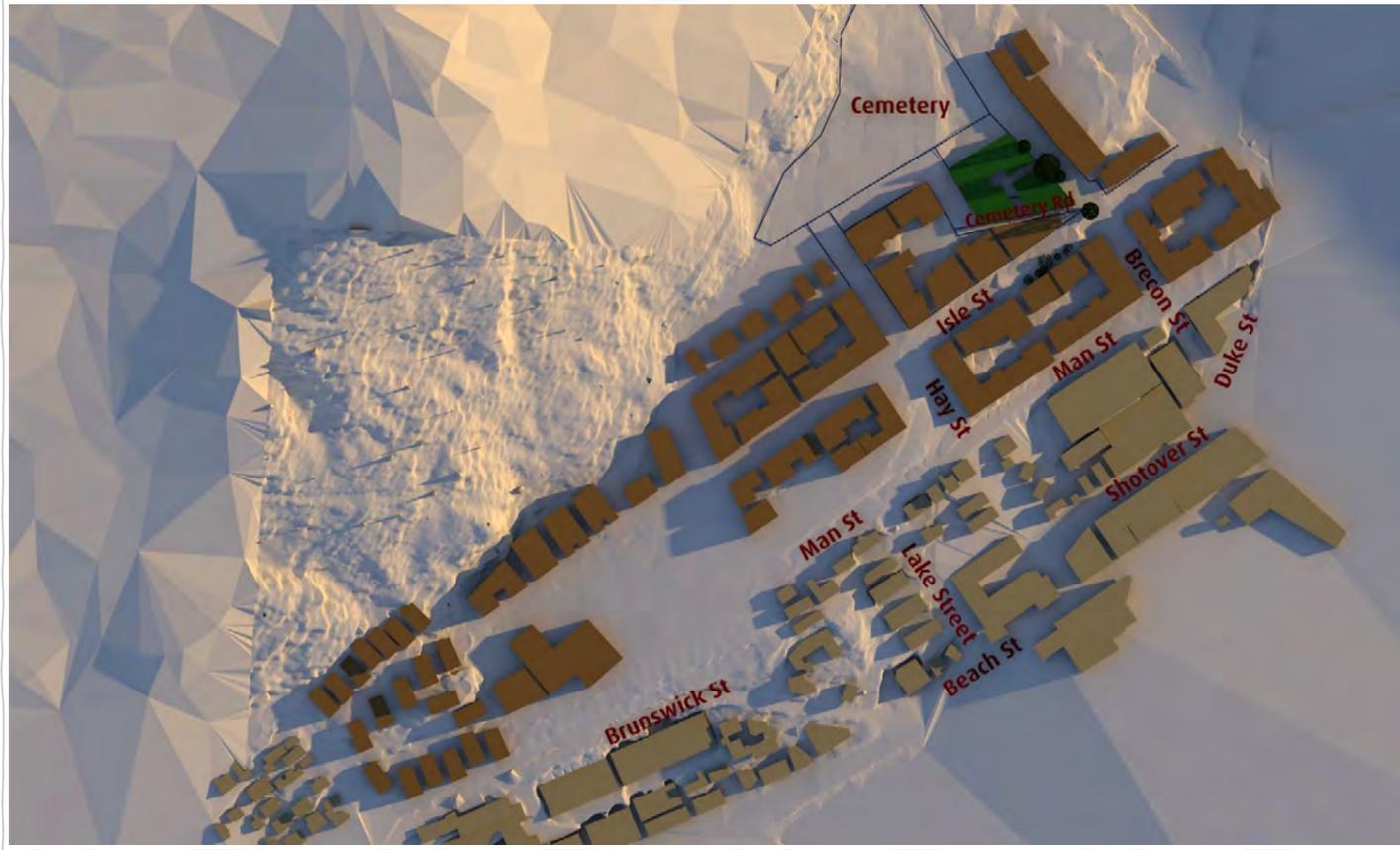


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option C: 12m height with plan change 50 & Cemetery Rd land swap



September 21, 2015, 8am:
Sun Altitude = 13.7233°
Sun Azimuth = 15.3278°

8am:
The sun is out and shadows caused by 34 Brecon Street are reaching the former Holiday park site and covering Cemetery Rd.
The existing trees along Brecon St are also creating a large impact.



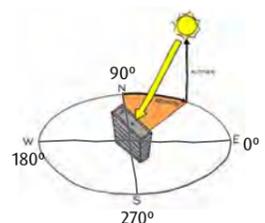
September 21, 2015, 10am:
Sun Altitude = 32.3522°
Sun Azimuth = 41.0882°

10am:
The sun is out.
There are shadows on the north eastern side of Cemetery Rd and there is little impact on the surrounding buildings.



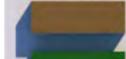
September 21, 2015, 12pm:
Sun Altitude = 43.3978°
Sun Azimuth = 76.8009°

12pm:
The sun is high. 34 Brecon Street overshadows the north eastern side of Cemetery Rd and there is little impact on surrounding buildings.

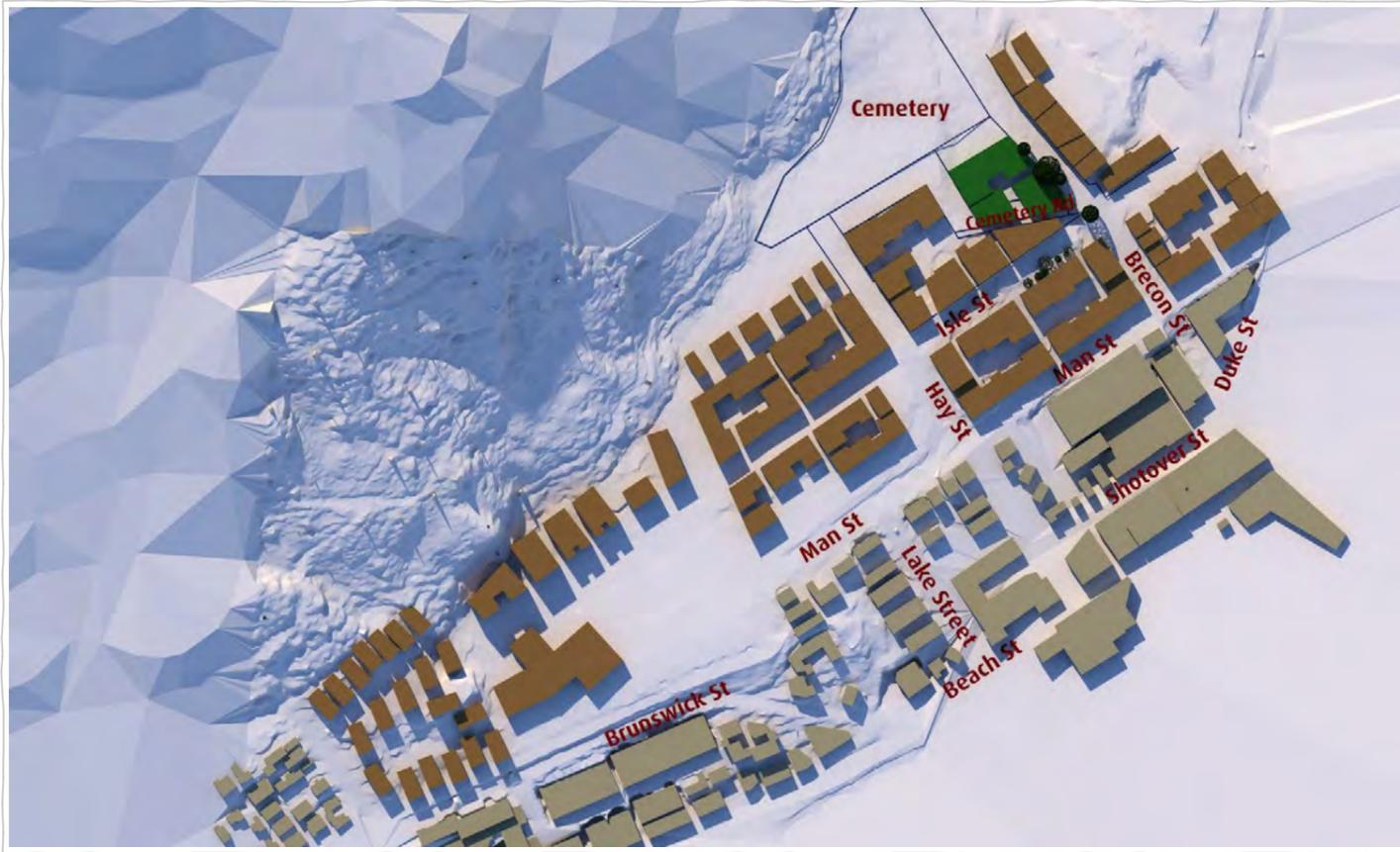


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option C: 12m height with plan change 50 & Cemetery Rd land swap



September 21, 2015, 2pm:
 Sun Altitude = 40.7179°
 Sun Azimuth = 117.4463°

2pm:
 The sun is out. 34 Brecon Street has little impact on the road network and surrounding buildings.



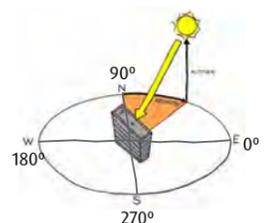
September 21, 2015, 4pm:
 Sun Altitude = 26.1200°
 Sun Azimuth = 149.1689°

4pm:
 The sun is setting. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



September 21, 2015, 6pm:
 Sun Altitude = 6.11793°
 Sun Azimuth = 172.6624°

6pm:
 The sun has set below the mountains. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

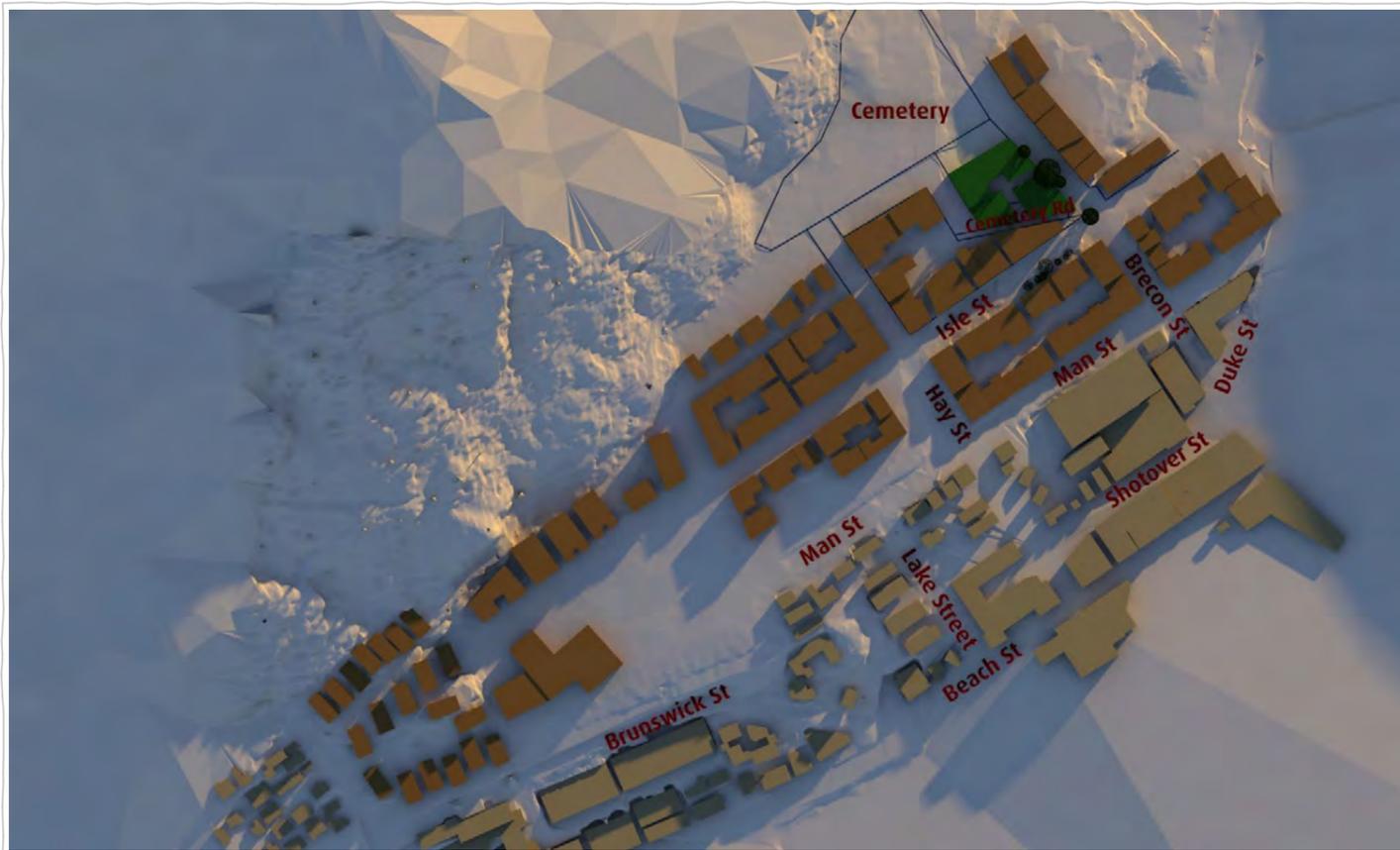
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option C: 12m height with plan change 50 & Cemetery Rd land swap



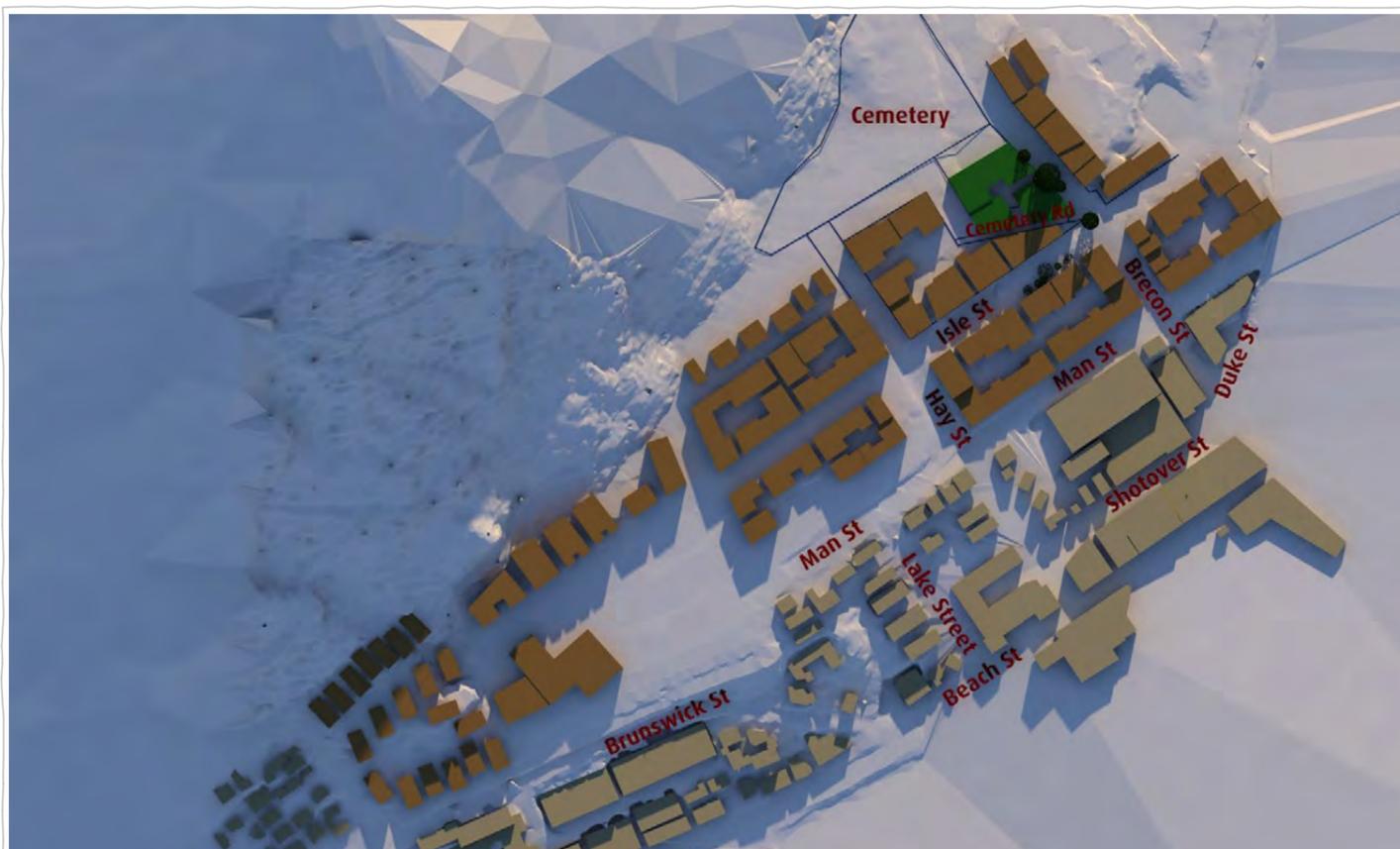
June 21, 2015, 8am:
Sun Altitude = -4.5301°
Sun Azimuth = 29.1303°

8am:
It is still night time.



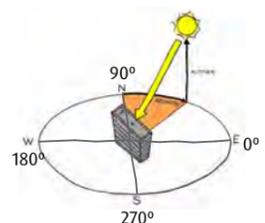
June 21, 2015, 10am:
Sun Altitude = 11.6183°
Sun Azimuth = 51.4595°

10am:
The buildings at 34 Brecon Street are causing shadows over some of the buildings in the former Holiday park site, however the existing trees along Brecon St have a greater impact.



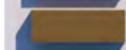
June 21, 2015, 12pm:
Sun Altitude = 20.6212°
Sun Azimuth = 78.5191°

12pm:
The buildings at 34 Brecon Street are partially overshadowing some buildings in the former Holiday park site and Cemetery Rd.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option C: 12m height with plan change 50 & Cemetery Rd land swap



June 21, 2015, 2pm:
Sun Altitude = 19.4511°
Sun Azimuth = 107.7613°

2pm:
Bobs Peak is starting to overshadow the PC50 area.
34 Brecon Street is partially overshadowing two buildings to the south and a small portion of Cemetery Rd.



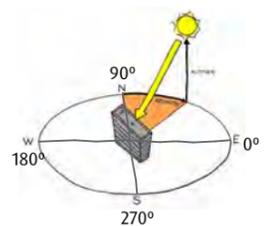
June 21, 2015, 4pm:
Sun Altitude = 8.5674°
Sun Azimuth = 133.8062°

4pm: The site is in darkness.



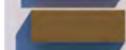
June 21, 2015, 6pm:
Sun Altitude = -8.6610°
Sun Azimuth = 155.2716°

6pm: It is night time.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option D: 24m height with plan change 50 & Cemetery Rd land swap



December 21, 2015, 8am (daylight savings):

Sun Altitude = 19.0947°
Sun Azimuth = 345.4966°

8am:
The sun has risen. 34 Brecon Street has caused shadows over the Cemetery Rd.



December 21, 2015, 10am (daylight savings):

Sun Altitude = 40.1116°
Sun Azimuth = 6.0831°

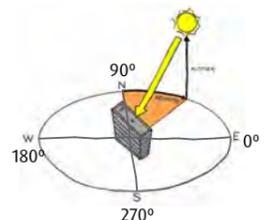
10am:
The sun is higher. There is a slight shadow over the north eastern side of Cemetery Rd.



December 21, 2015, 12pm (daylight savings):

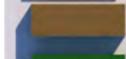
Sun Altitude = 59.8147°
Sun Azimuth = 36.8522°

12pm:
The sun is high. Shadows are minimal.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option D: 24m height with plan change 50 & Cemetery Rd land swap



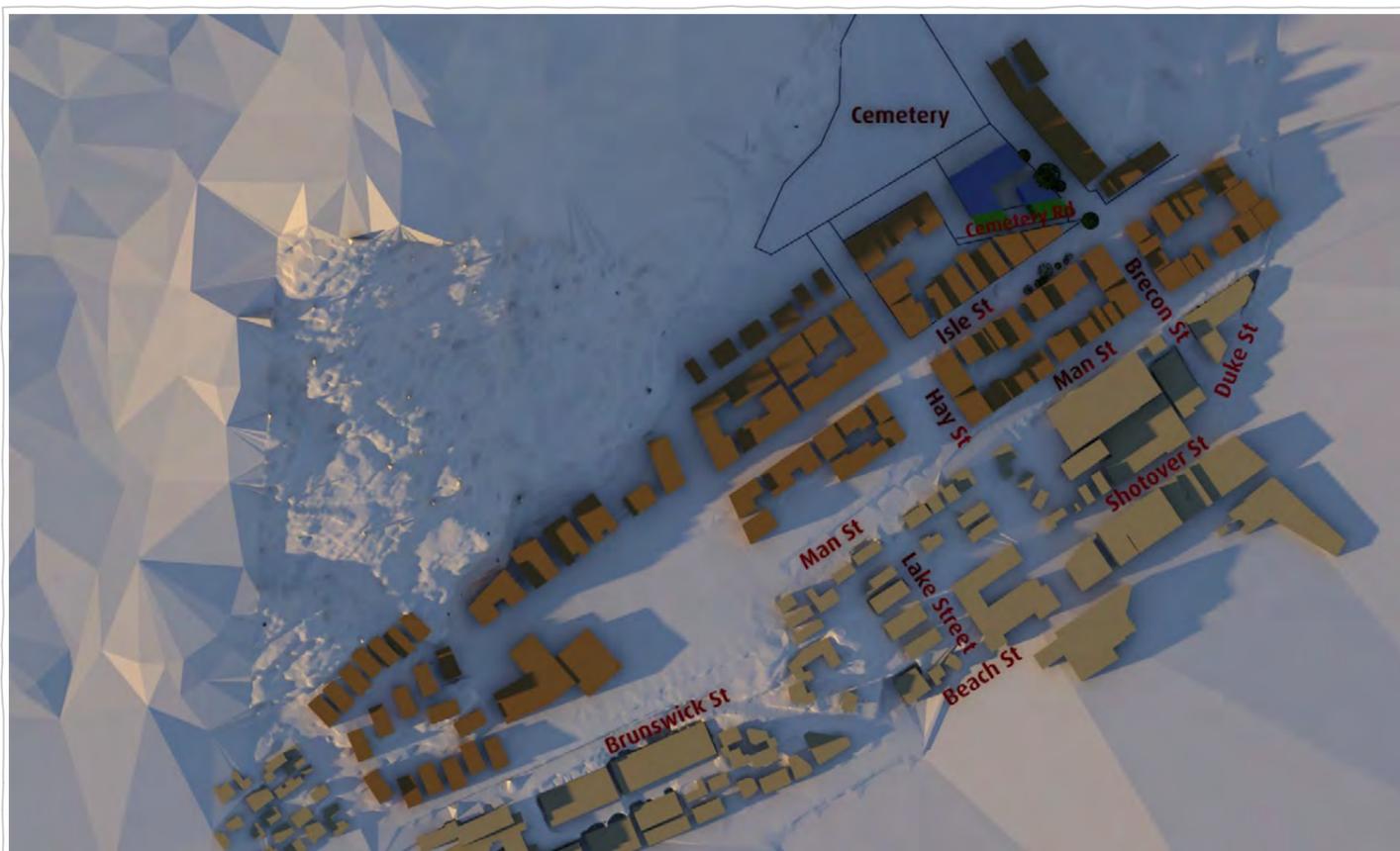
December 21, 2015, 2pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

2pm:
 The sun is still high.
 There is little impact on the surrounding buildings but there are some shadows over the south western side of Brecon St.



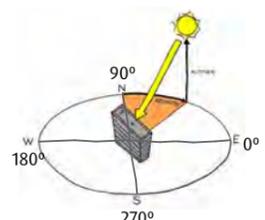
December 21, 2015, 4pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

4pm:
 The sun is lower and causing large shadows.
 34 Brecon St is overshadowing Brecon St.
 The existing trees along Brecon St have a greater impact.



December 21, 2015, 6pm (daylight savings):
 Sun Altitude = 34.5011°
 Sun Azimuth = 179.7878°

6pm:
 34 Brecon St is overshadowed by Bobs Peak.

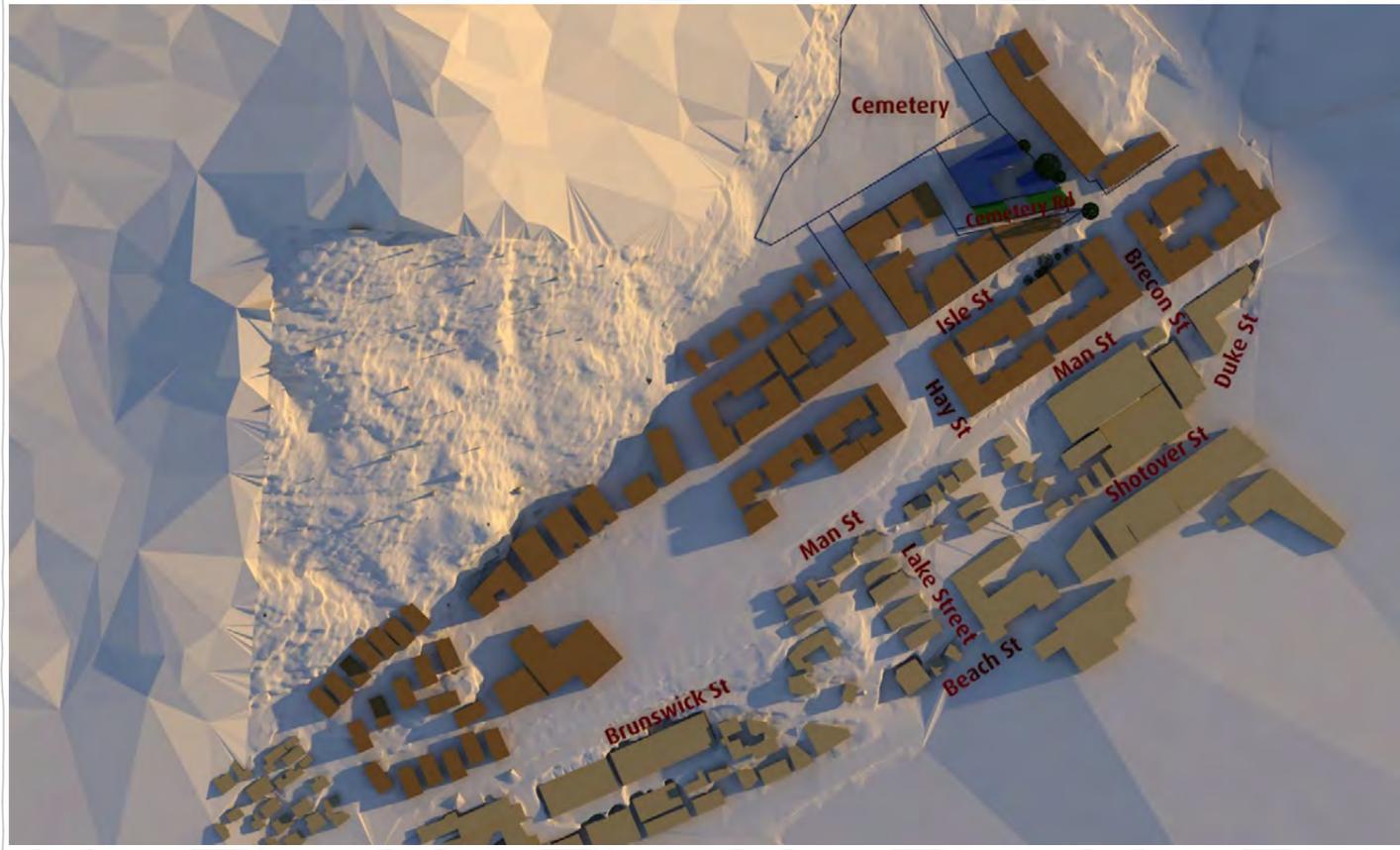


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option D: 24m height with plan change 50 & Cemetery Rd land swap



September 21, 2015, 8am:
Sun Altitude = 13.7233°
Sun Azimuth = 15.3278°

8am:
The sun is out and shadows caused by 34 Brecon Street are covering a portion of the former Holiday park site and Cemetery Rd.



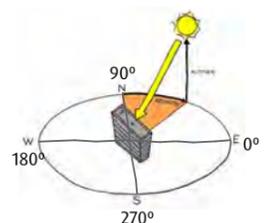
September 21, 2015, 10am:
Sun Altitude = 32.3522°
Sun Azimuth = 41.0882°

10am:
The sun is out. 34 Brecon St is causing shadows on a small portion of the former Holiday park site and is shadowing Cemetery Rd.



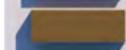
September 21, 2015, 12pm:
Sun Altitude = 43.3978°
Sun Azimuth = 76.8009°

12pm:
The sun is high.
Shadows from 34 Brecon Street are making a small impact on adjacent buildings to the south.

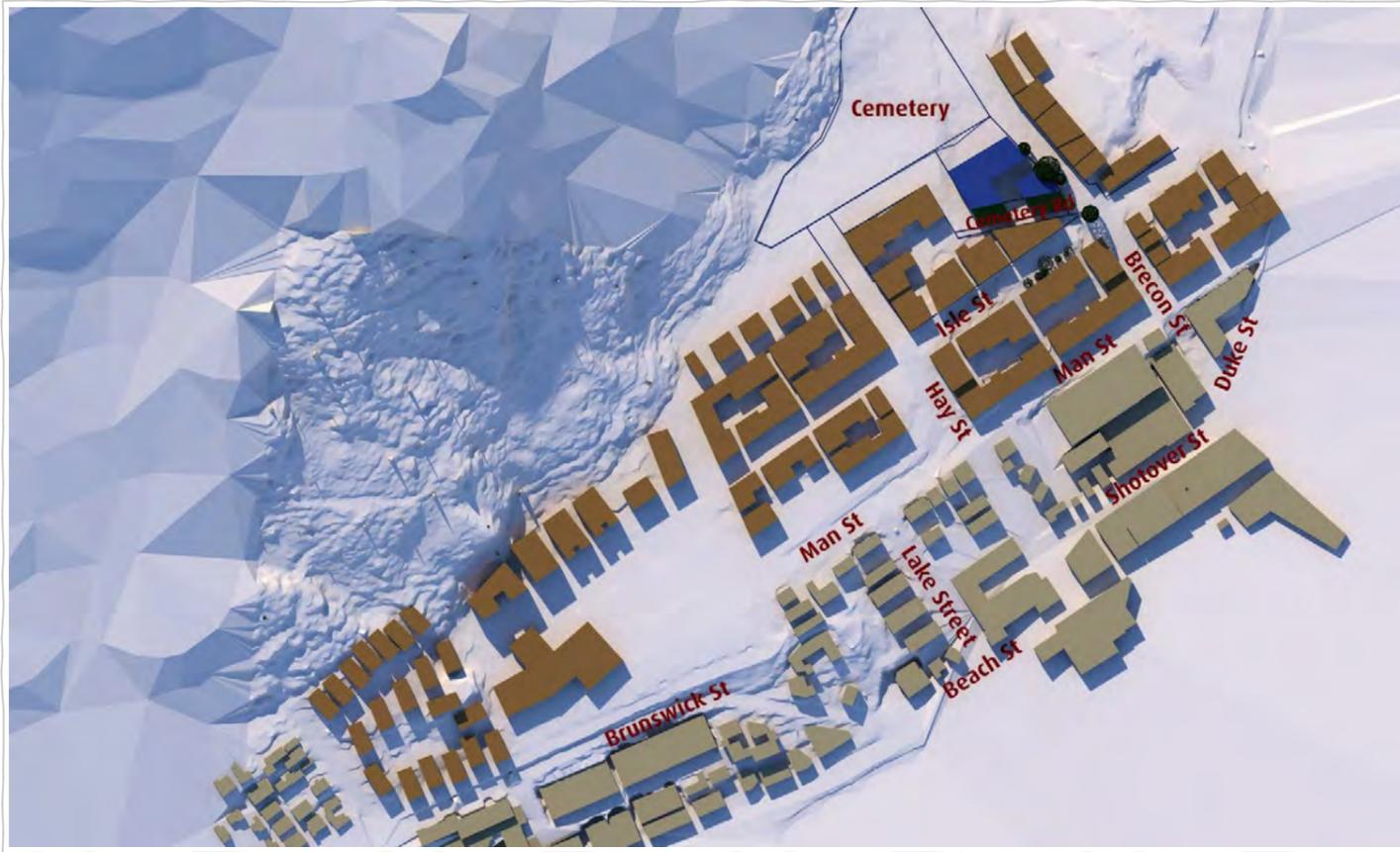


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option D: 24m height with plan change 50 & Cemetery Rd land swap



September 21, 2015, 2pm:
Sun Altitude = 40.7179°
Sun Azimuth = 117.4463°

2pm:
The sun is out.
Shadows from 34 Brecon Street are making a small impact on the adjacent buildings to the south.



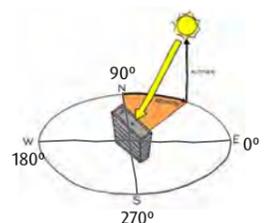
September 21, 2015, 4pm:
Sun Altitude = 26.1200°
Sun Azimuth = 149.1689°

4pm:
The sun is setting. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



September 21, 2015, 6pm:
Sun Altitude = 6.11793°
Sun Azimuth = 172.6624°

6pm:
The sun has set below the mountains. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

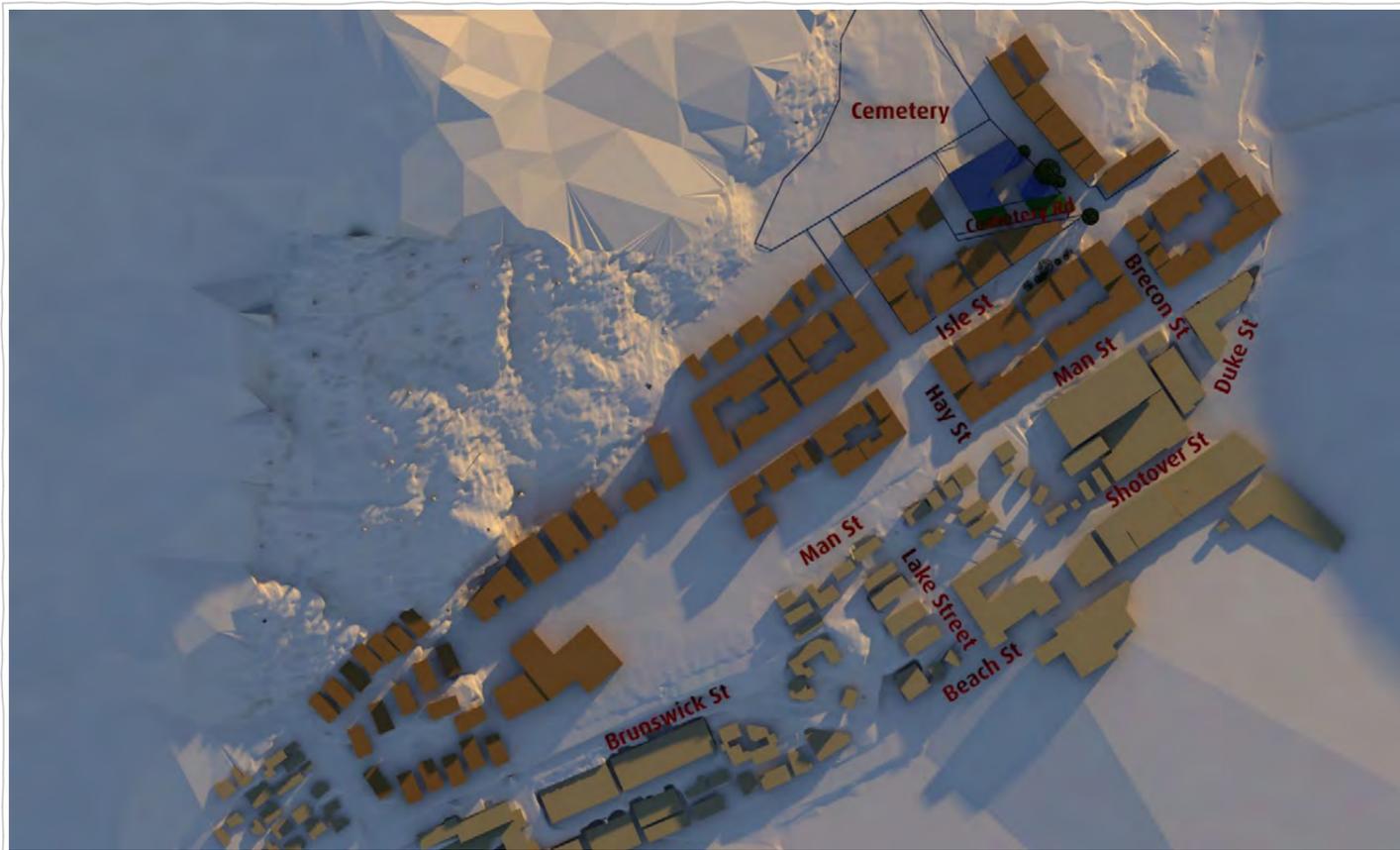
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option D: 24m height with plan change 50 & Cemetery Rd land swap



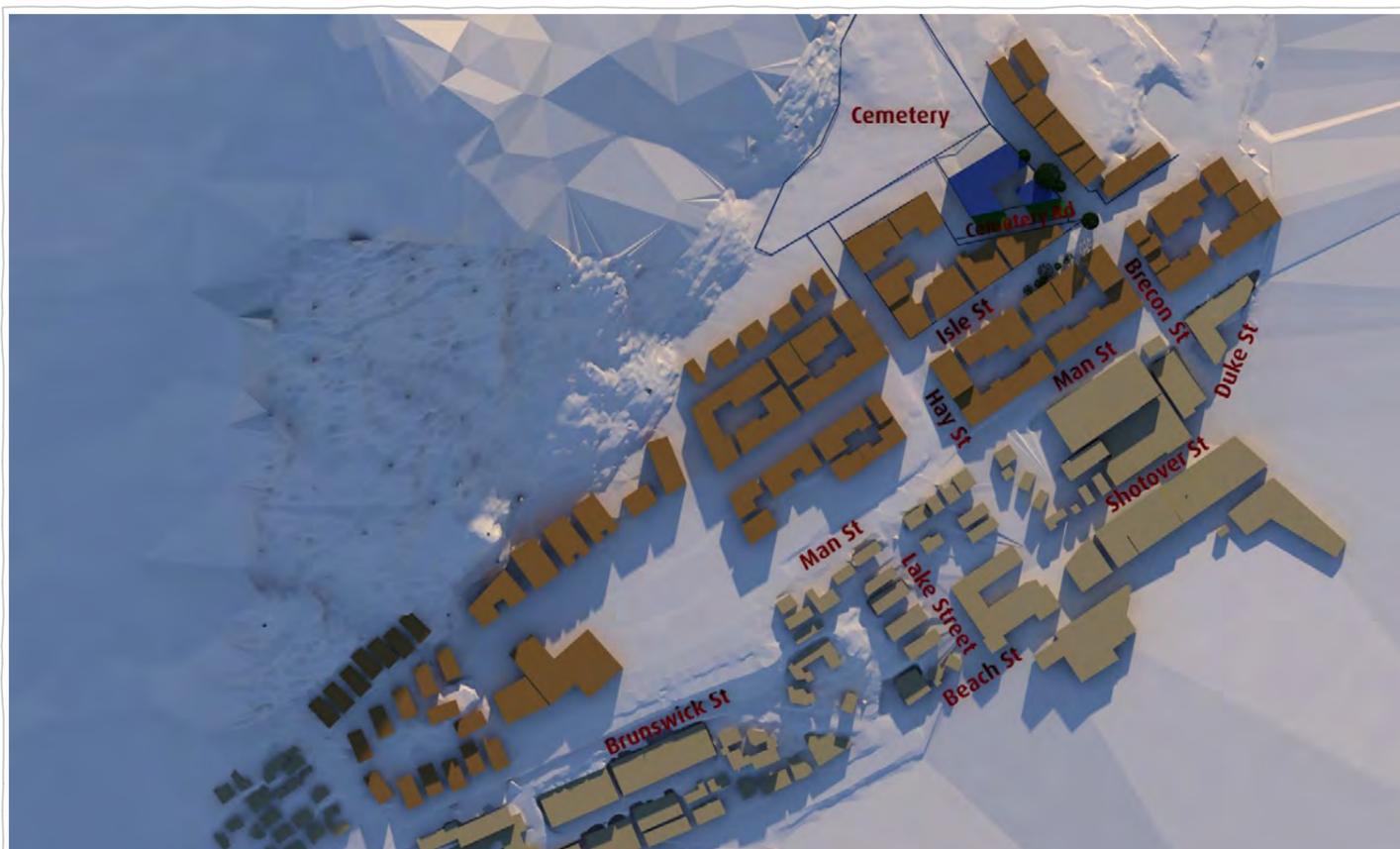
June 21, 2015, 8am:
Sun Altitude = -4.5301°
Sun Azimuth = 29.1303°

8am:
It is still night time.



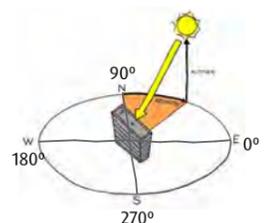
June 21, 2015, 10am:
Sun Altitude = 11.6183°
Sun Azimuth = 51.4595°

10am:
The buildings at 34 Brecon Street are causing shadows over some of the buildings in the former Holiday park site.
The existing trees along Brecon St are making a greater impact.



June 21, 2015, 12pm:
Sun Altitude = 20.6212°
Sun Azimuth = 78.5191°

12pm:
The buildings at 34 Brecon Street are partially overshadowing some buildings in the former Holiday park site.
The existing trees along Brecon St are making a greater impact.

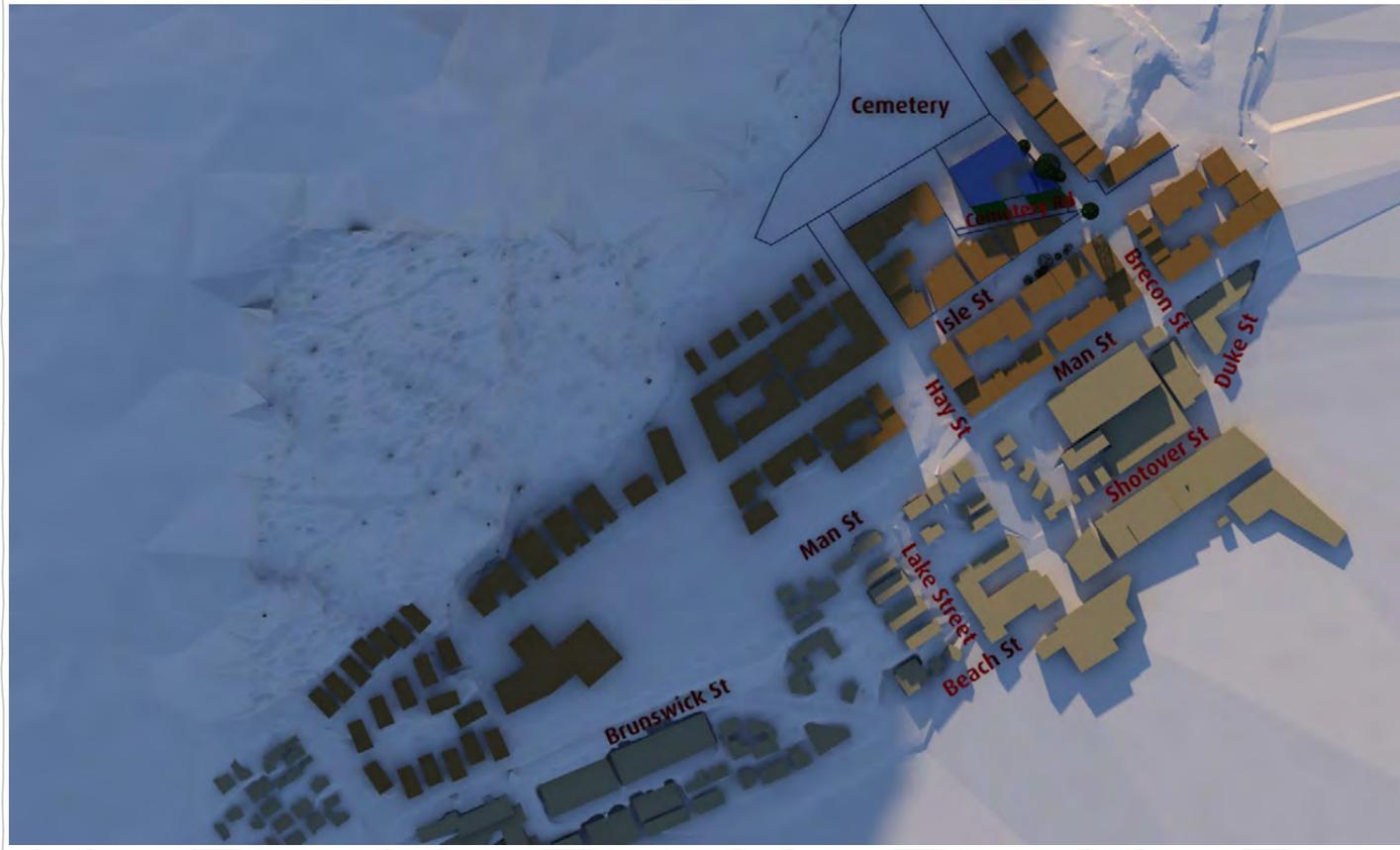


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option D: 24m height with plan change 50 & Cemetery Rd land swap



June 21, 2015, 2pm:
 Sun Altitude = 19.4511°
 Sun Azimuth = 107.7613°

2pm:
 Bobs Peak is starting to overshadow the PC50 area.
 34 Brecon Street is partially overshadowing two buildings to the south.



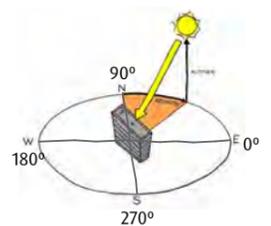
June 21, 2015, 4pm:
 Sun Altitude = 8.5674°
 Sun Azimuth = 133.8062°

4pm: The site is in darkness.



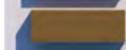
June 21, 2015, 6pm:
 Sun Altitude = -8.6610°
 Sun Azimuth = 155.2716°

6pm: It is night time.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option E: 12m height with plan change 50 & Holiday Park to remain.



December 21, 2015, 8am (daylight savings):

Sun Altitude = 19.0947°
Sun Azimuth = 345.4966°

8am:
The sun has risen. 34 Brecon Street has caused a small sliver of shadow over the south-eastern corner of the cemetery. It is also causing a short shadow on the north eastern side of Cemetery Rd.



December 21, 2015, 10am (daylight savings):

Sun Altitude = 40.1116°
Sun Azimuth = 6.0831°

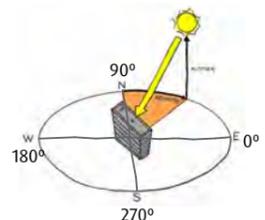
10am:
The sun is higher. Shadows are minimal.



December 21, 2015, 12pm (daylight savings):

Sun Altitude = 59.8147°
Sun Azimuth = 36.8522°

12pm:
The sun is high. Shadows are minimal.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option E: 12m height with plan change 50 & Holiday Park to remain.



December 21, 2015, 2pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

2pm:
 The sun is still high.
 34 Brecon St is causing a small amount of shadowing on the south western side of Brecon St.



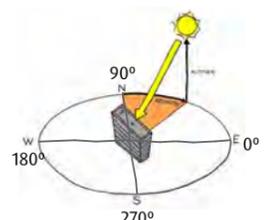
December 21, 2015, 4pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

4pm:
 34 Brecon St is overshadowing Brecon St.
 The existing trees on Brecon St are making a greater impact.



December 21, 2015, 6pm (daylight savings):
 Sun Altitude = 34.5011°
 Sun Azimuth = 179.7878°

6pm:
 The sun is setting, Bobs peak is starting to overshadow the area.

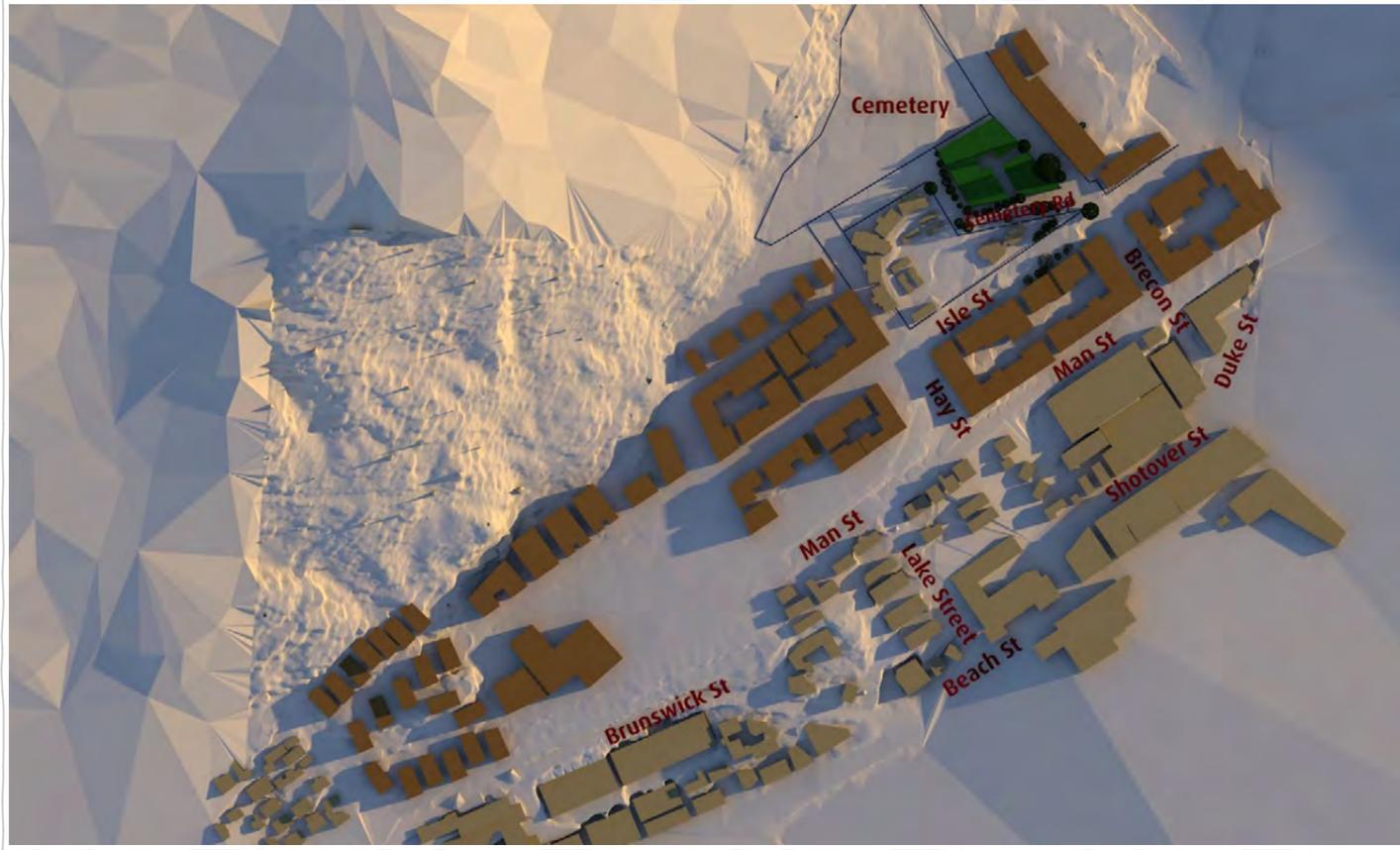


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option E: 12m height with plan change 50 & Holiday Park to remain.



September 21, 2015, 8am:
 Sun Altitude = 13.7233°
 Sun Azimuth = 15.3278°

8am:
 The sun is out and shadows caused by 34 Brecon Street are just touching the southern edge of the cemetery and the south western side of Cemetery Rd.



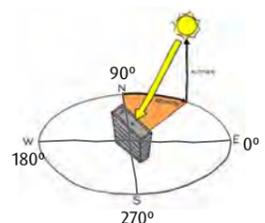
September 21, 2015, 10am:
 Sun Altitude = 32.3522°
 Sun Azimuth = 41.0882°

10am:
 The sun is out. There are no shadows on Cemetery Rd and there is little impact on the surrounding buildings. The existing trees have a greater impact.



September 21, 2015, 12pm:
 Sun Altitude = 43.3978°
 Sun Azimuth = 76.8009°

12pm:
 The sun is high. 34 Brecon Street overshadows no buildings and only the northern side of Cemetery Rd.

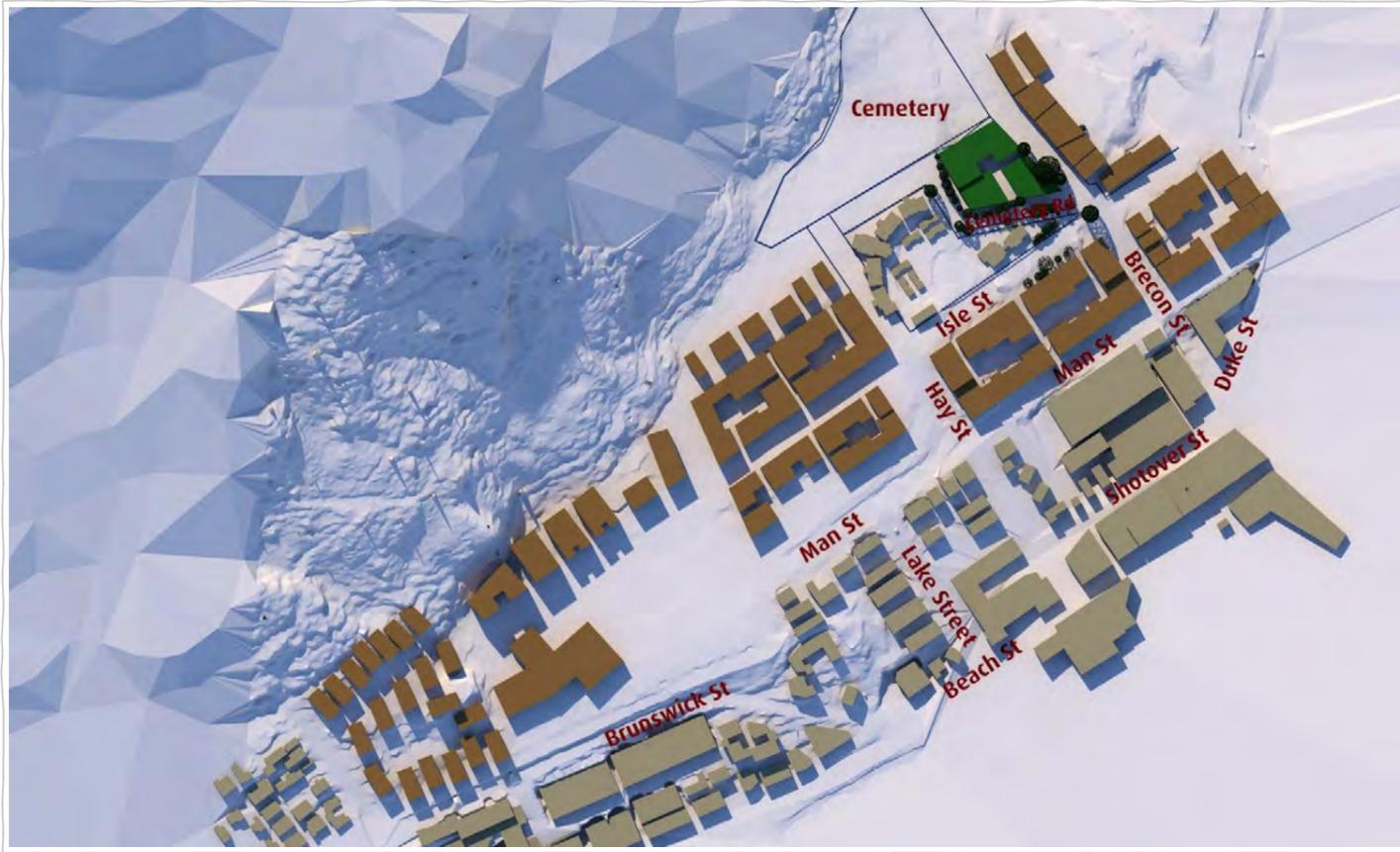


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

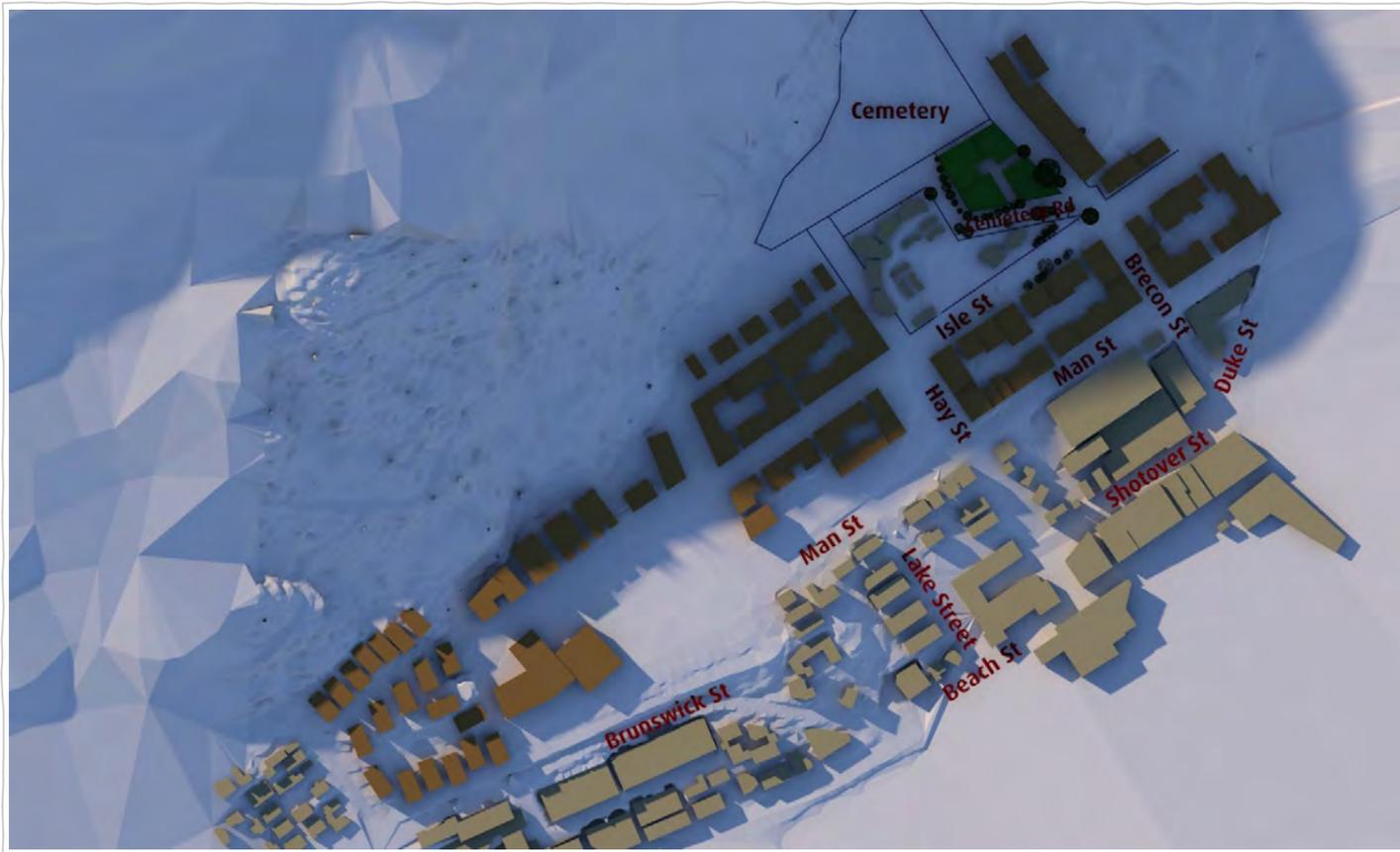
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option E: 12m height with plan change 50 & Holiday Park to remain.



September 21, 2015, 2pm:
 Sun Altitude = 40.7179°
 Sun Azimuth = 117.4463°

2pm:
 The sun is out.
 34 Brecon Street overshadows no buildings.
 It is shadowing Cemetery Rd, but the existing trees are making a greater impact.



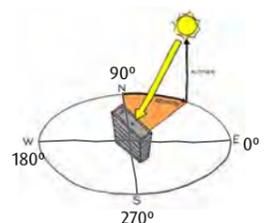
September 21, 2015, 4pm:
 Sun Altitude = 26.1200°
 Sun Azimuth = 149.1689°

4pm:
 The sun is setting. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



September 21, 2015, 6pm:
 Sun Altitude = 6.11793°
 Sun Azimuth = 172.6624°

6pm:
 The sun has set below the mountains. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

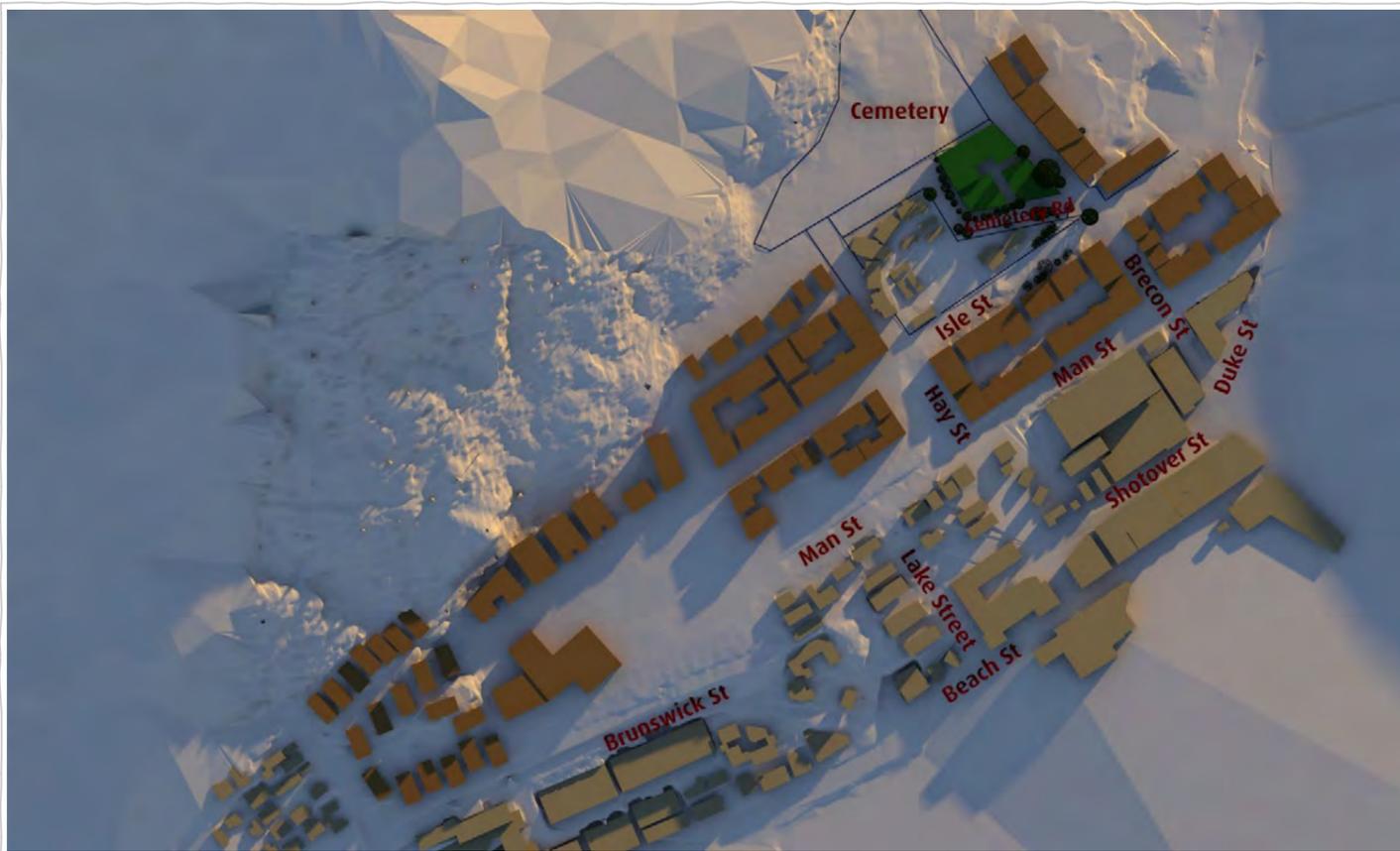
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option E: 12m height with plan change 50 & Holiday Park to remain.



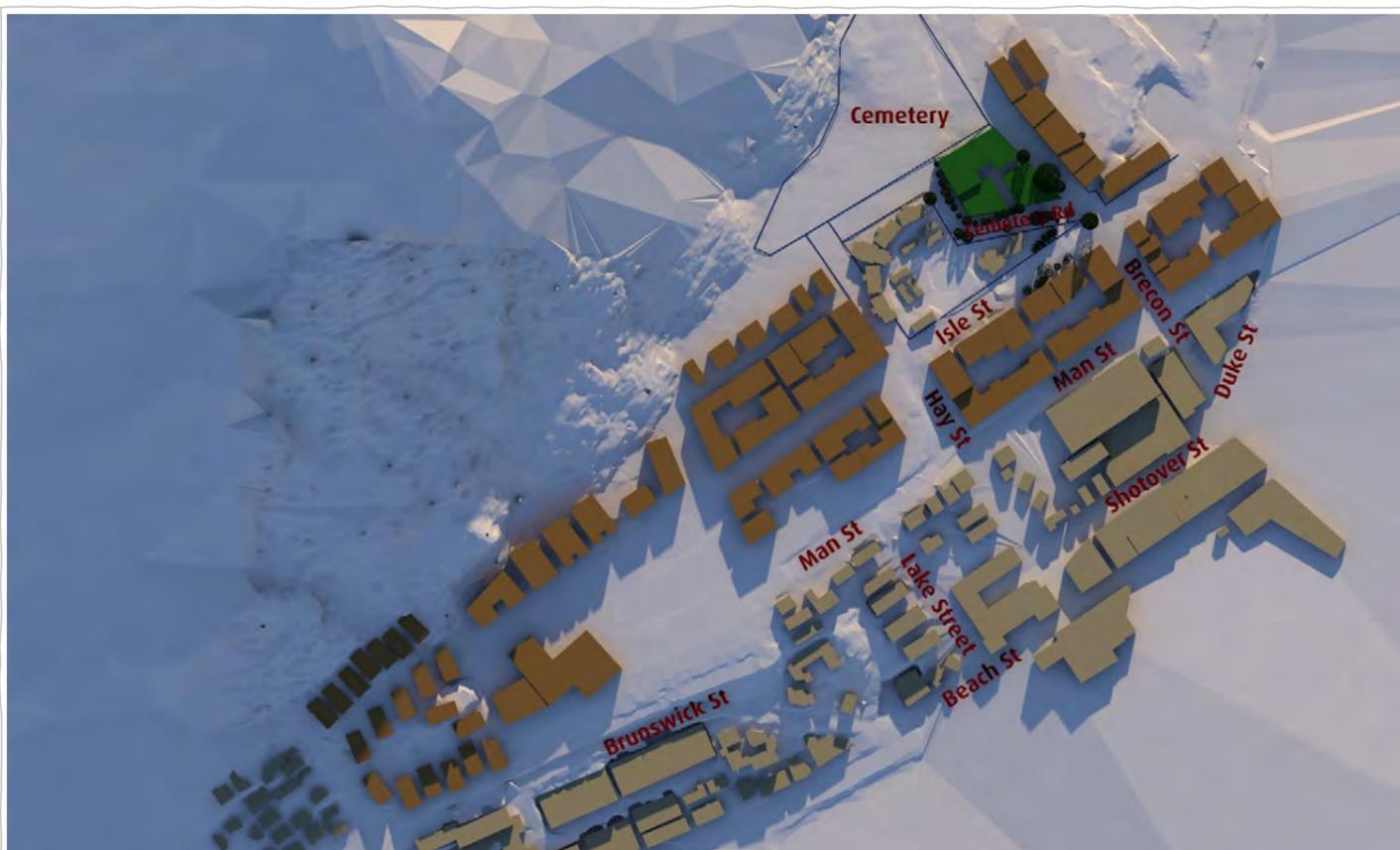
June 21, 2015, 8am:
Sun Altitude = -4.5301°
Sun Azimuth = 29.1303°

8am:
It is still night time.



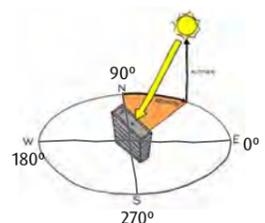
June 21, 2015, 10am:
Sun Altitude = 11.6183°
Sun Azimuth = 51.4595°

10am:
The buildings at 34 Brecon Street are causing shadows over some of the land in the Holiday park site and Cemetery Rd. Existing trees are making a greater impact on the Holiday park buildings.



June 21, 2015, 12pm:
Sun Altitude = 20.6212°
Sun Azimuth = 78.5191°

12pm:
The buildings at 34 Brecon Street are partially overshadowing some land in the campground site and Cemetery Rd. Existing trees are making a greater impact on the Holiday park buildings.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option E: 12m height with plan change 50 & Holiday Park to remain.



June 21, 2015, 2pm:
Sun Altitude = 19.4511°
Sun Azimuth = 107.7613°

2pm:
Bobs Peak is starting to overshadow the PC50 area.
34 Brecon Street is partially shadowing land in the holiday park and Cemetery Rd.
Existing trees are making a greater impact on the Holiday park buildings.



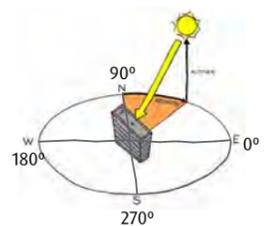
June 21, 2015, 4pm:
Sun Altitude = 8.5674°
Sun Azimuth = 133.8062°

4pm: The site is in darkness.



June 21, 2015, 6pm:
Sun Altitude = -8.6610°
Sun Azimuth = 155.2716°

6pm: It is night time.

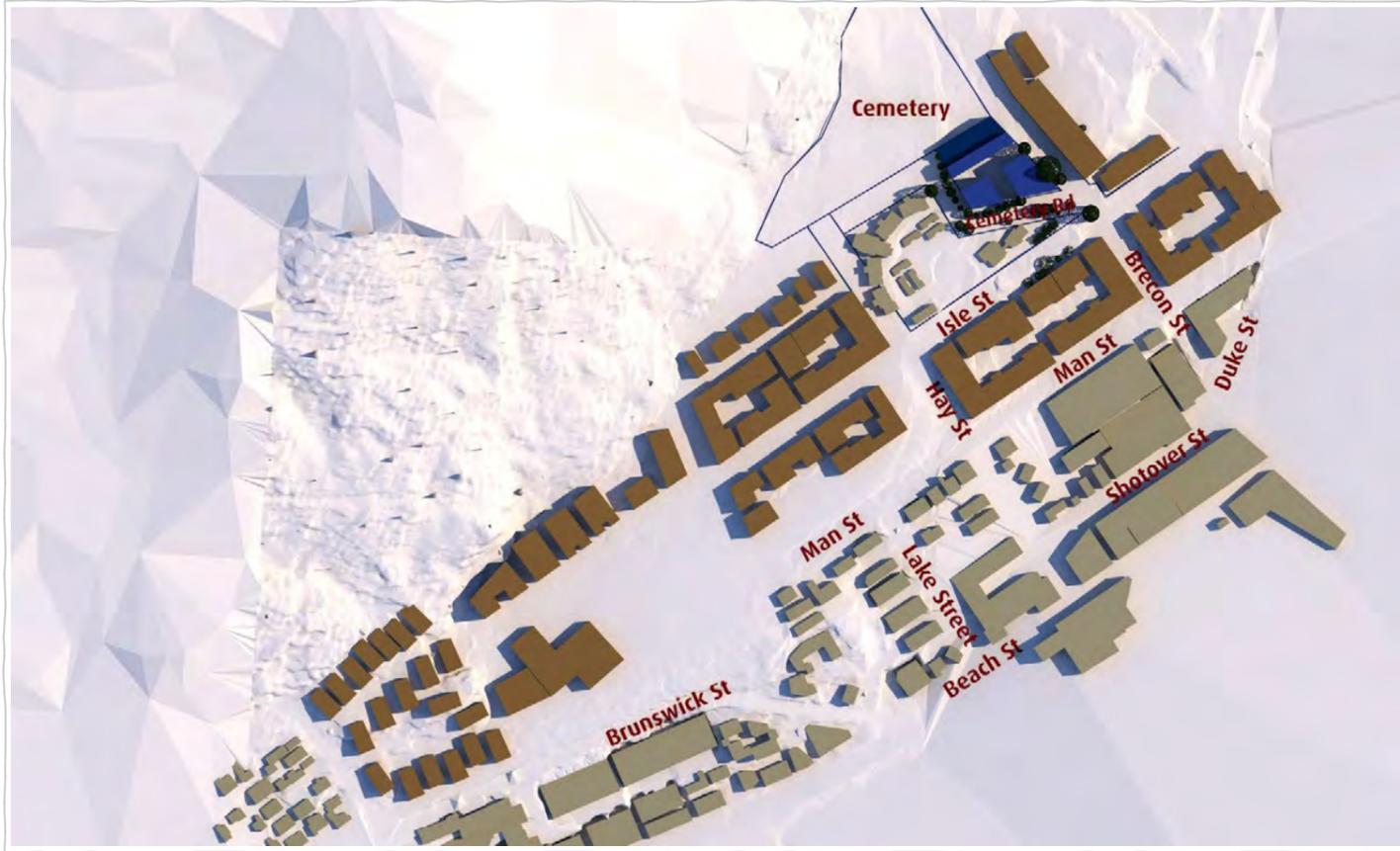


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option F: 24m height with plan change 50 & Holiday Park to remain.



December 21, 2015, 8am (daylight savings):

Sun Altitude = 19.0947°
Sun Azimuth = 345.4966°

8am:
The sun has risen. 34 Brecon Street has caused a small shadow over the south-eastern corner of the cemetery and part of Cemetery Rd.



December 21, 2015, 10am (daylight savings):

Sun Altitude = 40.1116°
Sun Azimuth = 6.0831°

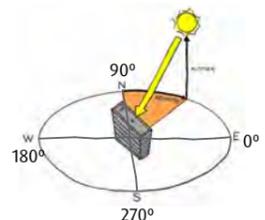
10am:
The sun is higher. There is a slight shadow over the north eastern side of Cemetery Rd. The existing trees are also making an impact.



December 21, 2015, 12pm (daylight savings):

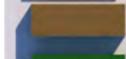
Sun Altitude = 59.8147°
Sun Azimuth = 36.8522°

12pm:
The sun is high. Shadows are minimal.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

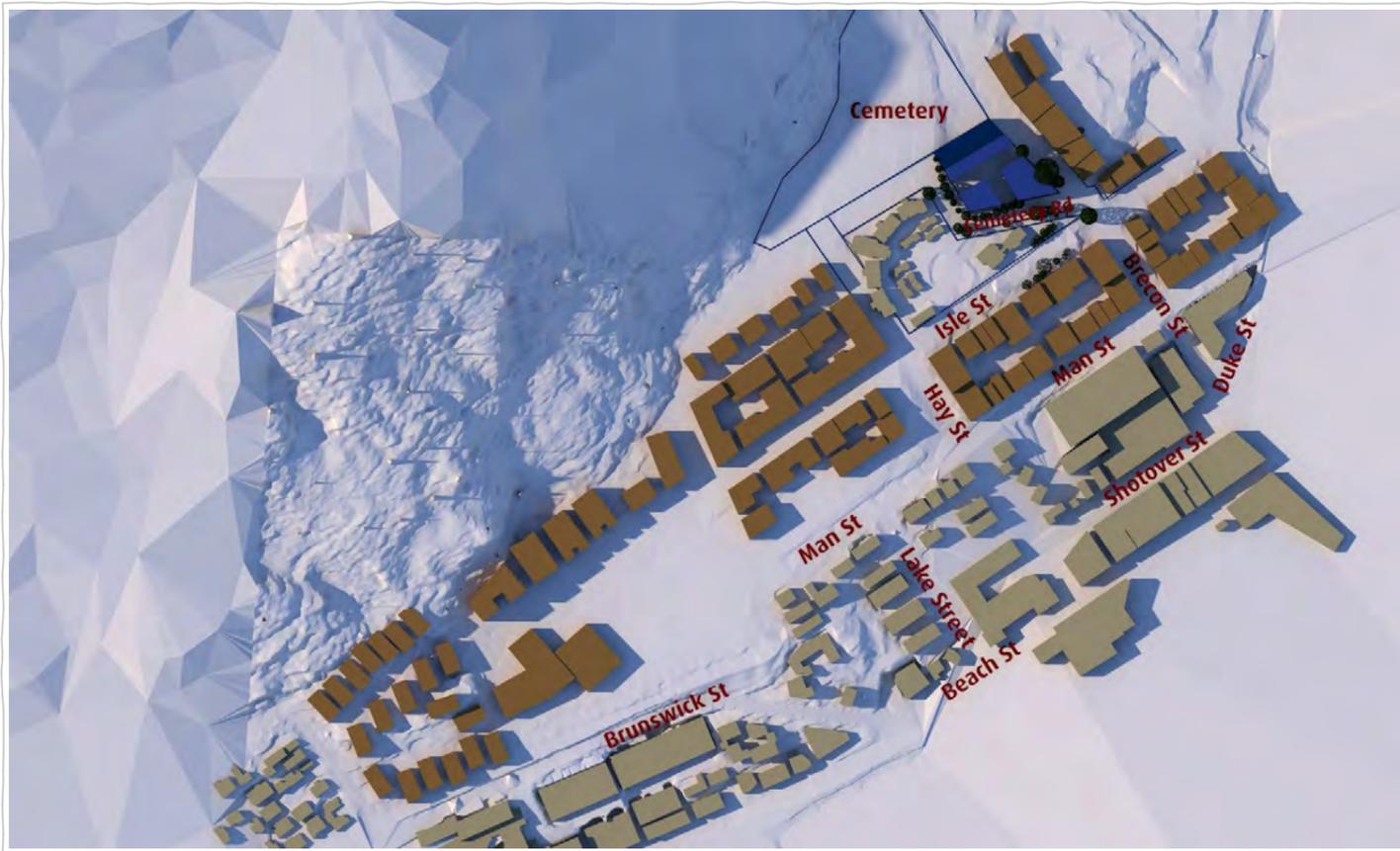
-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option F: 24m height with plan change 50 & Holiday Park to remain.



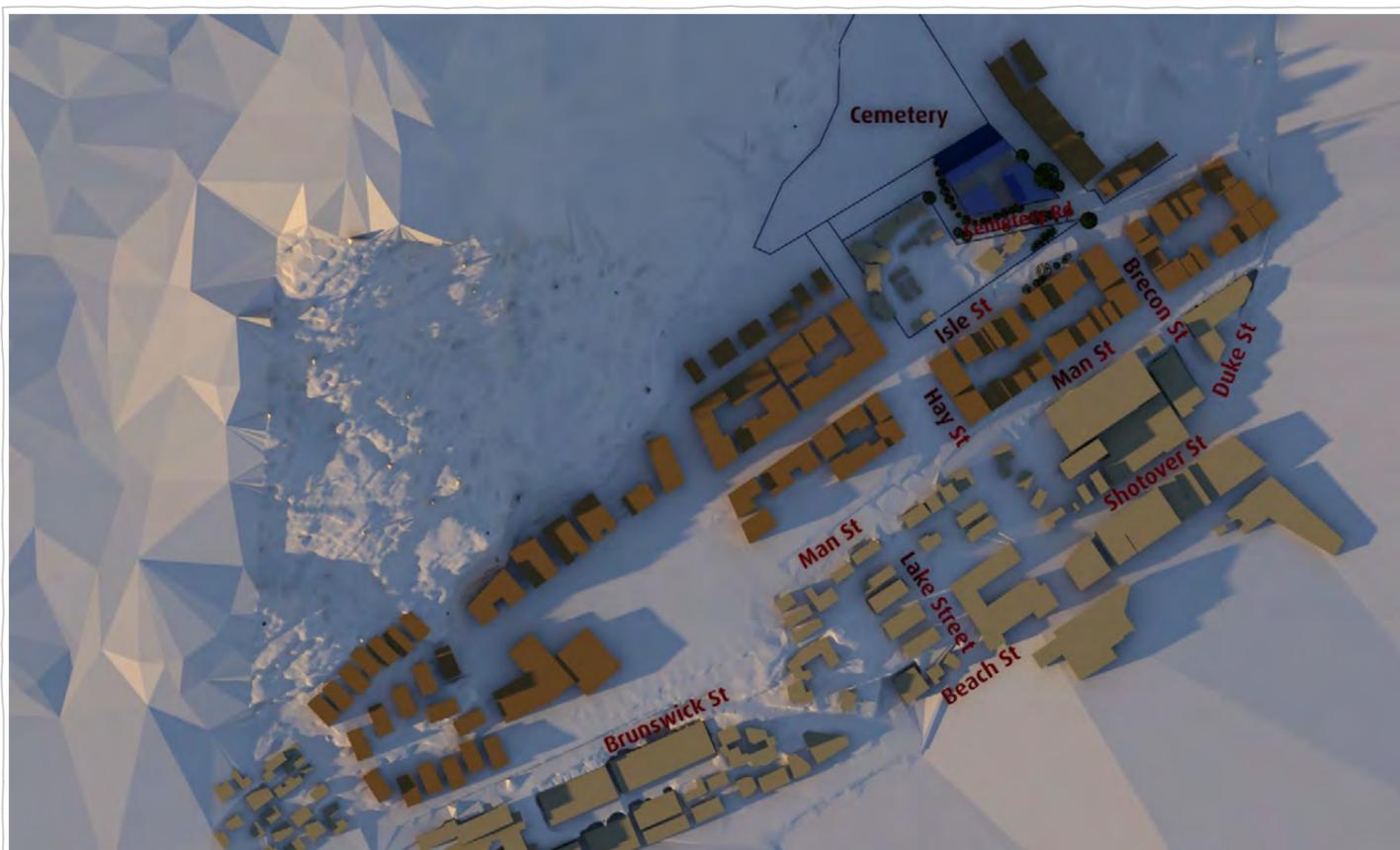
December 21, 2015, 2pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

2pm:
 The sun is still high.
 34 Brecon St is creating a small amount of shadow over the south western side of Brecon St and the north eastern side of Cemetery Rd.
 The existing trees are also making an impact.



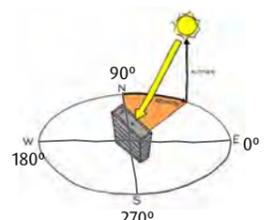
December 21, 2015, 4pm (daylight savings):
 Sun Altitude = 68.2056°
 Sun Azimuth = 99.8674°

4pm:
 34 Brecon St is shadowing Brecon St.
 The Existing trees are making a small impact on the build gins on the north eastern side of Brecon St.



December 21, 2015, 6pm (daylight savings):
 Sun Altitude = 34.5011°
 Sun Azimuth = 179.7878°

6pm:
 The sun is setting and Bobs Peak is overshadowing 34 Brecon St.

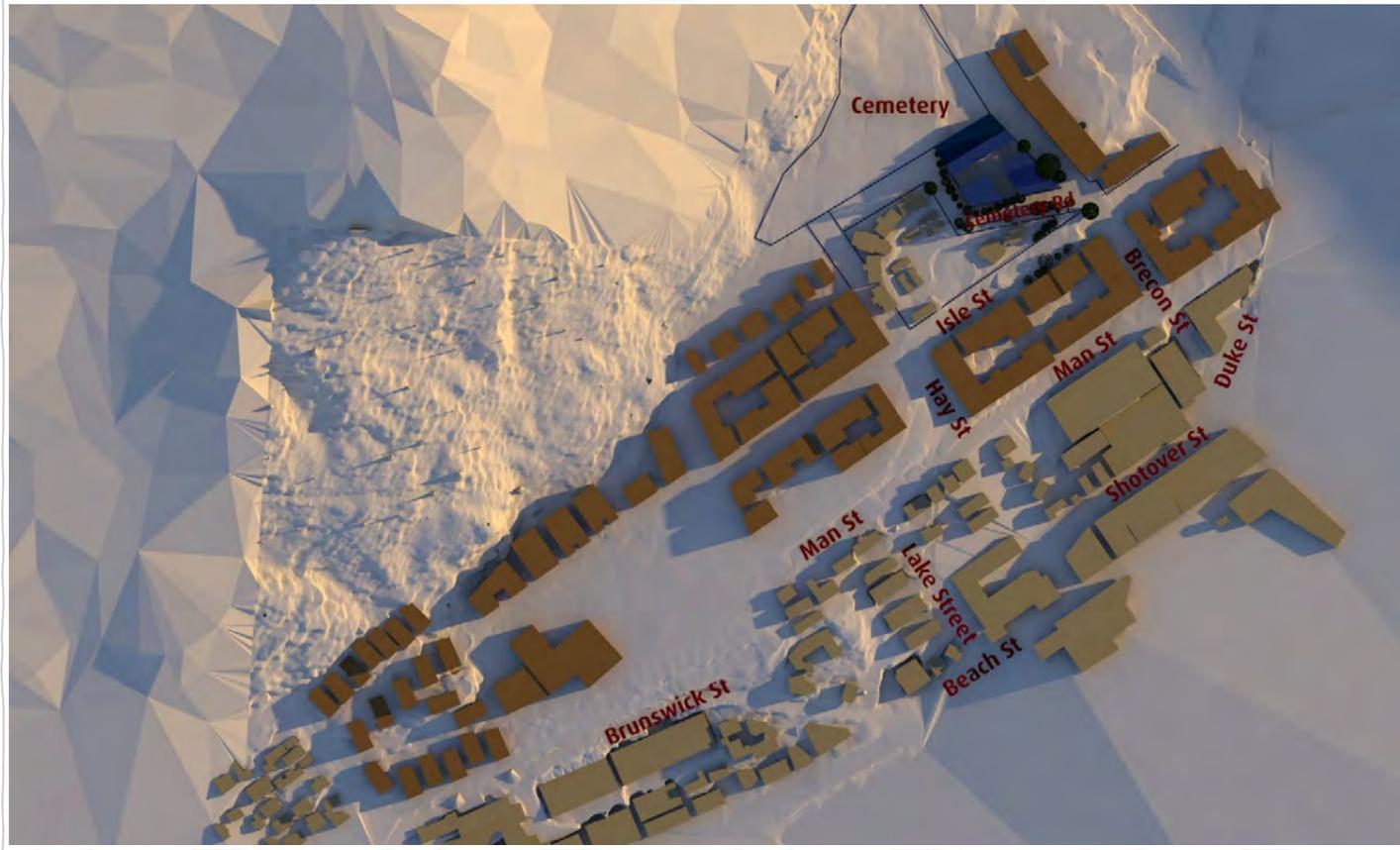


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option F: 24m height with plan change 50 & Holiday Park to remain.



September 21, 2015, 8am:
 Sun Altitude = 13.7233°
 Sun Azimuth = 15.3278°

8am:
 The sun is out. 34 Brecon Street is shadowing Cemetery Rd and a portion of the Holiday park site and cemetery.
 The existing trees are also making an impact.



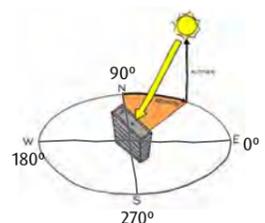
September 21, 2015, 10am:
 Sun Altitude = 32.3522°
 Sun Azimuth = 41.0882°

10am:
 The sun is out. There are no shadows on the cemetery and there is little impact on the surrounding buildings.
 The existing trees are making an impact.



September 21, 2015, 12pm:
 Sun Altitude = 43.3978°
 Sun Azimuth = 76.8009°

12pm:
 The sun is high. 34 Brecon Street overshadows no buildings, but is shadowing parts of Cemetery Rd.

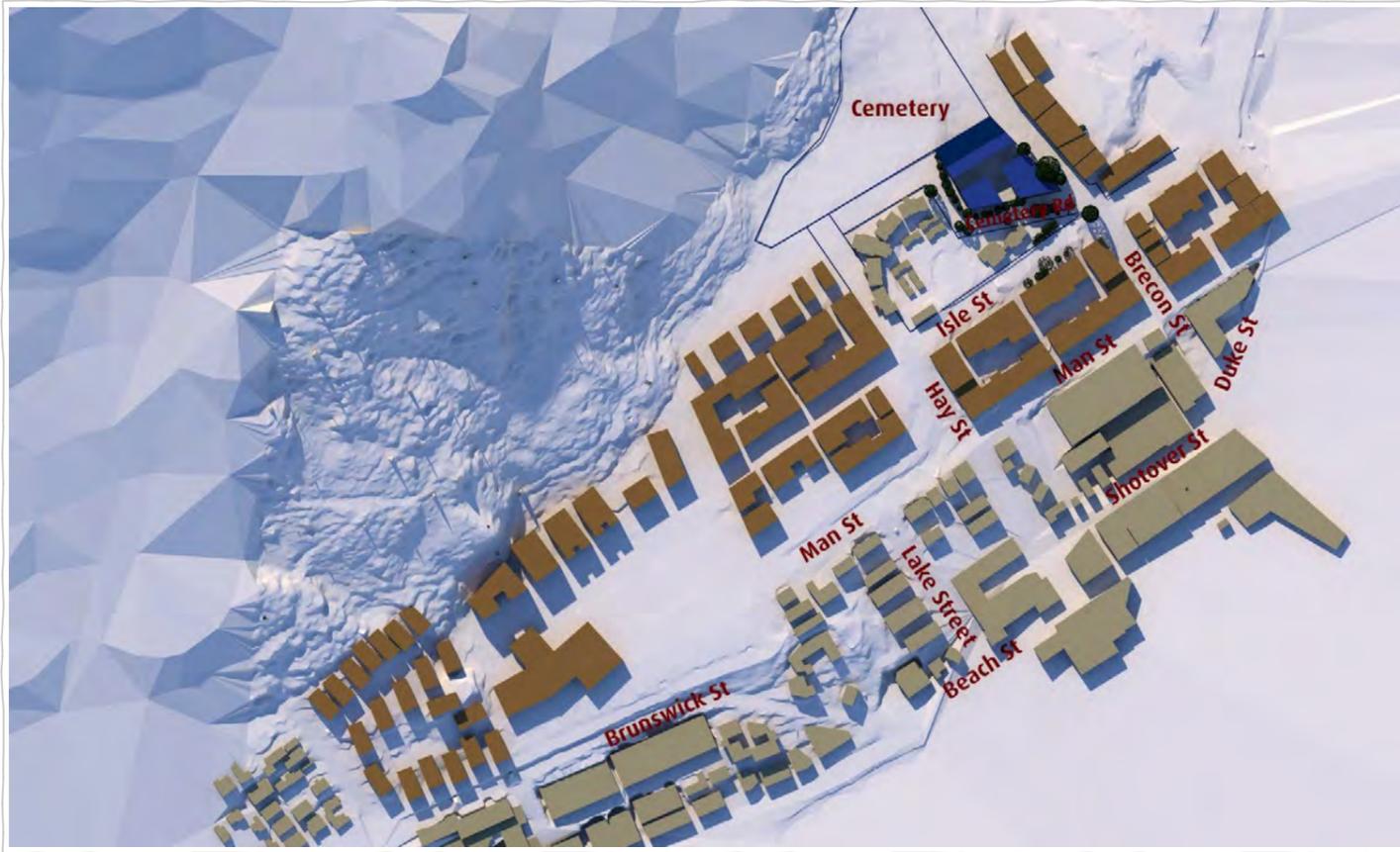


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

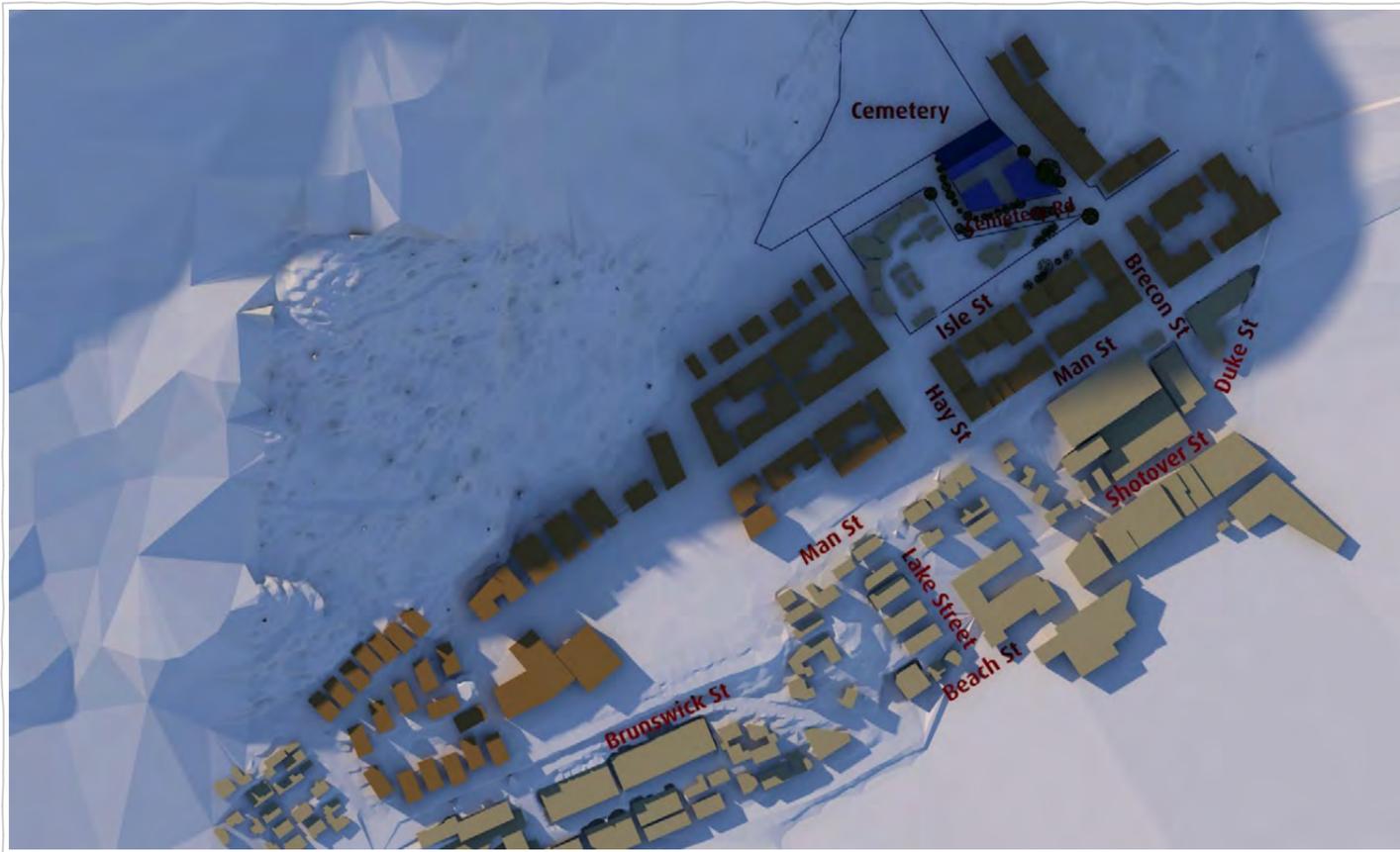
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option F: 24m height with plan change 50 & Holiday Park to remain.



September 21, 2015, 2pm:
 Sun Altitude = 40.7179°
 Sun Azimuth = 117.4463°

2pm:
 The sun is out. Shadows from 34 Brecon Street are starting to reach existing buildings to the south. Cemetery Rd is also in shadow.



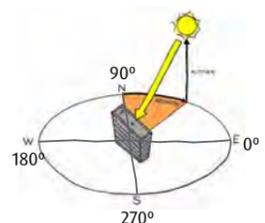
September 21, 2015, 4pm:
 Sun Altitude = 26.1200°
 Sun Azimuth = 149.1689°

4pm:
 The sun is setting. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



September 21, 2015, 6pm:
 Sun Altitude = 6.11793°
 Sun Azimuth = 172.6624°

6pm:
 The sun has set below the mountains. 34 Brecon Street and its surroundings are overshadowed by Bobs Peak.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

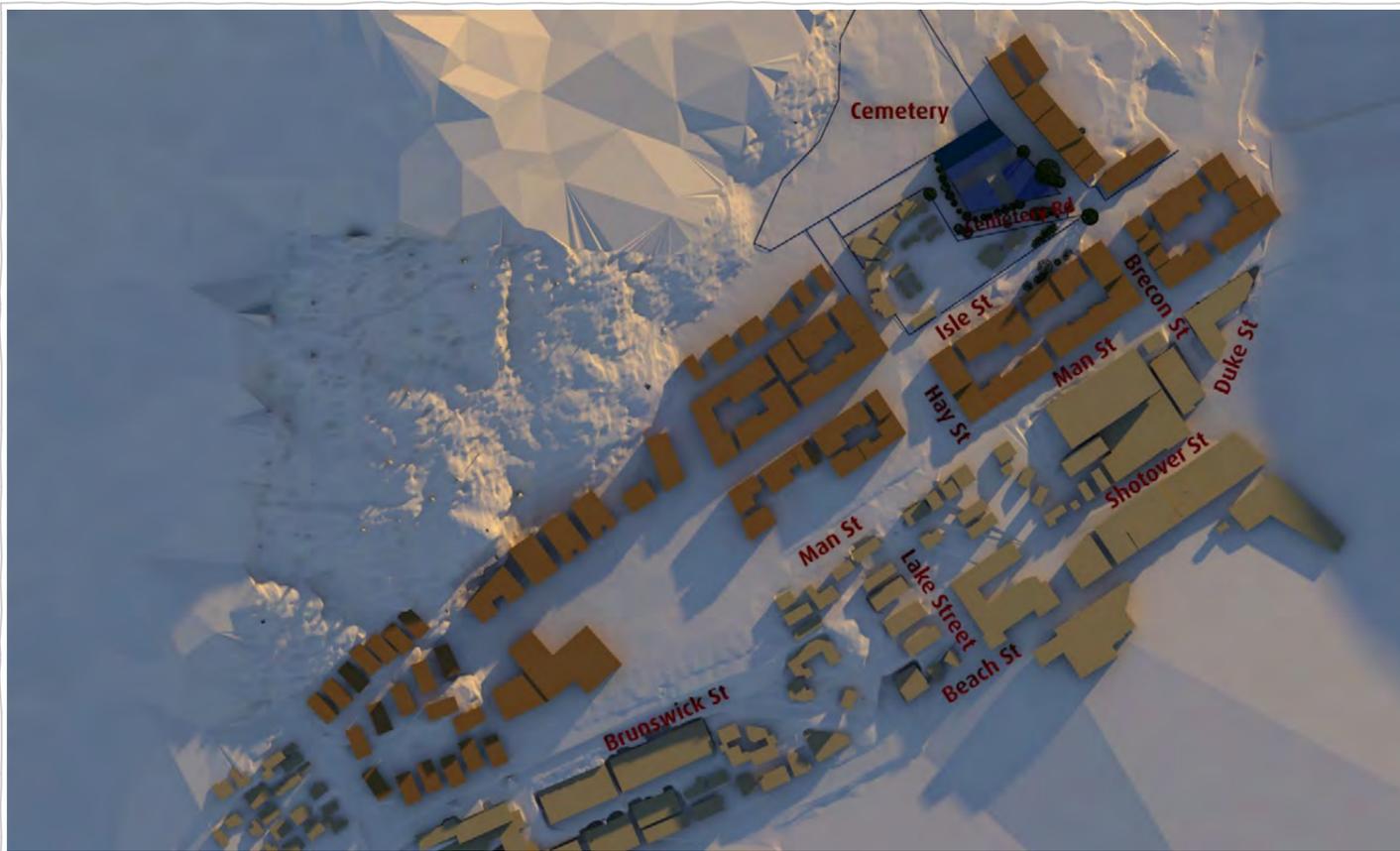
- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.

Option F: 24m height with plan change 50 & Holiday Park to remain.



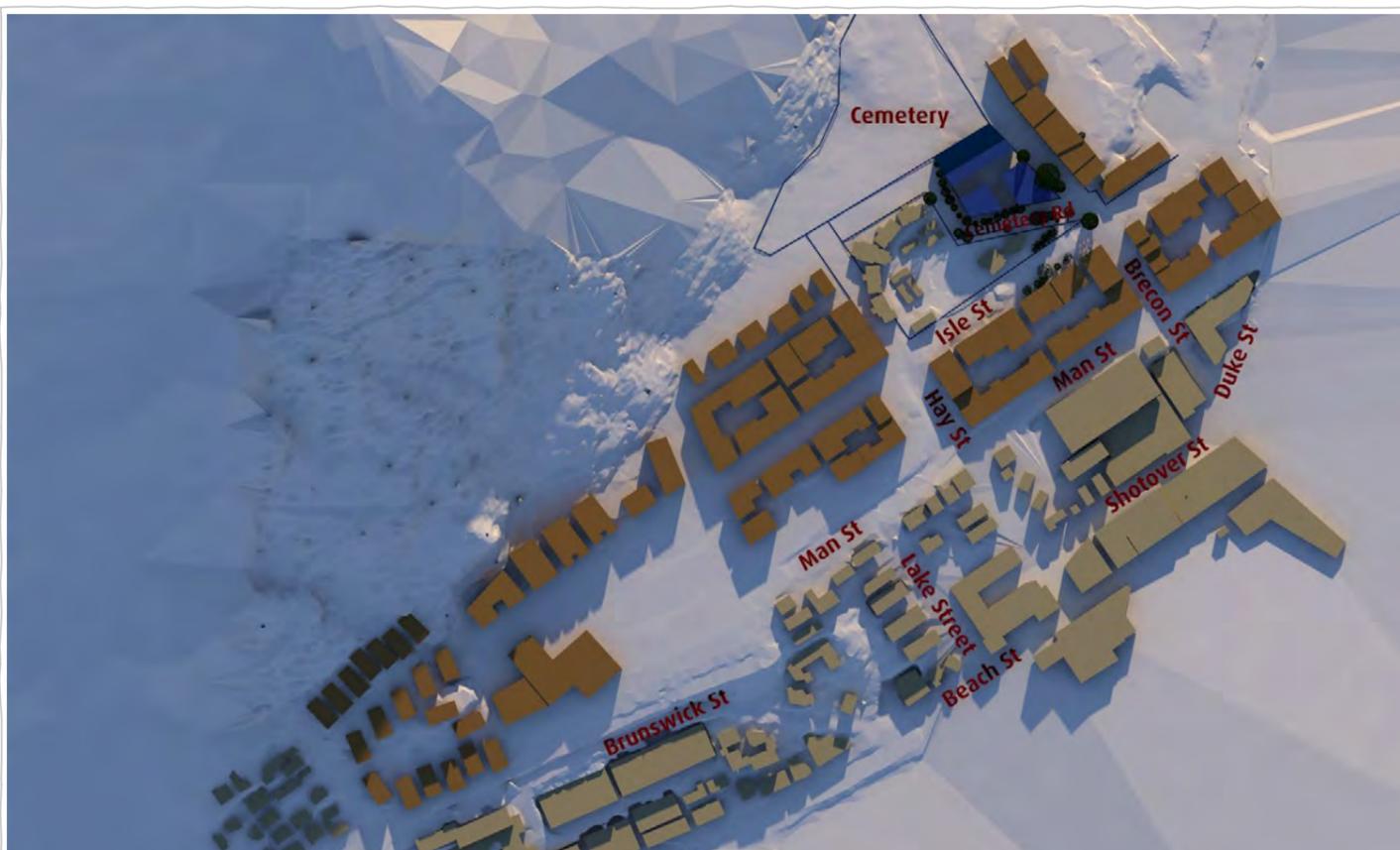
June 21, 2015, 8am:
Sun Altitude = -4.5301°
Sun Azimuth = 29.1303°

8am:
It is still night time.



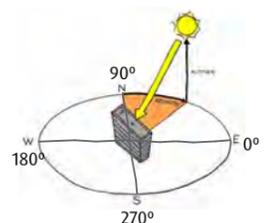
June 21, 2015, 10am:
Sun Altitude = 11.6183°
Sun Azimuth = 51.4595°

10am:
The buildings at 34 Brecon Street are causing shadows over Cemetery Rd and some of the buildings in the Holiday park site.



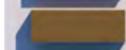
June 21, 2015, 12pm:
Sun Altitude = 20.6212°
Sun Azimuth = 78.5191°

12pm:
The buildings at 34 Brecon Street are partially overshadowing some buildings in the Holiday park site.
Cemetery Rd is completely in shadow.

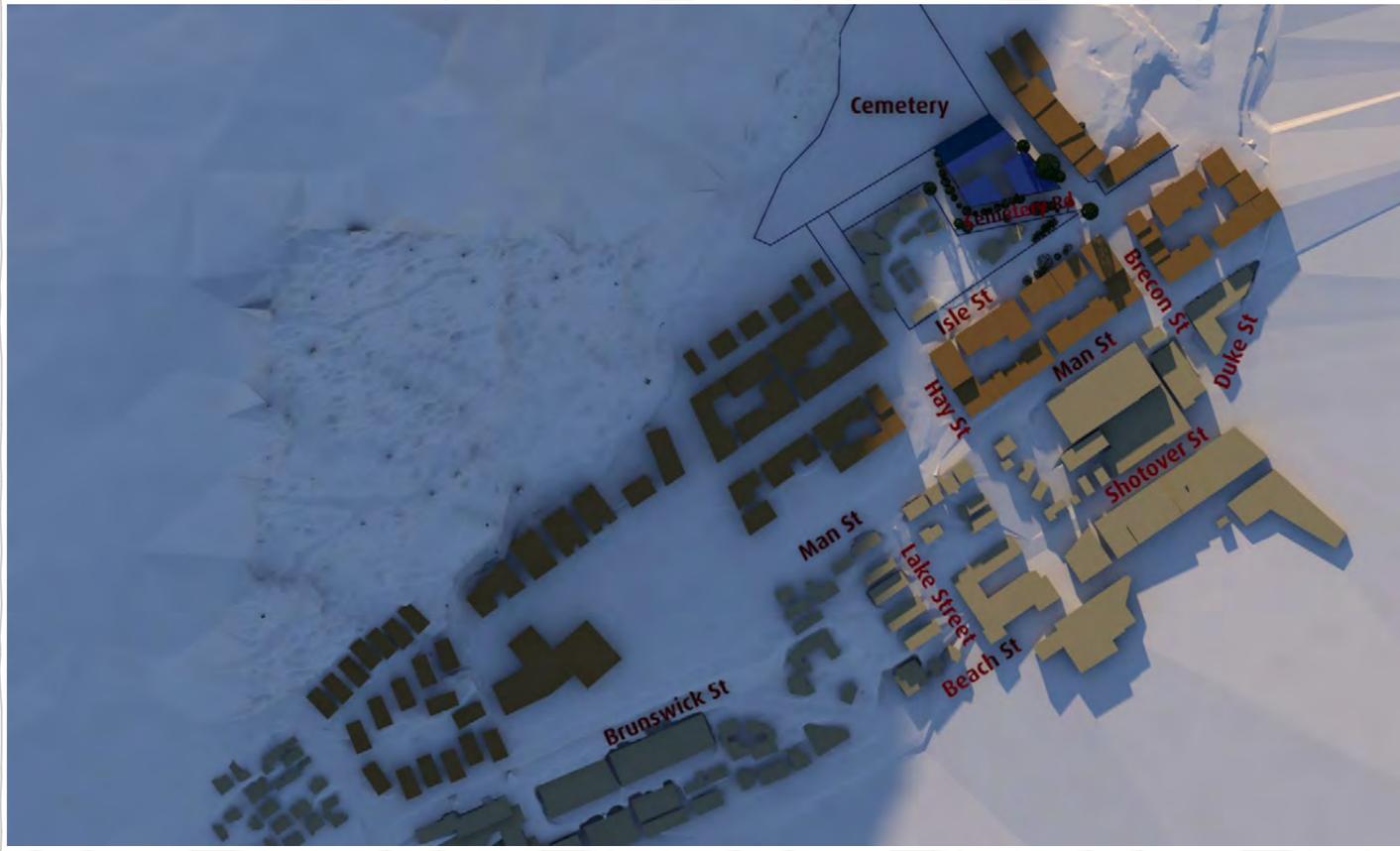


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

Option F: 24m height with plan change 50 & Holiday Park to remain.



June 21, 2015, 2pm:
Sun Altitude = 19.4511°
Sun Azimuth = 107.7613°

2pm:
Bobs Peak is starting to overshadow the PC50 area.
34 Brecon Street is partially overshadowing two buildings to the south.



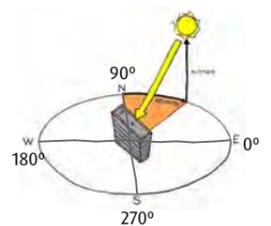
June 21, 2015, 4pm:
Sun Altitude = 8.5674°
Sun Azimuth = 133.8062°

4pm: The site is in darkness.



June 21, 2015, 6pm:
Sun Altitude = -8.6610°
Sun Azimuth = 155.2716°

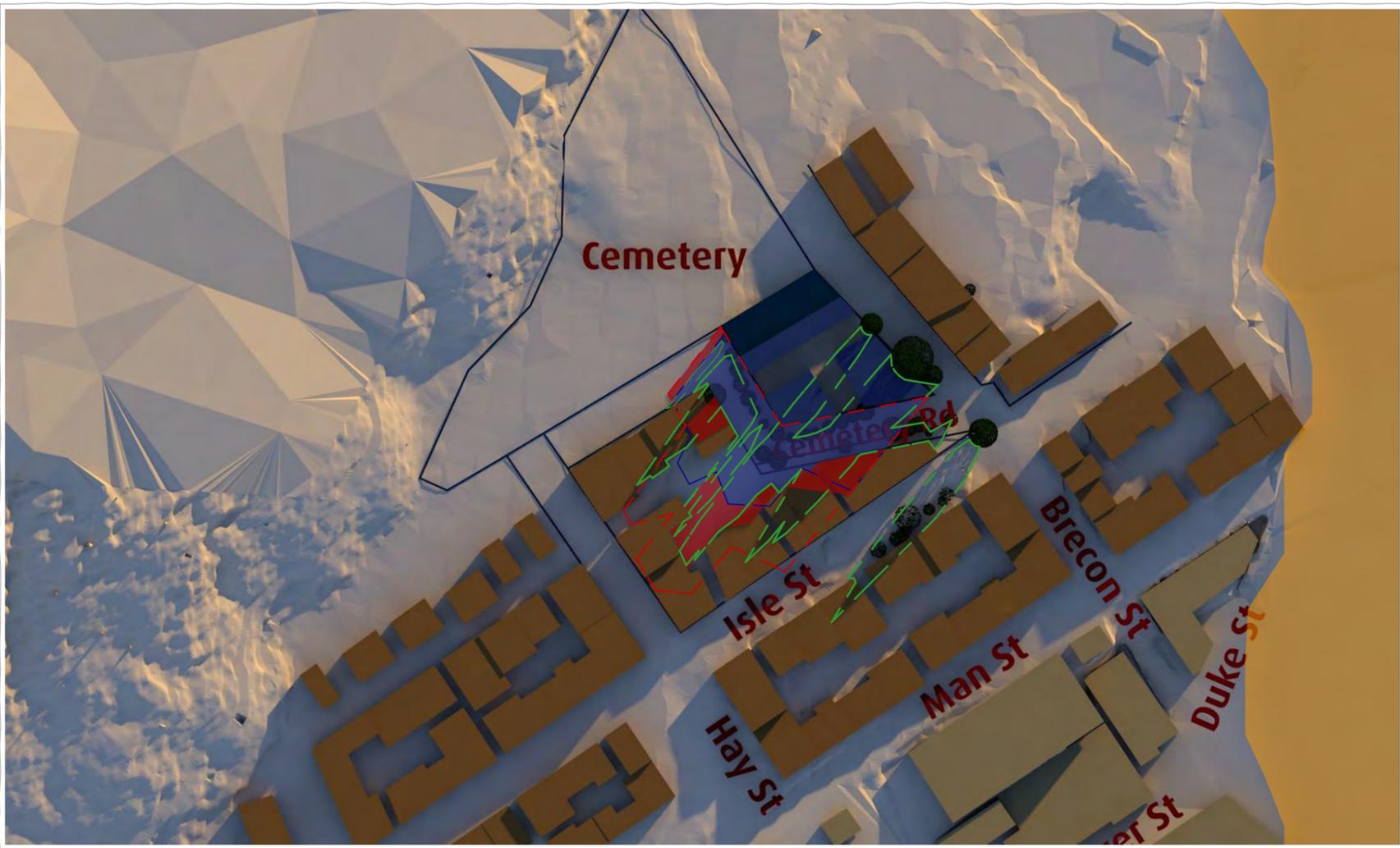
6pm: It is night time.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

Building Legend:

-  -Existing building massing.
-  -Proposed PC50 building massing.
-  -Proposed 12m Height building massing.
-  -Proposed 15m Height building massing.
-  -Proposed 24m Height building massing.

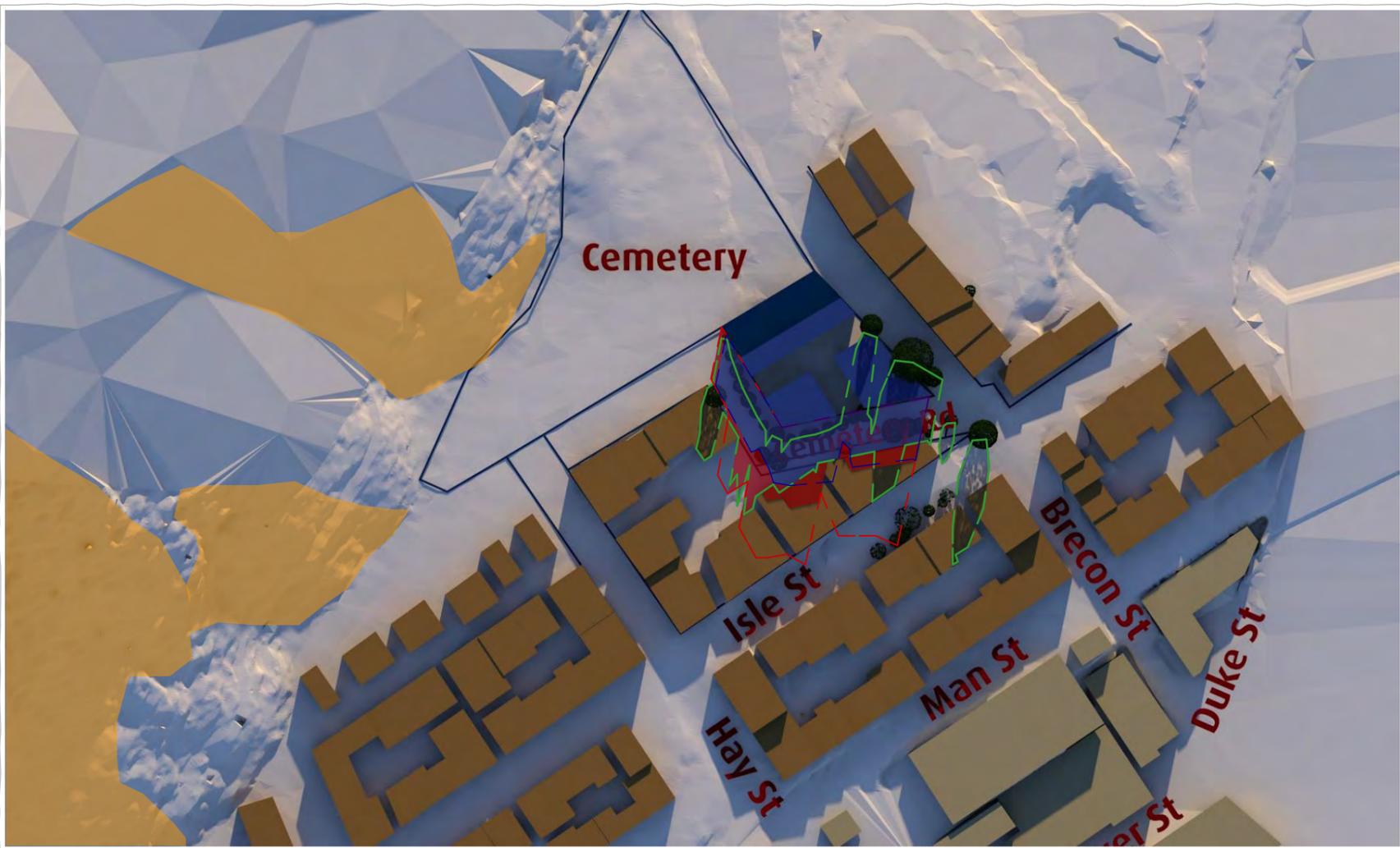


June 21, 2015, 10am:

Sun Altitude = 11.6183°
Sun Azimuth = 51.4595°

- The sun has just recently cleared over Queenstown hill. At this time of morning shadows cast by all buildings are long and cross roads to the west of sites.
- The 12m high buildings of 34 Brecon St cast shadows across Cemetery Rd and onto buildings.
- The 24m high buildings of 34 Brecon St cast shadows across Cemetery Rd and onto building with small sections of shadow over the roof of some buildings.

- Trees are causing shadows deep into the former Holiday park site.
- The blue outline shows the extent of shadow that 12m high buildings would create on a blank site.
- The red outline shows the extent of shadow that 24m high buildings would create on a blank site.
- The Green outline and hatch shows the effects of the existing trees that are in the public open space.
- The extent of the shadows cast by the 24m high buildings are designated by the red hatch.
- The green hatch shows the extent of the shadows cast by the existing trees in the public realm that have a significant effect in shadowing neighbouring buildings.

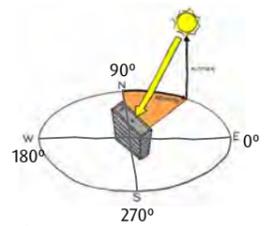


June 21, 2015, 12pm:

Sun Altitude = 20.6212°
Sun Azimuth = 78.5191°

- The sun has risen to close to its highest point (apex is at 12:45pm).
- At this time of the day shadows cast by all buildings are still substantial and are typically crossing roads to the west and south of sites.
- The 12m high buildings of 34 Brecon St cast shadows across Cemetery Rd and onto buildings to the south.
- The 24m high buildings of 34 Brecon St cast shadows across Cemetery Rd and onto building with small sections of shadow over the roof of some buildings to the south.

- The blue outline shows the extent of shadow that 12m high buildings would create on a blank site.
- The red outline shows the extent of shadow that 24m high buildings would create on a blank site.
- The Green outline and hatch shows the effects of the existing trees that are in the public open space.
- Trees are casting shadows across roads and onto buildings.
- The extent of the shadows cast by the 24m high buildings are designated by the red hatch.
- The green hatch shows the extent of the shadows cast by the existing trees in the public realm that have a significant effect in shadowing neighbouring buildings.
- Note that the protected trees cast shadows above the proposed 24m high buildings onto neighbouring buildings to the south.

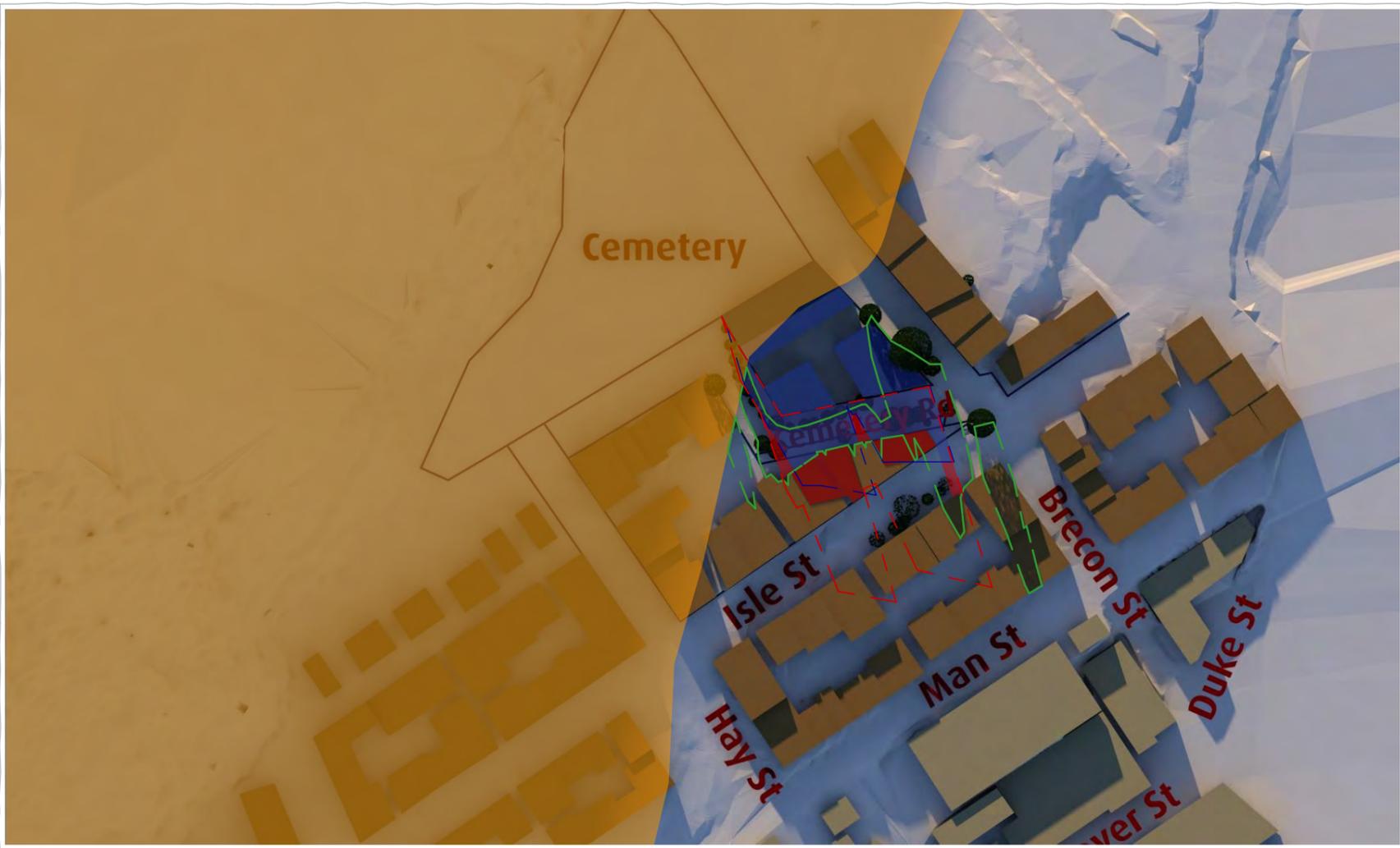


Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.

- Extent of 24m building on grade.
- Extent of 12m building on grade.
- Extent of extra shadow cast by 24m building.
- Extent of extra shadow cast by 12m building.
- Extent of shadow from street trees.
- Extent of shadow from mountains.

Building Legend:

- Existing building massing.
- Proposed PC50 building massing.
- Proposed 12m Height building massing.
- Proposed 15m Height building massing.
- Proposed 24m Height building massing.



June 21, 2015, 2pm:
 Sun Altitude = 19.4511°
 Sun Azimuth = 107.7613°

- The sun is beginning to fall behind the mountain (within 20minutes of this time the mountain shadow will cover down to Man St).
- At this time of the afternoon shadows cast by all buildings are long and cross roads to the south of sites.
- The 12m high buildings of 34 Brecon St cast shadows across Cemetery Rd to the buildings.
- The 24m high buildings of 34 Brecon St cast shadows across Cemetery Rd and onto building with small sections of shadow over the roof of some buildings.

- The blue outline shows the extent of shadow that 12m high buildings would create on a blank site.
- The red outline shows the extent of shadow that 24m high buildings would create on a blank site.
- The Green outline and hatch shows the effects of the existing trees that are in the public open space.
- Trees are casting long shadows over streets and onto rooftops.
- The extent of the shadows cast by the 24m high buildings are designated by the red hatch.
- The green hatch shows the extent of the shadows cast by the existing trees in the public realm that have a significant effect in shadowing neighbouring buildings.



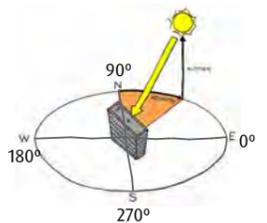
June 21, 2015, 2:30pm:
 Sun Altitude = 17.5305°
 Sun Azimuth = 114.7252°

- The sun has fallen behind the mountain, shading Isle St, most of Man St, all of the Holiday park site and 34 Brecon St.
- At this time of the afternoon shadow cast by the mountain is long and crosses roads to the south of sites.
- The 12m high buildings of 34 Brecon St are totally within the shadow of the mountain and have no further effect.
- The 24m high buildings of 34 Brecon St are totally within the shadow of the mountain and have no further effect.

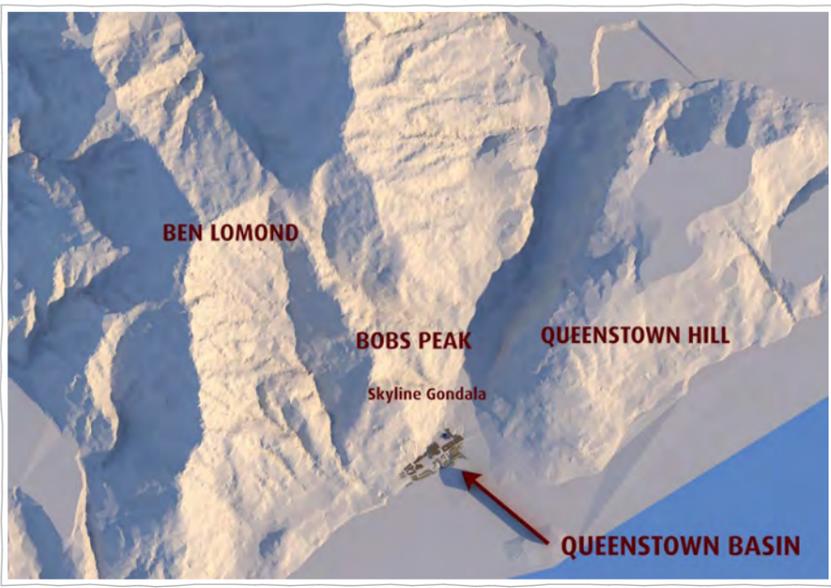
- As the buildings are in the shadow of the mountain, they have no further effect on neighbouring sites.
- The tall protected and public street trees have an effect as they are higher than the shadow of the buildings.
- Trees are casting long shadows over streets and onto rooftops, almost to Shotover St.
- The green hatch shows the extent of the shadows cast by the existing trees in the public realm that have a significant effect in shadowing neighbouring buildings.

- Extent of 24m building on grade.
- Extent of 12m building on grade.
- Extent of extra shadow cast by 24m building.
- Extent of extra shadow cast by 12m building.
- Extent of shadow from street trees.
- Extent of shadow from mountains.

- Building Legend:**
- Existing building massing.
 - Proposed PC50 building massing.
 - Proposed 12m Height building massing.
 - Proposed 15m Height building massing.
 - Proposed 24m Height building massing.



Note: These diagrams have been created every two hours to match the times stated on the Fearon Hay diagrams.



Overall Sun Shadowing - December 21 - 6am



Overall Sun Shadowing - December 21 - 2pm



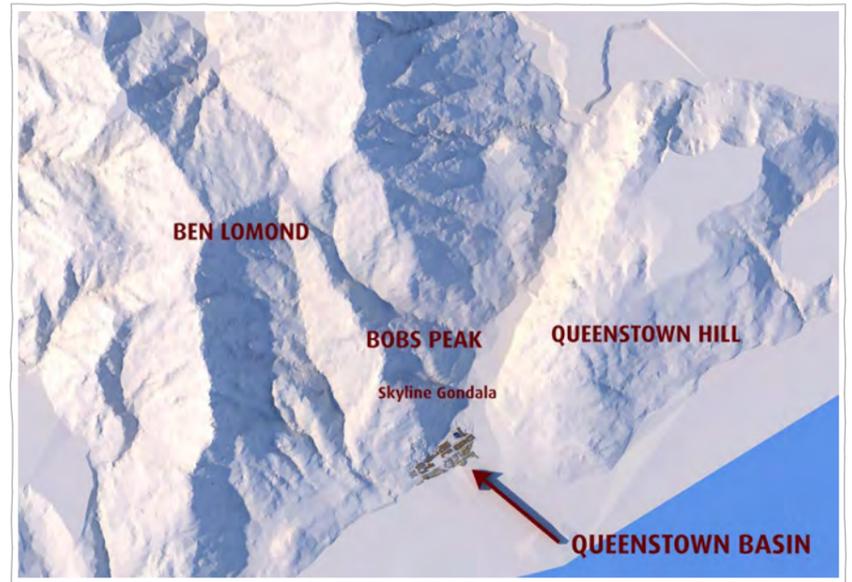
Overall Sun Shadowing - December 21 - 8am



Overall Sun Shadowing - December 21 - 3pm



Overall Sun Shadowing - December 21 - 10am



Overall Sun Shadowing - December 21 - 4pm



Overall Sun Shadowing - December 21 - 12pm



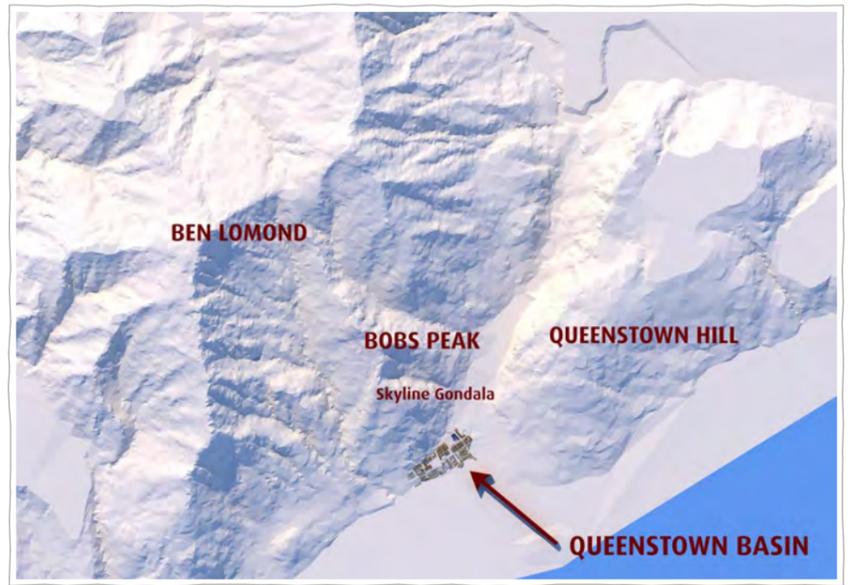
Overall Sun Shadowing - December 21 - 6pm

This drawing is intended to show the significant effect on the Queenstown basin from shading by the surrounding mountains of Ben Lomond, Bobs Peak and Queenstown Hill in order to give a broader perspective to the discussion surrounding sun shadowing within PC50 Expert witness conferencing of planning and urban design matters. The study clearly shows that for much of the year Queenstown is significantly shaded by the surrounding mountains.

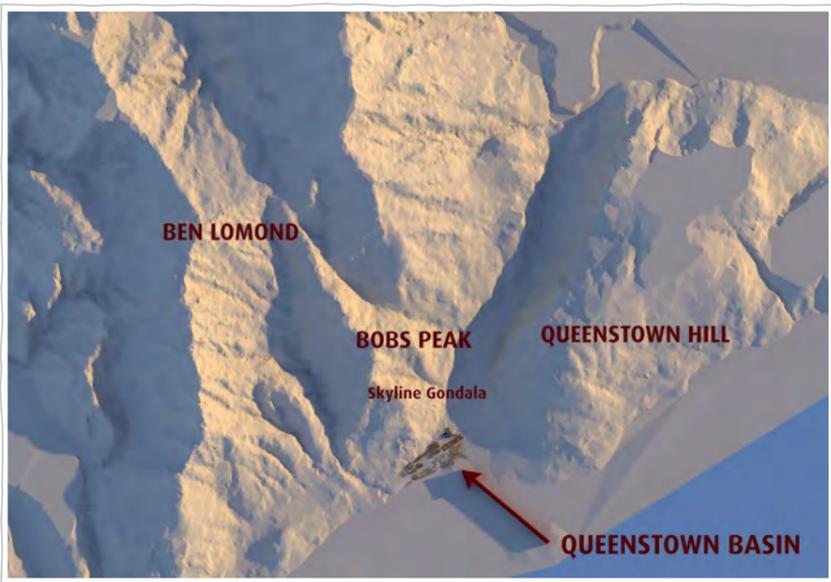
DECEMBER 21, 2015



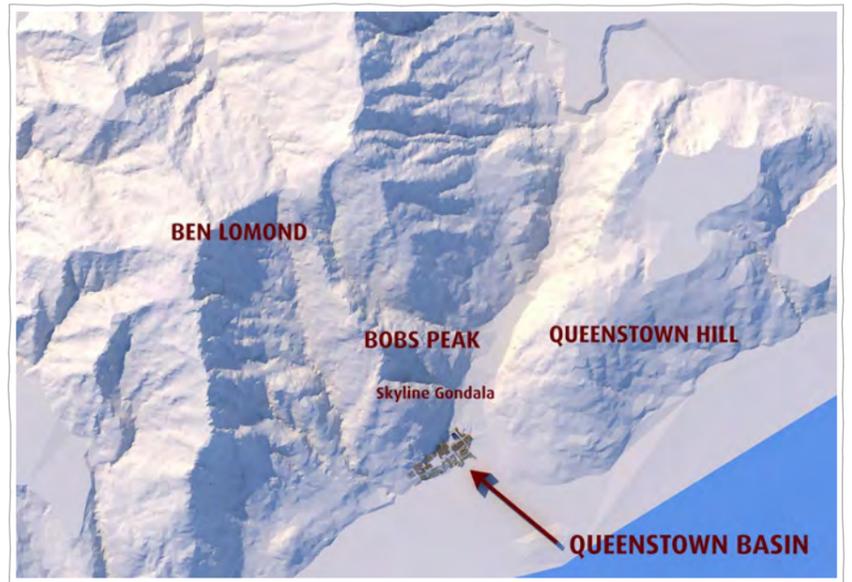
Overall Sun Shadowing - September 21 - 6am



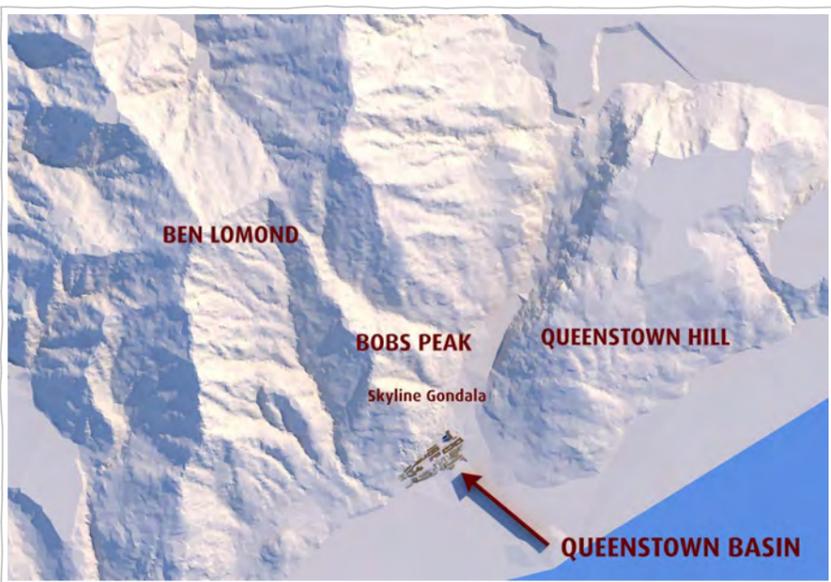
Overall Sun Shadowing - September 21 - 2pm



Overall Sun Shadowing - September 21 - 8am



Overall Sun Shadowing - September 21 - 3pm



Overall Sun Shadowing - September 21 - 10am



Overall Sun Shadowing - September 21 - 4pm



Overall Sun Shadowing - September 21 - 12pm



Overall Sun Shadowing - September 21 - 6pm

This drawing is intended to show the significant effect on the Queenstown basin from shading by the surrounding mountains of Ben Lomond, Bobs Peak and Queenstown Hill in order to give a broader perspective to the discussion surrounding sun shadowing within PC50 Expert witness conferencing of planning and urban design matters. The study clearly shows that for much of the year Queenstown is significantly shaded by the surrounding mountains.

SEPTEMBER 21, 2015



Overall Sun Shadowing - June 21 - 7am



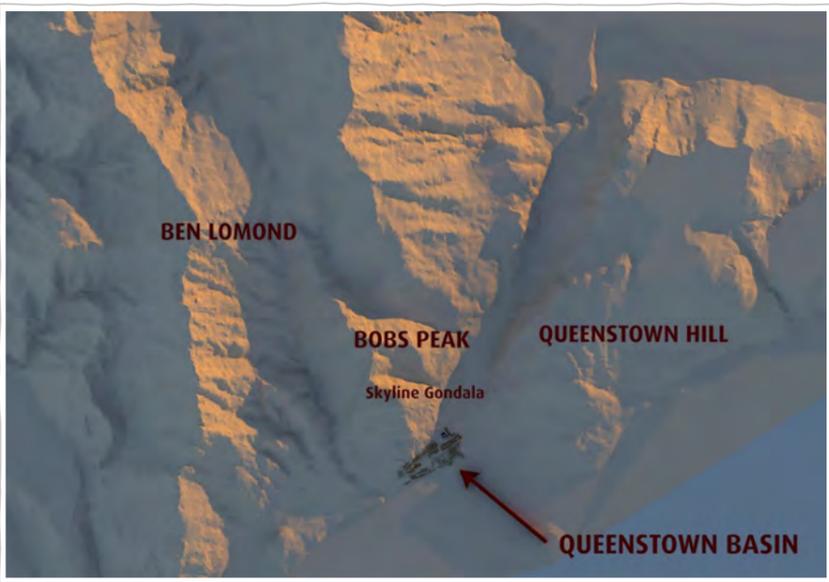
Overall Sun Shadowing - June 21 - 12pm



Overall Sun Shadowing - June 21 - 8am



Overall Sun Shadowing - June 21 - 2pm



Overall Sun Shadowing - June 21 - 9am



Overall Sun Shadowing - June 21 - 4pm



Overall Sun Shadowing - June 21 - 10am



Overall Sun Shadowing - June 21 - 5pm

This drawing is intended to show the significant effect on the Queenstown basin from shading by the surrounding mountains of Ben Lomond, Bobs Peak and Queenstown Hill in order to give a broader perspective to the discussion surrounding sun shadowing within PC50 Expert witness conferencing of planning and urban design matters. The study clearly shows that for much of the year Queenstown is significantly shaded by the surrounding mountains.

SEPTEMBER 21, 2015