APPENDIX A

# BUILT FORM TESTING

## A. Built Form Testing

To test the validity of the 'Recommended Built Form Parameters' and support their useful translation into a DDO control, Hansen has prepared 3D computer massing modelling of the precinct. The tests demonstrate the visual implications of built form outcomes to enable assessment. Details of the modelling approach and methodology are provided below.

**Purpose and Scope of Built Form Testing**

- The Queens Parade Built Form Review Recommendations were tested a high-level 3D computer modelling of development envelopes. It was established and operated as a 'working' massing model used to informally measure built form heights and setbacks to properties along the length of the Queens Parade corridor (within the Study Area) as a useful general tool in comparative analysis.
- The development and use of such 3D massing models is common for strategic built form work of this kind to examine the general relationships between new urban form (various options or scenarios), topography and key views to existing landmarks from identified vantage points as advised by GJM Heritage.
- 3D massing models are commonly used in addition to more conventional 2D cross-sections (and other tools) when determining built form controls and assessing off-site impacts on surrounding land such as overshadowing and visual bulk.

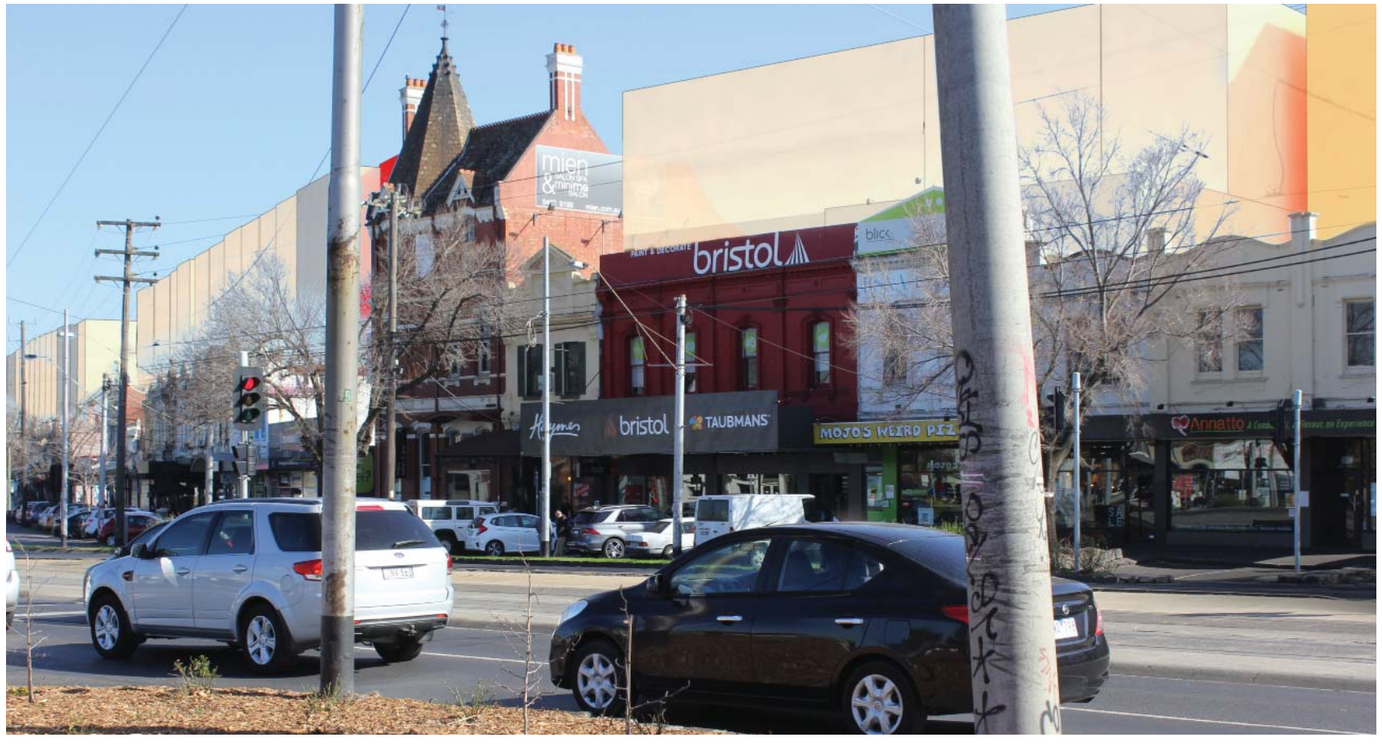
**Massing Model**

- The massing model utilised is 'fit for purpose' for a strategic corridor study of its kind. It does not rely on detailed site survey data, rather more general available contour, landform and cadastral information. Such modelling has been reliably applied in other strategic work across Metropolitan Melbourne.
- The massing model is prepared in SketchUp Pro (2016 and 2017) and utilises automatic Google terrain as the basis for topography and basic aerial imagery (via 'Geo-Location' command).
- The existing building envelopes surrounding the site are depicted as massing representations only and do not seek to represent existing building detail, in terms of architectural form or appearance – but rather overall scale.
- The existing 'landmark' building envelopes have been modelled based on 'Google Earth – Street View' tests to determine their overall scale. These include:
  - St John the Baptist Church;
  - Former ANZ Bank building;
  - Former United Kingdom Hotel; and
  - Former Clifton Motors Building .
- Within the Study Area (areas identified for moderate, high and substantial change), the development envelope has been represented in 3-dimension based on the site and cadastral information available from the City of Yarra and DataVIC with an assumption of 100% site coverage.
- Further, a number of recent development envelopes (approved, but unbuilt and under construction) have been modelled to represent their overall scales and setbacks, based on endorsed architectural plans provided by the City of Yarra.
- We acknowledge that the basis of the model (i.e. site boundaries and levels) is not as accurate as one generated with a detailed site survey.
- Development massing for contributory and significant heritage sites has been modelled based on the following measurements:
  - 11m 'street wall' (as a typical measurement for 2-storeys Victorian-era parapet); and
  - 3.5m floor to floor height for upper levels above the 'street wall'.
- Development massing for non-contributory, or non-heritage sites has been modelled based on the following measurements:
  - 4.0m floor to floor height for ground level; and
  - 3.5m floor to floor height for level 1 and above.

## B. Photo Match Model Views

**Purpose and Scope of Built Form Testing**

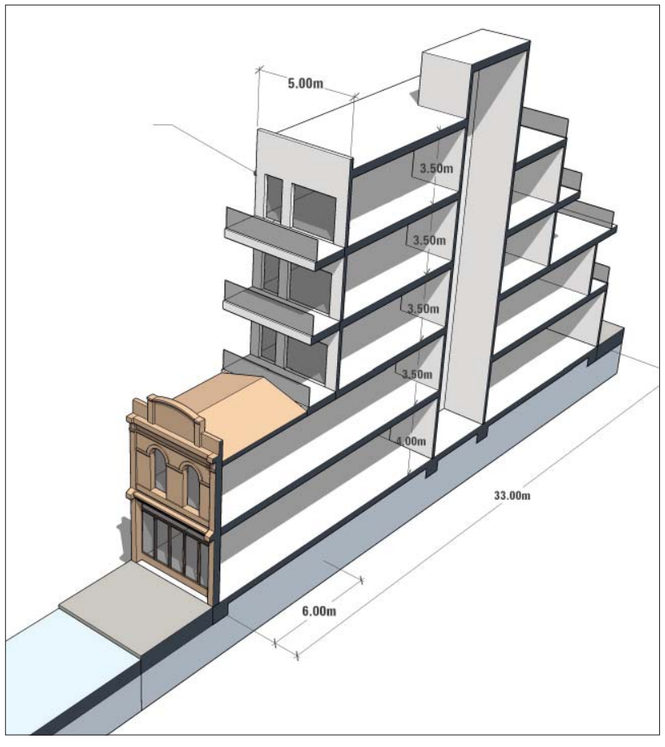
- 10 locations are identified by GJM Heritage to determine critical key views to heritage landmarks from the public realm and the required built form response as identified on Figure 1 (overleaf). This testing has utilised the working massing model (prepared in Sketch Up, as described in Part A), but was registered accurately with surveyor's information and photographic settings to represent a genuine eye level views.
- The photos used in the photomontages were taken using a Digital SLR camera (Canon EOS 60D) with a 18mm lens setting. The digital lens has a 1.6x multiplier, hence a digital lens setting of 18mm is equivalent to a 'full frame' 35mm film camera using a 28.8mm lens (30 x 1.6 = 28.8), which provides an angle of view in the order of 64 degrees per frame.
- The positioning of the camera was set upon a spirit levelled tripod oriented towards the heritage landmarks and taken at a height of 1.6m above ground level. The photographs were taken on the 31 July 2017.
- The preparation of photo match model views undertaken utilising the following software programmes:
  - **3ds Max 2016** (3D modeller); for importing the massing model (prepared in Sketch Up as described in Part A). Positioning and alignment of the three-dimensional massing model is based on photo locations and control points obtained on site by Geocomp Consulting Pty Ltd, referenced to both Australian Height Datum and Australian Map Grid data.
  - **VRay** (rendering software); for applying colours to the massing model to express varying attributes.
  - **Adobe Photoshop CC2016**; for rendering views from the 3 dimensional massing model camera. Locations are superimposed into the photograph without any distortion or manipulation, except for necessary changes to provide a true representation of the proposal within its context.




## C. Case Studies

**Purpose and Scope of Built Form Testing**

- 5 sites in Precincts 3 and 4 were selected by the Council project team to test the feasibility of the built form recommendation on typical fine grained sites along Queens Parade and Smith Street, with varying allotment depths as identified on Figure 1 (overleaf).
- This case study test has utilised both 2D and 3D testing tools to demonstrate how the built form recommendation are realised on single, or consolidated sites, noting varied site attributes and without detrimental impact on the heritage and residential sensitivities.



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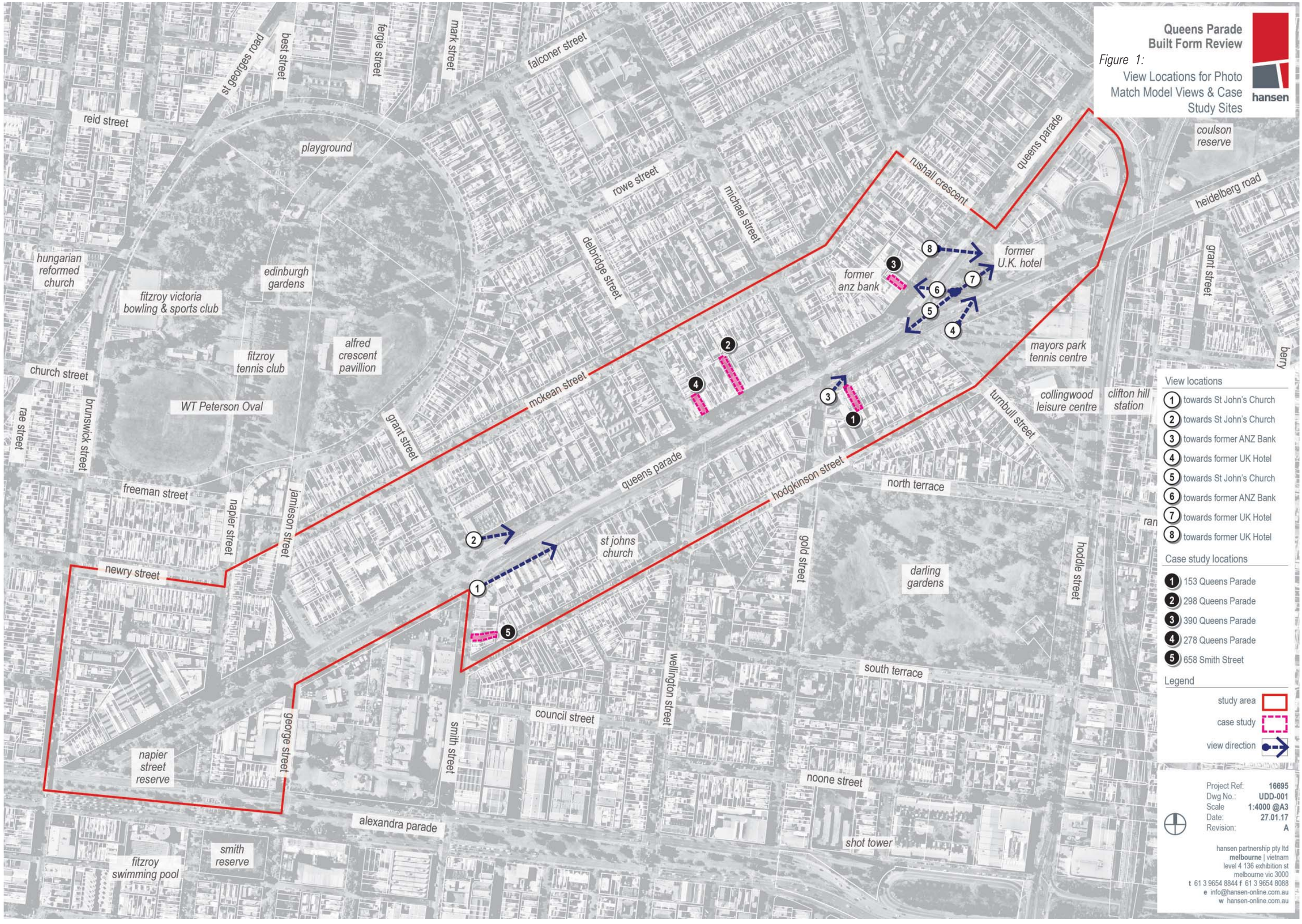

Queens Parade
Built Form Review
Figure 1:
View Locations for Photo Match Model Views & Case Study Sites
hansen
st georges road
best street
fergie street
mark street
falconer street
reid street
playground
rowe street
michael street
rushall crescent
queens parade
coulson reserve
heidelberg road
hungarian reformed church
edinburgh gardens
delbridge street
former anz bank
former U.K. hotel
grant street
fitzroy victoria bowling & sports club
fitzroy tennis club
alfred crescent pavillion
church street
mckean street
mayors park tennis centre
berry
rae street
brunswick street
WT Peterson Oval
grant street
collingwood leisure centre
clifton hill station
turnbull street
queens parade
hodgkinson street
north terrace
freeman street
napier street
jamieson street
st johns church
gold street
darling gardens
hoddle street
newry street
wellington street
south terrace
council street
george street
smith street
napier street reserve
noone street
alexandra parade
shot tower
fitzroy swimming pool
smith reserve
View locations
1 towards St John's Church
2 towards St John's Church
3 towards former ANZ Bank
4 towards former UK Hotel
5 towards St John's Church
6 towards former ANZ Bank
7 towards former UK Hotel
8 towards former UK Hotel
Case study locations
1 153 Queens Parade
2 298 Queens Parade
3 390 Queens Parade
4 278 Queens Parade
5 658 Smith Street
Legend
study area
case study
view direction
Project Ref: 16695
Dwg No.: UDD-001
Scale 1:4000 @A3
Date: 27.01.17
Revision: A
hansen partnership pty ltd
melbourne | vietnam
level 4 136 exhibition st
melbourne vic 3000
t 61 3 9654 8844 f 61 3 9654 8088
e info@hansen-online.com.au
w hansen-online.com.au

## View location 01: View from intersection of Smith Street to the St John's Church

*Existing condition*

*3D massing demonstrating built form and heritage recommendations for precinct 3A*

**Key**

- Possible future envelope on non heritage sites (precinct 3)
- Possible future envelope on heritage sites (precinct 4)
- Possible future envelope on non heritage sites (precinct 5)

## View location 02: View from intersection of Grant Street to the St John's Church

*Existing condition*

*3D massing demonstrating built form and heritage recommendations for precinct 3A*

**Key**

- Possible future envelope on non heritage sites (precinct 3)
- Possible future envelope on heritage sites (precinct 3)
- Possible future envelope on heritage sites (precinct 4)

## View location 03: View from intersection of Gold Street to the former ANZ Bank

*Existing condition*

*3D massing demonstrating built form and heritage recommendations for precinct 4*

**Key**

- Possible future envelope on non heritage sites (precinct 4)
- Possible future envelope on heritage sites (precinct 4)
- Possible greater upper level setback is required to retain key view line to the former ANZ building (precinct 4)
- Possible future envelope (precinct 5)
- Development approval indicative envelope (precinct 5)

## View location 04: View form Mayors Park (east of Heidelberg Road) to the former UK Hotel

*Existing condition*


*3D massing demonstrating built form and heritage recommendations for precinct 5*

**Key**

Possible future envelope (precinct 5)

## View location 05: View from Raines Reserve to St John's Church

*Existing condition*

**Key**

- Possible future envelope on non heritage sites (precinct 4)
- Possible future envelope on heritage sites (precinct 4)
- Possible greater upper level setback is required to retain key view line to the former ANZ building (precinct 4)

*3D massing demonstrating built form and heritage recommendations for precinct 4*

## View location 06: View from Mayors Park (east of Heidelberg Road) to the former ANZ Bank

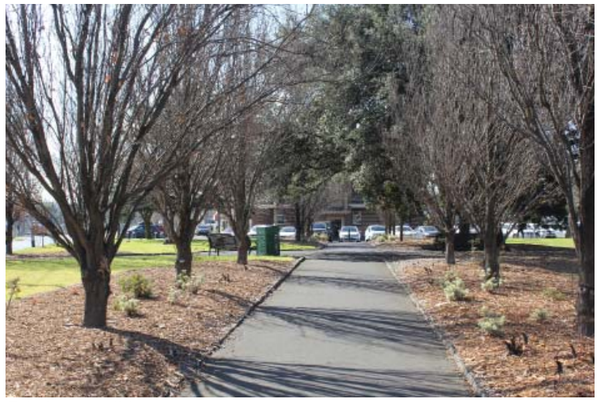

*Existing condition*

**Key**

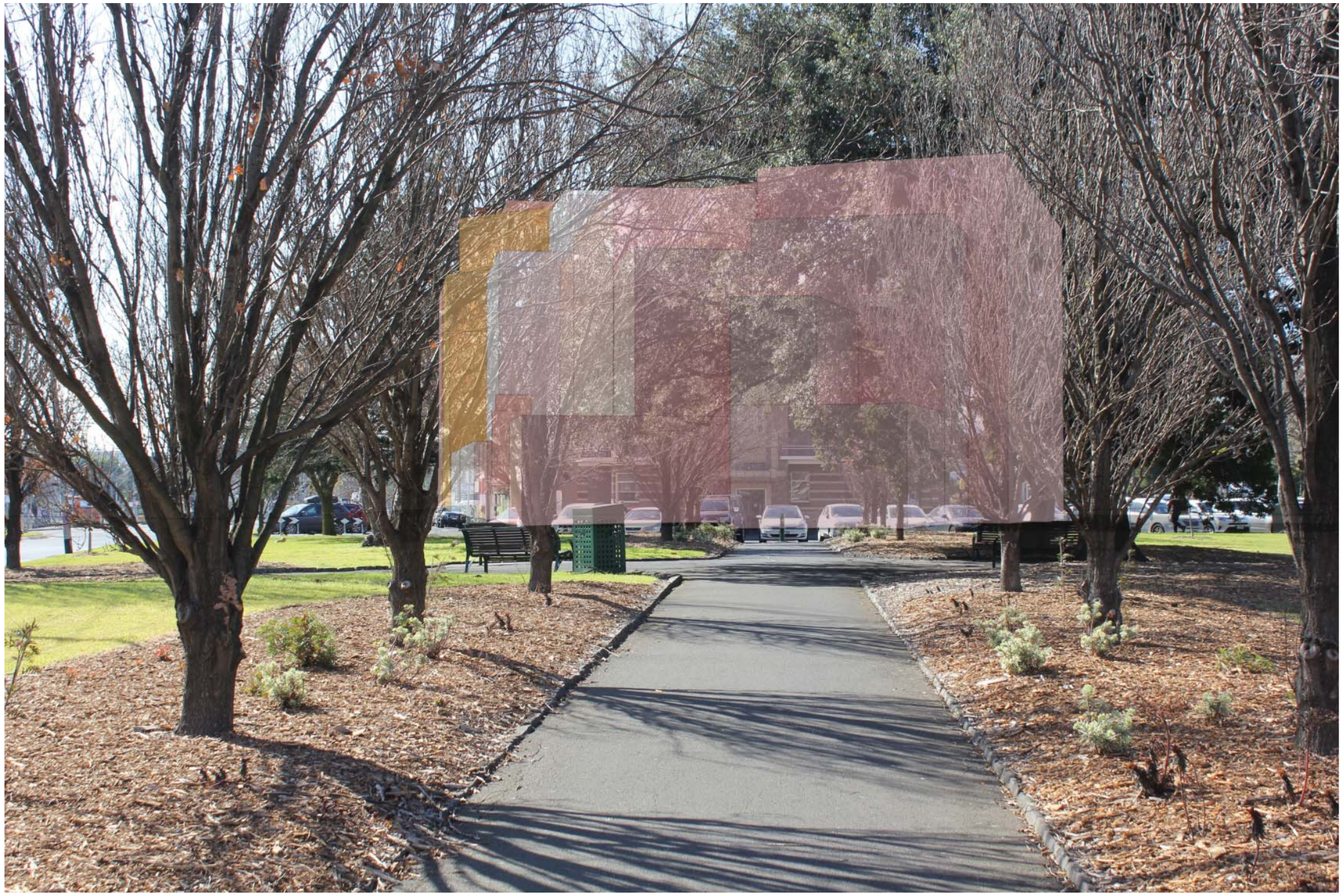
- Possible future envelope on non heritage sites (precinct 4)
- Possible future envelope on heritage sites (precinct 4)
- Possible greater upper level setback is required to retain key view line to the former ANZ building (precinct 4)
- Development proposal indicative envelope (precinct 4)


*3D massing demonstrating built form and heritage recommendations for precinct 4*

## View location 07: View from Raines Reserve to the former UK Hotel



*Existing condition*



*3D massing demonstrating built form and heritage recommendations for precinct 5*

**Key**

- Existing development indicative envelope - under construction (precinct 5)
- Possible future envelope (precinct 5)
- Development approval indicative envelope (precinct 5)

## View location 8: View from Queens Parade (north side) to the former UK Hotel

*Existing condition*

**Key**

Existing development indicative envelope - under construction (precinct 5)

Possible future envelope (precinct 5)


*3D massing demonstrating built form and heritage recommendations for precinct 5*

**DRAFT**

LOT WIDTH **S** LOT DEPTH **M** HERITAGE **S**

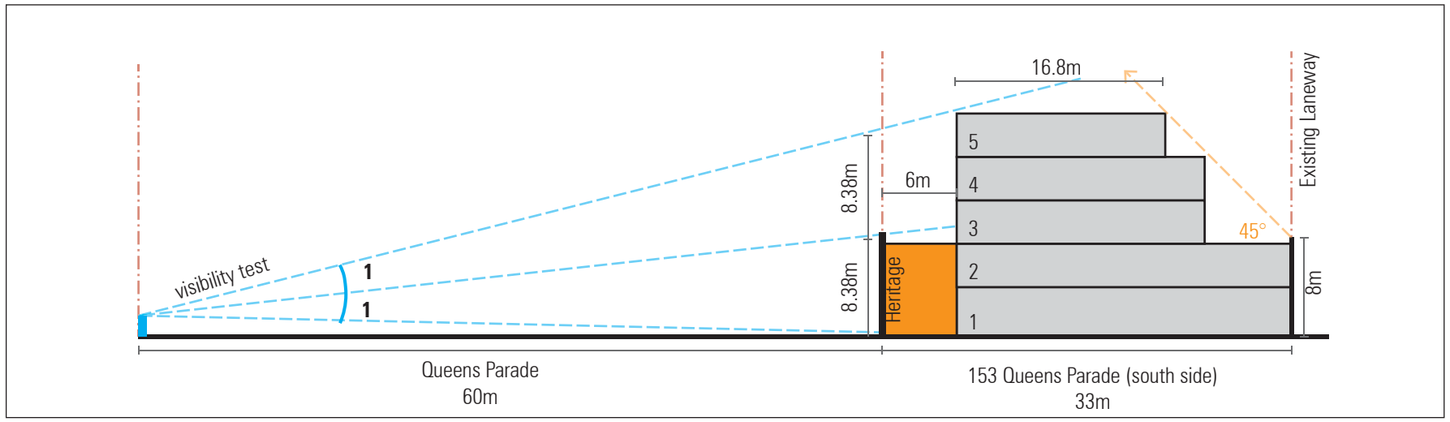
# CASE STUDY 01: Precinct 4

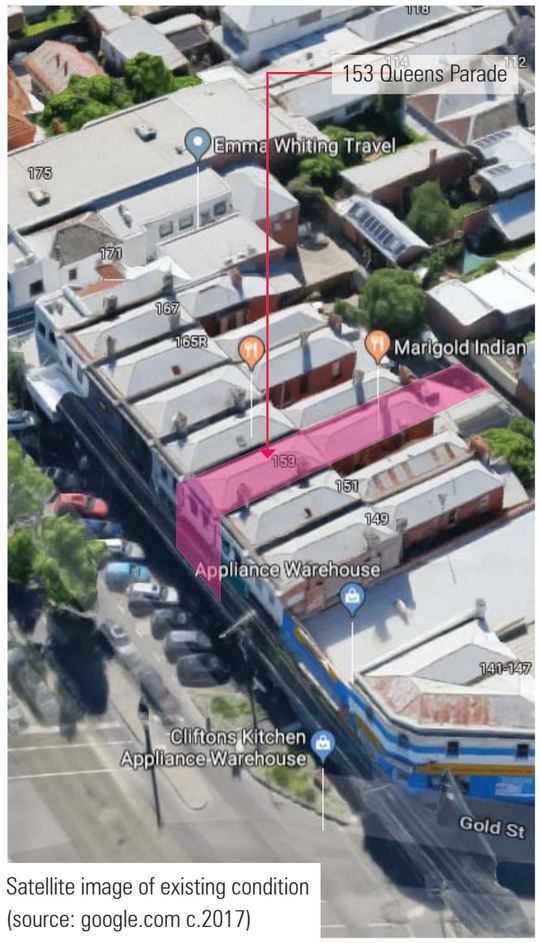
| Context | |
|---|---|
| Address | 153 Queens Parade (south side) |
| Lot width | 5m |
| Lot depth | 33m |
| Heritage grading | Individually significant |
| Rear laneway | Yes |
| Rear interface | NRZ + HO |

| Precinct Guidelines | |
|---|---|
| 1 | Reinforce the heritage value of the precinct and support the retention of the traditional facade. |
| 2 | Retain the primacy of significant heritage form on Queens Parade. |
| 3 | Support infill development behind the traditional street wall that contributes positively to the urban character of Clifton Hill. |
| 4 | Ensure appropriate transition in scale to sensitive interfaces. |
| 5 | Encourage future vehicular access and services be provided of existing laneway. |
| 6 | Ensure high quality and sympathetic upper level elevations that are exposed to the public domain. |

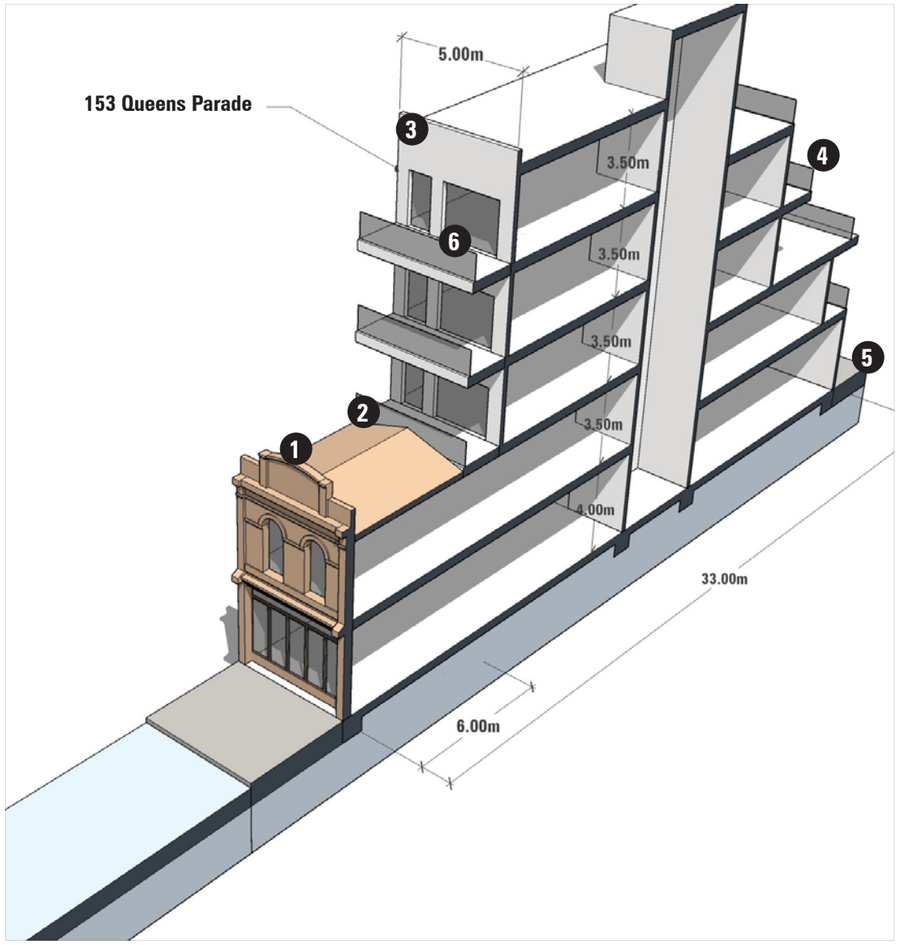
| Discussion | |
|---|---|
| Heritage 'visibility' test* | Based on heritage 'visibility' test requirement of maximum 1:1 ratio (1 part heritage to 1 part new upper levels), viewed from the opposite side of Queens Parade (60m width), the recommended 6m setback from Queens Parade frontage will allow development height of up to 18m to be accommodated on the site. |
| Lot consolidation test | Should the site be consolidated to gain a wider street frontage, the limited lot depth cannot achieve a feasible floor plate depth above 5 storeys whilst retaining the necessary setbacks. |
| Rear interface test | The rear transition recommendations aim to minimise amenity impact onto residential properties along Hodgkinson Street (NRZ + HO).<br>The 2D + 3D testings demonstrate that without site consolidation, a feasible development footprint of up to 5 storeys can be accommodated on the site. |
| Overshadowing test | The recommended 5 storey (18m) form and setback provisions can successfully minimise overshadowing impact to residential hinterland (NRZ), measured at the equinox. |
| Visual bulk test | The rear interface (to NRZ and laneway) will need to be carefully managed so as not to result in an overtly stepped building, or 'wedding cake' profile. The 3D modelling demonstrates this could be effectively managed by adopting 2 setback measurements to the rear. |

*Note: * Refer to Queens Parade Built Form Heritage Analysis & Recommendations - GJM Heritage.*




Satellite image of existing condition (source: google.com c.2017)



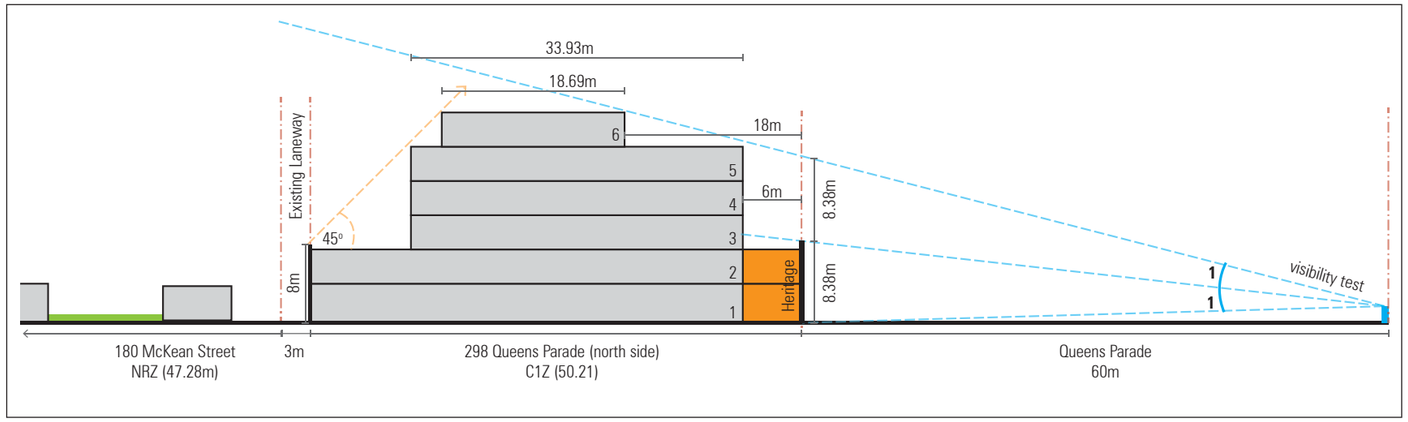
LOT WIDTH **S** LOT DEPTH **L** HERITAGE **C**

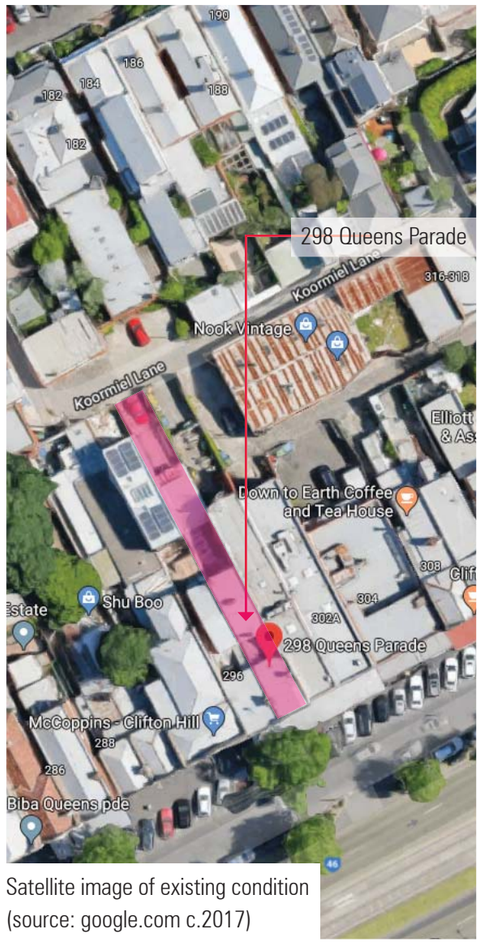
# CASE STUDY 02: Precinct 4

| Context | |
|---|---|
| Address | 298 Queens Parade (north side) |
| Lot width | 4.65m |
| Lot depth | 50.31m |
| Heritage grading | Contributory |
| Rear laneway | Yes |
| Rear interface | NRZ |

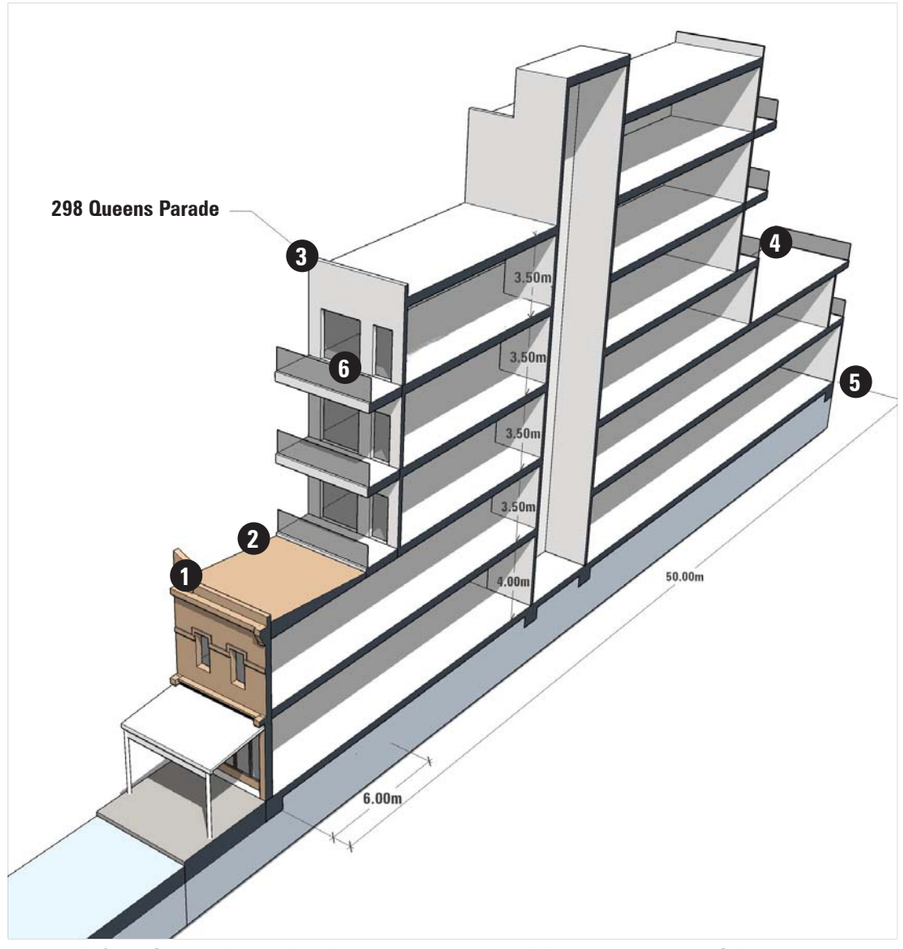
| Precinct Guidelines | |
|---|---|
| 1 | Reinforce the heritage value of the precinct and support the retention of the traditional facade. |
| 2 | Retain the primacy of significant heritage form on Queens Parade. |
| 3 | Support infill development behind the traditional street wall that contributes positively to the urban character of Clifton Hill. |
| 4 | Ensure appropriate transition in scale to sensitive interfaces. |
| 5 | Encourage future vehicular access and services be provided of existing laneway. |
| 6 | Ensure high quality and sympathetic upper level elevations that are exposed to the public domain. |

| Discussion | |
|---|---|
| Heritage 'visibility' test* | Based on heritage 'visibility' test requirement of maximum 1:1 ratio (1 part heritage to 1 part new upper levels), viewed from the opposite side of Queens Parade (60m width), the recommended minimum 6m setback from Queens Parade frontage can comfortably accommodate development height of up to 18m on this site.<br>With greater setback from the Queens Parade frontage (greater than 16m), an additional floor can be accommodated (up to 21.5m) whilst meeting the 'visibility' test. |
| Lot consolidation test | Given the site depth (up to 50m), the site can accommodate development scale of up to 21.5m (6 storeys) without site consolidation. |
| Rear interface test | The rear transition recommendations aim to minimise amenity impact onto residential properties along Hodgkinson Street (NRZ + HO).<br>The 2D + 3D testings demonstrate that without site consolidation, a feasible development footprint of 5-6 storeys can be accommodated on the site. |
| Overshadowing test | The site is located south of NRZ properties and does not result in unreasonable amenity impact (overshadowing) onto NRZ properties to the north. |
| Visual bulk test | The rear interface (to NRZ and laneway) will need to be carefully managed so as not to result in an overtly stepped building, or 'wedding cake' profile. The 3D modelling demonstrates this could be effectively managed by adopting 2 setback measurements to the rear. |




Satellite image of existing condition (source: google.com c.2017)



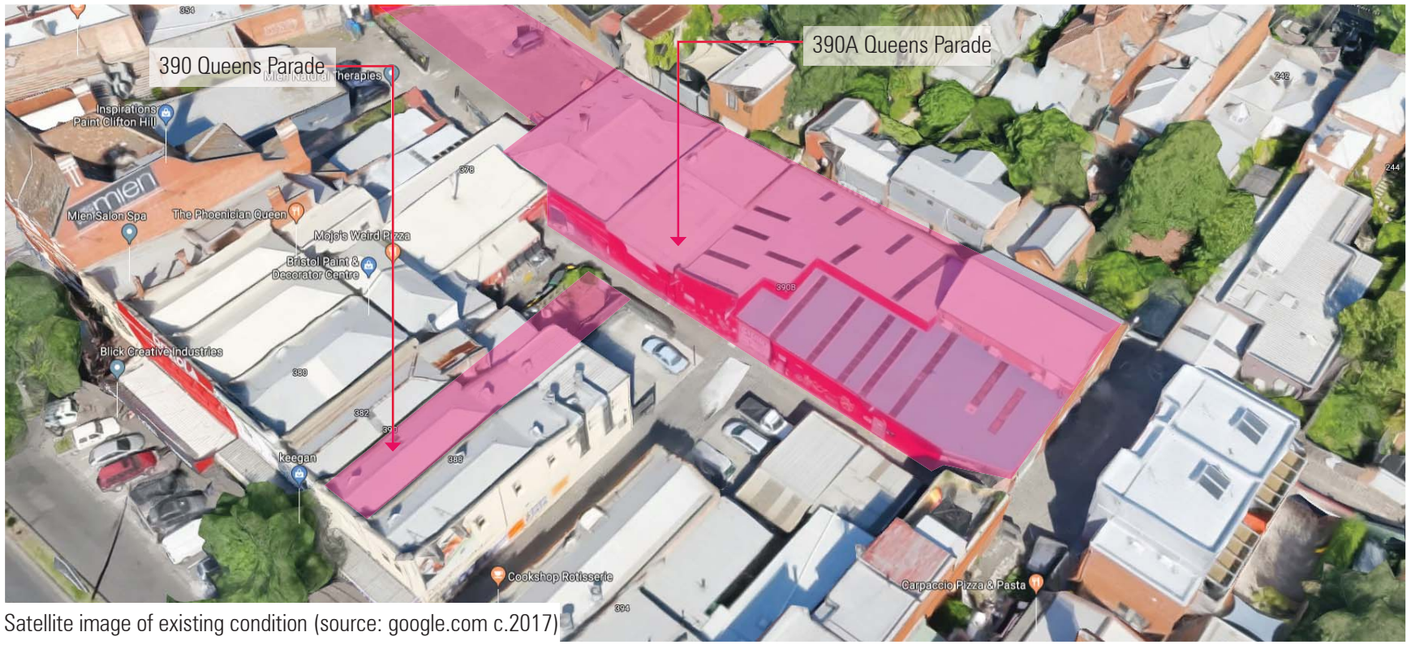

*Note: * Refer to Queens Parade Built Form Heritage Analysis & Recommendations - GJM Heritage.*

LOT WIDTH **S** LOT DEPTH **M** HERITAGE **C**

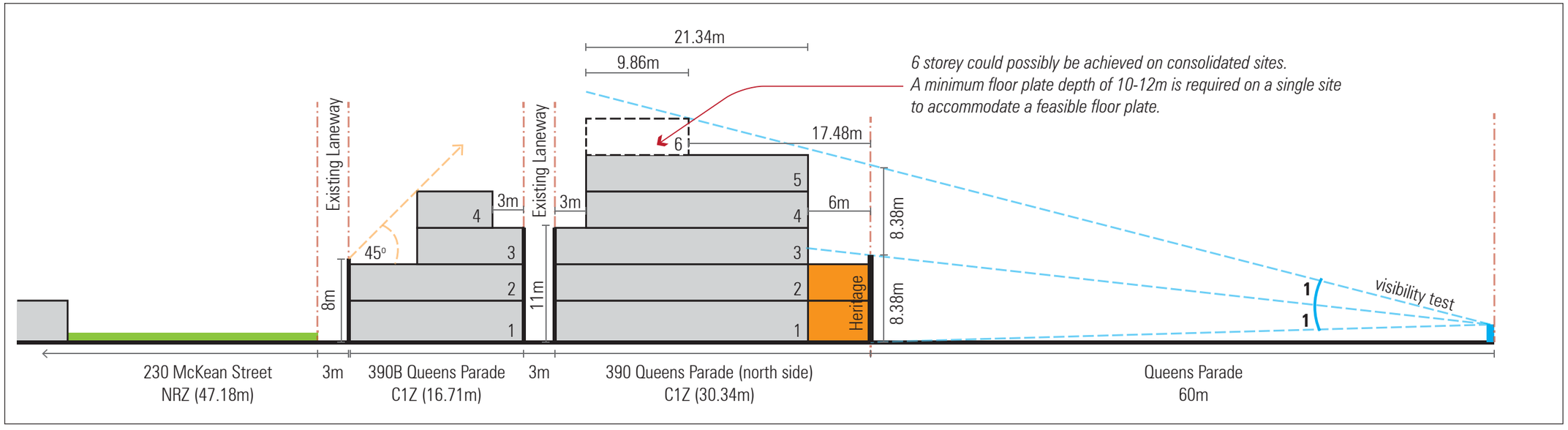
# CASE STUDY 03: Precinct 4

| Context | |
|---|---|
| Address | 390 Queens Parade (north side) |
| Lot width | 4.5m |
| Lot depth | 30m |
| Heritage grading | Contributory |
| Rear laneway | Yes |
| Rear interface | C1Z |

| Context | |
|---|---|
| Address | 390A Queens Parade (north side/ mid- block) |
| Lot width | approx. 50m (irregular) |
| Lot depth | approx. 16-17m (irregular) |
| Heritage grading | former warehouse (now substation) - contributory; balance of site - not contributory |
| Rear laneway | Yes |
| Rear interface | NRZ + HO |




Satellite image of existing condition (source: google.com c.2017)



LOT WIDTH **S** LOT DEPTH **M** HERITAGE **C**

# CASE STUDY 03: Precinct 4 (continued)

| Precinct Guidelines | |
|---|---|
| 1 | Reinforce the heritage value of the precinct and support the retention of the traditional facade. |
| 2 | Retain the primacy of significant heritage form on Queens Parade. |
| 3 | Support infill development behind the traditional street wall that contributes positively to the urban character of Clifton Hill. |
| 4 | Ensure appropriate transition in scale to sensitive interfaces. |
| 5 | Encourage future vehicular access and services be provided of existing laneway. |
| 6 | Ensure high quality and sympathetic upper level elevations that are exposed to the public domain. |

| Discussion - 390 Queens Parade | |
|---|---|
| Heritage 'visibility' test* | Based on heritage 'visibility' test requirement of maximum 1:1 ratio (1 part heritage to 1 part new upper levels), viewed from the opposite side of Queens Parade (60m width), the recommended 6m setback from Queens Parade frontage will allow development height of up to 18m to be accommodated on the site. |
| Lot consolidation test | The site's depth (30m) is insufficient to accommodate feasible floor plate (above 18m) whilst meeting the heritage 'visibility' test.<br>Diagram B demonstrates that wider site frontage (9m) can be achieved through lot consolidation. There is opportunity to accommodate an additional floor with a floor plate depth of 9-10m to yield a feasible development footprint, increasing the overall building height to 21.5m. |
| Rear interface test | The rear transition recommendations aim to provide equitable development response to mid-block commercial allotment to the rear (C1Z + non contributory HO).<br>The 2D + 3D testings demonstrate that without site consolidation, a feasible development footprint of up to 18m (5 storeys) can be accommodated on the site.<br>Noting its rear interface to a laneway and C1Z, a less onerous setback (compared to standard B17) to the rear can be contemplated. In this instance, a minimum 4.5m setback from the laneway centreline (above 11m) will achieve the necessary 9m separation at the upper levels when replicated across the laneway. |
| Overshadowing test | The site is located south of NRZ properties and does not result in unreasonable amenity impact (overshadowing) onto NRZ properties to the north. |
| Visual bulk test | The rear interface can effectively be managed by adopting a single setback, which can be replicated on 390B Queens Parade. |

*Note: * Refer to Queens Parade Built Form Heritage Analysis & Recommendations - GJM Heritage.*

**Diagram A**

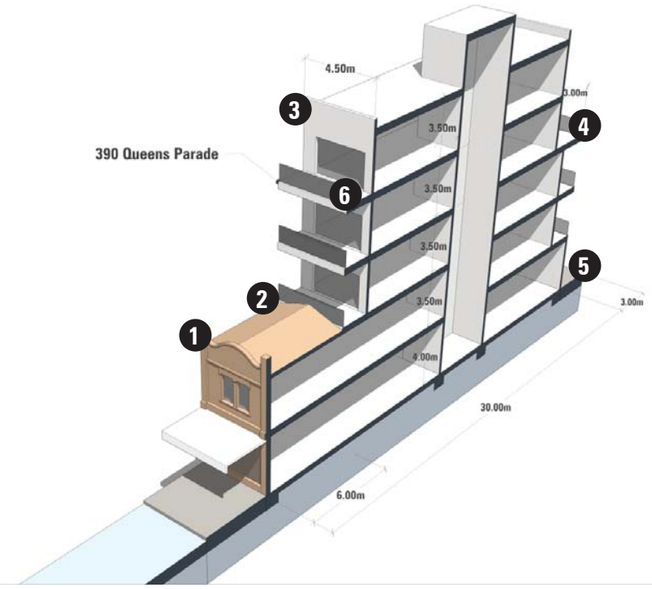
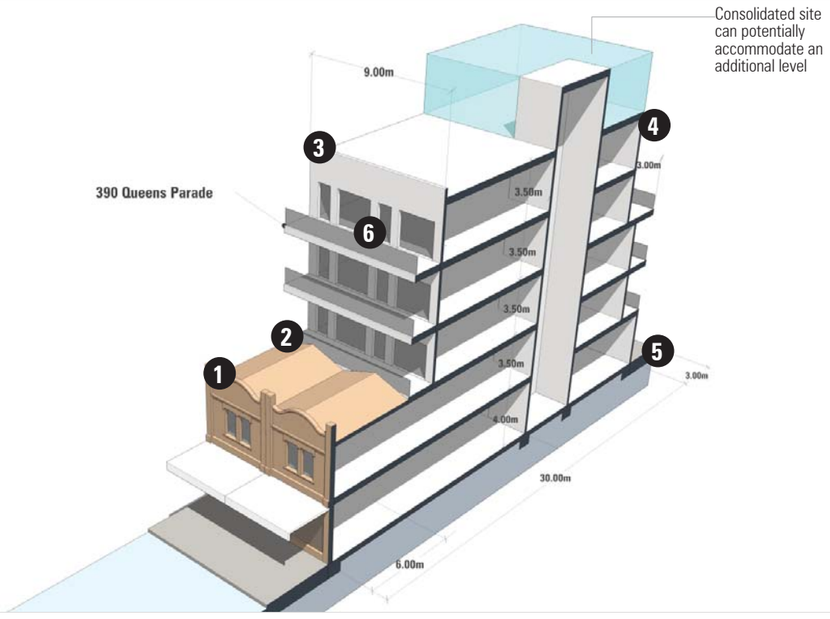



**Diagram B**



DRAFT

LOT WIDTH **S** LOT DEPTH **M** HERITAGE **C**

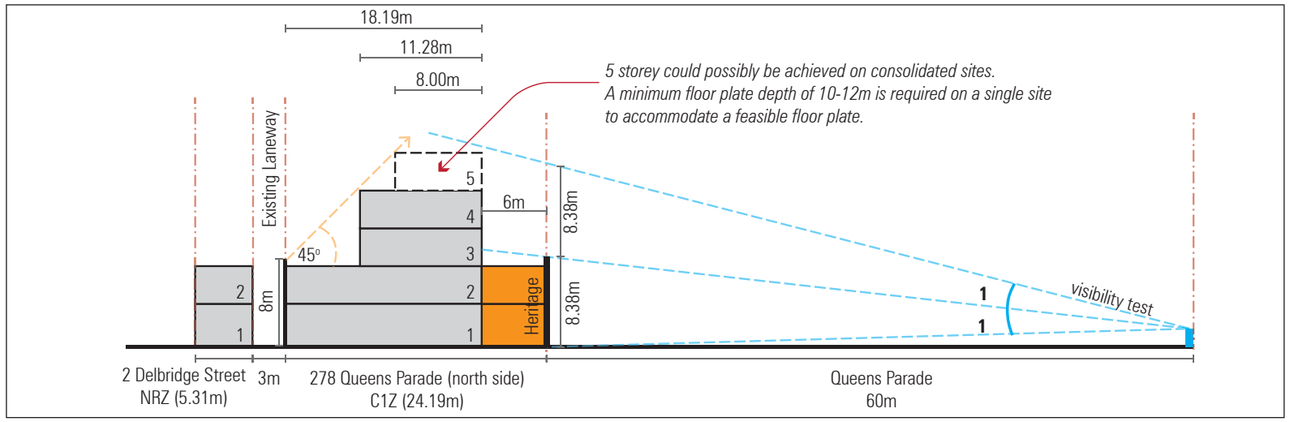
# CASE STUDY 04: Precinct 4

| Context | |
|---|---|
| Address | 278 Queens Parade (north side) |
| Lot width | 5.35m |
| Lot depth | 24.19m |
| Heritage grading | Contributory |
| Rear laneway | Yes |
| Rear interface | NRZ |

| Precinct Guidelines | |
|---|---|
| 1 | Reinforce the heritage value of the precinct and support the retention of the traditional facade. |
| 2 | Retain the primacy of significant heritage form on Queens Parade. |
| 3 | Support infill development behind the traditional street wall that contributes positively to the urban character of Clifton Hill. |
| 4 | Ensure appropriate transition in scale to sensitive interfaces. |
| 5 | Encourage future vehicular access and services be provided of existing laneway. |
| 6 | Ensure high quality and sympathetic upper level elevations that are exposed to the public domain. |

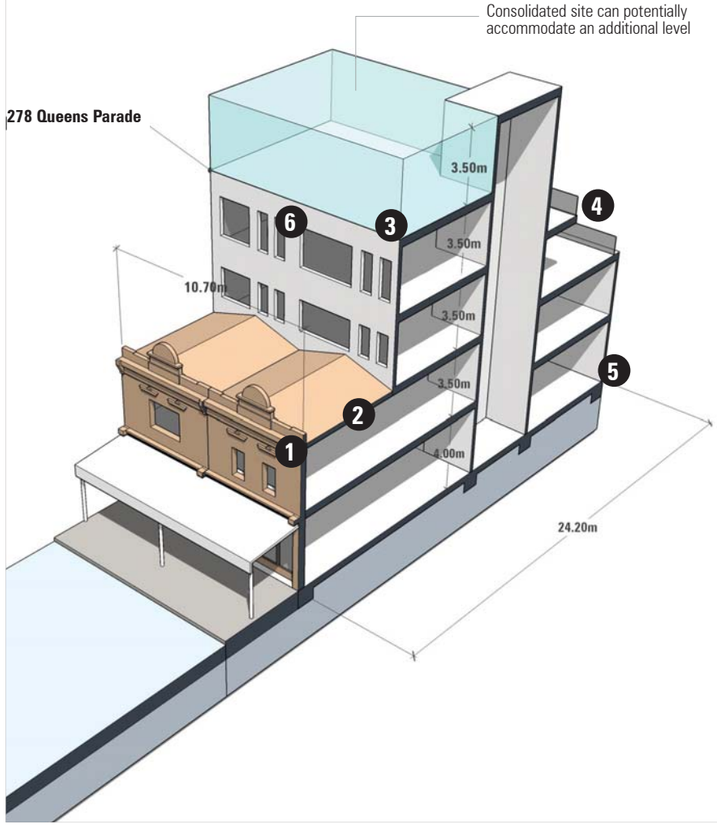
| Discussion | |
|---|---|
| Heritage 'visibility' test* | Based on heritage 'visibility' test requirement of maximum 1:1 ratio (1 part heritage to 1 part new upper levels), viewed from the opposite side of Queens Parade (60m width), the preferred 18m (5 storeys) form is unlikely to be achieved on this site (if not consolidated). |
| Lot consolidation test | Whilst the site depth is limited, the preferred 18m (5 storeys) outcome can be achieved through lot consolidation to yield a wider site frontage.<br>It demonstrates that on a consolidated site, a shallow but wide floor plate can be accommodated within the top floor, whilst meeting the 'visibility' and rear setback requirement. |
| Rear interface test | The rear transition recommendations aim to minimise amenity impact onto residential properties along Hodgkinson Street (NRZ + HO). It is noted that in this instance, the site's rear interface abuts a laneway and a side boundary (not rear boundary), with 1-2 storeys party wall with no window. Whilst this condition may change in the future, the existing interface condition is less sensitive with opportunity to vary the rear setback accordingly.<br>The 2D + 3D testings demonstrate that without site consolidation, a feasible development footprint of up to 5 storeys can be accommodated on a consolidated site. |
| Overshadowing test | The site is located south of NRZ properties and does not result in unreasonable amenity impact (overshadowing) onto NRZ properties to the north. |
| Visual bulk test | The rear interface (to NRZ and laneway) will need to be carefully managed so as not to result in an overtly stepped building, or 'wedding cake' profile. The 3D modelling demonstrates this could be effectively managed by adopting a single setback measurement to the rear. |

*Note: * Refer to Queens Parade Built Form Heritage Analysis & Recommendations - GJM Heritage.*





Satellite image of existing condition (source: google.com c.2017)



LOT WIDTH **S** LOT DEPTH **M** HERITAGE **C**

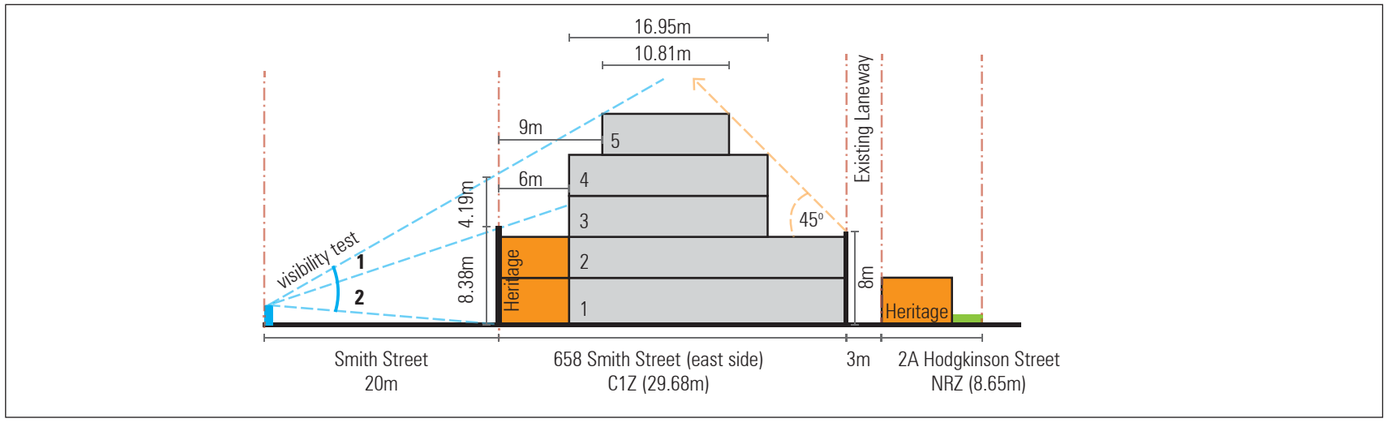
# CASE STUDY 05: Precinct 3

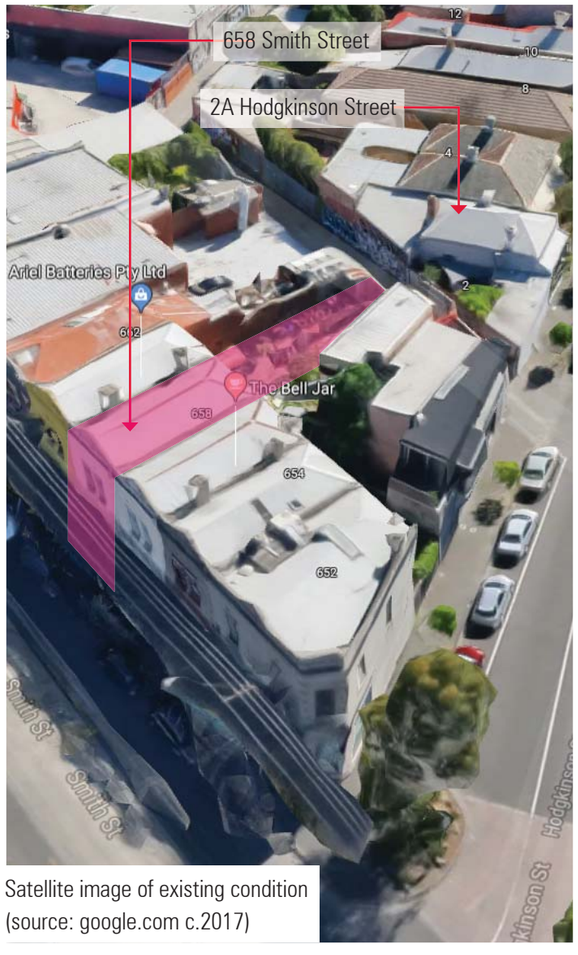
| Context | |
|---|---|
| Address | 658 Smith Street (east side) |
| Lot width | 5.11m |
| Lot depth | 29.68m |
| Heritage grading | Contributory |
| Rear laneway | Yes |
| Rear interface | NRZ + HO |

| Precinct Guidelines | |
|---|---|
| 1 | Support greater development intensity. |
| 2 | Reinforce the heritage value of the precinct and support the retention of traditional street frontages. |
| 3 | Ensure appropriate transition in scale in response to sensitive residential interface. |
| 4 | Encourage future vehicular access and services be provided of existing laneway. |
| 5 | Ensure high quality and sympathetic upper level elevations that are exposed to the public domain. |

| Discussion | |
|---|---|
| Heritage 'visibility' test* | Based on heritage 'visibility' test requirement of maximum 2:1 ratio (2 parts heritage to 1 part new upper levels), viewed from the opposite side of Smith Street (20m width), the preferred 18m (5 storeys) can be achieved with a setback of 6-9m above the heritage street wall. |
| Lot consolidation test | Given limited lot depth and decreasing lot width to the rear, there is limited opportunity for development greater than 5 storeys on a single, or consolidated sites. |
| Rear interface test | The rear transition recommendations aim to minimise amenity impact onto residential properties along Hodgkinson Street (NRZ + HO).<br>The 2D + 3D testings demonstrate that without site consolidation, a feasible development footprint of up to 5 storeys can be accommodated on the site. |
| Overshadowing test | Development scale up to 18m (5 storeys), paired with the recommended setback provisions can successfully minimise overshadowing impact to residential hinterland (NRZ), measured at the equinox. |
| Visual bulk test | The rear interface (to NRZ and laneway) will need to be carefully managed so as not to result in an overtly stepped building, or 'wedding cake' profile. The 3D modelling demonstrates this could be effectively managed by adopting 2 setback measurements to the rear. |

*Note: * Refer to Queens Parade Built Form Heritage Analysis & Recommendations - GJM Heritage.*




Satellite image of existing condition (source: google.com c.2017)