Prepared for
One Investment Management Pty Ltd

Date
16 August 2017

Sky View Factor Report

4-6 Bligh Street, Sydney

architectus™

3dm consulting

Architectus Group Pty Ltd
ABN 90 131 245 684

Adelaide
Lower Ground Floor
57 Wyatt Street
Adelaide SA 5000
Australia
T +61 8 8427 7300
adelaide@architectus.com.au

Melbourne
Level 25, 385 Bourke Street
Melbourne VIC 3000
Australia
T +61 3 9429 5733
F + 61 3 9429 8480
melbourne@architectus.com.au

Sydney
Level 18, MLC Centre
19 Martin Place
Sydney NSW 2000
Australia
T +61 2 8252 8400
F +61 2 8252 8600
sydney@architectus.com.au

architectus.com.au

Report Contact

Steve Fox
Manager, BIM Consulting
steve.fox@bimconsulting.com.au

Report prepared by
Julian Venczel
BIM Consulting

Revision history

Issue Reference	Issue Date	Issue Status
A	3 August 2017	Draft for Client Review
B	3 August 2017	Final
C	21 August 2017	Revised to address Council comments

Contents

Figures & tables

List of figures

List of tables

Attachments

Executive summary

This Sky View Factor (SVF) Report has been prepared by BIM Consulting (Architectus) on behalf of One Investment Management Pty Ltd as trustee for Recap IV Management No. 4 Trust, being an affiliate of SC Capital (collectively 'SC Capital') for the site at 4-6 Bligh Street, Sydney. This Report supports a Planning Proposal which seeks to progress a site-specific Floor Space Ratio (FSR) control for the site in the Sydney Local Environmental Plan (SLEP) 2012 where the development is for the purpose of commercial premises, motel or hotel accommodation and/or indoor recreation facilities. This proposed amendment to the SLEP 2012 would allow for the delivery of a mixed-use development, including a high-quality hotel and commercial office space, and for the optimal development capacity of the site to be realised.

This Report provides analysis of the extent of sky visible above various points in proximity to the site as a proportion of the total possible sky hemisphere above the point. SVF is calculated as the proportion of sky visible when viewed from the ground up. SVF is provided as value that ranges from 0 to 1, where SVF of 0 denotes no sky visible and SVF of 1 denotes that the sky is completely visible to the horizon in all directions.

A total of 3,151 test points were analysed. The analysis finds there will be marginal change to sky visibility between the complying scheme and the proposed scheme, with only a marginal/negligible reduction of sky visibility when averaged across all test points. A complying scheme provides a SVF value of 0.1377489 and the proposed scheme provides a SVF value of 0.1372844, resulting in an overall reduction in sky visibility of SVF value of 0.0004645.

Given that on average, the impact will only have a negligible reduction of sky visibility, for the purpose of the analysis an effectively equivalent outcome is achieved, despite the minor numerical reduction. Further, detailed consideration of implications on built form and development feasibility has been undertaken and concluded that achieving an 'equivalent' SVF would have significant impacts on project feasibility. As the impacts are considered negligible and given the substantial need for the development and the benefits of the proposal, and noting that the future development of the site will be considered State Significant Development (SSD) to which DCPs do not apply, the impacts of the proposed development scheme are found to be acceptable.

1. Introduction

1.1 Purpose of assessment

The purpose of the SVF analysis is to demonstrate compliance with Section 5.1.1.1(3) and Section 5.1.1.3(5) of the draft *Sydney DCP 2012 – Central Sydney Planning Review Amendment* in regard to variation to side and rear setbacks, and Section 5.1.1.4(3) in regards to varying tapering provisions.

1.2 Context

This Report provides SVF analysis for the site at 4-6 Bligh Street, Sydney. This analysis has been prepared in accordance with the requirements of the Draft *Sydney DCP 2012 – Central Sydney Planning Review Amendment* and 'Procedure B' of Schedule 11 of the Draft DCP. Relevant parts of these documents are provided at **Section 2.2**.

The site

This Report relates to the site at 4-6 Bligh Street, Sydney. The site is located centrally within the Sydney CBD, and is identified in **Figure 1** below.

The subject site is an irregularly shaped allotment that consists of four lots, legally described as Lot 1, DP 919932, Lot 1, DP134866, Lot 2, DP 134866, and Lot A, DP 184770.

The site has a total area of approximately 1,216m^2.

Figure 1 Subject site, 4-6 Bligh Street, Sydney
Site outlined in red
Source: NearMaps

Proposed development

The Planning Proposal seeks to increase the maximum Floor Space Ratio (FSR) applicable to the site at 4-6 Bligh Street in the SLEP 2012, from a base FSR of 8:1 plus bonuses, to a maximum FSR of 22:1 including bonuses. This would be facilitated through a site-specific SLEP 2012 clause which would allow for additional floor space if it is for the purpose of 'commercial premises', 'hotel or motel accommodation', and/or 'indoor recreation facilities'.

The indicative architectural scheme provides for a new mixed use hotel and commercial building with a height of 55-storeys or 205 metres (RL 225.880), and FSR of 20.3:1. An additional floor space efficiency factor is to be allowed for during the design competition which will bring the maximum FSR to 22:1.

The indicative architectural scheme comprises:

- 10 storey podium, including hotel entrance lobby, commercial lift lobby, food and beverage facilities, plant, commercial offices, meeting/conference rooms, gym space, and landscaped podium with formal hotel lobby;
- 37 storeys of hotel (each level including 11 rooms, with a total of 407 rooms);
- 4 levels at rooftop including hotel club lounge, function space, restaurant and bar, and publicly accessible landscaped terrace; and
- 4 basement levels including 17 car parking spaces, 2 loading spaces, plants, end of trip facilities and waste management facilities.

2. Planning context

This section outlines the planning context that has informed the methodology used to undertake this SVF analysis.

2.1 Consultation with Council

The City of Sydney Council was consulted regarding the approach and methodology for the SVF analysis. Steve Fox of BIM Consulting liaised with Jesse McNicoll from Council by phone and email between the 12th and 21st of July 2017. Jesse provided *Schedule 11 "Procedures for demonstrating compliance with variation provisions for setbacks, separations and tapering in Central Sydney"* from the Draft *Sydney DCP 2012 – Central Sydney Planning Review Amendment*.

Jesse directed BIM Consulting to use *Procedure B 'Equivalent or improved wind comfort and wind safety and daylight levels in adjacent Public Places'* of Schedule 11 for the project.

Architectus presented a first issue of this SVF assessment to the City of Sydney Council on 7 August 2017. The City of Sydney requested additional SVF testing be undertaken to ascertain what changes would be required to the proposed building envelope to achieve an 'equivalent or improved' SVF than a building which provides setbacks to its side and rear property boundaries consistent with the Draft *Central Sydney Planning Strategy*. As requested, further analysis has been undertaken by BIM Consulting, with the results provided in **Section 4.4** below.

2.2 Planning context

This Report has been prepared in accordance with the requirements of the Draft *Sydney DCP 2012 – Central Sydney Planning Review Amendment* and Procedure B of Schedule 11 of the Draft *Sydney DCP 2012*.

Sections of the Draft *Sydney DCP 2012 – Central Sydney Planning Review Amendment* that are of relevance to the preparation of this SVF Report are provided below.

Table 1 Draft *Sydney DCP 2012 – Central Sydney Planning Review Amendment*

Section	Provision
5.1.1.1 Street Frontage Height and Street Setbacks	**Provisions** 1) The Street Frontage Height and Street Setbacks of a building must be in accordance with Table 5.1 – Permissible range of Street Frontage Heights and Table 5.2 Minimum Street Setbacks, except for buildings in Special Character Areas that must be in accordance with the Minimum Street Frontage Heights for Special Character Areas in Table 5.3 and the Minimum Street Setbacks and Maximum Street Frontage Heights as shown in the Special Character Area maps at Figures 5.3 to 5.15 in Section 5.1.1.2. 3) Where noted in Table 5.2 Minimum Street Setbacks and on the Special Character Area maps, variation to Street Setbacks may be permitted to building massing that provides: a) encroachment(s) 2m forward of the minimum Street Setback within the middle third of the frontage to a Public Place and provision of compensating recess(es) of equal to or greater area up to 4m behind the minimum Street Setback; or b) equivalent or improved wind comfort, wind safety and daylight levels in adjacent Public Places relative to a base case building massing with complying Street Frontage Heights and Street Setbacks (i.e. variation to massing is governed by achieving equal or better performance). Procedures for demonstrating compliance with 5.1.1.1(3)(a) and (b) are set out in Schedule 11.

5.1.1.3 Side and Rear Setbacks and Building Form Separations	**Provisions** 5) Variation to Side and Rear Setbacks and Building Form Separations may be permitted to building massing that provides equivalent or improved wind comfort, wind safety and daylight levels in adjacent Public Places relative to a base case building massing with complying Side and Rear Setbacks (i.e. variation to massing is governed by achieving equal or better performance).
5.1.1.4 Built form massing, tapering and maximum dimensions	**Provisions** 3) Above the Street Frontage Height the total Building Envelope Area may occupy the following proportion of the site area less any areas of heritage items and required DCP setbacks: a) 100% up to 120m above ground; b) 90% above 120m up to 240m above ground; and c) 80% above 240m above ground.
5.1.3.2 Development Adjacent to Heritage Items	1) New development adjacent to a heritage item should respect and reinforce the historic scale, form, modulation, articulation, proportions, street alignment, materials and finishes that contribute to the heritage significance of the adjacent heritage item. 2) Consideration must be given to the impact of adjacent development on the significance, setting, landmark values and ability to view and appreciate the heritage item from public places.
5.1.7.2 No Additional Overshadowing	1) Sydney LEP 2012 requires buildings to maximise sunlight access to Public Places by establishing *No Additional Overshadowing* for 8 major public areas including Macquarie Place (including facades), Martin Place (block containing the GPO including facades), Pitt Street Mall, Australia Square Plaza, First Government House Place, Sydney Town Hall Steps, Sydney Square and Future Town Hall Square.

Provisions of Schedule 11 that are of relevance to the preparation of this SVF Report are provided below.

Table 2 Procedures for demonstrating compliance with Sky View Factor

Schedule 11 – Procedures for demonstrating compliance with variation provisions for setbacks, separations and tapering in Central Sydney	
Procedure B: Equivalent or improved wind comfort and wind safety and daylight levels in adjacent Public Places	In order to demonstrate compliance with Section 5.1.1.1(3)(b) and Section 5.1.1.3(5) in regards to varying Minimum Street Setbacks and Side and Rear Setbacks, Building Form Separations and Tapering provisions respectively, the following procedure must be followed: 1) Procedure B can only be used to vary setbacks for sites larger than 1000m^2. 2) Where (1) is satisfied, variation to relevant setbacks may be permitted to building massing that provides equivalent or improved wind comfort, wind safety and daylight levels in adjacent Public Places relative to a base case building massing with complying Height, Street Frontage Heights, Street Setbacks, Side and Rear Setbacks and Tapering. 5) the average annual daylight level (which may be approximated by the average Sky View Factor) *Note:* Sky View Factor (SVF) means the extent of sky observed above a point as a proportion of the total possible sky hemisphere above the point. SVF is calculated as the proportion of sky visible when viewed from the ground (as an abstract horizontal surface) up. SVF is a dimensionless value that ranges from 0 to 1. A SVF of 1 denotes that the sky is completely visible to the horizon in all directions; for example, in a flat terrain. When a locations has topography or buildings blocking view to any part of the sky, it will cause the SVF to decrease proportionally.

	7)	Daylight levels or SVF must be measured within the existing city form (including developments under construction as if they were completed) over a 1m grid along surrounding Public Places to a distance of at least 50m from the site boundaries and should exclude any elements within a Public Place e.g. trees and awnings.

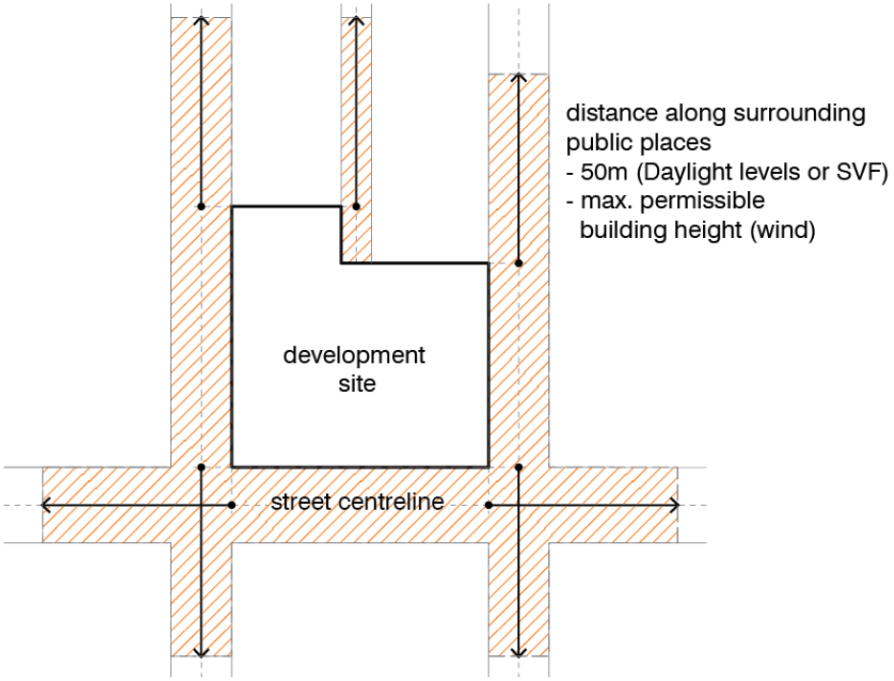

Figure 1.10: Measuring wind speeds and Average daylight level or Sky View Factor measuring minimum distance from the site boundaries.

Source: Schedule 11 of the Draft Sydney DCP 2012

Figure 1.11: Sky View Factor means the extent of sky observed above a point as a proportion of the total possible sky hemisphere above the point.

Source: Schedule 11 of the Draft Sydney DCP 2012

2.3 Building envelope

Street frontage height

The Draft *Sydney DCP 2012* provides built form controls relating to permissible street frontage heights at Section 5.1.1.1 (refer to Table 5.1 of the Draft *Sydney DCP 2012*). The proposed development of the site can be classified under Table 5.1 as a 'non-heritage item outside the Special Character Area' that is greater than 120 metres, and therefore the permissible street frontage height is 20-25 metres. The proposed development provides a street frontage height of 45 metres. The proposed street frontage height is considered acceptable for this site in accordance with Section 5.1.3.2 of the Draft *Sydney DCP 2012*, which provides controls for development located adjacent to heritage items (refer to Section 5.1.3.2 at **Table 1**).

Section 5.1.3.2 provides that “new development adjacent to a heritage item should respect and reinforce the historic scale, form, modulation, articulation, proportions, street alignment, materials and finishes that contribute to the heritage significance of the adjacent heritage item”. The subject site is not a heritage item itself, however, it is surrounded by, and must be viewed in the context of, a number of heritage listed landmark buildings. Adjacent to the subject site on Bligh Street is the State heritage listed 12-storey former ‘City Mutual Life Assurance’ building to the south west, and the 16-storey Sofitel Sydney Wentworth Hotel to the north, a Local heritage item. The former ‘City Mutual Life Assurance’ building has an existing street frontage heights of 45 metres.

The heritage context of the site has been taken into consideration and has helped to shape the proposed building envelope for the indicative architectural scheme, and the proposed 45 metre street frontage height is considered the most appropriate built form to respect and reinforce the proportions of the existing heritage buildings. This street wall height has therefore been used to calculate the SVF impact for both complying and proposed development options.

Tower Front Setback

The proposed development scheme provides a front building setback of 8 metres above the 45 metre podium. It is noted that the basis for the front setback of 8 metres above the street frontage height was developed to achieve, among other things, preservation of a reasonable level of daylight to the street and to achieve a comfortable street environment.

The average street in Central Sydney is 20 metres in width. As per the Sydney DCP 2012, a 10-metre front setback doubles the amount of sky that can be seen from the street and also reduces wind impacts associated with the downdraught of air. The 8-metre setback requirement under both the current DCP 2012 and the Draft DCP 2012 has been set at 8 metres as a result of extensive site-testing and to allow for viable development outcomes to be achieved, and is considered a reasonable balance between preserving amenity and allowing development to occur.

There is no proposal to vary the prescribed minimum front setback of the tower.

Built form tapering

The future development will provide for a new mixed use building with a height of 55-storeys, or 205 metres above existing ground level. The proposed maximum building height has been informed by Section 5.1.1.4(3) of the Draft *Sydney DCP 2012* which provides built form controls relating to tapering of the building form, and the Pitt Street Mall sun access plane (Section 5.1.7.2 No Additional Overshadowing). Refer to these controls at **Table 1**. Refer to the complying and proposed building envelopes at **Figure 2** and **Figure 3**.

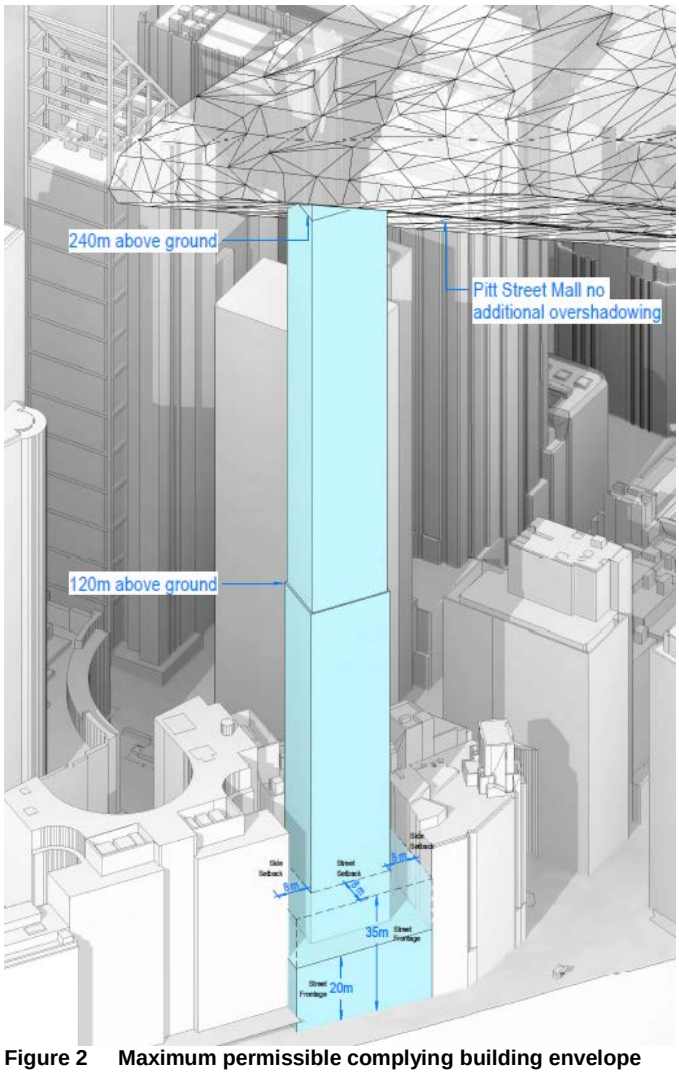

Figure 2 Maximum permissible complying building envelope
Source: Architectus

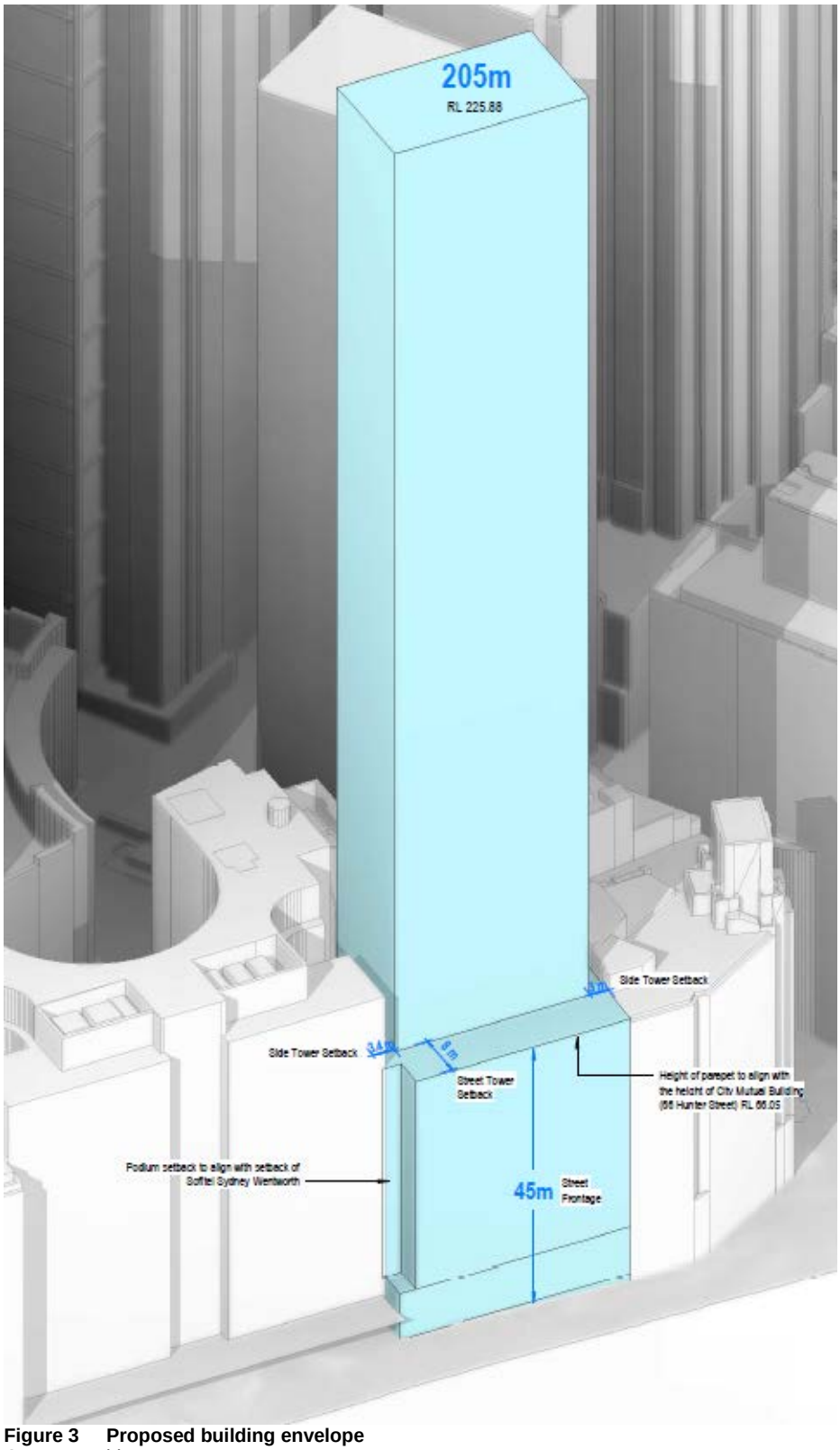

Figure 3 Proposed building envelope
Source: Architectus

3. Methodology

This section outlines the methodology applied to undertake this SVF analysis.

3.1 Modeling methodology

SVF analysis was undertaken using the open source environmental plug-in 'Ladybug for Grasshopper' which adds-in to Rhinoceros 3D, available from Robert McNeel and Associates.

Figures 1 to 3 below indicate the methodology used to prepare this report.

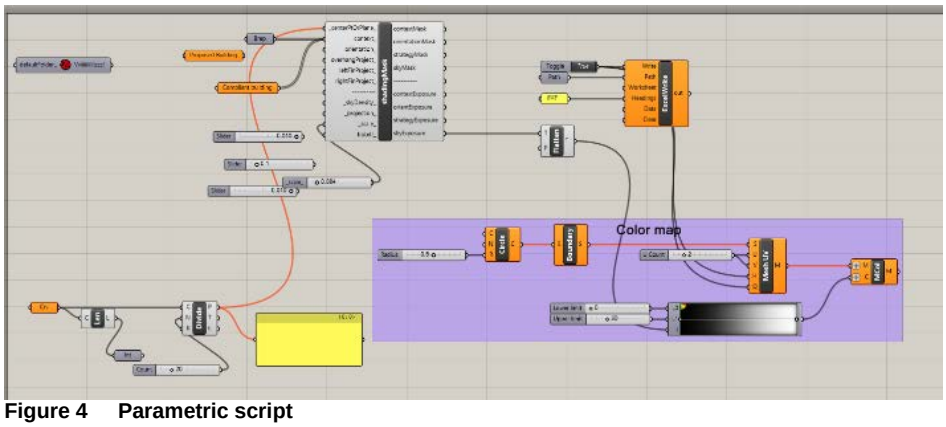

Figure 4 Parametric script

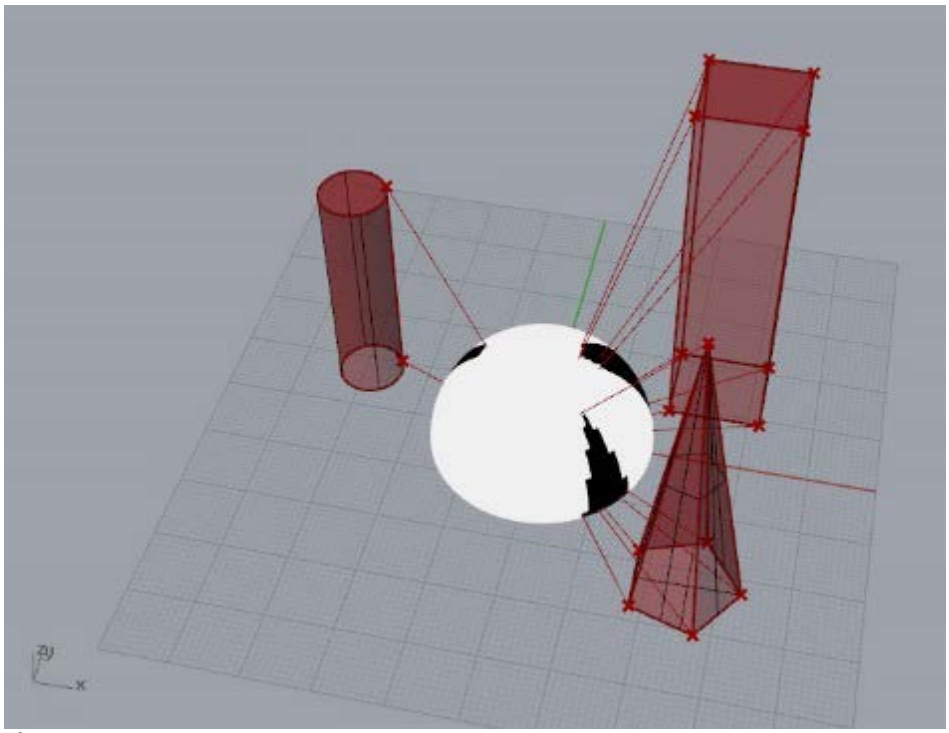

Figure 5 Test geometry 1

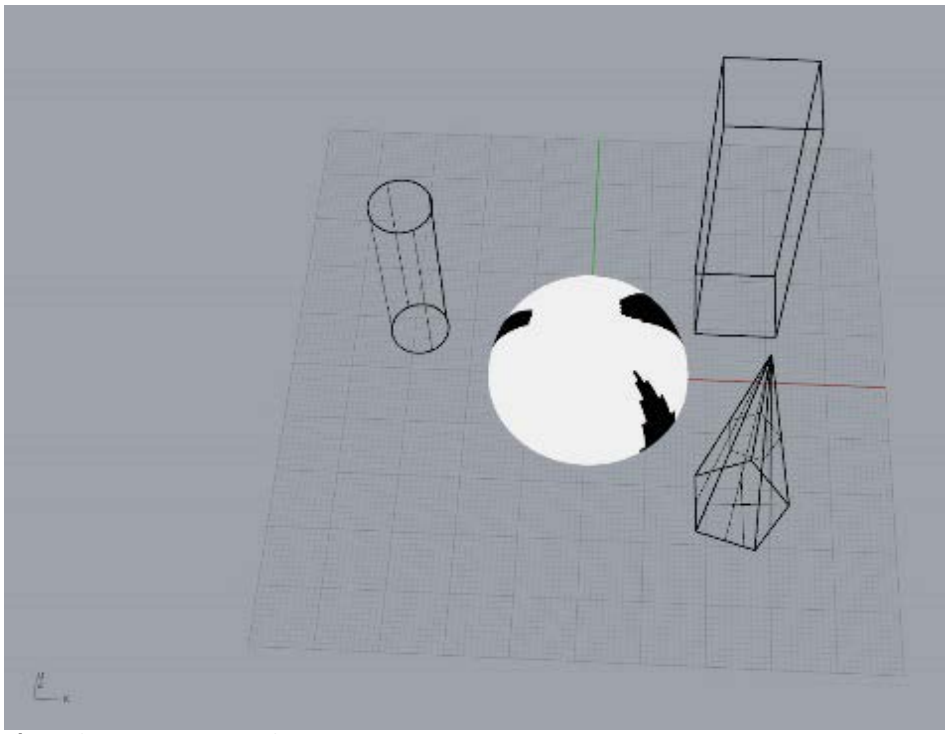

Figure 6 Test geometry 2

The proposed model envelope and compliant model envelope were created using Autodesk Revit 2017 and were exported as a 3D dwg file in order to be opened in Rhinoceros 3D.

City of Sydney context models were brought into Autodesk Revit from a LiDAR scan. Refer to **Figure 7** below.

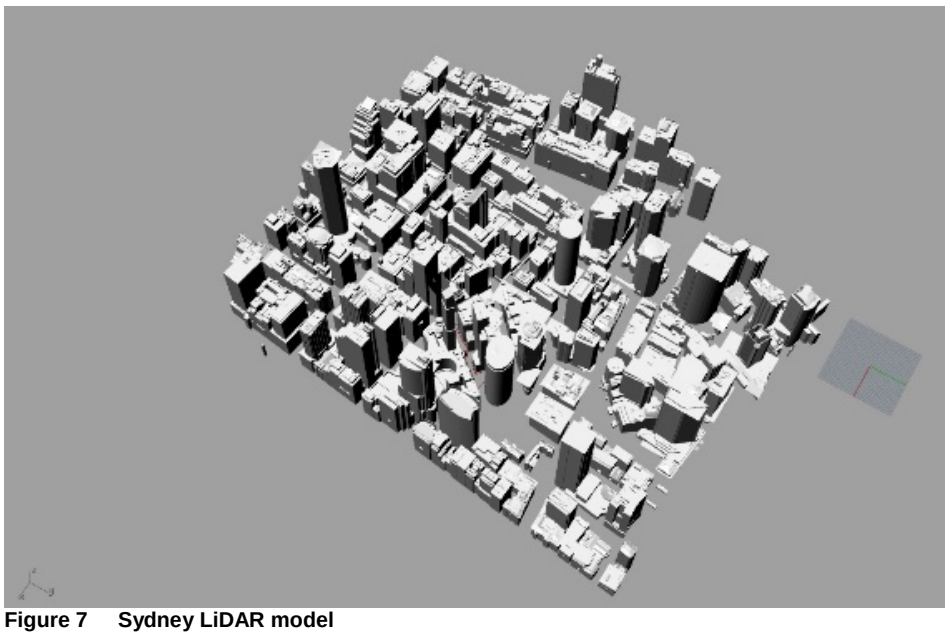

Figure 7 Sydney LiDAR model

A comparative analysis was run with test geometry in a grid of one (1) metre spacing extending 50 metres from the site. A total of **3,151 test points** were analysed.

Another analysis was run using only 5 test points to create some clear circular 'dome view' visualisations. These visualisations are provided in **Section 4** of this report.

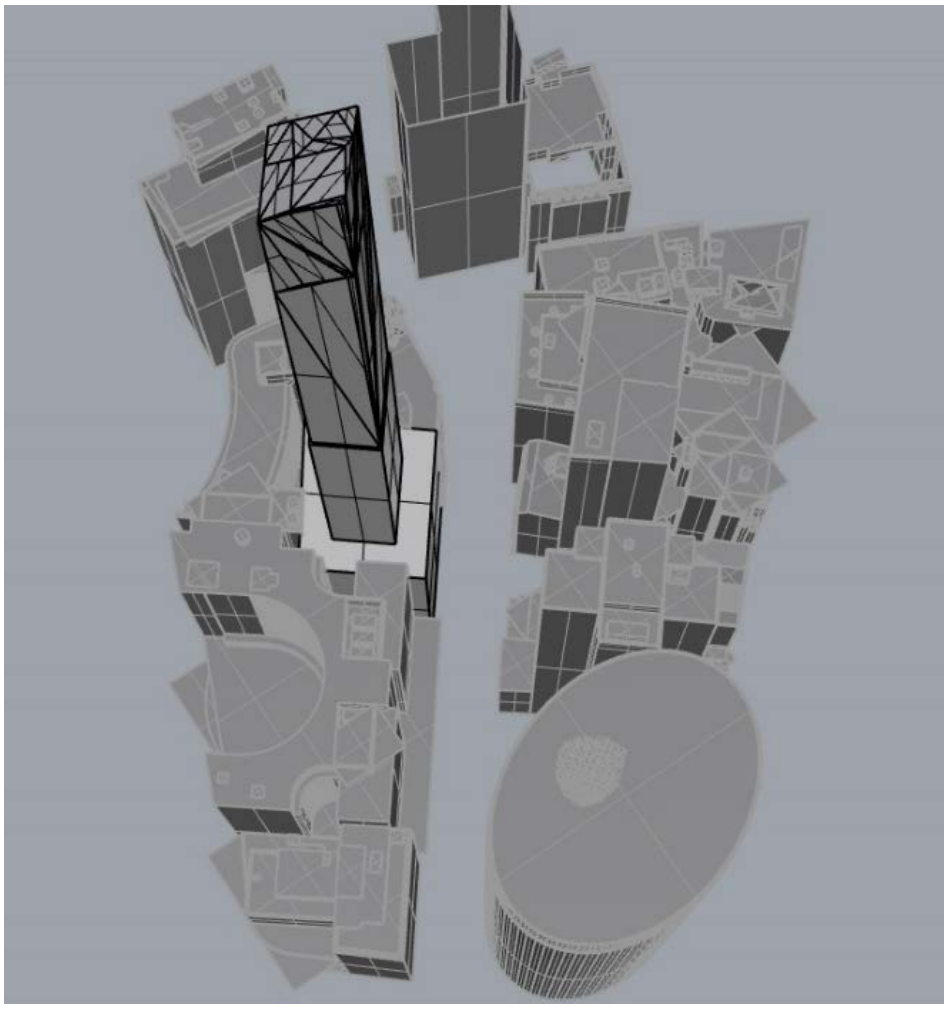

Figure 8 Context geometry with Compliant model

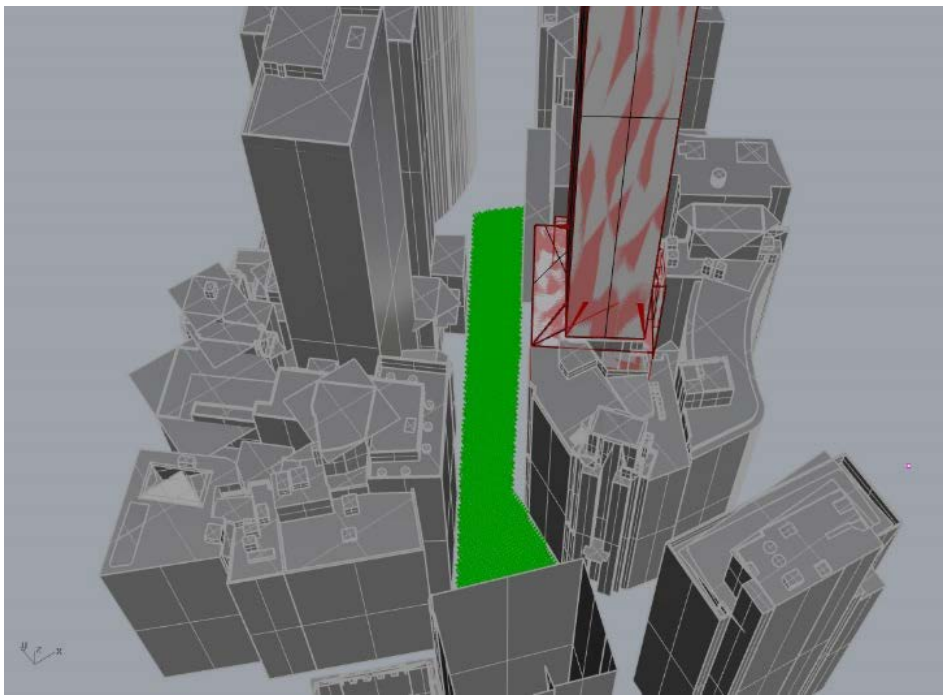

Figure 9 Analysis points (3,151 test points analysed) with Proposed model
Test points are identified by the area in green

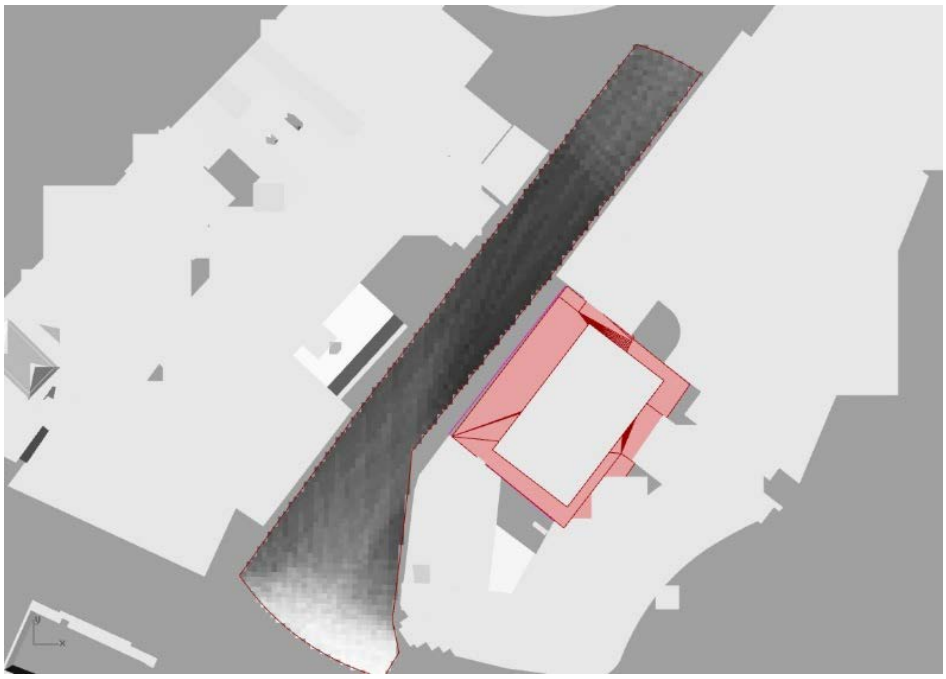

Figure 10 Sky View Factor heat map
Shading represents a gradient between 0% and 30% sky visibility

The analysis was undertaken a second time extending the area of analysis to 100 metres from the site along Bligh Street to the intersection with Bent Street to the north, and into Castlereagh Street and Hunter Street in the south. Refer to **Figure 11** below.

Refer to the results of this analysis in **Section 4.1**.

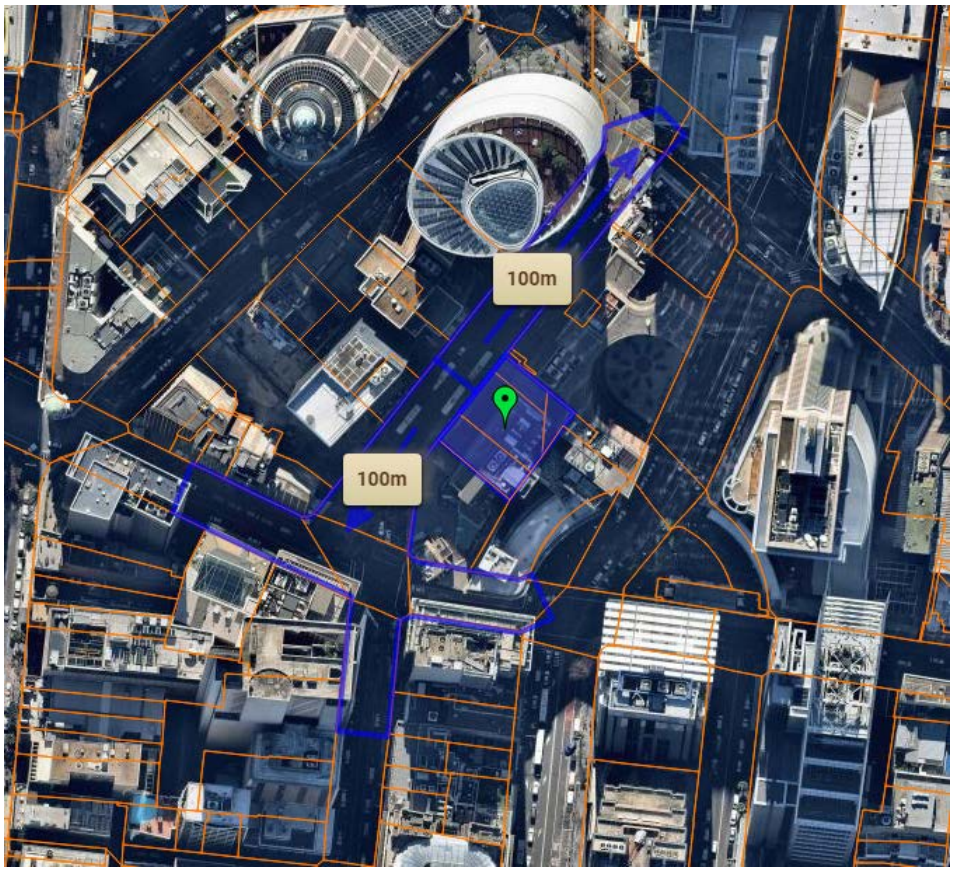

Figure 11 Analysis area – 100 metres from the site
Area outlined in blue represents the analysis area
Source: NearMaps base map, with overlays by Architectus

3.2 Equivalent or improved SVF option

Architectus submitted a first issue of this SVF assessment to the City of Sydney Council on 7 August 2017. The City of Sydney requested additional SVF testing be undertaken to ascertain what changes would be required to the building envelope in order to achieve an ‘equivalent or improved’ SVF.

In order to ascertain the necessary changes to achieve an ‘equivalent or improved’ SVF compared with a building built to the theoretical maximum building height under the Draft *Central Sydney Planning Strategy*, being the Pitt Street Mall sun access plane, and having eight (8) metre side setbacks to the north and south, BIM Consulting was able to use the script developed for the original SVF analysis to undertake the required additional analysis. The required outcome of zero loss of sky view was applied and a building envelope was generated, considering potential changes to building height and the setback of the tower to Bligh Street. Similarly, analysis was undertaken maintaining the proposed building height of 205 metres, and setback to Bligh Street (8 metres) and analysing the maximum width of the building in order to achieve an equivalent outcome.

Refer to the results of this analysis in **Section 4.4**.

4. Sky View Factor Analysis

This section provides a description of the results of this SVF analysis.

4.1 Results

This SVF analysis calculates a value relating to the extent of sky visible when viewed from the ground up, from points in proximity to the site and is provided as a proportion of the total possible sky hemisphere above that point. The SVF is provided as a value ranging from 0 to 1, where an SVF of 0 denotes no sky visible and an SVF of 1 denotes that the sky is completely visible to the horizon in all directions.

A total of 3,151 test points were analysed for the site at 4-6 Bligh Street. The analysis finds there will be marginal change in sky visibility between the complying scheme and the proposed scheme, with only a marginal/negligible reduction of sky visibility when averaged across all test points. A complying scheme provides a SVF value of 0.1377489 and the proposed scheme provides a SVF value of 0.1372844, resulting in an overall reduction in sky visibility of SVF value of 0.0004645.

Data has been compiled into excel spreadsheets where totals and averages can be extracted. The SVF values and overall averages can be found at **Appendix A**.

Visualisations of the SVF results are provided in the sections below. The visualisations are provided as 'dome views' showing the extent of sky observed above a point as a proportion of the total possible sky hemisphere above the point. Five (5) analysis points (from the total of 3,151 test points) are shown in the centre of Bligh Street at equal spacing. Refer to **Table 3** and **Figures 12 to 18** below.

The analysis was undertaken a second time extending the area of analysis to 100 metres from the site along Bligh Street to the intersection with Bent Street in the north, and to Castlereagh Street and Hunter Street in the south. The analysis provides that a complying scheme would result in an SVF value of 0.2414378 and the proposed scheme would result in an SVF value of 0.2410784, resulting in an overall reduction in sky visibility of SVF value of 0.0003594 for the proposed scheme. The extended test area of 100 metres from the site provides that the proposed development would have a slightly reduced impact on sky visibility compared to the 50 metre test case (reduction of 0.0001). At a distance of 100 metres, there will be a marginal difference in sky visibility between the complying scheme and the proposed scheme, with only a marginal/negligible reduction of sky visibility when averaged across all test points.

4.2 Numerical Results Overview

The table below provides the amount of sky visible from each of the five (5) analysis points used for visualisations.

The numbers are values between 0 and 1, where 0 indicates that 0% of the sky is visible and 1 indicates that 100% of the sky is visible.

Table 3 Results overview of 5 analysis points used for visualisations

Reference Point	Complying scheme	Proposed scheme	Difference
1	0.1222	0.1219	**– 0.0003**
2	0.0962	0.0957	**– 0.0005**
3	0.0980	0.0979	**– 0.0001**
4	0.1221	0.1217	**– 0.0004**
5	0.1456	0.1457	**+ 0.0001**

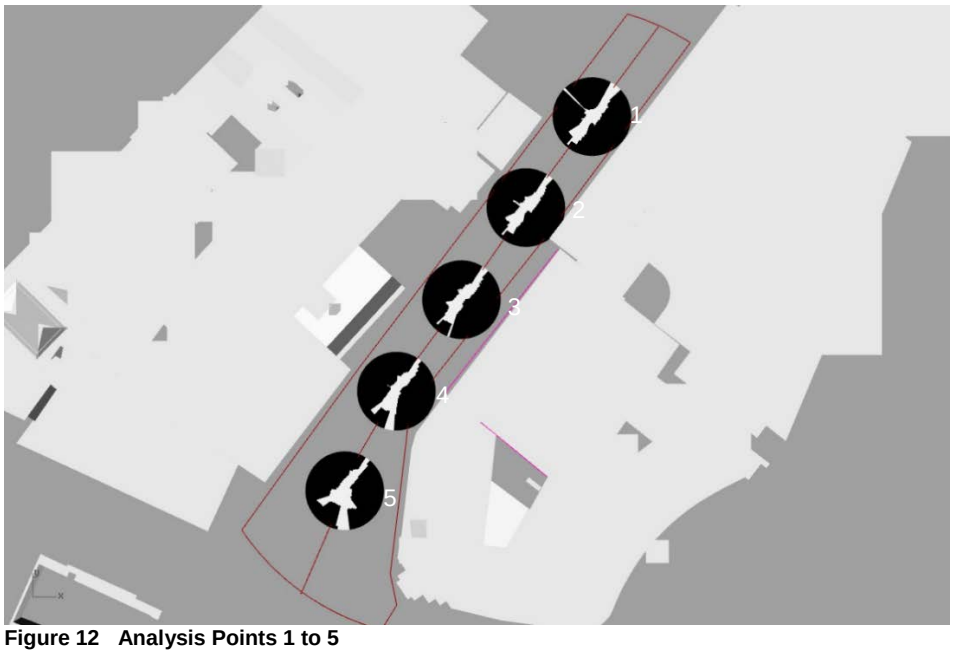

Figure 12 Analysis Points 1 to 5
The five analysis points are identified by the circular 'dome views' along Bligh Street

4.3 Visualisation of results

The outcome of the SVF analysis calculations is provided below for the five (5) analysis points (from the total of 3,151 test points) around the proposed development site to determine the alternate SVF condition.

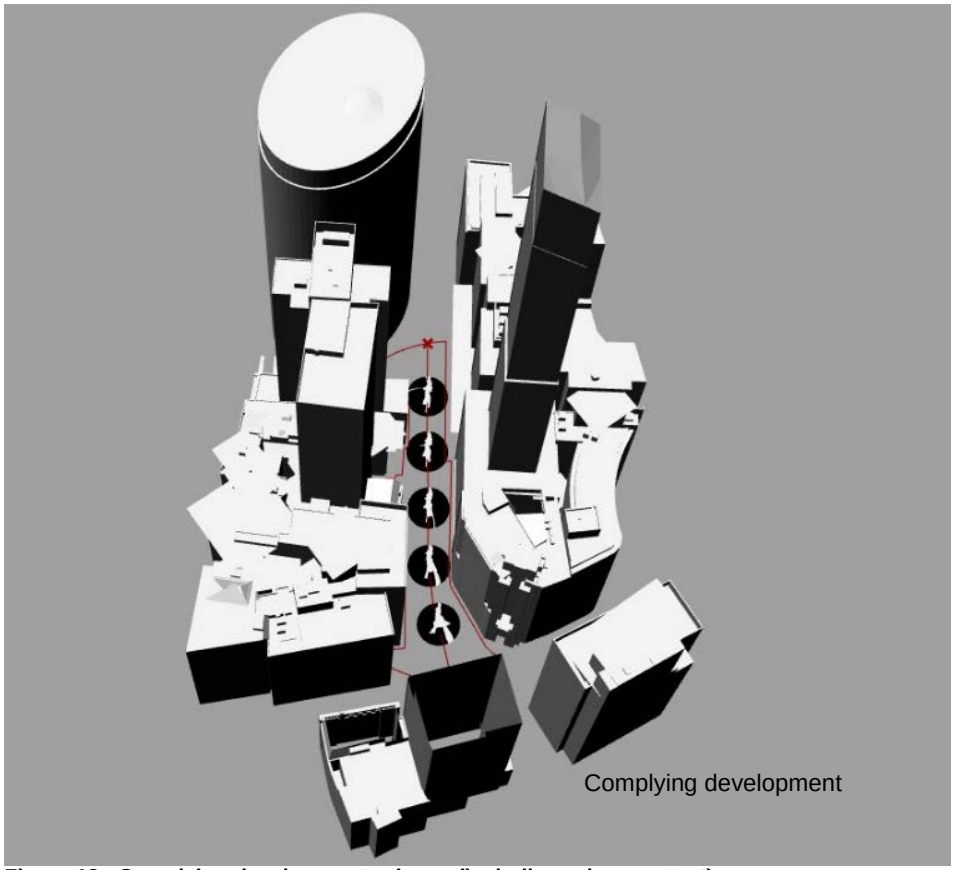

Figure 13 Complying development scheme (including urban context)
The five analysis points are identified by the circular 'dome views' along Bligh Street

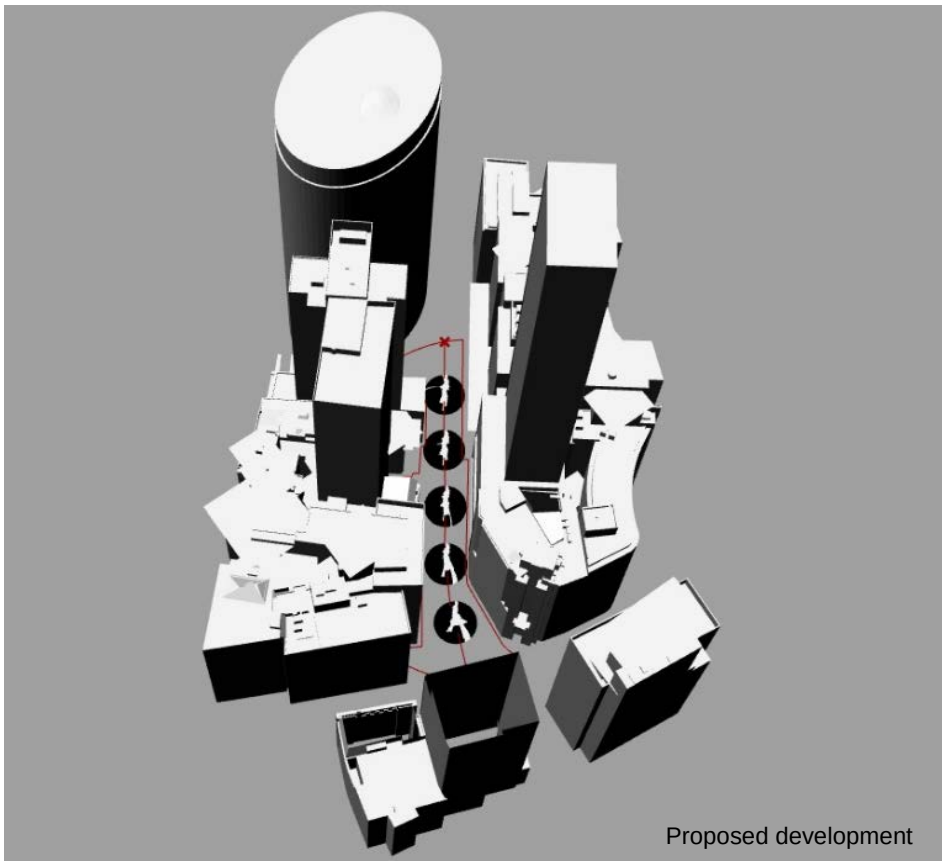

Figure 14 Proposed development scheme (including urban context)
The five analysis points are identified by the circular 'dome views' along Bligh Street

The following images contain dome visualisations of the amount of sky that is visible at each analysis point.

The black areas represent sky that is obstructed by the surrounding buildings and the white areas represent sky that is visible from the test point. The area of change between each scheme is highlighted with a yellow oval.

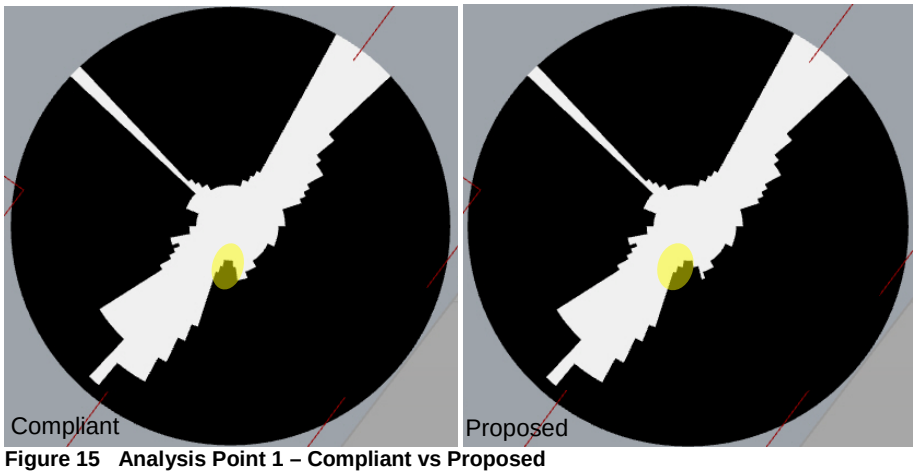

Figure 15 Analysis Point 1 – Compliant vs Proposed

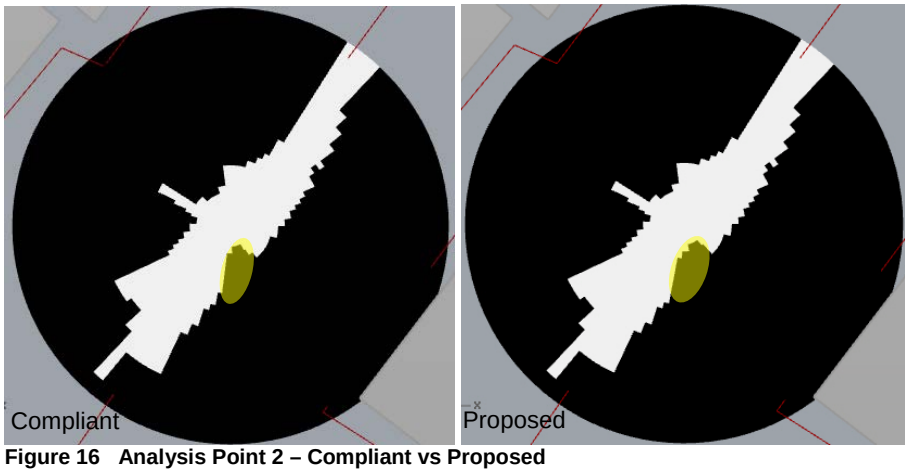

Figure 16 Analysis Point 2 – Compliant vs Proposed

Figure 17 Analysis Point 3 – Compliant vs Proposed

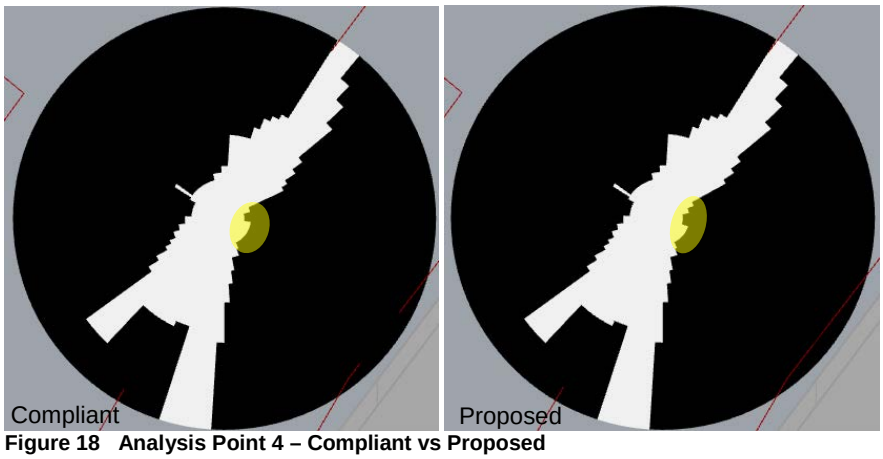

Figure 18 Analysis Point 4 – Compliant vs Proposed

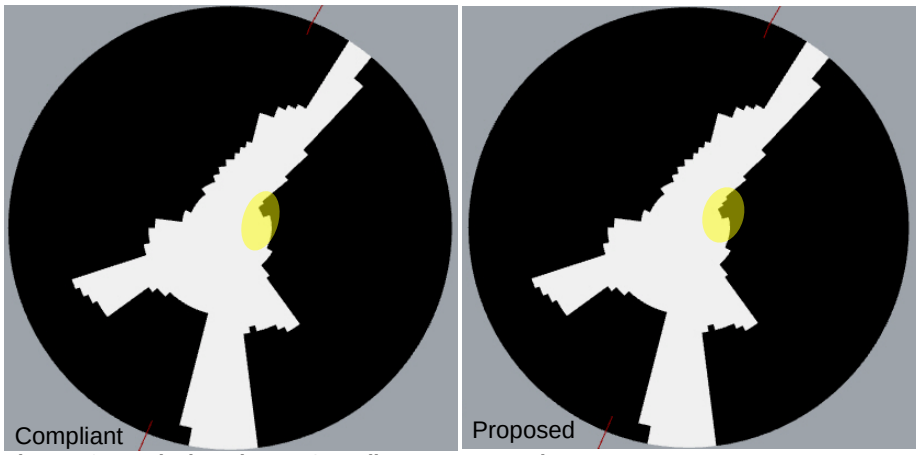

Figure 19 Analysis Point 5 – Compliant vs Proposed

4.4 Equivalent or improved SVF option

As provided in **Section 4.1** above, the proposed development scheme provides an average SVF value of 0.1372844, resulting in an overall reduction in sky visibility of an SVF value of 0.0004645. The impact is comparable to a complying scheme, with a minor reduction in SVF resulting in negligible impact on pedestrian amenity within Bligh Street. Overall the impact of this result is considered acceptable.

Architectus submitted a first issue of this SVF assessment to the City of Sydney Council on 7 August 2017. The City of Sydney requested additional SVF testing be undertaken to ascertain what changes would be required to the building envelope to achieve an 'equivalent or improved' SVF, compared with a building which provided setbacks in accordance with the Draft *Central Sydney Planning Strategy.* Accordingly, BIM Consulting has undertaken further testing of the site to calculate the building envelope requirements to achieve 'equivalent or improved' sky visibility in accordance with the Draft *Sydney DCP 2012* and Procedure B of Schedule 11 ("*Equivalent or improved wind comfort and wind safety and daylight levels in adjacent Public Places*").

Refer to the methodology used to calculate the building envelope requirements to achieve an 'equivalent or improved' SVF at **Section 3.2**.

Three options were tested to achieve a compliant building form for daylight analysis.

Option 1

The testing resulted in a built form with a maximum building height of 127 metres being required to achieve an 'equivalent or improved' SVF.

It is noted that the proposed development scheme provides a building height of 205 metres, as shown in the proposed building envelope at **Figure 3** above. The proposed building height is necessary to achieve the FSR required for the proposed new mixed use hotel and commercial building to be economically feasible and allow for the value of the loss of the existing building to be offset by the proposed development, therefore facilitating its renewal.

To reduce the height of the proposed building to 127 metres, so as to achieve an 'equivalent or improved' SVF would mean a reduction in building height of 78 metres, and the loss of 20 hotel-levels and single level of plant. Based on the Architectus Reference Design, this would result in a building with an FSR of approximately 13.5:1, being significantly less than the maximum FSR permitted for the site under both the current and proposed SLEP 2012, therefore negating any need for a Planning Proposal to be lodged.

Option 2

Similarly, analysis was undertaken maintaining the proposed building height of 205 metres and analysing the maximum width of the building in order to achieve an equivalent outcome. This analysis concluded that at 205 metres, the width of the tower would need to be reduced from approximately 31 metres as proposed by the reference design and building envelope, to 24.72 metres, a reduction of 6.28 metres in building width above the proposed podium height of RL65.88 metres. Given the reference design provides 45 levels above the podium level (including plant levels) and an approximate tower depth of 18.5 metres, this would result in a reduction of approximately 116.18sqm of building envelope area per tower level, or a total of 5,228.1sqm throughout the proposed development.

Any reduction in the hotel tower floor plate would result in a reduction of the number of hotel rooms per floor, with resultant implications on the operational efficiency of a hotel. The reference design currently provides for 11 hotel-rooms per floor, any reduction below this is such that a hotel would not be viable on the site.

Option 3

The potential for an increased setback to Bligh Street was also considered and analysed, and concluded that it is not possible to achieve an 'equivalent or improved' SVF through changes to the front setback of the building within the boundaries of the site, as a tower abutting the rear property boundary would still not achieve an 'equivalent' SVF from Bligh Street.

4.5 International Precedents

As suggested by Jesse McNicoll of the City of Sydney, Architectus and BIM Consulting have referred to the methodology for testing SVF used in New York City under the Department of City Planning.

The approach in New York City relates to tower form setbacks above the podium and not the setbacks to side boundaries, which are separately governed by building separation requirements. The methodology is summarised below:

The podium of buildings must be built to the existing street wall line. The standard minimum setback requirement above the podium is 3 metres. Beyond this setback, developers can choose to be governed by one of two skyplane setback regulations:

- *The first option, Daylight Compensation, requires buildings to be built within a sky exposure curve which relates the required setback to building height.*
- *The second option, Daylight Evaluation, measures proportions of the sky blocked from different vantage points on the street, and assigns a score for the building, with a specified minimum passing score. Under both options, some areas may encroach beyond the setbacks only if other areas compensate by recessing the same volumetric area.*

Setbacks to side and rear property boundaries are required for building separation and are not referenced in the relevant controls relating to sky view and daylight access. Given the subject site is surrounded by heritage buildings, it is considered that building separation is not a relevant matter for consideration under the circumstances of the site. Further, given the constraints on any future development of the surrounding sites, it is considered that there will be no cumulative impacts on daylight to Bligh Street as a result of future development within the immediate surrounds of the site, and also that daylight access to Bligh Street, despite a minimal reduction as a result of the proposed development, is significantly in excess of a scenario whereby a tower on the site was located adjacent to similarly scaled buildings.

The New York City skyplane regulations require tower setbacks to increase proportionate to tower height from a base-case of three (3) metres, being significantly less than the eight (8) metre minimum required in Central Sydney. The constrained nature of Central Sydney, both geographically and in relation to its capacity for growth, is

such that loss of a minimal amount of daylight to Bligh Street, not being a major pedestrian street, should be considered acceptable on merit.

4.6 Need for development

'Bligh House' has been long-term tenanted by NSW Government Property. With the imminent lapsing of lease of the property and the release of the draft *Central Sydney Planning Strategy*, the owners of the site are seeking to realise the optimal development capacity of the site for the purpose of a mixed-use hotel and commercial building.

The proposed development is of strategic significance because of its importance to key industry sectors, including tourism and hospitality, and is intended to achieve various Government policy goals. The deficiency and urgent need for the development of additional tourist accommodation in Central Sydney is referred to consistently in relevant State, regional/metropolitan and local planning policies and strategies. Growth in the tourism industry is commonly identified as being pivotal to growing the global role of Sydney and in economic growth for the State.

5. Conclusion

The results show there will be marginal change to sky visibility between the complying and proposed schemes.

A total of 3,151 test points were analysed for the site at 4-6 Bligh Street. The analysis finds there will be marginal change to sky visibility between the complying scheme and the proposed scheme, with only a marginal/negligible reduction of sky visibility when averaged across all test points. A complying scheme provides a SVF value of 0.1377489 and the proposed scheme provides a SVF value of 0.1372844. The difference between average SVF of compliant and proposed scheme across the 3,151 test points is SVF value of 0.0004645 (refer to **Attachment A**). Therefore, under the proposed scheme a total of 13.73% of the sky would be visible to a pedestrian on Bligh Street. When compared to a complying scheme, where 13.77% of the sky would be visible, the proposed scheme would reduce the amount of visible sky by 0.046%. This result is considered marginal/negligible and is comparable to a complying scheme. It would result in a negligible impact on pedestrian amenity and is therefore considered an acceptable outcome.

Of the five (5) analysis points provided in dome view visualisations in **Section 4.3**, there will be a negligible reduction of sky visibility across four (4) of the possible five reference points (ranging between SVF 0.0001 – 0.0005) and an improvement of sky visibility at one (1) point (Analysis Point 5) of SVF 0.0001 when comparable to a complying scheme. It is noted that further detailed SVF analysis can be undertaken during the detailed design phase, which may achieve additional sky visibility as a result of greater articulation of built form.

SVF testing has been undertaken to test the built form requirements to achieve an 'equivalent or improved' SVF than a building which provides setbacks in accordance with the Draft DCP 2012. The testing provided that a built form with a maximum building height of 127 metres would be required to achieve an 'equivalent or improved' SVF under the proposed varied setbacks. It would not be possible to achieve the required floor space yield to facilitate the redevelopment of the site within a building of this height, making the development unviable.

BIM Consulting (Architectus) consider the proposed development will result in a negligible impact on daylight to Bligh Street when compared to a scheme which complies with the proposed setbacks under the Draft DCP 2012. Additionally, it is considered that the need for the development outweighs the negligible SVF impact of the proposed development. The proposed mixed-use development for the purpose of a hotel and commercial building is of strategic significance in Sydney and will achieve various Government policy goals, including addressing the urgent need for tourist accommodation consistently referred to in relevant State, regional/metropolitan and local planning policies and strategies. Given that DCPs do not apply to SSD, the merits and site-specific context of the proposed development are such that the minor inconsistency with the provisions of the Draft DCP 2012 are considered supportable.

It is therefore recommended that the proposed minor variation to the sky view factor built form controls within the Draft *Sydney DCP 2012* be supported by the City of Sydney Council.

Attachment A – Sky View Factor (SVF) Values

This Appendix provides the data associated with the SVF values generated in the SVF Report.

A total of 3,151 test points were analysed under a complying and proposed development scheme for the site at 4-6 Bligh Street. For each of the test points analysed, a percentage is provided denoting the amount of sky visible from the point as a proportion of the total possible sky hemisphere above the point. Two scores are provided for each point representing a complying and proposed development scheme.

The average percentage of sky visible for a complying scheme and the proposed scheme is provided on the final page of this Appendix.

Compliant	Proposed
13.95	13.95
14.06	14.07
14.36	14.39
13.22	13.23
14.04	14.08
13.67	13.63
13.99	13.84
13.89	13.9
13.6	13.62
13.64	13.58
14.41	14.29
14.28	14.12
15.16	15.18
13.39	13.41
14.29	14.24
14.39	14.3
13.88	13.76
15.11	15.13
14.17	14.19
14.27	14.27
14.36	14.37
12.95	12.95
14.16	14.15
13.73	13.67
12.82	12.72
13.57	13.58
14.14	14.16
14.2	14.22
14.86	14.89
14.38	14.39
15.32	15.31
11.56	11.55
12.64	12.61
13.61	13.52
13.56	13.58
12.99	13.01
14.7	14.7
14.15	14.16
14.37	14.35
14.99	14.97
13.52	13.48
14.25	14.24
14.11	14.01
13.05	13.03
13.72	13.66
13.1	13.13
13.76	13.78
13.63	13.66
14.14	14.16
14.79	14.78
13.97	13.96
13.47	13.46
14.11	14.09
14.32	14.23
14.32	14.13
14.87	14.69
12.3	12.3
12.59	12.57
13.42	13.43
13.96	13.98
14.18	14.2
13.15	13.16
13.81	13.82
13.91	13.92
13.36	13.37
14.16	14.09
13.57	13.49
14.36	14.22
14.88	14.74
13.37	13.22
13.36	13.35
14.25	14.24
12.45	12.45
13.56	13.57
13.82	13.84
13.09	13.12
12.82	12.85
13.33	13.32
13.26	13.26
13.93	13.94
14.12	14.06
13.67	13.54
14.26	14.13
14.02	13.87
13.31	13.31
13.85	13.85
13.37	13.38
14.24	14.23
14.27	14.26
12.34	12.35
12.67	12.67
12.83	12.84
12.93	12.96
13.12	13.12
13.22	13.23
13.2	13.2
13.93	13.87
14.41	14.35
14.18	14.06
14.27	14.14
12.79	12.66
14.06	14.02
13.89	13.86
13.38	13.34
13.94	13.9
13.24	13.2
13.37	13.33
13.38	13.33
12.2	12.21
11.79	11.8
12.78	12.79
13.02	13.03
12.84	12.85
13.24	13.24
13.66	13.58
13.38	13.27
14.04	13.93
13.53	13.4
12.72	12.7
13.19	13.17
14.13	14.1
13.5	13.47
13.96	13.9
12.44	12.39
13.86	13.81
13.94	13.89
13.42	13.37
14.13	14.01
13.54	13.37
11.5	11.5
12	12.01
12.25	12.28
12.27	12.28
13.04	13.05
13.13	13.12
12.4	12.35
13.66	13.56
14.36	14.27
13.53	13.44
13.25	13.24
13.34	13.34
13.54	13.54
13.98	13.99
14.1	14.09
12.45	12.44
12.97	12.96
13.86	13.84
13.38	13.29
13.94	13.85
12.62	12.43
14.03	13.84
13.65	13.44
11.12	11.14
11.57	11.57
12.64	12.66
12.95	12.97
13.55	13.5
13.24	13.18
13.34	13.26
12.81	12.72
12.48	12.47
13.49	13.47
13.63	13.61
12.87	12.85
13.22	13.2
14.42	14.41
12.43	12.42
13.01	12.99
13.18	13.08
13.1	12.97
13.99	13.78
12.55	12.37
13.19	13
12.68	12.46
13.98	13.96
12.73	12.7
11.81	11.82
12.55	12.58
12.38	12.38
13.03	12.98
13.18	13.12
13.35	13.28
12.12	12.03

12.74	12.73	12.74	12.72	11.73	11.74	9.99	9.99
13.63	13.62	12.13	12.12	11.85	11.86	10.88	10.86
13.54	13.53	12.79	12.78	11.71	11.7	10.83	10.77
13.32	13.3	13.69	13.69	12.81	12.81	11.89	11.85
13.77	13.74	14.02	14	12.23	12.18	12.01	11.95
13.58	13.54	13.72	13.65	12.37	12.3	11.31	11.21
13.05	13.04	12.72	12.64	14.2	14.11	12.4	12.32
13.19	13.1	12.81	12.67	13.36	13.27	11.53	11.42
13.46	13.37	13.11	12.97	12.89	12.74	12.33	12.3
13.13	12.95	13.49	13.32	12.81	12.65	13.41	13.37
13.27	13.06	13.58	13.4	12.87	12.84	12.37	12.35
12.51	12.31	13.16	13.13	13.97	13.93	12.68	12.65
13.1	12.87	12.29	12.29	13.59	13.55	13.24	13.22
13.24	13.17	13.43	13.41	12.67	12.62	13.2	13.18
13.19	13.15	13.06	13.03	13.24	13.19	12.62	12.58
13.25	13.19	13.18	13.16	12.51	12.47	12.64	12.55
11.9	11.9	12.36	12.33	13.47	13.43	13.2	13.09
11.42	11.43	13.24	13.22	13.99	13.94	12.65	12.46
11.73	11.69	11.03	11.03	12.42	12.3	12.74	12.54
13.08	13.02	10.32	10.31	12.74	12.61	12.88	12.68
13.42	13.37	11.68	11.64	10.35	10.35	12.69	12.47
11.7	11.64	11.9	11.87	9.8	9.79	9.28	9.29
12.33	12.28	11.66	11.61	9.86	9.86	9.69	9.69
12.74	12.73	12.84	12.85	11.78	11.78	9.92	9.93
13.02	13.02	11.71	11.68	11.75	11.75	10.1	10.06
13.13	13.14	11.78	11.76	10.92	10.91	10.78	10.73
13.56	13.55	13.12	13.1	12.02	11.95	10.82	10.77
13.71	13.68	13.24	13.23	12.1	12.05	10.97	10.91
13.92	13.89	13.2	13.13	12.32	12.25	11.05	10.99
12.67	12.58	13.83	13.75	13.39	13.3	12.28	12.21
13.52	13.42	12.91	12.78	12.29	12.18	11.45	11.44
13.66	13.49	13.19	13.07	13	12.88	11.56	11.54
13.12	12.94	12.7	12.56	13.3	13.28	12.3	12.28
13.58	13.39	13.55	13.39	13.13	13.11	12.42	12.4
13.18	12.97	13.57	13.53	12.79	12.77	12.33	12.31
13.08	13.03	13.51	13.46	12.78	12.76	13.17	13.15
13.17	13.09	12.57	12.55	12.78	12.74	12.4	12.3
13.15	13.06	12.69	12.65	13.52	13.49	11.86	11.74
13.49	13.42	12.96	12.91	12.65	12.62	13.19	13.03
13.19	13.11	13.43	13.4	12.68	12.59	13.18	13.02
11.19	11.2	14.02	13.97	13.19	13.11	12.77	12.57
11.55	11.54	12.35	12.29	13.52	13.39	12.75	12.56
12.79	12.76	10.28	10.28	12.87	12.63	12.78	12.58
12.55	12.52	11.4	11.38	9.16	9.16	12.72	12.52
11.61	11.56	10.77	10.75	9.51	9.52	12.77	12.56
12.24	12.24	10.79	10.8	9.84	9.84	9.04	9.04

9.45	9.46	13.51	13.46	11.19	11.09	10.57	10.45
9.75	9.73	9.58	9.59	11.09	10.99	11.22	11.07
10.11	10.08	9.72	9.71	11.37	11.2	10.17	10.02
10.34	10.31	9.91	9.88	9.53	9.53	11.25	11.06
10.72	10.68	10.28	10.25	9.84	9.83	10.41	10.2
10.86	10.81	11.03	11.03	9.96	9.96	9.49	9.49
10.95	10.88	10.91	10.89	10.32	10.29	9.94	9.94
11.22	11.18	9.98	9.96	10.44	10.41	9.88	9.86
10.61	10.59	10.11	10.1	10.31	10.27	10.32	10.29
10.45	10.43	10.56	10.51	10.08	10.03	9.62	9.58
10.59	10.57	10.62	10.56	10.18	10.13	10.52	10.48
12.35	12.3	10.5	10.41	10.14	10.09	10.29	10.25
12.46	12.4	10.63	10.52	10.53	10.47	10.24	10.22
12.35	12.28	11.43	11.33	10.61	10.52	10.24	10.21
12.26	12.14	11.58	11.48	10.73	10.63	10.36	10.31
11.37	11.24	10.51	10.4	11.24	11.21	10.55	10.5
12.38	12.23	10.68	10.53	11.45	11.42	10.66	10.59
12.25	12.11	11.46	11.42	10.48	10.46	10.81	10.72
12.66	12.51	11.56	11.53	10.51	10.49	10.7	10.62
13.17	13	11.25	11.19	10.64	10.57	10.67	10.58
13.61	13.41	12.13	12.08	10.54	10.43	10.49	10.39
11.72	11.66	12.09	12.04	10.56	10.47	10.53	10.42
12.75	12.68	12.16	12.13	11.31	11.14	10.57	10.43
9.49	9.49	11.35	11.29	11.26	11.1	10.6	10.46
9.47	9.46	12.28	12.19	10.31	10.15	10.58	10.44
9.92	9.9	9.35	9.35	11.35	11.17	11.14	10.99
10.15	10.1	9.61	9.59	11.22	11.03	10.29	10.11
11.01	10.98	10.01	10	9.41	9.41	10.17	10.12
10.72	10.67	10.09	10.09	9.64	9.65	10.78	10.73
10.79	10.77	10.32	10.31	9.72	9.71	9.69	9.72
10.17	10.15	11.14	11.12	10.2	10.18	9.67	9.68
10.27	10.27	10.07	10.01	10.36	10.33	9.81	9.8
10.55	10.51	10.03	9.98	9.55	9.51	10.03	10.03
10.52	10.47	10.17	10.11	10.35	10.31	9.33	9.3
10.62	10.57	10.54	10.47	10.21	10.15	9.78	9.77
11.42	11.35	10.62	10.54	10.17	10.11	10.62	10.58
11.59	11.47	10.7	10.61	10.14	10.08	10.42	10.38
12.48	12.35	11.29	11.21	10.47	10.45	10.1	10.06
11.37	11.23	11.5	11.38	10.66	10.63	10.28	10.22
11.56	11.4	11.55	11.42	10.76	10.75	10.42	10.36
11.6	11.43	10.55	10.52	11.48	11.44	10.61	10.53
12.18	12.03	10.58	10.54	10.66	10.6	10.64	10.56
13.14	13.1	10.49	10.45	10.48	10.39	10.85	10.77
12.18	12.13	10.58	10.55	10.59	10.46	10.68	10.6
12.18	12.12	12.21	12.18	10.62	10.5	10.66	10.54
12.41	12.35	12.13	12.04	10.53	10.4	10.49	10.36

10.56	10.43	10.67	10.59	10.03	9.95	9.72	9.7
10.6	10.47	10.8	10.69	9.94	9.85	9.91	9.89
10.54	10.51	10.52	10.41	10.67	10.58	10.1	10.03
10.46	10.4	10.62	10.48	10.55	10.45	10.73	10.67
10.12	10.09	10.49	10.39	11.12	11	11.3	11.21
10.66	10.61	11.15	11.02	11.02	10.87	11.06	10.98
10.86	10.73	10.18	10.05	11.1	11.02	11.17	11.07
10.7	10.6	10.77	10.6	10.13	10.05	10.85	10.74
9.83	9.89	10.53	10.37	9.82	9.74	9.78	9.68
9.74	9.8	10.24	10.09	9.65	9.56	9.86	9.74
9.91	9.91	9.98	10.01	10.25	10.14	9.82	9.68
9.36	9.35	9.17	9.19	9.18	9.21	9.94	9.78
9.53	9.51	9.21	9.23	9.31	9.34	8.74	8.76
9.76	9.73	9.54	9.57	9.72	9.73	9.11	9.12
10.46	10.42	9.73	9.76	9.55	9.56	9.6	9.59
10.52	10.49	9.71	9.68	9.54	9.53	9.73	9.74
10.15	10.09	10.36	10.36	9.74	9.73	9.62	9.62
10.36	10.29	10.45	10.44	10.38	10.37	9.65	9.62
10.65	10.58	10.4	10.37	10.34	10.35	9.85	9.82
10.82	10.74	10.4	10.34	10.54	10.54	10.49	10.45
10.81	10.73	10.75	10.69	10.34	10.31	10.53	10.5
9.92	9.82	9.9	9.84	10.44	10.39	10.68	10.64
10.7	10.6	10.06	9.98	9.84	9.79	9.51	9.49
10.73	10.7	10.01	9.92	9.87	9.83	9.75	9.73
10.45	10.39	10.69	10.58	10.04	10	9.81	9.76
10.5	10.44	10.58	10.47	10	9.93	9.8	9.74
10.57	10.49	10.52	10.42	10.76	10.67	10.63	10.56
10.63	10.54	10.49	10.39	11.1	11.01	10.65	10.61
9.6	9.5	11.12	10.98	11.25	11.16	11.19	11.09
10.77	10.63	10.23	10.08	11.14	11.04	10.65	10.53
10.59	10.44	10.18	10.04	9.87	9.74	10.7	10.57
10.73	10.57	9.63	9.5	9.78	9.63	9.83	9.71
9.95	9.99	10.23	10.09	9.78	9.64	9.71	9.54
9.76	9.81	9.15	9.18	9.86	9.74	9.84	9.66
9.13	9.16	9.23	9.25	10.34	10.21	9.85	9.68
9.42	9.43	9.36	9.37	9.16	9.19	10.72	10.63
9.74	9.75	9.45	9.47	9.46	9.48	8.74	8.77
9.77	9.76	9.58	9.6	9.59	9.59	9.42	9.45
10.45	10.42	9.7	9.69	9.47	9.48	9.41	9.42
10.58	10.53	9.77	9.77	9.7	9.69	9.6	9.61
10.17	10.12	10.33	10.33	9.66	9.64	9.56	9.55
10.34	10.25	10.51	10.51	10.26	10.25	9.59	9.56
10.81	10.75	10.49	10.48	10.58	10.58	9.93	9.9
10.86	10.81	10.39	10.35	10.52	10.52	10.36	10.33
10	9.93	9.79	9.74	10.35	10.35	10.53	10.49
9.96	9.9	9.89	9.82	9.78	9.78	9.73	9.68

9.4	9.38	9.65	9.61	10.18	10.16	9.81	9.77
9.78	9.77	10.16	10.11	9.97	9.91	9.44	9.4
10.45	10.44	10.48	10.4	9.85	9.76	9.49	9.45
10.44	10.41	10.49	10.42	9.82	9.75	10.16	10.12
10.45	10.45	9.99	9.89	9.92	9.84	10.48	10.42
10.65	10.59	10.05	9.95	10.87	10.76	10.54	10.47
10.62	10.54	10.09	10	10.87	10.73	10.67	10.59
10.57	10.52	10.52	10.39	11.02	10.9	10.75	10.62
10.56	10.48	11.31	11.22	10.38	10.24	10.81	10.69
9.75	9.64	10.43	10.31	10.37	10.25	9.74	9.63
9.78	9.69	10.43	10.27	10.4	10.25	10.38	10.24
10.58	10.49	10.61	10.47	10.37	10.26	10.22	10.08
10.84	10.71	10.53	10.38	10.51	10.42	11	10.87
8.73	8.75	10.79	10.62	10.67	10.59	11.1	10.96
9.38	9.39	8.5	8.54	8.82	8.89	11.29	11.18
9.47	9.46	8.88	8.86	8.76	8.75	8.81	8.87
9.49	9.47	9.18	9.18	8.85	8.82	8.94	8.91
9.46	9.44	9.28	9.27	9.25	9.27	8.99	9.01
9.6	9.57	9.63	9.61	9.45	9.44	9.31	9.28
9.89	9.87	9.39	9.37	9.56	9.54	10.08	10.07
10.47	10.45	9.7	9.67	9.32	9.29	10.12	10.11
9.67	9.61	10.26	10.22	9.28	9.24	9.08	9.04
9.7	9.67	9.4	9.36	9.77	9.74	9.68	9.64
9.57	9.53	10.21	10.18	9.84	9.81	9.3	9.28
10.38	10.34	10.2	10.16	9.52	9.49	10.24	10.22
10.46	10.39	10.38	10.33	9.35	9.29	10.29	10.25
10.48	10.43	10.04	9.97	9.77	9.71	10.02	9.95
10.07	10.03	9.99	9.92	10.62	10.54	10.42	10.34
10.22	10.16	10.06	9.98	10.68	10.59	10.4	10.28
10.47	10.44	10.1	10.02	10.8	10.68	10.56	10.45
10.47	10.41	10.97	10.9	10.83	10.72	10.61	10.51
9.65	9.58	11.24	11.18	10.7	10.61	10.81	10.69
10.5	10.43	10.34	10.3	10.33	10.23	10.32	10.2
10.61	10.53	10.34	10.26	10.38	10.26	10.93	10.81
10.57	10.45	10.42	10.35	10.34	10.24	10.99	10.86
10.86	10.74	10.53	10.47	10.13	10.07	11.03	10.93
8.65	8.69	10.87	10.77	10.22	10.19	11.13	11.03
8.9	8.91	8.66	8.7	11.41	11.33	11.24	11.13
9.24	9.24	8.76	8.74	8.74	8.8	8.83	8.83
9.28	9.28	9.16	9.18	8.96	8.94	8.87	8.93
9.63	9.62	9.51	9.51	8.85	8.88	8.92	8.9
9.61	9.59	9.59	9.58	9.31	9.32	8.83	8.87
9.66	9.64	9.36	9.36	9.39	9.36	9.95	9.9
10.23	10.2	9.49	9.47	9.47	9.44	10.08	10.08
10.35	10.32	9.26	9.24	9.17	9.15	9.38	9.34
9.69	9.65	9.87	9.86	9.24	9.22	8.57	8.54

10.07	10.05	10.02	10	10.95	10.88	11.61	11.6
10.05	10	10.06	10.03	10.55	10.53	11.37	11.31
10.17	10.14	11.01	10.94	10.59	10.52	11.47	11.42
10.23	10.17	11.05	10.98	10.67	10.63	11.53	11.43
10.25	10.18	10.89	10.82	11.68	11.59	11.89	11.83
10.38	10.3	10.94	10.84	11.72	11.61	12.55	12.42
10.36	10.26	10.98	10.87	11.76	11.66	12.64	12.54
11.33	11.22	11.07	10.96	11.84	11.72	11.8	11.69
11.23	11.13	10.27	10.13	11	10.9	11.32	11.2
10.41	10.33	10.01	9.89	11.11	10.99	11.36	11.23
10.7	10.55	10.58	10.46	10.81	10.68	11.07	10.97
10.79	10.66	11.59	11.44	11.3	11.17	11.67	11.51
10.91	10.76	11.5	11.37	10.84	10.72	11.64	11.51
10.95	10.83	11.67	11.52	10.97	10.85	12	11.85
11.11	10.99	11.92	11.76	11.28	11.14	10.86	10.85
8.79	8.78	9.6	9.6	10.49	10.48	11.68	11.67
8.84	8.89	9.42	9.39	9.95	9.95	10.96	10.95
9.52	9.49	9.53	9.59	10.86	10.83	10.82	10.8
9.48	9.5	10.62	10.58	10.09	10.07	10.76	10.72
9.85	9.82	10.06	10.03	10.3	10.26	10.9	10.87
9.23	9.22	9.39	9.38	10.22	10.25	10.91	10.91
9.75	9.7	9.58	9.53	10.38	10.33	11.01	10.98
9.45	9.43	9.54	9.5	10.17	10.16	11.94	11.88
9.92	9.87	10.62	10.57	11.71	11.66	12.48	12.45
10.08	10.05	10.81	10.79	11.4	11.39	12.24	12.18
10.07	10	10.87	10.82	11.49	11.45	12.34	12.29
10.17	10.11	10.75	10.69	11.56	11.53	12.42	12.32
10.26	10.2	10.82	10.77	11.93	11.86	12.76	12.69
11.26	11.16	10.83	10.72	11.69	11.6	12.43	12.33
11.06	10.97	10.94	10.82	11.73	11.62	11.22	11.1
11.12	11.01	10.96	10.86	10.95	10.87	11.2	11.09
11.14	11.01	11.88	11.77	11.01	10.83	11.31	11.18
10.38	10.25	11.15	11.04	11.08	10.95	11.35	11.22
10.64	10.52	10.87	10.71	10.31	10.17	11.06	10.93
10.68	10.55	11.39	11.26	10.8	10.68	11.58	11.46
10.8	10.67	11.44	11.31	11.7	11.59	11.6	11.45
10.91	10.8	11.47	11.35	11.77	11.63	11.97	11.87
11.26	11.13	11.08	10.95	9.95	9.95	11.79	11.79
8.83	8.81	9.45	9.46	10.82	10.8	12.58	12.56
9.57	9.62	10.38	10.36	10.83	10.82	11.55	11.51
9.55	9.52	9.93	10	9.99	9.97	11.48	11.46
9.52	9.48	10.04	10.02	10.11	10.09	11.65	11.61
9.57	9.52	9.12	9.08	11.19	11.15	11.99	11.97
9.57	9.52	10.3	10.3	10.94	10.95	11.86	11.84
9.6	9.59	10.44	10.39	11.04	11	12.03	11.96
9.72	9.7	10.48	10.48	11.11	11.04	11.99	11.96

12.43	12.4	12.77	12.72	11.32	11.32	13.34	13.34
12.2	12.14	12.57	12.54	11.48	11.48	13.65	13.65
12.26	12.18	12.65	12.59	11.11	11.11	12.8	12.8
12.38	12.32	12.67	12.62	11.21	11.21	12.84	12.84
12.15	12.06	13.03	12.92	11.69	11.69	11.75	11.75
11.94	11.81	11.98	11.88	12.34	12.34	11.91	11.91
11.2	11.09	12.03	11.91	12.8	12.8	11.84	11.84
11.25	11.13	12.07	11.96	13.14	13.14	11.49	11.49
11.33	11.19	11.91	11.76	12.97	12.97	11.9	11.9
11.06	10.92	11.59	11.48	13.18	13.18	11.59	11.59
11.14	11.01	11.61	11.49	13.19	13.18	11.55	11.55
11.62	11.49	12.15	12	13.23	13.23	11.68	11.68
11.6	11.48	12.42	12.27	13.44	13.44	11.52	11.52
12.75	12.75	13.22	13.22	12.7	12.7	12.62	12.62
12.45	12.42	13.38	13.38	12.7	12.7	12.9	12.9
11.72	11.71	13.07	13.07	12.67	12.8	13.26	13.26
11.49	11.48	13.36	13.36	12.81	12.8	12.89	12.89
11.59	11.58	13.05	13.05	12.5	12.48	12.69	12.69
11.56	11.61	12.79	12.99	12.56	12.53	13.11	13.11
12.04	12	13.24	13.24	12.7	12.74	13.18	13.18
11.91	11.88	13.34	13.34	12.37	12.33	13.39	13.39
11.91	11.91	12.49	12.48	12.23	12.2	13.53	13.54
12.34	12.31	12.61	12.68	12.33	12.32	12.69	12.68
12.52	12.45	12.7	12.68	12.81	12.76	12.67	12.67
13.05	13	12.44	12.42	12.86	12.79	12.63	12.74
12.58	12.5	12.45	12.42	12.62	12.59	12.79	12.8
12.71	12.64	12.47	12.52	12.43	12.35	12.72	12.7
13.03	12.95	12.84	12.8	12.81	12.71	12	11.97
11.98	11.88	12.77	12.71	12.09	12.04	12.09	12.13
12.02	11.94	12.22	12.22	11.81	11.69	12.44	12.41
12.05	11.94	12.68	12.62	11.85	11.76	12.53	12.49
12.14	11.99	12.77	12.72	11.89	11.8	12.32	12.26
11.9	11.76	12.47	12.45	11.95	11.81	12.54	12.49
11.95	11.81	12.68	12.58	11.74	11.63	12.54	12.49
12.11	12.01	12.93	12.87	11.72	11.56	12.34	12.22
12.41	12.28	12.17	12.09	12.44	12.32	12.38	12.34
13.37	13.36	11.67	11.54	24.89	24.89	11.95	11.86
12.65	12.77	11.67	11.59	25.39	25.39	12.03	11.97
12.65	12.63	11.81	11.69	24.43	24.43	11.75	11.67
12.42	12.4	11.85	11.74	24.66	24.66	11.78	11.65
12.5	12.49	11.63	11.49	22.29	22.29	11.88	11.81
12.46	12.51	11.6	11.5	20.51	20.51	11.63	11.49
12.8	12.77	12.11	11.98	14.53	14.53	11.1	11.01
12.79	12.77	11.35	11.35	13.78	13.78	11.12	11.03
12.75	12.75	11.28	11.28	14.18	14.18	25.54	25.54
13.31	13.25	11.38	11.38	13.3	13.3	25.54	25.54

25.73	25.73	12.25	12.2	13.85	13.85	14.35	14.35
25.4	25.4	12.48	12.46	14.23	14.23	14.43	14.43
24.61	24.61	12.65	12.59	14.26	14.25	14.36	14.36
23.93	23.93	12.38	12.3	14.46	14.46	13.97	13.97
21.95	21.95	12.48	12.44	13.96	13.96	14.31	14.31
21.53	21.53	11.98	11.9	13.68	13.67	13.35	13.35
18.93	18.93	12.05	11.93	13.61	13.62	13.23	13.23
17.89	17.89	11.73	11.68	13.24	13.22	13.14	13.14
16.96	16.96	11.27	11.17	13.09	13.17	12.49	12.49
15.69	15.69	11.36	11.2	13.07	13.04	13.04	13.04
15.66	15.66	11.05	11	13.2	13.17	12.98	12.98
14.69	14.69	11.11	10.97	12.63	12.59	13.96	13.96
14.79	14.79	11.1	11.04	12.65	12.67	14.24	14.24
13.99	13.99	27.7	27.7	12.96	12.94	14.25	14.25
14.5	14.5	26.64	26.64	13.07	13	14.04	14.04
13.71	13.71	26.62	26.62	13.43	13.37	14.32	14.32
13.9	13.9	25.91	25.91	13.35	13.31	14.59	14.58
13.46	13.46	25.97	25.97	13.42	13.38	13.75	13.95
12.19	12.19	24.6	24.6	13.44	13.37	13.95	13.95
12.67	12.67	24.82	24.82	12.47	12.41	13.46	13.45
12.05	12.05	23.02	23.02	12.82	12.74	13.13	13.13
12.15	12.15	22.52	22.52	12.29	12.2	13.42	13.4
11.81	11.81	20.9	20.9	12	11.88	12.86	12.97
11.76	11.76	19.62	19.62	12.04	11.95	12.97	12.94
12.13	12.13	17.25	17.25	12.18	12.06	12.91	12.92
11.84	11.84	16.39	16.39	11.89	11.83	13.07	13.02
11.99	11.99	16.83	16.83	11.88	11.77	12.88	12.89
11.23	11.23	15.88	15.88	12.21	12.04	13.23	13.19
12.27	12.27	15.97	15.97	26.78	26.78	13.23	13.2
12.79	12.79	15.06	15.06	26.72	26.72	13.57	13.52
13.06	13.06	15.73	15.73	26.08	26.08	13.39	13.37
13.03	13.03	14.04	14.04	24.99	24.99	13.41	13.35
13.31	13.31	14.15	14.15	26.45	26.45	12.11	12.04
13.37	13.37	14.13	14.13	24.8	24.8	12.02	11.94
13.37	13.35	13.35	13.35	24.91	24.91	12.19	12.13
13.86	13.86	14.1	14.1	23.17	23.17	12.29	12.22
12.83	12.83	13.18	13.18	23.41	23.41	11.93	11.81
12.81	12.82	12.97	12.97	20.98	20.98	11.99	11.93
13.03	13.02	12.94	12.94	19.02	19.02	12.09	11.99
12.85	12.94	13	13	18.12	18.12	11.83	11.72
12.37	12.37	13.1	13.1	16.49	16.49	11.84	11.76
12.39	12.37	12.46	12.46	17.11	17.11	26.99	26.99
12.14	12.11	13	13	16.06	16.06	26.25	26.25
12.14	12.18	13.81	13.81	16.21	16.21	25.78	25.78
12.46	12.44	13.73	13.73	14.4	14.4	25.02	25.02
12.37	12.32	14.13	14.13	14.9	14.9	25.57	25.57

25.85	25.85	12.22	12.15	13.05	13.01	14.72	14.73
24.46	24.46	12.04	11.97	13.07	13.02	14.04	14.03
23.03	23.03	12.11	12.03	13.1	13.07	13.97	13.97
21.42	21.42	12.08	11.97	12.32	12.28	14.43	14.45
22.01	22.01	12.23	12.14	12.64	12.59	13.39	13.37
20.22	20.22	11.82	11.71	12.75	12.74	13.43	13.4
19.5	19.5	11.9	11.7	13.02	12.97	13.4	13.36
17.62	17.62	27.48	27.48	12.93	12.86	13.15	13.13
17.61	17.61	25.96	25.96	12.09	12.03	13.47	13.44
15.47	15.47	26.87	26.87	12.16	12.12	13.4	13.35
15.57	15.57	26.01	26.01	12.21	12.12	12.66	12.6
14.64	14.64	25.96	25.96	12.24	12.17	12.67	12.66
15.13	15.13	25.15	25.15	11.98	11.89	12.5	12.48
14.39	14.39	24.97	24.97	12.01	11.93	12.67	12.61
14.45	14.45	24.08	24.08	11.8	11.7	12.88	12.81
14.59	14.59	23.4	23.4	11.66	11.56	13.25	13.2
14.47	14.47	22.13	22.13	11.59	11.52	13.12	13.06
14.38	14.38	21.12	21.12	11.84	11.71	12.25	12.21
12.81	12.8	19.82	19.82	26.67	26.67	12.22	12.17
12.78	12.78	17.79	17.79	26.53	26.53	11.99	11.91
13.46	13.46	17.44	17.44	25.59	25.59	12.01	11.94
13.51	13.51	16.64	16.64	25.19	25.19	11.77	11.66
14.03	14.03	15.68	15.68	25.94	25.94	11.88	11.79
14.01	14.02	14.76	14.76	24.99	24.98	11.93	11.82
14.45	14.45	15.57	15.57	25.02	25.02	11.63	11.53
14.29	14.29	15.64	15.64	23.4	23.4	11.73	11.61
14.74	14.74	14.67	14.67	22.77	22.77	27.18	27.18
14.51	14.52	14.3	14.3	21.3	21.3	26.35	26.35
14.73	14.73	13.95	13.95	20.53	20.53	26.18	26.18
13.48	13.5	13.9	13.9	18.75	18.75	26.08	26.08
13.58	13.58	13.82	13.82	18.41	18.41	25.93	25.92
13.21	13.21	14	14	16.77	16.77	23.8	23.8
13.01	13.02	13.57	13.56	16.71	16.71	24.79	24.79
13.22	13.2	14.61	14.6	16.67	16.67	23.54	23.54
13.2	13.28	14.16	14.16	16.15	16.15	22.27	22.27
13.06	13.04	14.84	14.83	15.65	15.65	21.54	21.54
12.89	12.89	14.59	14.59	14.9	14.9	20.67	20.67
12.96	12.92	14.79	14.8	15.11	15.11	19.77	19.77
12.77	12.78	14.01	14.02	14.74	14.74	18.8	18.8
13.16	13.12	13.51	13.51	15.6	15.6	18.2	18.2
13.23	13.2	13.44	13.45	14.76	14.76	16.48	16.49
12.88	12.82	13.28	13.29	15.91	15.91	16.09	16.09
12.77	12.73	13.3	13.29	15.45	15.45	15.92	15.92
12.91	12.87	13.03	13.03	15.84	15.84	15.82	15.82
12.23	12.17	13.24	13.24	15.5	15.5	14.95	14.95
12.15	12.08	13.27	13.34	15.22	15.23	15.07	15.08

15.61	15.61	17.99	17.99	22.92	22.92	25.76	25.76
14.86	14.86	16.2	16.2	20.7	20.7	23.59	23.6
15.89	15.9	17.1	17.11	20.96	20.96	24.31	24.32
15.54	15.54	15.9	15.91	19.77	19.77	22.64	22.65
15.07	15.08	16.86	16.86	18.84	18.84	20.9	20.9
14.75	14.76	16.08	16.09	18.09	18.09	20.09	20.1
15.24	15.24	15.08	15.08	18.12	18.12	20.6	20.59
14.27	14.27	16.34	16.35	17.3	17.3	19.27	19.26
14.16	14.15	15.06	15.06	17.39	17.39	18.58	18.58
14.45	14.45	15.04	15.03	16.94	16.94	18.04	18.04
14.5	14.52	15.08	15.08	16.04	16.06	16.91	16.9
14.58	14.56	15.22	15.22	16.64	16.64	17.93	17.94
14.32	14.31	14.71	14.72	15.61	15.61	17.09	17.09
14.33	14.29	14.6	14.6	15.48	15.48	16.02	16.02
13.38	13.39	14.48	14.47	15.5	15.51	17.31	17.3
13.74	13.71	14.51	14.7	15.1	15.09	16.36	16.36
13.82	13.78	14.7	14.71	14.73	14.72	15.53	15.54
13.56	13.49	14.08	14.07	14.34	14.34	15.16	15.16
13.41	13.41	13.82	13.8	14.25	14.26	15.37	15.35
13.5	13.46	13.94	13.91	14.52	14.53	15.25	15.25
13.64	13.57	13.84	13.82	14.21	14.21	15.39	15.39
14.09	14.03	13.85	13.85	14.15	14.12	14.71	14.72
13.71	13.71	13.87	13.81	13.96	13.92	14.8	14.8
12.81	12.74	13.47	13.42	13.52	13.52	14.76	14.72
12.79	12.74	13.21	13.21	13.55	13.55	13.89	13.86
12.77	12.69	13.18	13.19	13.62	13.57	13.58	13.58
12.68	12.63	13.35	13.27	13.5	13.43	13.92	13.92
12.79	12.71	13.84	13.78	13.28	13.22	13.77	13.71
12.49	12.42	13.77	13.77	13.34	13.34	13.04	12.97
12.6	12.55	12.75	12.72	13.5	13.46	12.88	12.8
12.07	11.97	12.67	12.61	13.86	13.77	12.9	12.9
11.14	11.04	13.03	12.93	12.49	12.4	13.07	13.1
11.38	11.24	12.21	12.17	12.31	12.3	13.47	13.37
26.82	26.82	12.31	12.21	12.27	12.22	12.63	12.54
26.96	26.96	12	11.91	12.53	12.44	12.36	12.36
27.18	27.16	12.07	11.97	12.23	12.13	12.32	12.29
25.67	25.67	12.11	12	12.25	12.21	12.5	12.39
26.43	26.43	11.85	11.74	11.95	11.87	12.24	12.13
25.15	25.16	26.52	26.52	12	11.89	12.22	12.22
25.3	25.3	25.76	25.76	12.06	12	12.04	11.94
24.4	24.4	25.39	25.39	11.9	11.78	12.04	11.94
23.18	23.18	25.99	25.99	26.99	26.99	11.76	11.65
22.61	22.61	25.11	25.12	26.99	26.99	26.55	26.55
20.15	20.15	24.54	24.53	26.27	26.27	25.08	25.07
21.06	21.06	23.89	23.9	26.47	26.47	26.5	26.5
19.65	19.65	23.67	23.67	25.56	25.54	26.22	26.22

25.33	25.33	24.05	24.06	23.61	23.61	19.12	19.09
24.63	24.63	24	24.01	21.32	21.33	17.99	17.98
25.31	25.32	22.51	22.52	22.35	22.35	18.32	18.32
22.94	22.95	23.6	23.6	20.71	20.71	16.82	16.8
22.15	22.15	21.88	21.87	19.72	19.72	16.71	16.69
21.44	21.43	21.57	21.57	19.96	19.93	16.7	16.66
19.84	19.84	21.6	21.59	18.48	18.46	16.05	16.02
19.93	19.93	20.68	20.68	17.68	17.67	15.92	15.9
18.99	18.99	19.33	19.33	17.19	17.18	15.87	15.87
18.97	18.97	19.22	19.18	16.39	16.37	15.49	15.46
18	18	17.56	17.54	16.48	16.48	15.09	15.08
18.87	18.85	16.74	16.73	15.71	15.68	15.11	15.04
17.16	17.14	16.06	16.05	15.67	15.81	14.95	14.87
16.09	16.09	16	15.99	15.12	15.11	13.76	13.75
16.12	16.11	15.15	15.15	14.72	14.71	13.45	13.44
15.47	15.48	15.26	15.23	14.9	14.88	13.57	13.52
15.07	15.06	15.26	15.23	14.71	14.65	13.31	13.21
15.16	15.13	14.64	14.64	14.43	14.38	12.79	12.68
14.87	14.86	14.57	14.57	14.47	14.38	13	13.02
15.21	15.2	14.63	14.61	14.46	14.43	12.96	12.95
14.92	14.91	14.68	14.64	14.28	14.28	12.77	12.7
15.06	15.06	14.27	14.22	14.1	14.04	12.77	12.65
14.83	14.79	14.32	14.24	13.82	13.72	12.61	12.47
14.37	14.33	14.41	14.4	13.74	13.64	12.56	12.55
13.95	13.95	14.25	14.25	13.45	13.47	12.27	12.23
14.26	14.25	14.02	13.97	12.75	12.69	12.23	12.1
13.85	13.85	14.17	14.1	12.66	12.56	11.86	11.71
13.99	13.93	13.8	13.7	12.69	12.57	11.99	11.98
13.77	13.68	13.73	13.75	12.65	12.61	24.54	24.54
13.64	13.63	13.56	13.5	12.49	12.46	25.35	25.36
13.84	13.87	13.48	13.37	12.33	12.21	25.27	25.22
13.53	13.42	13.45	13.35	12.31	12.17	25.34	25.3
12.8	12.71	12.86	12.84	11.94	11.8	25.23	25.22
12.6	12.5	13.09	13.06	11.94	11.9	24.87	24.85
12.29	12.27	12.79	12.67	25.5	25.51	23.85	23.84
12.65	12.54	12.72	12.62	24.81	24.82	23.81	23.79
12.38	12.26	11.99	11.96	26.29	26.29	22.82	22.83
12.35	12.24	12	11.88	26.17	26.16	20.8	20.77
11.99	11.92	11.7	11.58	25.37	25.36	21.04	21
12.07	11.95	25.9	25.9	24.2	24.17	20.1	20.07
11.81	11.69	25.8	25.8	24.3	24.29	19.12	19.12
27.05	27.02	26.67	26.67	23.46	23.46	18.09	18.08
25.36	25.36	25.34	25.33	21.64	21.62	17.31	17.27
26.1	26.1	24.69	24.67	22.54	22.54	16.36	16.3
25.82	25.82	24.43	24.43	20.69	20.69	16	15.94
24.9	24.9	25.27	25.26	21.6	21.55	15.25	15.22

15.08	15.06	13.9	13.81	23.67	23.6	13.95	13.93
14.78	14.77	13.81	13.78	22.05	21.99	13.6	13.58
14.81	14.79	13.49	13.49	23.57	23.55	14.25	14.14
14.69	14.59	13.51	13.37	21.98	21.94	14.12	13.94
14.63	14.54	13.43	13.27	20.43	20.42	13.89	13.74
14.66	14.64	13.35	13.33	19.41	19.41	13.77	13.71
14.41	14.38	12.45	12.4	17.66	17.79	12.85	12.8
14.3	14.3	12.19	12.1	18.9	18.81	12.98	12.85
14.22	14.11	11.26	11.12	17.13	17.07	12.62	12.46
13.75	13.62	25.58	25.56	16.96	16.94	12.36	12.2
13.76	13.76	25.02	25.02	15.99	15.96	23.61	23.59
13.8	13.8	25.63	25.62	15.12	15.09	24.5	24.39
12.91	12.84	26.46	26.45	15.26	15.18	23.71	23.62
12.83	12.69	23.94	23.93	14.9	14.87	23.77	23.75
12.57	12.45	24.57	24.53	14.99	14.86	22.18	22.15
12.58	12.58	22.81	22.75	14.79	14.77	22.14	22.08
12.63	12.55	21.63	21.57	13.88	13.87	21.13	21.11
12.27	12.15	22.03	22.02	12.82	12.77	20.62	20.61
11.89	11.73	20.4	20.36	13.31	13.17	19.62	19.54
25.87	25.87	20.15	20.15	13.22	13.09	18.66	18.56
25.81	25.76	19.35	19.34	13	12.96	18.04	18.02
25.87	25.84	19.49	19.45	12.92	12.89	18.58	18.57
25.79	25.78	17.92	17.83	12.65	12.58	17.84	17.81
26.54	26.52	17.8	17.74	12.76	12.64	15.22	15.18
24.22	24.21	16.15	16.14	12.51	12.34	14.94	14.9
23.41	23.37	16.21	16.17	12.53	12.51	14.06	13.95
22.85	22.84	15.97	15.96	12.04	12.02	13.27	13.22
22.17	22.12	14.04	13.96	24.88	24.87	14.06	14
20.77	20.71	13.85	13.82	23.2	23.19	12.95	12.93
20.3	20.28	14.03	13.9	24.46	24.45	13.31	13.22
19.16	19.15	13.79	13.78	24.26	24.16	13.09	12.9
19.37	19.35	13.68	13.64	23.78	23.71	13.16	12.95
18.66	18.63	12.94	12.86	22.93	22.92	12.81	12.79
17.78	17.7	13.16	13.05	23.84	23.81	12.68	12.63
16.18	16.12	13.2	13.1	22.16	22.12	12.75	12.63
15.33	15.31	13.09	13.06	21.28	21.26	12.44	12.28
16.04	16.01	12.96	12.95	20.24	20.36	12.37	12.19
15.01	14.96	12.65	12.58	19.65	19.57	22.96	22.84
14.94	14.93	12.82	12.66	18.21	18.1	24.49	24.46
14.91	14.83	12.56	12.41	18	17.98	23.79	23.77
14.74	14.65	12.39	12.4	16.92	16.9	23.13	23.09
14.69	14.69	12.22	12.13	16.18	16.13	22.21	22.15
14.66	14.64	24.92	24.9	15.09	15.03	21.59	21.57
14.46	14.43	25.68	25.65	15	14.98	20.71	20.6
13.52	13.47	24.09	24.07	15.81	15.68	21.37	21.27
13.68	13.55	24.29	24.24	14.87	14.81	19.76	19.69

18.79	18.76
17.8	17.77
17.76	17.74
16.13	16.07
15.85	15.72
15.15	15.12
13.23	13.16
12.99	12.93
13.32	13.23
13.31	13.15
13.13	12.93
12.79	12.76
13.03	13
12.87	12.74
12.46	12.25
12.39	12.21
24.66	24.64
23.96	23.92
23.11	23.08
22.88	22.86
22.53	22.41
20.56	20.47
20.51	20.49
18.7	18.63
17.82	17.8
16.93	16.91
16.16	16.11
15.26	15.08
14.35	14.32
14.19	14.16
13.16	13.11
13.37	13.35
13.39	13.24
12.3	12.13
12.24	12.18
12.25	12.24
11.77	11.74
12.62	12.49
23.8	23.77
22.96	22.93
23.21	23.13
22.25	22.15
21.48	21.35
19.78	19.75
21.35	21.26
20.45	20.4

17.96	17.93
17.07	17.04
15.47	15.28
15.04	14.87
14.1	14.04
14.31	14.29
14.08	14.02
13.38	13.3
13.32	13.18
13.91	13.68
12.82	12.75
12.61	12.59
12.63	12.54
22.11	22.07
23.32	23.17
23.15	23.03
21.45	21.41
20.63	20.6
20.28	20.21
19.55	19.51
17.08	17.03
16.99	16.83
13.61	13.38
13.41	13.38
14.22	14.18
13.41	13.38
13.32	13.17
14.13	13.96
13.2	13.01
13.06	12.98
12.85	12.76
22.3	22.17
23.13	23.09
20.47	20.43
19.53	19.49
17.95	17.91
18.77	18.78
17.14	16.98
16.17	15.99
15.17	15.08
14.46	14.43
14.36	14.33
13.46	13.38
13.26	13.05
13.19	13
12.25	12.21

11.96	11.88
24.04	24
22.26	22.22
19.86	19.76
17.89	17.85
17.93	17.82
17.09	16.91
15.1	15.01
14.46	14.41
13.62	13.59
14.22	14.17
14.74	14.57
13.98	13.77
13.01	12.79
20.53	20.48
19.84	19.74
19.55	19.45
17.15	16.99
17.13	17.09
15.45	15.36
14.65	14.6
14.16	14.12
13.24	13.13
13.27	13
13.87	13.65
19.77	19.57
17.46	17.23
17.37	17.3
15.36	15.22
13.55	13.5
14.16	14.05
13.43	13.2
18.25	18.2
17.2	17.15
16.09	16.04
14.12	14.1
13.45	13.23
16.28	16.18
14.4	14.4
Average:	Average:
13.77489	13.72844