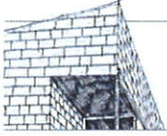


**APPENDIX 5/2**

**VERIFIED SIMULATION METHODOLOGY**





**Visual Simulation for Frank Kitts Park Development**  
**Verified Statement.**

11 April 2016

**A. Views verified.**

1. Hunter St View shaft
2. Williston St View shaft,  
Ref. WCC District Plan Chapter 13, Appendix 11

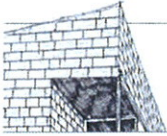
**B. Visual Simulation Process & Methodology.**

Refer following pages 2 - 4

**C. Associated Documents:**

1. 6 images for the 2 view shafts. Refer files.  
3x SSL 1090 Hunter (existing, proposed and red line)  
3x SSL 1090 Williston (existing, proposed and red line)
2. Location Plan 'SSL 109\_FKP 001 Location Plan 110416'
3. Survey Information 'FKP Spencer Holmes survey 110416'

Prepared by Stantiall's Studio Ltd.



## **Visual Simulation methodology for Frank Kitts Park Development**

**11<sup>th</sup> April 2016**

### **1. Intention**

The intention is to show in the 2 view shafts Hunter St & Williston St. the visual effect that the proposed development will have. The simulations are not “real life views” but rather simulations of a two dimensional view of the proposed activity from the given viewpoints.

The Simulation is surveyed verified. The survey information supplied was sufficient to provide a reasonably accurate assessment of the bulk and location of the structures and landscaping visible.

The steps outlined below describe the process and information used to develop the photomontages.

### **2. Process Methodology**

The process follows the guidelines of the NZILA Visual Simulation BPG 10.2 The simulation, created in the form of a photomontage, utilised surveying and architectural & landscaping information. It involved a series of processes to ensure as accurate as possible impressions of the proposed development within the photomontages.

### **3. Architectural and Landscape Information (Wraights & Athfields)**

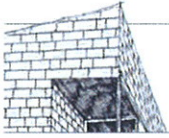
Information supplied included:

1. A digital model of the Park design including the Chinese Garden.
2. Architectural drawings Including colours and finish.
3. Landscape plans showing proposed design including planting, lighting, seating etc.
3. Proposed planting to be shown at 10 years after planting.

### **5. Survey Information**

Information supplied by Spencer Holmes Ltd. (refer associated docs – page 4)

- Survey PDF showing the viewpoint position and R.L of the selected locations visible within the photographs used in the Visual Simulation.
- Surveyed site markers established on site (visible in the photo)
- Survey information measured for previous submission 23<sup>rd</sup> June 2008
- Verification of the 2view shaft photo locations marked onsite.



## 6. Site Photographs

- Site Photos were taken Ian Robertson Photography Ltd. for the development of the visual simulations.
- The 2 locations were survey verified and cross referenced to the view shaft images in the district plan.
- The camera used was a Canon EOS 5D mk3 with a Canon 24-70mm lens.

## 7. Model Development

- A Building and landscape model was supplied by Wraight & Associates. This was imported into 'Lightwave 3D' modeling software.
- Indicative tree markers based on the landscape plan were placed into the model to provide a guide for proposed planting. These showed maturity between 10 years.

## 8. Virtual Camera Placement

Using the information supplied, the steps to place the 3D model into the photograph included

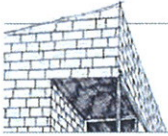
- Using Lightwave 3D, the digital model is scaled 1:1 and placed into 3D space, then positioned in relation to the site plan and given a height relating to the RL on the site plan.
- Site marker are then modeled to match those in the photograph, using the height and RL information supplied by the surveyors, and placed into 3D space and positioned in relation to the site plan.
- A virtual camera is then positioned to match the actual camera plot point on the site plan and given the camera height value based on survey information. Interpolation was used where required.
- The photograph is brought into Lightwave 3D as a background image. The Markers within the 3d model are matched with those in the photograph.

## 9. Rendering

The steps to produce a realistic image from the model included:

- Using the information supplied regarding the time of day when the photographs were taken, a virtual light source with the same azimuth and altitude of the actual sun is added.
- Adjusting the intensity and ambient colour of the light source to match the lighting conditions of the original photograph.
- A high quality image at the same resolution of the original photograph is then rendered out from Lightwave 3D.





## 10. Compositing

The steps to composite the 3D model render with the photograph included:

- Using Photoshop, the 3D model render was placed onto the original photograph.
- The render was then edited to fit into the surroundings, adding foreground elements from the original photograph and placed into their position in front of the 3D model.
- Proposed tree planting added (from the photographic reference and briefing supplied by Wraight & Assoc. Landscape Architects based on the indicative tree markers (Refer "Model Development" above).
- The sharpness of the model is adjusted to match the depth of field in the photograph.
- Colours and textures of the model are adjusted to blend the model into the photograph.

## 11. Consultant Review

To finalise and confirm the architectural and landscape detail visible the final content of the photomontages were reviewed by Wraight & Associates Landscape Architects and Athfield Architects.

The visualisations are dependent on information provided by these consultants.

## 12. Reading Distances

The field of view for these images is approx. 37 degrees

By viewing the images from a particular distance, the actual scale of the view on site can be represented.

This is termed the 'Reading Distance' (RD) and for the 2 views this distance is the width of the printed or projected image x 1.48

For example if printed at A1 the reading distance is 1.2 m i.e. The Viewer to sit 1.2m from the image.







080477c01  
23<sup>rd</sup> June 2008

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Level 6, 8 Willis Street  
Wellington New Zealand  
Phone 04 472 2261  
Fax 04 471 2372  
email admin@spencerholmes.co.nz

Andrew Howie  
Wellington Waterfront Ltd  
P.O. Box 395  
**Wellington**

Dear Andrew

### **Survey control for photo viewpoints – Frank Kitts Park**

We are pleased to advise we have now completed the survey control of Photographs A, B, C & D depicting the selected views across Frank Kitts Park. We have traversed Frank Kitts Park and city areas measuring to the various reference points along the way. We have used ORM I SO 37763 as our origin of coordinates and WCC BM 894 as our origin of heights. We also checked our positions and heights by observing the survey marks that have been used by Cardno TCB. This also ensures that both our work and the work of Cardno TCB is in agreement.

We have attached a spreadsheet showing the northing, easting, height and code of each point. We can also provide this information in drawing file format as required.

Each point has been allocated a point code. These point codes represent what photograph/view they are from and the point on the photograph that they represent. For instance if a point is called B07 then this point is from Photograph/View B and is point number 7 as it appears on the photographs provided by Caroline Boetzelen on the 6<sup>th</sup> of June.

Photographs/Views are as follow.

- A: Southwest corner of intersection - Willis St, Lambton Quay, Willeston St and Customhouse Quay
- B: Northwest corner of intersection - Jervois Quay and Willeston St
- C: West side of Lambton Quay at the end of Hunter St (outside Westpac)
- D: Southeast corner of intersection – Victoria St and Willeston St

Please note we were unable to measure points C08, C09 & B12 as requested. Points C08 and C09 have been replaced with alternative control points. C08 was instead measured to the top of the traffic light to the west of the Jervois Quay and Hunter Street Intersection. This is now point C08a. Similarly C09 was measured to the northwest corner of the pedestrian shelter rather than the southwest corner. This is now point C09a (see Location diagrams attached). Point B12 was not measured, however there are supplementary points in the area that could be used instead.

Please advise us if you have any queries. Meanwhile, we will be pleased to provide you with anything further that you may require.

Yours faithfully  
**Spencer Holmes Limited**



**Kerran Graeve**  
**Graduate Surveyor**

**Encl.**

cc. Megan Wraight  
Wraight & Associates Ltd  
P.O. Box 19212  
Wellington

Caroline Boetzelen  
BotzDigital Ltd  
11B Washington Avenue  
Brooklyn  
Wellington





View A Southwest corner of intersection - Willis St, Lambton Quay, Willeston St and Customhouse Quay





View B Northwest corner of intersection - Jervois Quay and Willeston St



Note C08a and C09a Replace points 8 and 9



View C West side of Lambton Quay at the end of Hunter St (outside Westpac)



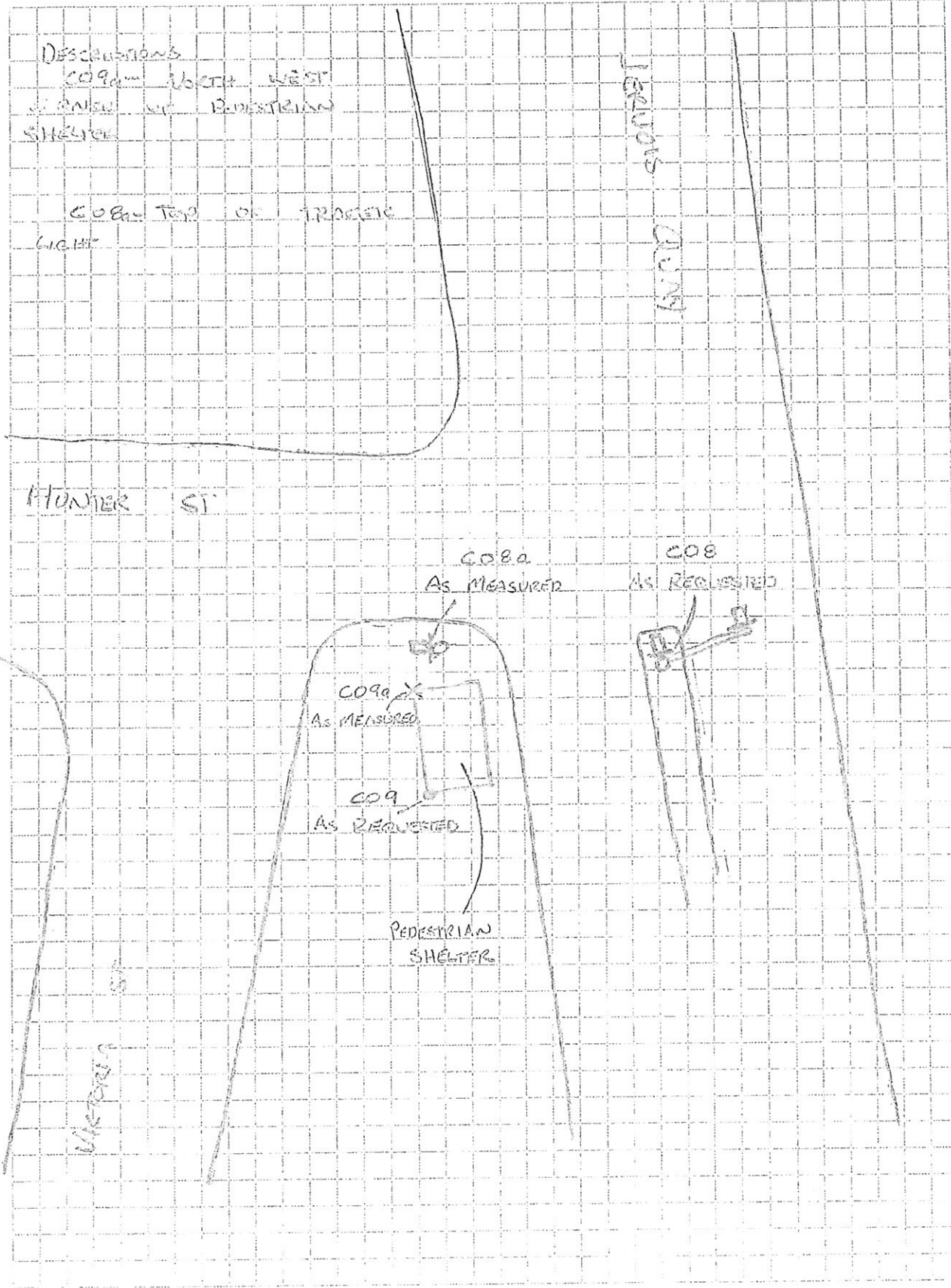


View D Southeast corner of intersection – Victoria St and Willeston St



Project CRANK KITS PARK SOB-0477

Description LOCATION DIAGRAM





Job: Frank Kitts Park

Date: 23 June 2008

Job Ref: S08-0477-01A

POINT #	EASTING	NORTHING	MARK HEIGHT	CODE	CAMERA HEIGHT
NZ15	399,981.41	801,629.25	3.07	RN A	4.57
NZ20	400,133.78	801,576.10	1.58	RN B	3.08
NZ2	399,935.95	801,761.48	2.57	RN C	4.07
NZ16	400,063.41	801,588.51	1.58	RN D	3.08

POINT #	EASTING	NORTHING	HEIGHT	CODE
2036	400,001.29	801,624.48	3.52	A01
2037	400,021.80	801,617.15	9.33	A02
2013	400,101.83	801,591.23	20.20	A03
2014	400,101.84	801,591.23	12.02	A04
2031	400,048.64	801,603.64	2.76	A05
2044	400,050.28	801,603.77	6.24	A06
2016	400,197.68	801,544.65	3.49	A07
2015	400,196.89	801,540.26	4.09	A08
2017	400,165.76	801,558.04	2.58	A09
2018	400,105.33	801,567.84	10.14	A10
2038	400,062.64	801,588.53	5.53	A11
2039	400,075.91	801,576.94	21.56	A12
2040	400,013.01	801,610.48	7.18	A13
2042	400,031.86	801,601.81	3.50	A14
2041	400,004.84	801,613.26	3.51	A15
2029	400,159.53	801,599.38	2.31	B01
2028	400,184.87	801,606.46	5.94	B02
2026	400,145.68	801,581.09	3.04	B03
2024	400,174.55	801,590.93	3.25	B04
2025	400,160.41	801,583.03	6.29	B05
2027	400,144.93	801,580.71	2.03	B06
2023	400,159.23	801,582.50	1.77	B07
1008	400,230.95	801,586.13	5.56	B08
1009	400,189.44	801,573.06	3.15	B09
1010	400,244.64	801,568.66	7.68	B10
1011	400,186.41	801,570.67	7.32	B11
	NOT MEASURED			B12
2021	400,162.55	801,568.15	10.69	B13
1014	400,200.68	801,549.35	4.12	B14
2012	400,165.11	801,562.28	2.54	B15
2045	399,982.71	801,751.10	7.41	C01
2046	399,972.18	801,752.69	2.98	C02
2047	399,953.27	801,755.94	6.78	C03
2048	399,956.02	801,753.08	2.42	C04
2049	400,014.50	801,734.77	2.60	C05
2050	400,038.80	801,725.27	4.88	C06
2056	400,175.25	801,674.30	15.04	C07
2057	400,114.20	801,686.32	6.08	C08a
2058	400,113.86	801,685.32	4.35	C09a
2059	400,176.70	801,638.01	7.03	C10
2055	400,106.21	801,675.09	38.78	C11
2051	399,989.25	801,732.09	8.65	C12
2052	399,951.35	801,750.18	5.45	C13
2053	399,966.71	801,737.97	10.04	C14

2054	399,945.29	801,752.29	2.67	C15
2006	400,101.85	801,591.25	12.02	D01
2033	400,111.91	801,586.90	9.35	D02
2020	400,181.49	801,604.11	7.26	D03
2025	400,160.41	801,583.03	6.29	D04 SAME AS B05
2003	400,227.96	801,568.65	5.52	D05
2035	400,130.92	801,578.89	4.14	D06
2002	400,206.66	801,557.33	2.98	D07
2021	400,162.55	801,568.15	10.69	D08 SAME AS B13
2011	400,164.90	801,563.61	2.55	D09
2000	400,198.90	801,547.58	3.49	D10
2001	400,222.94	801,532.34	7.95	D11
2008	400,106.77	801,569.82	5.53	D12
2030	400,067.73	801,586.54	4.36	D14
2009	400,066.02	801,588.59	6.03	D15

NOTE POINTS C08 & C09 HAVE BEEN REPLACED WITH POINTS C08a & C09a  
SEE LOCATION DIAGRAMS ATTACHED



Job: Frank Kitts Park Date: 10th March 2016 Job Ref: S16-0157 & S08-0477

POINT #	EASTING	NORTHING	HEIGHT
b01	400157.85	801601.90	10.78
b02	400182.00	801623.56	3.28 * Note: different position
b03	400185.60	801523.44	5.22
b04	400200.12	801532.08	8.18
b05	400237.23	801523.32	6.88
SP 1	400217.79	801521.70	5.26
SP 2	400170.28	801561.76	1.80
SP 3	400181.62	801620.40	2.44



