APPENDIX 8

LIGHTING STATEMENT

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Frank Kitts Park Redevelopment
Lighting Statement – 4.4.16

1 INTRODUCTION

The project is an opportunity to modernise the current lighting in the area. The present lighting is considered insufficient and is to be altered with improved lighting levels using new LED lighting to suit the new parks layout. The modernised lighting scheme is to be sympathetic to its surroundings and is to have minimal environmental impact. The lighting is to be arranged to not create a visual nuisance and to improve public safety in the area.

The main lighting elements for the project are the lighting of the parks main pedestrian paths, landscape lighting of the Chinese garden, and security lighting for the playground.

2 EXISTING LIGHTING ASSESSMENT

The current lighting system in the park has sphere top light poles and wall mounted recessed grille lights, these are 26 years old that are well maintained but need modernising due to their age, inefficiency and use of old technology. The lighting levels in the parks paths are poor with levels varying from 0 to 7 lux. The new light fittings are to increase the lighting and energy efficiency, reduce glare, and reduce the upward light component.

The light poles used in the park have clusters of sphere lights that provide a light glow effect. The light distribution from these fittings is not controlled with light emitting in all directions.

Environmental issues with these types of lights are:

- Stray light - Wasted light is directed sideways and upwards and provides no contribution to the ground, this also wastes energy. The upward light contributes to the "skyglow" effect.
- Glare – the brightness of the sphere's in contrast to the dark area background distracts people's vision causing a visual nuisance. Views when walking along pathways, or looking into the park or through the park to further afield are impaired.
- Light quality – this is poor as the lamp type is mercury vapour, which has poor colour representation and rendering characteristics. Lamps with higher colour rendering and improved spectral performance such as metal halide and fluorescent allow improved visibility of a space.

3 LIGHTING DESIGN CRITERIA

The exterior lighting design for the project is to be based on the following lighting criteria:

(a)District Plan
Any activity which requires outdoor areas to be lit shall ensure that direct or indirect illumination does not exceed 8 lux at the windows of residential buildings in any residential area.

Pedestrian routes and carparks available for public use during hours of darkness shall be lit at a minimum of 10 lux, measured in accordance with AS/NZS 1158.3.1 : 2005 and amendments.
Note the Waterfront Lighting Strategy has different illumination level criteria where the levels are less than the 10 lux requirement. These are to be used for setting the illumination levels for the park.

(b) Wellington Waterfront Lighting Strategy
The Wellington Waterfront Lighting Strategy provides illumination levels for the main promenades as per ASNZS1158.3.1 Lighting for roads and public spaces.

auckland office:

address
1 centre st
freemans bay
auckland 1010

postal
po box 91 675
victoria st west
auckland 1142

phone
64 9 303 0007

fax
64 9 303 0017

wellington office:

address
level 3
35 ghuznee st
wellington 6011

postal
po box 9585
wellington 6141

phone
64 4 384 6583

website
www.e3bw.co.nz

email
enquiries@e3bw.co.nz

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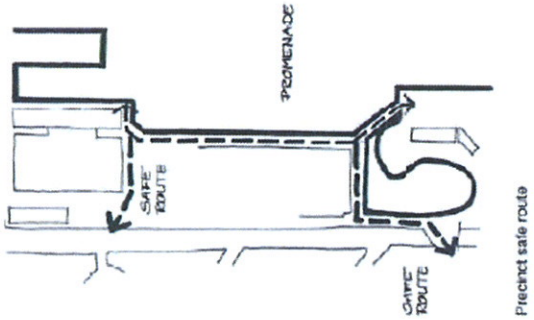
The following criteria are to be used for the Park:
Category P7 - Horizontal illuminance 14 lux average with 4 lux minimum, Vertical illuminance 4 lux minimum.

Category P8 - Horizontal illuminance 7 lux average with 2 lux minimum, Vertical illuminance 2 lux minimum.

Note the strategy identities a safe route along the main harbour promenade with entry points at the south and northend. This project introduces new circulation routes with the revised park layout and introduction of the Chinese garden and so additional paths are to be illuminated.



Original safe route plan

(c) CPTED
The CPTED report recommendations for lighting and controls are to be incorporated into the lighting design.

(d) Avoidance of Spill Lighting
Spill lighting is to be restricted to ensure the lighting does not cause a visual nuisance, avoids lighting areas unnecessarily and wasting energy. Spill lighting continuing past the park edge onto the adjacent road or into the harbour is to be avoided. To ensure that spill light is controlled, all exterior lighting is to be directed down with no lights tilted towards the road or the harbour. Any lights that are to be used to enhance the garden or building structure elements are to be tightly focused onto the subject with no stray light. Path lighting is to have some spill lighting onto the park and playground edges to add surveillance past the path.

(e) Avoidance of glare
Glare is the brightness of the light fitting when compared with the brightness of the background against which it is seen. Disability glare is so intense it prevent adequate vision for carrying out a task. Discomfort glare can generally be tolerated, but is more of a nuisance as it tends to draw the eye toward the light source. To limit glare all path lights are to be used in the horizontal position with the light directed down with no upward light.

(f)_Skyglow
Skyglow is at its most apparent when humidity is high. The effect is difficult to control, as it is the light that reflects off humidity and water particles in the air and can vary depending on weather conditions. Spill and stray light are the greatest contributors to the effect. To limit skyglow the same techniques as discussed with spill lighting are to be used.

auckland office:

address
1 centre st
freemans bay
auckland 1010

postal
po box 91 675
victoria st west
auckland 1142

phone
64 9 303 0007

fax
64 9 303 0017

wellington office:

address
level 3
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4 PROPOSED ILLUMINATION PLAN

The proposed areas of lighting and illumination levels are shown on the lighting drawing LA RC 1-06. The lighting levels stated as category P7 and P8 are inaccordance with ASNZS1158.3. New lighting poles with LED lights are to be used to illuminate the main paths. The poles are to allow for the integration of future CCTV cameras.

The north and south safe routes and entry square area are to have higher P7 illumination levels with other paths the lower P8 illumination level. The Harbour Promenade has the lower light level as the overall Waterfront strategy is to reduce the light level down near the waters edge.

Lighting control of the promenades and paths are to switch the lighting on from dusk to dawn. The park promenade and edge paths are to have over ride controls for possible use when events occur. The Chinese garden lighting is to turn off at a set time with movement sensor operation after hours. The Playground area lighting is to dim the lighting level down at a set time with movement sensor operation after hours to revert the lighting back to full.

The lighting of the safe routes is to coordinate with a future CCTV installation which is proposed to have coverage at the main entry/exit points and the Chinese garden and carpark entry/exits.

A summary of each area is as follows:

a) Harbour Promenade - existing promenade on park edge - Category P8
The current lighting levels in this area are low and are planned to be improved by replacing the sphere light poles with new light poles and LED lights.

b) South Side Lagoon Edge Promenade - existing promenade on park edge – Category P7
The lighting levels in this area are low and are to be improved by removing the sphere light poles with new LED lights mainly mounted on the south canopy support posts.

c) Hunter Street Plaza North side adjacent to the Arena Events Centre - existing promenade on park edge – Category P7
This area is one of main vehicle entry points to the Waterfront and Event Centre loading area. New lighting poles along the north edge of the park are to illuminate the access road.

d) Entry Square and Carpark pedestrian entrance– Category P7
New lighting poles are to be used with lights mounted at a higher height in order to cover a wider path area.

e) Park Promenade – Category P8
New lighting poles are to be used along the promenade.

f) Paths north and south on edge of Harbour Lawn – Category P8
New lighting poles are to be used along the path.

g) Path on edge of city lawn and ramp – Category P8
This area is to use the combination of new lighting poles and lights mounted on building structures.

h) Chinese garden lighting

auckland office:

address
1 centre st
freemans bay
auckland 1010

postal
po box 91 675
victoria st west
auckland 1142

phone
64 9 303 0007

fax
64 9 303 0017

wellington office:

address
level 3
35 ghuznee st
wellington 6011

postal
po box 9585
wellington 6141

phone
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The garden areas are to have subtle lighting in sympathy with the landscape design. Lighting is to be used to highlight the canopies features, principle pathways, selected plants and landscape elements. There is to be feature lighting of the main water elements.

Lighting controls are to switch the lighting on from dusk to a set time then changes to an after hours security mode where the lights are off and turn on for a preset time with movement sensors at garden entry points.

i) Playground Lighting

The lighthouse is to have feature lighting to highlight the structure as a marker point. The underside of the lower deck is to generally light the surrounding area. The playground is not to be uniformly illuminated, the surrounding path light poles are to have additional lights directed toward the playground to create localised pools of light.

Lighting controls are to switch the lighting on from dusk to a set time then changes to an after hours security mode where the lights are dimmed to a lower level and revert to full for a preset time with movement sensors on the light poles.

auckland office:

address
1 centre st
freemans bay
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