

BUILDING MAINTENANCE UNIT – MANAGEMENT PLAN

1.1 Introduction: The primary aim of this management plan is to provide the following:

- (a) a safe means of using the Building Maintenance Unit (BMU) to access the facades of Wentworth & Selborne Chambers;
- (b) to ensure that only authorised and properly trained persons are able to use this machine in any way;
- (c) to ensure the safety and convenience of the public and of building occupants, and;
- (d) to ensure that all work that takes place from the unit is done safely and in an approved manner.

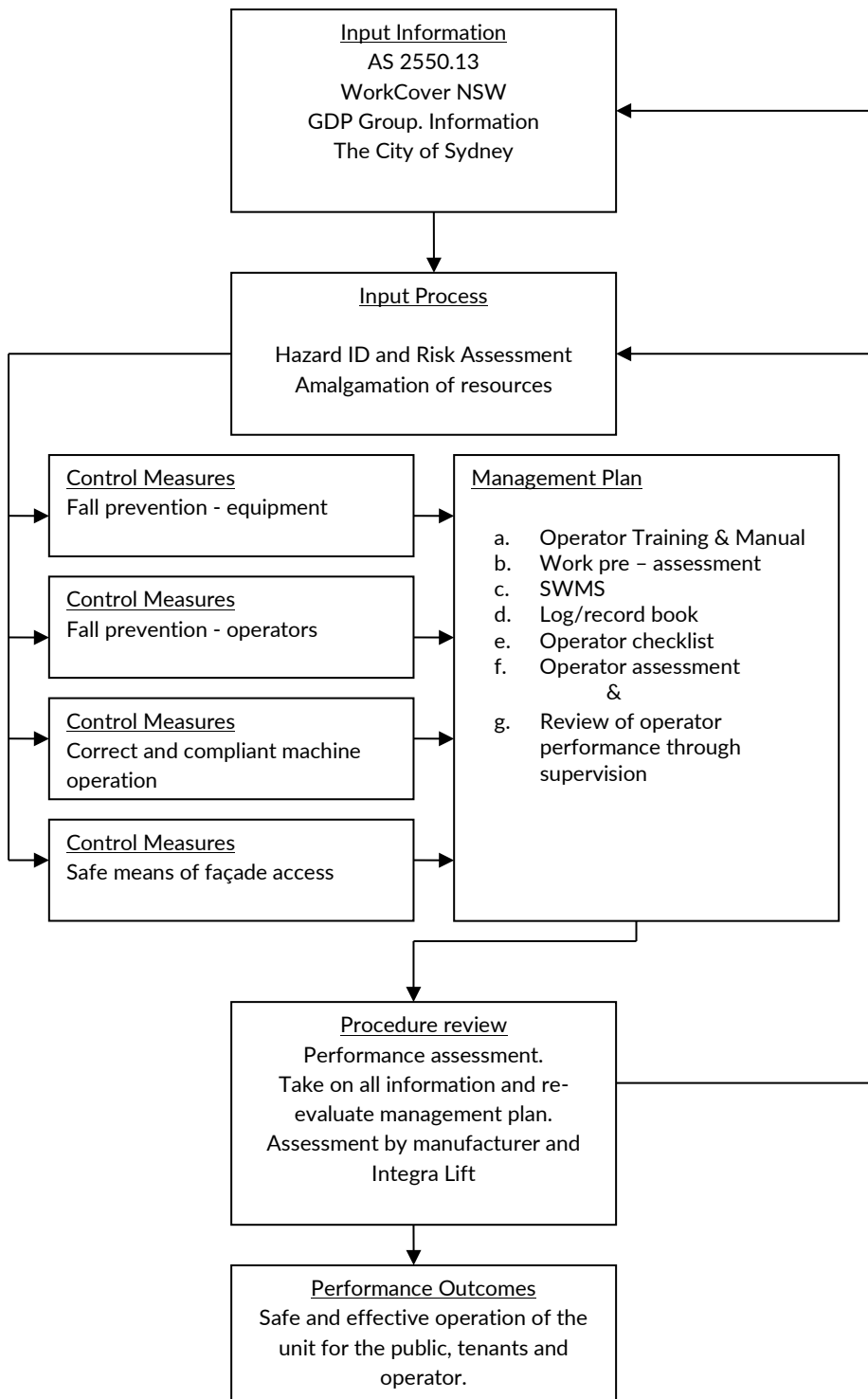
The management plan has incorporated a number of sources of information and has addressed the responsibilities of the building owner and primary operator of the machine to provide a set of checks and procedures that will be in a state of constant review and evaluation to achieve the operational goals listed above. The products of the management plan are;

- (a) Operator Training & Operators manual.
- (b) Individual pre-work assessment process.
- (c) A safe work method statement.
- (d) Log book record
- (e) Operator completed operations checklist.
- (f) Operator safety assessment.
- (g) Procedural review process.

1.2 Resources & Publications: The resources used to develop this management plan follow:

- (a) AS 2550.13 – 1997 Cranes – Safe use – Building Maintenance Units.
- (b) WorkCover NSW Publications including 'Risk Management at work – Guide 2001'.
- (c) The City of Sydney and their procedures for working over public spaces.
- (d) The BMU Manufacturers on site practical training.
- (e) The Manufacturers operating manual for the machine.
- (f) A Hazard Identification and Risk Assessment including the control measures prescribed to eliminate and minimise the hazards that have been identified.
- (g) A dynamic and constant review process achieved through inspection, assessment and consultation with machine operators prior to and after performing various work.

1.3 **Training & Review Development:** The following steps are used to develop the required documentation and training



1.4 BMU Conditions of use

Use of the BMU is strictly in accordance with this Management Plan and [Counsel's Chambers Limited Rules & On-Site Procedures](#).

To ensure that only authorised persons use the machine, a series of processes must be followed prior to the building manager issuing the keys and the equipment necessary to operate the BMU.

All operators must complete a SWMS for each individual task, job or project that is undertaken and complete the Checklist + Logbook for every day that they are on site and using the machine.

Work on the Phillip Street Façade can only be conducted on weekends and the operator must obtain the necessary permits from the City of Sydney. Normal weekend operating hours are from 7am to 5pm on Saturday only. Special arrangements must be made to use the BMU on a Sunday. Work can start at 6am during the week.

Use of the BMU on the Phillip Street façade may be possible on Sundays, if it is not possible to obtain use the machine on a Saturday, however conditions may apply.

All care will be taken by the Company to ensure that the BMU is in working order for floors, barristers and tenants wishing to use the machine, however the Company will not be responsible for costs or delays incurred as a result of the BMU being inoperative, unavailable or from breakdown.

Use of the BMU is strictly subject to CCL's [Rules & On-Site Procedures](#) which must be read, acknowledged, signed and returned to CCL along with all of the information set out in the checklist prior to work being considered for approval.

Use of the machine is subject to weather conditions, BMU availability and occasionally breakdown. In order to ensure that use of the BMU occurs under safe operating conditions, availability will be reconfirmed at no less than 4 intervals, being:

1. At the time of booking the BMU.
2. 72 hours from the time the BMU is proposed to be used.
3. 24 hours from the time the BMU is proposed to be used.
4. On the day immediately prior to use.

CCL Staff reserve the right to cancel a booking at any time due to weather conditions being unsuitable, inadequate light, safety, machinery breakdown or for any other reason including but not limited to emergency. CCL will not be responsible for any costs associated with the cancellation of BMU booking under any circumstances.

By executing this Application Form *the Applicant* acknowledges and agrees to all of the requirements and conditions and indemnities herein:

The Applicant's name:

The Applicant's signature:

The Date: _____

1.5 Hazard Identification and Risk Assessment: Examples and Scenarios

	Task	Hazard	Risk Assessment	Control Measures
1	Connecting Cradle	Rolling cradle on to feet. Cradle is heavy and awkward Falling off ladder Mishandling cradle hooks Low garage roof. Cradle connecting hook not inserted	Squashed feet and broken toes Back and muscle injuries Fall injuries. Severe injury if close to parapet and death. Severe head injuries for people standing underneath Hitting your head on the garage roof Cradle will fold and lean when lifted from roof. Operators may fall out.	Wear steel capped shoes at all times. Ensure that two people are used to move the cradle. Ensure the ladder cleats are used at all times. Ensure the ladder cleats are used at all times. Never mount ladder close to parapet. Always ensure that no one is nearby when attaching rope hooks. Install hazard type and sign on the garage. Always ensure that the cradle hook is inserted.
2	Moving West Gantry	Colliding with fixed objects Colliding with parapets and rails Traversing onto items/	Injure operators. Operators might fall out of cradle. Injure operators. Operators might fall out of cradle. May cause injury to person on rail. May	Operators must undergo comprehensive training. Hazards must be cited prior to moving the machine. Operator #1 must act as observer whilst gantry is in motion Operators must undergo comprehensive training. Hazards must be cited prior to moving the machine. Operator #1 must act as observer whilst gantry is in motion Always sight the track properly before traversing. Operator #1 must act as

		people on rails Slewing gantry and colliding into people or fixed objects Extending jib into fixed objects Luffing up into fixed objects	damage object on rail. May cause damage to the machine and injure persons. May cause damage to the machine and cause injury to the persons. May cause damage to machine and may cause head and neck injury to operators.	observer Always ensure that area is clear before commencing slew. Operator #1 must act as observer. Only extend jib once gantry arm is fully luffed. Always sight overhead obstacles. Never luff up near any obstacles. Operator #1 must act as observer.
3	Moving East Gantry	Colliding with fixed objects Colliding with parapets and rails Traversing onto items/people on rails Slewing gantry and colliding into people or fixed objects	Injure operators. Operators might fall out of cradle. Injure operators. Operators might fall out of cradle. May cause injury to person on rail. May damage object on rail. May cause damage to the machine and injure persons.	Operators must undergo comprehensive training. Hazards must be cited prior to moving the machine. Operator #1 must act as observer whilst gantry is in motion Operators must undergo comprehensive training. Hazards must be cited prior to moving the machine. Operator #1 must act as observer whilst gantry is in motion Always sight the track properly before traversing. Operator #1 must act as observer Always ensure that area is clear before commencing slew. Operator #1 must act as observer.
4	Moving Monorail	Hands and long hair getting caught in rollers and drive gear.	Hand injury and scalp injury.	Always use chain pulley system to move cradle along monorail.

		Moving cradle into position is awkward.	Muscular and back injuries.	Ensure that two people are used to push cradle into position.
5	Descending unit	Collision with A/C units and brackets Excessive movement due to wind.	Units become dislodged and fall. Cradle becomes unstable. Cradle becomes unstable.	Always check the entire periphery of the cradle on descent. Operator #2 must act as observer. Always use approved safety harness and approved lanyard. Never use the BMU in windy conditions. Always use restraint lanyards.
6	Ascending unit	Collision with A/C units and brackets Excessive movement due to wind.	Units become dislodged and fall. Cradle becomes unstable. Head and neck injuries Cradle becomes unstable.	Always sight overhead obstacles. Operator #2 must act as observer and communicate with Operator #1 Cradle ascent must be assessed every 3 storeys or when lanyards are removed. Never use the BMU in windy conditions Always use restraint lanyards.
7	Performing AC installation	Dropping tools Dropping the A/C unit or materials Dropping mobile phones.	May cause injury or death to people underneath. May cause injury or death to people underneath. May cause injury or death to people underneath.	All tools must be attached to lanyard inside cradle. All materials must be fastened to the cradle until all anchors and fixings have been set. Mobile phones are to be used only in case of emergency and when in use must not leave the cradle boundary. Access to light well must remain restricted and signage and barricades posted. Access to footpath underneath must

				be restricted with signage, bollards, hazard tape.
8	Performing maintenance	Dropping tools. Dislodging render/mortar/debris from façade Dropping mobile phones outside cradle.	May cause injury or death to people underneath. May cause injury or death to people underneath. May cause injury or death to people underneath.	All tools must be attached to lanyard inside cradle. All materials must be fastened to the cradle until all anchors and fixings have been set. Mobile phones are to be used only in case of emergency and when in use must not leave the cradle boundary. Access to light well must remain restricted and signage and barricades posted. Access to footpath underneath must be restricted with signage, bollards, hazard tape.
9	Performing inspection	Dropping camera outside of cradle Dropping stationery outside of cradle Dropping mobile phone outside of cradle.	May cause injury or death to people underneath. May cause injury or death to people underneath. May cause injury or death to people underneath.	Camera to remain within confines of the cradle at all times. Stationery to remain within the confines of the cradle at all times Mobile phones are to be used only in case of emergency and when in use must not leave the cradle boundary. Access to light well must remain restricted and signage and barricades posted. Access to footpath underneath must be restricted with signage, bollards, hazard tape.
10	Using the turntable	Heavy load to turn Possible to get fingers or hands caught in rotating table	Muscle and back injury Loss of use of fingers and hands. Disability.	Always use motorized turntable facility. Always ensure that persons stand clear of turntable whilst it is in use.

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1.6 **Procedures and Training:** Operation Manual

Operator #1 – Controls the ascent and descent of the cradle

Operator #2 – Controls the position of the gantry units.

All documentation is to be read in conjunction with the verbal instruction and physical demonstration provided to the operator during the training process.

Operator competency may be assessed from time to time and additional training may be required.

See **Annexure C** for detailed operation instructions for the BMU system.

- 1.7 **Safe Work Method Statement:** The Safe Work Method Statement (SWMS) attached as Annexure A outlines the method that the operator will approach the work with on a daily basis. One of these must be completed along with a checklist for every particular job the BMU will be used for.

- 1.8 **Operator Checklist:** A checklist must be completed every day that the machine is in use, even one particular task continues over several days. Use of the machine will not be granted unless this takes place. The completed checklists must be handed back to the Company once use of the BMU is over.

The building manager will ask you to complete the section of the checklist that records your recommendations where you feel the use of the BMU can be made safer.

This satisfies the necessary consultation required under the OH&S Act and Regulation. The operator is obliged to inform the building manager of any issues that relate to the safety of operators and of the unit.

The operator is also obliged to inform the building manager of any incident or potential incident that takes place during the course of using the BMU.

- 1.9 **Log book – record of use:** You will be required to complete the log book every day when using the BMU.

- 1.10 **Operator Training:** Prior to use of the machine, all operators must undergo comprehensive training to learn safety procedures, what to do in an emergency, conducting pre-use safety checks, positioning and operating the machine and how to complete the necessary documentation prior to using the BMU.

There are costs associated with training, Contractors are expected to engage GDP Group, either directly or c/o CCL, to ensure that all persons intending the use the BMU are appropriately trained. CCL do not pay for operator training.

GDP Group requires each inductee to complete the BMU E-Learning induction prior to the on-site induction. This ensures they are familiar with essential safety protocols and operational procedures.

You can access the e-learning module here:

[BMU E-Learning Induction](#)

The training is provided by GDP Group is extensive and will likely involve learning outcomes and objectives such as the following.

Security

- (a) Getting your key and equipment.
- (b) Power to the machine.
- (c) Retaining the BMU key.
- (d) BMU operation in remote and local.
- (e) When the BMU is not in use.
- (f) Returning your key and equipment.

Safety - The safety aspects of using the BMU are broken down into:

- (a) What the fall arrest is for.
- (b) How to put your harness on.
- (c) How to connect your lanyard.
- (d) Storing your lanyard.
- (e) Emergency brake.
- (f) Manual descent.
- (g) Manual ascent.
- (h) Operator #1 & Operator #2 and their roles.
- (i) Pre-operational inspection.

Cradle Operation

- (a) Going up and down
- (b) Bottom obstruction bar.
- (c) Feeding in the power cable on the way up.
- (d) Operation limits.
- (e) Watching for obstructions on the way up and down.
- (f) Drive rope and safety rope arrangement.
- (g) Safely connecting the cradle at various locations on the roof – fall prevention.

Gantry Operation

- (a) Use of each of the movements.

- (b) Ensuring path of travel is free from obstruction.
- (c) Ensure that power cable is unobstructed.
- (d) Moving into and out of drop positions.
- (e) Operator #1 & #2 and their respective roles.
- (f) Reversing the cradle for north and south face drops.

Turntable Operation

- (a) Ensuring the pin is always in.
- (b) Driving the machine safely onto and off the turntable.
- (c) Driving the machine in local mode only.
- (d) Limit switching.
- (e) Keeping clear of machine and staying in cradle.
- (f) Connecting the remote control.
- (g) Turntable operation.

Monorail Operation

Access to façade areas using the monorail, exclusively or in tandem with the gantry, is **STRICTLY RESTRICTED TO VERTICAL OPERATION**. GDP Group must be engaged to position the cradle for all monorail operations. Contractors must allow sufficient time to enable this to take place.

USE OF THE BMU FOR THE CHANGEOVER DROPS – SOUTH EAST CORNER NEAR THE MONORAIL – IS NOT PERMITTED AND HAS BEEN STRUCK FROM THE MANUAL

Performance Outcomes and Review Policy: The following pages in this document are provided for the BMU operators.

Annexure A is a generic **Safe Work Method Statement**, a completed version of which is required before an operator uses the machine.

Annexure B is a **Checklist** for the operator to follow before and after using the machine, to ensure that all the necessary procedures are followed. The checklist provides sections for comments for the operator to complete when required.

Annexure C is the **Standard Operating Manual** provided by the manufacturer.

By following the instructions provided during the training and within the manual and by observing the SWMS that has been developed and signed off on, each operator ensures the safe operation of the BMU and completion of work on site.

The consultation and review process will provide dynamic means of improving the safety process and will be incorporated into the overall management plan for the BMU. The procedures will be reviewed by Integralift and GDP Group for correctness and appropriateness.

1.11 Annexure A – Sample/Template Safe Work Method Statement:

Company Name:		Client:		
Work Activity/Task:		Façade: Front / Middle front / Middle back / Rear		
Date:		Floor:		
Prepared by:		Sign off to be provided immediately prior to taking control of the BMU. Sign off to take place during a toolbox talk.		
Signature:				
Item	Job Step Break the job down into steps	Potential Hazard What can harm you?	Controls What you are going to do to make the job as safe as possible?	Person Who will ensure this happens

Item	Job Step Break the job down into steps	Potential Hazard What can harm you?	Controls What you are going to do to make the job as safe as possible?	Person Who will ensure this happens

Item	Job Step Break the job down into steps	Potential Hazard What can harm you?	Controls What you are going to do to make the job as safe as possible?	Person Who will ensure this happens

1.12 **Annexure B – Operations Checklist:** In affixing my signature to this page, I confirm that I have undertaken the following tasks. Please tick each box as you complete each task.

Before going on to the roof to use the machine:

- ☐ I have completed the operator training with the building manager and completely understand the processes involved in operating the BMU.
- ☐ I understand the emergency procedures associated with this machine.
- ☐ I will operate this machine with at least one other person.
- ☐ Both persons operating this machine are 18 years of age or older and are not under the effects of drugs and alcohol.
- ☐ I have checked for weather warnings and wind conditions at <http://www.bom.gov.au/weather/nsw/>
- ☐ I have inspected the weather and the wind and rain is not prohibitive to gaining access to the façade.
- ☐ I have performed a site inspection and have completed a SWMS.
- ☐ I acknowledge that by taking control of the machine, I am responsible for all that occurs as a result of the machine operation, either as a direct or indirect consequence of my actions.
- ☐ I have confirmed that my working load is no greater than 300 kgs including the weight of the persons to operate the BMU.
- ☐ I have checked with the building manager that access to the light wells has been restricted to eliminate the danger of falling objects for persons below.
- ☐ If I am working over Phillip Street I have all of the following:
 - ☐ Approval from the City of Sydney
 - ☐ Pedestrian access restricted between Martin Place and King Street.
 - ☐ Signage indicating work taking place above has been installed on the footway.
 - ☐ Informed the building manager a minimum of 4 days prior to scheduled work.
- ☐ I have collected a key from the building manager.

☐ I have collected two harnesses and two lanyards from the building manager, and have fitted them in his/her presence.

☐ I have safety restraints for all of the tools and materials that I intend to use.

Before getting into the machine:

☐ I have safely and correctly connected the cradle to the Gantry.

☐ I have connected the power to the machine as instructed.

☐ I have switched the key position to remote and have removed the key and have it safely in my possession.

☐ I have loaded and fastened all equipment and tools to fall restraints as required.

☐ I have checked my partner/fellow operators harness and lanyard and found it to be correctly fitted and safe to use.

☐ I have the correct PPE gear for the work I will be doing.

☐ I have conducted the [pre-operational inspection](#) and filled in the inspection log.

☐ I will be sure to make note of the condition of any problems with windows, façade elements and the like that I observe and report it to the building manager upon completion of work.

Getting into the cradle I will:

☐ Attach my lanyard to the anchor point provided first.

☐ Operate the machine as I have been instructed.

☐ Not bring any unnecessary items into the cradle.

☐ Ensure that the operator not driving the machine acts as the observer to sight any obstacles.

After finishing with the machine

☐ I have disconnected the cradle and parked it correctly.

☐ I have switched the unit off and removed the key and returned it to the building manager.

☐ I have disconnected the power cable to the machine and ensured that it is fully retracted on its reel.

☐ I have returned both sets of fall restraint lanyards and harnesses to the building manager.

☐ I have cleaned the cradle and removed all tools and materials.

☐ I have placed the protective covers on the winches.

Before handing this checklist back to the building manager.

☐ I have made suggestions on how to improve the safe operation of the BMU where applicable. Provide details if you have:

☐ There was an incident or potential for an incident during the operation of the machine today. Provide details of the incident:

☐ I have signed off on the log book in the building managers office.

☐ I have returned this checklist along with my SWMS to the building manager for their records and for their review.

Before the building maintenance unit (BMU) is to be used, a pre-operation inspection must be completed to ensure the unit is safe to use and functioning correctly. The inspection consists of a visual inspection and functional test, this may be carried out by the operator who shall engage assistance from a suitably competent person in specialist areas, such as electronics, fitting or communications, as required.

(Refer Australian Standard Cranes – Safe use Part 13: Building maintenance units AS 2550.13 – 1997 Section 7.3.2)

Location: _____ Level: _____

Please complete the following as correct as possible. **If unsure please ask first.**

	Details	Yes	No	N/A	Comments
1	BMU Service due dates checked and in date	☐	☐	☐	
2	Emergency stops functioning, BMU, Cradle & Pendants	☐	☐	☐	
3	Full current limit switch functioning	☐	☐	☐	
4	BMU traveling forward and backwards	☐	☐	☐	
5	BMU unit slew (clock wise and anti-clock wise)	☐	☐	☐	
6	Cross bar function and slewing	☐	☐	☐	
7	Track condition and track switches	☐	☐	☐	
8	Jib slew functions	☐	☐	☐	
9	Lights and warning devices	☐	☐	☐	
10	Raise and lower function	☐	☐	☐	
11	Jib luffing up and down	☐	☐	☐	
12	Jib telescope in and out	☐	☐	☐	
13	Cradle trip-bar	☐	☐	☐	
14	Communications available and functioning	☐	☐	☐	
15	Interlocks in place & secure	☐	☐	☐	
16	Lanyard cables in good condition	☐	☐	☐	
17	Harness connection points secure	☐	☐	☐	
18	Suction cups present and functioning	☐	☐	☐	
19	Bumper rollers present and in good condition	☐	☐	☐	

Visual Inspections

	Details	Ok	Damaged	Comments
20	Wire rope condition	☐	☐	
21	Power lead condition	☐	☐	
22	Cradle structurally sound	☐	☐	
23	BMU structurally sound	☐	☐	

Completed by: _____ Date: ____/____/____

Signature: _____

At the completion of each shift using the Building maintenance unit (BMU), a post-operation inspection is to be completed. This form ensures that the unit has been properly shut down, secured and cleaned. Any damage to the unit or surrounds needs to be documented. This is to be completed by the operators prior to handing back the keys. Security will request the completed form prior to operators signing out for the day.

Location BMU Operating Position: _____

Please complete the following as correct as possible. **If unsure, please ask first.**

Details		Yes	No	N/A	Comments
1	BMU located in park area	☐	☐	☐	
2	Cradle fully landed and tightly strapped down	☐	☐	☐	
3	Emergency stop buttons engaged	☐	☐	☐	
4	Local remote switch on roof car control panel moved to the "OFF" position	☐	☐	☐	
5	Power and communication cable disconnected	☐	☐	☐	
6	Roof area clear of debris and loose items that could be blown around in the wind	☐	☐	☐	
7	No damage to BMU/Cradle	☐	☐	☐	
8	No damage to power/communication cable	☐	☐	☐	
9	All rubbish removed from cradle/unit	☐	☐	☐	
10	Doors to plant room secured	☐	☐	☐	

Completed by: _____ Date: ____/____/____

Signature: _____

1.13 Annexure C – Standard Operating Manual: The following is provided by the BMU Manufacturer.

OPERATING AND MAINTENANCE

INSTRUCTIONS

FOR THE

BUILDING MAINTENANCE SYSTEM

SITUATED AT

**COUNSEL'S CHAMBERS LIMITED
174-180 PHILLIPS STREET SYDNEY**

REVISED APRIL 2007

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1. INTRODUCTION.

This manual describes the operation of the Building Maintenance Units (Aust) Pty Ltd's Building Maintenance System, Project No. 8081 designed for and installed on COUNSEL'S CHAMBERS LIMITED 174-180 PHILLIPS STREET, SYDNEY.

NOTES :

1. Throughout this manual RIGHT and LEFT refer to the viewpoint of the operator.
2. All push buttons with the exception of emergency stop buttons must be held in under constant pressure, to operate the unit. The operation will stop when the push button is released. Emergency stop push buttons will stay in when pressed. They are reset by twisting the mushroom head button.
3. Throughout this manual:
 - a) Cradle refers to the enclosed platform from which the cleaning and maintenance is carried out.
 - b) Gantry frame refers to the traversable support frame for the cradle. Stored and operated on the roof area.
 - c) The monorail refers to the cantilevered 'I' beam section on the Southeast corner below the water storage tank.

1.1 RESPONSIBILITIES OF BUILDING SUPERVISOR

1. Shall be familiar with Emergency Procedure.
2. Instruct authorised persons in the safe use of the unit.
3. Ensure that the cradle is driven only by persons authorised by him.
4. Maintain a register of the names and signatures of persons so authorised.
5. Maintain the keys controlling the main switch in a safe place and ensure that operators sign for the key prior to each use.
6. Two sets of keys are provided:
 - (a) Building Supervisor's Set- to be kept only in his possession - Key No. G516 - key switch.
 - (b) Operator's Set - Key No. G516

Supervisor shall ensure that only the "Operator's Set" is distributed.
7. Ensure unit is parked after each days use in its proper parking position and winch storm covers fitted.
8. Ensure no BMU shall be used in weather conditions liable to cause instability or excessive movement, or in any circumstances in which users and non-users might be injured.

Maximum wind speed not to exceed 32kph.
9. The supervisor must ensure where the BMU is used over a public place or thoroughfare a guard rail, fence or other means is provided to prevent any person from passing under the platform.

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1.1 RESPONSIBILITIES OF BUILDING SUPERVISOR Cont:

10. The BMU shall be serviced and maintained in accordance with the recommendations of the supplier and the manufacturer of any of the component parts.
11. Any person who holds himself out to be competent to service the BMU shall ensure that it is serviced in such a way, and ensure that it is safe for proper use.
12. It is recommended that the Building Supervisor has read Australian Standard AS 2550-13 CRANES - SAFE USE/BUILDING MAINTENANCE UNITS.

1.2 PERSONS AUTHORISED TO DRIVE THE CRADLE

1. Shall not be less than 18 years of age.
2. Shall have sufficient knowledge of the English language to enable them to perform their duties safely.
3. Must not be subject to any infirmity, disability or incapacity which might render them unfit to perform their duties effectively; and
4. Shall observe safe practices at all times whilst driving the cradle.
5. Before driving the unit, must have read and understood the Operators Manual and be instructed in the safe use of the Unit by Building Maintenance Units Australia Pty. Ltd. or the Building Supervisor.
6. Shall be authorised by the Building Supervisor to use the equipment.
7. Shall return the keys to the Building Supervisor after each use.

Operating & Maintenance Instructions For The Building Maintenance Unit

Situated at Counsel's Chambers Limited 174-180 Phillips Street Sydney

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1.2 PERSONS AUTHORISED TO DRIVE THE CRADLE Cont:

8. Shall be experienced operators of Building Maintenance Units.
9. It is recommended that the Building Maintenance Unit operators have read Australian Standard AS2550-13 CRANES SAFE USE/BUILDING MAINTENANCE UNITS.

1.3 AUTHORITIES' REQUIREMENTS.

It is the responsibility of the Proprietor (Owner and Operator) of this equipment to comply with the requirements of all local regulations applying to the operation and maintenance of this installation.

ACCIDENT INVOLVING CRANES.

If an accident occurs involving any crane or the operation of any crane which -

- a) causes loss of life to any person; or
- b) causes bodily injury to any person and is of such a nature as to prevent him or her from returning to work within 24 hours after the accident or as to prevent him or her from attending at work at any time within fourteen days after the accident; or
- c) involves damage to any part of the crane or gear so as to prevent the safe operation of the crane - the Proprietor must immediately send to the Chief Inspector written notice of the accident giving all relevant particulars.

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INTERFERENCE AFTER AN ACCIDENT.

A person must not interfere with any crane, or object affected by the crane, which is involved in an accident to which regulation 12 applies without the permission of an Inspector other than for the purposes of -

- a) aiding a person involved in the accident; or
- b) taking essential action to make the accident scene safe.

KEYS.

The building supervisor must ensure that all keys remain in the possession of a responsible person in the building with authority for their release.

The building supervisor must ensure the key for an override switch must be kept separate from all keys.

2. SYSTEM DESCRIPTION

2.1 BUILDING MAINTENANCE UNITS (GANTRY)

Building Maintenance Units Aust Pty. Ltd. have supplied and installed two (2) type 'B' units on the East and West roofs, two twin track systems, turntable (West roof), twin track support steelwork, monorail system and a 3 metre long 300kg SWL centre pivoting cradle.

The gantries are made from mild steel sections with a galvanised finish. The units are supported on four wheelbox assemblies that consist of polyurethane tyred cast-iron wheels. Two are electrically driven to provide travel for the unit and all four have anti up-lift lugs and track guide rollers to keep the unit on the twin tracks.

West Unit

This unit consists of a hydraulically operated extendable/retractable and luffing 7 to 10 metre jib, slewing top frame and slewing cradle cross beam.

All these motions allow the cradle to be positioned along the external and central void facades. (See Drawing No. 8081-55-A for extent of positioning)

East Unit

This unit consists of a fixed length, non-luffing 9 metre jib, slewing top frame and slewing cradle cross beam.

All of these motions allow the cradle to be positioned along the external and central void facades. (See Drawing No. 8081-55-A for extent of positioning)

2.2 MONORAIL SYSTEM (EAST ROOF-SOUTH EAST CORNER)

This is a cantilevered mild steel, hot dip galvanised 'I' beam section with two hand chain trolley units that support the cradle and one centre support trolley unit for negotiating the 90° monorail corners. (See Drawing No. 8081-55-A for extent of positioning.

2.3 MAINTENANCE CRADLE (3 METRES LONG 300KG SWL)

This is a purpose built centre pivoting type cradle for negotiating the external and internal 90 degree bends in the monorail system.

It can also be locked straight for use on either gantry unit. (see point 4 "Opening Instructions" for full instructions).

The cradle is fabricated from galvanised mild steel and aluminium sections, and is fitted with five swivel castors for maneuvering on the roof to the rigging points.

The cradle has two 'Power Climber-Titan 503CE model winches with internal safety rope fall arrestors which connect the cradle to the gantry cross beam assembly via 4 off 8.4mm dia. galvanised wire ropes.

It is recommended operators must wear approved safety harnesses when working in the cradle.

It is recommended that the operators must always barricade area below cradle where required so that no persons could be injured by falling objects or walk into cradle itself if landed on ground.

The maximum safe working load in the cradle is 300kg.

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2.4 TWIN TRACKS

The twin tracks and the supporting structural steelwork are solely there to distribute the gantry loads onto the building columns.

A stop bracket has been installed on the end of each track section (drive box side) to prevent the unit traversing off the tracks. The operators must ensure that they do not continuously run into them because the gantry does not need to travel the full length for its operating position.

3. POWER AND COMMUNICATION.

- a) The power outlets for the gantries are located on the parapet walls at the central void area.

Pull the lead from cable reel and attach the restraint hook onto the eye bolt on wall adjacent to outlet first.

Connect plug to socket, screw in collar and switch "ON". (Ensure plug is pushed in fully).

Power for the operation of the cradle is via a permanently attached flexible cable, which is stored in the basket at the rear of the cradle and feeds out freely in the "Descend Mode" and may need to be guided by hand back into the basket in the "Ascent Mode".

- b) It is recommended that operators must carry a mobile phone when operating the cradle.
- c) There is an intercom type phone system, which can be used for the communication between the operators in the cradle and a person at the roof gantry if

required.

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3.1 INTERCONNECTION.

WIRE ROPES: 4 off
Dia: 8.4mm galvanised
Length: 60 metres
Construction: 5 x 26 WS, HOPP core
Breaking load min. - 50.52KN

POWER CABLE FROM 1 off 12 core x 1.5mm²
GANTRY TO CRADLE Length: 60 metres
SPEC:

POWER SUPPLY CABLE 1-OFF 5 CORE X 2.5MM²
TO GANTRY: Length: 25 metres
Clipsal 5 pin 20 Amp plug

3.2 CONTROLS ON CONTROL STATIONS OF THE GANTRY UNITS AND CRADLE.

A) WESTERN GANTRY LOCAL CONTROL STATION PANEL CONSISTS OF:

EMERGENCY STOP	Red Push Button
OFF-LOCAL-REMOTE	Key Switch
"FORWARD" TRAVERSE	Push Button
"REVERSE" TRAVERSE	Push Button
"CW" GANTRY SLEW	Push Button
"CCW" GANTRY SLEW	Push Button
"CW" CRADLE SLEW	Push Button
"CCW" CRADLE SLEW	Push Button
"IN" JIB EXTENSION	Push Button
"OUT" JIB EXTENSION	Push Button
"UP" LUFF JIB	Push Button
"DOWN" LUFF JIB	Push Button
GANTRY TRAVEL FORWARD BYPASS SWITCH	Push Button
GANTRY TRAVEL REVERSE BYPASS SWITCH	Push Button
INTERCOM PHONE (SEPARATE CABINET)	Push Button

3.2 CONTROLS ON CONTROL STATIONS OF THE GANTRY UNITS AND CRADLE (CONTINUED)**B) WESTERN GANTRY REMOTE CONTROL STATION PANEL CONSISTS OF:**

EMERGENCY STOP	Red Push Button
POWER ON LAMP	Green Indicator Lamp
TRAVEL CAUTION LAMP	Orange Indicator Lamp
"FORWARD" TRAVERSE	Push Button
"REVERSE" TRAVERSE	Push Button
"LEFT" GANTRY SLEW	Push Button
"RIGHT" GANTRY SLEW	Push Button
"CW" CRADLE SLEW	Push Button
"CCW" CRADLE SLEW	Push Button
"OUT" JIB EXTENSION	Push Button
"IN" JIB EXTENSION	Push Button
"UP" LUFF JIB	Push Button
"DOWN" LUFF JIB	Push Button

C) EASTERN GANTRY LOCAL CONTROL STATION PANEL CONSISTS OF:

EMERGENCY STOP	Red Push Button
OFF-LOCAL-REMOTE	Key Switch
"FORWARD" TRAVERSE	Push Button
"REVERSE" TRAVERSE	Push Button
"CW" GANTRY SLEW	Push Button
"CCW" GANTRY SLEW	Push Button
"CW" CRADLE SLEW	Push Button
"CCW" CRADLE SLEW	Push Button
INTERCOM PHONE (SEPARATE CABINET)	Push Button

D) EASTERN GANTRY REMOTE CONTROL STATION PANEL CONSISTS OF:

EMERGENCY STOP	Red Push Button
POWER ON LAMP	Green Indicator Lamp
TRAVEL CAUTION LAMP	Orange Indicator Lamp
"FORWARD" TRAVERSE	Push Button
"REVERSE" TRAVERSE	Push Button
"CW" GANTRY SLEW	Push Button
"CCW" GANTRY SLEW	Push Button
"CW" CRADLE SLEW	Push Button
"CCW" CRADLE SLEW	Push Button

3.2 CONTROLS ON CONTROL STATIONS OF THE GANTRY UNITS AND CRADLE (CONTINUED)

E) CRADLE CONTROL STATION PANEL CONSISTS OF:

R.H.SIDE EMERGENCY STOP	Red Push Button
R.H.SIDE HOIST CONTROLS (RAISE-LOWER)	Double Push Button
R.H.SIDE BOTTOM OBSTRUCTION BAR BYPASS BUTTON	Blue Push Button
L.H.SIDE POWER ON LAMP	Green Indicator Lamp
L.H.SIDE WARNING LIGHT	Red Indicator Lamp
L.H.SIDE HOIST SELECTOR SWITCH (Left/Both/Right) Switch	3-Position Rotary

F) LEFT HAND END CRADLE EMERGENCY R.H. WINCH CONTROLS.

1) WINCH REMOTE BRAKE RELEASE}	Finger Pull Control
PULL KNOB }	Lever
2) WINCH REMOTE OVERSPEED }	
MANUAL RELEASE KNOB }	
	} Finger Pull Control
	} Lever
PULL KNOB TO ACTIVATE }	
ENSURE THE KNOB IS FULLY }	
PUSHED IN AFTER USE. }	

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4. OPERATING INSTRUCTIONS.

4.1 SETTING UP GANTRY (WEST) AND CRADLE

- a) The cradle is stored in the garage (west roof, North end) and should be returned after use.
- b) Move the cradle out of the garage and down to the parked position of the gantry.
- c) Attach the restraint hook over eye on the parapet then connect the power cable plug into the power outlet.
- d) Insert the operators key into the gantry electrical control box located on the lower base frame and turn to LOCAL.
- e) Press Base Slew button until crossbeam is above the cradle. The jib must be retracted.
- f) Remove the 5 metre ladder from under the gantry platform and set up on the ladder location hocks at each end of cross beam.
- g) Attach the hoist rope snap hooks to the corresponding positions on the crossbeam. Ensure hoist ropes are not twisted.
- h) Attach the power cable plug (push & twist type) and the restraint clip so there is no load on the plug.
- i) Fit harnesses/lanyards on and turn gantry key switch to REMOTE position and remove key.
- j) Enter cradle and attach lanyard end to restraint point and hoist it to top limit, then press the LUFFING button on the control cabinet below the cross beam until the fully luffed up position is achieved.

Please Note: The cradle must be at Top Limit and the jib in the fully luffed up position to operate all the functions on the gantry.

4.1 SETTING UP GANTRY (WEST) AND CRADLE Cont:

- k) Use the slew, traverse or jib extend to position the cradle at the required location.
- l) Each cradle drop location centre position is designated by a red marker on the façade edge.

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4.3 TURNTABLE OPERATION.

A) See instructions below

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4.4 CRADLE TRANSFER

- A) See instructions below

4.5 SETTING UP EAST GANTRY

- A) Position cross beam adjacent to the cradle.
- B) Maneuver cradle under cross beam.
- C) Set up the ladder on the ladder location lugs on the cross beam.
- D) Attach hoist ropes and power cable plug and snap hook. Remove ladder.
- E) Enter cradle and attach lanyards.
- F) Hoist cradle to top limit.
- G) Slew, traverse the gantry to required position.

4.6 MONORAIL SYSTEM

- A) The monorail set up may only be performed by GDP Group.

4.7 RESTRAINT SYSTEM – (NOT ELECTRICALLY INTERLOCKED)

Restraint eyebolts have been installed on the Phillips Street (West) and the East façade (Macquarie Street side).

These are a series of stainless steel eyebolts that are on Levels 12, 9, 6, 3 and spaced at the building column centres.

The cradle hoist ropes are required to be restrained at these levels as it descends past them.

Procedure:

- A) Descend to eyebolt Level 12.

Operating & Maintenance Instructions For The Building Maintenance Unit

Situated at Counsel's Chambers Limited 174-180 Phillips Street Sydney

- B) Place lanyard (stored in cradle) snap hook ends, place one end around the main hoist rope and the other end over the eyebolt.
- C) Descend past until next level of restraints and connect as above.
- D) **Ensure that you remove the lanyards from the eyebolts and hoist ropes as you ascend otherwise you will damage the winches/cradle or the façade.**

4.8 BREAKDOWNS.

If winch motors stop while in operation, operators should first check:

- i) Emergency Stop Switches in cradle gantry.
- ii) The lamps on the cradle control cabinet. a) If both the Green and Red lamps are on or off contact Building Supervisor.

If switches are in correct position, operators should contact either:

Building Supervisor:.. or
Manufacturer: 9997 1999

In case of emergency, operators can hand wind winches up or down:

UP OPERATIONAL.

- a) Turn Key Switch to "OFF" position.
- b) Remove hand winding lever from below winch control panel (held on by 2 "wing" nuts).

ENSURE WING NUTS ARE NOT DROPPED.
- c) Fit hand lever into end of motor (left side of winch).
- d) Hold off brake release lever (bottom of motor) while stopping hand wind handle from turning.
- e) Turn hand lever in required direction.

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DOWN OPERATIONAL.

Free wheel down by releasing motor brake lever.

In most cases operators should freewheel winches to ground level.

NOTE: Ensure hand-winding lever is stowed before freewheeling.

5. MAINTENANCE SCHEDULE.

We recommend the equipment be serviced every 3 months or prior to start of window cleaning operation.

SERVICE & INSPECTION CHECKS

- 1) Inspect all connecting point bolts for corrosion and tighten as required on gantry, cradle and ramps.
- 2) Inspect cradle hoist and safety ropes for any damage or deterioration.
- 3) Winches - Refer to section 4.2 Winch Maintenance.
- 4) Check operation of safety rope fall arrestor units.
- 5) Check condition of electrical equipment, power cable reel and cables.
- 6) Grease gantry assembly front wheel box assemblies. Lubricate moving parts.
- 7) Check operation of cradle assembly and conduct one drop off the building facade. Report any defects.
- 8) Check operation of gantry slew, traverse, jib luff/extend.

- 9) Check operation of gantry on an inclined ramp.
- 10) Safety harnesses and lanyards require an annual inspection by a competent person.

LUBRICANTS

Gearboxes	Castrol Alpha SP320	or equivalent.
Grease	Castrol Epl 2	or equivalent.
Spray Lubricant	Lanolin Spray	or equivalent.

COMPONENTS LIST.



MECHANICAL ITEMS.

MANUFACTURERS.

SUPPLIERS.

1. Titan 503-CE	Power Climber	Power Climber Belgium Holland
2. Coiling drum drive motor 2-off 3 phase	0.18Kw 3Ph 415v motor and Siti MI50 60:1 Ratio Gearbox	Hargil Dynamics P/L 12 Alban Street LIDCOMBE NSW Phone: 9737 9840
3. Traverse Motor and Gearbox	Model WR110UFC 415V 0.55KW 4.6RPM	Bonfiglioli 48-50 Adderley Street AUBURN NSW2144 Ph. 9748 8955
4. Jib Slew Drive Motor/ Gearbox's	Model F504 H50 415V 0.18KW 0.91RPM	Bonfigliolo 48-50 Adderley Street AUBURN NSW 2144 Ph. 9748 8955
5. Cradle Slew Drive Motor/ Gearbox's	Model WR75UFC 415V 0.18KW 4.4RPM	



**174 Phillip Street, Sydney
Building Maintenance Unit**

Cradle Transfer Procedure

Persons authorised to Conduct the Cradle Transfer:

- Cradle transfer is to only be carried out by inducted and trained operators.
- Operators Shall not be less than 18 years of age.
- Must not be subject to any infirmity, disability or incapacity which might render them unfit to perform their duties effectively.
- Shall observe safe practice always whilst conducting the cradle transfer.
- Shall be authorised by the building owner to use the equipment.
- Shall have completed an induction carried out by a competent person.
- Shall be accompanied by a second operator meeting the above requirements.

Prior to arrival on site:

- Building Management must ensure that every person is authorised and trained to conduct the cradle transfer prior to their commencement on site.
- Do not operate this equipment in adverse weather conditions or wind speeds exceeding 20km/h.
- The cradle transfer always requires a minimum of two operators. One at the control panel, the other observing the machine in use checking operation.

BMU Functions

West BMU: Traverse
Jib Slew
Jib Head Slew
Raise / Lower
Jib Telescope
Jib Luff

East BMU: Traverse
Jib Slew
Jib Head Slew
Raise / Lower

As can be seen, the west BMU has additional functions to be able to transfer the cradle from one side of the building to the other.

Conducting the Cradle Transfer – West side to East Side:

This procedure is for when the cradle is attached to the west BMU and needs to be transferred to the east side.

This process can either be done in “local”.

1. West BMU to be parked on the “transfer” position of the track. Travel the BMU along the main track, use the turn table (see turn table operating instructions) and park the BMU so it is stopped against the mechanical end stops.



2. Full luff up the jib until it automatically stops activates the limit switch. Ensure there is approximately 1 metre of rope between the cradle and cross bar.
3. Slew the jib so it is perpendicular to the internal void and facing the east side rooftop.

4. Full telescope out the jib until it stops automatically and activates the limit switch.
5. Luff down cradle to it is landed on the roof. The second person should be here monitoring before luffing down. Be aware of cradle near void wall when lowering.



6. Staging controls on the west BMU can be switched to remote to allow for extra wire rope to be spooled out if required from the cradle controls. It should be noted that with the west BMU can luff down while the east cannot. This changes the elevation of the snap hook mounting points elevation.
7. Personnel move to the eastern side – bringing the BMU keys with them.
8. Retrieve platform ladder from plantroom.

- 9.** Set up platform ladder so the platform ladder is behind the cradle – not to the side. This is for operator's safety when using the ladder giving distance between the ladder and the void.



- 10.** If required spool out more wire rope via the cradle control panel. Use the BMU keys that was brought over.
- 11.** Disconnect the power cable and snap hooks from cross bar.



- 12.** Remove ladder from area.
- 13.** Manoeuvre the cradle away from the edge of the void.
- 14.** Personnel move back to the west side to remove west BMU bringing the BMU keys with them.
 - Set the west BMU to local function.
 - On the west BMU, full luff up the jib until it stops automatically, and the limit activates.
 - On the west BMU, full retract of the jib until it stops automatically, and the limit activates.
 - On the west BMU, slew the jib so it faces north.
 - On the west BMU fully luff down the jib until it stops automatically, and the limit activates.
 - Power off the west BMU, it is no longer needed.
- 15.** Personnel move back to the east side and with the BMU keys in local, position east BMU so the jib head is above the cradle.
- 16.** Use the platform ladder to connect power cable and snap hooks. Remember to keep the cradle between the ladder and void for added safety.



- 17.** Raise the cradle monitoring slack rope as it is coiled onto the storage drums.
- 18.** Ensure the suspension ropes are not crossed.
- 19.** Perform a full function test.
- 20.** East BMU with cradle now ready to use.

Conducting the Cradle Transfer – East side to West Side:

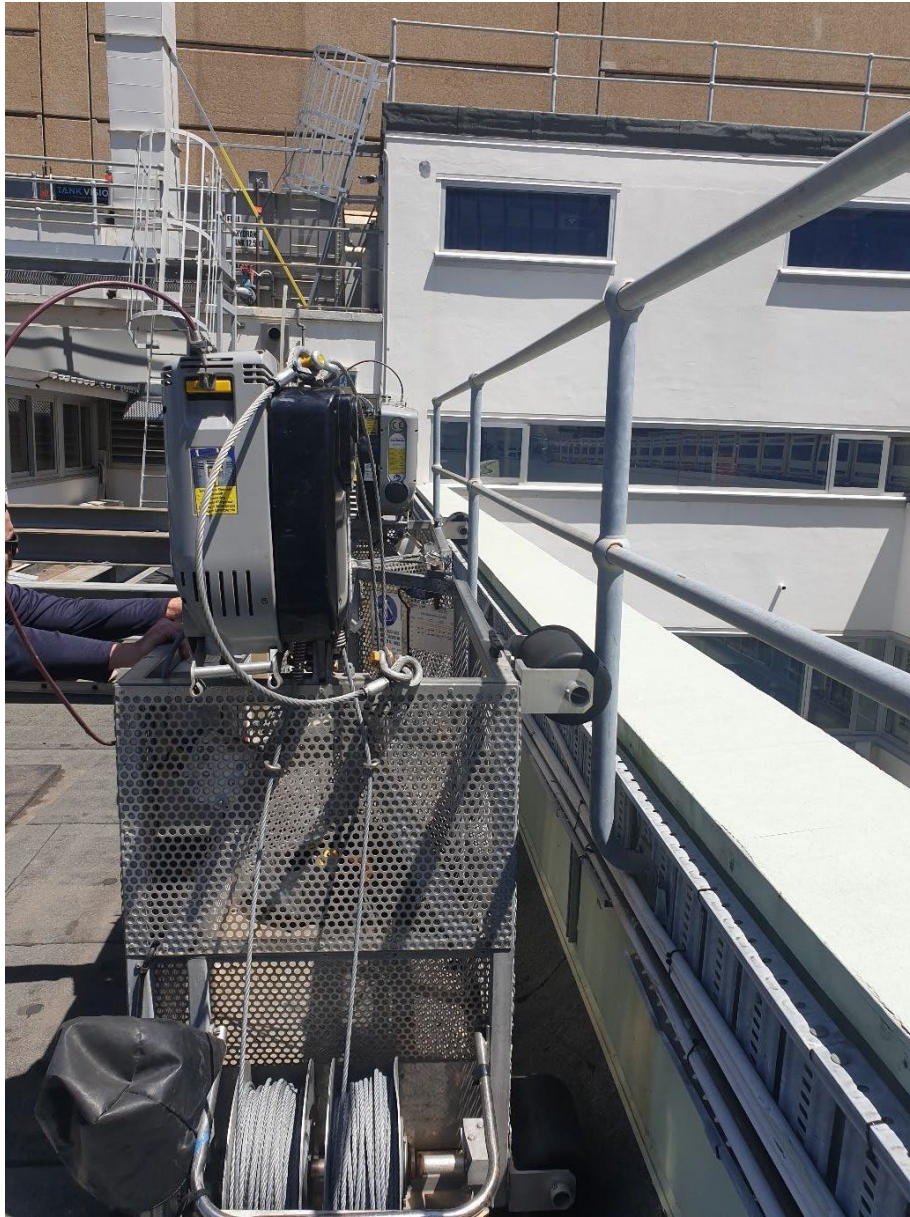
This procedure is for when the cradle is attached to the east BMU and needs to be transferred to the west side.

1. Lower cradle near the southern end of the void.



2. Use platform ladder to disconnect the power cable and snap hooks from the cross bar keeping the cradle in between the ladder and the void.
3. East BMU can now be powered off.

4. Push the cradle to the transfer location – hard up against the railing, hard up against the track near the steps that go over the track are.



5. Bring the west BMU to meet the cradle.
- Power up the west BMU bringing the BMU keys with you from the east side.
 - West BMU to be parked on the “transfer” position of the track.
 - On the west BMU, full luff up the jib until it stops automatically, and the limit activates.
 - On the west BMU, full extend the jib until it stops automatically, and the limit activates.

- On the west BMU, slew the jib so it is perpendicular across the void and directly above the cradle.
- On the west BMU fully luff down the jib until it stops automatically, and the limit activates.



6. The west BMU can now be set to local.
7. Personnel to move to the eastern roof bringing the BMU keys with them.

8. Bring the platform ladder to where the cradle is now located keeping the cradle in between the handrail and ladder.
9. Connect the power cable and snap hooks.



10. From the remote position, raise the cradle monitoring slack rope as it is coiled onto the storage drums. Don't raise the cradle off the rooftop.
11. Ensure the suspension ropes are not crossed.
12. Return the cradle to the western side.
 - Personnel to move the western BMU, bringing the BMU keys with them.
 - Set the west BMU to local function.

- On the west BMU, full luff up the jib until it stops automatically, and the limit activates.
- On the west BMU, full retract of the jib until it stops automatically, and the limit activates.
- On the west BMU, slew the jib so it faces north.
- On the west BMU fully luff down the jib until it stops automatically, and the limit activates.
- Power off the west BMU, it is no longer needed.



13. Transverse BMU from “transfer” position to the turn table.



14. Operate turn table as per operating instructions to position the BMU on the track.

15. Cradle is now transferred.

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Turn Table.

Operating the Turn Table.

Step One

Before operating the turn table ensure that the power plug is plugged into the BMU power outlet, the BMU is centred on the Table and the BMU's power cable is rolled up and stowed correctly.

Step Two

To position the the Table with the next track section turn the key switch on (455 Black Key) and ensure the E-Stop button is pulled out. If there is an issue with either of these or other fault the red EMG light will illuminate.

Step Three

Now you can use the two direction buttons (Green Buttons) to rotate the Table. Note, there is a time delay between button operations, Also the Table should not be made to spin 360 Degrees.

Step Four

Once you have lined up the Table with the track section you wish to move the BMU onto you can un-plug the Turn Table, plug the BMU back in and drive it off and onto the tracks. Note, Turn Table should not be rotated unless the BMU is on it.

